

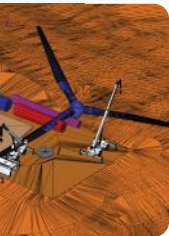


OpenRoads Modeling Tips and Tricks

Ian Rosam

Agenda

- Design Intent and Corridors
- Accommodating Civil Cells in Corridors
- Modifying Civil Cell Linear Templates
- Tidying up the Model
- Use of B-splines in OpenRoads modelling
- What happens when Reference Files are **substituted**



Design Intent and Corridors

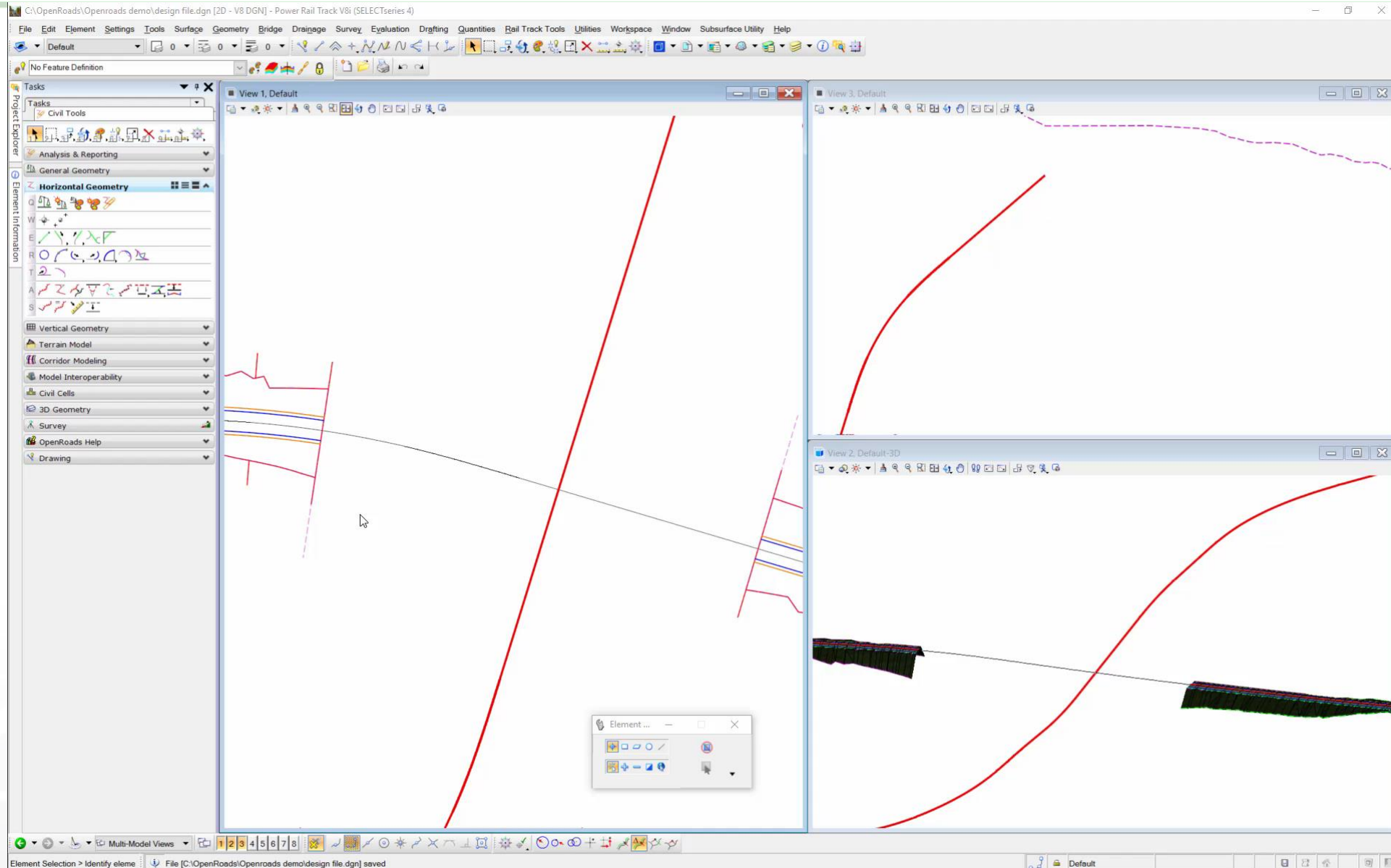
Design Intent and Corridors

Template Drop Management

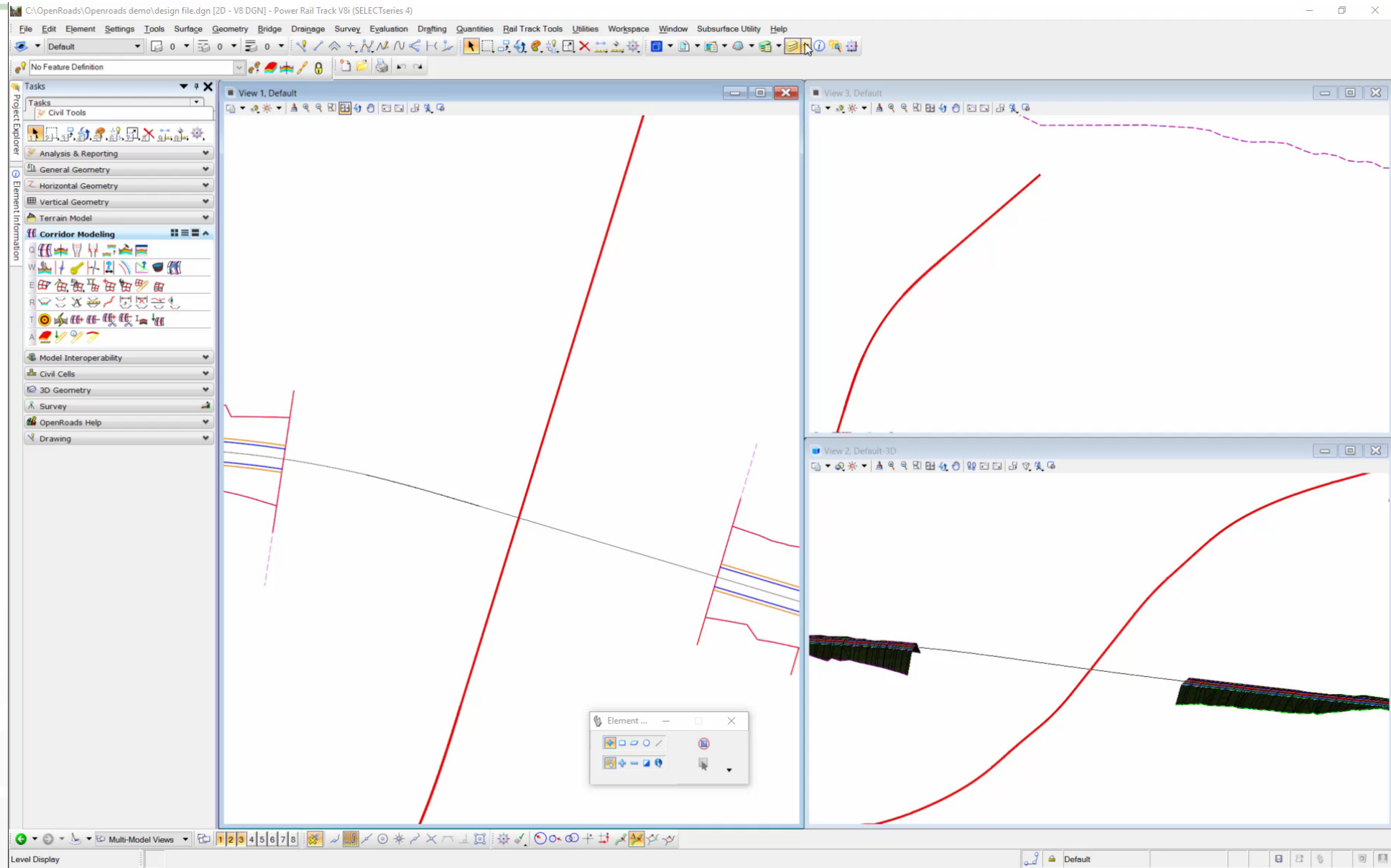
How do we typically work now ?

Typically by Station or XY location

Template Drop Management



Template Drop Management – using design intent

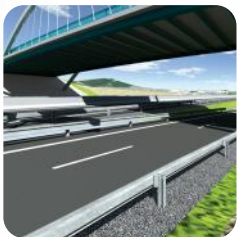
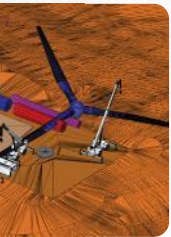


Best Practice



Remember

- ***Station and XY don't provide design intent, utilising graphics to constrain the model provide visual controls***
- ***When inserting template drops and constraining to graphical controls that you need to modify the leading and training template drop locations.***



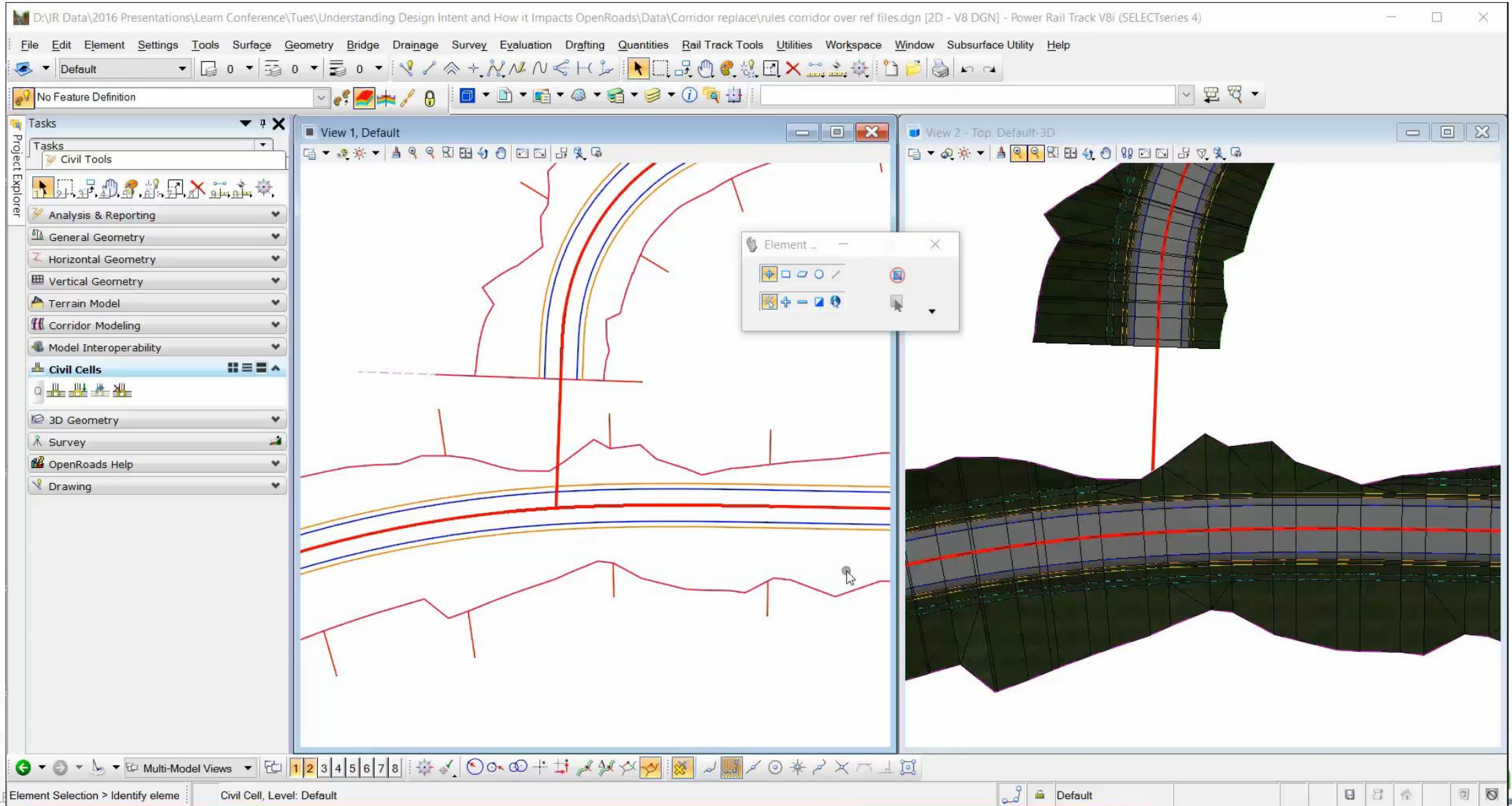
Accommodating Civil Cells in Corridors

Accommodating Civil Cells in Corridors

Options

- Clipping
- Template Drop
- Matchline and Display Rules

Clipping



Clipping

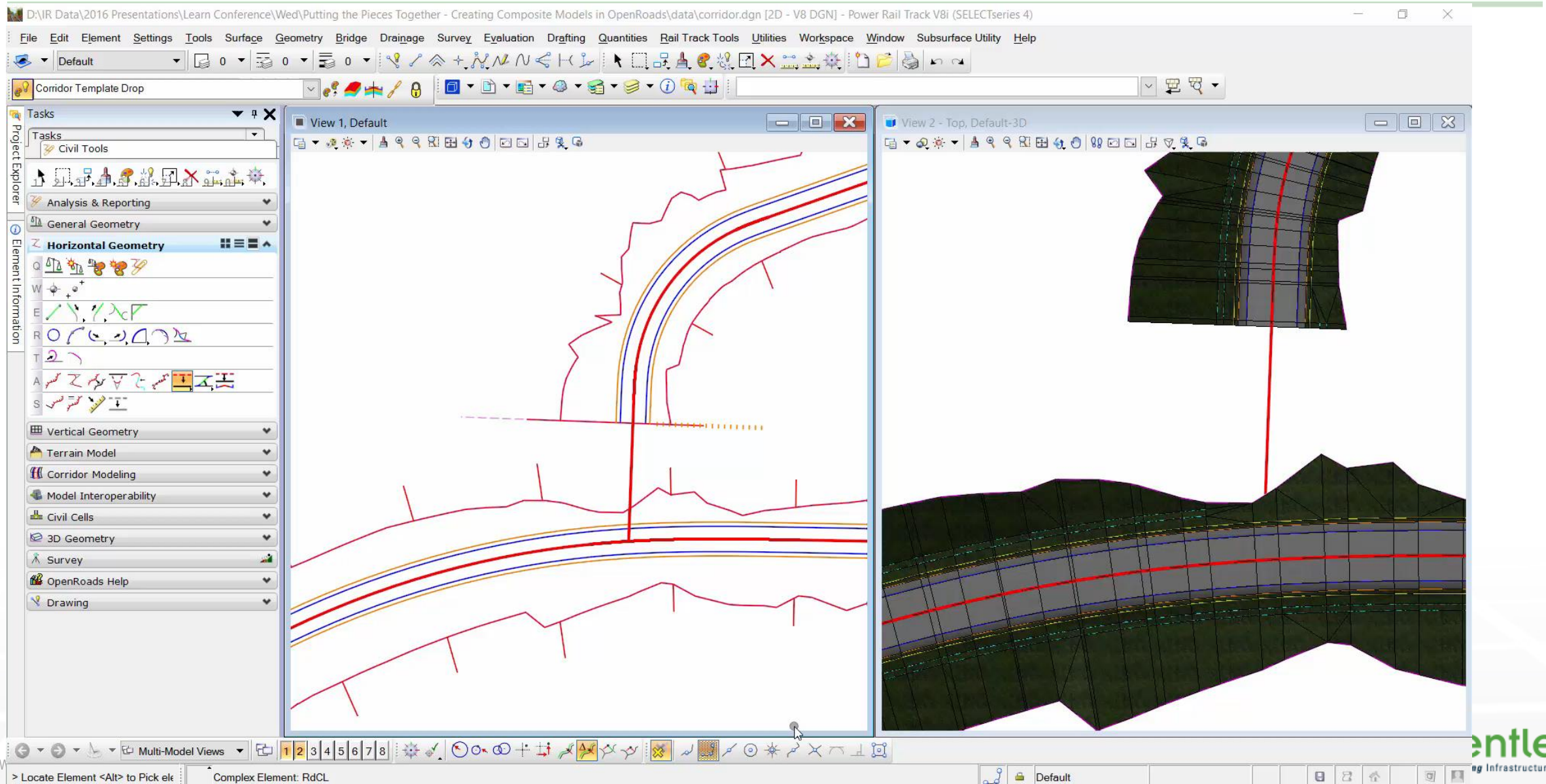
Advantages

- Easy to apply

Disadvantages

- Slow – lots of math behind the scenes
- Slowdown with multiple clips
- Referencing – needs to be in the file with the corridor

Template Drop



Template Drop

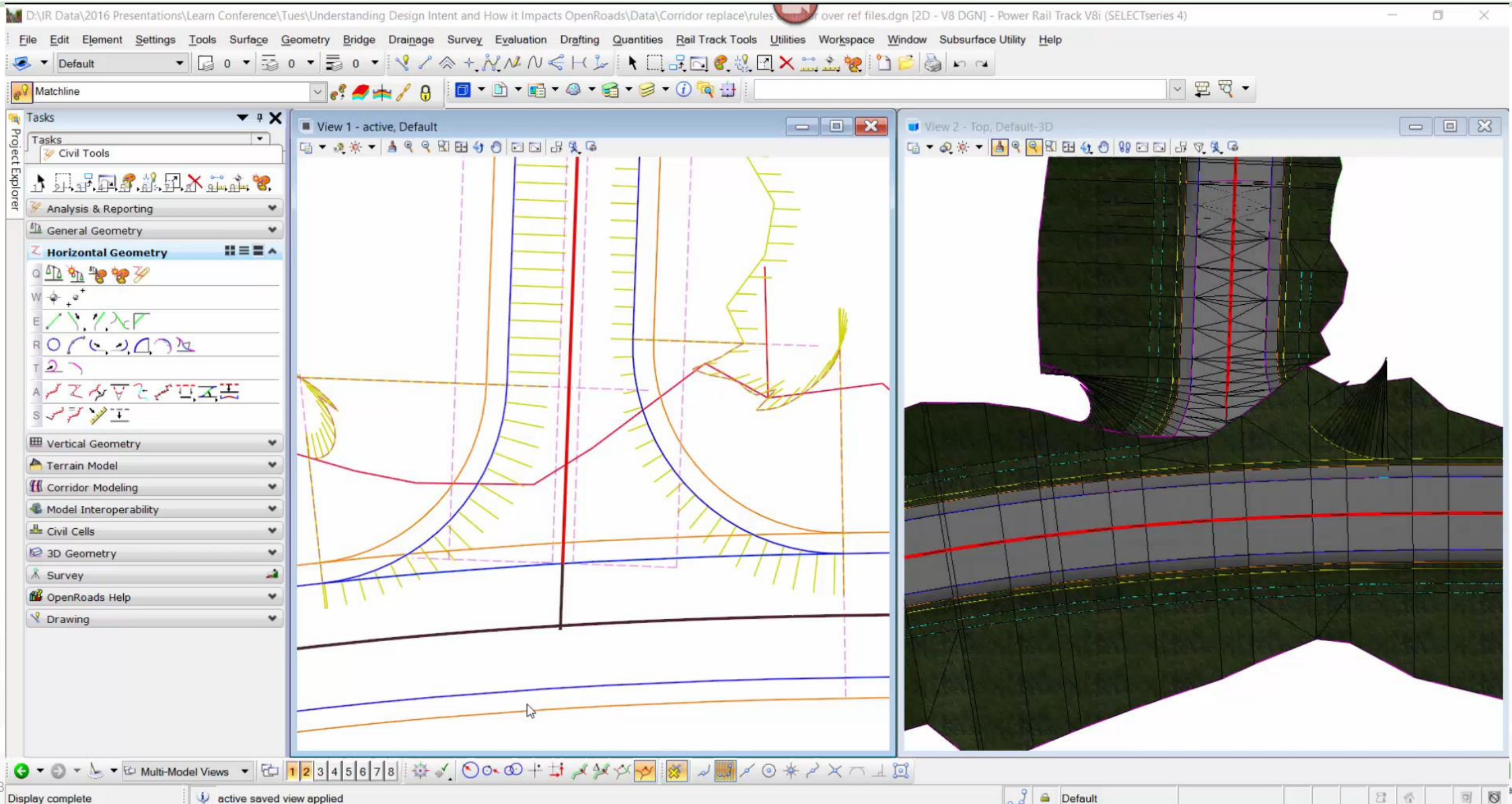
Advantages

- Easy to add gaps and infill later
- Don't have to worry about reference files

Disadvantages

- Ruling to the same location as civil cell can return circular reference

Matchline and Display Rules



Matchline and Display Rules

Advantages

- Easy to add gaps and infill later

Disadvantages

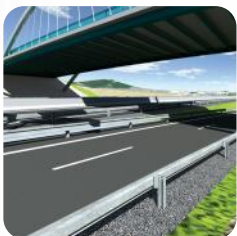
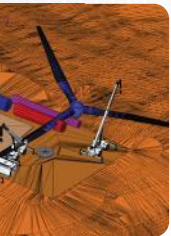
- Can't use content from the civil cell due to circular reference
- Need to add key station

Best Practice



- Clipping
- Template Drops
- Matchline and Display Rules

Each process has it's place and are all functional, the key is being aware of the processes and limitations



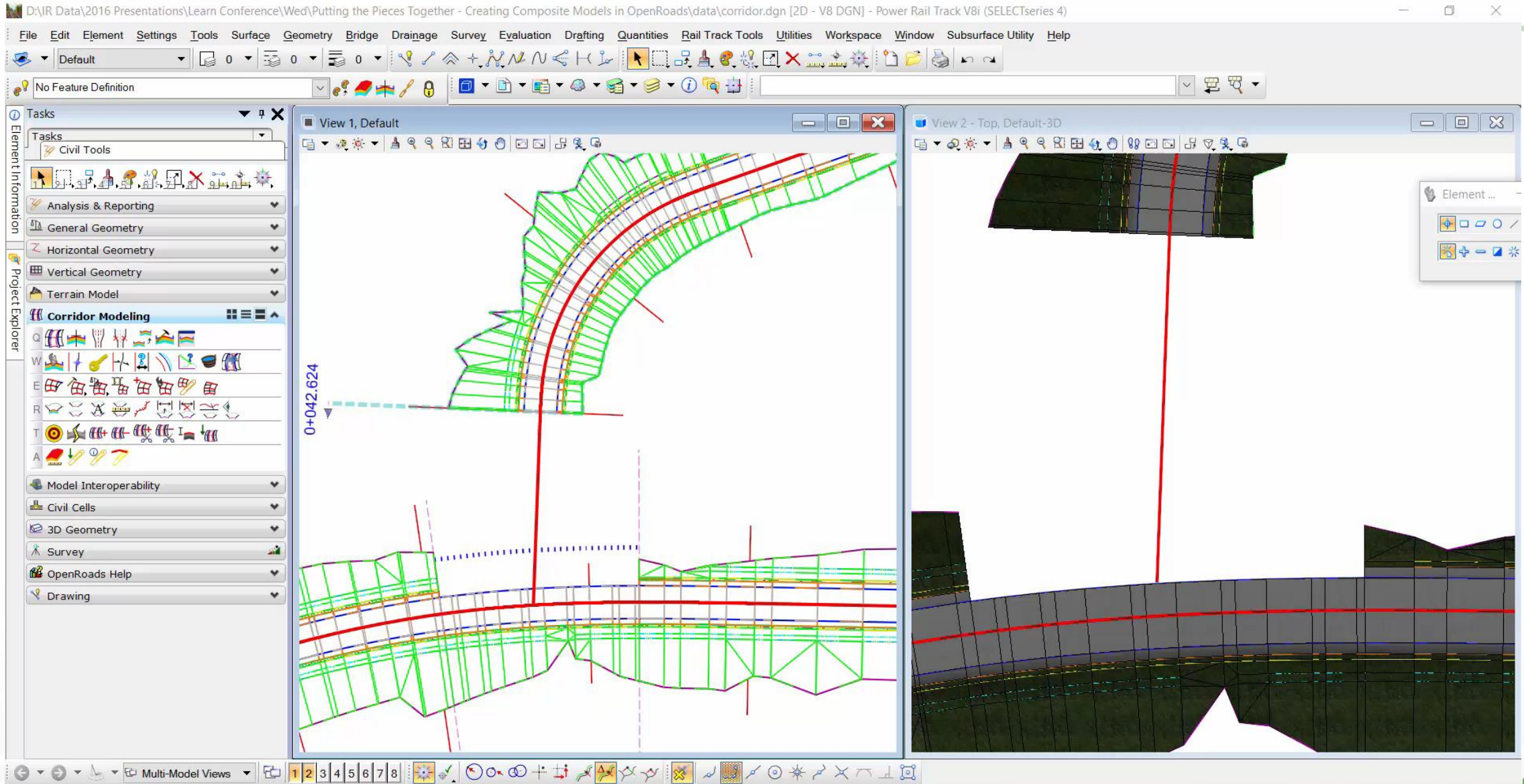
Modifying Civil Cell Linear Templates

Modifying Civil Cell Linear Templates

I have a Civil Cell but the details don't match my corridor template.

How can I quickly align them ?

Modifying Civil Cell Linear Templates

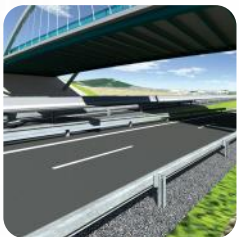
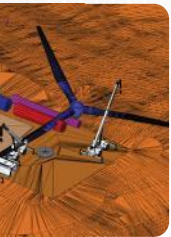


Best Practice



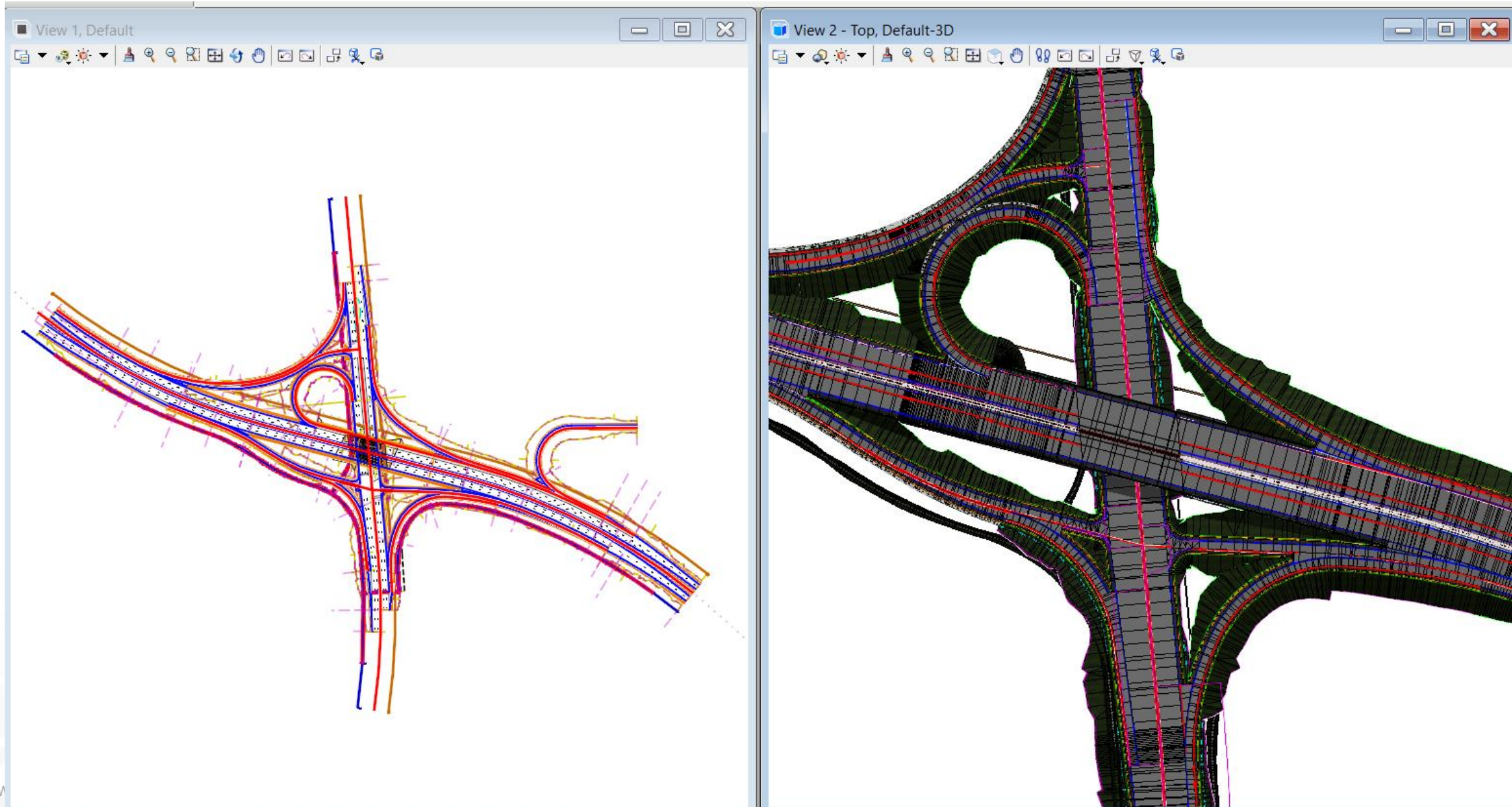
Remember you can edit a civil cell without dropping.

Thin the graphics of the referenced 3D model to aid in picking through the model.



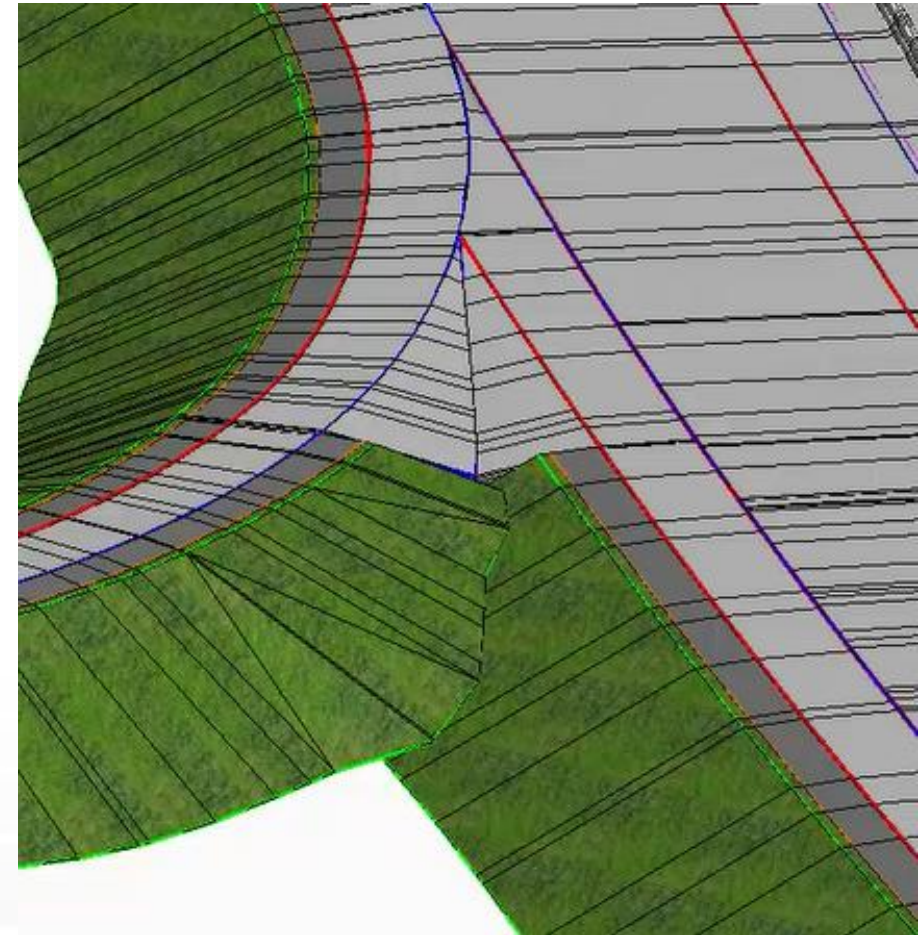
Tidying up the model

Tidying up the model

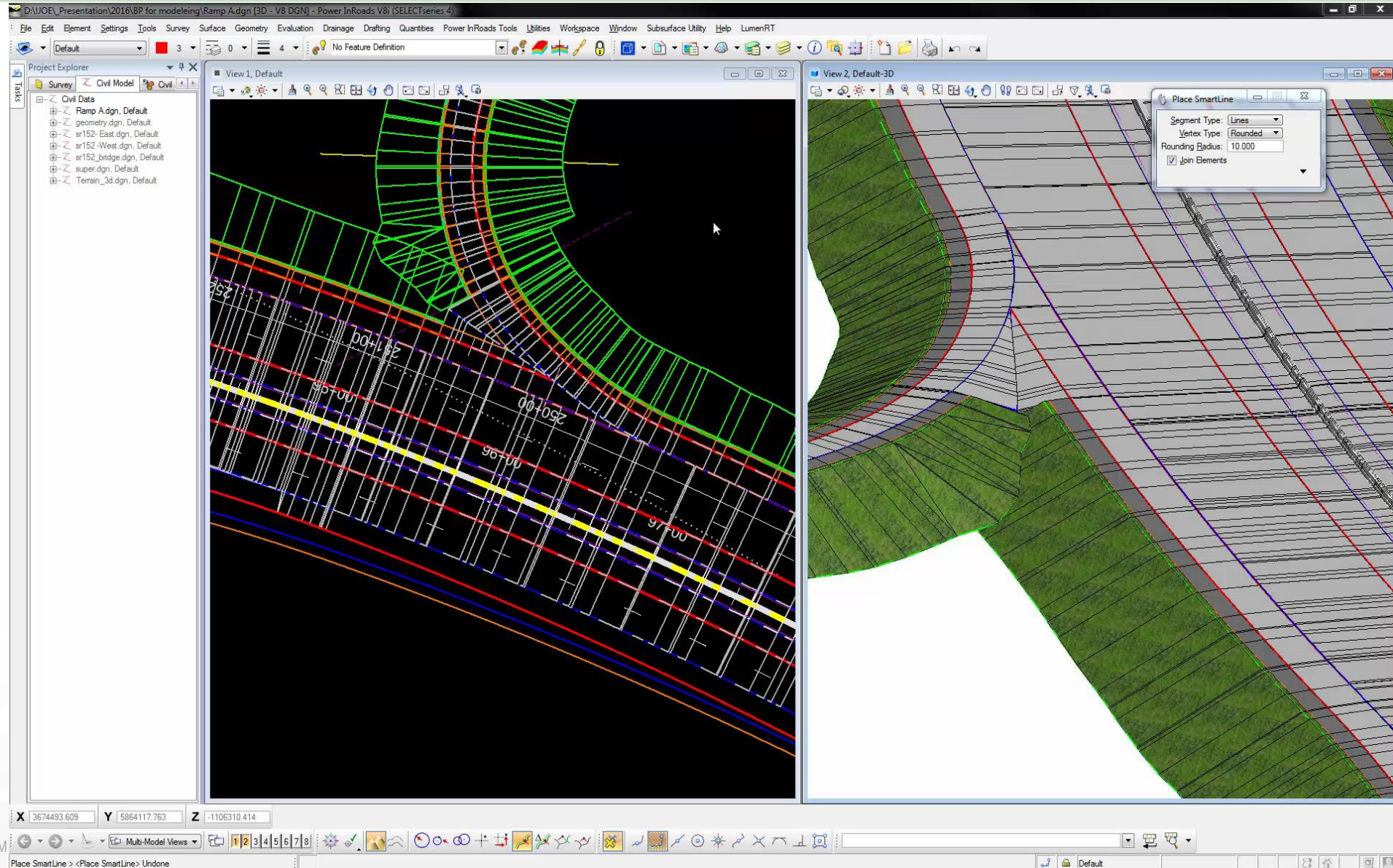


Tidying up the model

How can I clean up some of the detailing in my model in-between corridors ?



Targeting 3d Breaklines



Best Practice

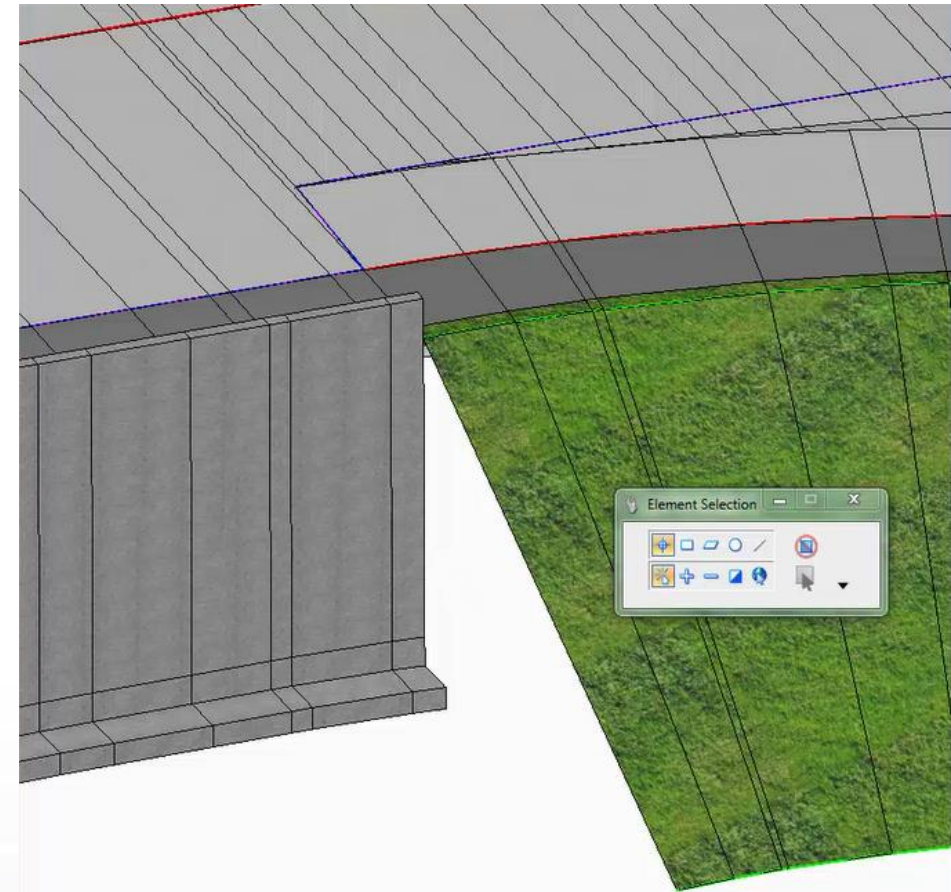
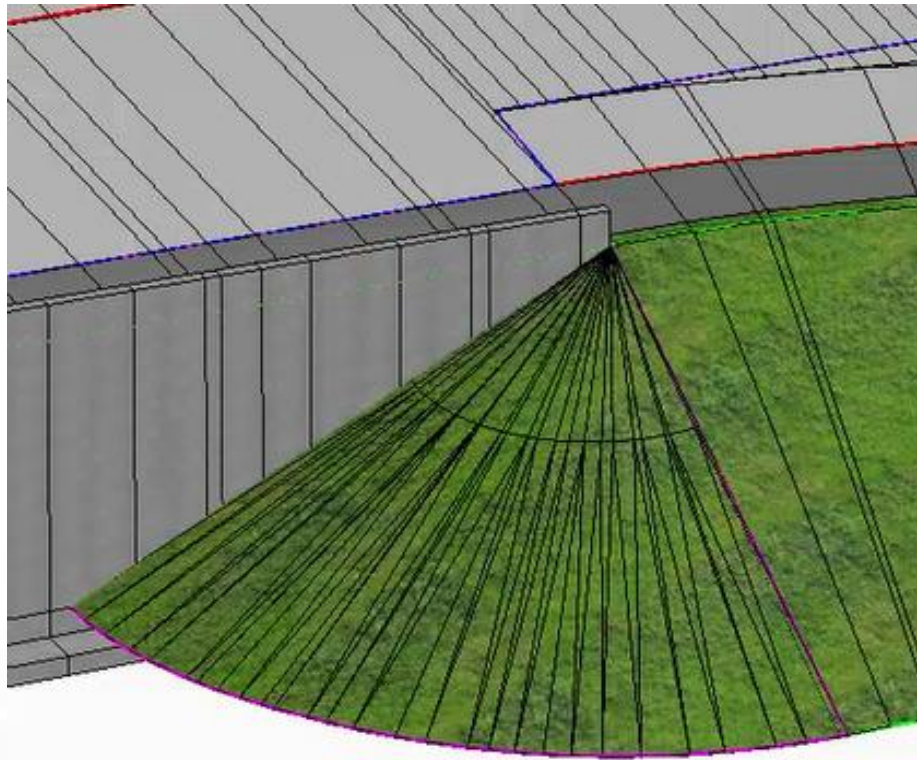


Cleaning up the model using control lines

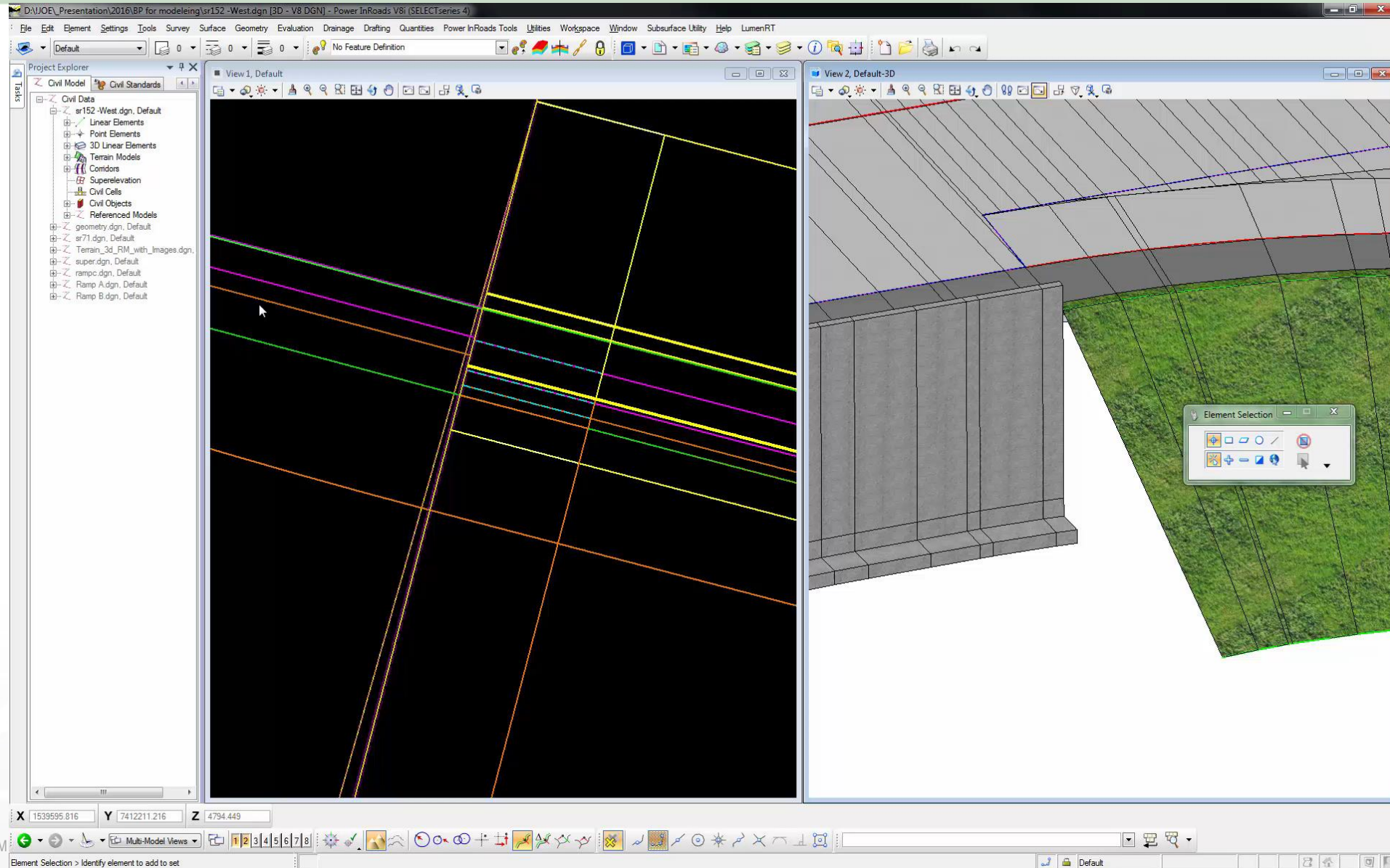
- *Place simple geometry and target.*
- *Modify the template drop and add specific constraint and target XYZ (added to Fixed Tie in Example Civil Workspace). Use – priority to override other EC's*
- *Add geometry to corridor object*
- *Add target Aliasing to Linear Feature*
- *Repeat on second corridor*

Tidying up the model

How can I clean up some of the detailing in my model around structures ?



Targeting 3d Breaklines

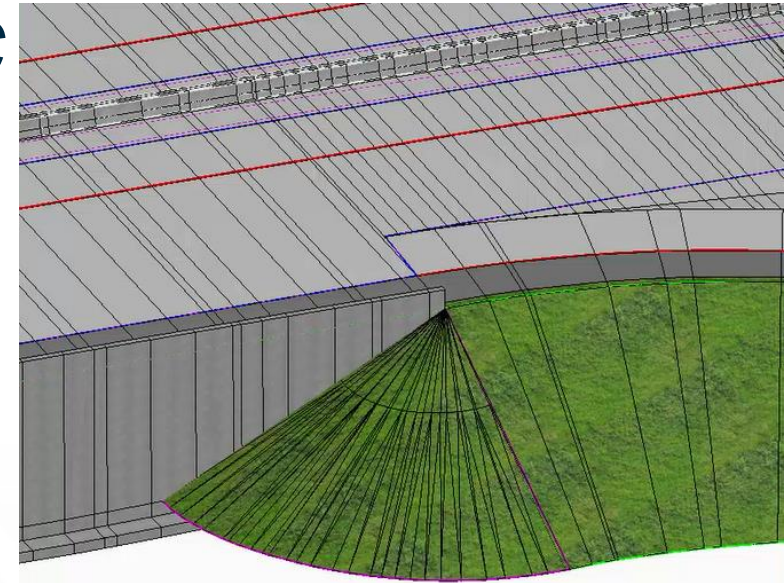


Best Practice



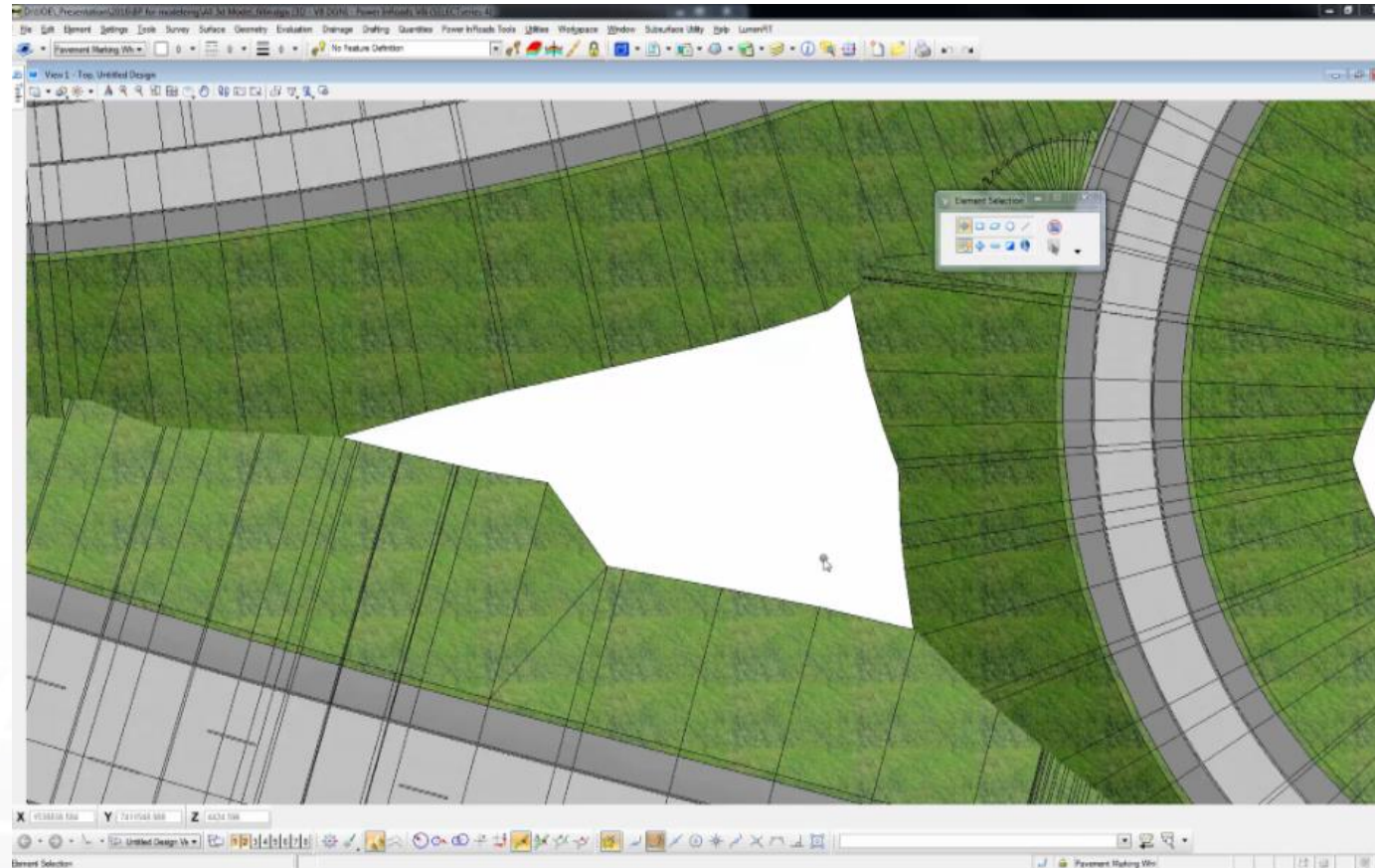
Detailing the model

- *Place 3D Point as a control at start location (use accudraw and lock z)*
- *Create base geom control line (approx half way down face)*
- *Profile by slope from point matching the slope of the EC*
- *Create 3D by slope to terrain model*
- *Adjust control geom / snapping to elements*
- *Create terrain from elements*
- *Add surface template*

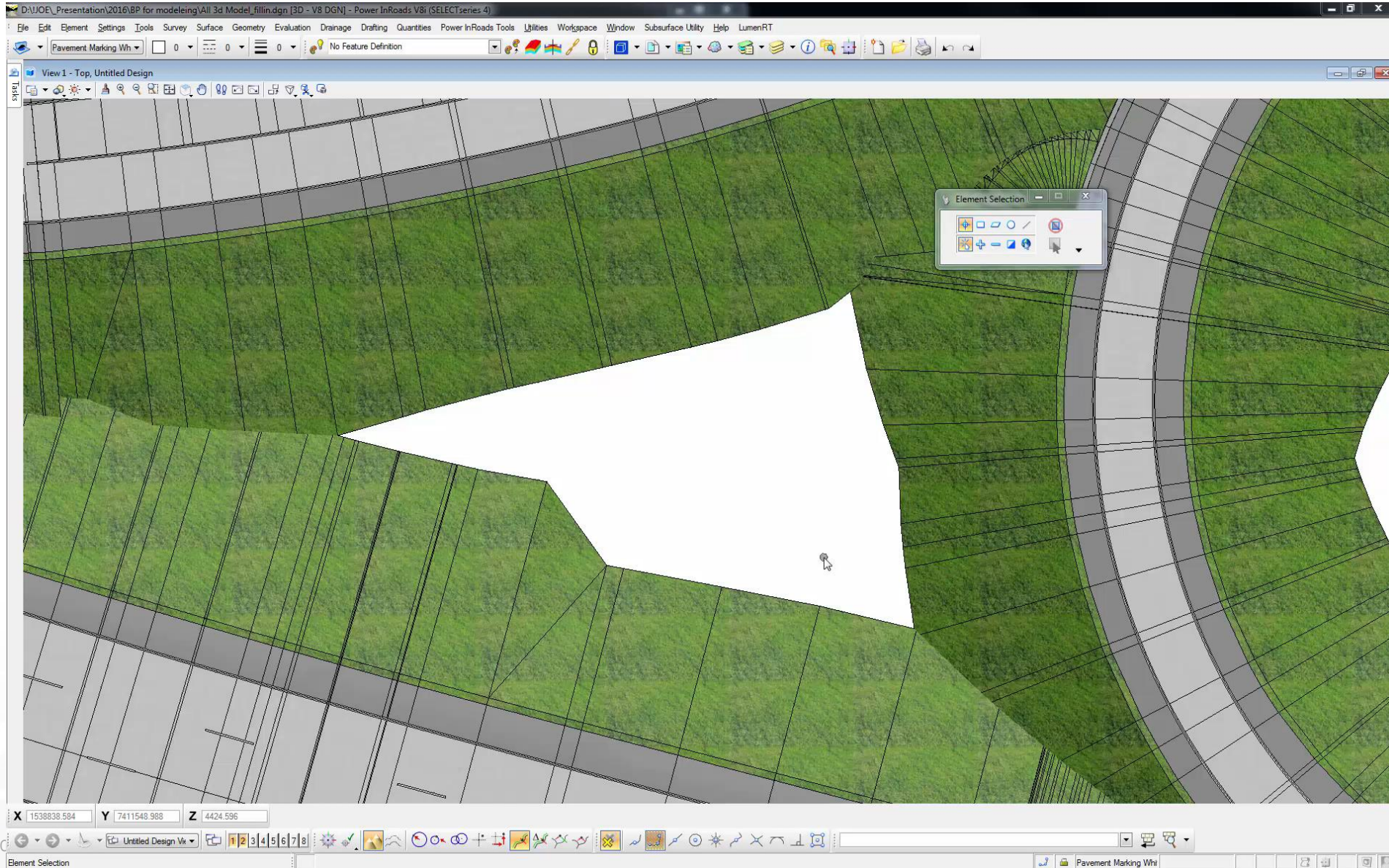


Tidying up the model

How can I clean up some of the detailing in my model around infield areas?



Cleaning up Infield Areas

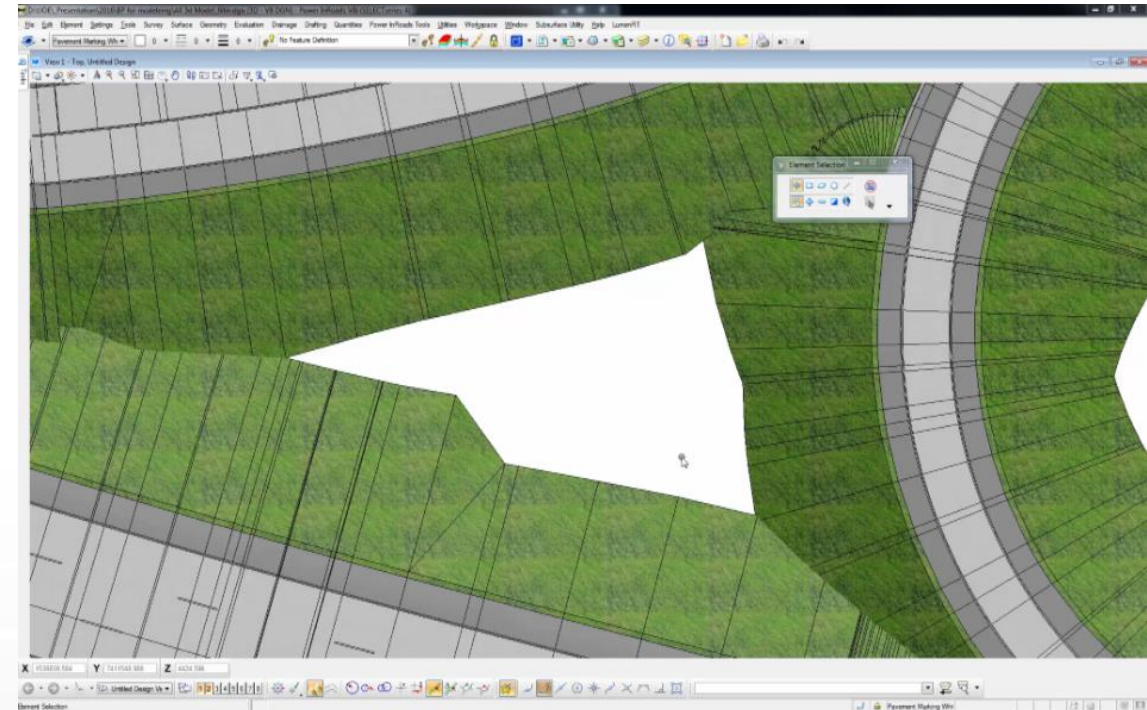


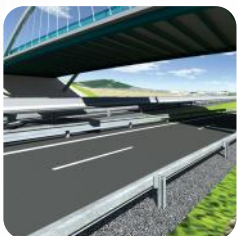
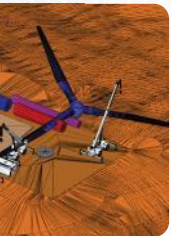
Best Practice



Detailing the model

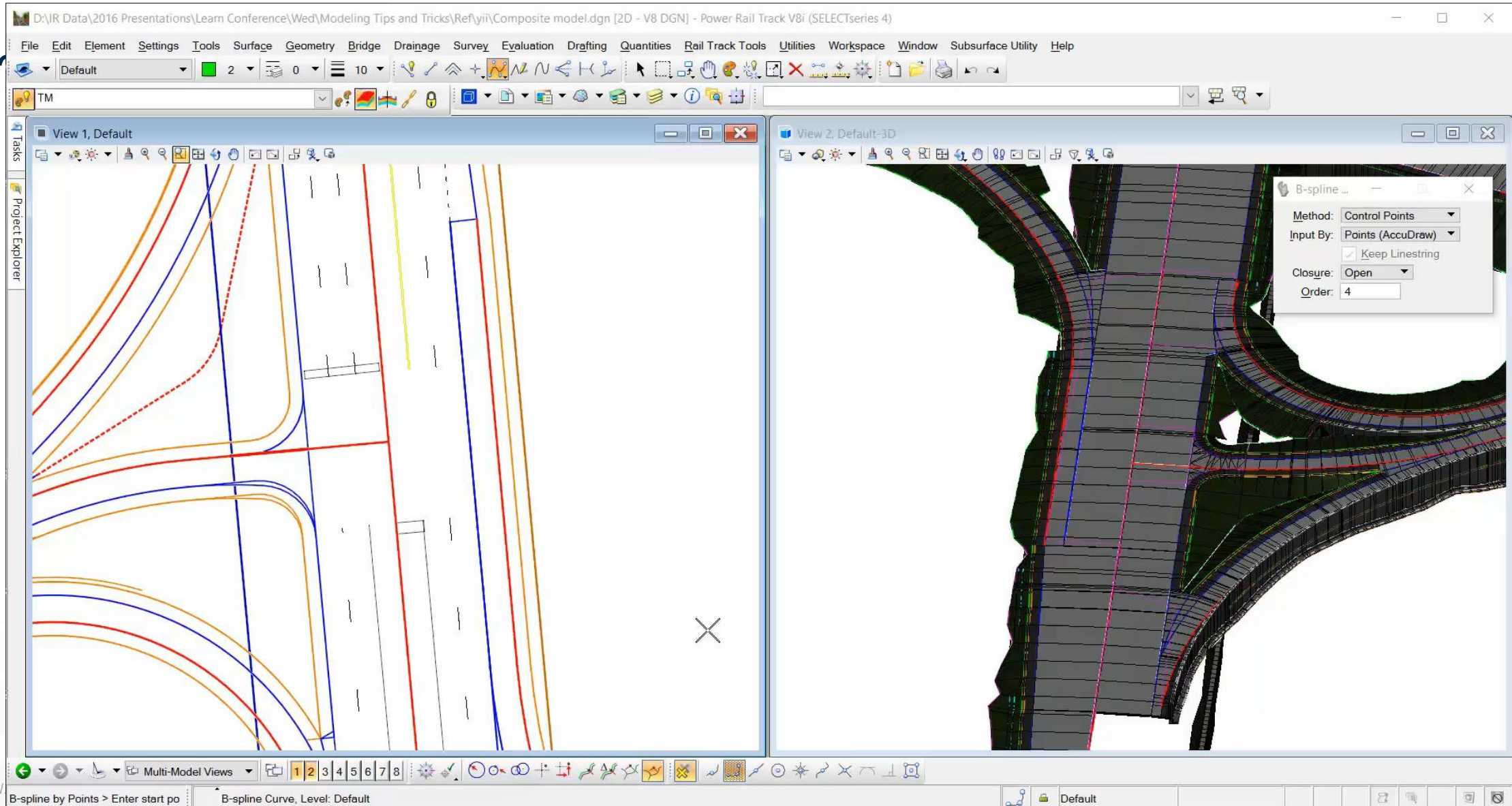
- *Use Flood Fill to create shape*
- *Create terrain from elements*
- *Add surface template*





Use of B-splines in OpenRoads modeling

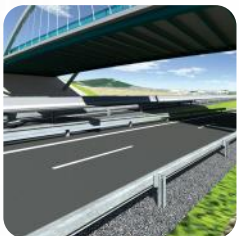
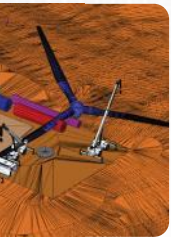
Use of B-splines in OpenRoads modeling



Best Practice

Detailing the model

- **Bsplines are very point heavy but can be useful to aid in modelling.**
- **Can be used in landscaping type situations or where horizontal design intent is not really needed.**
- **Can be used in conjunction with linear templates or Create 3D by slope from target**
- **Drape on corridor surface or terrain for complex models and use vertical adjustment to ensure it sits above the surface**



What happens when Reference Files are substituted

What happens when Reference Files are **substituted**

- Substituted could be
 - The file has been replaced with a different version of the file where edits have occurred. This could also be where the geometry has been dropped and re-complexed to form new geometry
- The result is a 'Static' non editable model

What happens when Reference Files are substituted

The screenshot displays the Bentley OpenRoads software interface. The main window shows a 3D model of a rail track corridor. A 'References' dialog box is open, showing a table of reference files. The table has columns for Slot, File Name, Model, Description, Logical, and Orientation. Two files are listed: 'rules geom over ref files.dgn' and 'rules corridor over ref files.dgn'. The 'rules corridor over ref files.dgn' file is checked and highlighted. Below the table, there are fields for Scale, Rotation, Offset X, and Offset Y, and a 'Nesting Display' section.

Slot	File Name	Model	Description	Logical	Orientation
1	rules geom over ref files.dgn	Default	Global Origin align...		Coincident - World
2	rules corridor over ref files.dgn	Default-3D		Ref	

Scale: 1.000000 : 1.000000 Rotation: 00°00'00" Offset X: 0.00000 Y: 0.00000

Nesting Display: Display Overrides: Nesting De

New Level Display: Georeferenced:

3D Model [rules geom.dgn/Default-3D] has been automatically attached to current 3D Model.

What happens when Reference Files are **substituted**

- Typically results in a 'Static' non editable model
- SELECTseries 4 Maintenance Release 2
 - Corridors include a 'copy' of the parent geometry, this way if a reference file is not available the corridor is still editable
 - If a reference file is substituted with different geometry' the keyin – corridor reattach can be used to heal to the new geometry

Limitations

- civil cells need to be manually replaced



Thankyou