

# ***FDOTSS4 Profiles - Vertical Alignments***



**Vern Danforth, P.E.**

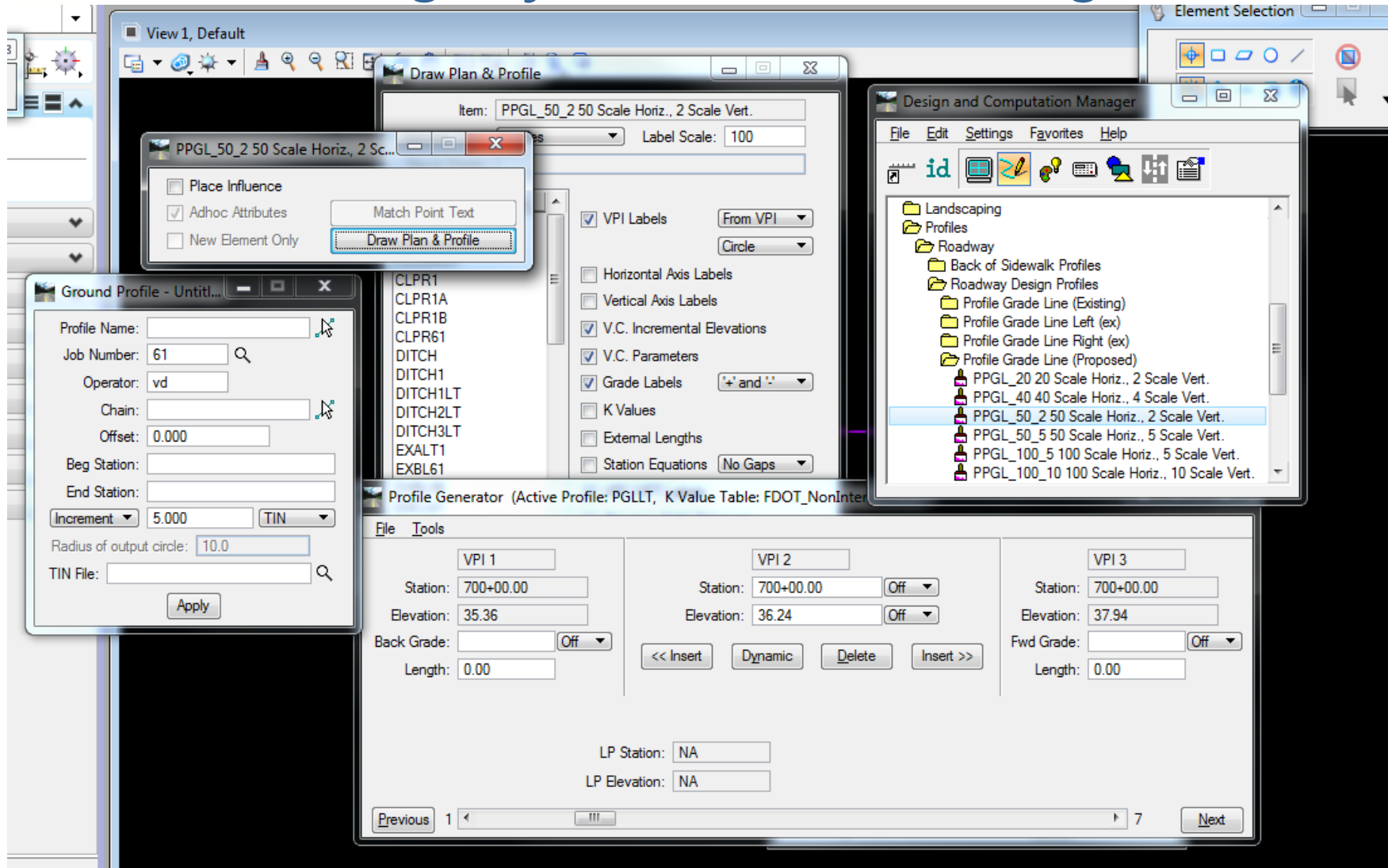
**Engineering/CADD System Support**

**February 15, 2016**

## *Session Overview*

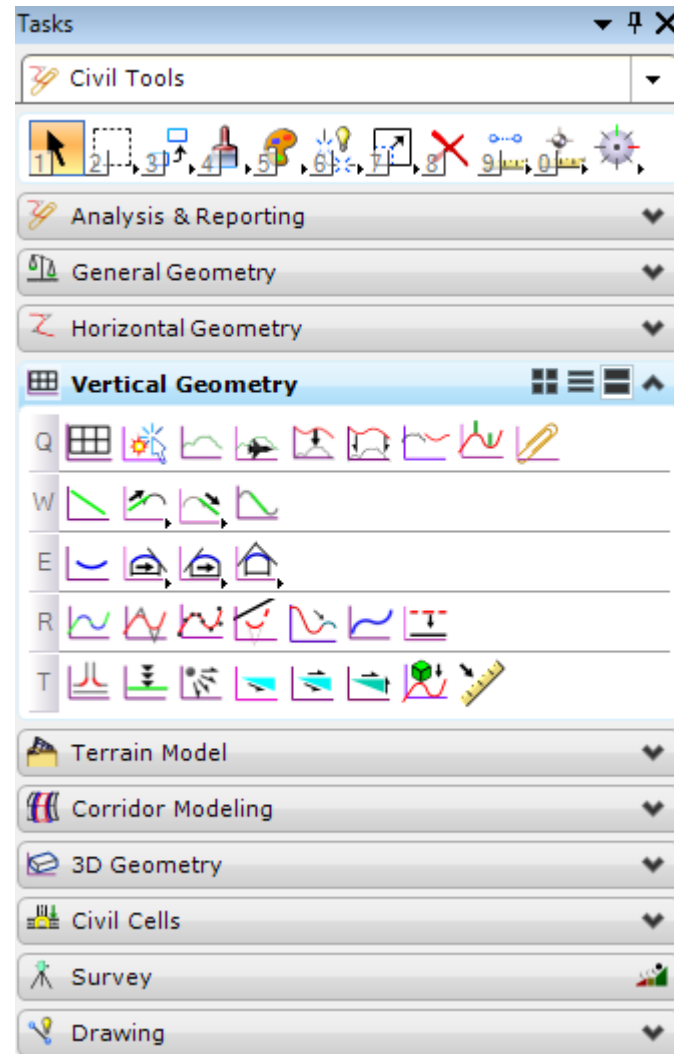
- ◆ This session will focus on the OpenRoads Vertical Geometry tools. Specifically, a side by side comparison with the legacy GEOPAK Road VPI based “Profile Generator” tool will be demonstrated and the steps necessary to operate the new tools to replicate the old.

# Profiles – Legacy GEOPAK Dialogs



# Vertical Geometry Tools:

- ◆ Import/Export Profiles
- ◆ Vertical Design Standards
- ◆ Edit Profile by VPI
- ◆ Profile Reports
- ◆ Construct Profiles
- ◆ Intersecting Profiles
- ◆ Profile by Offsets



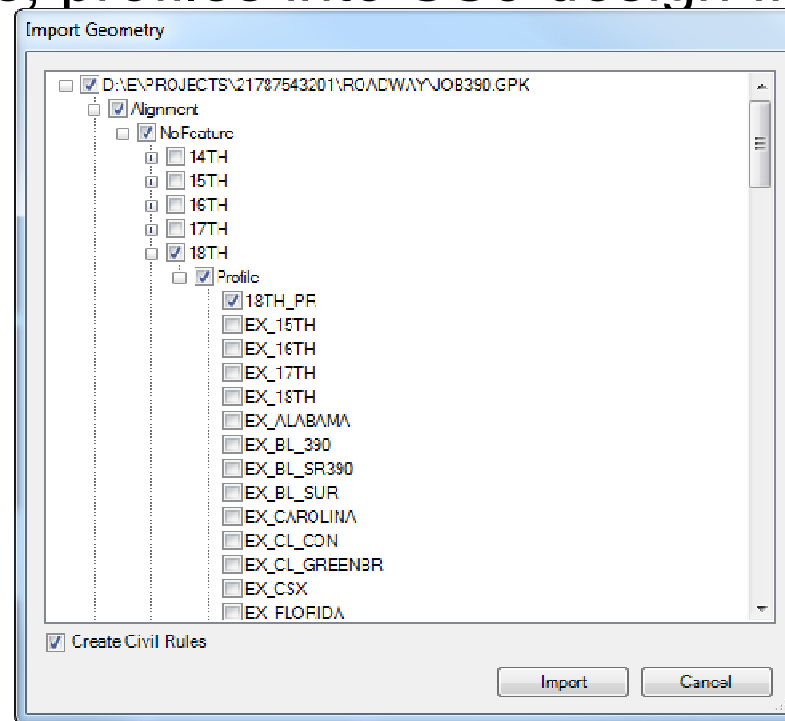
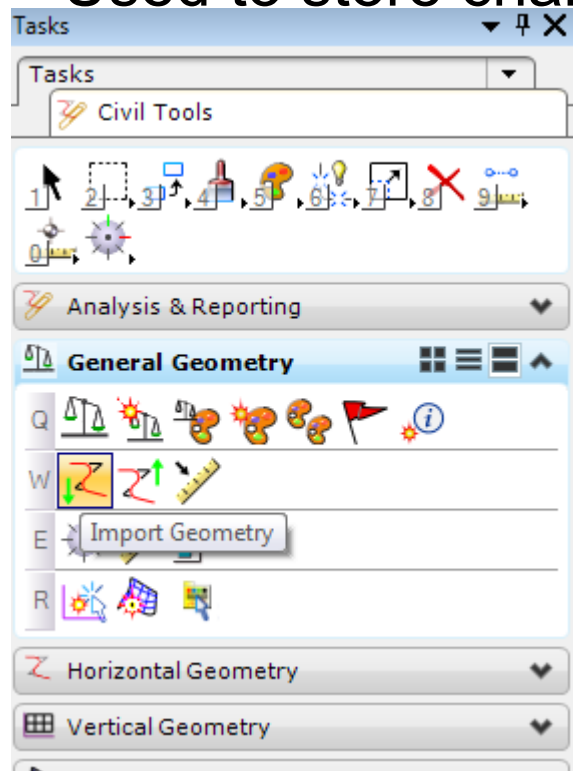
## *Profiles with OpenRoads*

- ◆ Import from GPK or XML
- ◆ Create
- ◆ Edit/ Move / Modify VPI or Curves
- ◆ Extend, Join, Add, Subtract
- ◆ Copy, Drop, Trim, Trace
- ◆ Projected
- ◆ Export

# Import/Export Profiles

## ◆ Import Geometry Tool

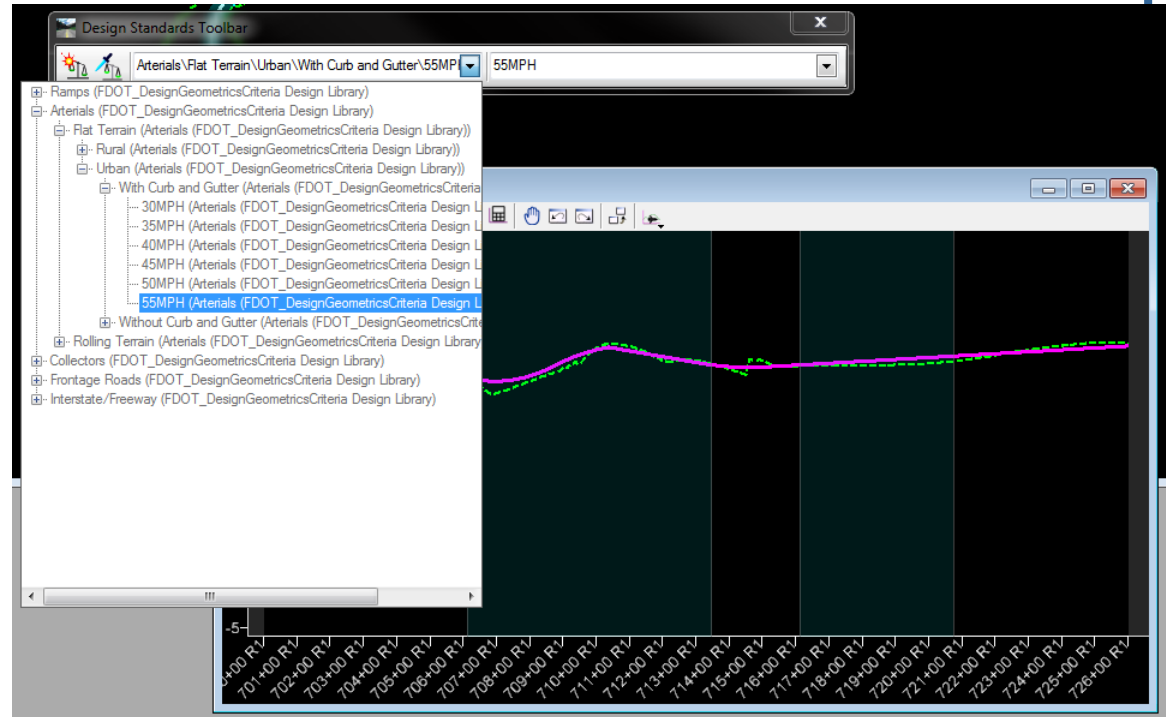
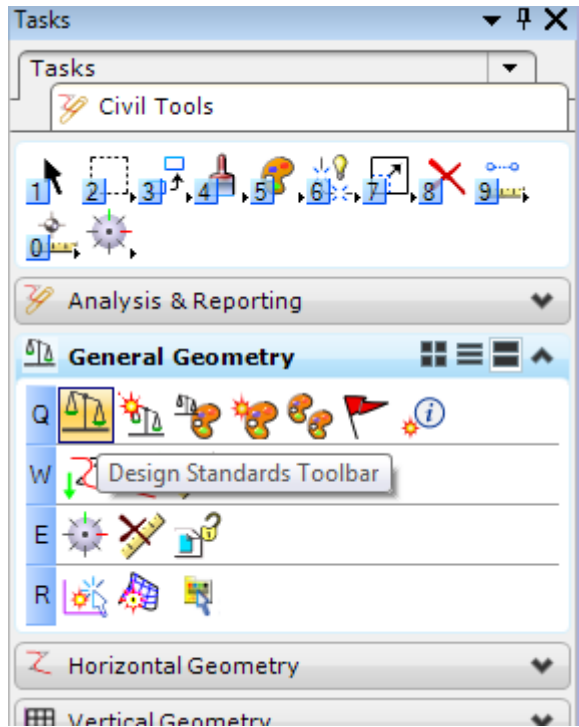
- Used to store chains, profiles into SS3 design file



## *Imported Profiles - General Guidelines*

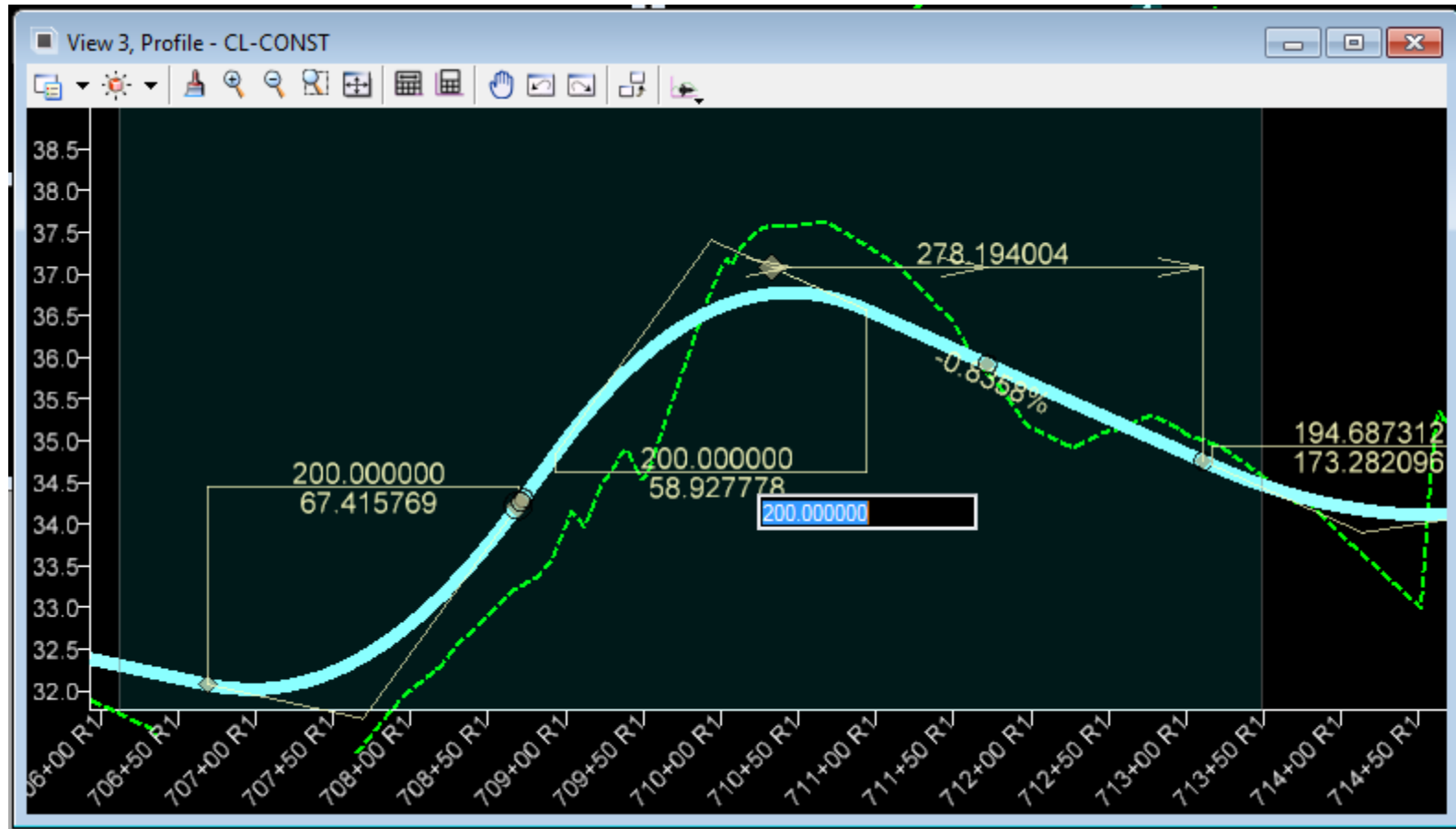
- ◆ OpenRoads can import profiles from the gpk, alg, or xml files.
- ◆ OpenRoads profile manipulators can be used to edit an imported profile with exceptions!
- ◆ The alignment name of an imported profile should not be changed, the imported alignment name is hard-coded in the element properties.
- ◆ Imported profiles can be updated/edited from the source file and re-imported.
- ◆ Re-build profiles with OpenRoads if you intend to make edits in the design file.

# Design Standards Checks

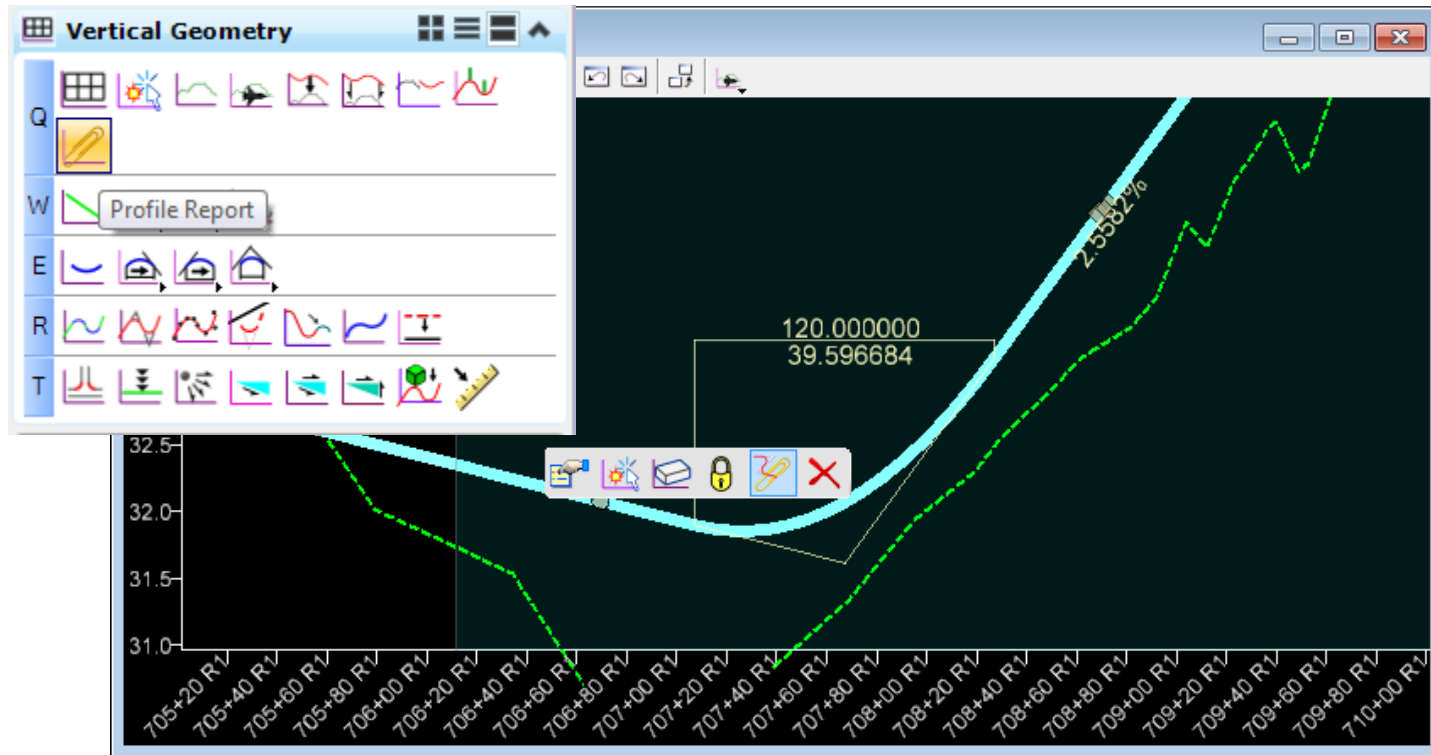




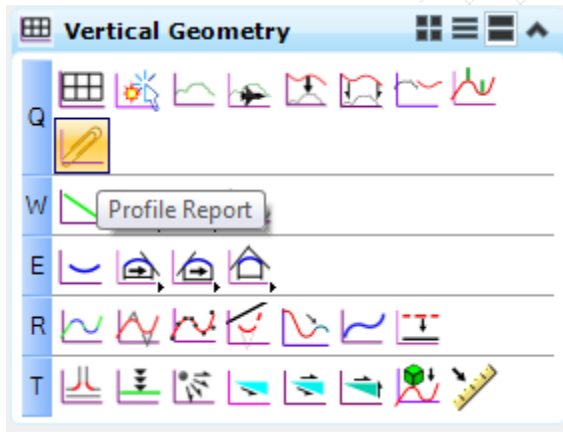
# Edit Profile by VPI



# Profile Reports



# Profile Reports



## Vertical Alignment Review Report

Report Created: 5/21/2014  
Time: 2:31pm

Project: Default  
Description:  
File Name: L:\E\Projects\22049555201\roadway\ALGNRD01\_SS3.dgn  
Last Revised: 5/21/2014 14:28:46

Note: All units in this report are in feet unless specified otherwise.

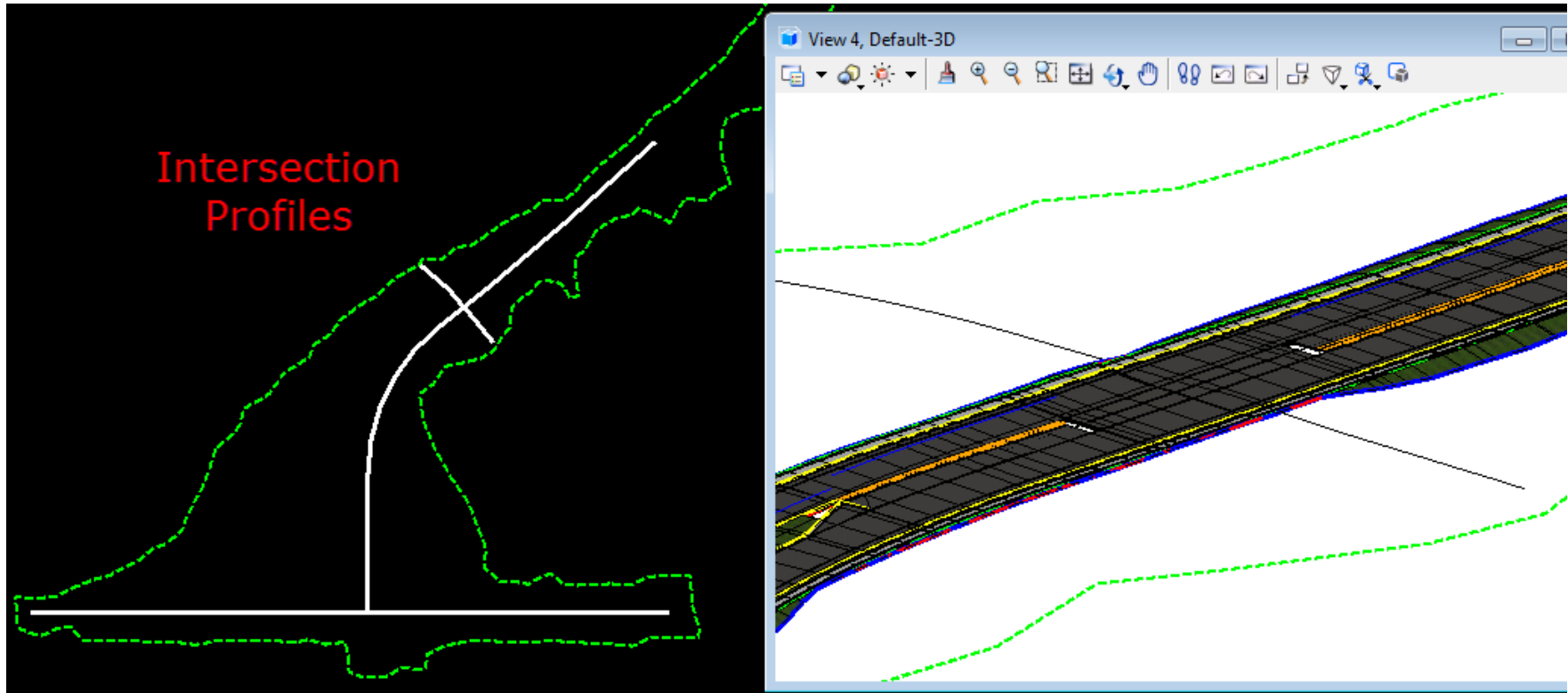
Horizontal Alignment: CL-CONST  
Horizontal Description:  
Horizontal Style: Centerline(CL)

Vertical Alignment: PrProfile-S61  
Vertical Description:  
Vertical Style: Centerline(CL)

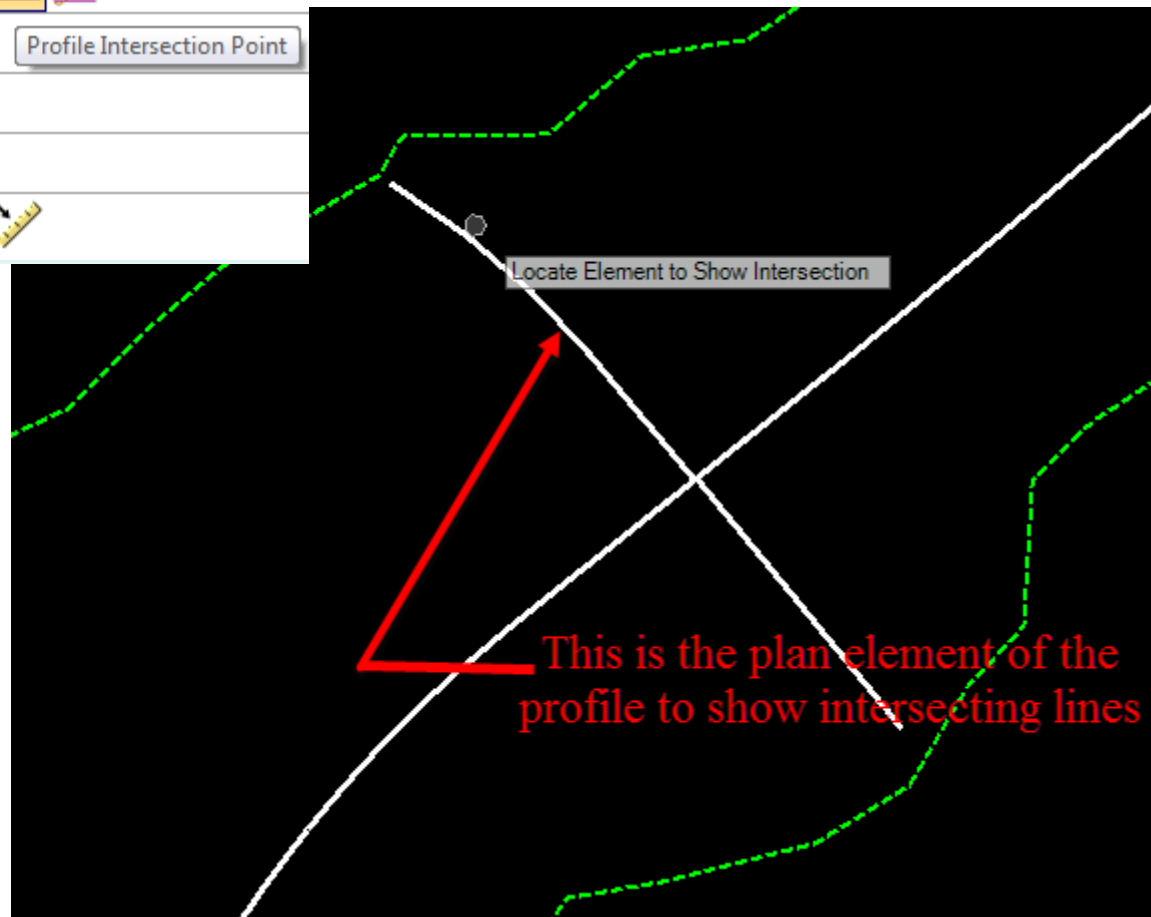
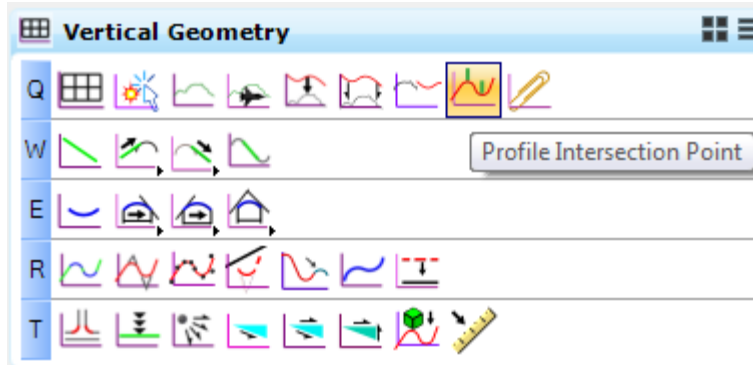
		<u>Station</u>	<u>Elevation</u>
Element: Linear			
	POB	R1 700+00.00	35.24
	PVC	R1 707+07.30	31.90
	Tangent Grade:	-0.4723%	
	Tangent Length:	707.301556	
Element: Symmetrical Parabola			
	PVC	R1 707+07.30	31.90
	PVI	R1 707+67.30	31.61
	PVT	R1 708+27.30	33.15
	VLOW	R1 707+26.00	31.85
	Length:	120.000000	



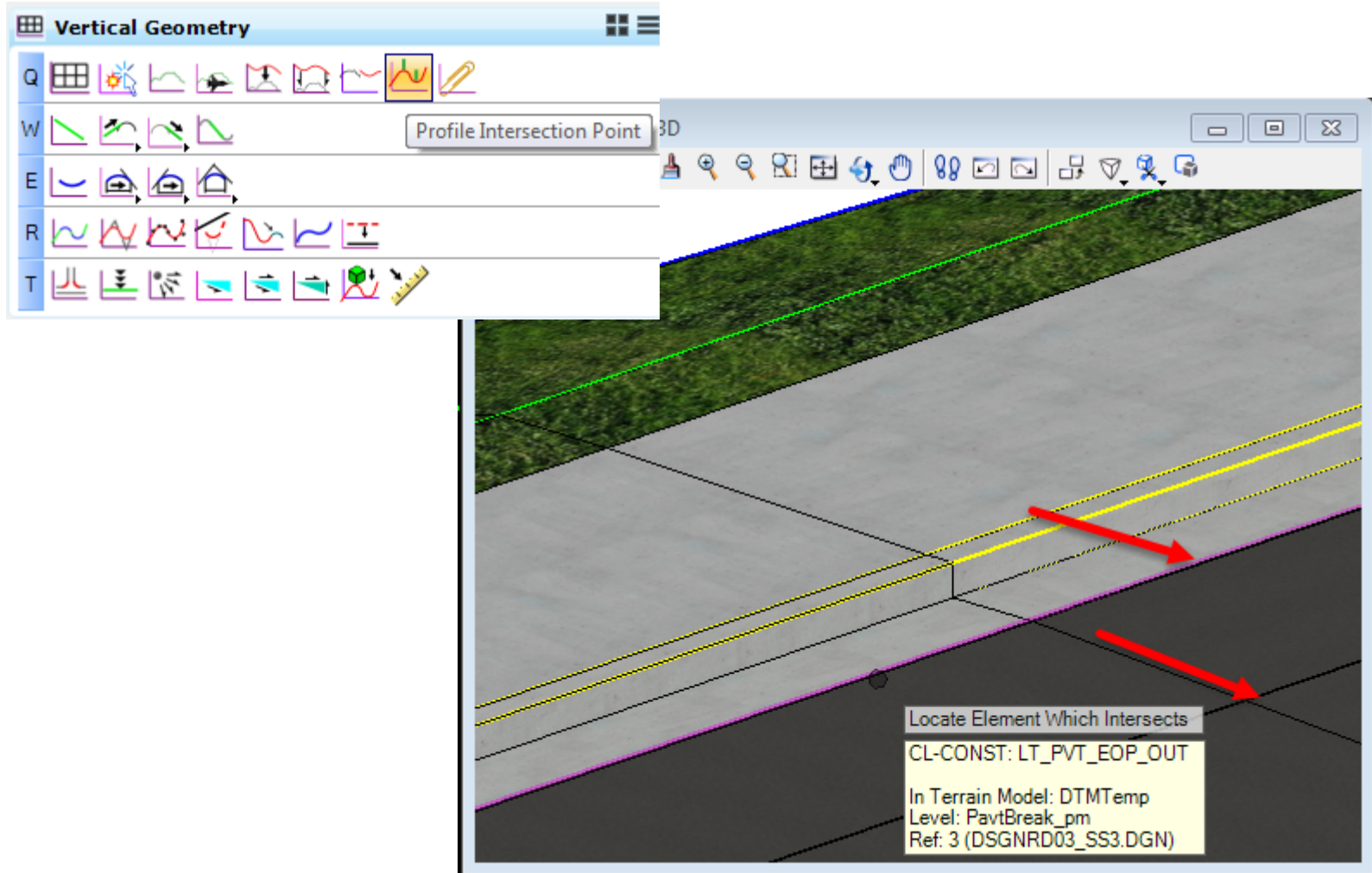
# Construct Profiles



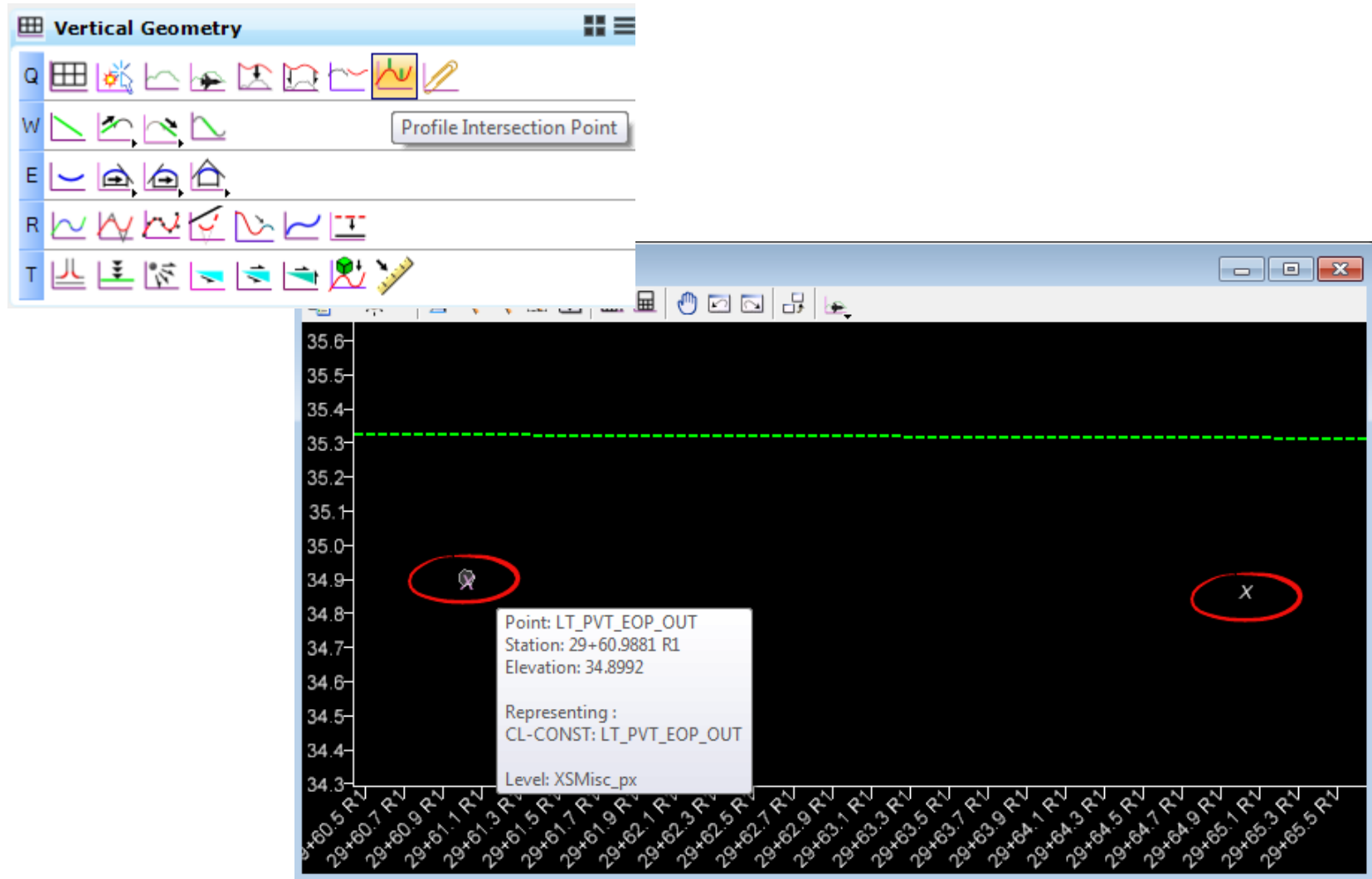
# Intersecting Profiles



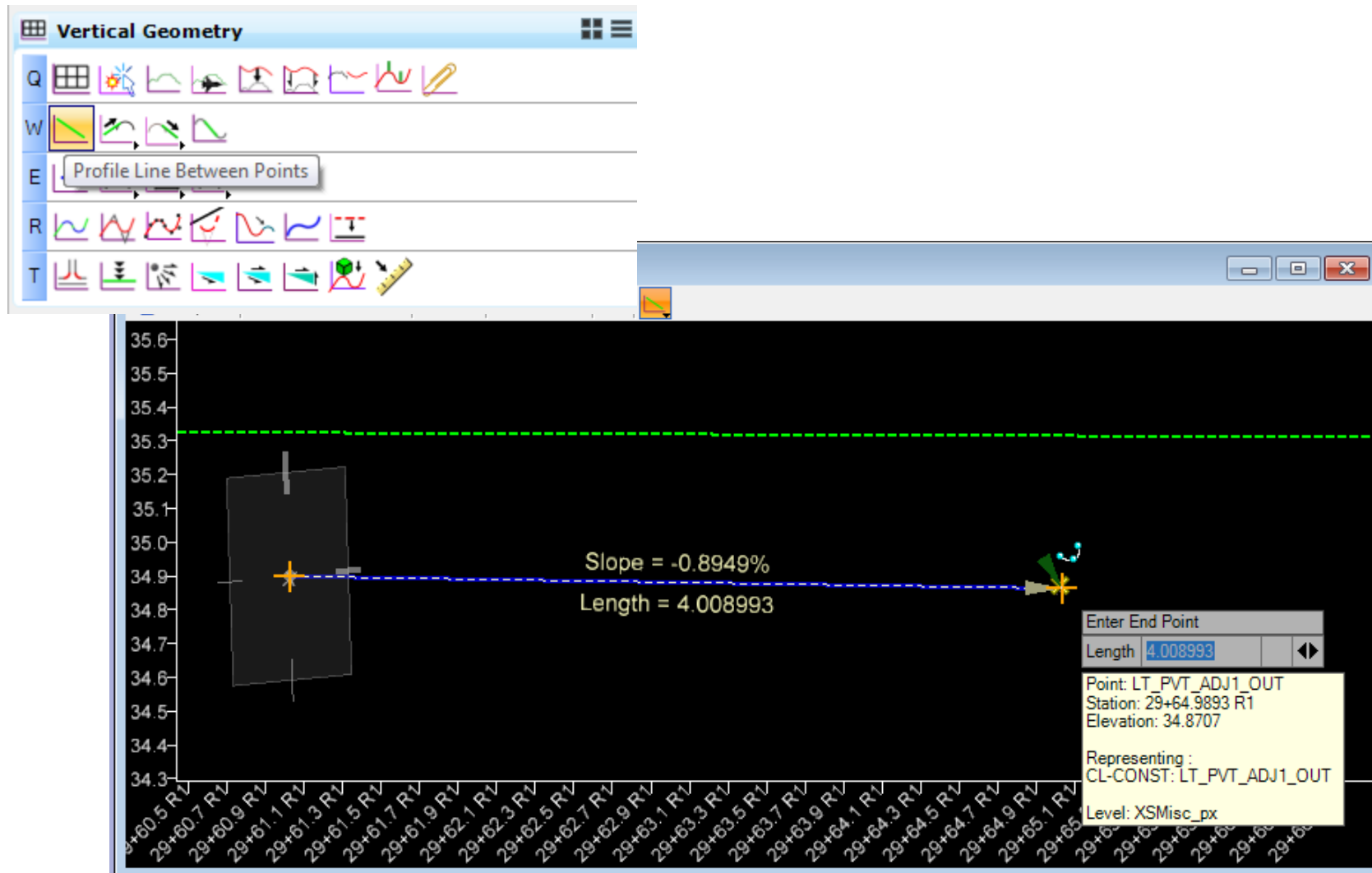
# Intersecting Profiles



# Intersecting Profiles



# Intersecting Profiles





# Intersecting Profiles

The image shows a software interface for vertical geometry design. On the left is a toolbox titled "Vertical Geometry" with icons for various profile types, categorized by letters Q, W, E, R, and T. Below the toolbox is a "Terrain Model" icon. The main area displays a profile graph with a vertical axis ranging from 34.5 to 35.3 and a horizontal axis with stationing labels from 28+81 R/V to 29+76 R/V. A dashed green line represents the terrain profile, and a solid magenta line represents the proposed profile. A context menu is open over the graph, listing various profile creation and editing options. The option "Profile Curve Between Elements" is highlighted in yellow.

**Vertical Geometry Toolbox:**

- Q: Grid, Profile, Profile Line, Profile Curve, Profile Complex, Profile Complex By VPI, Profile Complex By Elements, Profile Complex By BestFit, Profile Insert Curve, Profile Reverse Transition
- W: Profile Line, Profile Curve, Profile Complex, Profile Complex By VPI, Profile Complex By Elements, Profile Complex By BestFit, Profile Insert Curve, Profile Reverse Transition
- E: Profile Line, Profile Curve, Profile Complex, Profile Complex By VPI, Profile Complex By Elements, Profile Complex By BestFit, Profile Insert Curve, Profile Reverse Transition
- R: Profile Line, Profile Curve, Profile Complex, Profile Complex By VPI, Profile Complex By Elements, Profile Complex By BestFit, Profile Insert Curve, Profile Reverse Transition
- T: Profile Line, Profile Curve, Profile Complex, Profile Complex By VPI, Profile Complex By Elements, Profile Complex By BestFit, Profile Insert Curve, Profile Reverse Transition

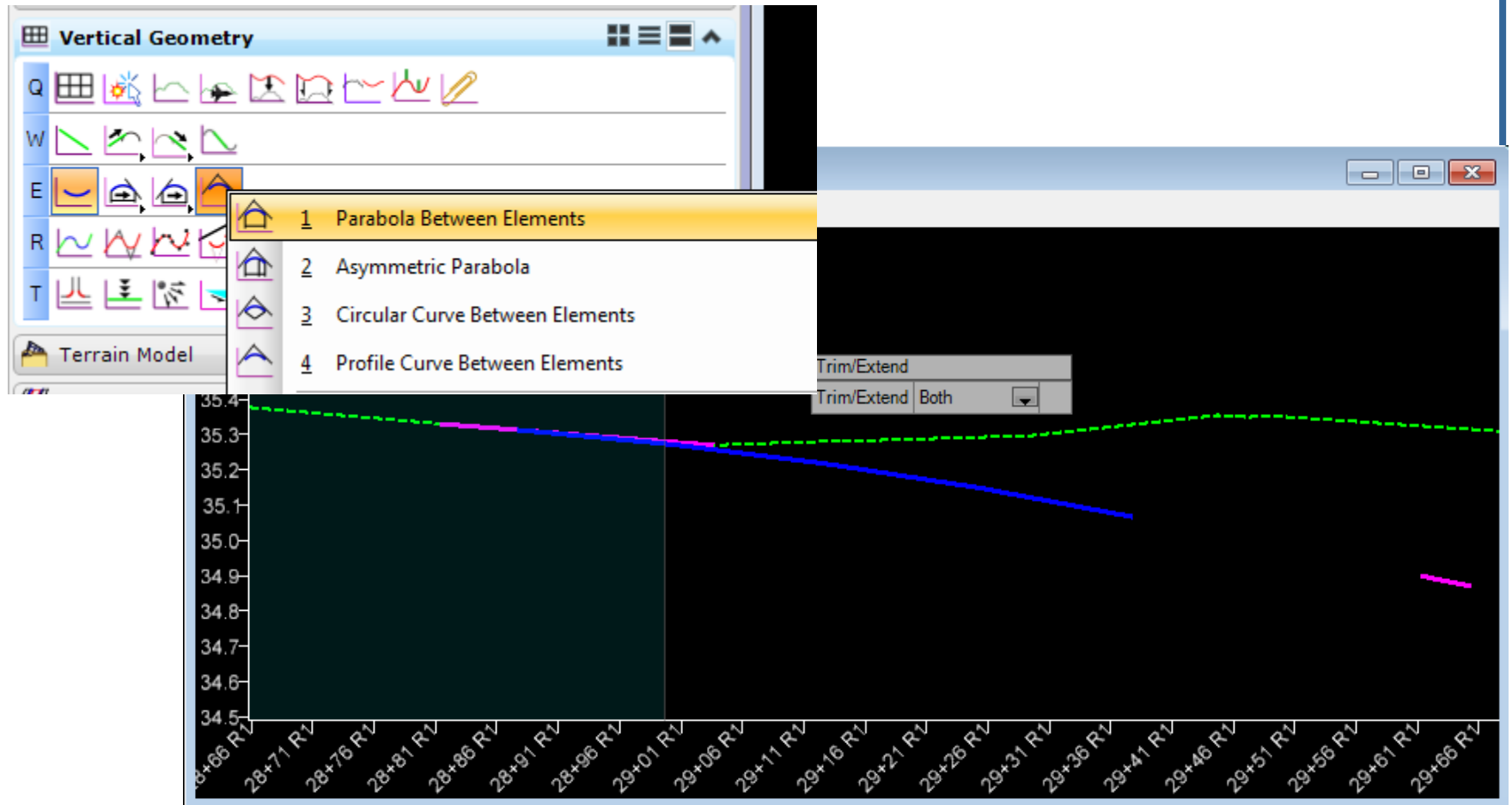
**Context Menu Options:**

- 1 Parabola Between Elements
- 2 Asymmetric Parabola
- 3 Circular Curve Between Elements
- 4 Profile Curve Between Elements
- Quick Profile From Surface
- Profile Line Between Points
- Profile Line To Element
- Profile Line From Element
- Profile Line Between Elements
- Profile Curve Between Points
- 7 Profile Curve To Element
- 8 Profile Curve From Element
- 9 Profile Curve Between Elements
- Q Profile Complex By Elements
- Q Profile Complex By VPI
- W Define Profiles By BestFit
- E Profile Insert Curve
- R Profile Reverse Transition
- Open as ToolBox

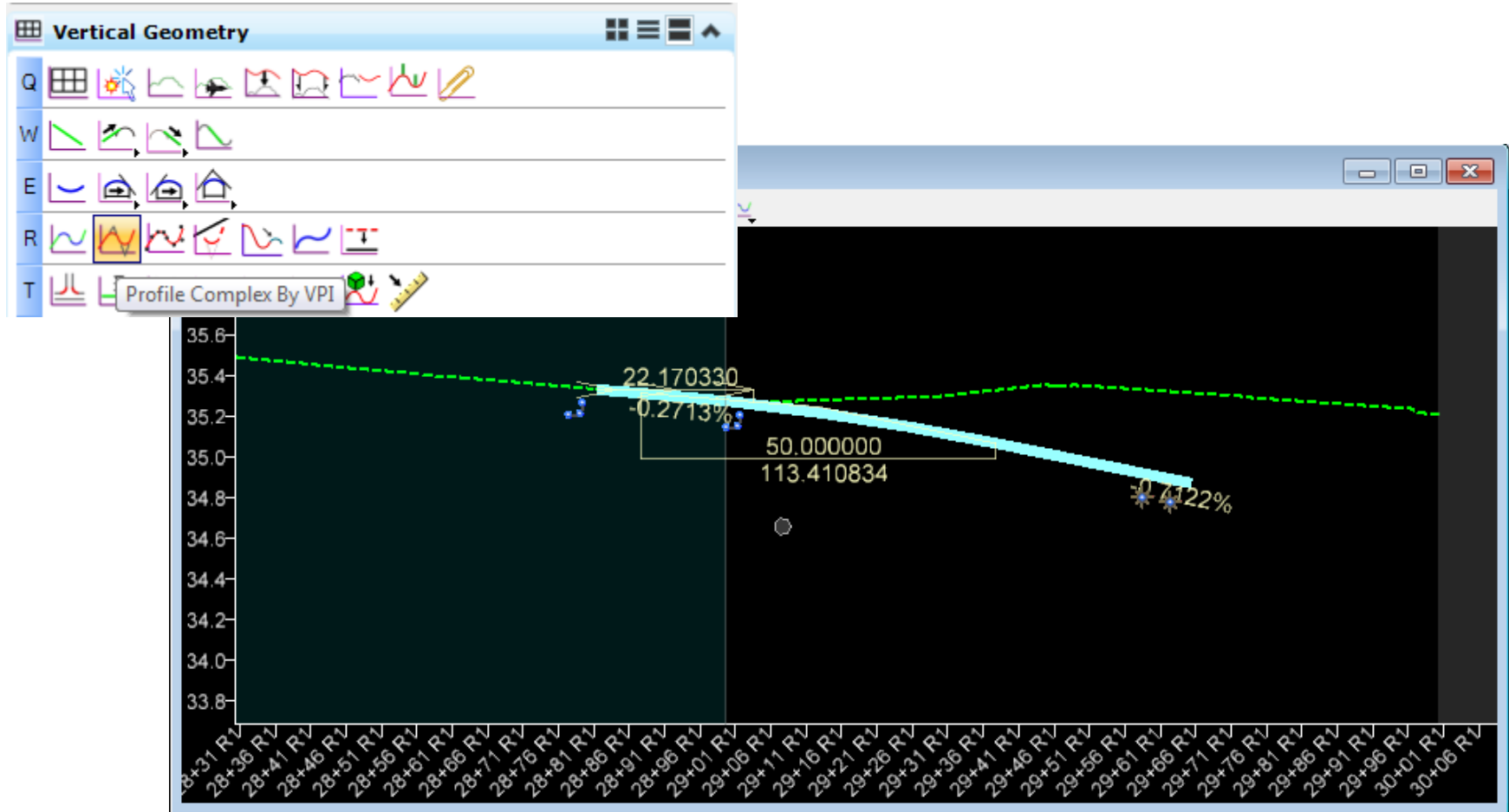
**Profile Graph Data:**

Stationing	Profile Type	Approximate Elevation
28+81 R/V	Terrain (Dashed Green)	35.3
28+86 R/V	Terrain (Dashed Green)	35.25
28+91 R/V	Terrain (Dashed Green)	35.2
28+96 R/V	Terrain (Dashed Green)	35.15
29+01 R/V	Terrain (Dashed Green)	35.1
29+06 R/V	Terrain (Dashed Green)	35.05
29+11 R/V	Terrain (Dashed Green)	35.0
29+16 R/V	Terrain (Dashed Green)	34.95
29+21 R/V	Terrain (Dashed Green)	34.9
29+26 R/V	Terrain (Dashed Green)	34.85
29+31 R/V	Terrain (Dashed Green)	34.8
29+36 R/V	Terrain (Dashed Green)	34.75
29+41 R/V	Terrain (Dashed Green)	34.7
29+46 R/V	Terrain (Dashed Green)	34.65
29+51 R/V	Terrain (Dashed Green)	34.6
29+56 R/V	Terrain (Dashed Green)	34.55
29+61 R/V	Terrain (Dashed Green)	34.5
29+66 R/V	Terrain (Dashed Green)	34.45
29+71 R/V	Terrain (Dashed Green)	34.4
29+76 R/V	Terrain (Dashed Green)	34.35

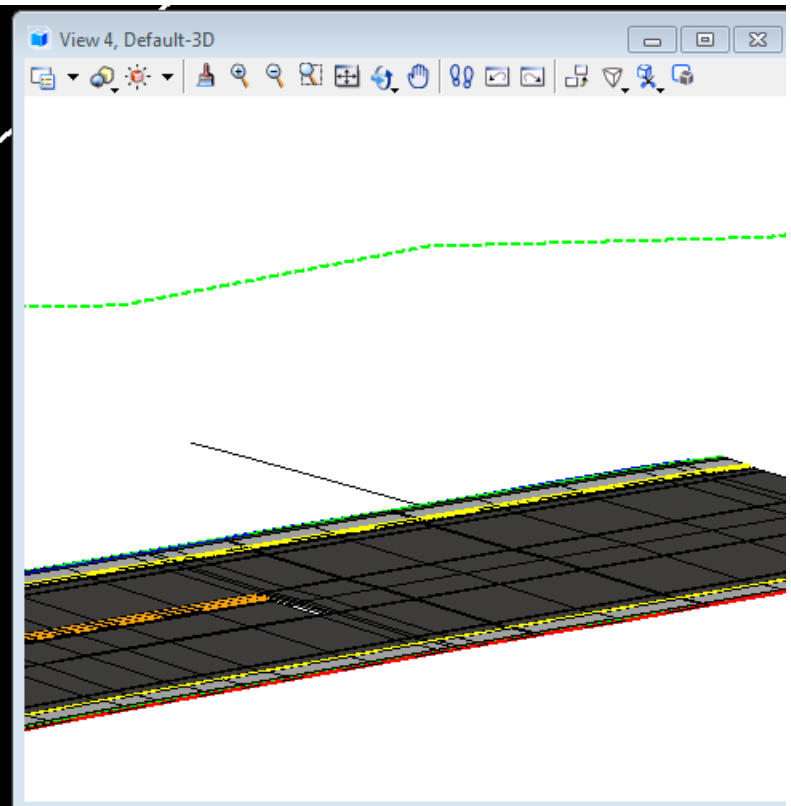
# Intersecting Profiles



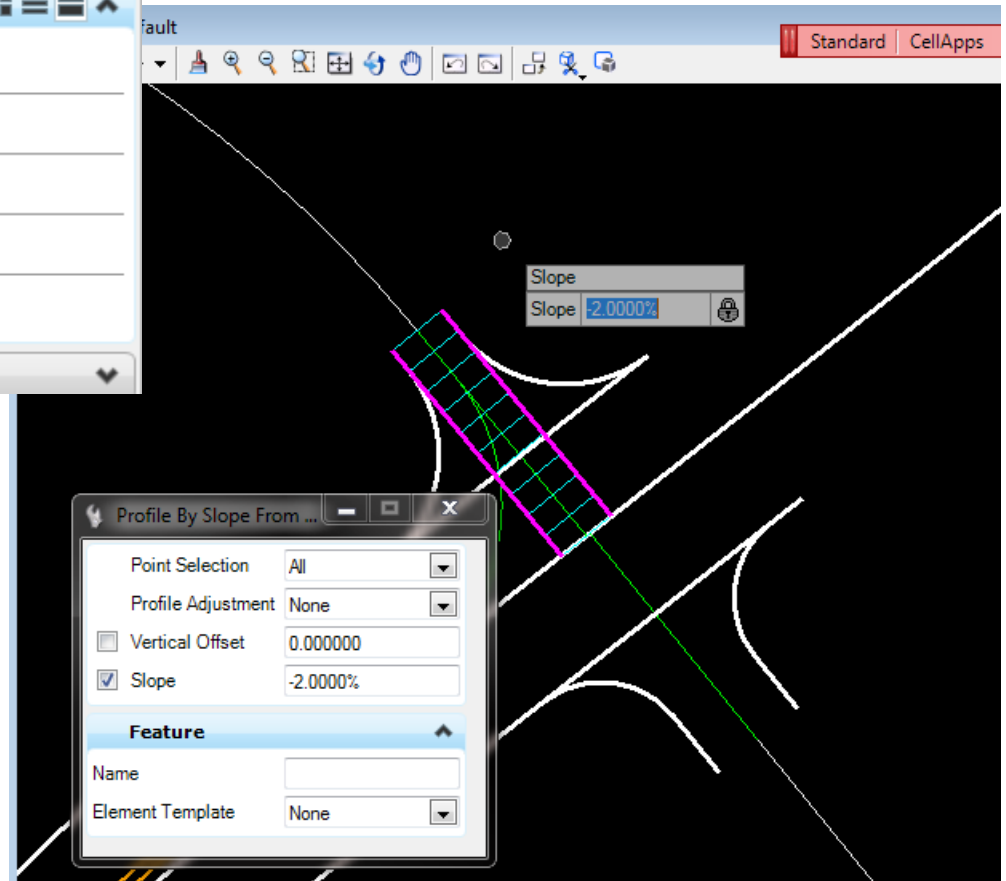
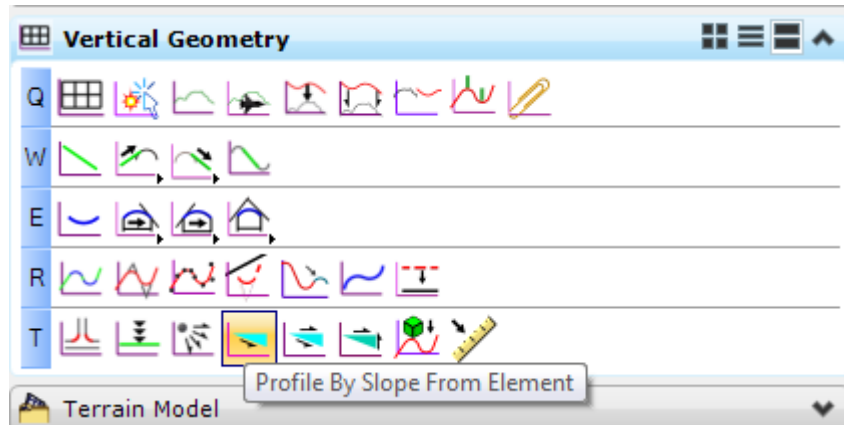
# Intersecting Profiles



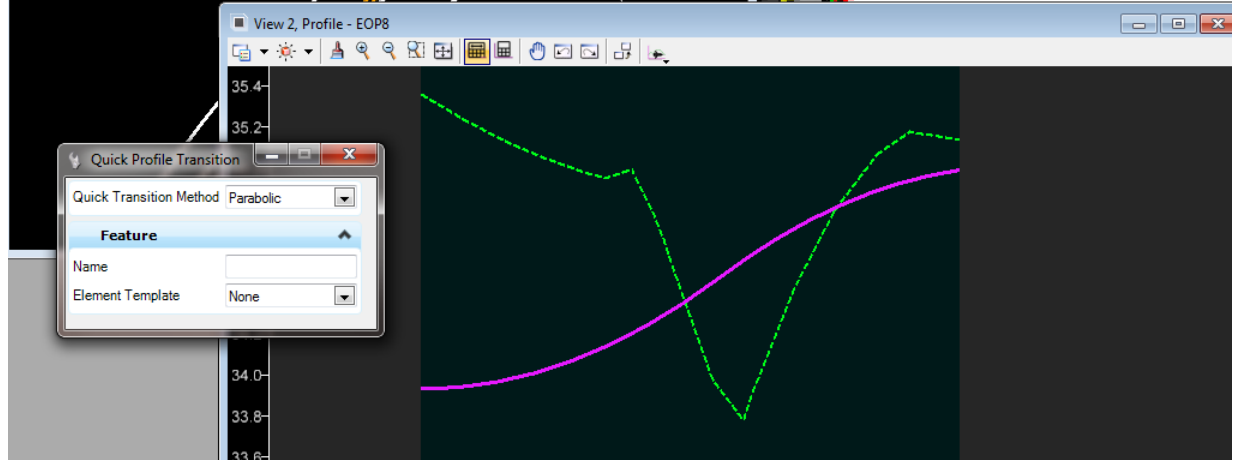
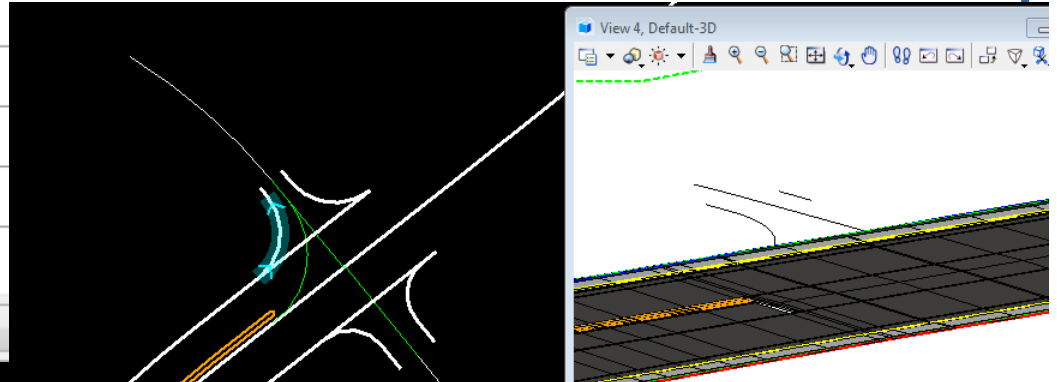
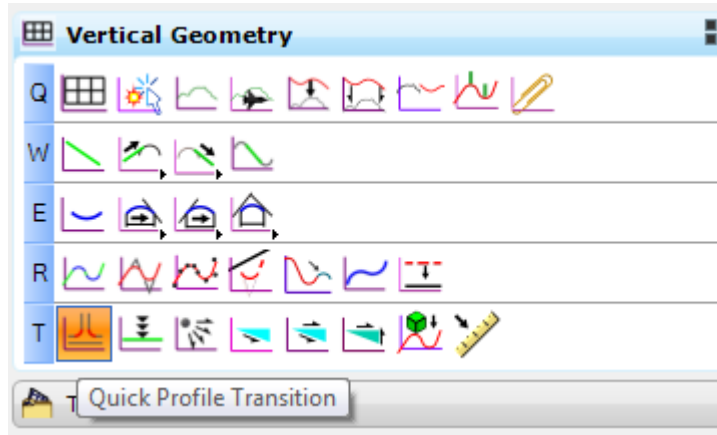
# Construct Profiles



# Construct Profiles



# Construct Profiles

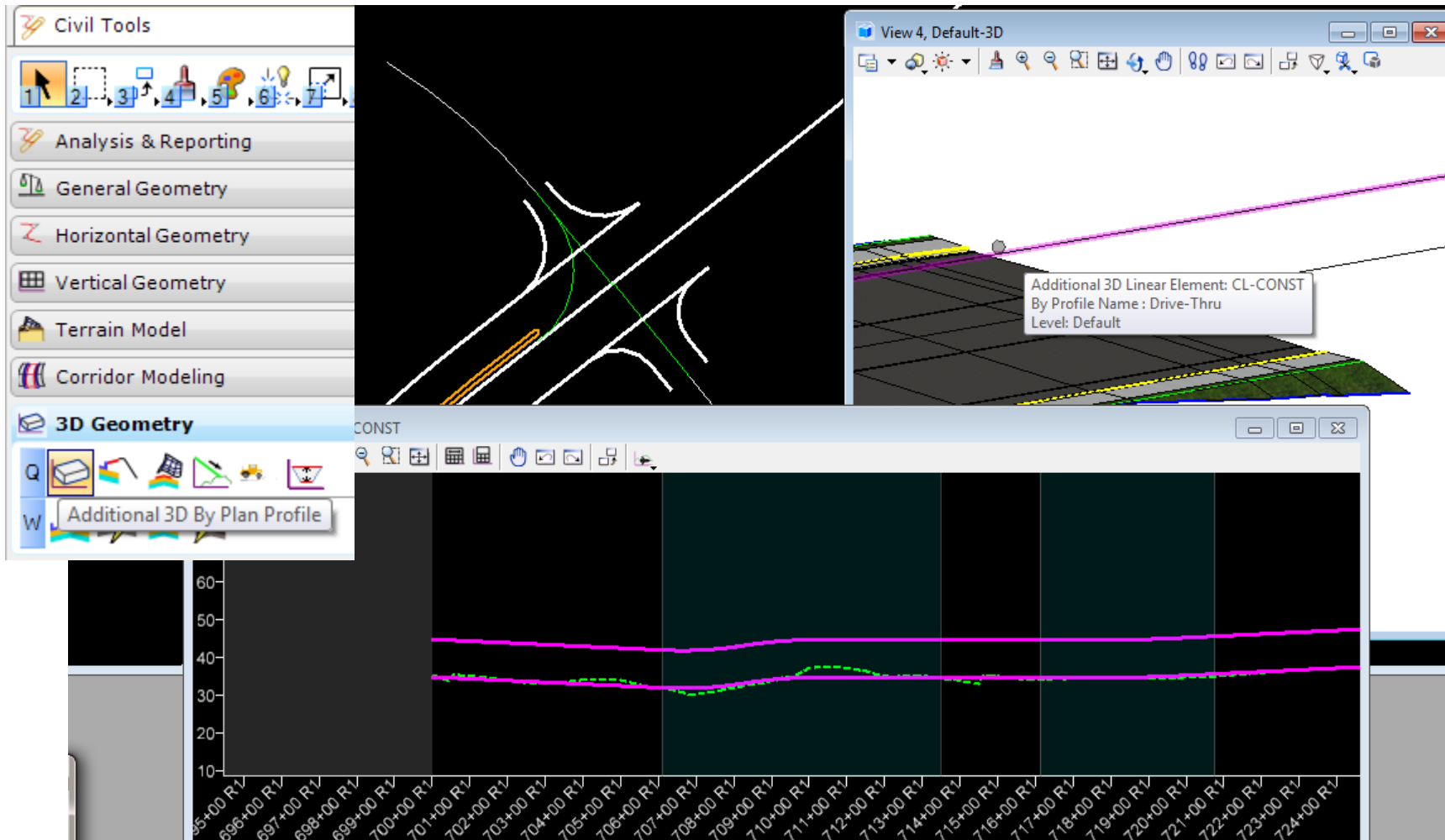


# Profile by Offsets

The image displays a software interface for creating a profile by offsets. On the left, a 'Vertical Geometry' toolbar contains various icons for profile creation and editing. The 'Profile Offset Transition' icon is highlighted. The main workspace shows a vertical profile with a vertical axis ranging from 20 to 36 and a horizontal axis with stationing labels from 699+40 R1 to 704+80 R1. A red vertical line is positioned at station 700+00. A 'Start Parameters' dialog box is open, showing an 'Offset' of 10.000000. A 'Profile Offset' dialog box is also open, showing the following settings:

Profile Offset	
<input checked="" type="checkbox"/> Offset:	10.000000
Mirror	<input type="checkbox"/>
Distance	
Lock To Start	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Start Distance	0.000000
Lock To End	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> End Distance	2600.030493
<input type="checkbox"/> Length	2600.081650
Feature	
Name	
Element Template	None

# Profile by Offsets





# ***QUESTIONS AND COMMENTS***

Thank you for attending !

Engineering/CADD System Support