



IT'S TIME FOR LEARNING.

MAY 21-25, 2006
CHARLOTTE, NORTH CAROLINA, U.S.

JUNE 11-15, 2006
PRAGUE, CZECH REPUBLIC

C1TNC107

Template Creation for the InRoads Roadway Designer

Hands-on class sponsored by the Bentley Institute

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LESSON NAME: ASSEMBLING TEMPLATES USING COMPONENTS

LESSON OBJECTIVE:

In this portion of the workshop, you will assemble a template using previously created template components (parts). You will use the newly created template to develop a proposed roadway design.

> **EXERCISE: GETTING STARTED**

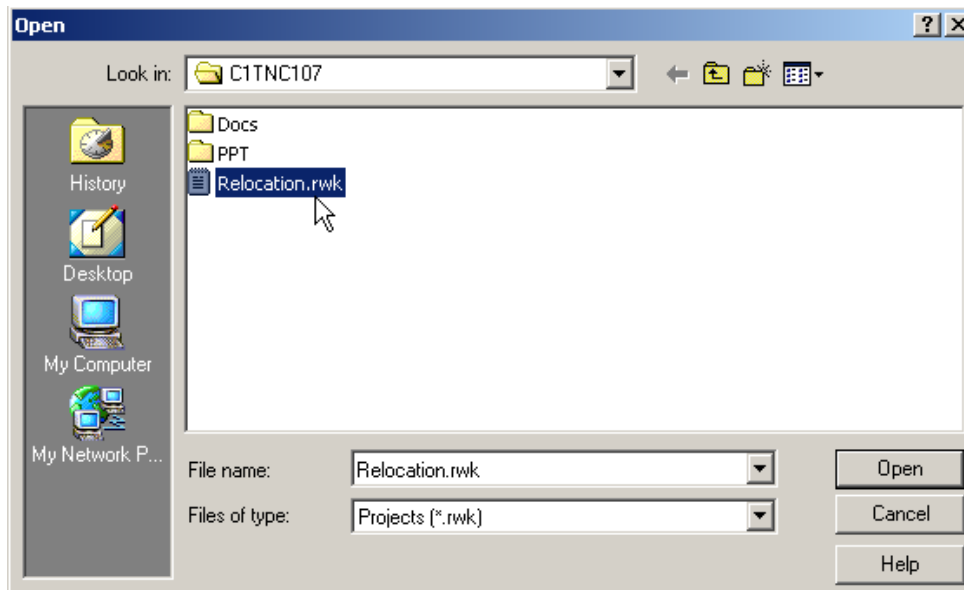
1. Start InRoads and MicroStation by selecting the **InRoads** icon on the desktop or on the Start menu
2. Open the MicroStation file C:\ BE data\Civil\<<course number>*design.dgn*
3. Select the **File>Open** command from the InRoads pull-down menus

Highlight *Template C:\ BE data\Civil\<<course number>\Relocation.rwk*

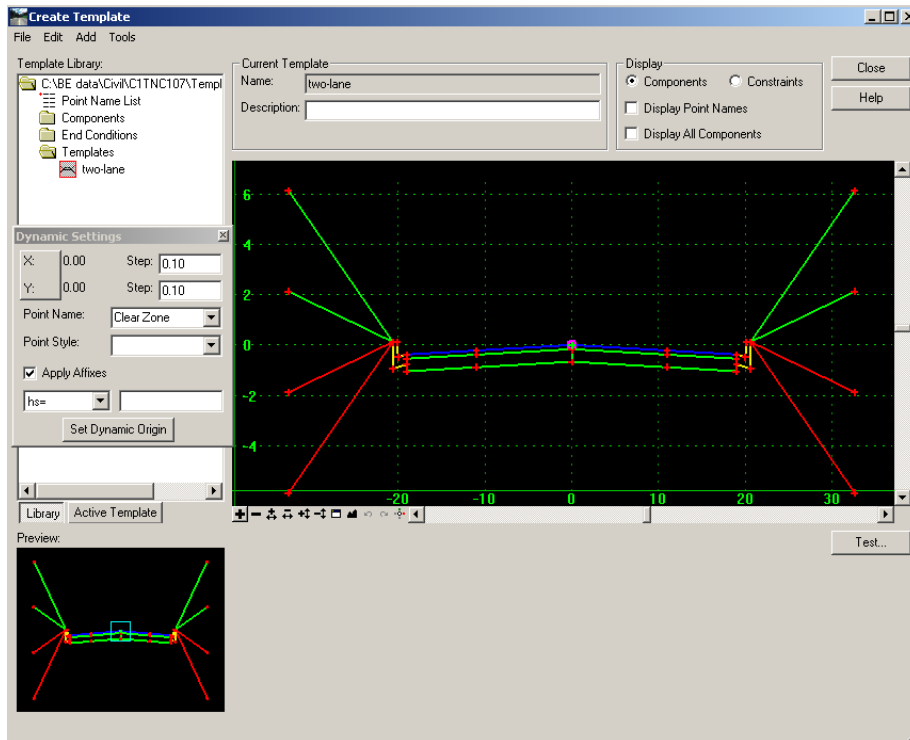
Click **Open**

Click **Cancel**

This will open: Relocation.alg, Template Standards.itl, Relocation.ird, Original.dtm



THE CREATE TEMPLATE DIALOG



The Create Template dialog is primary place for creating and editing templates. The file extension for the Template Library is .itl (InRoads Template Library).

On the left side of the dialog, you will find the Template Library area, which contains a “Windows like” folder structure. The root folder is the name and location of the InRoads Template Library that is currently open. Only one template library may be open at a time. To navigate the folder structure, simply double-click the folders you want to open or close. Inside any folder, you can create and organize your Templates and Sub-Folders. The organization of the folder structure is completely user definable. The folder structure also supports common Windows functions, like drag and drop, cut and paste, etc. Most common commands can be accessed by using a right-click on the folders and templates. If you double-click a template, it becomes the Current Template and is signified by a Red box around the template icon. The Current Template is also identified in the Current Template area next to the Template Library area.

TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

Under the Template Library area is the Preview area. When you highlight a Template, the Template will be seen in the Preview area. You can use the Preview to assemble Templates from their parts or components. This is accomplished through “drag and drop.” The Cyan box in the Preview represents the insertion point for any drag and drop operation. You can change the insertion point location by simply clicking on the Preview.

In the center of the Create Template dialog, is main graph for creating Templates. The graph uses its own graphics engine and is not a MicroStation view. The Dynamic Origin (center point) of the graph (0,0) is marked with a Violet box. The Dynamic Origin is used as reference point and can be moved to any location in the graph. The template graph displays the Current Template. At the bottom of the graph, there are numerous view commands (similar to MicroStation View commands). There are two buttons that look like the MicroStation View Previous and View Next command, however, they are used to Undo and Redo template creation operations. In the graph area, you can right-click to access commands and you can double-click elements in the graph for editing purposes.

Individual parts of the template are called components. Components are logical parts of a template. Portions of the template that are separated into components are normally based on tabulation considerations. Examples of components include curb and gutter, median barrier, pavement layers, cut and fill slopes, and ditches.

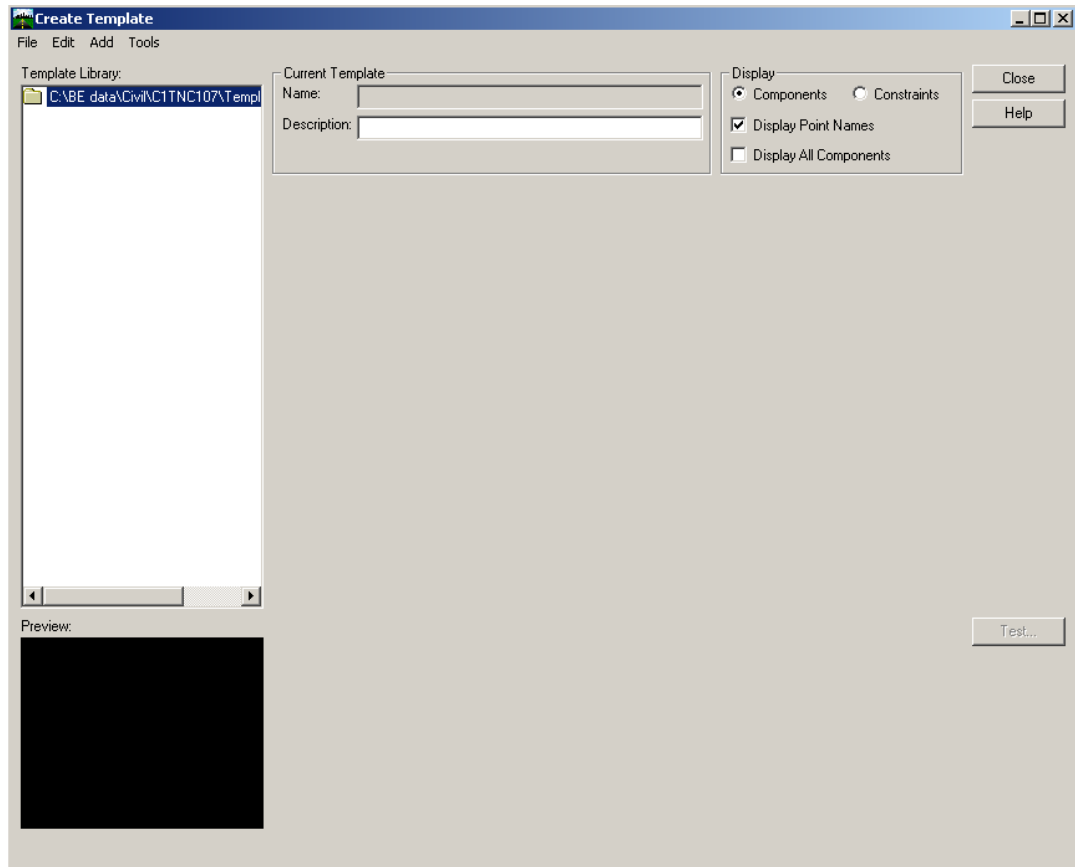
As you add template components, the area under the graph change to allow for different types of component input. This is called the Current Component area.

There is a Dynamic Setting dialog which will be used for precision inputting of template segments and for dynamically selecting names and options when creating templates.

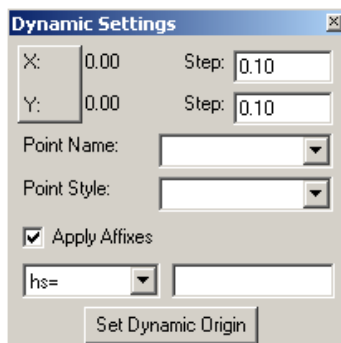
TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

> **EXERCISE: NAVIGATING THE CREATE TEMPLATE DIALOG**

1. Select the **Modeler>Create Template** command



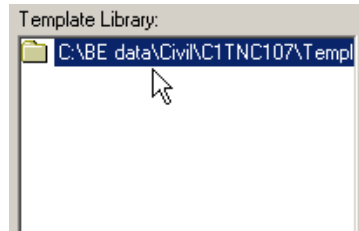
2. Select the **Tools>Dynamic Settings** command



The settings for the **Dynamic Settings** dialog are accessed using the **Tools>Options** command

TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

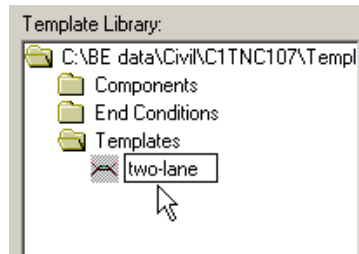
3. Double-click the **Template Library** folder to expand it



4. Highlight the **Templates** folder

Select the **File>New>Template** command

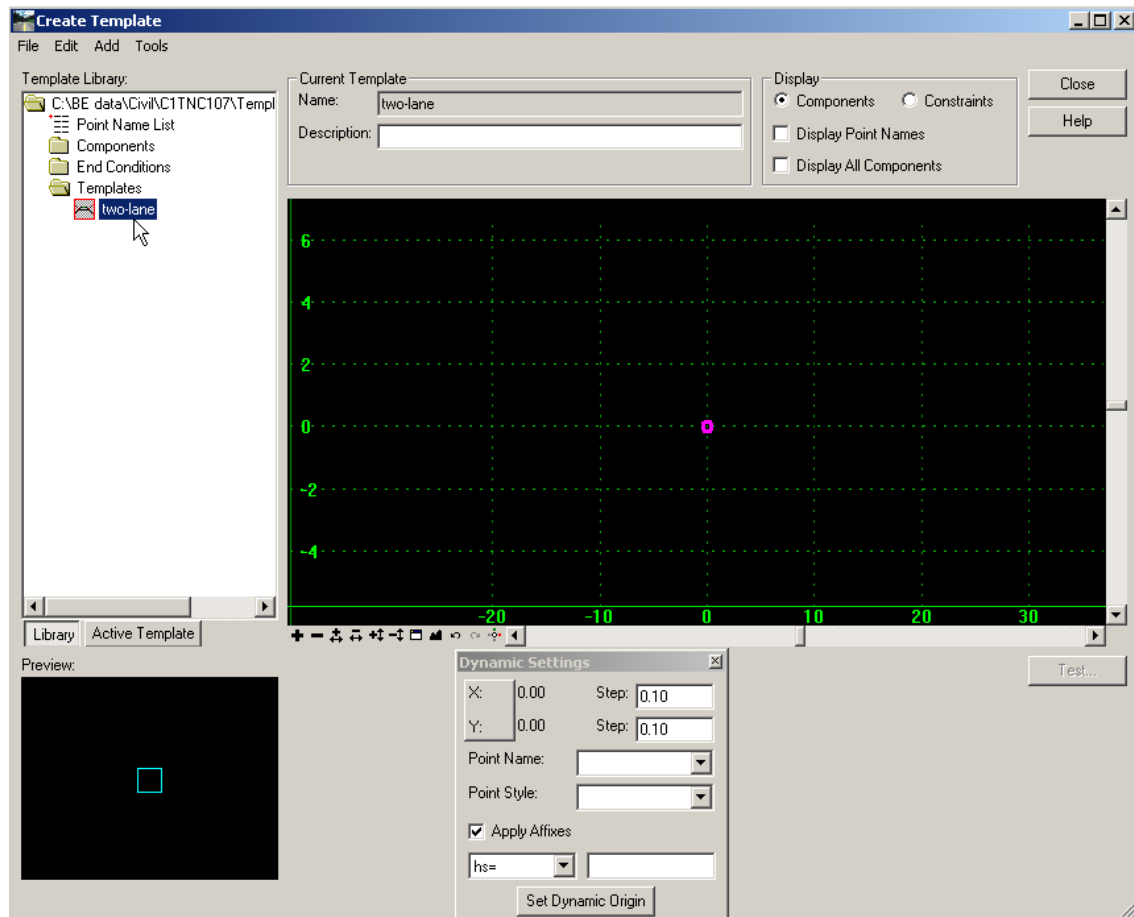
Key in the name ***two-lane***



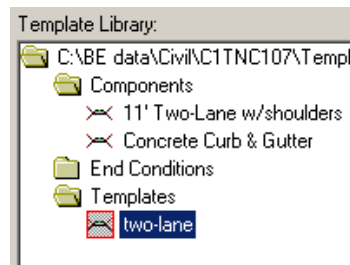
The Template Icon will now have a red box around it to signify it is the Current Template (you can double-click the any template to make it the Current Template)

This will bring up the template graph on the right pane and ***two-lane*** is the **Current Template**

TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER



5. Check **Off** the **Display Point Names** option
6. Double-click the **Components** folder to expand it



TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

TEMPLATE POINTS

As in past versions of InRoads, template point names represent the names of Digital Terrain Model (DTM) features that are generated when the template is used to create a model of the roadway. This modeling process is now accomplished using the Roadway Designer command (previously called the Roadway Modeler). Template point names are assigned during the template creation process. These names can be modified at any time.

TEMPLATE COMPONENTS

Templates are now made up of components. A Template Component is a group of template points that make up an open or closed shape. Each component has a name, description and style. Components can represent any roadway feature, such as curb and gutter, layer of pavement, cut and fill condition, sidewalk, etc. During the roadway design process, template components will be used to generate a DTM of the top layer of the design. Components that have subgrade points will be added to the DTM as non-triangulated points. Previous DTM challenges, such as designing vertical slopes and undercuts, are simplified using components. This results in only having one DTM that contains all modeled layers of the design. Components are a child of the DTM.

A template can be constructed of numerous components. Components can be organized into the Template Library folder structure to be used as “parts” to assemble a complete template. To assemble a Template, simply “drag and drop” any previously created template components from the Preview window into the graph, which displays the Current Template.

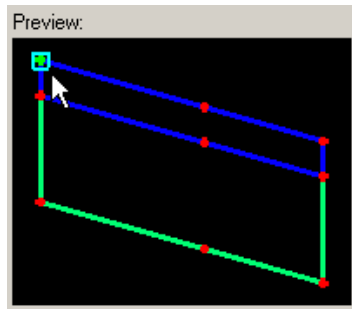
TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER


> **EXERCISE: ASSEMBLING A TEMPLATE**

1. Highlight the **11' Two-Lane w/shoulder** Component (single-click the **11' Two-Lane w/shoulder** template)

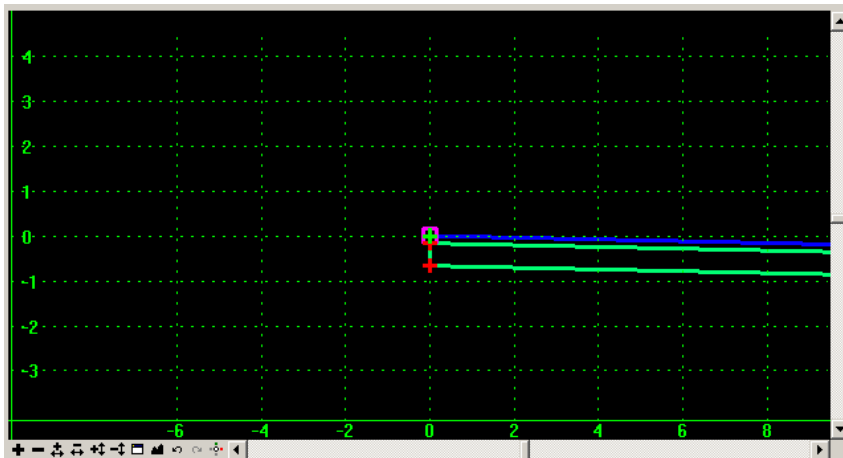
This will bring it up in the **Preview** window

2. Select the **11' Two-Lane w/shoulder** Component from the **Preview** window by the **Centerline** selection point



3. Holding the left mouse button down, drag and drop the Component to the Dynamic Origin (center mark)  on the **two-lane** graph

The X, Y coordinates on the **Dynamic Setting** dialog will show X: 0.00 and Y: 0.00 when you are on the **Dynamic Origin**



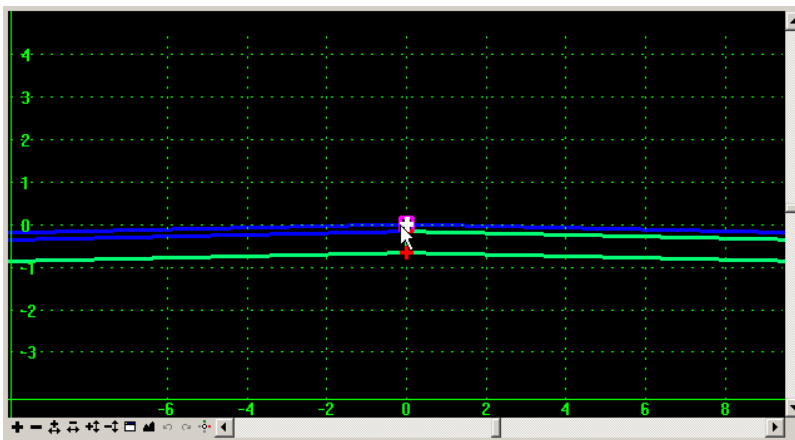
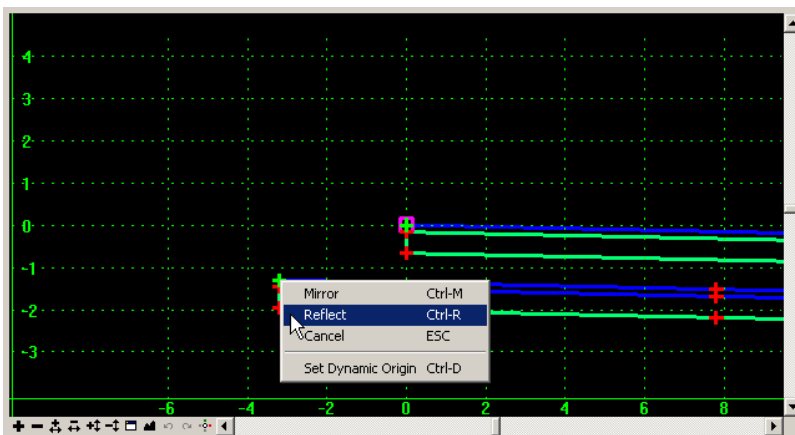
TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

4. Again, select the **11' Two-Lane w/shoulder** components from the **Preview** window by the **Centerline** selection point

Holding the left mouse button down, drag the components onto the graph and right-click (still holding down the left mouse button)

Select the **Reflect** option with your left mouse button

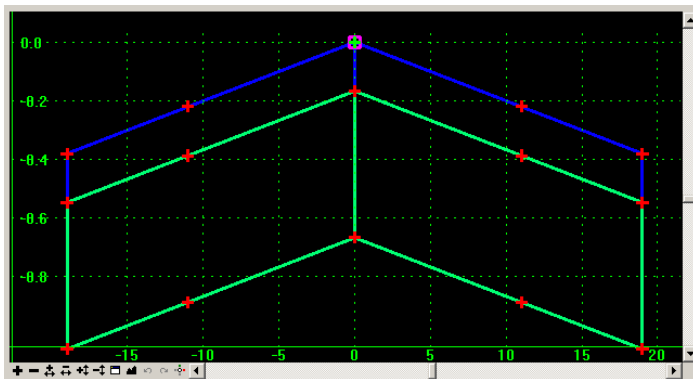
Move the components to the **Dynamic Origin** on the **two-lane** graph (the point marker "+" will turn white when you are on top of the connection point) and left-click



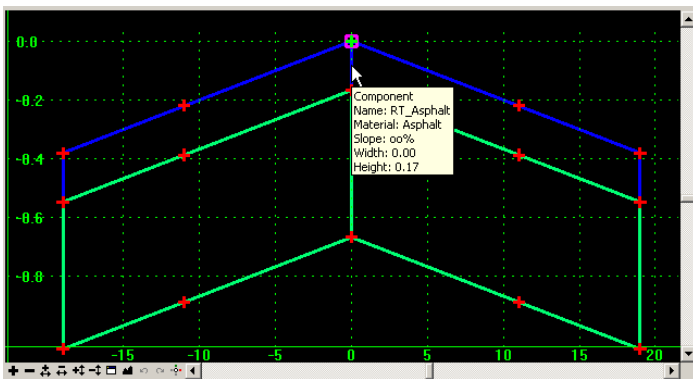
TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

5. Click the **Fit** icon  at the bottom of the graph

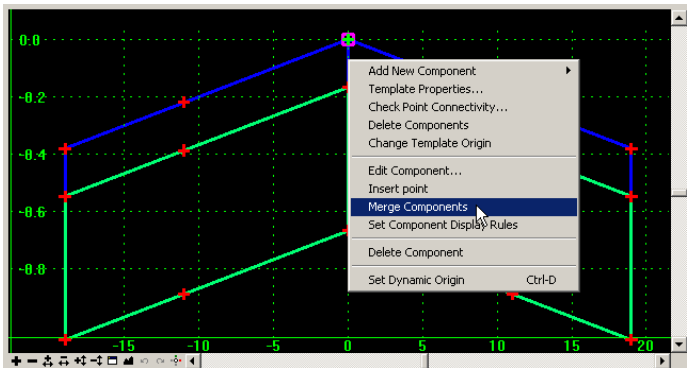
Your template should look like this now



6. To create a single component out of each pavement layer, place your cursor on the center line of the component, as shown below

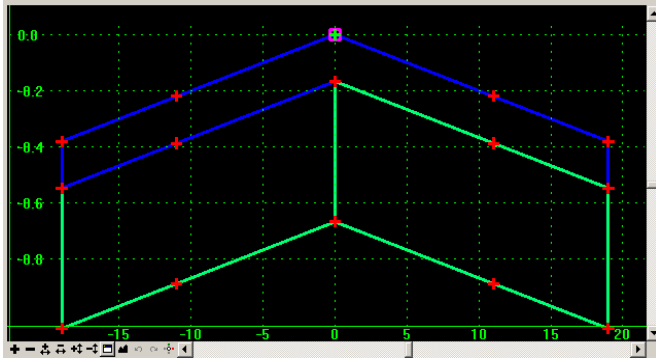


Right-click at that location and select the **Merge Components** command

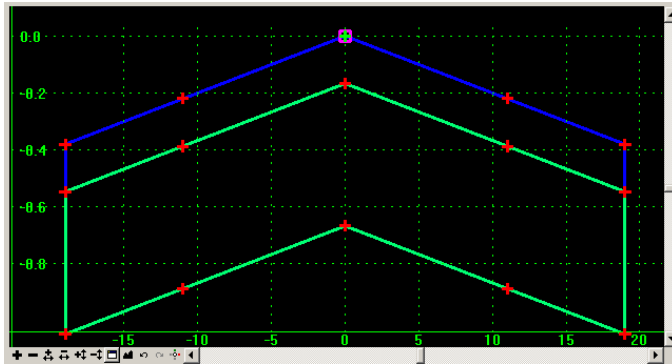


TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

The Component will now look as shown below



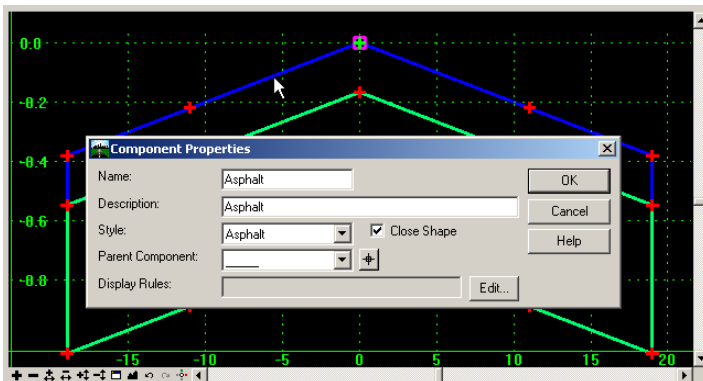
- 7. Repeat this procedure on the bottom pavement layer



- 8. To change the name of the top Component, double-click the top pavement layer, as shown below

Change the **Name:** to **Asphalt** in the **Component Properties** dialog

Click **OK**

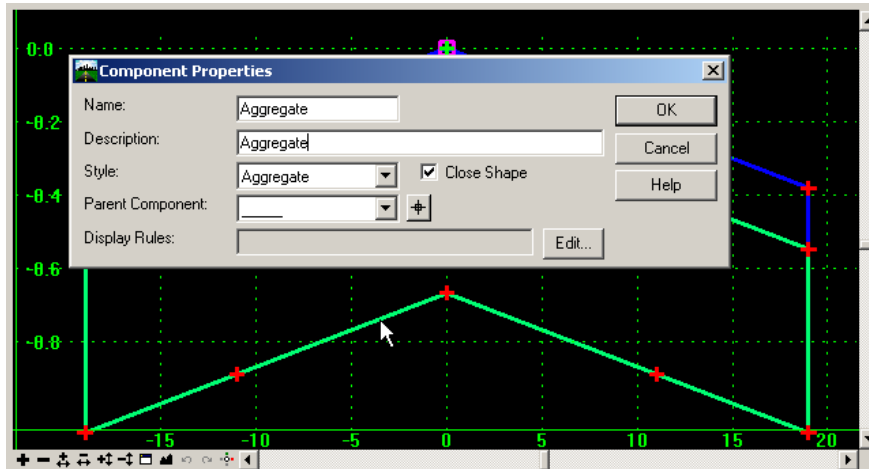


TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

- To change the name of the bottom Component, double-click the bottom pavement layer, as shown below

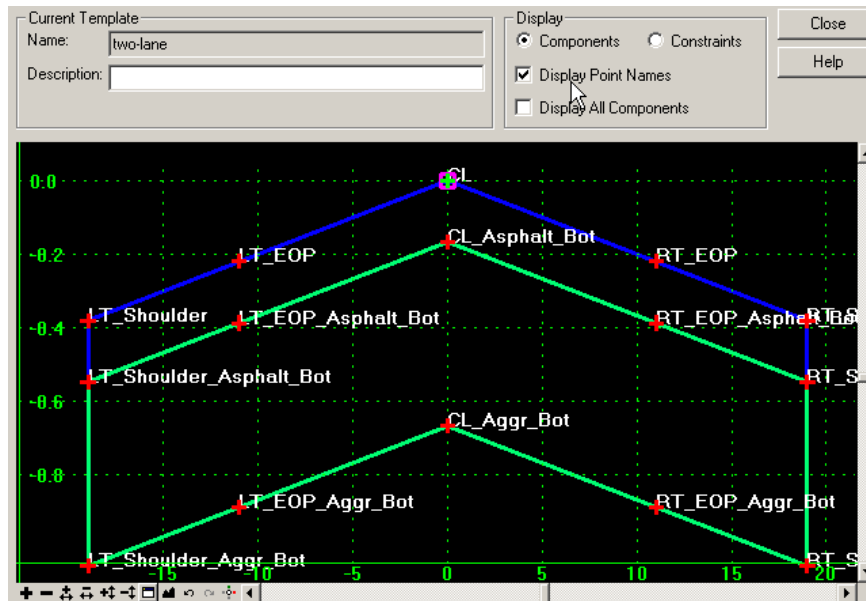
Change the **Name:** to **Aggregate** in the **Component Properties** dialog

Click **OK**



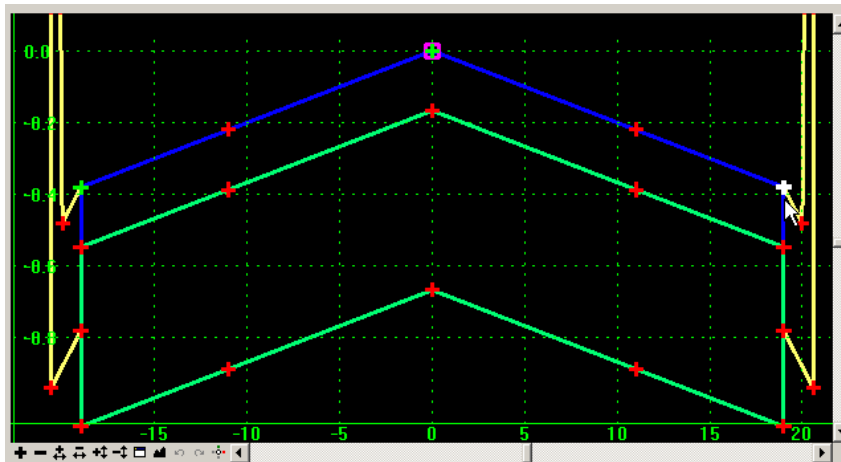
- Check **On** the **Display Point Names** option and review the Template

Check **Off** the **Display Point Names** option when done





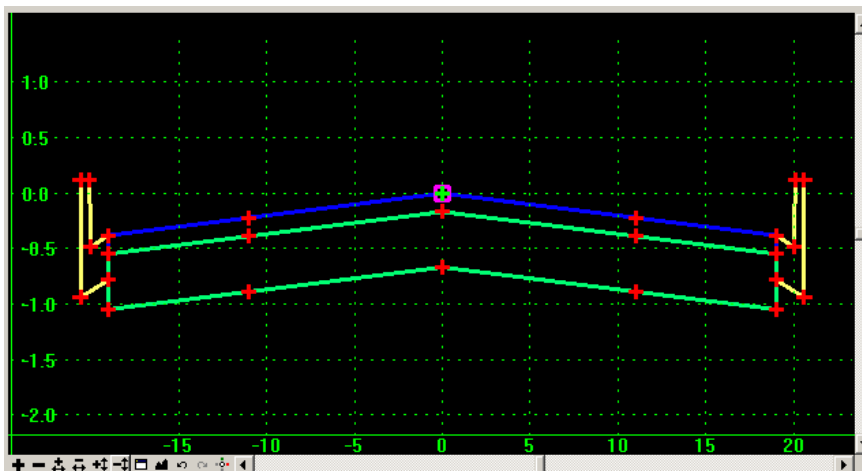
TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

Move the component to the *RT_Shoulder* point mark on the *two-lane* graph (the point marker "+" will turn white when you are on top of the connection point) and left-click



Your template should now look like what is shown below

Use the **Zoom In Y Direction** icon  and the **Zoom Out Y Direction** icon  to change the vertical exaggeration of the template graph



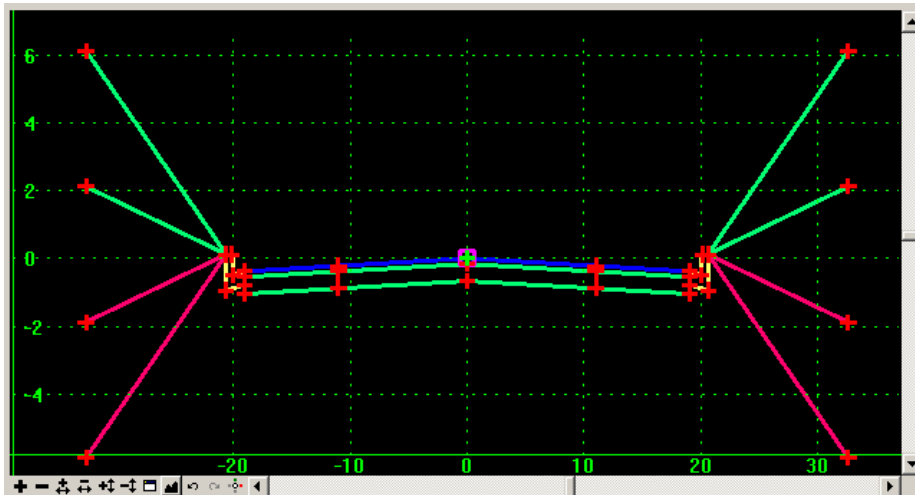
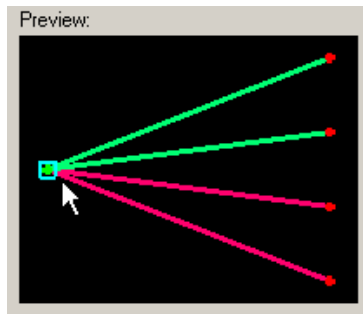
TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

12. To add the cut/fill end conditions, navigate to the **End Condition** folder and select the **Simple Cut/Fill** end condition

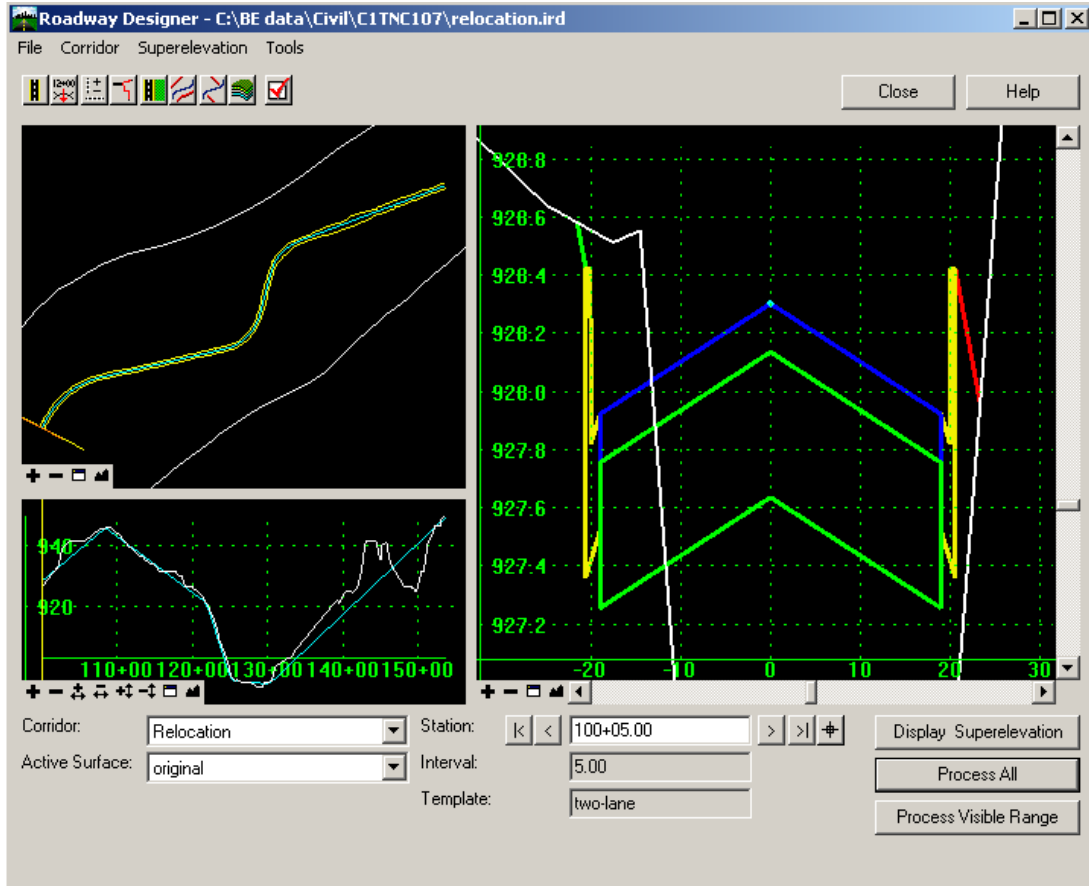
Holding the left mouse button down, drag and drop the **Simple Cut/Fill** end condition to the **RT_BOC** point on the **two-lane** graph (**Mirror** option toggled **On**)

You may want to zoom into the **RT_BOC** point

Select the **File>Save** command from the **Create Template** dialog



THE ROADWAY DESIGNER



The Roadway Designer combines alignments, surfaces, and templates to create a model of the proposed roadway. It is also where superelevation is created and applied to the design. The Roadway Designer replaces the Roadway Modeler command and Roadway Libraries in previous versions of InRoads. The file extension for the Roadway Design is .ird (InRoads Roadway Design).

The Roadway Designer dialog has three different viewing areas. They represent the plan, profile and cross section views of the design. These views use their own graphics engine, like the Create Template dialog, and are not MicroStation views. The views only show what is related to the design, and not what is displayed in the MicroStation design file. Each view can be manipulated separately and their contents are controlled by Corridor and Active Surface.

TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

A Corridor is defined by using the Corridor>Corridor Management command. To create a Corridor, simply name the Corridor, select a horizontal and vertical alignment, and the station limits of the project. A single InRoads Roadway Design file (.ird) can store all the Corridors of a highway project. The next step is to assign templates to the corridor. This is accomplished using the Corridor>Template Drops command.

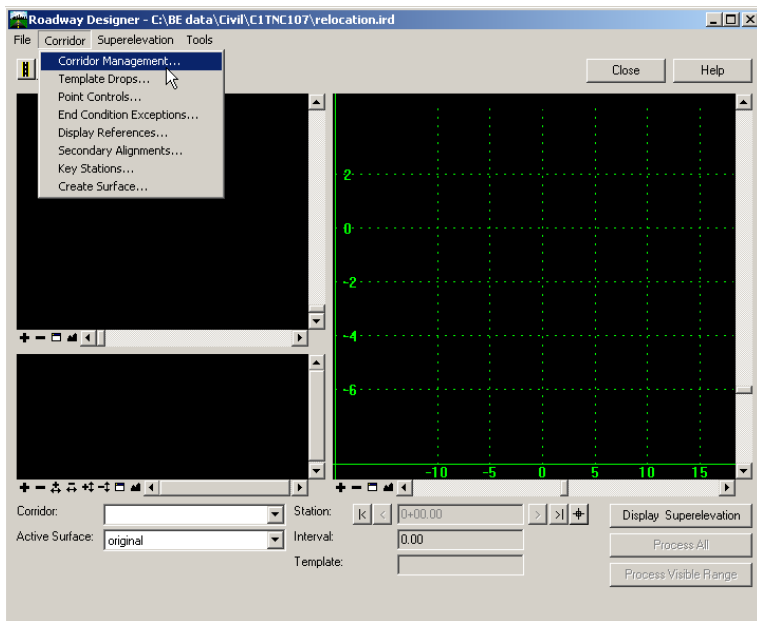
The Template Drops command is used to assign previously created templates to specific stations in the Corridor. The Template Drops command replaces some of the functionality in the Roadway Definition commands from previous version of InRoads. To create Template Drops, simply select the appropriate Template from the InRoads Template Library, the station where the Template is applied, and the modeling Interval. The final result is a station and template list. For the purposes of testing a newly created template, we will skip to the Corridor>Create Surface command, which is the last command in the Corridor commands.

The Create Surface command combines the Corridor and Template Drops data to create a surface model of the Roadway Design. The Create Surface command replaces the Roadway Modeler command found in previous versions of InRoads. As in previous versions, the nose of the templates (X,Y=0,0) will ride on the horizontal and vertical alignment (3D flight path). This will create a single surface consisting of the top surface of the Roadway Design and the subgrade Components, which will be "Exclude from Triangulation" points and children of the top surface. Components can be displayed in cross sections and used for volume calculations.

TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

> **EXERCISE: USING THE ROADWAY DESIGNER**

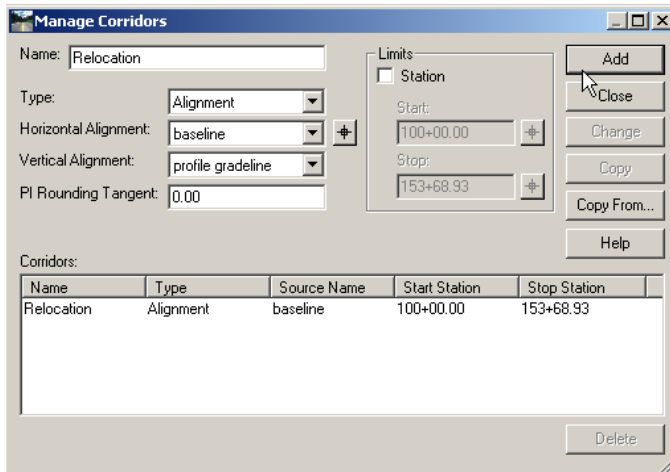
1. Select the **Modeler>Roadway Designer** command
2. Select the **Corridor>Corridor Management** command from the **Roadway Designer** dialog



3. Set up the **Manage Corridors** dialog as follows:

Click **Add**

Click **Close**



TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

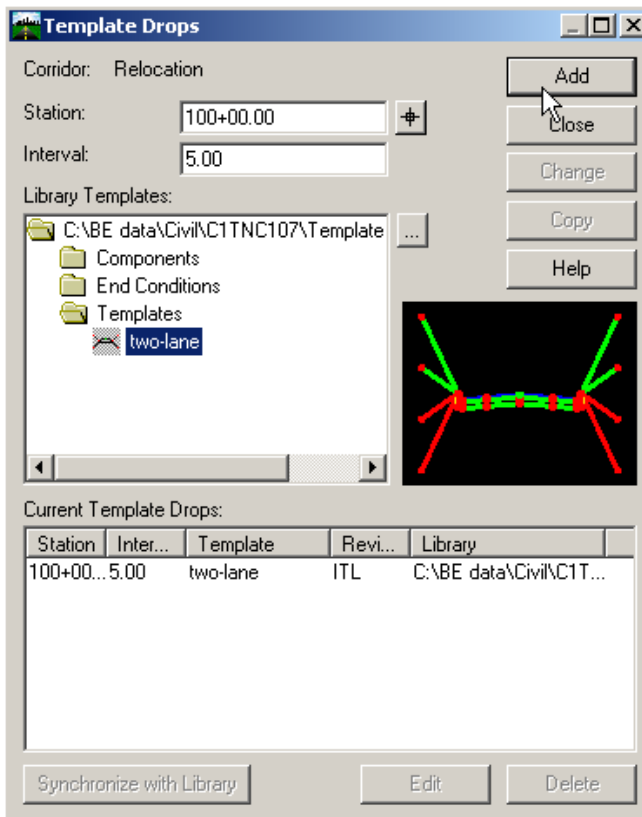
4. Select the **Corridor>Template Drops** command

Navigate to the **Templates** folder and highlight the *two-lane* template

Setup the **Template Drops** dialog as shown below

Click **Add**

Click **Close**

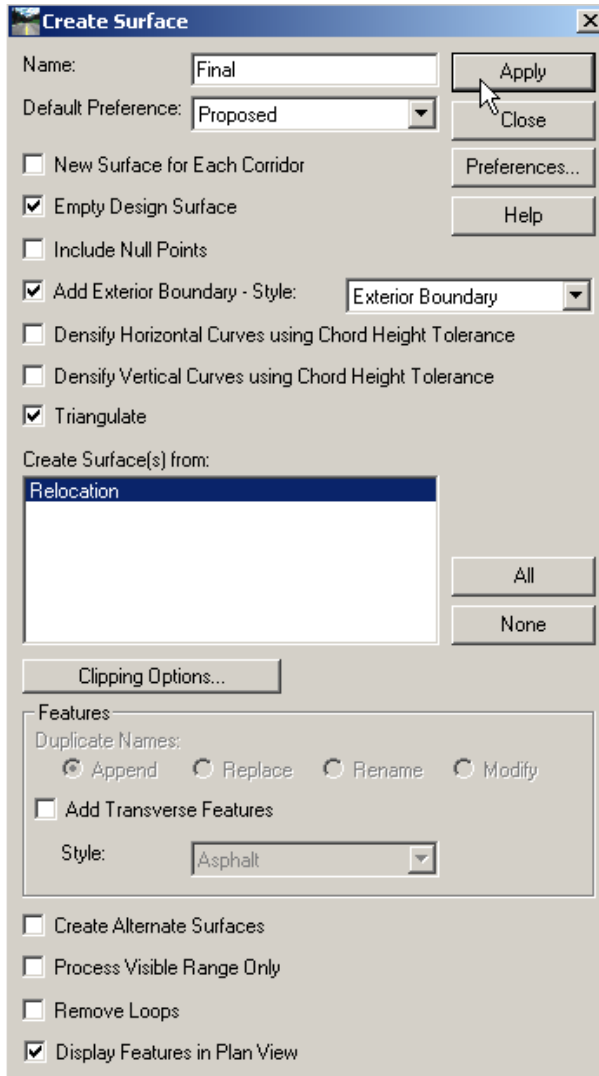


5. Select the **Corridor>Create Surface** command

Set up the **Create Surface** dialog as shown below

Click **Apply**

Click **Close**



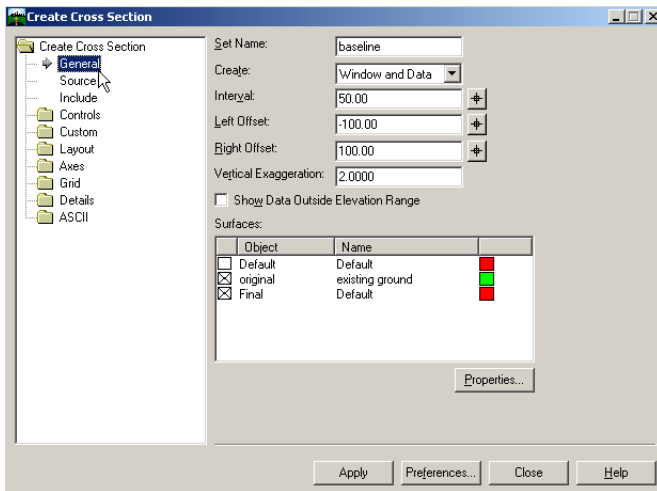
6. To save the **Roadway Designer** file, select the **File>Save** command from the **Roadway Designer** dialog

Close the Roadway Designer dialog

TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

> **EXERCISE: CREATING CROSS SECTIONS**

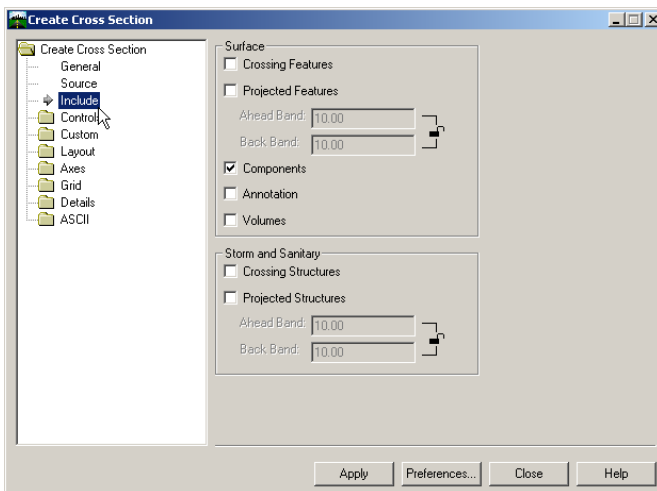
1. Select the **Evaluation>Cross Section>Create Cross Section** command from the InRoads pull-down menus
2. Setup the **General** options tab as follows



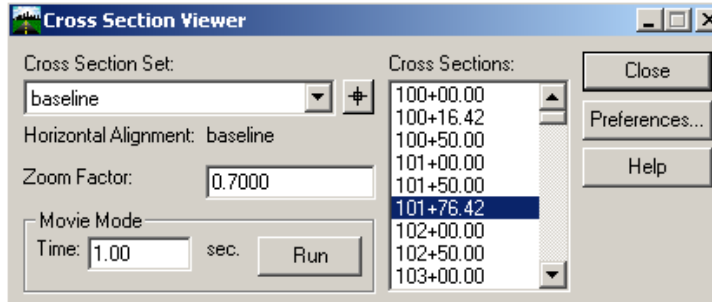
3. Select the **Include** options tab on the left pane of the **Create Cross Section** dialog
Toggle On the Components option

Click **Apply**

To create the cross sections in MicroStation, click on the MicroStation View where you want the lower left hand corner of the cross sections to appear



4. To view the cross sections, select the **Evaluation>Cross Section>Cross Section Viewer** command



Click **Close**

LESSON NAME: CREATING TEMPLATE COMPONENTS

LESSON OBJECTIVE:

In this portion of the workshop, you will create individual template components. You will combine the newly created template components to develop a new template.

CREATING TEMPLATE COMPONENTS

There are five types of Template Components: *Simple*, *Constrained*, *Unconstrained*, *Null Point*, and *End Condition*.

Simple

A simple component typically represents a section of pavement. A simple component is a closed parallelogram (4 points) that is defined by the slope and thickness.

Constrained

A constrained component can be an open or closed shape. It consists of points that are all restricted to the movement of the first point. A constrained point is typically used to manage the behavior of other points in the template. When a point (parent) is moved, any constrained point (child) also moves. This restriction only affects the offset and elevation (x,y) of the restrained point and, the relationship is unidirectional (movement of child point does *not* move the parent point).

Unconstrained

An unconstrained component is open or closed-shaped with no movement restrictions.

Null Point

A null point is a template point that is used as a reference for controlling other points.

End Condition

An end condition is a special open-shaped component that targets a surface, a feature of a surface, an elevation, or an alignment (it replaces the former Cut/Fill, Material, and Decision tables). The integrity of end conditions can now be routinely tested while the roadway template is being created.

TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

Once created, components can be modified as desired. There is no limit to the number of points or components in a template.

> **EXERCISE: CREATING TEMPLATE COMPONENTS**

1. Select the **Modeler>Create Template** command

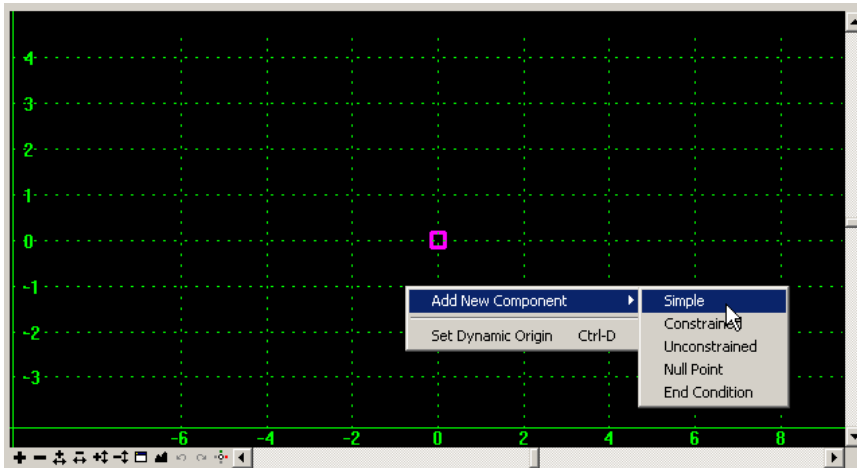
Highlight the **Components** folder

Select the **File>New>Template** command

Key in the name **10' Two-Lane w/shoulder**

2. Toggle **Off** the **Apply Affixes** option in the **Dynamic Settings** dialog.
3. Right-click on the empty **10' Two-Lane w/shoulder** graph and select the **Add New Component>Simple** command

This will bring up the Current Component information fields below the graph



TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

4. Setup the **Current Component** information fields as shown below

If the **Name:** is blank, the component **Name** will use selected **Style** for the name

Current Component

Name: Style: Asphalt

Slope:


Thickness:

Width:

Right-click on the graph and check **Off** the **Mirror** option

Click on the Dynamic Origin on the **10' Two-Lane w/shoulder** graph

The X, Y coordinates on the **Dynamic Setting** dialog will show X: 0.00 and Y: 0.00

Click the **Fit** icon  at the bottom of the graph

5. Right-click again on the **10' Two-Lane w/shoulder** graph and select the **Add New Component>Simple** command

Setup the **Current Component** information fields as follows

Current Component

Name: Style: Asphalt

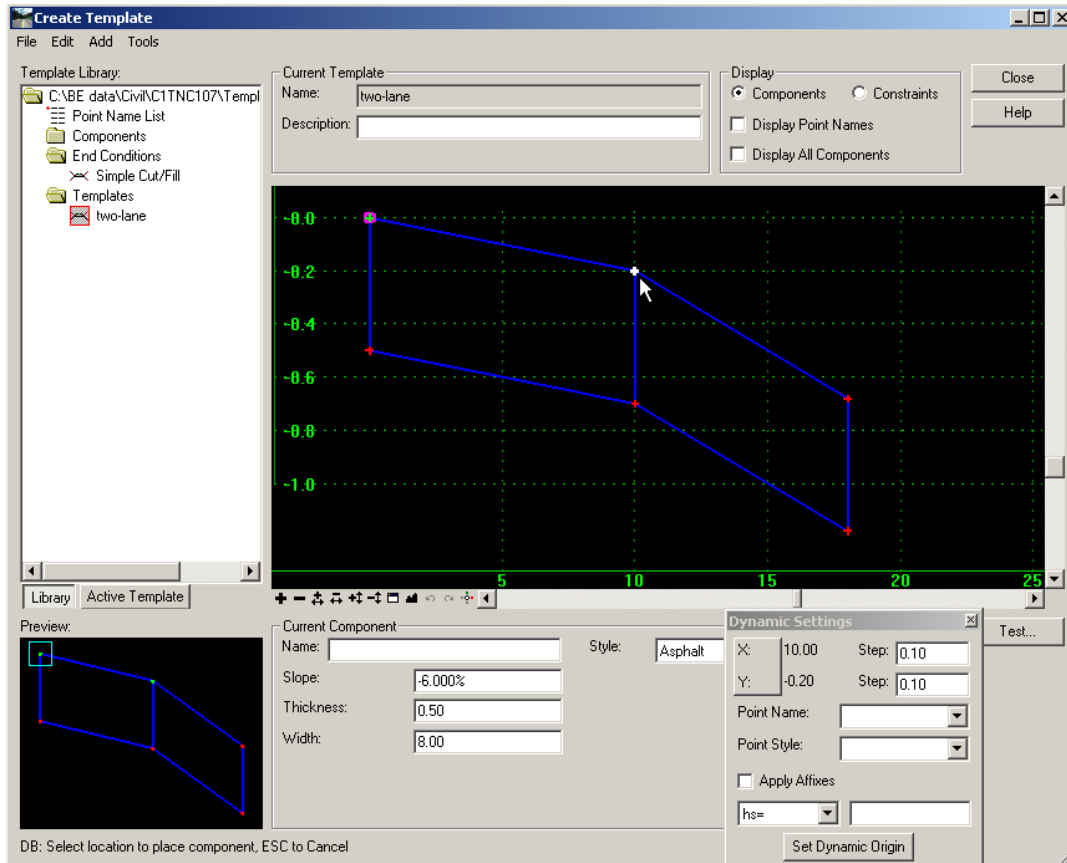
Slope:

Thickness:

Width:

TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

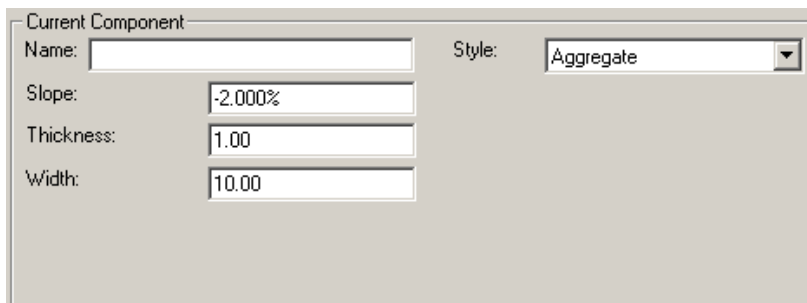
Click on the right pavement edge on the first component as shown below (the “+” will become white when you are on top of the point)



Use the **Zoom Out** icon

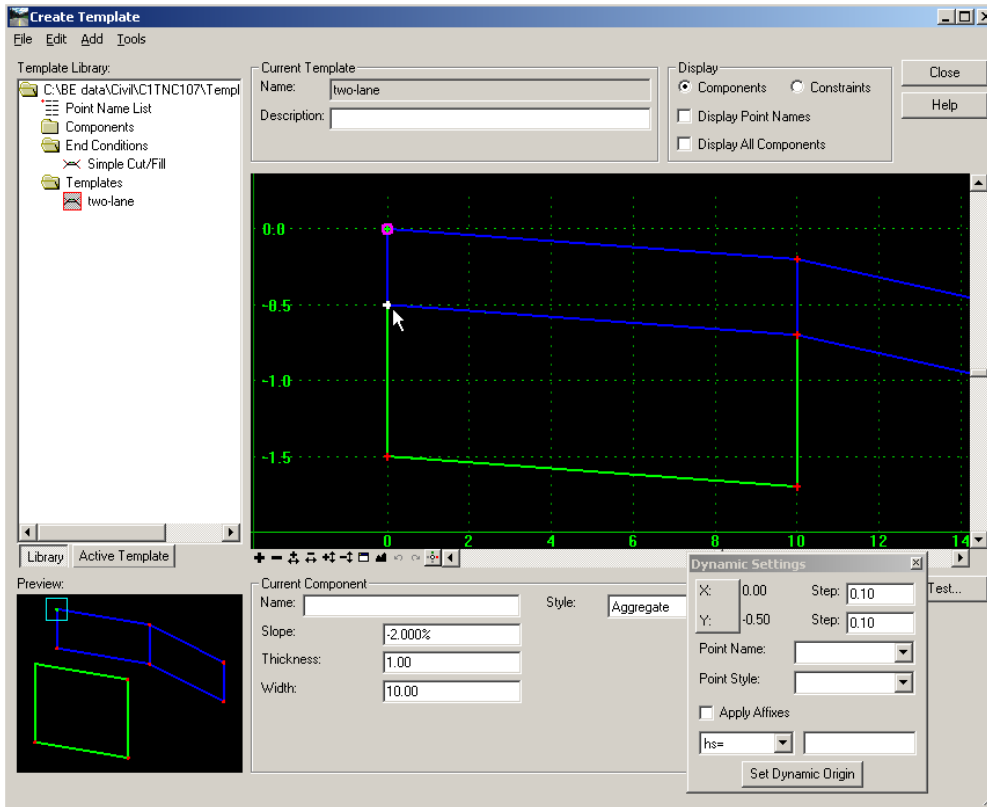
- Right-click again on the **10' Two-Lane w/shoulder** graph and select the **Add New Component>Simple** command

Setup the **Current Component** information fields as follows



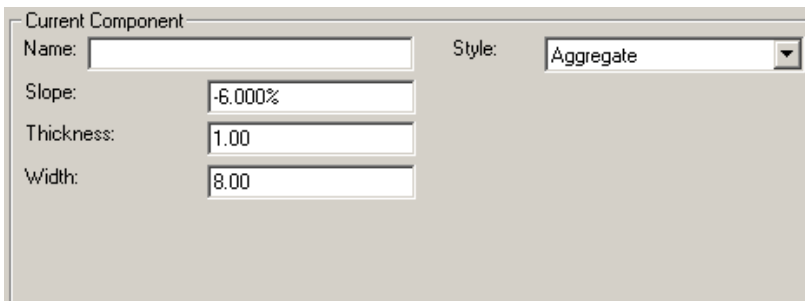
TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

Click on the centerline bottom of the Bituminous lay on the top layer as shown below



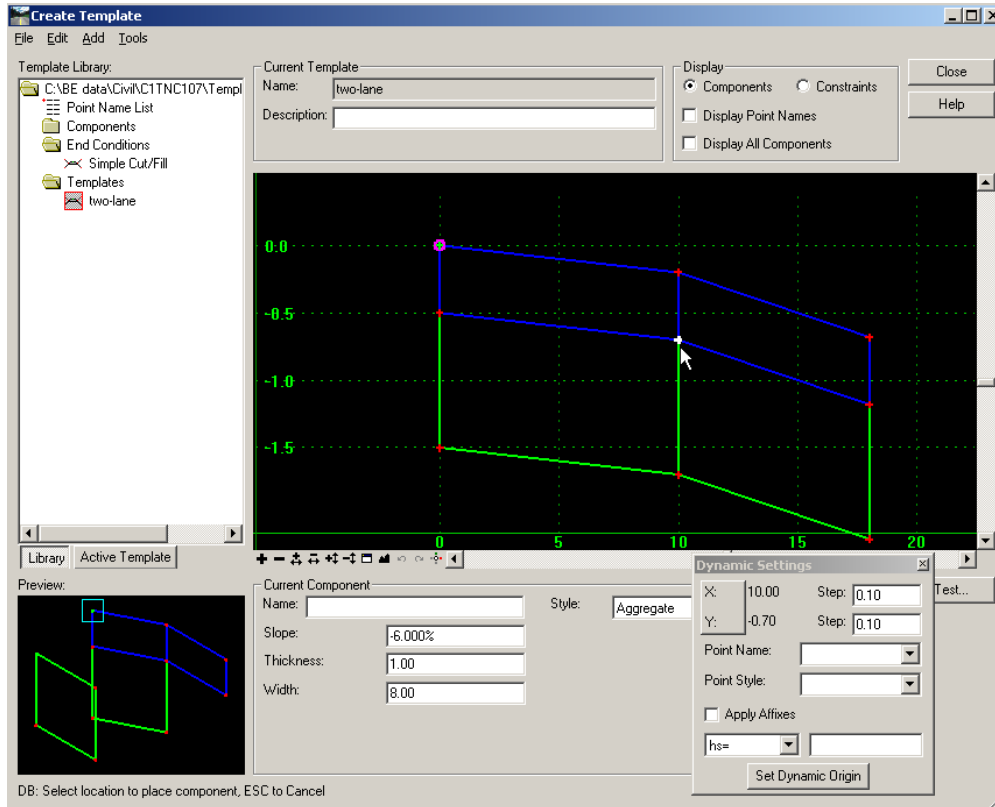
- Right-click again on the **10' Two-Lane w/shoulder** graph and select the **Add New Component>Simple** command

Setup the **Current Component** information fields as follows

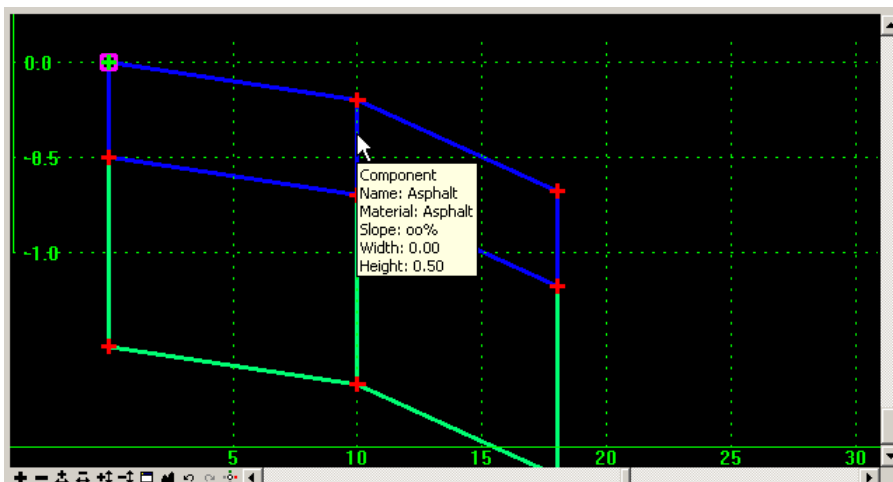


TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

Click on the right bottom pavement edge of the Bituminous lay on the top layer as shown below

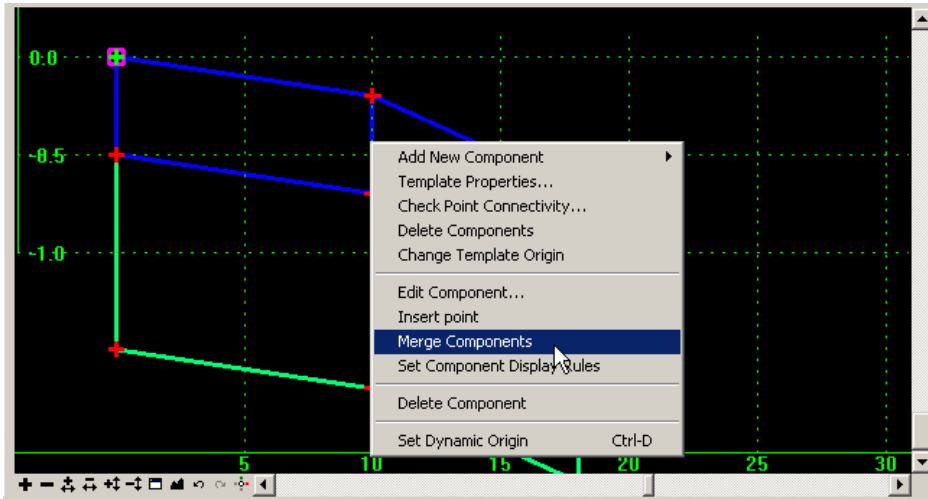


- To create a single component out of each pavement layer, place your cursor on the vertical edge of pavement line of the component, as shown below

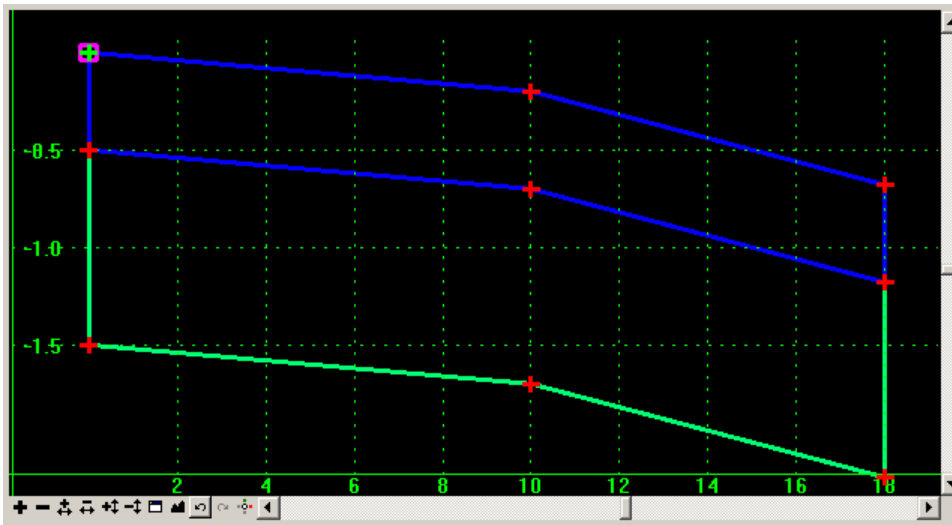


TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

Right-click at that location and select the **Merge Components** command



Repeat this procedure on the bottom pavement layer



TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

9. To change the point names, double-click the centerline point as shown below

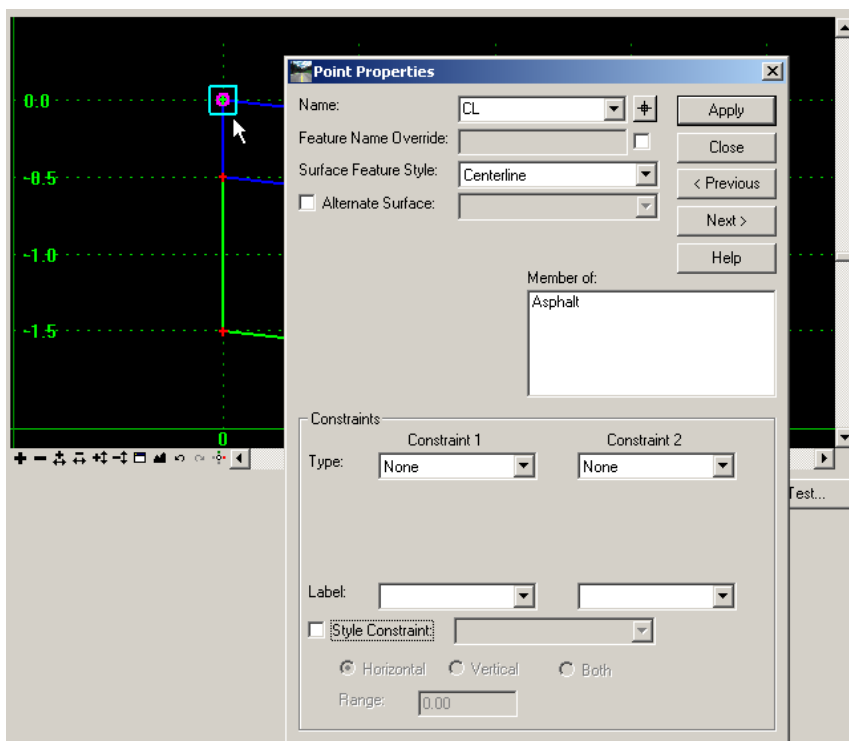
Setup the **Point Properties** dialog as follows:

Key in the **Name: CL**

Change the **Surface Feature Style: Centerline**

Click **Apply**

Click **Next>**



TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

10. Finish changing the point names as follows:

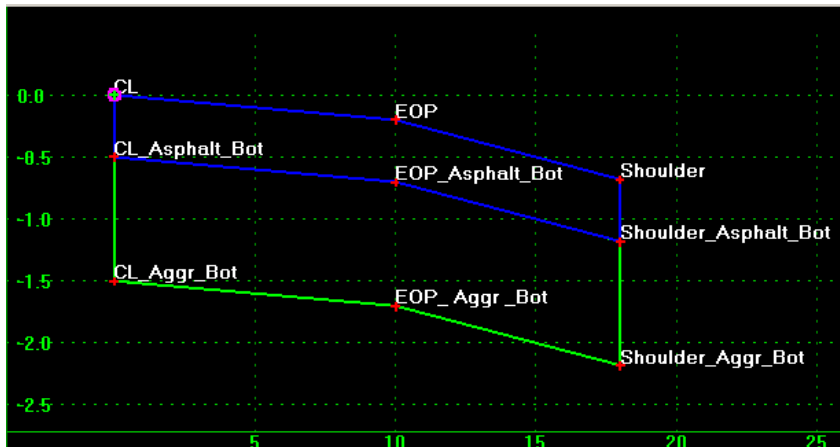
Clicking **Next>** will move to each point, starting from top to bottom and left to right

Click **Apply** after you finish setting up each point **Name** and **Style**

Click **Close** when you are done changing all the point names

<u>Name:</u>	<u>Surface Feature Style:</u>
CL	Centerline (done in last step)
CL_Aspphalt_Bot	Centerline
CL_Aggr_Bot	Centerline
EOP	EOP
EOP_Aspphalt_Bot	EOP
EOP_Aggr_Bot	EOP
Shoulder	Shoulder
Shoulder_Aspphalt_Bot	Shoulder
Shoulder_Aggr_Bot	Shoulder

11. Check **On** the **Display Point Names** option and review the components



12. Select the **File>Save** command from the **Create Template** dialog

TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

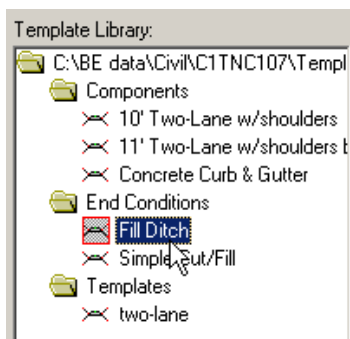
> **EXERCISE: CREATING END CONDITIONS**

1. Highlight the **End Conditions** folder

Select the **File>New>Template** command

Key in the **Name: Fill Ditch**

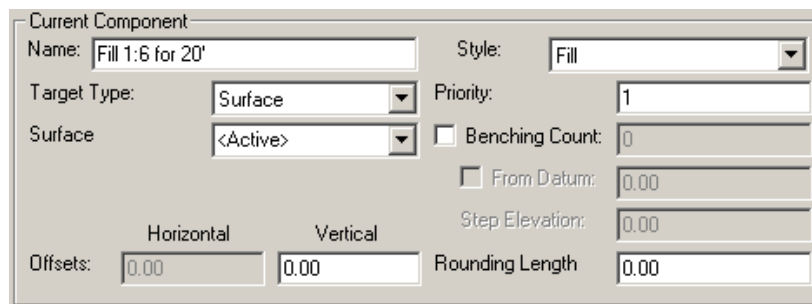
Fill Ditch is now the **Current Template**



2. To create the first point of the fill condition (-1:4 side slope for 20'), right-click on the **Fill Ditch** graph and select the **Add New Component>End Condition** command

This will bring up the **Current Component** fields below the graph

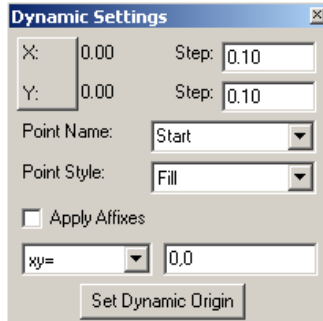
Setup the **Current Component** fields as shown below



TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

Setup the **Dynamics Settings** dialog as shown below

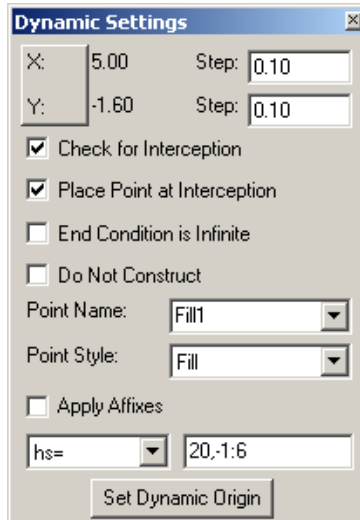
With the focus on the **Dynamics Settings** dialog (dialog Title Bar is blue), press the **Enter** button on your keyboard



(X: and Y: readings, on the Dynamic Settings dialog, are the coordinates of your cursor on the graph and will vary for each person; the precision input with override these readings)

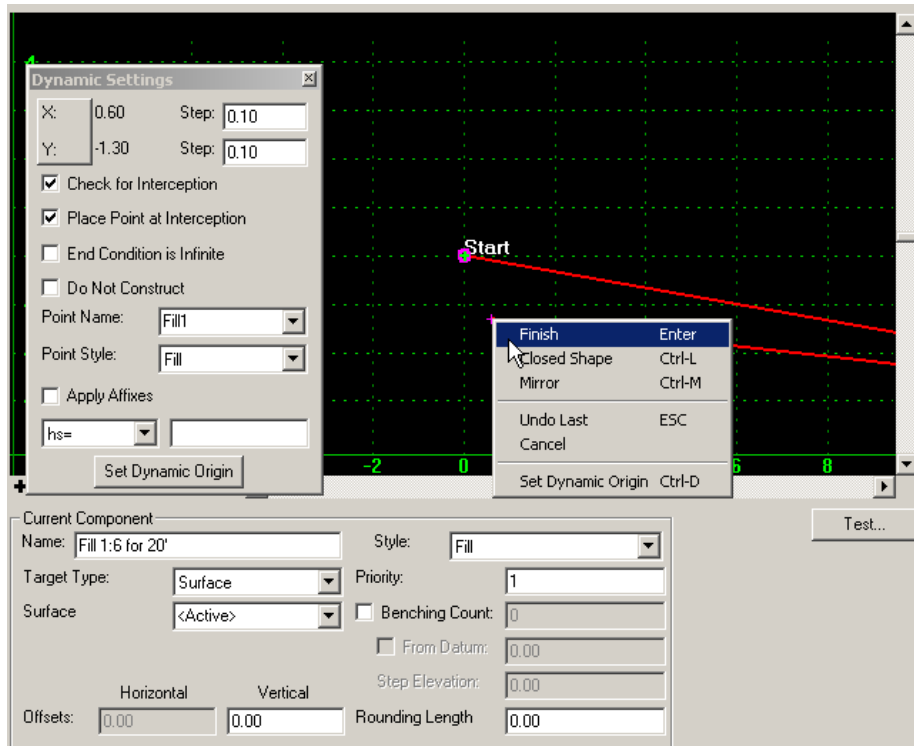
3. To place the last point of the first segment, setup the **Dynamic Settings** dialog as shown below

With the focus on the **Dynamics Settings** dialog, press the **Enter** button on your keyboard to place the complete this segment



TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

4. Right-click on the graph and select the **Finish** command (you can also execute the **Finish** command by pressing the **Enter** key on the keyboard, without using a right-click)

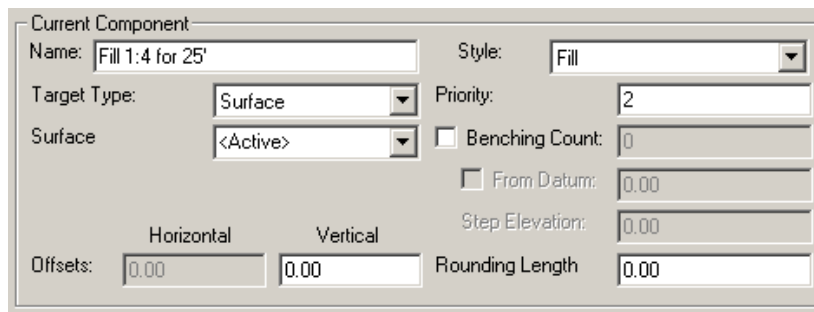


5. To create the second fill condition (-1:4 side slope for 25'), right-click again on the **Fill Ditch** graph and select the **Add New Component>End Condition** command

This will bring up the **Current Component** fields below the graph

Setup the **Current Component** fields as shown below

Click on the **Start** point of the first segment on the **Fill Ditch** graph (X,Y=0,0)

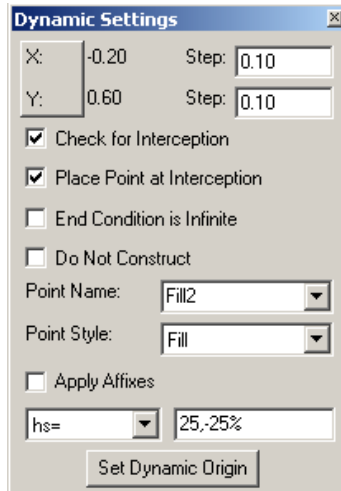



TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

- To place the last point of the second segment, setup the **Dynamic Settings** dialog as shown below

With the focus on the **Dynamics Settings** dialog, press the **Enter** button on your keyboard to place the complete this segment

Right-click on the graph and select the **Finish** command



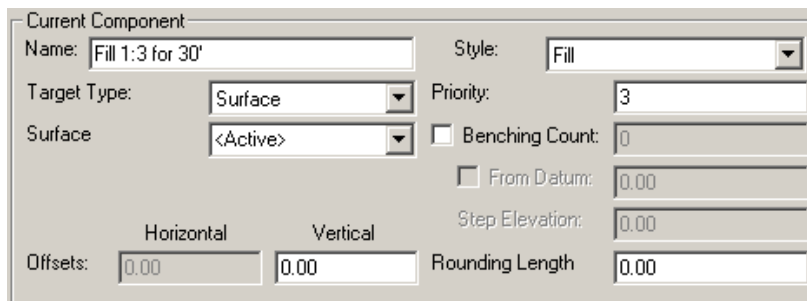
Use the **Fit**  icon to adjust your graph

- To create the third fill condition (-1:3 side slope for 30'), right-click again on the **Fill Ditch** graph and select the **Add New Component>End Condition** command

This will bring up the **Current Component** fields below the graph

Setup the **Current Component** fields as shown below

Click on the **Start** point of the first segment on the **Fill Ditch** graph (X,Y=0,0)

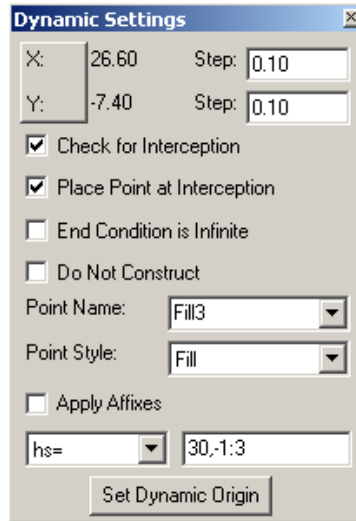


TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

- To place the last point of the third segment, setup the **Dynamic Settings** dialog as shown below

With the focus on the **Dynamics Settings** dialog, press the **Enter** button on your keyboard to place the complete this segment

Right-click on the graph and select the **Finish** command

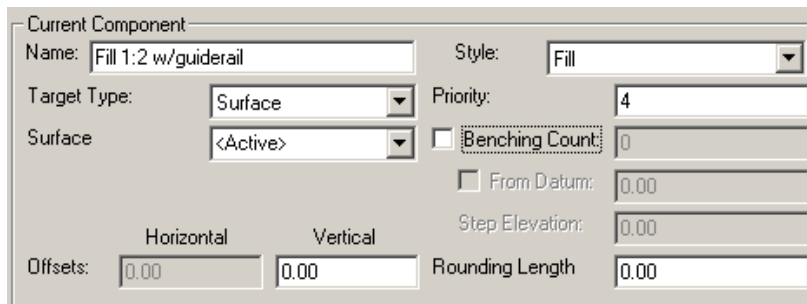


- To create the forth fill condition (-1:2 side slope with guiderail), right-click again on the **Fill Ditch** graph and select the **Add New Component>End Condition** command

This will bring up the **Current Component** fields below the graph

Setup the **Current Component** fields as shown below

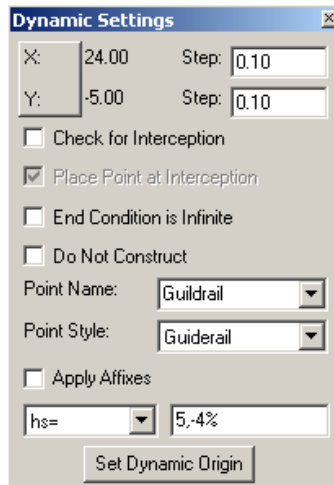
Click on the **Start** point of the first segment on the **Fill Ditch** graph (X,Y=0,0)



TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

- To place the next point (-4% slope for 5'), setup the **Dynamic Settings** dialog as shown below

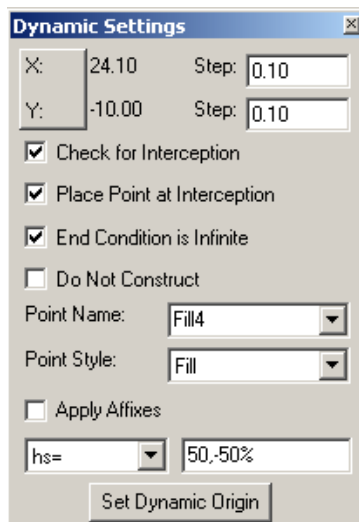
With the focus on the **Dynamics Settings** dialog, press the **Enter** button on your keyboard to place the complete this segment



- To place the last point (-50% slope for infinite width), setup the **Dynamic Settings** dialog as shown below:

With the focus on the **Dynamics Settings** dialog, press the **Enter** button on your keyboard to place the complete this segment

Right-click on the graph and select the **Finish** command



TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

- To create the first point of the **Fill Ditch** Component (-50% slope for 5'), right-click again on the **Fill Ditch** graph and select the **Add New Component>End Condition** command

This will bring up the **Current Component** fields below the graph

Setup the **Current Component** fields as shown below

Click on the **Fill4** point on the **Fill Ditch** graph

Current Component

Name: Style:

Target Type: Priority:

Surface: Benching Count:

From Datum:

Step Elevation:

Horizontal Offsets: Vertical Offsets: Rounding Length:

- To place the next point on the **Fill Ditch** Component (-50% slope for 5'), setup the **Dynamic Settings** dialog as shown below

With the focus on the **Dynamics Settings** dialog, press the **Enter** button on your keyboard to place the complete this segment

Dynamic Settings

X: Step:

Y: Step:

Check for Interception

Place Point at Interception

End Condition is Infinite

Do Not Construct

Point Name:

Point Style:

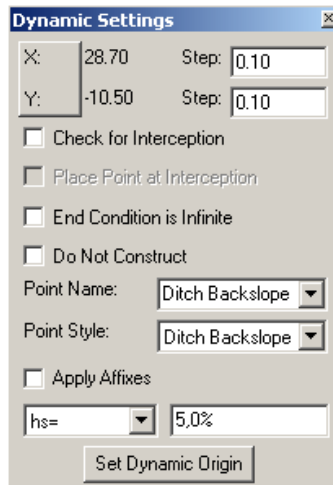
Apply Affixes

hs=

TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

- To place the next point (0% slope for 5'), setup the **Dynamic Settings** dialog as shown below

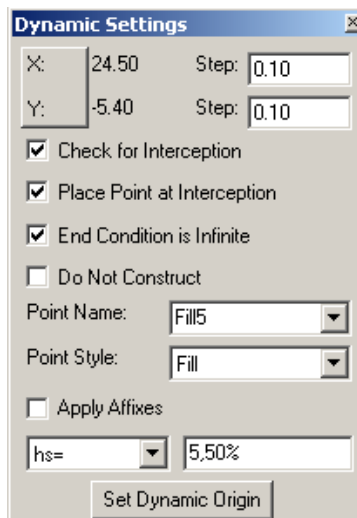
With the focus on the **Dynamics Settings** dialog, press the **Enter** button on your keyboard to place the complete this segment



- To place the last point (50% slope for infinite width), setup the **Dynamic Settings** dialog as shown below

With the focus on the **Dynamics Settings** dialog, press the **Enter** button on your keyboard to place the complete this segment

Right-click on the graph and select the **Finish** command



TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

- To create a cut condition (1:4 side slope with infinite width), right-click again on the **Fill Ditch** graph and select the **Add New Component>End Condition** command

This will bring up the **Current Component** fields below the graph

Setup the **Current Component** fields as shown below

Click on the **Start** point of the first segment on the **Fill Ditch** graph (X,Y=0,0)

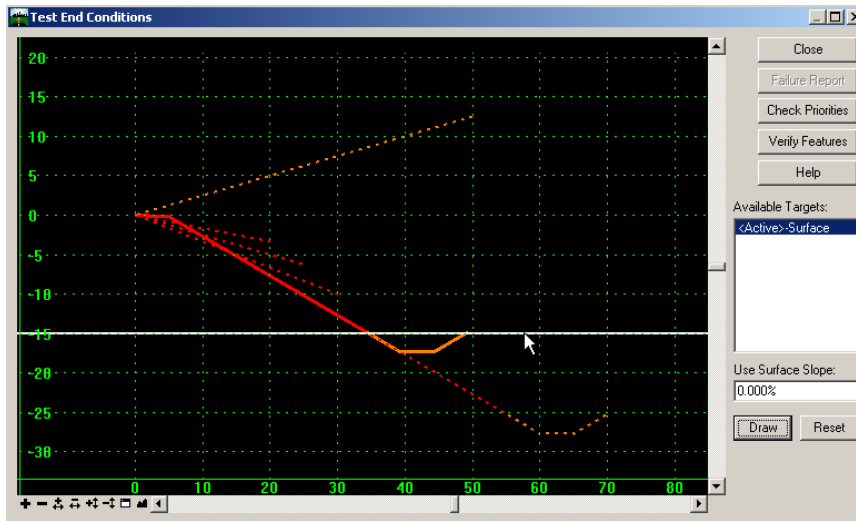
- To place the last point (25% for infinite width), setup the **Dynamic Settings** dialog as shown below

With the focus on the **Dynamics Settings** dialog, press the **Enter** button on your keyboard to place the complete this segment

Right-click on the graph and select the **Finish** command

TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

18. To test the **Fill Ditch** End Condition, select the **Test** button below the graph
 This will bring up the **Test End Conditions** dialog
 Click the **Draw** button in the lower right-hand corner of the dialog
 Move your cursor up and down to test the **Fill Ditch** End Condition



Change the **Use Surface Slope** angle to 20.00% and click the **Draw** button again
 Test the **Fill Ditch** End Condition again

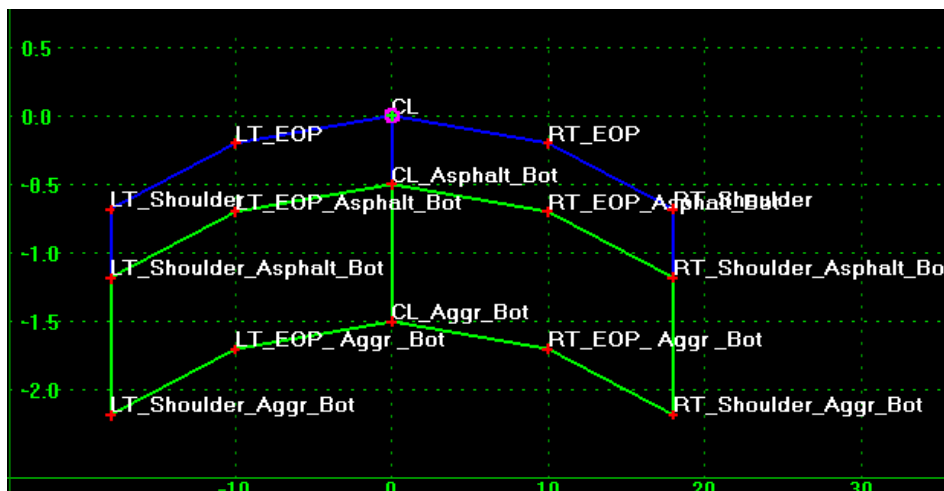
> **EXERCISE: ASSEMBLING THE 10' TWO-LANE W/SHOULDER TEMPLATE**

1. To create a new template, highlight the **Templates** folder
 Select the **File>New>Template** command
 Key in the name **two-lane modified**
 Check **On** the **Display Point Names** option
Toggle On the **Apply Affixes** option in the **Dynamic Settings** dialog.

TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

2. Drag and drop the **10' Two-Lane w/shoulders** component from the **Components** folder to the **Dynamic Origin** of the **two-lane modified** template

Right-click on the graph and **Toggle On** the **Mirror** option



3. To add a clear zone segment (6% slope for 4'), right-click on the **two-lane modified** graph and select the **Add New Component>Constrained** command

Setup the **Current Component** fields as shown below

Current Component:

Name:

Style:

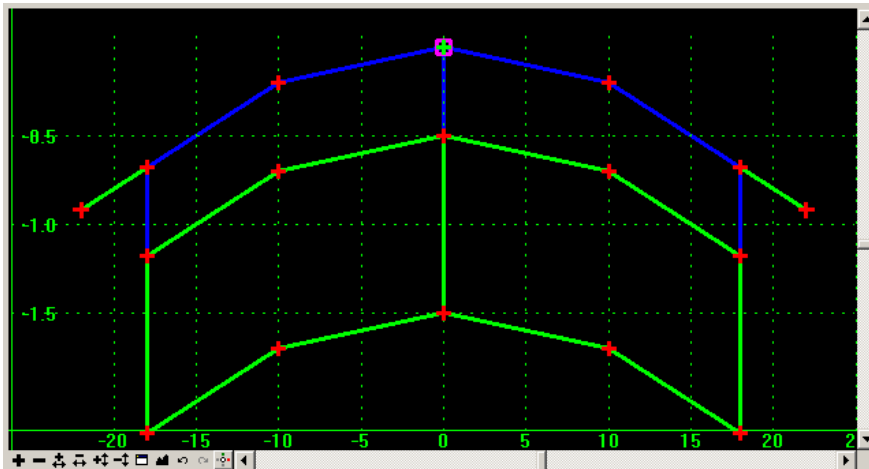
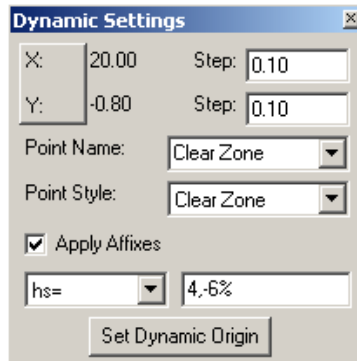
Click on the **RT_Shoulder** point on the **two-lane modified** graph

TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

- 4. To place the last point, setup the **Dynamic Settings** dialog as shown below

With the focus on the **Dynamics Settings** dialog, press the **Enter** button on your keyboard to place the complete this segment

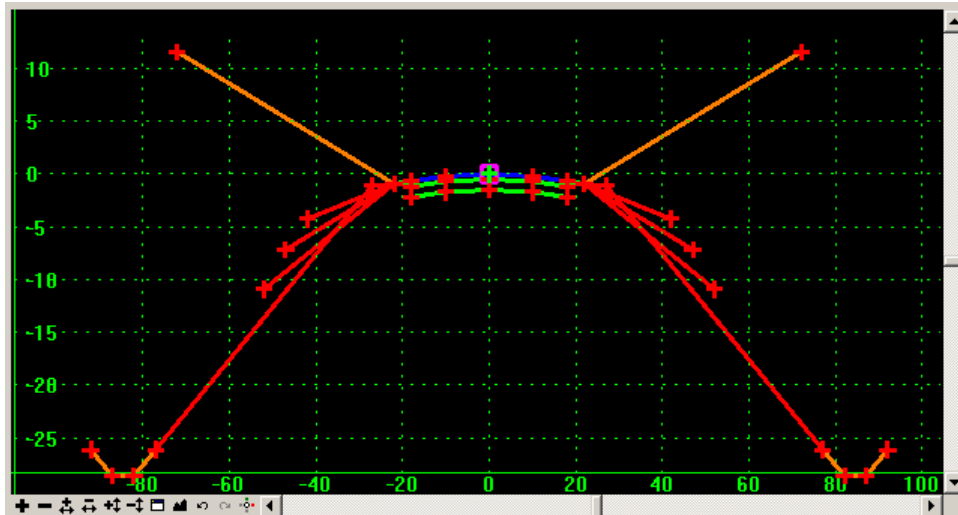
Right-click on the graph and select the **Finish** command



TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

5. To add the end conditions, drag and drop the **Fill Ditch** end condition from the **End Condition** folder to the **RT_Clear Zone** point of the **two-lane modified** template

The **Mirror** option should still be **Toggled On**



6. Use the **Test** button to check the End Conditions.

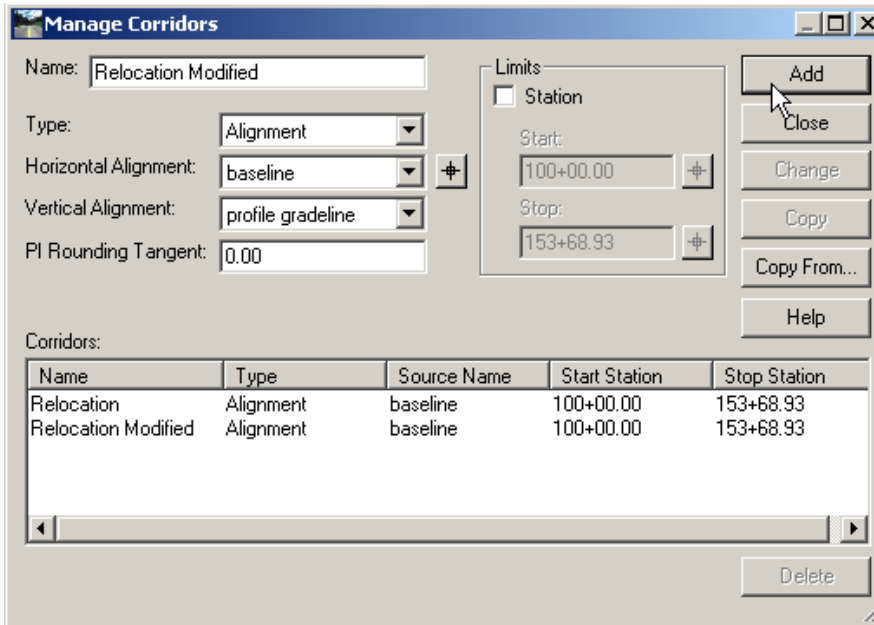
TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

> **EXERCISE: USING THE ROADWAY DESIGNER WITH THE TWO-LANE MODIFIED TEMPLATE**

1. Select the **Modeler>Roadway Designer** command
2. Select the **Corridor>Corridor Management** command from the **Roadway Designer** dialog
3. Setup the **Manage Corridors** dialog as shown below

Click **Add**

Click **Close**



TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

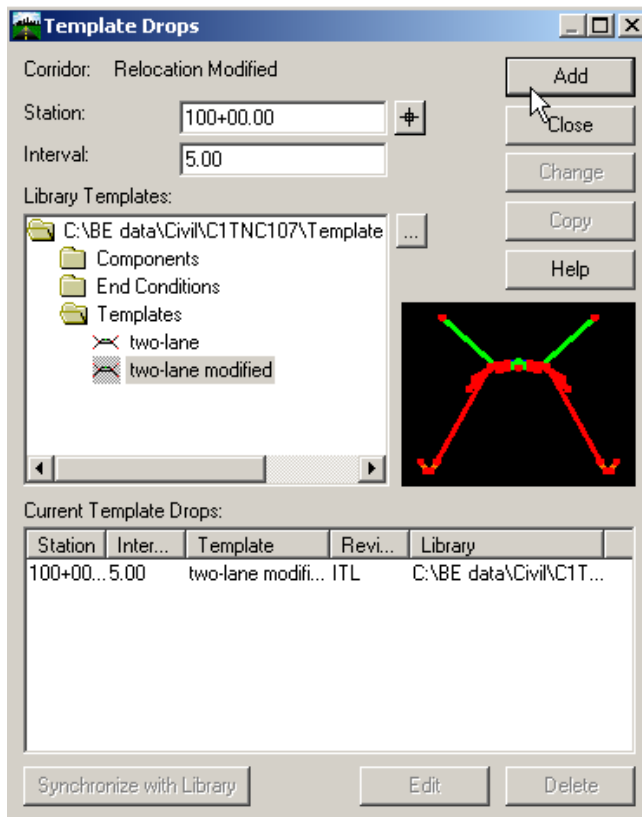
4. Select the **Corridor>Template Drops** command

Navigate to the **Templates** folder and highlight the *two-lane modified* template

Setup the **Template Drops** dialog as shown below

Click **Add**

Click **Close**

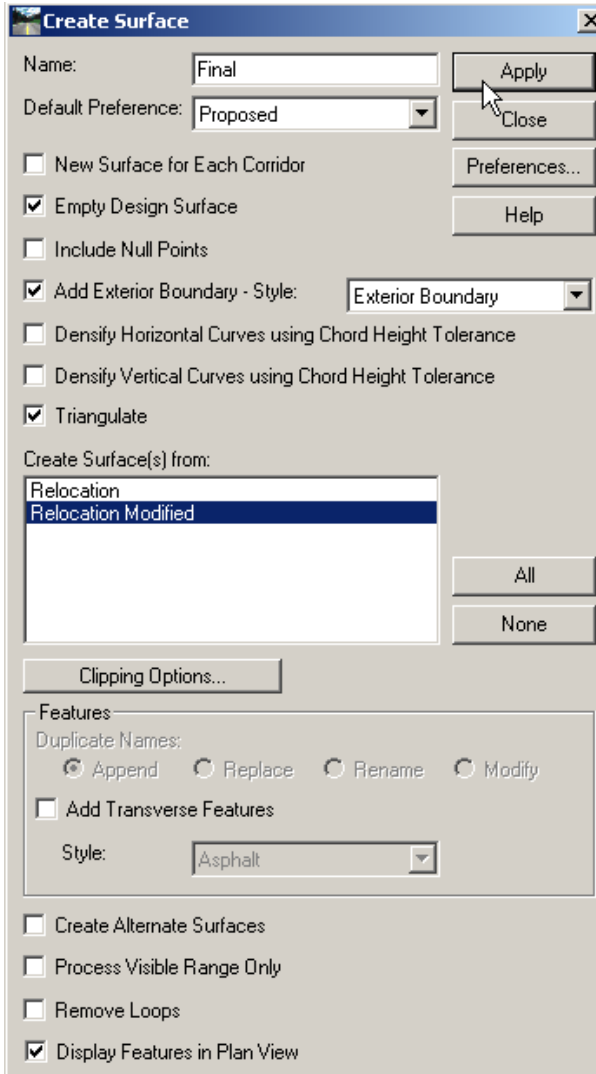


5. Select the **Corridor>Create Surface** command

Set up the **Create Surface** dialog as shown below

Click **Apply**

Click **Close**



6. To save the **Roadway Designer** file, select the **File>Save** command from the **Roadway Designer** dialog

Close the **Roadway Designer** dialog

TEMPLATE CREATION FOR THE INROADS ROADWAY DESIGNER

7. Use the **Evaluation>Cross Section>Create Cross Section** command to create cross sections
8. Use the **Evaluation>Cross Section>View Cross Section** command to evaluate the *two-lane modified* design