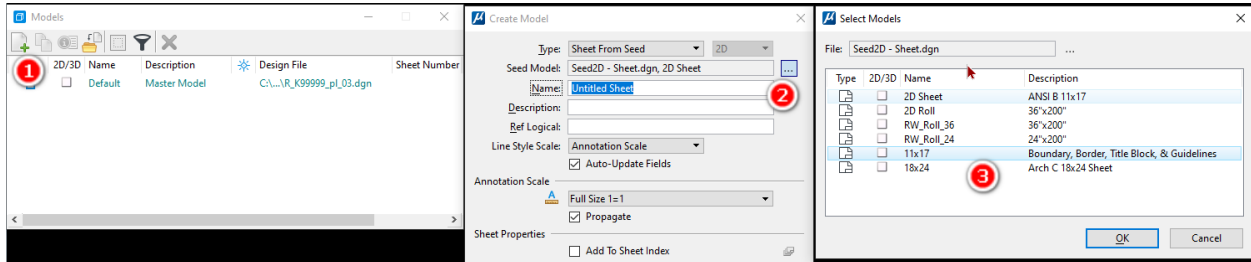


## Faster manual sheet creation using a sheet seed from the OregonDOT WorkSpace

There are some definite advantages to using sheet seeds that are currently available in the OregonDOT WorkSpace over creating your own “template model”. Sheet seeds already have borders and title blocks with sheet numbers that automatically use the model name; you do not need to create a template from scratch – it’s already been done for you. Sheet seeds are available (inside *Seed2D – Sheet.dgn*) for one-off, **manual** sheet model creation with title blocks and borders. Combine this with manual reference attachment methods, including clip, move and rotate, to create a PDF-able sheet using either MicroStation or OpenX.



## Fewer steps to sheet creation using Named Boundaries and Create Drawing

The comparison table below shows the reduction in steps required for sheet creation, moving from the left to the right, and employing the different tools available in different versions of software. The leftmost column shows the numerous steps that were identified in the pre-2005 version of ODOT’s Contract Plans Development Guide - creating stacked sheet borders in a design-type model. The center column shows a slight advantage in using sheet-type models and named fences which were documented as “Efficient Plan sheet Setup” in 2019. The right most column shows that almost all steps can be performed automatically by using named boundaries and the Create Drawing command.

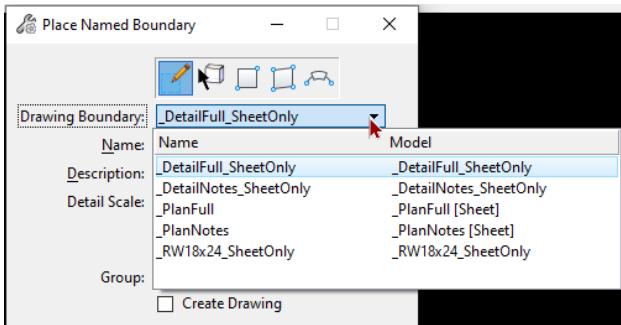
Table 1. Evolution of Sheet Creation Steps

	Manual Sheet Creation Steps Using Fences & Clips	Manual Sheet Creation Steps - Named Fences	Automatic Sheet Creation Steps - Named Boundaries
	Assemble "sheet" with Reference Attachments to Design	Assemble CAD Base with Reference Attachments to Design	Use OPNP file that has Reference Attachments to Design
		Place Named Fences	Place Named Boundaries From Drawing Boundary
		Create Sheet Model	
Sheet 1	Place Border Cell	Place Border Cell	Create Drawing
	Place Title Block Cell	Place Title Block Cell	
	Place Sheet Number Cell	Place Sheet Number Cell	
	Attach Reference to CAD Base	Attach Reference to Named Fence	
	Fence Clip Reference	Attach Reference to Named Fence	
	Move Reference into Border	Move Reference into Border	
Rotate Reference into Border	Rotate Reference into Border		
Sheet 2	Place Border Cell	Copy Sheet Model	
	Place Title Block Cell		
	Place Sheet Number Cell		
	Attach Reference to CAD Base	Attach Reference to Named Fence	
	Fence Clip Reference	Attach Reference to Named Fence	
	Move Reference into Border	Move Reference into Border	
Rotate Reference into Border	Rotate Reference into Border		
Sheet 3	Place Border Cell	Copy Sheet Model	
	Place Title Block Cell		
	Place Sheet Number Cell		
	Attach Reference to CAD Base	Attach Reference to Named Fence	
	Fence Clip Reference	Attach Reference to Named Fence	
	Move Reference into Border	Move Reference into Border	
Rotate Reference into Border	Rotate Reference into Border		

## Faster automatic sheet creation using “From Drawing Boundary”

There are even more advantages to be had with sheet creation when using the “Create Drawing” functionality. Using “From Drawing Boundary” will select a seed with a border, title block, and with a sheet number that **automatically** uses the model name. When “Create Drawing” is used, it will **automatically** create the sheet model and make the reference attachments, which are already clipped and rotated for you! “Create Drawing” can also be used to place a two-point named boundary into an already existing sheet model when creating “plan view” detail drawings. Any discipline that

requires a profile sheet (Roadway, Hydraulics) will need to use OpenRoads Designer and its civil drawing boundary seeds to create an OPNP file.



## Multiple and automatic sheet creation

When it is necessary to create a large number of sheets (>5) along a path or tied to civil alignment stationing, a great amount of time can be saved by having the CAD software perform multiple sheet creation **automatically**. This can only be done with “From Drawing Boundary>Along a Path” with MicroStation, or by using the “Civil Plan” or “Civil Profile” drawing boundary seeds in OpenRoads or OpenSite Designer. These tools **automatically** create tens or hundreds of sheet models in a matter of minutes and automatically attach the references, which are all already clipped and oriented in each sheet for you. The path element may be selected from a reference.

Any discipline that requires a profile sheet will need to get the profile information from an OPNP file (OpenRoads/OpenSite Designer Plans and Profiles). The OPNP file can only be generated by OpenRoads/OpenSite Designer, and alternating plan and profile sheets can be created very quickly. Any discipline requiring the display of alignment stationing will need to get the plan view information from an OPNP file as well. The annotation of both plan and profile is automatically generated by OpenRoads/OpenSite Designer.

Table 2. Recommended Processes for producing Roadway sheets (multiple and automatic)

	MicroStation (attach reference to OPNP file)	OpenRoads/OpenSite (work in an OPNP file)
Plan Sheet	Create Drawing From Drawing Seed	Create Drawing From Drawing Seed
Detail Sheet	Create Drawing From Drawing Seed or By 2 Points	Create Drawing From Drawing Seed
Plan Sheet(s)	Create Drawing From Drawing Seed - Along Path	Create Drawing from Civil Plan
Profile Sheet(s)	Create Drawing From Drawing Seed – Grid	Create Drawing from Civil Profile
Plan-Plan Sheet(s)	Create Drawing By 2 Points multiple times	Create Drawing from Civil Plan
Plan-Profile Sheet(s)	Create Drawing By 2 Points multiple times	Create Drawing from Civil Plan and Civil Profile

When using MicroStation – the active DGN file for sheet creation will typically be a “PL”, “PF”, “PP”, or “DT” file.

When using OpenRoads/OpenSite Designer – the active DGN file for sheet creation will typically be an “OPNP” file.

The “Create Drawing” dialog in both products, allows drawing- and sheet-type models to be created in a different file. An example case for creating drawings in a different file could be to use named boundaries that were placed by Roadway to create erosion control plan sheets that have the same stationing showing on the sheets.

For the correct and automatic display of custom line style scales in the final sheet models and to be able to control the level display in all models from the Default model – use drawing boundary seeds that create drawing-type models. When you use the “SheetOnly” non-civil drawing boundary seeds, you will need to *manually* edit two reference attachment settings *in each sheet*: the LineStyle Scale toggle and the Synchronize View attachment setting. All of the drawing boundary seeds, except the ones named “SheetOnly” will honor the attachment settings so that custom linestyles appear correctly in the sheet and will synchronize the level display in the sheets from the level display settings in the Default model.