

Exercise 11-1 Vertical Alignments

Exercise 11-1

1. Open the Microstation file **t:\de-proj\cole\j5p0100\data\rte50_plan_j5p0100.dgn**.

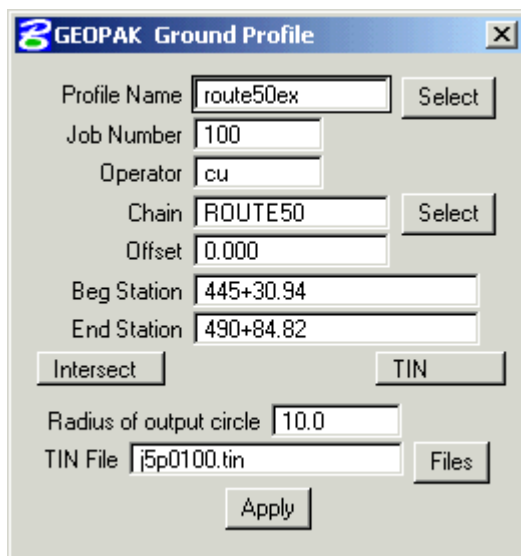
2. Choose the **Route50** working alignment.

3. Choose **Existing Ground Profile** from the **Project Manager** dialog.

Copy the **MoDOT** run and name the new run **Route50**.

4. Create an original ground profile for the project.

Profile Name:	Route50Ex
Job Number:	100
Operator:	cu
Chain:	Route50
Offset:	0
Beg. Station:	<i>Will be filled in when chain is chosen.</i>
End Station:	<i>Will be filled in when chain is chosen.</i>
Mode:	Intersect TIN
TIN File:	j5p0100.tin



5. Open the Microstation file **t:\de-proj\cole\j5p0100\data\profile_j5p0100.dgn**.

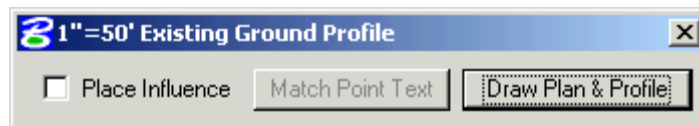
Exercise 11-1 Vertical Alignments

6. If not already done, attach the files **rte50_plan_j5p0100.dgn** and **BH_plan_j5p0100.dgn** in **t:\de-proj\cole\j5p0100\data** as references and fit the screen.

Move to a blank area of the drawing.

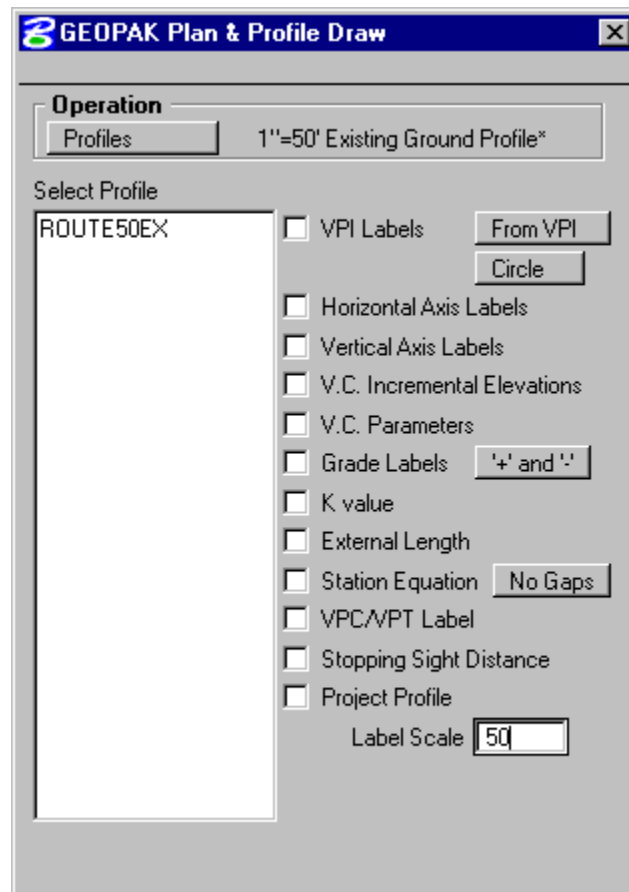
7. Plot the existing ground profile using **Design and Computation Manager** item **Drafting Standards\Profile\Existing Ground Profiles\1"=50' Existing Ground Profile**.

After selecting the item in D&C Manager, Click on Draw Plan & Profile in the Operations box.



Be sure all options are turned off, and the **Labeling Scale** is set to **50**.

Choose the profile **Route50Ex**.



Exercise 11-1 Vertical Alignments

7. (Continued)

Set the following parameters:

Horizontal Scale: **50**

Vertical Scale: **10**

DP Station: **445+30.94**

DP Elevation: **700**

DP X and Y: *Data point on the screen in an open area.*

PGL Chain: **Route50**

Draw the profile cell with the **Draw Cell at XY** button.

Draw the profile by selecting **OK**.

Profile

ROUTE50EX

Beginning Station	445+30.94
Ending Station	490+84.82
Beginning Elevation	704.9895
Ending Elevation	703.5816
Maximum Elevation	775.8670
Minimum Elevation	703.5816

Horizontal Scale: 50.000000

Vertical Scale: 10.000000

Beginning Station: 445+30.94

Ending Station: 490+84.82

Strip Grade Increment:

DP Station: 445+30.94

DP Elevation: 700.000000

DP X: 1697752.0736

DP Y: 1001837.0098

DP

Profile Cell

PGL Chain: ROUTE50

Select

Draw Cell At XY

Identify Cell

OK

Cancel

Exercise 11-1 Vertical Alignments

8. Use the **Vertical Alignment Generator** to create the following proposed profile with the given settings.

With the **Identify Cell** button, choose the profile cell plotted previously. The dialog should fill in as follows.

Settings

Job Number: 100
Operator Code: cu
PGL Chain: ROUTE50 [Select]

Location and Scales

Horizontal Scale: 50.000000
Vertical Scale: 10.000000
Reference Station: 445+00.00 R
Reference Elevation: 700.000000
X: 1698572.239E [DP]
Y: 1001713.653E

Profile Cell

[Draw Cell at X,Y] [Identify Cell]

[OK] [Cancel]

VPI 1	Sta. 445+30.94	Elevation 707.61	
VPI 2	Sta. 447+00	Elevation 710.99	Vertical Curve Length 200'
VPI 3	Sta. 467+00	Back Grade 4%	Vertical Curve Length 1400'
VPI 4	Sta. 487+00	Back Grade -4%	Vertical Curve Length 550'
VPI 5	Sta. 490+40	Elevation 705.89	

Save the profile as **Route50PR**.

Save Profile As

Profile: route50pr [Select]
File: j100ocu.inp [Select]

[OK] [Cancel]

Exit the Vertical Alignment tool and save the settings.

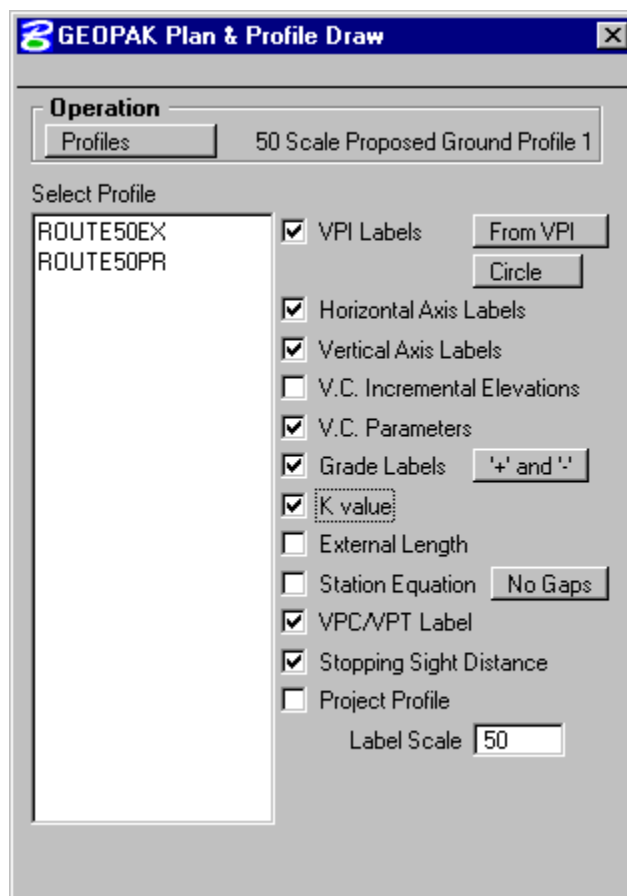
Exercise 11-1 Vertical Alignments

9. Plot the proposed profile using **Design and Computation Manager** item **Drafting Standards\Profile\Proposed Ground Profiles\50 Scale Proposed Ground Profile 1"=50' H & 1"=10' V**.

Turn on the following options:

VPI Labels
Horizontal Axis Labels
Vertical Axis Labels
V.C. Parameters
Grade Labels
K Value
VPC/VPT Label
Stopping Sight Distance

Choose the profile **Route50PR**.



Exercise 11-1 Vertical Alignments

9. (Continued)

Use the **Identify Cell** button to select the profile cell placed in step 6.

Plot the profile **Route50pr** by selecting the **OK** button.

The screenshot shows the 'Profile' dialog box with the following fields and values:

- ROUTE50PR
- Beginning Station: 445+30.94
- Ending Station: 490+40.00
- Beginning Elevation: 707.6100
- Ending Elevation: 705.8900
- Maximum Elevation: 776.9900
- Minimum Elevation: 704.3900
- Horizontal Scale: 50.000000
- Vertical Scale: 10.000000
- Beginning Station: 445+30.94
- Ending Station: 490+40.00
- Strip Grade Increment: (empty)
- DP Station: 445+30.94 R 1
- DP Elevation: 700.000000
- DP X: 1697752.0736
- DP Y: 1001837.0098
- Profile Cell: PGL Chain: ROUTE50
- Buttons: Draw Cell At XY, Identify Cell, OK, Cancel

Exit D&C Manager and save the changes to the MicroStation Drawing.

Exercise 11-1 Vertical Alignments

10. Complete the **Profile View** and **Location** sections of the **Route50 Working Alignment**.

Design File: **profile_j5p0100.dgn**
Existing Profile: **Route50EX**
Proposed Profile: **Route50PR**

For the **Location** section, use the **Identify Cell** button to choose the profile cell.

