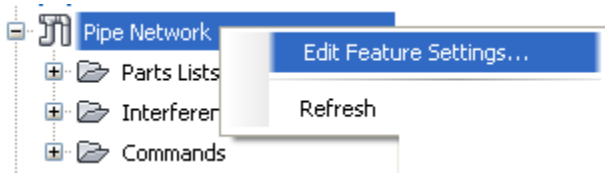
Cheat Sheet – Gravity Pipes – 2024-2025

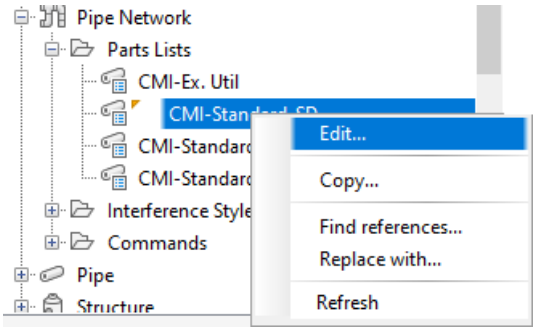
1. Edit the feature settings for the pipe network. Under the settings tab, right-click on “Pipe Network” and then select “Edit Feature Settings”.

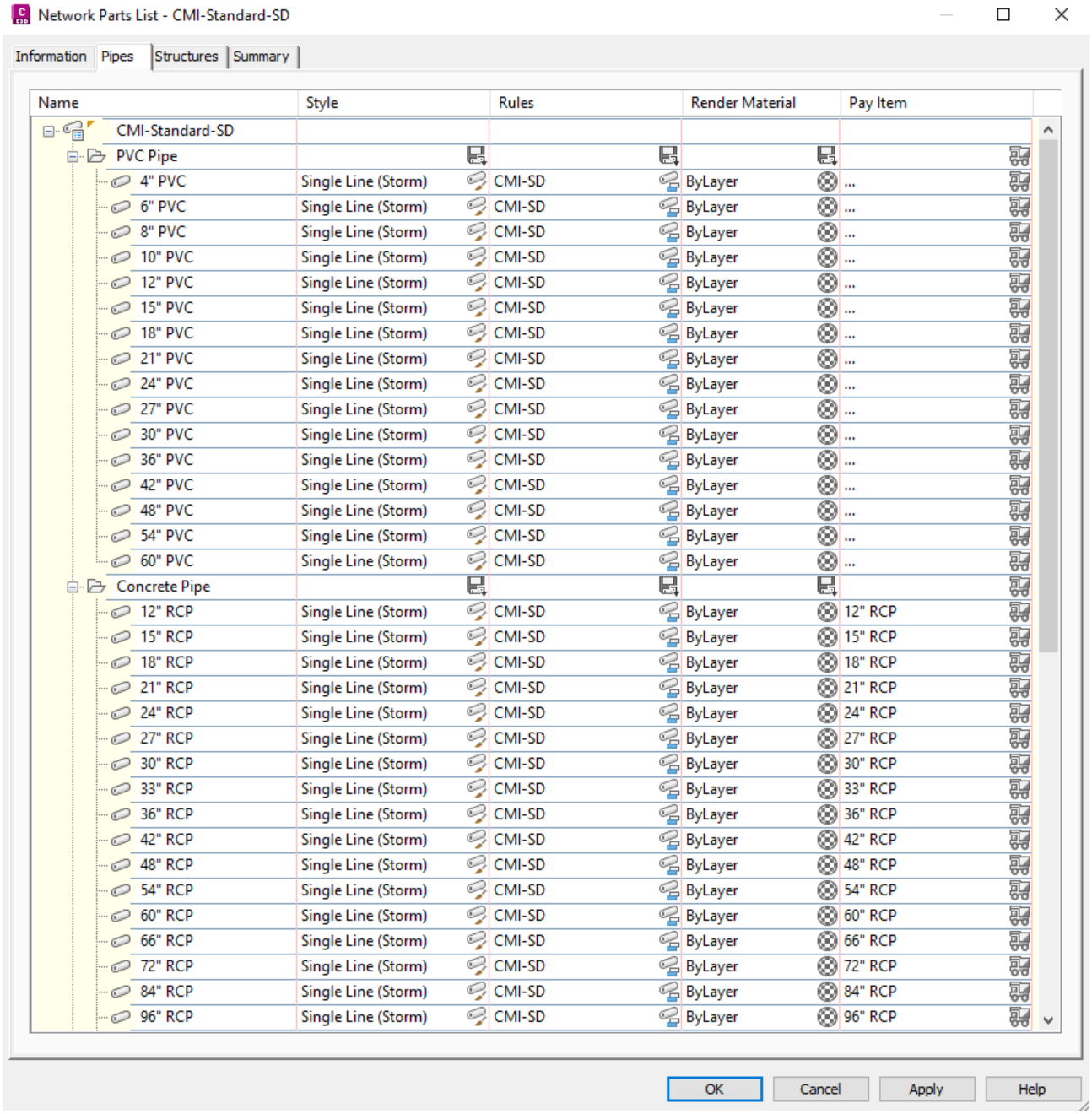


Edit Feature Settings - Pipe Network

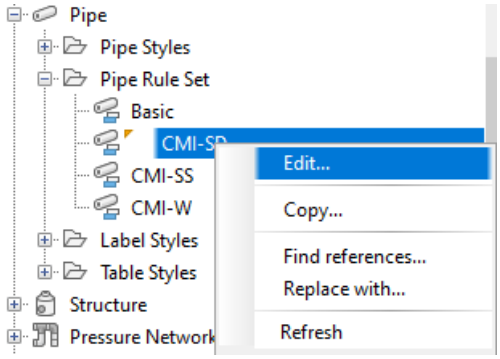
Property	Value	Override	Child Ov...	Lock
General				
Degree of Curvature				
Labeling				
Time				
Default Styles				
Interference Default Style	Basic			
Pipe Default Style	Single Line (Storm)			
Interference Render Material	_GLOBAL_			
Structure Default Style	CMI - Storm Manhole			
Structure Plan Label Style	Standard-Structure-Plan-SD			
Pipe Plan Label Style	Standard-Pipes-Plan-Boat-Right-SD			
Structure Profile Label Style	Standard-Structure-Profile-SD			
Pipe Profile Label Style	Standard-Profile-Pipe-SD			
Structure Section Label Style	Standard-Structure-Profile-SD			
Pipe Section Label Style	Name Only			
Crossing Pipe Profile Label Style	CMI - Crossing Pipe			
Default Parts List	CMI-Standard-SD			
Render Material	_GLOBAL_			
Default Name Format				
Interference Check Name Template	InterferenceCheck - (<[Next Counter(CP)]>)			
Interference Name Template	Interference - (<[Next Counter(CP)]>)			
Network Name Template	Network - (<[Next Counter(CP)]>)			
Alignment From Network Name Template	Alignment - (<[Pipe Network Name(CP)]>) - (<[Next Counter(CP)]>)			
Structure Name Template	SDMH#<[Next Counter]>			
Pipe Name Template	SDP<[Next Counter]>			
Default Rules				
Pipe Default Rules	CMI-SD			
Structure Default Rules	CMI - SD - No Sump			
Pipe Network Defaults				
Use Size Name From Parts List As Description	Yes			
Allow Duplicated Part Sizes In Part List	Yes			
Use 3D Location During Pipe Network Layout	Yes			
Utility Type	Drainage			
Catalog Parameter Mapping				
Structure Type and Dimension Mappings	Standard			
Storm Sewers Migration Defaults				
Part Matching Defaults				
Parts List Used For Migration	CMI-Standard-SD			
Allow Part Family Swapping	Yes			
Use Imported Part Family Id for Part Family	No			
Default Profile Label Placement				
Dimension Anchor Option for Pipes	Fixed			
Dimension Anchor Elevation Value for Pipes	0.00'			
Dimension Anchor Plot Height Value for Pipes	0.0000"			
Dimension Anchor Option for Structures	Fixed			
Dimension Anchor Elevation Value for Structures	0.00'			
Dimension Anchor Plot Height Value for Structures	0.0000"			
Structure Label Placement	At Bottom of Structure			
Default Section Label Placement				
Dimension Anchor Option for Pipes	Fixed			
Dimension Anchor Elevation Value for Pipes	0.00'			
Dimension Anchor Plot Height Value for Pipes	0.0000"			
Dimension Anchor Option for Structures	Fixed			
Dimension Anchor Elevation Value for Structures	0.00'			
Dimension Anchor Plot Height Value for Structures	0.0000"			
Structure Label Placement	At Bottom of Structure			
Pipe Section Label Placement	At Bottom of Pipe			

2. Right-click the part list you wish to use and select the edit button. Add the appropriate families and part sizes to use the available parts for the pipe network.

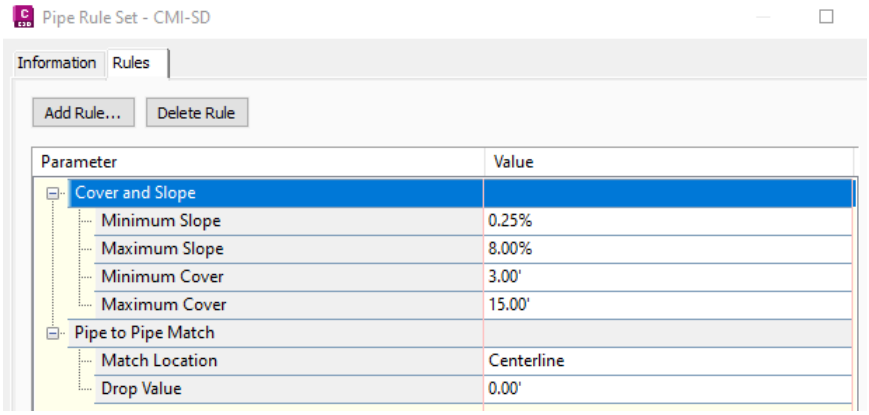


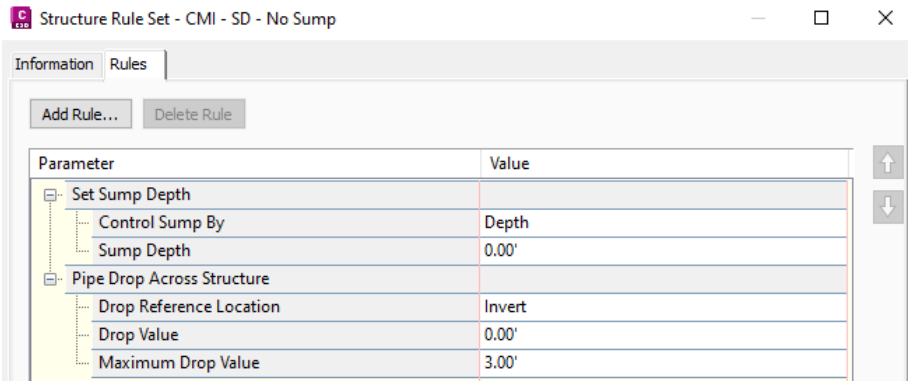


3. Right-click an example rule set, and then select edit. For both pipes and structures. See the manual for a detailed explanation of each rule.



Add and delete the desired rules and change the order to determine how they react.

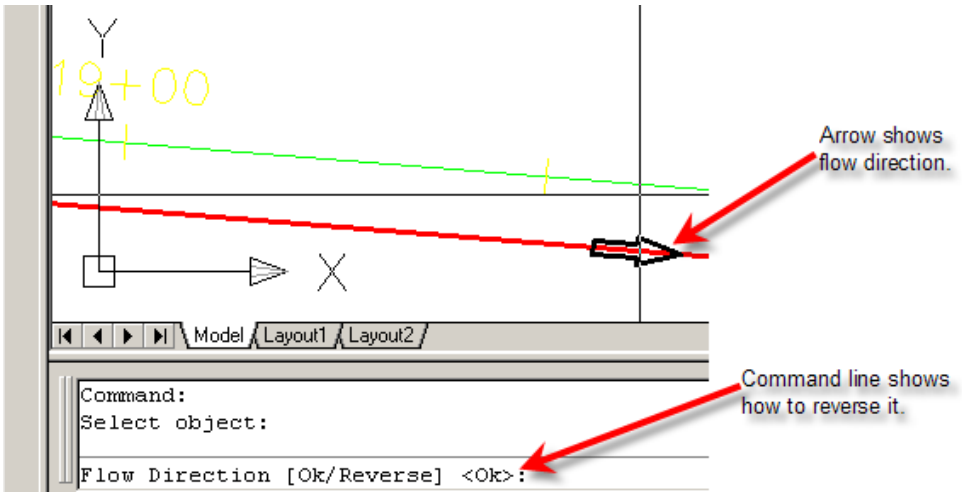


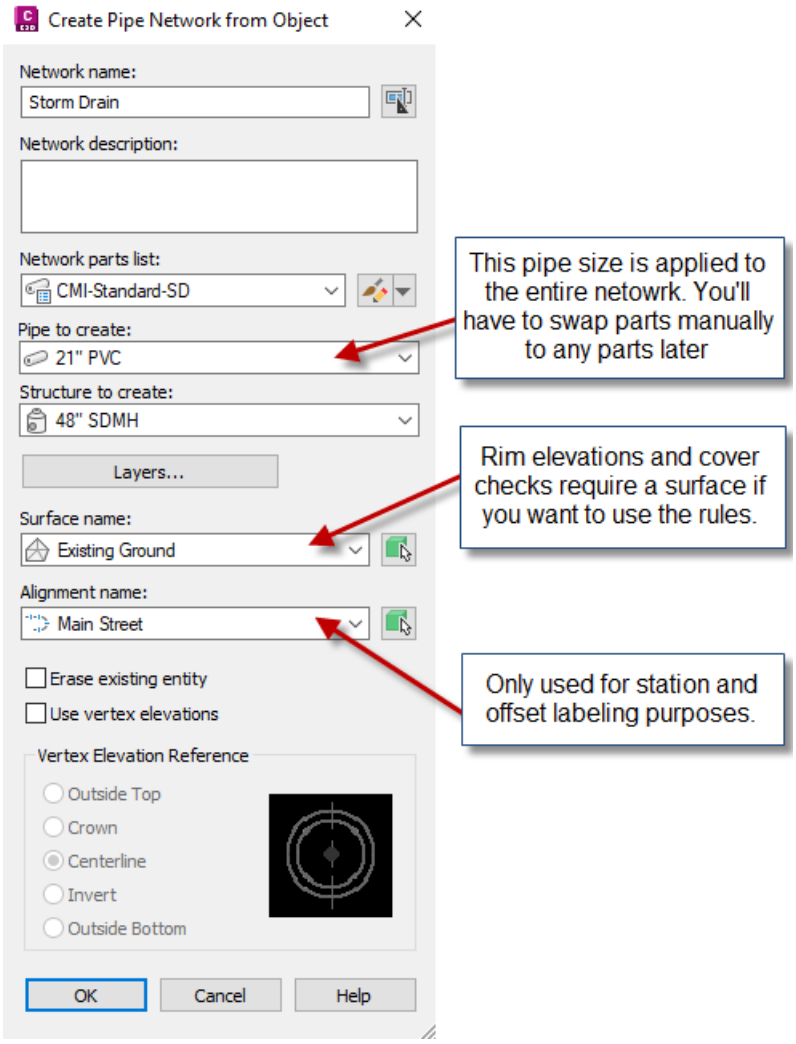


Note:
Always add the "Set Sump Depth" rule whether you have a sump or not for the project. If this rule is not present, the program will add a 2' sump by default.

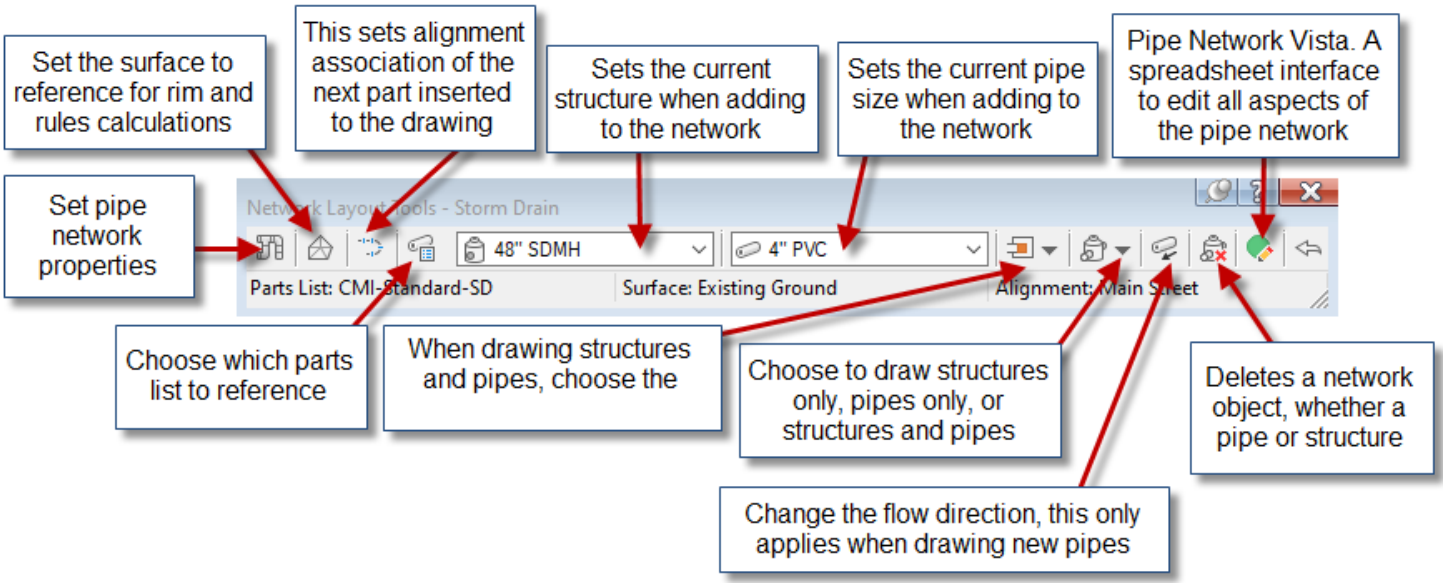
The next step is to either draw the pipe run or convert a polyline to a pipe network. You should make a note to realize that structures and pipes can only be connected if they are in the same pipe network. Therefore, you can start with one polyline, but then you need to edit the network to add more objects to the pipe network. Also note that you can merge networks later if you want different pipe networks to join.

a. "Home" ribbon tab > Pipe Network > Create Pipe Network from Object





b. When editing a pipe network or creating a pipe network by **"Home" ribbon tab > Pipe Network > Create Pipe Network from Object**



4. "Modify" ribbon tab > Pipe Network > Network Tools > Draw Parts in Profile

Either select the entire pipe network or select the parts you wish to show in the profile view. You can also click on a part, then right-click and choose add part to profile view. This is also available in the right-click menu after selecting part(s). Alternatively, use the Pipe Network tab of the Profile View Properties to turn pipes on and off.

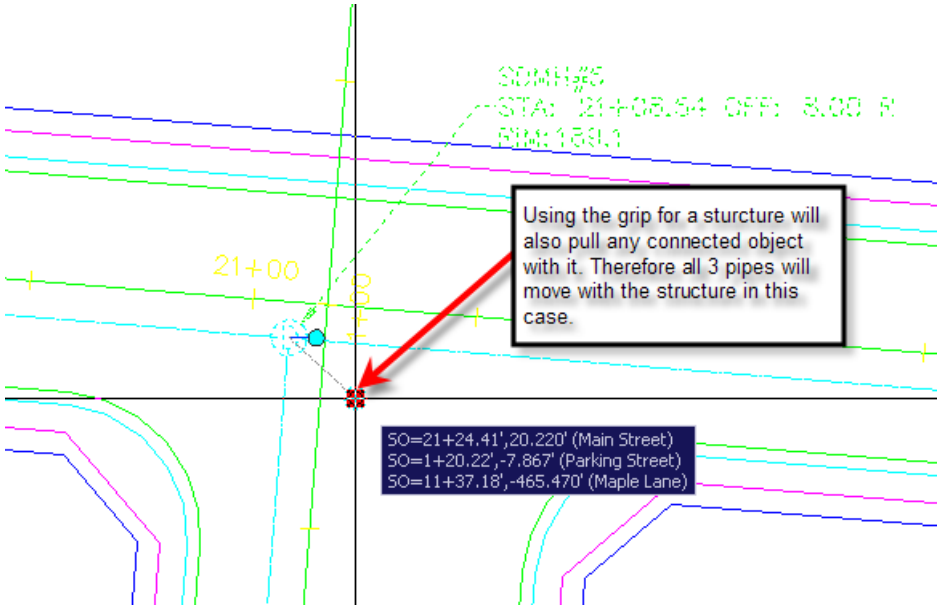
5. "Pipe Network" ribbon tab > Add Labels ... or "Home" tab > Add Labels

Choose either "Entire Network Plan", "Entire Network Profile", "Single Part Plan", or "Single Part Profile". You may also click on a part, then right-click and choose add label.

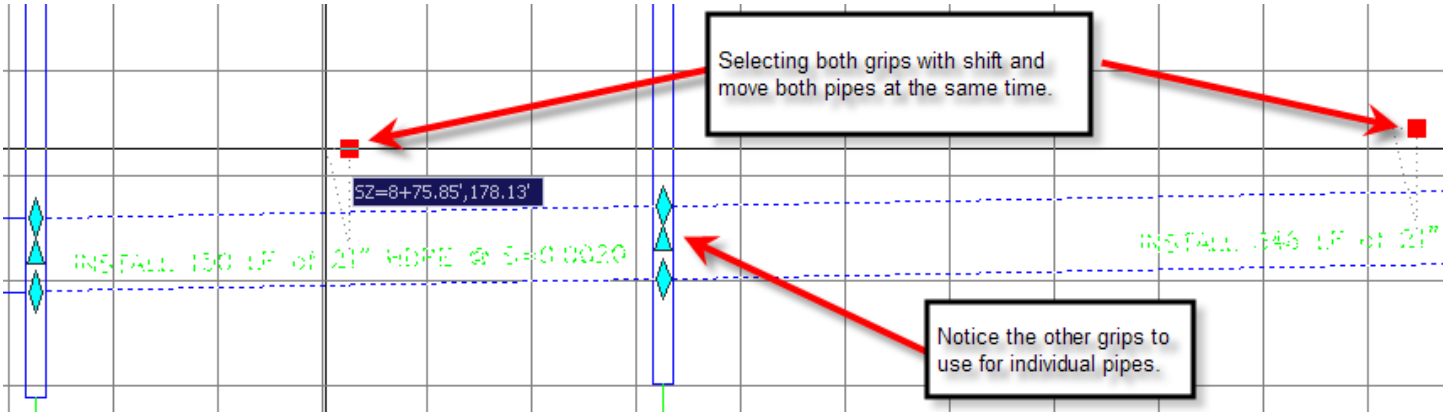
Different Methods of Editing a Pipe Network

1. Using Grips

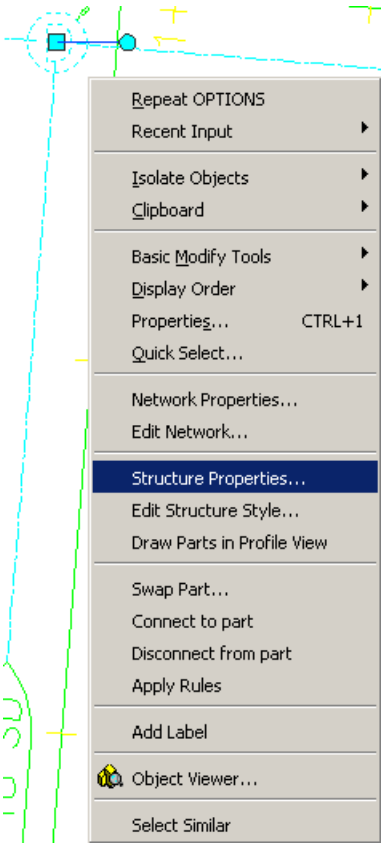
    a. Plan View – Hot gripping structures will pull all objects that are connected to it.



    b. Profile View – You can hot grip the invert, centerline, or crown of a pipe. You can also multi-hot-grip grips by holding down shift while selecting the grip.

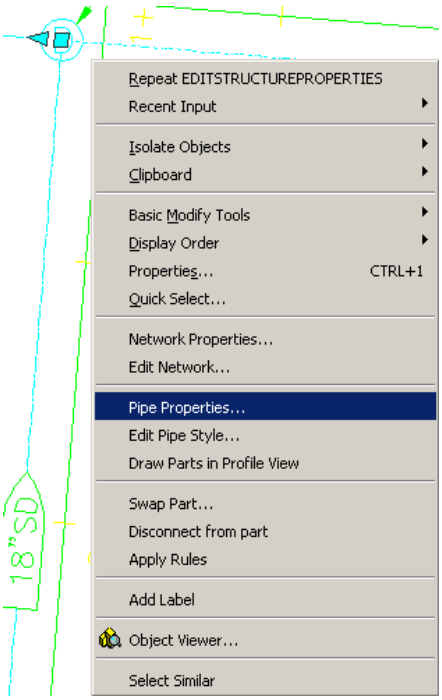


2. Using the part properties – one part at a time.



Click on a structure, right-click, and then choose “Structure Properties”.

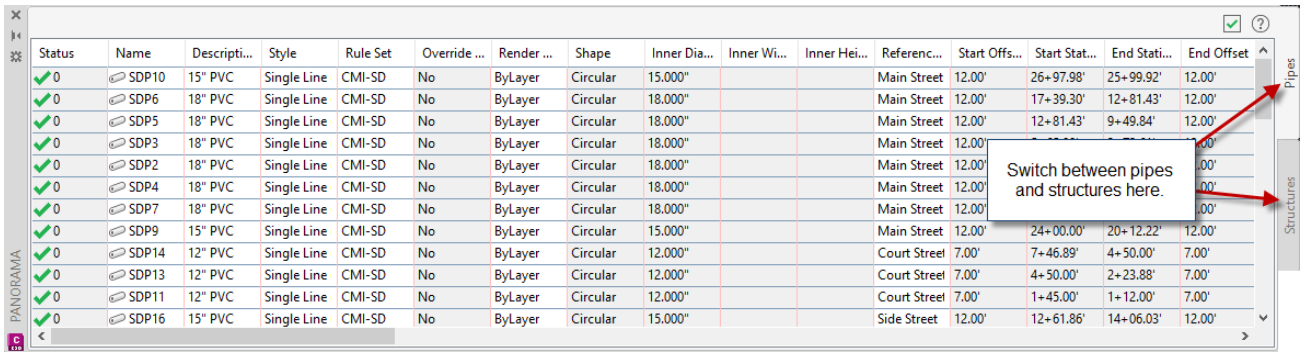
Structure Properties	Value
General	
Surface Elevation At Insertion Point	
Reference Surface	Existing Ground
Reference Alignment	Main Street
Geometry	
Structure Rotation Angle	0.0000 (d)
Structure Offset	29.75'
Structure Station	0+17.91'
Structure Northing	176093.8110'
Structure Easting	1658050.9584'
Connected Pipes	1
Hydraulic Properties	
Hydraulic Grade Line	0.00'
Energy Grade Line	0.00'
Known Capacity	0.000
Known Flow	0.000 cubic feet per second
Insertion Rim Behavior	
Insertion Rim Elevation	1.42'
Surface Adjustment Value	0.00'
Automatic Surface Adjustment	True
Sump Behavior	
Sump Elevation	-0.88'
Sump Depth	0.00'
Control Sump By:	Depth
Part Data	
Part Type	Junction Structure
Part Subtype	Concentric
Part Description	Concentric Cylindrical Structure
Part Size Name	Concentric Structure 48 dia 18 frame 24 cone 5 wall 6 floor
Structure Type	Manhole
Benching Method	Depressed or Sump
Structure Shape	Cylinder
Vertical Pipe Clearance	34.000"
Rim to Sump Height	2.30'
Wall Thickness	5.000"
Floor Thickness	6.000"
Material	Reinforced Concrete
Frame	Standard
Grate	Standard
Cover	Standard
Frame Height	4.000"
Frame Diameter	18.000"
Frame Length	
Frame Width	
Barrel Height	
Barrel Pipe Clearance	6.000"
Cone Height	24.000"
Slab Thickness	
Inner Structure Diameter	48.000"
Structure Height	2.80'
Structure Diameter	58.000"



Click on a pipe, then right-click and choose “Pipe Properties”.

Pipe Properties	Value
General	
Pipe Flow Direction Method	Start to End
Flow Direction	Start to End
Reference Surface	Finished Surface
Reference Alignment	Side Street
Geometry	
Start Structure	PKLOT-SDMH
End Structure	SDMH#19
Bearing	S23° 38' 16"W
Start Station	27+84.45'
End Station	27+84.45'
Start Offset	-125.92'
End Offset	12.00'
Pipe Slope (Hold Start)	-2.29%
Pipe Slope (Hold End)	2.29%
Slope	2.29%
Start Invert Elevation	24.24'
End Invert Elevation	21.07'
Start Crown Elevation	25.49'
End Crown Elevation	22.32'
Pipe Start Easting	1657137.2405'
Pipe Start Northing	174284.6724'
Pipe End Easting	1657081.9394'
Pipe End Northing	174158.3209'
Start Centerline Elevation	24.86'
End Centerline Elevation	21.70'
Minimum Cover	4.59'
Maximum Cover	6.11'
2D Length - Center to Center	137.92'
3D Length - Center to Center	137.96'
2D Length - To Inside Edges	133.92'
3D Length - To Inside Edges	133.99'
Start Cover	6.11'
End Cover	5.48'
Resize Behavior	
On Resize, Hold:	Invert
Hydraulic Properties	
Hydraulic Grade Line Up	0.00'
Hydraulic Grade Line Down	0.00'
Energy Grade Line Up	0.00'
Energy Grade Line Down	0.00'
Flow Rate	0.000 cubic feet per second
Junction Loss	0.000
Return Period	2
Part Data	
Part Type	Pipe
Part Subtype	Undefined
Part Description	PVC Pipe
Part Size Name	15.0 inch PVC Pipe
Cross Sectional Shape	Circular
Wall Thickness	0.320"
Material	PVC
Minimum Curve Radius	0.00'
Manning Coefficient	0.000
Hazen Williams Coefficient	0.000
Darcy Weisbach Factor	0.000
Inner Pipe Diameter	15.000"

3. Using the Edit Pipe Network Vista.



Status	Name	Descripti...	Style	Rule Set	Override ...	Render ...	Shape	Inner Dia...	Inner Wi...	Inner Hei...	Referenc...	Start Offs...	Start Stat...	End Stati...	End Offset
0	SDP10	15" PVC	Single Line	CMI-SD	No	ByLayer	Circular	15.000"			Main Street	12.00'	26+97.98'	25+99.92'	12.00'
0	SDP6	18" PVC	Single Line	CMI-SD	No	ByLayer	Circular	18.000"			Main Street	12.00'	17+39.30'	12+81.43'	12.00'
0	SDP5	18" PVC	Single Line	CMI-SD	No	ByLayer	Circular	18.000"			Main Street	12.00'	12+81.43'	9+49.84'	12.00'
0	SDP3	18" PVC	Single Line	CMI-SD	No	ByLayer	Circular	18.000"			Main Street	12.00'			
0	SDP2	18" PVC	Single Line	CMI-SD	No	ByLayer	Circular	18.000"			Main Street	12.00'			
0	SDP4	18" PVC	Single Line	CMI-SD	No	ByLayer	Circular	18.000"			Main Street	12.00'			
0	SDP7	18" PVC	Single Line	CMI-SD	No	ByLayer	Circular	18.000"			Main Street	12.00'			
0	SDP9	15" PVC	Single Line	CMI-SD	No	ByLayer	Circular	15.000"			Main Street	12.00'	24+00.00'	20+12.22'	12.00'
0	SDP14	12" PVC	Single Line	CMI-SD	No	ByLayer	Circular	12.000"			Court Street	7.00'	7+46.89'	4+50.00'	7.00'
0	SDP13	12" PVC	Single Line	CMI-SD	No	ByLayer	Circular	12.000"			Court Street	7.00'	4+50.00'	2+23.88'	7.00'
0	SDP11	12" PVC	Single Line	CMI-SD	No	ByLayer	Circular	12.000"			Court Street	7.00'	1+45.00'	1+12.00'	7.00'
0	SDP16	15" PVC	Single Line	CMI-SD	No	ByLayer	Circular	15.000"			Side Street	12.00'	12+61.86'	14+06.03'	12.00'

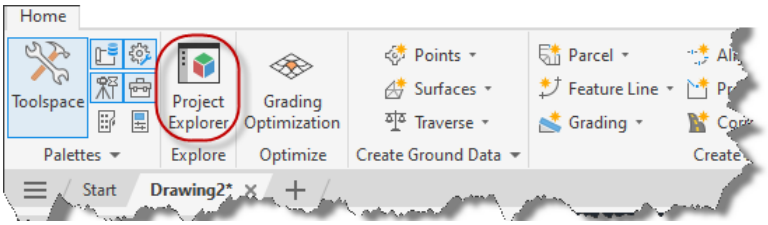
4. Other Tips and Ticks

   a. To change a manhole or pipe to different part, simply select the part, right-click and select ***Swap Part***.

   b. To change a pipe network globally you can change the pipe or structure rules, and then use the command "***Pipe Network" ribbon tab > Apply Rules*** to set the rules to the desired parts.

   c. Renaming and renumbering pipes and structures can be accomplished by running the command "***Pipe Network" ribbon tab > Rename Parts***.

   d. Use the ***Project Explorer*** to make batch changes to the pipe network. For example, multiple "Swap Part" and change slopes for multiple pipes.



https://thecadmasters.com/project-explorer-for-civil-3d/

   e. With multiple pipes going in and out of a structure, you match the elevation of one of the pipes. In structure properties, go to the Connected Pipes tab, highlight all the pipes you wish to modify and then right-click and choose the desired option. Highlight the desired pipe to match and choose the drop amount.