

Exercise 19-3

This continues a series of exercise that demonstrate a method for determining bridge length using cross-sections. The previous exercised in the series are 15-1 and 19-2.

1. Open the MicroStation file:
t:\br-proj\a_geopak\d5\j5p0100\data\pattern_shape_j5p0100.dgn.

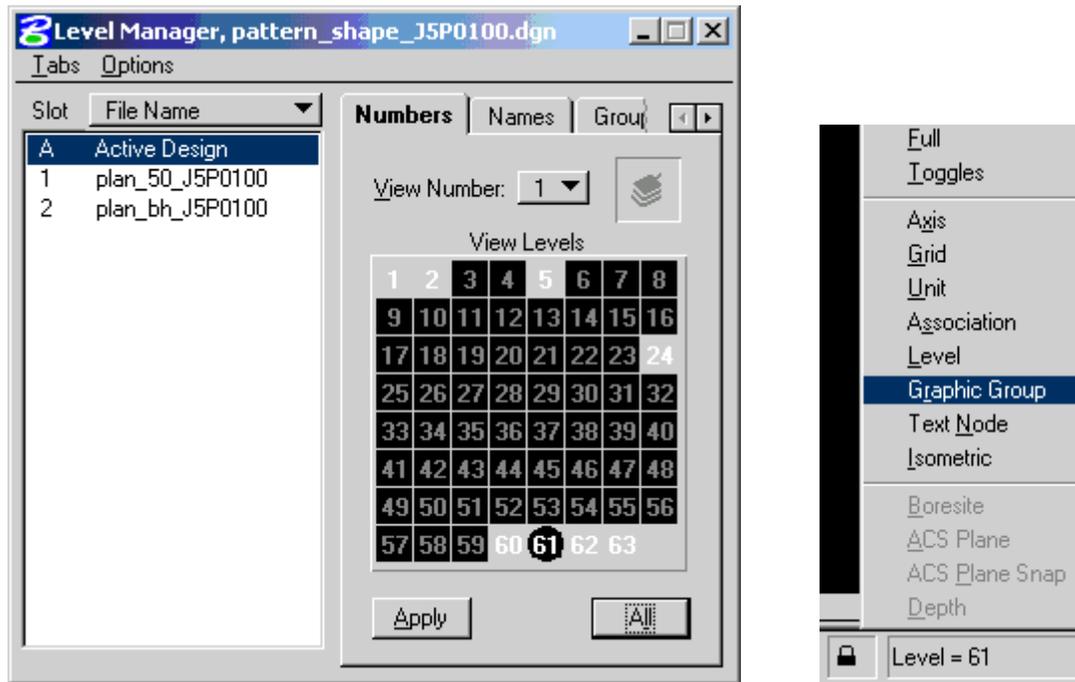
2. Open the project **t:\br-proj\a_geopak\d5\j5p0100\project\j5p0100.prj.**

Enter the as user **userc.**

Go into **Road.**

Select the **Route50** Working Alignment.

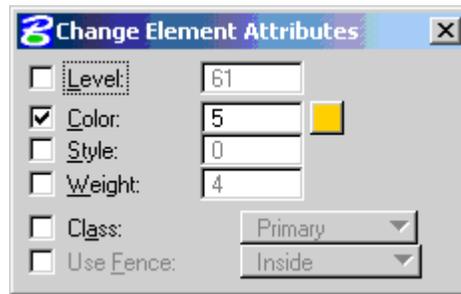
3. Open level manager and turn on level 61 and turn off levels 1-2, 5, 24, 60, and 62-63 as shown in the dialog in the following figure on the left.



Do a MicroStation Fit View. All that should be visible are the pattern lines for Route 50.

Go to the pad lock in the MicroStation status bar and make sure that the Graphic Group lock is deactivated, as shown above in the figure on the right.

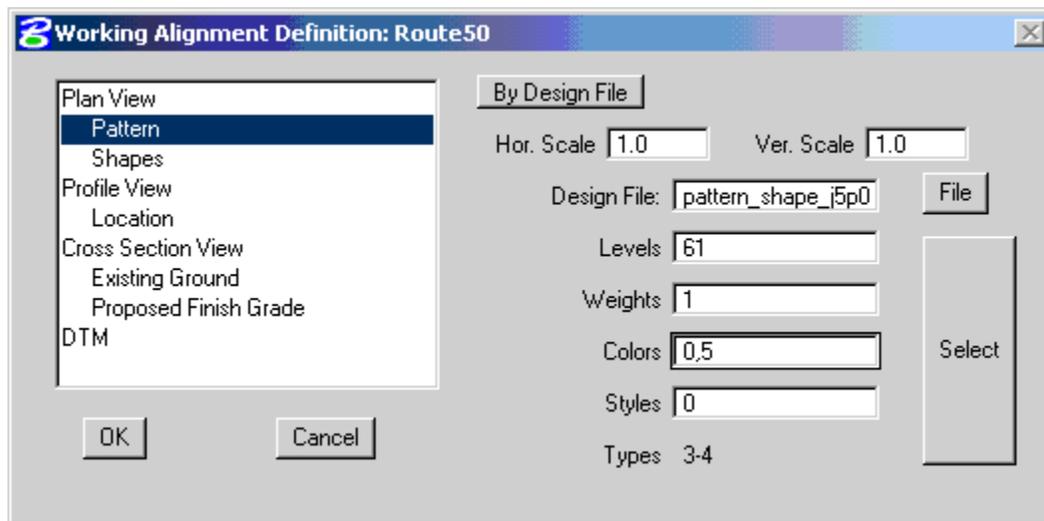
- Use the MicroStation **Change Element Attribute** tool to change the color of the **first** and the **last** pattern line to Color 5.



This will enable the next set of cross sections to ignore those two pattern lines. The remaining color 0 pattern lines will be used as part of a working alignment called 50Clear, which while using the same chain as Route50, will use a profile 4.25' below Route50PR. Just as a new tin was create from the Route50 cross sections to represent the surface of the highway, 50Clear cross sections will be used to create a tin representing the maximum height of the fill slopes under the bridge. The shorter range of pattern lines is being used to show a clear drop between the two surfaces.

Save the changes to the MicroStation file.

- Since the pattern lines for the Route50 working alignment have been modified, enter the **Route50 Working Alignment Definition**, highlight **Pattern**, and add color 5 to the list of **Colors**, as shown below.



Click **OK** to save the changes to the alignment definition.

6. Use the GEOPAK **Autoshape Builder** tool to plot the shapes for 50Clear.

To open the Autoshape Builder, **expand the Cross Sections toolbox**, which is the icon in the lower left hand corner of the Road Tools, shown to the right and **select the fourth icon from the right**, which is the raised icon shown below.



This will display the Superelevation Shape Manager Tools dialog depicted below. **Select the Autoshape Builder**, which is the second tool, as highlighted in the figure/



Click on the **Files...** button in the Autoshape Builder and select **shape_50clear.inp**.

Press **Apply** to plot the shapes.

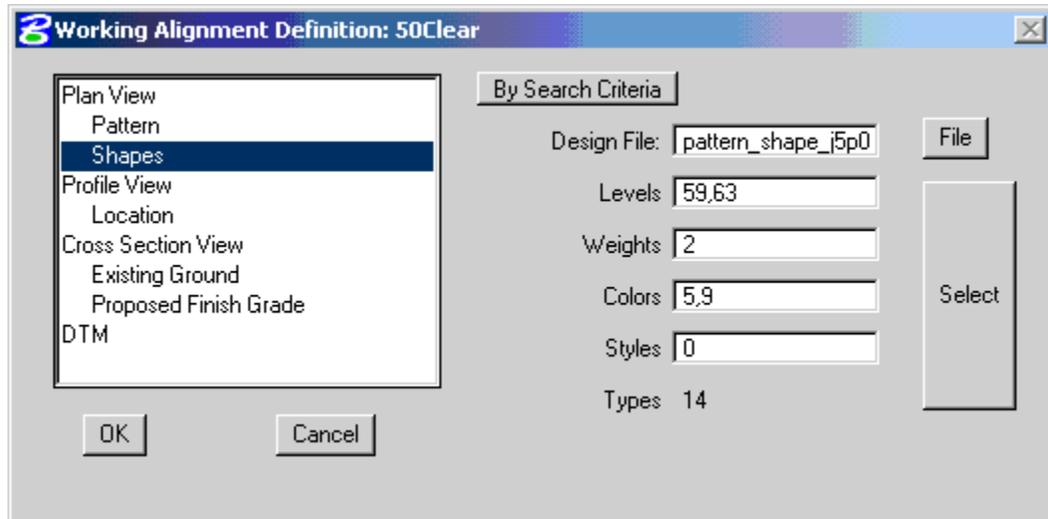


Save the changes to the MicroStation file. **Close the Autoshape Builder** and related toolboxes.

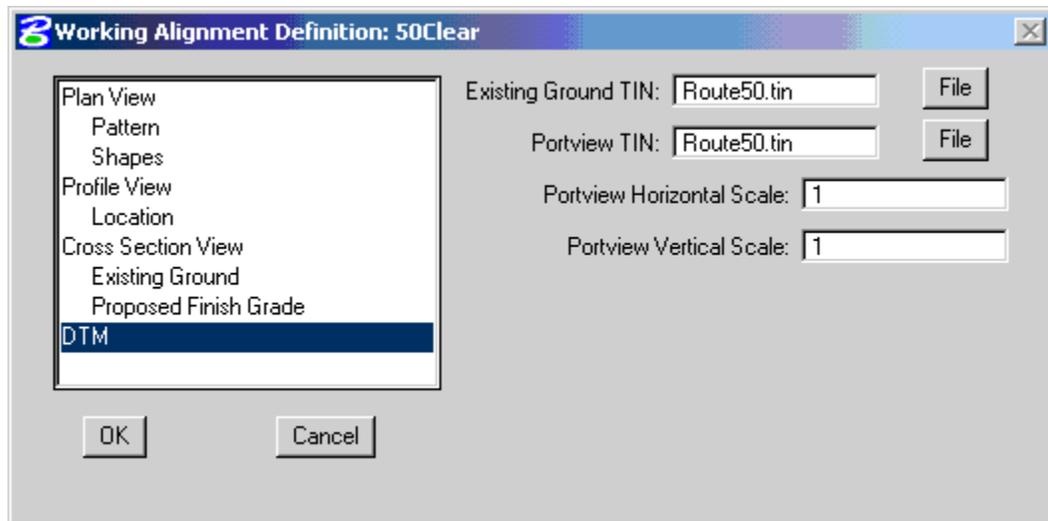
7. **Select the 50Clear** working alignment.

8. Enter the working alignment definition for **50Clear**.

Go to the **Shapes** section and change **Colors** to **5,9** as depicted below.



Switch to the **DTM** section and change the **Existing Ground TIN** and the **Portview TIN** to **t:\br-proj\g_geopak\d5\j5p0100\data\Route50.tin** as shown in the following dialog. This TIN reflects the new driving surface for Route 50 and will be used for 50Clear existing and proposed cross sections.



Click **OK** to save the changes to the alignment definition.

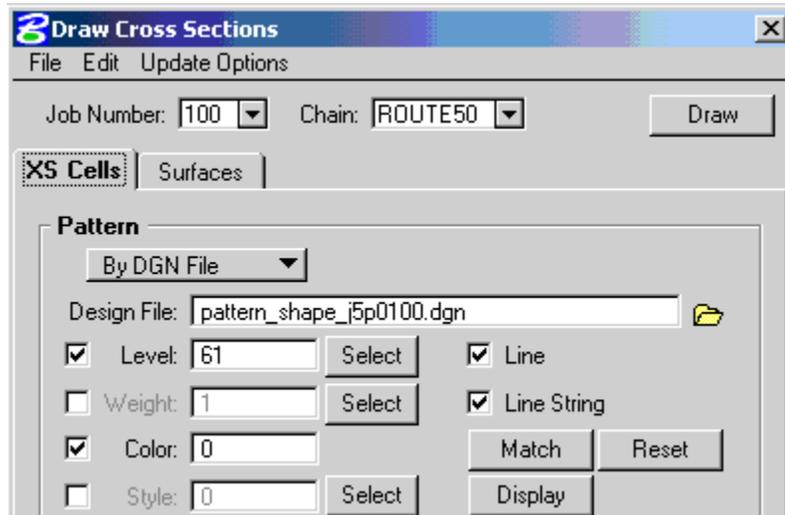
9. **Open** the MicroStation file **t:\br-proj\g_geopak\d5\j5p0100\data\xs_j5p0100.dgn**. Save it as **t:\br-proj\g_geopak\d5\j5p0100\data\xs_50clear_j5p0100.dgn**.

10. Choose **Existing Ground Cross Sections** from the **Project Manager** dialog.

Existing Ground Cross Sections

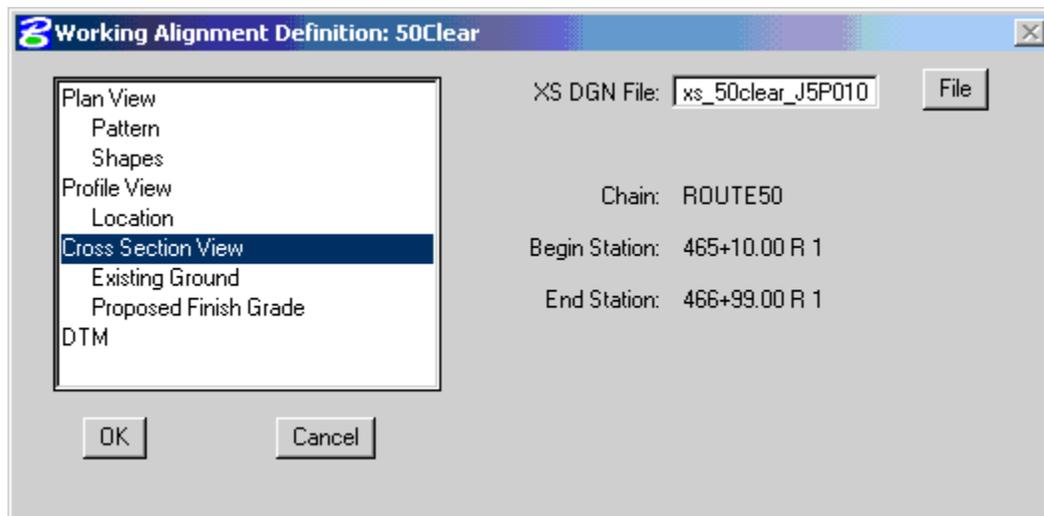
Copy the **MoDOT** run to **50Clear** and enter the **50Clear** run.

11. Set the **XS Cells** tab as shown below and have the **Route50.tin** as the only one listed under the **Surfaces** tab.

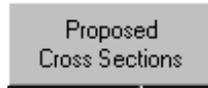


Select **Draw** to draw the existing ground cross section and **Save** the MicroStation file. Exit the run, saving the settings.

12. Reenter the working alignment definition for **50Clear** and change the **XS DGN File** to **t:\br-proj\A_geopak\d5\j5p0100\data\xs_50clear_J5P0100.dgn** in the **Cross Section View** section as shown below. Note that the station range is shorter than that for the Route50 working alignment, which goes from Sta. 465+00 to Sta. 467+00. Click **OK** to save the changes to the alignment definition.



13. Choose **Proposed Cross Sections** from the **Project Manager** dialog.



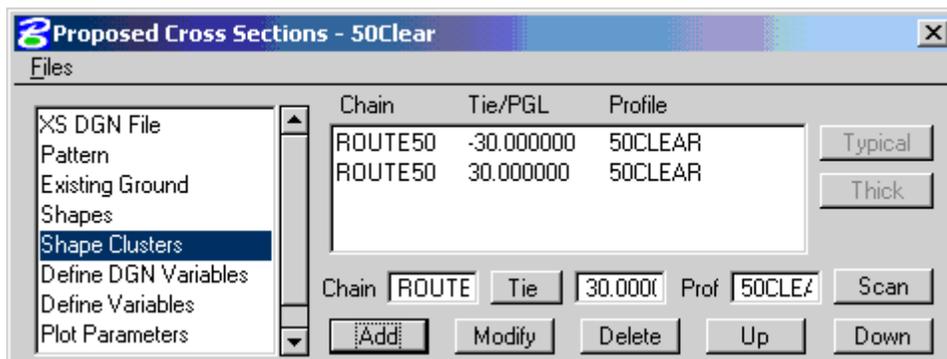
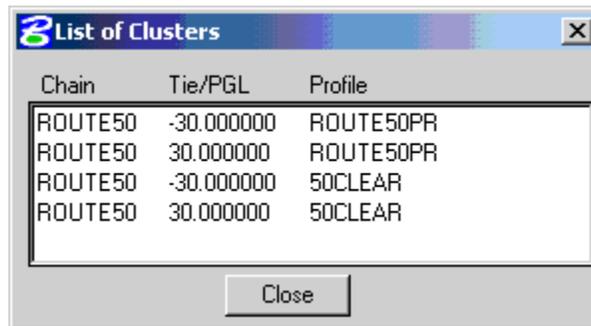
Copy the MoDOT run to **50Clear** and enter the **50Clear** run.

14. Be sure the following items are set in the given sections of the dialog:

XS DGN File: **xs_50clear_J5P0100.dgn**
 Pattern: **Use Working Alignment Definition**
 Existing Ground: **Use Working Alignment Definition**
 Shapes: **Use Working Alignment Definition**

15. In the **Shape Clusters** section of the dialog add the following shape clusters in the order shown by choosing the **Scan** button, highlighting the desired cluster in the List of Clusters dialog, and clicking on **Add** in the Proposed Cross Sections dialog. Once the clusters have been added, **close** the **List of Clusters**.

<u>Chain</u>	<u>Tie</u>	<u>Profile</u>
ROUTE50	-30	50CLEAR
ROUTE50	30	50CLEAR



16. For each shape cluster, **add** the given side **Slope Conditions** and **Criteria Files**. (See the attached typical section for details.)

<u>Chain</u>	<u>Tie</u>	<u>Profile</u>	<u>Chain</u>	<u>Tie</u>	<u>Profile</u>
ROUTE50	-30	50CLEAR	ROUTE50	30	50CLEAR
Side Slope:	LT		Side Slope:	LT	
Criteria Files:	setup.x		Criteria Files:	setup.x	
	pvmt_layers.x			pvmt_layers.x	
	shldr_a_c.x			shldr_a1_c.x	
	berm_to_prof_or_exgrnd.x			median_ditch.x	
Side Slope:	RT		Side Slope:	RT	
Criteria Files:	setup.x		Criteria Files:	setup.x	
	pvmt_layers.x			pvmt_layers.x	
	shldr_a1_c.x			shldr_a_c.x	
	median_ditch.x			berm to prof or exgrnd.x	

Save the Proposed Cross Section run by going to **Files > Save Settings**.

17. Switch to the **Define Variables** section of **Proposed Cross Sections**, as make sure the following are defined:

NAME OF PLAN FILE.....plan_50_J5P0100.dgn
 NAME OF CROSS-SECTION FILExs_50clear_J5P0100.dgn
 NAME OF SHAPE/PATTERN FILEpattern_shape_J5P0100.dgn
 NAME OF BASELINERoute50
 SHOULDER SLOPE (%).....5
 LEFT BERM SLOPE (%)-5
 RIGHT BERM SLOPE (%).....5
 MEDIAN SLOPE (1:X OR X:1)50
 MEDIAN DITCH DEPTH (M OR FT)0
 DITCH BACK SLOPE (1:X OR X:1).....50

Leave the remaining variables set to the defaults.

18. Save the settings for the run.

19. Run the proposed cross-sections (**Files > Run**).

Set the **Log File** to **Screen Only**.

Turn on **Pause on Each Section**.

