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ODOT
ENGINEERING
AUTOMATION

POINT CLOUD AND MAPPING WORKFLOW

Title	Feature Code Export
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Overview

This document provides guidance on configuring Options and using the Feature Code Export TopoDOT tool to create a .csv of your mapped features.

Overview:

This document describes the process for configuring options and using the Feature Code Export TopoDOT tool. This tool is used to export a .csv file of your mapped features for importing into an ORD Survey Field Book.

Required:

- The latest approved ICARe version of TopoDOT
- Extracted features (points and lines are both supported) on the "field code" levels. Points can have descriptions and attribute pairs assigned using the ODOT_FieldCodes.cel cell library and the Asset Identification TopoDOT tools.
- SeedTopoDOT.dgn and Seed3D.dgn seed files

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A. Configure Options (Settings) for Feature Code Export Tool

NOTE: The following steps should only need to be completed prior to the initial use of the tool.

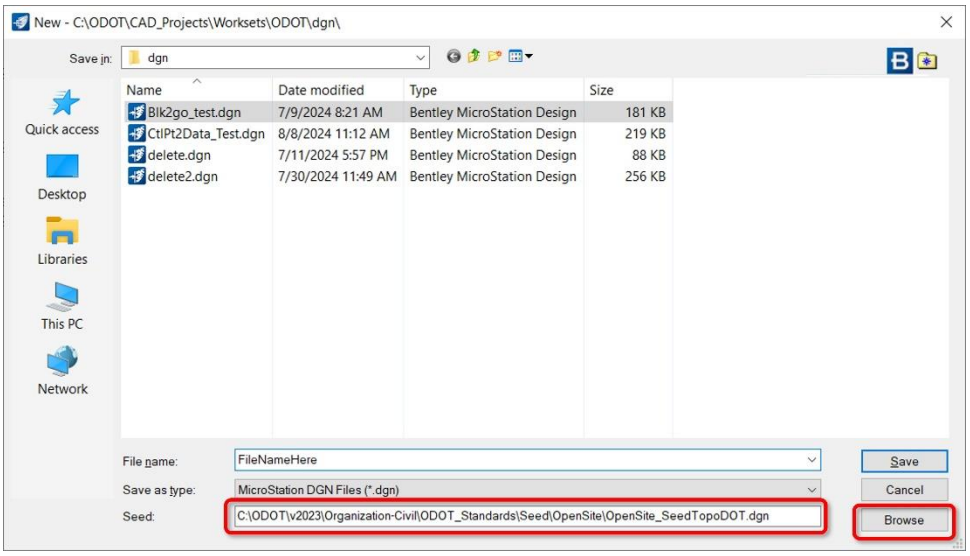
1. **Internal ODOT users** will have the configuration files installed automatically.
   a. Skip to step 3 to confirm the settings of the Feature Code Export tool.
2. **External users** can copy the ODOT_TopoDOT_Configuration.zip folder from this location (open FTP in Windows File Explorer) - ftp://ftp.odot.state.or.us/isb/appeng/ODOT_workspace/Survey/

   The following table shows where to paste the files:

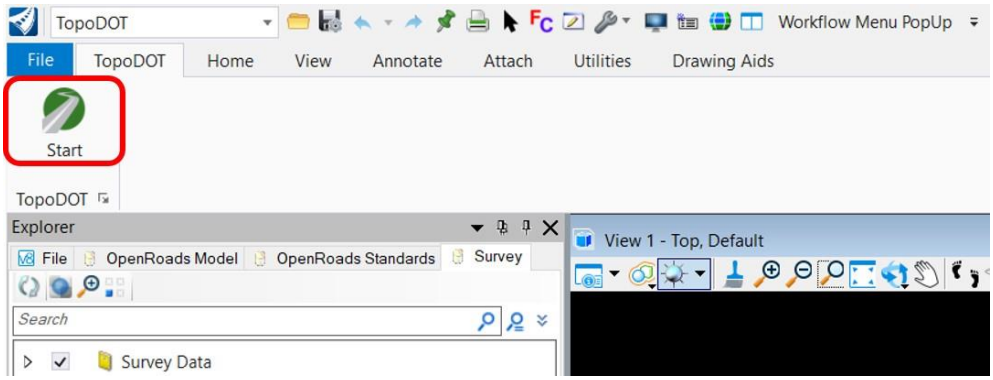
File Name	Paste Location
AssetExtraction_Fields.ini	C:\TopoDOT\x64\Settings
FeatureCodeExport.ini	C:\TopoDOT\x64\Settings
FeatureCodeExport_Auto-FieldCodes.csv	C:\TopoDOT
FeatureCodeExport_ManualList.csv	C:\TopoDOT
TopoDOT.Ini	C:\TopoDOT
ODOT_FieldCodes.cel	C:\TopoDOT\Cells

NOTE: The *.ini* files configure various tool settings. If you do not want to overwrite your existing .ini files you should make a backup copy and rename them.

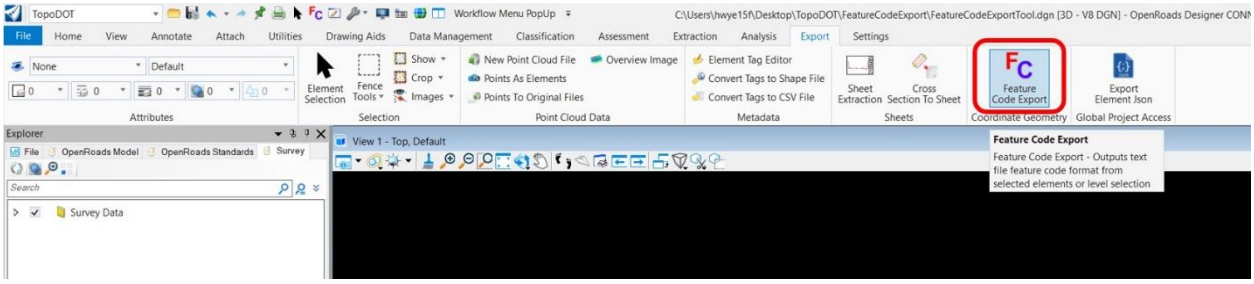
3. Confirm tool settings.
   a. Open an existing ORD .dgn or create and open a new file



   b. Start TopoDOT
      i. In the TopoDOT workflow, TopoDOT tab, **<D>** on **TopoDOT Start** icon

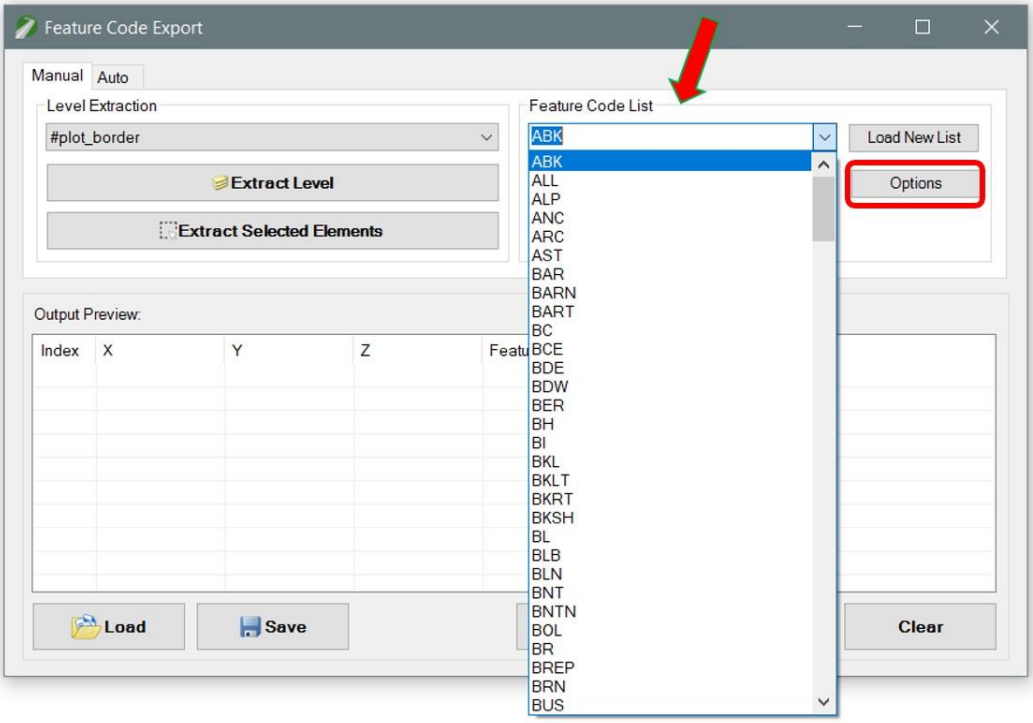


   c. Open the Feature Code Export tool
      i. In the TopoDOT workflow, Export tab, Coordinate Geometry group, **<D>** on the **Feature Code Export** tool. The dialog box will open and will contain two tabs – Manual and Auto.



   d. **<D>** on the **Manual** tab in the Feature Code Export tool dialog box to ensure it is active

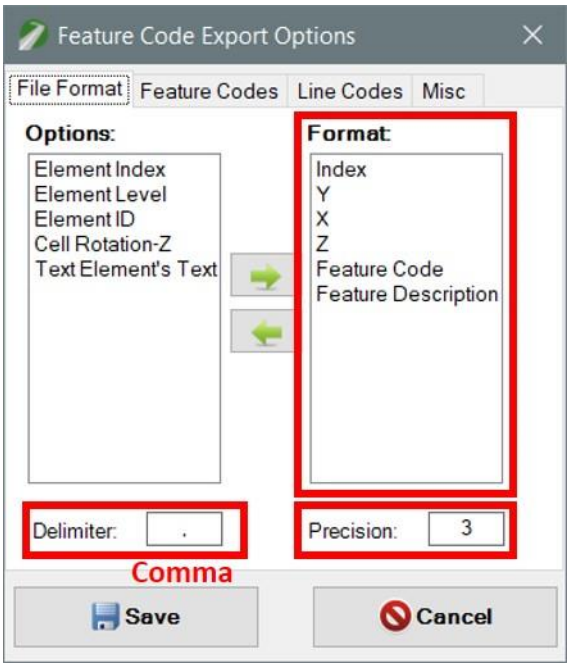
i. Verify the Feature Code List dropdown in the Feature Code Export tool dialog contains the "field codes" list as shown in the image below.

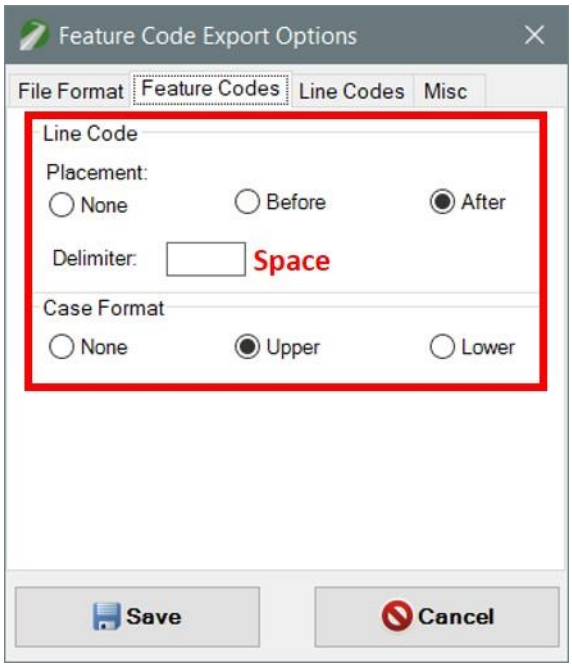


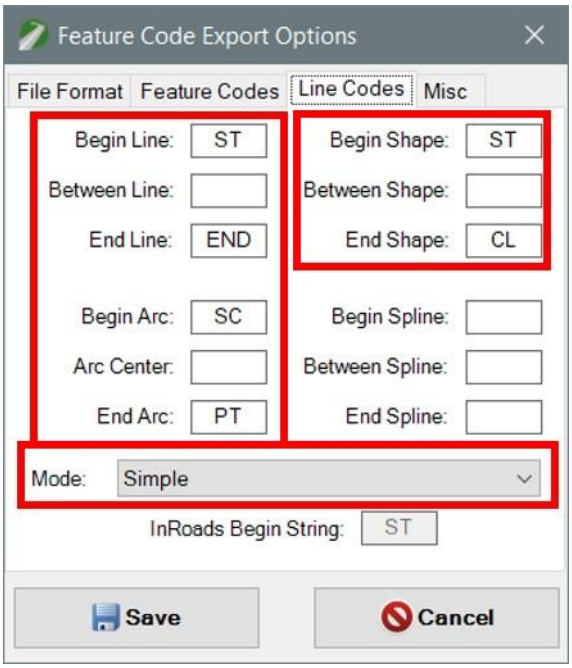
e. Verify the Options

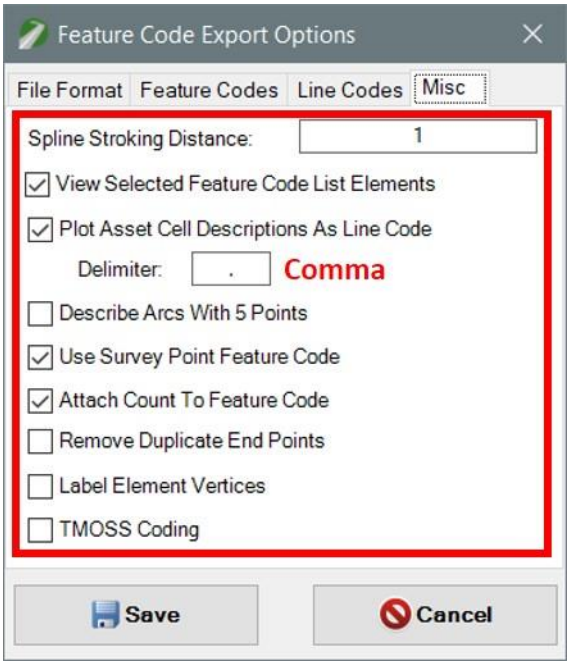
i. **<D>** on **Options** and the Feature Code Export Options dialog will open

ii. Verify the settings in the four tabs match what is shown below. You should not need to make changes to these settings.





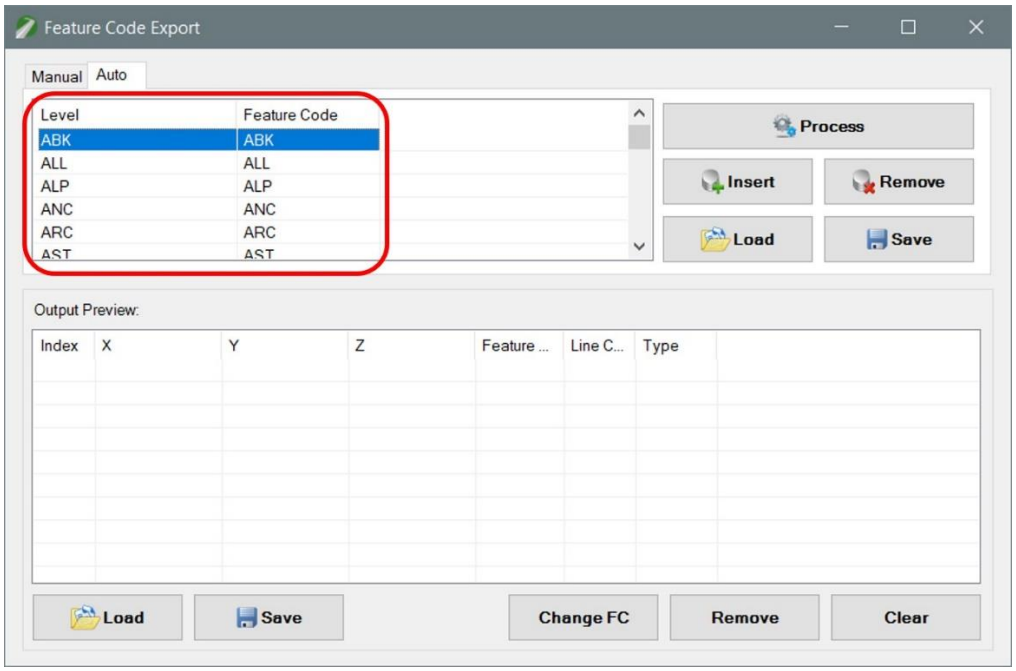




iii. If your settings do not match, verify that you have properly copied/pasted the *FeatureCodeExport.ini* file in Step 2.a. above. **<D>** on **Cancel** when done.

f. **<D>** on the **Auto** tab in the Feature Code Export tool dialog to make it active

i. Verify that the Levels and Feature Code columns match the following image.

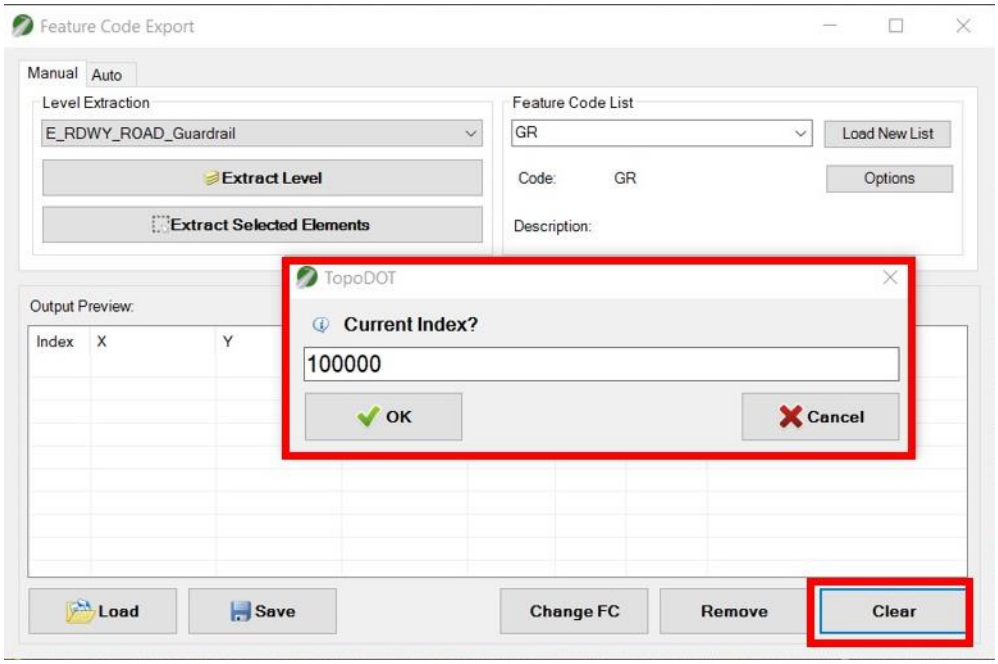


g. The Feature Code Export tool is now ready to use.

B. Using the Feature Code Export Tool

NOTE: To use the Feature Code Export tool most efficiently with the settings above, the mapped features should be on the "Field Code" levels. If the ODOT Survey Ribbon was used to extract features, the features will be on the Existing (E_...) levels and the Auto tab workflow (Step 3 below) will not work correctly. The features can be changed to the field code levels using either the Change Attributes tool or the Properties dialog. If you choose not to use the field code levels, you must use the manual tab as described in Step 2 below.

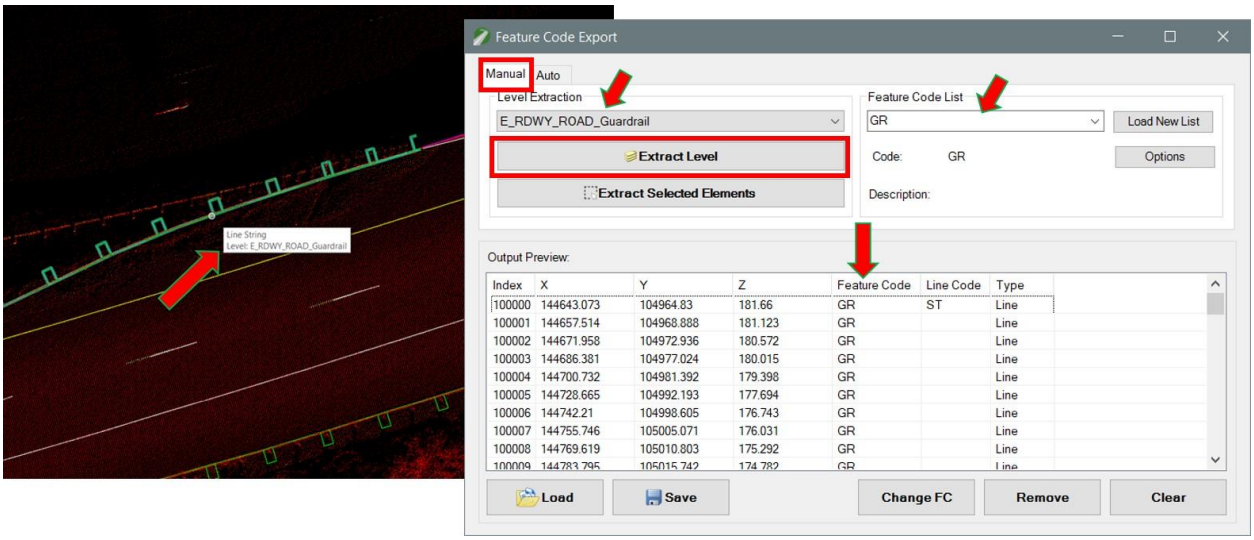
1. Setting up Point Numbers (Index) and Stringing ID's (Feature Code Index)
    i. In either the Manual or Auto tab and before any features are added to the Output Preview box, **<D>** on **Clear**
    ii. A dialog box will appear and ask for the Current Index? (Point Number). Enter an appropriate value and **<D>** on **OK**



iii. A second dialog box will appear for the Current Feature Code Index? (Stringing ID). Enter an appropriate value and **<D>** on **OK**

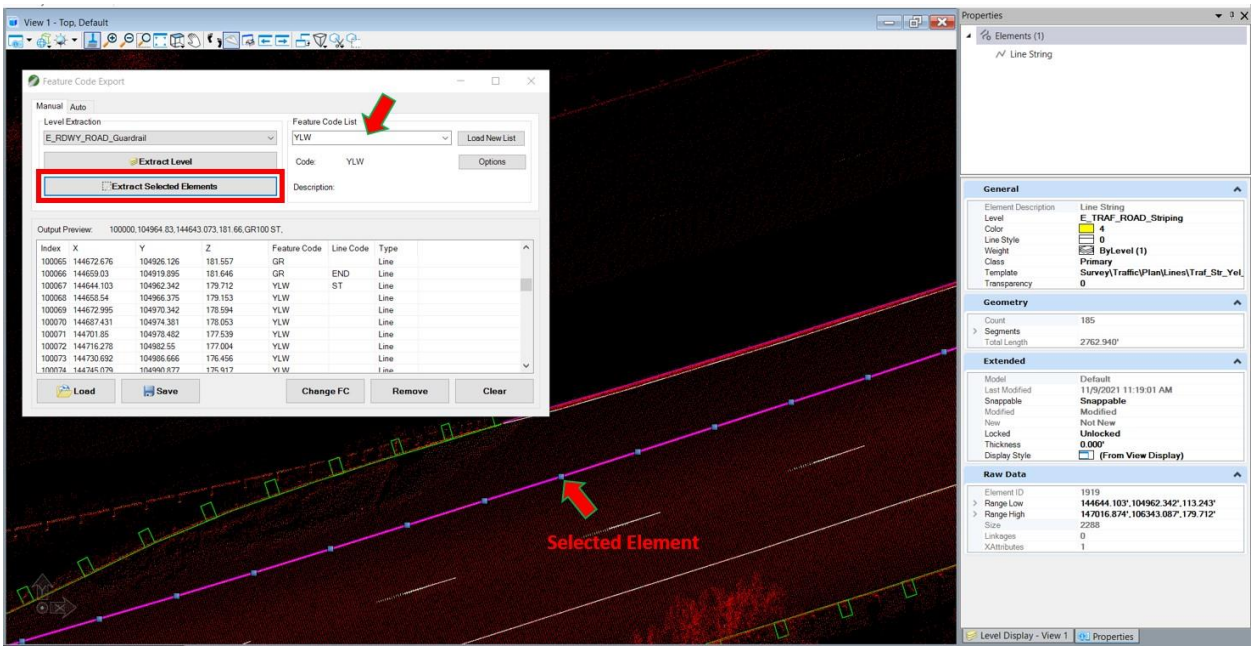
iv. When the features are extracted the assigned values will be placed on each point.

2. Using the **Manual tab** (this tab should be used sparingly as the Auto tab is more efficient)
   i. **Extract Level** – extracts all features on the chosen level and assigns the defined code (field code) in the Feature Code List dropdown. Note that ODOT has only one level for striping, but many different striping types, so this button cannot be used to extract features that don't have unique levels such as striping or barrier.



   A. In the Level Extraction dropdown, select the level for the features that you want to extract
   B. In the Feature Code list dropdown, select the code (field code) that you want to assign to the extracted level
   C. **<D>** on **Extract Level** and the features on the chosen level will be displayed in the preview box with the assigned field code
   D. Steps A-C will be repeated for each level that you want to extract.

ii. **Extract Selected Elements** – extracts all features that are selected using the Microstation Element Selection tool and assigns the defined code (field code) in the Feature Code List dropdown. If the striping features are not on the field code levels, this method can be used to extract the different striping types to their respective field codes; however, the Auto tab with the features on the Field Code levels is the preferred and easiest method.



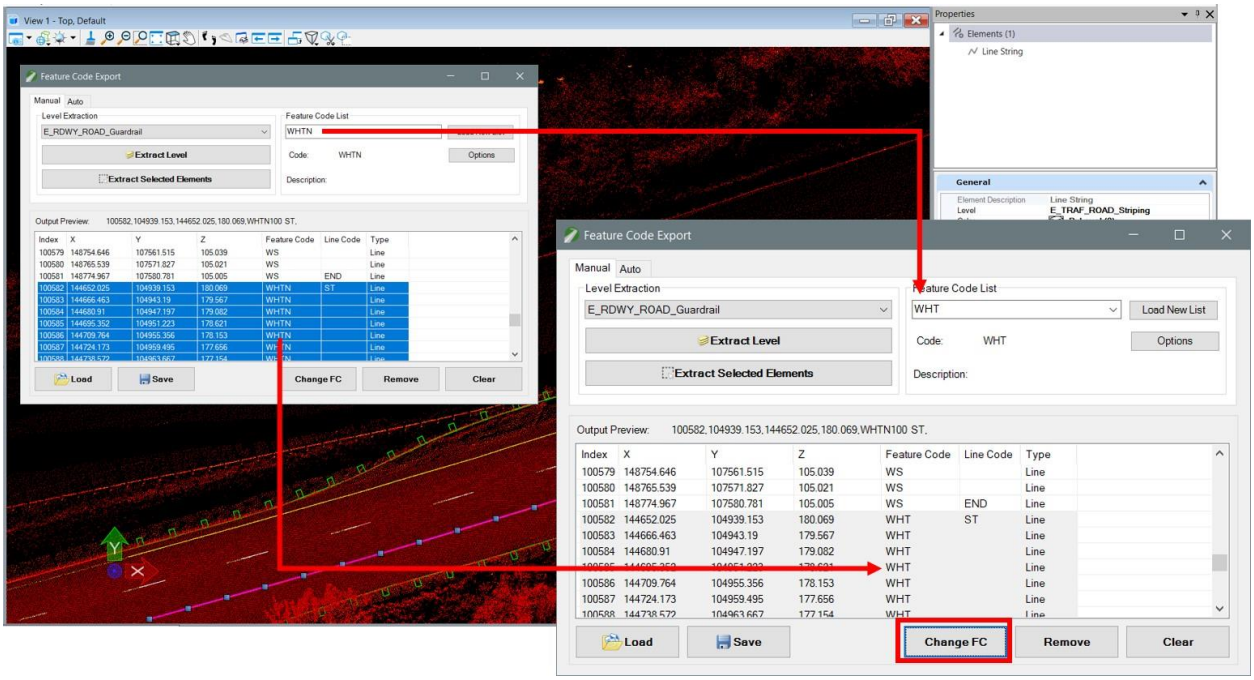
A. In your Microstation view, select the features that you want to extract to a specific field code using the Element Selector.
B. In the Feature Code list dropdown, select the feature code (field code) that you want to assign to the selected elements
C. **<D>** on **Extract Selected Elements** to add the selected elements to the preview box with the assigned field code

iii. **Change FC** – changes the Field Code of an extracted feature

A. In the preview box, <D> on the point(s) that you want to change

B. In the Feature Code List dropdown, select the code (field code) that you want to assign to the selected points

C. **<D>** on **Change FC** and the Feature Code column for the selected points will update to whatever option was selected in the Feature Code List dropdown



iv. When you have finished extracting your mapped features, **<D>** on **Save** (lower left of dialog box) to create a .csv file of your extracted features.

A. In the Save As dialog, navigate to the location to save your file

B. Enter an appropriate File Name

C. **<D>** on **Save**

3. Using the **Auto Tab**

NOTE: To use the Auto tab, the mapped features must be on the field code levels. It is recommended to use the field code levels due to its efficiency and lower chance for missing features that you manually select using the Manual tab.

i. In the Microstation model, verify that all of the mapped features are assigned the correct Field Code levels

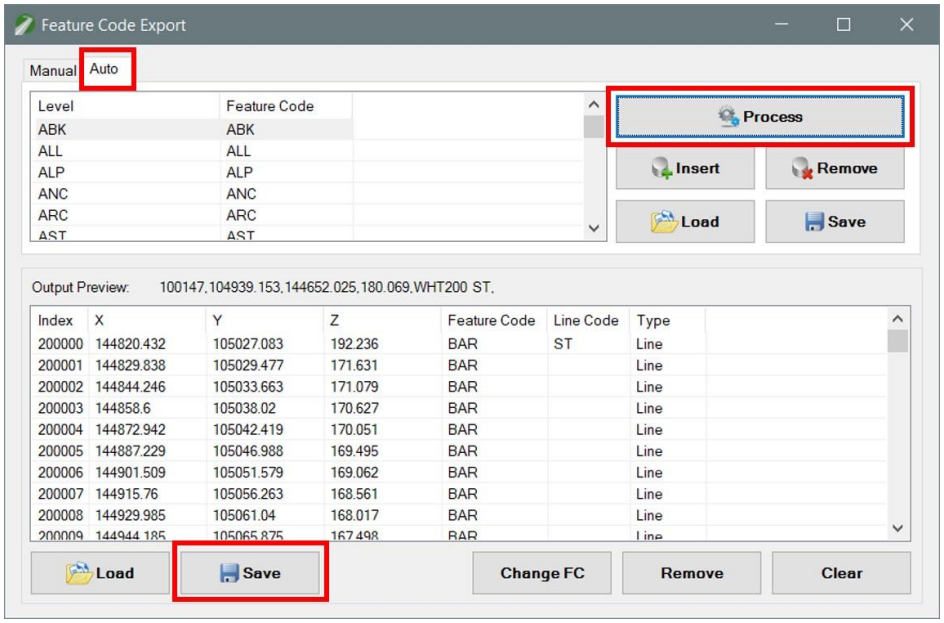
ii. **<D>** on the **Auto** tab

iii. **<D>** on **Clear** to setup the starting point number (Index) and feature stringing ID (Feature Code Index)

A. Enter point number (index), **<D>** on **OK**

B. Enter stringing ID (feature code index), **<D>** on **OK**

iv. **<D>** on **Process** to populate the preview box with the features in your model that are assigned Field Code levels. All linear and point features on the field code levels within the model will be imported.



v. **<D>** on **Save** to create a .csv file of your extracted features.

A. In the Save As dialog, navigate to the location to save your file
B. Enter an appropriate File Name
C. **<D>** on **Save** to create the .csv file

C. Importing the .CSV Into an ORD Survey Fieldbook

NOTE: To use the standard "TIW Oregon DOT CSV file (*.csv)" import process (also used with importing field data from Leica Infinity), a header will need to be added to the .csv file prior to importing into the Survey Field Book. If you do not have the header, ORD will not read the lines with the descriptions and attribute pairs farther down the list in your .csv file.

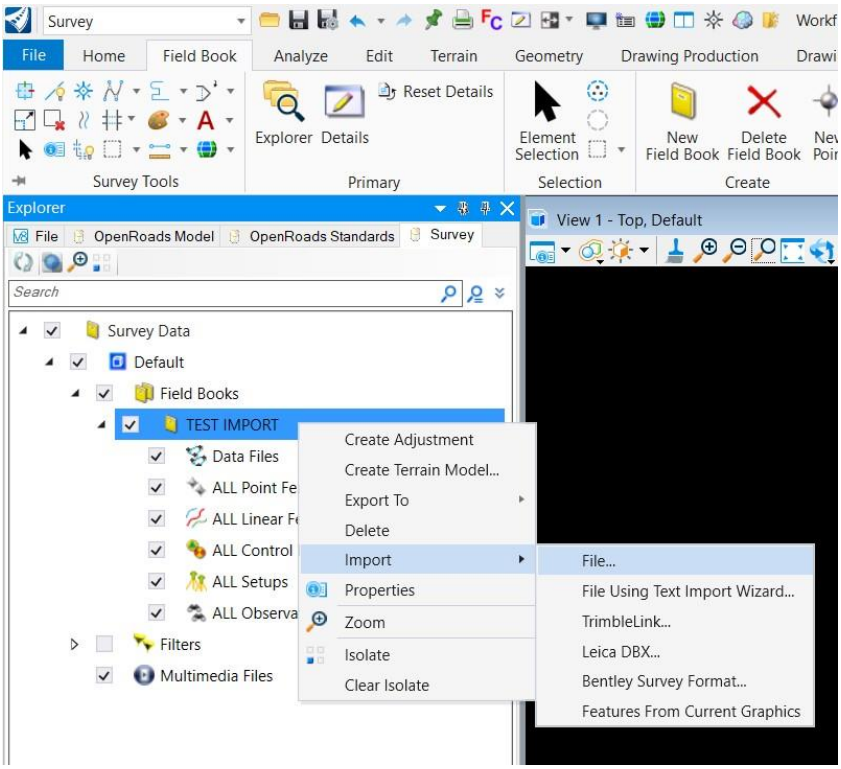
1. With Excel or Notepad++ open the .csv file you exported from the Feature Code Export tool
2. Insert the following header into row 1 to define the columns:

PtID	Northing	Easting	Elev	Code	Note	Note	Note	Note	AP	AP	AP

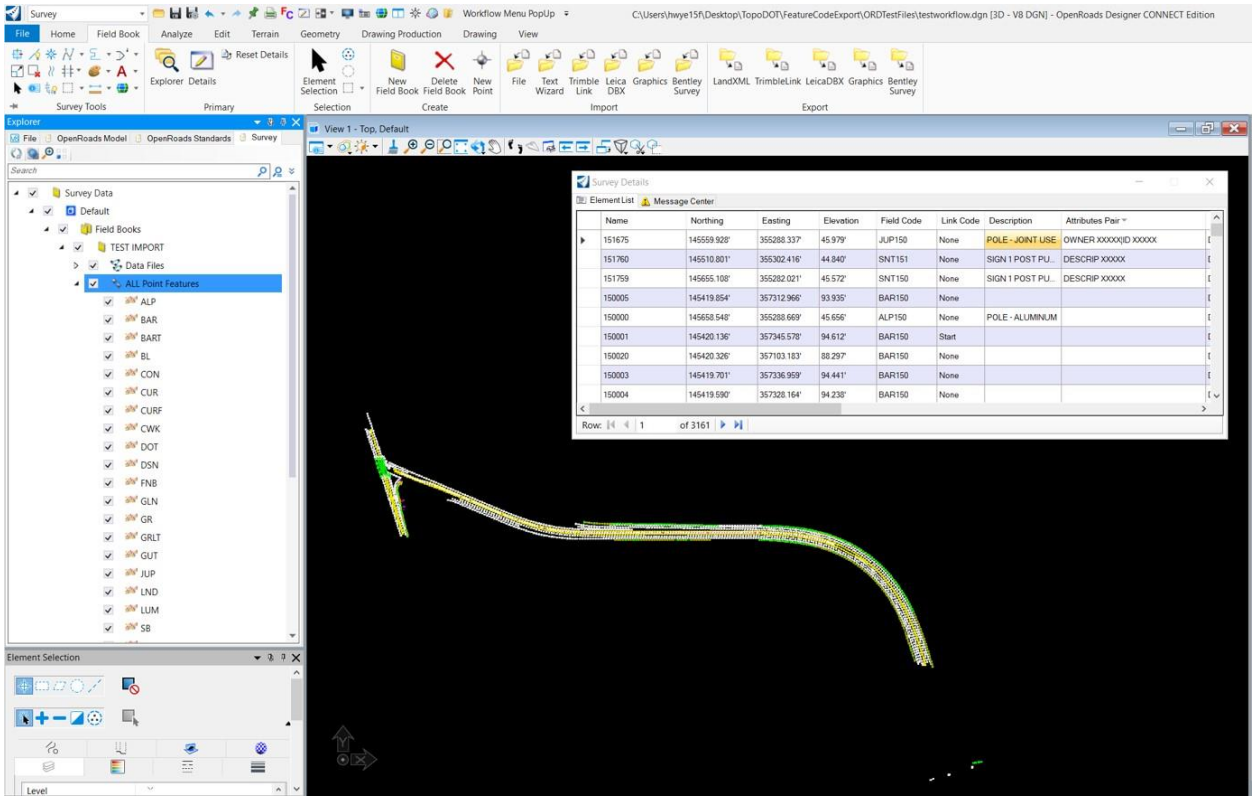
	A	B	C	D	E	F	G	H	I	J	K	L	M
1	PtID	Northing	Easting	Elev	Code	Note	Note	Note	Note	AP	AP	AP	
2	150000	145658.5	355288.7	45.656	ALP150	POLE - ALUMINUM							
3	150001	145420.1	357345.6	94.612	BAR150 ST								
4	150002	145420	357343.2	94.507	BAR150								
5	150003	145419.7	357337	94.441	BAR150								
19	150017	145420.1	357133.2	89.153	BAR150								
20	150018	145420.1	357118.2	88.712	BAR150								
21	150019	145420.1	357111	88.554	BAR150								
22	150020	145420.3	357103.2	88.297	BAR150								
23	150021	145420.8	357094.9	88.139	BAR150 END								
1677	151675	145559.9	355288.3	45.979	JUP150	POLE - JOINT USE				OWNER=XXXXX	ID=XXXXX		
1759	151759	145655.1	355282	45.572	SNT150	SIGN 1 POST PUBLIC				DESCRIP=XXXXX			
1760	151760	145510.8	355302.4	44.84	SNT151	SIGN 1 POST PUBLIC				DESCRIP=XXXXX			
1761	151761	145528.8	355306.4	45.686	TSC150	SIGNAL CABINET							
1762	151762	145565.4	355304.2	46.653	TSC151	SIGNAL CABINET							
1763	151763	145711.4	355221.7	44.874	TSPP150	POLE - SIGNAL PEDESTRIAN							
1764	151764	144618.5	358318.9	98.793	WHT150 ST								
1765	151765	144632	358312.5	98.874	WHT150								
1766	151766	144645.5	358306	98.972	WHT150								
1767	151767	144659.2	358299.9	99.043	WHT150								

3. Save your .csv file
4. Open/Create the working ORD basemap file (created with the Seed3D.dgn seed file) and create a new survey fieldbook if you do not have one in your file.

5. **Right Press** on the field book name, **<D>** on **Import** > **File**
   i. Navigate to the folder containing your .csv file
   ii. **<D>** on the .csv file name to select it
   iii. **<D>** on **Open** and the .csv mapped features will be imported into the survey field book



6. The features will import into the field book as dynamic link features. If you had descriptions and attribute pairs, they should also be added to the point/line data in the field book (see image below).


Survey Details
Element List
Message Center
Name
Northing
Easting
Elevation
Field Code
Link Code
Description
Attributes Pair
151675
145559.928'
355288.337'
45.979'
JUP150
None
POLE - JOINT USE
OWNER XXXX|ID XXXXX
151760
145510.801'
355302.416'
44.840'
SNT151
None
SIGN 1 POST PU...
DESCRIP XXXXX
151759
145655.108'
355282.021'
45.572'
SNT150
None
SIGN 1 POST PU...
DESCRIP XXXXX
150005
145419.854'
357312.966'
93.935'
BAR150
None
150000
145658.548'
355288.669'
45.656'
ALP150
None
POLE - ALUMINUM
150001
145420.136'
357345.578'
94.612'
BAR150
Start
150020
145420.326'
357103.183'
88.297'
BAR150
None
150003
145419.701'
357336.959'
94.441'
BAR150
None
150004
145419.590'
357328.164'
94.238'
BAR150
None
Row:
1
of 3161