



Detecting and Managing Utility Conflicts

This course is for the 2020 Release 3 (10.09.00.91) version of:

OpenSite Designer CONNECT Edition

OpenRoads Designer CONNECT Edition

OpenRail Designer CONNECT Edition

About this Practice Workbook...

- This workbook is designed for use in Live instructor-led training and for OnDemand self study. OnDemand videos for this course are available through [CONNECT Advisor](#) and on the [LEARNserver](#).
- This PDF file includes bookmarks providing an overview of the document. Click on the bookmark to quickly jump to any section in the file.
- Both Imperial and Metric files are included in the dataset. Throughout this practice workbook Imperial values are specified first and the metric values second with the metric values enclosed in square brackets. For example: [12.0'](#) [[3.4m](#)].
- This course workbook uses the [Training and Examples](#) WorkSpace and the [Training-Imperial](#) or [Training-Metric](#) WorkSet delivered with the software.
- The terms [Left-click](#), [Click](#), [Select](#) and [Data](#) are used interchangeably to represent pressing the left mouse button. The terms [Right-click](#) and [Reset](#) are also used interchangeably. If your mouse buttons are assigned differently, such as for left-handed use, you will need to adjust accordingly.

Have a Question? Need Help?

If you have questions while taking this course, search in [CONNECT Advisor](#) for related courses and topics. You can also submit questions to the Civil Design Forum on Bentley Communities where peers and Bentley subject matter experts are available to help.

Exercise 1: Exploring the Design File Structure

Description

In this exercise we will start the software and review the structure of the Design File...

Skills Taught

- Setting the WorkSpace and WorkSet.
- Reference files
- Exploring 3D Views
- Exploring 3D Models

Getting Started

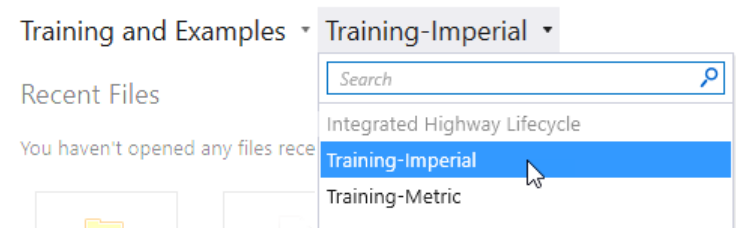
In this section you will create a new design file, and attach a terrain model, existing drainage network and a utility file.

1. Start the software.
2. Set the WorkSpace and WorkSet.

The WorkSpace and WorkSet define standards that are used by the software, and the ones used for this training are installed during the software installation.

Typically, the WorkSpace contains organizational standards and the WorkSet contains project standards.

- a. Select **Training and Examples** from the *WorkSpace* drop-down menu.
- b. Select **Training-Imperial** [*Training-Metric*] from the *WorkSet* drop-down menu.

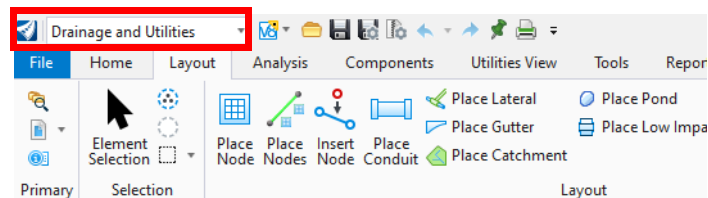


3. Create a new 2D design file.



- a. Select **New File**.
- b. Browse to *C:\Bentley Training\Detecting and Managing Utility Conflicts* or other folder where you unzipped the dataset files.
- c. In the *File name* field, key-in **Managing Utility Conflicts.dgn** [*Metric-Managing Utility Conflicts.dgn*].
- d. Verify that the *Seed* is set to **Seed2D - Imperial Site Design.dgn** [*Seed2D - Metric Site Design.dgn*].
- e. Select **Save**.

4. Select the **Drainage and Utilities** workflow from the ribbon bar.



5. Attach the terrain model and set it active.

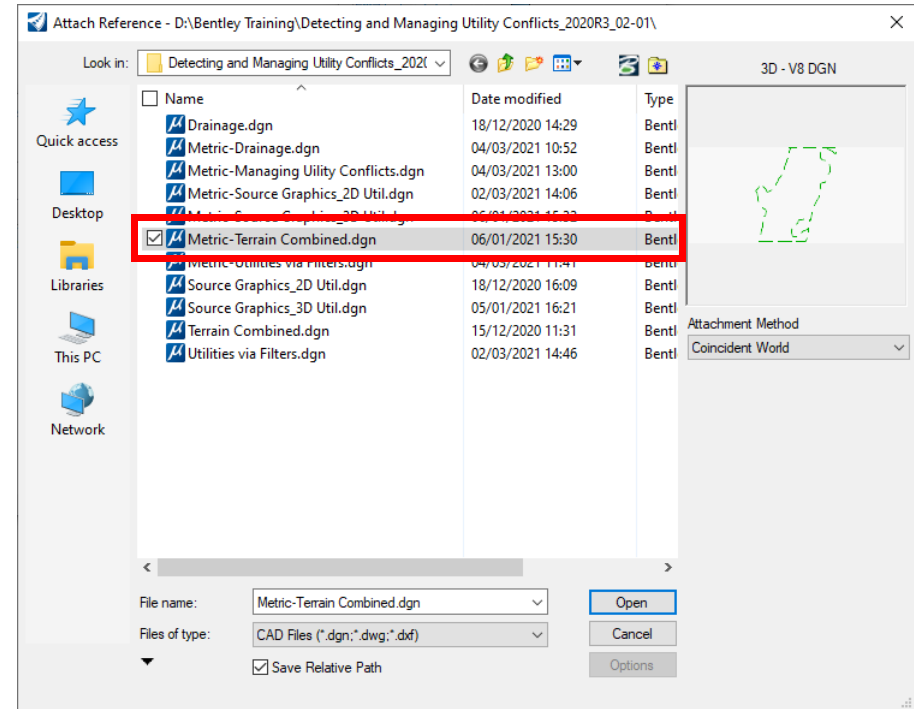


- a. Select *Home > Primary > Attach Tools > References* and select **Attach Reference**.
- b. Select **Terrain Combined.dgn** [*Metric-Terrain Combined.dgn*] and set the *Attachment Method* to **Coincident World**.

c. Click **Open** to attach the file and leave the References dialog open.



- d. Select **Fit View** for *View 1*.



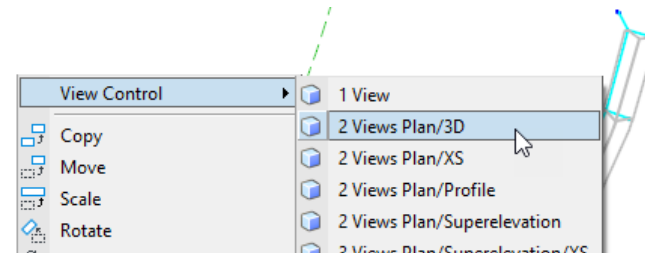
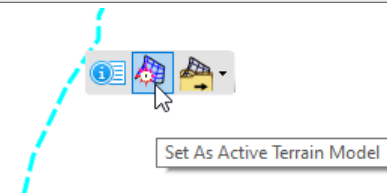
- e. Use the **Element Selection** tool to *select and hover* over the *terrain model* boundary.



- f. From the context menu, select **Set As Active Terrain Model**.

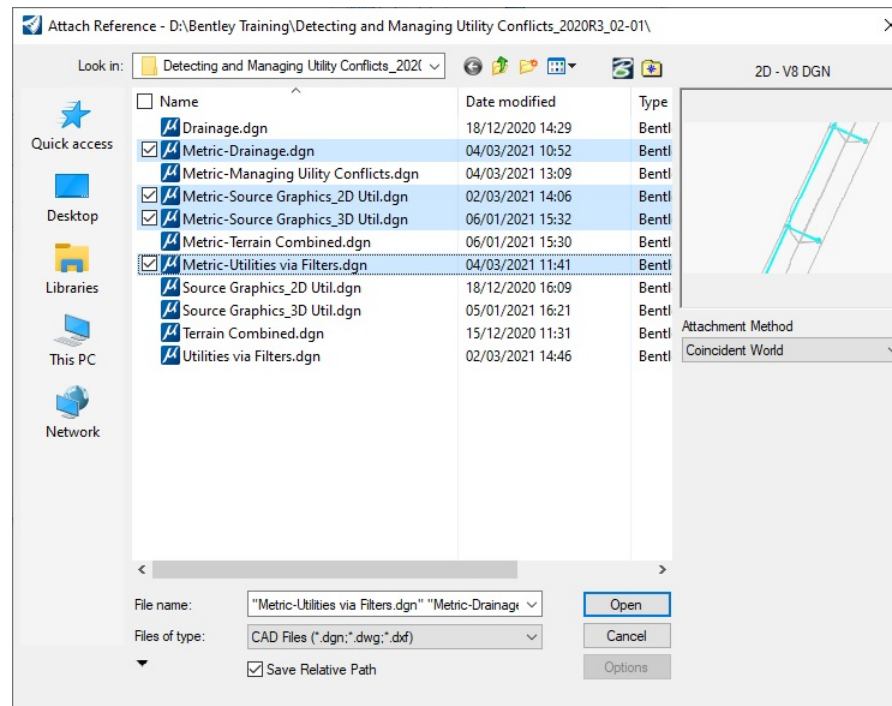
The software automatically creates the 3D model and attaches it to View 1, the 2D view.

- g. Put your cursor in an open area of View 1, *right-press* and select **View Control > 2 Views Plan/3D**.



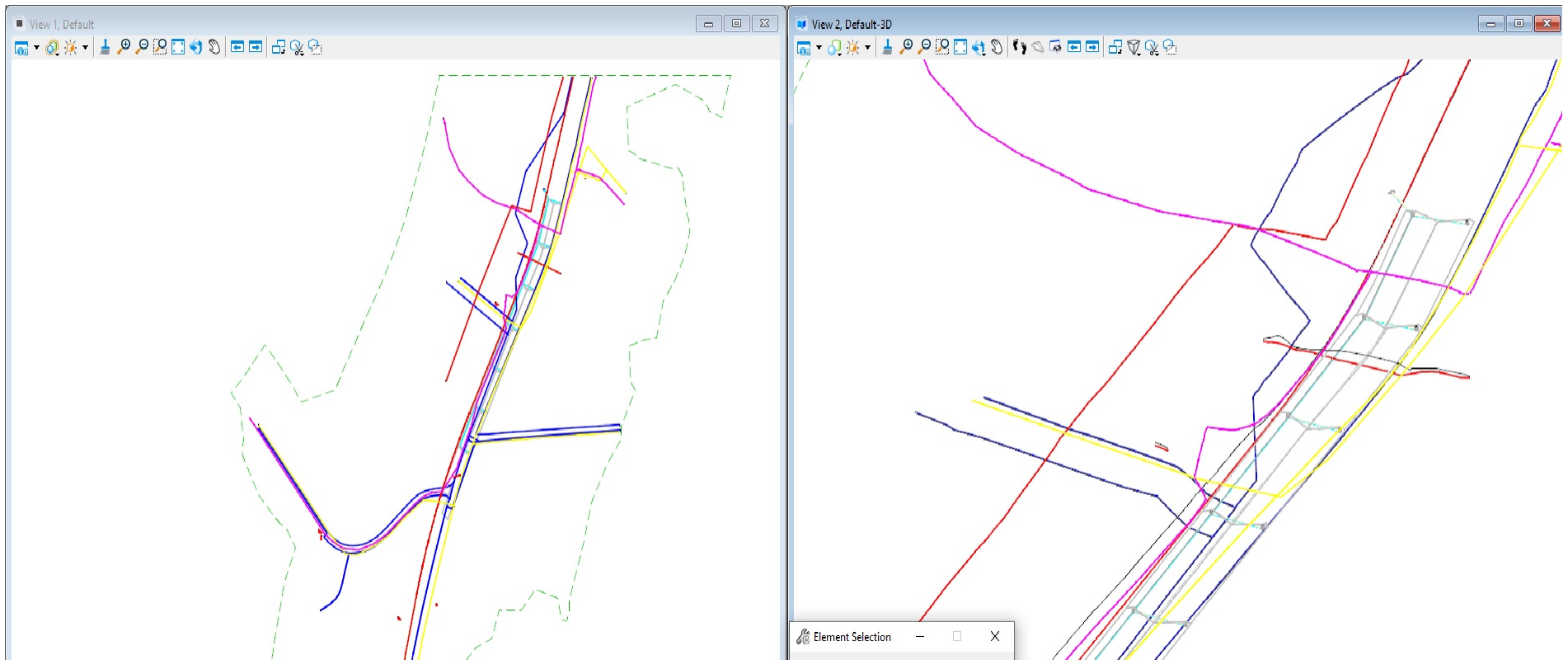


6. This will open a second view that is a 3D model view. Attach the drainage network.
7. With View 1 active, from the *References* dialog, select **Attach Reference**.
 - a. Select the list of files below and set the *Attachment Method* to **Coincident World**.
 - **Drainage.dgn** [*Metric-Drainage.dgn*]
 - **Source Graphics_2D Util.dgn** [*Metric-Source Graphics_2D Util.dgn*]
 - **Source Graphics_3D Util.dgn** [*Metric-Source Graphics_3D Util.dgn*]
 - **Utilities via Filters.dgn** [*Metric Utilities via Filters.dgn*]
 - b. Click **Open** to attach the file.



- c. Select **Fit View** in *both* views.

Review your file. It should look similar to the images below with a 2D Model and a 3D Model with the terrain, Utility and drainage network files referenced into them.



Exercise 2: Conflict Detection - Utilities

Description

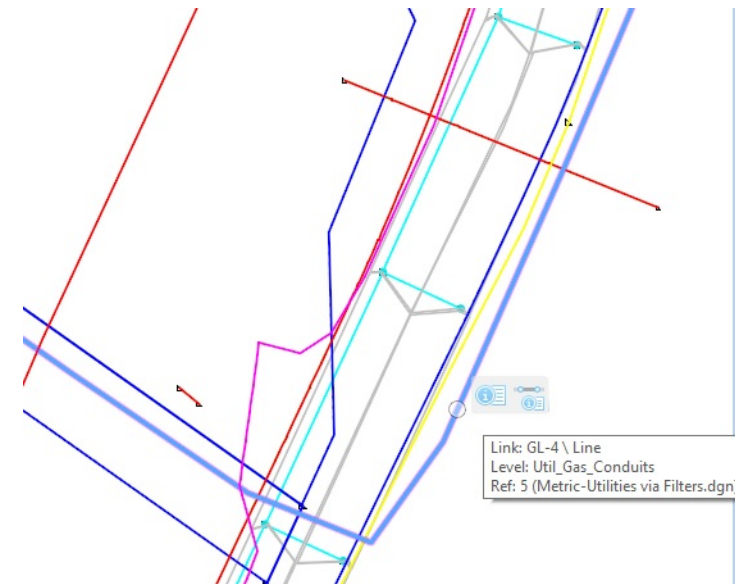
In this exercise we will determine which of our Utilities conflicts with the other Utilities:

Skills Taught

- Set up the Conflict Detection parameters (conflict targets, soft clearances, resulting Conflict Nodes)
- Review Conflict results using the Flex Tables.

Detecting Hard Conflicts

We will now check the Gas Utilities against all the other utilities for conflicts.



Note: your results may vary from the book.

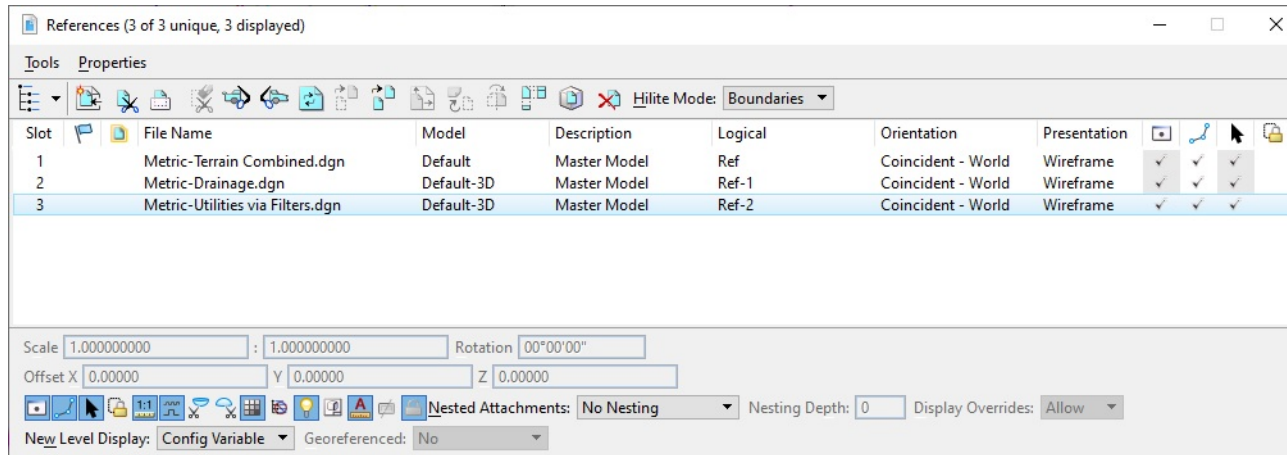
1. Remaining in **Managing Utility Conflicts.dgn** [[Metric-Managing Utility Conflicts.dgn](#)].

2. Ensure that the 3D view is the active view.

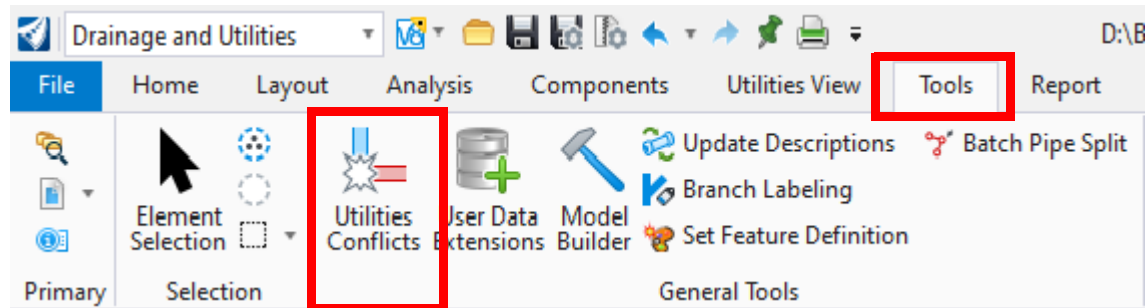
Note:- Conflict detection must be done in the 3D Model, the Utilities Conflict dialog is disabled if the 2D Model is active.

3. Ensure that the *Display* of the **Utilities via Filters.dgn** [[Metric Utilities via Filters.dgn](#)] reference model is **ON**.

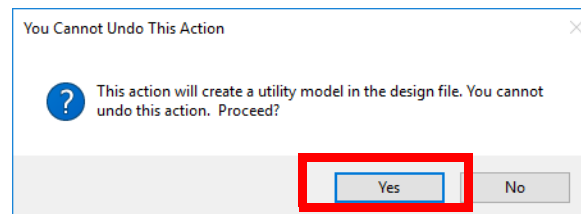
The Utilities Conflict Detection tool works with the active dgn and any reference files with their Display On.



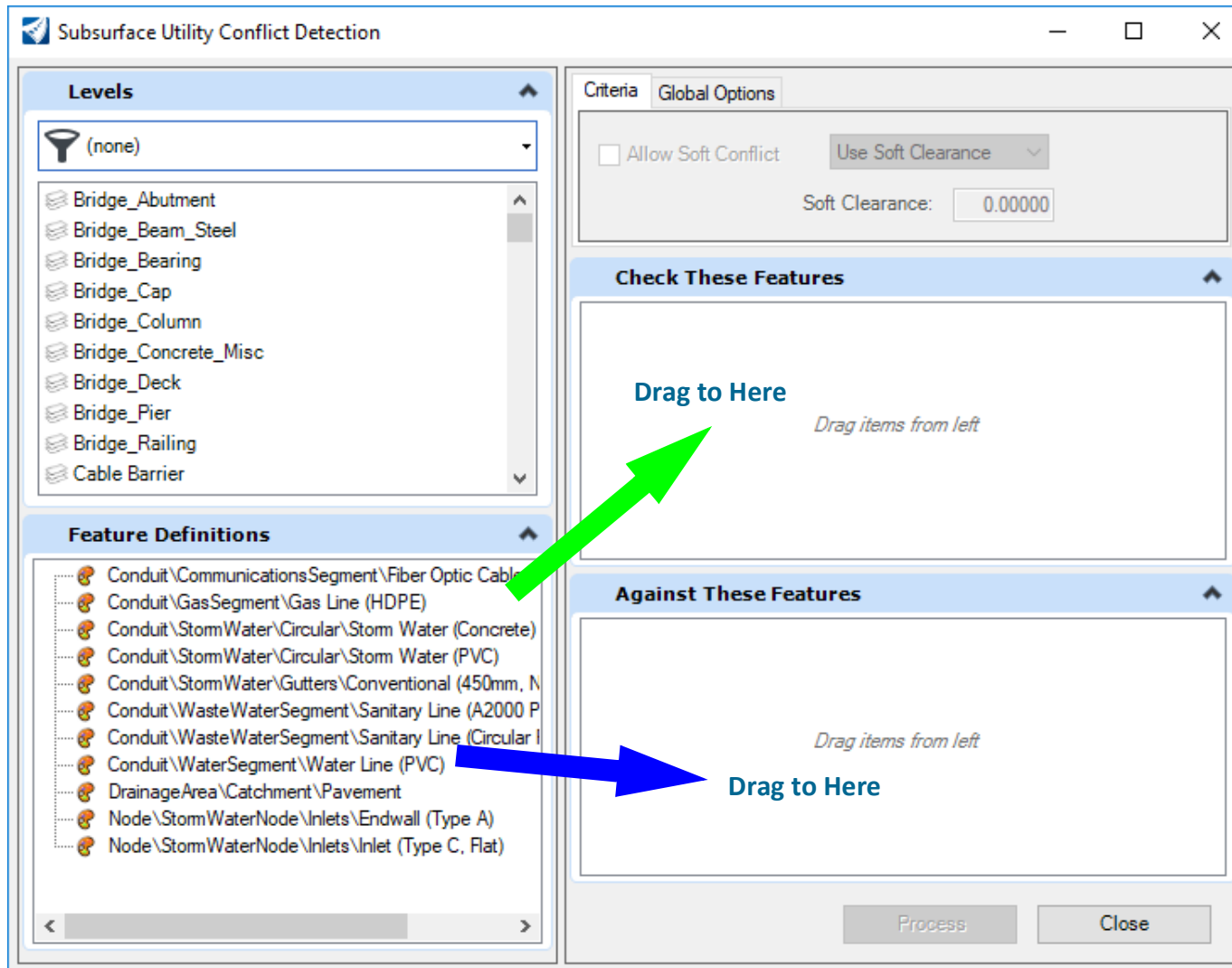
4. Select the Workflow **Subsurface Utilities > Tools > General Tools > Utility Conflicts**.



If the file does not have a Utility database the first command selected will prompt you for permission to create it.



- From the Subsurface Utility Conflict Detection dialog, define the two Structure Sets to be analyzed by dragging the appropriate Feature Definitions into the Subset boxes



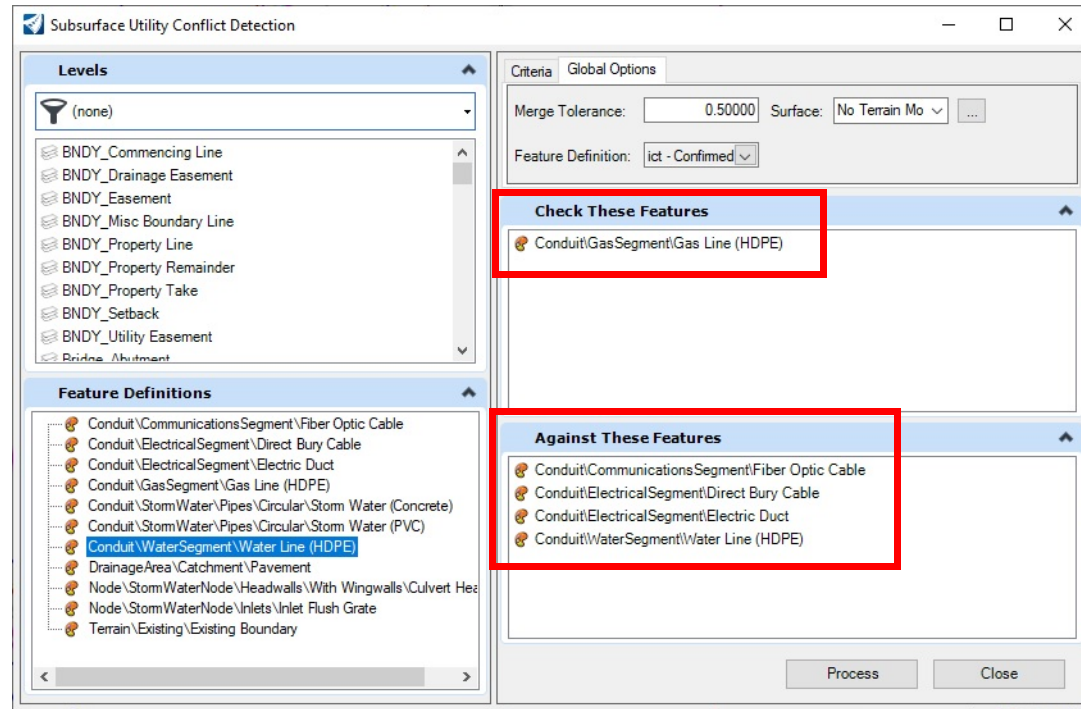
The Utility Conflict Detection tool is similar to Bentley Navigator's Conflict Detection tool. It does incorporate some additional utility-optimized functionality, including:

- Utility conflict detection creates a node feature at all conflicts. This node can be featurized and visualized the same as any other utility
- Node type
- The found conflict nodes can be reported and edited in FlexTables
- Multiple conflicts between two features are identified, not just the first one
- Feature Definitions can be used to define conflict sets
- OpenRoads trenches can define soft conflict envelopes

Note: The *Check These Features* and *Against These Features* sets can be defined by Level contents or by Feature Definitions.

6. Select **Conduit\GasSegment\Gas Line (HDPE)** Feature Definition and drag it to the *Check This* list.

7. Select the following feature definitions and drag it to the *Against That* list.



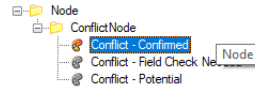
- **Conduit\CommunicationsSegment\Fibre Optic Cable**
- **Conduit\ElectricalSegment\Direct Bury Cable**
- **Conduit\ElectricalSegment\Electrical Duct**
- **Conduit\WaterSegment\Water Line (HDPE)**

8. Ensure that the **Allow Soft Conflict** option in the *Criteria* tab in the upper middle of the Conflict Detection dialog is cleared.

The result of Clash Detection is a node at each conflict. The nodes can be any node defined by a Feature Definition. We need to specify how to represent detected conflicts. Our workspace represents a clash with a red sphere.

9. Click on the **Global Options** tab.

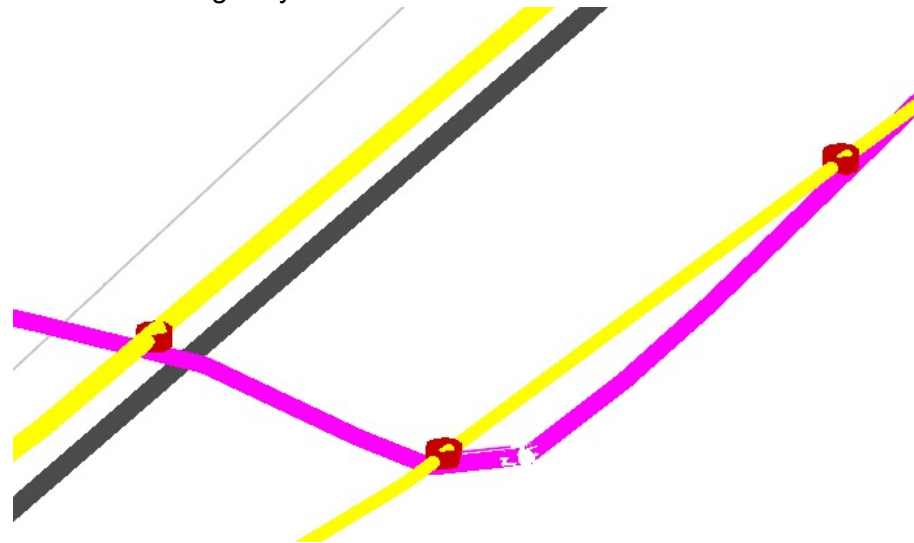
10. For *Feature Definition*, select **Node > ConflictNode > Conflict-Confirmed..**



11. Click **Process**.

Status dialogs open and close. No “results confirmations or summaries” are provided, but nodes are created at the conflicts and are displayed in the design file. The conflict nodes obey the symbology definitions as defined by the Conflict Node Feature Definition.

Numerous tools can be used to methodologically evaluate the conflicts.



Note: Conflict Nodes can be located vertically at the conflict itself or at a designated terrain.

12. Once Processing has finished **Close** the Conflict Detection dialog.

Exercise 3: Reviewing Conflicts and Managing Results

Description

Visually inspecting the design file is a valid procedure, but it is not a “Quality Process” as it is possible to not see all the conflicts. A more certain process is to use FlexTables to review the Conflict Nodes.

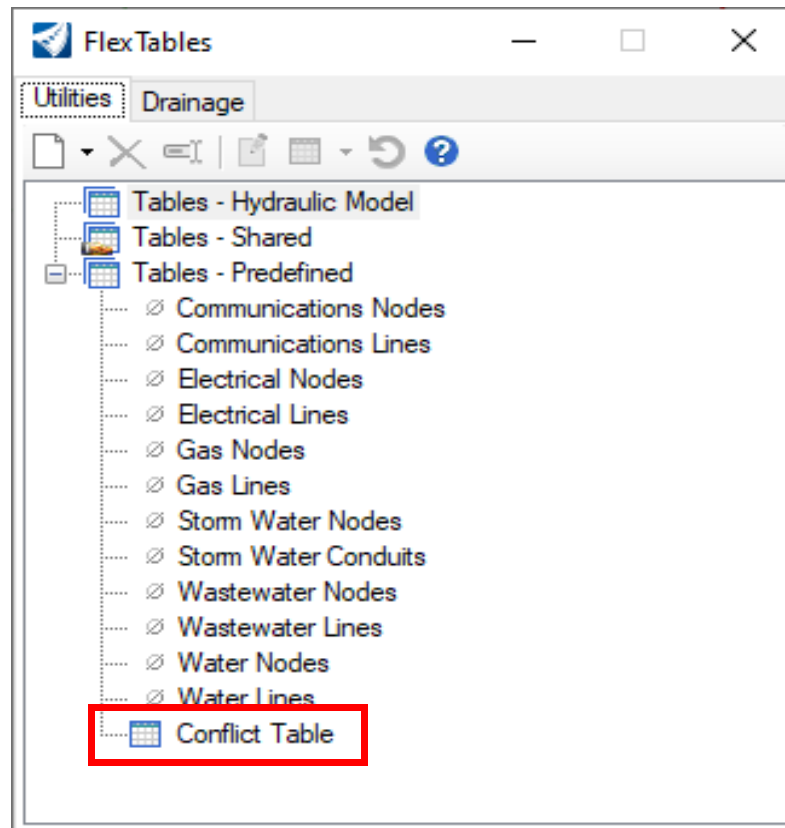
Skills Taught

- Reporting Conflicts.
- Zoom to Conflict.

Reviewing Conflicts and Managing Results



1. From the **Drainage and Utilities** Workflow, select **Analysis > Analysis Views > FlexTables**.
The FlexTables dialog opens showing the Predefined, Shared and Project FlexTables.
2. Double-click on the **Conflict Table** FlexTable.



The Conflicts are listed in the FlexTable. The same full functionality exists for Conflict Nodes as any other structure type.

| | ID | Label | Conflictee | Conflicter | Current Status | X (ft) | Y (ft) | Station (Start) (ft) | Station (Stop) (ft) | Recommended Resolution | Conflict Type | Re |
|------------------|----|------------------------|-------------------|-------------------|----------------|--------------|------------|----------------------|---------------------|------------------------|---------------|----|
| 10: Conflict - P | 10 | Conflict - Potential- | Microstation Eler | Microstation Eler | Created | 2,517,531.29 | 587,285.18 | 0+00 | 0+00 | Relocation Befor | Hard | |
| 13: Conflict - P | 13 | Conflict - Potential-1 | Microstation Eler | Microstation Eler | Created | 2,517,827.75 | 587,664.01 | 0+00 | 0+00 | Relocation Befor | Hard | |
| 16: Conflict - P | 16 | Conflict - Potential-2 | Microstation Eler | Microstation Eler | Created | 2,517,809.43 | 587,670.90 | 0+00 | 0+00 | Relocation Befor | Hard | |
| 19: Conflict - P | 19 | Conflict - Potential-3 | Microstation Eler | Microstation Eler | Created | 2,516,654.37 | 586,272.25 | 0+00 | 0+00 | Relocation Befor | Hard | |
| 22: Conflict - P | 22 | Conflict - Potential-4 | Microstation Eler | Microstation Eler | Created | 2,517,845.65 | 587,711.82 | 0+00 | 0+00 | Relocation Befor | Hard | |

5 of 5 elements displayed

Note: your results may vary.

- To locate a conflict from the FlexTable, select a conflict in the list Right Click and select Zoom to.



Managing the Results

Once the conflicts have been found, engineering decisions can be made. Because existing data is often of questionable quality, especially elevations, a common procedure for many conflicts is to request field confirmation of the location of the existing utility. Boring or “pot holing” at the potential conflict location may find that

- A conflict does not actually exist
- The existing utility may need relocation or abandonment
- The proposed design might need editing.

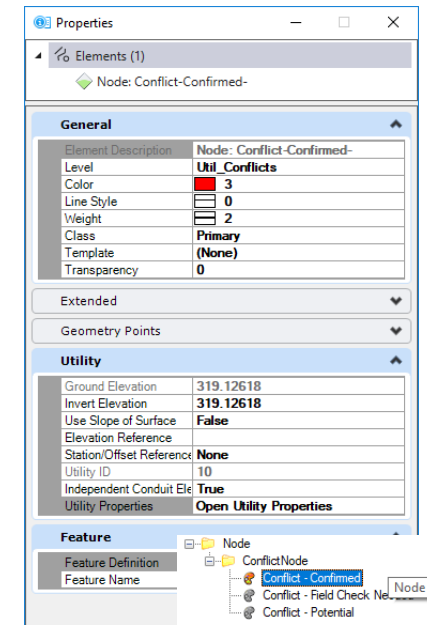
In many cases, a work order to evaluate the existing condition may be required. Changing the Feature Definition of the Conflict Node to a Field Request type is commonly the next step in managing conflict resolution.

Running another conflict detection tests does NOT delete any previously-created conflict nodes.

You will want to plan what you want to do with the existing nodes.

Do they have value (like ‘Borehole Needed’) or are you running a series of conflict tests whose results are not “permanent”?

The conflict nodes we just created have no long-term use, nor will any of the nodes created in the remaining exercises. We will delete the results of each test.

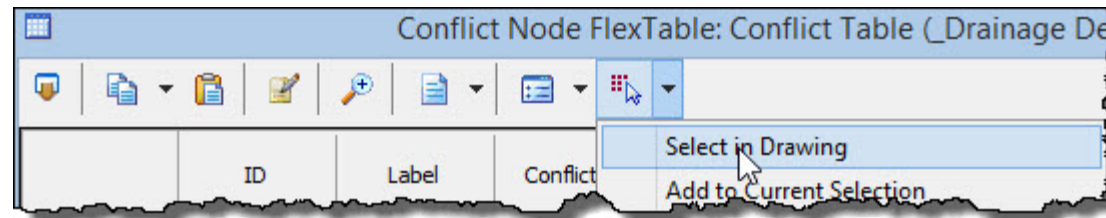


Deleting Conflict Nodes

Conflict Nodes are like any other node and can be deleted like any other node.

A preferred way to delete nodes is via selection sets created by FlexTables and Queries. Once a selection set is active, click Delete.

1. Make sure a 2D View is active, as Select in Drawing only works in 2D.
2. In the *FlexTable* toolbar, select the **Select in Drawing** icon



This highlights and creates a selection set in the drawing.

3. Click the **Delete** key or MicroStation **Delete**.

Note that double-clicking the Predefined Query Nodes > All Conflicts will also create a selection set of the conflict nodes.

Exercise 4: Conflict Detection - Drainage

Description

In this exercise we will check to see if any Utilities clash with our Drainage Network.

Skills Taught

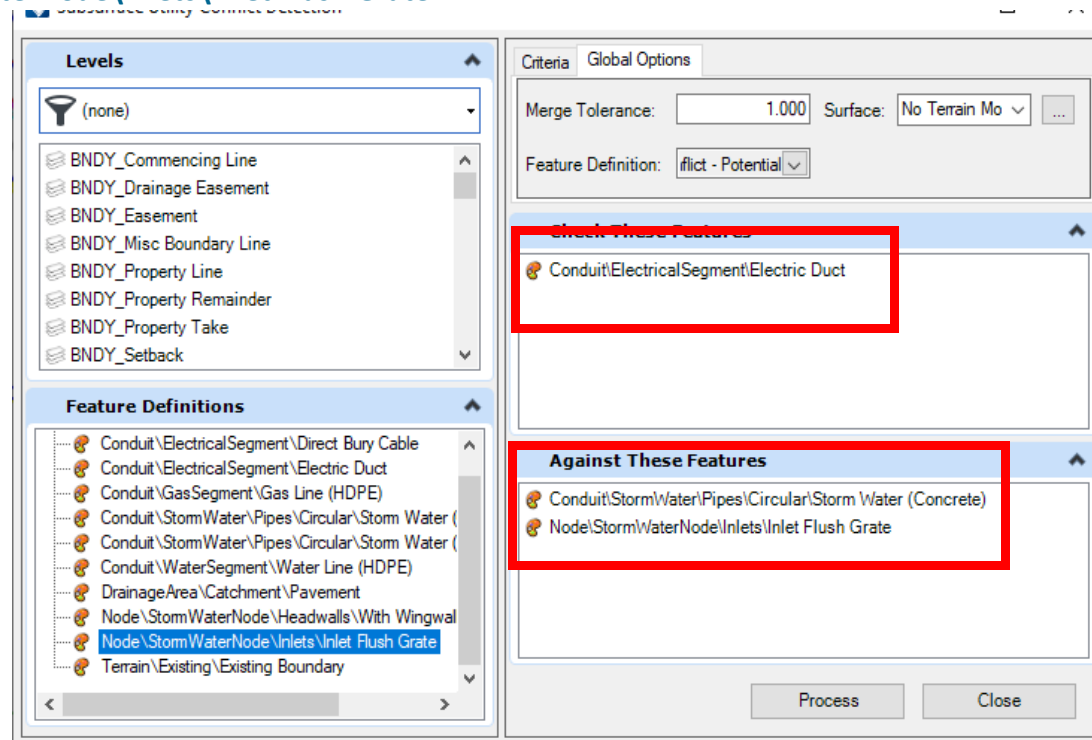
- Detecting Conflicts.
- Reporting Conflicts.
- Deleting Conflicts.

Detecting Conflicts with Drainage Design Network

1. Select Subsurface Utilities Workflow **Tools > Utility Conflicts**.

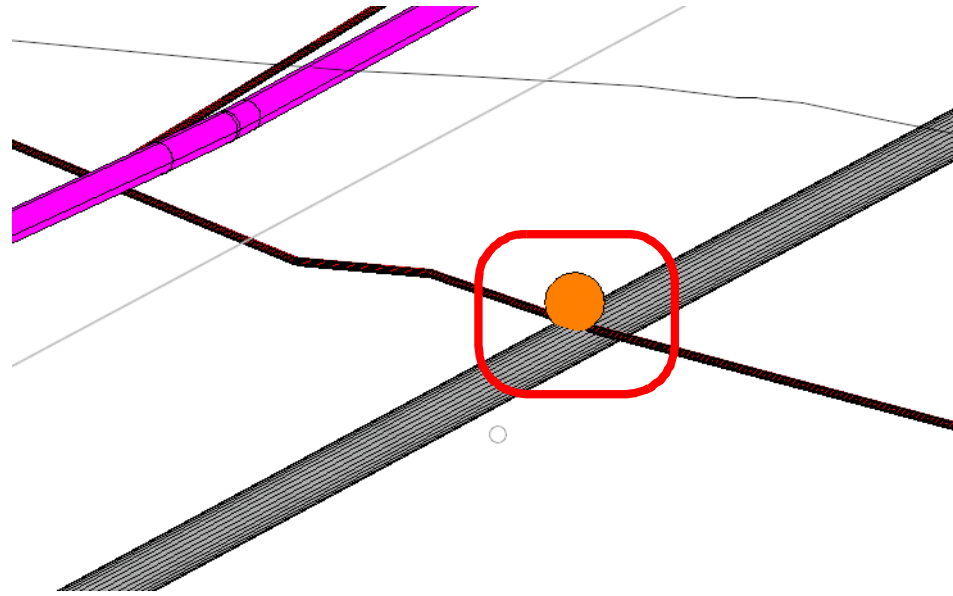
Ensure that you are in the display of the 3D Model view.

2. From the Subsurface Conflict Detection Dialog, Select from the list of **Feature Definitions, Conduit\ElectricalSegment\Electrial Duct** and drag into the *Check These Features* field.
3. Repeat the above process but drag the following in to the *Against These Features*.
 - a. **Conduit\StormWater\Pipes\Circular\Storm Water (Concrete)**.
 - b. **Node\StormWaterNode\Inlets\Inlet Flush Grate**.



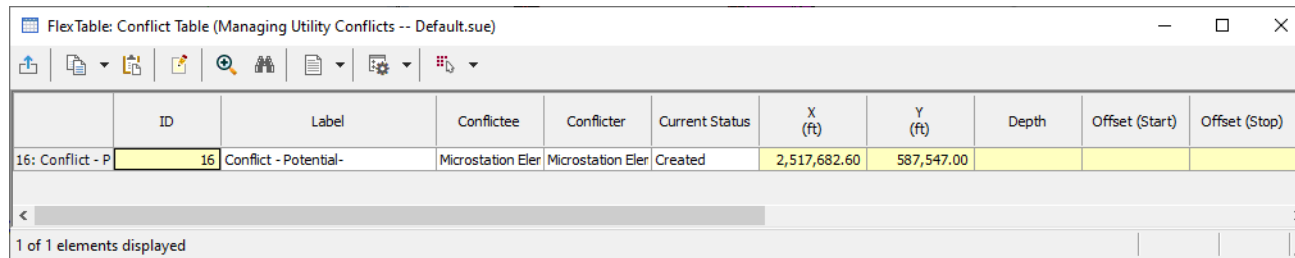
Ensure you have a Feature Definition set for the Conflict,

4. Then **Process**.



Reporting and Deleting the Conflicts

1. Select **Analysis > Analysis Views > FlexTables**.
2. Double Click on **Conflict Table**.



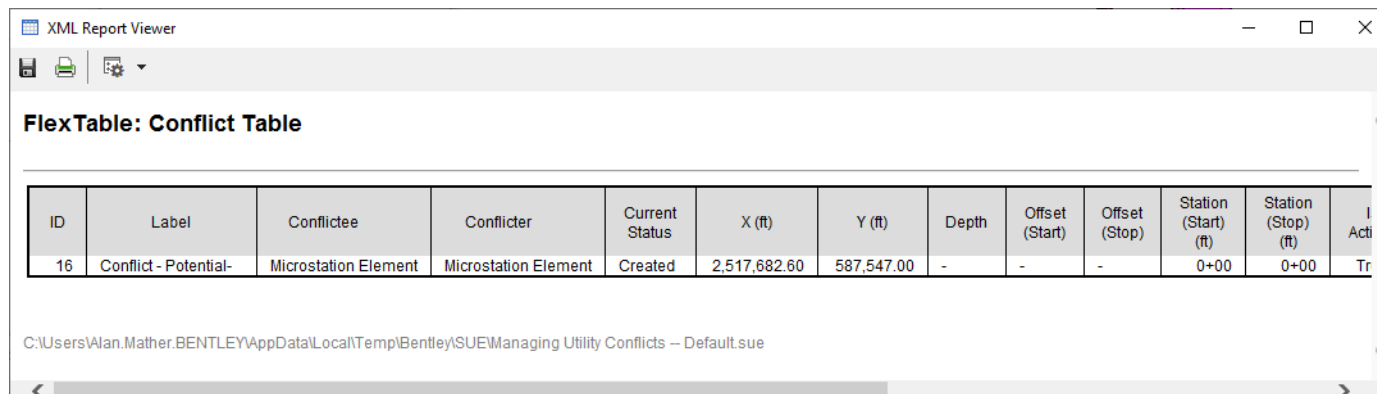
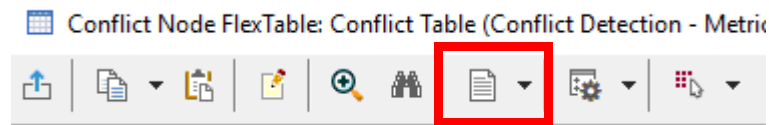
FlexTable: Conflict Table (Managing Utility Conflicts -- Default.sue)

| | ID | Label | Conflictee | Conflicter | Current Status | X (ft) | Y (ft) | Depth | Offset (Start) | Offset (Stop) |
|------------------|----|-----------------------|-------------------|-------------------|----------------|--------------|------------|-------|----------------|---------------|
| 16: Conflict - P | 16 | Conflict - Potential- | Microstation Eler | Microstation Eler | Created | 2,517,682.60 | 587,547.00 | | | |

1 of 1 elements displayed

Results may vary!!!!

3. On the Conflict Table menu select **Report in XML**.



XML Report Viewer

FlexTable: Conflict Table

| ID | Label | Conflictee | Conflicter | Current Status | X (ft) | Y (ft) | Depth | Offset (Start) | Offset (Stop) | Station (Start) (ft) | Station (Stop) (ft) | Act |
|----|-----------------------|----------------------|----------------------|----------------|--------------|------------|-------|----------------|---------------|----------------------|---------------------|-----|
| 16 | Conflict - Potential- | Microstation Element | Microstation Element | Created | 2,517,682.60 | 587,547.00 | - | - | - | 0+00 | 0+00 | Tr |

C:\Users\Alan.Mather.BENTLEY\AppData\Local\Temp\Bentley\SUE\Managing Utility Conflicts -- Default.sue

4. Close the Report.

 5. From the Conflict Menu select > **Select in Drawing**

6. Click the **Delete** key or MicroStation **Delete**.

This deletes the conflict nodes.

Exercise 4: Detecting Soft Conflicts

Description

This exercise shows how to detection “near conflicts”: where utilities encroach within a tolerance distance of a utility.

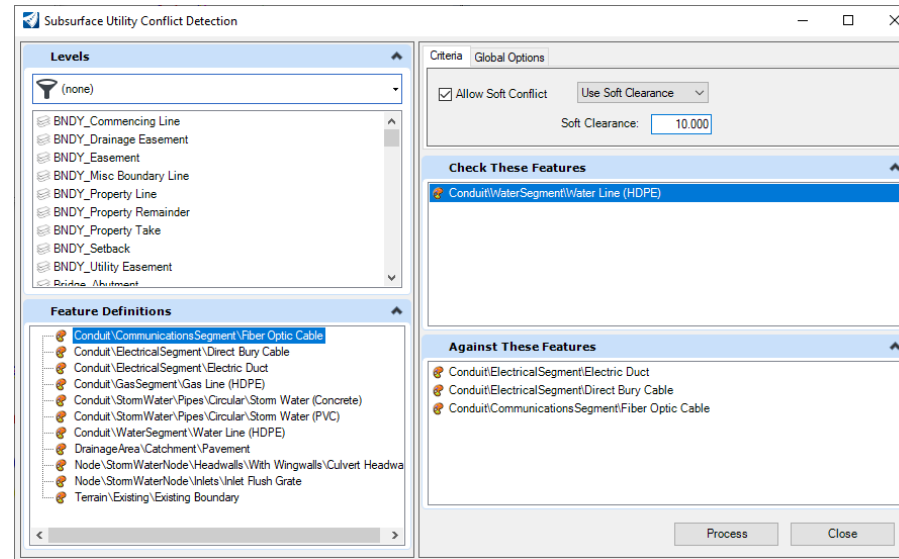
Skills Taught

- Defining a Soft Clearance Distance around a utility and checking the results.

Detecting Soft Conflicts

1. Remaining in **Managing Utility Conflicts.dgn** [*Metric-Managing Utility Conflicts.dgn*].
2. Ensure that the 3D view is the active view
3. Return to the **Subsurface Conflict Detection** dialog.
4. Select the **Conduit\WaterSegment\Water Line(HDPE)** feature definition and drag into *Check These Features*.
5. Select the following Utilities and drag into the *Against These Features*.
 - **Conduit\CommunicationsSegment\Fibre Optic Cable,**
 - **Conduit\ElectricalSegment\Electric Duct**
 - **Conduit\ElectricalSegment\Direct Bury Cable**
6. Select the **Conduit\WaterSegment\Water Line(HDPE)**.
7. Enable the *Allow Soft Conflict* check box.
8. Type a *Soft Clearance* of **10'** [*3.0m*].

This will look for any clashes within 10 foot [3.0m] of the Water Lines.



9. **Process** the Conflict Detection...

Conflict nodes, including hard conflicts, are created again.

How many conflicts are there with a **10'** [3.0m] clearance?

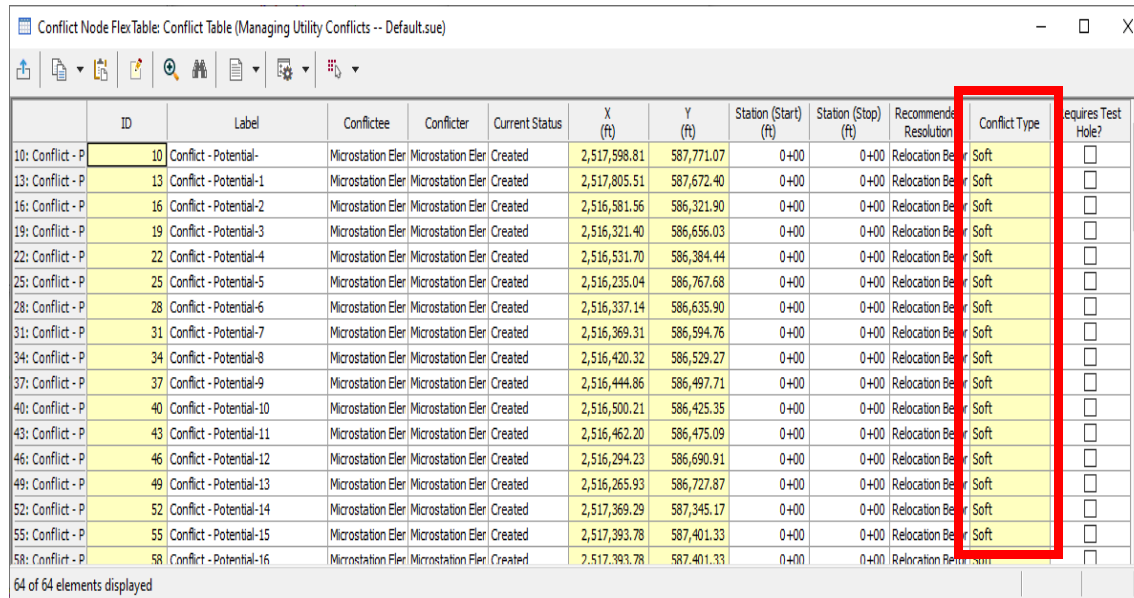
Feel free to delete your results and try other Soft Clearance values.

Full Storm Network Clash Detection

To check the full storm network against the other utilities, simply drag all the Storm Sewer Feature Definitions and Drainage Node Feature Definitions into the Check This list and Process.

10. Check the **Flex Tables** and Review the results.

Notice in the conflict type in the last column.



Conflict Node FlexTable: Conflict Table (Managing Utility Conflicts -- Default.sue)

| | ID | Label | Conflictee | Conflicter | Current Status | X (ft) | Y (ft) | Station (Start) (ft) | Station (Stop) (ft) | Recommend Resolution | Conflict Type | Requires Test Hole? |
|------------------|----|-------------------------|-------------------|-------------------|----------------|--------------|------------|----------------------|---------------------|----------------------|---------------|--------------------------|
| 10: Conflict - P | 10 | Conflict - Potential- | Microstation Eler | Microstation Eler | Created | 2,517,598.81 | 587,771.07 | 0+00 | 0+00 | Relocation Be | Soft | <input type="checkbox"/> |
| 13: Conflict - P | 13 | Conflict - Potential-1 | Microstation Eler | Microstation Eler | Created | 2,517,805.51 | 587,672.40 | 0+00 | 0+00 | Relocation Be | Soft | <input type="checkbox"/> |
| 16: Conflict - P | 16 | Conflict - Potential-2 | Microstation Eler | Microstation Eler | Created | 2,516,581.56 | 586,321.90 | 0+00 | 0+00 | Relocation Be | Soft | <input type="checkbox"/> |
| 19: Conflict - P | 19 | Conflict - Potential-3 | Microstation Eler | Microstation Eler | Created | 2,516,321.40 | 586,656.03 | 0+00 | 0+00 | Relocation Be | Soft | <input type="checkbox"/> |
| 22: Conflict - P | 22 | Conflict - Potential-4 | Microstation Eler | Microstation Eler | Created | 2,516,531.70 | 586,384.44 | 0+00 | 0+00 | Relocation Be | Soft | <input type="checkbox"/> |
| 25: Conflict - P | 25 | Conflict - Potential-5 | Microstation Eler | Microstation Eler | Created | 2,516,235.04 | 586,767.68 | 0+00 | 0+00 | Relocation Be | Soft | <input type="checkbox"/> |
| 28: Conflict - P | 28 | Conflict - Potential-6 | Microstation Eler | Microstation Eler | Created | 2,516,337.14 | 586,635.90 | 0+00 | 0+00 | Relocation Be | Soft | <input type="checkbox"/> |
| 31: Conflict - P | 31 | Conflict - Potential-7 | Microstation Eler | Microstation Eler | Created | 2,516,369.31 | 586,594.76 | 0+00 | 0+00 | Relocation Be | Soft | <input type="checkbox"/> |
| 34: Conflict - P | 34 | Conflict - Potential-8 | Microstation Eler | Microstation Eler | Created | 2,516,420.32 | 586,529.27 | 0+00 | 0+00 | Relocation Be | Soft | <input type="checkbox"/> |
| 37: Conflict - P | 37 | Conflict - Potential-9 | Microstation Eler | Microstation Eler | Created | 2,516,444.86 | 586,497.71 | 0+00 | 0+00 | Relocation Be | Soft | <input type="checkbox"/> |
| 40: Conflict - P | 40 | Conflict - Potential-10 | Microstation Eler | Microstation Eler | Created | 2,516,500.21 | 586,425.35 | 0+00 | 0+00 | Relocation Be | Soft | <input type="checkbox"/> |
| 43: Conflict - P | 43 | Conflict - Potential-11 | Microstation Eler | Microstation Eler | Created | 2,516,462.20 | 586,475.09 | 0+00 | 0+00 | Relocation Be | Soft | <input type="checkbox"/> |
| 46: Conflict - P | 46 | Conflict - Potential-12 | Microstation Eler | Microstation Eler | Created | 2,516,294.23 | 586,690.91 | 0+00 | 0+00 | Relocation Be | Soft | <input type="checkbox"/> |
| 49: Conflict - P | 49 | Conflict - Potential-13 | Microstation Eler | Microstation Eler | Created | 2,516,265.93 | 586,727.87 | 0+00 | 0+00 | Relocation Be | Soft | <input type="checkbox"/> |
| 52: Conflict - P | 52 | Conflict - Potential-14 | Microstation Eler | Microstation Eler | Created | 2,517,369.29 | 587,345.17 | 0+00 | 0+00 | Relocation Be | Soft | <input type="checkbox"/> |
| 55: Conflict - P | 55 | Conflict - Potential-15 | Microstation Eler | Microstation Eler | Created | 2,517,393.78 | 587,401.33 | 0+00 | 0+00 | Relocation Be | Soft | <input type="checkbox"/> |
| 58: Conflict - P | 58 | Conflict - Potential-16 | Microstation Eler | Microstation Eler | Created | 2,517,383.78 | 587,401.33 | 0+00 | 0+00 | Relocation Be | Soft | <input type="checkbox"/> |

64 of 64 elements displayed

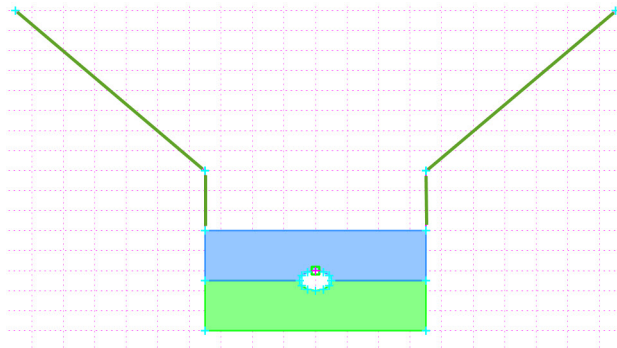
11. Delete the results from the Flex Table.

Exercise 5: Detecting Clashes with Trenches

Description

In this exercise we will show how to identify utilities that clash with a Utility construction Trench.

Utility Feature Definitions have a setting for Trench Template, which can point to any OpenRoads “roadway” template. Templates designed for trenches can include bedding layers in addition to trench walls. Once a Utility exists, its Trench setting can be toggled ON or OFF. When on, it behaves like a linear template, being extruded along the 3D utility.



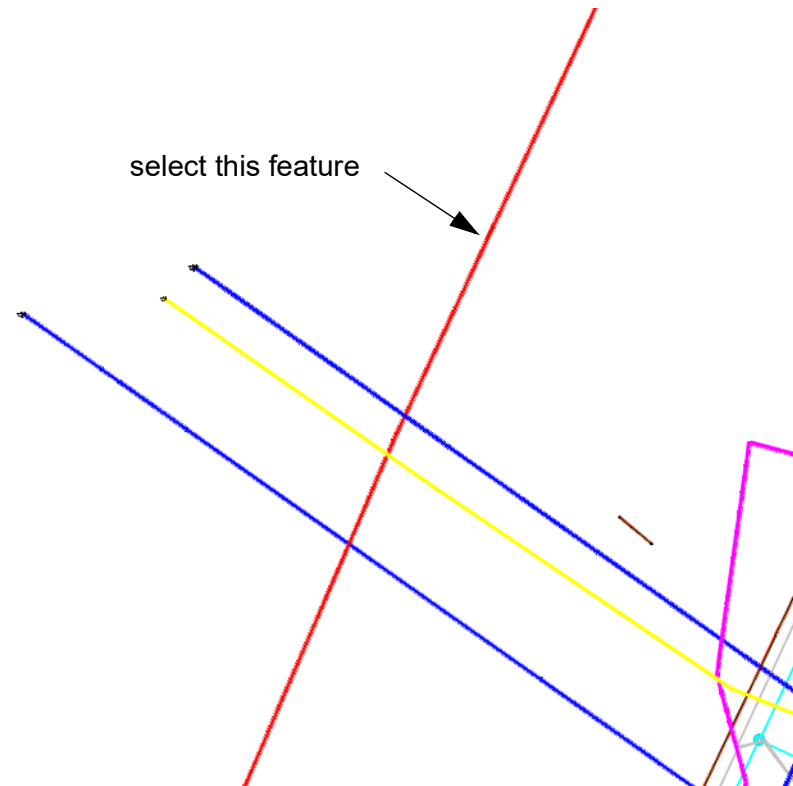
The Conflict Detection dialog has a setting where the Trench’s resulting component “Meshes” can be used as Conflict Targets.

Skills Taught

- Changing Utility Feature Definition.
- Setting the Trench Mesh as a utility conflict target.

Amending the Feature Definition to a trench template

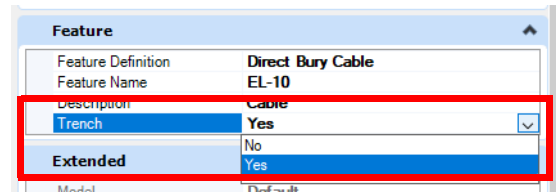
1. Select *File > Open* and browse to the data set folder and select the file **Utilities via Filters.dgn** [*Metric-Utilities via Filters.dgn*]
2. Select the 2D view
3. Zoom to the area shown below.



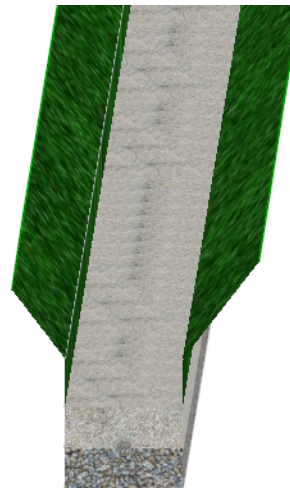
The first action we are going to undertake is to change the assigned Feature Definition to one that will apply a trench template.

4. Using the **Element Selection** tool, select the red *Electrical Direct Bury Cable* that runs north to south.
5. From the **Properties** dialog locate the *Feature* tab.

a. Select the option for *Trench* and change **No** to **Yes**.

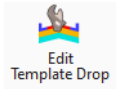
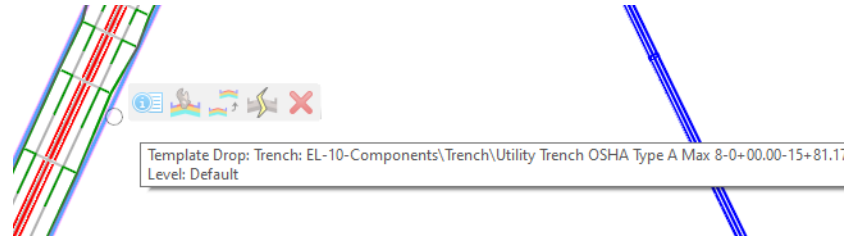


The trench should look like below. (This is a 3D view).

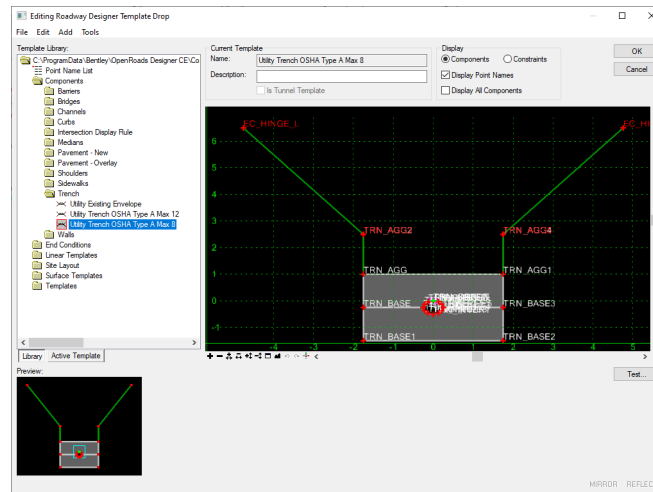


The trench itself is a linear template if the trench type needs to be changed then you can just change the applied template. If there is a need to create or amend an existing template you will need to access the Template Library and either create a new trench template or update an existing template.

- To change the template type, select the outer boundary of the trench which is the *Template Drop*.



- From the *Context sensitive toolbar* select **Edit Template drop**.
 - From the editing template drop window select a different template. In this case just **Cancel** as we are keeping the applied template.



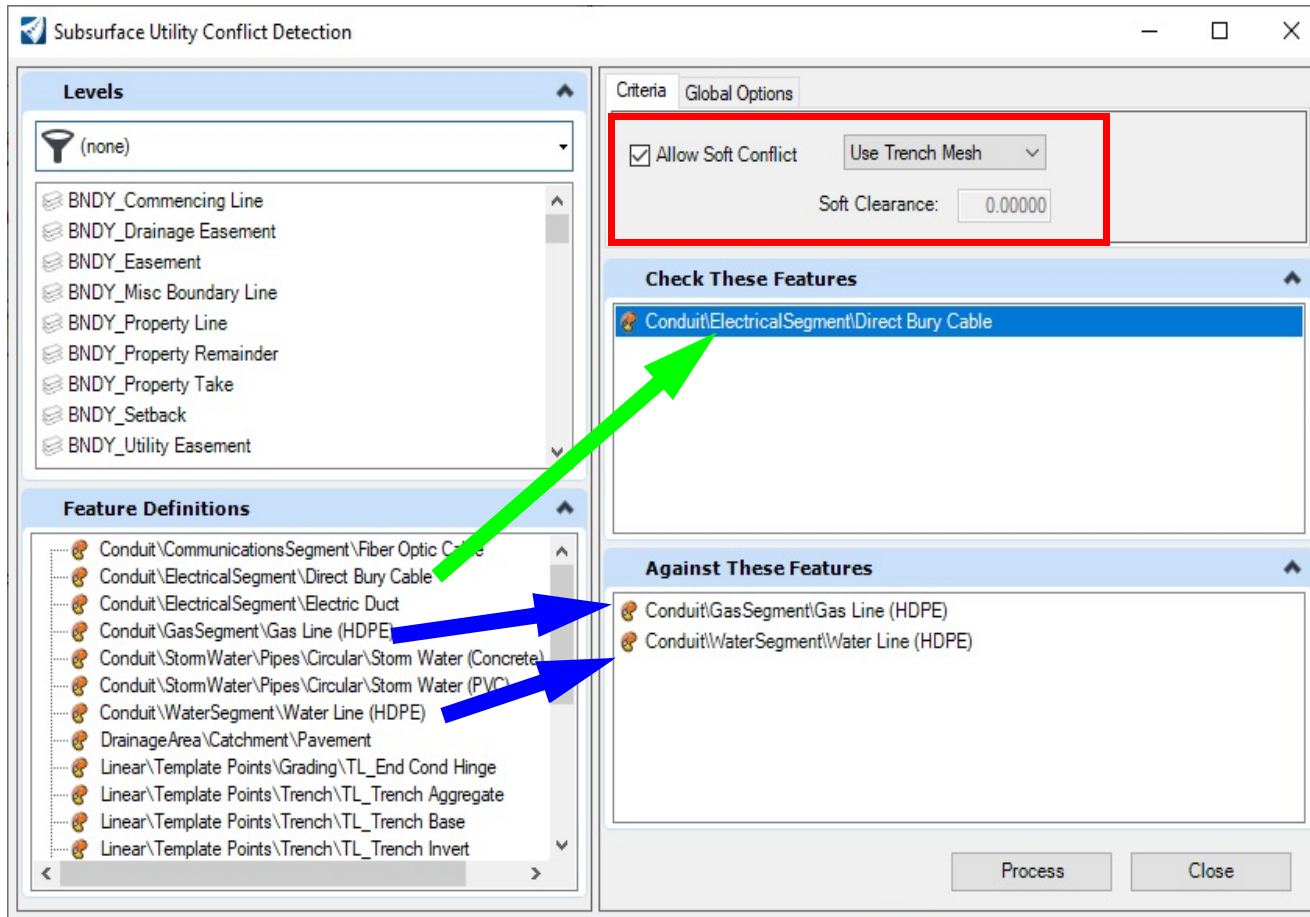
Detecting Utility Clashes with the Trench Template

1. Select *File > Open* and browse to the data set folder and select the file **Managing Utility Conflicts.dgn** [*Metric-Managing Utility Conflicts.dgn*]
2. Select the 3D view.
3. Click the **Utility Conflict Detection** tool.

The Feature Definitions are grouped by active and reference files; there are a number of them.

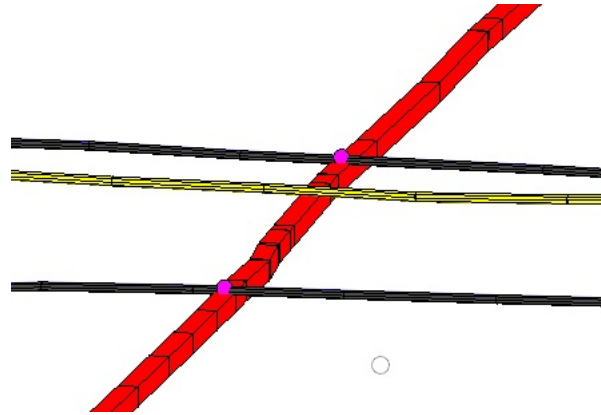
4. Drag the **Conduit\ElectricalSegment\Electrical Duct** Feature Definition to the *Check These Features* list. This utility has its trench displayed.

5. Drag the **Conduit\Water Segment\Water Line HDPE** and **Conduit\GasSegment\Gas Line (HDPE)** Feature Definitions to the *Against These Features* list.



6. Click on the **Conduit\ElectricalSegment\Electrical Duct** in the *Check This* list.
7. **Set** the *Allow Soft Conflict* check box.
8. Select **Use Trench Mesh** in the list to the right of the Allow Soft Conflict field.
9. Under *Global Options*, ensure that *Feature Definition* is set to **Node > ConflictNode > Conflict FieldCheck Needed**.
10. Click **Process**.

11. Review Results.



12. Flex table results.

| ID | Label | Conflictee | Conflicter | Current Status | X (ft) | Y (ft) | Station (Start) (ft) | Station (Stop) (ft) | Recommended Resolution | Conflict Type | Re |
|------------------|---------------------------|-------------------|-------------------|----------------|--------------|------------|----------------------|---------------------|------------------------|---------------|----|
| 37: Conflict - P | 37 Conflict - Potential- | Microstation Eler | Microstation Eler | Created | 2,517,393.77 | 587,401.32 | 0+00 | 0+00 | Relocation Befor | Soft | |
| 40: Conflict - P | 40 Conflict - Potential-1 | Microstation Eler | Microstation Eler | Created | 2,517,601.27 | 587,780.45 | 0+00 | 0+00 | Relocation Befor | Soft | |
| 43: Conflict - P | 43 Conflict - Potential-2 | Microstation Eler | Microstation Eler | Created | 2,517,759.68 | 588,082.76 | 0+00 | 0+00 | Relocation Befor | Soft | |
| 46: Conflict - P | 46 Conflict - Potential-3 | Microstation Eler | Microstation Eler | Created | 2,517,369.29 | 587,345.17 | 0+00 | 0+00 | Relocation Befor | Soft | |
| 49: Conflict - P | 49 Conflict - Potential-4 | Microstation Eler | Microstation Eler | Created | 2,517,393.77 | 587,401.32 | 0+00 | 0+00 | Relocation Befor | Soft | |

5 of 5 elements displayed

Summary

In this course we have learned how to detect conflicts between Utilities, a drainage network and trench meshing. Also we have learn how to report those clashes.