LAB 31 - Create End Conditions to Search a Surface

This lab demonstrates the ability of an end condition to target multiple surfaces, using target aliasing. In this exercise, a template is edited and new corridor is defined to target multiple surfaces. The existing ground surface was divided into three separate segments along the length of the project. There is also a rock layer surface 10-feet below the existing ground, for the second and third segments, where there is a deep cut section in the profile. The template end conditions target the rock and active surfaces, so target aliasing is required to target all the existing ground and rock surfaces as the corridor extends along the three segments of the project.

Chapter Objectives:

- Modify a template end condition to target a rock layer when that surface is present.
- Build a corridor and use target aliasing to target multiple existing ground and rock layer surfaces along three segments of the project.
- View the corridor to examine the end condition's behavior and determine if templates and target aliasing are working properly

Lab 31.1 - Create End Conditions to Search a Surface

1. Open MicroStation and InRoads using the *12345DES_Create End Cond Search Surf.dgn* file.

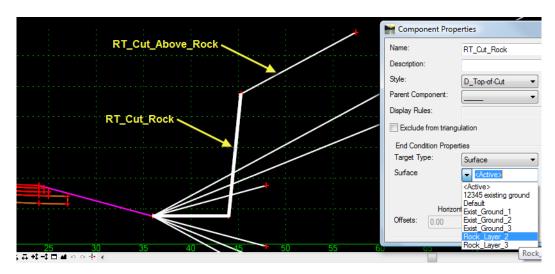
In the MicroStation drawing, notice the three perimeters displayed for each existing ground surface

- 2. Select **File> Open** from the InRoads menu bar.
- 3. Select the following files from C:\Projects\12345\Design\InRoads\ and <D> Open them.
 - CDOT_Civil.xin
 - ◆ 12345DES_Geometry-Create End Condit Search Surf.alg
 - 12345DES_Template-Create End Condit Search Surf.itl
 - 12345DES_Roadway-Create End Condit Search Surf.ird
 - Exist Ground 1-Create End Condit Search Surf.dtm
 - Exist Ground 2-Create End Condit Search Surf.dtm
 - Exist_Ground_3-Create End Condit Search Surf.dtm
 - Rock_Layer_2-Create End Condit Search Surf.dtm
 - Rock_Layer_3-Create End Condit Search Surf.dtm
- 4. **<D> Cancel** the *Open* dialog box to close.

Lab 31.2 - Edit template end condition components to target rock layer.

- 1. Select **Modeler> Create Template** from the InRoads menu bar.
- 2. **<D> <D>** on the root folder in the Template Library pane to expand the folder structure.

3. Expand the *1* - *Templates* folder.



4. **<D> <D>** on the *12345_HMA_2Lane_Rock* template

- 5. **<D> <D>** on the *RT_Cut_Rock* component.
- 6. In the *Component Properties* dialog box, change the Surface to *Rock_Layer_2* and <D> Apply
 - **Note:** This end condition has two components and is only placed when there is a rock surface above the ditch bottom. The first component, *RT_Cut_Rock*, extends to intersect the rock layer surface. The second, *RT_Cut_Above_Rock*, is a child of the first and extends to intersect the active surface (existing ground). All other end condition components in this template target the active surface (existing ground).
- 7. **<D>** on the *Locate Button* next to *Name* in the *Component Properties* dialog box
- 8. On the left side of the template, **<D>** on the *LT_Cut_Rock* component.

LT_Cut_Above_Rock	Component Prope	erties		X	a ^
	Name:	LT_Cut_Rock		+ Apply	
8 LT_Cut_Rock	Description:			Close	í.
6	Style:	D_Top-of-Cut		< Previous	1
4	Parent Component:		+		1
	Display Rules:			Edit	
	Exclude from triangu	ulation		Help	
	End Condition Proper	ties			
-2	Target Type:	Surface 💌	Priority:	1	
-4	Surface	 Rock_Layer_2 	Benching Count:	0	
6			From Datum:	0.00	
	Horizon	ntal Vertical	Step Elevation:	0.00	
	Offsets: 0.00	0.00	Rounding Length	0.00	
10					1
ା -50 -45 -40 -3 ╪━┇╦╪╪□≝୰ୣ୰ୢ୕ୄୡ	35 -30 -	-25 -20	-15 -10	-5 U	•

In the *Component Properties* dialog box, Change the Surface to *Rock_Layer_2*, then
 Apply and <D> Close.

Build a corridor that follows the centerline alignment and extends along all three segments of the project.

- 10. Select Modeler> Roadway Designer from the InRoads menu bar.
- 11. Select Corridor> Corridor Management from the Roadway Designer menu bar or

<D> the corridor management button

- 12. In the Manage Corridors dialog box:
 - Key in *Centerline* in the Name field.
 - Select **Centerline** Horizontal Alignment.
 - Select **Centerline V** Vertical Alignment.
- 13. **<D> Add** then **<D> Close**.

Name: Cente	erline		Limits Station		Add	
Гуре:	Align	ment 🔻	Start:		+ Change	
Horizontal Alig	nment: Cent	erline 👻 🕂				
	rtical Alignment: Centerline V 🔹		Stop:		Сору	
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/ertical Alignm Pl Rounding 1 Comidors: Name	Con	erline V			Copy From	
PI Rounding T Corridors:	Tangent: 0.00		706+00.00		Copy From Help Station	

Lab 31.3 - Define template drop for the corridor

- Select Corridor> Template Drops from the Roadway Designer menu bar or <D> the template drops button
- 2. In the *Template Drops* dialog box:
 - Select *Centerline* for the *Corridor* name.
 - Key in *50* for the *Interval*.
 - Expand 1 Templates folder in Library Templates area.
 - **<D>** on the **12345_HMA_2Lane_Rock** template.

♦ <D> Add.

🐂 Template Drops			
Corridor: Centerline Station: 4+00.00	-		Add
Interval: 50.00	+ +		Close
Library Templates:			
1 - Templates 12345_H 12345_H 12345_H 12345_H 12345_H 12345_H 12345_H 12345_H 12345_H	MA_2Lane_Rock MA_2LaneLett Side MA_4Lane Lane_Right-Side_Only ivided_TypeA_4Lane amp wwned_B10	_Template-Libr	ary.itl
Station Interval	Template	Revised In	Library
4+00.00 50.00	12345_HMA_2Lane_Rock	ITL	C:\Projects\12345\Design\InRoads\1
•			•
Synchronize with Libr	ary		Edit Delete

Close

Lab 31.4 - Define target aliasing

- 3. Select Tools> Target Aliasing from the Roadway Designer menu bar.
- 4. In the *Target Aliasing* dialog box:
 - ♦ Select *<Active Surface>* for the *Target*.
 - Select Surface Exist_Ground_1, Surface Exist_Ground_2 and Surface -Exist_Ground_3 in the Surface or Corridor area.
 - ♦ <D> Add ->.

🐂 Target Aliasing					X
Target: Surface or Comidor Surface - Default Surface - Rock_Lay Surface - Rock_Lay	<pre><active surface=""></active></pre>	Add -> <- Remove Move Up Move Down	Aliases: Surface - Exist_Ground_1 Surface - Exist_Ground_2 Surface - Exist_Ground_3]	OK Cancel Help
			Use Closest		

- Select *Rock_Layer_2* for the *Target*.
- Select Surface Rock_Layer_2 and Surface Rock_Layer_3 in the Surface or Corridor area.

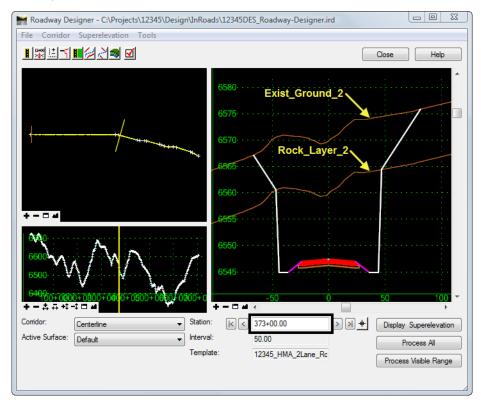
♦ <D> Add ->.

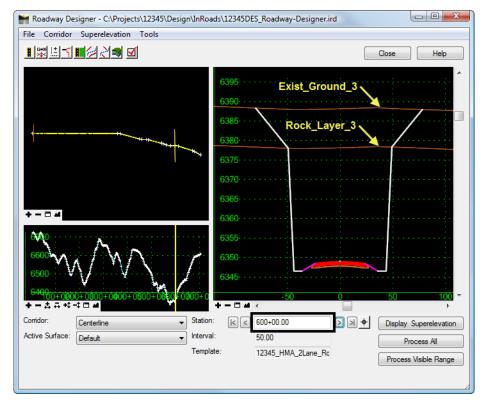
Target Aliasing		23
Target: Surface or Corridor Surface - Default Surface - Exist_Ground_1 Surface - Exist_Ground_2 Surface - Exist_Ground_3	Aliases: Add -> <- Remove Move Up Move Down	OK Cancel Help
	Use Closest	

5. **<D>OK**

Lab 31.5 - View the corridor to examine the end condition's behavior and determine if templates and target aliasing are working properly.

- 1. In the *Roadway Designer* dialog box:
 - Key in *373+00* for the *Station*.





• Key in *600+00* for the *Station*.

Note: Notice the end conditions target the multiple existing ground and rock layer surfaces in both of the above Roadway Designer dialog's cross- section viewer. Both of the station locations shown are in deep rock cut sections in the profile.

Chapter Summary:

- In this lab an existing template was modified to target a rock layer.
- In this lab a corridor was built to use target aliasing to target multiple existing ground and rock layer surfaces along three segments of the project.
- In this lab the corridor was examined at the end condition to determine if templates and target aliasing were working properly.