Overview: Creating profile or cross sectional views for surfaces that represent the Original Ground and an embankment is done by creating a reference location in the drawing for the profile and then extracting the surface elevations along an alignment. A grid can be placed after the profile view has been extracted. Labeling or querying tools can be used to identify elevations on the profiles.

Software: Eagle Point 2006 Q4 6.4.0, Autodesk Map 2006 (NRCS/EP v2.00 menu), NRCS national CAD std v1.0

Notation Method
Button to Press *Displayed Text* **Icon** Action {Text to Enter} *Menu Item…*

Note: Sections marked with * must be done in model space.

Eagle Point Steps Using the NRCS/EP Customized Menu

Creating the Reference Location for a Profile in the Drawing*

1. From AutoCAD Click *NRCS/EP… Profiles/Sections…Setup Profile Coordinate System …*.
2. Click the **New Profile Coordinate System Icon**.
3. Input a Profile name. E.g. {CL Dam}.
4. Click into the X box. Click the **Pick In CAD** button.
5. Click into CAD to select a location for the reference point of the profile. This should be a location that will not overlap the profile with the plan view part of the drawing.
6. Click into the Station box. Input a Stationing that you want to correspond to this reference location in the drawing. E.g. {0} Press Tab
7. Input an elevation that you want to correspond to this reference location in the drawing. E.g. {1100} Press Tab
8. Click OK
9. Click Close.

Set up the Scale of the Profile

10. Decide the horizontal and vertical scales that you want.
11. From AutoCAD Click *NRCS/EP… Plot Scale…*
12. Input the horizontal and vertical scales. E.g. Horz ={40}, Vert = {10}
13. Click OK.

Note: If you have multiple Profile Coordinate Systems (PCS) in a project, you will need to make sure to switch to the proper scales when switching the PCS.

Creating the Profile from Surface Models*

14. Determine the Reference stationing of the left end of the Centerline alignment line. E.g. {-275} would mean that the start of the line is 275' left of a reference baseline.
15. Locate the Plan view of the Embankment and window in around it.

16. Create a Named View for easily switching to this view of the dam
    a. From AutoCAD Click *View… Named Views…* *New…*
    b. Uncheck *Store Current Layer Settings with View* if you don't want layers to turn on/off or freeze/thaw when restoring this named view.
    c. Input a view name. E.g. { Dam }. Click OK Click OK
17. From AutoCAD Click *NRCS/EP… Profiles/Sections…Profile from Surface Model…*.
18. Object Selection = *Complex Object*. Mark *Place in CAD*
19. Highlight the Surface Models that you want profiles of. *Ognd, Embk.*
20. Click OK.
21. Select the Centerline of dam to indicate the alignment for extracting profiles.
22. Select the same line to indicate that the stationing uses the same alignment.
23. Click near the left end of the line to indicate where the lowest stationing is.
24. Input the beginning stationing of the line. E.g. {-270}
25. Click OK. The profile lines will be placed into CAD.
26. Locate the Profile view within the drawing and window in around it.
27. Create a Named View for easily switching to this profile view
    a. From AutoCAD Click *View… Named Views…* *New…*
    b. Uncheck *Store Current Layer Settings with View* if you don't want layers to turn on/off or freeze/thaw when restoring this named view.
    c. Input a view name. E.g. { Profile CL dam }. Click OK Click OK
28. Select each Profile line & change the layer pulldown to the type of profile that it represents. E.g. *C.Prof.Ognd* for Original Ground. Embankment=*C.Prof.Embk.*

Placing a Grid on the Profiles*

29. From AutoCAD Click *NRCS/EP… Profiles/Sections…Grid …*.
30. Check Paper Units and input the grid dimensions for the paper. E.g. For Grids that fill the full title block:
    For 11x17: Length={14}, Height={10}, Area Height ={.25}, Elev Width ={.5}.
    For 22x34: Length={28}, Height={20}, Area Height ={0.5}, Elev Width={1}.
31. Click the **CAD settings icon** . If used for 11x17 change the Datum Elev and Stations Text size to {0.0938} and click apply for each one.
    For 22x34: Datum Elev={.1875}, Stations={.1875}.
32. Click OK.
33. Input desired Station Interval labeling. E.g. {40} and Input desired Elevation Interval labeling. E.g. {10}. These should usually be set to the horizontal & vertical scales.
34. Click OK.
35. Click to place the outline of the Grid to enclose the Profile lines.
36. If Grid is not the right size or not placed correctly, select it and press delete.
37. To send the grid behind the profile lines, select the grid then use AutoCAD *Tools… Draw Order… Send to Back…*

Setting Fine Gridlines to Grayscale (Optional)

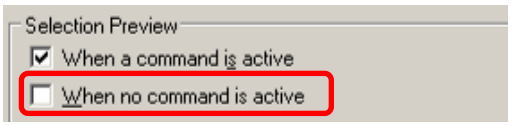
1. Click the **Layer Properties Manager Icon**.
2. Click **Layer States Manager**
3. Highlight *Gridlines -Grayscale* to switch to fine grid as gray, or *Gridlines -Black* to set fine grid as thin black lines.
4. Click Restore
5. Click OK close out of Layer Manager.

Note: The NRCS BWgray.ctb Plot style table enables gray lines to plot as gray and will also work with black grid lines.

Managing Fine Gridlines (Optional)*

If the fine gridlines are in the way while you are working with a profile you have options:
A) Turnoff or freeze the 3.Grid.Fine layer,
B) Lock the 3.Grid.Hevy layer so that rollover highlighting doesn't occur for the profile grid block. (Note: Objects cannot be deleted from a locked layer or added to a locked layer.)
or
C) Change the Rollover highlighting setting.

1. From AutoCAD Click *Tools… Options… Selection…*
2. In the Selection Preview area, uncheck *When no command is active.* This will turn off rollover highlighting when no CAD command is in progress.
3. Click OK.



Determining Elevations on Objects in a Profile (Optional)*

1. From AutoCAD Click *NRCS/EP… Profiles/Sections…Query Point/Grade Break…*
2. Click the **Pick In CAD**
3. Move your cursor to track Station & Elevation
4. Osnap & Click to capture station and elevation of a location.
5. Click the **Pick In CAD** to repeat.
6. To end Click Close

Determining Grades of Line Segments in a Profile (Optional)*

1. From AutoCAD Click *NRCS/EP… Profiles/Sections…Query Tangent…*
2. Click on a segment of line to display the Grade & Station data.
3. Click the **Pick In CAD** to repeat.
4. To end Click Close

Drawing Additional Lines in a Profile View (Optional)*

1. From AutoCAD Click *NRCS/EP… Profiles/Sections…Draw Tangent…*
2. Input the 1st point using Input Type of *Station,Elevation*.
3. Either click the **Pick In CAD icon** to fill the input by snapping to an object, Or
4. Input the station value, E.g. {0}. Input the Elevation, E.g. {82.5 }
5. Click Apply. At this point you will NOT see the first point being drawn yet.
6. Input the 2nd point of the line using 1 of the multiple input methods:

7. Pulldown Method to *Station/Elevation*	Or	Pulldown Method to *Delta Station,Slope*
8. Input the Station (Can use)		Input the Delta Station
9. Input the Elevation		Input the Grade
10. Click Apply		Click Apply

11. The line segment will be drawn in as a Line rather than 2D Polyline.
12. Repeat for as many segments as you need.
13. Press Close to quit the command.
14. Select the lines and change their layer pulldown to the type of profile that it represents. E.g. Embankment=*C.Prof.Embk.*

Labeling Elevations on Objects in a Profile (Optional)*

1. From AutoCAD Click *NRCS/EP… Profiles/Sections…Annotate Point/Grade Break…*
2. Click *Point*, Checkmark *Leader*
3. Click Leaders…, Checkmark *Arrowhead* & *Smooth*
4. Click OK
5. Click the **Pick In CAD icon**
6. Osnap to the object point to be labeled.
7. Click a first point for alignment of the arrowhead.
8. Click a second point for alignment of the leader line.
9. Click a third point for the location of the text end of the line.
10. Press Enter
11. Click the location for the text.
12. Click to repeat for additional labeling or press enter to end the labeling.
13. Click Close

Labeling Grades of Objects in a Profile (Optional)*

1. From AutoCAD Click *NRCS/EP… Profiles/Sections…Annotate Tangent…*
2. Click the line segment that has the grade needing labeled.
3. Press Enter to quit the command.