

Corridor Modeling (Template Building) (03-2011)

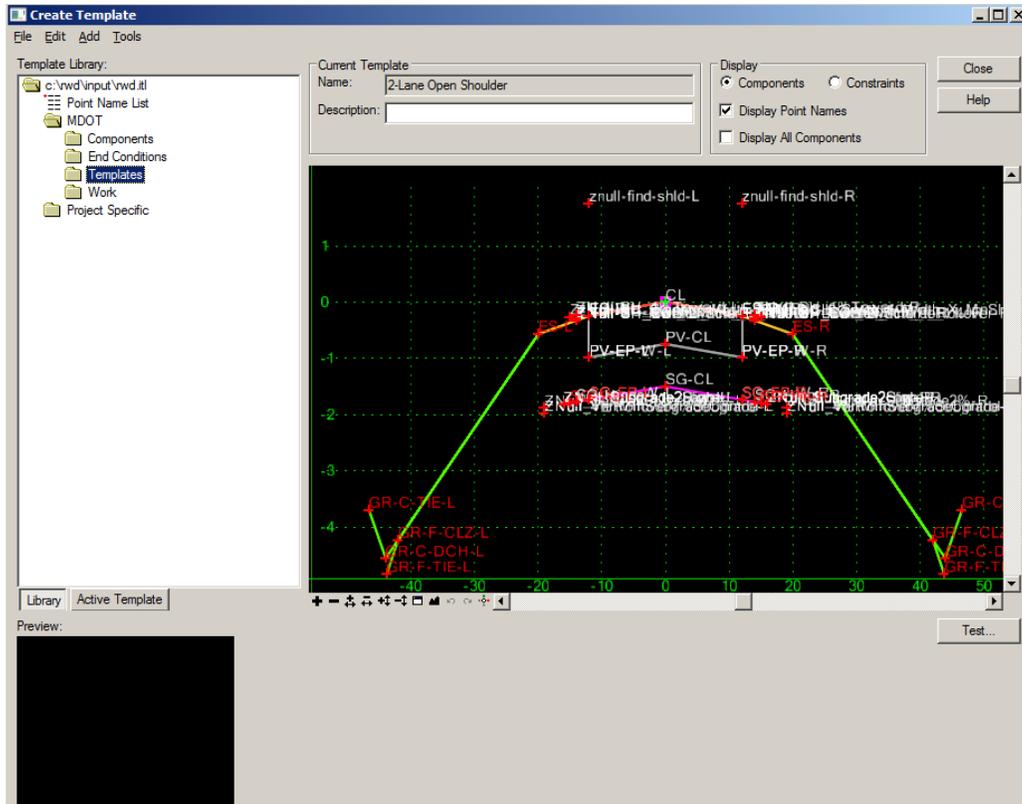
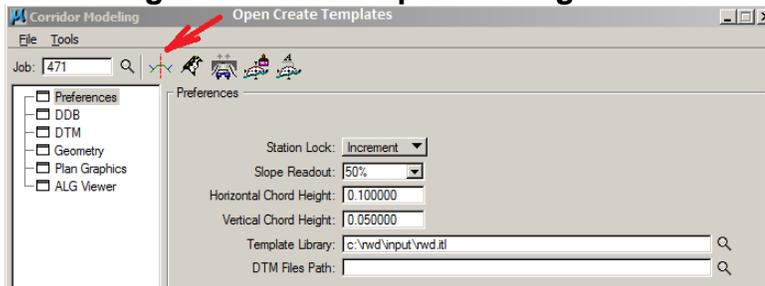
OVERVIEW

Although MDOT provides a Template Library with standard templates that you are encouraged to use, you may, at times, need to edit or create templates. This document:

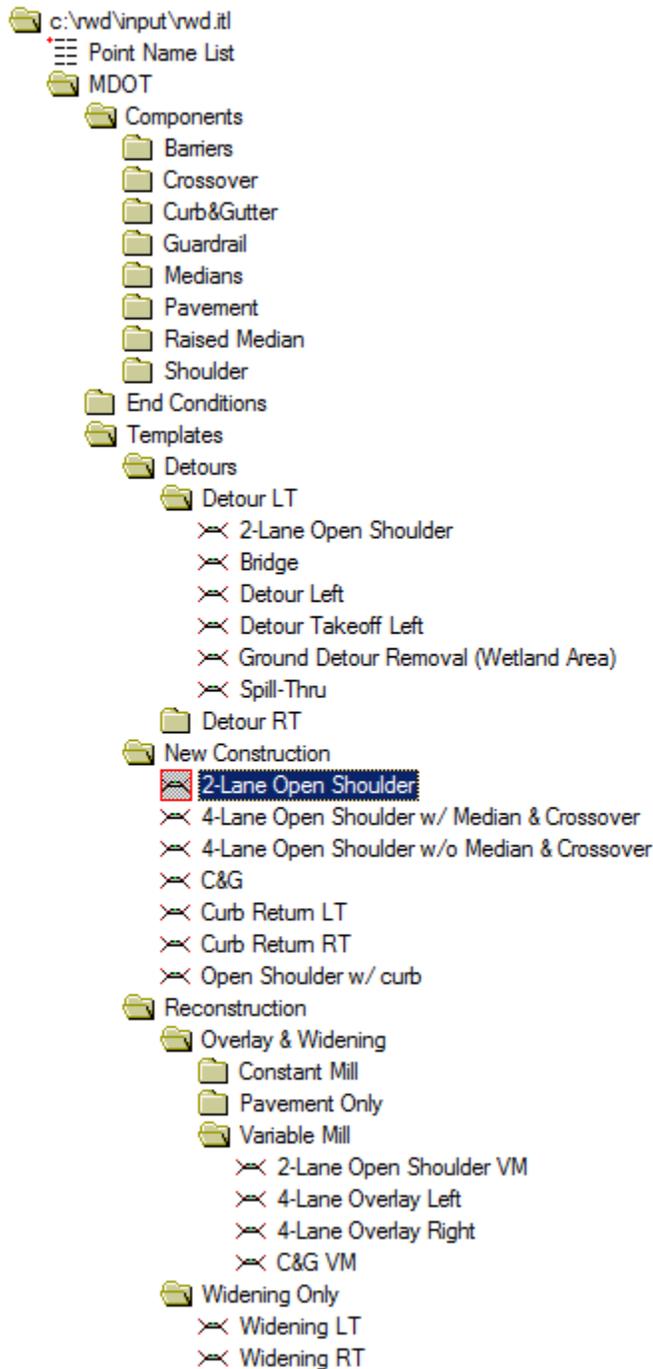
- A) Describes MDOT's Template Library
- B) Describes MDOT's Standard Point Names.
- C) Discusses basics of accessing and using the Create Template dialog to create templates or combine components.

MDOT's Template Library

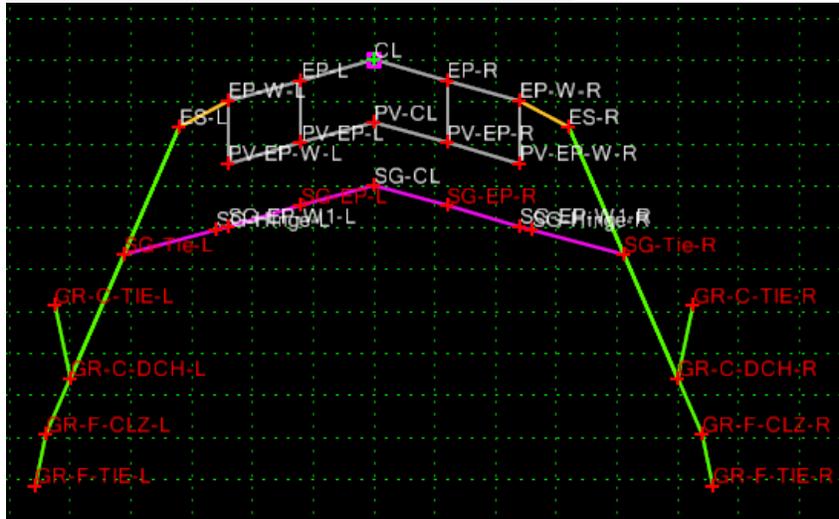
1) Accessing the create Template dialog.



The current folder structure is shown below. Templates have been pre-built for most roadway types and with built-in shoulder & subgrade standards. Components and End Conditions have also been built to be able to easily drag and drop to combine different component types.



MDOT's Standard Template Point Names



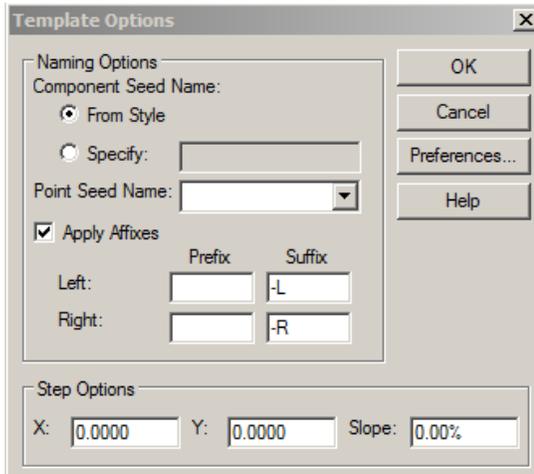
POINT	CATEGORY	DESCRIPTION	Surface Feature Style	Plan View Style Constraint
CG-BC	Curb	Back of Curb	3D PR CONCRETE	
CG-FC	Curb	Face of Curb	3D PR CONCRETE	
CG-FG	Curb	Face of Gutter	3D PR CONCRETE	
CL	Pavement Top	Centerline	3D PR ASHPHALT	
EP	Pavement Top	Normal Width EP	3D PR ASHPHALT	
EP-W	Pavement Top	Widened EP (Outside super)	3D PR ASHPHALT	P-EP-PAVED
EP-X	Pavement Top	Existing Edge	3D PR ASHPHALT	X-EP
ES-P	Shoulder	Paved Edge	3D PR ASHPHALT	P-SHLD-PAVED
ES	Shoulder	UnPaved Edge	3D PR SHOULDER	P-SHLD-UNPAVED
GR-C-DCH	Ground	Cut Ditch	3D PR GROUND	
GR-C-TIE	Ground	Cut Tie	3D PR GROUND	
GR-F-CLZ	Ground	Fill Safety Slope End	3D PR GROUND	P-CLEAR-ZONE
GR-F-TIE	Ground	Fill Tie	3D PR GROUND	
PV-CL	Pavement Bottom	Centerline	3D PR ASHPHALT	
PV-EP	Pavement Bottom	Normal Width EP	3D PR ASHPHALT	
PV-EP-W	Pavement Bottom	Widened EP (Outside super)	3D PR ASHPHALT	
PV-EP-X	Pavement Bottom	Existing Edge	3D PR ASHPHALT	
PV-ES-I	Paved Shoulder Bottom	Paved Inside Bottom	3D PR ASHPHALT	
PV-ES-O	Paved Shoulder Bottom	Paved Outside Bottom	3D PR ASHPHALT	
SG-CL	Subgrade	Subgrade CL	3D PR SUBGRADE	
SG-EP	Subgrade	Subgrade at EP	3D PR SUBGRADE	
SG-EP-W	Subgrade	Subgrade at EP Widened	3D PR SUBGRADE	
SG-TIE	Subgrade	Subgrade TIE	3D PR SUBGRADE	
SW	Sidewalk		3D PR CONCRETE	P-SIDEWALK
ZDNC		Do not Construct		
Znull		Null Points		

Note: -L & -R are added to each point for Left & Right sides of the Template. -MR & -ML are added for median sides.

Creating Templates (Tools)

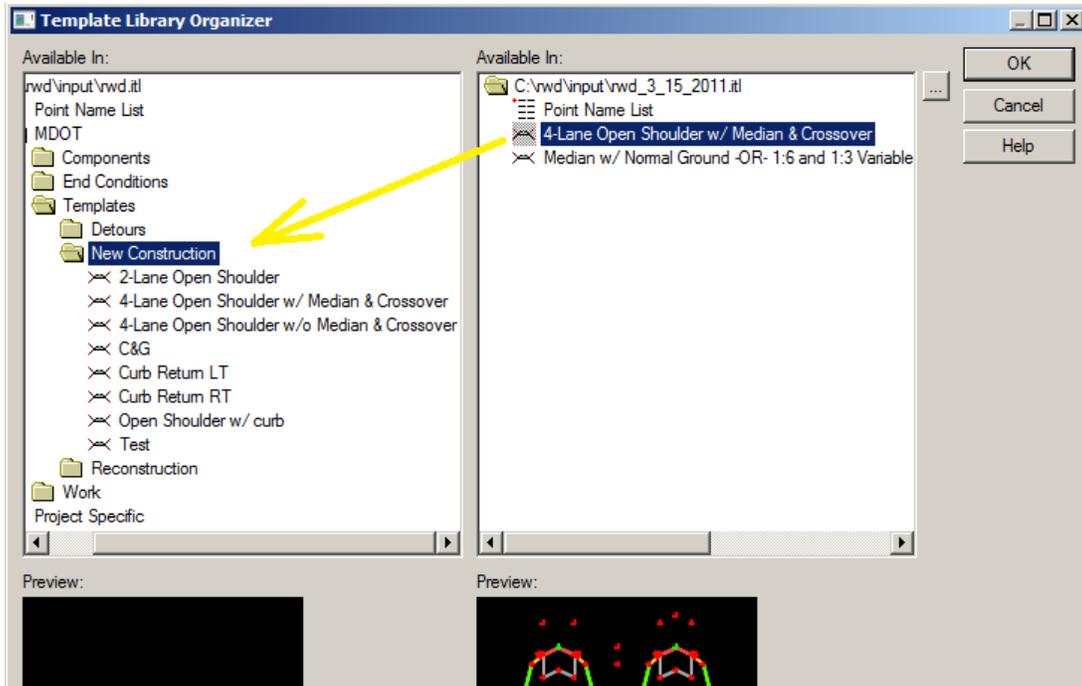
A) Tools

Tools – Template Options – Apply Affixes needs to be disabled at times and enabled at others. If enabled a –L or –R is added to the points to distinguish Left and Right sides.



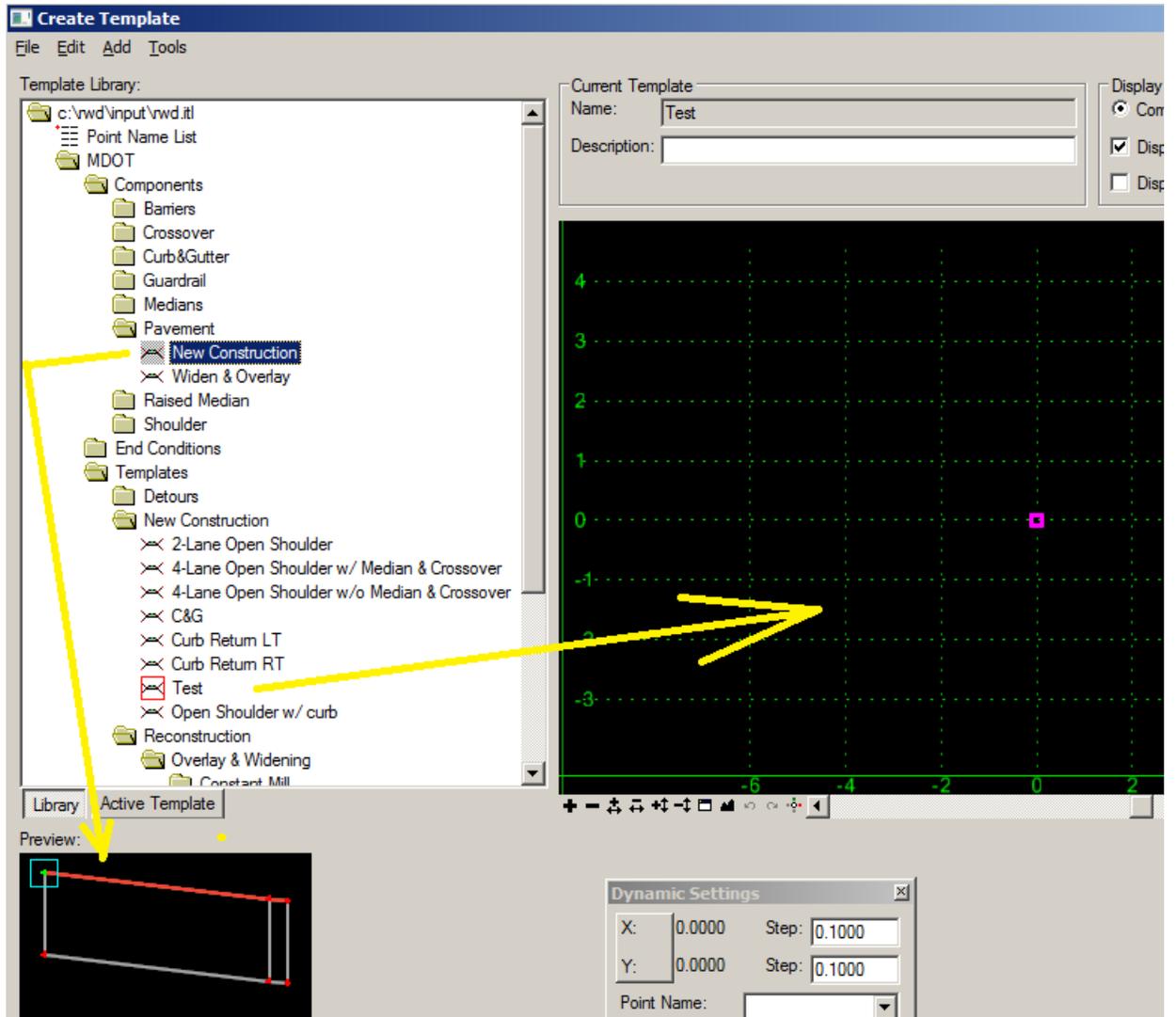
B) Dynamic Settings – Generally needs to be open and set as shown below to construct/move points to specific points.

C) Template Library Organizer – Allows you to copy components or templates from a library to your current library.

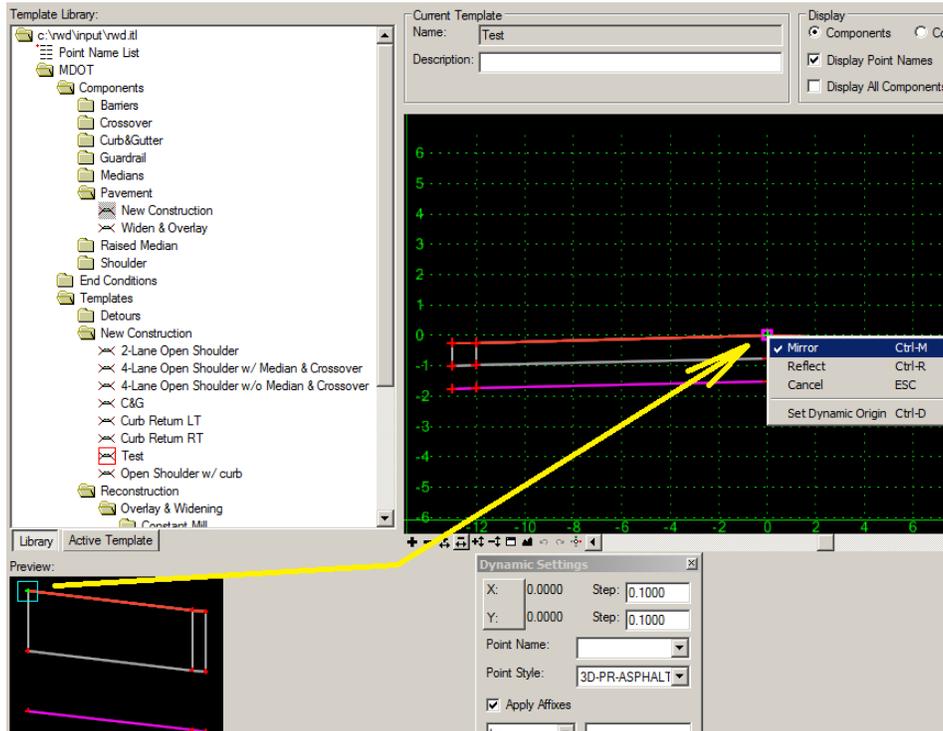


Creating Templates (Building a Template from Components)

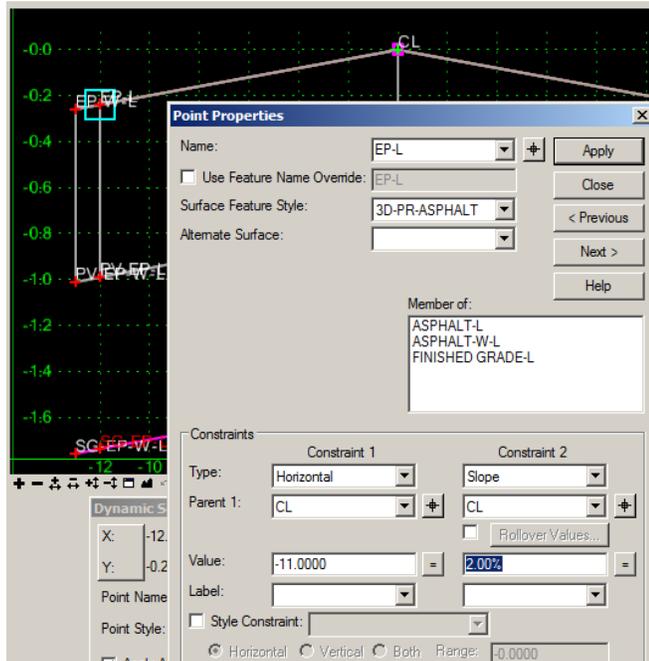
A) Blank “Test” Template created. “New Construction” Pavement Component built.



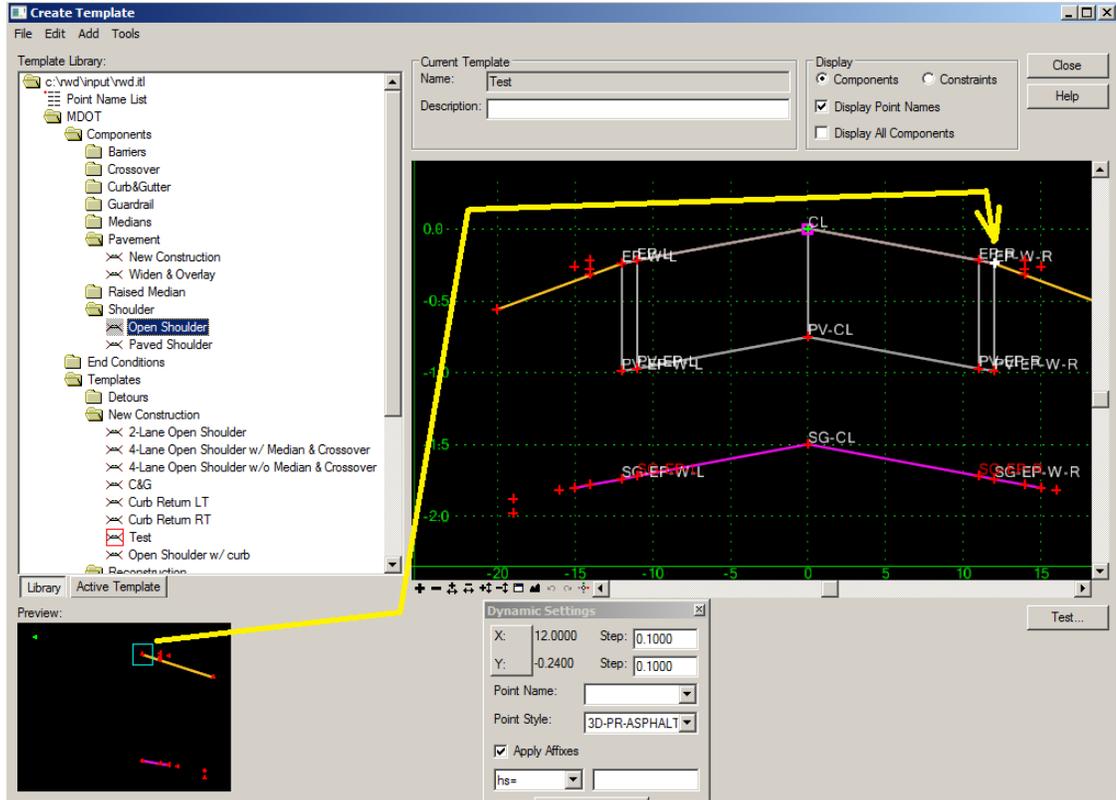
- B) New Construction Pavement component dragged from Preview pane to Window. Right Click to turn "Mirror" on, use the mouse wheel to zoom in, and Apply Affixes are on.



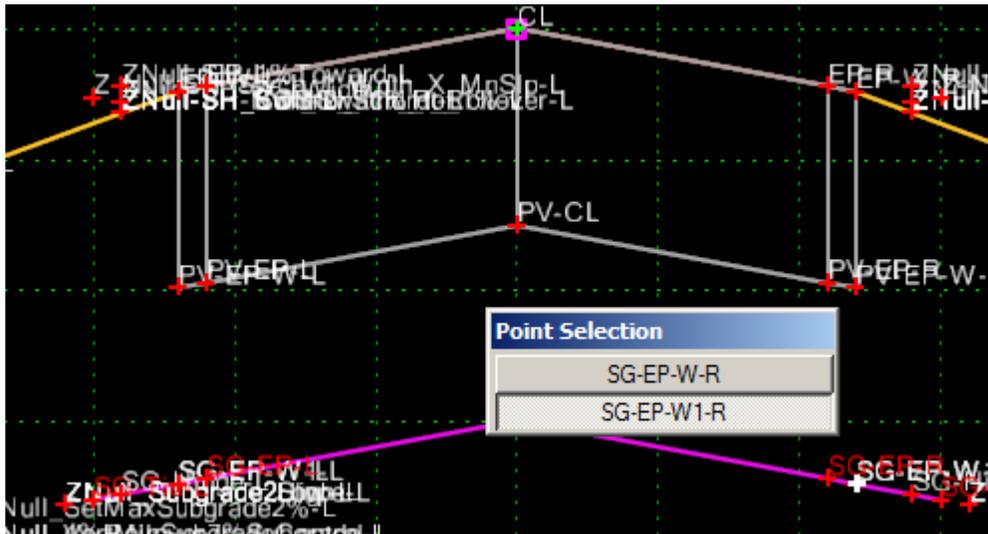
- C) Double Clicked EP-L & EP-R to move to 11' to match default shoulder location. Done so that EP-W in the pavement & shoulder components line up so they will be merged when shoulder is moved in.

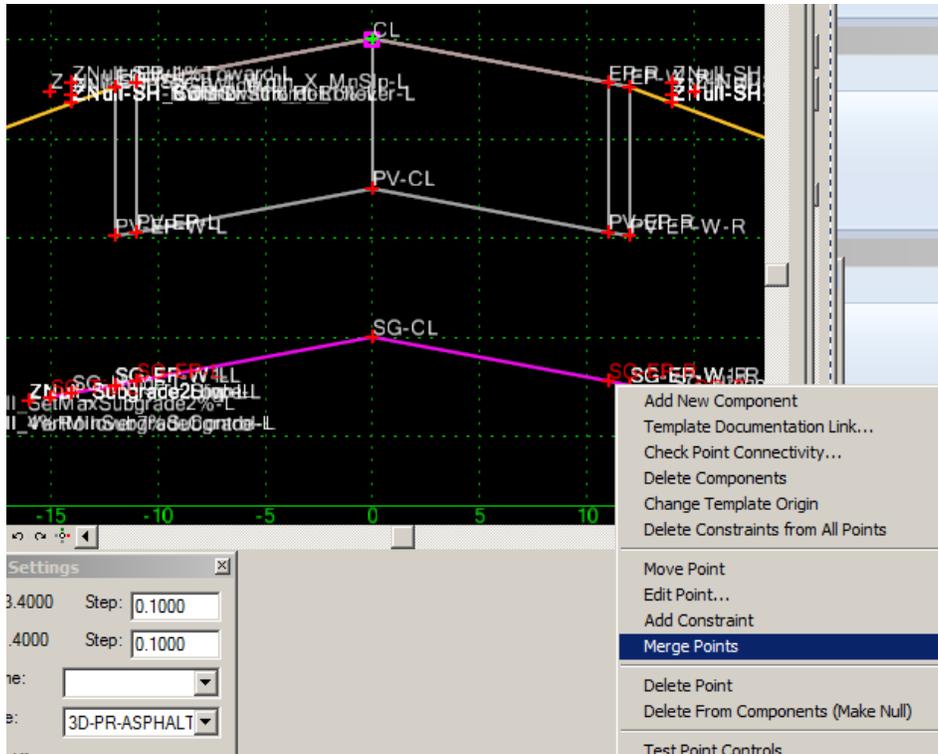


- D) Moved shoulder from the Preview pane to the Test Template. Dropped Shoulder EP-W on Pavement EP-W exactly and CL, EP-W-R, EP-W-L were all merged to 1 point. Although they should have been, SG-EP-W-L & R were not merged and are discussed in next step.

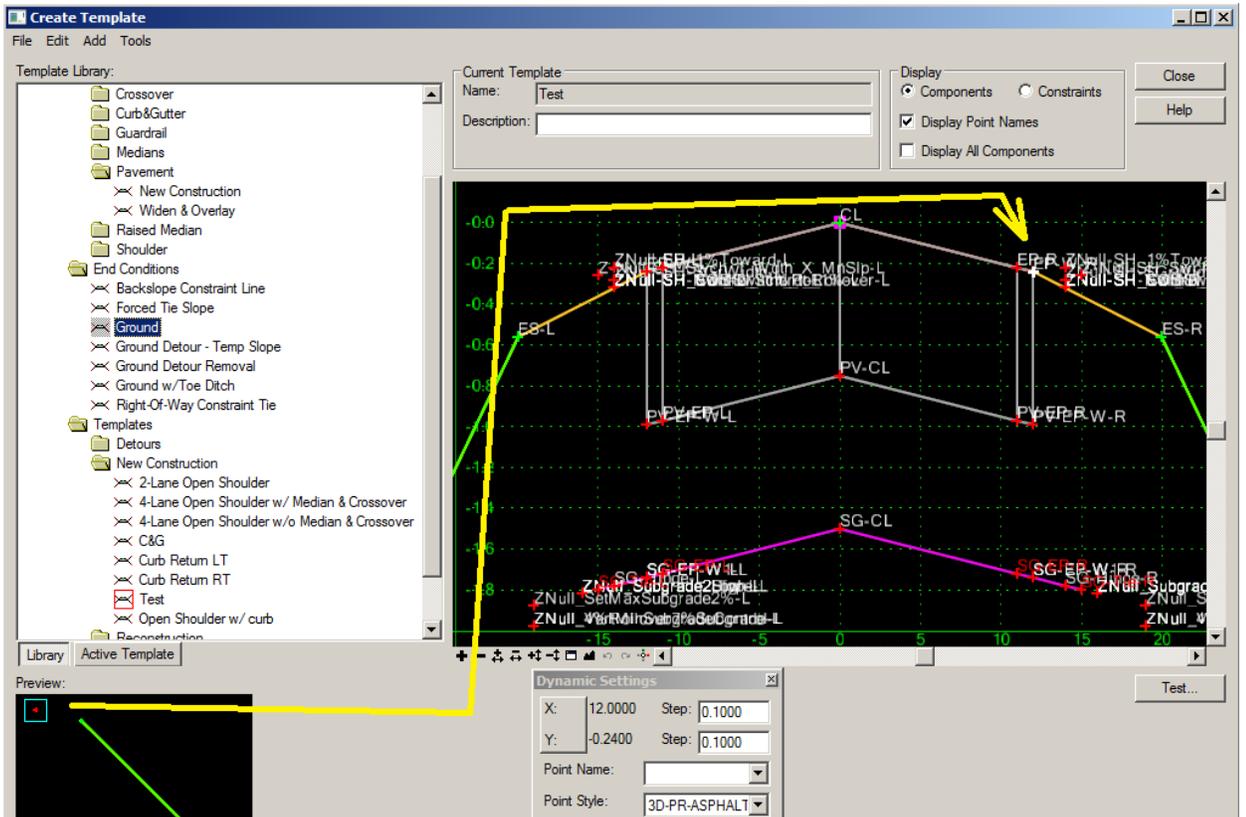


- E) As shown below & by double clicking SG-EP-W-R, SG-EP-W-L & R were not merged automatically so in the 2nd dialog below, I Right click and merge points, deleting SG-EP-W1-L and then do the same for SG-EP-W1-R.

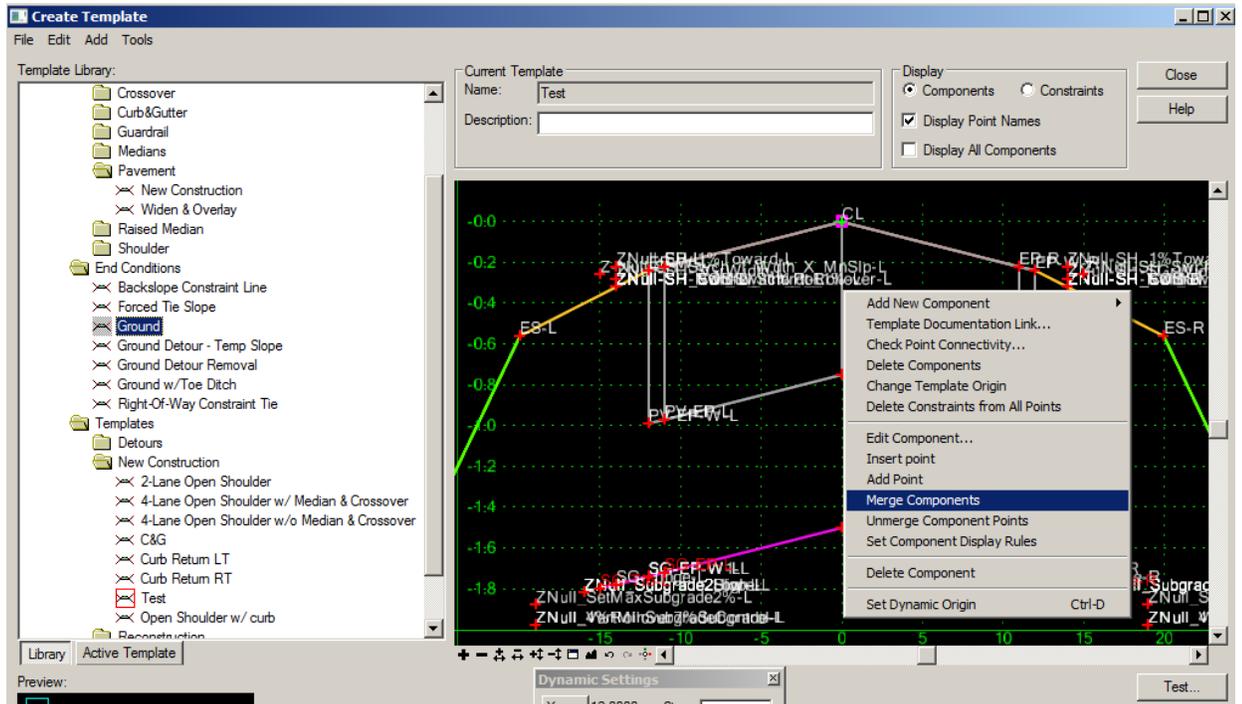




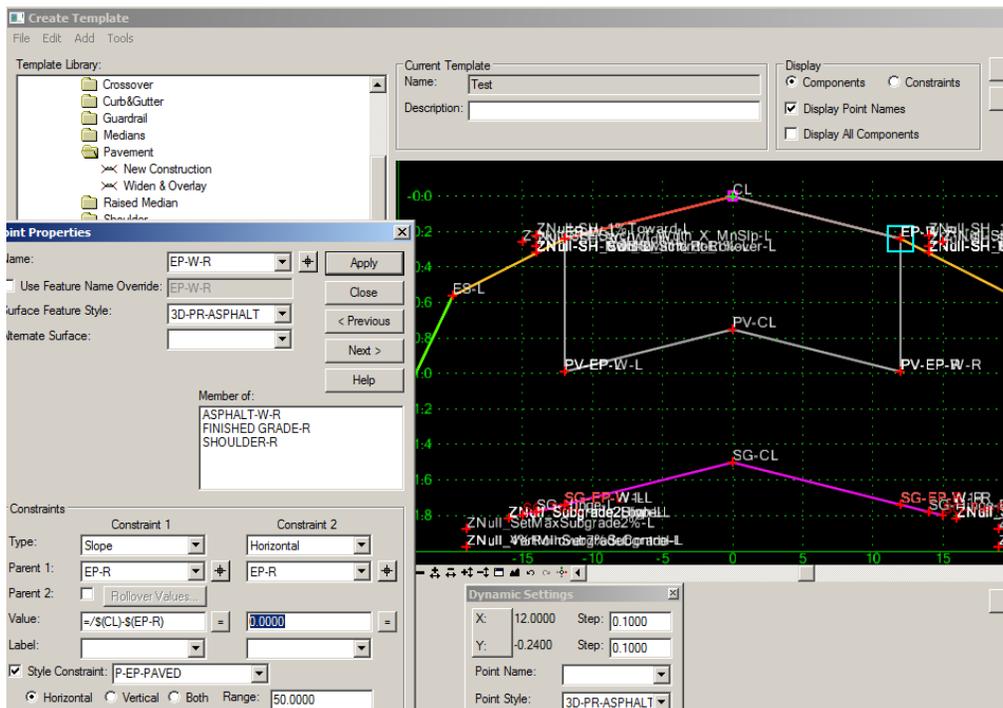
F) The next step is to drag & drop the “Ground” end condition to the template.



- G) Right Click the Vertical Pavement line under CL and “Merge Components” to have one continuous pavement.



- H) Double Click EP-L & R & EP-W-L & R to change the EP back to 12' and move EP-W-* on top of EP-*



Creating Templates (Point & Component info)

Point Constraints - A point can have two constraints. EP-R is constrained to CL Horizontally with a value of 12 and by a Slope of 2%. There are several other constraint types to choose from. EP-R's Surface Feature Style is 3D-PR-ASPHALT which controls the symbology when plotted to Microstation as a DTM or as X-Sections.

The screenshot shows the 'Point Properties' dialog box for point 'EP-R'. The 'Name' field is 'EP-R'. The 'Surface Feature Style' is '3D-PR-ASPHALT'. The 'Constraints' section is configured as follows:

Constraint 1	Constraint 2
Type: Horizontal	Type: Slope
Parent 1: CL	Parent 2: CL
Value: 12.0000	Value: -2.00%

At the bottom, the 'Style Constraint' is set to 'Horizontal' with a 'Range' of '0.0000'. The 'Member of' list includes: ASPHALT-R, ASPHALT-W-R, and FINISHED GRADE-R.

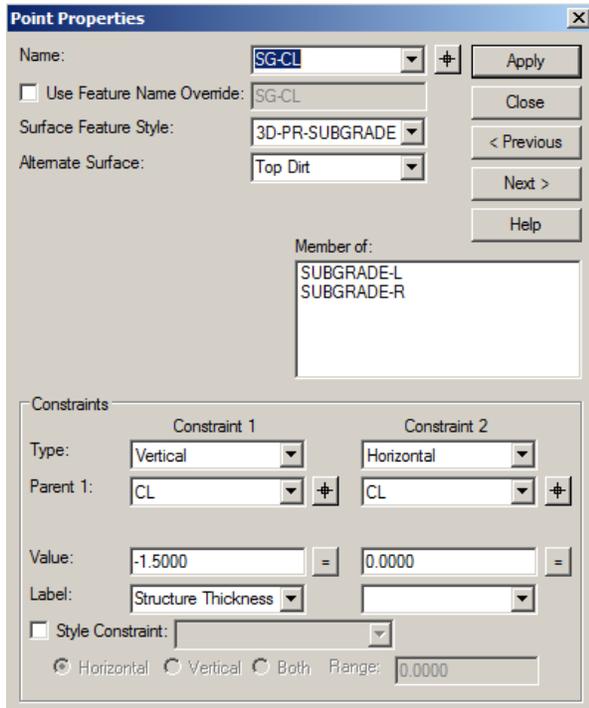
Style Constraints - EP-W-R is constrained to EP-R both by slope & Horizontally. EP-R also has a Style Constraint set so that if P-EP-PAVED (Imported Plan Graphic) is found within 50', EP-W-R is moved out to that location horizontally.

The screenshot shows the 'Point Properties' dialog box for point 'EP-W-R'. The 'Name' field is 'EP-W-R'. The 'Surface Feature Style' is '3D-PR-ASPHALT'. The 'Constraints' section is configured as follows:

Constraint 1	Constraint 2
Type: Slope	Type: Horizontal
Parent 1: EP-R	Parent 2: EP-R
Value: =/\$(CL)-\$(EP-R)	Value: 0.0000

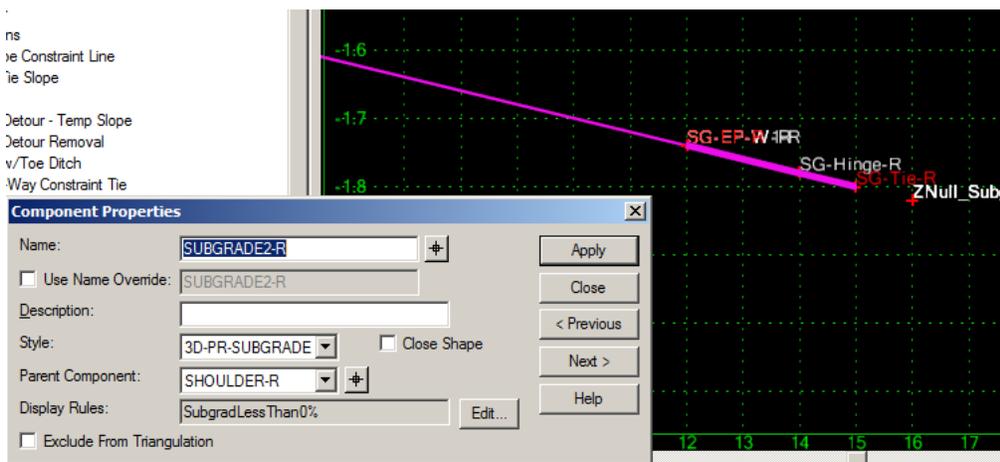
At the bottom, the 'Style Constraint' is checked and set to 'P-EP-PAVED' with a 'Range' of '50.0000'. The 'Member of' list includes: ASPHALT-W-R, FINISHED GRADE-R, and SHOULDER-R.

Parametric Constraints – Notice that Constraint 1 below for SG-CL has a Label called “Structure Thickness”. If assigned here, the value of “Structure Thickness” can be changed from -1.5 to your projects specific structure thickness through Roadway Designer’s Parametric Constraints.



Alternate Surface – “Top Dirt” is assigned to SG-CL and actually all subgrade points as well as ground points below the subgrade so that a “Top Dirt.DTM” is generated when Surfaces are created in addition to the Finished Grade DTM.

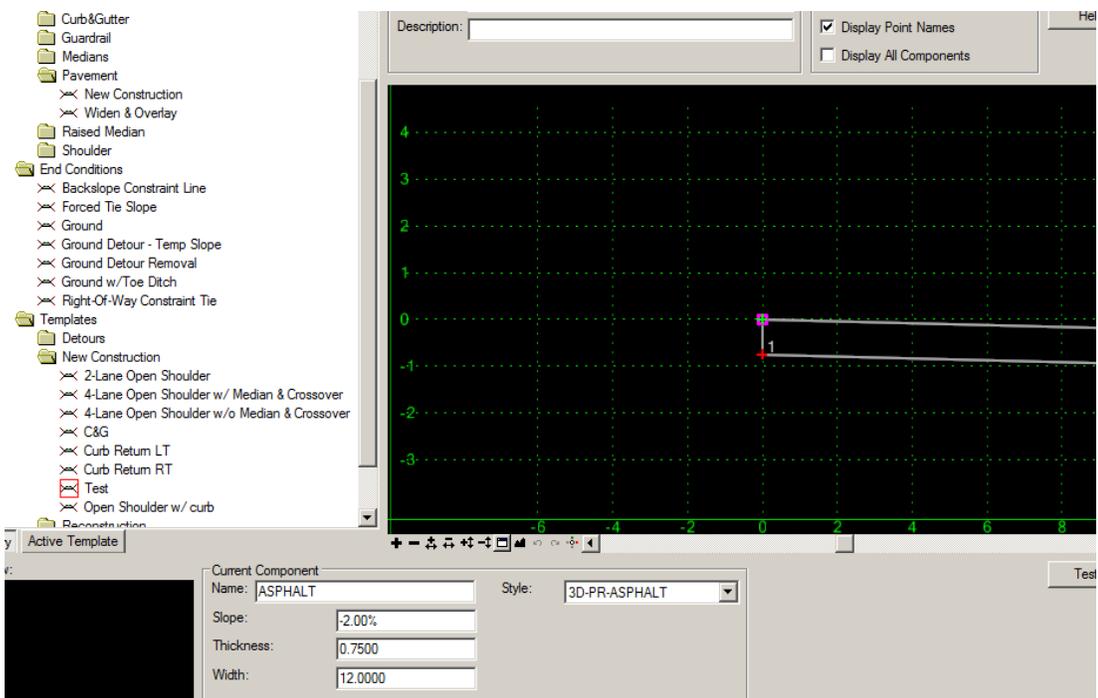
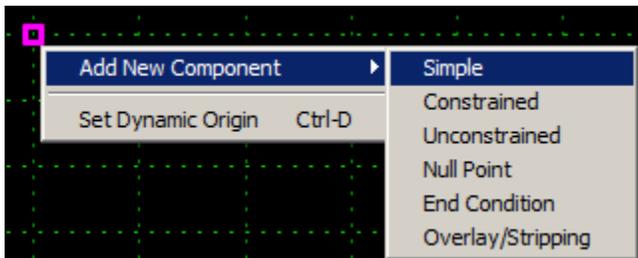
Display Rules – Double click a component to see component properties. Style controls symbology. Parent Component means that if the parent is not displayed neither will it’s child be displayed.



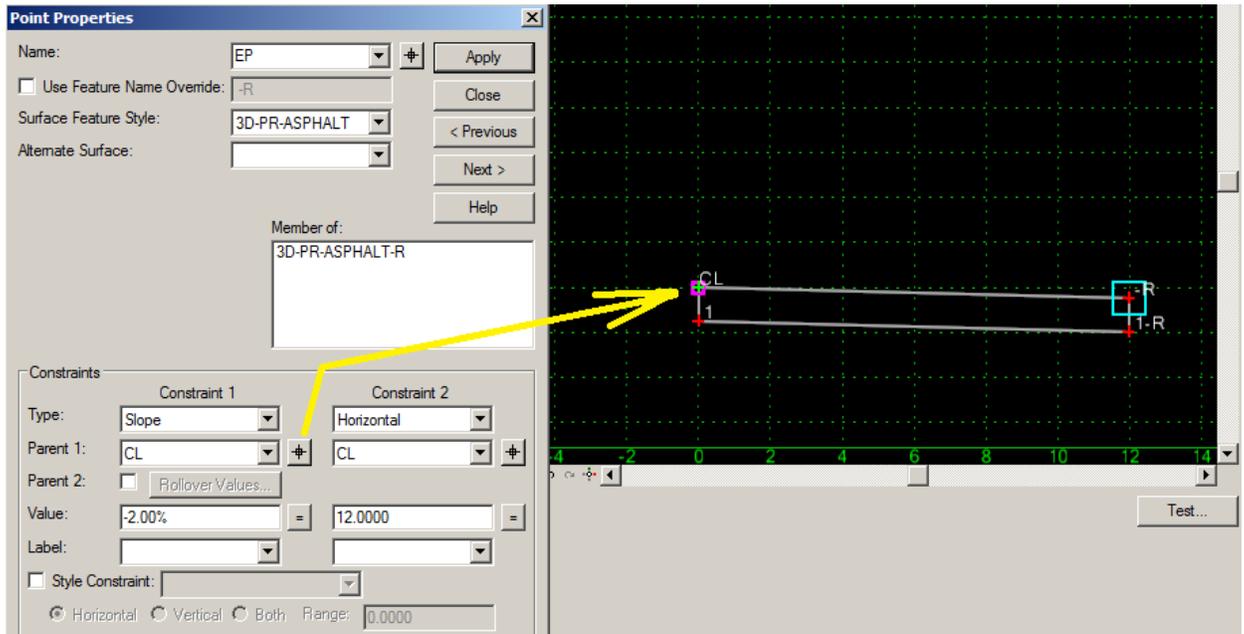
Notice that Subgrade2-R has a display rule associated with it. Display Rules can be added by tagging the Edit button here and basically control the display of an element based on specific criteria being met.

Creating Templates (Creating a Template from scratch and other Template tools)

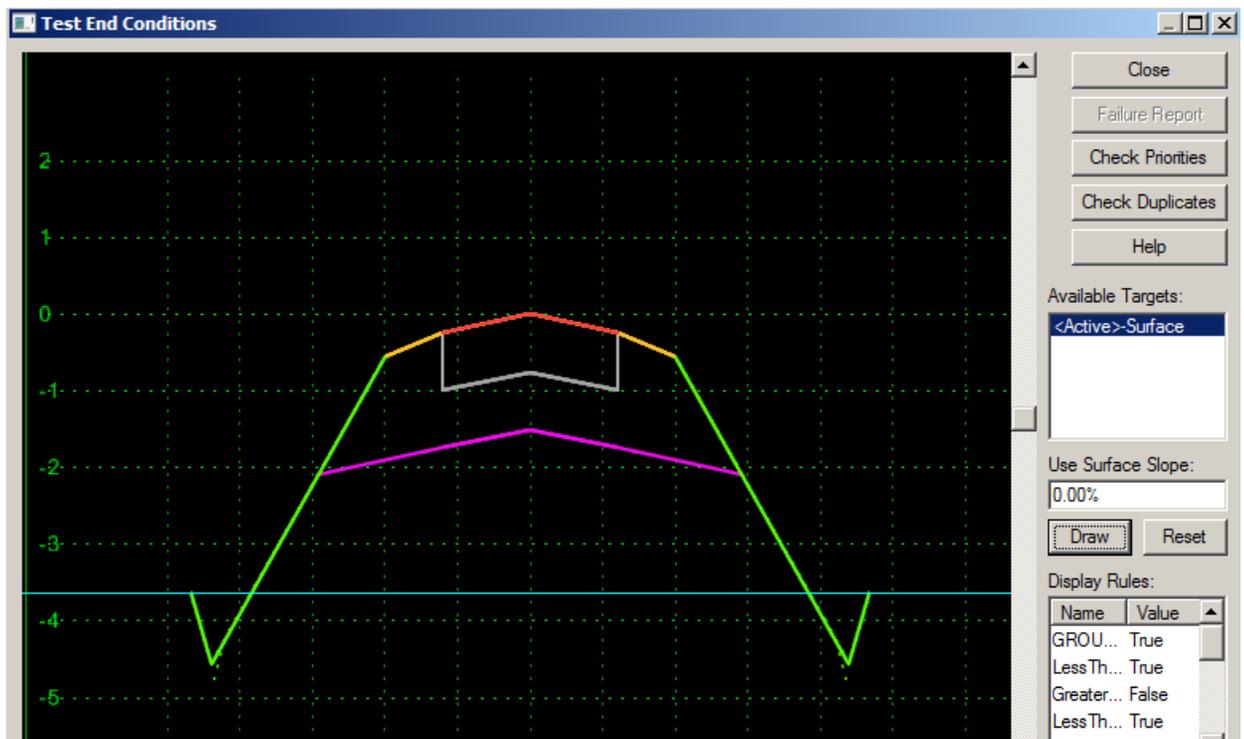
1. Add New Component – After creating the template in the appropriate folder, right click and Add New Component and choose the type of component. Simple is generally used for Pavement Shapes, Constrained or Unconstrained for non-rectangular elements (shoulder, subgrade, curb, etc.), and End Conditions for elements that will tie to the ground. You can right click when placing the element to mirror, reflect, or cancel and use the Mouse Wheel to Zoom in/Out.



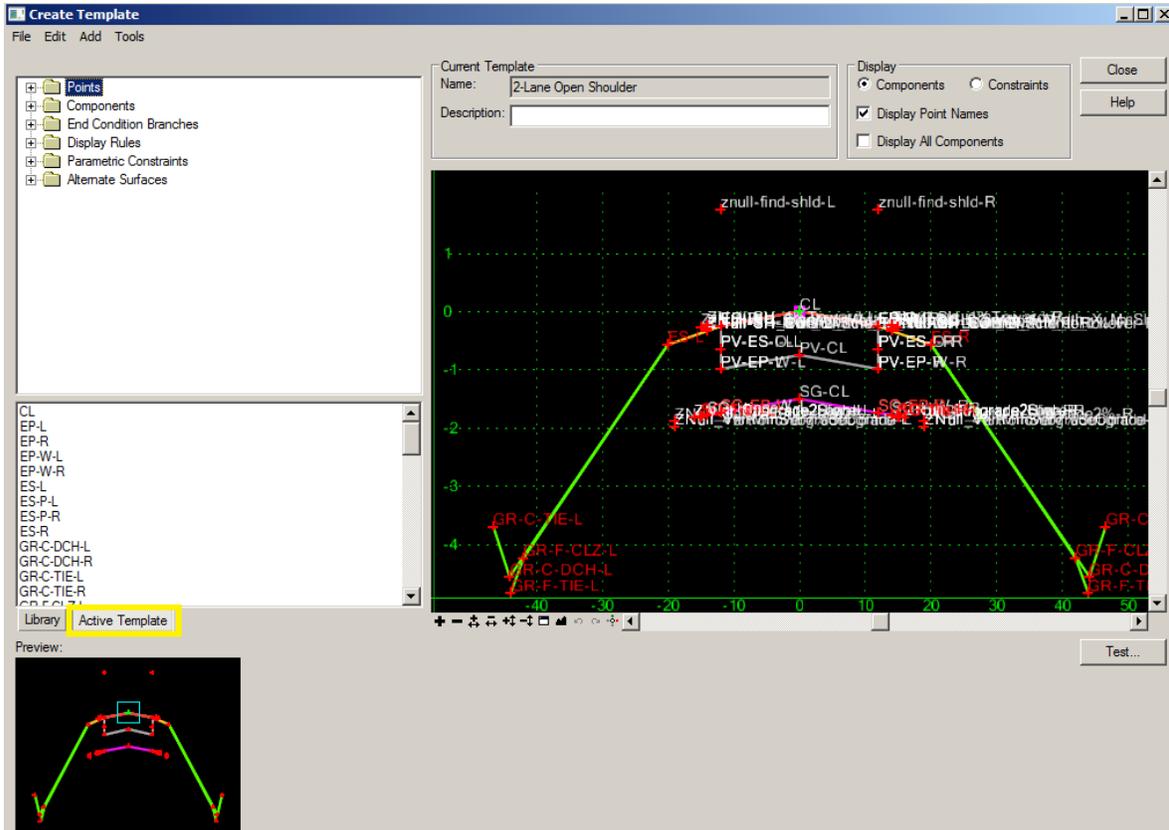
2. Point Editing – Double click a point to edit, add constraints, etc. Tag the button by the yellow line below to identify a point.



3. Testing End Conditions – You can tag the test button in the bottom right of the dialog to test end conditions, display rules, etc.



4. Tagging Active Template in the lower left hand corner allows you to see all non-displayed elements as well as lists of Points, Components, Display Rules, etc. You can go in and rename these elements in these lists and also drag components on top of other components to make them child elements.



Points Expanded:

