LAB 4 - Geometry Management

This lab illustrates some of the common commands used to manage geometry for a project.

Chapter Objectives:

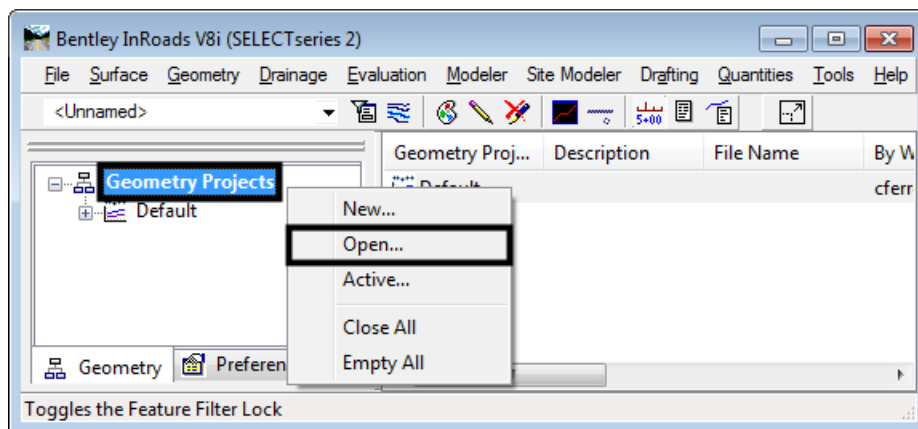- Copy a geometry project
- Rename alignments

The following files are used in this lab:

- C:\Projects\12345\Design\Drawings\Reference_Files\12345DES_Geometry-Management.dgn
- C:\Projects\12345\ROW_Survey\InRoads\Geometry\12345SURV_Fieldbook.alg
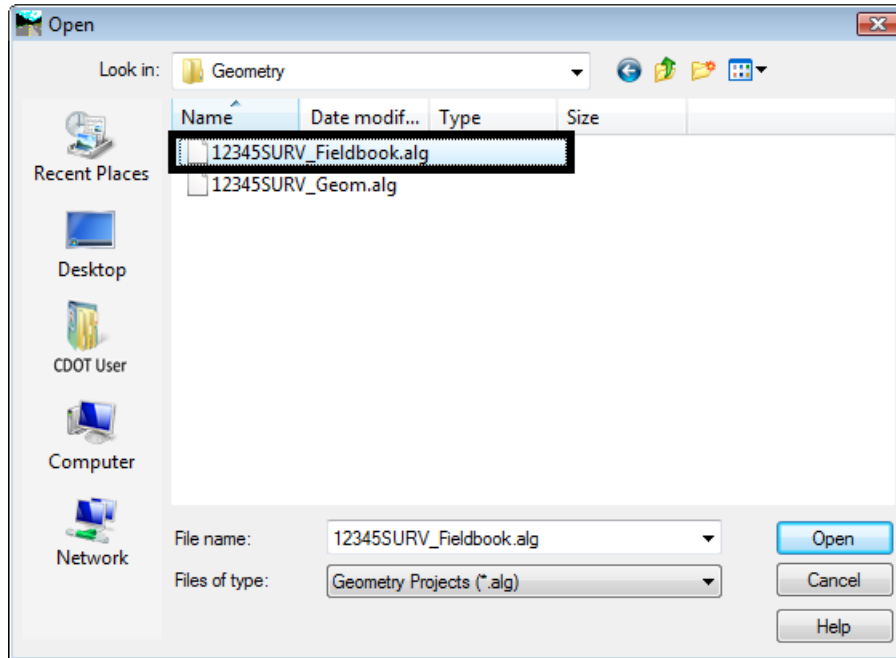
Lab 4.1 - Copy a Geometry Project

Section Objectives:

♦ Access a Geometry Project created by the Survey/ROW discipline

♦ Save the renamed Geometry Project in the Design project folder (vs. the Survey folder)

♦ Rename horizontal alignment names, add/modify descriptions, and review the geometry styles assigned to the alignments

1. From the **Geometry** tab in the InRoads *Explorer* window, right-click on **Geometry Projects** and select **Open** from the right click menu.
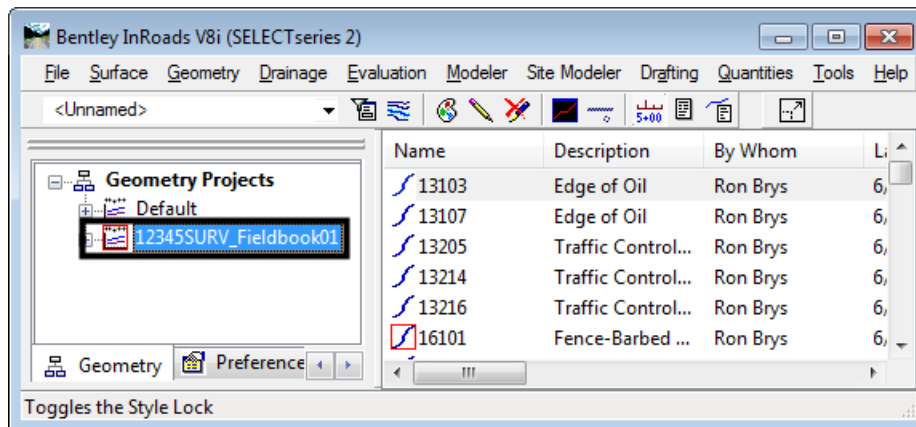

2. Navigate to the directory **C:\Projects\12345\ROW_Survey\InRoads\Geometry**.

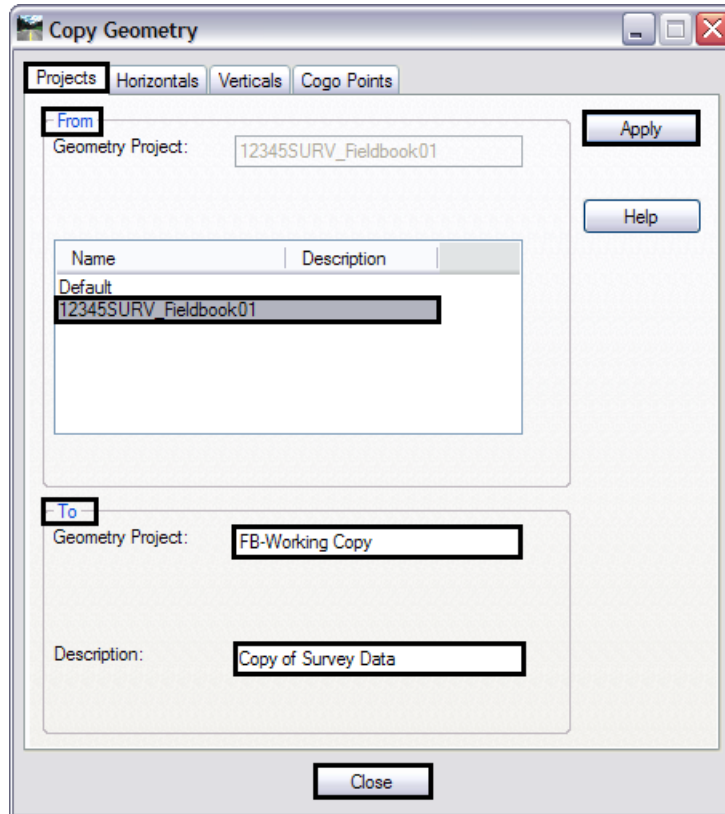3. **<D>** the Geometry Project **12345SURV_Fieldbook.alg**.

4. **<D> Open** then **Cancel** button. The *Open* dialog box is dismissed
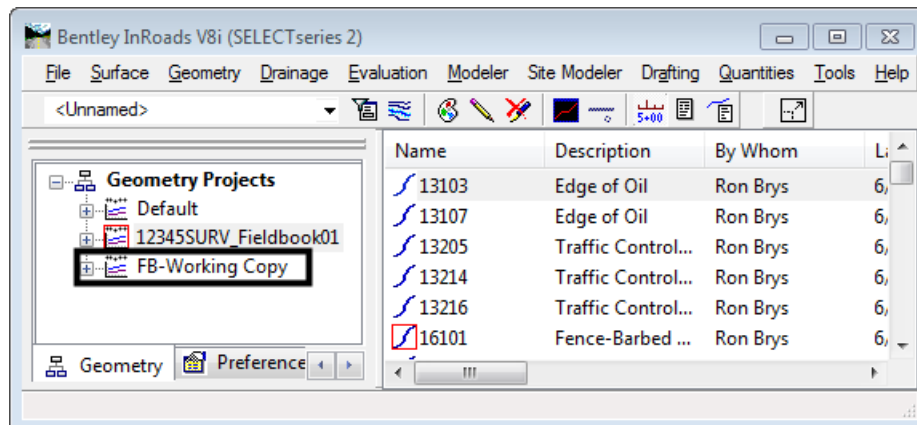

At this point, a 'copy' of the survey geometry project is loaded into memory. The following steps will rename the geometry project and save this copy in the Design discipline folder.

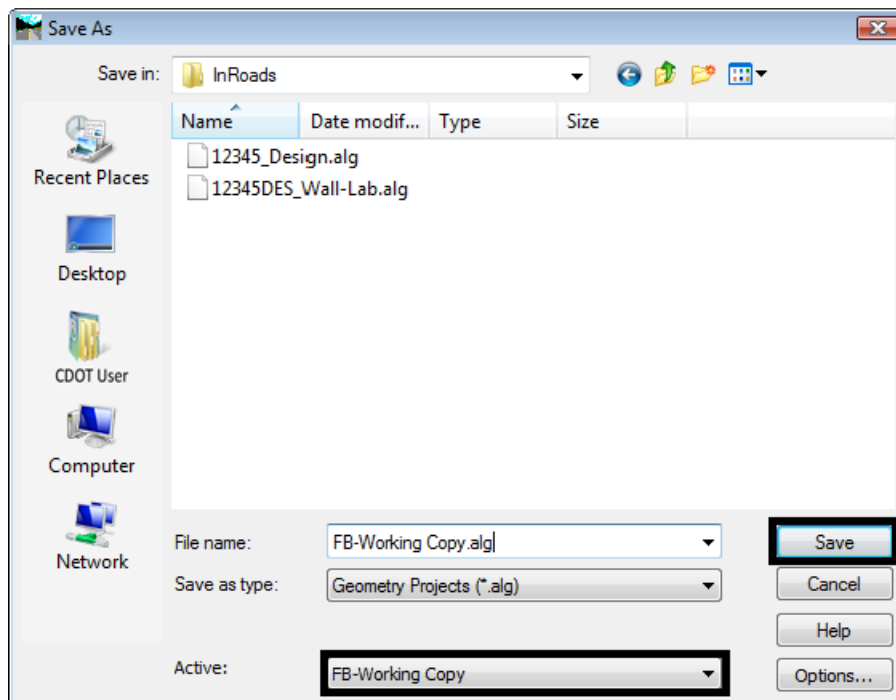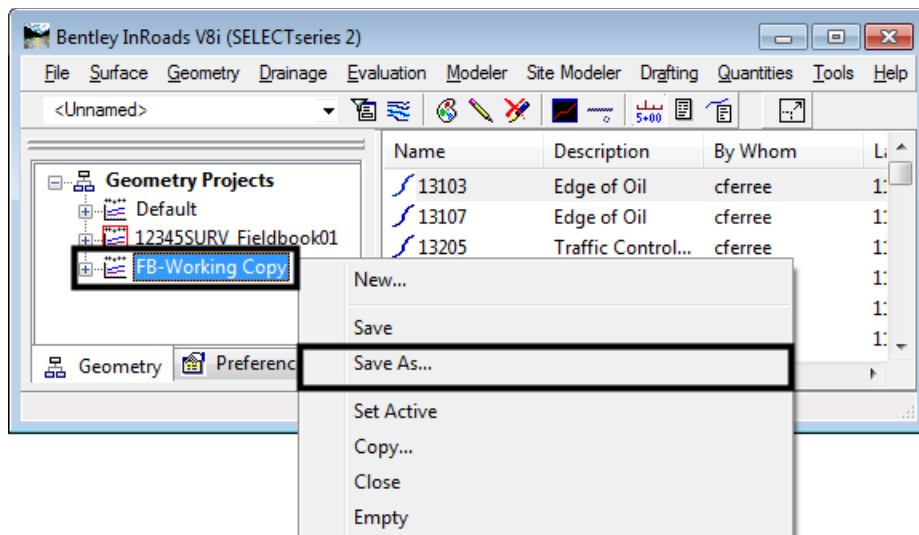**Note:** Loading a file into InRoads makes it the active entity by default.

5. Select **Geometry > Copy Geometry**.

6. On the *Projects* tab, in the *From* section select **12345SURV_Fieldbook01**.

7. In the *To:* field key in ***FB-Working Copy***.

8. In the *Description:* field key in ***Copy of Survey data***.

9. **<D>** the **Apply** then **Close** buttons.

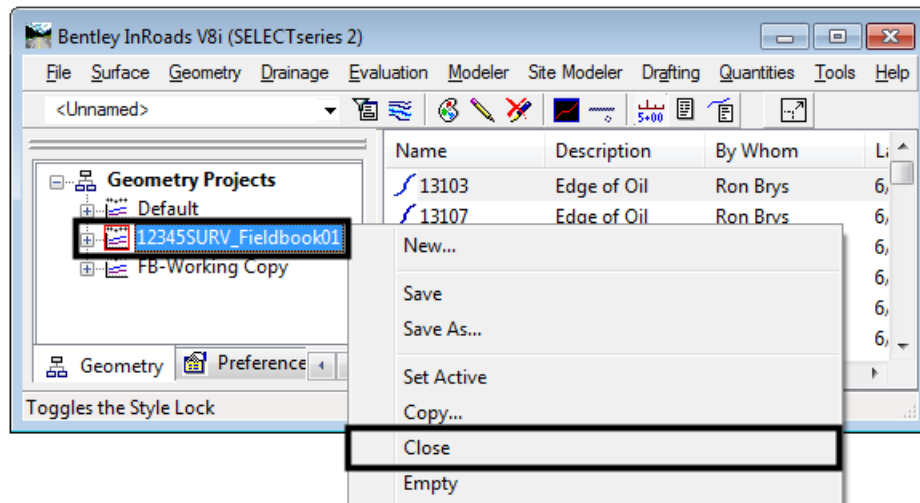10. Verify the copy is created by checking the InRoads Explorer pane.

11. In the InRoads explorer pane, **<R>** on the **FB-Working Copy** geometry project and select **Save As…** from the right click menu. The *Save As* dialog box is displayed.

12. Navigate to the **C:\Projects\12345\Design\InRoads** folder.   If necessary, use the drop-down arrow in the *Active* field and reselect **FB-Working Copy** to ensure the saved file name will match the active surface name.

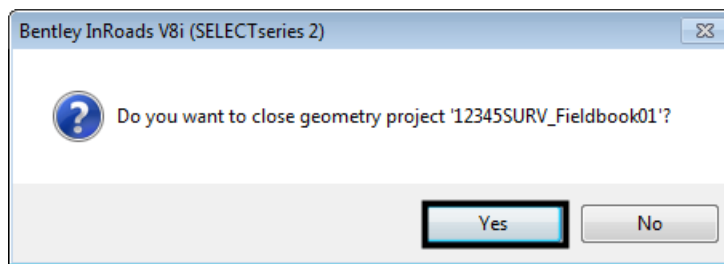13. **<D>** the **Save** then the **Cancel** buttons. The *Save As* dialog will close.

   Note: To minimize confusion, be sure to save the geometry project with the same name seen in the InRoads Explorer pane.

14. The original geometry project generated by the survey staff is no longer required. In the InRoads explorer pane, **<R>** on the geometry project name **12345SURV_Fieldbook** and select **Close** from the right click menu.

Note: This will 'unload' the geometry project from memory. It does not delete any files from the hard drive.

15. **<D> Yes** and verify the geometry project is removed from memory.

Section Summary:

♦ Specialty groups using ROW/Survey geometry files should always make their own copy of the original data.

Lab 4.2 - Renaming Alignments

In the case of the geometry project copied in the previous exercise, the horizontal alignment names (and geometry styles) were assigned when the survey fieldbook was exported based on the InRoads Survey feature table (FWF file). These attributes are assigned based on the feature coding assigned in the field. These names accurately reflect the coding used in the field, but could benefit from more intuitive naming.

Section Objectives:

♦ Modify the alignment names, add descriptions, and assign appropriate Geometry Styles.
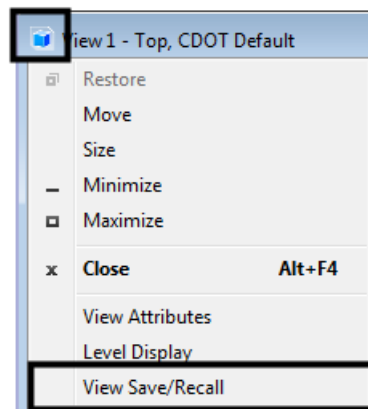
Graphics clean-up

Before continuing with this lab, delete all visible graphics in your MicroStation file using the element selection tool or a fence. Note that you are deleting the graphical display of data, not the data itself. The graphics could be redisplayed using the InRoads display commands shown in previous sections.
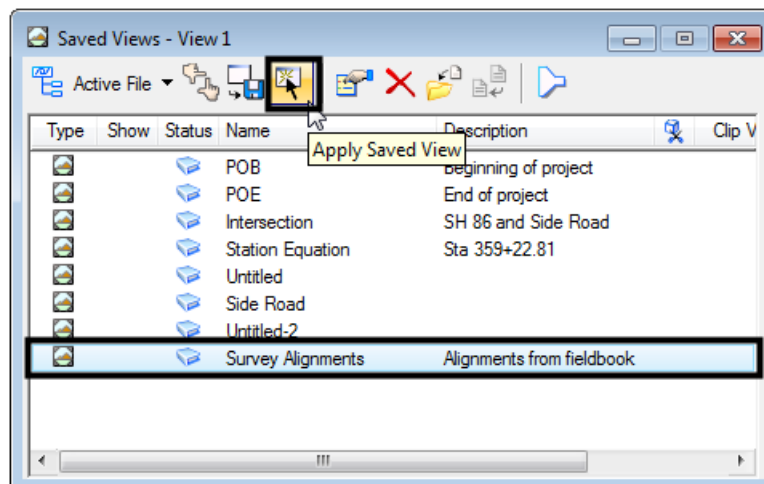
Note: The screened topography and the training guides are either locked graphics or in an attached reference file, you will not be able to delete these graphics and will use them for orientation.

Renaming Horizontal Alignments

1. **<D>** on the InRoads icon in the top left corner of the view window and **<D> View Save/ Recall** from the menu.
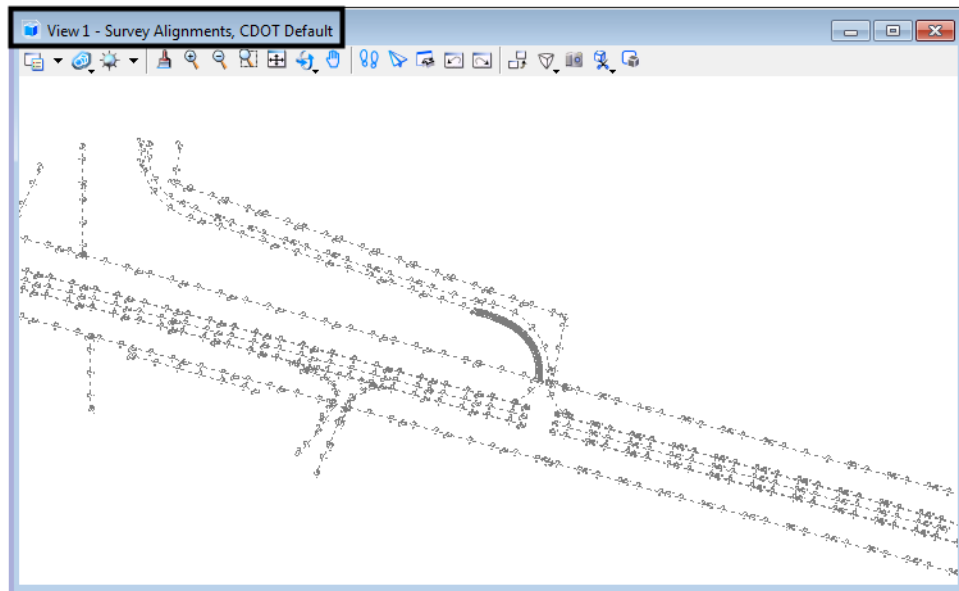
2. From the *Saved View* dialog box highlight **Survey Alignments**.

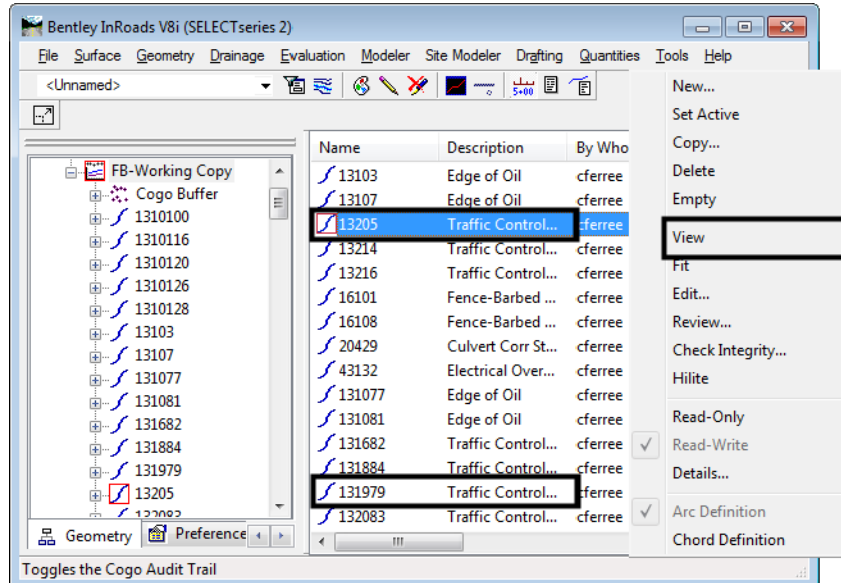3. **<D>** the **Apply Saved View** and then **<D>** in **View 1**.

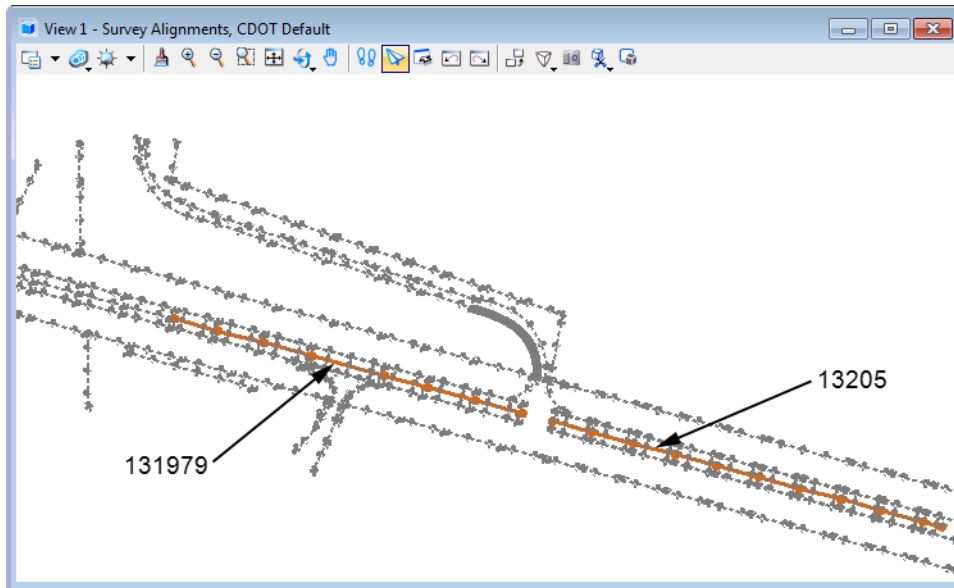4. Close the *Saved Views* dialog box.

5. Verify that the view name includes Survey Alignments. The view window should look similar to the following image.
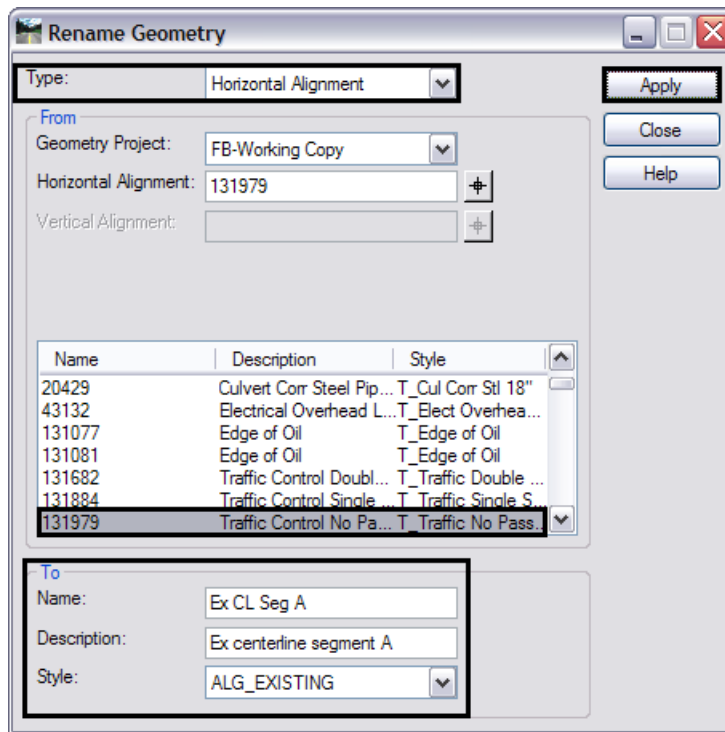

6. Display alignments **13205** and **131979**. **<R>** on the alignment and select **View** from the right click menu.

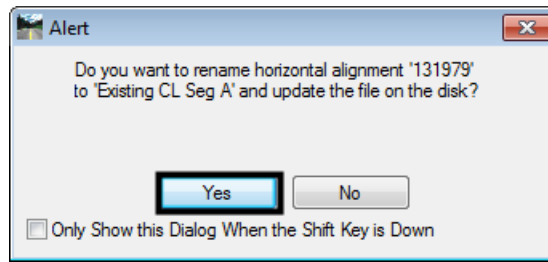The the alignments should show up in the view window as shown below.

7. Select **Geometry > Rename Geometry** from the InRoads main menu. The **Rename Geometry** dialog box is displayed.

8. From the *Type:* drop-down menu select **Horizontal Alignment**.

9. In the *From* section, verify the *Geometry Project* is **FB-Working Copy**.

10. In the *From* section list locate and **<D>** on alignment **131979.**

Note: This alignment represents the centerline of existing pavement.

11. In the **To** section key in the *Name: **Existing CL Seg A***.

12. Key in the *Description: **Ex centerline segment A***.

13. Set the *Style: **ALG_EXISTING***.

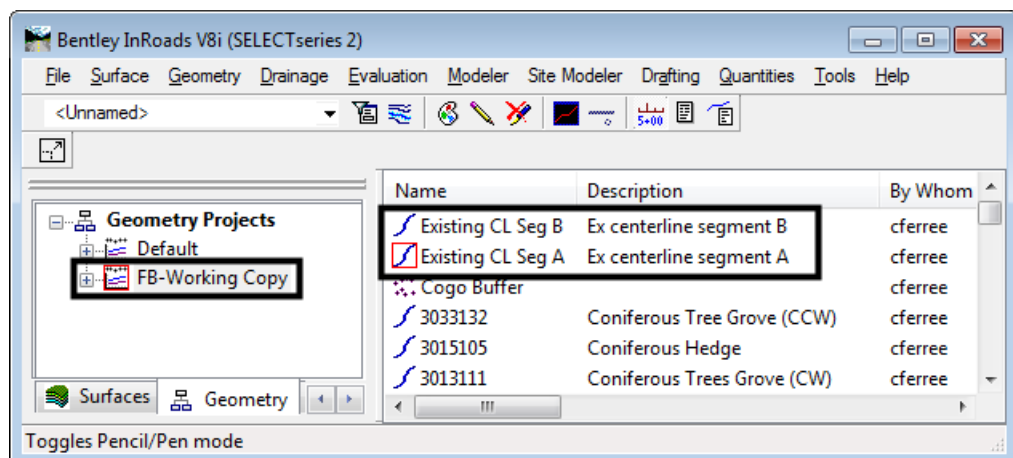14. **<D>** the **Apply** button. A confirmation dialog box is displayed.

15. **<D>** the **Yes** button to confirm the change and dismiss the confirmation box.

16. **Rename** the centerline alignment *13205* using the following information:

    ♦ Name: **Existing CL Seg B**

    ♦ Description: **Ex centerline segment B**

    ♦ Style: **ALG_EXISTING**

    Note: You can use the dialog selection icon ⊞ to graphically identify the alignments for renaming.

    Important!   Profile or Cross Section sets that were created based on the original alignment names will lose their linkage to the alignment names after renaming of the alignments. Geometry renaming should be done prior to the generation of Profile or Cross Section sets.
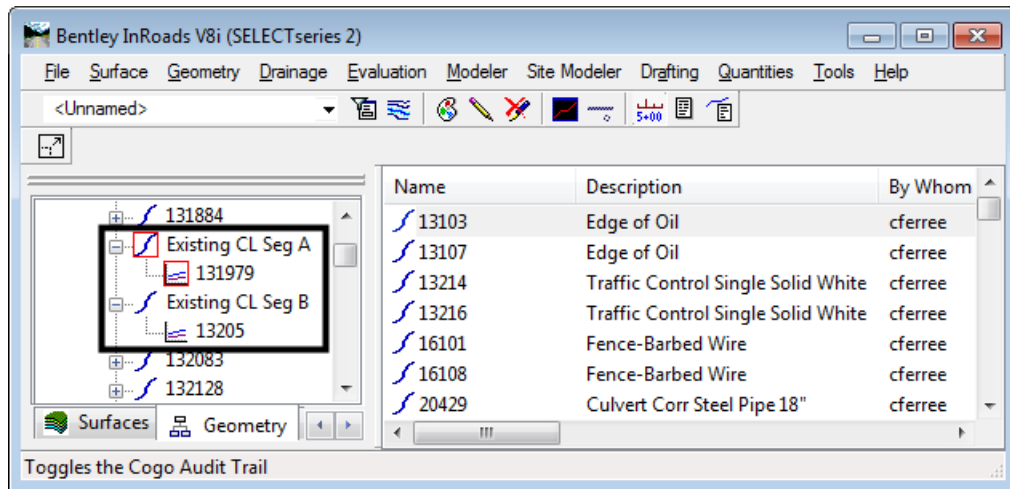
17. **Close** the *Rename* dialog box and check the InRoads explorer window to verify the results.

Renaming Vertical Alignments

Two horizontal alignments have been renamed, a description has been added and the alignments are assigned the appropriate geometry style. Horizontal alignments are 'parent' alignments which can contain 'child' vertical alignments.

18. In the InRoads explorer, **<D>** the **Geometry** tab.

19. Check the horizontal alignments for associated vertical alignments by expanding the **+** icon.

20. Select **Geometry > Rename Geometry**. The *Rename Geometry* dialog box is displayed.

21. From the *Type:* drop-down menu select **Vertical Alignment**.

22. In the *From* section verify the *Geometry Project* is set to **FB-Working Copy**.

23. Verify the active *Horizontal Alignment* is set to **Existing CL Seg A**.

24. **<D>** on alignment **131979** from the *Vertical Alignment* list.

    Note: This alignment represents the vertical elevations of existing pavement.

25. In the *To* section **key in** the *Name: Existing Pavement*.

26. In the *Description:* field, key in **Surveyed elevations**.

27. Set the *Style:* to **ALG_EXISTING_Vert**.

28. **<D> Apply** then **<D> Yes** button.

Next, change the name of the vertical alignment attached to Existing CL Seg B.

29. Now set the active *Horizontal Alignment* to **Existing CL Seg B** in the *From* area of the *Rename Geometry* dialog box.

    Note: You can use the graphic selection icon ⊞ to graphically identify the alignments for renaming.

30. In the *To* section, key in the *Name: **Existing Pavement***.

31. key in **Surveyed elevations** for the *Description:*.
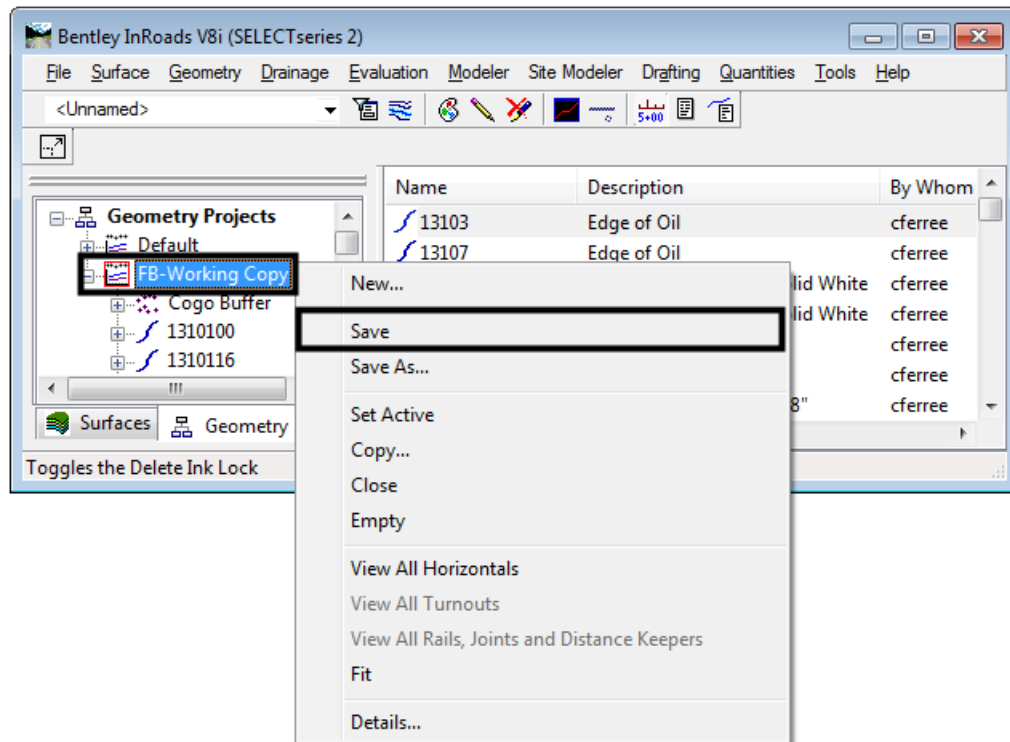
32. Set the *Style:* ALG_EXISTING_Vert.

33. **<D> Apply** then **<D>** the **Yes** button in the confirmation box.

34. **<D> Close** the *Rename Geometry* dialog box.

A copy of the ROW/Survey's geometry project was made. Key alignments were renamed and assigned appropriate styles. The alignments now have intuitive name and conform to CDOT design standards.

This is a good time to save the Geometry Project to disk.

35. **<R>** on the geometry project **FB-Working copy** and select **Save As** from the right click menu.

36. This will overwrite the geometry project FB-Working Copy stored in the folder *C:\Projects\12345\Design\InRoads*.

Section Summary:

♦ Rename Geometry is used to rename geometry, add or revise a description, and/or update the associated style

Chapter Summary:

• Take care not to inadvertently edit or delete another group's work. Communication is the key to reducing data loss.

• Survey geometry has names meaningful to them, but possibly not to other groups. Rename your copy of survey's geometry data.