ENVIRONMENTAL WETLAND AND ORDINARY HIGH WATER MARK DELINEATION

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Overview

The wetland survey locates wetland boundaries and the ordinary high-water mark. This survey data is imported into ArcGIS Pro and exported as shape files. This process steps through uploading the shape files to Forma (formerly ACC/BIM 360) and creating a Civil 3D drawing deliverable with wetland and/or the ordinary high-water mark for display on MDT plans.

Process Guide

Application/Tool(s):	AutoCAD / Civil 3D
Version(s):	Civil 3D 2026.2.1 Update
Environment:	MDT State Kit 2026.1.0
Released/Revised:	8/4/2026



SUPPORT
Open a Case

Statement of Need

The wetlands and/or ordinary high-water mark needs to be displayed on MDT Road and MDT Right-of-Way plans. This process results in a consistent deliverable for consumption by Road Design and Right-of-Way design teams.

Acronyms/Definitions Used in This Document

ACC/BIM 360 – Autodesk Construction Cloud (ACC) was Autodesk's cloud-based platform for construction project/file management, which supersedes the earlier BIM 360 platform that it was built upon.

Autodesk Desktop Connector - an application that creates a "connected drive" on your PC, linking your local Windows File Explorer to Autodesk cloud services like Autodesk Forma.

References

Autodesk Desktop Connector Start Up Guide

Coordinate System Settings

Autodesk Forma User Guide

Autodesk Civil 3D Naming Standards, File Types & Referencing Relationships

Revisions

7/31/2026 Revised title from Environmental Wetland Delineation to Environmental Wetland and Ordinary High Water Mark Delineation

Updated for ADA compliance.

Updated BIM 360, ACC, and Autodesk Docs references to Autodesk Forma

Updated to add steps to turn layers on and save file after hatching wetlands.

Added steps for including all design annotation scales to hatching objects.

Added steps to insert linetype symbol blocks for wetland shapes with short line segments that don't display WL symbols.

Process Description and Examples

Section I. Accessing Project Files in Autodesk Docs

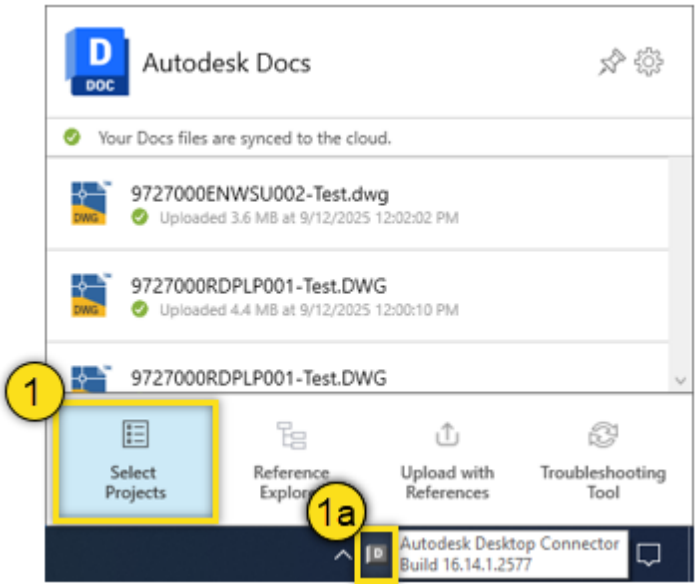
After gaining permissions to the Forma (formerly ACC/BIM 360) project, it must be synced to your local Autodesk Forma folder using Autodesk Desktop Connector. The Autodesk Desktop Connector Start Up Guide provides start up information for first time use.

Procedure – Sync Project to Autodesk Docs Folder

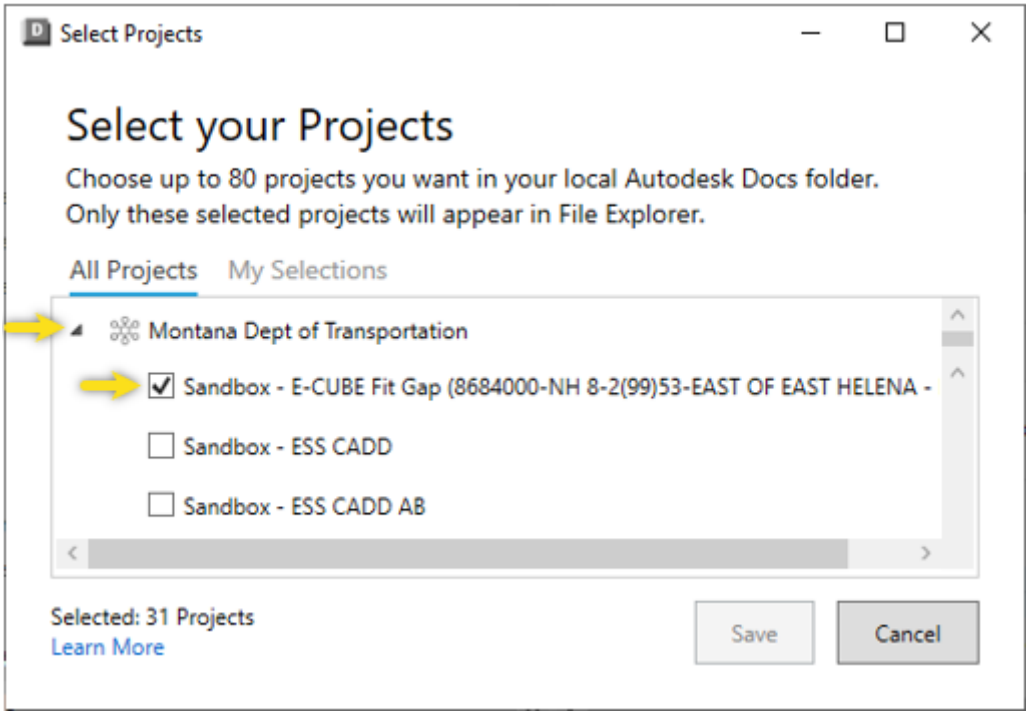
1. Access the Autodesk Desktop Connector:

   a. From the System Tray, select the Autodesk Desktop Connector icon.

   b. From the Autodesk Docs window, select Select Projects.



2. Select projects by expanding the Montana Dept of Transportation group from the Select Projects dialog then selecting the desired project(s).



Procedure – Upload Shape Files to Autodesk Forma

Shape files must be placed in the Autodesk Forma project folder prior to accessing them within Civil 3D.

*Note: Shape files exported from ArcPro **must be exported in the same coordinate system** as the project's DWG files. Examine the coordinate system assigned to the project's survey file ([UPN#]CSMAP001.dwg or [UPN#]DIMAP001.dwg) as shown in the Coordinate System Settings support document via MAPSTATUSBAR command to match it.*

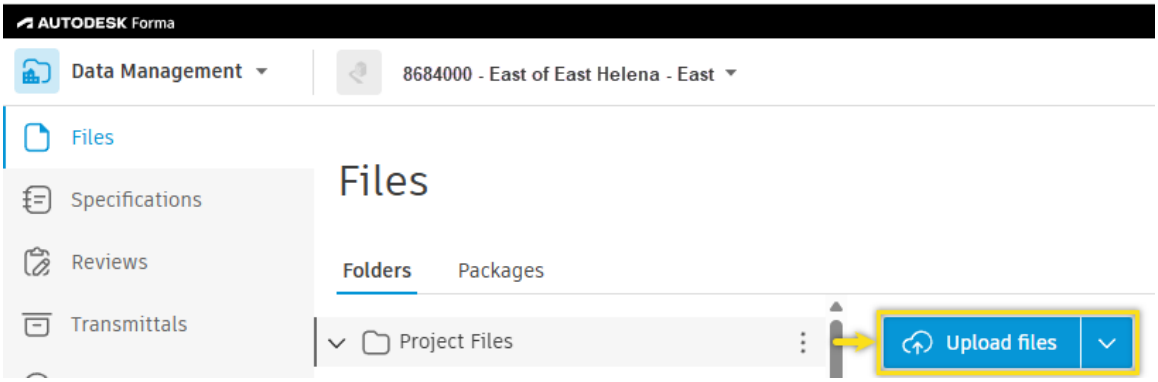
1. Open Windows Explorer and navigate to the location of the exported shape files.

2. Select the shape files (.shp) and associated files (i.e., .cpg, .dbf, .idx, .prj, .sbn, .sbx, .shx) to copy > type CTRL+C to copy or right click and select copy.

3. Navigate to Autodesk Forma > Montana Dept of Transportation > ~Project Name~ > Project Files > EN – Environmental > paste copied shape files (.shp)

   ***Note:** To organize the project file, a sub folder can be created for the shape file within the EN-Environmental folder.*

   An additional method would be to Upload the shape files from the Forma web interface. *See Autodesk Forma User Guide.*



Section II. Importing Shape Files in Civil 3D Drawing

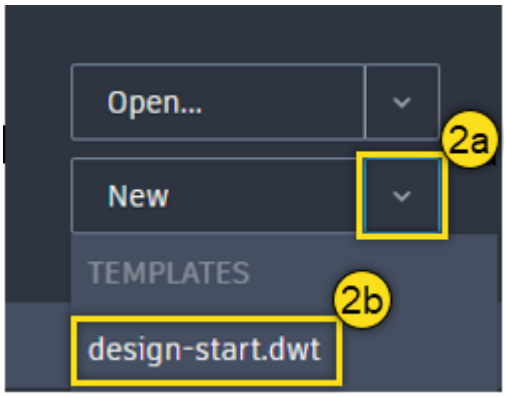
Procedure – Create a New Drawing

Note: *Autodesk Civil 3D does not save automatically, so it is best to save often to avoid losing your work.*

1. Open Civil 3D 2026 Montana by double clicking the desktop icon.

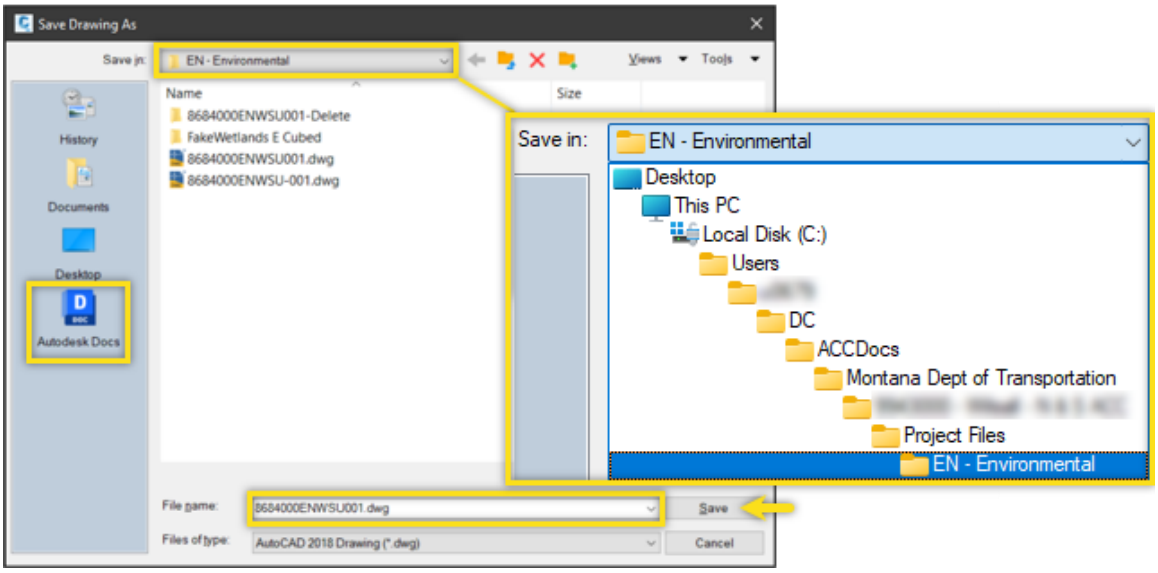


2. Access the Start tab at the top of the window
   a. Select the down arrow next to “New”.
   b. Select design-start.dwt to create a new drawing.



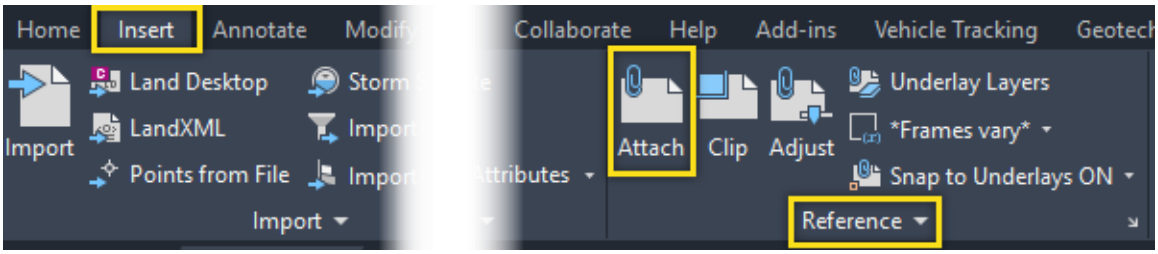
3. Set the file’s coordinate system according to the Coordinate System Settings Support guide.

4. Save the drawing to Autodesk Forma (C:\Users\[username]\DC\ACCDocs\Montana Dept of Transportation\~Project Name~\Project Files\ EN-Environmental) and name the file according the Autodesk Civil 3D Naming Standards, File Types & Referencing Relationships, e.g. 8684000ENWSU001.dwg).



Procedure – Attach External References (XREF)

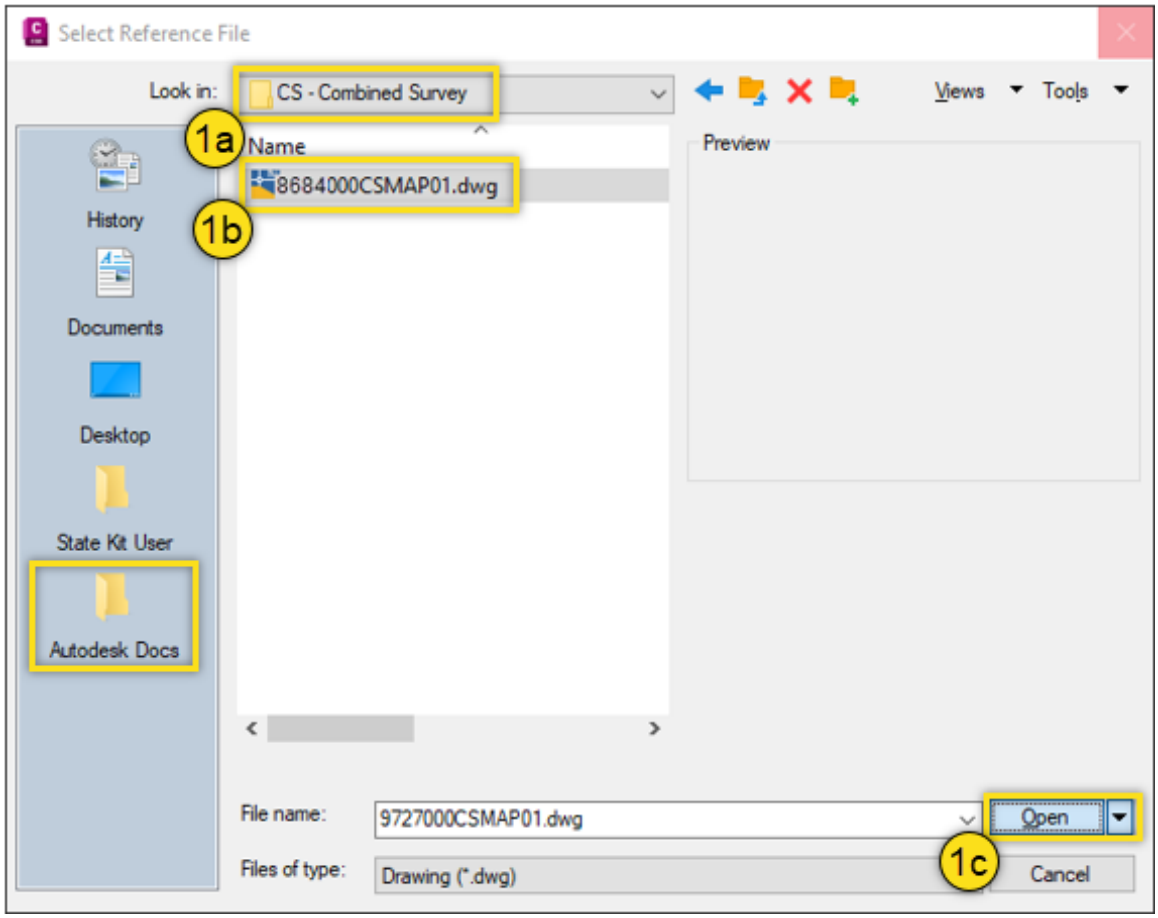
1. Navigate to the Insert tab > Reference panel and select Attach.



   a. Navigate to the drawing on Autodesk Forma (C:\Users\[username]\DC\ACCDocs\Montana Dept of Transportation\~Project Name~\Project Files\CS-Combined Survey (or DI – District Survey if a file is not found)).

   b. Select the CSMAP, e.g. 8684000CS MAP001.dwg (or DIMAP, e.g. 8684000DIMAP001.dwg).

   c. Click Open.



2. From the Attach External Reference dialog box, verify the following parameters:

   Reference Type: Overlay

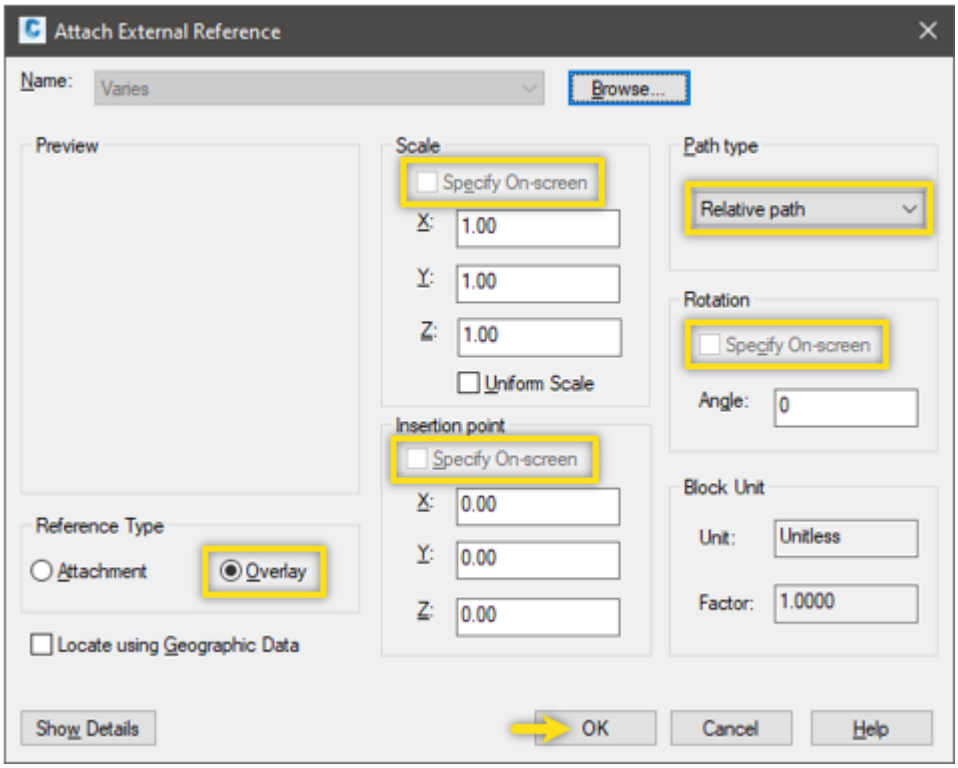
   Scale: Specify On-screen is unchecked

   Insertion point: Specify On-screen is unchecked

   Path type: Relative path

   Rotation: Specify On-screen is unchecked

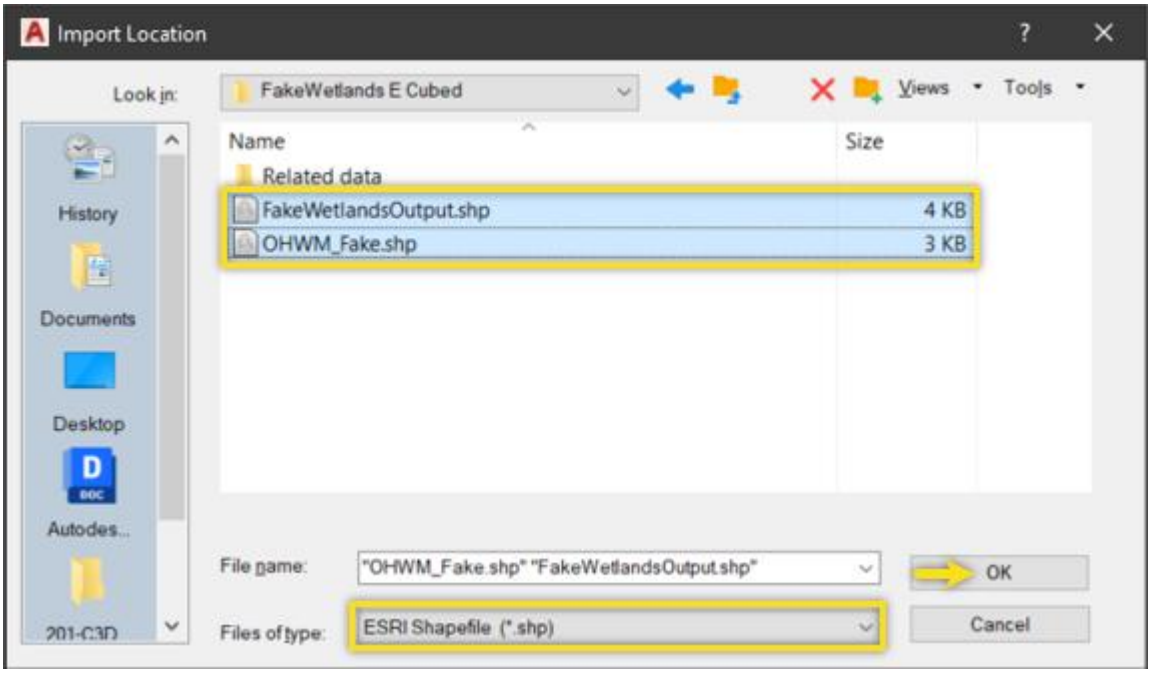
3. Click OK.



Procedure – Import Shape Files

Note: *Shape files must be placed on Autodesk Forma within the project folder. See previous "Uploading Shape Files to Project" steps.*

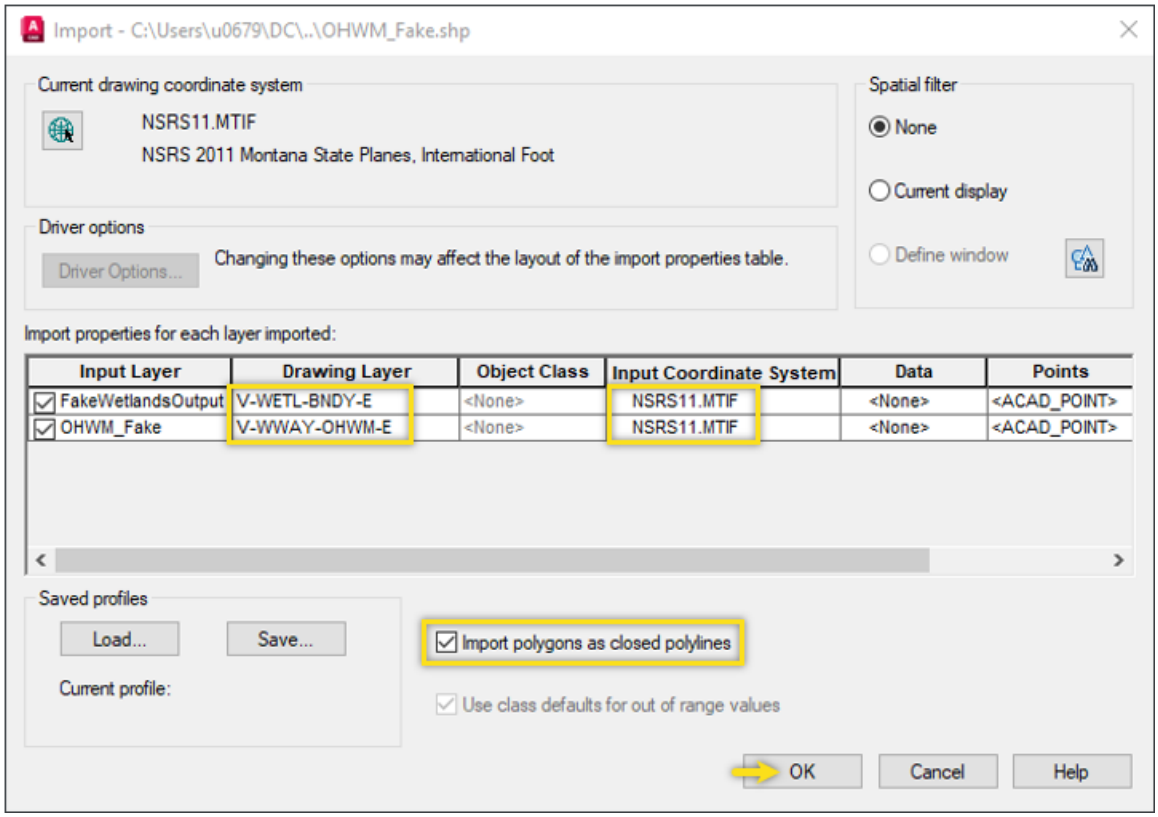
1. Type MAPIMPORT at the command line, browse to the Autodesk Forma location of the shape file(s) for the specific project *(Procedure - Upload Shape Files to Autodesk Forma)*, select the shape file(s), click OK.



Note: *Files of type may need to be changed to ESRI Shapefile (*.shp) at the bottom of the dialog box)*

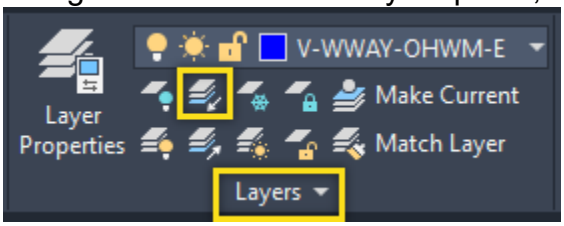
Note: *Multiple files can be selected at once by using the Ctrl or Shift keys on the keyboard.*

2. From the import dialog box, verify the settings shown, click OK. (To change the settings, select the cell you want to change > click the drop down to pull up the options. Each column will have different ways to present options).

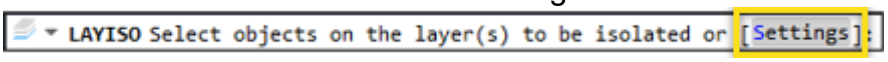


Note: *For the "Input Coordinate System" column > select the cell > select browse button > from the coordinate system dialog box > type NSRS11.MTIF (Or appropriate coordinate system matching the survey file if not NSRS11.MTIF) in the search box > select the coordinate system > click Select. Repeat for all Layers.*

3. Navigate to Home tab > Layers panel, select Layer Isolate.



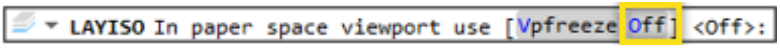
4. From the command line > select Settings.



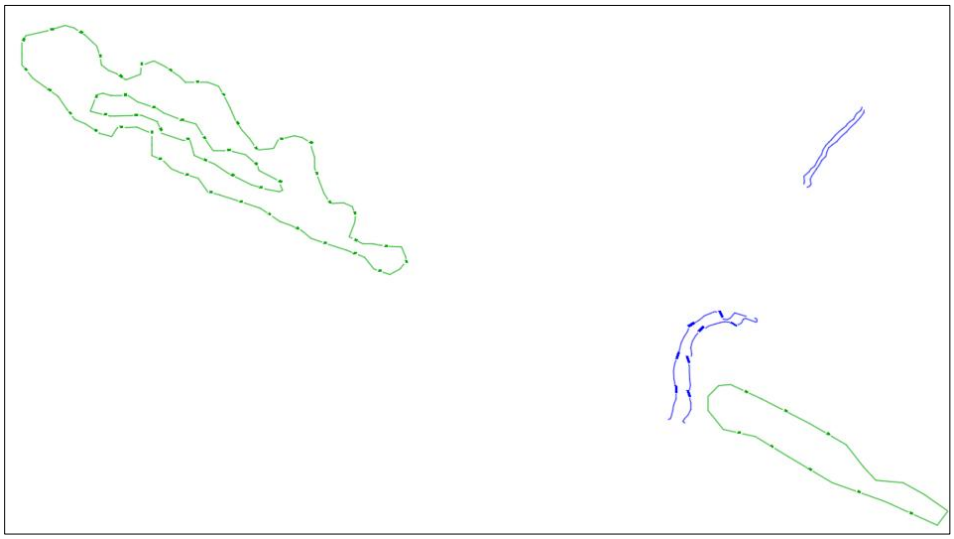
5. From the command line > select Off for layers not isolated.



6. From the command line > select Off for paper space viewport.

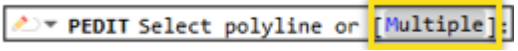


7. From model space > select a single object on layer V-WETL-BNDY-E and V_WWAY-OHWM-E, select Enter to isolate the layers.



8. Type PE (PEDIT) at the command line > select Enter to invoke the command.

9. From the command line > select Multiple.

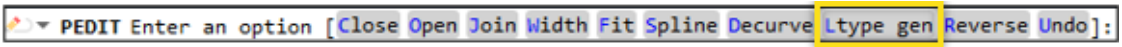


10. Select all the objects from model space > select Enter to invoke the command.

Note: *If prompted to Convert lines, Arcs and Spirals to polylines > select Yes from the command line.*



11. From the command line > select Ltype gen.



12. From the command line > select ON.



Note: *This will display the text in the line type correctly.*

13. Select Enter to end the command.

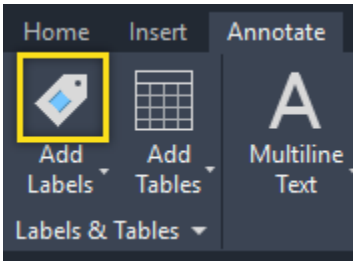
14. Type RE (Regen) > select Enter to invoke the command.

15. Save the drawing.

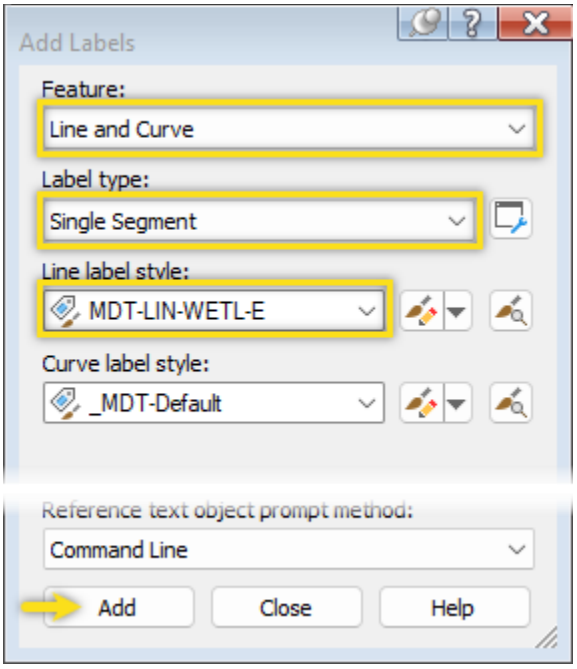
Procedure – Add Missing Wetland Symbols for Small Shapes

Wetland and Ordinary High Water Mark shapes sometimes have line segments that are too short to display the WL or OHWM symbols. Blocks are needed to complete the line symbols when this occurs.

1. Set layer to V-WETL-BNDY-E or V-WWAY-OHWM-E, as appropriate.
2. From the Annotate tab on the ribbon, select the tag symbol above the Add Labels.



3. From the Add Labels dialog:
   a. Select Feature “Line and Curve”
   b. Select Label type “Single Segment”.
   c. Select Line Label style “MDT-LIN-WETL-E” for wetland symbology.
   d. Select “Add” and click on the wetland line where you want the line symbol placed.



4. Change the Annotation scale to a different scale to ensure the symbol scale adjusts.

   Note: *"REGEN" may need to be entered in the command line after changing the annotation scale to refresh the display.*

5. Save the drawing.

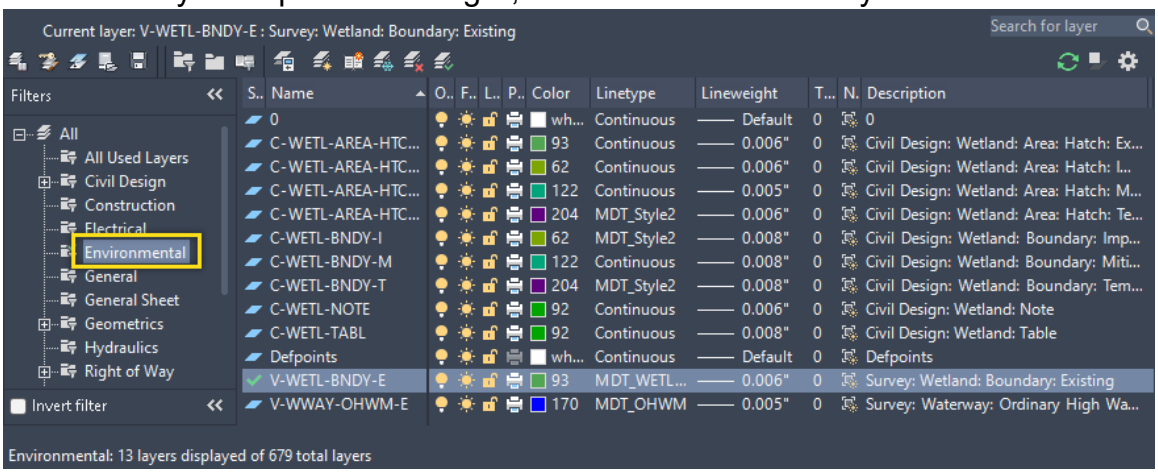
16.

Section III. Hatching Wetland Areas

Procedure – Hatch Shapes

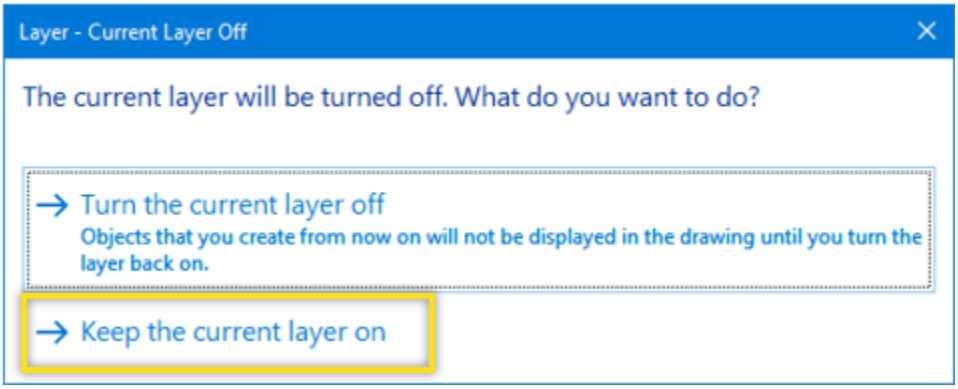
1. Navigate to the Home tab > Layers panel then select Layer Properties.

2. From the Layer Properties Manager, select Environmental layer filter.



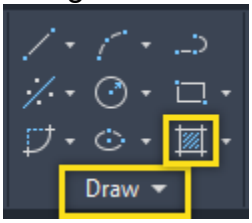
3. Double click on C-WETL-AREA-HTCH-E to make the layer current.

4. From the Layer – Current Layer Off dialog box, select Keep the current layer on.



5. Close the Layer Property Manager.

6. Navigate to Home tab > Draw panel then select Hatch.

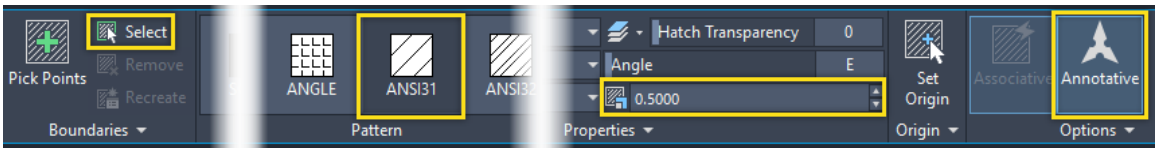


7. On the Hatch ribbon, verify the following, select Select.

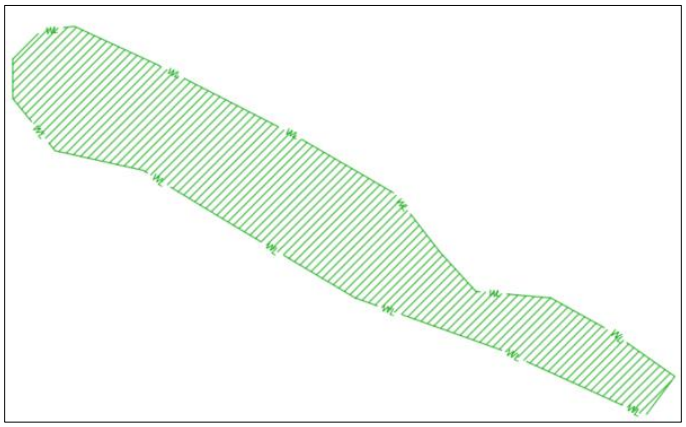
   Pattern: ANSI31

   Scale: 0.5000

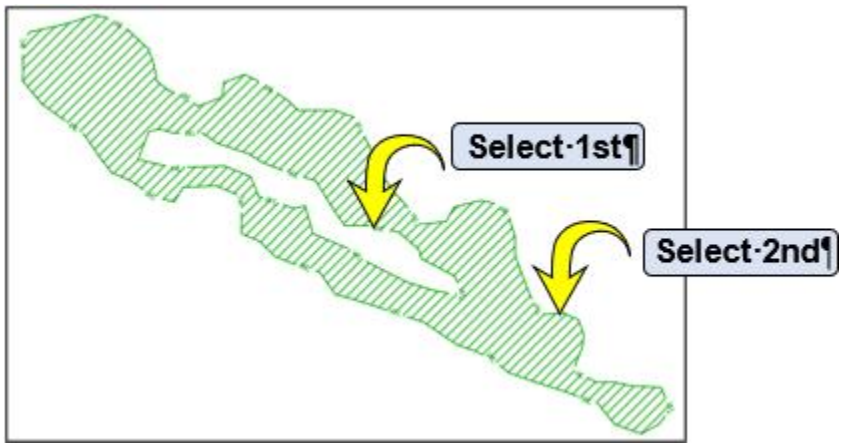
   Options: Annotative



8. Select the wetlands boundaries to hatch.



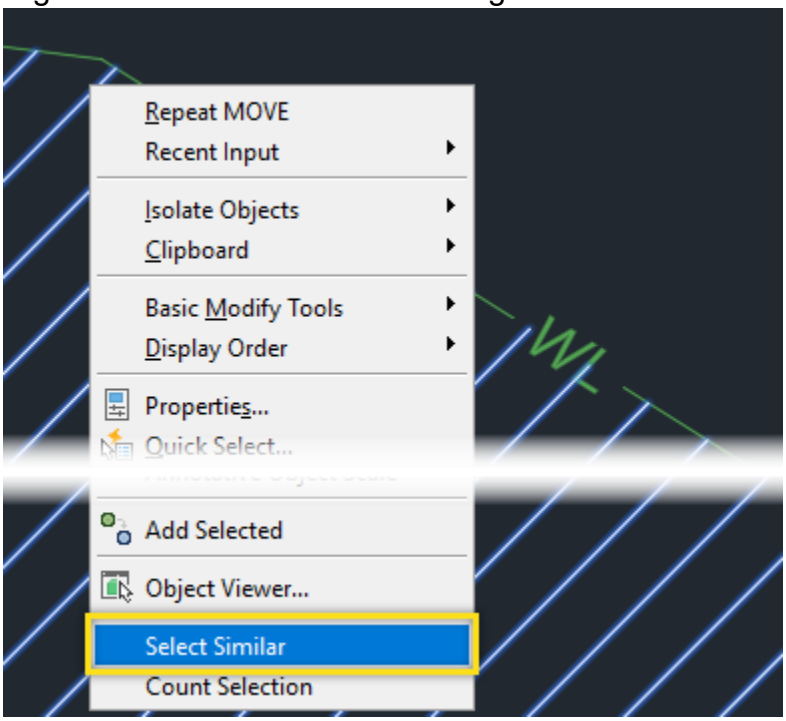
Note: *If there is an internal shape, select the internal shape(s) first, then the outside shape.*



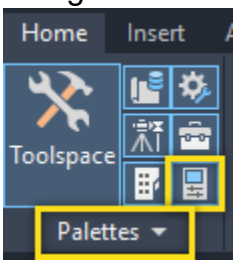
Procedure – Add Scales to Annotative Hatching

1. Select any hatching object.

2. Right-click on the selected hatching and select Select Similar.



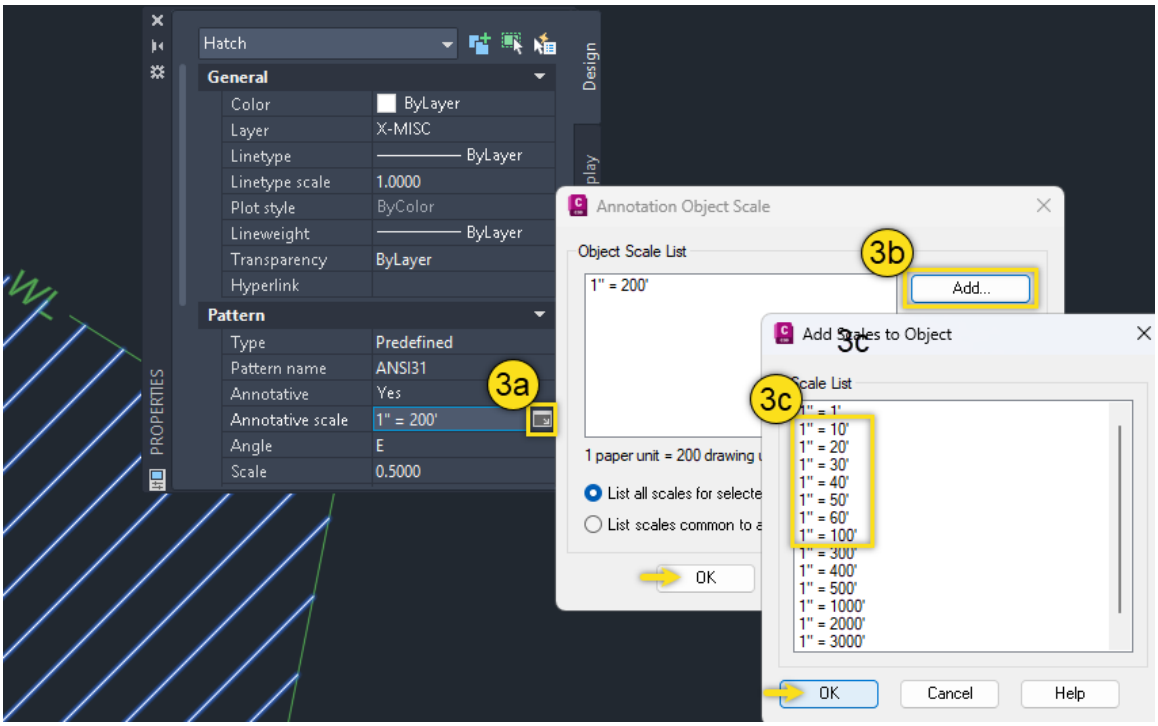
3. Navigate to the Home tab > Palettes panel, select Properties.



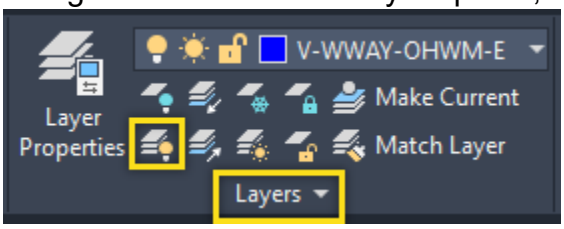
a. From the Properties palette, select the Annotative scale Annotation Object Scale button.

b. Select the Add… button from the Annotation Object Scale dialog.

c. Select all addition design scales, e.g. 1”=10’, 1”=20’, 1”=30’, 1”=40’, 1”=50’, 1”=60’, and 1”=100’, then OK for both dialogs.



4. Navigate to Home tab > Layers panel, select Turn All Layers On.



5. Save the drawing.