



Plan and Profile Annotation for Rail

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Product Specialist (Rail)

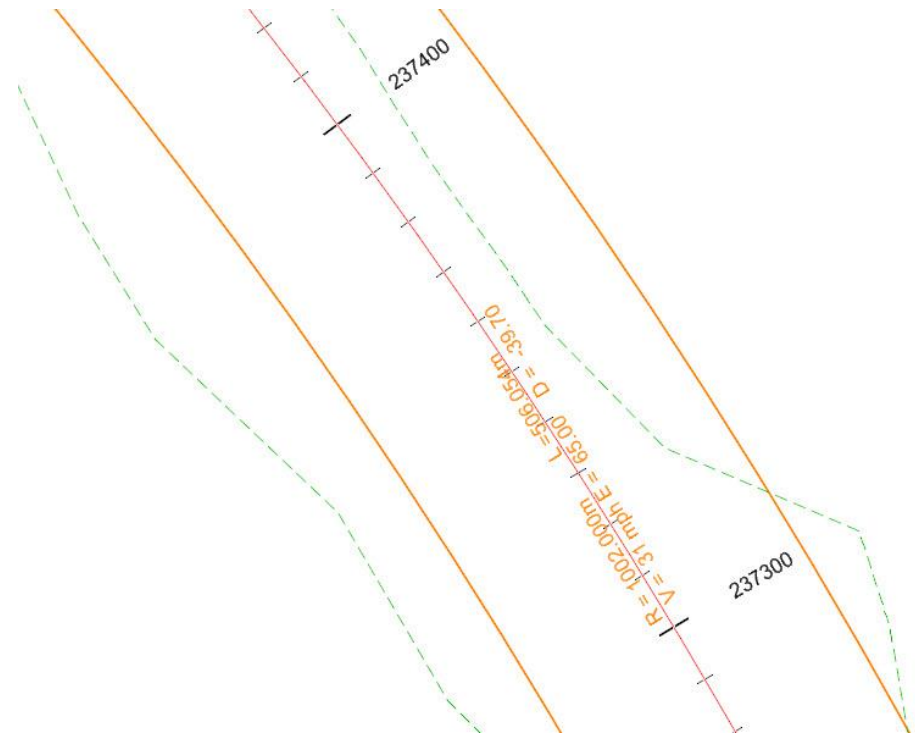
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Introduction

OpenRail Designer Annotation driven by the workspace and available to customize

- Automated annotation of horizontal and vertical geometry
- Greenfield and Brownfield annotation

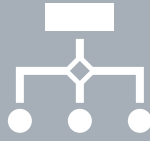


Agenda

- Introduction to Annotation in OpenRail Designer CONNECT Edition
- Creating a Text Favorite
- Creating Annotation Definitions
- Exploring the Annotation Manager
- Linking an Annotation Group to a Feature Symbology
- Feature Definition Wizard

Introduction to Annotation





Annotated during or
after creation

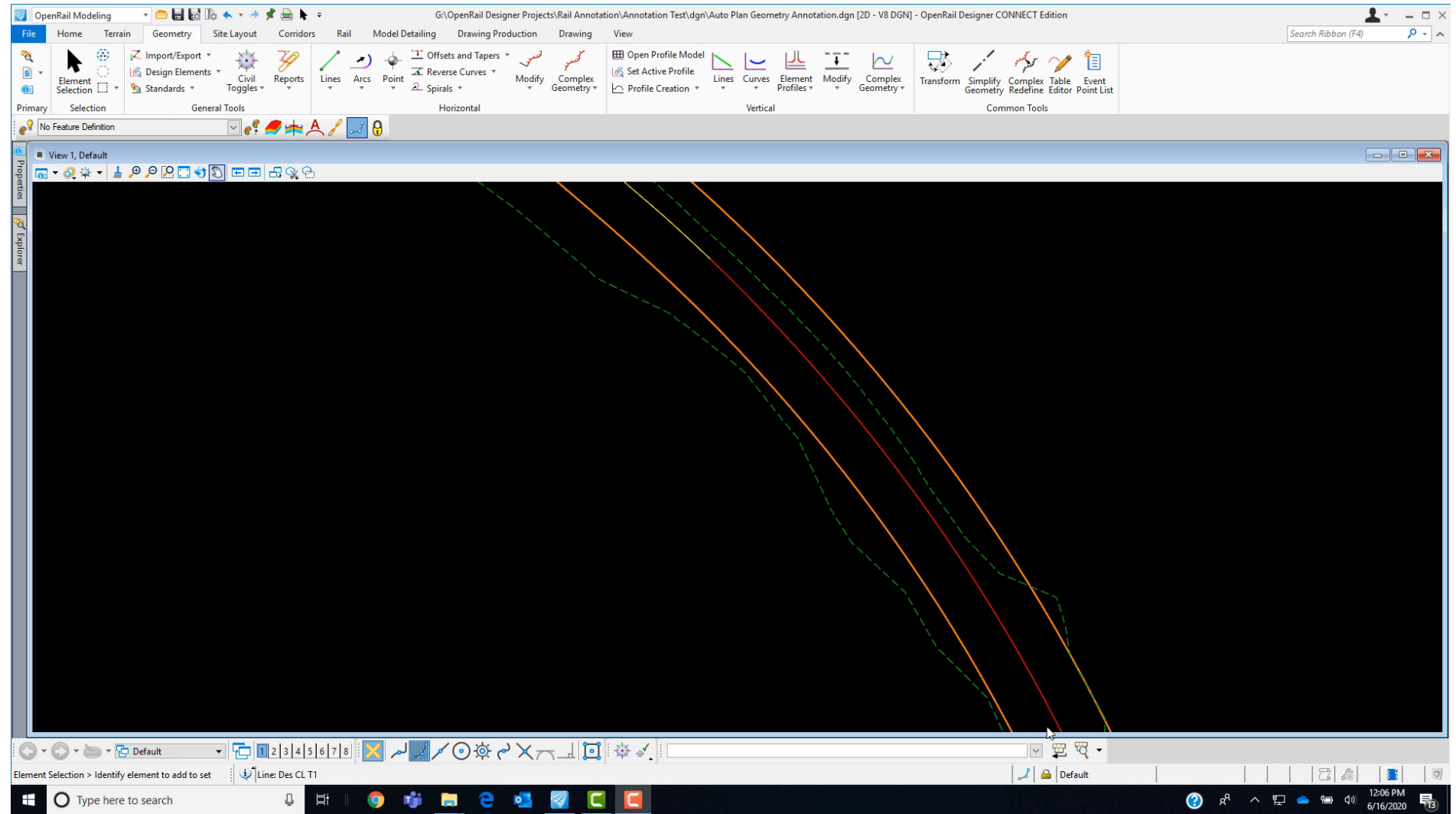


Annotation Updates
in real time

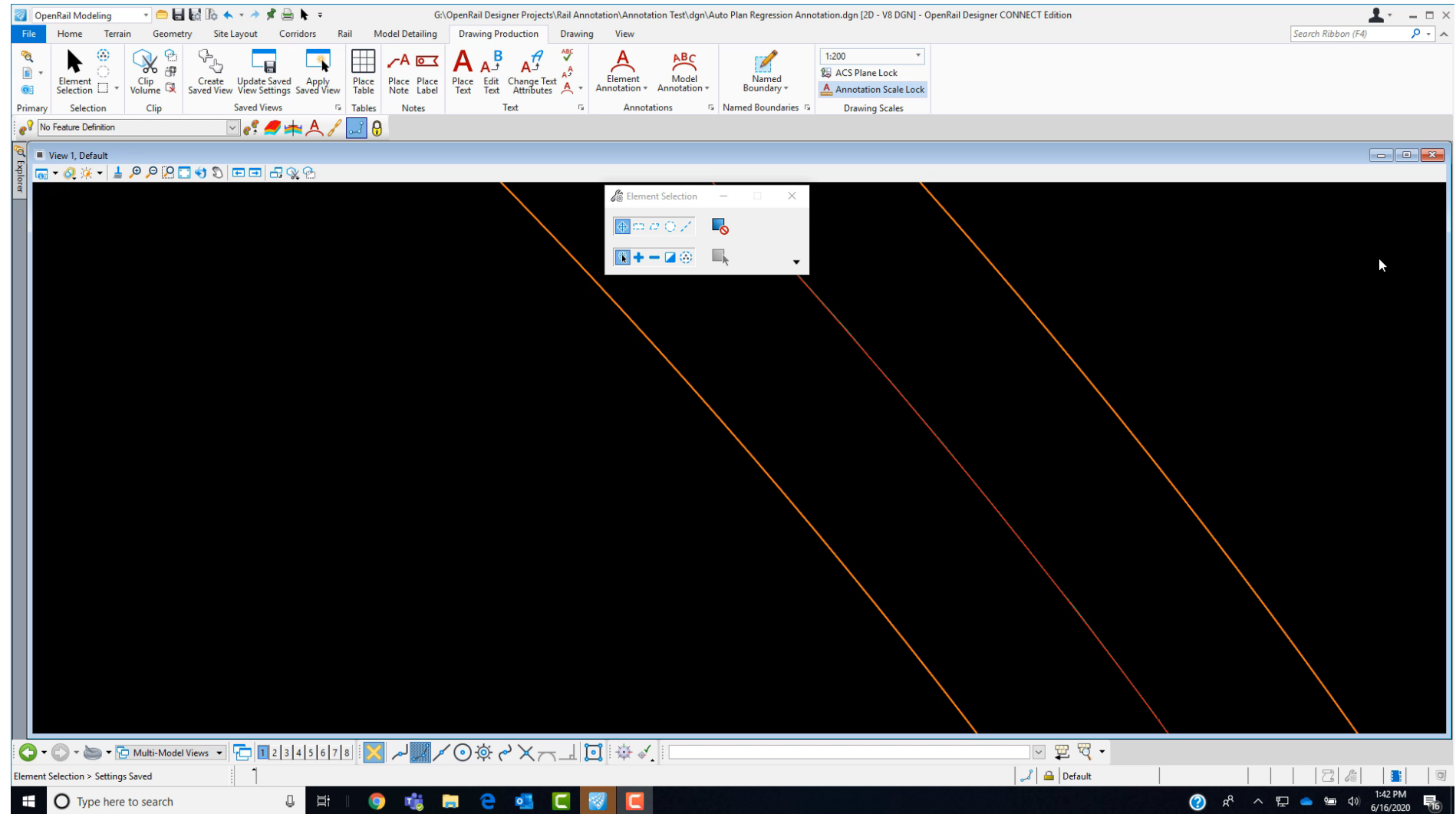


Drawing scale aware

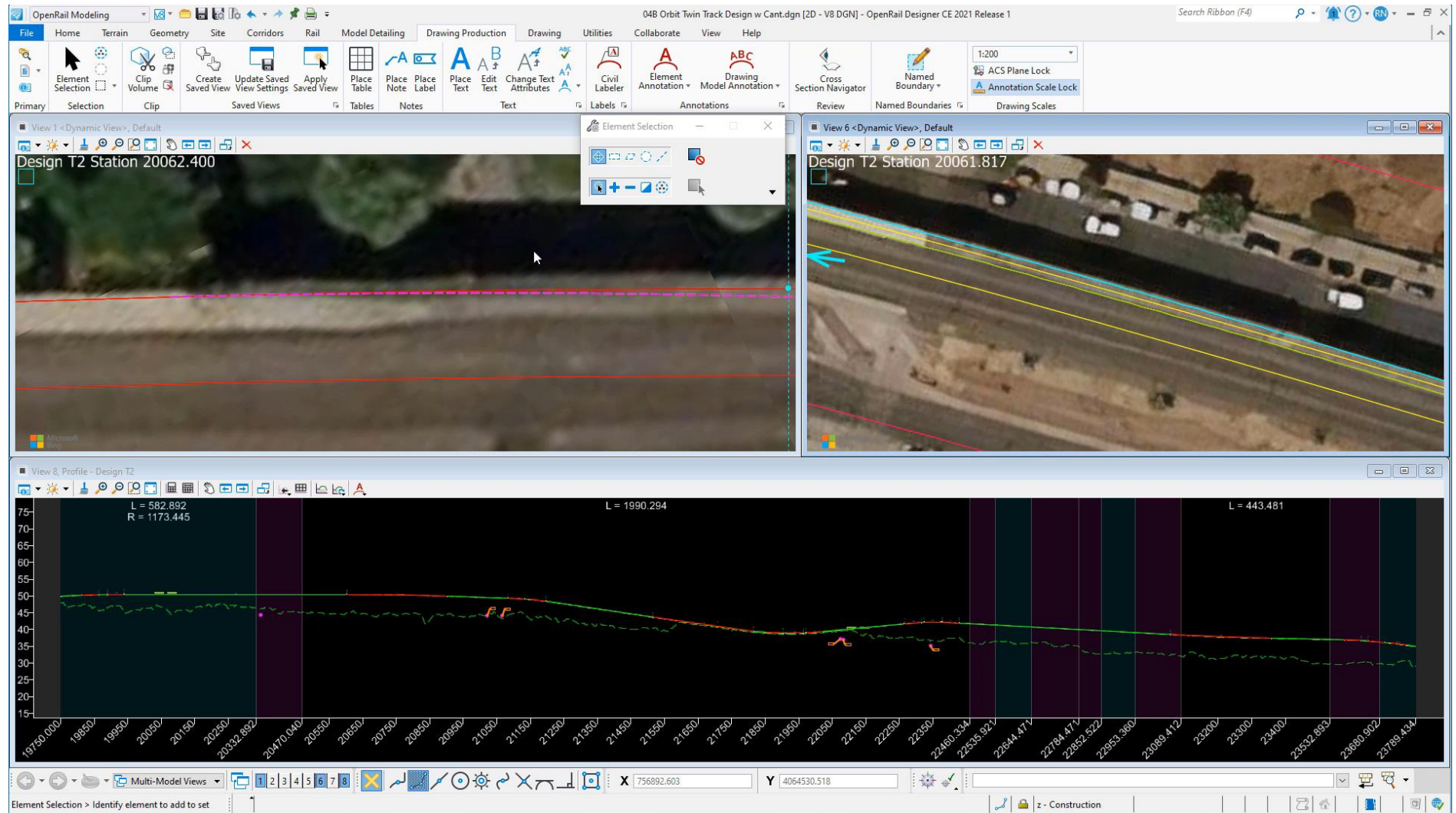
Automated Horizontal Geometry Annotation



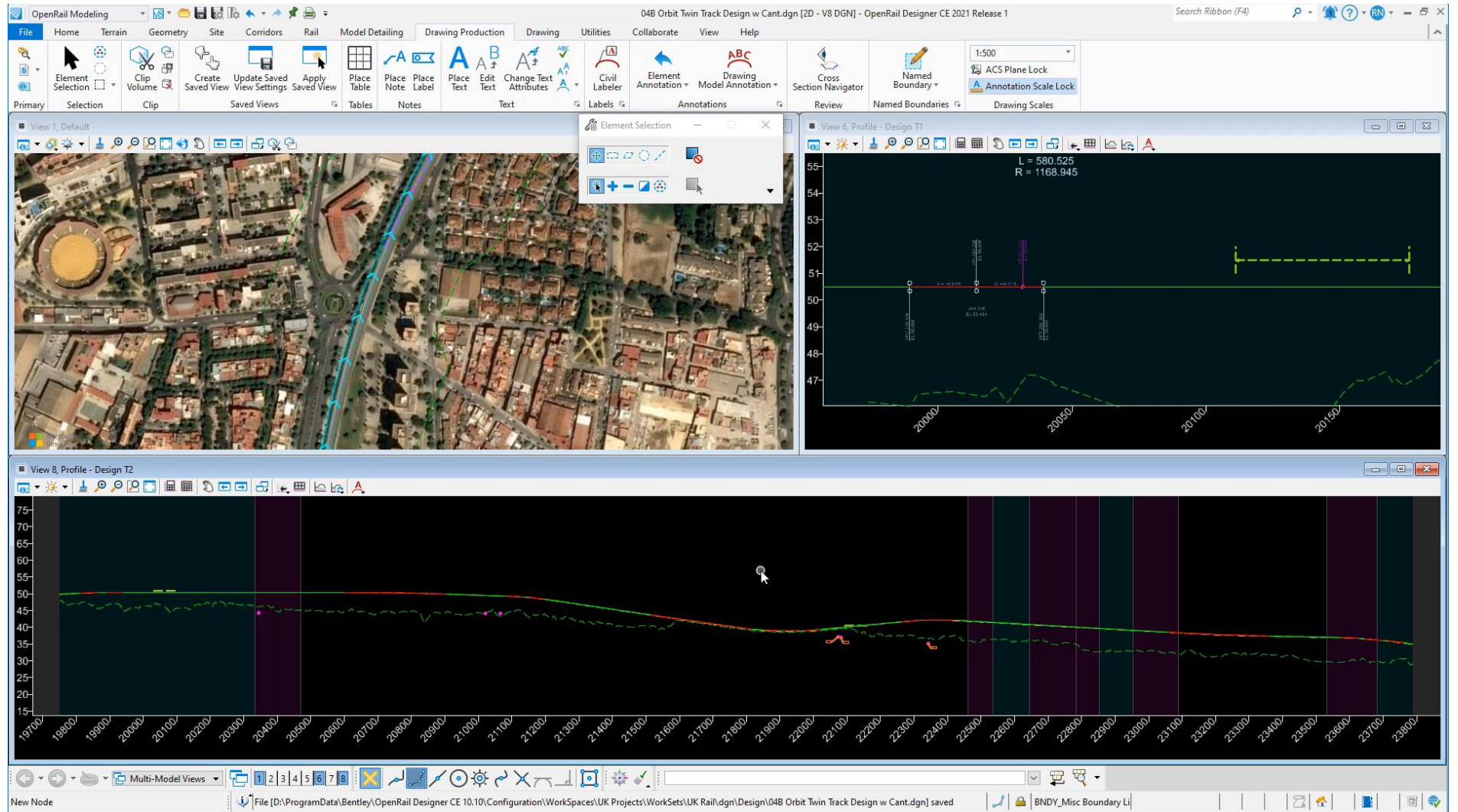
Automated Horizontal Slue Annotation



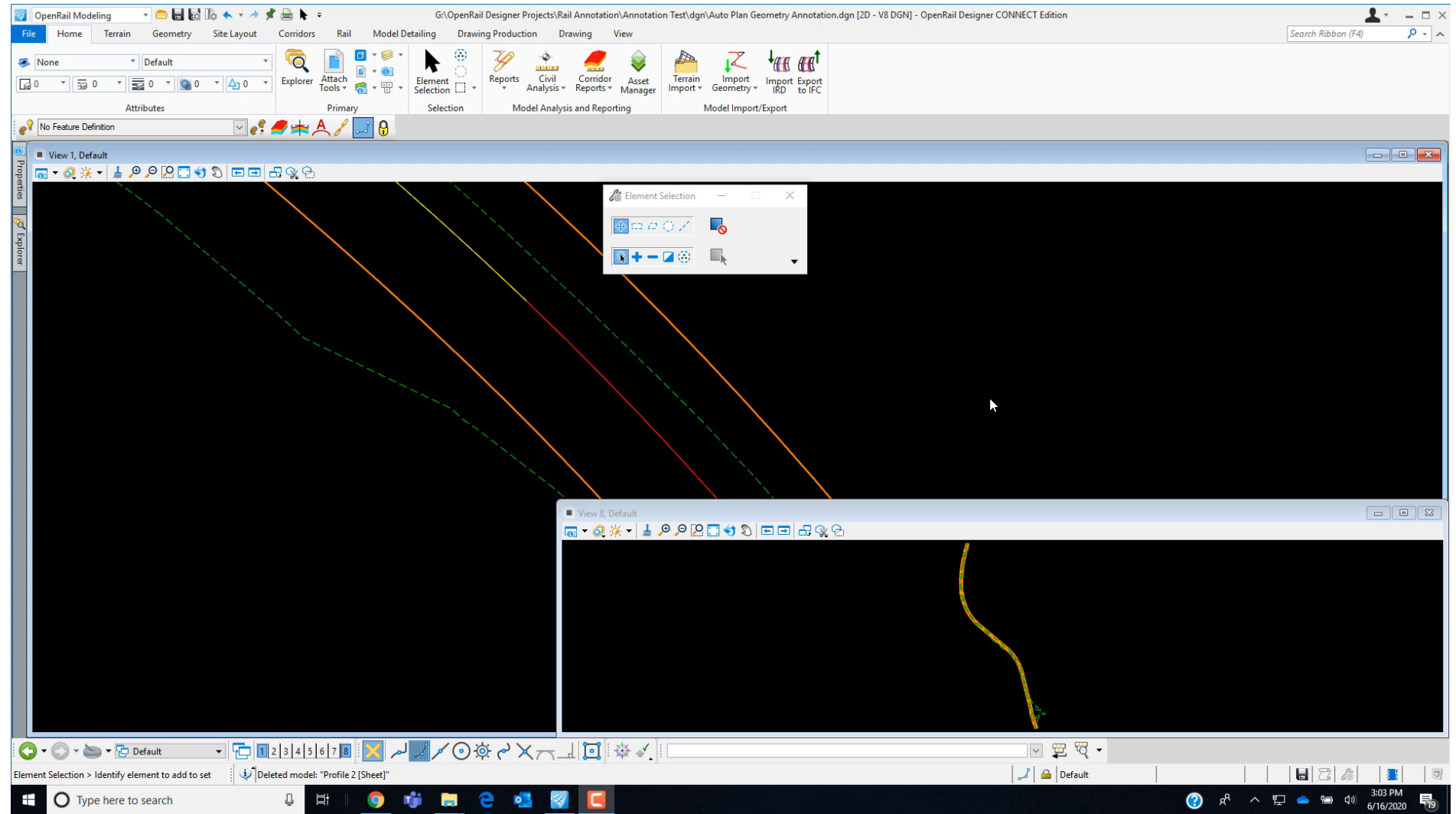
Automated Horizontal Cant Annotation



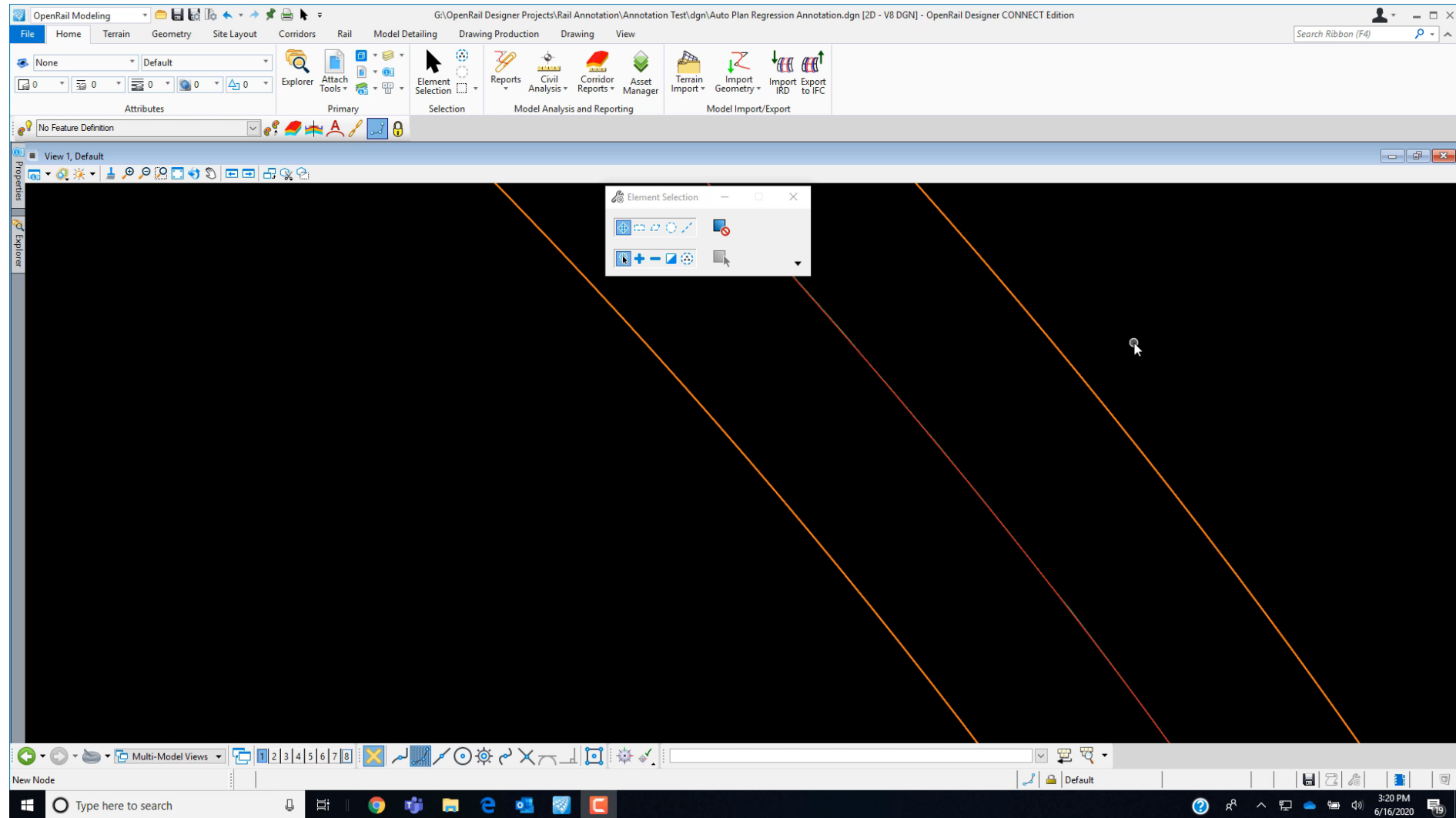
Automated Profile Annotation



Automated Vertical Geometry Annotation (New Design)



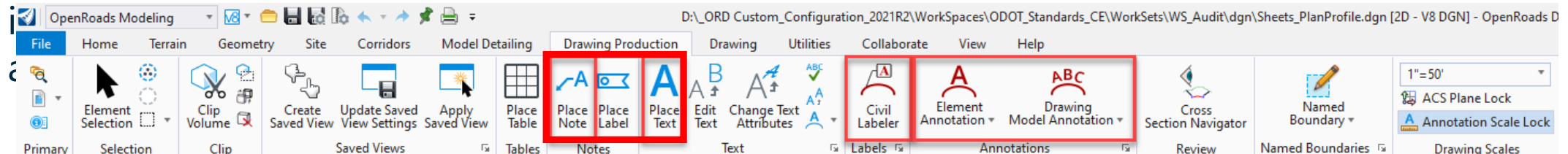
Automated Vertical Geometry Annotation (Renewal Design)



Overview of Annotation and Labeling

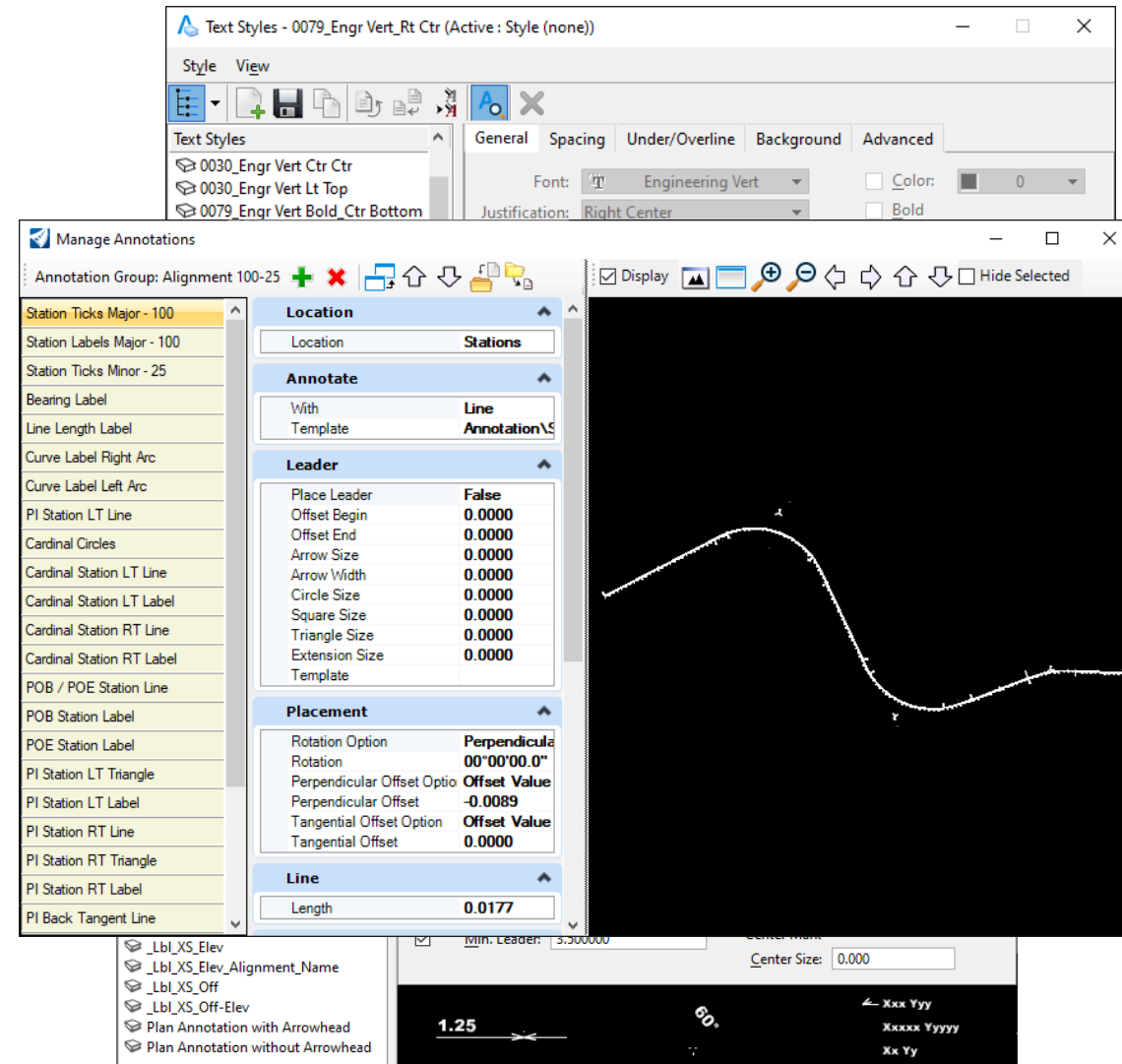
There are several tools that can be used for labeling in OpenRoads:

- **Place Text** – Places user defined static text.
- **Place Label** – Places user defined static and computed text (limited options w Text Favorite or Cell)
- **Place Note** – Places user defined static text with a leader line.
- **Element Annotation** – Uses Annotation Groups to define text/labels for a particular element. The default Annotation Group is a property of the Feature Definition but can be overwritten.
- **Drawing Model Annotation** – Uses Annotation Groups to define text/labels for the drawing model created when creating sheets. A default Drawing Annotation can be set in the Sheet Seed but can be overwritten.
- **Civil Labeler** – Supports complex labels computed from one or multiple targets. Labels can



Elements Needed for Creating Labels and Annotations

- **Text Styles** – Defines a group of text attributes, such as, font, text size (height/width), justification, spacing, and color. Enables consistency and standards when placing text.
- **Dimension Styles** – Defines a group of settings (terminators, units, formats, and symbology) for leader lines and dimensioning.
- **Text Favorites** – A reusable bit of text. The text can include static text and computed text.
- **Annotation Definitions** – Annotation settings for labels used within an Annotation Group.



Text Favorites



What is a Text Favorite?

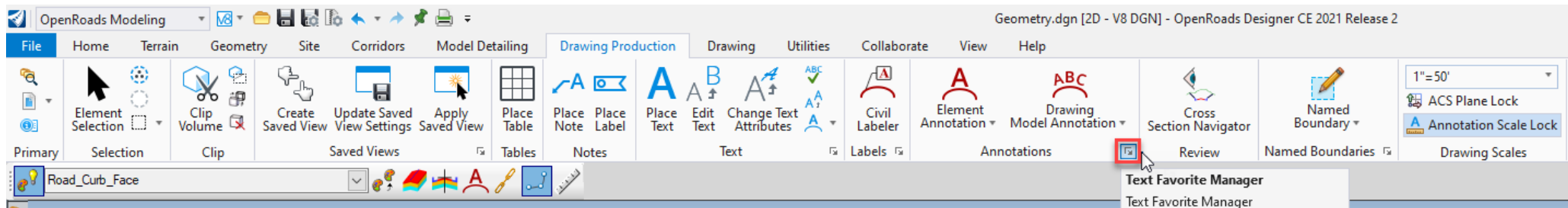
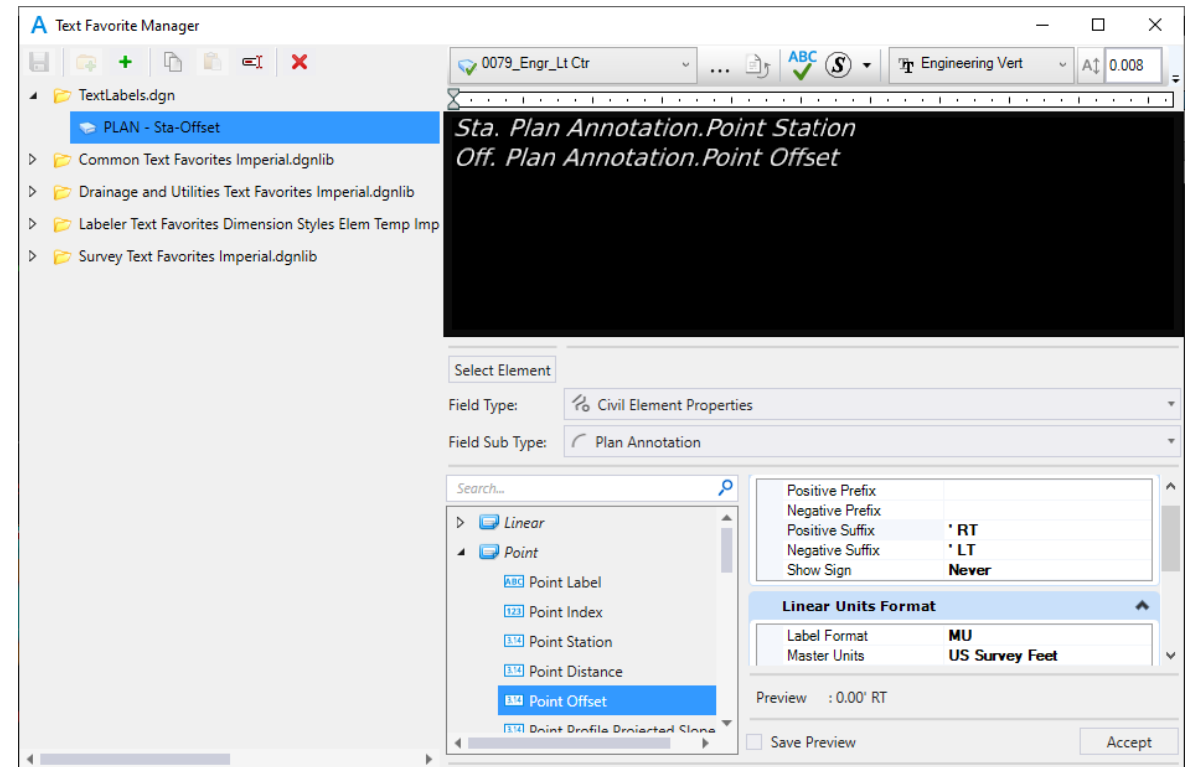
A reusable bit of text

Sta. 10+000

- Static Text (*Sta.*)
- Computed Text (*10+000*)

Creating Text Favorites

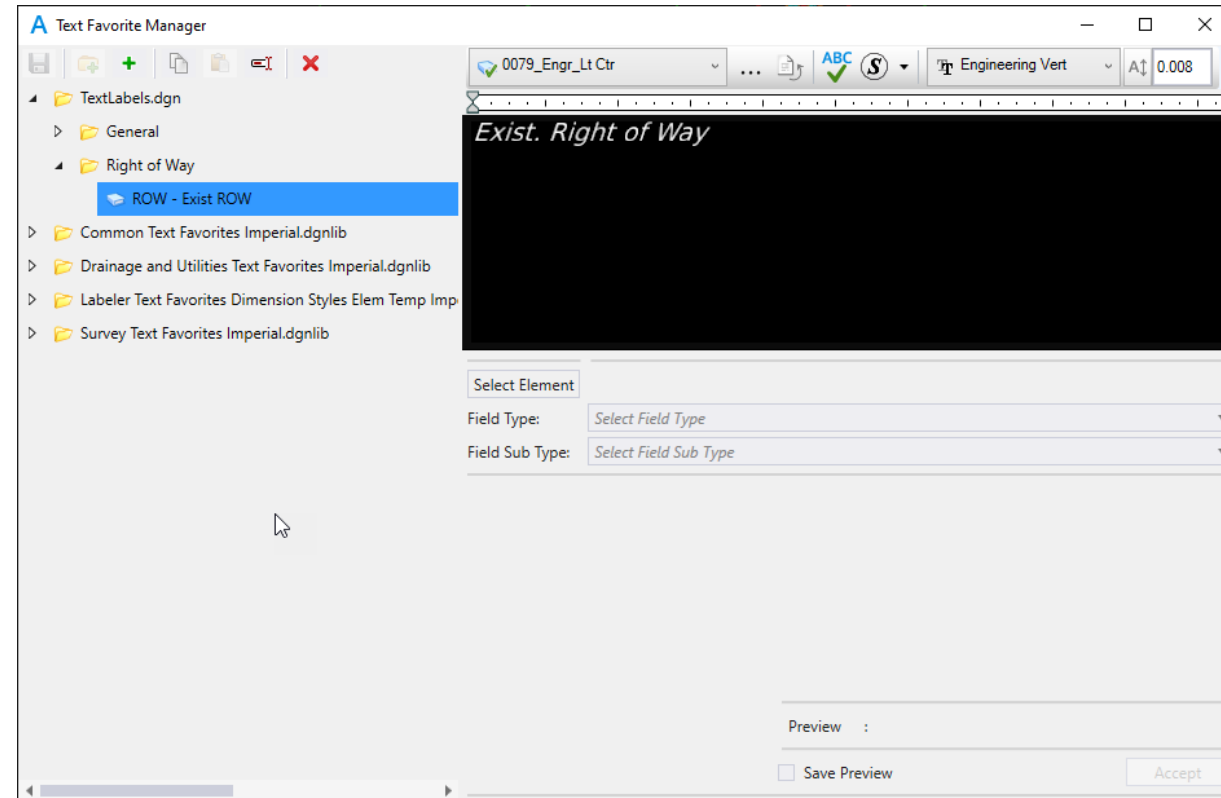
1. Open the Text Favorite Manager.
2. Set the Text Style.
3. Type any "static" text.
4. Add the computed text by choosing the Field and Sub Field Type -OR- use the Select Element Option.
5. Save the Text Favorite.



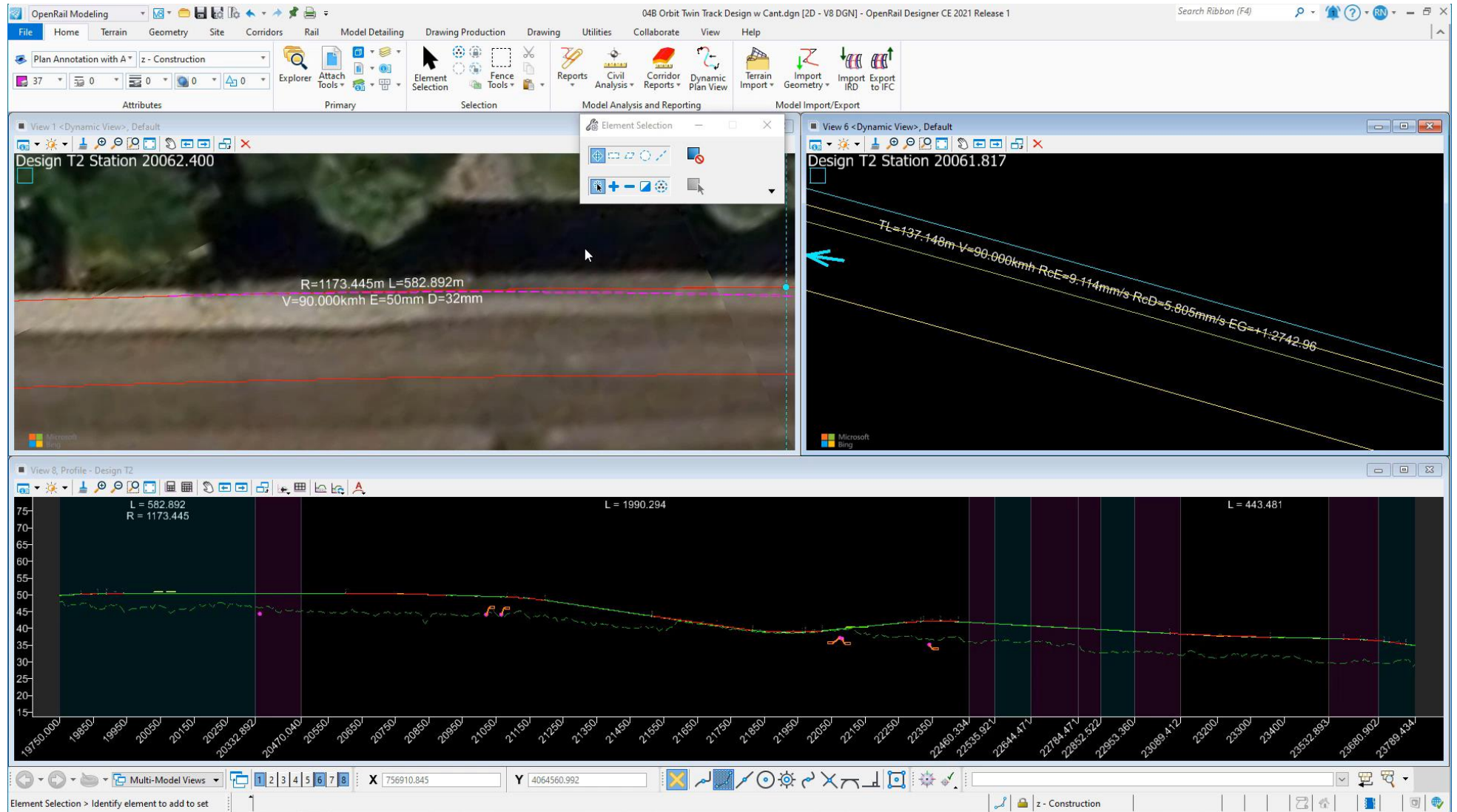
Creating Text Favorites

Text Favorite Tips:

- Text Favorites are stored and pulled into the Workspace through a .dgn library (.dgnlib) file.
- Text Favorites can be created and tested in any working .dgn file and then copied into a .dgnlib file.
- The **Select Element** button can be very useful (especially for DU).
- Organize and use good naming schemas when creating custom Text Favorites.
- Text Favorites can be *static text* only.
- Can be easily tested with the *Place Label* tool.
- Use delivered examples as a starting point.



Creating a Text Favorite

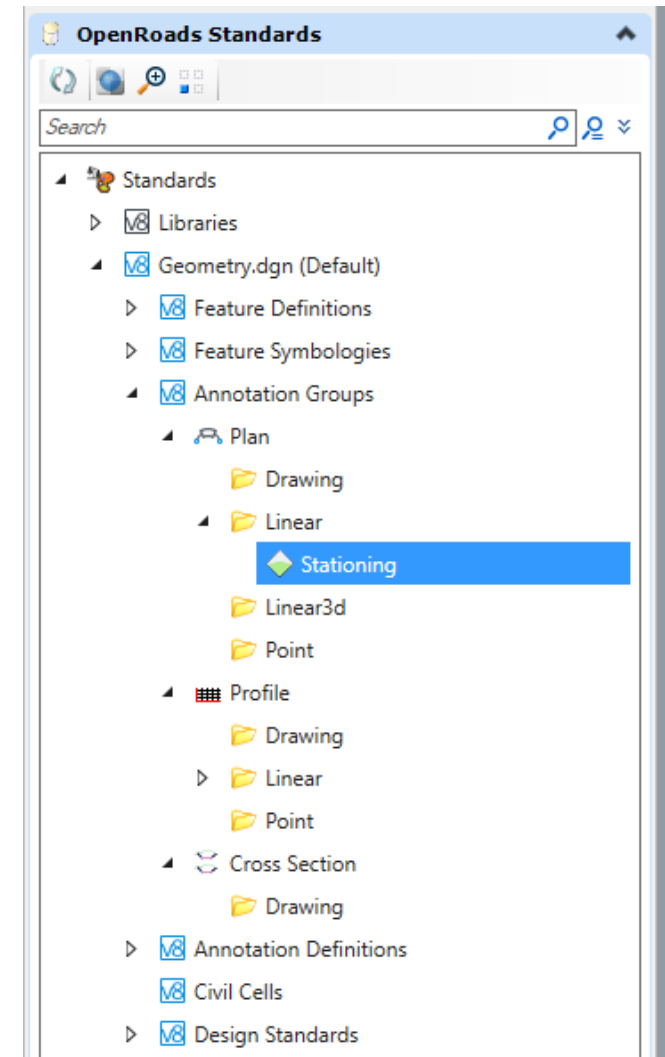
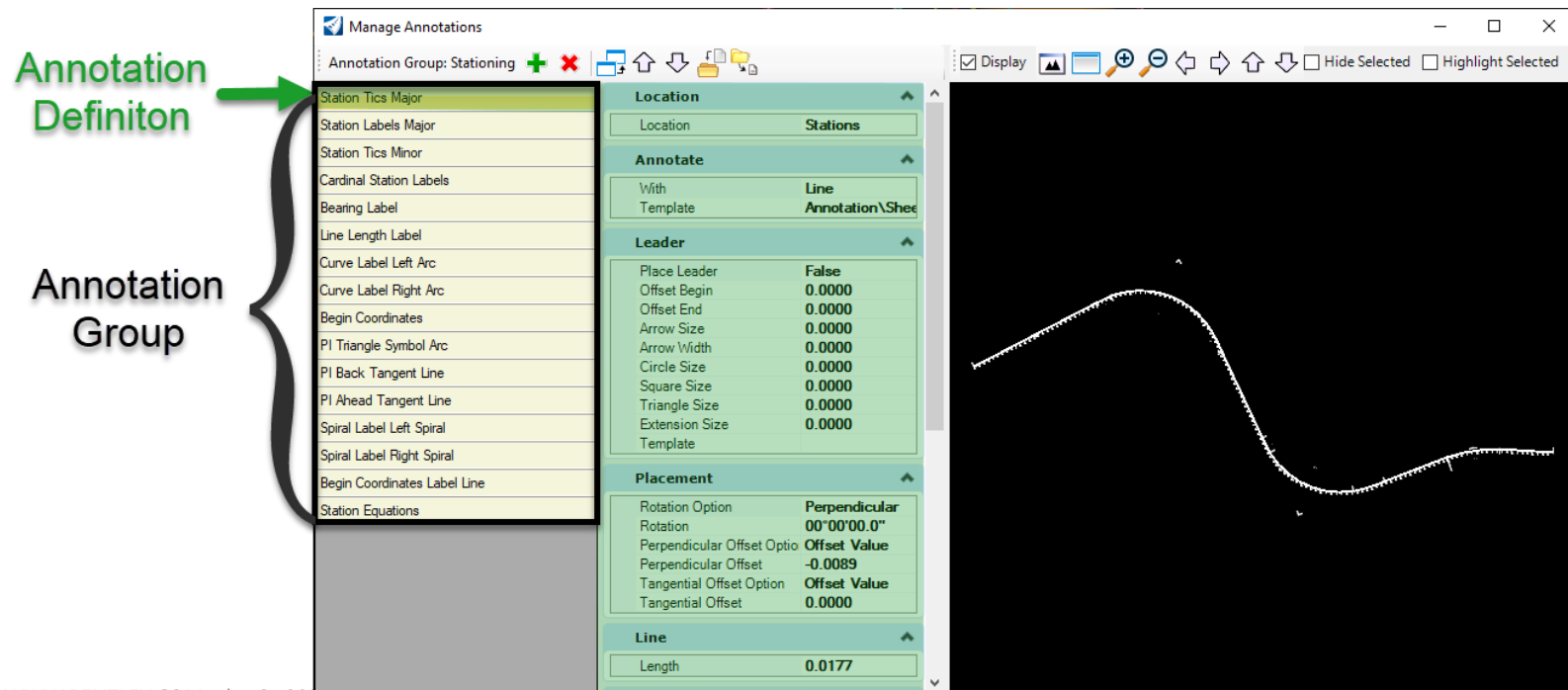


Annotation Definition



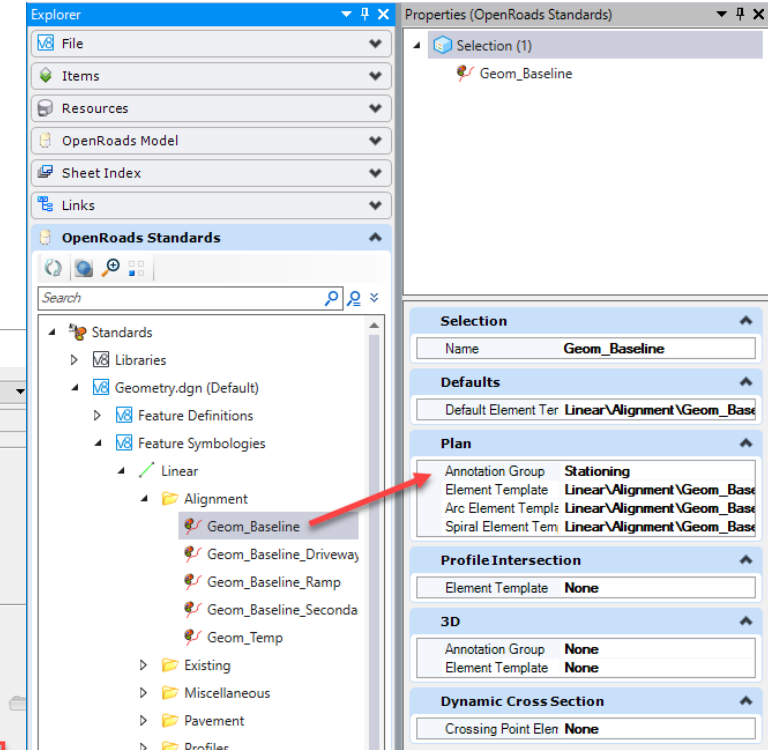
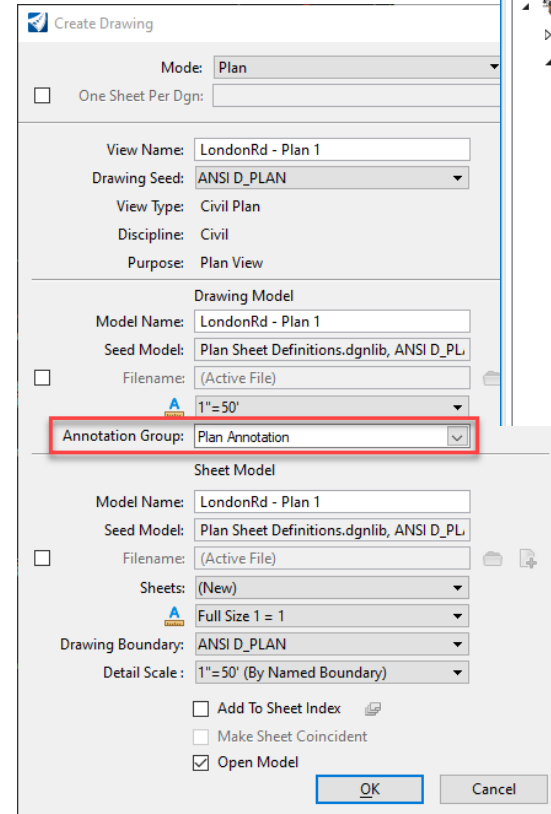
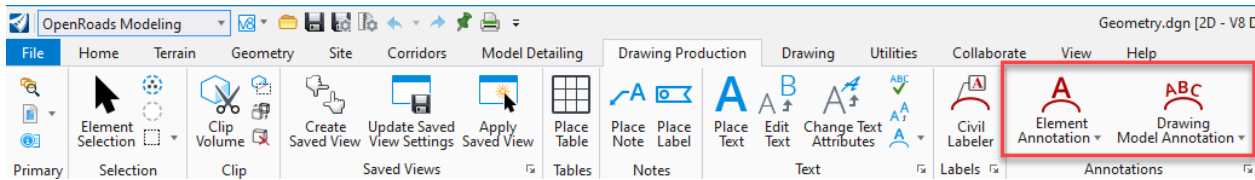
Annotation Groups

- **Annotation Definition** – details and settings of the annotation.
- **Annotation Group** – collection of *Annotation Definitions*.
- Accessed through Project Explorer.
- Categorized into Sheet Types and Element Sub Types.



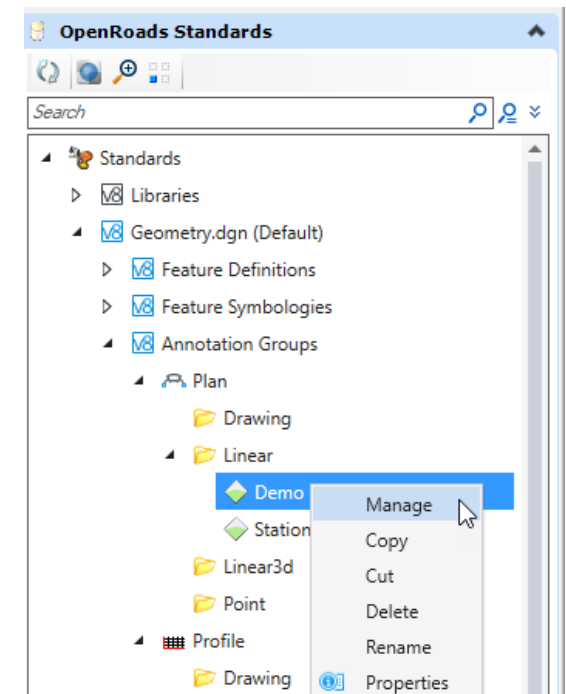
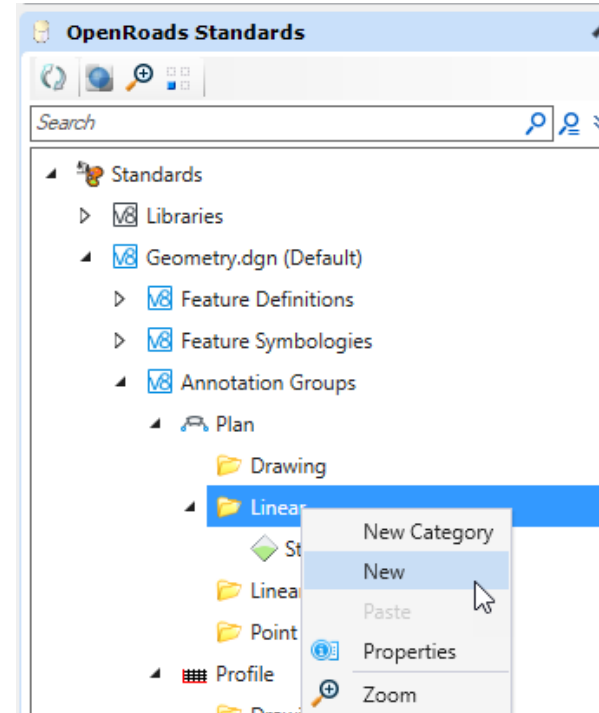
Annotation Groups

- **Default** annotation groups can be assigned to **Elements** through *Feature Definitions (Feature Symbologies)*.
- **Default** annotation groups can be used and assigned to **Drawing Models** (for creating sheets) in the Drawing Seeds.
- The default annotation groups can be overwritten.



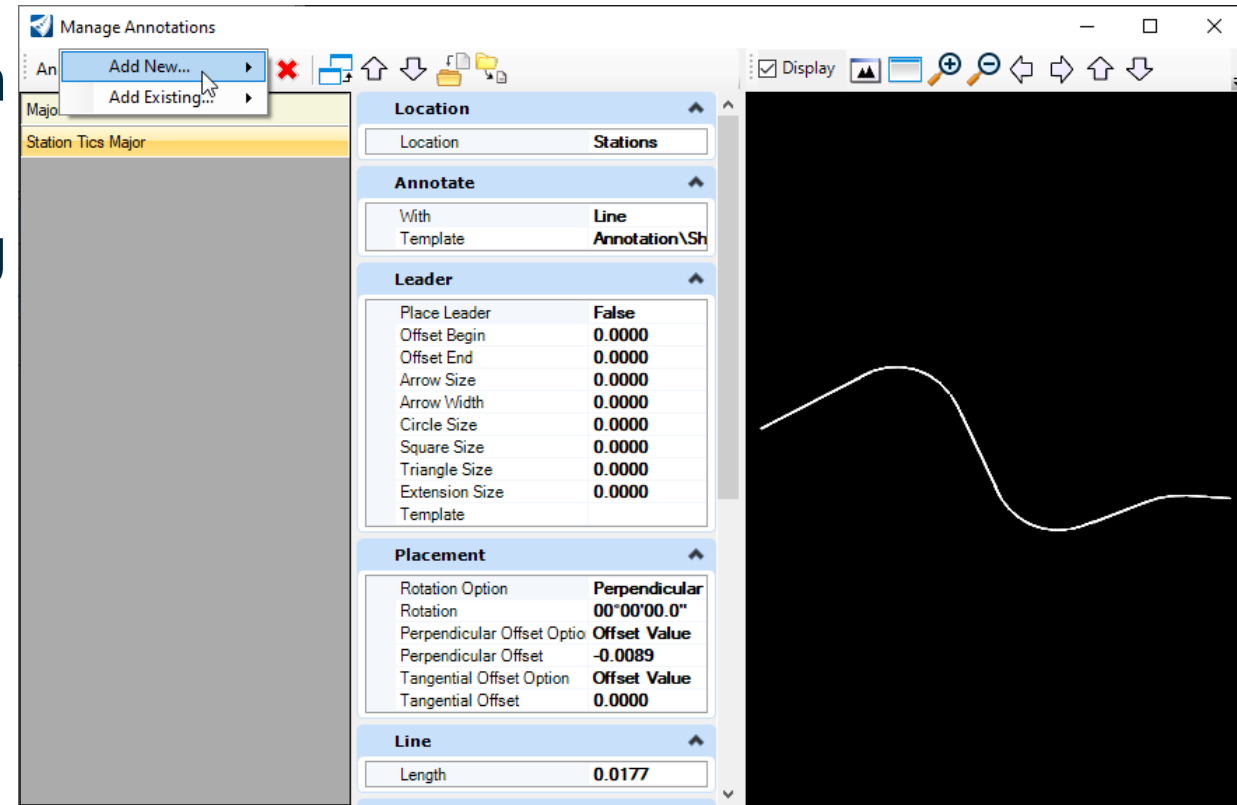
Creating Annotation Groups

1. Open Explorer and navigate to *OpenRoads Standards > Annotation Groups*.
2. Determine the Type and Sub Type needed for the Annotation Group.
3. Right-click to create a *New* annotation group.
4. Right-click on the annotation group to *Manage* the group of definitions.



Creating Annotation Groups

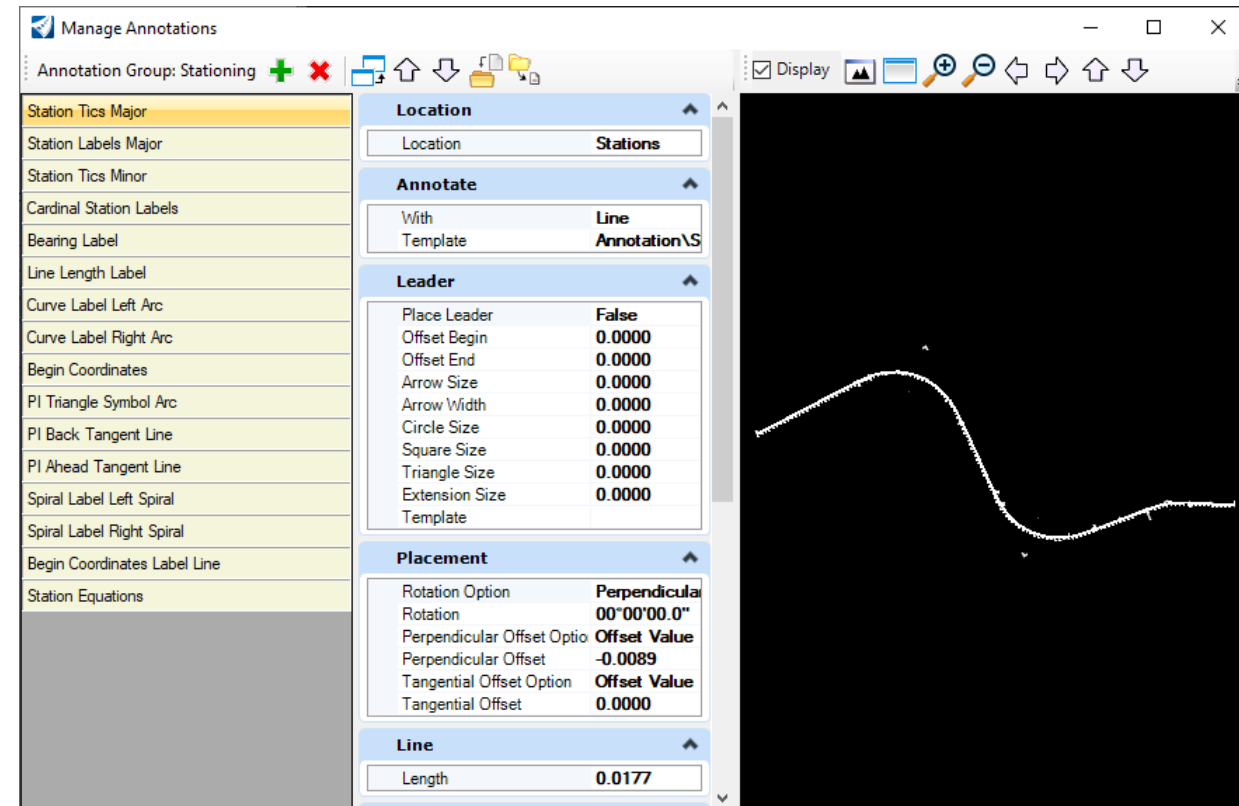
5. Create new or copy existing annotation definition(s) and establish the settings accordingly.
6. Close the *Manage Annotations* dialog to **save** the changes.



Creating Annotation Groups

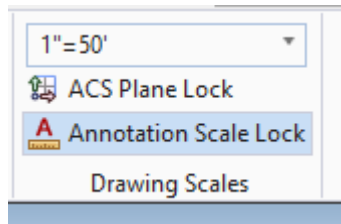
Annotation Group Tips:

- Annotation Groups are stored and pulled into the Workspace through a .dgn library (.dgnlib) file.
- Annotation Groups can be created and tested in any working .dgn file and then exported/imported into a .dgnlib file.
- Annotation Definitions can be used across multiple Annotation Groups, so be careful when copying and editing the definition settings.
- ORD 2021 R2 has *text location management*.
- Organize and use good naming schemas when creating custom Annotation Groups.
- Use delivered examples as a starting point.

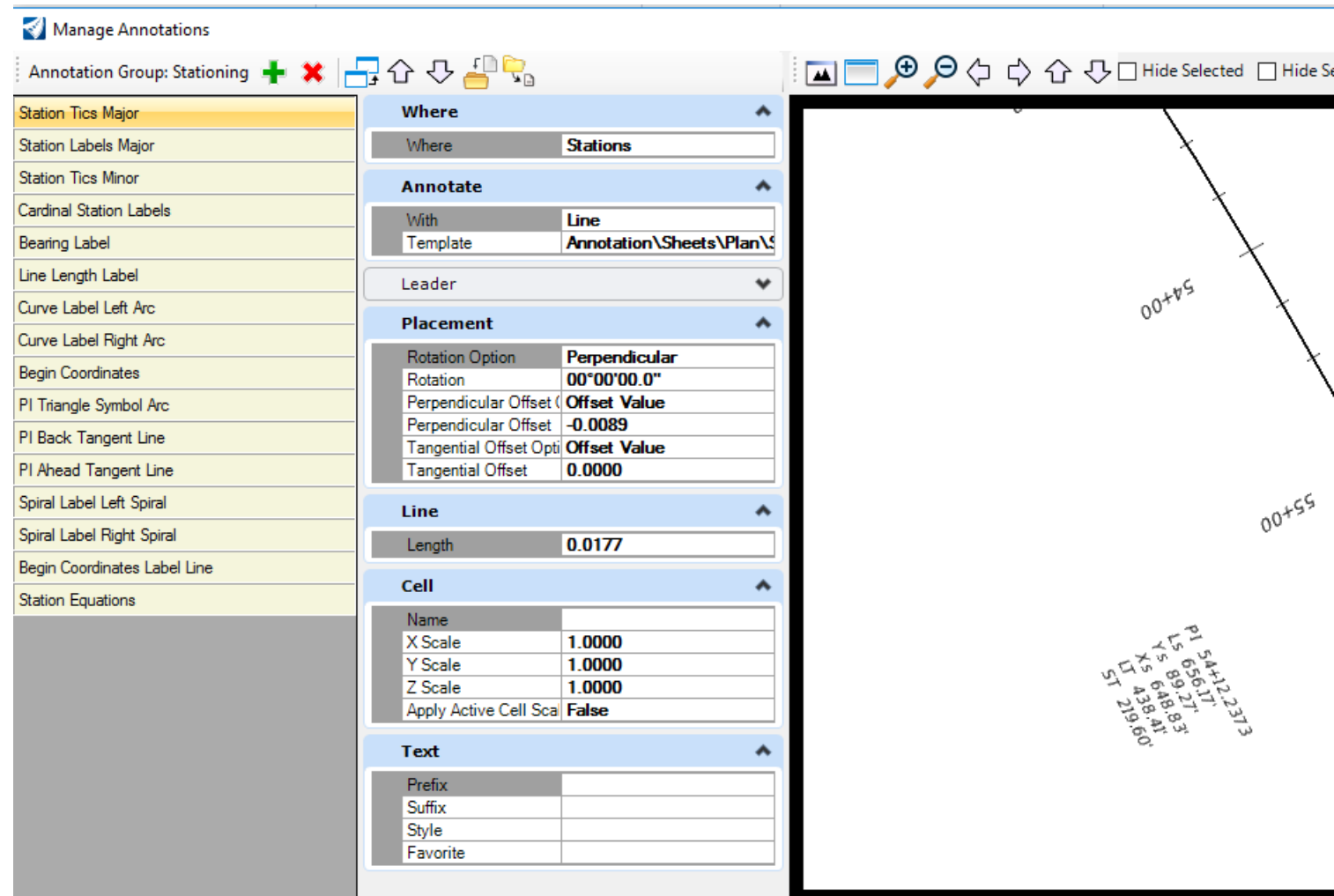


Creating Annotation Groups

- The annotation group manager uses the active drawing scale to control the size of the visualized text



- Use the Export/Import XML capability to copy between dgnlibs



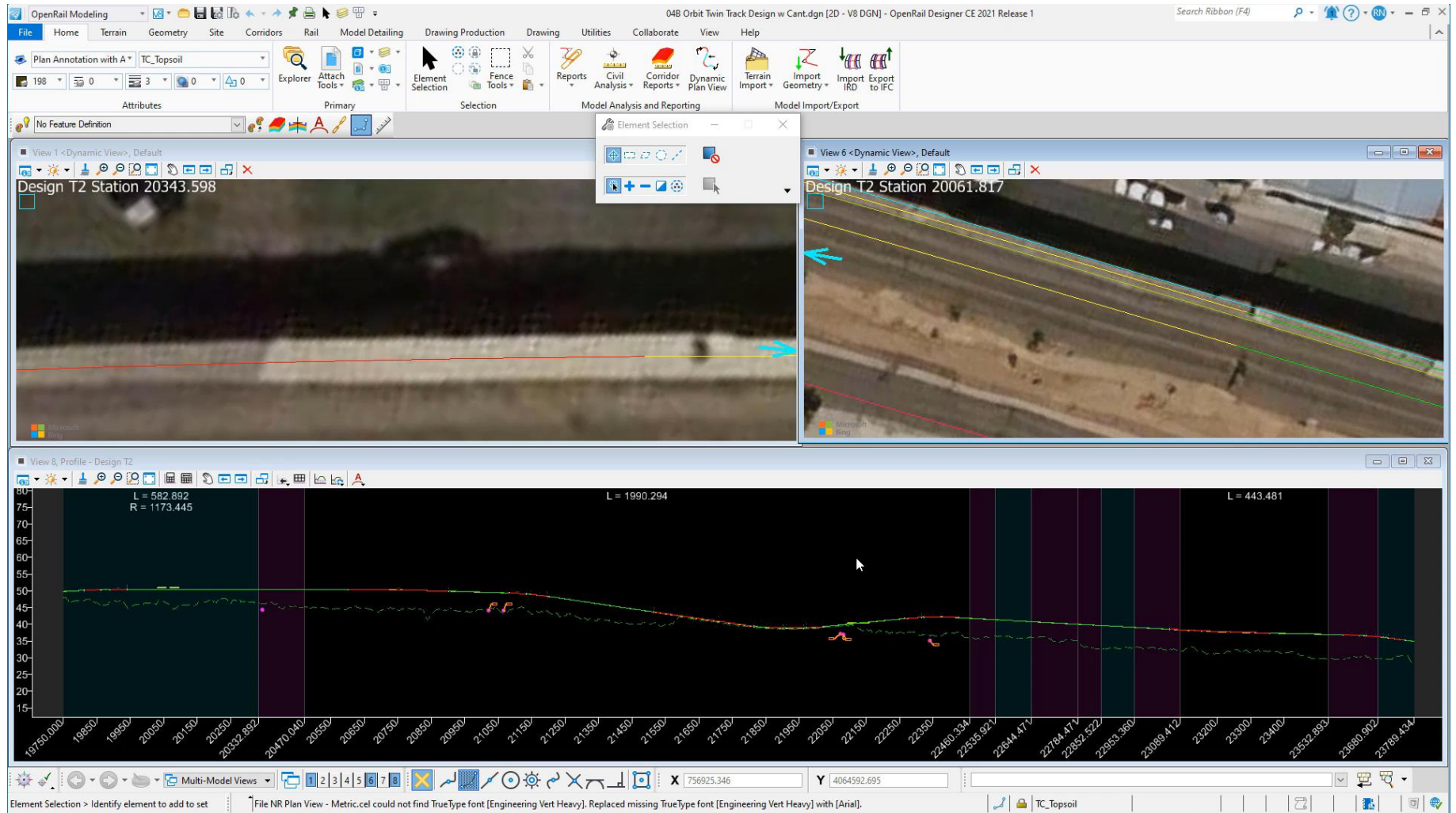
Placement	
Rotation Option	Perpendicular
Rotation	00°00'00.0"
Perpendicular Offset	Offset Value
Perpendicular Offset	-0.0089
Tangential Offset Opti	Offset Value
Tangential Offset	0.0000

Line	
Length	0.0177

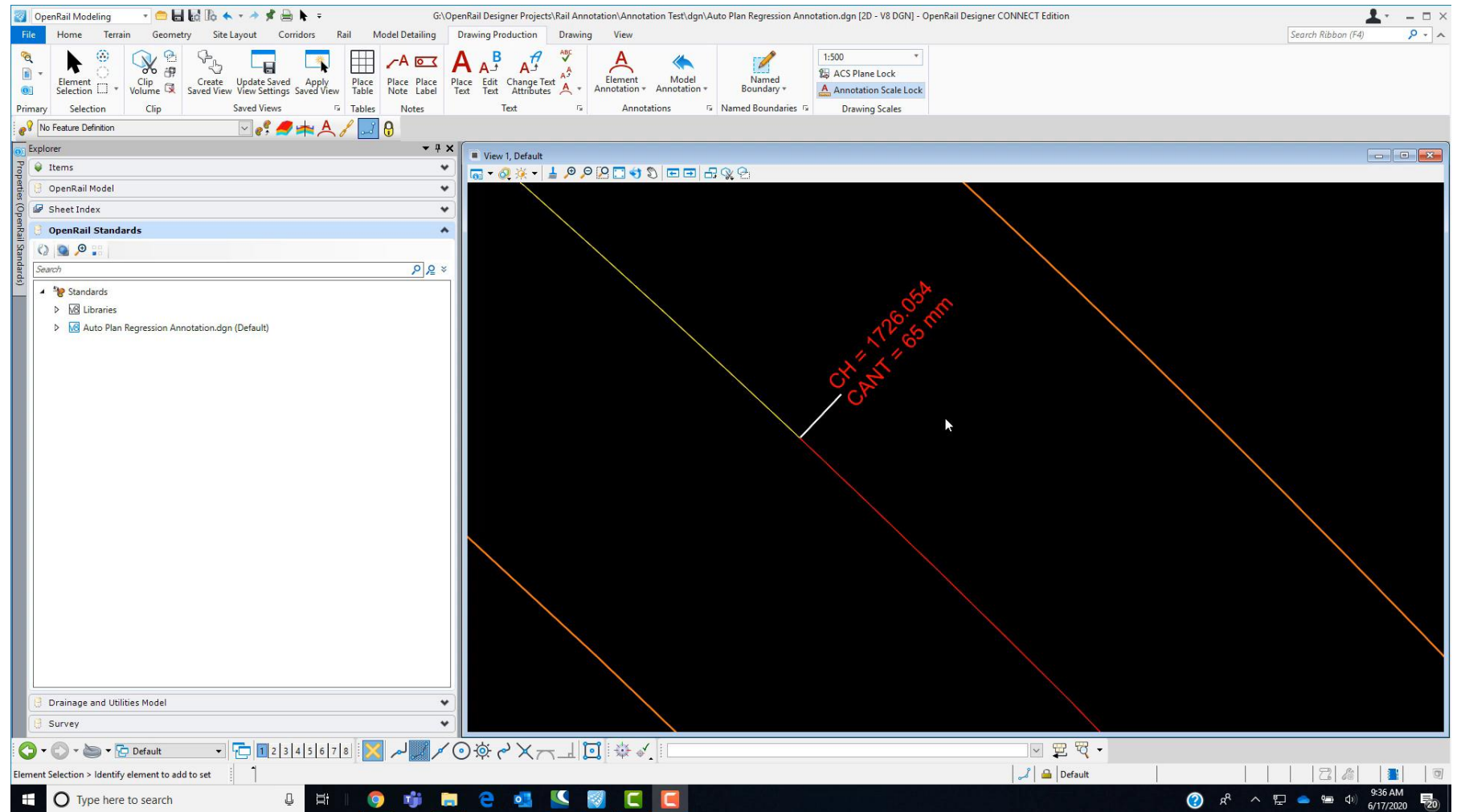
Cell	
Name	
X Scale	1.0000
Y Scale	1.0000
Z Scale	1.0000
Apply Active Cell Sca	False

Text	
Prefix	
Suffix	
Style	
Favorite	

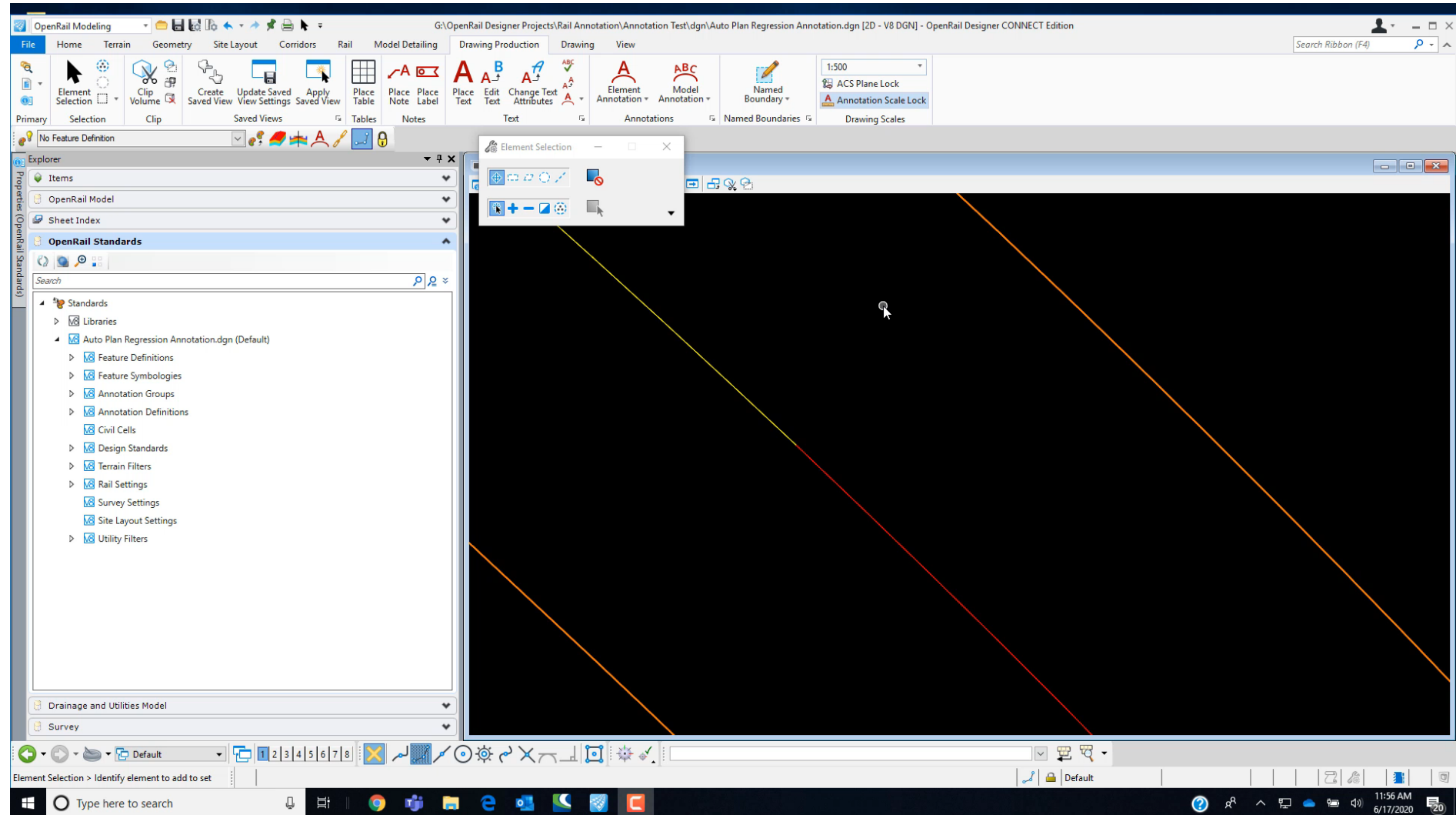
Creating an Annotation Definition for Chainage/Cant



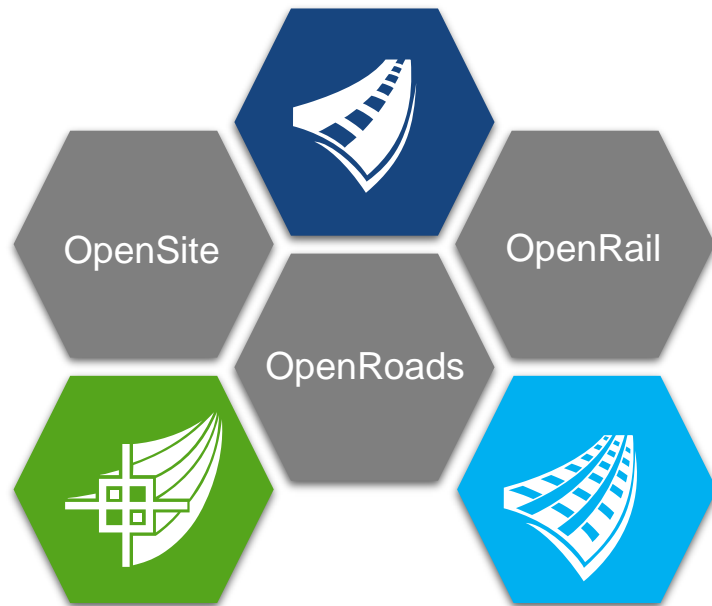
Annotation Manager Review and Export to XML



Creating an Annotation Definition for a Profile



Annotation Manager

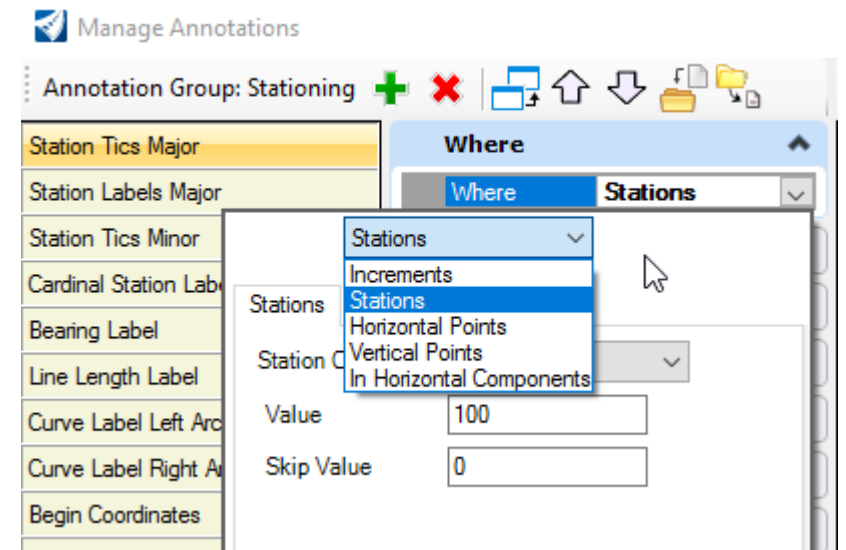


Exploring the Annotation Manager

- Context sensitive options based on the category
- Relies on text favorites to compute text such as station labels
- Uses the active drawing scale for temporary visualization graphics

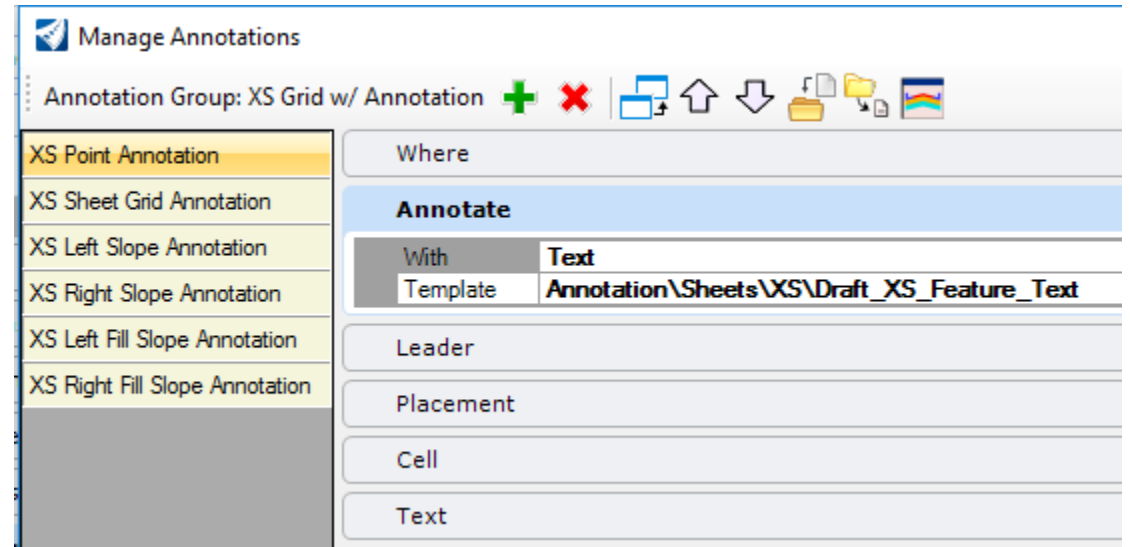
Exploring the Annotation Manager

- The **Location** property determines the position of the label(s)
 - **Alignment Annotation**
 - Increments
 - Stations
 - Horizontal Points
 - Vertical Points
 - In Horizontal Components



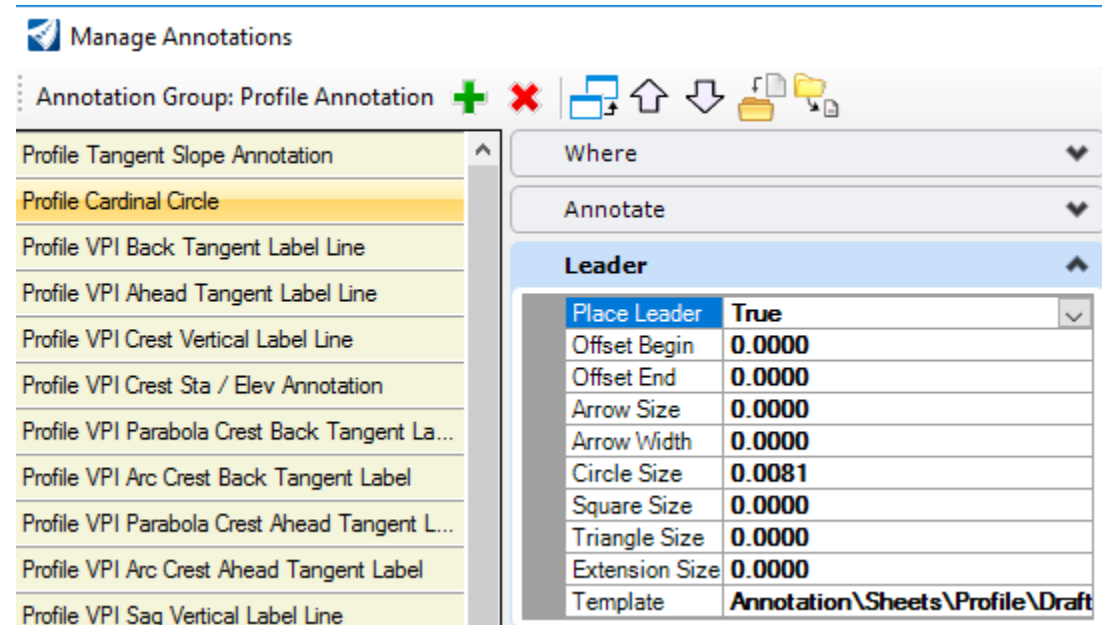
Exploring the Annotation Manager

- The **Annotate** property sets the type of label
 - Text
 - Cell
 - Line
- The template option allows the selection of an element template to control symbology



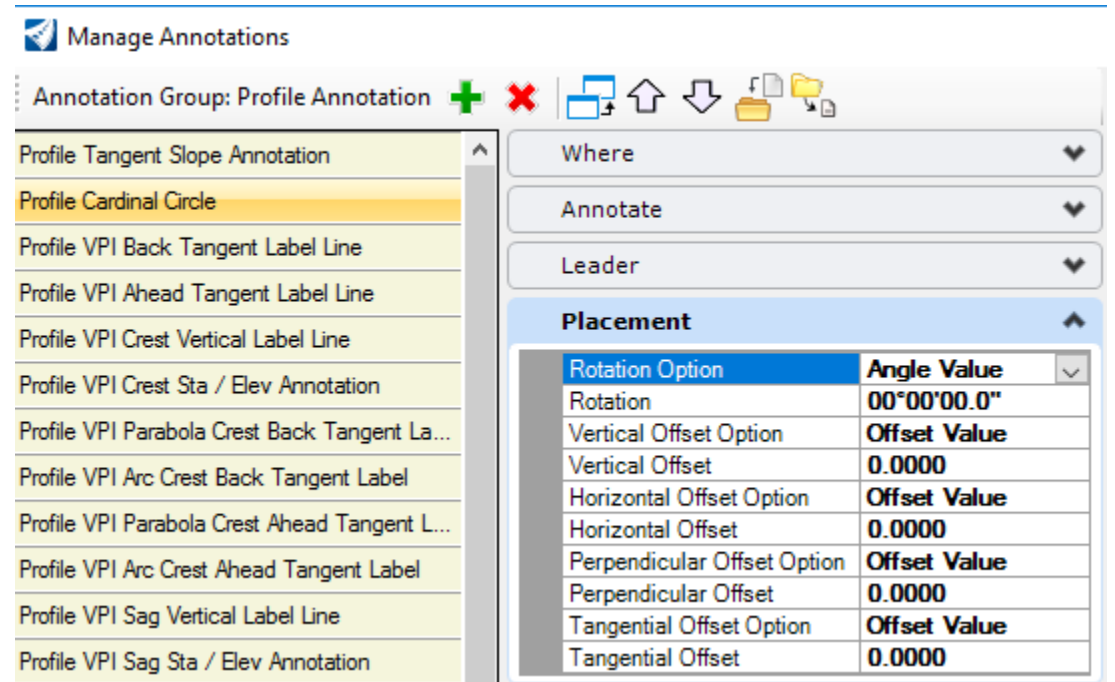
Exploring the Annotation Manager

- The **Leader** property enables an optional leader line with multiple options for terminators
 - Arrow
 - Circle
 - Square
 - Triangle
- The template option allows the selection of an element template to control symbology



Exploring the Annotation Manager

- The **Placement** property sets the location of the label relative to the “where” property and includes:
 - Rotation options
 - Vertical offset options
 - Horizontal offset options
 - Perpendicular offset options
 - Tangential offset options
- Note, differing options will appear depending on the label type



Manage Annotations

Annotation Group: Profile Annotation

Where

Annotate

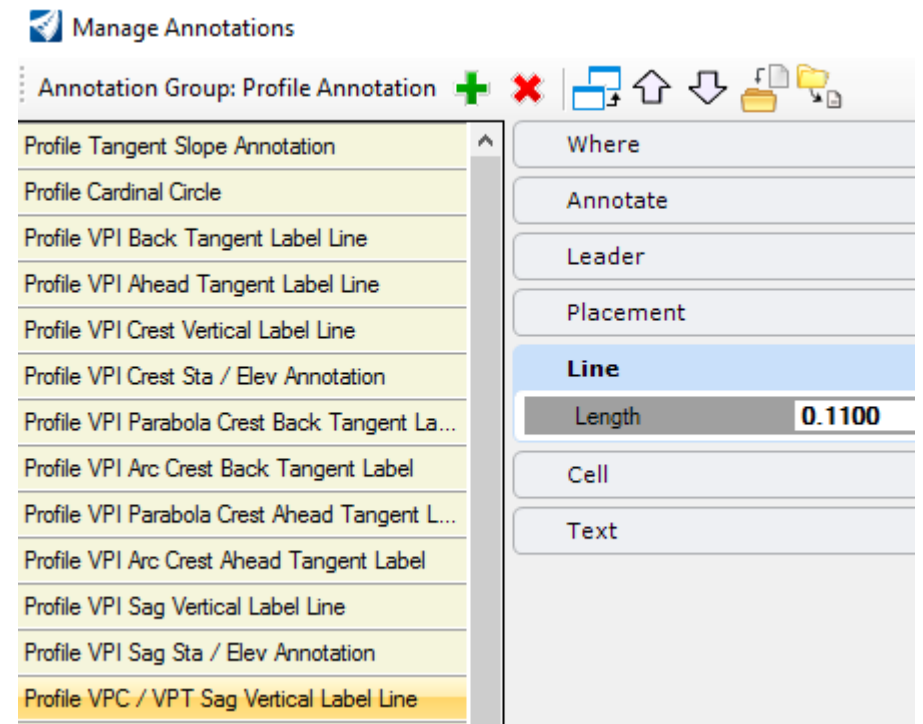
Leader

Placement

Rotation Option	Angle Value
Rotation	00°00'00.0"
Vertical Offset Option	Offset Value
Vertical Offset	0.0000
Horizontal Offset Option	Offset Value
Horizontal Offset	0.0000
Perpendicular Offset Option	Offset Value
Perpendicular Offset	0.0000
Tangential Offset Option	Offset Value
Tangential Offset	0.0000

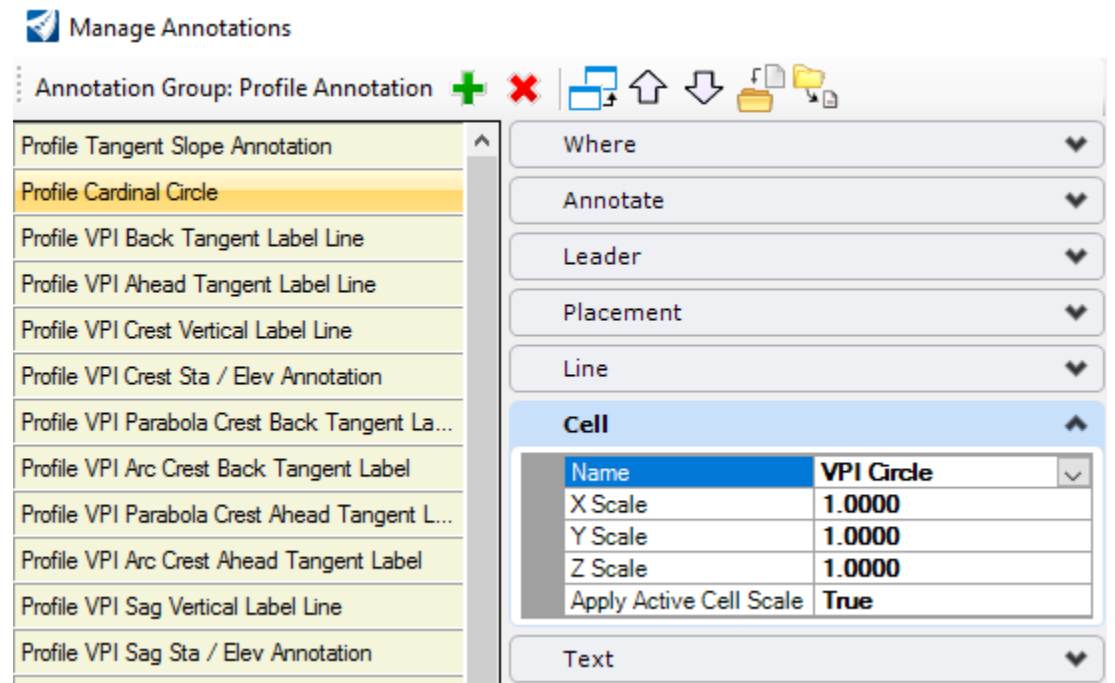
Exploring the Annotation Manager

- The **Line** property sets the length of the line when the **Annotate With** property is set to the line option



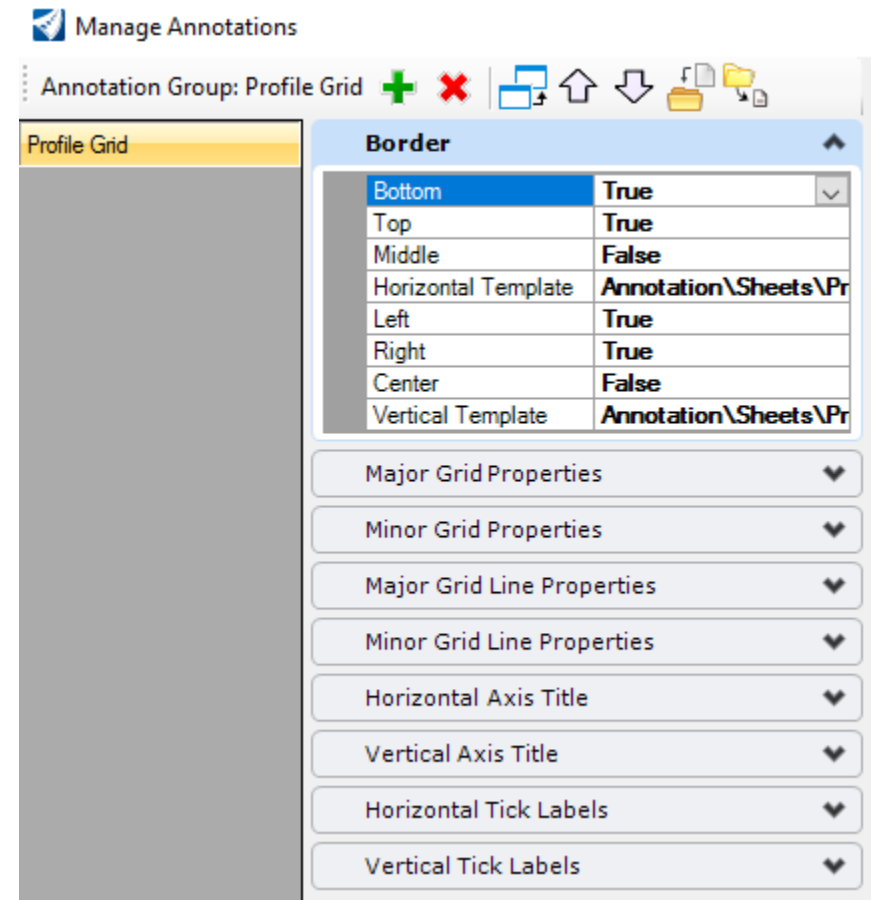
Exploring the Annotation Manager

- The **Cell** property sets the cell name, scale, and application of the active cell scale when the **Annotate With** property is set to the cell option



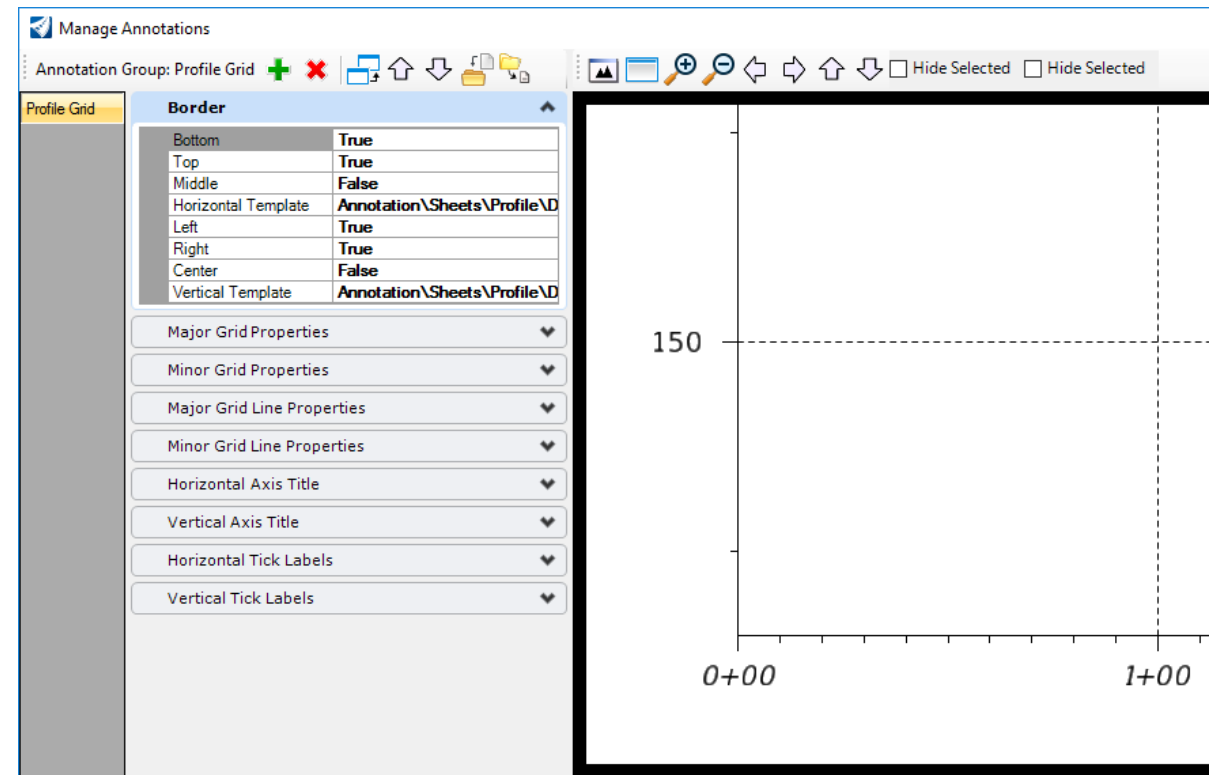
Exploring the Annotation Manager

- For grids there are two distinct types:
 - Profile grid (shown here)
 - Cross section grid



Exploring the Annotation Manager

- The profile grid sets the following:
 - Border
 - Major grid properties
 - Minor grid properties
 - Major grid line properties
 - Minor grid line properties
 - Horizontal axis title
 - Vertical axis title
 - Horizontal tick labels
 - Vertical tick labels



Exploring the Annotation Manager

- Frame annotation
- Allows for row annotation setup w/ collision intelligence

The screenshot displays the 'Manage Annotations' dialog box. The title bar indicates the current annotation group is '2.5mm Profile Frame New Design 2'. The interface is divided into several panels:

- Border:** A list of border types with their respective settings. The 'Left' border is currently selected.

Bottom	False
Top	False
Middle	False
Horizontal Template	Annotation\Sheets\Profile\A
Zero Elevation Line	False
Zero Elevation Line Ten	
Left	False
Right	False
Center	False
Vertical Template	Annotation\Sheets\Profile\A
- Major Grid Properties:** Settings for the major grid.

Horizontal Interval	50.0000
Horizontal Tick Position	Outside
Horizontal Tick Location	Bottom
Horizontal Tick Length	0.0060
Horizontal Template	Annotation\Sheets\Profile\A
Vertical Interval	2.0000
Vertical Tick Position	Outside
Vertical Tick Location	All
Vertical Tick Length	0.0060
Vertical Template	Annotation\Sheets\Profile\A
- Minor Grid Properties:** Settings for the minor grid.

Horizontal per Major	10
Horizontal Tick Position	Outside
Horizontal Tick Length	0.0030
Horizontal Template	Annotation\Sheets\Profile\A
Vertical per Major	1
Vertical Tick Position	Outside
Vertical Tick Length	0.0030
Vertical Template	Annotation\Sheets\Profile\A
- Major Grid Line Properties:** Settings for major grid lines.

Horizontal Grid	No Grid
Horizontal Template	Annotation\Sheets\Profile\A
Vertical Grid	No Grid
Vertical Template	Annotation\Sheets\Profile\A
- Minor Grid Line Properties:** Settings for minor grid lines.

Horizontal Grid	No Grid
Horizontal Template	Annotation\Sheets\Profile\A
Vertical Grid	No Grid
Vertical Template	Annotation\Sheets\Profile\A
- Horizontal Axis Title:** Settings for the horizontal axis title.

Draw	False
Position	Bottom
Location	Left
Rotation Option	Active Angle
Rotation	00°00'00.0"
Vertical Offset Option	Offset Value
Vertical Offset	0.0000
Horizontal Offset Option	Offset Value
Horizontal Offset	-0.0550
Prefix	
Suffix	
Template	
Style	Civil-Title
Favorite	

On the right side of the dialog, there is a preview window showing a table with the following rows:

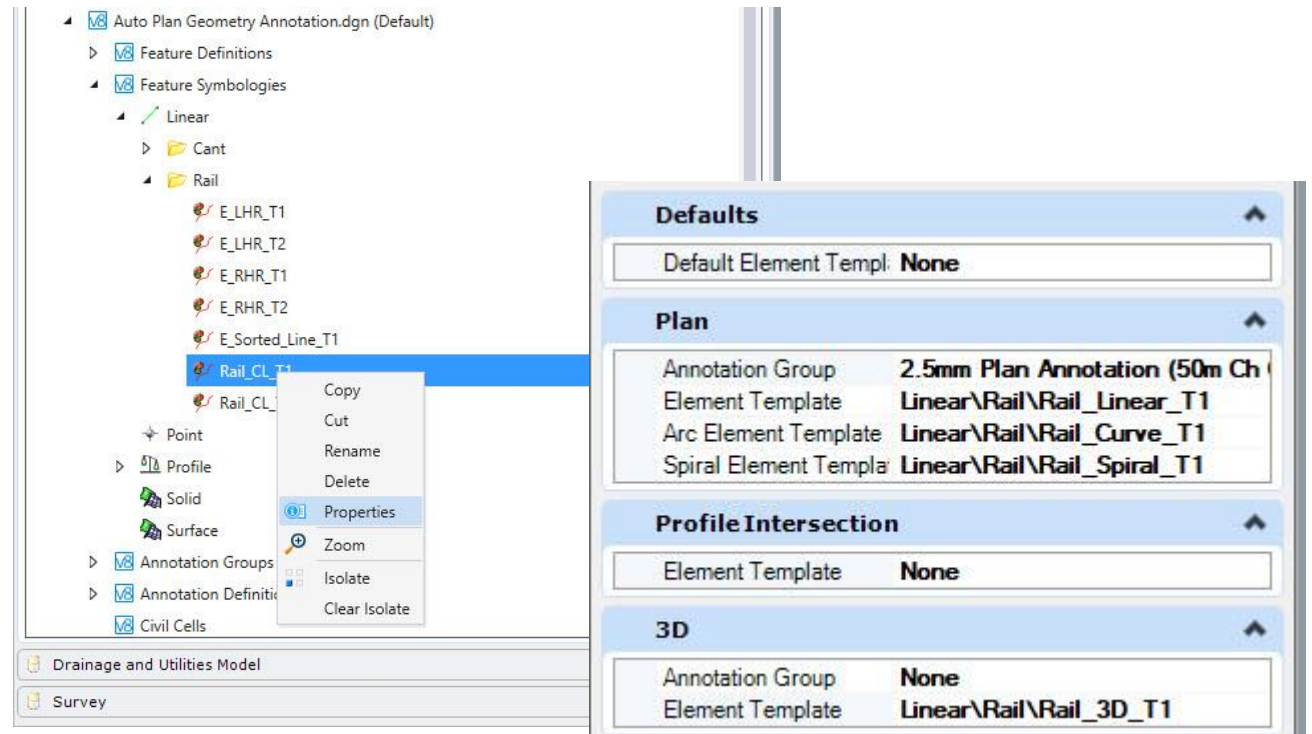
CHAINAGE (m)	
HORIZONTAL ALIGNMENT	
VERTICAL ALIGNMENT	
EXISTING GROUND (m)	
PROPOSED LEVEL (m)	
CUT/FILL DEPTH	

Linking Annotation Definitions



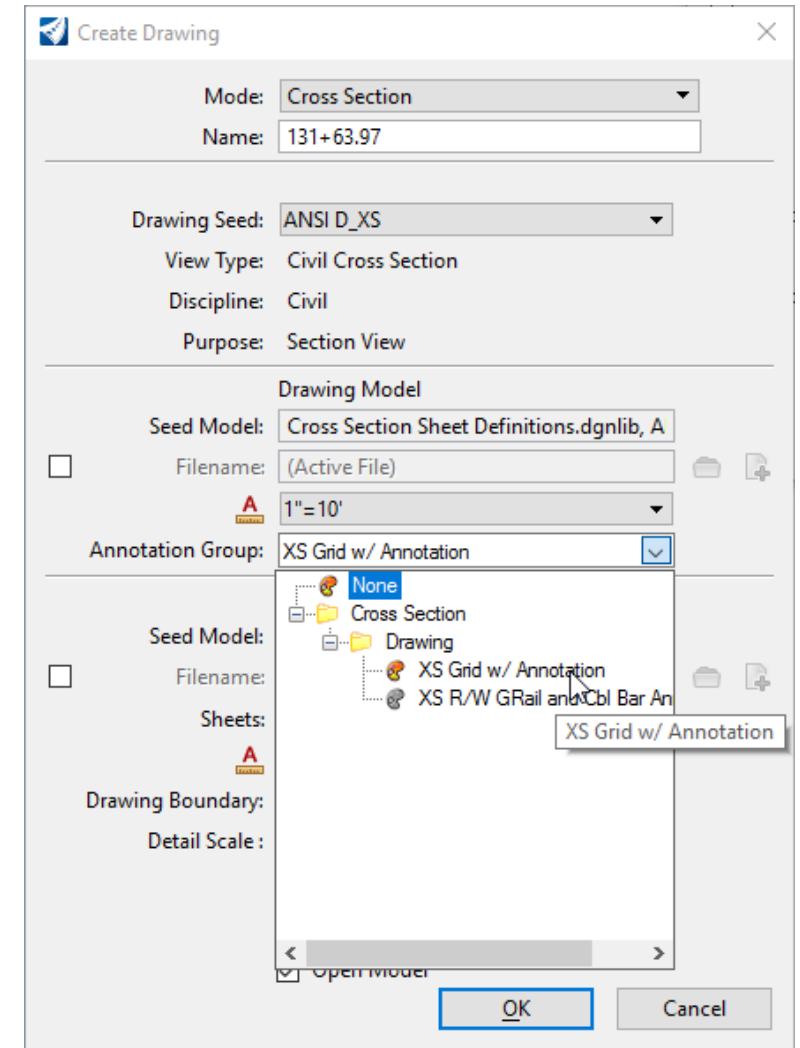
Linking an Annotation Group to a Feature Symbology

- Defined in the Feature Symbologies
- Annotation group properties may be defined for:
 - Linear feature symbologies
 - Point feature symbologies
 - Profile feature symbologies
 - Surface feature symbologies



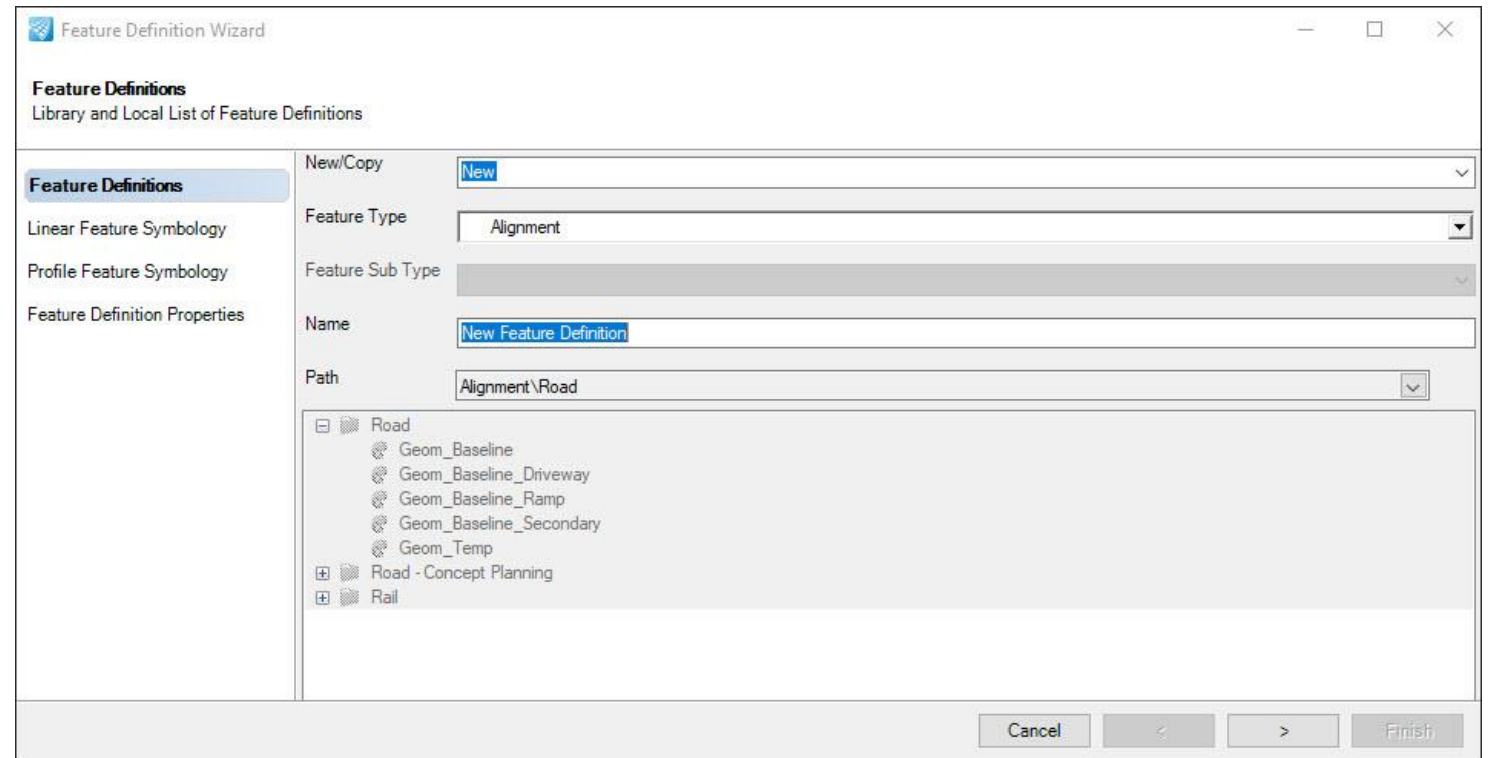
Linking an Annotation Group to a Sheet Seed Definition

- Typically used for profiles and cross sections
- Option 1
 - Predefine in the sheet seed definition file setup
- Option 2
 - Select when creating sheets



Feature Definition Wizard

- A Wizard to assist in the creation of new Features



Feature Definition Wizard

- Single Dialog
- Create/Copy
 - Feature Definitions
 - Feature Symbology
 - Element Templates
- Select
 - Levels, Colours, Styles, etc.
 - Annotation Groups
 - Item Types
 -

Feature Definition Wizard

- Create/Copy
 - Linear Feature Symbology

Feature Definition Wizard

Linear Feature Symbology
Symbology

Feature Definitions
Linear Feature Symbology

Profile Feature Symbology

Feature Definition Properties

New/Existing: New

Name:

Path: Linear

	Copy	Level	Color	Line Style	Line Weight	
Defaults	<input type="checkbox"/> Default Element Template Existing	None	Level	Color	Line Style	Line Weight
Plan	<input type="checkbox"/> Annotation Group	None				
	<input type="checkbox"/> Element Template Existing	None	Level	Color	Line Style	Line Weight
	<input type="checkbox"/> Arc Element Template Existing	None	Level	Color	Line Style	Line Weight
	<input type="checkbox"/> Spiral Element Template Existing	None	Level	Color	Line Style	Line Weight
Profile Intersection	<input type="checkbox"/> Element Template Existing	None	Level	Color	Line Style	Line Weight
3D	<input type="checkbox"/> Annotation Group	None				
	<input type="checkbox"/> Element Template Existing	None	Level	Color	Line Style	Line Weight
Dynamic Cross Section	<input type="checkbox"/> Crossing Point Element Template Existing	None	Level	Color	Line Style	Line Weight

Cancel < > Finish

Feature Definition Wizard

- Create/Copy
 - Profile Feature Symbology

Feature Definition Wizard

Profile Feature Symbology
Symbology

Feature Definitions
New/Existing:

Linear Feature Symbology
Name:

Profile Feature Symbology
Path:

Feature Definition Properties

	Copy	Level	Color	Line Style	Line Weight	
Annotation Group						
Annotation Group	<input type="text" value="None"/>					
Defaults						
<input type="checkbox"/> Default Element Template	<input type="text" value="Existing"/>	<input type="text" value="None"/>	<input type="text" value="Level"/>	<input type="text" value="Color"/>	<input type="text" value="Line Style"/>	<input type="text" value="Line Weight"/>
Profile						
<input type="checkbox"/> Element Template	<input type="text" value="Existing"/>	<input type="text" value="None"/>	<input type="text" value="Level"/>	<input type="text" value="Color"/>	<input type="text" value="Line Style"/>	<input type="text" value="Line Weight"/>
<input type="checkbox"/> Curve Element Template	<input type="text" value="Existing"/>	<input type="text" value="None"/>	<input type="text" value="Level"/>	<input type="text" value="Color"/>	<input type="text" value="Line Style"/>	<input type="text" value="Line Weight"/>
Profile Intersection						
<input type="checkbox"/> Element Template	<input type="text" value="Existing"/>	<input type="text" value="None"/>	<input type="text" value="Level"/>	<input type="text" value="Color"/>	<input type="text" value="Line Style"/>	<input type="text" value="Line Weight"/>
Profile Projection						
<input type="checkbox"/> Element Template	<input type="text" value="Existing"/>	<input type="text" value="None"/>	<input type="text" value="Level"/>	<input type="text" value="Color"/>	<input type="text" value="Line Style"/>	<input type="text" value="Line Weight"/>

Cancel < > Finish

Feature Definition Wizard

- Feature Definition Properties

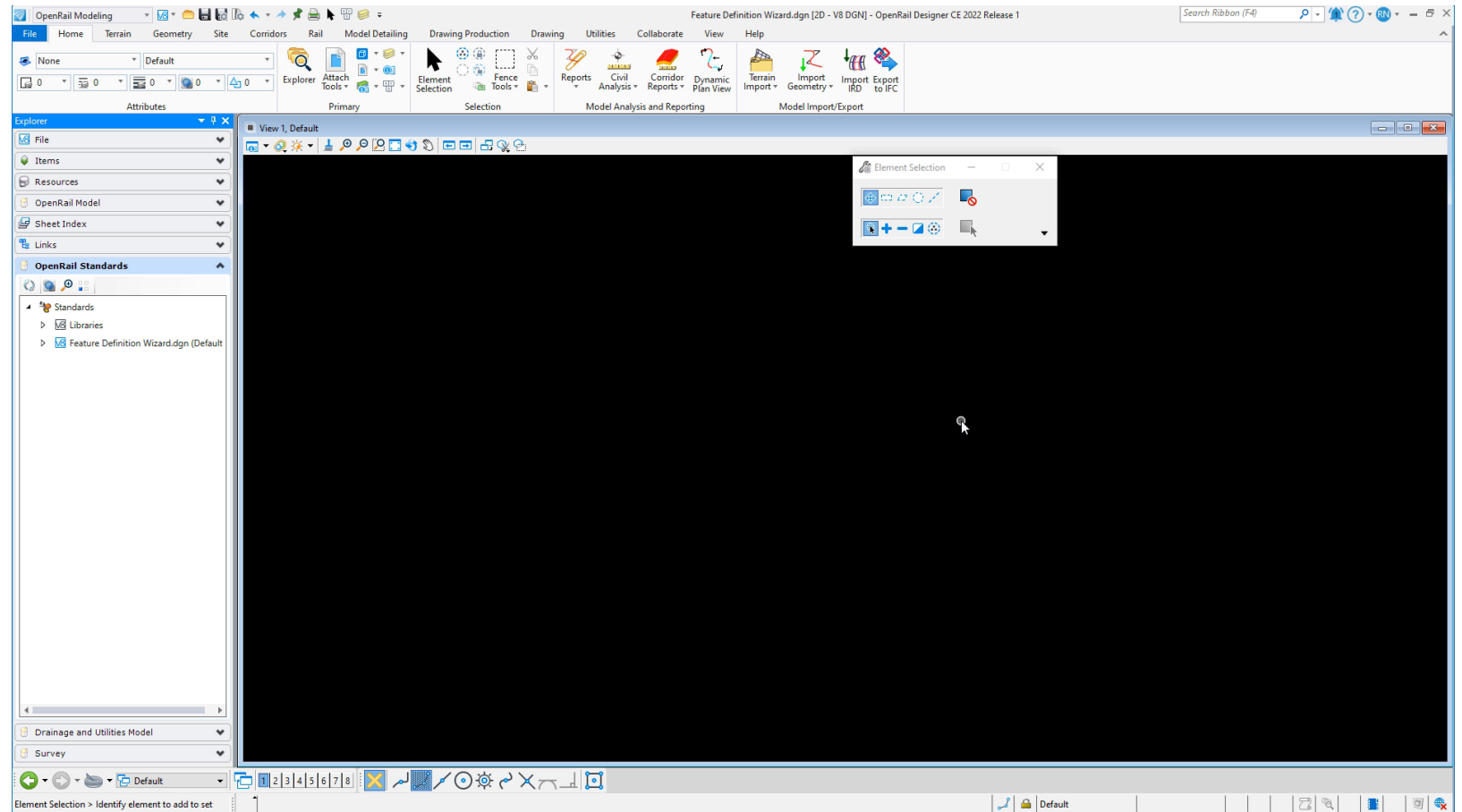
The screenshot displays the 'Feature Definition Wizard' dialog box. The title bar reads 'Feature Definition Wizard' with standard window controls. Below the title bar, the section is titled 'Feature Definition Properties' with the subtitle 'Properties for new or copied Feature Definition'. On the left side, there is a vertical list of options: 'Feature Definitions', 'Linear Feature Symbology', 'Profile Feature Symbology', and 'Feature Definition Properties' (which is currently selected and highlighted). The main area of the dialog is divided into three sections, each with a blue header and an upward-pointing arrow:

- Feature Definition**: Contains two text input fields. The first is labeled 'Description' and the second is labeled 'Name Seed'.
- Alignment**: Contains one text input field labeled 'Corridor Template'.
- Items**: Contains one text input field labeled 'Items Attached' with the value 'None' displayed inside.

At the bottom right of the dialog, there are four buttons: 'Cancel', a left-pointing arrow, a right-pointing arrow, and 'Finish'.

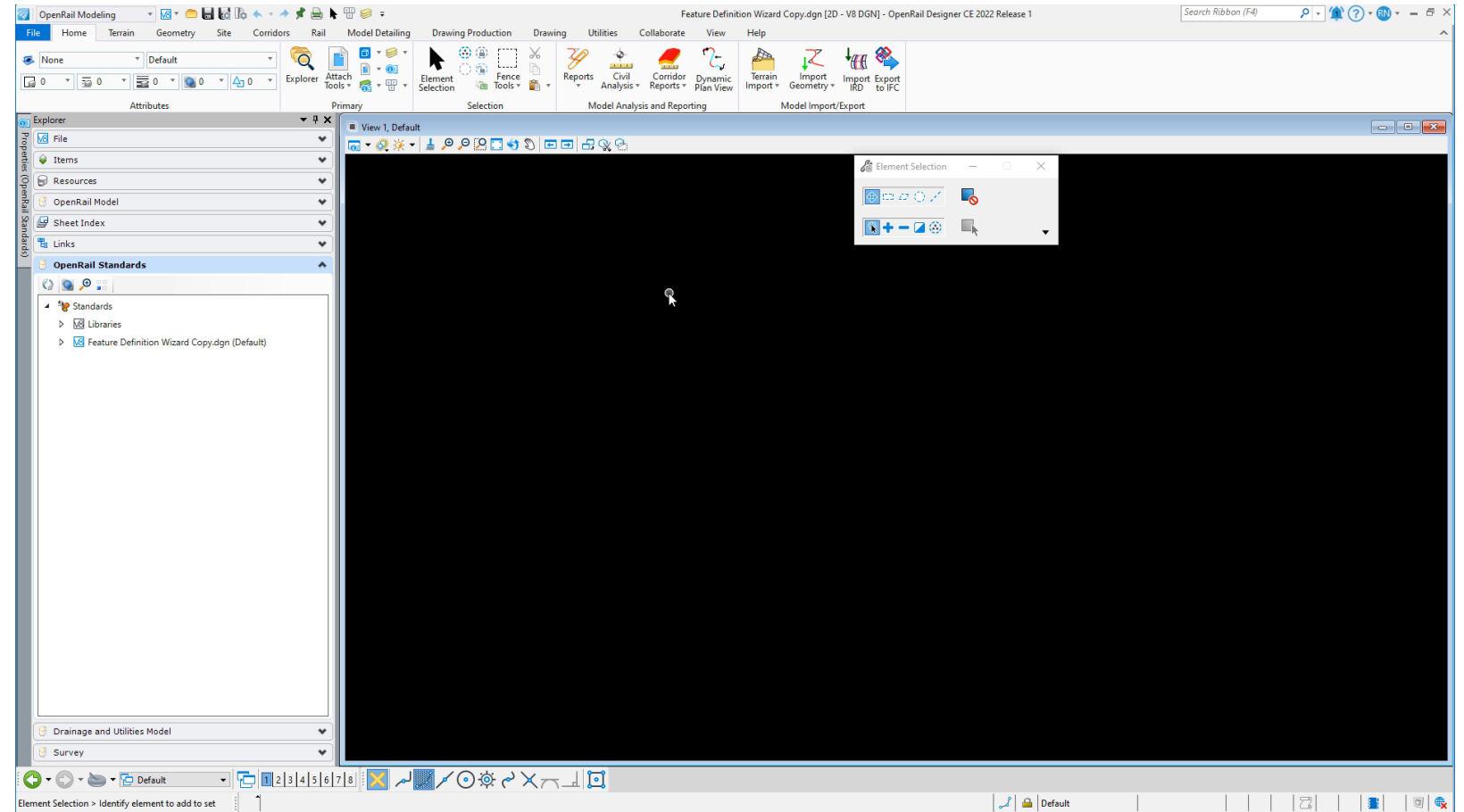
Feature Definition Wizard

- Create New Feature



Feature Definition Wizard

- Create New Feature from a Copy of an Existing Feature



OpenRoads Designer Workspace Setup (For CAD Administrators) Learning Path

LEARNserver



Home Find Training My Learning Paths

Moving to OpenRoads Designer - Workspace Development

OpenRoads Designer is delivered with a workspace structure designed to be flexible and extendable for agencies, consulting firms, and users large and small. Different organizations have different work... [More»](#)

► Find Training (1)

OpenRoads Designer Workspace Setup: Step 1 - Understanding Feature Definitions

Discover the new types of Feature Definitions in OpenRoads Designer CONNECT Edition.

► Find Training (1)

OpenRoads Designer Workspace Setup: Step 2 - Preparing the Folder Structure

Learn how the Workspace folder structure is set up and how it can be customized for a network environment.

► Find Training (1)

OpenRoads Designer Workspace Setup: Step 3 - Preparing Files for Feature Migration

Learn how to bring forward SELECTseries 4 linestyles, levels, element templates, graphical filters and design standards into an OpenRoads Designer Workspace.

► Find Training (1)

OpenRoads Designer Workspace Setup: Step 4 - Feature Migration

Learn how to upgrade SELECTseries 4 Features and Element Templates to an OpenRoads Designer Workspace.

► Find Training (1)



Workspace Setup Videos

at

Learn.Bentley.com



Plan and Profile Annotation for Rail

Robert Nice
Product Specialist (Rail)

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Advancing Infrastructure