

# Existing Utility Modeling with OpenRoads

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# AGENDA

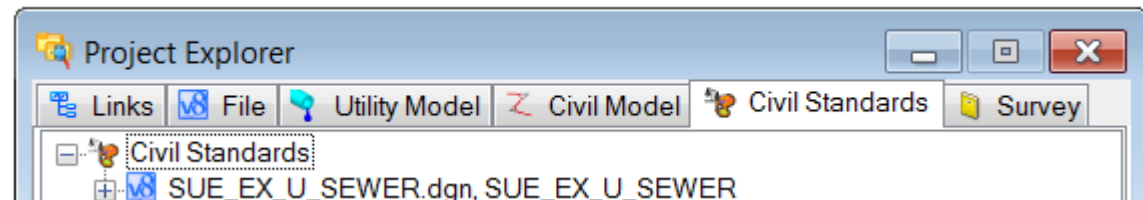
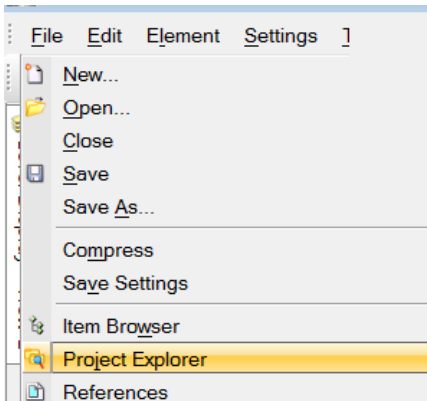
- Setup
- Project Explorer
- Workspace
- Element Templates
- Feature Definitions
- Nodes
- Links
- Drape to surface (assumed depth of cover)
- Model to known elevation (as-builts, field survey)
- 3D Cells

# SETUP

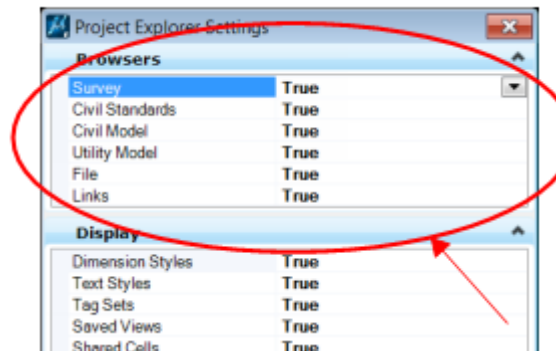
- What do setup do you need to have in place to be able to model utilities?
  - WORKSPACE
    - New OpenRoads configuration variables.
  - LEVELS
  - CELLS
  - ELEMENT TEMPLATES
  - FEATURE DEFINITIONS

# PROJECT EXPLORER

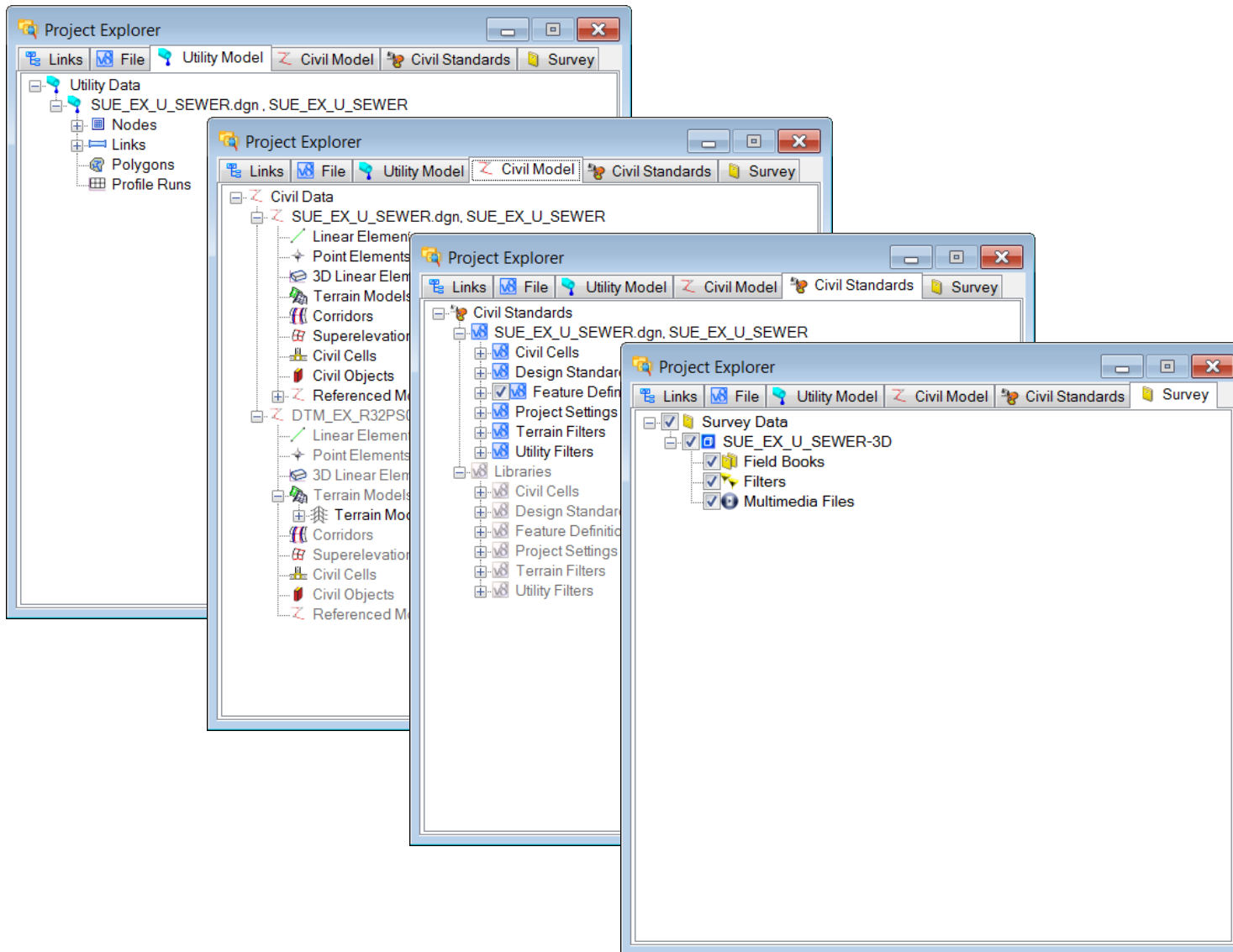
- Project Explorer is found in File > Project Explorer or on the Primary Toolbar.



- If you do not have all of the tabs available, they can be turned on by going to Settings > Project Explorer.



# PROJECT EXPLORER

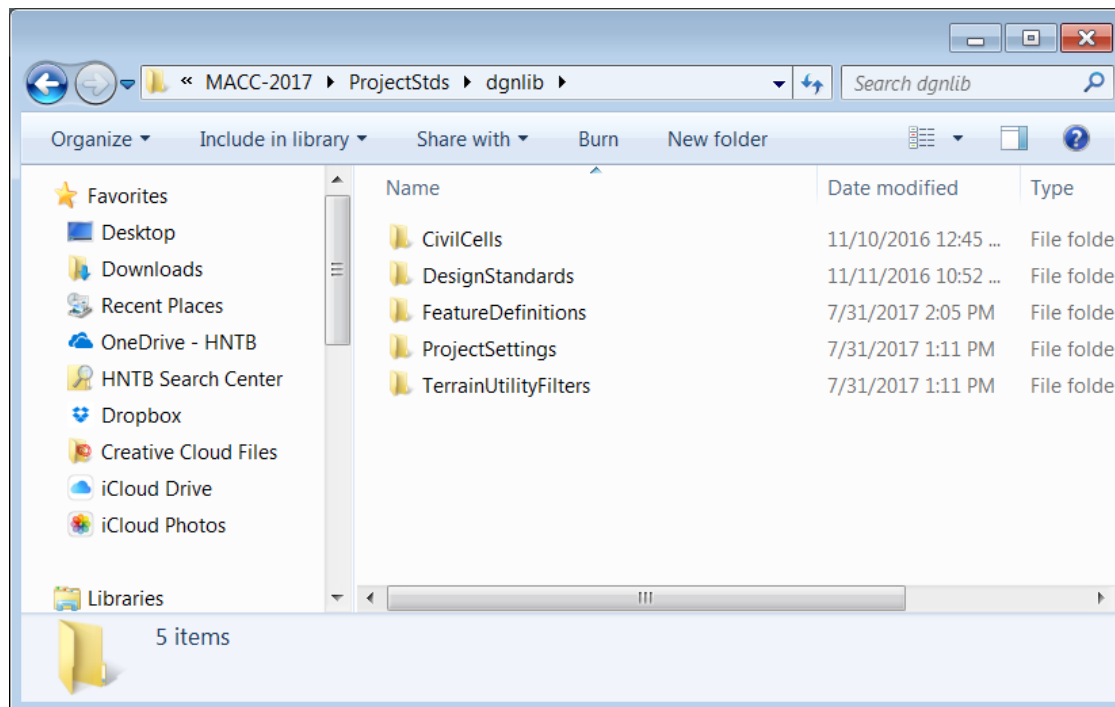


# CONFIGURATION VARIABLES

- #--- Civil Cells ---#
- CIVIL\_CIVILCELLDGNLIBLIST > \$(This\_Project)dgnlib/CivilCells/\*.dgnlib
- #--- Design Standards ---#
- CIVIL\_DESIGNSTANDARDSDGNLIBLIST > \$(This\_Project)dgnlib/DesignStandards/\*.dgnlib
- #--- Feature Definitions ---#
- CIVIL\_CONTENTMANAGEMENTDGNLIBLIST > \$(This\_Project)dgnlib/FeatureDefinitions/\*.dgnlib
- #--- Project Settings ---#
- CIVIL\_PROJECTSETTINGSDGNLIBLIST > \$(This\_Project)dgnlib/ProjectSettings/\*.dgnlib
- #--- Terrain and Utility Filters ---#
- CIVIL\_CIVILTMDGNLIBLIST > \$(This\_Project)dgnlib/TerrainUtilityFilters/\*.dgnlib

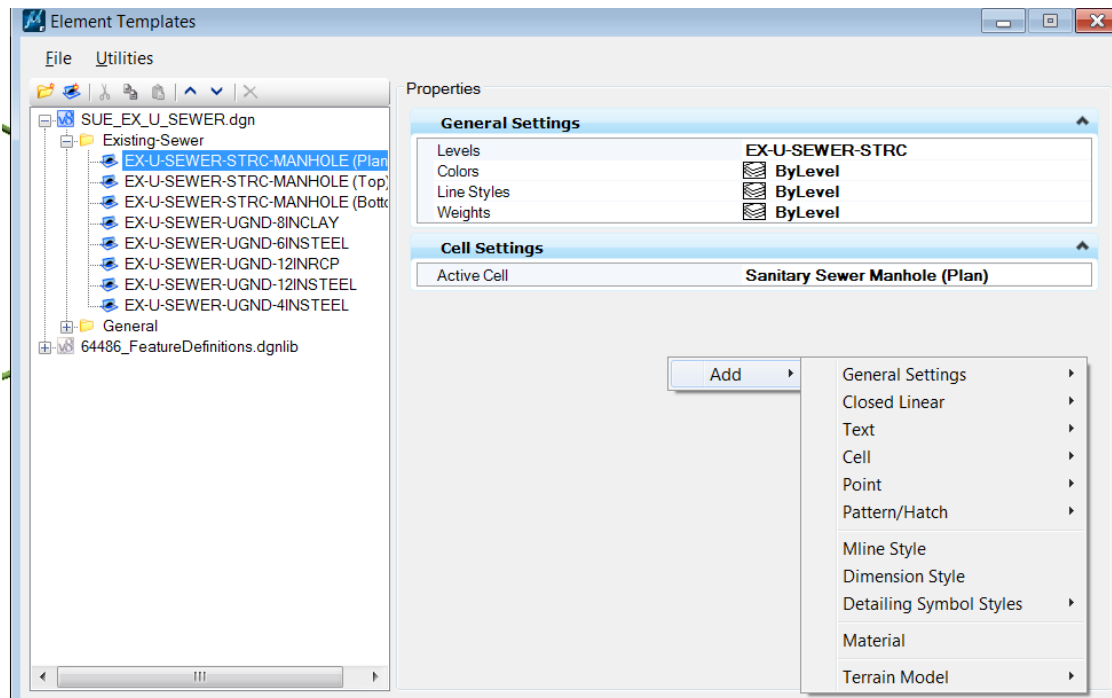
# CONFIGURATION VARIABLES

- We created DGNLIB files per data type.
- Those were segregated into individual folders so we can load these files with a wildcard search.



# ELEMENT TEMPLATES

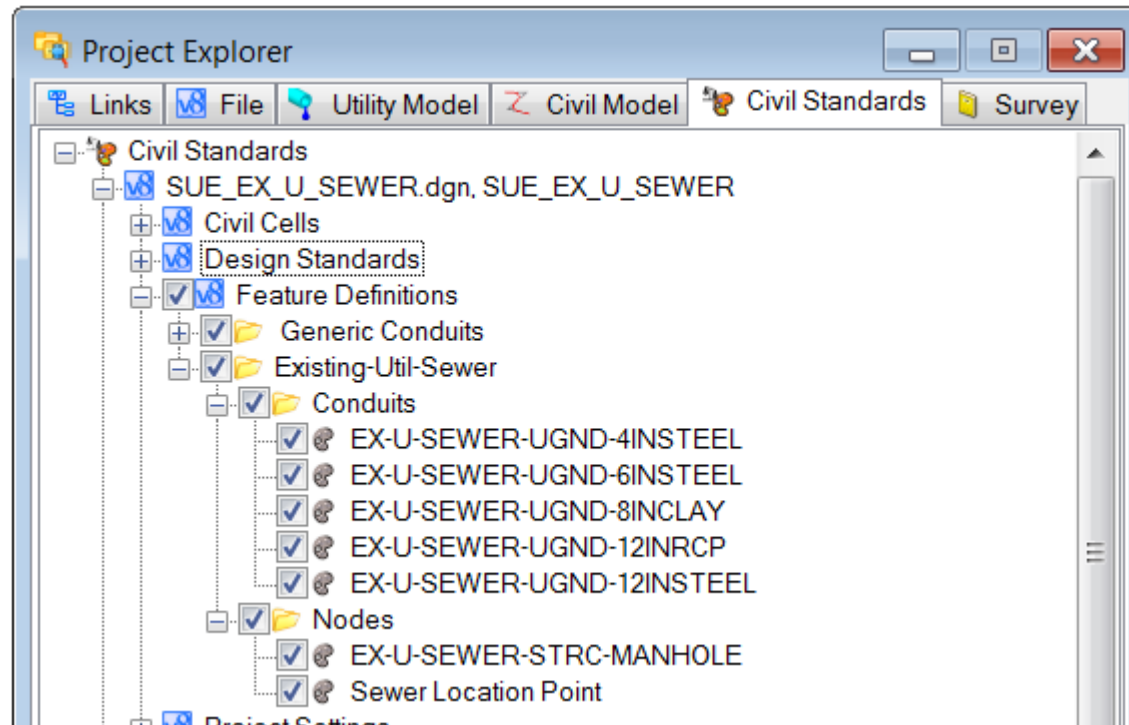
- Element > Element Templates
- Element Templates can be equated to the Inroads SS2 Symbologies.
- They define levels, fonts, cells and other properties on how items are displayed.
- The list of items that can be defined can be customized by right-clicking in the open area and selecting Add.





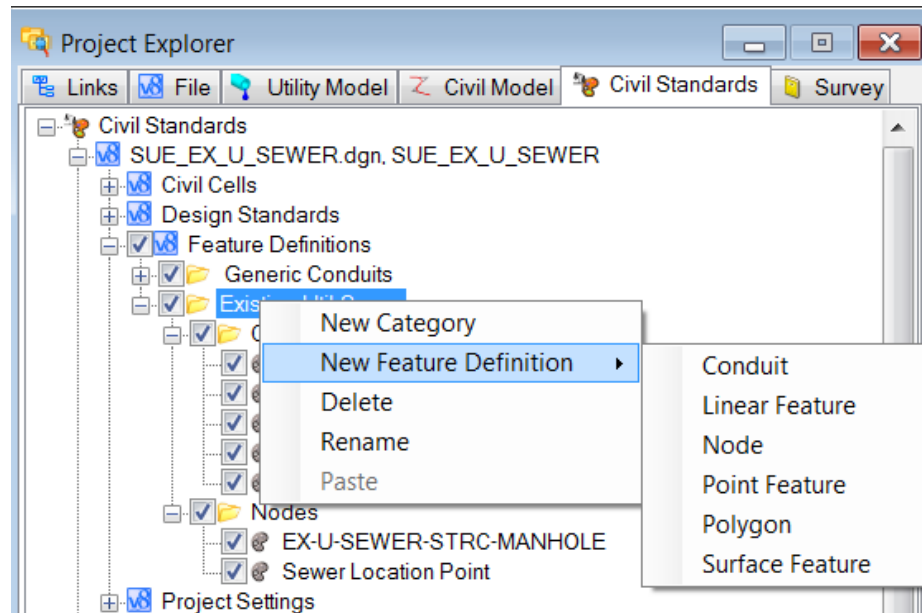
# FEATURE DEFINITIONS

- Feature Definitions are within Project Explorer on the Civil Standards tab.
- Feature Definitions can be equated to the Inroads SS2 Styles.
- They define the function of the item and what Element Template to use.



# FEATURE DEFINITIONS

- There are several types of Feature Definitions available.
- We will focus on Conduit and Node today.



# Let's make Element Templates

- Let's make an Element Template for an existing gas line.
  
- Let's make an Element Template for an existing sanitary sewer line and an existing sanitary sewer manhole.

# Let's make Feature Definitions

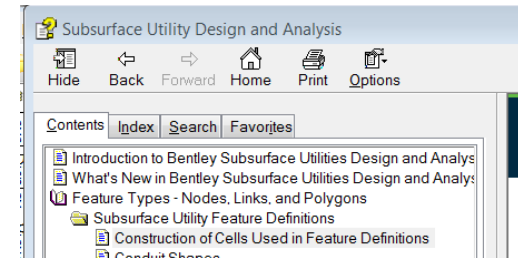
- Let's make an Feature Definition for an existing gas line.
- Let's make an Feature Definition for an existing sanitary sewer line and an existing sanitary sewer manhole.

# Helpful Tips

- Always start from a 2D seed file. The software will auto-generate the 3D model when needed.
- Be careful renaming models. I've had issues where I cannot reopen a file after I renamed models. If you must rename your models, rename the 2D model prior to generating the 3D model. Bentley recommends not renaming models.
- Keep utilities in separate files by utility type. This allows for multiple user access and helps to keep file sizes to a minimum.
- Node and Links must be of the utility type.

# 3D Cells

- The help menu has good instructions on the creation of the cell parts.
  - Subsurface Utilities > Help > Subsurface Utilities Help



Bottom Cell			
Node bottom elevation point	Construction Element	Point element	Linestyle 5
Alignment point (at top of cell)	Construction Element	Point element	Linestyle 3
Alignment line (at top of cell)	Construction Element	Linear element	Linestyle 3
Connection Regions	Construction Element	Shape (rectangular on boxes; cone surface elements on circular)	Linestyle 6
Top Cell			
Node top elevation point	Construction Element	Point element	Linestyle 5
Alignment point (at bottom of cell)	Construction Element	Point element	Linestyle 3
Alignment line (at bottom of cell)	Construction Element	Linear element	Linestyle 3
Plan Cell			
Cell location point	Construction Element	Point element	Linestyle 4
Alignment Point	Construction Element	Point element	Linestyle 3
Alignment Line	Construction Element	Linear element	Linestyle 3

# Questions

- Thank you!