



## SurvCE – Manually Entering an Alignment

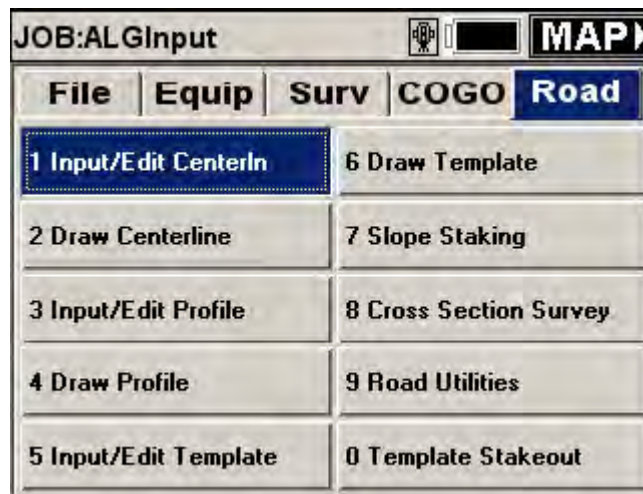
### Overview

Bringing alignment information into the data collector provides an opportunity to reference collected information by station and offset as well as lay out plan elements.

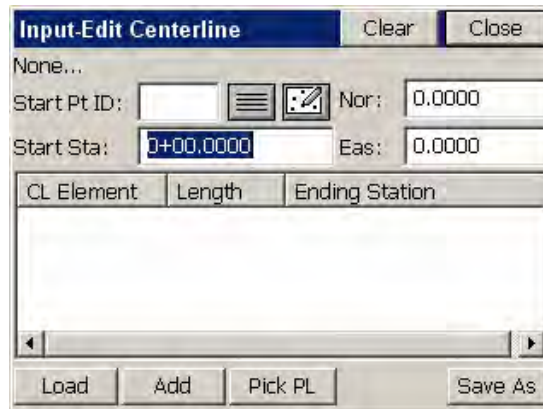
This procedure takes you through the steps to manually enter an alignment into a data collector running SurvCE software and edit an existing centerline.

### Creating a Centerline

1. Create an alignment report from the design application to get the starting station, key coordinates, and geometry data to enter and check the results.
2. Print the report for reference in the field. Keeping this report handy in the field will allow verification of your orientation.
3. Create or Select a data collector job.
4. Click on the Road tab



5. Click on **1 Input/Edit Centerline**  
The last centerline entered (if available) will be displayed.
6. To enter a new centerline, click **Clear**  
This will zero all the entries in the **Input-Edit Centerline** box.
  - a. To load an existing alignment click on Load



Input-Edit Centerline [Clear] [Close]

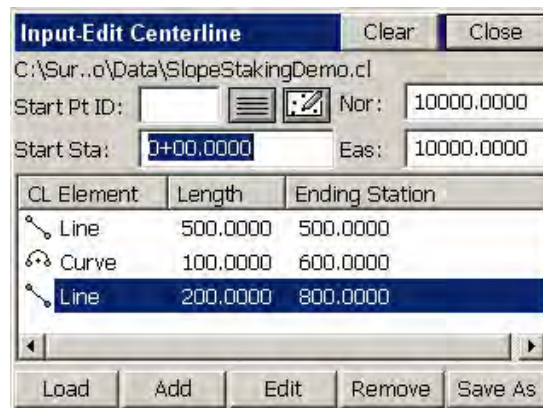
None...

Start Pt ID: [ ] [ ] [ ] Nor: 0.0000

Start Sta: 0+00.0000 Eas: 0.0000

CL Element	Length	Ending Station

[Load] [Add] [Pick PL] [Save As]



Input-Edit Centerline [Clear] [Close]

C:\Sur...o\Data\SlopeStakingDemo.cl

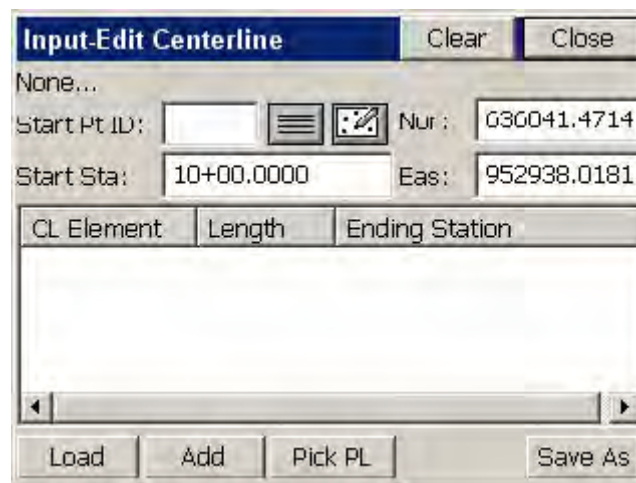
Start Pt ID: [ ] [ ] [ ] Nor: 10000.0000

Start Sta: 0+00.0000 Eas: 10000.0000

CL Element	Length	Ending Station
Line	500.0000	500.0000
Curve	100.0000	600.0000
Line	200.0000	800.0000

[Load] [Add] [Edit] [Remove] [Save As]

7. Reference the alignment report. If you have previously entered the beginning point into the data collector, enter it in the Start Pt ID field, otherwise enter the coordinates in the Nor: and Eas: fields
8. Enter the Starting Station



Input-Edit Centerline [Clear] [Close]

None...

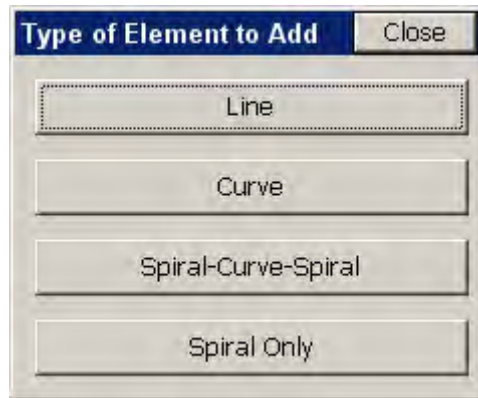
Start Pt ID: [ ] [ ] [ ] Nor: 030041.4714

Start Sta: 10+00.0000 Eas: 952938.0181

CL Element	Length	Ending Station

[Load] [Add] [Pick PL] [Save As]

9. Click the Add button to add definition
10. Select the first alignment element type.

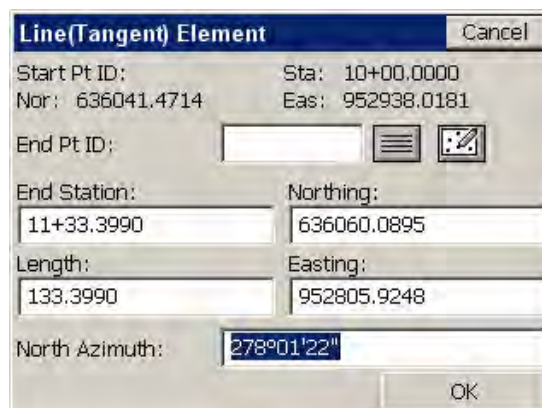


### Adding a tangent (Line) element

1. Select Line
2. Note and double-check the starting Station and coordinates to make sure these numbers were entered correctly before continuing on.
3. Enter the tangent definition.
  - a. If you have a point defined where this portion of the line will end, click on the 'List' icon or the Map icon and pick the point you want to use.
  - b. If no point exists, enter the **Length**
  - c. Enter the Bearing in the **North Azimuth** field
  - d. Enter the Bearing using **N dd.mmss E** format

For example: N 81.5838 W

SurvCE will automatically calculate the **North Azimuth** for you  
Enter the Length and bearing



Notice that SurvCE calculates the End Station and the Northing and Easting coordinates of the station that was just created.

4. Compare the design print out to what is calculated in SurvCE.



5. If the values don't match, click on **Cancel** to re-enter the tangent section.
6. When the values match, click **OK**.

This will open the **Input-Edit Centerline** box again. You can see below, SurvCE added the line section just entered under the **CL Element**.

CL Element	Length	Ending Station
Line	133.3990	1133.3990

### Adding a Curve Section

1. Click the **Add** tab
2. Select **Curve**

The **Curve Element** box opens.

3. Verify that the **PC Sta** matches the PC Station that is calculated on the design printout.
4. Specify which direction the curve runs, whether it's **Left** or **Right** by toggling the correct direction.

A negative (-) delta angle in the report represents a Left curve and a positive is a Right.

5. Enter the **Arc Len** (476.584) and **Delta angle** (54.3645) from the design print out.



6. SurvCE will calculate the **Rad** (Radius distance) and the coordinates of the **R** (Radius) point and **PT** (Point of Tangency), as well as the **PT Sta.**
7. If the R (Radius) point and or PT (Point of Tangency) pt are stored points, they may be entered to define the curve.
8. In most cases, toggle the **Tang. to prev.** check box **ON**.
9. Only in very specific situations, would you want the previous tangent bearing to be different than the curve back tangent. In these cases, you may toggle off the **Tang. to the prev** check box to create an angle point coincident to the PC (Point of Curvature).

NOTE: Using only the **Arc Lenth**, **Delta angle** and **Direction** is recommended. Most radius distances are rounded and not true and will not calculate the curve data correctly.

10. Verify that the coordinates of the R point and PT point match the design printout.
11. Click **OK**

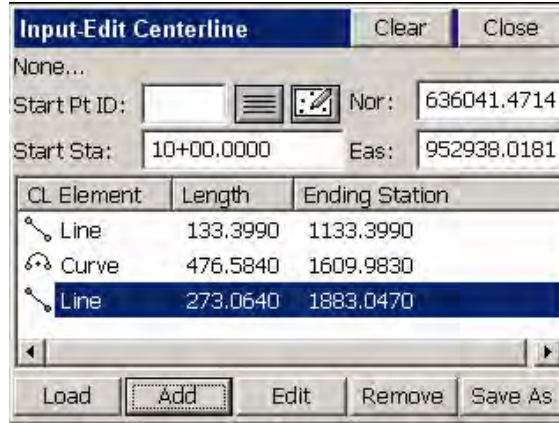
Notice the **Input-Edit Centerline** box lists the **CL Curve Element** just entered.

CL Element	Length	Ending Station
Line	133.3990	1133.3990
Curve	476.5840	1609.9830



### Complete the Alignment Definition

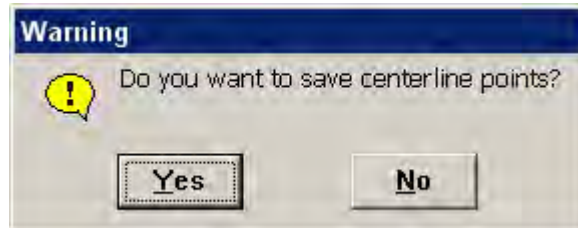
1. Continue adding elements until the alignment is complete and matches the report ending station and coordinates.



### Save the Alignment

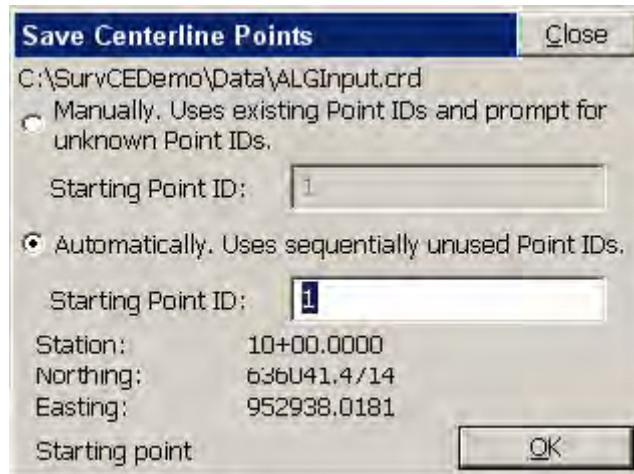
1. Click on **Save As** and key-in a name for this alignment
2. This creates an ALIGNName.cl file in the data collector
3. Click **OK** in the **Save CL File dialog** to complete the process.

The following **Warning** box may appear.



Click **Yes** if you want to store the centerline points

The **Save Centerline Points** box shown below will display.





When assigning point IDs, it is recommended to select the Automatic option and give the first point ID in the series. SurvCE will store each centerline point starting with that number.

### ***Edit an Existing Alignment***

1. In the Input-Edit Centerline dialog, select **Load**
2. Choose the Centerline \*.cl file
3. Use the **Add** button to continue defining the alignment
4. Select the CL Element and click on **Edit** to modify existing elements in the centerline
5. Click on **Save As** to save the changes.

The original centerline may be updated by overwriting the same file, or retained by saving the modified centerline to a new name.

For questions or comments on this tech note, contact HQ CAE Survey or your regional CAE Support Coordinator