

LAB 5 - Drawing Basics using the CDOT Menu

In this lab you will learn how to access the CDOT Menu and become familiar with its different components and operation. You will use the CDOT Menu to set standards (level, color, line style, line weight), automatically select drawing tools, and then place basic elements (lines, circles, arcs, etc.).

Chapter Objectives:

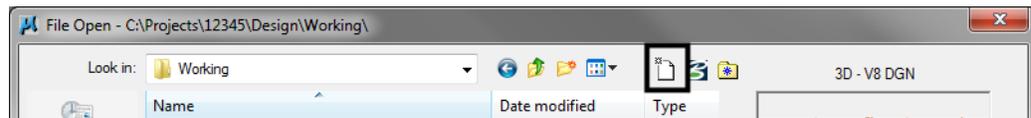
After completing this exercise you will know how to:

- Access the CDOT Menu
- Access the CDOT Bridge Menu
- Use the CDOT Menu to set element attributes
- Use the CDOT Menu to place basic elements (lines, arcs, circles, shapes, etc.)
- Use the **Delete** command
- Use the **Undo** and **Redo** functions
- Change the element highlight color

Lab 5.1 - Create a Miscellaneous Details file

Create this file to practice placing graphics using the CDOT Menu, as well as to draw a few miscellaneous details that later can be placed on a sheet.

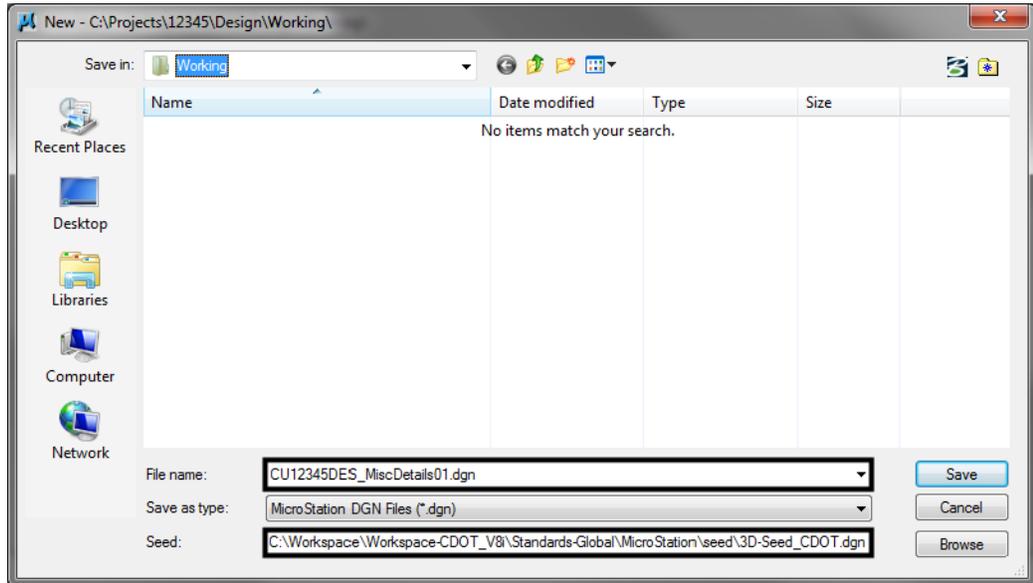
1. Start MicroStation from your desktop shortcut or from the **Start Menu**.
2. From **MicroStation Manager**, select the **New File** icon.



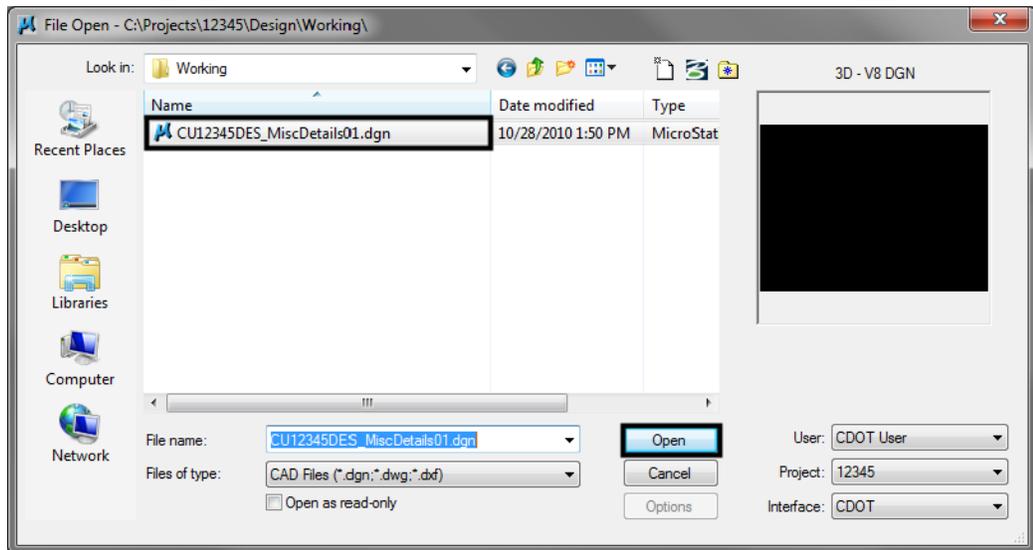
3. Verify the **Seed File** is set to 3D-Seed_CDOT.dgn.
4. Set the **Directory** to \Design\Working.
5. Key in a file name CU12345DES_MiscDetails01.dgn.

Note: CU stands for “CDOT User” the initials you’ll use for training purposes.

6. Select Save.

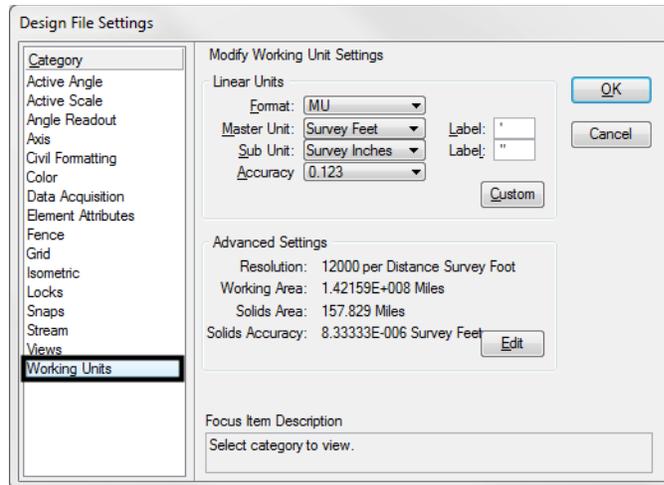


7. With the CU12345DES_MiscDetails01.dgn file highlighted in the MicroStation Manager, select Open to open it.

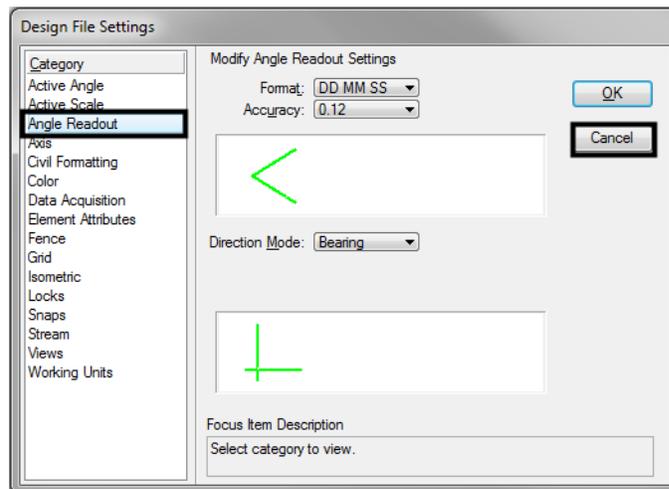


Check Seed File Settings

1. Select **Settings > Design File...** then select **Working Units** and review the CDOT defaults.



2. Select **Angle Readout** from the **Category** list.



3. **Cancel** the dialog box.
4. Key in **dp=\$** to check the display depth.
5. **<D>** anywhere in the view to select it.
6. Review the CDOT defaults in the message field.

View 1: Display Depth=-1000.000,15000.000

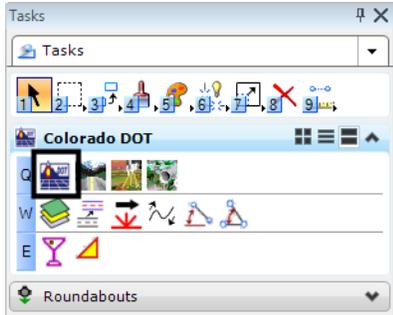
7. Key in **az=\$** to check the active depth.
8. **<D>** anywhere in the view to select it.

- Review the CDOT defaults in the message field.

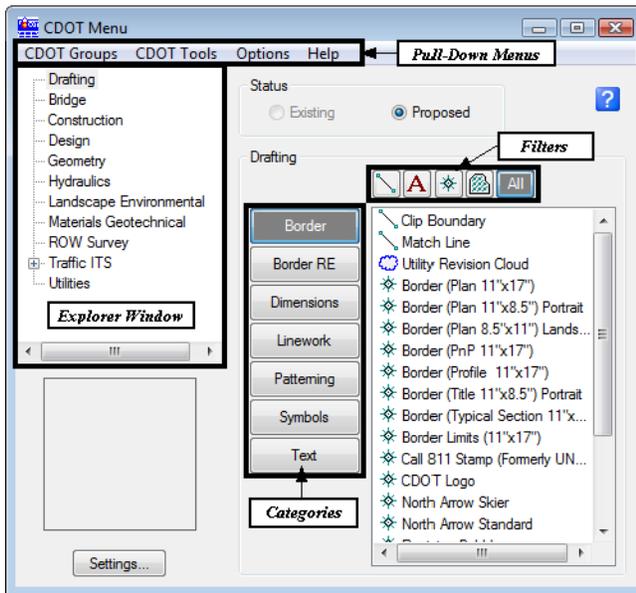


Open the CDOT Menu

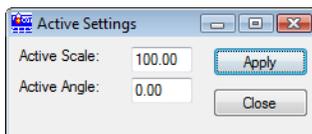
- The CDOT Menu opens automatically when MicroStation is started. If it has been closed and needs to be re-opened, select the CDOT icon **Colorado DOT** Task Tab.



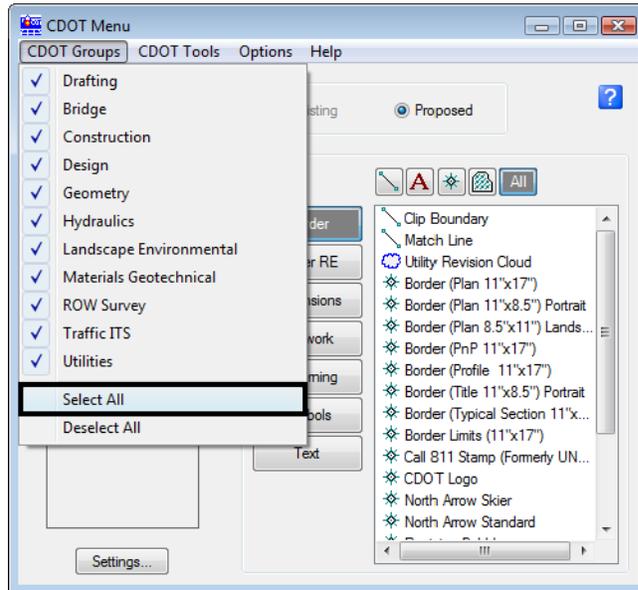
- The CDOT Menu opens. The CDOT menu is broken up into several main parts, as shown below.



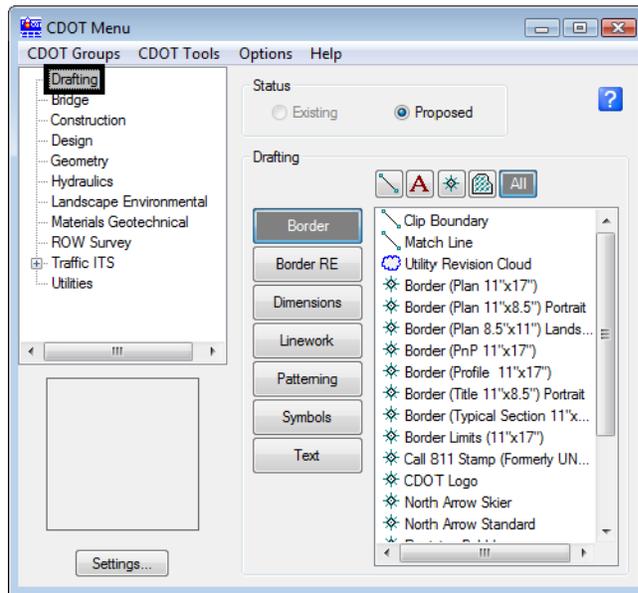
- Selecting **Settings** allows the user to apply an **Active Scale** and **Active Angle** to elements being placed.



- From the pull-down menus select **CDOT Groups > Select All**.

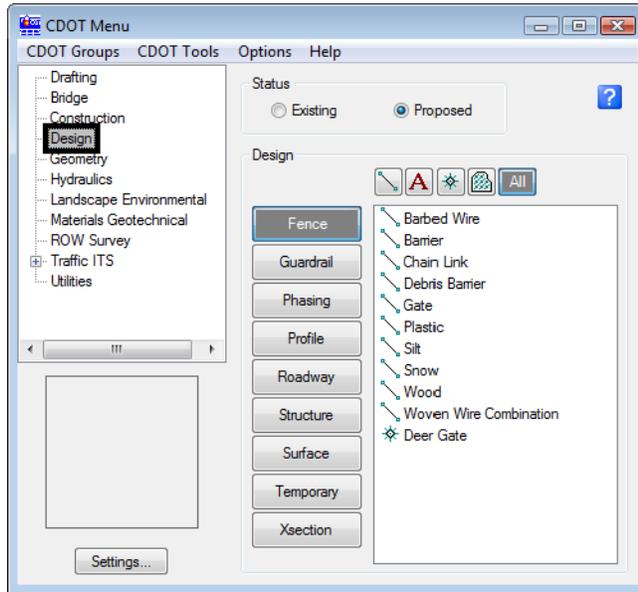


- Select **Drafting** from the **Explorer Window**.

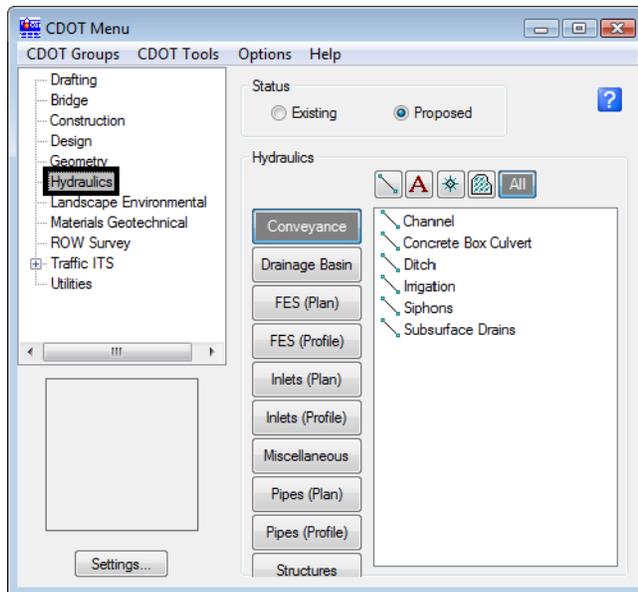


- Review some of the categories and items available for general drafting.

7. Select **Design** from the **Explorer Window**.



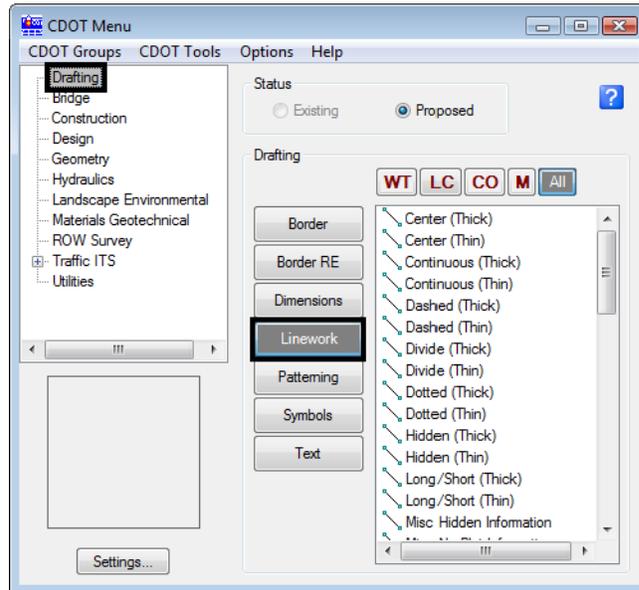
8. Review some of the categories and items available for the **Roadway Design Group**.
9. From the **Explorer Window**, open other groups of interest (Hydraulics, Traffic, Utilities, etc.) and review the available categories and items.



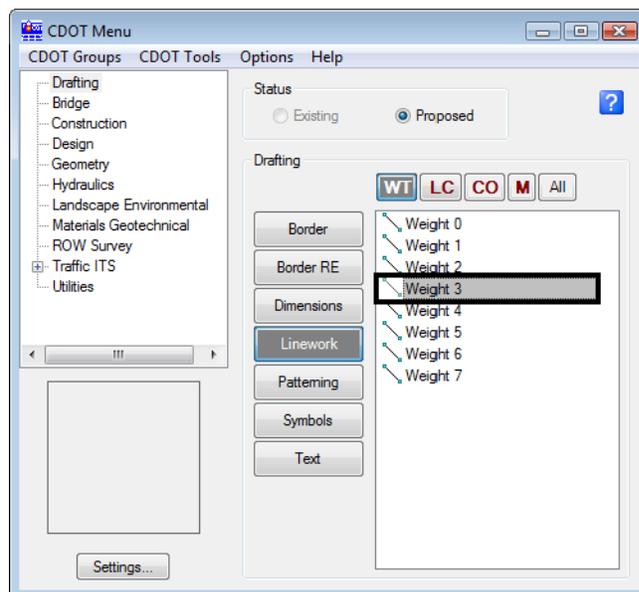
Lab 5.2 - Place Graphics with the CDOT Menu

Place Lines

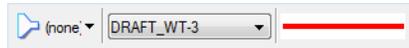
1. In the CDOT Menu Explorer select **Drafting**, then select the **Linework** category.



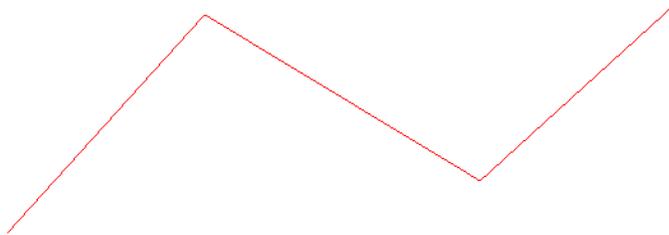
2. This category is used for general drafting work that is placed on standard drafting levels. The Filters are used to organize the different linework Items.
3. Set the Filter to **WT**, for line weight
4. Select the Item **Weight 3**.



The filter determines the appropriate drafting level for the **SmartLine**. The Smartline command is the default for this menu item. All other drafting commands should be either be picked from the CDOT Main tool bar or entered as a key-in.



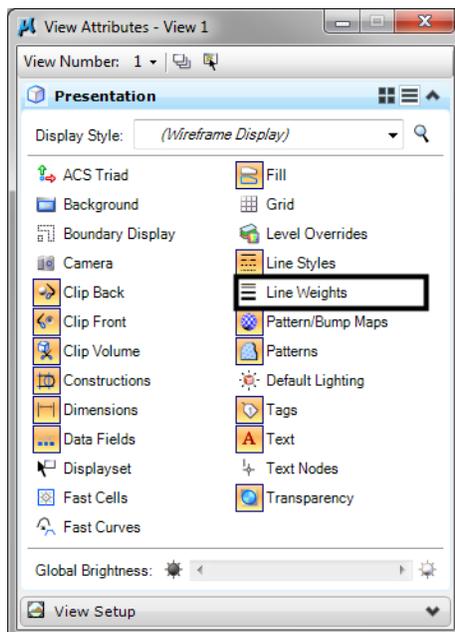
- Data point in View 1 to enter vertices for the **SmartLine**.



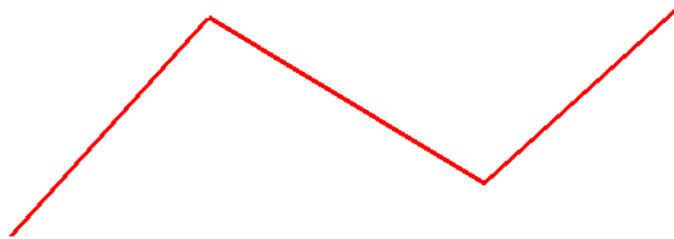
- <R> when finished.

Note: Always <R> when you are finished drawing an element. The active drawing tool (in this case SmartLine) remains active so that you can place another line without having to re-select the item from the menu.

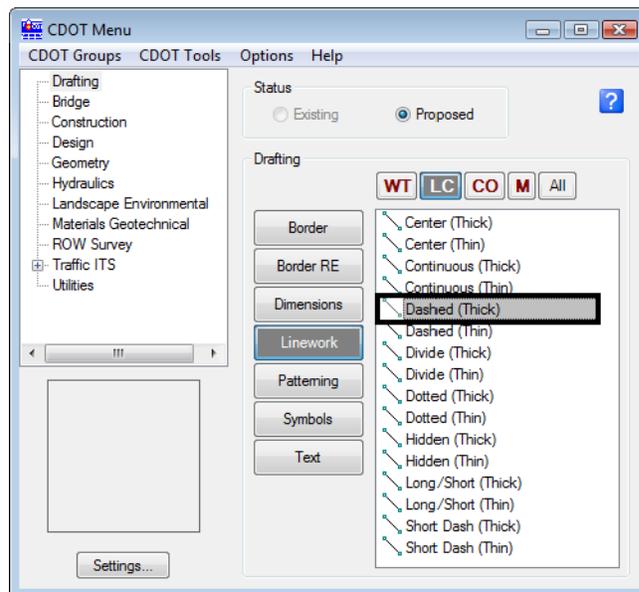
- The seed file settings have line weights turned off to provide a better on screen display. To see the line weights, select the view attributes icon from the view tools at the bottom of each view window. You may also select **Settings > View Attributes** from the MicroStation pull-down menus. Toggle **Line Weights** on.



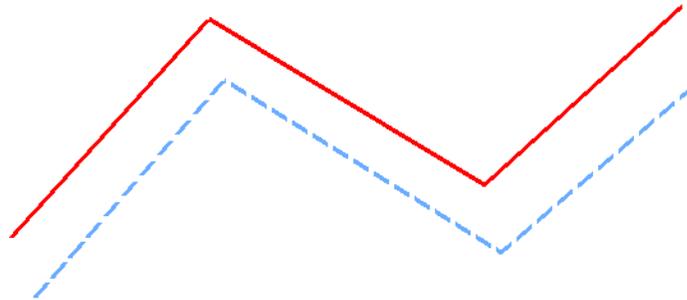
Note: Selecting the down arrow from the view attributes icon  will open the dialog box temporarily allowing the user to toggle on line weights without bringing up the dialog box permanently. The dialog box will disappear when the mouse is moved away.



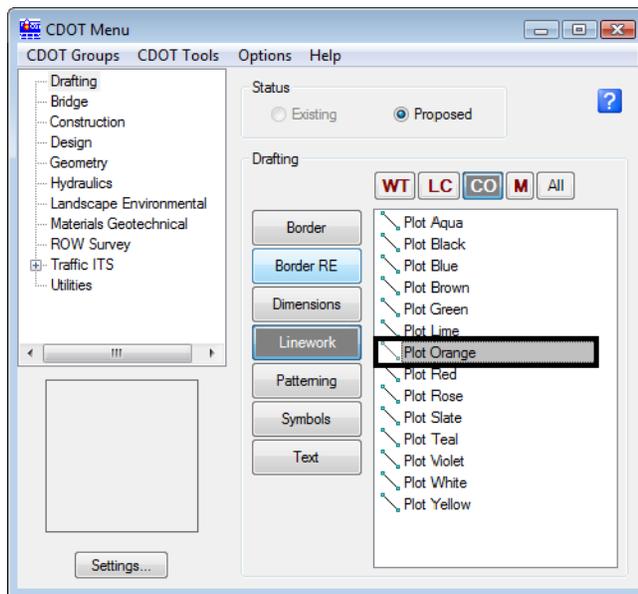
8. If you have opened the **View Attributes** dialog box, close it and return to the CDOT menu.
9. Set the **Filter** to **LC**, for linestyle.
10. Select the Item **Dashed (Thick)**.



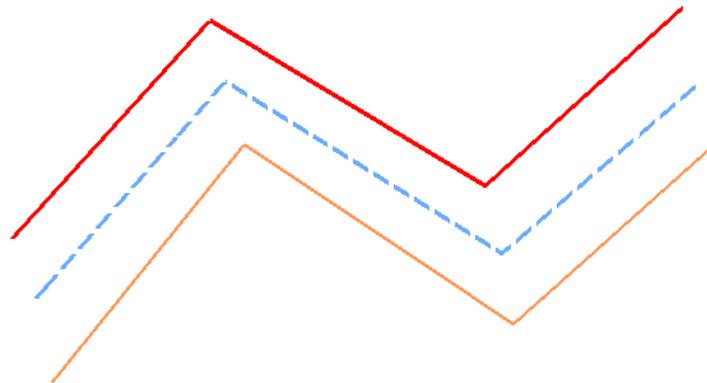
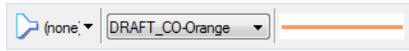
- Place another **SmartLine** and note the change in line style and the active level on which it is placed.



- <R> when done.
- Set the **Filter** to **CO**, for Color.
- Select the Item **Plot Orange**.

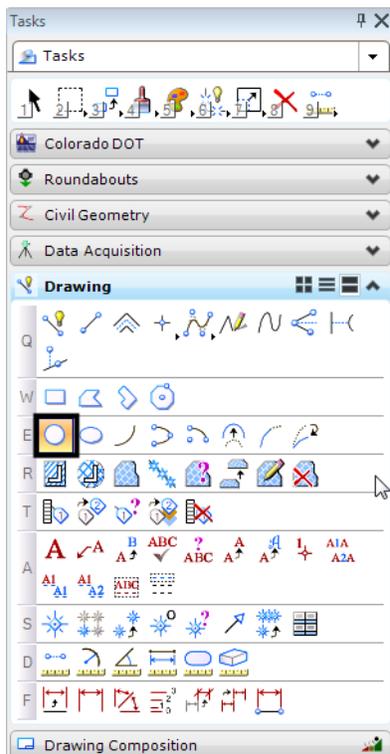


- Place another **SmartLine** and note the change in both line style and color and the active level on which it is placed.

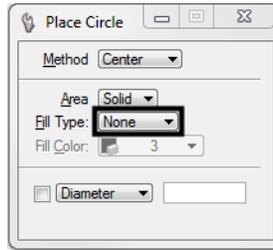


Place Circles

- In the CDOT Menu, set the **Category**, **Filter** and **Item** to establish whatever level and symbology you like.
- From the **Drawing** task tab, select the **Circle** icon.

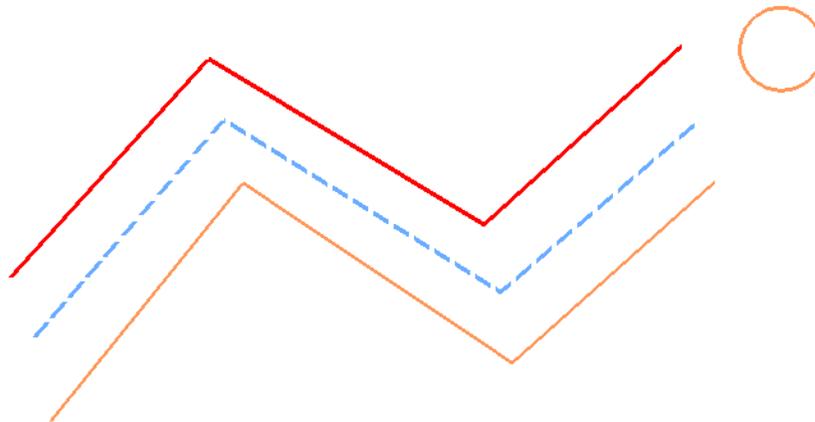


- In the Tool Settings box, set Fill Type to None.

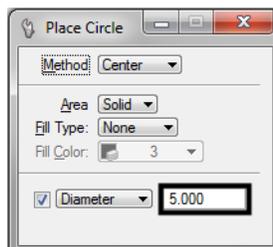


- Follow your prompts and <D> to identify the center of the circle, then <D> to place a point on the circle.

Note: As we started a new drawing the zoom area may be larger or smaller. Your drawing may not look exactly as shown below due to this; simply place the first circle then window area around the element.

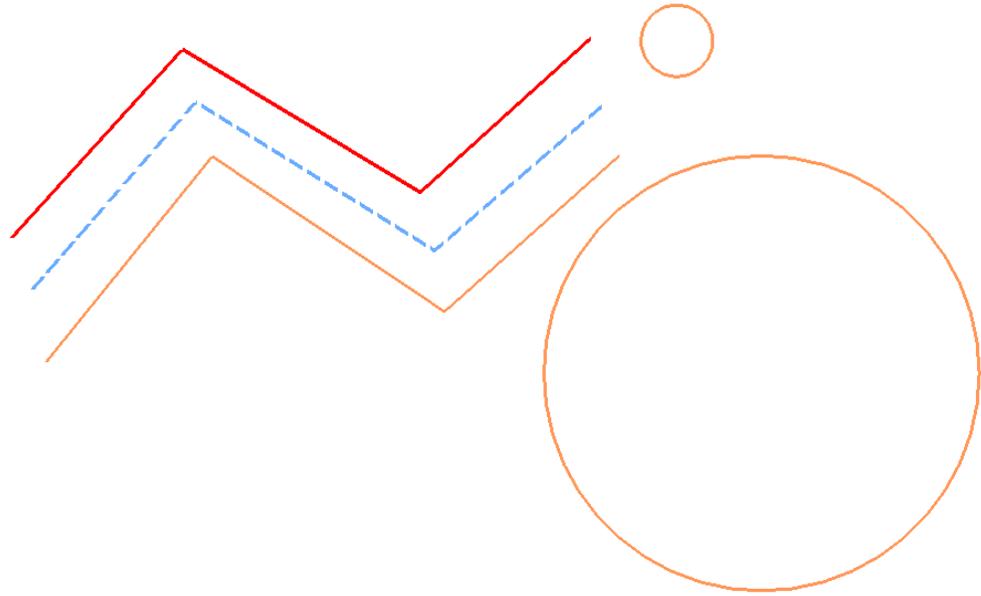


- <R> when done.
- In the Tool Settings box, toggle on Diameter and key in a value of 5.

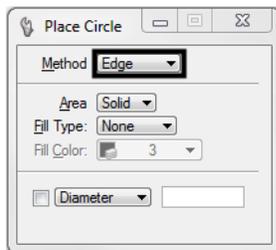


Note: Important! Don't forget to tab after keying in the value. Otherwise, your entry will not be accepted. *This is true for all fields in MicroStation dialog boxes.*

7. <D> to identify the center of the 5 ft. diameter circle.

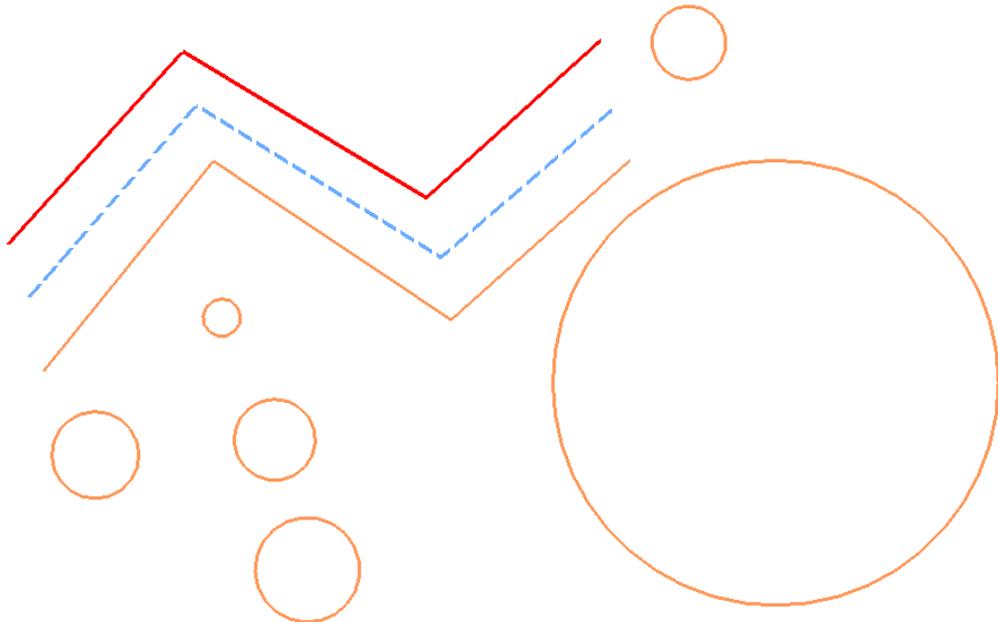
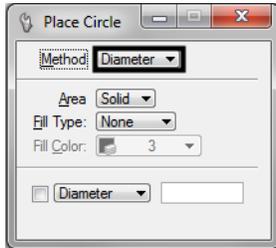


8. <R> when done.
9. Practice placing circles with other diameter or radius values.
10. In the Tool Settings box, set Method to Edge and toggle off the Diameter or Radius constraint.



11. Follow your prompts and <D> to place a circle by specifying three edge points. <R> when done.

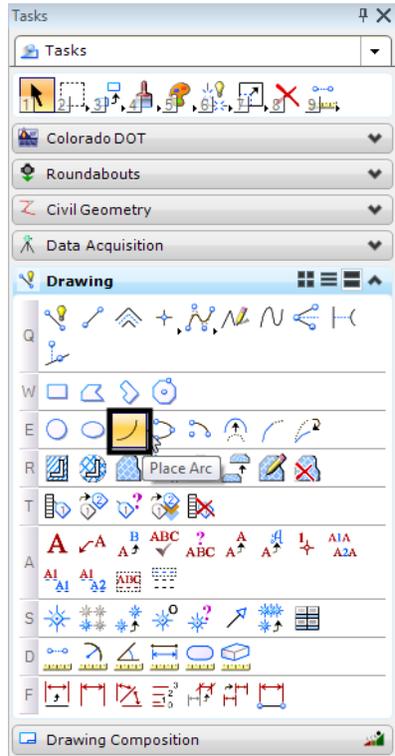
12. In the **Tool Settings** box, set the **Method** to **Diameter** and follow your prompts to place a circle with two points for the diameter. <R> when done.



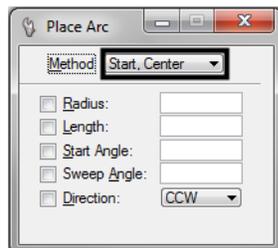
Place Arcs and Shapes

1. In the CDOT Menu, set the **Category**, **Filter** and **Item** to establish the correct level and symbology.

- From the **Drawing** task tab, select the **Arc** icon.

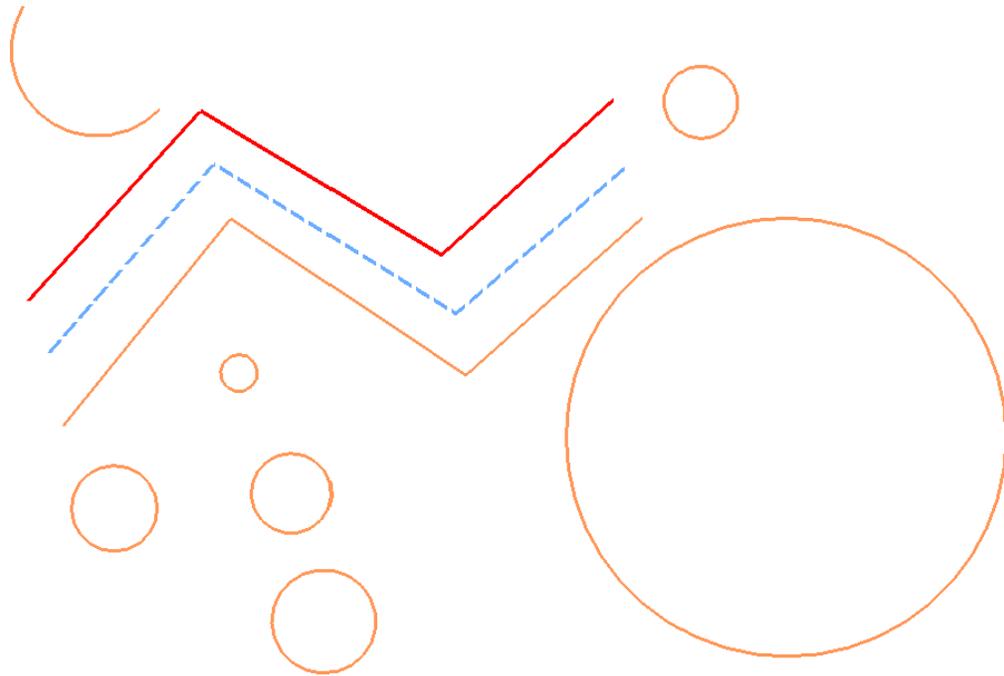


- In the Tool Settings box, set the Method to Start, Center.



- Follow the prompts and <D> anywhere to place the first arc endpoint.
- <D> to define the arc center.

- 6. <D> to define the second endpoint.

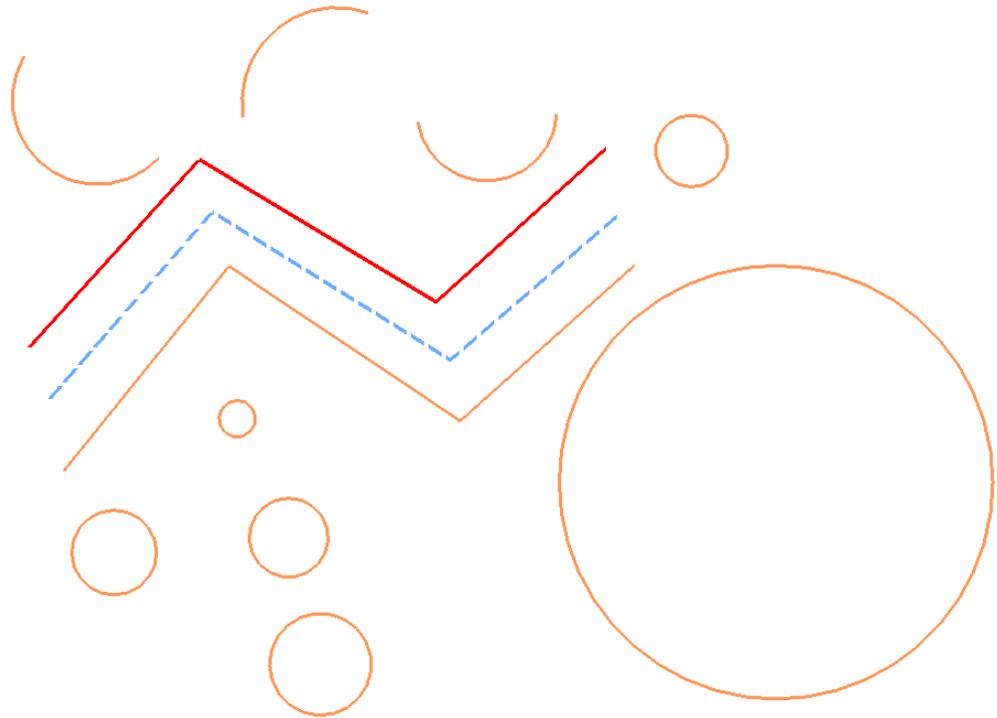


- 7. <R> when done.
- 8. In the Tools Settings box, set the Method to Start, Mid, End.

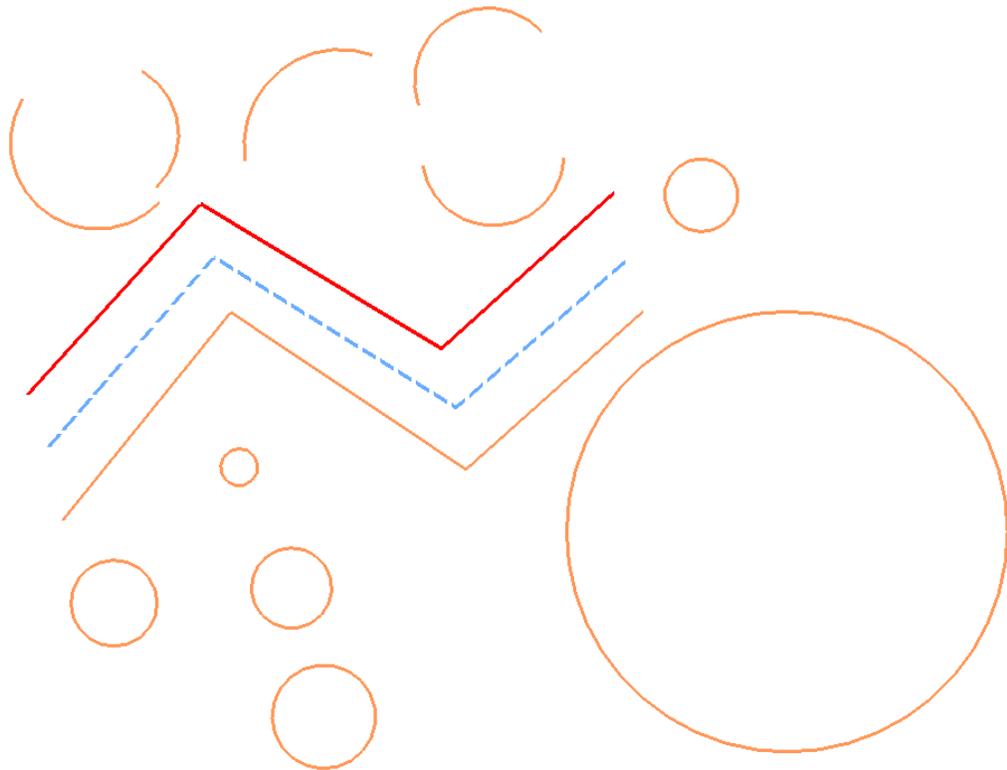
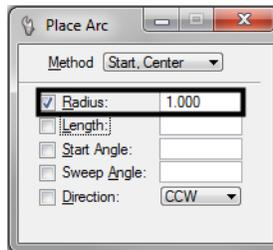


- 9. Follow the prompts to place an arc by 3 points.

10. Repeat the above step, but place the arc in the opposite direction.

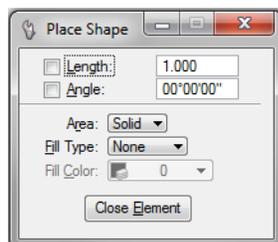
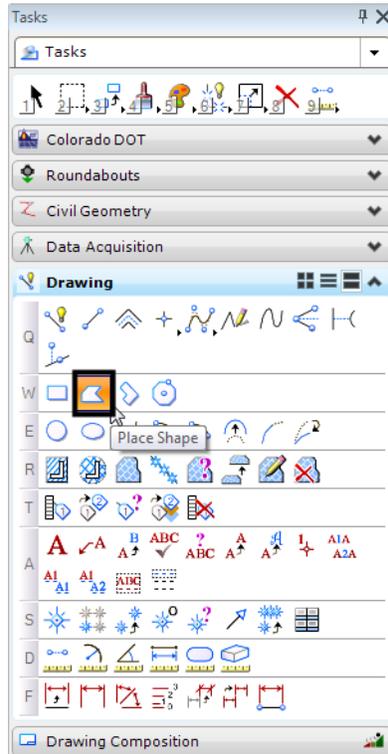


- Using any of the available methods, constrain the radius by clicking in the check box as shown, and place another arc.

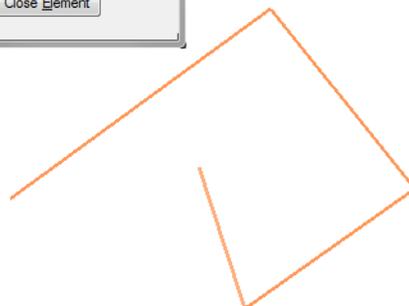
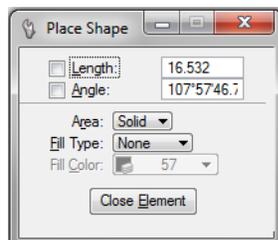


- Try setting other constrains and place additional arcs.
- <R> when done.

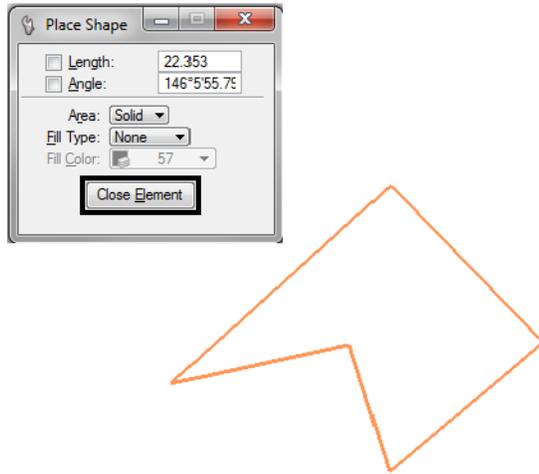
14. In the **Drawing** task tab, select the **Place Shape** icon.



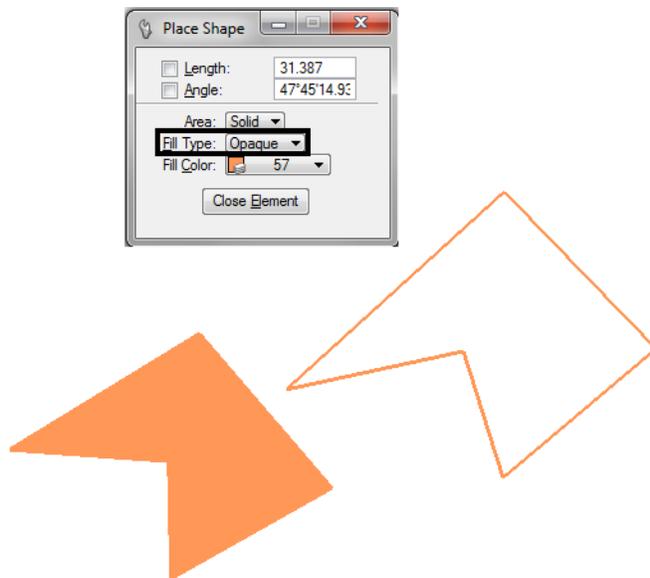
15. <D> to place vertices for an unconstrained shape.



16. For the last data point (to close the shape), select **Close Element**.

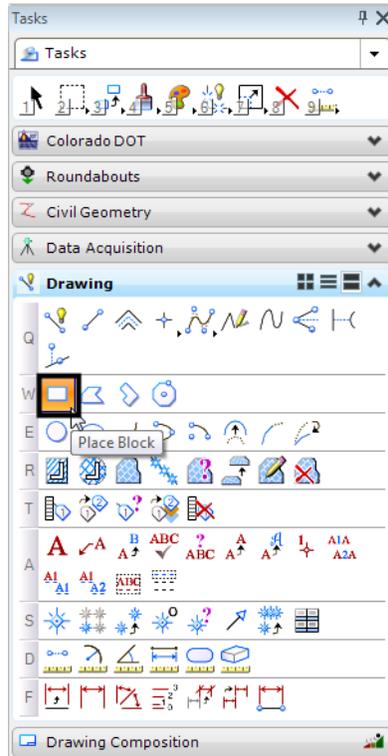


17. In the Tool Settings box, set **Fill Type** to **Opaque** and place another shape.



18. Set **Fill Type** back to **None**.

19. On the **Drawings** task tab, select **Place Block**.



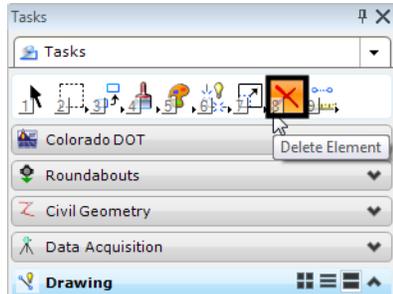
20. <D> for the first corner of the block.
21. <D> for the opposite corner.
22. Place a few more blocks until you're comfortable with the command.



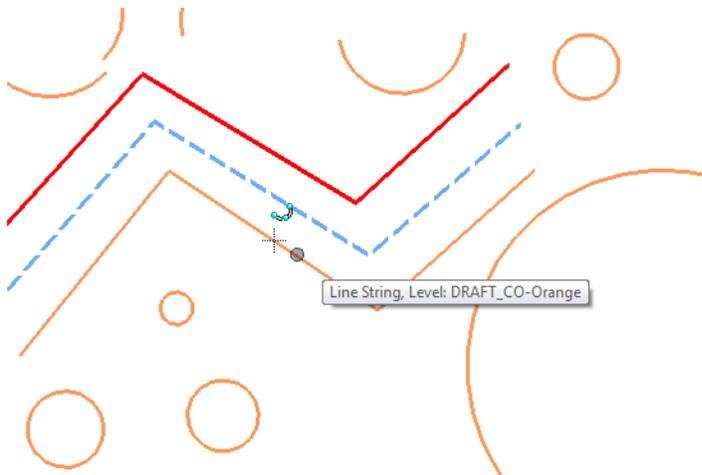
Lab 5.3 - Delete and Undo

Delete an element

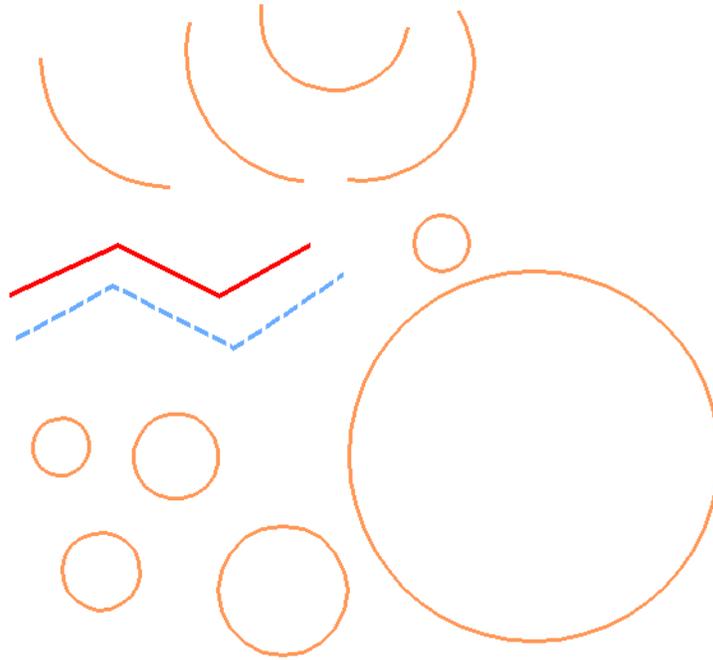
1. Fit View 1.
2. From the **Main** task toolbar, select **Delete Element**.



3. Move your cursor over the orange line until it highlights.



4. <D> to delete.



Undo and Redo the deletion

1. From the Standard toolbar, select Undo.



The line reappears.

2. Select Redo.



The line is deleted again.

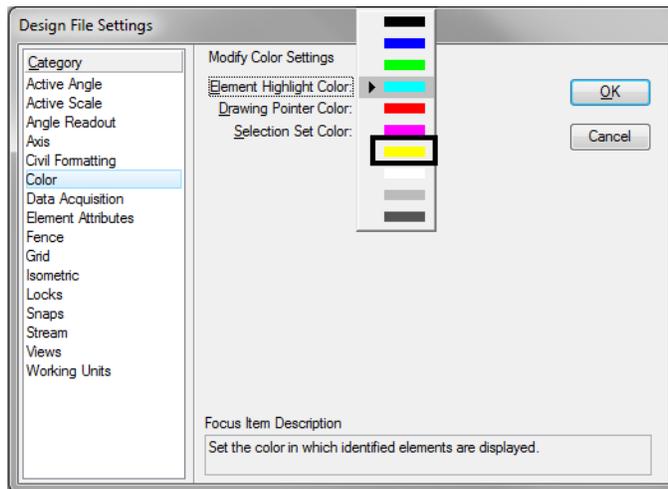
Note: You can also choose **Edit > Undo** to reverse the previous action and get a description of what you are undoing.

In addition to the **Delete** command, the **Undo/Redo** commands work for most MicroStation drawing tools.

If you have elements that are close to or on top of each other, <R> until the element you want to delete highlights, then <D> to delete.

Lab 5.4 - Change the Element Highlight Color

1. Select **Settings > Design File > Color**.
2. Set **Element Highlight Color** to Yellow.



3. Select **OK**.
4. Choose **Delete Element** from the **Main** toolbar.
5. Move your cursor over an element until it highlights.
6. Notice the highlight color is now yellow.
7. <D> to delete the element.

The **Delete Element** command remains active and you can continue deleting elements.

8. Set the highlight to a color you prefer.

Lab 5.5 - Delete All

1. Select **Edit > Select All** to put all elements you've drawn in a MicroStation selection set.
2. Choose **Delete** from the **Main** toolbar.
3. All elements selected are deleted.