

The New Era of Pressure Pipe Design in AutoCAD Civil 3D

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 American Water Works Association
Pacific Northwest Section
Northwest Oregon Subsection



**Past President
NWOR Subsection**

AGENDA



INTRODUCTION



DIFFERENCE IN GRAVITY AND PRESSURE PIPES



WHY PRESSURE PIPES ARE NOW USEFUL



DEMO PRESSURE NETWORKS

Pressure Pipes

1

Anyone currently using pressure pipes?

Pressure Pipes

1

Anyone currently using pressure pipes?

2

Anyone used it in the past?

Pressure Pipes

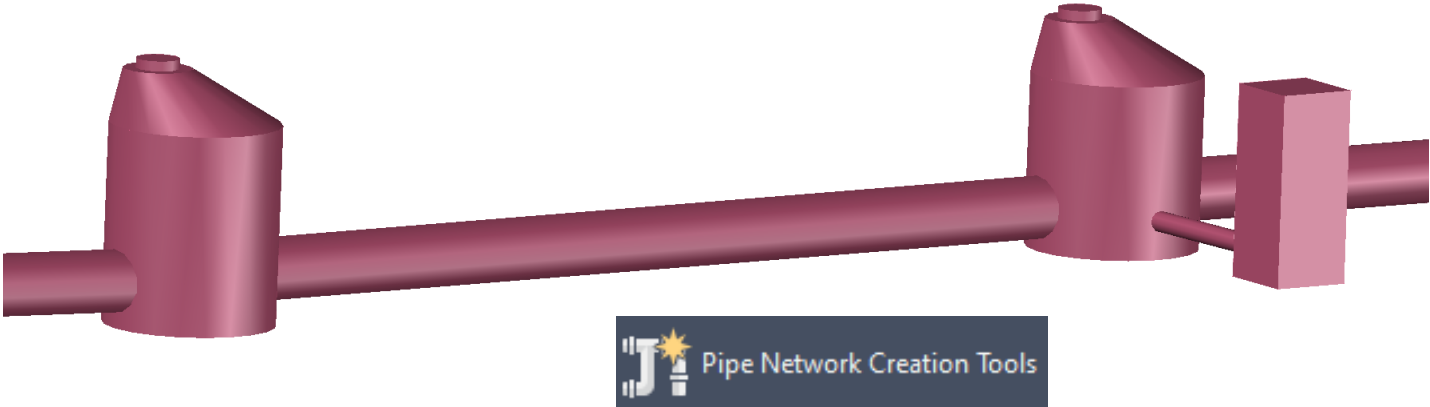
1 Anyone currently using pressure pipes?

2 Anyone used it in the past?

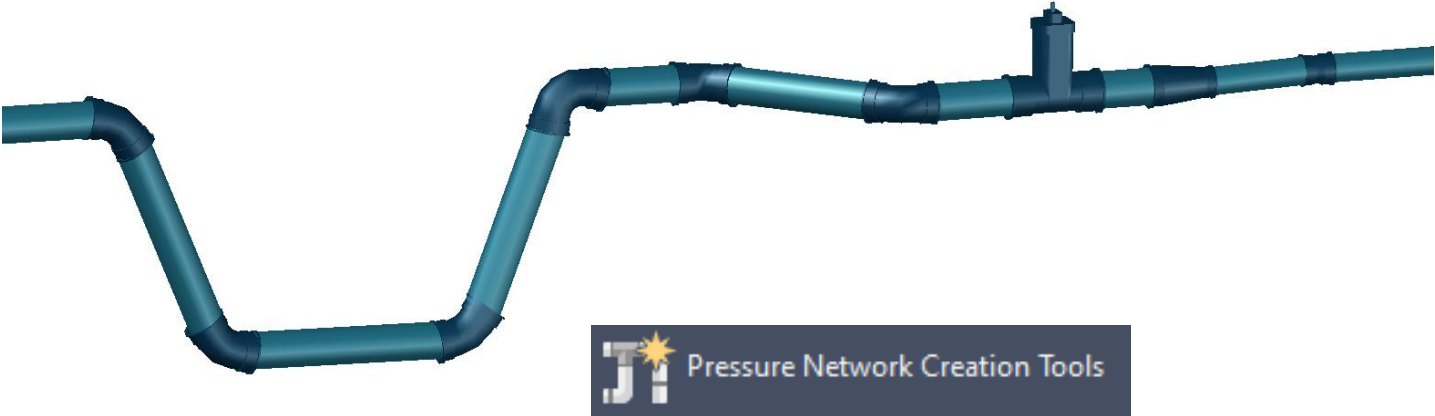
3 If yes, is there a reason you didn't like it?

Gravity vs Pressure Pipes in AutoCAD

Gravity Pipes

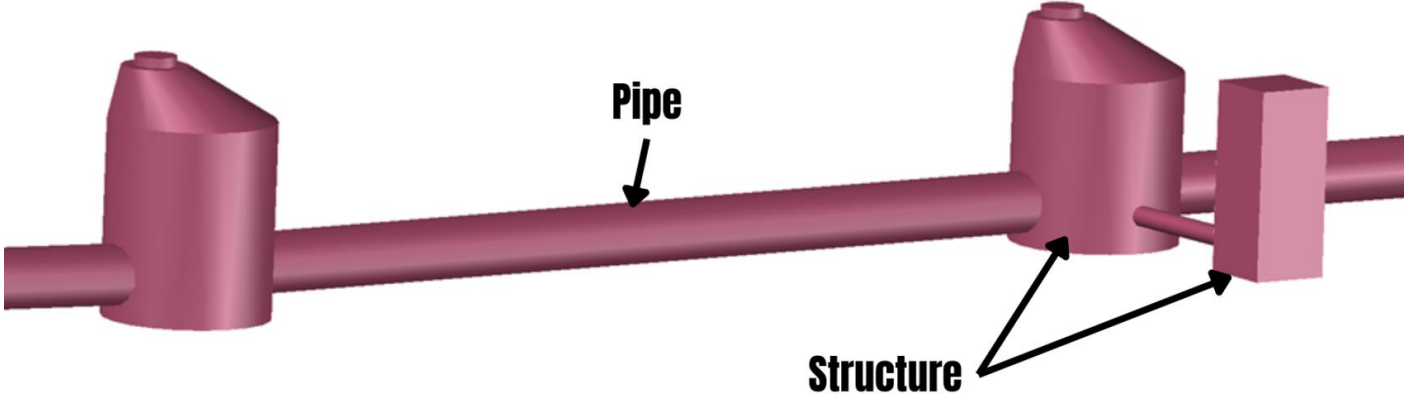


Pressure Pipes

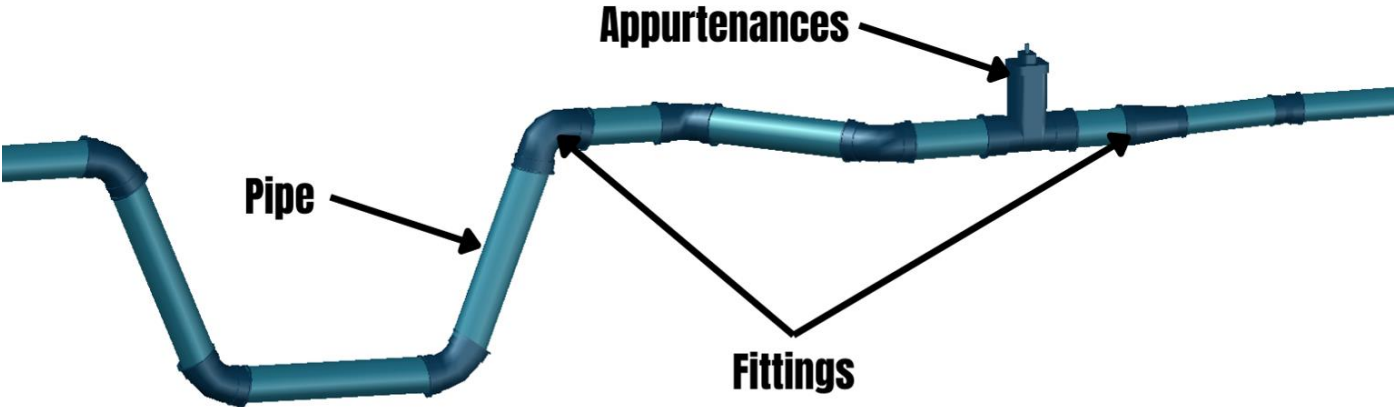


Gravity vs Pressure Pipes in AutoCAD

Gravity Pipes

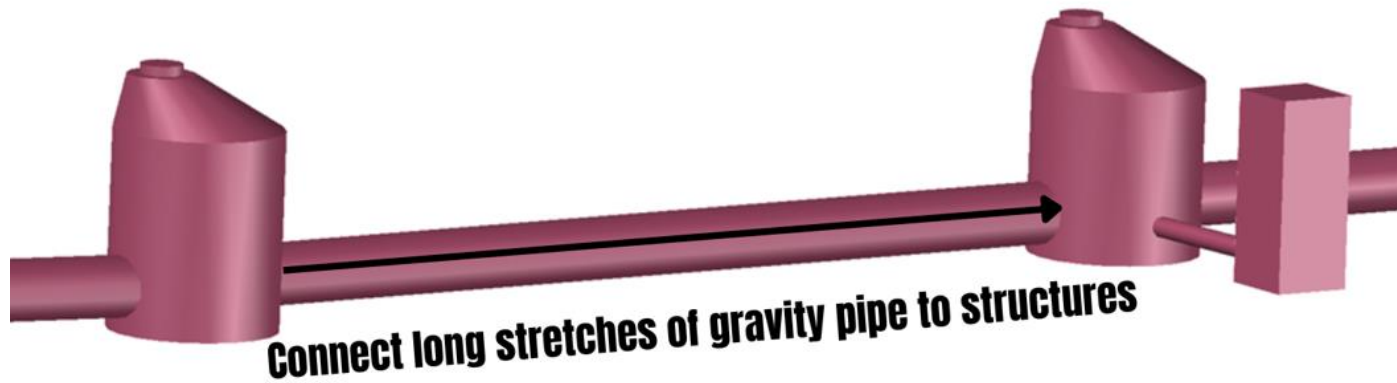


Pressure Pipes

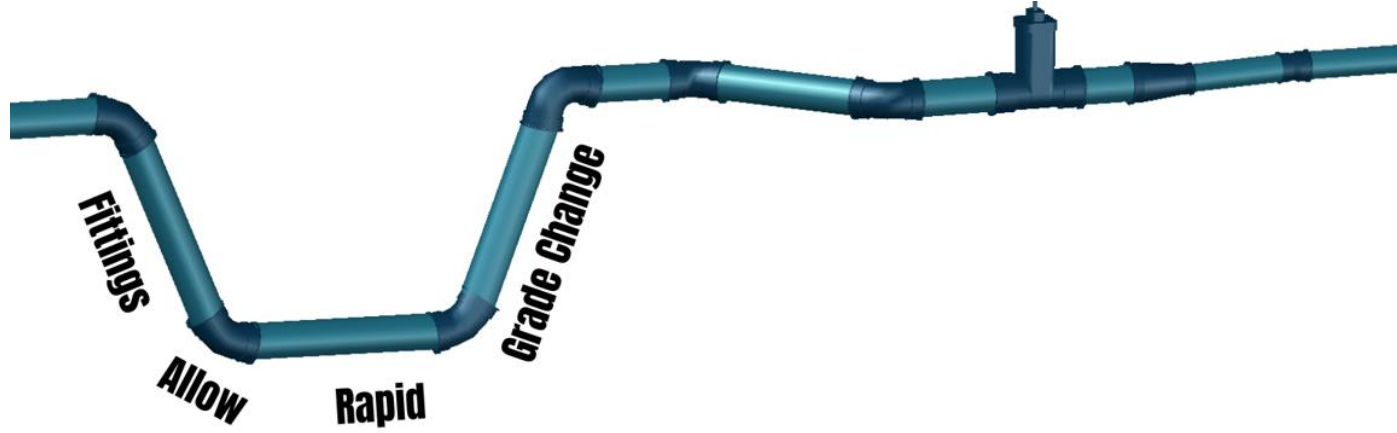


Gravity vs Pressure Pipes in AutoCAD

Gravity Pipes



Pressure Pipes

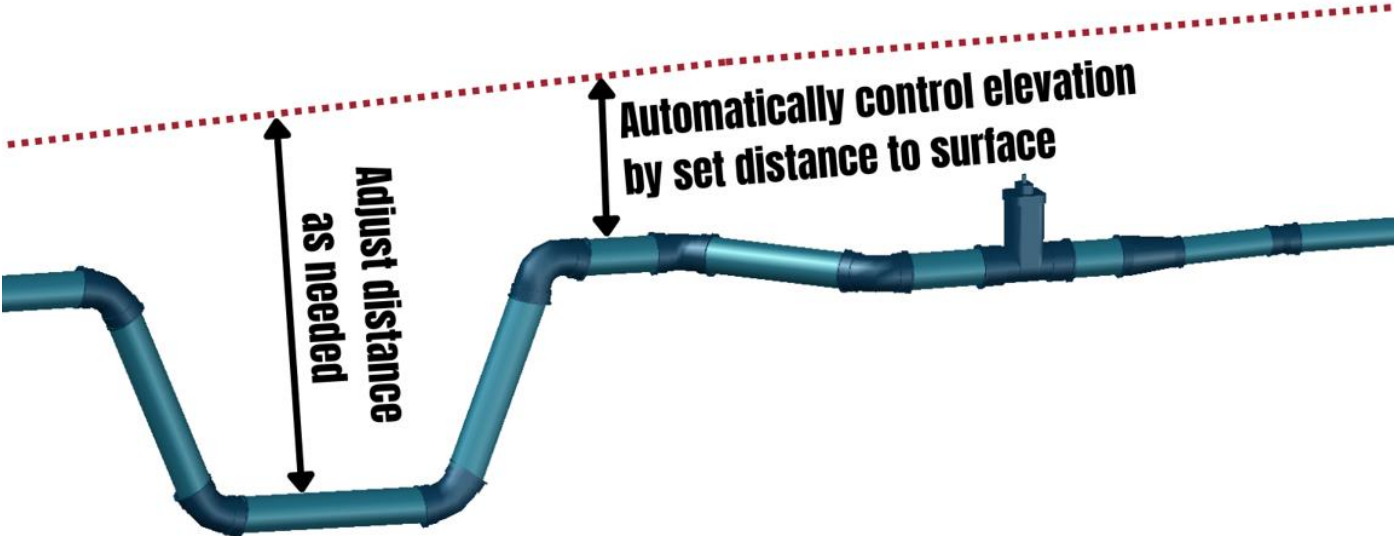


Gravity vs Pressure Pipes in AutoCAD

Gravity Pipes



Pressure Pipes



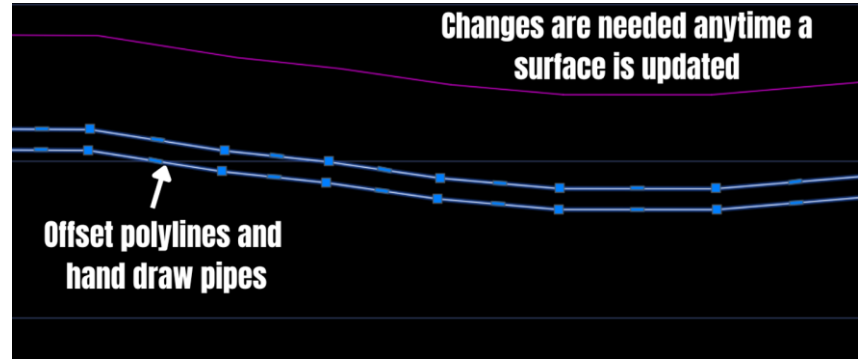
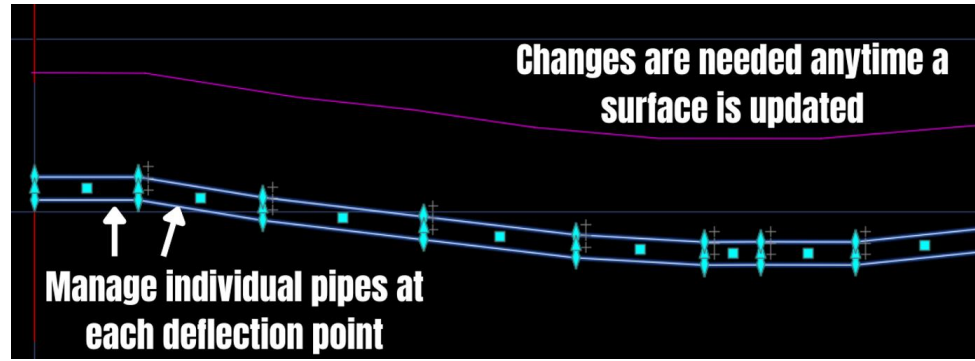
Why are Pressure Pipes Now Useful

Pressure Pipes 2021 and newer versions

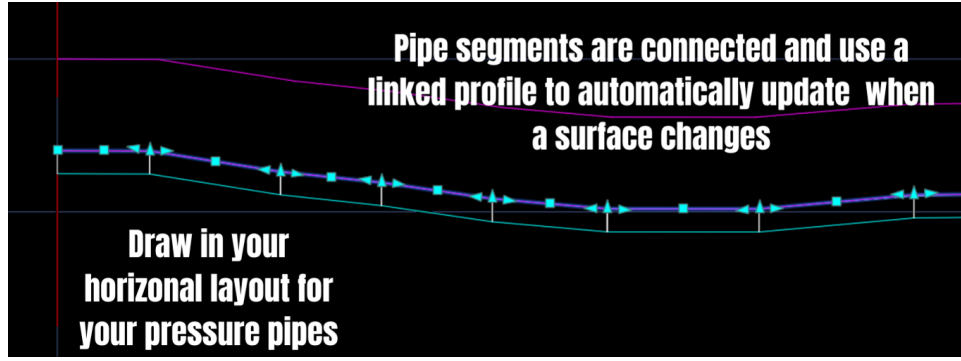
- Break out your pressure pipe networks into separate pipe runs
- Control horizontal layout with an alignment
- Control vertical layout with profile
- Dynamically update your pipe runs based on changes in an alignment or surface

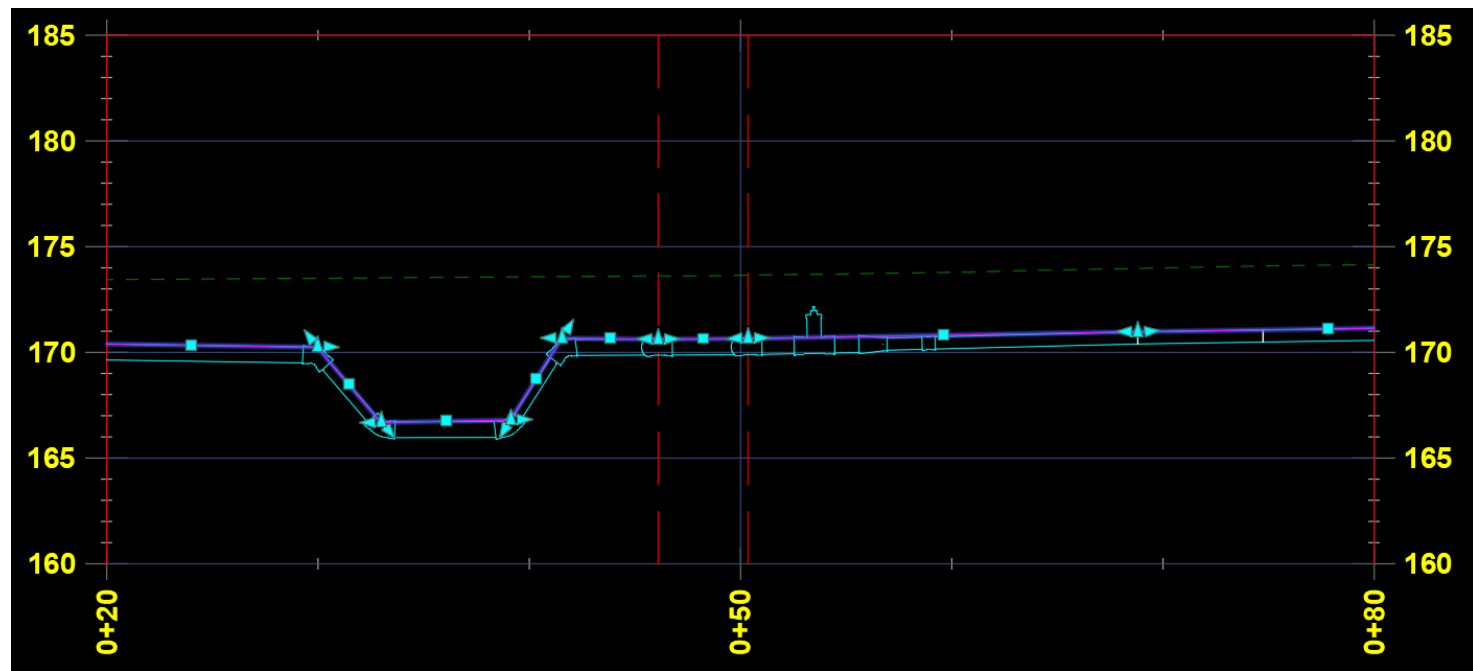
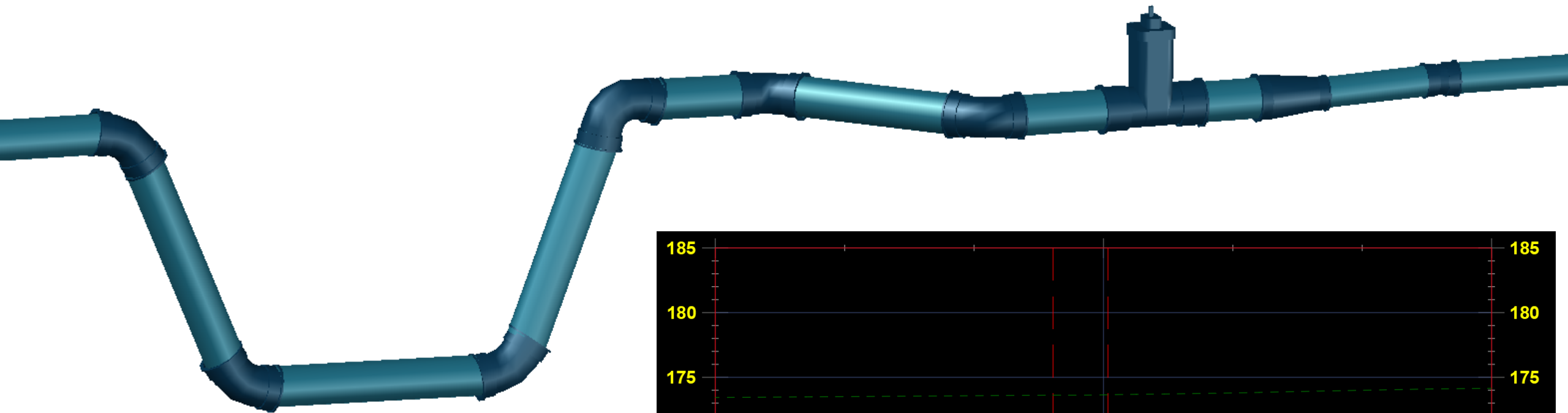
Gravity vs Pressure Pipes in AutoCAD

Gravity Pipes



Pressure Pipes



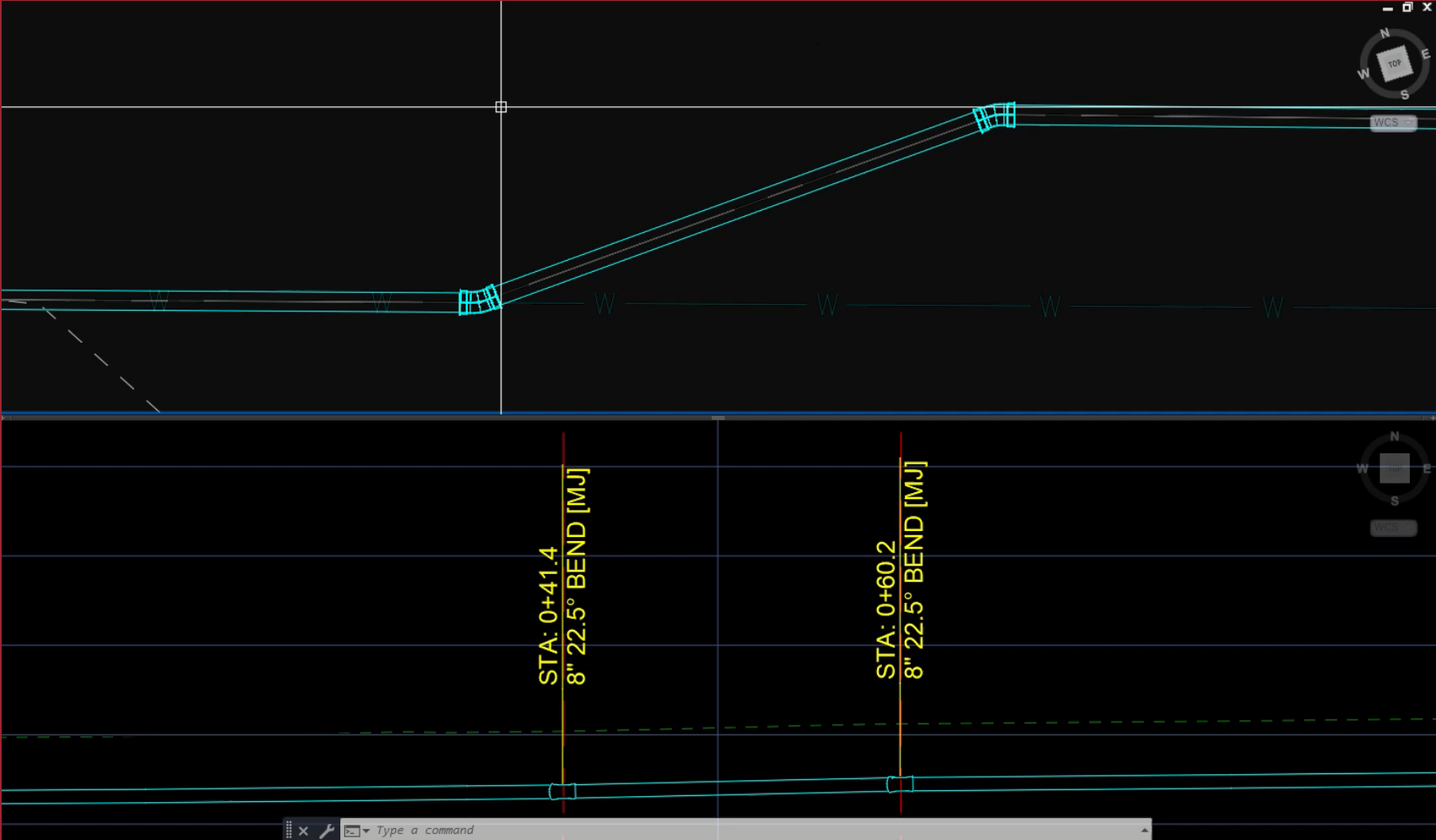


Pressure Pipes Demo

1

Overview

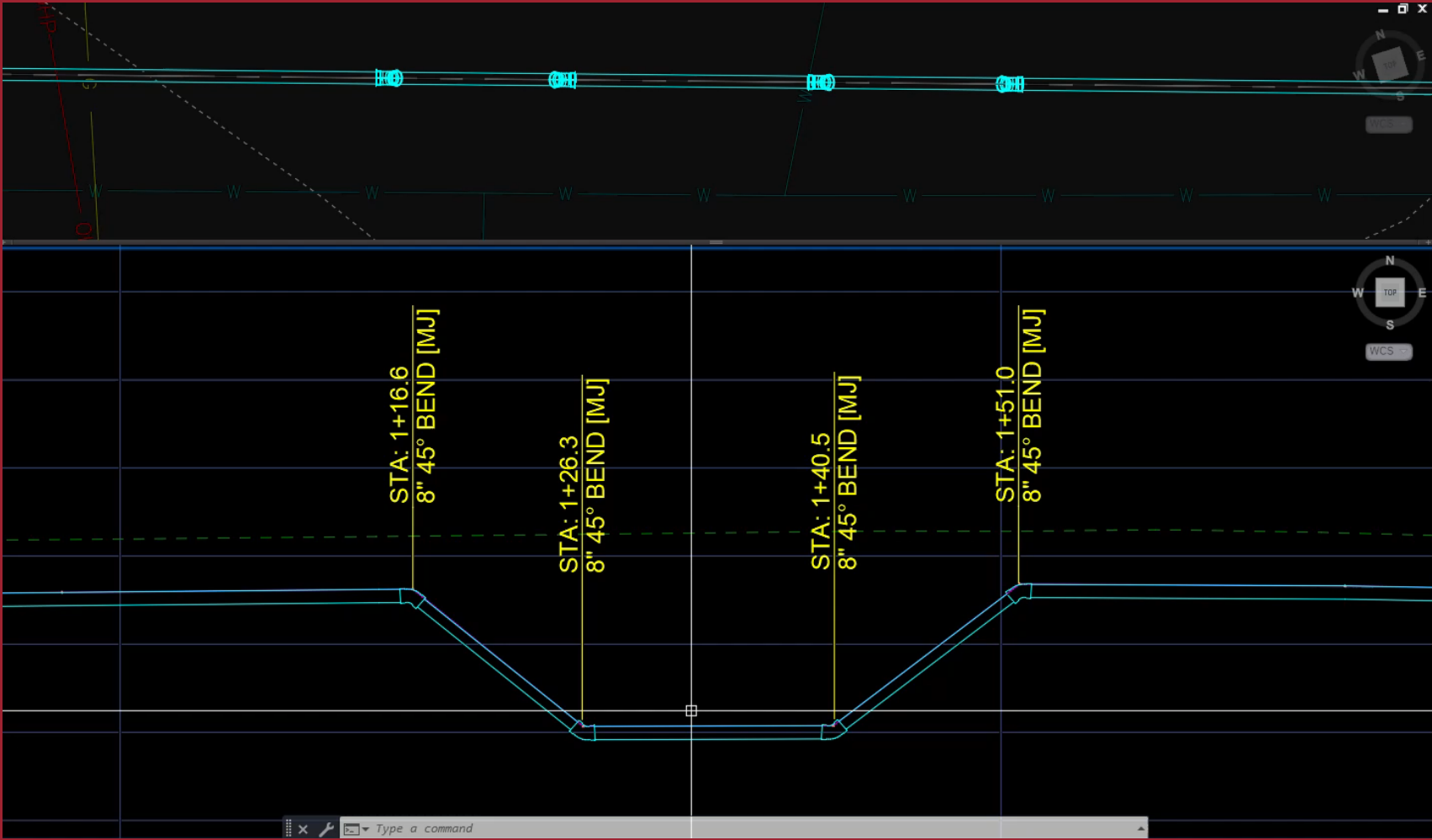
Horizontal Control



1

Overview

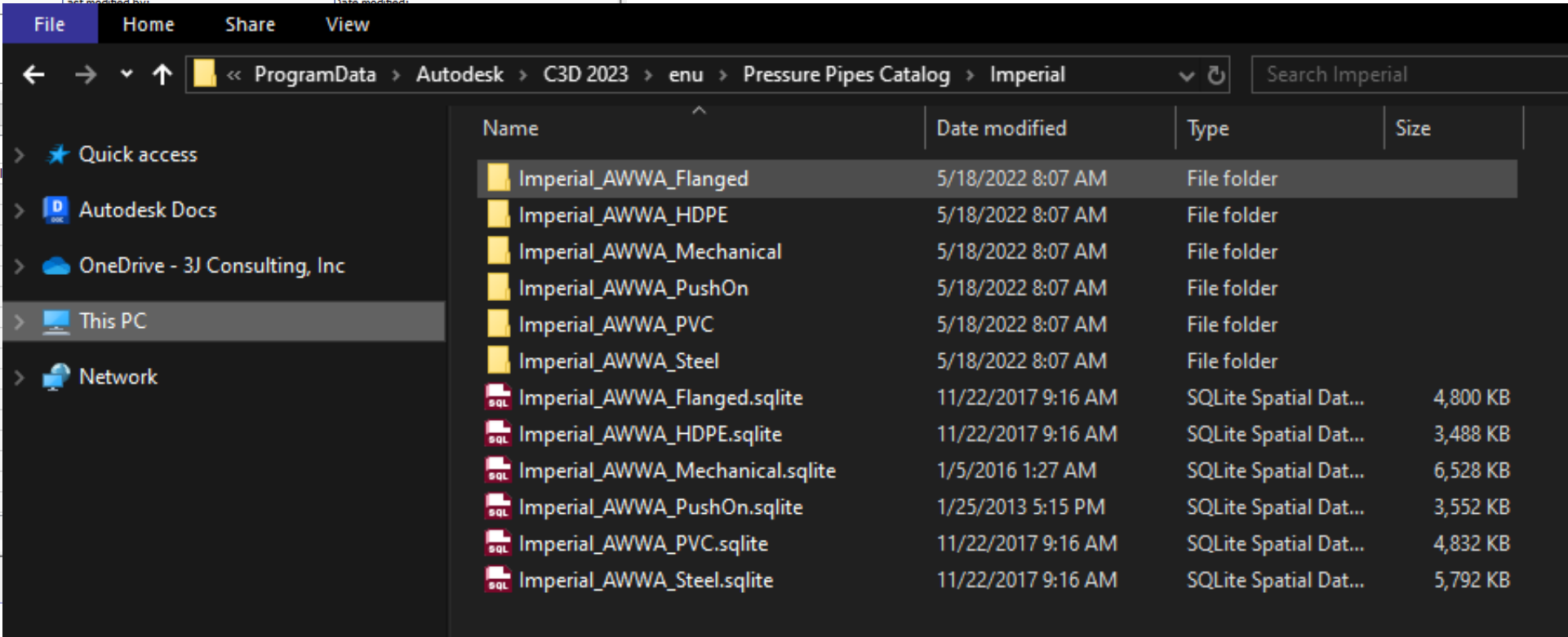
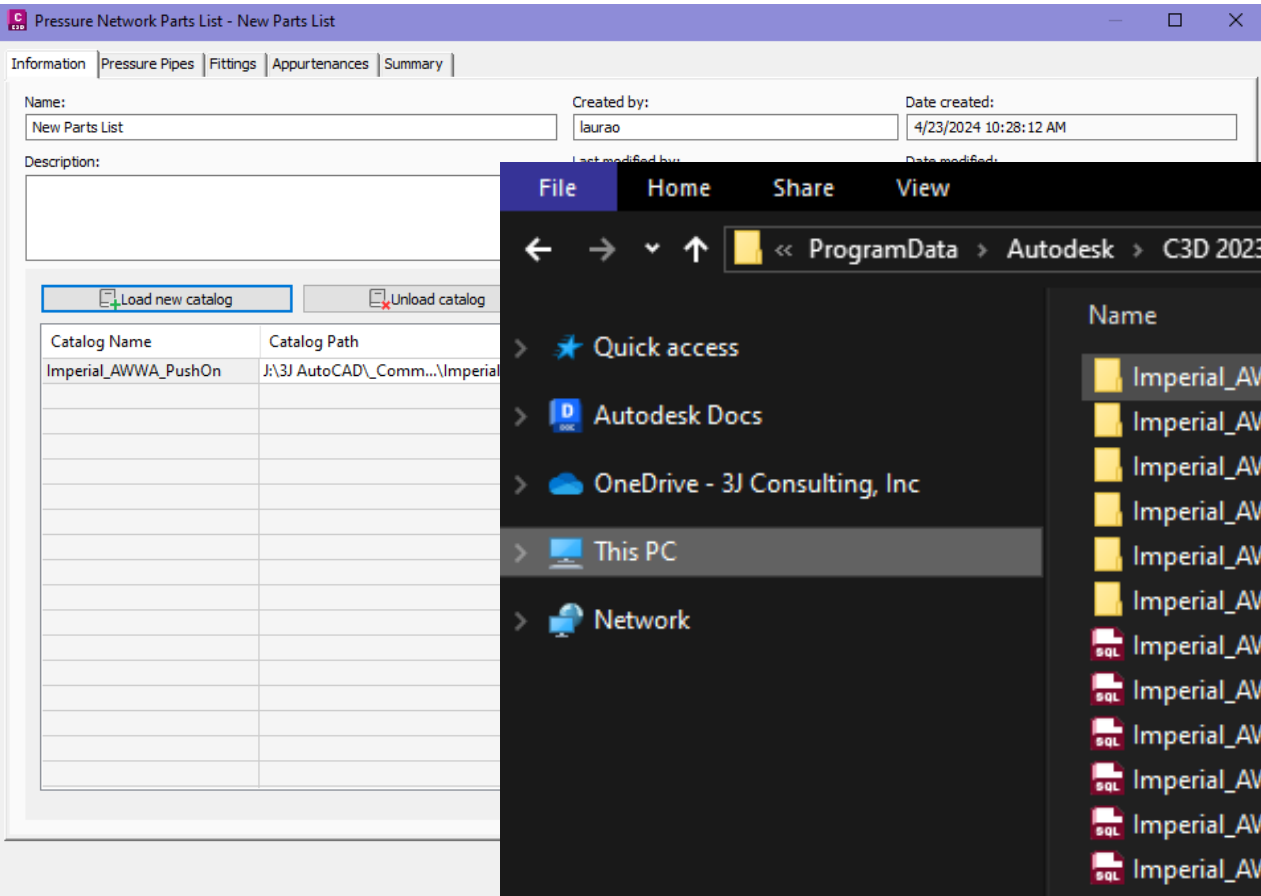
Vertical Control



Drawing Setup

- Bring in your Reference files
 - Survey or design CAD files
 - Surfaces
 - Other crossing pipe networks
- Load in your pressure parts catalog

Pressure Network Parts List



Pressure Network Parts List

Pressure Network Parts List - New Parts List

Information | Pressure Pipes | Fittings | Appurtenances | Summary

Name | Style | Render M... | Pay Item

ductile iron Elbow

Add Fitting Sizes

Property	Value	Unit	Add all sizes
Bend Angle	*VARIES*	deg	
Nominal Diameter	*VARIES*	in	<input checked="" type="checkbox"/>
Allowable Deflection	5.000000	deg	

OK Cancel Help

Name | Style | Render M... | Pay Item

- ductile iron Elbow
 - elbow-4 in-11.25 degree-push on-ductile iron-350 psi-AWWA C111/C152
 - elbow-4 in-22.5 degree-push on-ductile iron-350 psi-AWWA C111/C152
 - elbow-4 in-45 degree-push on-ductile iron-350 psi-AWWA C111/C152
 - elbow-4 in-90 degree-push on-ductile iron-350 psi-AWWA C111/C152
 - elbow-6 in-11.25 degree-push on-ductile iron-350 psi-AWWA C111/C153
 - elbow-6 in-22.5 degree-push on-ductile iron-350 psi-AWWA C111/C153
 - elbow-6 in-45 degree-push on-ductile iron-350 psi-AWWA C111/C153
 - elbow-6 in-90 degree-push on-ductile iron-350 psi-AWWA C111/C153
 - elbow-8 in-11.25 degree-push on-ductile iron-350 psi-AWWA C111/C153
 - elbow-8 in-22.5 degree-push on-ductile iron-350 psi-AWWA C111/C153
 - elbow-8 in-45 degree-push on-ductile iron-350 psi-AWWA C111/C153
 - elbow-8 in-90 degree-push on-ductile iron-350 psi-AWWA C111/C153
 - elbow-10 in-11.25 degree-push on-ductile iron-350 psi-AWWA C111/C153
 - elbow-10 in-22.5 degree-push on-ductile iron-350 psi-AWWA C111/C153
 - elbow-10 in-45 degree-push on-ductile iron-350 psi-AWWA C111/C153
 - elbow-10 in-90 degree-push on-ductile iron-350 psi-AWWA C111/C153
 - elbow-12 in-11.25 degree-push on-ductile iron-350 psi-AWWA C111/C153
 - elbow-12 in-22.5 degree-push on-ductile iron-350 psi-AWWA C111/C153
 - elbow-12 in-45 degree-push on-ductile iron-350 psi-AWWA C111/C153
 - elbow-12 in-90 degree-push on-ductile iron-350 psi-AWWA C111/C153
 - elbow-14 in-11.25 degree-push on-ductile iron-350 psi-AWWA C110/C111/C153
 - elbow-14 in-22.5 degree-push on-ductile iron-350 psi-AWWA C110/C111/C153
 - elbow-14 in-45 degree-push on-ductile iron-350 psi-AWWA C110/C111/C153
 - elbow-14 in-90 degree-push on-ductile iron-350 psi-AWWA C110/C111/C153

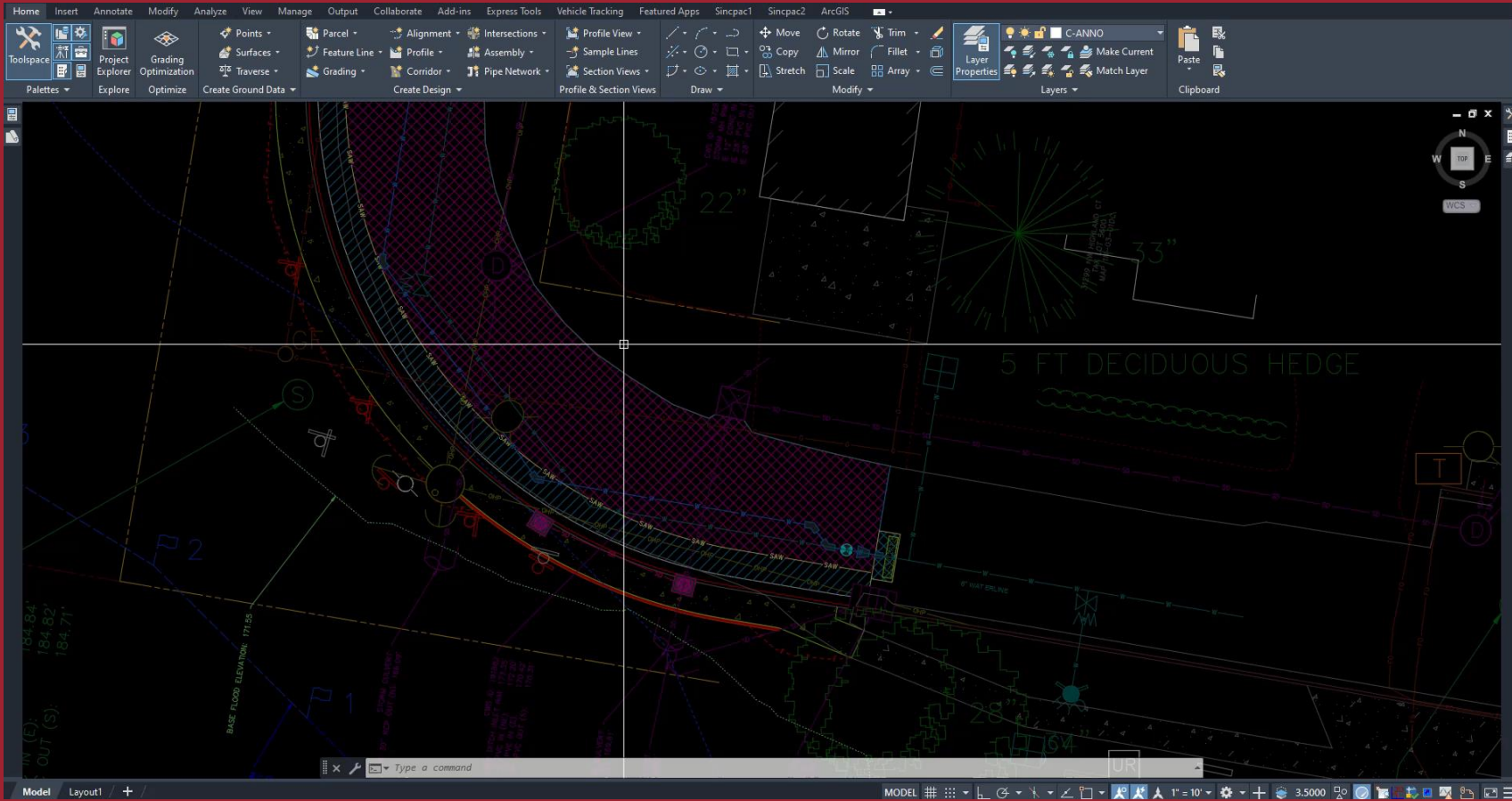
OK Cancel Apply Help

Pressure Network Parts List

Name	Style	Render M...	Pay Item
3J Pressure Network			
ductile iron Elbow			
4in Bend 11.25° Ductile Iron MJ	Propose...	ByLayer	[none]
4in Bend 22.5° Ductile Iron MJ	Propose...	ByLayer	[none]
4in Bend 45° Ductile Iron MJ	Propose...	ByLayer	[none]
14n Bend 90° Ductile Iron MJ	Propose...	ByLayer	[none]
6in Bend 11.25° Ductile Iron MJ	Propose...	ByLayer	[none]
6in Bend 22.5° Ductile Iron MJ	Propose...	ByLayer	[none]
6in Bend 45° Ductile Iron MJ	Propose...	ByLayer	[none]
6in Bend 90° Ductile Iron MJ	Propose...	ByLayer	[none]
8in Bend 11.25° Ductile Iron MJ	Propose...	ByLayer	[none]
8in Bend 22.5° Ductile Iron MJ	Propose...	ByLayer	[none]
8in Bend 45° Ductile Iron MJ	Propose...	ByLayer	[none]
8in Bend 90° Ductile Iron MJ	Propose...	ByLayer	[none]
10in Bend 11.25° Ductile Iron MJ	Propose...	ByLayer	[none]
10in Bend 22.5° Ductile Iron MJ	Propose...	ByLayer	[none]
10in Bend 45° Ductile Iron MJ	Propose...	ByLayer	[none]
10in Bend 90° Ductile Iron MJ	Propose...	ByLayer	[none]
12in Bend 11.25° Ductile Iron MJ	Propose...	ByLayer	[none]
12in Bend 22.5° Ductile Iron MJ	Propose...	ByLayer	[none]
12in Bend 45° Ductile Iron MJ	Propose...	ByLayer	[none]
12in Bend 90° Ductile Iron MJ	Propose...	ByLayer	[none]
ductile iron Tee			
ductile iron Cross			
ductile iron Reducer			

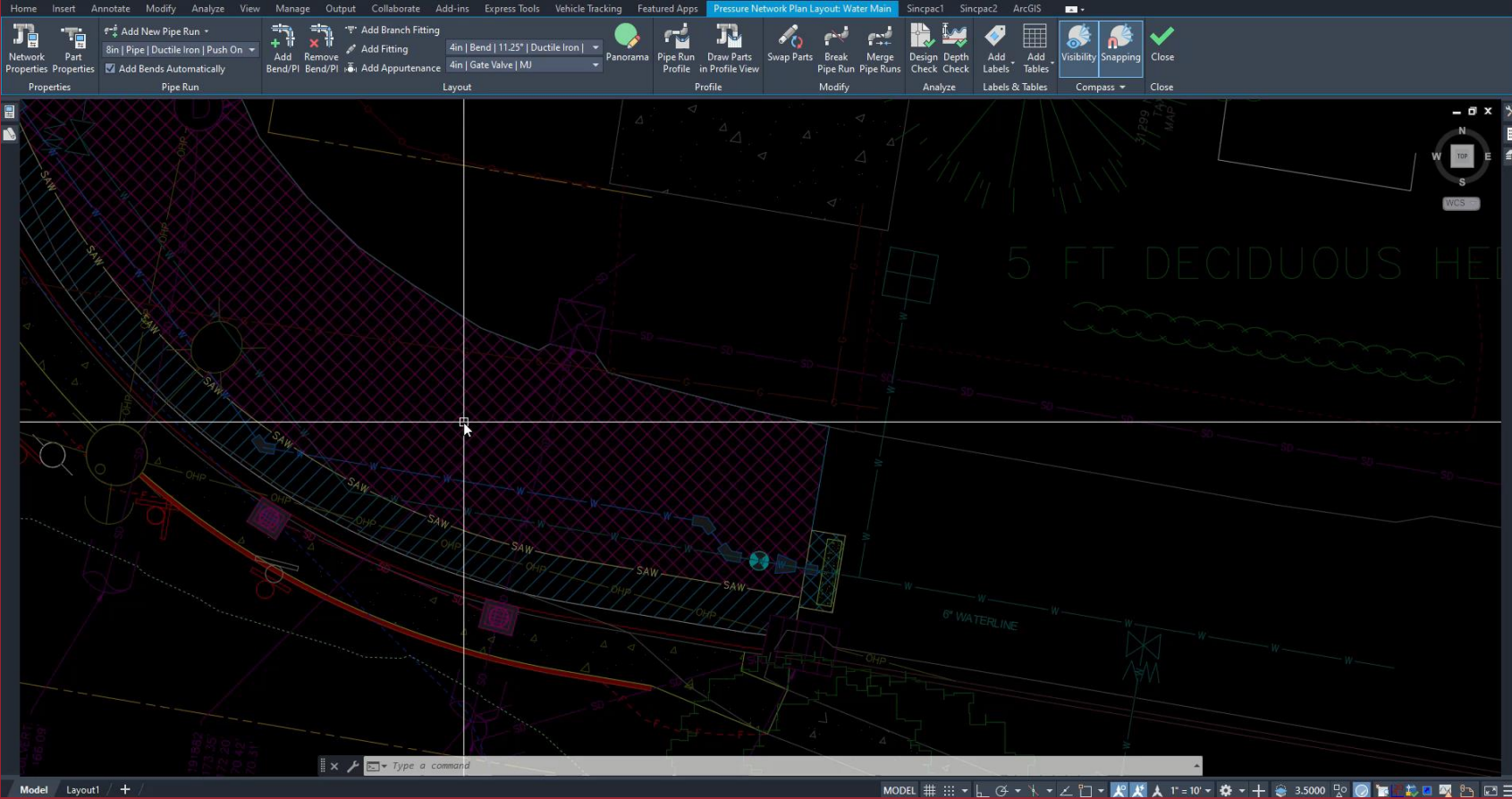
Design New Main

Create Pressure Network



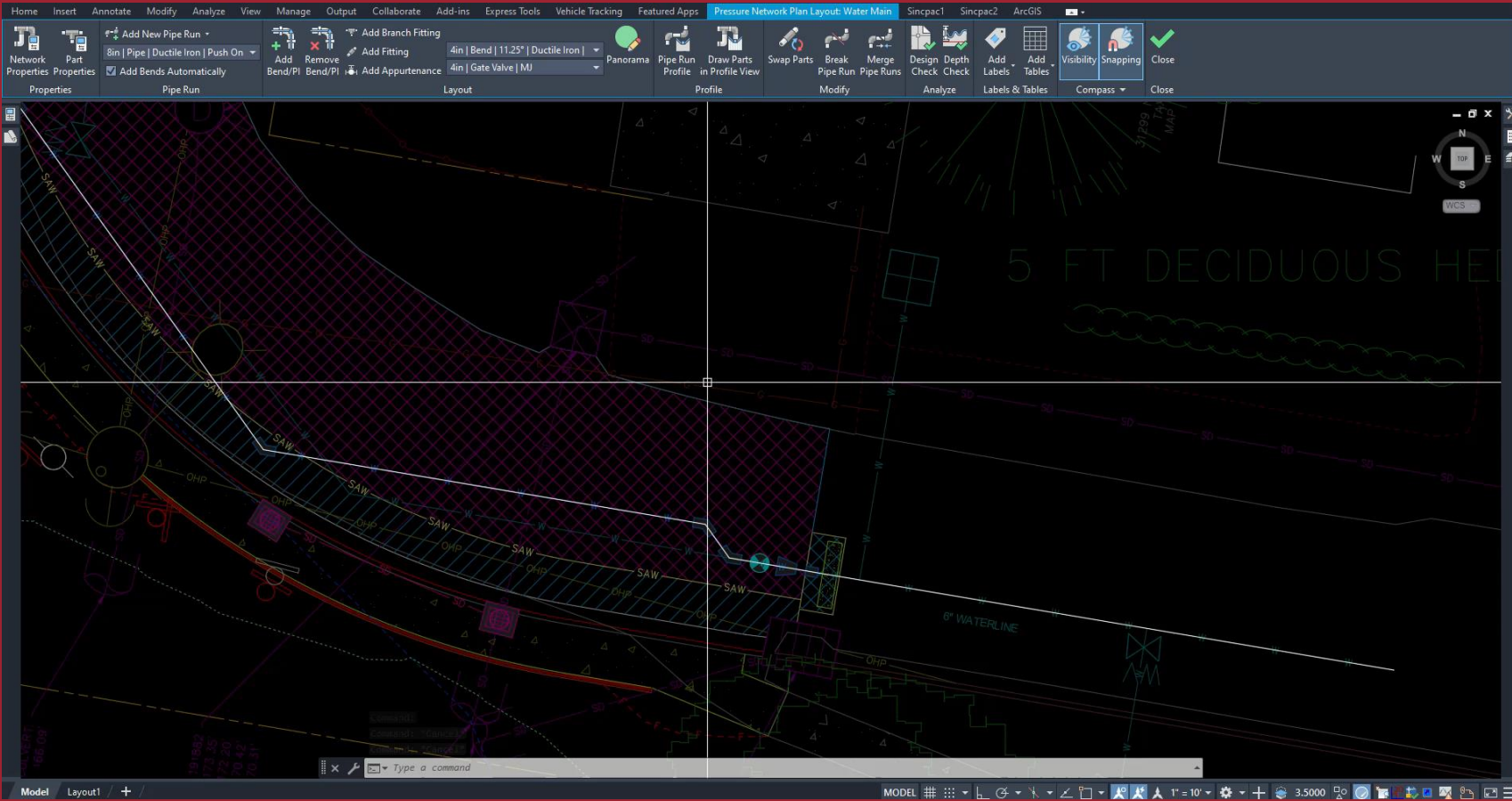
Design New Main

New Pipe Run



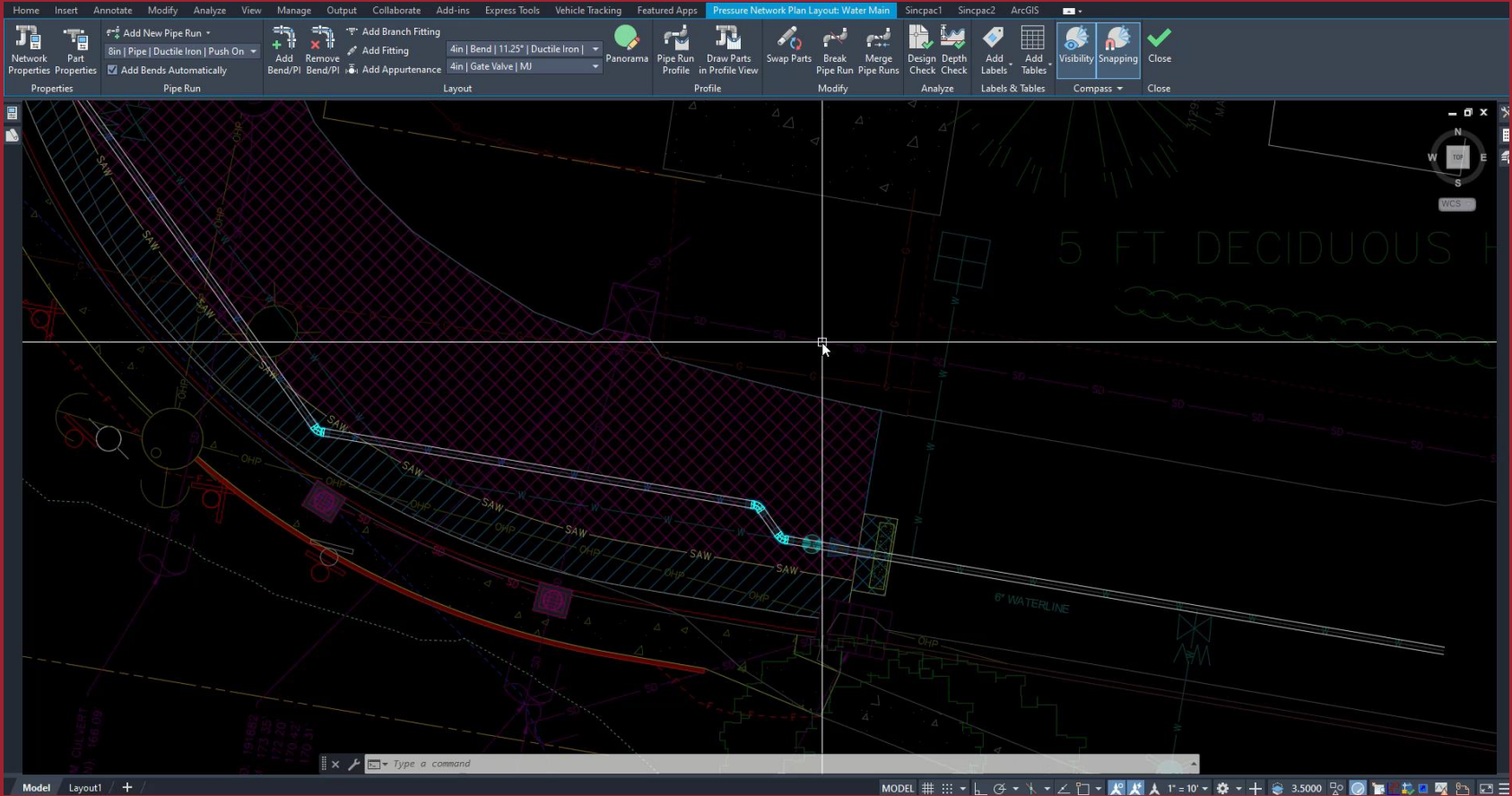
Design New Main

New Pipe Run from Object



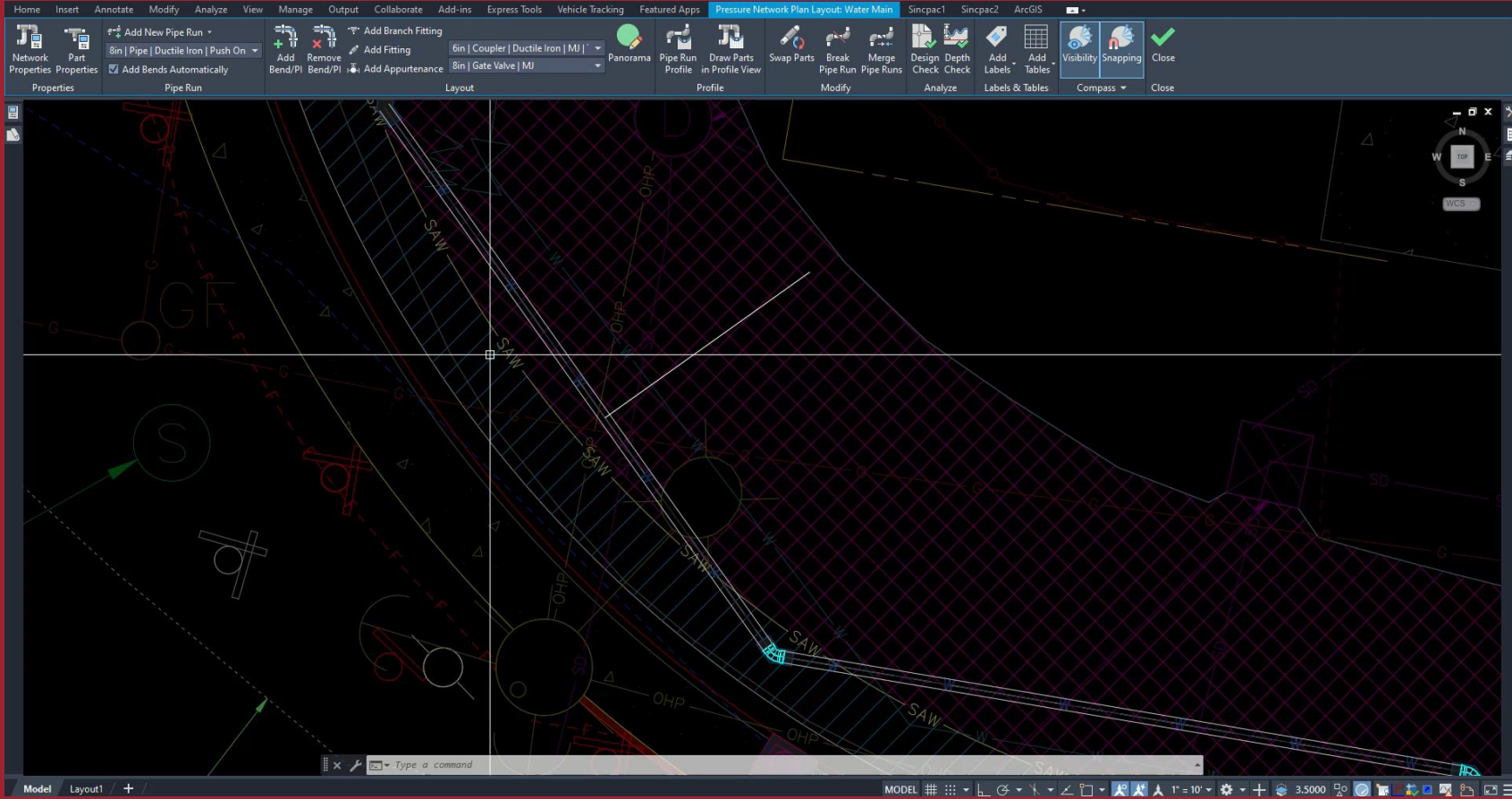
Design New Main

Adding Fittings or Appurtenances



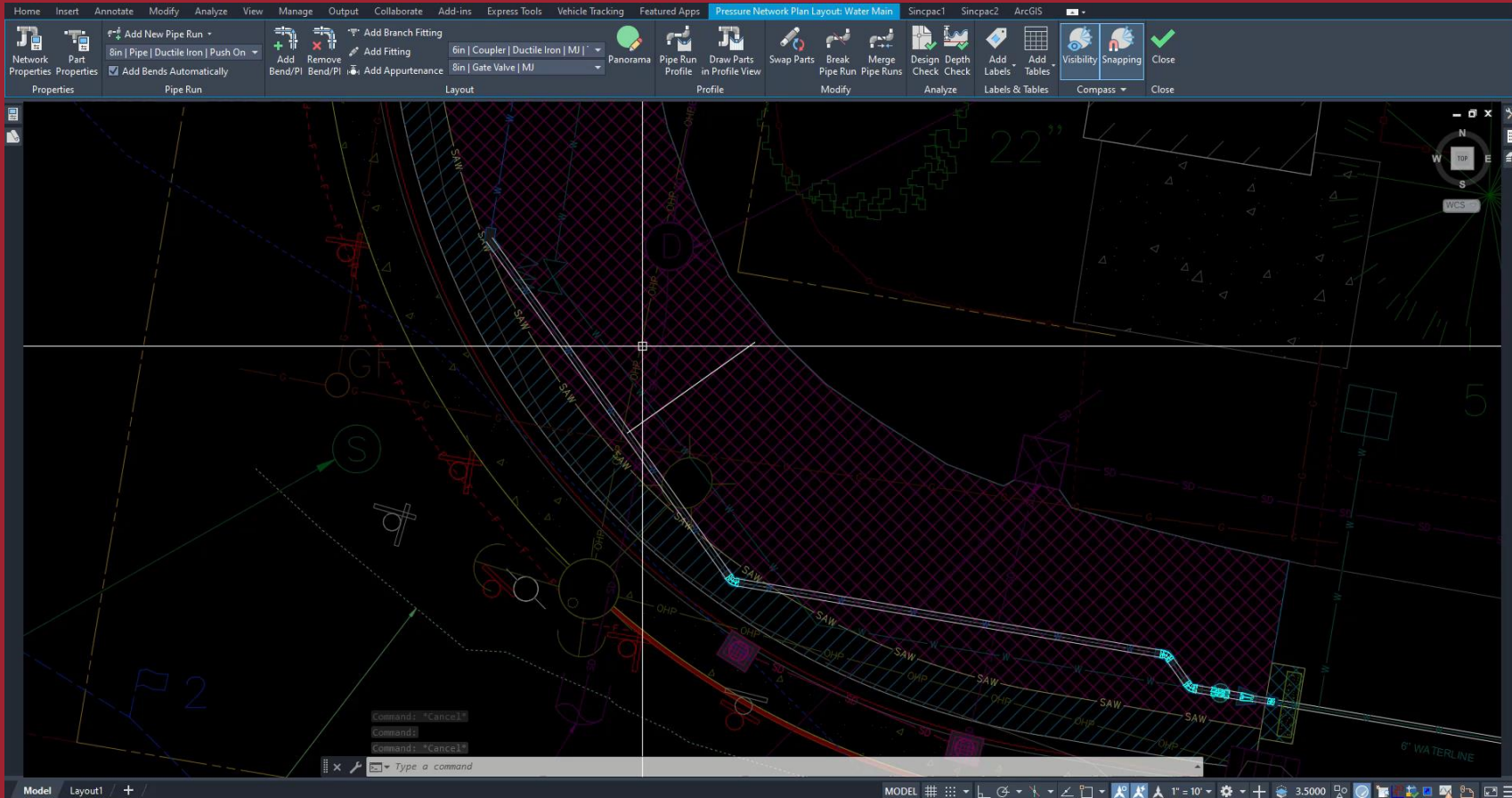
Design New Main

Adding Branch Fitting



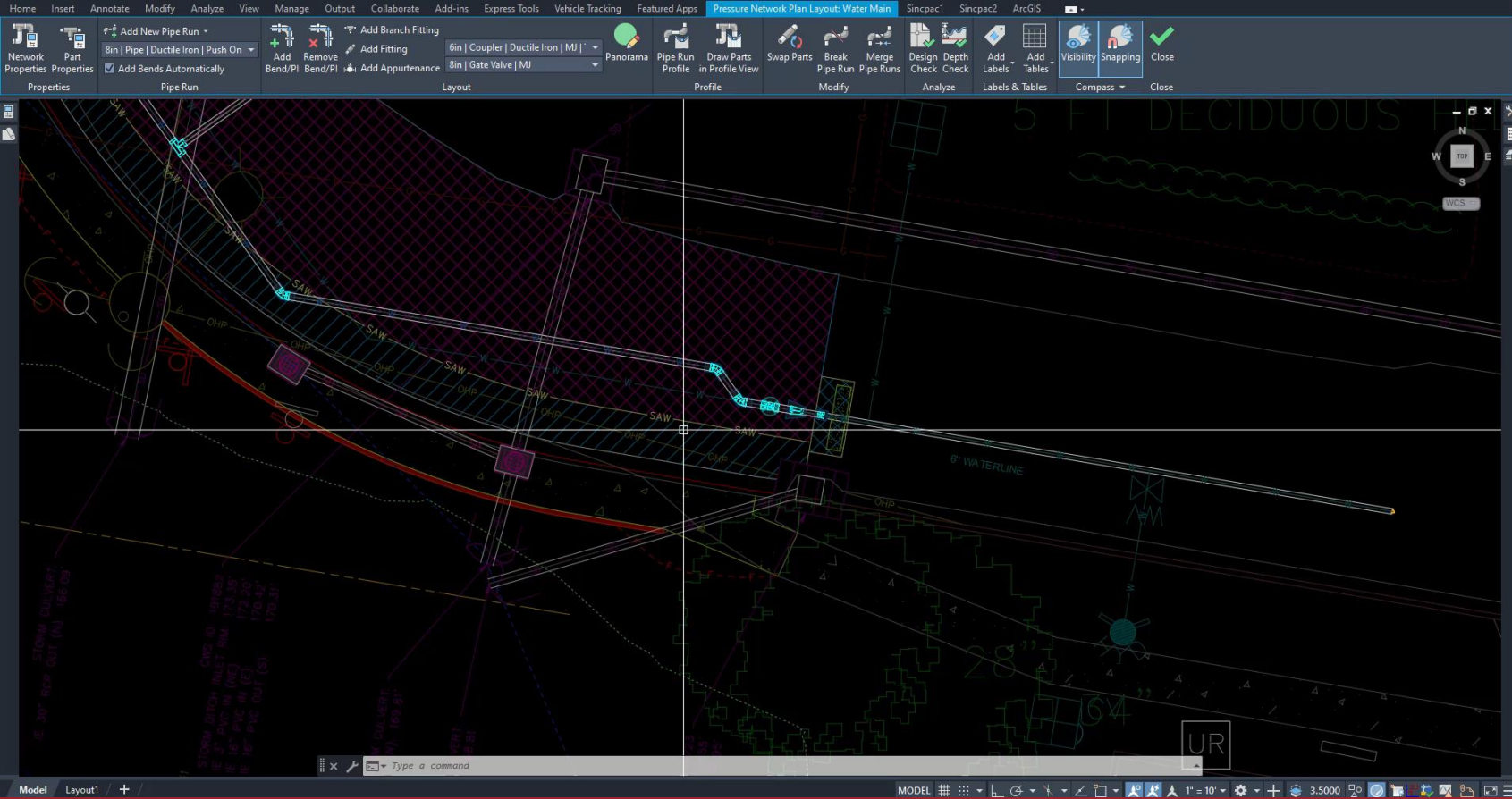
Design New Main

Adding Branch Fitting



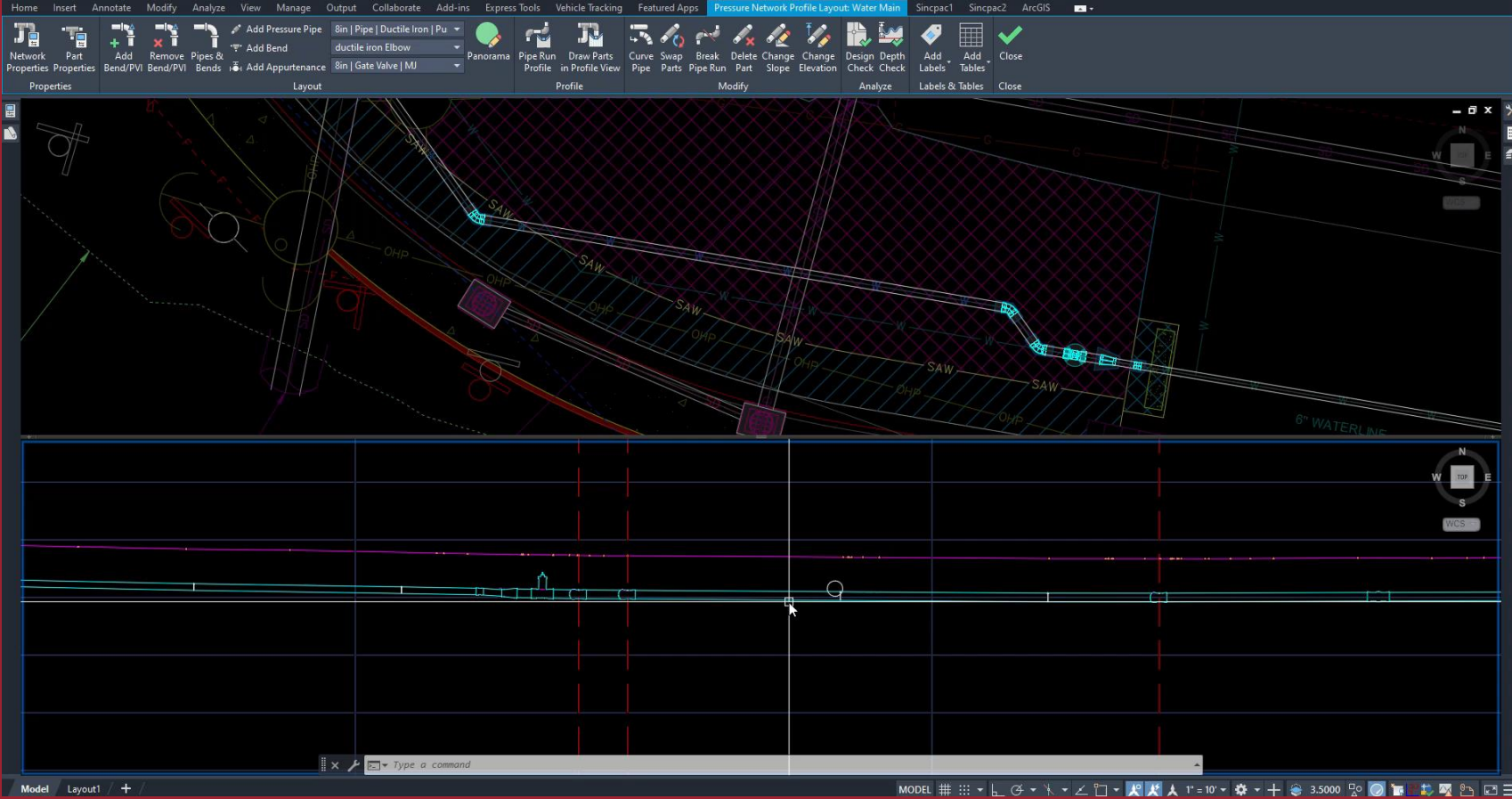
Design New Main

Vertical Layout



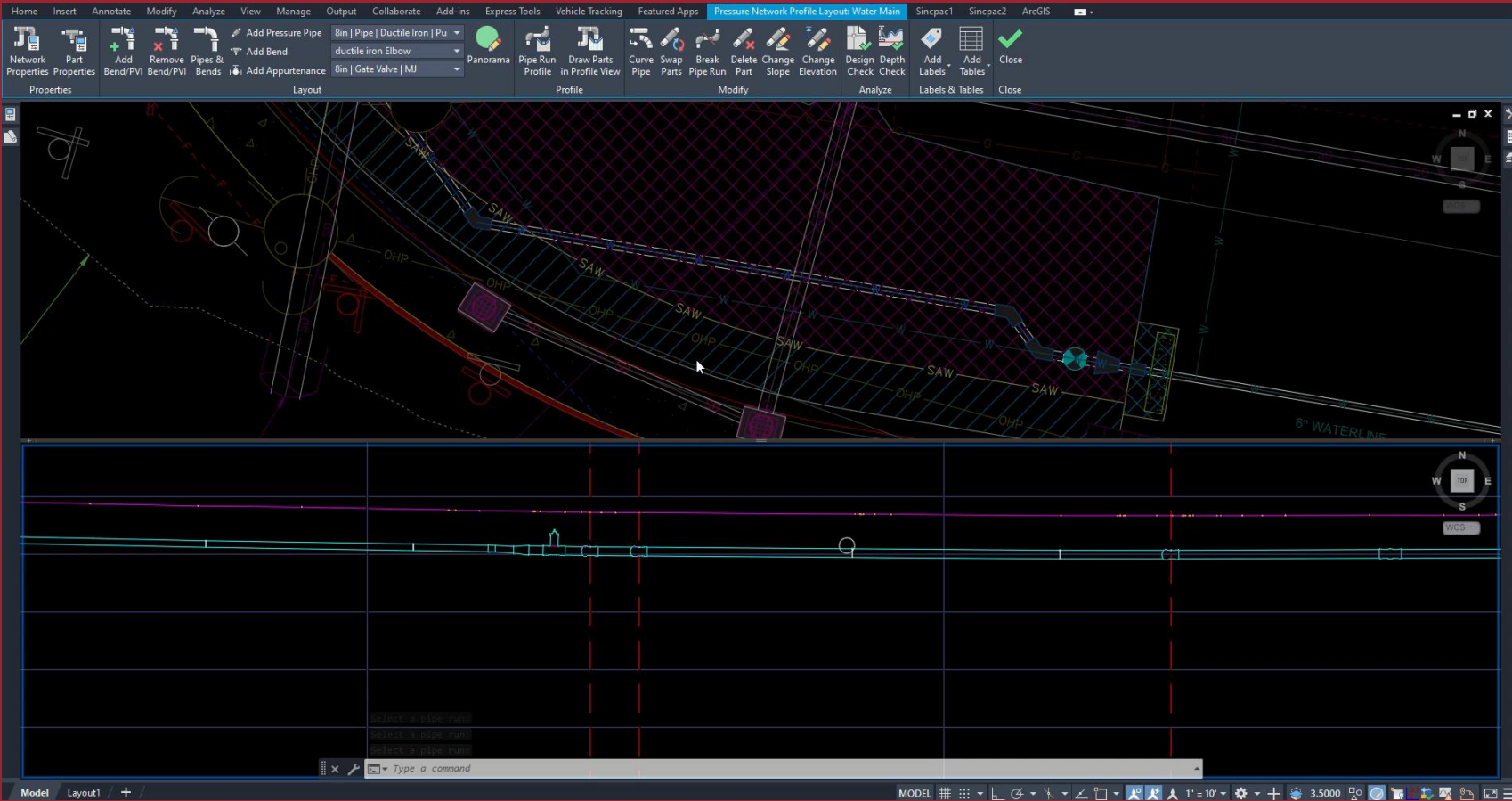
Design New Main

Vertical Layout



Design New Main

Vertical Layout



Questions?

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