Processing Feature Codes

TRIMBLE BUSINESS CENTER TUTORIAL

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About this tutorial

In this tutorial, you will process and edit feature codes that have been imported into your project. Then you will view feature data in the various project views, and export the features as a CAD drawing.

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

Understanding Feature Code Processing

When a surveyor observes a feature in the field, he can make a record of it that includes the type of feature (for example, a tree), along with its location and any associated attributes (for example, the height of the tree and a photo). He does this by selecting from a library of predefined feature codes imported from a Feature Definition (.fxl) file, and supplying attribute values as required. The feature codes, along with any associated photos and attribute values, can then be imported into a Trimble Business Center project and processed using the same feature definitions.

After feature codes have been processed, the software can display symbols and line work that represent the real world objects. Features can then be exported to other systems (for example, CAD or GIS) as necessary.

There are two basic types of features:

- **Point feature -** A point feature is used to identify a single feature, such as tree or utility pole. Each point feature is assigned to a point, which specifies its location. After a point feature code is processed in Trimble Business Center, the resulting feature is typically represented by a specific symbol displayed on top of the point in the various graphic views. You can view and edit attribute values assigned to a point feature by opening the **Properties** pane for the point to which it is assigned.
- **Line feature -** A line feature is used to identify a line, such as a fence or curb. When points with line feature codes are processed in Trimble Business Center, a linestring with feature data is created. The feature linestring can be easily edited using the **Edit Linestring** command. If offset lines are specified for the line feature, additional linestrings are created. The line style used for the linestring is determined by the feature definition used to define the line feature. You can view and edit attribute values assigned to a linestring feature by opening the **Properties** pane for the linestring.

If a point or line feature includes a photo or other media file attribute, a **Media Folder** icon is displayed with the point or linestring. You can view a media file by opening the appropriate **Media Folder**.

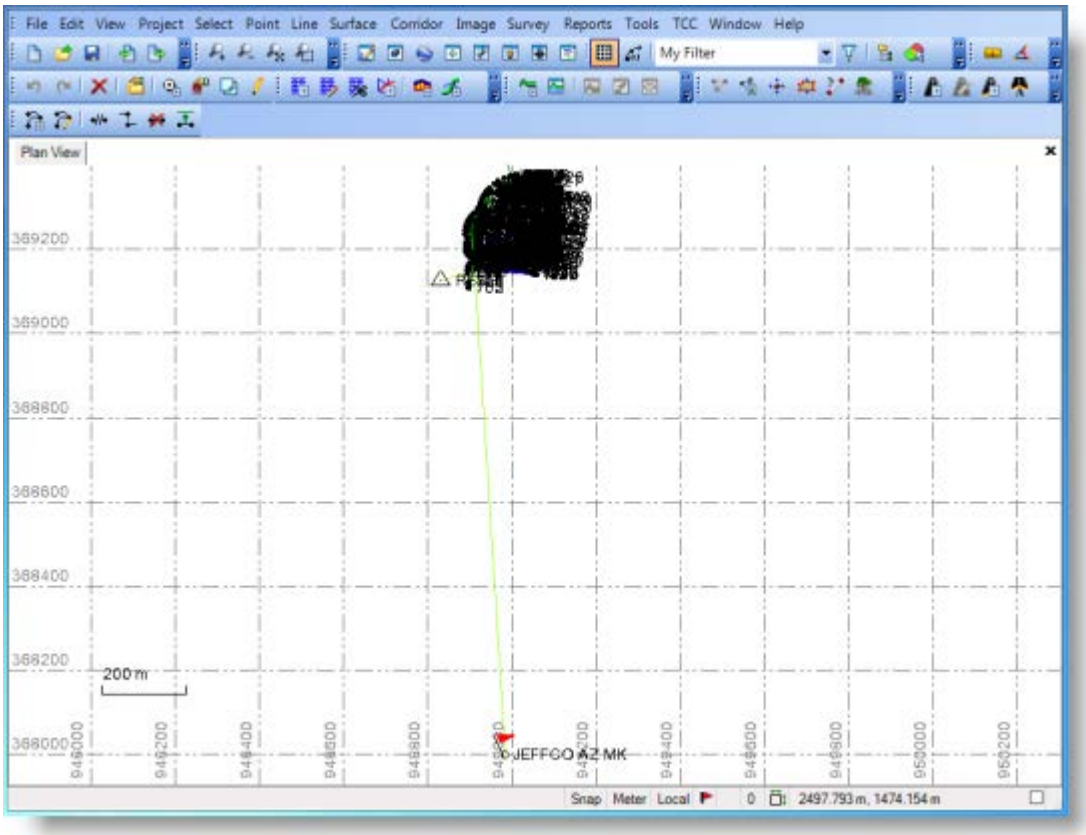
Step 1. Open the project

For this tutorial, you will use the project file *Processing Feature Codes.vce*. The project includes data from a Cadastral survey of a city bus terminal. Integrated surveying methods were used to collect the field data.

1. On the **Trimble Business Center** menu bar, select **File > Open Project**. Or, click the **Open Project** icon on the toolbar.
2. In the **Open File** dialog, browse to ***C:\Trimble Tutorials\TBC\Projects\Processing Feature Codes.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 **Trimble Business Center** window.



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\Trimble Business Center***, 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.

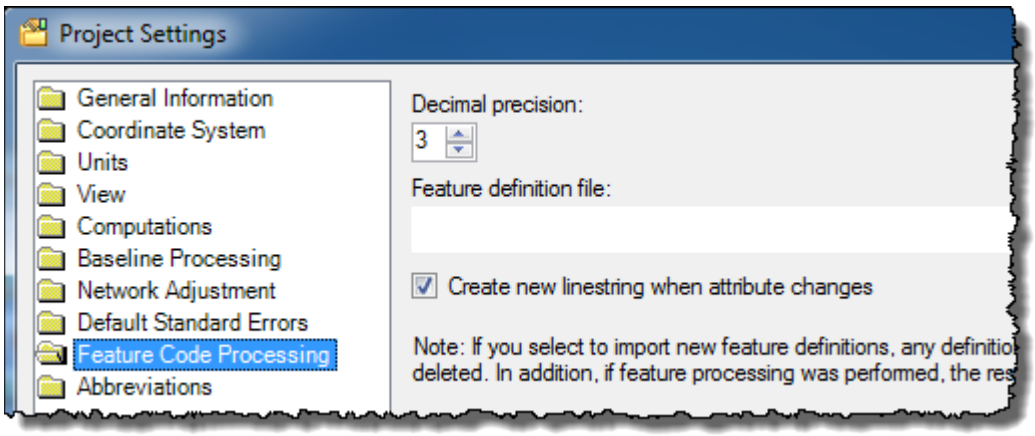
Step 2. Import the Feature Definition (.fxl) file

Before you can process the feature codes imported into your project, you must import the same Feature Definition (.fxl) file that was used to assign codes in the field. There are three ways of doing this:

- Use the **Feature Code Processing** section of the **Project Settings** dialog to import the Feature Definition (.fxl) file.
- Use the **Import** pane to import the Feature Definition (.fxl) file. After import, the imported file is displayed in the **Feature Code Processing** section of the **Project Settings** dialog.
- When you import a Job (.job) or JobXML (.jxl) file that specifies a Feature Definition (.fxl) file that is included in the same folder, the Feature Definition (.fxl) file is automatically imported into your project as well. After import, the imported file is displayed in the **Feature Code Processing** section of the **Project Settings** dialog.

In this step, you will import the Feature Definition (.fxl) file created for this tutorial using the **Project Settings** dialog.

1. Select **Project > Project Settings**.
2. In the navigation (left) pane in the **Project Settings** dialog, select **Feature Code Processing**.



3. Click the **Browse** button located to the right of the **Feature definition file** field.
4. In the **Open** dialog, browse to ***C:\Trimble Tutorials\TBC\Data\GlobalFeaturesTutorial.fxl*** and click **Open**.
5. In the **Project Settings** dialog, click **OK** to close the **Project Settings** dialog.

   The feature definitions contained in *GlobalFeaturesTutorial.fxl* are imported into your project's Feature Definition Library to be used for feature processing.

However, before processing, you will take a look at the unprocessed feature codes in your project.

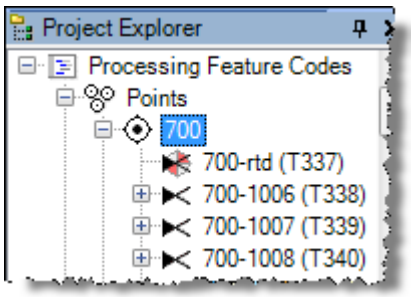
Step 3. View unprocessed feature codes

Before you process the feature codes in your project, you can view the codes and their assigned values, and make changes if necessary.

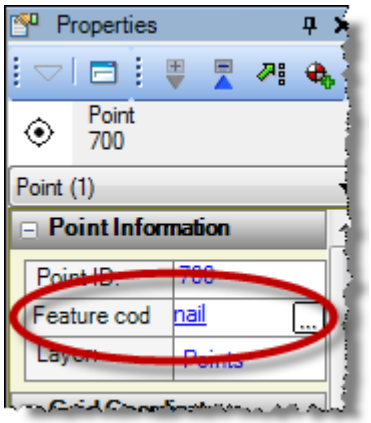
1. Select **View > Project Explorer**. Or, click the **Project Explorer** icon on the toolbar.

   The **Project Explorer** pane displays.

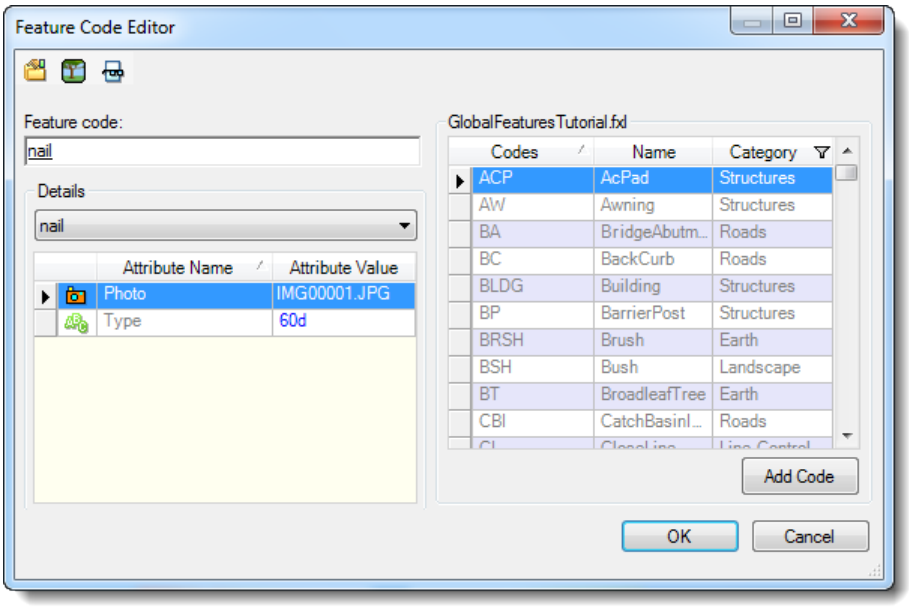
2. In the **Project Explorer** pane, click the plus symbol next to the **Points** node. Then double-click point *700.*



The **Properties** pane displays on the right side of the window showing properties for point *700*. The feature code assigned to the point displays in the **Point Information** section.



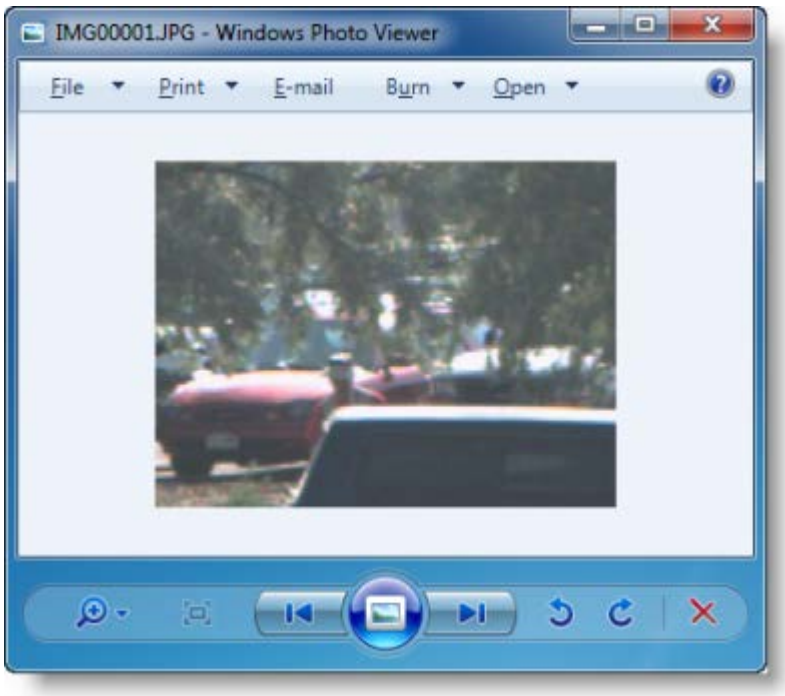
3. Click in the **Feature code** field to view more information about the feature code in the **Feature Code Editor** dialog.



This dialog allows you to remove a feature code, select a different feature code, add a feature code, and/or change attribute values. Note that the feature codes are defined in the GlobalFeaturesTutorial.fxl file.

4. To view the photo assigned to point *700*, select the photo attribute row and click the **View File** icon .

The photo displays in your default photo viewing software.



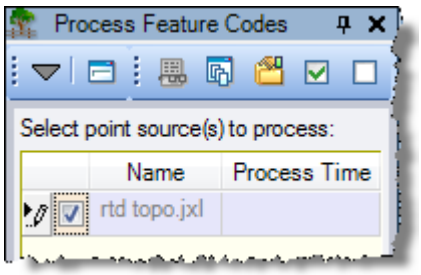
5. When you are done viewing the **Feature Code Editor**, click **Cancel** to close the dialog.

You are now ready to process the feature codes in your project.

Step 4. Process feature codes

You must process features codes to display their associated features correctly in graphic views and to export feature data.

1. Select **Survey > Process Feature Codes**. Or, click the **Process Feature Codes** icon on the toolbar.
2. In the **Process Feature Codes** pane, select the checkbox for *rtd topo.jxl* and click the **Process Source(s)** button.



After processing is complete, the **Feature Codes Processing** dialog displays asking if you want to view the *Feature Code Processing Report.*

3. In the **Feature Codes Processing** dialog, click **Yes**.

   The *Feature Code Processing Report* displays on a new tab in the **Trimble Business Center** window.

4. Scroll to the "Unknown Feature Codes" section.

   Note that there are four points whose feature codes are unknown. This means that there is no corresponding feature code contained in the project's Feature Definition Library to process the codes. In this case, the codes were incorrectly entered in the field.

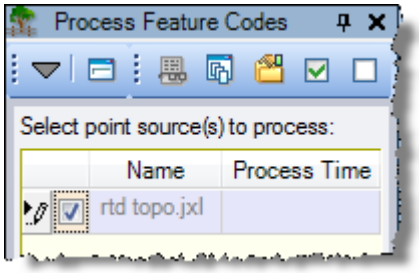
Next, you will fix the unknown feature codes before reprocessing.

Step 5. Change feature codes

In this procedure, you will assign the correct feature code to each of the four points listed in the "Unknown Feature Codes" section of the *Feature Code Processing Report.* But, because codes are read-only after features have been processed in your project, you must remove the processing results before you can make changes to the codes.

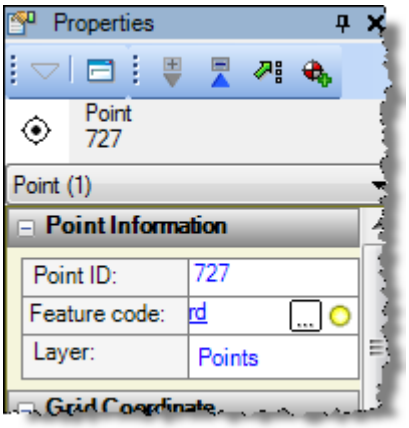
1. To remove feature processing results:
   a. Select **Survey > Process Feature Codes**. Or, click the **Process Feature Codes** icon on the toolbar.

b. In the **Process Feature Codes** pane, select the checkbox for *rtd topo.jxl,* and click the **Remove Processing** button.



2. In the "Unknown Feature Codes" section of the *Feature Code Processing Report*, click point *727*.

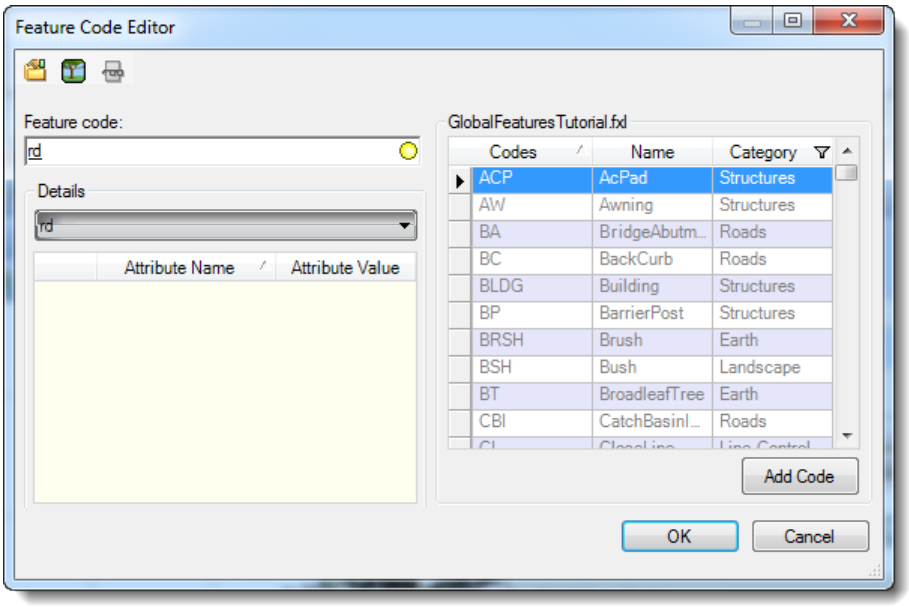
   The properties for point *727* are displayed in the **Properties** pane.



   The yellow icon at the right in the **Feature code** field indicates the point has an unknown feature code. You can enter a new code directly in the field if you know it and you do not need to specify any attributes. Otherwise, you can click the button to open the **Feature Code Editor** dialog to make the changes. For this tutorial, you will use both methods.

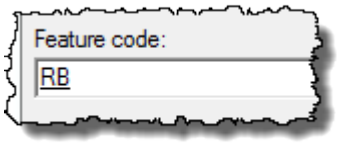
3. Click the button in the **Feature code** field.

The **Feature Code Editor** dialog displays.



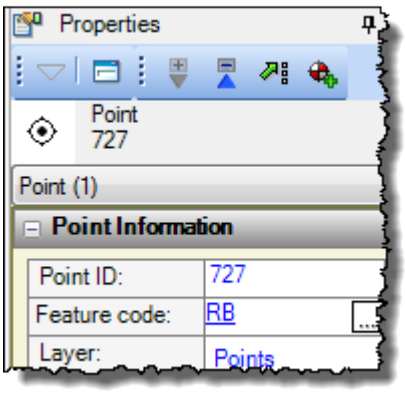
4. In the **Feature code** field, select *rd* and press the **Delete** key to remove the code.
5. In the **GlobalFeaturesTutorial.fxl** list, select *RB* (*RoadBarrier*) and click the **Add Code** button.

   The code is added to the **Feature code** field.



6. Click **OK**.

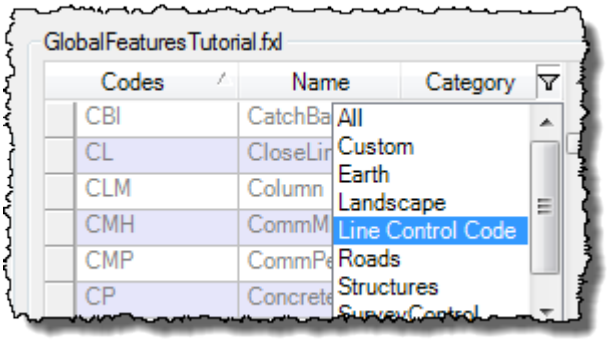
   The newly assigned code displays in the **Feature code** field in the **Properties** pane for point *727*.



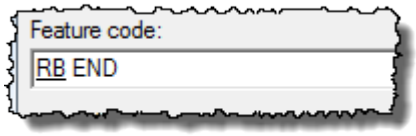
7. Change codes for the other points displayed in the "Unknown Feature Codes" section of the *Feature Code Processing Report*. Just click each point in the report to display its properties in the **Properties** pane.

a. For point *728*, change *rd end* to *RB END.*

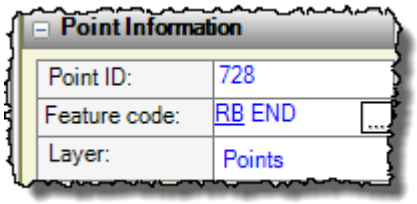
For this change, click the button to open the **Feature Code Editor** dialog. Delete *rd end* from the **Feature code** field. Then select *RB* (*RoadBarrier*) in the **GlobalFeaturesTutorial.fxl** list and click the **Add Code** button. The code *RB* represents a line feature and should include the *END* (*EndLine*) line control code. Click the **Category** filter icon and select **Line Control Code** to display only line control codes in the list.



Select *END* in the list, and click the **Add Code** button.

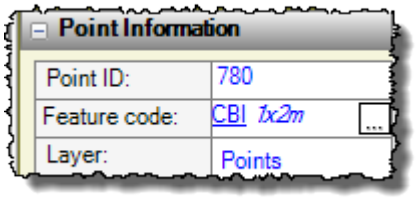


Then click **OK** to see the change in the **Properties** pane for point 728.



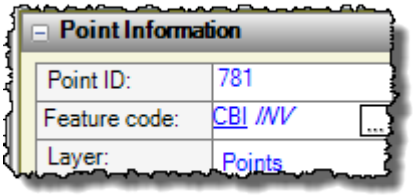
b. For point *780*, change *cb 1x2m* to *CBI 1x2m.*

For this edit, type the change directly in the **Feature code** field. Note that the italicized text *1x2m* is simply a free-form description for the code preceding it.



c. For point *781*, change *cb inv* to *CBI INV.*

Again, type the change directly in the **Feature code** field.



You are now ready to reprocess the feature codes with the changes you made.

Step 6. Reprocess feature codes

1. Select **Survey > Process Feature Codes**. Or, click the **Process Feature Codes** icon on the toolbar.
2. In the **Process Feature Codes** pane, select the checkbox for *rtd topo.jxl* and click the **Process Source(s)** button.

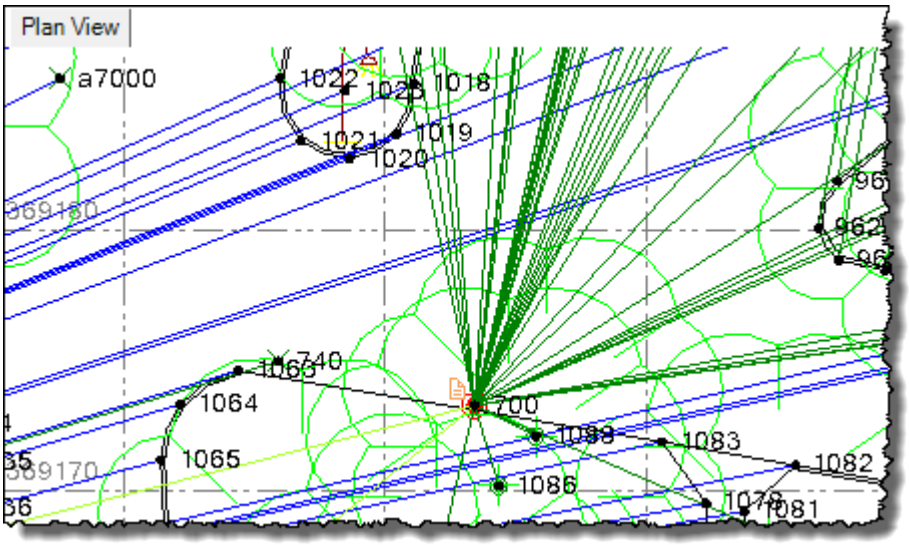
   After processing is complete, the **Feature Codes Processing** dialog displays asking if you want to view the *Feature Code Processing Report.*
3. In the **Feature Codes Processing** dialog, click **Yes**.

   A new *Feature Code Processing Report* displays on a new tab in the **Trimble Business Center** window. Note that there are no longer any unknown feature codes listed in the report.

   You can now view the processed features.

Step 7. View processed features

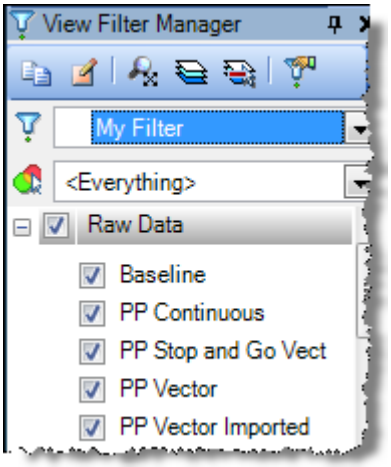
1. Select the **Plan View** tab and use your mouse wheel to zoom in to view the processed feature data, as shown below.



To better view the features, you can choose to hide unnecessary data in the **Plan View**.

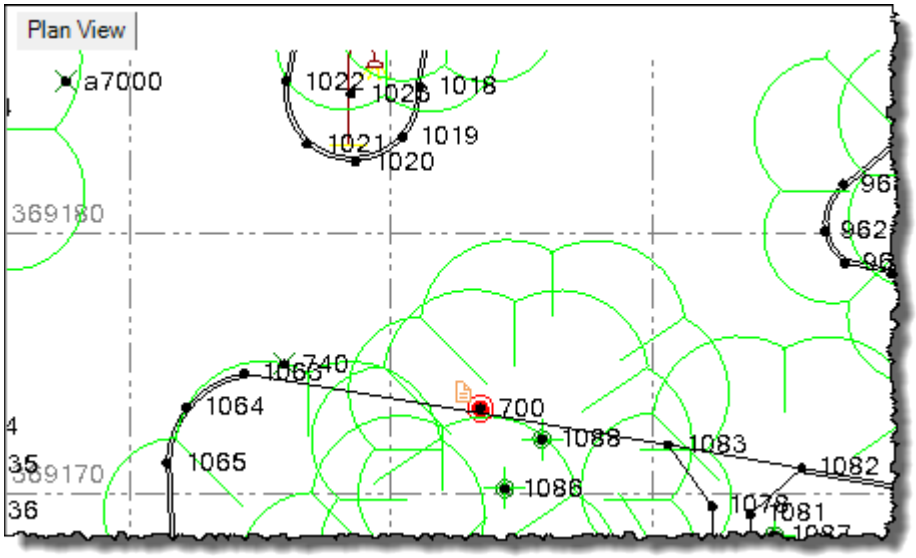
2. Select **View > View Filter Manager**.

   The **View Filter Manger** pane displays.



3. In the **Raw Data** list:
   - Deselect **RTK Vector**.
   - Deselect **Total Station**.

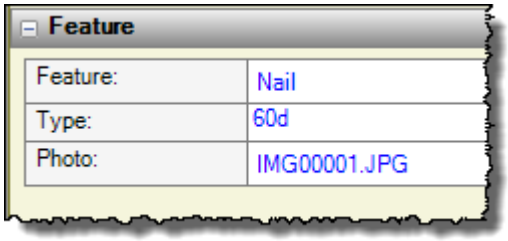
Point feature symbols and feature linestrings are more clearly visible in the **Plan View**.



To view information about a feature, including any attribute values, you can select the point or linestring to which the feature is assigned.

4. In the **Plan View**, click the red symbol on point *700* and select *Point: 700* in the context menu.

   The **Properties** pane for point *700* displays. In the lower portion of the pane, the **Feature** section displays the processed feature name and attribute values assigned to the point feature.

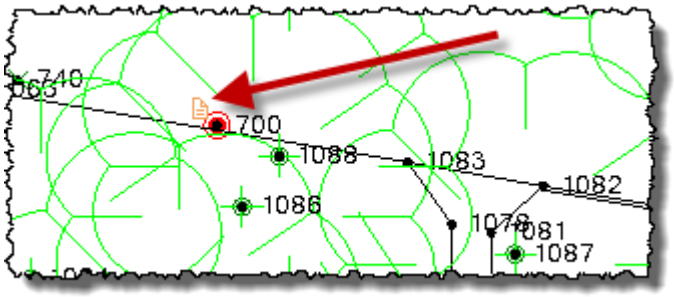


Feature	
Feature:	Nail
Type:	60d
Photo:	IMG00001.JPG

You can select a different feature or change any attribute values using these fields. If you select a different feature for the point and then reprocess the feature codes in your project, the new feature you assigned to the point is kept with the point, while the original feature code is used to create a "secondary" feature for the point, which you can select in the **Plan View.**

Although you can select a different feature for a point, you cannot edit the point's feature code after you have processed feature codes in your project. If you needed to change the code, you would first have to remove the feature processing results as described earlier in this tutorial.

If a feature includes a media attribute, such as a photo, a **Media Folder** icon is displayed next to the point, as shown here.



Note: A **Media Folder** is attached to any point or line to which a media file is assigned, whether it was assigned to the point as a feature attribute or assigned some other way. If a media file (for example, a photo) is assigned to a point as a feature attribute and additional media files are assigned to the point as well, you can select to use one of the other media files as the feature attribute by selecting it in the media (for example, **Photo**) drop-down list in the **Feature** section of the **Properties** pane.

5. In the **Plan View**, click the **Media Folder** icon for point *700* and, if necessary, select *Media Folder: 700* in the context menu.

   The **Properties** pane for the **Media Folder** is displayed showing the media file assigned to the point and information associated with it. You can click the **View** button located to the right of the media file path to view the image in your default photo viewing software.

6. In the **Plan View**, click the line running through point *700* and, if necessary, select *Linestring: GutterLeft* in the context menu.

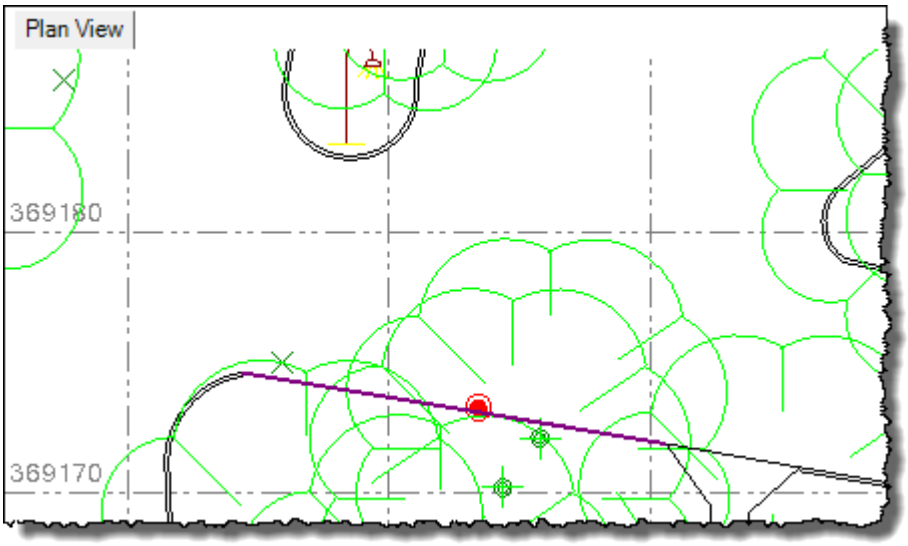
   This is a linestring created from line feature codes during processing. The **Properties** pane for the linestring displays showing the feature name and any feature attributes.

   You can also view the features in your project in 3D. But before you do, you will apply additional filters to your view to make the features easier to see.

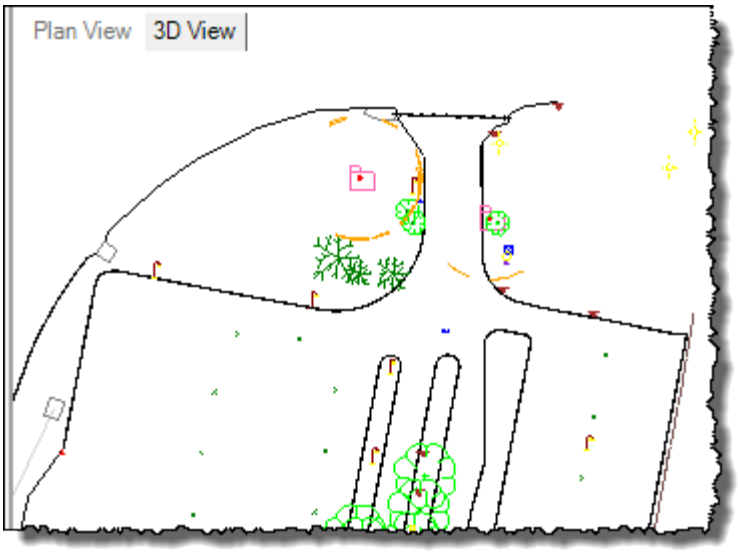
7. In the **View Filter Manger** pane:

   - In the **Raw Data** list, deselect **Media Folder**.
   - In the **Layers** list, deselect **Points**.
   - On the **Point** tab, deselect **Show point labels.**

- On the **Point** tab, select **Show feature symbol only**.



8. Select **View > New 3D View**. Or, click the **New 3D View** icon on the toolbar. Then use your mouse wheel to zoom in as shown here.

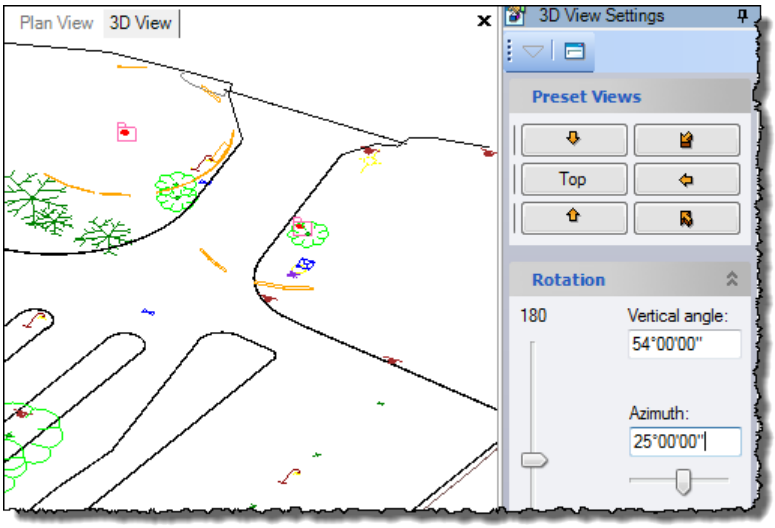


9. Select **View > 3D View Settings**.

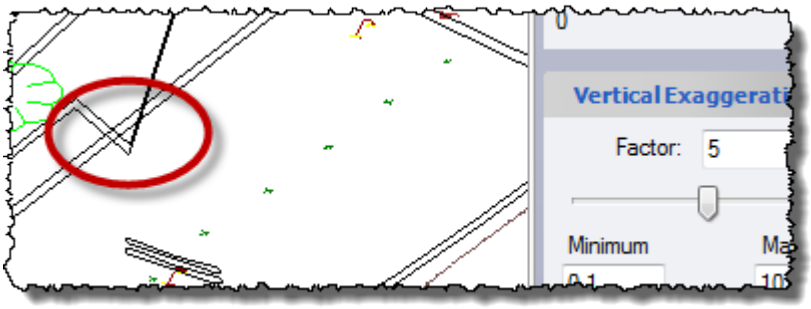
   The **3D View Settings** pane displays. You can use the controls in this pane to change the 3D view of the features.

   a. In the **Vertical angle** field, enter *54°00'00"*.

b. In the **Azimuth** field, enter *25°00'00"*.



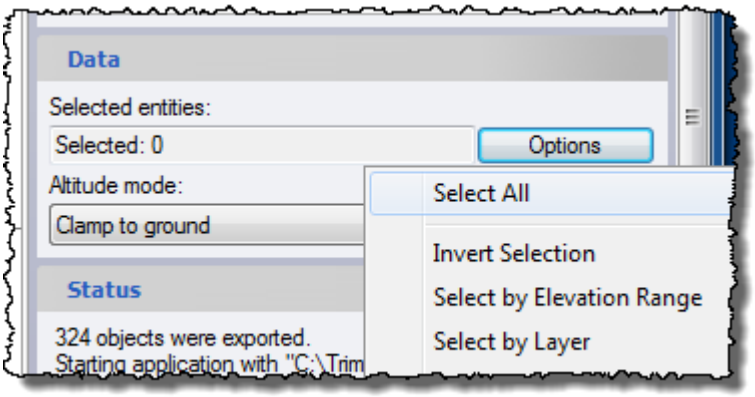
Note that by setting the **Vertical Exaggeration** factor to approximately *5* (experiment by sliding the control right and left), you can spot the elevation bust on a curb.



10. To view the feature data in Google Earth, do the following:

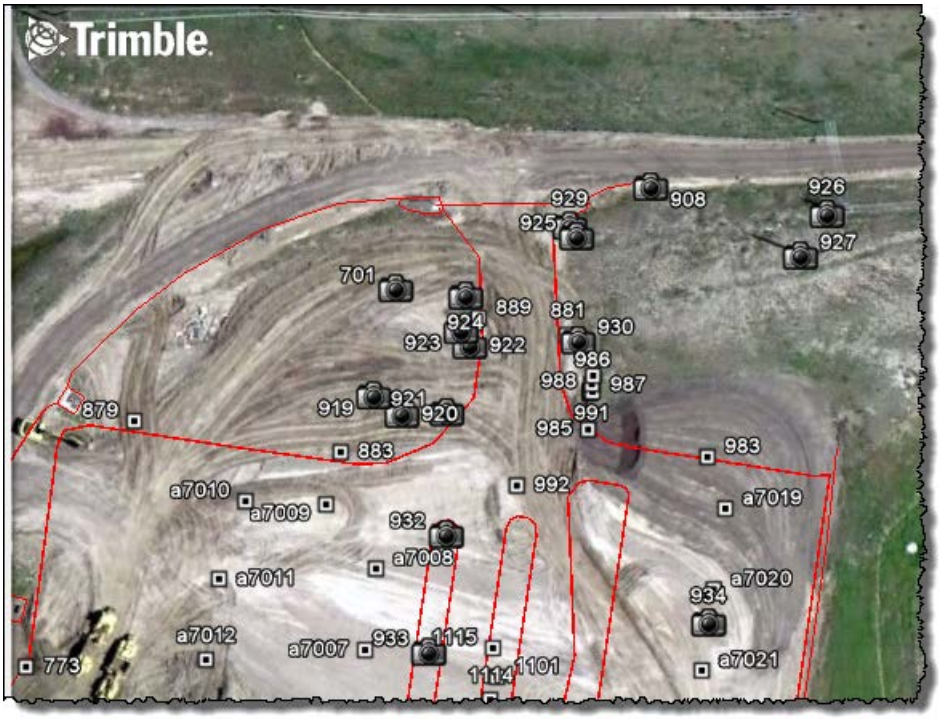
a. Select **View > Google Earth**.

b. In the **Google Earth** pane, click the **Options** button and select **Select All**.



c. Click the **Apply** button.

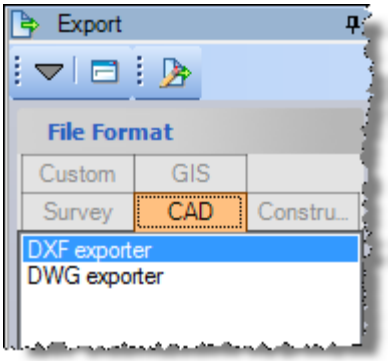
Points, feature lines, and camera icons are displayed in Google Earth. You can click any camera icon to display the associated image.



Next, you will export the processed feature data as a CAD drawing file.

Step 8. Export as a CAD drawing

1. Select **File > Export**. Or, click the **Export** icon in the toolbar.
2. In the **Export** pane, select the **CAD** tab.



3. On the **CAD** tab, select **DWG exporter** in the list at the top of the tab.
4. In the **Data** section, click the **Options** button and select **Select All.**
5. Click the **Export** button to create the CAD drawing (.dwg) file and save it to your project folder.

You are done working with feature codes.

6. 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**.