PLANS PRODUCTION FOR PAVEMENT PRESERVATION PROJECTS IN AUTODESK

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Overview

This document contains the workflows necessary for producing a set of plans for pavement preservation projects, including the title sheet, notes sheets, summary sheets, and typical sections. This document also covers how to create and plot a sheet set.

Process Guide

Application/Tool(s):	AutoCAD / Civil 3D
Version(s):	13.6.2123.0 Civil 3D 2024.4.6 Update
Environment:	MDT Civil 3D State Kit r2024 v2.3.1
Released/Revised:	4/20/2026



SUPPORT
Open a Case

Statement of Need

Pavement preservation plans do not require civil objects and thus were not covered in Civil 3D production training. Therefore, separate workflows were necessary to outline the process for creating plans for pavement preservation processes.

Disclaimer: Because the State Kit is continuously being updated and improved, the styles and layers in the documentation may vary from what is in the current version of the State Kit.

References

Title and Notes Sheets in Autodesk

Summary Sheets in Autodesk

Tips for Summary Sheets in Autodesk

203 – Civil 3D Plan Production Training

Surfacing Calculation Spreadsheet

Revisions

4/20/2026	Updates made for ADA Accessibility and incorporating references to other published workflows.

Process Description and Examples

Section I. Title Sheet and Notes Sheet

For Title Sheet and Notes Sheet creation follow the procedure ***Title and Notes Sheets in Autodesk***.

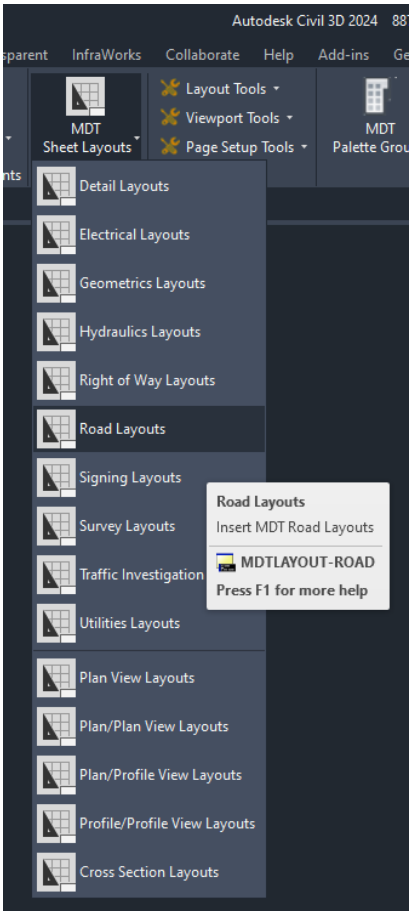
Section II. Typical Sections

Procedure – File Setup

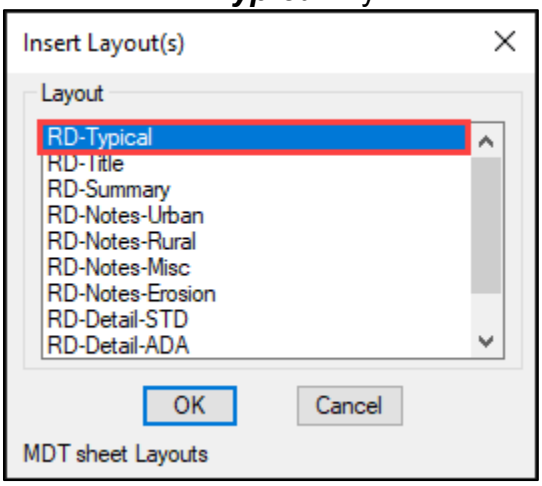
1. Create a new file called ***[UPN#]RDTYP001.dwg*** using the ***design-start.dwt*** template. Set the drawing scale to ***1" = 10'*** and set the working folder and data shortcuts appropriately.

   NOTE: In future versions of the State Kit, a Typical Sections template file will be created with the view frames already built into them. In the meantime, follow the File Setup and Border Setup procedures.

2. Create a new layout using the ***Road Layouts*** within the ***MDT Sheet Layouts tool*** on the ***MDT Tools*** tab of the top ribbon.

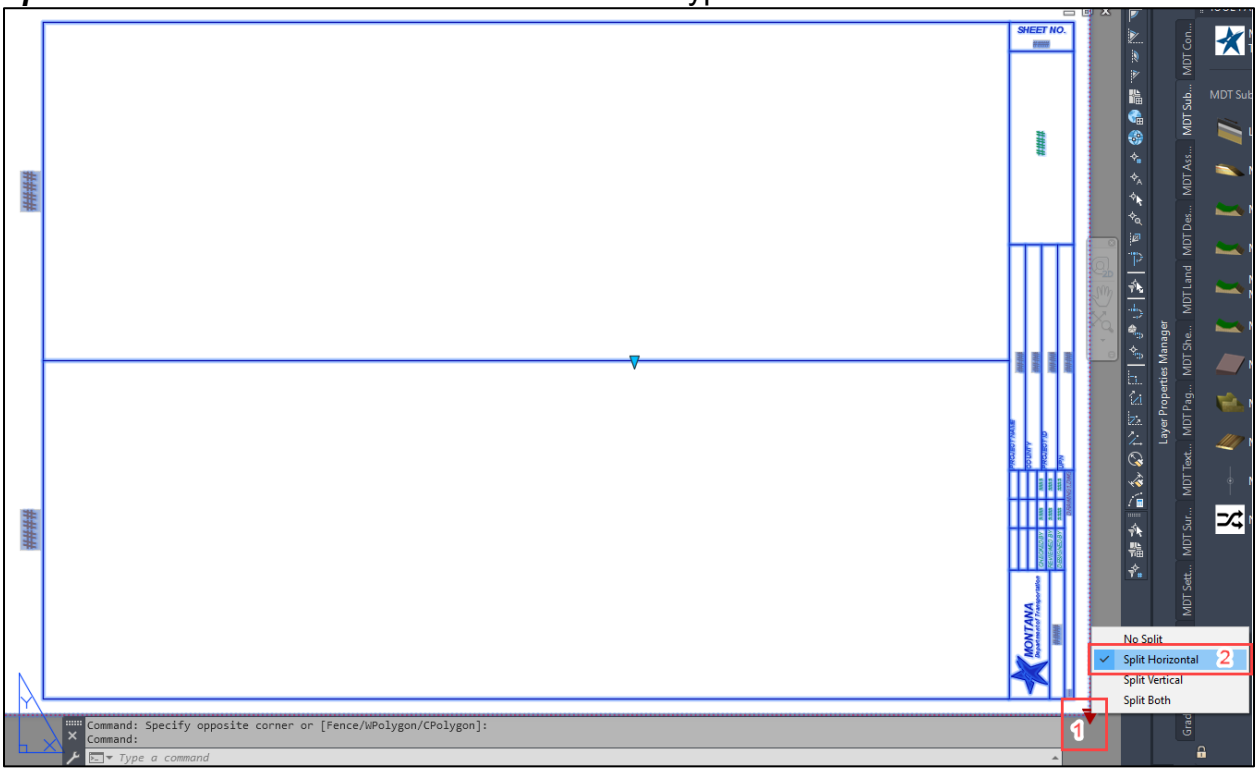


3. Select the ***RD-Typical*** layout.



4. Select the newly added ***RD-Typical*** layout tab.

5. Select the border of the sheet and select the block visibility state dropdown arrow in the lower right corner of the border. Change the designation from ***No Split*** to ***Split Horizontal*** to divide the border in half for typical sections.



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Procedure – Border Setup

1. While in the ***RD-Typical*** layout, type the command ***VPORTS***. Accept the defaults and select ***OK***.

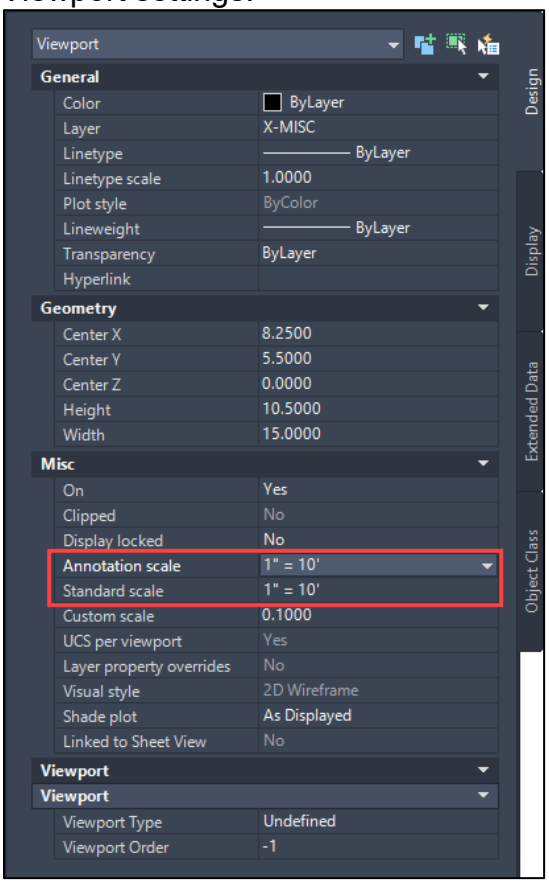
2. You will be prompted to specify the corners of the viewports. Select the top left and bottom right corners of the border sheet.

3. Return to the paper space by double clicking outside the extents of the viewport border. In the paper space, select the viewport border (turn on Selection Cycling [Command: ***SELECTIONCYCLING***, variable ***2***] to aid in selecting) and use the ***Properties*** palette set the both the ***Annotation Scale*** and the ***Standard Scale*** of the viewport to ***1"=10'***.

   Selection Cycling icon on bottom bar:

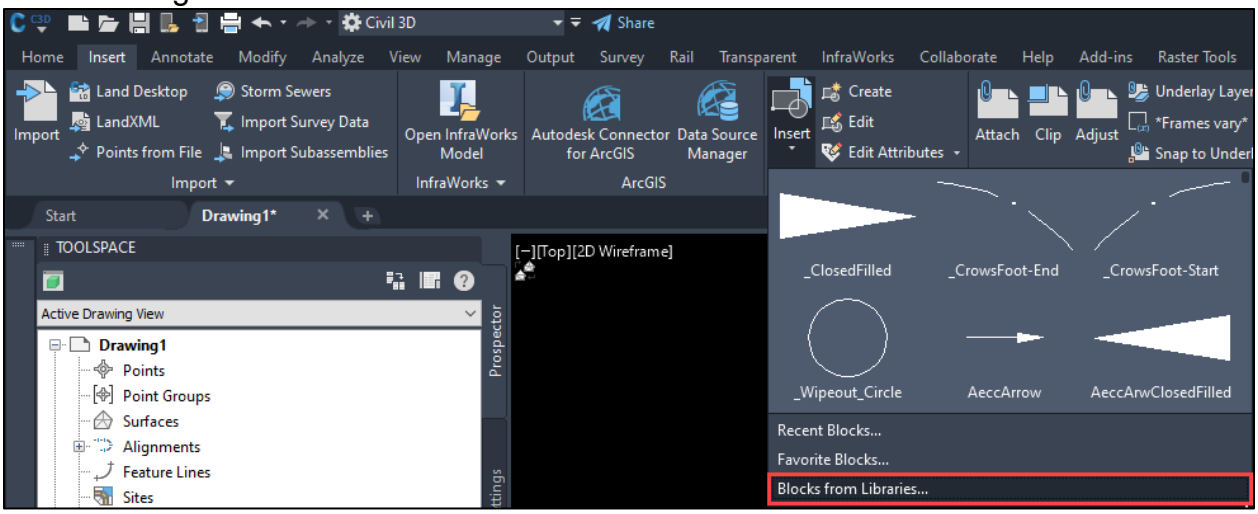
   Viewport settings:

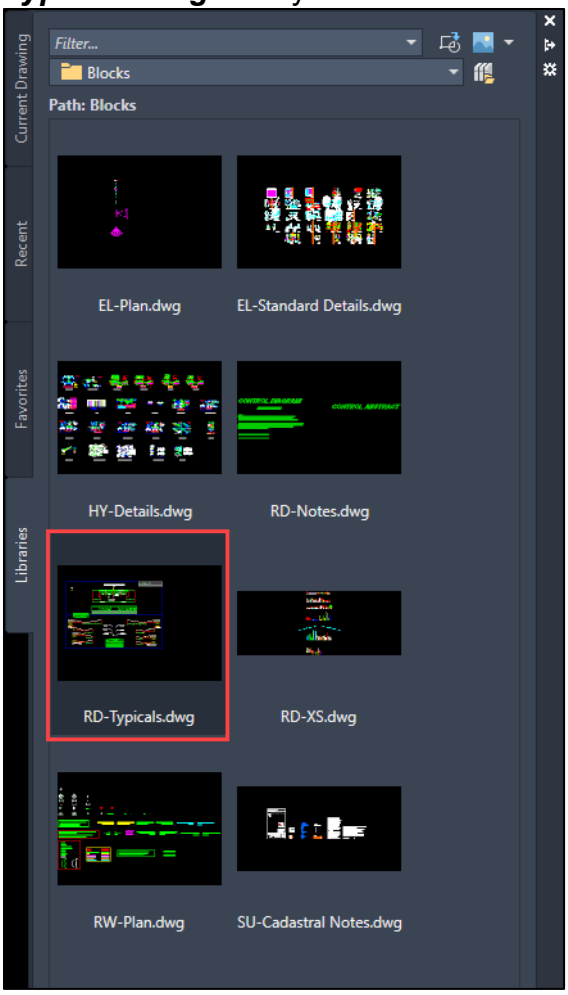
4. In the paper space, draw a rectangle around the viewport either using the ***RECTANG*** command or selecting the rectangle tool from the ***Drawing*** tools in the ***Home*** ribbon tab. Draw a horizontal line (Command: ***L*** for line or ***PL*** for polyline) on top of the ***Split Horizontal*** border line. Ensure your snaps are on so that the line snaps to the midpoint of the vertical line of the rectangle. Then select the rectangle and line and type ***CHSPACE*** to put them into the model space.

5. Return to the model space via the ***Model*** tab and find the border using ***Zoom Extents***.

6. In the model space, open the blocks palette by typing ***BLOCKSPALETTE*** or by going into the ***Insert*** tab and selecting the ***Insert*** dropdown of the ***Block*** section and selecting ***Blocks from Libraries.***



7. In the ***Blocks*** palette, select the ***Libraries*** tab and double click the ***RD-Typicals.dwg*** library.

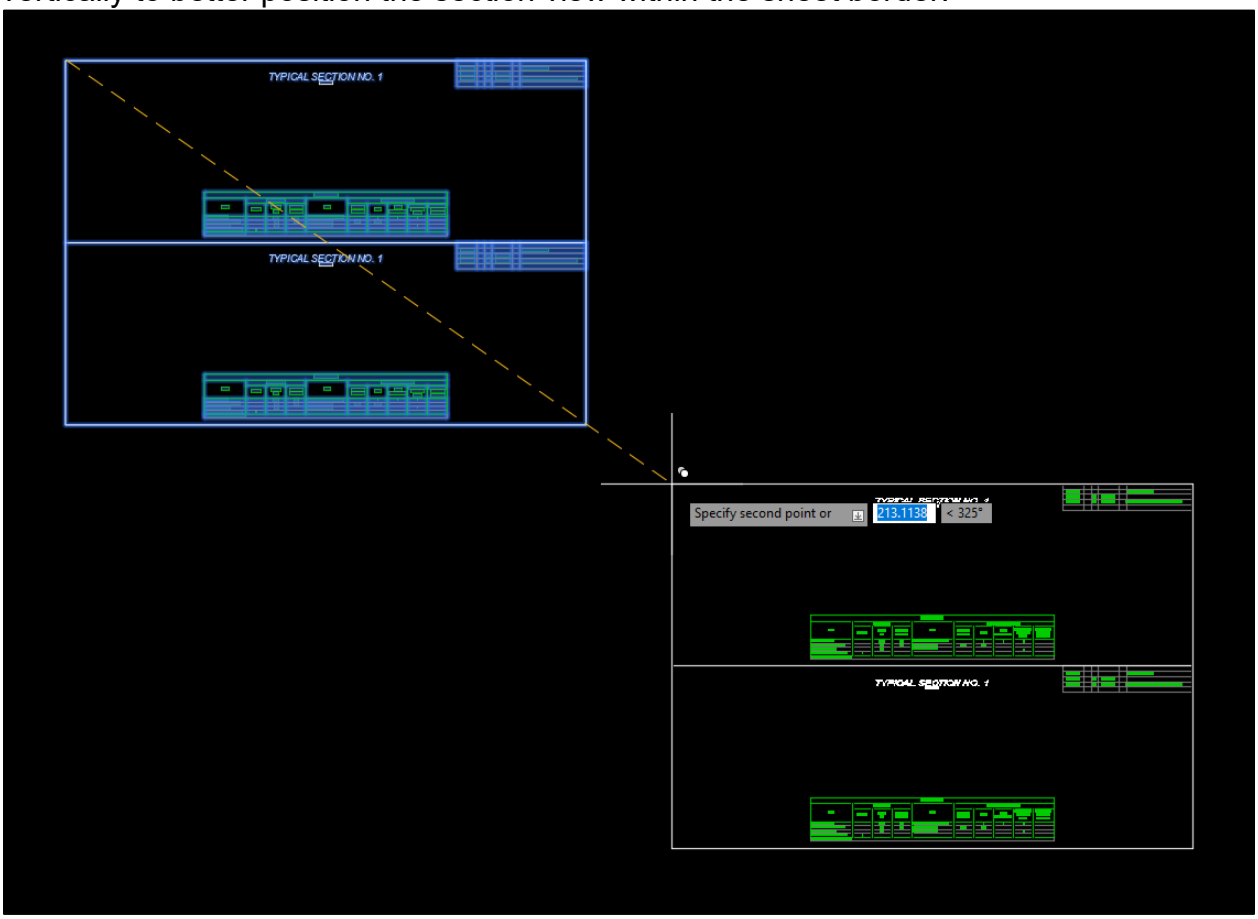


8. Within the library, select the ***T-TablesQtyStaLabel*** block so that it is attached to the cursor and ready to be inserted into the drawing. Using the midpoint snap, select the midpoint of the upper horizontal line of the border as the insertion point.

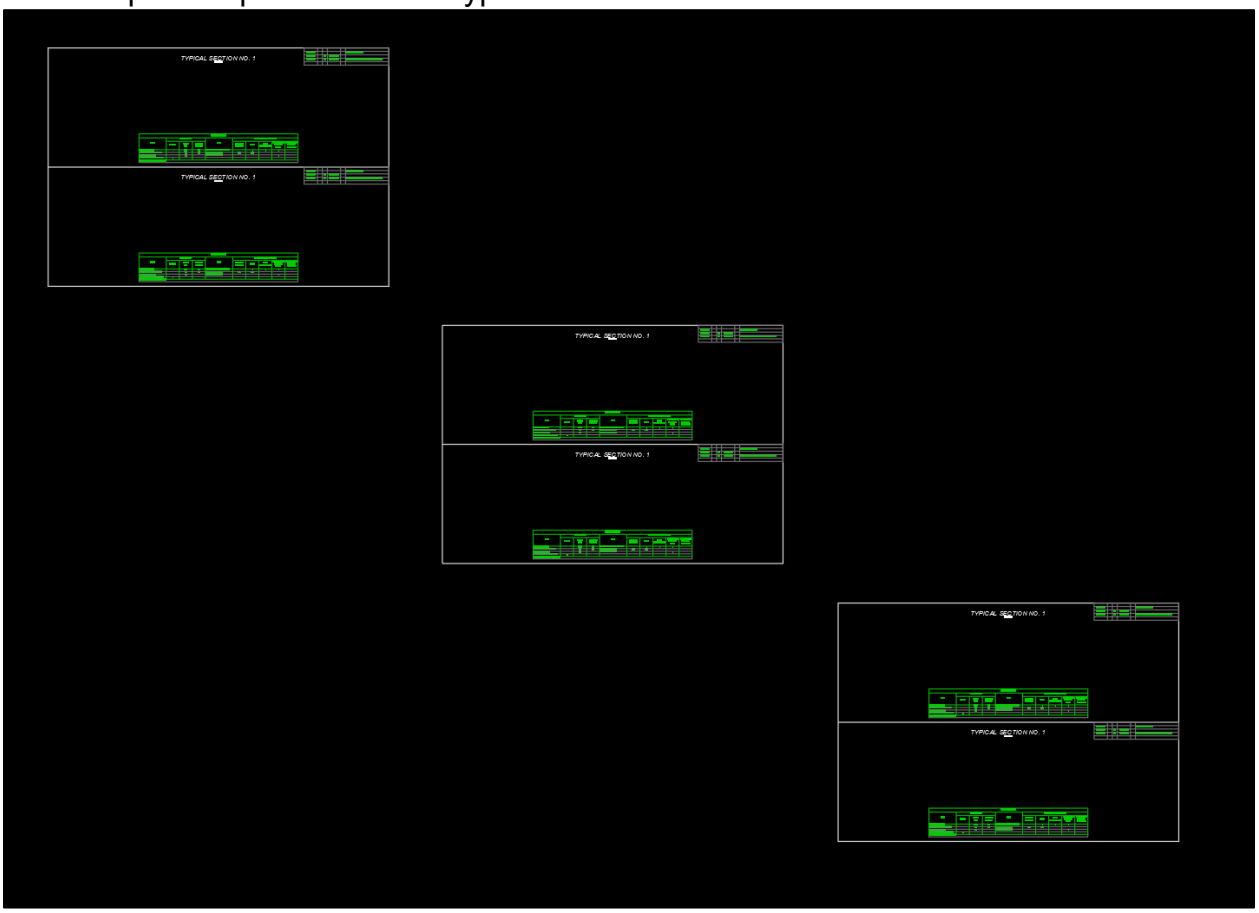
9. Repeat the process above for the second typical section, except snap to the midpoint of the split horizontal line.

10. Select the border lines and blocks and copy the shapes diagonally until you have as many typical borders as you need sheets.

NOTE: Copying diagonally ensures that no more than two section view frames overlap. Overlapping section views can cause issues when adjusting dimensions on the typical sections, which arise when the view frame needs to be adjusted vertically to better position the section view within the sheet border.

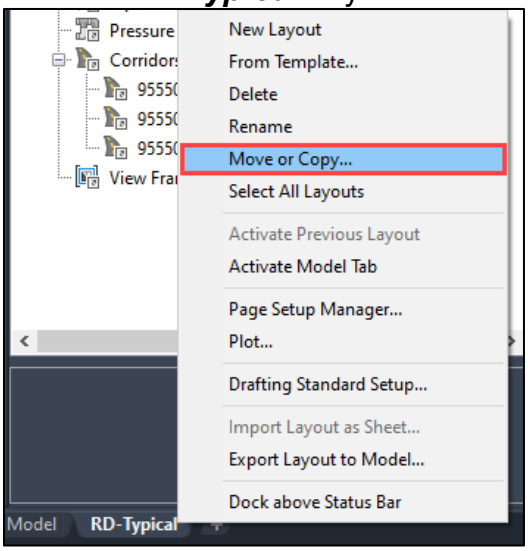


An example setup for five to six typical sections:



11. Delete the default ***MDT-TMP*** layour from the drawing to clear up space by right clicking the layout and selecting ***Delete***.

12. Copy Layouts: Copy the ***RD-Typical*** layout to create more layout sheets. Right click the ***RD-Typical*** Layout and select ***Move or Copy…*** from the list.

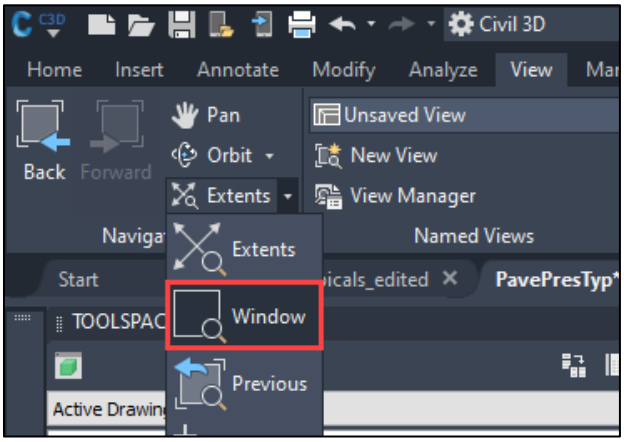


13. In the ***Move or Copy*** dialog, select ***(move to end)***, and check the ***Create a copy*** box. Then select ***OK***.

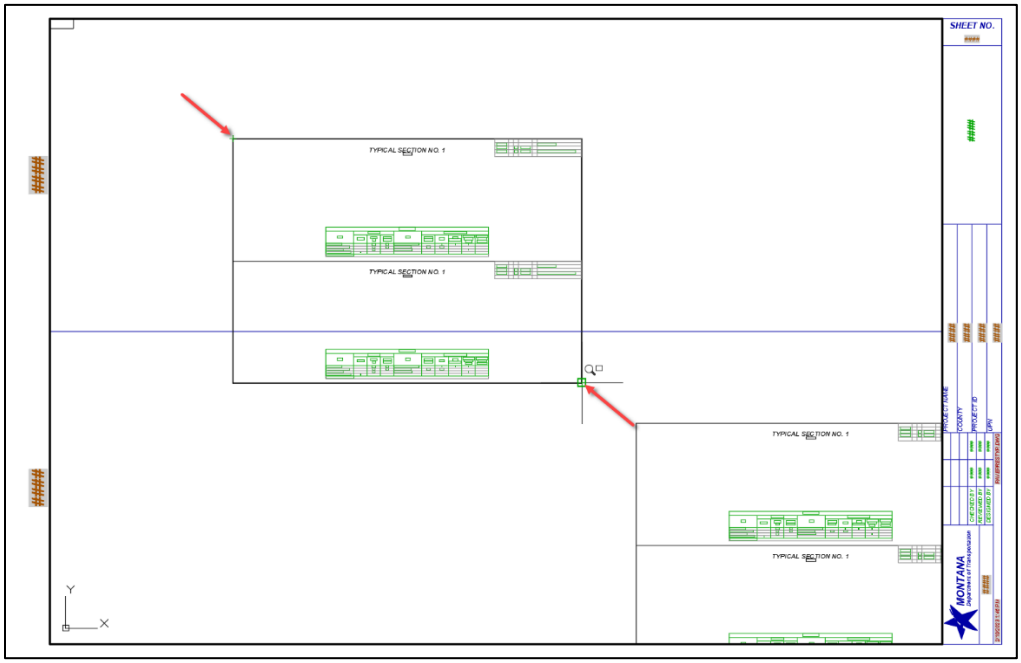
14. In the copied layout ***RD-Typical (2)***, double click within the viewport and type ***OSNAPCOORD*** and change the variable to ***0***.

    NOTE: This step only needs to be completed once; however, if you update the State Kit, you will need to reset the variable.

15. While in the viewport, select the dropdown next to ***Extents*** from within the ***Navigate 2D*** panel in the ***View*** tab and select ***Window***. You can also type the command ***ZOOM*** and type or select ***W*** for window.



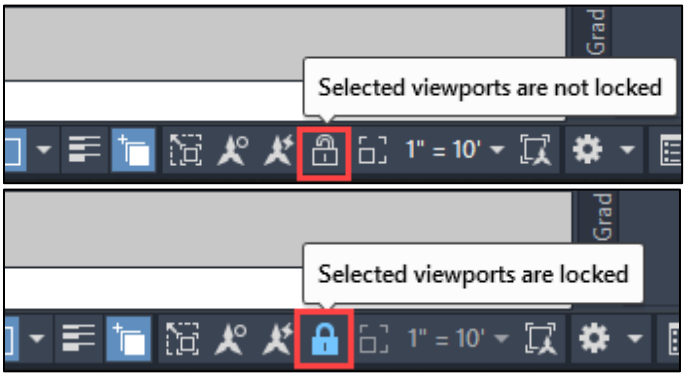
16. With endpoint snaps turned on, select the upper left and lower right corners of the rectangle border.



17. Double click outside of the viewport to return to paper space.

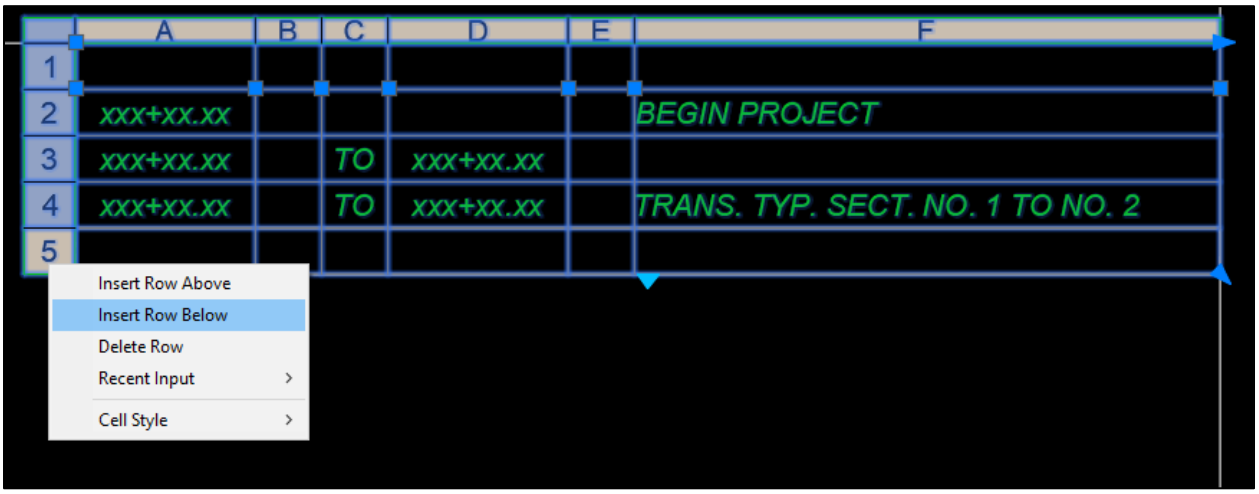
18. Repeat Steps 12 through 16 as necessary.

19. Once complete, ***lock*** the viewports in each layout to avoid any accidental changing of the viewport scale while switching between the model and paper space. Select the viewport then select the viewport lock button in the ***Quick Access*** toolbar on the bottom of the screen.



20. In the model space, select the title blocks and explode them by typing ***X*** then hitting ***Enter***.

21. Double click within the text boxes to edit the text or the tables. If you need to add a new line to the station ranges, select a row of the table, right click, and select ***Insert Row Below*** or select it from the contextual tab for the table in the ribbon.



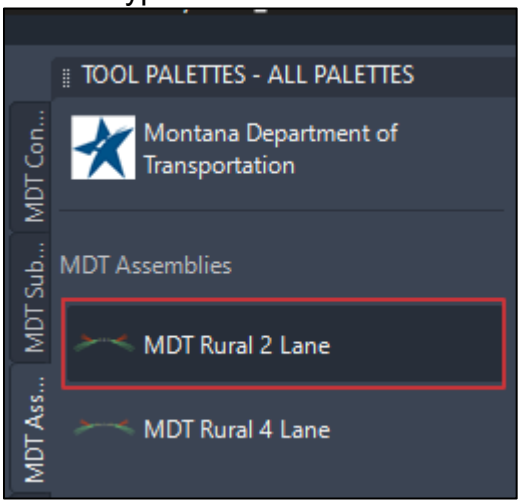
NOTE: A macro for calculating for the typical section surfacing quantities in Civil 3D does not exist, so the quantities must be calculated by hand and manually entered into the tables. The surfacing calculation spreadsheet on MDT's web page is intended to assist designers in calculating the quantities for pavement sections.

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Procedure - Create Typical Sections

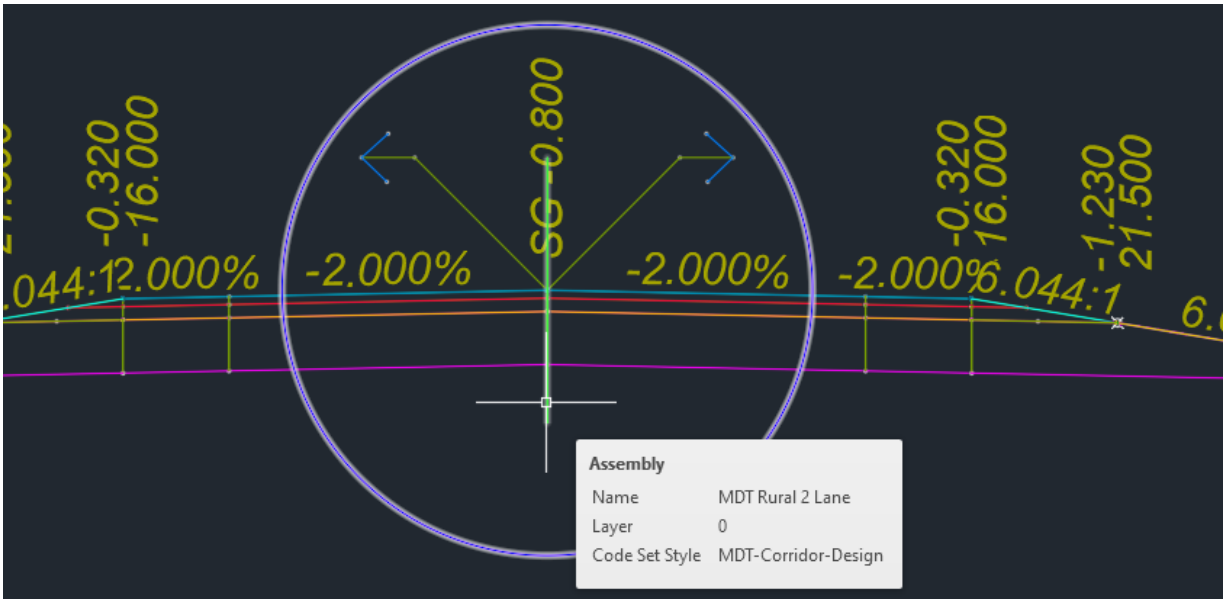
1. Using the ***MDT Assemblies*** located in the State Kit, select the closest appropriate assembly for your needs. In this example, ***MDT Rural 2 Lane*** was used.

   NOTE: Once the basic assembly has been inserted into the drawing, MDT Subassemblies (i.e., curb and gutter) can be added or removed to achieve the desired typical section.



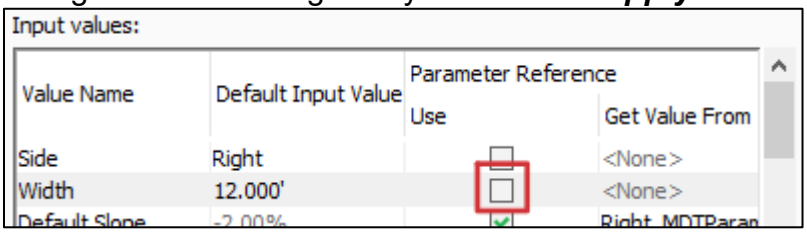
2. When prompted for an insertion point, select a point in the approximate center of the top view area. Once the assembly has been placed, press ***Esc*** to exit the command.

3. Select the center handle of the assembly to open the contextual tab in the ribbon for assemblies. Select ***Assembly Properties***. You can also right click after selecting the handle and select ***Assembly Properties*** from the list.

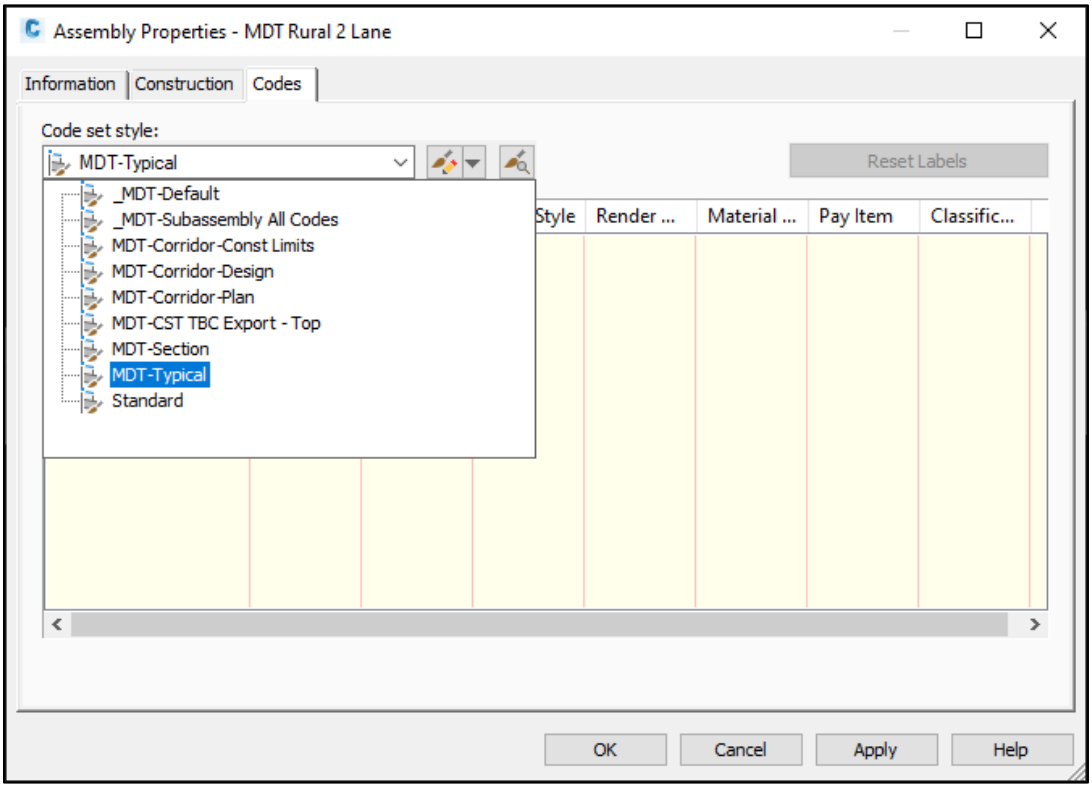


4. In the ***Assembly Properties*** dialog box, select the ***Construction*** tab. Move through the ***Item*** list and use the ***Input values*** section to edit the lane widths and material depths to match the surfacing recommendation for the project. When finished with an item, select ***Apply*** to make the changes.

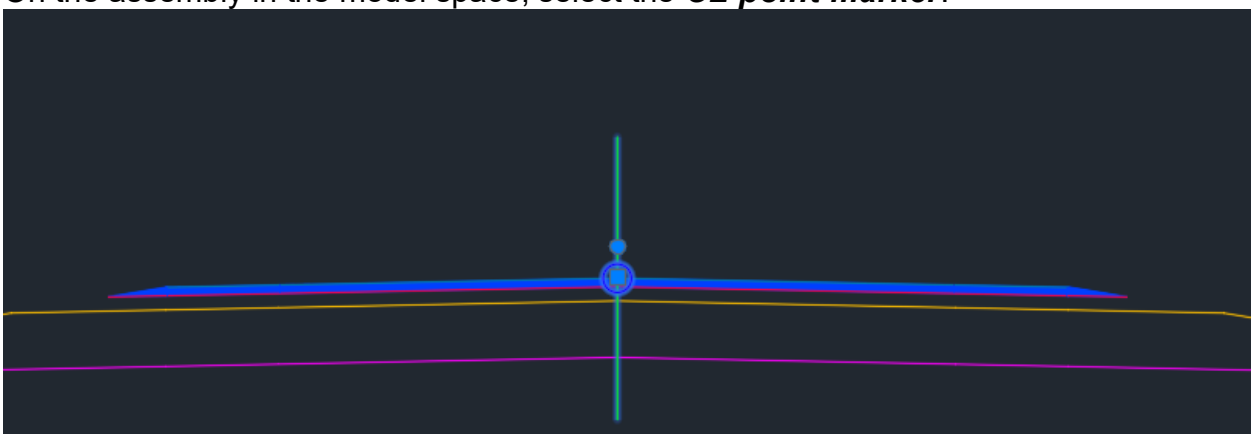
   NOTE: To change a property from the default value, the ***Use Parameter Reference*** box must be unchecked. The value will not change on the ***Input values*** list until the ***Apply*** button is selected and the ***Item*** is changed. The change on the drawing will sync when the ***Apply*** button is selected.



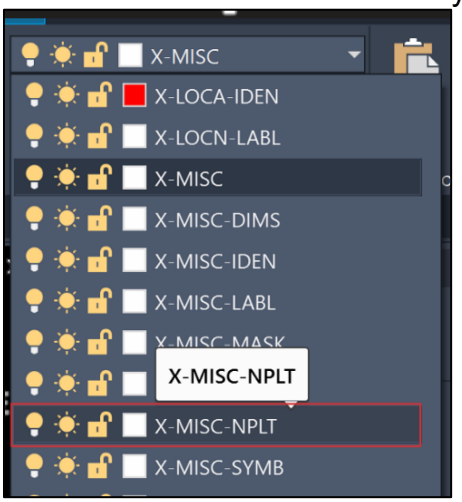
5. Under the ***Codes*** tab of the ***Assembly Properties*** dialog box, select the drop-down menu for ***Code set style***, and select ***MDT-Typical***. Select ***Apply*** and ***OK*** to close the dialog box.


Assembly Properties - MDT Rural 2 Lane
Information
Construction
Codes
Code set style:
MDT-Typical
Reset Labels
_MDT-Default
_MDT-Subassembly All Codes
MDT-Corridor-Const Limits
MDT-Corridor-Design
MDT-Corridor-Plan
MDT-CST TBC Export - Top
MDT-Section
MDT-Typical
Standard
Style
Render ...
Material ...
Pay Item
Classific...
OK
Cancel
Apply
Help

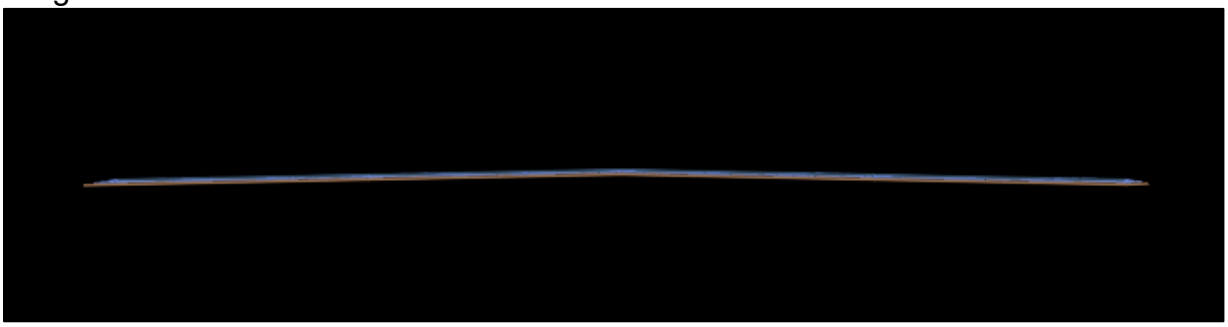
6. On the assembly in the model space, select the ***CL point marker***.



7. While the items are selected, navigate to the ***Home*** tab, and select the drop-down arrow next to the active layer. Change the layer to ***X-MISC-NPLT***.

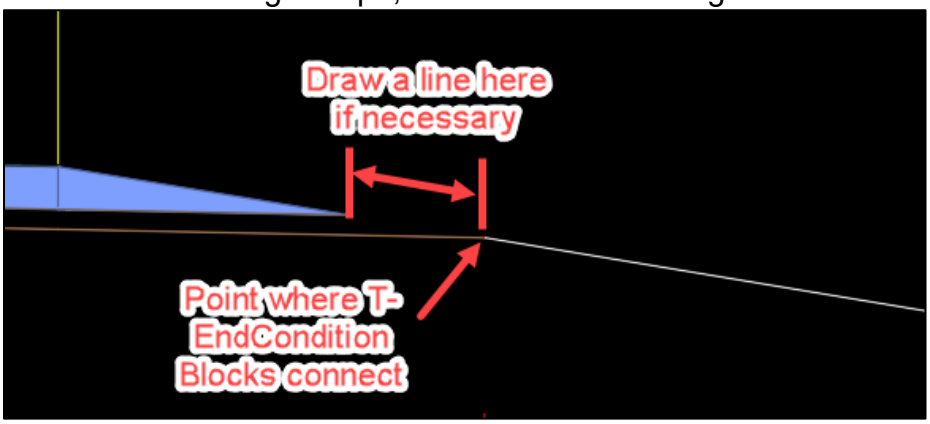


8. Select ***Close*** in the warning box. The handles may still show in the model space but should not show in the paper space. The resulting typical should look like the image below:



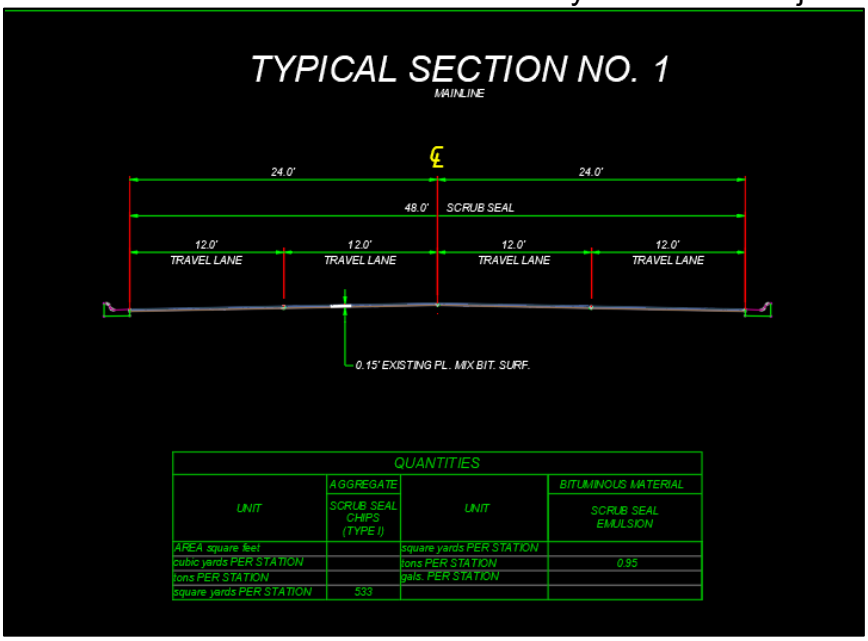
9. Use the ***Blocks Palette*** to insert the ***T-Dimensions*** block and attach it by snapping to the crown of the roadway. Insert the ***T-EndCondition*** blocks as appropriate for the situation.

   NOTE: The ***T-EndCondition*** blocks are set up to connect to the edge of the CAC on the inslope, so a line or polyline may need to be drawn to connect the rest of the surfacing inslope, like shown in the image below:



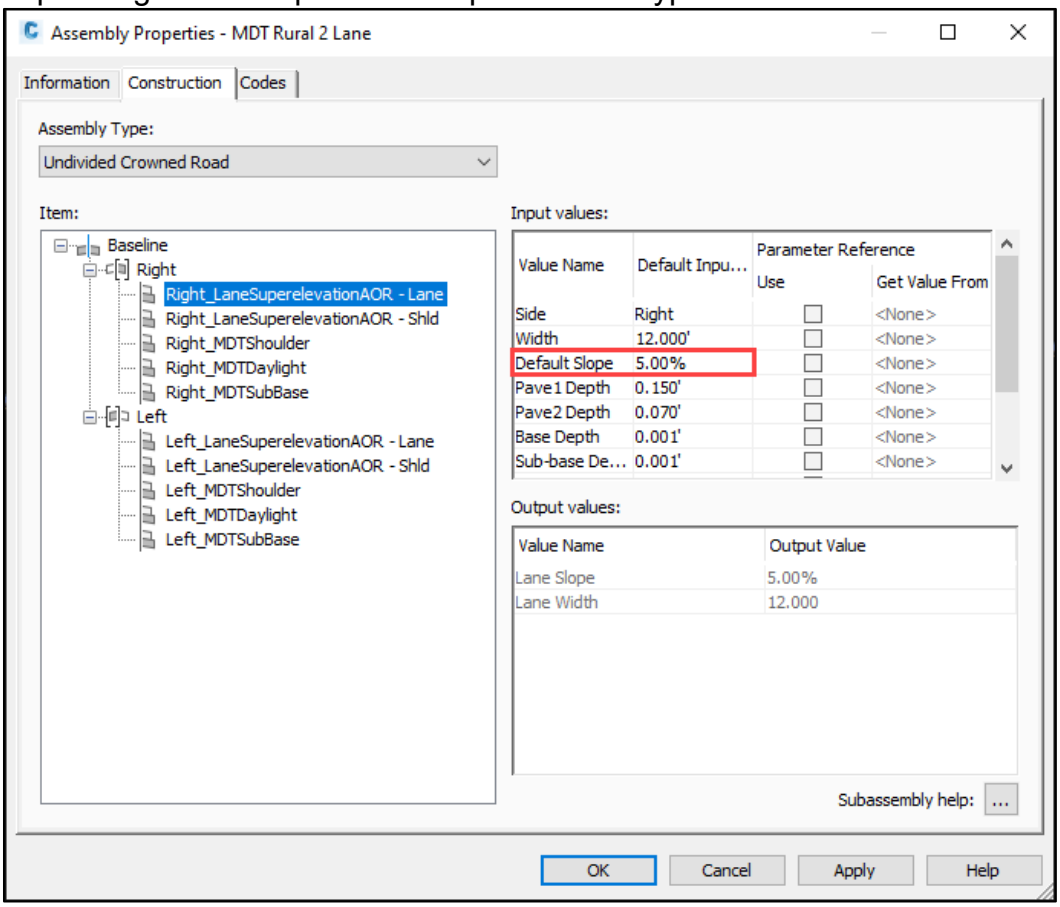
10. Use the ***Explode, Copy***, and ***Move*** tools to label the typical sections to the appropriate standards. Snap dimensions to the top surface of the subassemblies to ensure that the leader lines are all the same distance from the surface. When completed the result should look similar to the image below.

    NOTE: Each item within an exploded block must be individually adjusted and moved. If tables or dimensions are exploded down too many levels, each text and dimension will have to be individually moved and adjusted.



11. For superelevated sections, change the ***Default Slope*** input value of each subassembly to meet the desired superelevation slope.

    For example, a left curve with a maximum superelevation of 5% would need to be changed to -5% on the left side slopes and +5% on the right side slopes. Delete the Quantities block and instead insert the ***T-TableSuperelevation*** block. Snap it to the midpoint of either the horizontal border or the bottom border, depending on which panel the superelevated typical is located.



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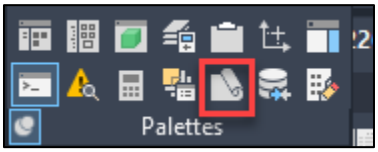
Section III. Summary Frames

For Summary Frame creation follow the procedure ***Summary Sheets in Autodesk***.

Section IV. Sheet Set Manager (SSM)

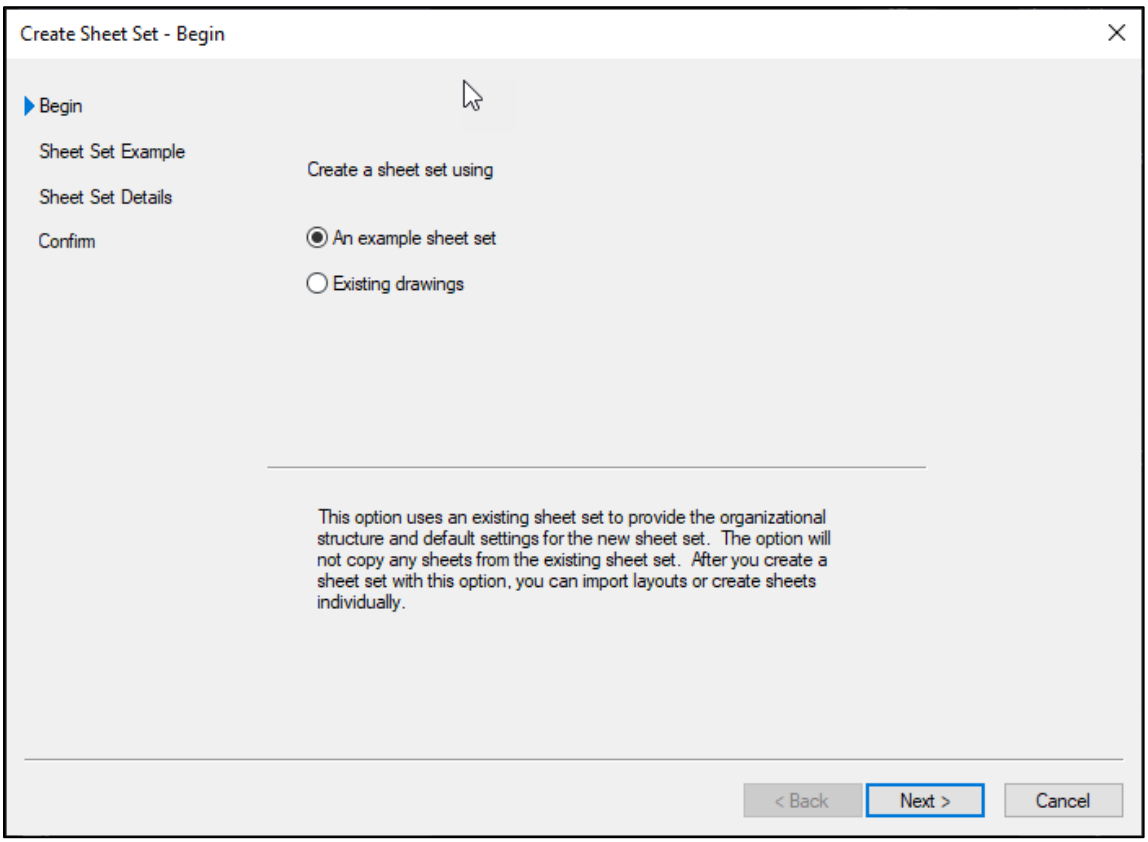
Procedure – Create a Sheet Set

1. In the ***Home*** Tab select the ***Palettes*** drop down menu and open ***Sheet Set Manager*** **or** type the command ***SSM***.



2. In the ***Sheet Set Manager*** select the ***Open…*** drop down menu and select ***New Sheet Set...*** This opens the ***Create Sheet Set*** wizard.

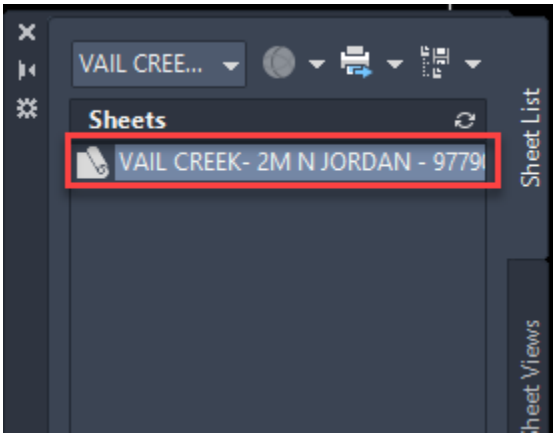
3. In the Begin tab of the wizard, select create a sheet set using ***an example sheet set***. Then select ***Next***.



4. In the ***Sheet Set Example*** tab, select the toggle next to ***Browse to another sheet set to use as an example*** **and select** ***MDT_SSM*** as the sheet set example. If it is not already set, select the ellipsis, and navigate to the following location:
   C:\mdoh\StateKit\Civil 3D\2022\Templates\Sheets\Sheet Sets.

5. In the ***Sheet Set Details*** tab, name the sheet set and add a description if needed. Use the ellipsis to set the location for the sheet set data file and browse to the ***Forma project RD - Road Design folder***.

6. In the ***Confirm*** tab, verify that the settings are correct and click ***Finish*** to create the Sheet Set.

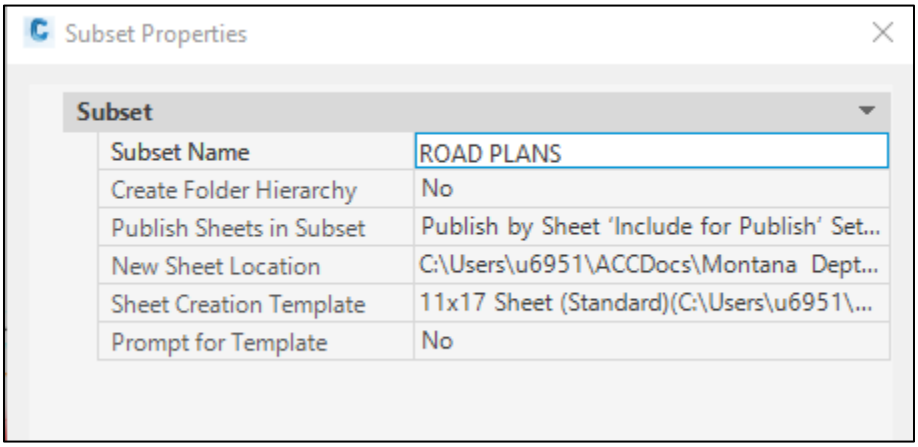


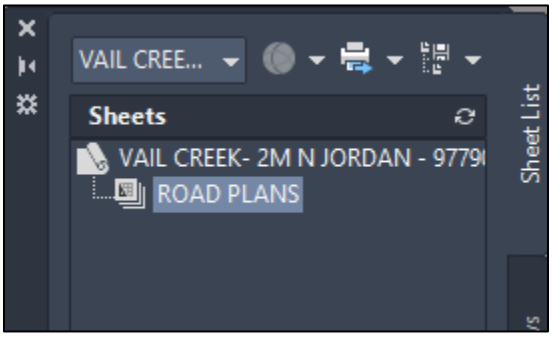
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Procedure – Create a Subset

1. Right click on the Sheet Set in the ***Sheet Set Manager*** and select ***New Subset...***

2. Set the Subset name as ***ROAD PLANS*** and select ***OK*** to create the Subset.

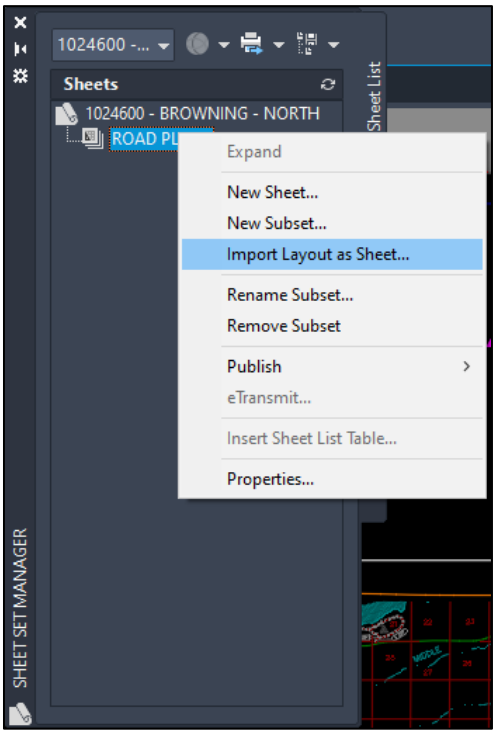




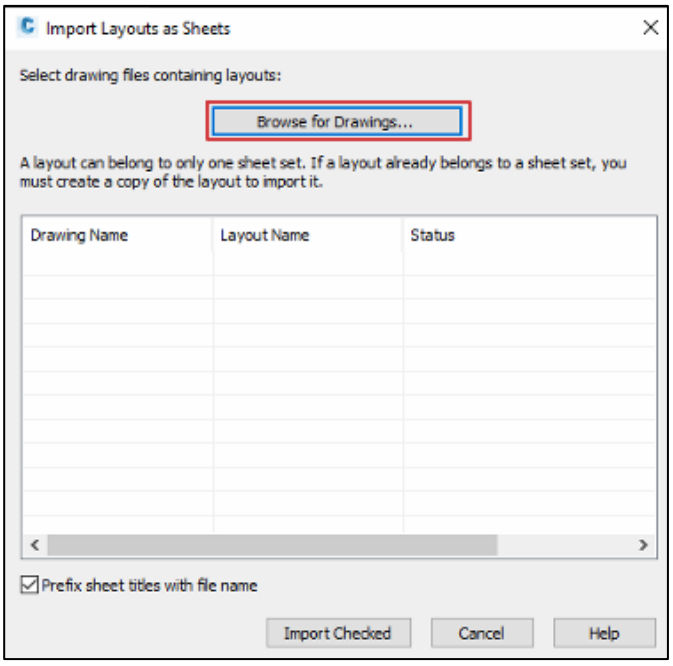
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Procedure – Add Sheets to the SSM

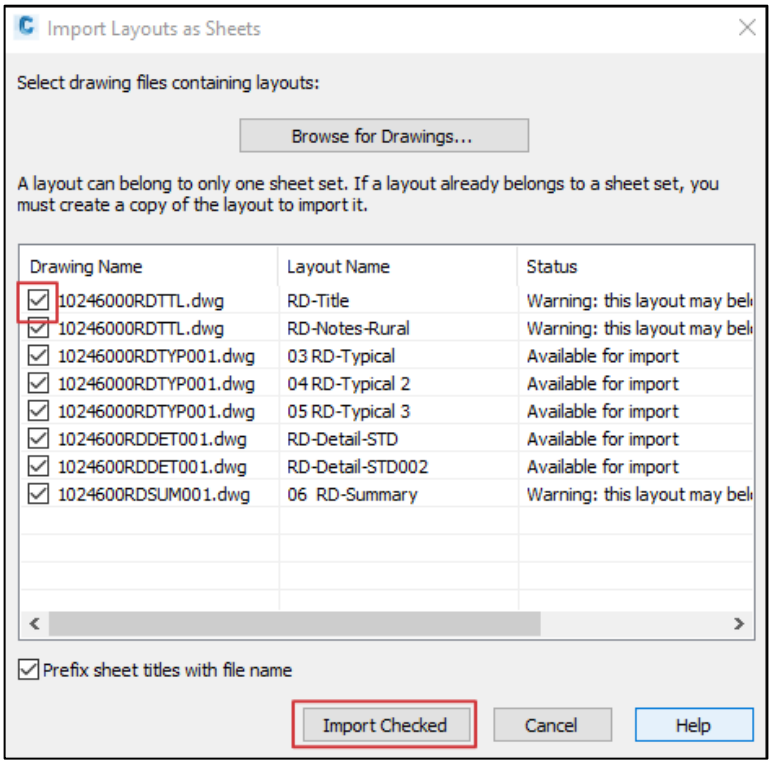
1. Right click on the Subset in the ***Sheet Set Manager*** and select ***Import Layout as Sheet…***



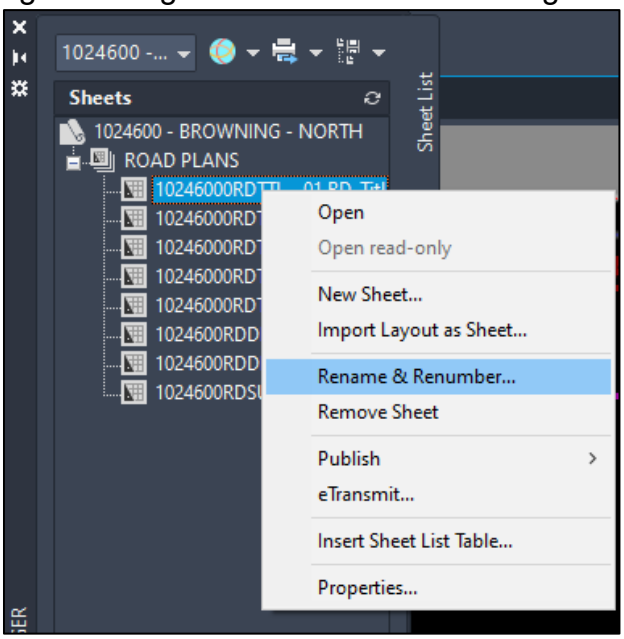
2. In the ***Import Layouts as Sheets*** dialog box, select ***Browse for Drawings…***. Navigate to the location of the project drawings. Using shift or control, select all the drawings containing the desired layouts for plotting and select ***Open***.



3. Use the checkboxes to select the layouts necessary for plans. Then select ***Import Checked***.

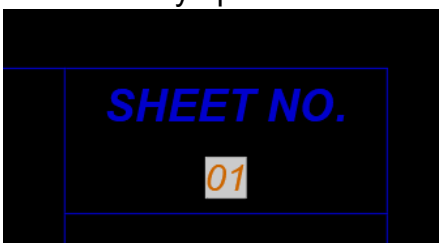


4. Once the layouts are imported, the sheet order and numbers can be changed by right clicking on the sheet and selecting ***Rename & Renumber…***



5. In the ***Rename & Renumber Sheet*** dialog box, rename and renumber the sheets as desired. Toggle through sheets by selecting the ***Next >*** button.

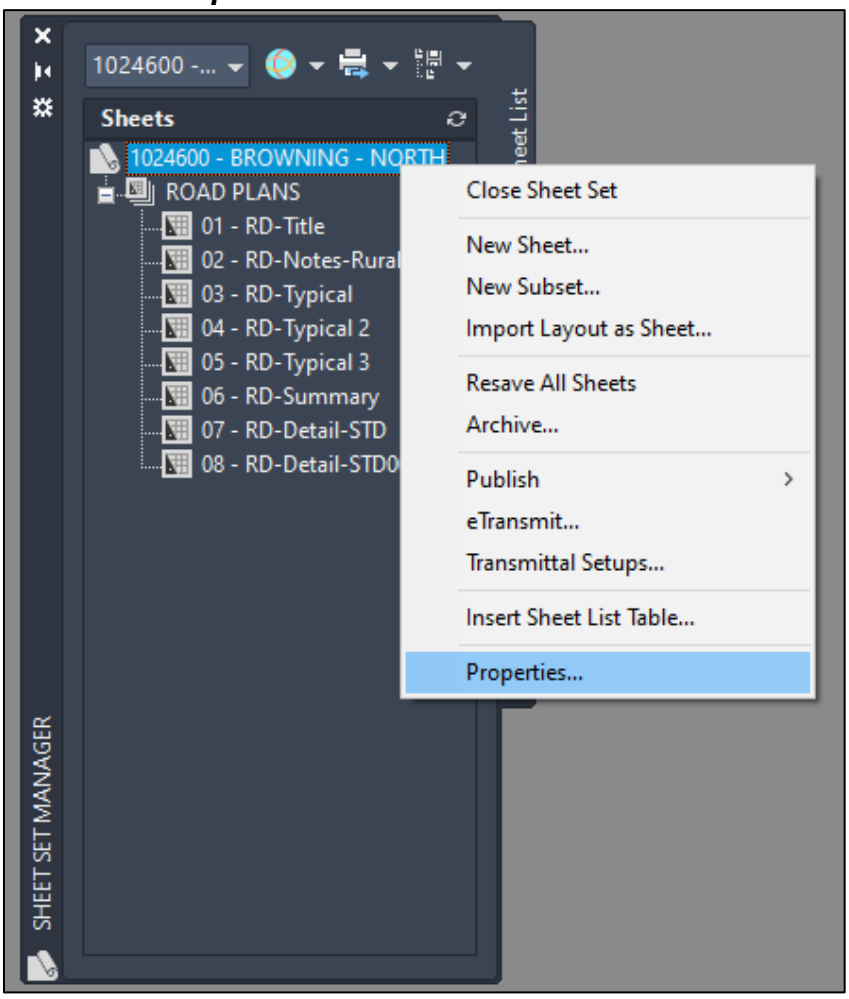
   NOTE: The process of renaming and renumbering the sheet will automatically populate sheet numbers on the layouts as seen below. These numbers will automatically update if a sheet is moved within the sheet set.



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Procedure – Edit Project Information in the SSM

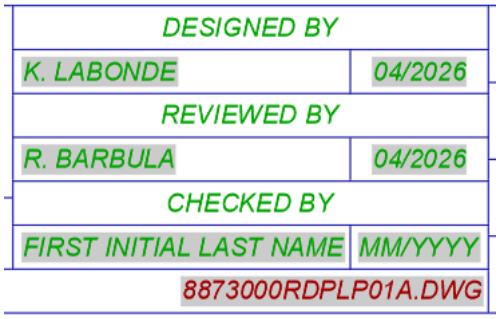
1. To edit project information, right click on the sheet set in the **Sheet Set Manager** and select ***Properties…***.

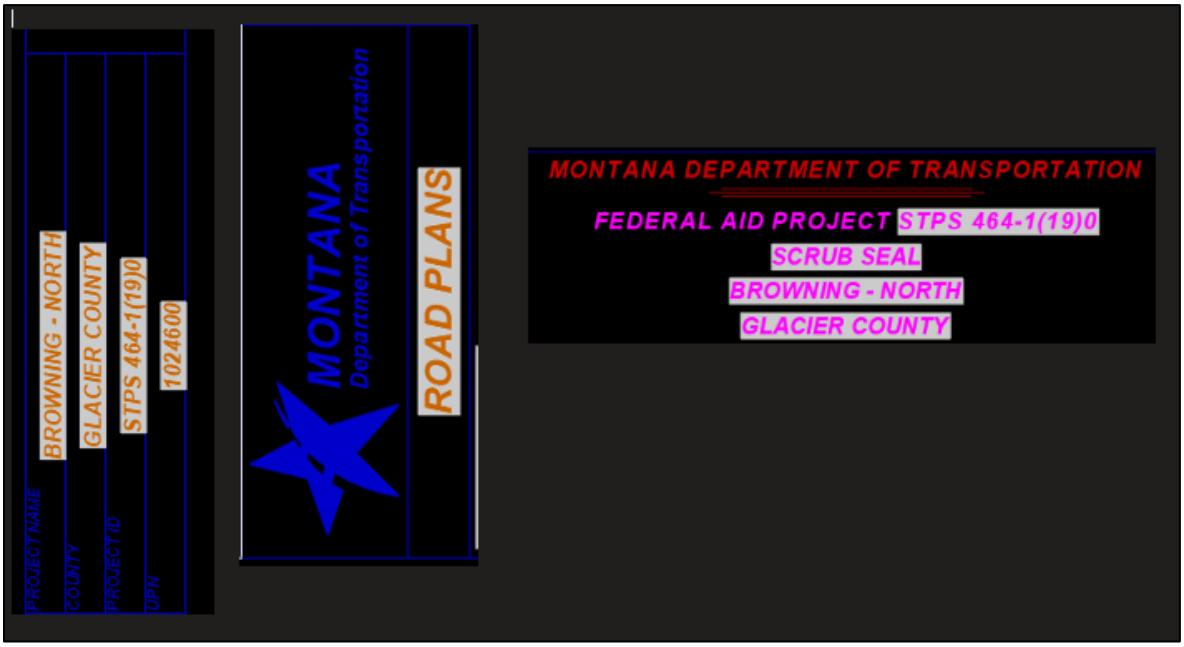


2. Fill in project information by clicking into fields to edit.

3. Once all the appropriate project information has been entered, select ***OK*** to close the dialog box. This will auto-populate information on the blocks of every sheet including the project name, county, project ID, UPN, and work group. It will also update the title on the title sheet.

   The Sheet Set Custom Properties will update the Designed by, Reviewed By, and Checked By fields on every sheet.



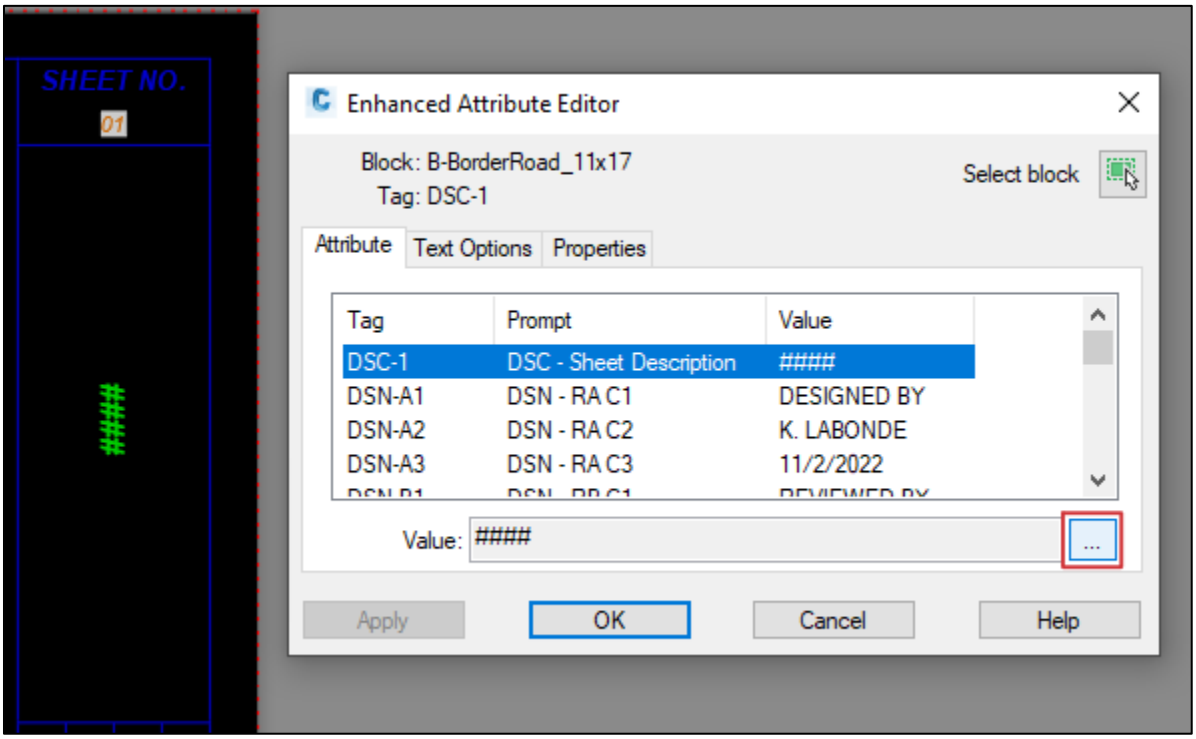


NOTE: It is important that you do not edit or delete the fields underneath the ***Project Control*** or ***Sheet Set Custom Properties*** within the borders, as the fields are tied to the ***Sheet Set Manager***. If the fields no longer have a box around them, the association has been lost and the border block will need to be replaced with the standard border block in the layout to bring the associated fields back.

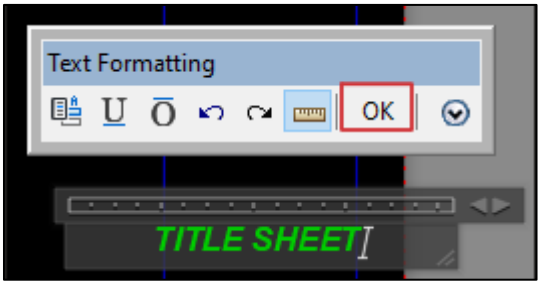
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Procedure – Edit Other Sheet Information

1. To edit the sheet description, double click on the attribute. This will open the same dialog box as before. Because this attribute has multiple text lines, select the button next to the value box to open the ***Multiline Editor***.



2. This will open a Text Formatting box. Make the changes to the sheet description and select ***OK***. Then select ***OK*** in the ***Enhance Attribute Editor*** dialog box.

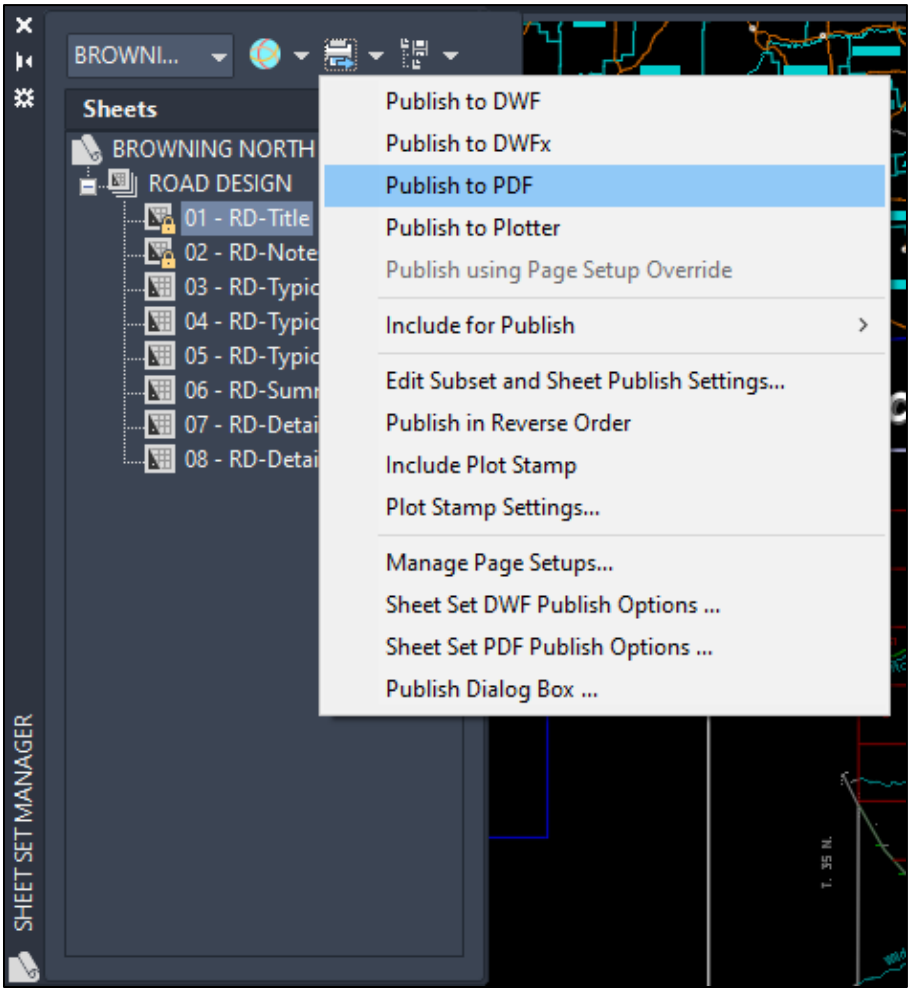


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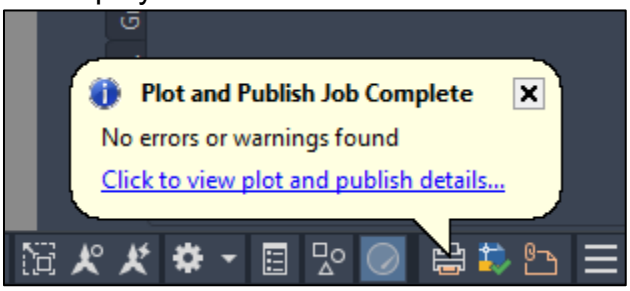
Section V. Plot Sheet Sets

Procedure – Plot a Sheet Set

1. To publish a PDF of a plan sheet or entire subset, right click on the item in the ***Sheet Set Manager*** and select ***Publish to PDF***.



2. Select where the PDF will be saved and select ***Print***. A processing window will appear to display progress. Once the print job is complete, the following message will display on the lower bar of Civil 3D.



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