

Importing As-Staked Points

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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.

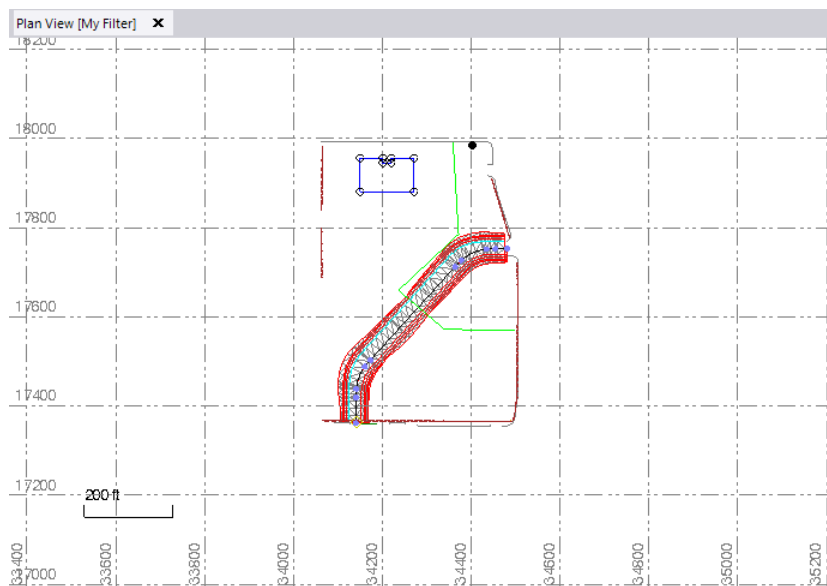
Step 1. Open the project

For this tutorial, you will use the project file *Importing As-Staked Points.vce*, which contains a surface, an alignment, and a corridor, along with corner points for a building stakeout and a CAD line for a sanitary sewer.

Note: The downloaded *ImportingAsStakedPoints* folder contains this PDF file, a *Data* folder, and the *Importing As-Staked Points.vce* project file. You will import data from the *Data* folder later in this tutorial.

1. In SO, select **File > Open**.
2. In the **Open File** dialog, browse to `..\ImportingAsStakedPoints\Importing As-Staked Points.vce` and click **Open**.

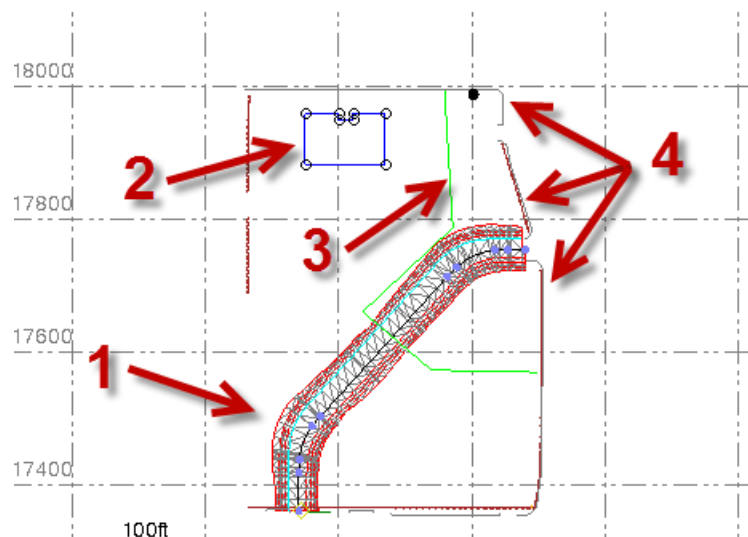
The project opens in the **Survey Office** window. Use your mouse wheel to zoom in on the **Plan View** tab as shown here.



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 with a new name by selecting **File > Save Project As**. 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.

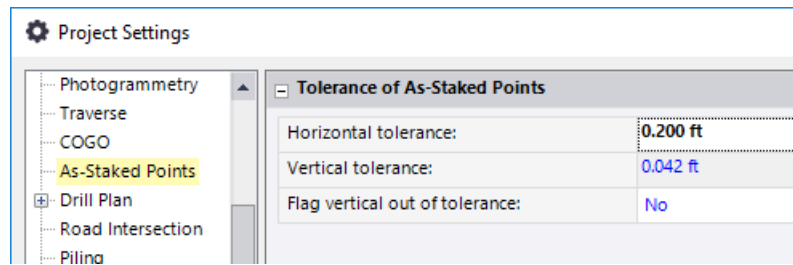
When as-staked point data is gathered in the field, the field software computes deltas for the as-staked points and their corresponding design points. When you import the field data into the project, the software identifies with a red flag and/or red label text any as-staked points whose deltas exceed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

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. In the **Quick Access Toolbar** (located at the top of the **Survey Office** window), select **Project Settings**.
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

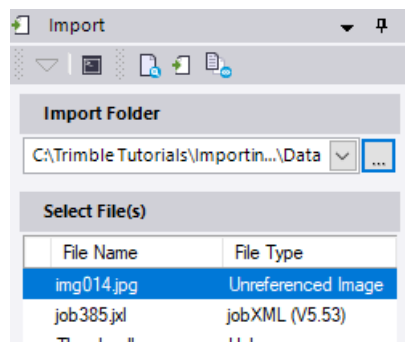
In this step, you will import a JobXML (.jxl) file containing as-staked points and their corresponding design points, along with coordinate deltas.

1. Select **Home > Data Exchange > Import**.

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

2. In the **Import** pane, click the **Browse** button .
3. In the **Browse for Folder** dialog, browse to `..\ImportingAsStakedPoints\Data` and click **OK**.

The content of the *Data* 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**.

The **Merge Points** dialog displays.

Merge Points from job385.jxl Using By Point Tolerance x 3

<input checked="" type="checkbox"/>	Merge	Point Pair	H. Distance	V. Di
<input type="checkbox"/>		101	748.753 ft	▲
<input type="checkbox"/>		102	294.771 ft	▲
<input type="checkbox"/>		103	249.882 ft	▲
<input checked="" type="checkbox"/>		bldg01	0.000 ft	?
<input checked="" type="checkbox"/>		bldg2	0.000 ft	?

When you import a new data file into a project that includes a point with the same name as an existing point in the project, depending on your project configuration and the type of file you are importing, the **Merge Points** dialog may display showing all duplicate points. In the dialog, a check mark identifies each point pair that will be merged into a single point with the same name that includes the existing and new observations.

Optionally, you can remove the check mark from any duplicate point to specify that the duplicate point be imported as a new point with the same name as the existing point.

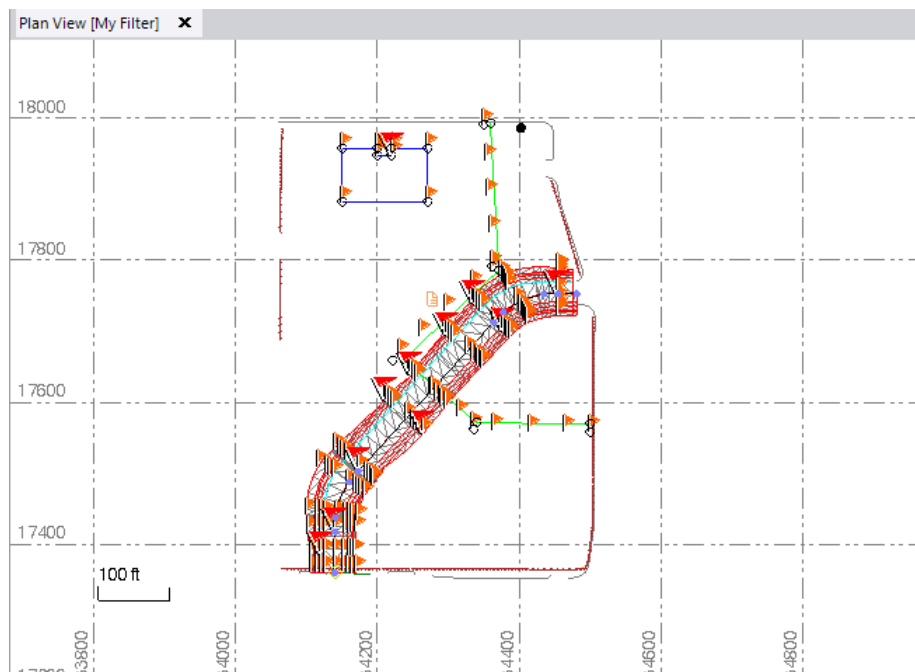
You can also select to rename a duplicate point using a variety of options. Instead of being merged with the existing project point, the duplicated point is imported with the new name.

For this tutorial, you will not make any changes.

6. In the **Merge Points** dialog, click **Import**.
7. In the **Import Errors** dialog, click **No**.

The import of the as-staked point data is complete.

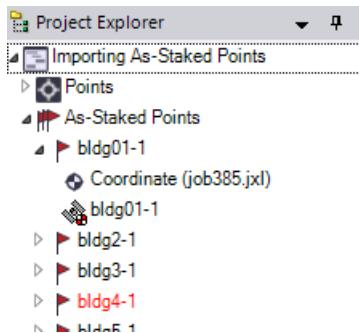
8. Using your mouse wheel, zoom in on the **Plan View** as shown here.



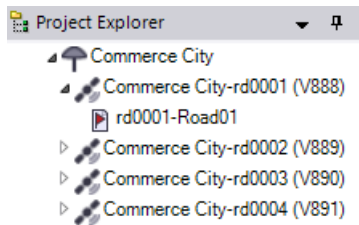
Next you will explore the various ways of viewing the imported as-staked point data.

Step 4. View as-staked point data

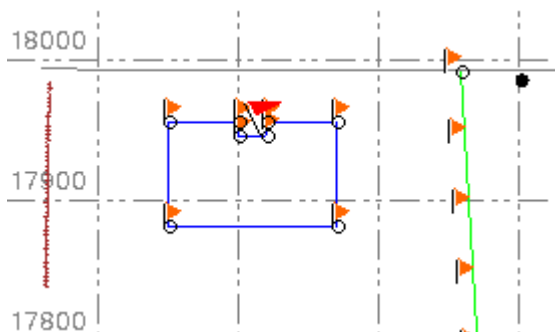
In the **Project Explorer** (select **Home > Data > Project Explorer**), as-staked points and their associated observations are displayed as nested nodes beneath the **As-Staked Points** node.



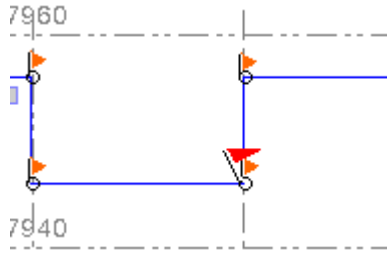
As-staked points are also represented in the **Project Explorer** by "note" nodes nested beneath their associated observation nodes in the **Imported Files** lists.








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



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 **Home > View > Flags Pane** . The **Flags Pane** displays beneath the **Plan View** tab.

Flags Pane	
Flagged Objects	
 bldg4-1	This as-staked point is out of tolerance. The horizontal Δ (0.
 GlobalFeatures.fxl	Related File: GlobalFeatures.fxl -- does not exist!
 rd0020	This as-staked point is out of tolerance. The horizontal Δ (0.
 rd0027	This as-staked point is out of tolerance. The horizontal Δ (0.

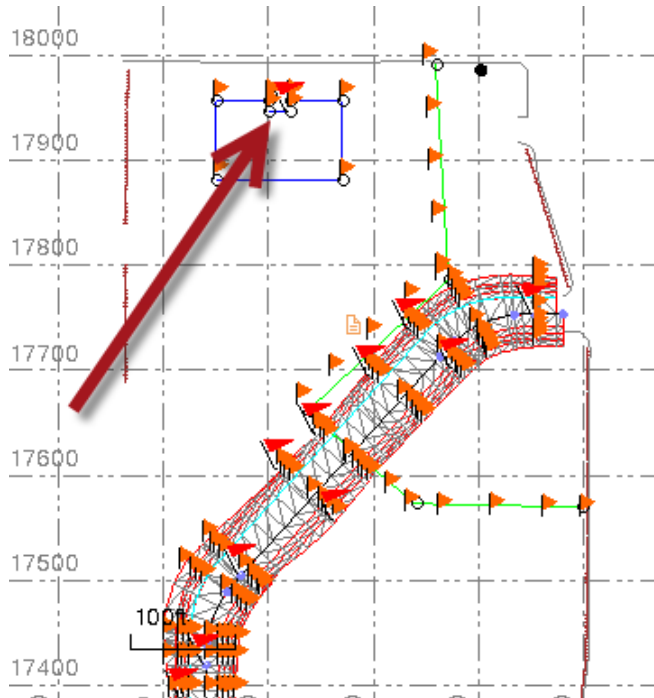
As-staked points are also included in the **Point Spreadsheet** (select **Home > Data > Points**).

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

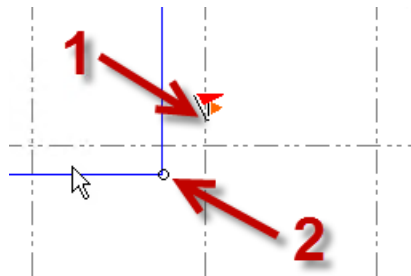
Step 5. View out-of-tolerance as-staked points

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

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

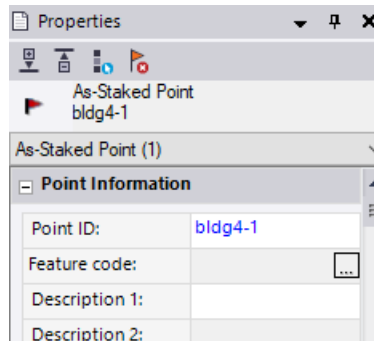


Zoom in farther until the as-staked point (1 below) and its corresponding design point (2) are clearly visible.



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

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.

Grid Deltas	
ΔNorthing:	-0.154
ΔEasting:	-0.146
ΔElevation:	-0.256

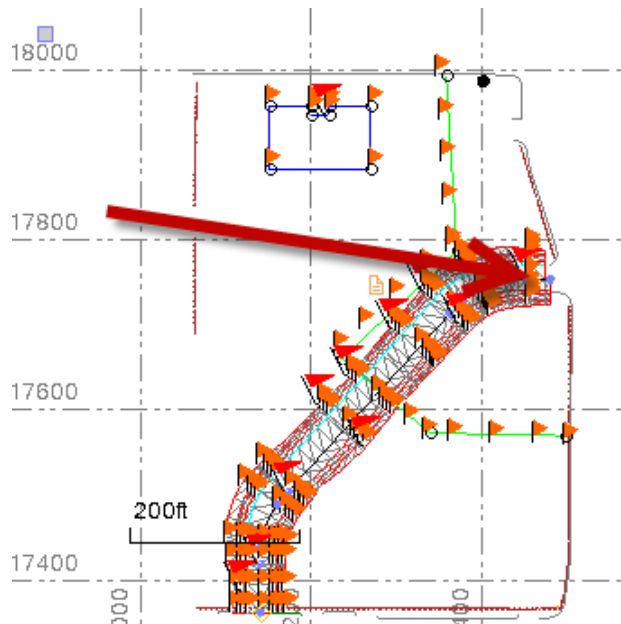
[-] Polar Deltas

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

A horizontal delta of *0.212 ft* is displayed for as-staked point *bldg4-1*. This exceeds the specified tolerance of 0.20 ft.

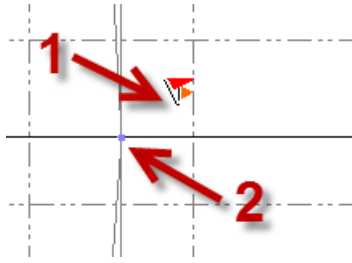
Flags Pane	
Flagged Objects	
bldg4-1	This as-staked point is out of tolerance
GlobalFeatures.xml	Related File: GlobalFeatures.xml -- does
...	This as-staked point is out of tolerance

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



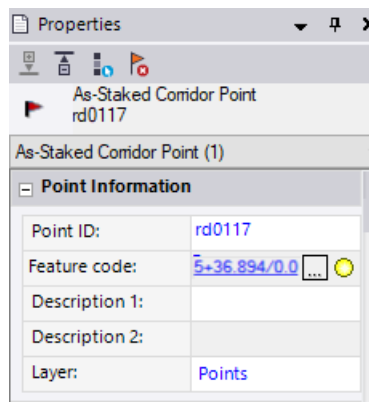
5. Use your mouse wheel to zoom in until the as-staked point (1 below) and its corresponding design station (5+36.89) and centerline offset (0) on the corridor (2 below) are clearly visible.

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



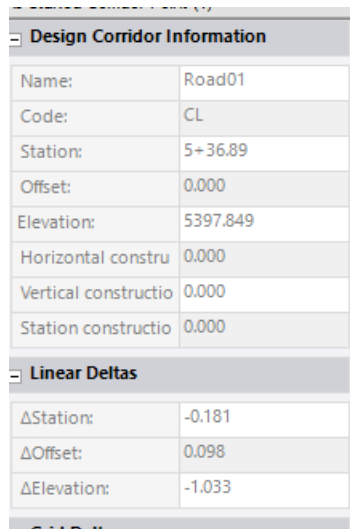
You can see that the as-staked point is approximately 0.20 ft out of horizontal tolerance with the centerline at station 5+36.89.

6. Select the flagged as-staked point.



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 *rd0117*. A horizontal delta of *0.206 ft* is displayed for the point. This exceeds the specified tolerance of 0.20 ft.

Flags Pane	
Flagged Objects	
rd0099	This as-staked point is out of tolerance.
rd0117	This as-staked point is out of tolerance.
rd0093	This as-staked point is out of tolerance.

Now you will look at the as-staked reports.

Step 6. View as-staked reports

Two as-staked reports are available:

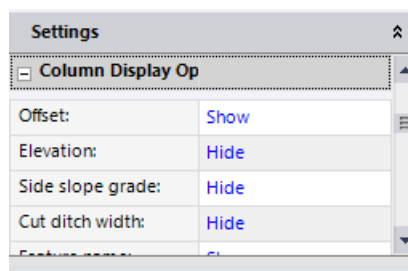
- **As-Staked Report** - This report includes all as-staked points in the project. It does not allow you to add or change columns in the report.
- **As-Staked Corridor Report** - This report includes only the as-staked corridor points in the project. It allows you to add or change columns to provide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

1. In the **Quick Access** toolbar (located at the top of the **SO** window), 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.



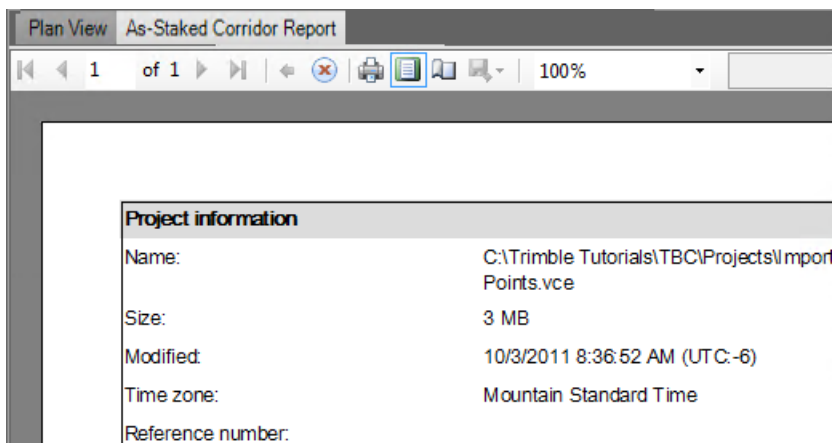
3. For this project, you will not make any changes, so click **Cancel**.

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).

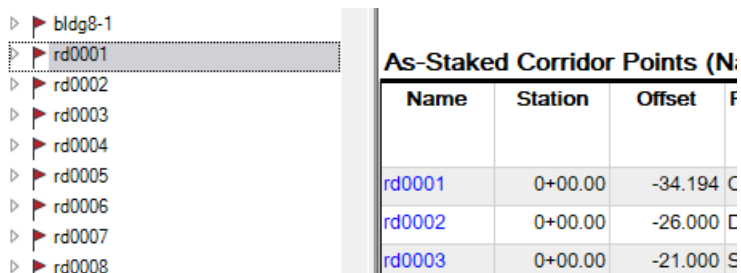
- In the **Quick Access** toolbar, select **Reports > More Reports > As-Staked Corridor Report** and click **OK**.

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



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.

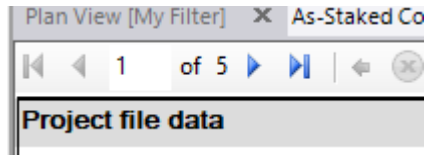


- Red text for station deltas (1 below) and offset deltas (2) indicates the as-staked point is out of horizontal tolerance and has been flagged in the project.

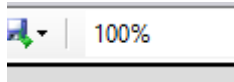
	-0.007	0.027	0.000
	-0.015	0.068	0.000
	0.493	0.187	0.000
	0.056	0.040	0.000
	-0.027	0.025	
	0.083	0.032	?

Red arrows labeled "1" and "2" point to the red text values 0.493 and 0.187 respectively.

- 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.



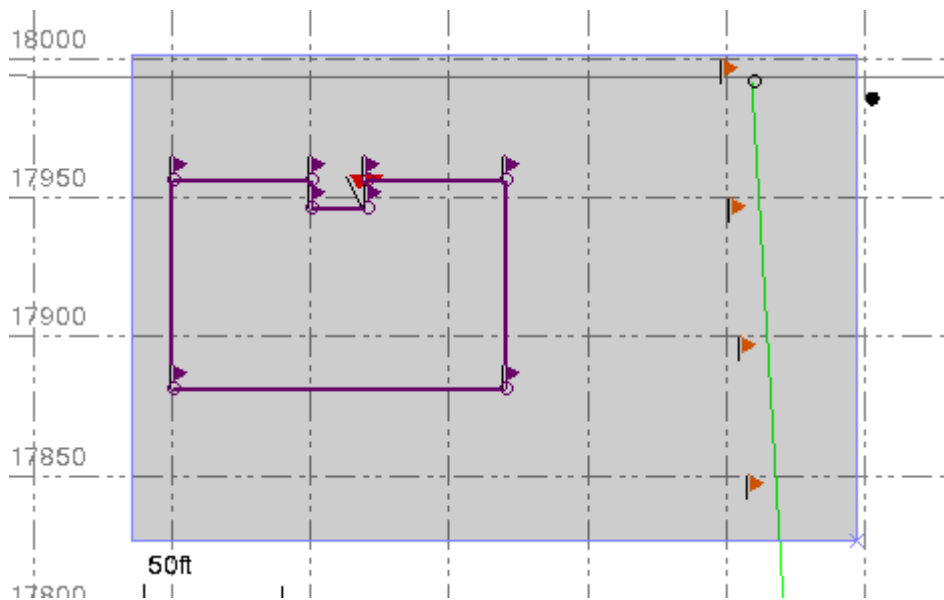
- To print the report, or export it to an Excel spreadsheet, a Word document, or an Acrobat PDF file, use the controls located at the top of the report. This is useful if you want to provide the report to a client or other team member.



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 **Home > Reports > As-Staked Report**. In the **Quick Access** toolbar, select **Reports > As-Staked Report**.

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

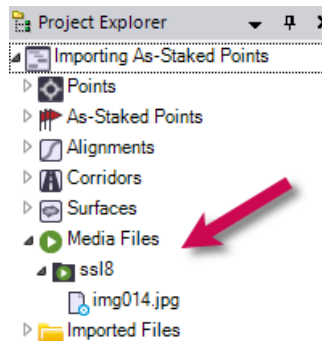
8. Take a moment to look at the information contained in the report.

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

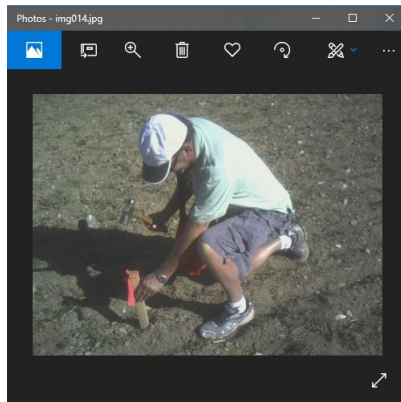
The project includes a photograph of a stake being placed in the field, which you can open from various locations, including the **Project Explorer** and the **Plan View**. In this step, you will learn how to access and view the photo from both of these locations.

1. In the **Project Explorer (Home > Data > 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.

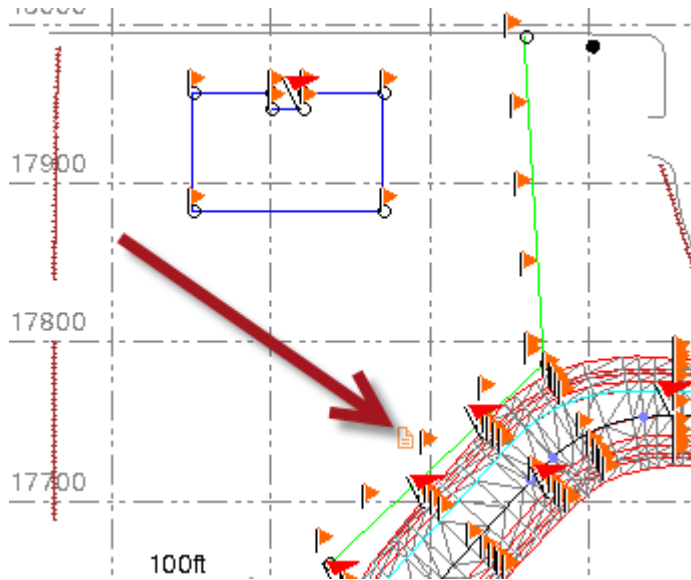
2. Right-click *img014.jpg* and select *Open img014.jpg* to view the photo in your default photo viewer



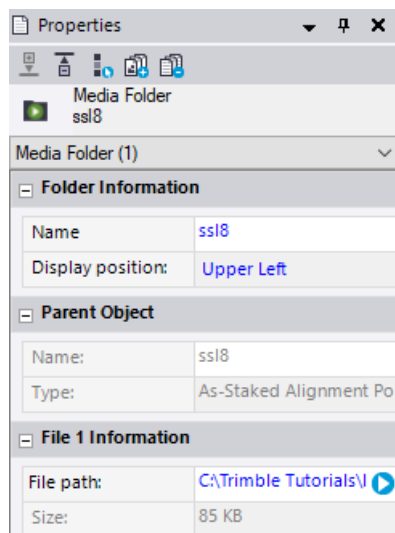
3. Close the photo viewer window.

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**.



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



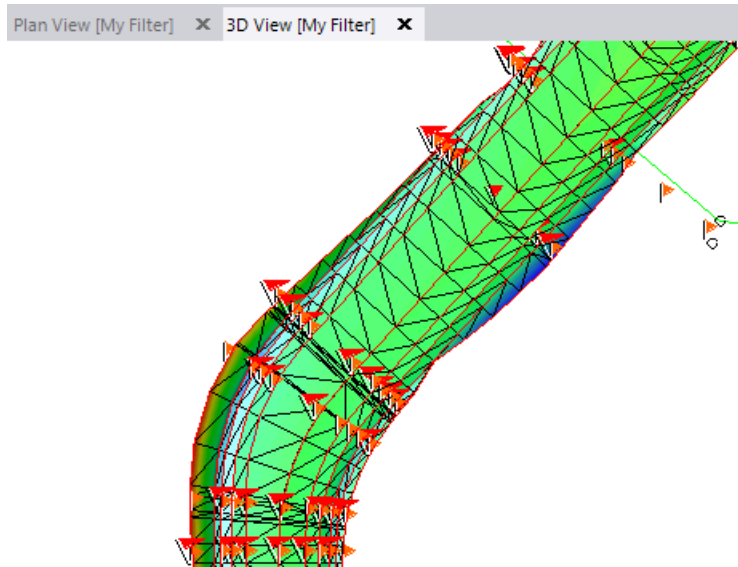
5. Click the button located to the right of the **File path** to view the photo in your default photo viewer.

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

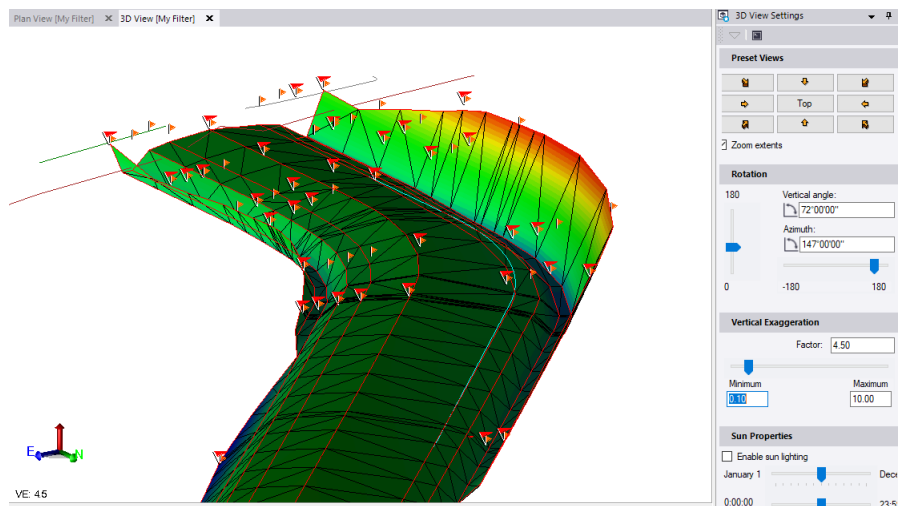
Step 8. View as-staked points in 3D

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**.

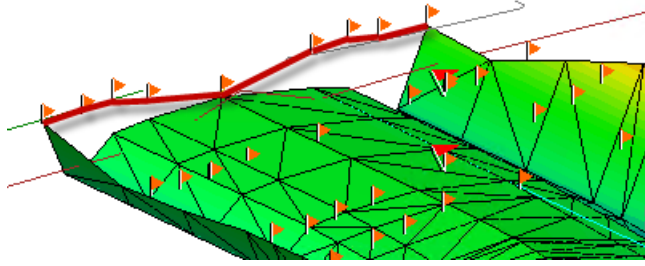
1. Select **Home > View > 3D View**. Then use your mouse wheel to zoom in on the corridor as shown here.



2. Select **Home > View > 3D 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.
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.



This completes the tutorial.