

## Generating Profiles from Surveyed Points

The following instructions will guide you through the process of creating a profile from surveyed points. These instructions require that the points have already been drawn beforehand. SurvCADD modules are displayed as **{Section-Profile}**, main menus are displayed as **[Profiles]**, and submenus and menu commands are displayed as **<Profile from Surface Entities>**.

- 1) Draw a line to represent the location of the profile: **{Any Module} → [Draw] → < 2D Polyline>**. The starting point of the polyline will be station 0+00. Use any osnap mode to connect to the points (recommended for the two ends of the line).
- 2) Create the profile file: **{Section-Profile} → [Profiles] → <Profile from ...> → <Profile from Points on Centerline>**
- 3) The “*Profile File to Write - (pro)*” dialog box opens. Save the profile file in your working directory with the rest of your project files, giving it a name you can easily recognize (ex. Smith\_WW\_CL).
- 4) **Click** on the polyline drawn in Step 1 (the polyline that represents the profile)
- 5) The “*Profile from Points*” options box opens. Set the following options:
  - a. *Starting Station*: **0+00**
  - b. *Maximum Offset Tolerance*: **Ideally <1.0**. Only points within this perpendicular distance from the line will be used. If the desired points are further from the centerline, enter a larger maximum offset tolerance
  - c. *Ignore Zero Elevations*: **Checked**
  - d. *Station by Another Reference Centerline*: **Unchecked**
  - e. *Type of Centerline*: **Roadway**
  - f. Click “**OK**” when the options are set
- 6) Select all the points to be used to create the profile (the ones near the line). Points can be selected individually or with a box selection.
- 7) Press “**Enter**” once all the points near the line have been selected.
- 8) The command line will display the following:

Found X points within offset tolerance.  
Found Y points outside offset tolerance
- 9) If you have the desired number of points within the offset tolerance proceed to step 10. If not, go back to step 2 and increase the Offset Tolerance in step 5.
- 10) To draw the profile: **{Section-Profile} → [Profiles] → <Draw Profile>**

- 11) Select the profile file that you created above. You may need to navigate to the file.
- 12) The “Draw Generic Profile” window appears. Starting in the upper left of the Draw Profile box set your profile options:
  - a. *Draw Grid*: **Check** this option. Draws a grid at specified intervals.
  - b. *Label Scale*: **Check** this option. Draws a scale indicator in the corner of the profile.
  - c. *Grid Direction*: The profiles are usually drawn **left to right** so keep that option checked.
  - d. *Draw Sheet*: Leave **Unchecked**. Draws profiles into paper space.
  - e. *Draw Horz Label Box*: Leave **Unchecked**. Draws box below the profiles with topographic information in it.
  - f. *Draw Break Pt Elev*: Typically **Unchecked**. Draws the elevations vertically on the profile at the break points.
  - g. *Ticks Only*: Tick marks are drawn instead of the grid lines.
  - h. *Match Line Elevations*: Typically **Unchecked**. For high relief profiles, this option will break the profile and redraw the remaining portion with its own vertical scale. Set the vertical elevation range when checked.
  - i. *Draw Break Pt Desc*: Typically **Unchecked**. Draws descriptions of the break points.
  - j. *Design Box*: Leave **Unchecked**. Displays information about breaks in a separate box.
  - k. *Offset Station Text*: Offsets Station text by 6 standard text heights.
  - l. *Offset Elev Text*: Offsets vertical axis text. Typically **Unchecked**.
  - m. *Station Text Orientation*: Controls the orientation of the station text. Set based on user preference.
  - n. *PVI ‘I’*: Leave **Unchecked**. Plots an upside down V at the inflection point.
- 13) **Setting the Scales**. Paper space available and use will dictate the scales used. Determine horizontal scale based on available paper space. Typical vertical exaggerations are 2:1, 5:1, and 10:1. Vertical scales are calculated by dividing the horizontal scale by the exaggeration factor. 1:1 scales are the easiest to work in but are not always feasible. Many times this can be an iterative process to get the profile to look acceptable.
  - a. *Horizontal Scale*. Determine horizontal scale based on available paper space (divide profile length by available paper length, round up). **Enter calculated or desired value**.
  - b. *Horiz Grid Interval*: Specify an even grid line spacing on the horizontal axis, typically the **same as Horizontal Scale** or multiple of it.

- c. *Horiz Text Interval*: This specifies the frequency of the text along the horizontal axis. **Set the same as the Horizontal Grid Interval** or a multiple of it.
- d. *Vertical Scale*: Vertical scales are calculated by dividing the horizontal scale by the exaggeration factor (10, 5, 2, 1). **Enter a vertical scale.**
- e. *Vert. Grid Interval*: Specify an even grid line spacing on the vertical axis, typically the **same as the Vertical Scale** or a multiple of it.
- f. *Vert Text Interval*: This specifies the frequency of the text along the vertical axis. **Set the same as the Vertical Grid Interval** or a multiple of it.
- g. *Axis Text Scaler*: Set to **0.125**
- h. *Label Text Scaler*: Set to **0.080**
- i. *Profiles to Draw*: Up to 3 profiles can be drawn together on a single grid. Selecting the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> buttons will enable you to draw profiles together.
- j. *Starting station*: Can be any station but the default is 0.00 (0+00).
- k. *Ending station*: Can be any station but the default is the last station in the profile file.

Layers option box at the bottom of the screen allows you to set the layers for the profiles, grid and text.

- 14) Click **“OK”** when done setting profile options.
- 15) **Enter the bottom elevation** of the grid to draw. Press **“Enter”** after the elevation. SurvCADD finds the lowest elevation in the profile and rounds down. If many features are going to be added below, consider lowering the bottom elevation.
- 16) **Enter the top elevation** of the grid to be drawn. Press **“Enter”** after the elevation. SurvCADD finds the highest elevation in the profile file and rounds up based on the bottom elevation specified. Increase elevation if needed.
- 17) Use the mouse to click the lower left corner of where the profile is to be drawn in model space (or type in coordinate and then press enter).
- 18) The profile is drawn. Inspect the profile and redo if necessary.