

Importing As-Staked Points

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TUTORIAL



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About this tutorial

In this tutorial, you will import points that were staked in the field ("as-staked" points). Then you will review the deltas for the as-staked points and their corresponding design points to ensure the appropriate tolerances were achieved in the field.

Note: If you need additional help at any time you are using the software, press **F1** to display the online help.

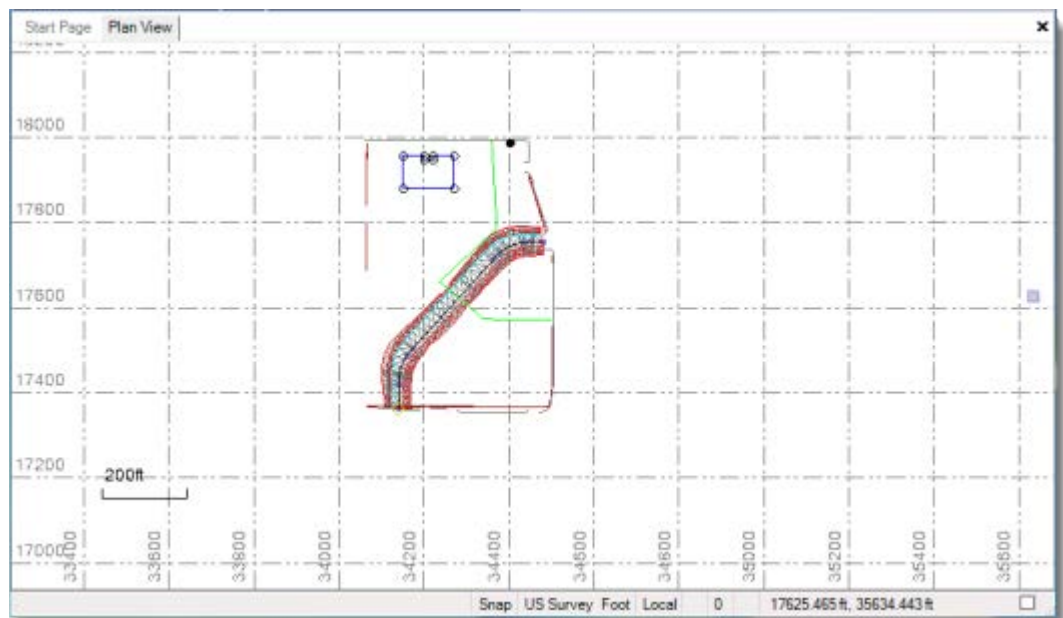
Step 1. Open the project

For this tutorial, you will use the project file *Importing As-Staked Points.vce*. This project contains the surface, alignment, and corridor created in the **Working with Corridors Tutorial**. Corner points for a building stakeout and a CAD line for a sanitary sewer have also been added.

1. On the **Spectra Precision Survey Office** menu bar, select **File > Open Project**. Or, click the **Open Project** icon  on the toolbar.
2. In the **Open File** dialog, browse to **C:\Spectra Precision Tutorials\SPSO\Projects\Importing As-Staked Points.vce** and click **Open**.

If you installed the tutorial to a location other than the default location shown here, browse to that location.

The project opens in the **Spectra Precision Survey Office** window. Use your mouse wheel to zoom in on the **Plan View** tab as shown here.

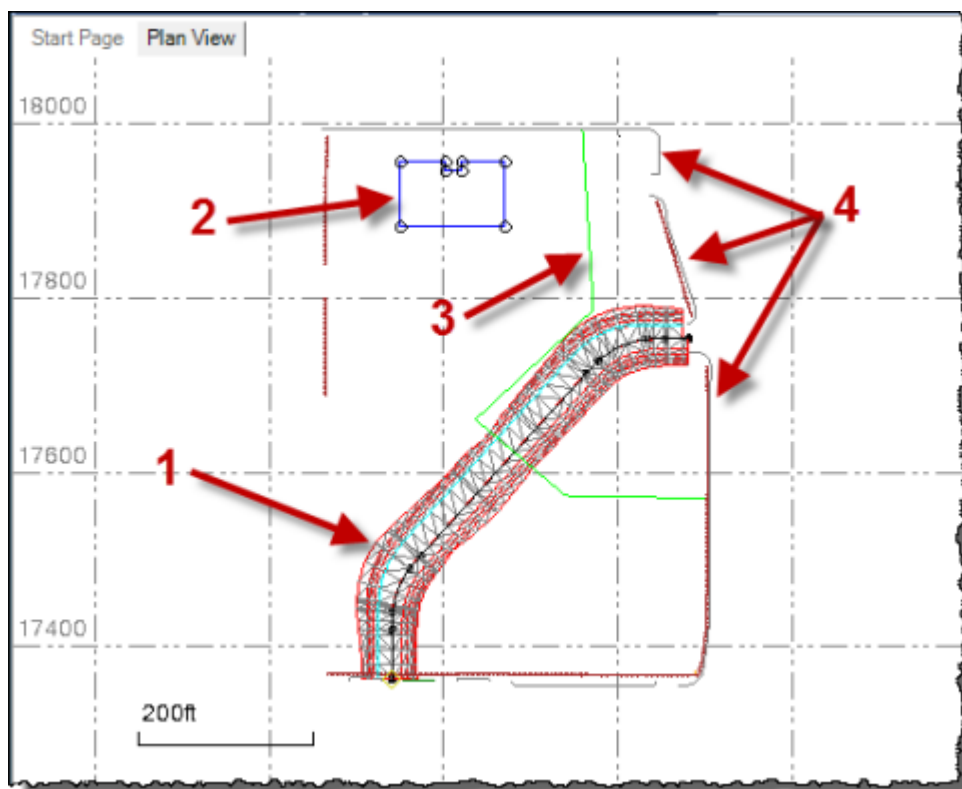


Note: This figure shows the **Plan View** with a white background. Your background may be black. If you want to change it to white, select **Tools > Options** and select **Background color: White** in the **Options** dialog.

The project file is read-only. You can perform the tutorial steps without saving the project file. However, if you are interrupted while performing the tutorial, you can save it by selecting **File > Save Project As** and saving it to **..My Documents\Spectra Precision Survey Office**, which is the typical location for storing project files on your computer. Then, you can re-open the project to continue the tutorial at a later time.

Step 2. Specify as-staked point tolerances

This project includes the design layout for a corridor (1 below), eight points for a building stakeout (2), and a CAD line for a sanitary sewer stakeout (3). The sewer line is intended to be staked out at a 10-ft right horizontal offset. The project also includes existing curb and fence lines (4).




Note: Point labels and other objects have been hidden using the **View Filter Manager** to make the design layout easier to see.

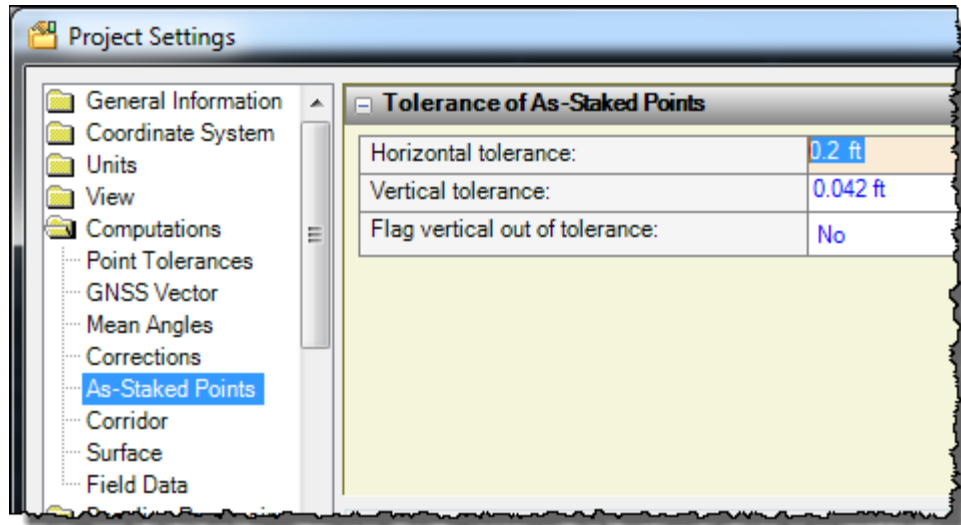
When as-staked point data is gathered in the field, the field software computes deltas for the as-staked points and their corresponding design points. When you import the field data into the project, the software identifies with a red flag and/or red label text any as-staked points whose deltas exceed the as-staked point tolerance you specify in the **Project Settings** dialog.

Step 3. Import as-staked point data

Since this is the initial (rough grade) stakeout for this project, you are not concerned with vertical tolerances, and 0.20 ft should be adequate for a horizontal tolerance. Later, after initial excavation is complete, surveyors will be able to perform another stakeout for which you will specify a vertical tolerance and a smaller horizontal tolerance.

To specify as-staked point tolerances, follow these steps:

1. Select **Project > Project Settings**. Or, click the **Project Settings** icon  on the toolbar.
2. In the **Project Settings** dialog, select **Computations > As-Staked Points**.
3. In the **Horizontal tolerance** field, enter *0.2*.




There is no need to change the **Vertical tolerance** since you will leave the **Flag vertical out of tolerance** option set to **No**.

4. Click **OK** to close the **Project Settings** dialog.


You are now ready to import the as-staked point data into your project.

Step 3. Import as-staked point data

In this step, you will import a JobXML (.jxl) file containing as-staked points and their corresponding design points, along with coordinate deltas.

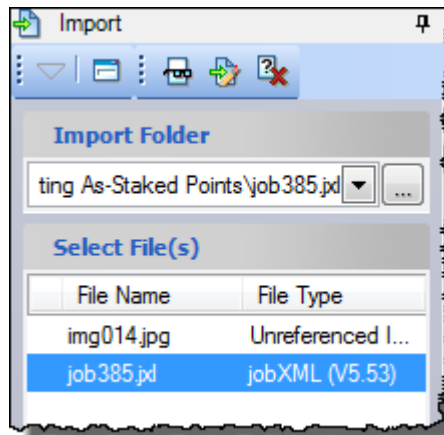
1. Select **File > Import**. Or, click the **Import** icon  on the toolbar.

The **Import** pane displays in the right side of the **Spectra Precision Survey Office** window.

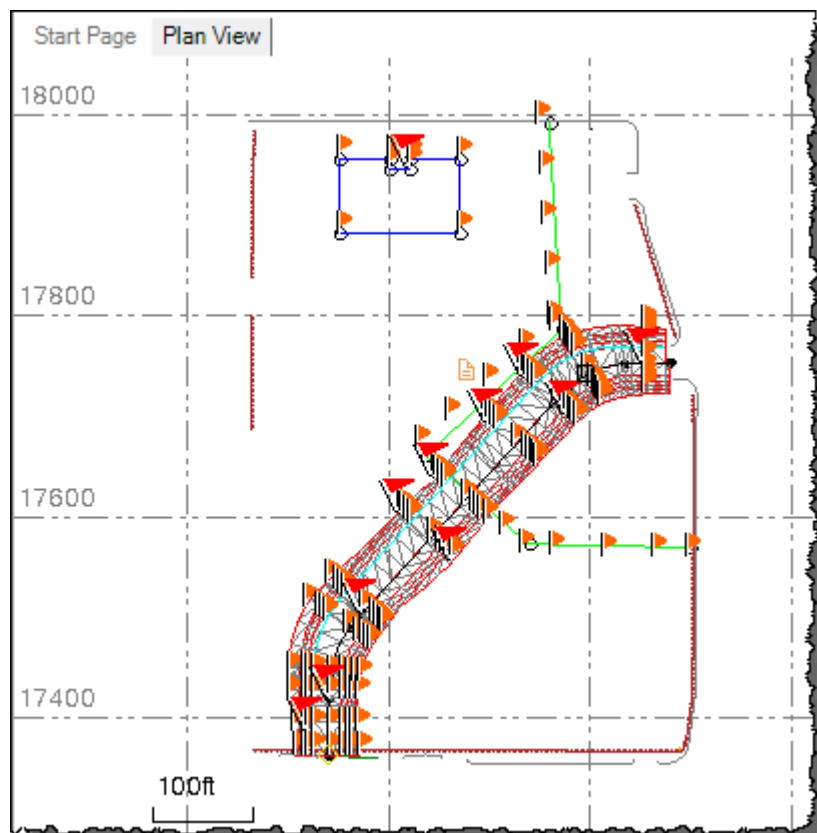
2. In the **Import** pane, click the **Browse** button .
3. In the **Browse for Folder** dialog, browse to **C:\Spectra Precision Tutorials\SPSO\Data\Importing As-Staked Points** and click **OK**.

Step 3. Import as-staked point data

The content of the *Importing As-Staked Points* folder displays in the **Select File(s)** list in the **Import** pane.



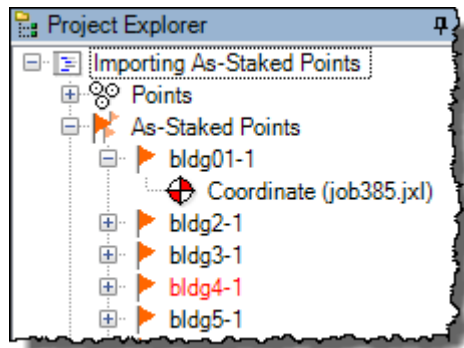
4. In the **Select File(s)** list, select *job385.jxl* and click the **Import** button.
 5. In the **Project Coordinate System** dialog, select the **Keep the existing project definition** option and click **OK**.
 6. In the **Import Errors** dialog, click **No**.
- The import of the as-staked point data is complete.
7. Using your mouse wheel, zoom in on the **Plan View** as shown here.



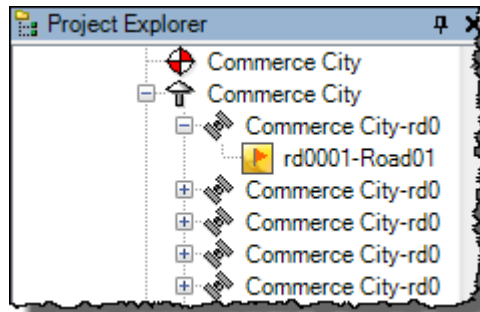
Next you will explore the various ways of viewing the imported as-staked point data.

Step 4. View as-staked point data

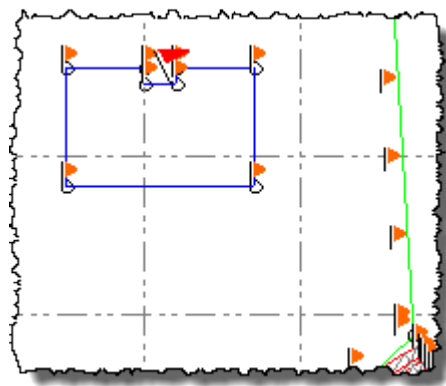
In the **Project Explorer** (select **View > Project Explorer**), as-staked points and their associated observations are displayed as nested nodes beneath the **As-Staked Points** node.



As-staked points are also represented in the **Project Explorer** by "note" nodes nested beneath their associated observation nodes in the **Imported Files** lists.

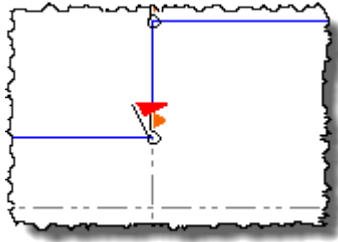


In the **Plan View**, as-staked points are represented by orange flag icons.

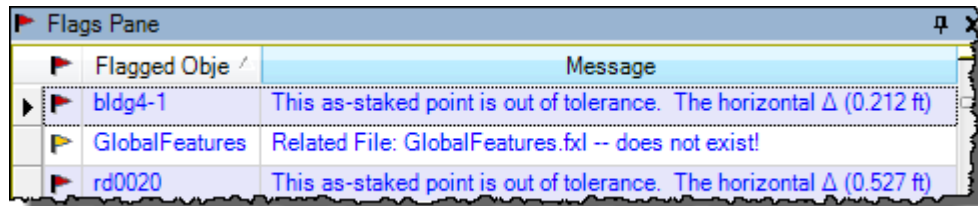


Step 5. View out-of-tolerance as-staked points

If the coordinates for an as-staked point and its corresponding design point are not within the tolerances you specified in the **Project Settings** dialog, the as-staked point includes an out-of-tolerance flag. In this project, a red flag is displayed for each as-staked point whose horizontal tolerance exceeds 0.20 ft.



To see a list of all flagged items in the project, including as-staked points that are out of tolerance, select **View > Flags Pane**. The **Flags Pane** displays beneath the **Plan View** tab.



As-staked points are also included in the **Point Spreadsheet** (select **View > New Points Spreadsheet**).

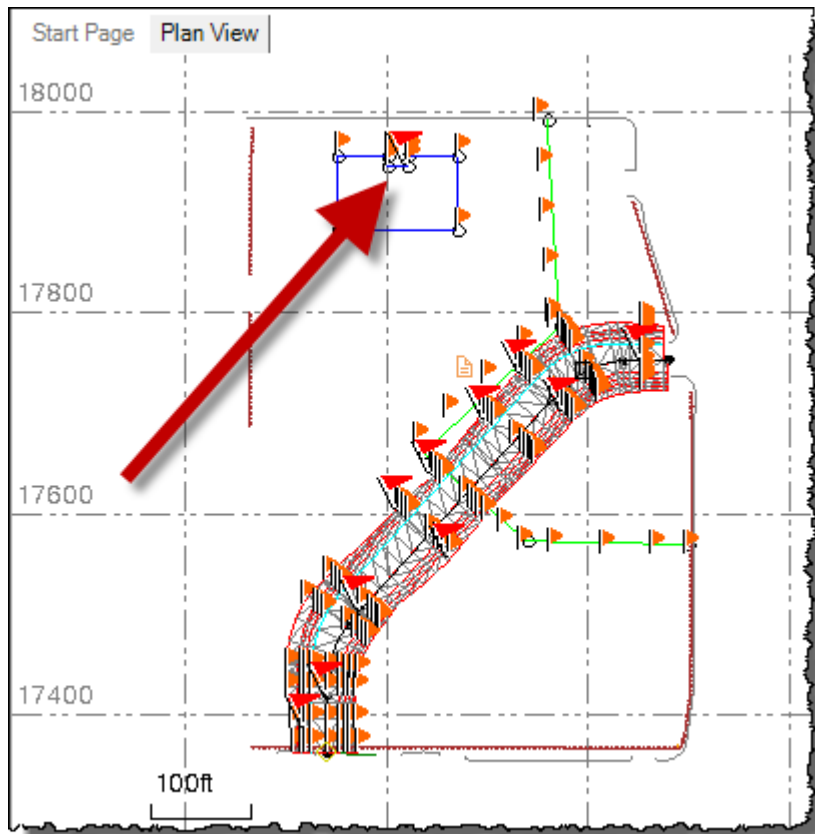
To view properties for an as-staked point, right-click the point in the **Plan View**, **Project Explorer**, or **Flags Pane** and select **Properties**.

Step 5. View out-of-tolerance as-staked points

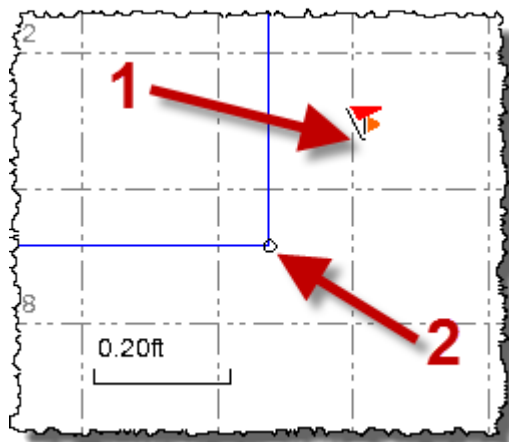
Now you will take a closer look at some as-staked points that are out of tolerance.

Step 5. View out-of-tolerance as-staked points

1. Use your mouse wheel to zoom in on the flagged as-staked point located on the north side of the building stakeout.



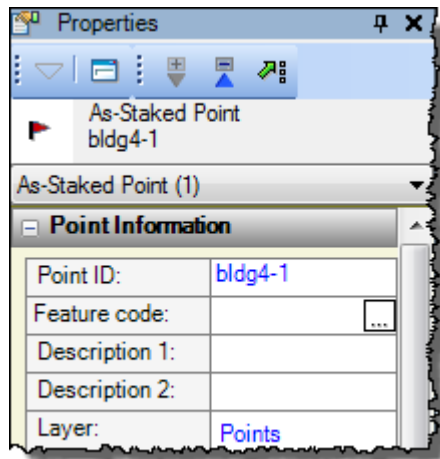
Zoom in farther until the as-staked point (1 below) and its corresponding design point (2) are clearly visible.



You can see that the as-staked point is approximately 0.20 ft out of horizontal tolerance with the design point.

Step 5. View out-of-tolerance as-staked points

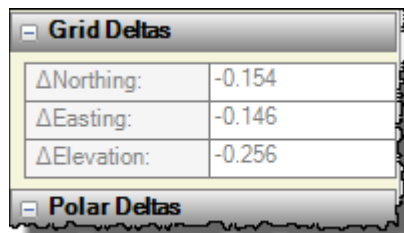
2. Select the flagged as-staked point, right click, and select **Properties**.



As shown in the **Properties** pane, the selected as-staked point ID is *bldg4-1*. Its corresponding design point ID is *bldg4*.

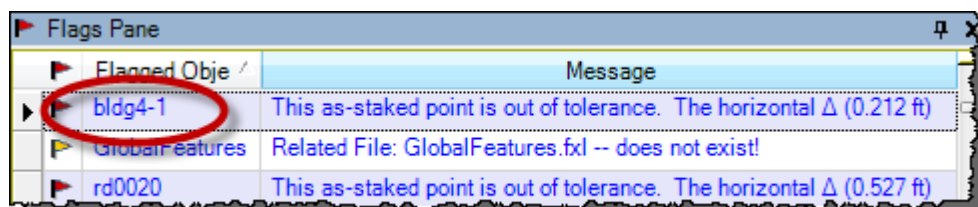
Note: When importing an as-staked point with the same ID as its corresponding design point, the as-staked point ID is appended with *1*.

3. If necessary, use the scroll bar to display the **Grid Deltas** section.



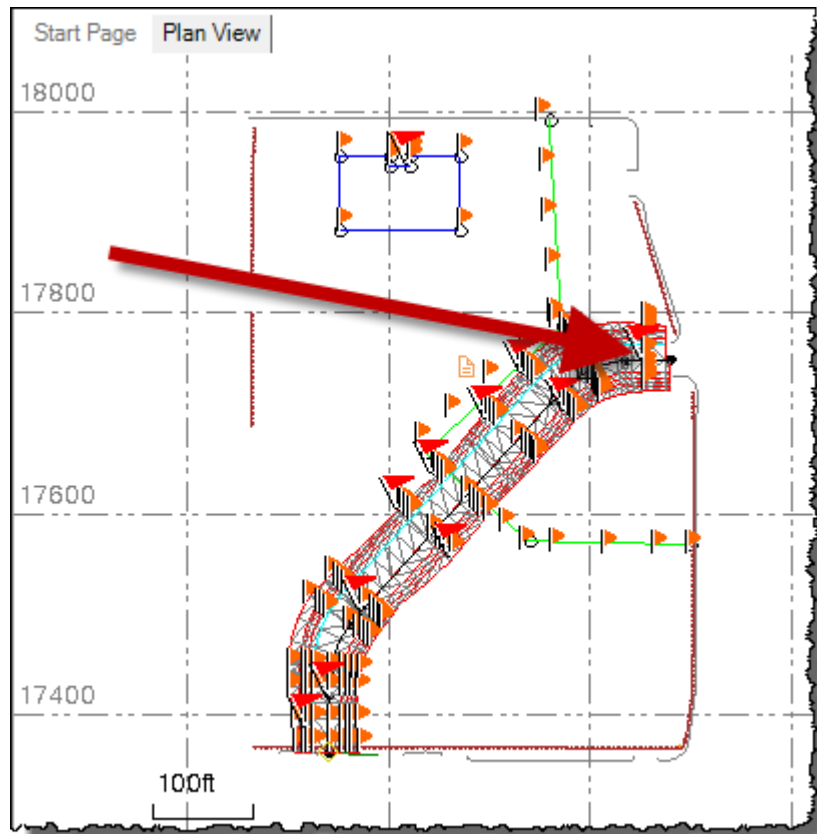
4. Select **View > Flags Pane**.

A horizontal delta of *0.212 ft* is displayed for as-staked point *bldg4-1*. This exceeds the specified tolerance of *.020 ft*.



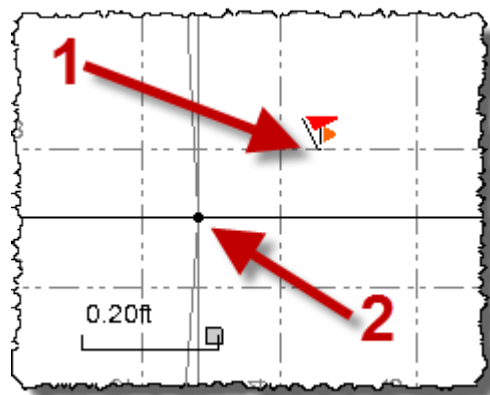
Step 5. View out-of-tolerance as-staked points

Next, you will take a look at a flagged as-staked point on the center line in the corridor at station 5+36.89.



5. Use your mouse wheel to zoom in until the as-staked point (1 below) and its corresponding design station (5+36.89) and centerline offset (0) on the corridor (2 below) are clearly visible.

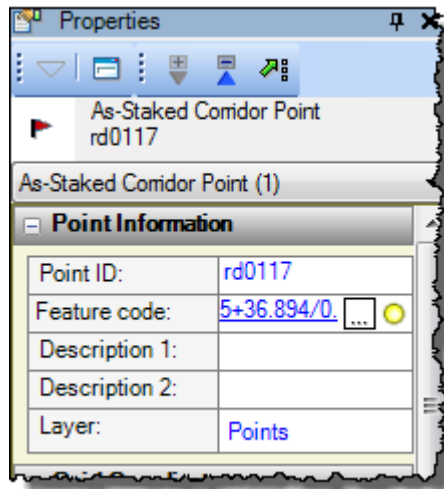
Note: If you have trouble identifying these points in the **Plan View**, select **View > View Filter Manager** and select the **Show feature code** option on the **Point** tab.



You can see that the as-staked point is approximately 0.20 ft out of horizontal tolerance with the centerline at station 5+36.89.

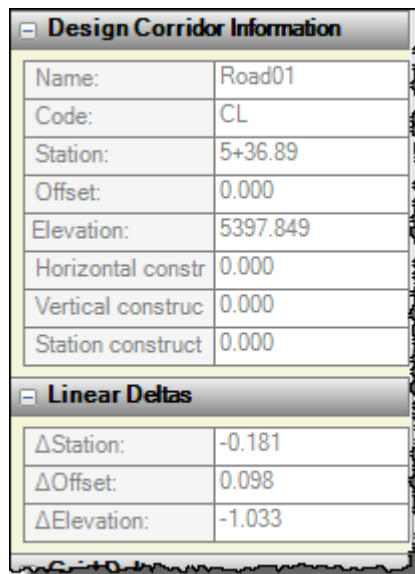
Step 5. View out-of-tolerance as-staked points

6. Select the flagged as-staked point, right click, and select **Properties**.

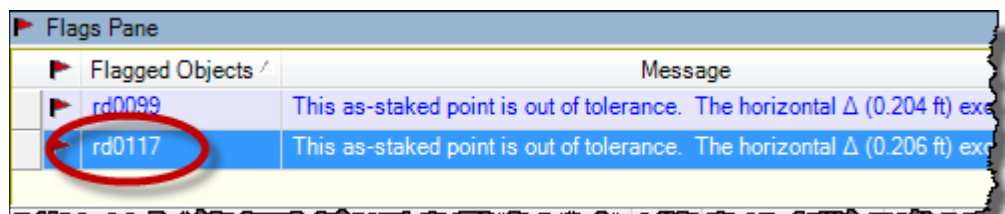


As shown in the **Properties** pane, the selected as-staked point ID is *rd0117*.

7. If necessary, use the scroll bar to display the **Design Corridor Information** and **Linear Deltas** sections.



8. In the **Flags Pane**, scroll to the bottom of the list to see as-staked point *rd0017*. A horizontal delta of *0.206 ft* is displayed for the point. This exceeds the specified tolerance of *.020 ft*.



Now you will look at the as-staked reports.

Step 6. View as-staked reports

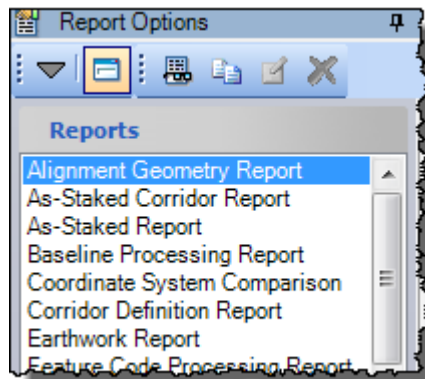
Two as-staked reports are available:

- **As-Staked Report** - This report includes all as-staked points in the project. It does not allow you to add or change columns in the report.
- **As-Staked Corridor Report** - This report includes only the as-staked corridor points in the project. It allows you to add or change columns to provide even more detail.

You will first view the **As-Staked Corridor Report**. But before you do, you will take a look at how you can customize the report to meet your specific needs.

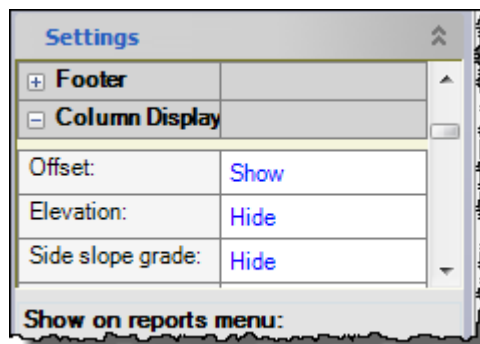
Note: To run either as-staked report, you must have a licensed version of **Spectra Precision Survey Office**.

1. Select **Reports > Report Options**.



2. In the **Report Options** pane, select **As-Staked Corridor Report** in the **Reports** list. Then click to expand the **Column Display Options** section.

All possible column headings are shown, allowing you to select to show or hide them in the report.



3. For this project, you will not make any changes, so click **Cancel**.

Step 6. View as-staked reports

You are now ready to view the **As-Staked Corridor Report**. When viewing a report, you have the option of first selecting the points you want to include in the report, or not making any point selection so that all of the points are included. For this tutorial, we want to include all of the corridor as-staked points, so no points should be selected.


- 4. To ensure no points are selected, click somewhere in the **Plan View** other than upon a selectable object (for example, click the background).
- 5. Select **Reports > As-Staked Corridor Report**.

The **As-Staked Corridor Report** displays on a new tab.

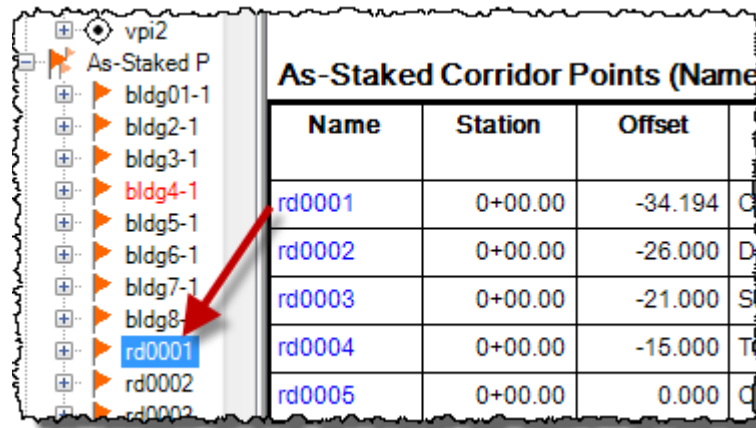
The screenshot shows a software window titled "As-Staked Corridor Report" with a toolbar at the top containing navigation and printing icons. Below the toolbar, the report title "As-Staked Corridor Points (Name: Road01)" is displayed. The main content is a table with the following data:

Name	Station	Offset	Feature Name	Cut/Fill	ΔStation
rd0001	0+00.00	-34.194	CP	0.117	-0.055
rd0002	0+00.00	-26.000	Ditch	-2.443	-0.027
rd0003	0+00.00	-21.000	Shoulder	-1.578	0.000
rd0004	0+00.00	-15.000	Travel Lane	-1.134	0.002
rd0005	0+00.00	0.000	CL	-0.074	-0.174
rd0006	0+00.00	12.000	Travel Lane	-0.506	-0.006
rd0007	0+00.00	18.000	Shoulder	-1.152	-0.013
rd0008	0+00.00	23.000	Ditch	-1.833	0.065

When viewing the **As-Staked Corridor Report**, note the following:

- By default, the **As-Staked Corridor Report** opens in **Print Preview** to better facilitate scrolling long reports. However, to enable the links in the report, you must first change the layout to the **Normal** view. In the toolbar at the top of the **As-Staked Corridor Report** tab, click the **Print Layout** button  to toggle to **Normal** view.

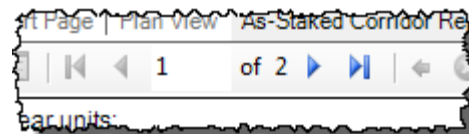
- In **Normal** view, if you click a colored as-staked point name, that point is selected in the project.



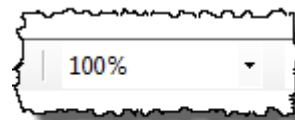
- Red text for station deltas (1 below) and offset deltas (2) indicates the as-staked point is out of horizontal tolerance and has been flagged in the project.

-0.981	-0.007	0.027	0.00
-1.415	-0.015	0.068	0.00
-1.213	0.493	0.187	0.00
-2.412	-0.056	0.040	0.00
0.031	-0.027	0.025	0.00

- If the report contains more than one page, the navigational controls located at the top of the report allow you to move from page to page.



- To increase or decrease the magnification of the view, use the **Zoom** control located at the top of the report.



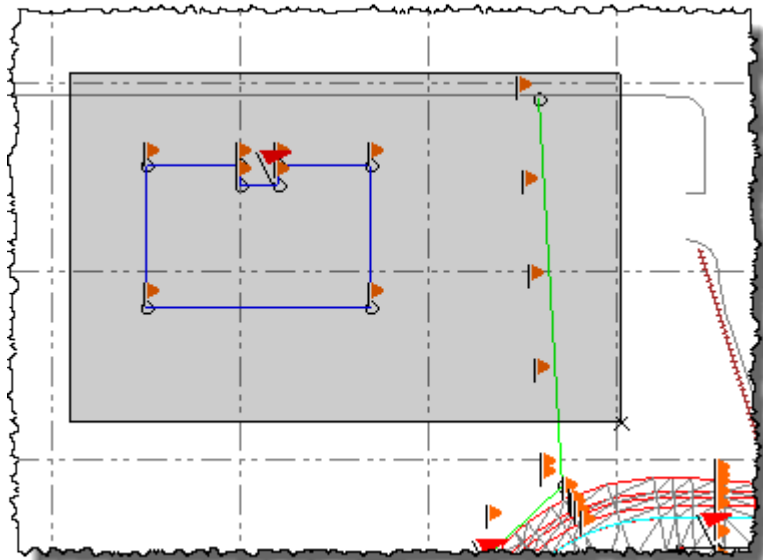
- To print the report, or export it to an Excel spreadsheet or Acrobat PDF file, use the controls located at the top of the report. This is useful if you want to provide the report to a client or other team member.



Next you will look at the **As-Staked Report**.

6. In the **Plan View**, select the building points along with some of the sanitary sewer points by drawing a box around them.

Only these points will be included in the report.



7. Select **Reports > As-Staked Report**.

The **As-Staked Report** displays on a new tab.

8. Take a moment to look at the information contained in the report.

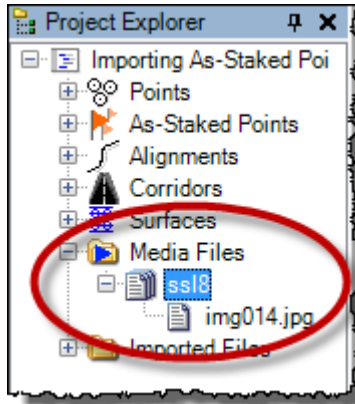
You are done viewing the as-staked reports. Next you will view a media file contained in the project.

Step 7. View a media file

The project includes a photograph of a stake being placed in the field, which you can open from various locations, including the **Project Explorer** and the **Plan View**. In this step, you will learn how to access and view the photo from both of these locations.

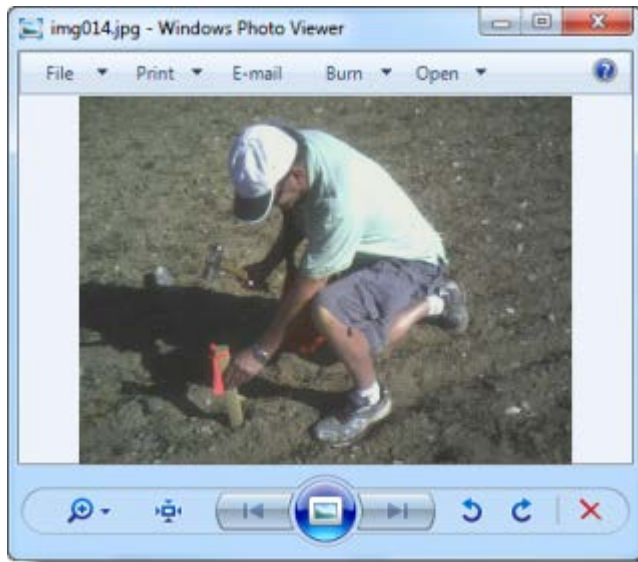
Step 7. View a media file

1. In the **Project Explorer (View > Project Explorer)**, expand the **Media Files** node and the *ss18* media folder node nested beneath it.



ss18 is an as-staked point for the sanitary sewer. This is where the photo was taken.

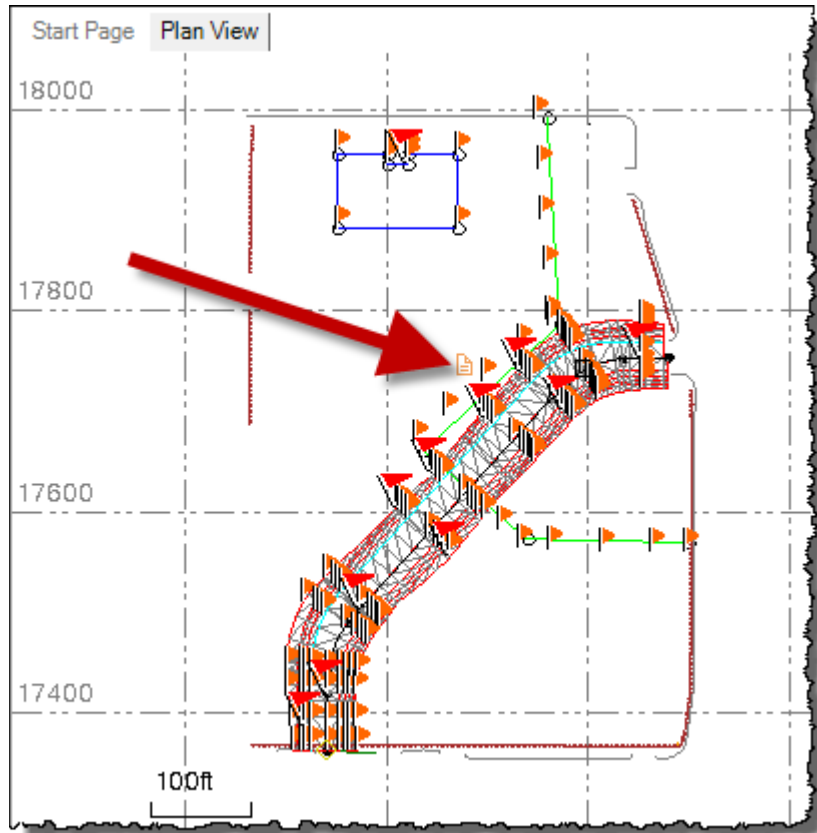
2. Right-click *img014.jpg* and select *Open img014.jpg* to view the photo in your default photo viewer



3. Close the photo viewer window.

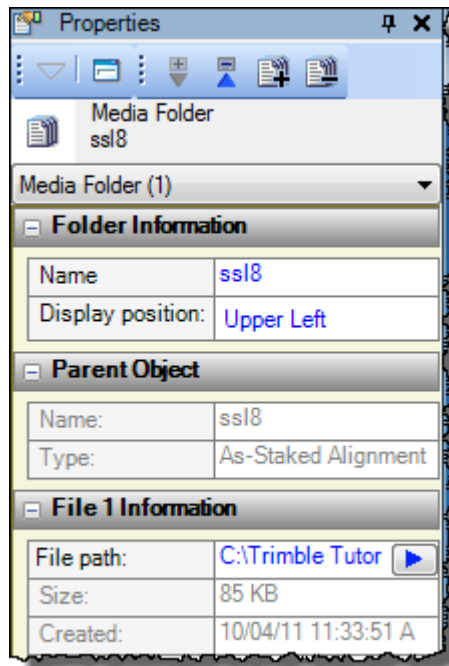
You will now access the same photo from the **Plan View**, and view properties for the media folder.

4. In the **Plan View**, select the orange media folder icon (*Media Folder: ss18*), which is next to the as-staked sanitary sewer point *ss18* (see below). Then right-click and select **Properties**.



Step 8. View as-staked points in 3D

The **Properties** pane for media folder *ssl8* is displayed.



5. Click the button located to the right of the **File path** to view the photo in your default photo viewer.

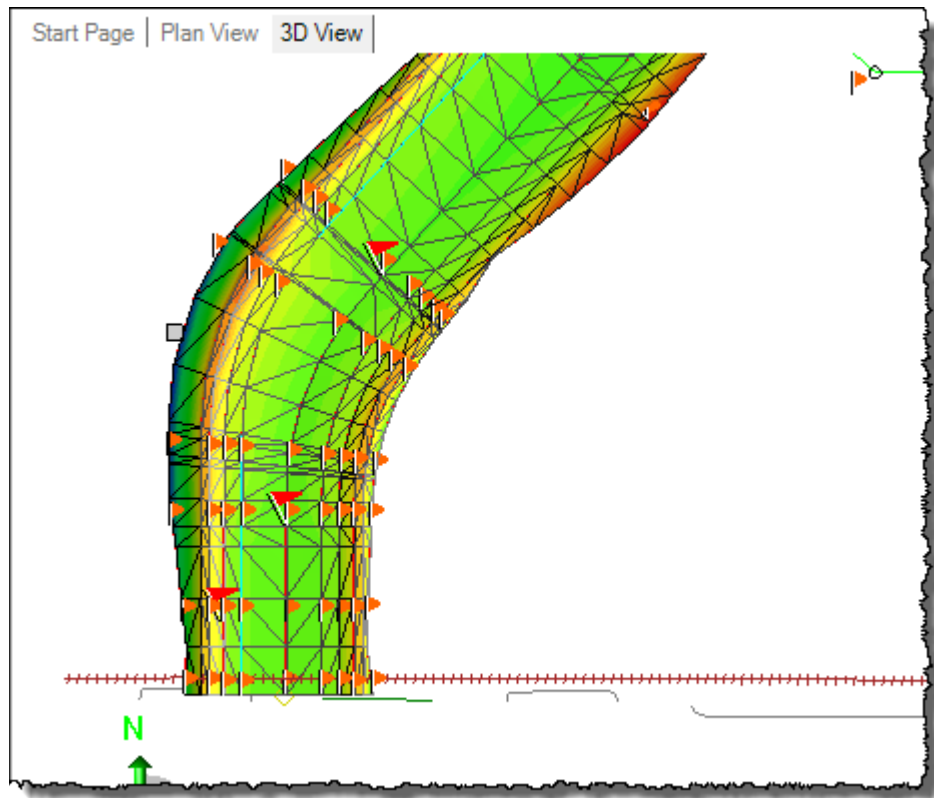
Next you will view the corridor in **3D View**.

Step 8. View as-staked points in 3D

To see how the corridor design compares to the existing ground as it was staked, you will look at the corridor using the **3D View**.

Step 8. View as-staked points in 3D

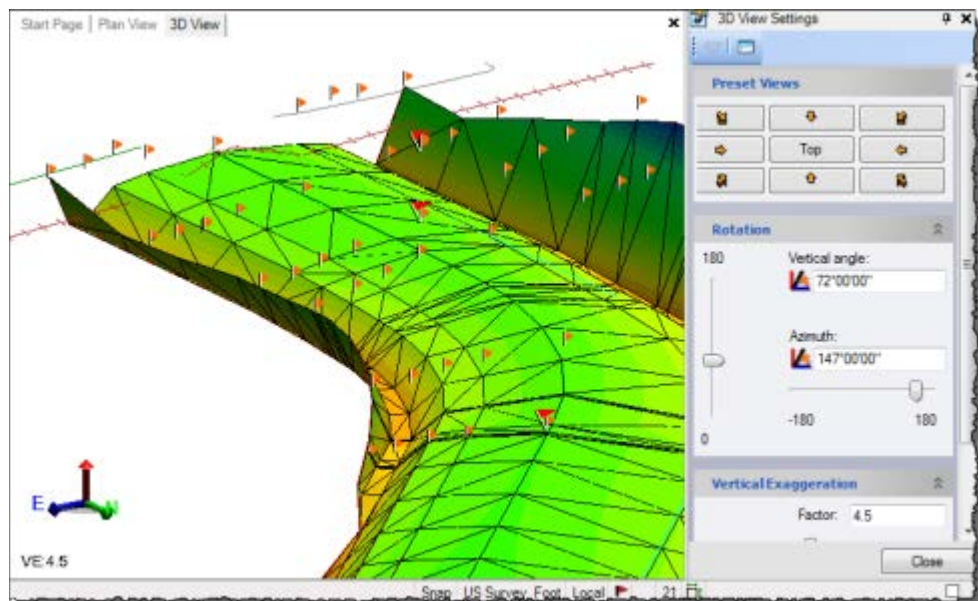
1. Select **View > New 3D View**. Then use your mouse wheel to zoom in on the corridor as shown here.



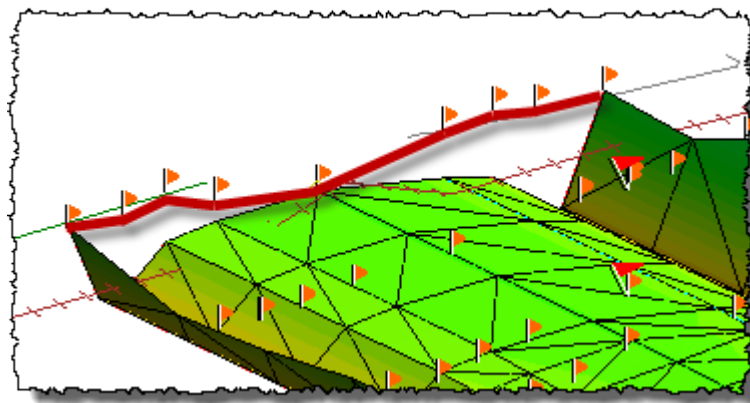
2. Select **View > 3D View Settings**.
3. In the **3D View Settings** pane, do the following:
 - a. In the **Vertical angle** field, enter 72.
 - b. In the **Azimuth** field, enter 147.
 - c. In the **Factor** field, enter 4.5.

Step 8. View as-staked points in 3D

4. Use your mouse wheel to zoom in on the beginning of the corridor (station 0+00.00) as shown here.



In this view, you can see how the existing ground (as identified by the red line drawn through the as-staked points below) differs from the corridor design at station 0+00.00.



You are done viewing as-staked points in your project.

5. Select **File > Close Project**.

The **Save Changes** dialog displays. If you saved the project to a new location or with a new name, you can click **Yes**. Otherwise, click **No**.