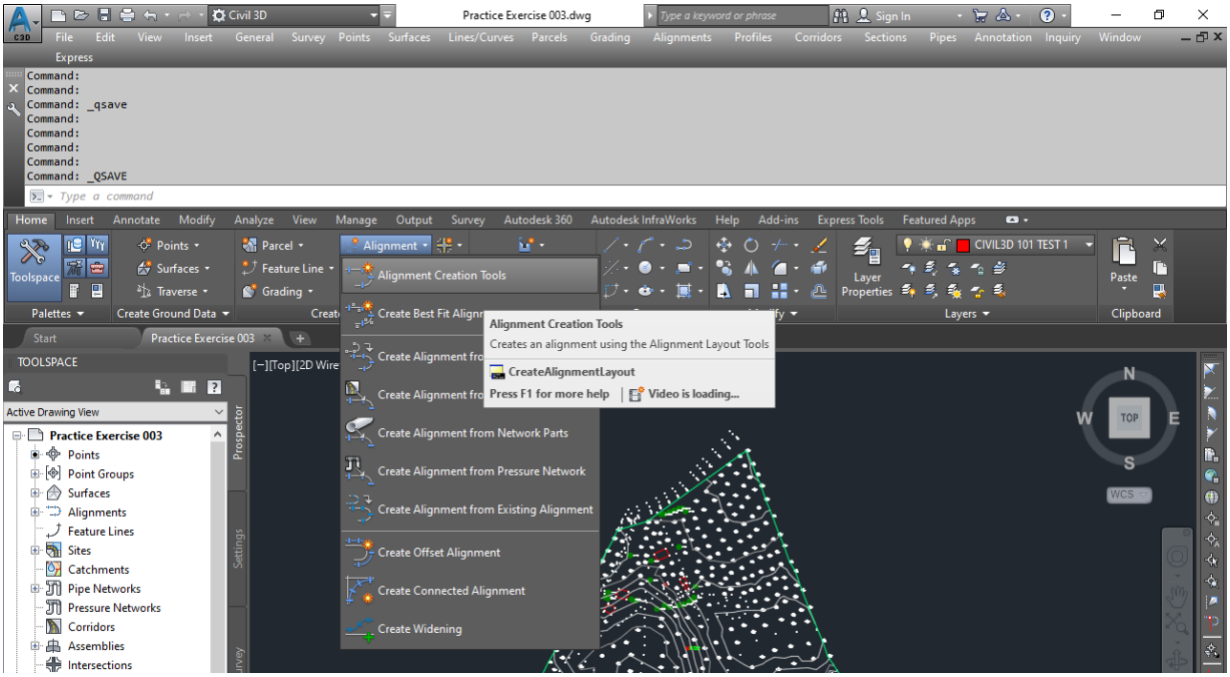
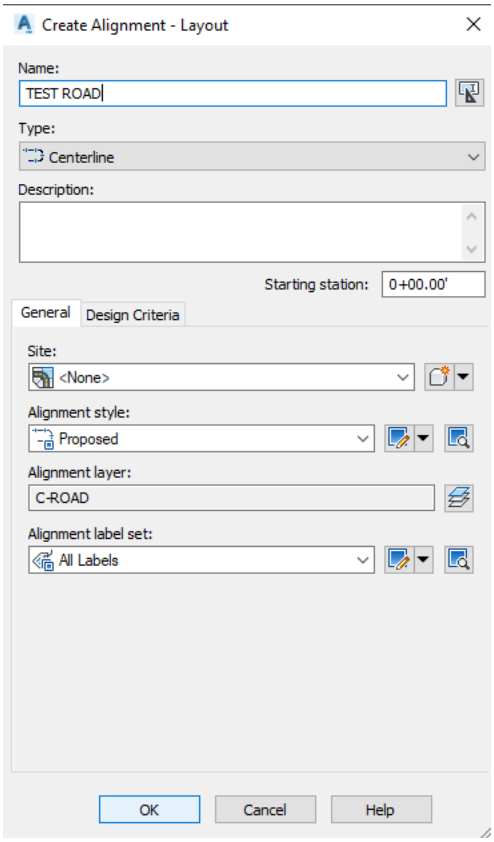
Solution Exercise 3
Create an Alignment and Surface Profile

1. Open Practice Exercise 003.dwg.

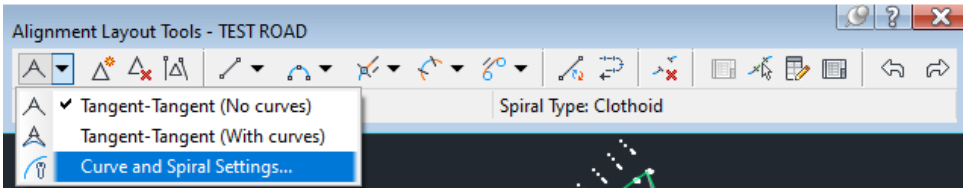
2. In the Create Design panel, click Alignment and choose Alignment Creation Tools.



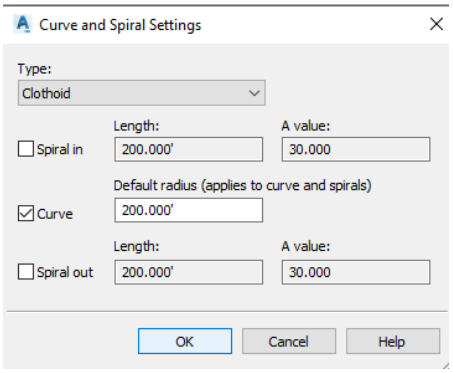
3. Accept the default settings in the Create Alignment dialog box by clicking OK.



4. In Alignment Layout Tools, choose Curve and Spiral Settings.



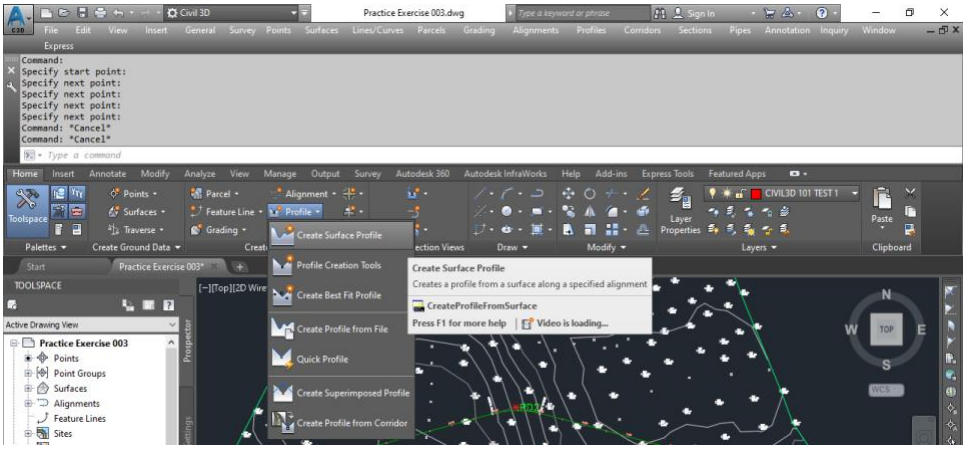
5. Set Type to Clothoid and your curve and spiral settings to the 200' default radius.



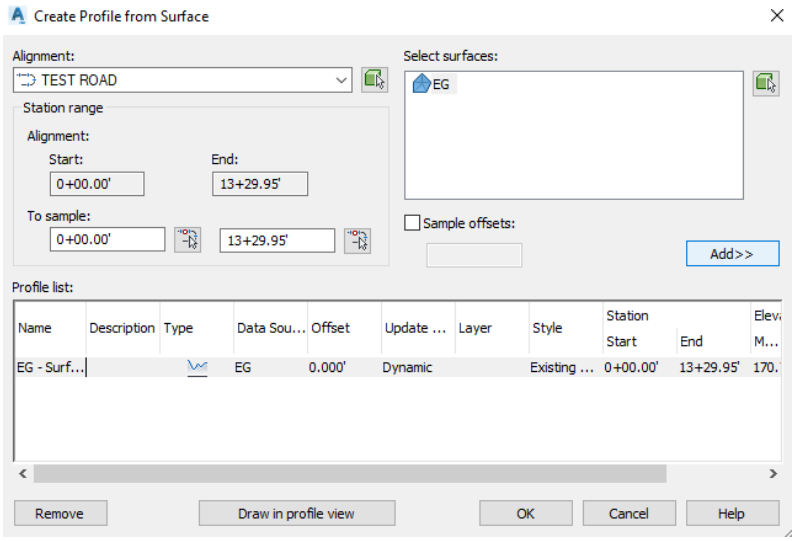
6. On the Alignment Layout Tools toolbar, click Tangent-Tangent (With Curves).

7. Set RD1 as the start point and specify points from RD1 through RD4 in numerical order. Press Enter to end the command.

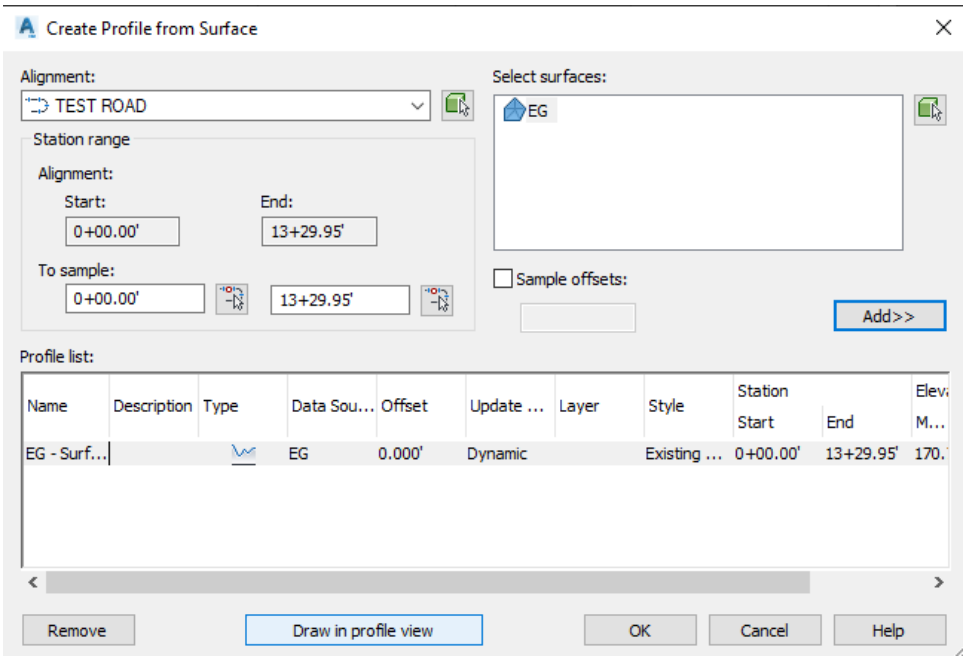
8. In the Create Design panel, Click Profile and choose Create Surface Profile.



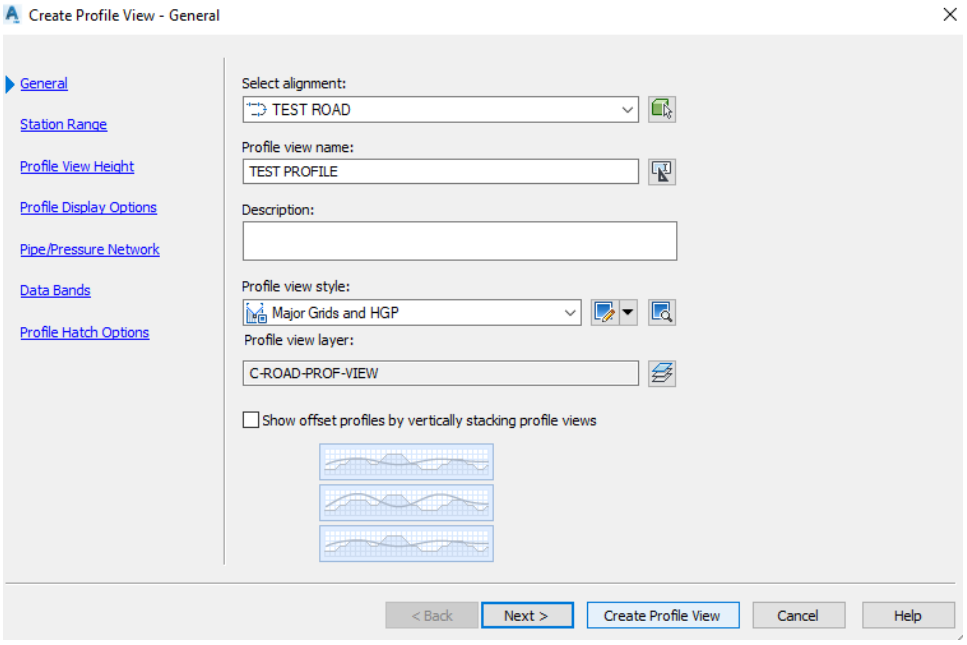
9. In the Create Profile from Surface dialog box, add the EG surface to the profile list.



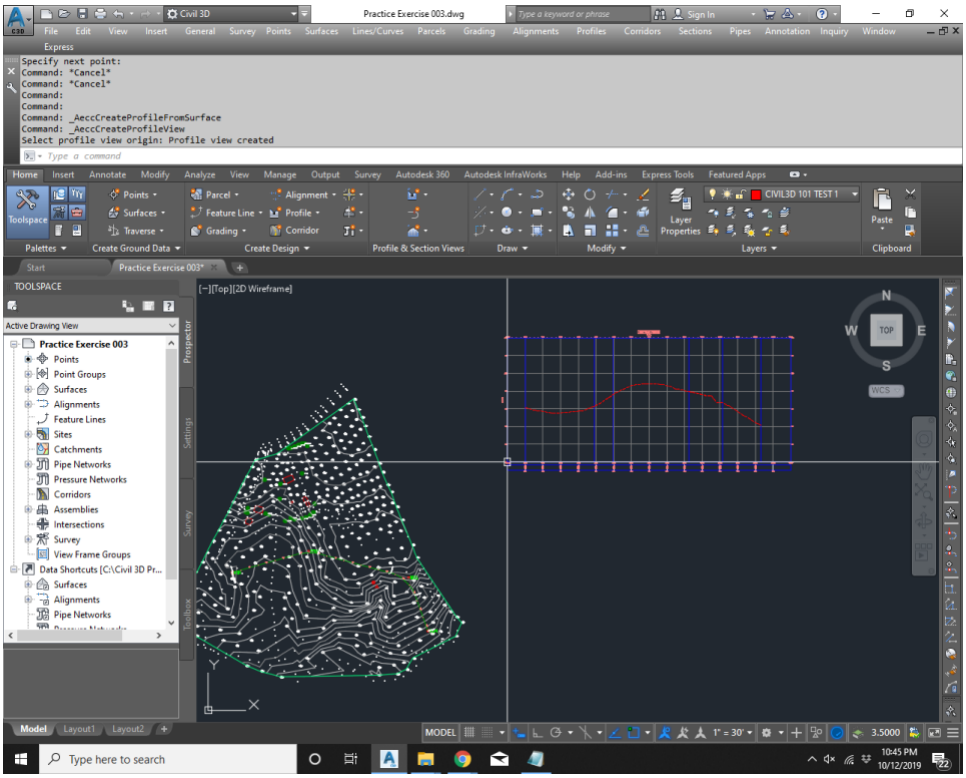
10. Click Draw in Profile View.



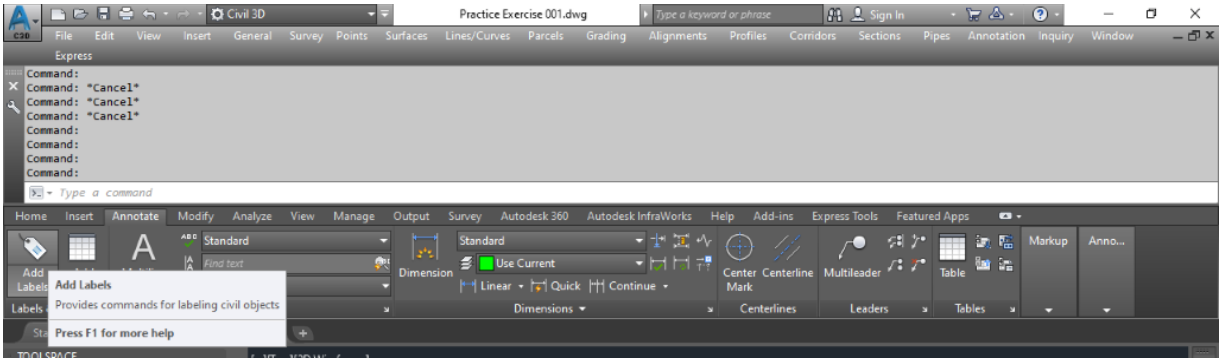
11. Accept all of the default profile view settings and click Create Profile View.



12. Pick the lower-left corner of the profile view window.

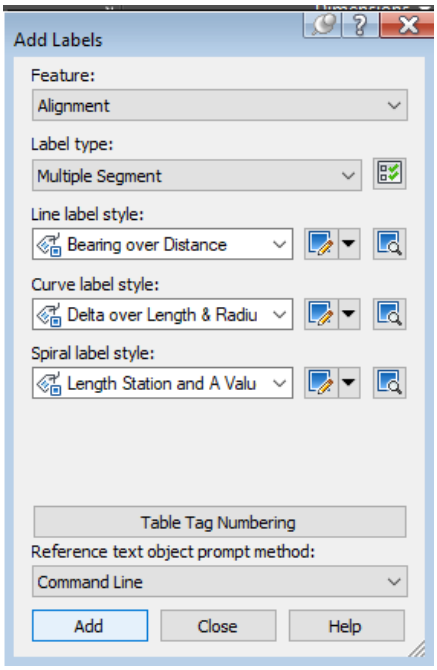


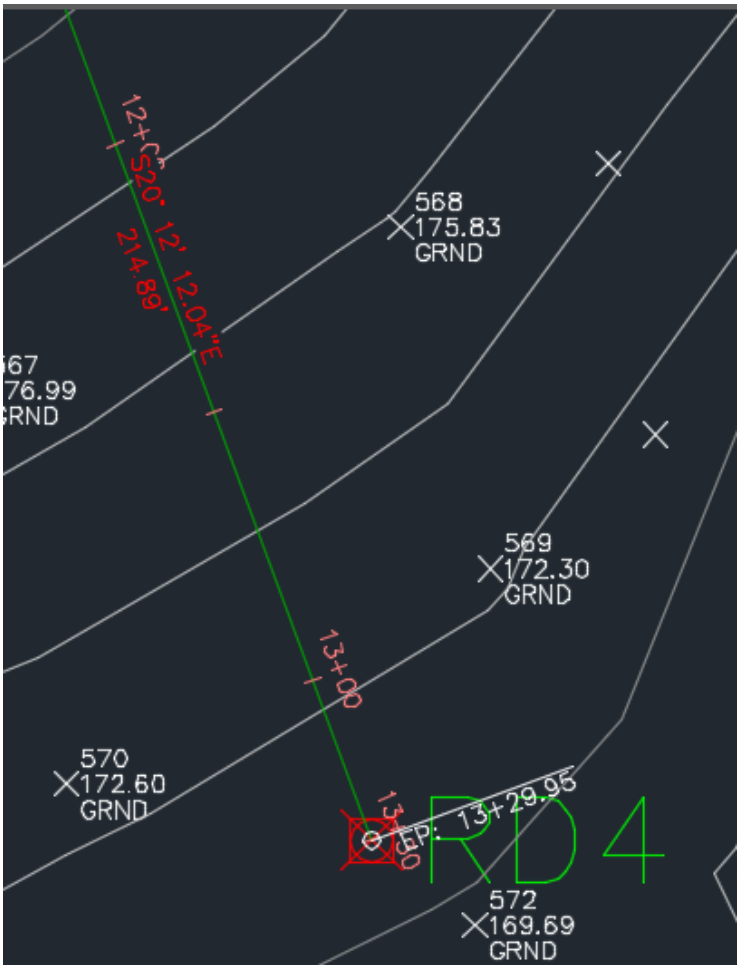
13. Select the Annotate tab of the ribbon bar and click Add Labels.

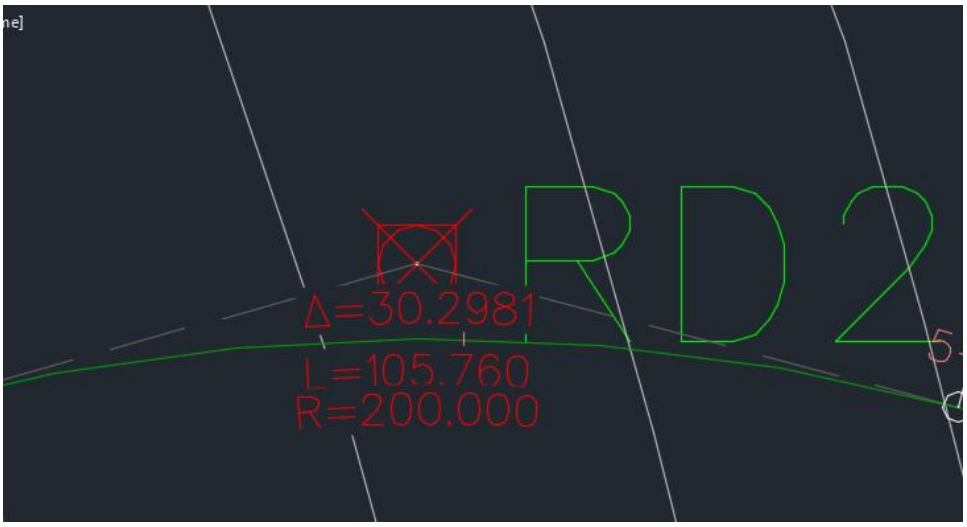


14. Change the Feature to Alignment and the Label Type to Multiple Segment. Make sure a label with bearing and distance is selected for Line Label Style and delta

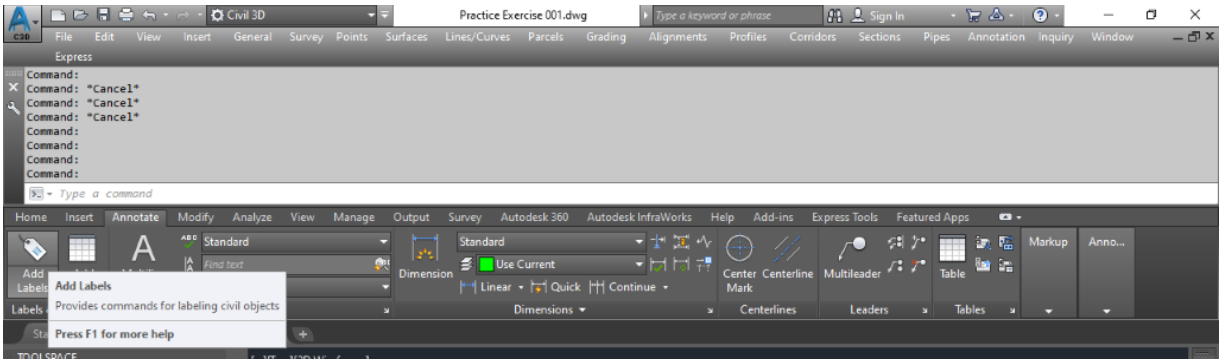
and length for Curve Label Style. Click Add and select TEST ROAD.



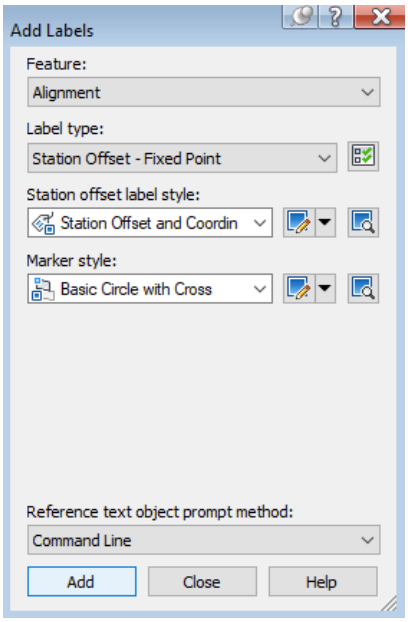


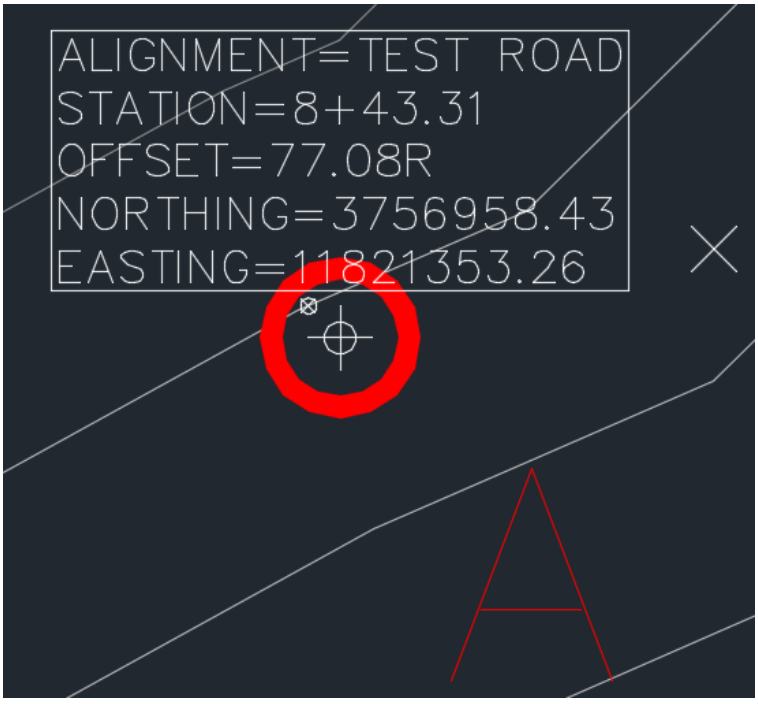


15. Select the Annotate tab of the ribbon bar and click Add Labels.

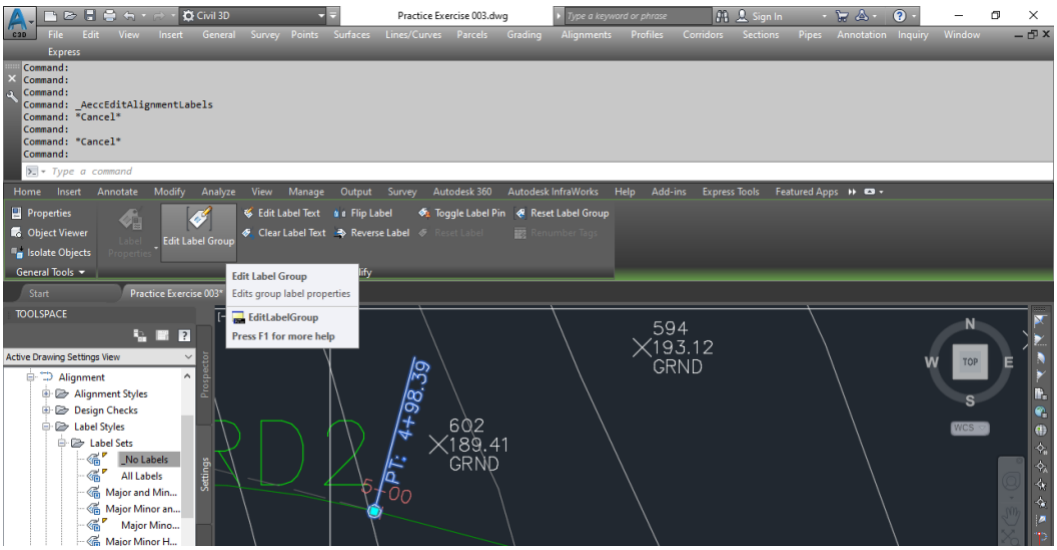


16. Change the Feature to Alignment and the Label Type to Station Offset – Fixed Point. Make sure a label with station and offset is selected for Station Offset Label Style. Click Add. Select TEST ROAD and then navigate to the center of circle A and click.

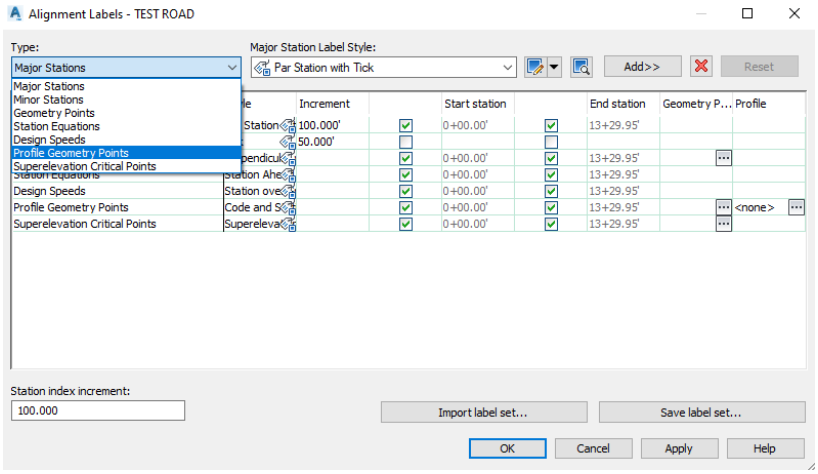




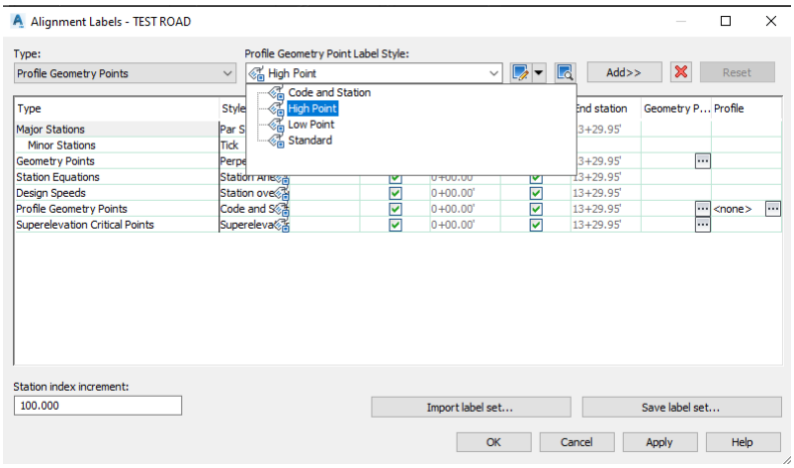
17. Select any of the geometry point labels along the alignment, click Edit Label Group, and choose Edit Label Group.



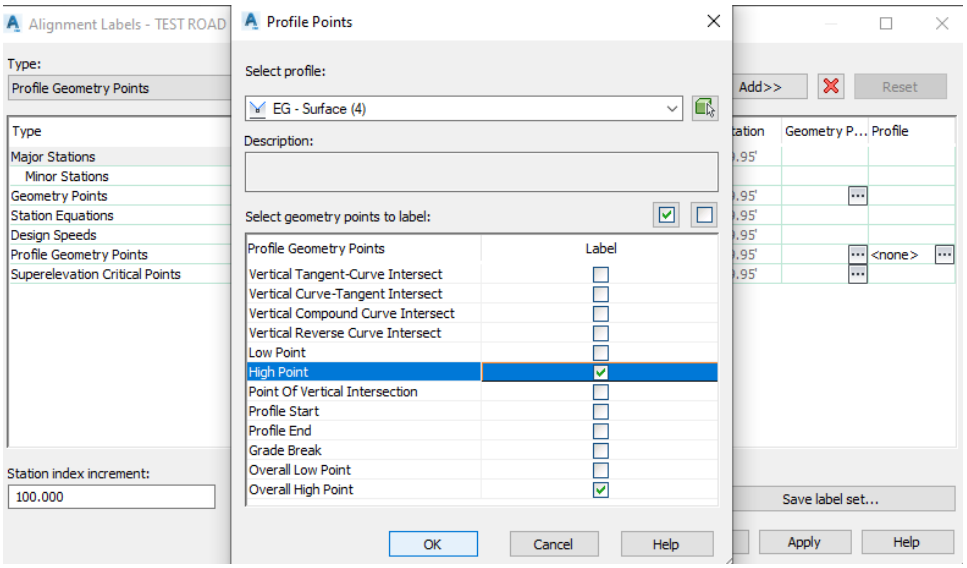
18. Select Profile Geometry Points from the Type drop-down menu.

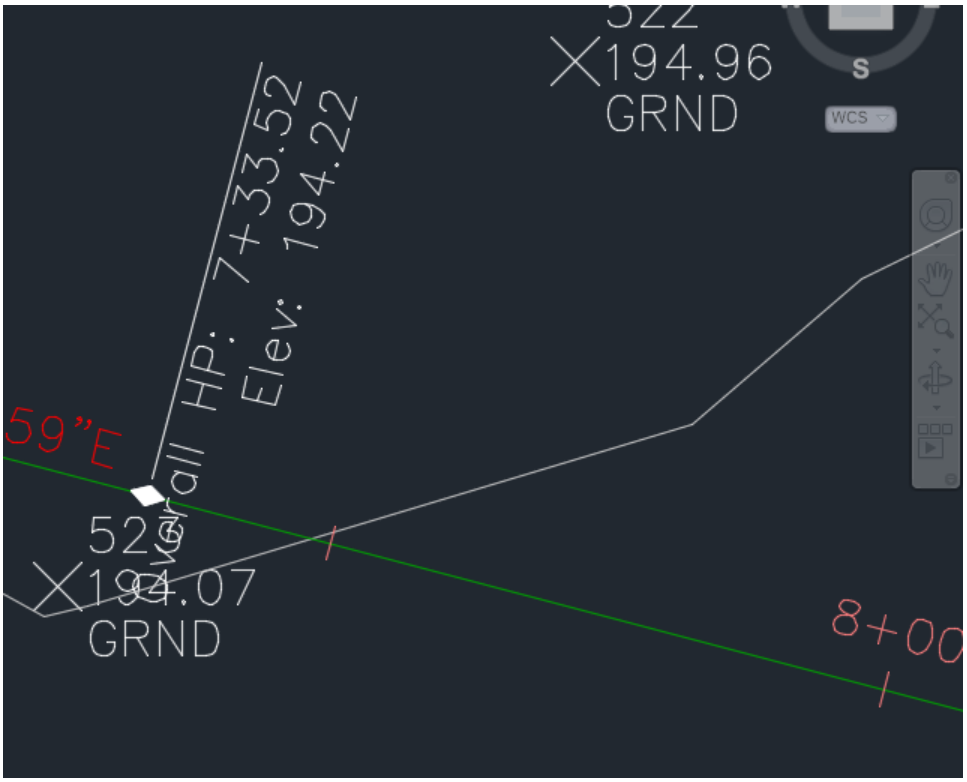


19. Select Hight Point from the Point Geometry Point Label Style menu.



20. Add high points to the label group, set the profile to the surface profile, and select both High Point and Overall High Point as geometry points to label. Click OK.





ANSWERS

What is the bearing and distance of the tangent section between RD3 and RD4?

i. Bearing: S20°12'12.04"

ii. Distance: 214.89

What is the Land Δ of the curve at PI RD2?

iii. L: 105.76

iv. Δ: 30.3

What is the station offset at the center of circle A?

v. Sta: 8+43.31

vi. Offset: 77.08

What is the station of the high point elevation of the surface profile? 7+35.52