



Importing Drainage from Excel Data

*This course is for the **2024 Release 2** 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 on learning.bentely.com
- This PDF file includes bookmarks providing an overview of the document. Click on a 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 to represent pressing the right mouse button. 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, you can submit questions to the [Civil Design Forum](#) on Bentley Communities where peers and Bentley subject matter experts are available to help.

Course Overview

If you have used other software, such as a specialist hydraulics product, to design a drainage system, then it may not have the ability to create a good 3D model, let alone a Building Information Model, that's suitable for use in collaborative workflows. In this situation, you need a way to take the data from the other product and build a 3D model from it. You also need to consider what to do if the drainage design in the other product subsequently changes.

Creating a good 3D model should not be left until late in the design process, because you will want to make sure that the drainage design integrates correctly with other design elements – street lighting, other utilities, etc. This may reveal that design changes are required, and – if they are – then you will need to update the model. However, because of the effort involved in creating a 3D model for storm drainage, and the difficulty of handling changes, it is sometimes left until late in the design process. This reduces the scope for optimizing the design.

The **Drainage and Utilities** workflow includes functionality that can help you with this. If you can export the drainage design from the external software into a neutral file format such as Microsoft Excel, Access, or ESRI Shapefiles, then you can read in this data and use it to update the model in the DGN. This works by matching the names of elements in the DGN with those in the external data, and will update, add, or remove elements as needed.

Excel is a very common data format for tabular data and is often used for creating reports and schedules. Many products can create data in Excel format, or – if not – in comma separated variable or text formats, both of which can be imported into Excel. This means that Excel can be a good format for transferring data. This class shows you how to use ModelBuilder to create a 3D model using Excel data. First, you will see how to use existing ModelBuilder Connection settings to read the Excel data, and update the 3D model. Then, you will review the ModelBuilder Connection settings, to see how they work.

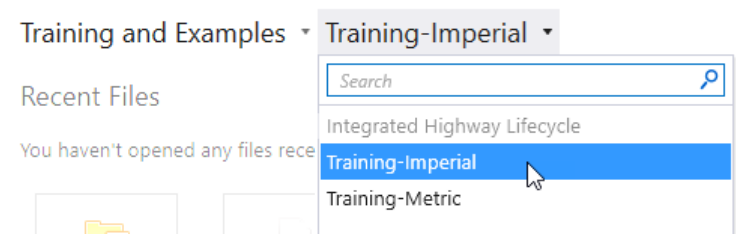
Getting Started

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. Open an existing file.



- a. Select **Browse**.
- b. Browse to *C:\Bentley Training\Importing Drainage from Excel Data* or other folder where you unzipped the dataset files.
- c. Select the file **Mainline-Drainage-Imperial.dgn** [*Mainline-Drainage.dgn*] and click **Open**.

Note: If you get a message stating “Incompatible Civil Data”, this is because the training files are “aligned” to OpenSite Designer. Clicking *Yes* will align the file to the software you are using (OpenRoads Designer or OpenRail Designer). This will have zero impact for the training courses. However, note that in production, upgrading the file will make the file read-only in OpenSite Designer. Full information is available at [Bentley Communities - Product Realignment](#).

Exercise 1: Creating the Storm Drainage Model

Description

This exercise will show you how you can use ModelBuilder to create a storm drainage model from data in Excel spreadsheets

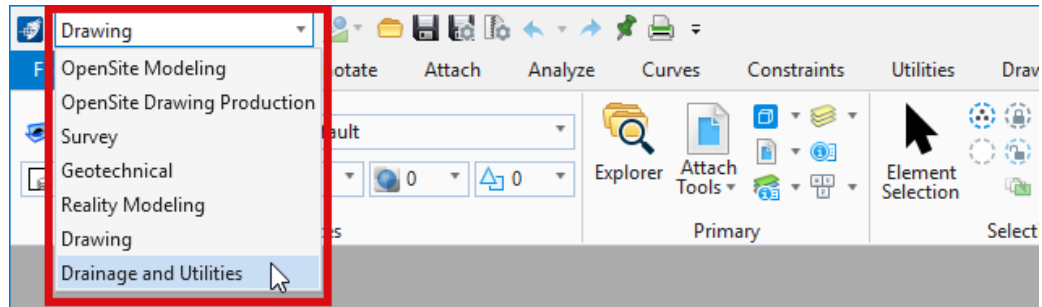
Skills Taught

- Choose the Drainage and Utilities workflow
- Review attached Levels and References
- Select and setup mappings in ModelBuilder
- Use ModelBuilder to create the model

Selecting the Workflow

In this section you will set up the correct workflow.

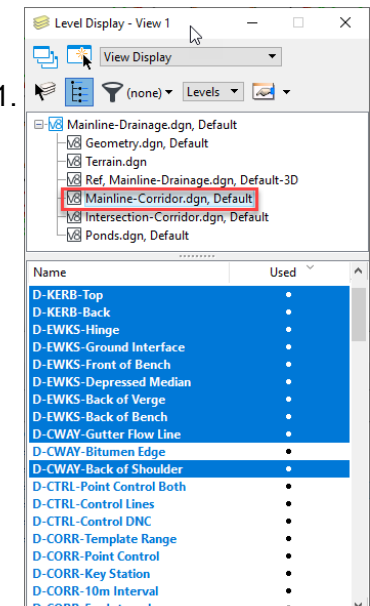
1. Select the **Drainage and Utilities** workflow



2. On the **Home** ribbon, Select, **Primary** > **Level Display**

Note that References have already been attached and some reference files have levels turned off in View 1.

- a. **Close** the **Level Display** dialog

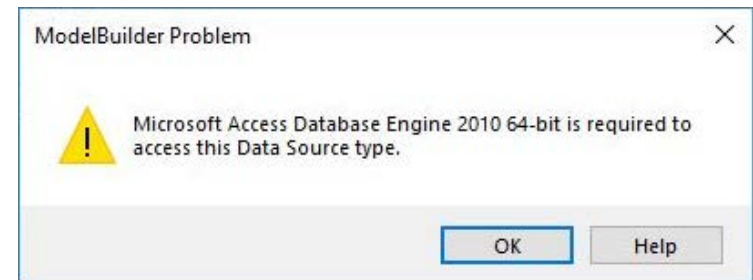


ModelBuilder Connection

The **Drainage and Utilities** workflow includes functionality that can help you import data from external software that has exported data to a neutral file format such as Microsoft Excel, Access, or Esri Shapefiles, then you can read in this data and use it to create or update the model in the DGN. This works by matching the names of elements in the DGN with those in the external data, and will update, add, or remove elements as needed.

We will use existing ModelBuilder Connection settings to read Microsoft Excel and Shapefile data and add a storm water network to the 3D model.

NOTE: If you see the following message when you run ModelBuilder, then there is a problem with the version of the **Access Database Engine** that is installed on your computer.



Please refer to the following link, [ModelBuilder external-component-error](#).

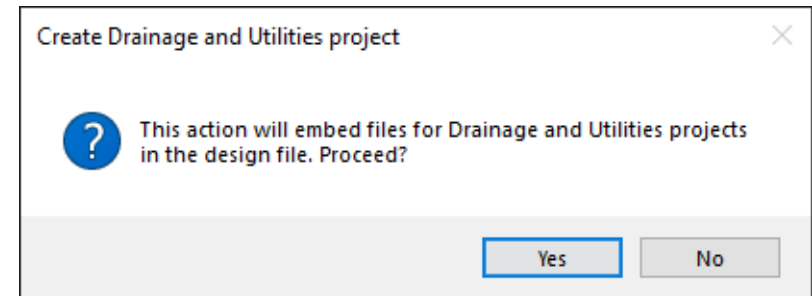
- The 64-bit engine is required by **ModelBuilder**.
- If the 32-bit engine is installed this must first be uninstalled.
- The 64-bit engine can then be installed.
- If other applications require the 32-bit engine this can then be reinstalled

Initiating the Connection



1. Select, *Tools* > *General Tools* > **ModelBuilder**

If this is the first time that a *Drainage and Utilities* tool has been selected with this file, you will get a warning that a utility model needs to be created in the design file. Select **Yes**.

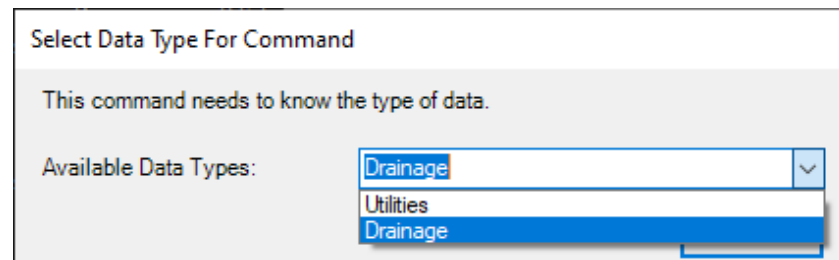


NOTE: ModelBuilder can be used to import data for both drainage and other types of utilities.

It is critical that you specify what *type of data* you are working with.

- a. Select, *Available Date Types* > **Drainage**
- b. Select > **OK**

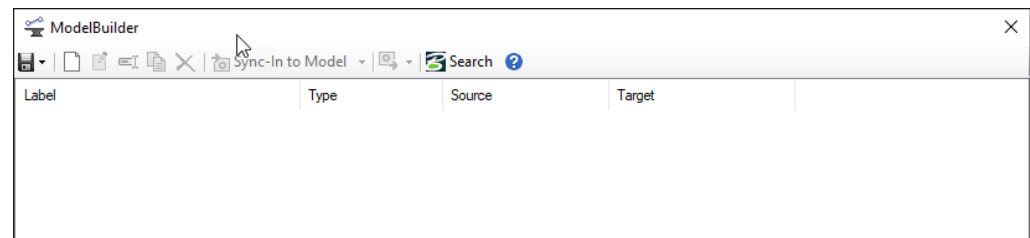
The *ModelBuilder* dialog opens



If your ModelBuilder dialog is **empty** as shown below, *move forward to the next step*

NOTE: If you see **Catch Basin** and **Conduit Table** listed in the ModelBuilder dialog, this suggests that this class has previously been run on this computer. It is safest to delete this entry and then move forward.

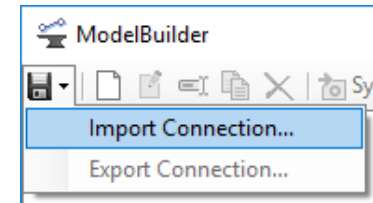
To delete an **existing** entry in the ModelBuilder dialog right click on the entry and Select > **Delete**



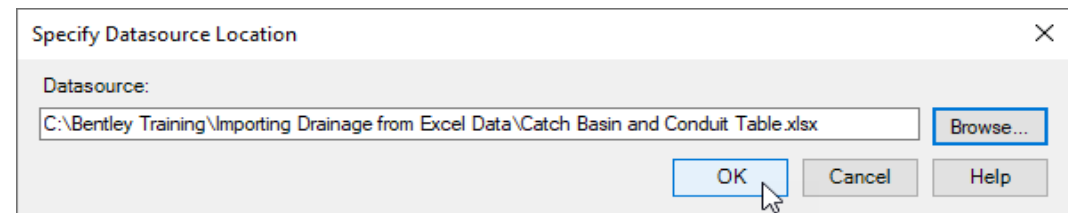
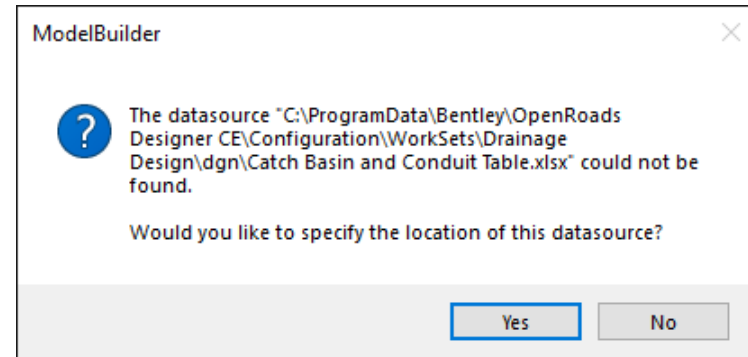


2. On the *ModelBuilder* dialog, Select > *Import/Export* > **Import Connection**

- a. Browse to *C:\Bentley Training\Importing Drainage from Excel Data*
- b. Select > **Catch Basin and Conduit Table-Imperial.mbc**, [*Catch Basin and Conduit Table.mbc*]
- c. Select > **Open**
- d. Select > **Yes** (at the prompt to specify the location of the data source file)

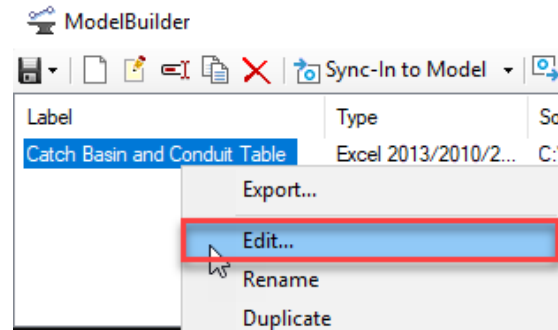


- e. In the *Specify Datasource Location* dialog, browse to *C:\Bentley Training\Importing Drainage from Excel Data*
- f. Select > **Catch Basin and Conduit Table-Imperial.xlsx** [*Catch Basin and Conduit Table.xlsx*]
- g. Select > **OK**



3. *Right click* on the **Catch Basin and Conduit Table-Imperial.mbc**, [*Catch Basin and Conduit Table.mbc*]
4. Select > **Edit**

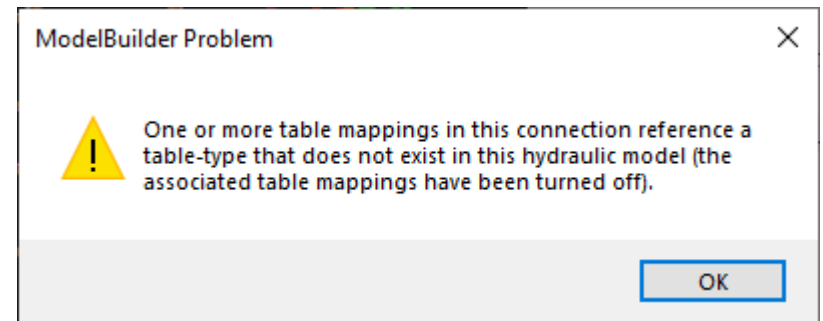
This opens the *ModelBuilder Wizard* dialog.



NOTE: If you see this ModelBuilder Problem message box, then *Drainage* was not selected in *Step 1a* above.

In this case:

- Select > **OK**
- **Cancel** the ModelBuilder dialog.
- Select the
- **Catch Basin and Conduit Table**, right click and **delete**.
- **Close** and **restart** ModelBuilder.
- Continue from *Step 1a* above.



Specify the Data Source

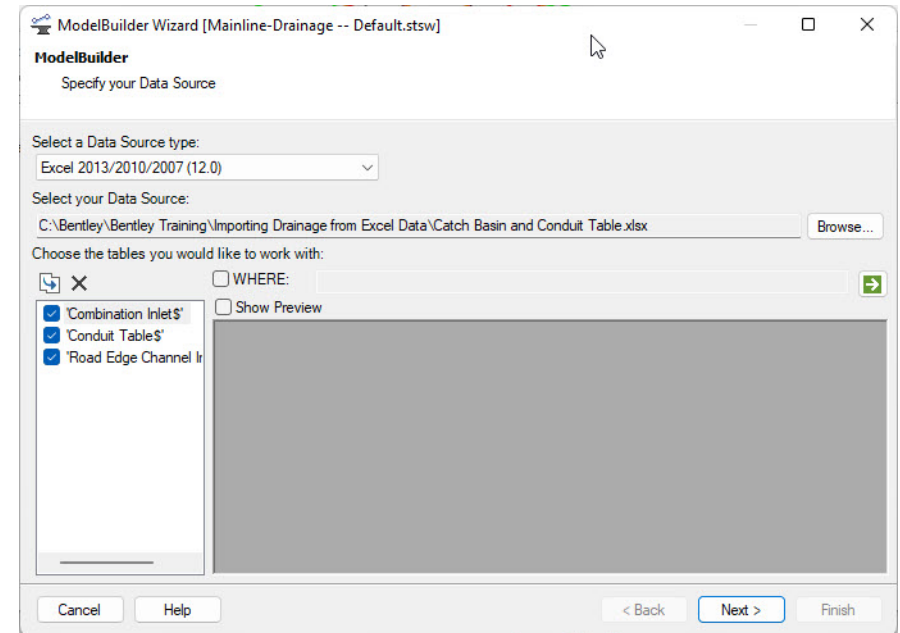
The first page of the ModelBuilder Wizard is the *Specify your Data Source* screen.

1. Verify that **Excel 2013/2010/2007 (12.0)** is selected in the *Select a Data Source type* drop down menu
 - a. Verify that *C:\Bentley Training\Importing Drainage from Excel Data\Catch Basin and Conduit Table-Imperial.xlsx* [C:\Bentley Training\Importing Drainage from Excel Data\Catch Basin and Conduit Table.xlsx] is shown in the *Select your Data Source* field

If not, browse and select the file.

Catch Basin and Conduit Table-Imperial.mbc [Catch Basin and Conduit Table.mbc] is a ModelBuilder Connection, which has already been set up to import data from an Excel spreadsheet. This spreadsheet has been created using external software. You have been told that it represents a storm drainage design, and you have been asked to create a 3D model to reflect it.

A ModelBuilder Connection is a mapping between data in an external file, and data in the design file. Once a connection and its mappings have been set up, the external data can be changed as often as required, and ModelBuilder can be used to synchronize the two.



The lower left side of the ModelBuilder Wizard shows the names of the sheets in the Excel file, which are described as tables in this dialog. In this case there are three:

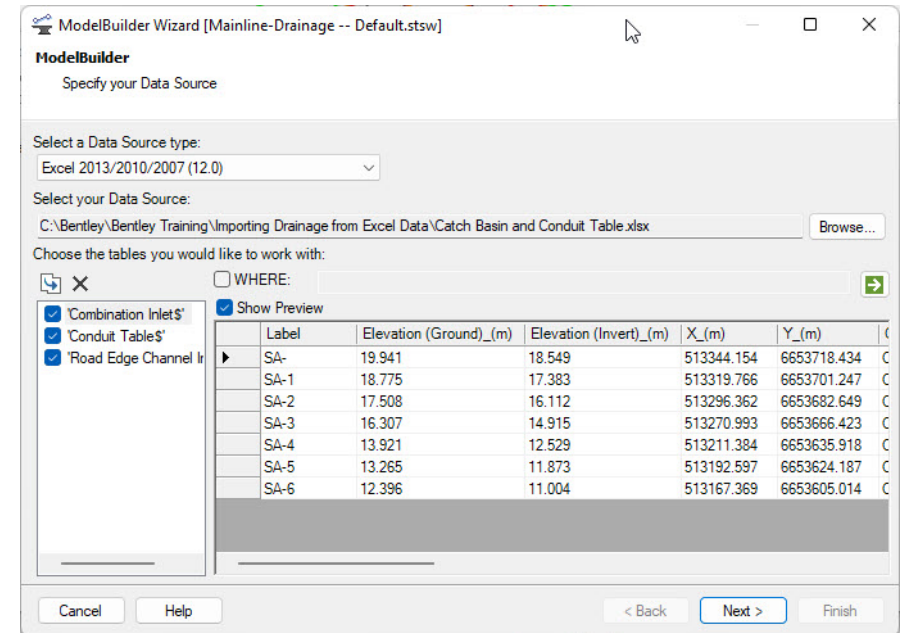
- 'Combination Inlet\$'
- 'Conduit Table\$'
- 'Road Edge Channel Inlet\$'

NOTE: The names of the sheets are not critical.

2. Select > **'Combination Inlet\$'**

a. Select > **Show Preview**

A preview shows you the content of the selected table.



ModelBuilder has read the *"Combination Inlets"* sheet, used the text in *row 1* for the column titles, then listed the data below them. The *"Road Edge Channel Inlet"* sheet is very similar.

3. Select > **'Conduit Table\$'**

NOTE: The columns titled *Start Node* and *Stop Node* tell ModelBuilder which nodes each conduit connects to, so it's crucial that this data is available.

a. Select > **Next**

Label	Start Node	Invert (Start)_(m)	Stop Node	Invert (Stop)_(m)	Diameter
SS-1	SO-29	20.785	SO-28	19.504	375
SS-2	SO-28	19.504	SO-27	18.052	375
SS-3	SO-27	18.052	SO-26	16.473	375
SS-4	SO-26	16.473	SO-25	14.884	375
SS-5	SO-25	14.884	SO-24	13.321	375
SS-14	SO-24	13.321	SO-23	11.972	375
SS-6	SO-23	11.972	SO-22	10.978	375
SS-7	SO-22	10.978	SO-21	10.317	375
SS-8	SO-21	10.317	SO-13	9.984	375
SS-9	SO-13	9.984	SO-11	9.255	375
SS-10	SO-11	9.255	SO-10	8.854	375
SS-11	SO-10	8.854	SO-9	8.453	375
SS-12	SO-9	8.453	SO-8	8.052	375
SS-13	SO-8	8.052	SO-7	7.651	375

The *Specify Spatial and Connectivity Options* screen is displayed.

b. Verify that the units are set to **[US Survey Ft]**, **[m]**

NOTE: The *Create nodes if none found at pipe endpoint* option is not checked, because the data should be complete. If there are any nodes missing, then ModelBuilder will tell you so that you can correct the data.

c. Select > **Next**

ModelBuilder Wizard [Mainline-Drainage -- Default.stsw]

ModelBuilder

Specify Spatial and Connectivity Options

Specify the Coordinate Unit of your data source:

m

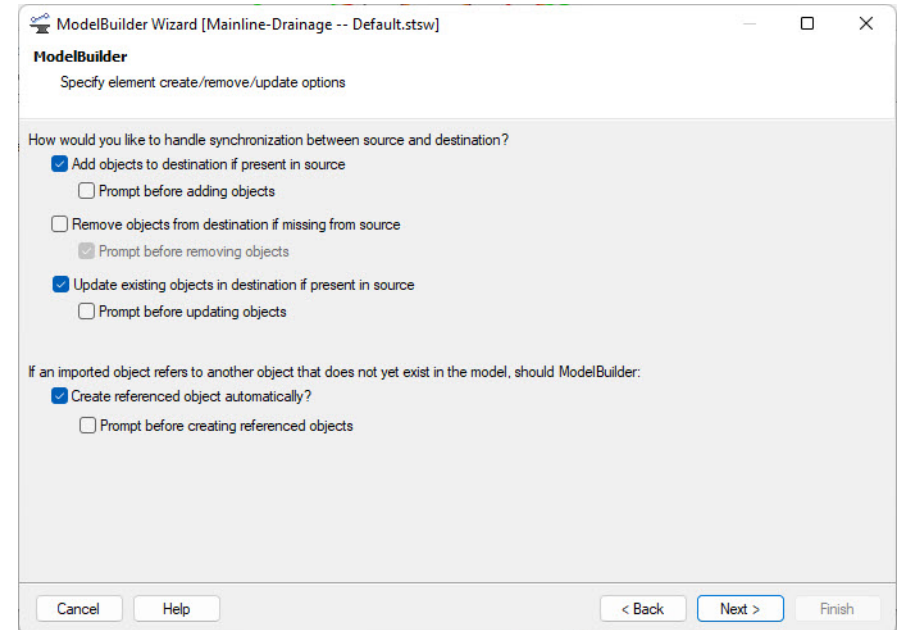
How would you like to handle missing connectivity data?

☐ Create nodes if none found at pipe endpoint

The next page is *Specify element create/remove/update options*. This is where you tell ModelBuilder how to handle situations where there are differences between the source and destination data.

Review the settings and make sure that they match the image on the right.

d. Select > **Next**



This page is *Specify additional options*. This is where you tell ModelBuilder which scenario to import the data into and what key piece of information you will use to tie the objects together. For Excel data, the key field will be the *Label*.

e. Select > **Next**

ModelBuilder Wizard [Mainline-Drainage -- Default.stsw]

ModelBuilder
Specify additional options

How would you like to import incoming data?
Current Scenario

How would you like to map elements in the data source to elements in the destination?
☒ Map elements by key field
Label

☒ If several elements share the same GIS-ID, then apply updates to all of them?
☐ Prompt before cascading updates

How would you like to handle adds/removes of elements with GIS-ID mappings on subsequent imports?
☐ Recreate elements associated with a GIS-ID that was previously deleted from the model.
☒ When removing objects from destination if missing from source, only remove objects that have a GIS-ID.

☐ Map elements spatially to closest matching geometries (spatial join)
Tolerance: 100 m

Field Mappings – Catch Basins

The next steps are where you specify field mappings for each table in the Excel file.

1. Ensure that the **Combination Inlet\$**, table is selected.
 - a. On the **Settings** tab, note the following mappings:

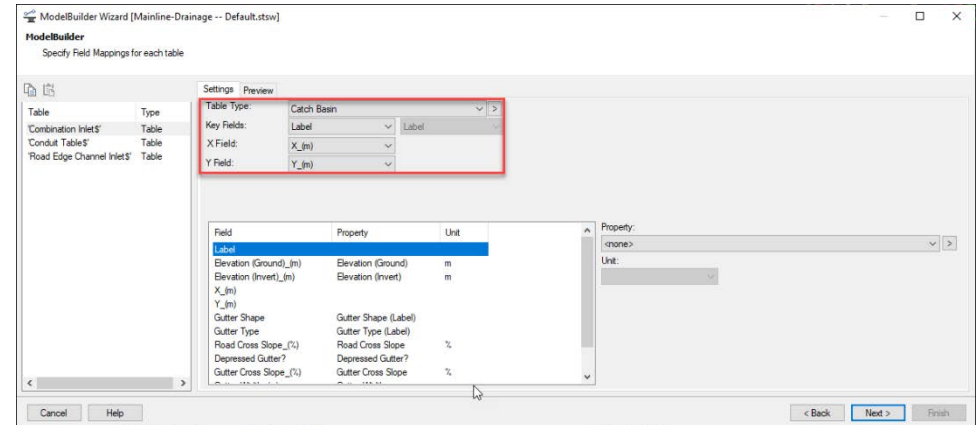
Table Type: **Catch Basin**

Key Fields: **Label**

X Field: **X_ (US Survey Ft) [m]**

Y Field: **Y_ (US Survey Ft) [m]**

These are mandatory settings – they must be set.



Below the columns in the Combination Inlet sheet are listed in the Field column. The Property column to the right of it shows the Drainage and Utilities property and unit.

- b. Verify or set the following mappings:

Field	Property	Unit
<i>Elevation (Ground)_ (ft), (m):</i>	Elevation (Ground)	Ft [m]
<i>Elevation (Invert)_ (ft), (m):</i>	Elevation (Invert)	Ft [m]
<i>Gutter Shape:</i>	Gutter Shape (Label)	
<i>Gutter Type:</i>	Gutter Type (Label)	
<i>Maximum Gutter Depth_ (ft),(m)</i>	Maximum Gutter Depth	Ft [m]
<i>Road Cross Slope_ (%):</i>	Road Cross Slope	%
<i>Depressed Gutter?</i>	Depressed Gutter?	
<i>Gutter Cross Slope_ (%):</i>	Gutter Cross Slope	%
<i>Gutter Width_ (ft), (m):</i>	Gutter Width	Ft [m]

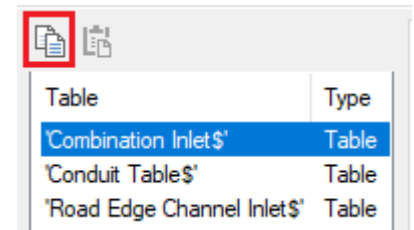
Longitudinal Slope (Inlet)_(%): **Longitudinal Slope (Inlet)** %

Node Rotation (Degrees): **Node Rotation Degrees**

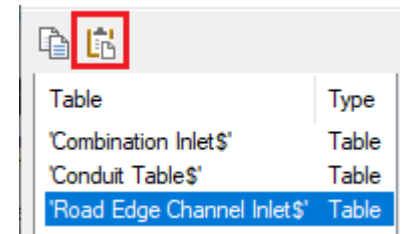
Note: that, in practice, you don't have to map all this information to build a 3D model. In this example, the Excel data includes data about the gutter, which will be useful if we compute the hydraulics. In addition to the mandatory settings, mapping the ground and invert elevations should be considered as the minimum data requirement.

The next step is to set these same settings in the **Road Edge Channel Inlet\$** table. While you could select the Road Edge Channel Inlet\$ table and repeat the above process, there is a quicker way.

2. With the **Combination Inlet\$**, table still selected
 - a. Select > **Copy Mappings**



- b. Select > **Road Edge Channel Inlet\$** table
 - c. Select > **Paste Mappings**



- d. An additional mapping for the Road Edge Channel Inlet is required for the *Curb Cross Slope*.

Field	Property	Unit
<i>Curb Cross Slope_(%):</i>	Curb Cross Slope	%

Field Mappings – Conduits

1. Select the **Conduit Table\$** table.
 - a. On the **Settings** tab, note the following mappings:

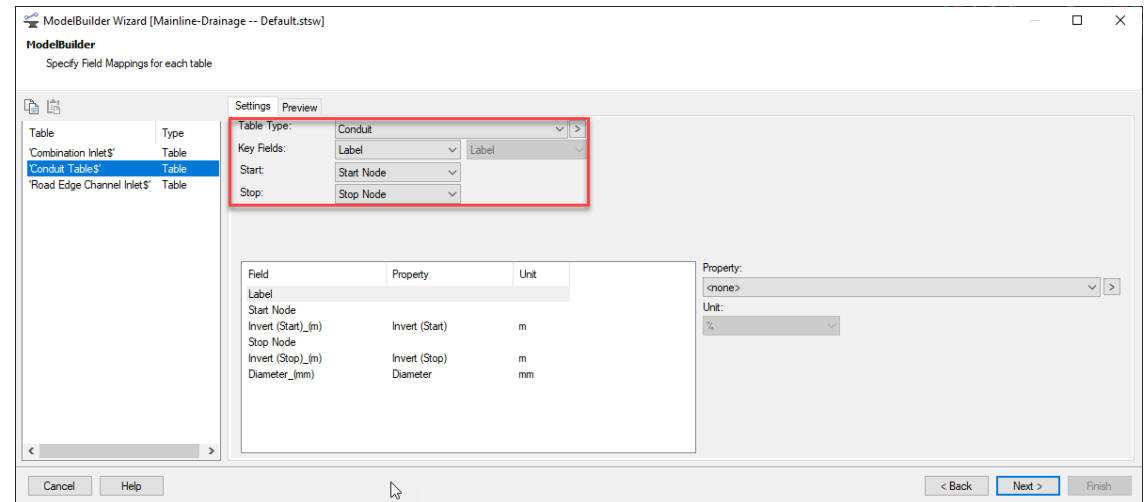
Table Type: **Conduit**

Key Fields: **Label**

Start: **Start Node**

Stop: **Stop Node**

These are mandatory settings – they must be set.



Below that the columns in the Conduit Table sheet are listed in the Field column. The Property column to the right of it shows the Drainage and Utilities property and unit.

- b. Verify or set the following mappings:

Field	Property	Unit
<i>Invert (Start)_in, (m):</i>	Invert (Start)	Ft [m]
<i>Invert (Stop)_in, (m):</i>	Invert (Stop)	Ft [m]
<i>Diameter_in, (mm):</i>	Diameter	in [mm]

Before you move on, it is a good idea to double-check that the units you have selected are correct. The software will default to m/m as the units for slopes, but the Excel data uses %.

- c. Select > **Next**

Feature Mappings – Feature Definitions

This page of the wizard lets you set the *Feature Definition* to use for each table.

1. On the **Settings** tab, set the following mappings:

Table

Feature Definition

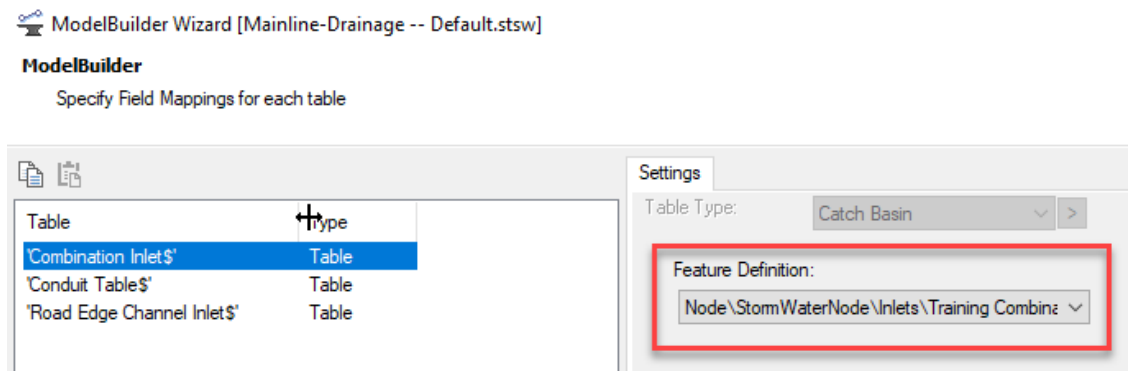
'Combination Inlet\$': *Node\StormWaterNode\Inlets\Training Combination Inlet* (found near the *end* of the list)

'Conduit Table\$': *Conduit\StormWater\Pipes\Circular\Storm Water (User Defined Size)*

– Missing Node:<none>

'Road Edge Channel Inlet\$': *Node\StormWaterNode\Inlets\Training Road Edge Channel Inlet* (near the *end* of the list)

- a. Select > **Next**



Final Steps

Snapshots can be used to track changes in the data between runs of ModelBuilder. If enabled, on the second and subsequent runs a dialog is displayed that shows you what has changed since the last time you synchronized the data. This option is *not* required for the class.

1. Click **Next**

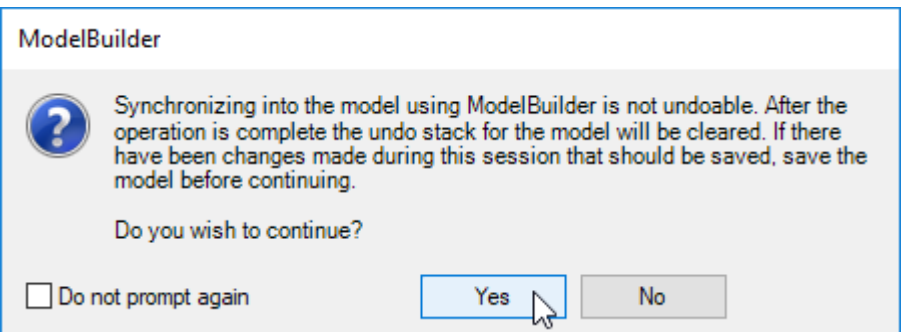
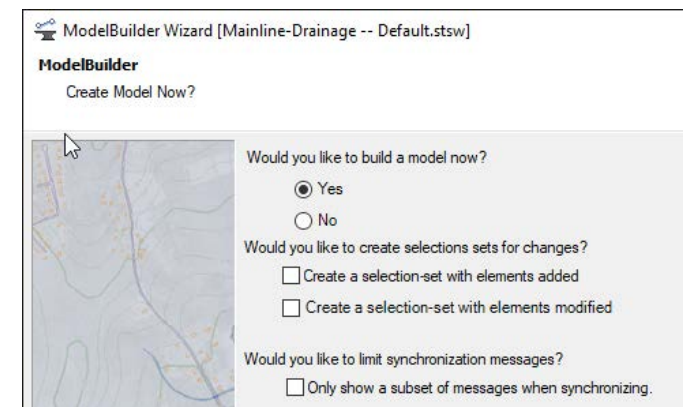
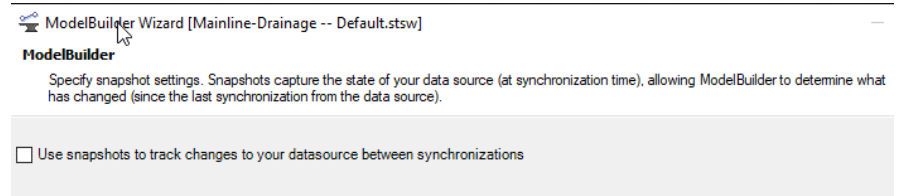
Ensure that *Would you like to build a model now?*

a. Is set to **Yes**

b. Select > **Finish**

c. Select > **Yes** to confirm that you are happy to continue.

The Excel data is now processed.



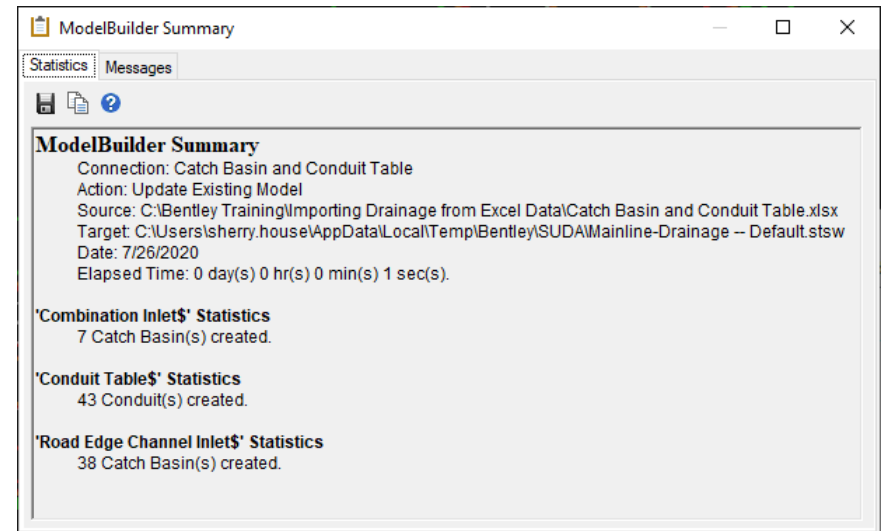
When this is complete, you will see a summary panel which tells you what ModelBuilder has done. The spreadsheet contained three sheets:

- Combination Inlet
- Conduit Table
- Road Edge Channel Inlet

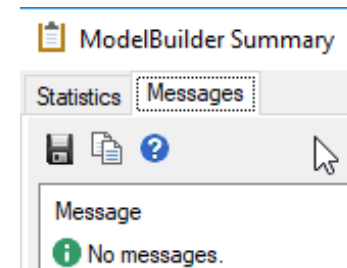
The summary panel tells you what's happened.

NOTE: The design file has not been updated yet.

The *Messages* tab is also worth checking, in case there are any issues. In this case, there are no messages.



- d. **Close** the *ModelBuilder Summary* dialog.

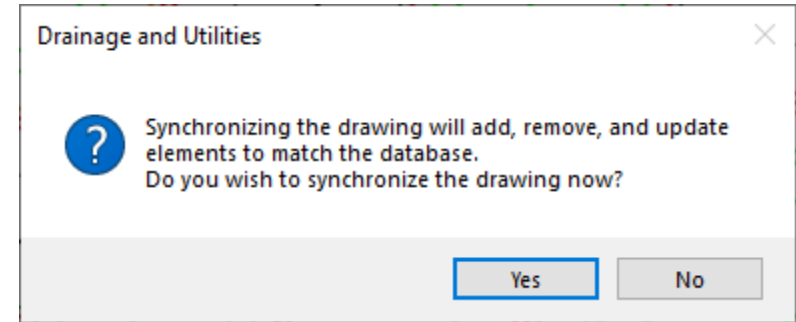


e. **Close** the *ModelBuilder* dialog.

f. Select > **Yes**

To confirm that you want to synchronize the drawing.

The design file is now updated, which takes a few moments.

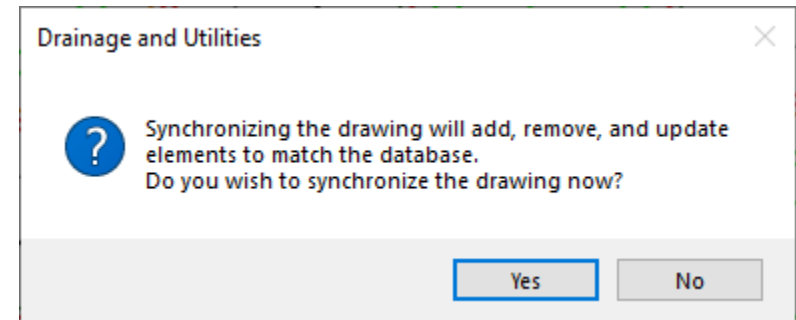


In version 10.09.00.91, there is a slight discrepancy between the rotations of the nodes in the 2D and 3D models, which only occurs if you are importing into a design file which does not already contain a Drainage and Utilities element, such as a node for example. In this situation, the discrepancy can easily be resolved.



2. On the **Tools** ribbon, Select > *Project Tools* > *Project* > **Synchronize Drawing**

a. You will be prompted twice – once for each of the two databases. Select > **Yes** to both prompts.



Exercise 2: Reviewing and Updating the Data

Description

This exercise will show you how you can use ModelBuilder to update an existing drainage model.

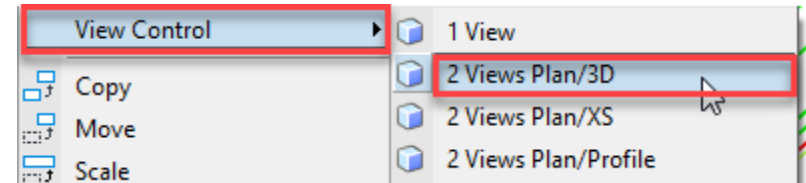
Skills Taught

- Setting Up Views
- Viewing Element Properties
- Using ModelBuilder to update the model
- Reviewing the updated model

Setting up the Views

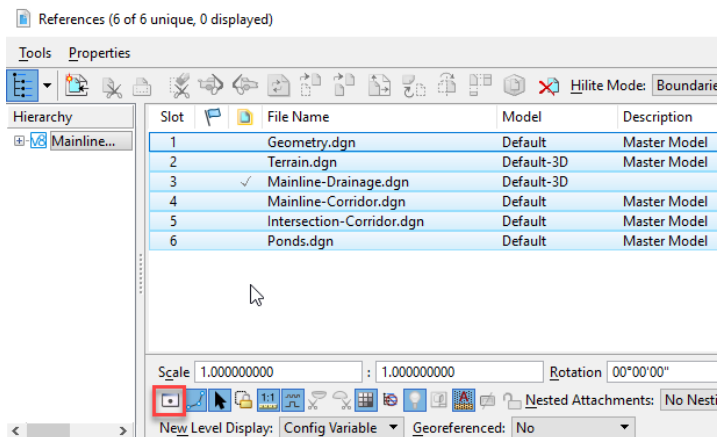
1. Continuing in **Mainline-Drainage-Imperial.dgn**, [\[Mainline-Drainage.dgn\]](#)
 - a. Select > **F9** on the keyboard -or- **right-press** and select **View Control** > **2 Views Plan/3D**

This will open and arrange a Plan view and a 3D view.

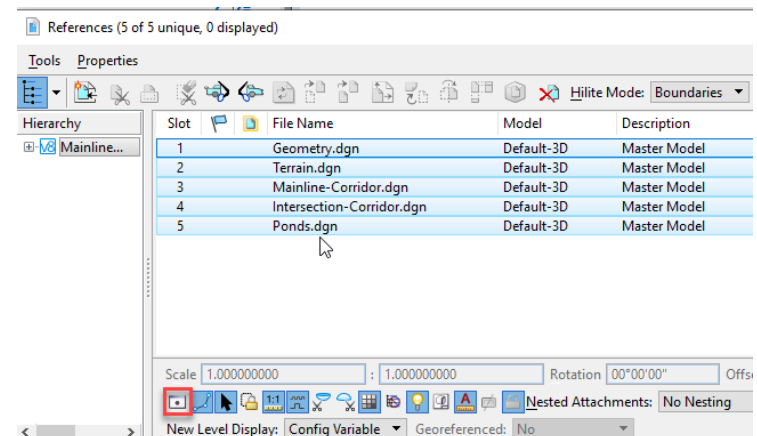


2. Select, **Home** > **Primary** > **Attach Tools** > **References**
 - a. Turn **off** the display of all the reference files in **View 1, Default**
 - b. Turn **off** the display of all the reference files in **View 2, Default-3D**

The files can be turned back on as and when required. The model images below show the North-East end of the project.

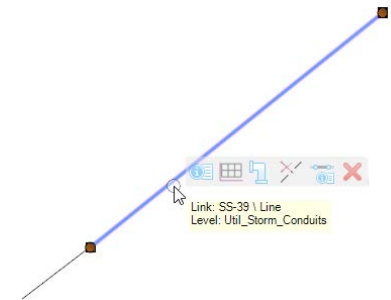
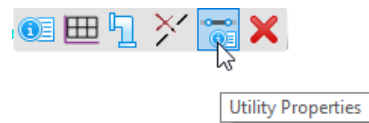


- c. Select > **View 1**



Viewing Properties

1. Select pipe link **SS-39**, which is at the top of the network, as shown on the right
 - a. **Hover** the cursor over the selected pipe
 - b. From the context sensitive toolbar, Select > **Utility Properties**



The dialog shows you the start and stop inverts, and the diameter, which is **15 inches**, [375.0mm]

Note: the *Conduit Type* property, which says *User Defined Conduit*. This denotes that the shape and size of the conduit were defined by you, using ModelBuilder in this case, as opposed to being chosen from a catalog of conduit shapes and sizes. ModelBuilder assumes that the shape of a conduit is circular, unless you tell it otherwise.

Also note: the *Set Invert to Start* and *Set Invert to Stop* properties. These are both set to *True*, which means that the inverts of the conduit will match the inverts of the nodes that they connect to. Again, ModelBuilder assumes this, unless you tell it otherwise.

- c. **Close** the *Utility Properties* dialog

Property Search	
Specify Local Pipe Constraint?	False
▼ Diversion	
Is Diversion Link?	False
▼ Physical	
Conduit Type	User Defined Conduit
Size (Display)	(N/A)
Section Type	Circle
Material	PVC
Diameter (mm)	375.0
Wall Thickness (cm)	4.700
Number of Barrels	1
Roughness Type	Single Roughness
Manning's n	0.010
Use Local Conduit Description?	False
Conduit Description	
Set Invert to Start?	True
Invert (Start) (m)	21.95
Set Invert to Stop?	True
Invert (Stop) (m)	20.85
Has User Defined Length?	False
Length (Scaled) (m)	39.996

Updating the model with amended External Data

In the previous exercise, the **Catch Basin and Conduit Table-Imperial.mbc**, *[Catch Basin and Conduit Table.mbc]* ModelBuilder Connection was set up and used to import data from an Excel spreadsheet that was created using external software.

You have now been told that the spreadsheet has been **updated** to represent the latest version of the storm drainage design, and you have been asked to update the model to reflect the changes.

Once a ModelBuilder Connection and its mappings have been set up, the external data can be changed as often as required, and ModelBuilder can be used to synchronize the external data with the 3D model.

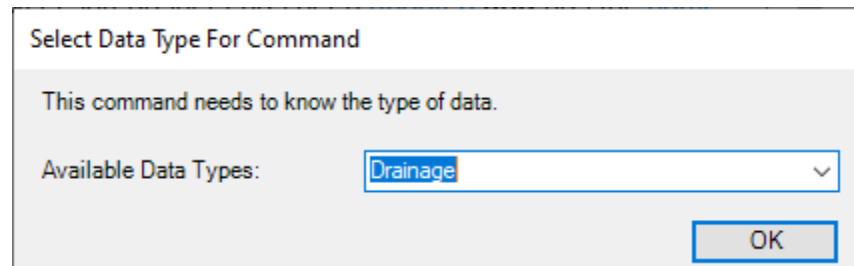
NOTE: If the Excel spreadsheet has been **updated** and has the **same file name**, then synchronizing the file with the utility model is simply done by selecting the connection and clicking **Sync-In to Model**.



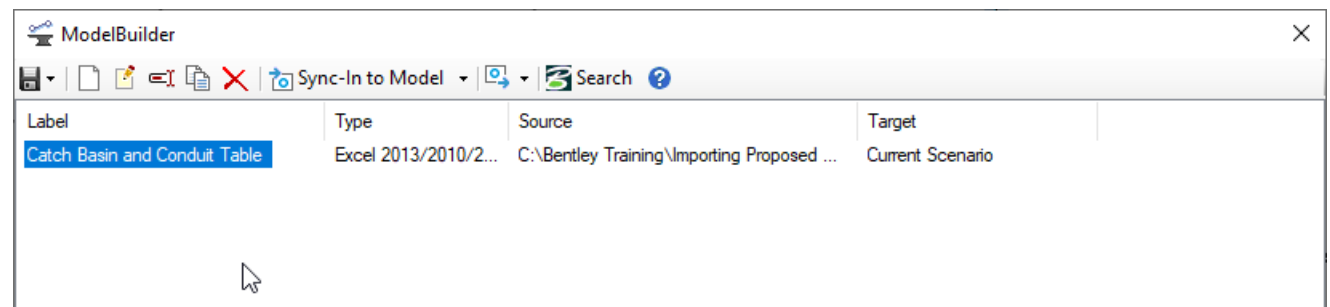
1. Select, **Tools > General Tools > ModelBuilder**

ModelBuilder can be used to import data for both drainage and other types of utilities, so you need to tell it what type of data you are working with.

- a. Select > **Drainage**
- b. Select > **OK**

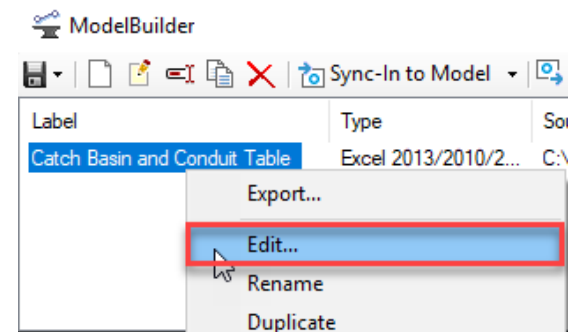


The **ModelBuilder** dialog opens.



c. *Right click* on the **Catch Basin and Conduit Table-Imperial.mbc**, [*Catch Basin and Conduit Table.mbc*]

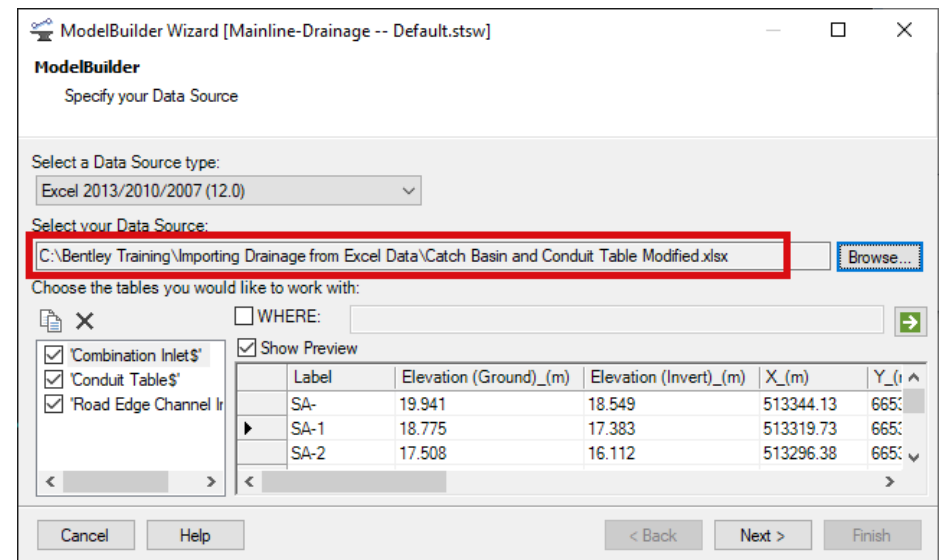
d. Select > **Edit**



The first page is the *Specify your Data Source* screen.

e. Select > **Excel 2013/2010/2007 (12.0)** as the *Select a Data Source type*

f. Select, *Browse* > *C:\Bentley Training\Importing Drainage from Excel Data* and Select > **Catch Basin and Conduit Table Modified-Imperial.xlsx** [*Catch Basin and Conduit Table Modified.xlsx*]



g. Select > **Next**

Check that the settings are the same as the previous exercise.

The *Specify Spatial and Connectivity Options* screen is displayed.

h. Verify that the units are set to **US Survey Ft**, [\[m\]](#).

The *Create nodes if none found at pipe end point* is not checked, because the data should be complete.

If there are any nodes missing then ModelBuilder will tell you, so that you can correct the data.

i. Select > **Next**

ModelBuilder Wizard [Mainline-Drainage -- Default.stsw]

ModelBuilder

Specify Spatial and Connectivity Options

Specify the Coordinate Unit of your data source:

m

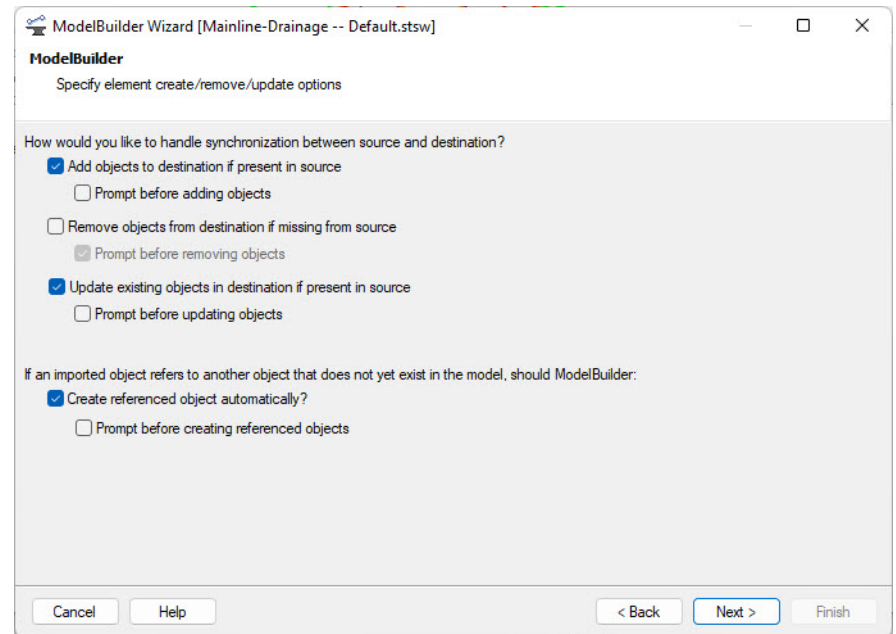
How would you like to handle missing connectivity data?

☐ Create nodes if none found at pipe endpoint

This page is *Specify element create/remove/update options*. This is where you tell ModelBuilder how to handle situations where there are differences between the source and destination data.

The *Add* and *Update objects* are checked.

j. Select > **Next**



This page is *Specify additional options*. This is where you tell ModelBuilder which scenario to import the data into and what key piece of information you will use to tie the objects together.

For Excel data, the key field will be the *Label*.

k. Select > **Next**

ModelBuilder Wizard [Mainline-Drainage -- Default.stsw]

ModelBuilder

Specify additional options

How would you like to import incoming data?

Current Scenario

How would you like to map elements in the data source to elements in the destination?

☒ Map elements by key field

Label

☒ If several elements share the same GIS-ID, then apply updates to all of them?

☐ Prompt before cascading updates

How would you like to handle adds/removes of elements with GIS-ID mappings on subsequent imports?

☐ Recreate elements associated with a GIS-ID that was previously deleted from the model.

☒ When removing objects from destination if missing from source, only remove objects that have a GIS-ID.

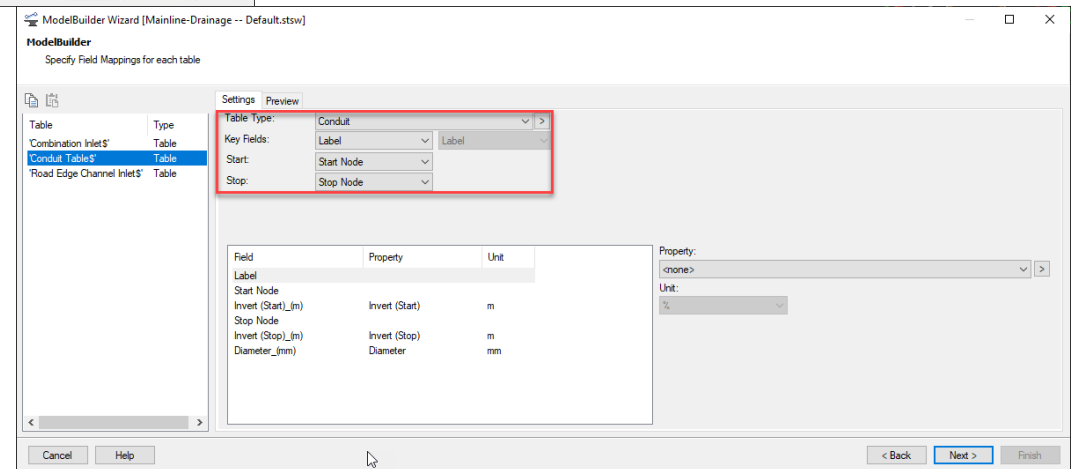
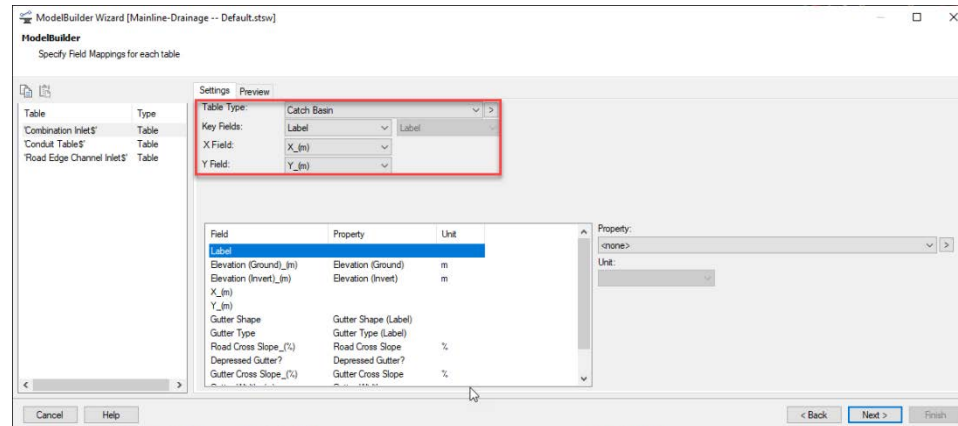
☐ Map elements spatially to closest matching geometries (spatial join)

Tolerance: 100 m

Checking the Field Mappings – Catch Basins and Conduits

The next steps are where you check the field mappings for each table in the Excel file.

1. The field mappings for the **Combination Inlet\$**, **Conduit Table\$** and the **Road Edge Channel Inlet\$** tables are retained from the previous exercise.



a. Select > **Next**

ModelBuilder Wizard [Mainline-Drainage -- Default.stw]

ModelBuilder
Specify Field Mappings for each table

Settings Preview

Table	Type
'Combination Inlet\$'	Table
'Conduit Table\$'	Table
'Road Edge Channel Inlet\$'	Table

Table Type: Conduit
Key Fields: Label
Start: Start Node
Stop: Stop Node

Field	Property	Unit
Label		
Start Node		
Invert (Start)_m	Invert (Start)	m
Stop Node		
Invert (Stop)_m	Invert (Stop)	m
Diameter_mm	Diameter	mm

Property: <none>
Unit: %

< Back **Next >** Finish

Cancel Help

Checking the Field Mappings – Feature Definitions

This page of the wizard lets you set the *Feature Definition* to use for each table.

1. On the **Settings** tab, set the following mappings:

Table

Feature Definition

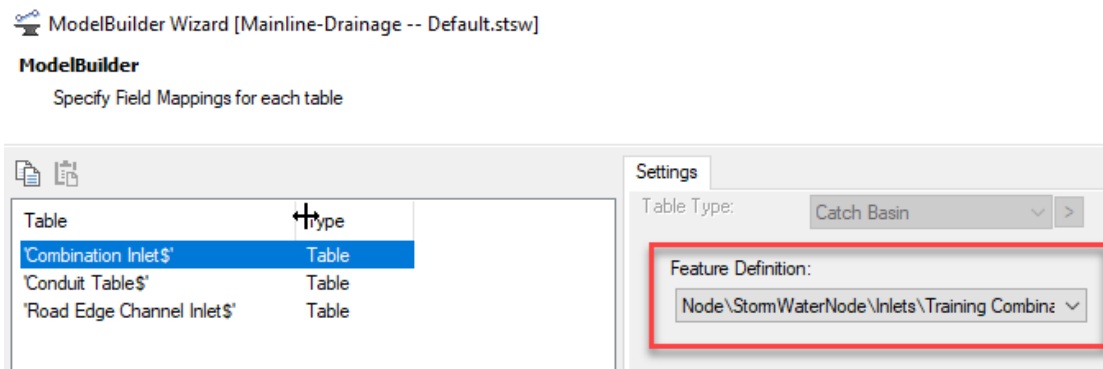
'Combination Inlet\$': *Node\StormWaterNode\Inlets\Training Combination Inlet* (found at the *top* of the list)

'Conduit Table\$': *Conduit\StormWater\Circular\Pipes\Storm Water (User Defined Size)* (found at the *top* of the list)

– Missing Node:<none>

'Road Edge Channel Inlet\$': *Node\StormWaterNode\Inlets\Training Road Edge Channel Inlet* (at the *top* of the list)

- a. Select > **Next**



Final Steps

Snapshots can be used to track changes in the data between runs of ModelBuilder. If enabled, on the second and subsequent runs a dialog is displayed that shows you what has changed since the last time you synchronized the data.

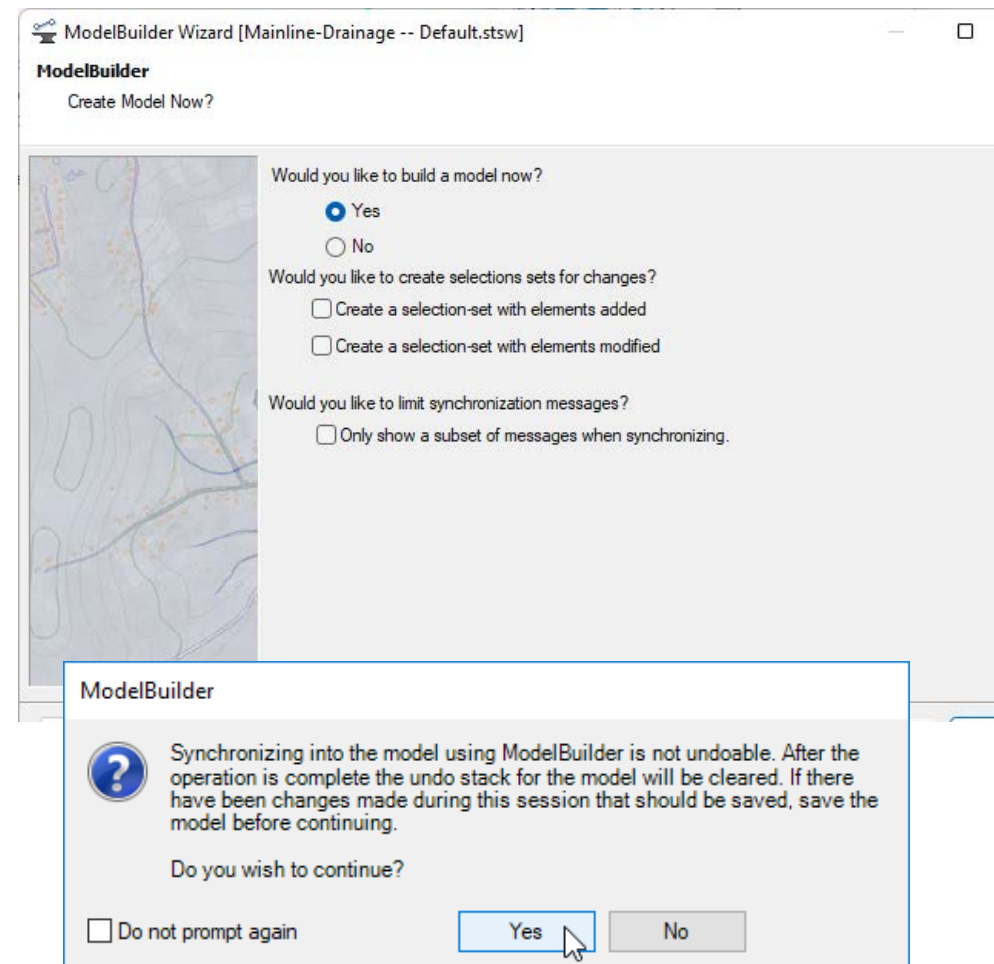
1. Select > **Next**
2. Ensure that *Would you like to build a model now?*
 - a. Set to **Yes**
 - b. Select > **Finish**

Synchronizing into ModelBuilder

- c. Select > **Yes**

To confirm that you are happy to continue.

The Excel data is now processed.



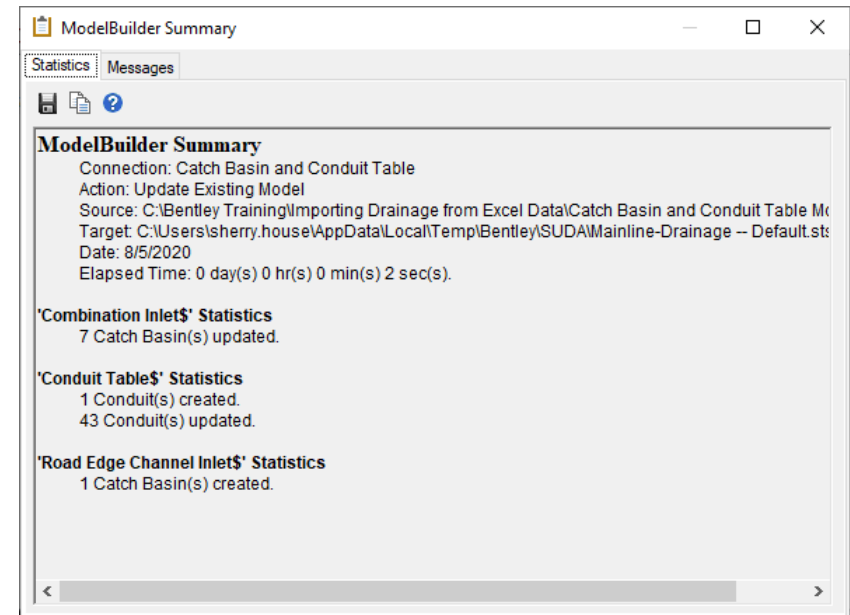
When this is complete, you will see a summary panel.

This panel tells you what ModelBuilder has done. The spreadsheet contained three sheets:

- Combination Inlet
- Conduit Table
- Road Edge Channel Inlet

The summary panel tells you what's happened.

NOTE: The design file has not been updated yet.



The Messages tab is also worth checking, in case there are any issues. In this case, there are no messages.

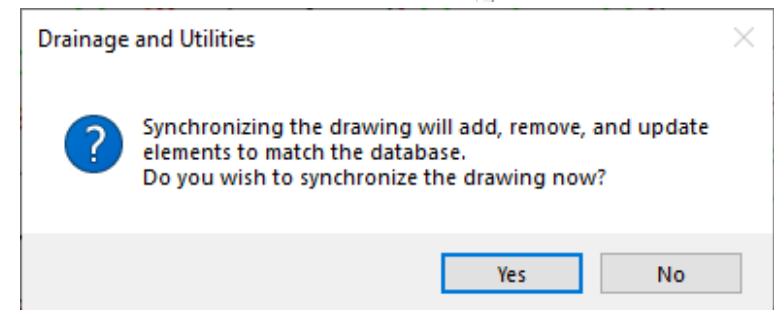
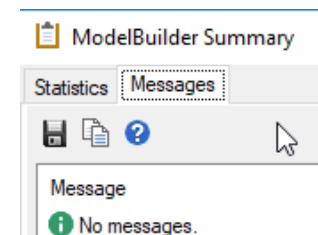
d. **Close** the ModelBuilder *Summary* dialog

e. **Close** the *ModelBuilder* dialog.

f. Select > **Yes**

To confirm that you want to synchronize the drawing.

The design file is now updated.

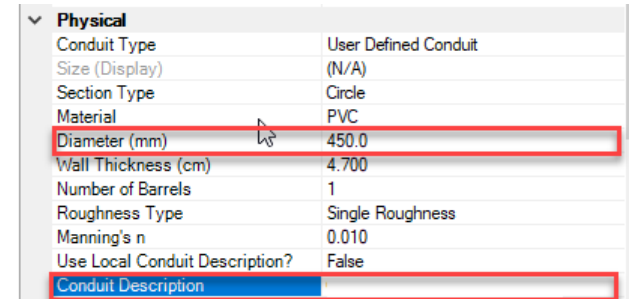


Reviewing the Updated Model

1. Select > Pipe **SS-39**
 - a. **Hover** the cursor over the selected pipe
 - b. From the *context sensitive toolbar*, Select > **Utility Properties**

The dialog shows you that the **Diameter** has changed

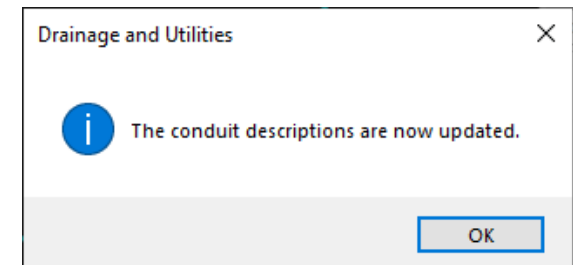
The **Conduit Description** still needs to be updated.



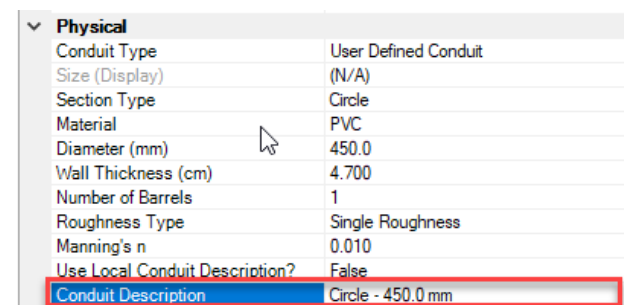
Physical	
Conduit Type	User Defined Conduit
Size (Display)	(N/A)
Section Type	Circle
Material	PVC
Diameter (mm)	450.0
Wall Thickness (cm)	4.700
Number of Barrels	1
Roughness Type	Single Roughness
Manning's n	0.010
Use Local Conduit Description?	False
Conduit Description	



2. Select, *Tools* > **Update Descriptions**
 - a. Select > **OK**



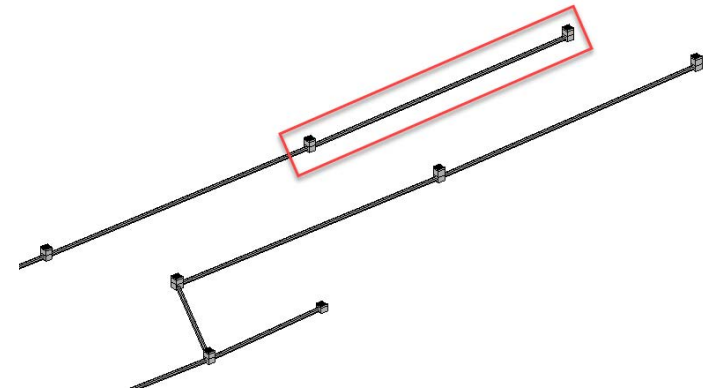
The **Conduit Description** is now correct.



Physical	
Conduit Type	User Defined Conduit
Size (Display)	(N/A)
Section Type	Circle
Material	PVC
Diameter (mm)	450.0
Wall Thickness (cm)	4.700
Number of Barrels	1
Roughness Type	Single Roughness
Manning's n	0.010
Use Local Conduit Description?	False
Conduit Description	Circle - 450.0 mm

Finally, inspect the 3D model in View 2. A new catch basin and pipe have been added, as shown in the red box.

You have seen that ModelBuilder not only updates existing elements, it can add new elements as well.



Skills Assessment

The questions below will test your retention of the skills covered in this course.

1. What are the 3 tables that th ModelBuilder Imports?
2. Which settings are mandatory when setting the mappings for a Combination Inlet?
 - a. Catch Basin
 - b. Label
 - c. Conduit
 - d. Start Node
3. What does the ModelBuilder Summary dialog tell you?
 - a. How many Catch Basins have been Imported?
 - b. How many Conduit Tables have been created?
 - c. The Road Edge Channel Statistics?
 - d. All of the above?

Skills Assessment - Answers

The answers to the skills assessment questions are highlighted below.

1. What are the 3 tables that th ModelBuilder Imports?.
 - a. **Combination Inlets**
 - b. **Conduit Table**
 - c. **Road Edge Channel Inlet**
2. Which settings are mandatory when setting the mappings for a Combination Inlet?
 - a. **Catch Basin**
 - b. **Label**
 - c. Coduit
 - d. Start Node
3. What does the ModelBuilder Summary dialog tell you?
 - a. How many Catch Basins have been Imported?
 - b. How many Conduit Tables have been created?
 - c. The Road Edge Channel Statistics?
 - d. **All of the above.**

Summary

This class has shown you how to use ModelBuilder to create a 3D model using Excel data. You will have learnt how to use existing ModelBuilder Connection settings to read the Excel data, and update the 3D model. Then, you reviewed the ModelBuilder Connection settings, to see how they work