

LAB 2 - Working with Survey Data

This lab demonstrates working with survey data as a foundation for our initial geometry. Exporting the survey field book to an InRoads geometry project will generate alignments along linear items and Cogo points at all survey shot locations.

Chapter Objectives:

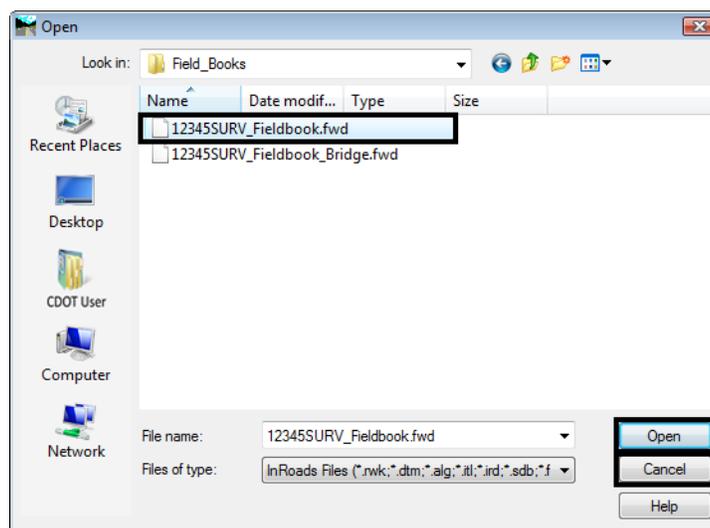
- Load existing completed survey data
- Filter survey data to select only points and alignments that will be needed
- Exporting filtered survey data to a Geometry Project as cogo points and horizontal and vertical alignments

Lab 2.1 - Load Project Data

The goal of this exercise is to export observations from an InRoads Survey fieldbook to a Geometry Project creating Cogo points and alignments.

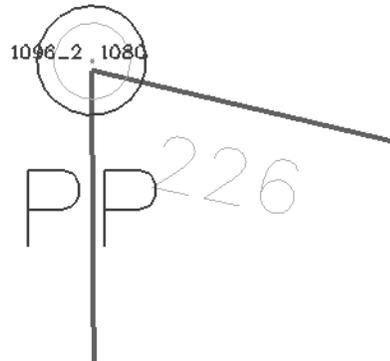
The fieldbook for this project, 12345SURV_Fieldbook.fwd contains control monuments, found monuments, and general topography observations. While this is all valid information, it is desirable to work with a subset of the survey information such as pavement centerlines, control lines, or other specific entities by excluding terrain strings and other topographic information that does not relate to the development of ROW geometry. Working with a subset of the information increases efficiency by working with a smaller data set and freeing-up additional resources for other operations. Exporting a portion of a survey fieldbook can be accomplished by using Survey Feature Filters when creating the InRoads geometry project.

1. From the pull down menu select **File > Open** the Open dialog appears.
2. Select the fieldbook file
C:\Projects\12345\ROW_Survey\InRoads\Field_Books\12345SURV_Fieldbook.fwd.
3. <D> **Open** button then <D> the **Cancel** button the file will be opened in InRoads Survey and the *Open* dialog will close.

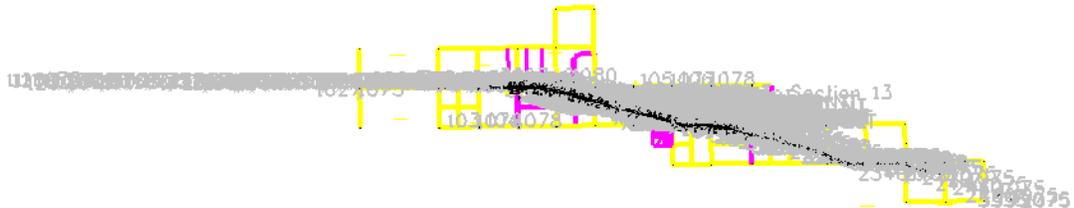


Once the fieldbook has loaded, InRoads will automatically fit the extents of the fieldbook to the MicroStation screen.

- From the pull down menu or View Survey Data toolbar toggle on **Survey > View Survey Data > Planametrics | Point Names | Symbols | Codes | Notes**.



- Use the MicroStation **Fit View** command to get an indication of the survey information contained in the fieldbook.



- Take a few minutes to zoom in and navigate around the MicroStation screen to investigate the survey data displayed as it relates to the project layout.

Note: Fieldbook information is displayed dynamically in the MicroStation file. To adjust the size of the information displayed **Tools > Survey Options [Symbology]**. Select a category under *Symbology* and **<D> Edit View** to adjust text or symbol size.

Note: Take notice of the various survey control, ROW and property monuments. Pavement shots, and general topography shots are seen representing terrain breaks, signs, culvert ends, and other features. It is desirable to filter unrelated topography information from our electronic fieldbook prior to exporting it to the right of way geometry project.

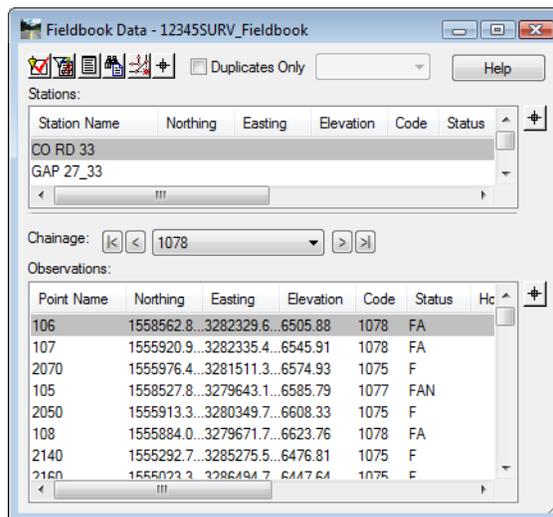
Lab 2.2 - Filtering the Survey Data

The goal is to write only the information important to establishing ownership and right of way parcels to a geometry project. The use of Survey feature filters will assist in sorting the data. When a Survey feature filter is activated, the displayed contents of the electronic fieldbook will update along with the associated graphics display. The dynamic graphics display can be used as a preview of the data being written to graphics, a DTM, or to the geometry project.

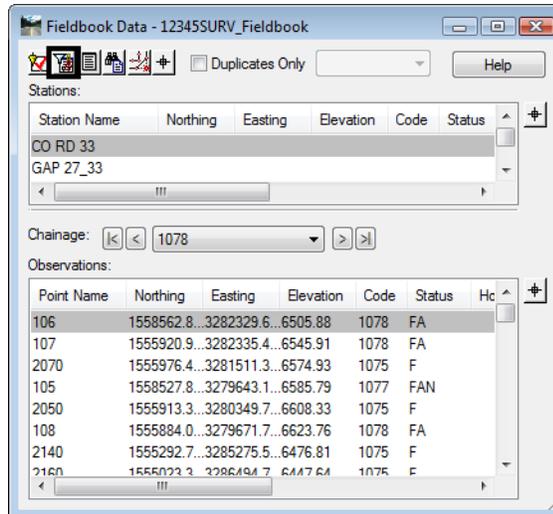
A survey feature filter affects commands for:

- Electronic fieldbook data
- Survey data to surface
- Survey data to geometry
- Survey data to graphics
- Viewing of dynamic survey data

1. Use MicroStation view commands to display any portion of the project area. This display can be used as a preview of our Fieldbook filter.
2. From the pull down menu select **Survey > Fieldbook Data** the *Fieldbook Data* dialog will appear.

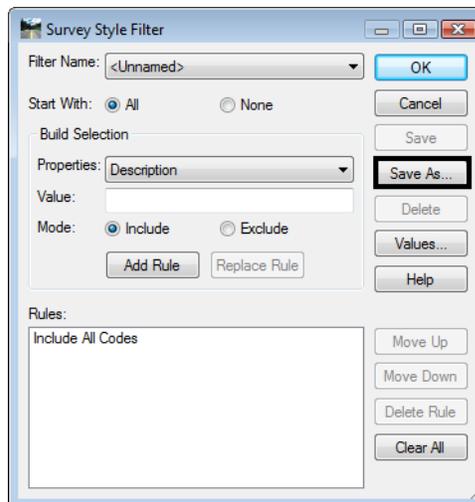


- From the Fieldbook Data dialog <D> on the **Survey Style Filter** icon the Survey Style Filter dialog will appear.

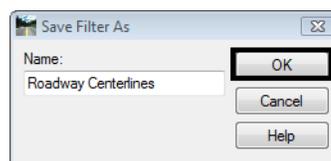


Create the Roadway Centerlines survey feature filter

- In the Survey Style Filter dialog, <D> Save As

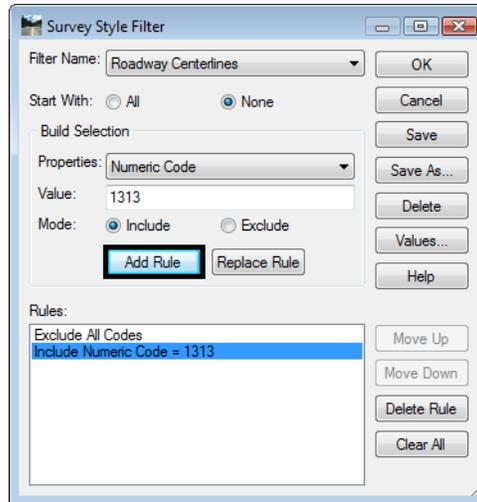


- In the *Save Filter As* dialog, enter **Roadway Centerlines**

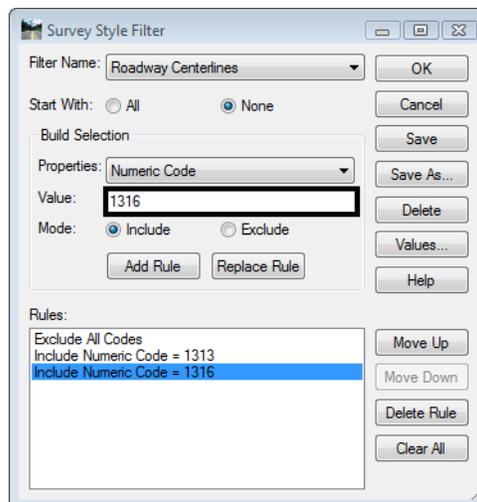


- <D> OK button the *Save Filter As* dialog will close.

4. Toggle **None** for the **Start With** option.
5. From the **Properties** drop down menu select **Numeric Code**.
6. In the **Value** field enter a value of **1313**.
7. Toggle **Include** for the **Mode** option.
8. <D> the **Add Rule** button the rule will be added to the list.

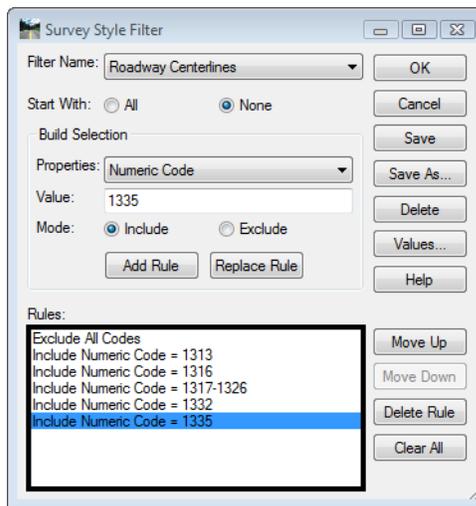


9. Back in the **Value** field enter a value of **1316**. Keep the rest of the settings the same.
10. <D> the **Add Rule** button the rule will be added to the list.

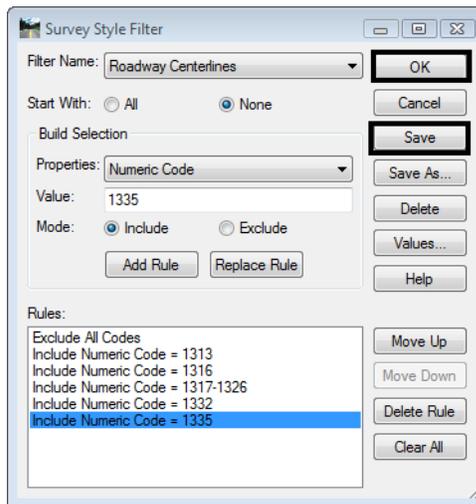


11. Continue this process to add the following Rules:

◆ **1317-1326, 1332, and 1335**



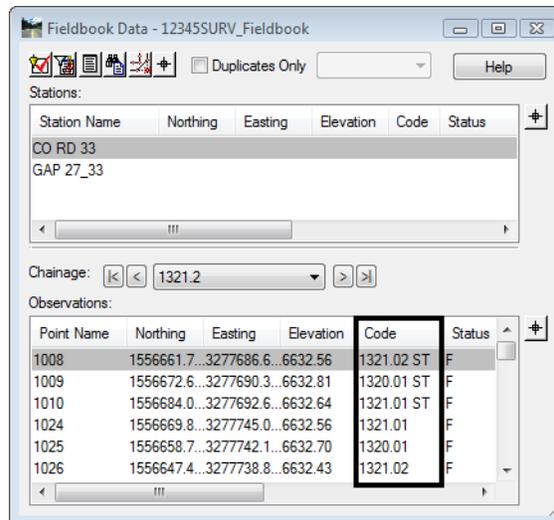
- From the *Survey Style Filter* dialog <D> **Save** then <D> the **OK** button the dialog will close and the new filter will be saved.



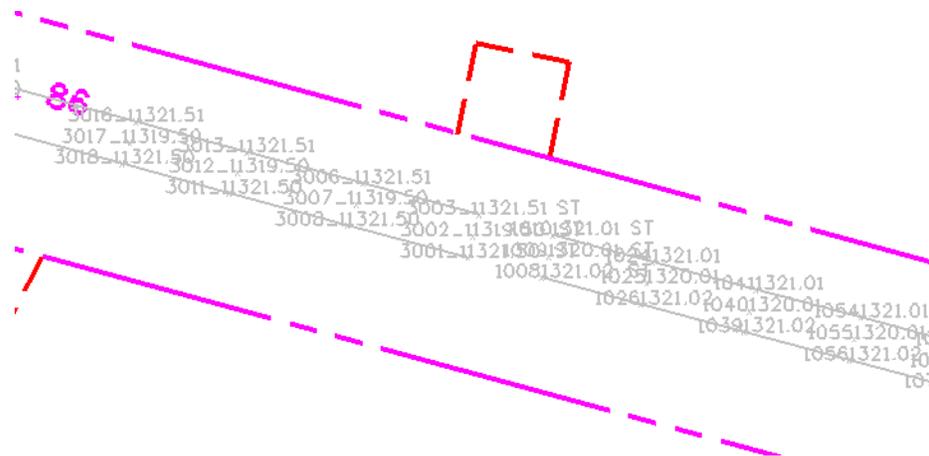
- From the InRoads Locks toolbar, Toggle **ON** the *Feature Filter Lock*



14. Open the **Fieldbook Data** dialog if it is not already opened. The Fieldbook Data will update to display only the data that passes the survey style filter.



15. View the MicroStation graphics displayed. The display graphics reflect the current contents of the fieldbook.

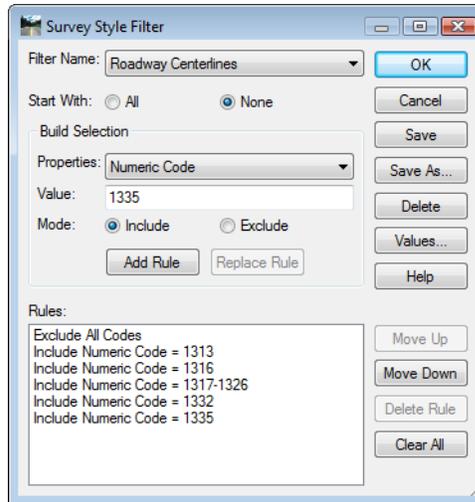


Note: The graphics automatically refresh by default, Automatic Refresh is toggled on under **Tools > Survey Options**. If it is not toggled on the graphics can be regenerated manually from the InRoads pull down menu **Survey > Regenerate Graphics**.

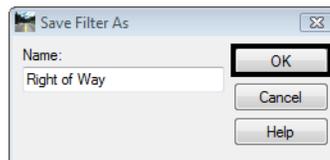
Create the Right of Way survey feature filter.

When a fieldbook is exported to graphics, geometry, or a DTM, only the survey shots that pass the filter will be exported. In this case, additional information is desired for the development of right-of-way.

1. Reopen the *Survey Style Filter* dialog from the pull down menu select **Survey > Survey Style Filter**.



2. From the *Survey Style Filter* dialog make sure the **Roadway Centerlines** filter is selected.
3. In the *Survey Style Filter* dialog, <D> the **Save As** button the *Save Filter As* dialog will appear.
4. In the *Save Filter As* dialog, enter **Right of Way**.

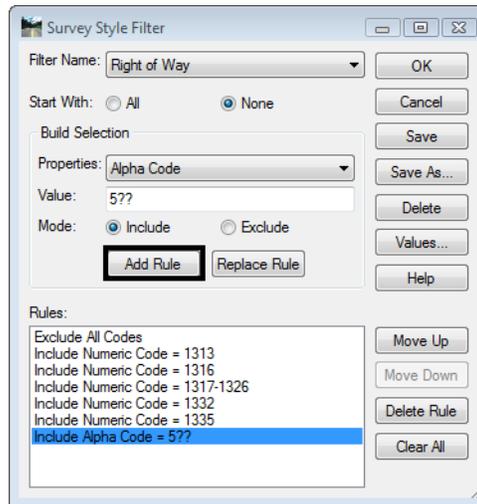


5. <D> the **OK** button the dialog will close and **Right of Way** will be the active Survey Style Filter.
6. Toggle **None** for the *Start With* option.
7. From the *Properties* drop down menu select **Alpha Code**.
8. In the *Value* field enter a value of **5??**.

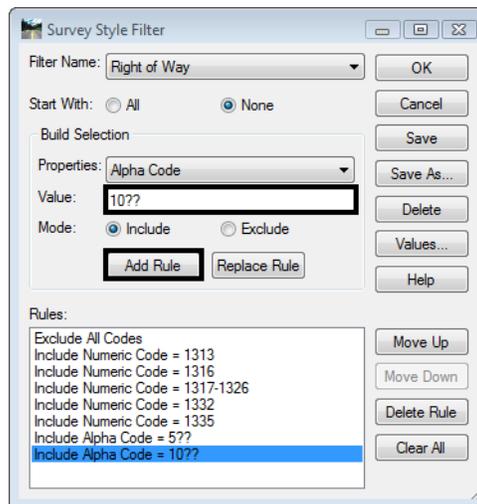
Note: The "??" in the key-in value is used as a wild card value when searching for data. The value of "5??" will return the range of codes 500-599.

9. Toggle **Include** for the *Mode* option.

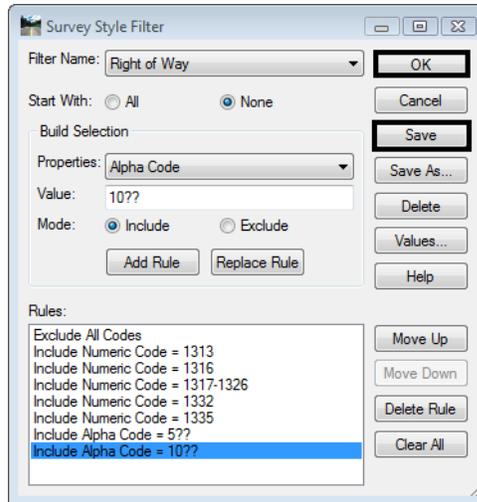
10. <D> the **Add Rule** button the rule will be added to the list.



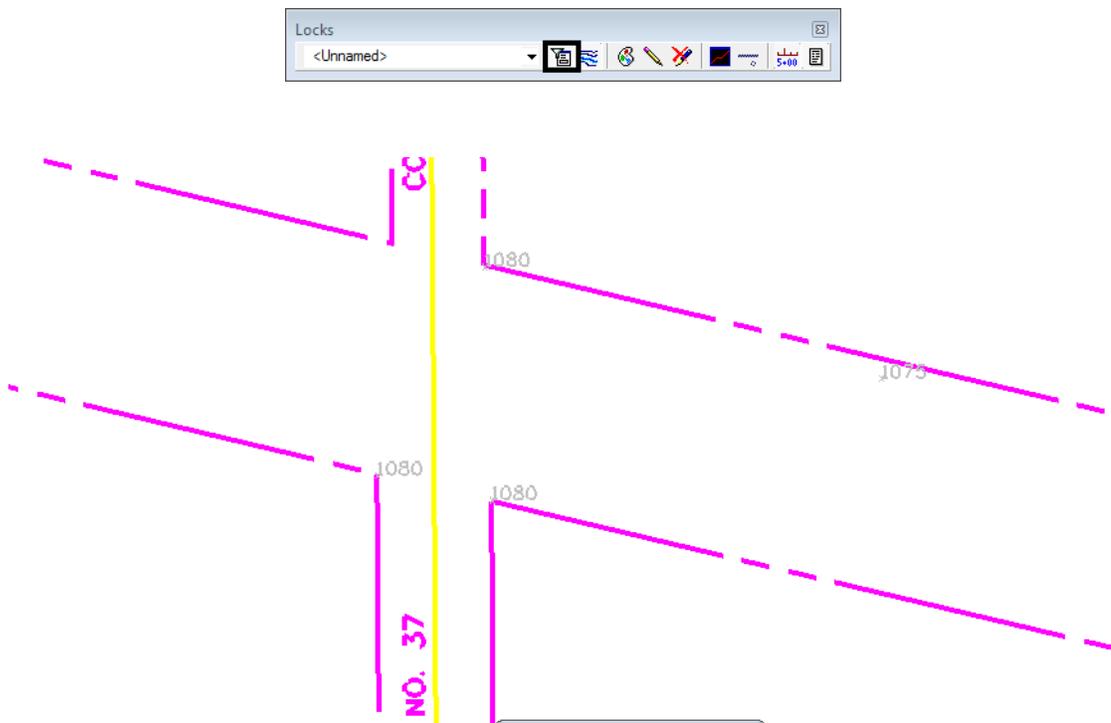
11. Back in the *Value* field enter a value of **10??** Keep the rest of the settings the same.
12. <D> the **Add Rule** button the rule will be added to the list.



- From the **Survey Style Filter** dialog <D> **Save** then <D> the **OK** button the dialog will close and the new filter will be saved.



- The **Feature Filter Lock** should still be toggled **ON**. The MicroStation display updates to display only the survey codes that pass the active filter.

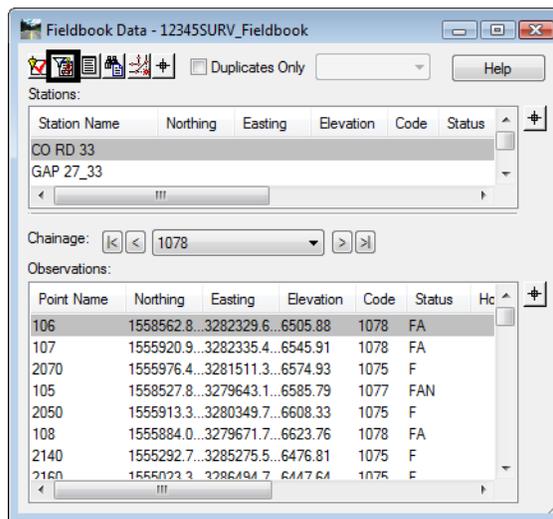


Note: The filter Right of Way includes codes for both property information and roadway centerline information. Now that a Survey Style Filter is active, it will be applied when exporting survey data to geometry.

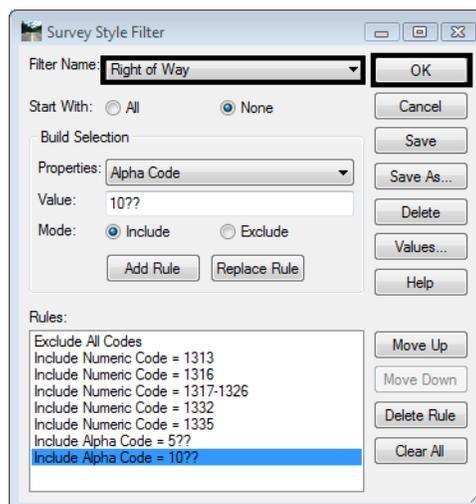
Lab 2.3 - Exporting a Filtered InRoads Survey Fieldbook to Geometry

When exporting a Fieldbook to graphics, a DTM, or to a geometry project, only the items active in the Fieldbook are exported. Using a Survey Feature filter allows control of which survey data gets exported.

1. From the pull down menu select **Survey > Fieldbook Data** the Fieldbook Data dialog will appear.
2. From the **Fieldbook Data** dialog select the **Survey Style Filter** icon.

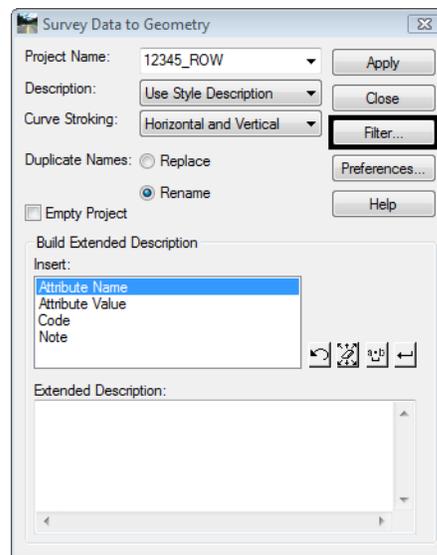


3. From the **Survey Style Filter** dialog select the filter name **Right of Way**
4. <D> the **OK** button. The Right of Way filter will be active and the Survey Style Filter dialog will close.

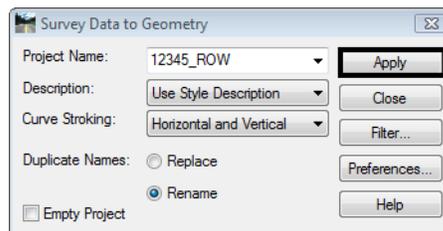


5. From the Locks toolbar toggle **ON** the InRoads **Feature Filter** lock.

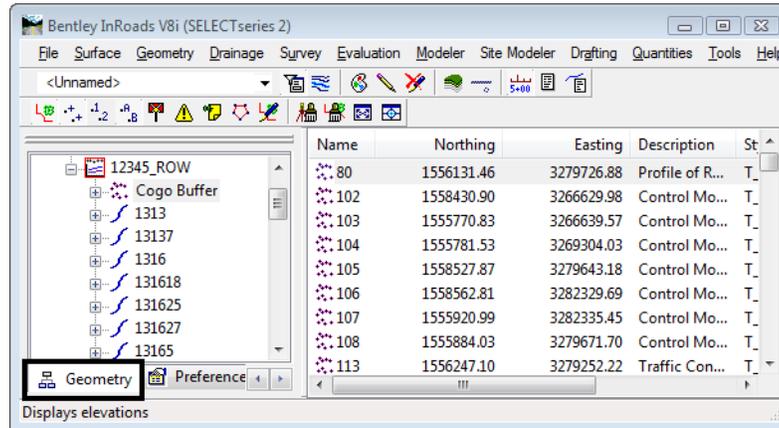
6. From the pull down menu select **Survey > Survey Data to Geometry**. The Survey Data to Geometry dialog will appear.
7. In the **Project Name** field key-in the Geometry Project Name **12345_ROW**. A new Geometry Project will be created by that name.
8. From the **Description** drop down menu select **Use Style Description**.
9. From the **Curve Stroking** drop down menu select **Horizontal and Vertical**.
10. From the **Duplicate Names** section select the radio button **Rename**.
11. <D> the **Filter** button the Survey Style Filter dialog will appear. Review the filters rules prior to exporting.



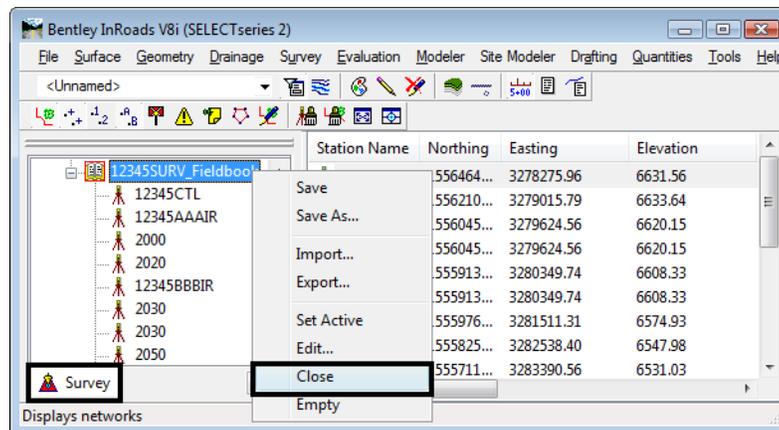
12. <D> **OK** to close the **Survey Style Filter** dialog as it was used for review and is not required to be open.
13. <D> **Apply** on the **Survey Data to Geometry** dialog. The geometry project is created, the Cogo points are created, and horizontal and vertical alignments are generated.



14. Examine InRoads Explorer to verify geometry data was created.



15. The survey fieldbook is no longer needed, go to the **Survey Workspace** tab and <R> **12345SURV_Fieldbook** and choose **Close** from the fly-out list. This will remove it from memory, saving the file should not be necessary.



16. From the InRoads Locks toolbar toggle **OFF** the InRoads Feature Filter lock.



Lab 2.4 - Saving a Geometry Project

InRoads is Memory based, not Disk based. The file(s) seen in the InRoads Workspace pane are copies from the disk drive and reside in the computer's memory. Any changes to these files (or creation of new data files) require saving back to the disk drive.

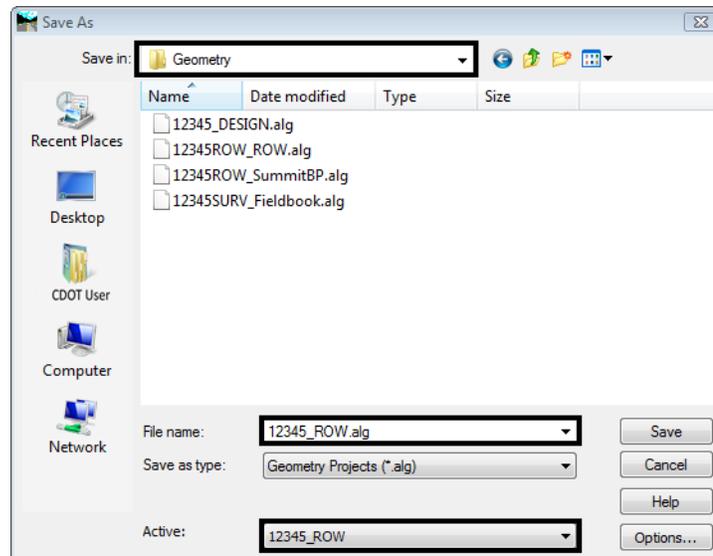
1. From the Geometry Workspace Pane <R> on the Geometry Project **12345_ROW** and select **Save As** from the fly-out menu the Save As dialog will appear.
2. Select the drop-down list for the **Active:** field and select **12345_ROW** from the list.

3. Verify the same name is populating the **File Name: 12345_ROW**.

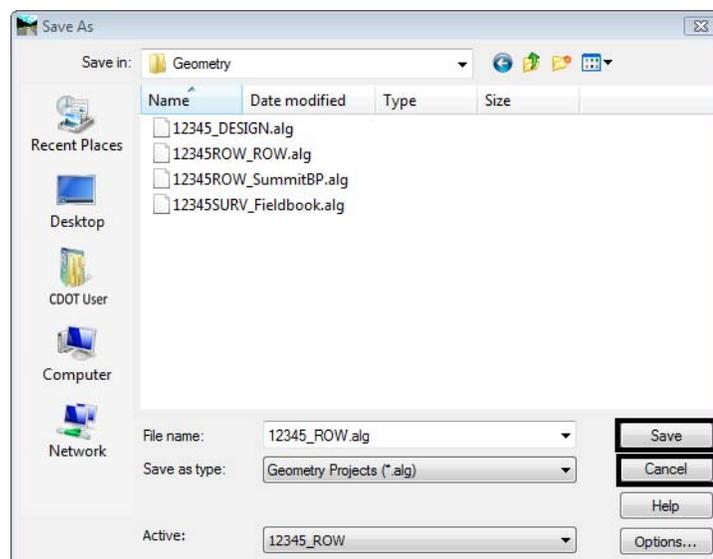
Note: By default it should be saved to the folder:

C:\Projects\12345\ROW_Survey\InRoads\Geometry as this was the path for geometry files defined in the Project Defaults configuration file.

4. <D> on the **Save in: Geometry** to verify the folder location.



5. After the correct folder location is identified, <D> **Save** then <D> the **Cancel** buttons.



- ◆ When the Geometry Project is saved to the hard drive it takes on an extension of .alg
- ◆ The directory folder for geometry already contains four geometry projects. 12345_DESIGN.alg contains design centerline information and will be used to facilitate development of the right of way plans.

- ◆ The Geometry Styles associated with the exported fieldbook are derived from the Survey Feature Style definition at the time geometry is exported from InRoads Survey.
- ◆ Geometry styles can be assigned (or reassigned) to alignments in the Geometry > Copy Geometry dialog. No equivalent command exists for Cogo Points. However, a Geometry Style can be assigned to alignments or Cogo points when using the horizontal annotation command to view geometry information.

