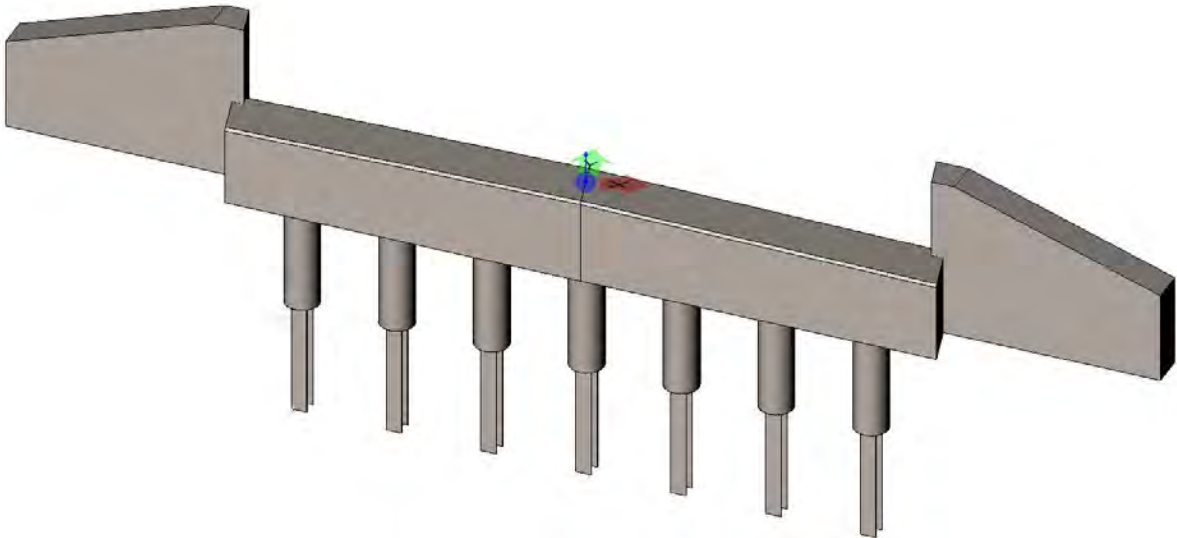




Illinois Department
of Transportation

Illinois Integral Abutment

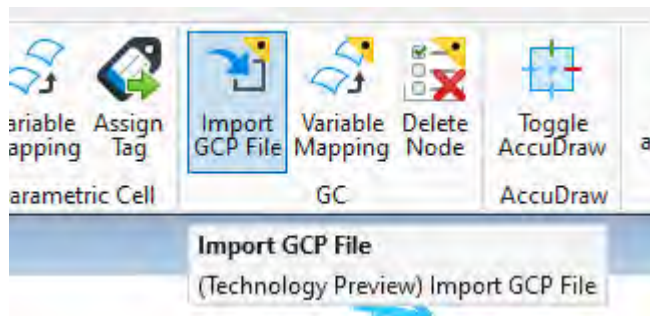
Generative Component for OpenBridge Modeler



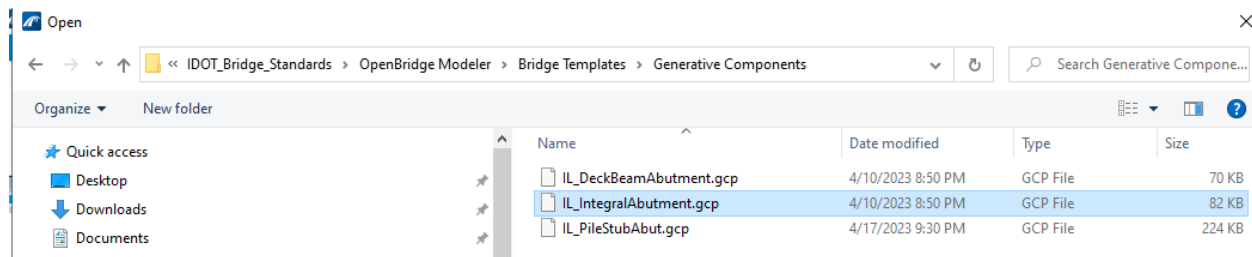
9-12-2023

Illinois Integral Abutment Generative Component Placement

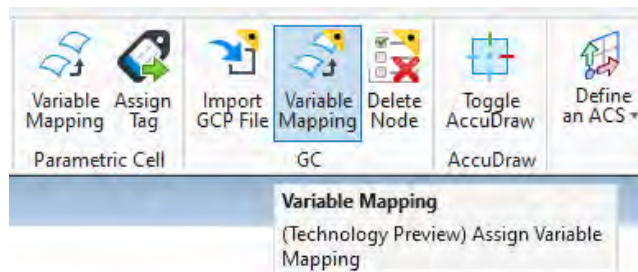
- 1) Open “OpenBridge Modeler Generative Components”.
- 2) Open the dgn containing your OBM 3D model.
- 3) From within the “OpenBridge Modeler” workflow, go to the “Utilities” tab and select “Import GCP File” within the “GC” group.



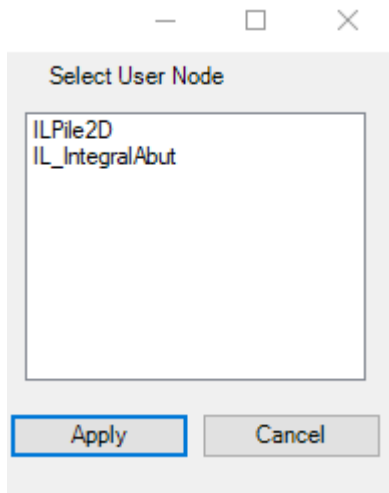
- 4) Map to “c:\IDOTCAD_ORD\Configuration\ Organization-Civil\IDOT_Bridge_Standards\OpenBridge Modeler\Bridge Templates\Generative Components\” and select the file “IL_IntegralAbutment.gcp”.



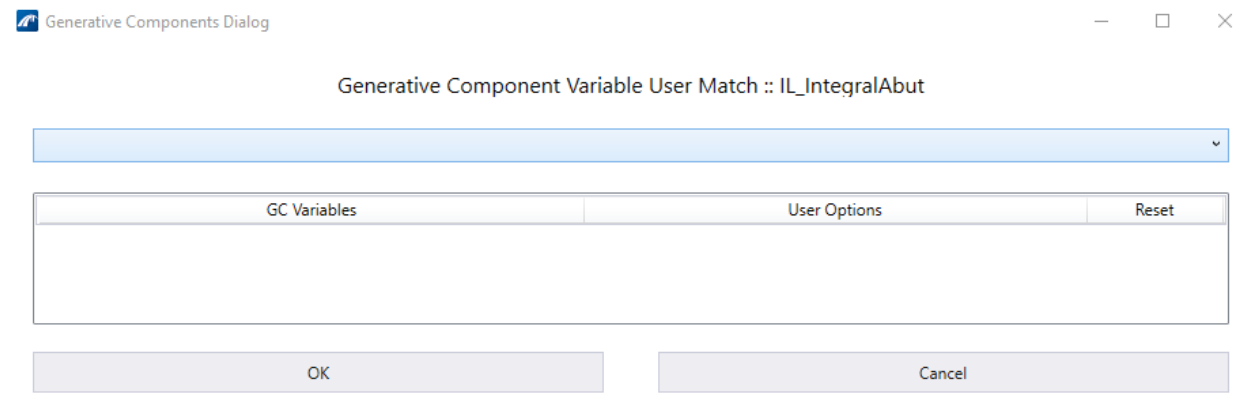
- 5) Click “Open”.
- 6) In the “GC” group, select “Variable Mapping”.



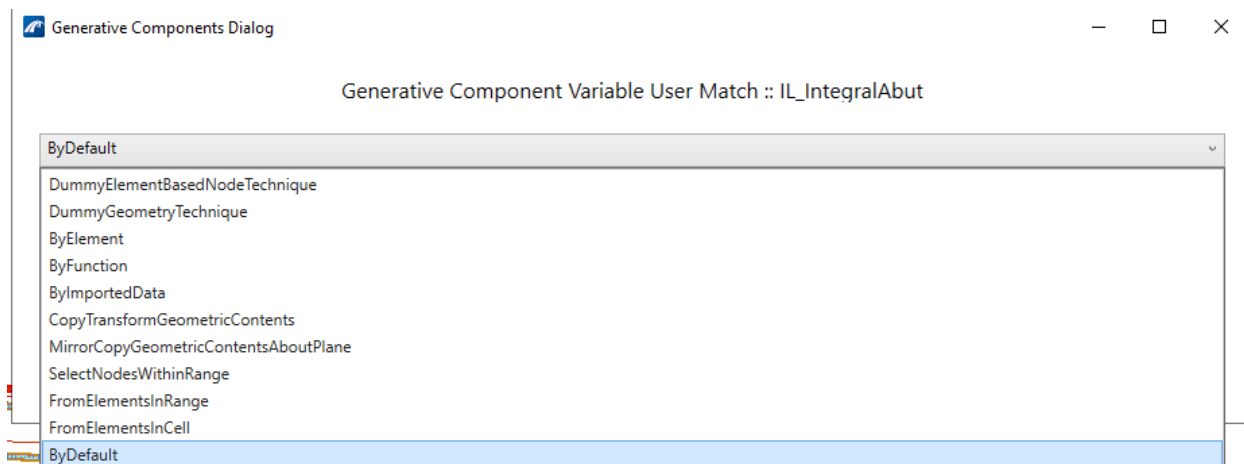
7) Select “IL_IntegralAbut”, then “Apply”.



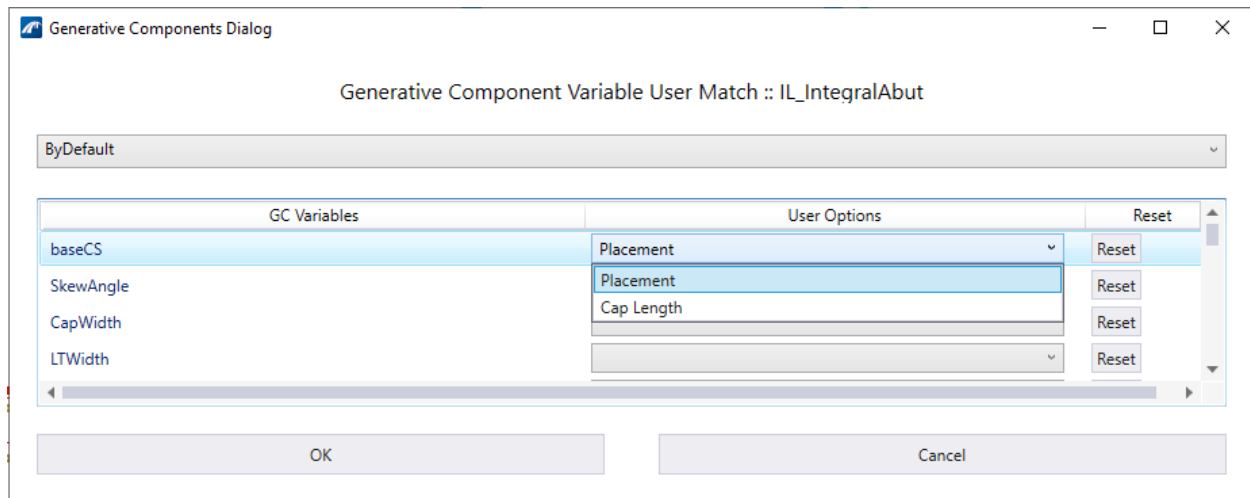
8) Select the top dropdown that appears empty.



9) Select “ByDefault”.

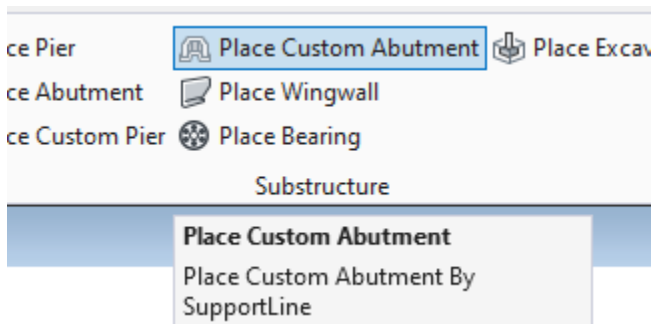


10) Select the “User Options” dropdown in the “baseCS” row and select “Placement”.

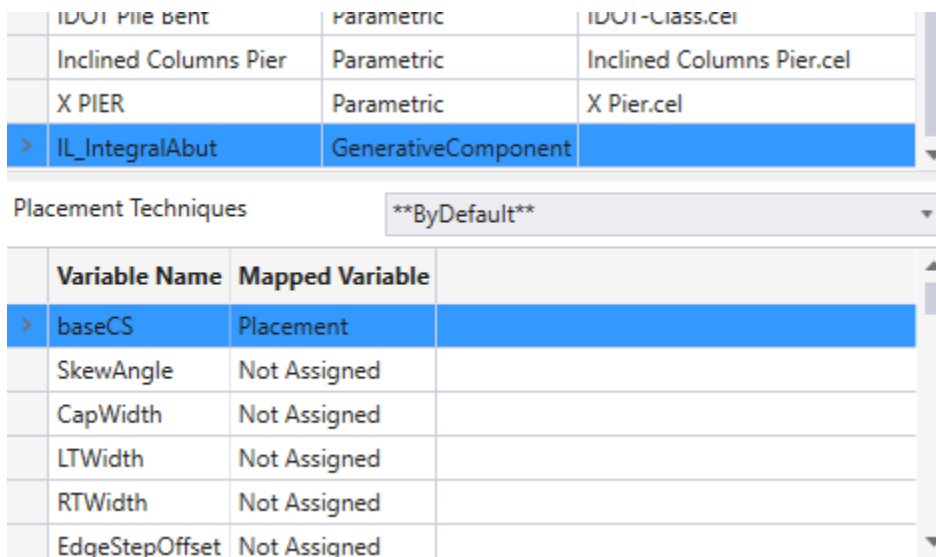


11) Select “OK”.

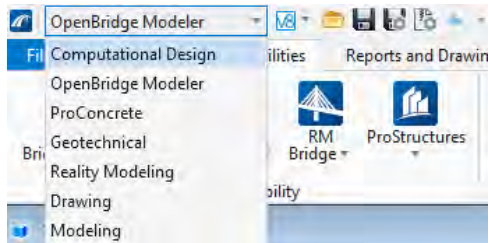
12) From within the “OpenBridge Modeler” workflow, select “Place Custom Abutment”.



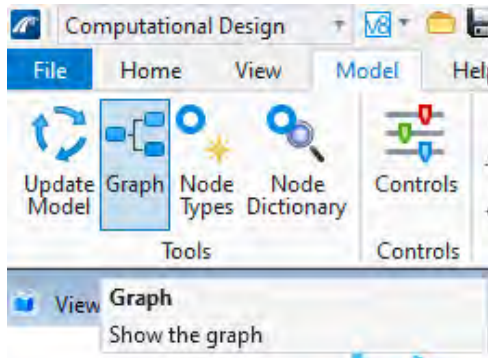
13) Ensure that the “Cell” attached is the IL_IntegralAbut. If not, select it.



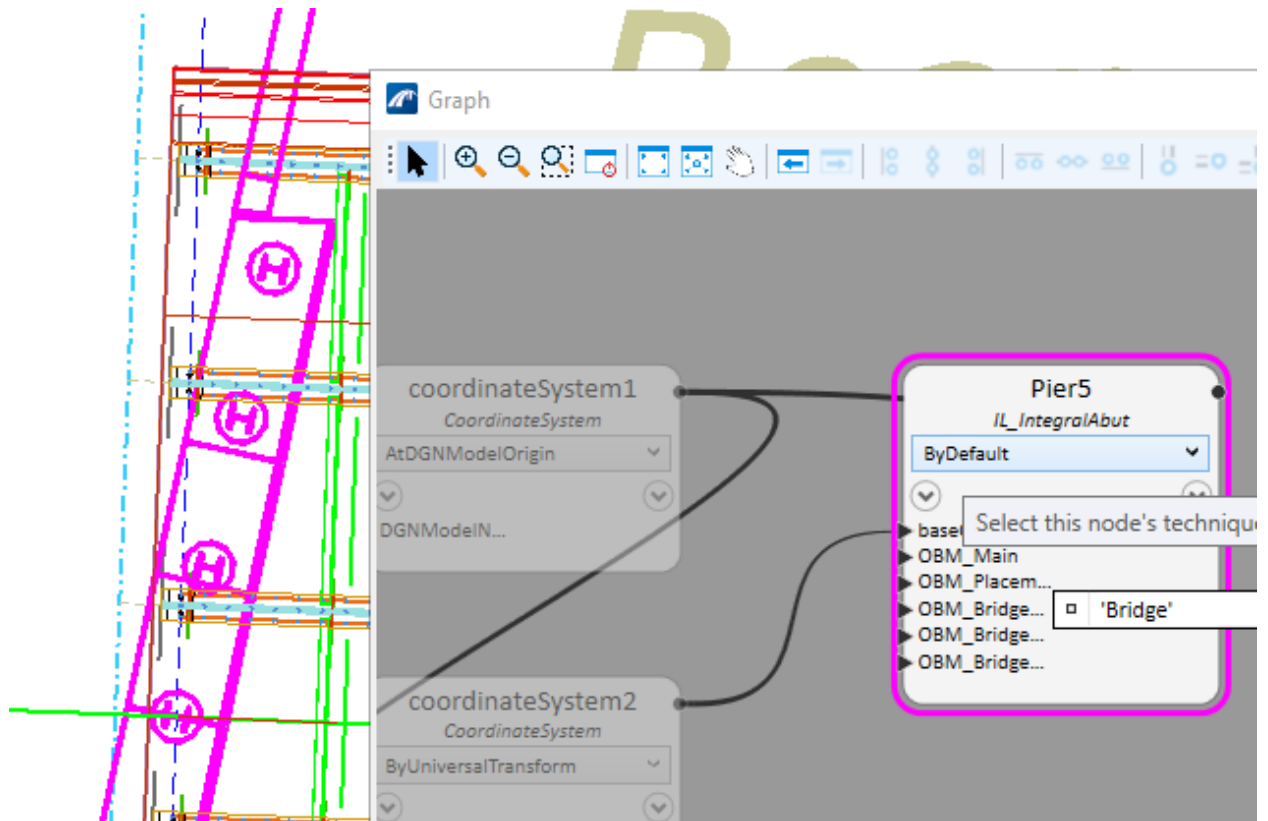
- 14) Edit the values in the “Place Custom Abutment” dialog.
- 15) Select appropriate “SupportLine” and then reset.
- 16) Once the Generative Components have been placed, the variables need to be modified.
- 17) Change to the “Computational Design” workflow.



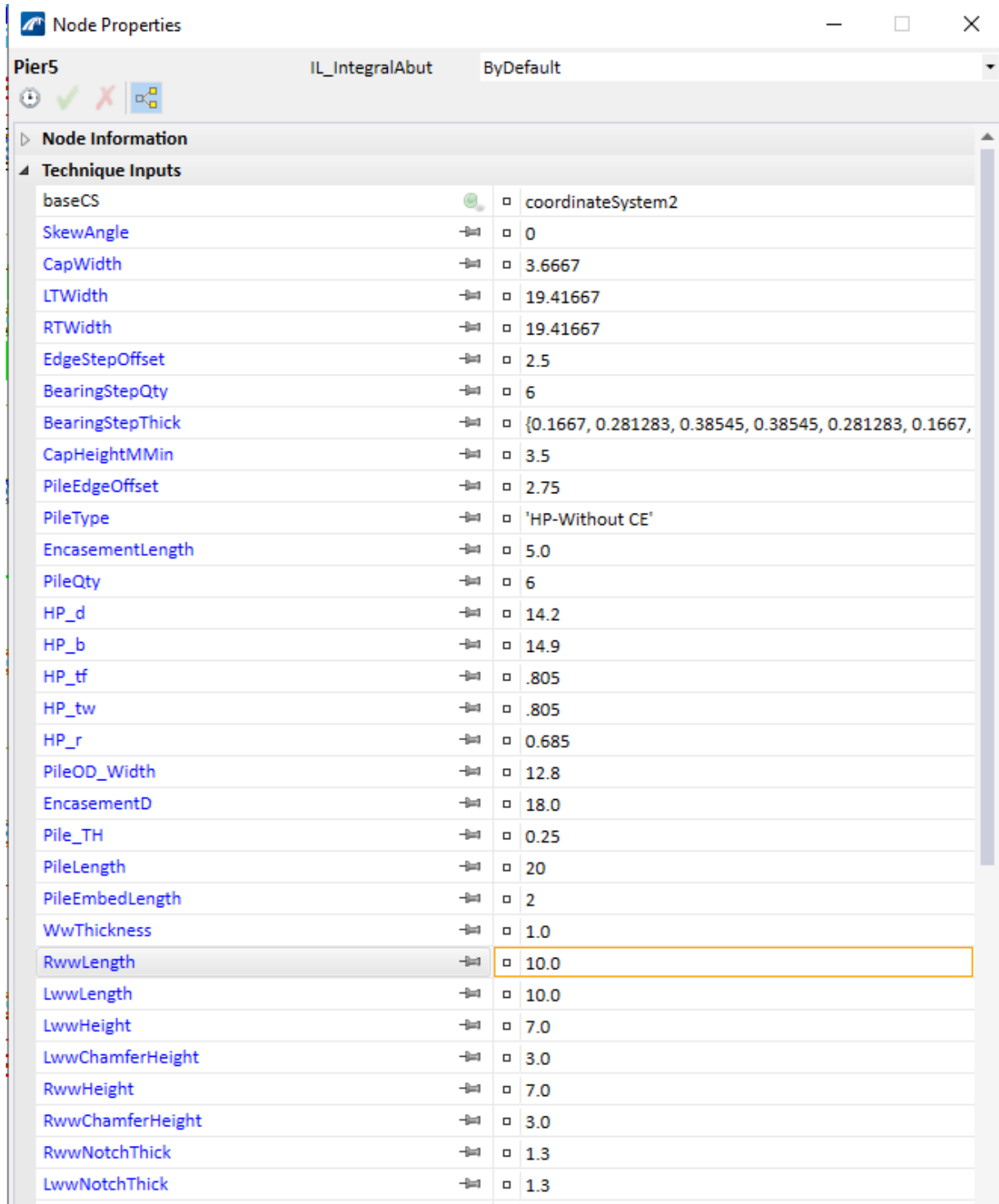
- 18) In the “Model” tab, select the “Graph” command in the “Tools” group.



- 19) Regardless of what the software names the abutment, you can identify it by hovering over the non-greyed boxes in the “Graph” dialog. It is appearing here as “Pier5”.



20) Double-clicking on the box for “Pier5” will bring up the Node Properties dialog for that abutment. This is where the variable values must be changed. Pages – thru – of this document show what dimensions the variables refer to.



Node Properties

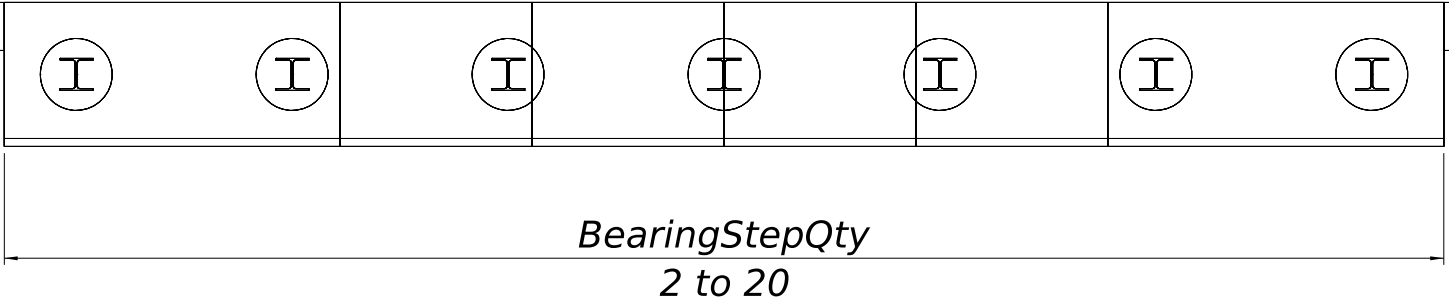
Pier5 IL_IntegralAbut ByDefault

Node Information

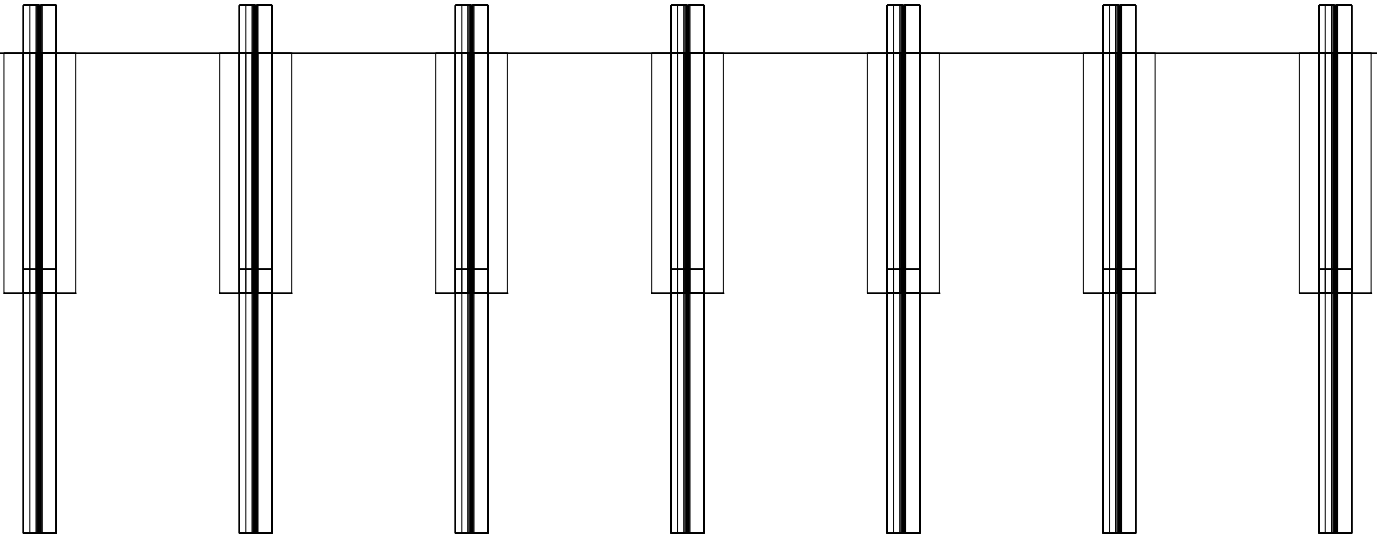
Technique Inputs

baseCS	□	coordinateSystem2
SkewAngle	□	0
CapWidth	□	3.6667
LTWidth	□	19.41667
RTWidth	□	19.41667
EdgeStepOffset	□	2.5
BearingStepQty	□	6
BearingStepThick	□	{0.1667, 0.281283, 0.38545, 0.38545, 0.281283, 0.1667,
CapHeightMMin	□	3.5
PileEdgeOffset	□	2.75
PileType	□	'HP-Without CE'
EncasementLength	□	5.0
PileQty	□	6
HP_d	□	14.2
HP_b	□	14.9
HP_tf	□	.805
HP_tw	□	.805
HP_r	□	0.685
PileOD_Width	□	12.8
EncasementD	□	18.0
Pile_TH	□	0.25
PileLength	□	20
PileEmbedLength	□	2
WwThickness	□	1.0
RwwLength	□	10.0
LwwLength	□	10.0
LwwHeight	□	7.0
LwwChamferHeight	□	3.0
RwwHeight	□	7.0
RwwChamferHeight	□	3.0
RwwNotchThick	□	1.3
LwwNotchThick	□	1.3

It is advisable that all other substructure elements (3d solids, native OBM substructure types, and – components) be placed prior to placing the generative component abutments.

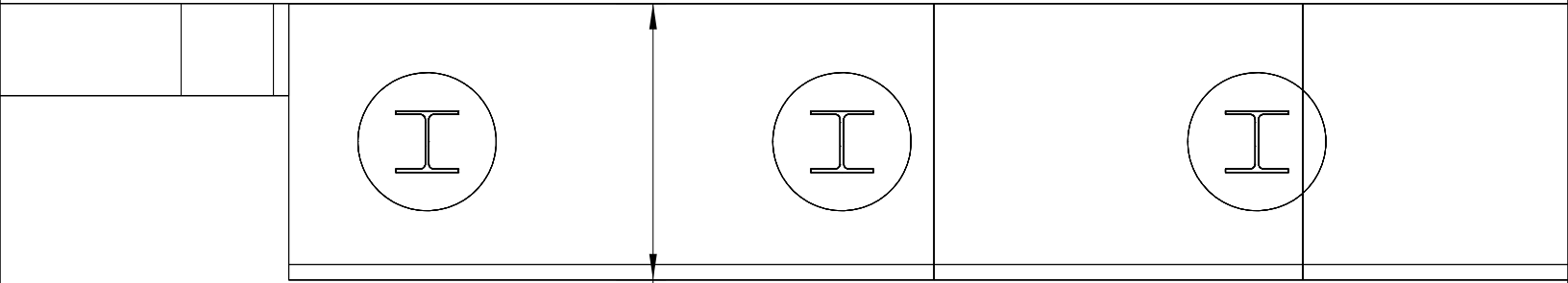


BearingStepThick
(Vauls are left to right, from the bottom
of the low beam 2" chamfer, typ.)

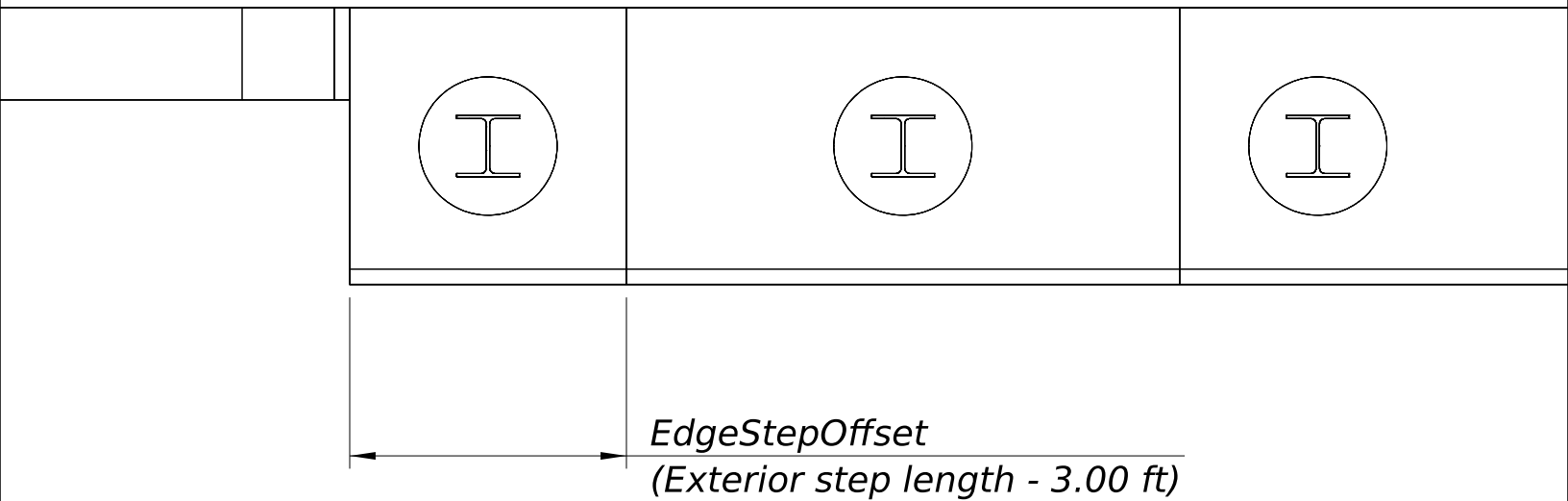


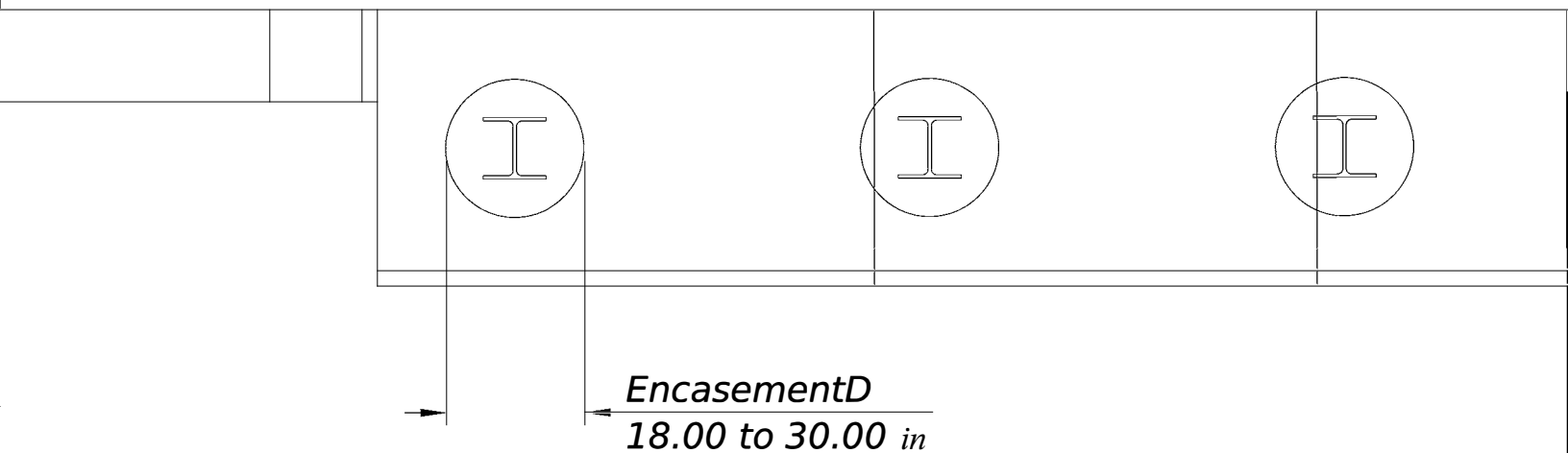


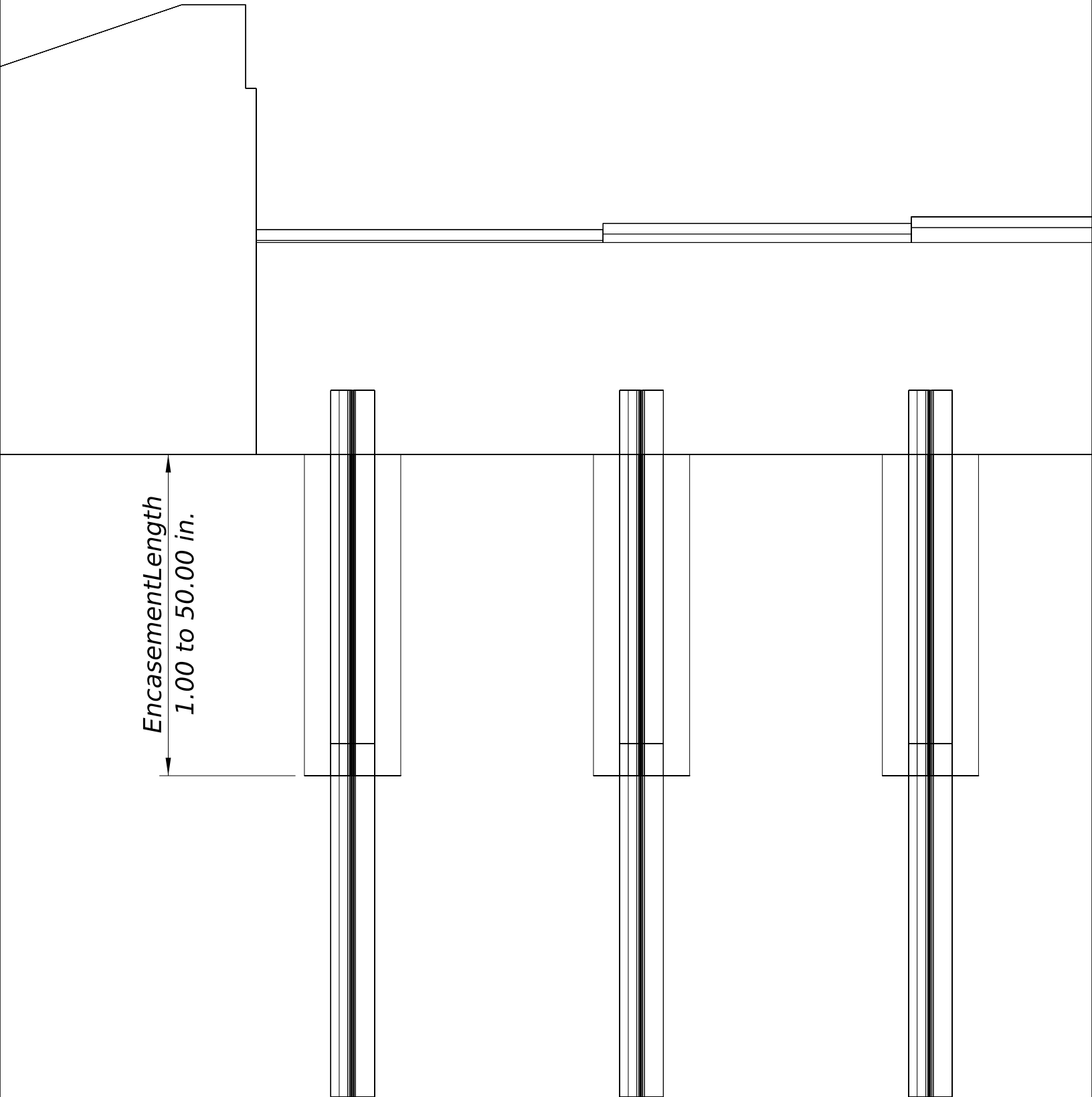
CapHeightMin
1.00 to 10.00 ft

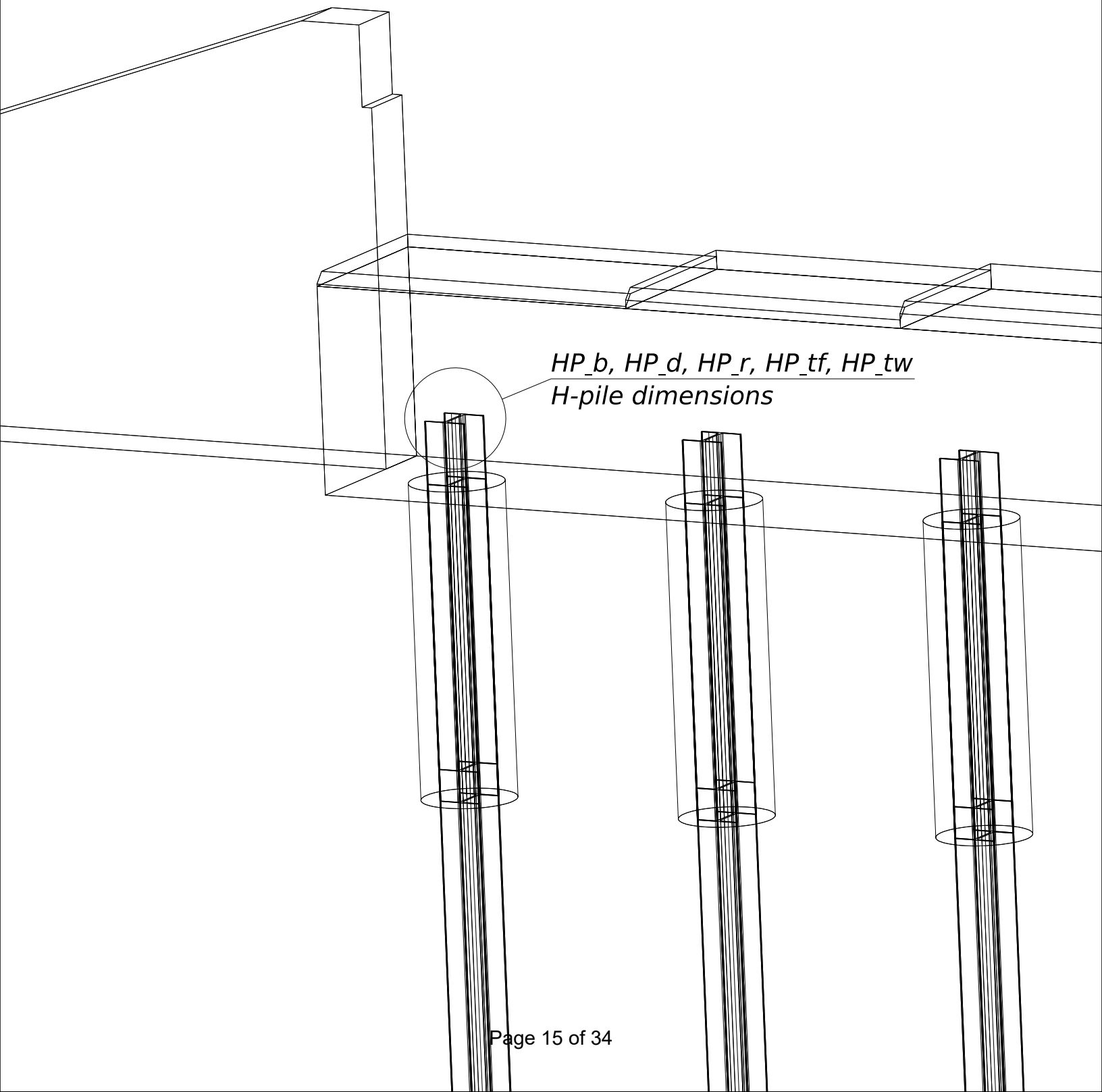


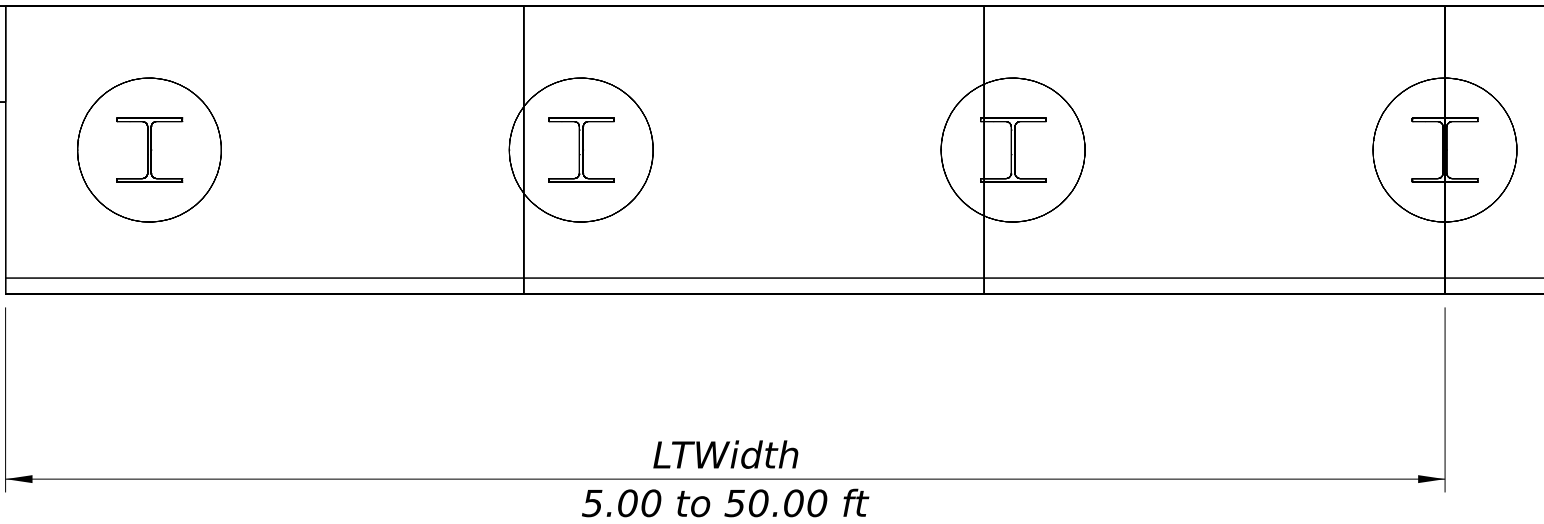
CapWidth
0.50 to 10.00 ft

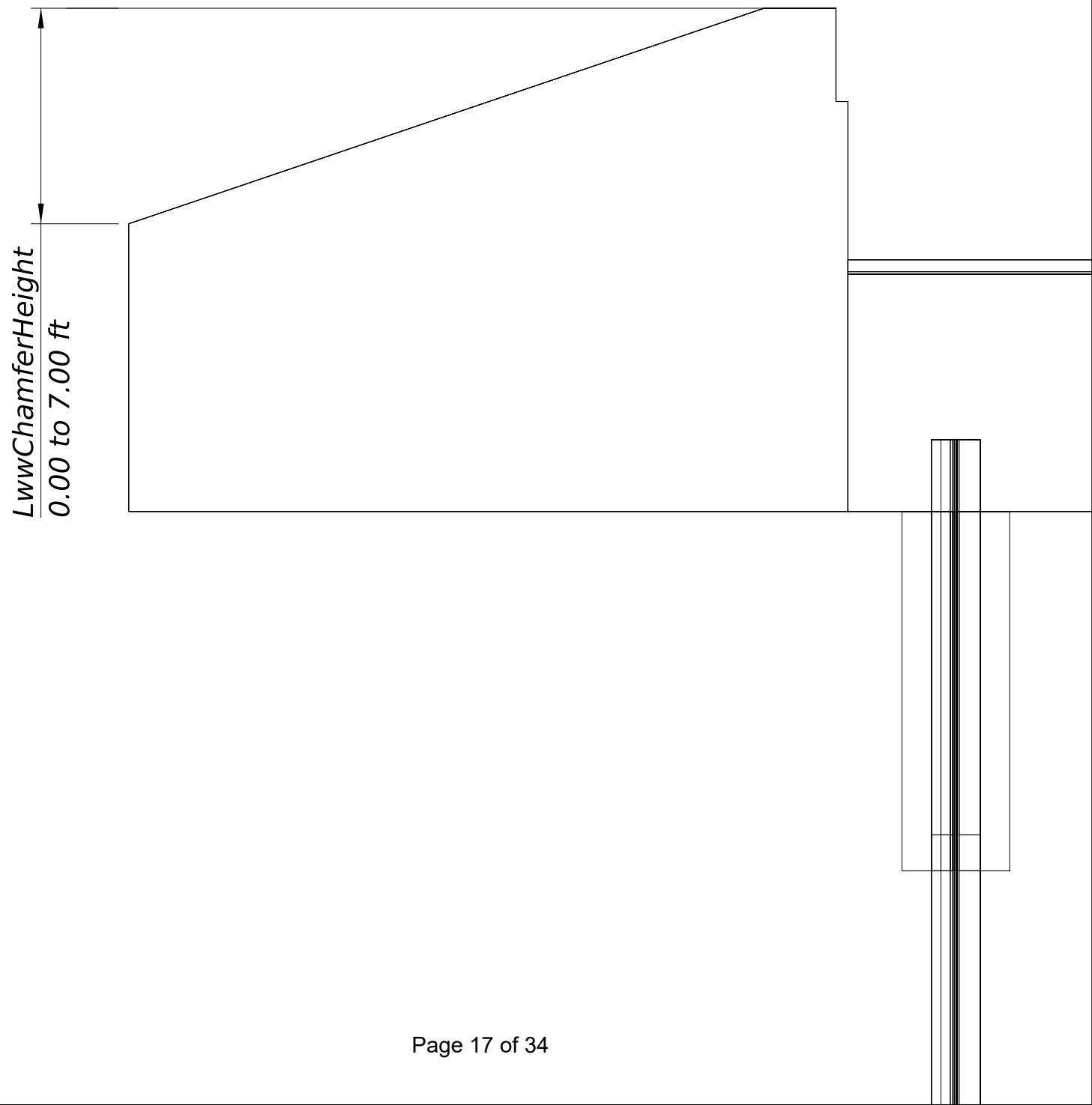




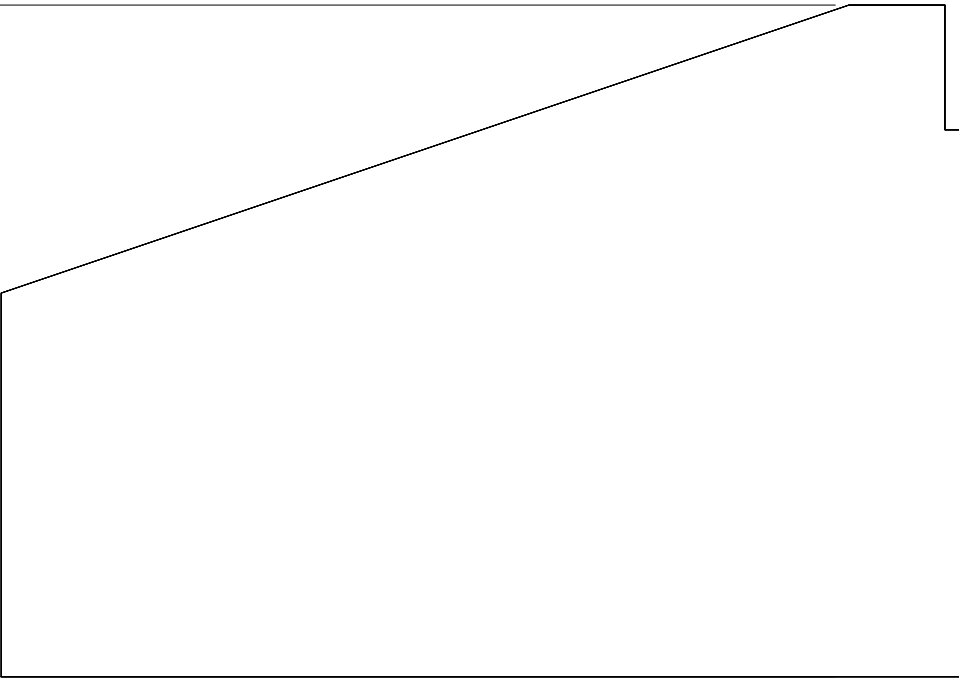


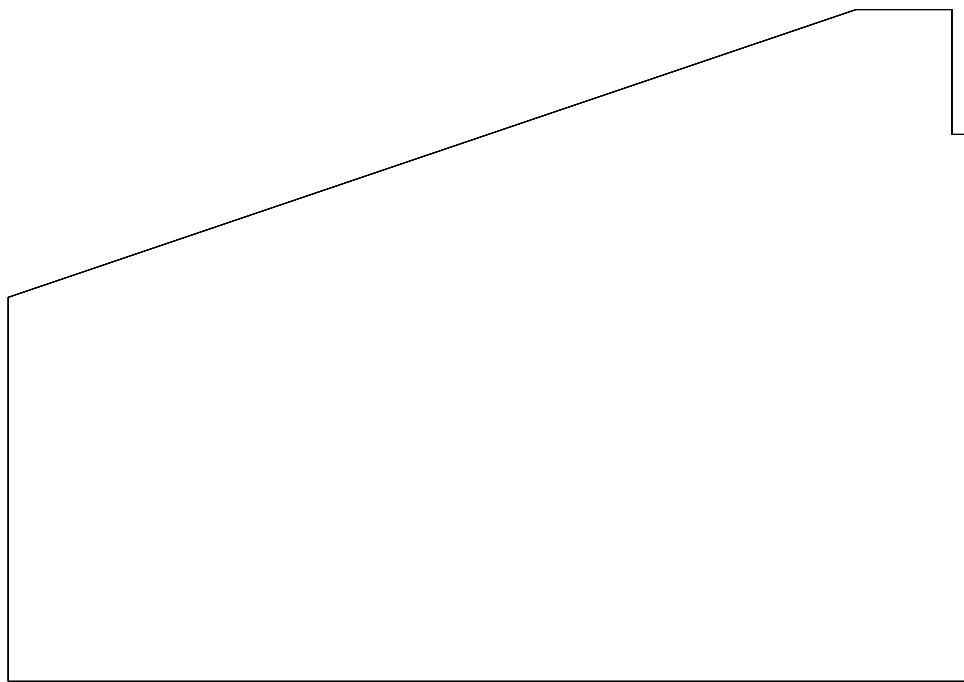




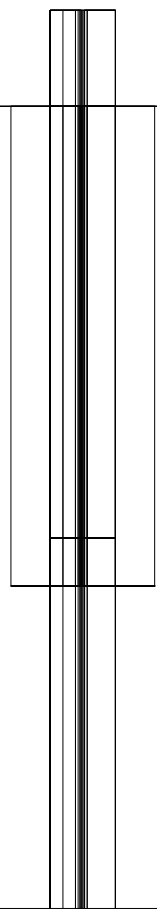


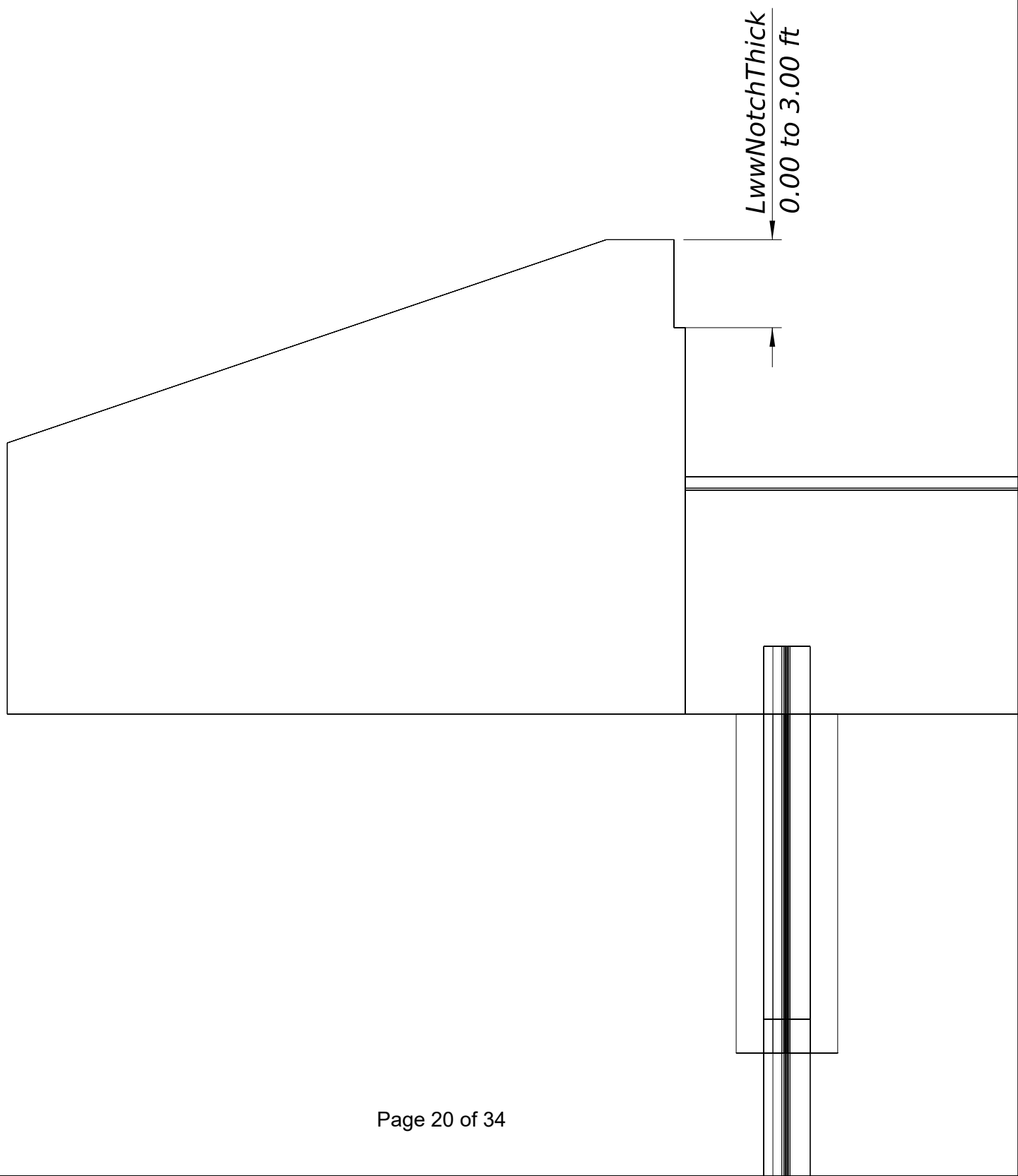
LwwHeight
0.00 to 15.00 ft

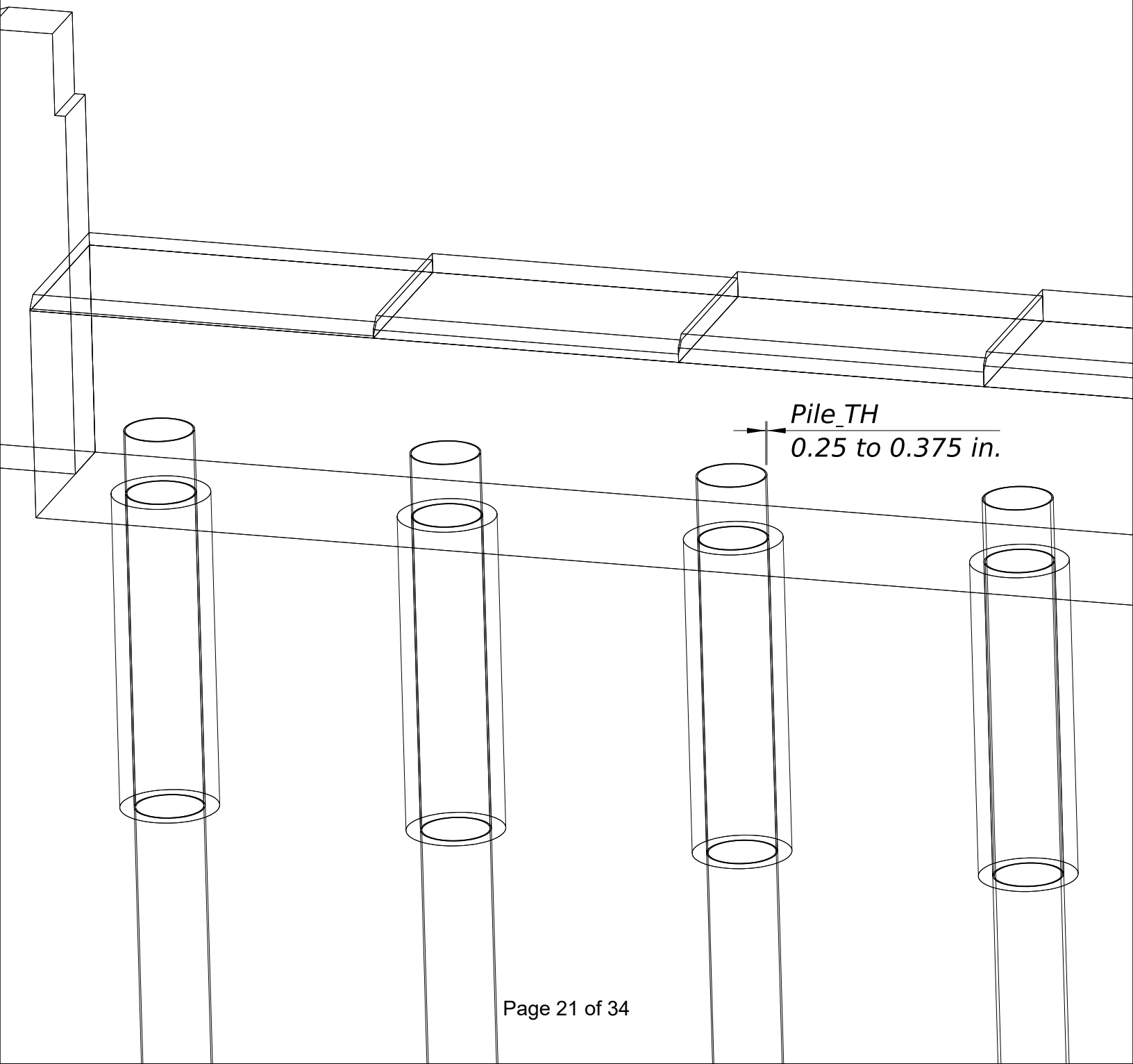




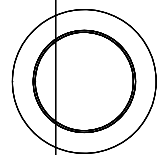
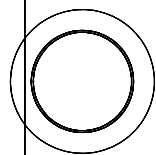
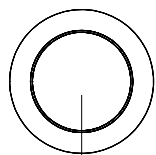
LwwLength
1.00 to 20.00 ft

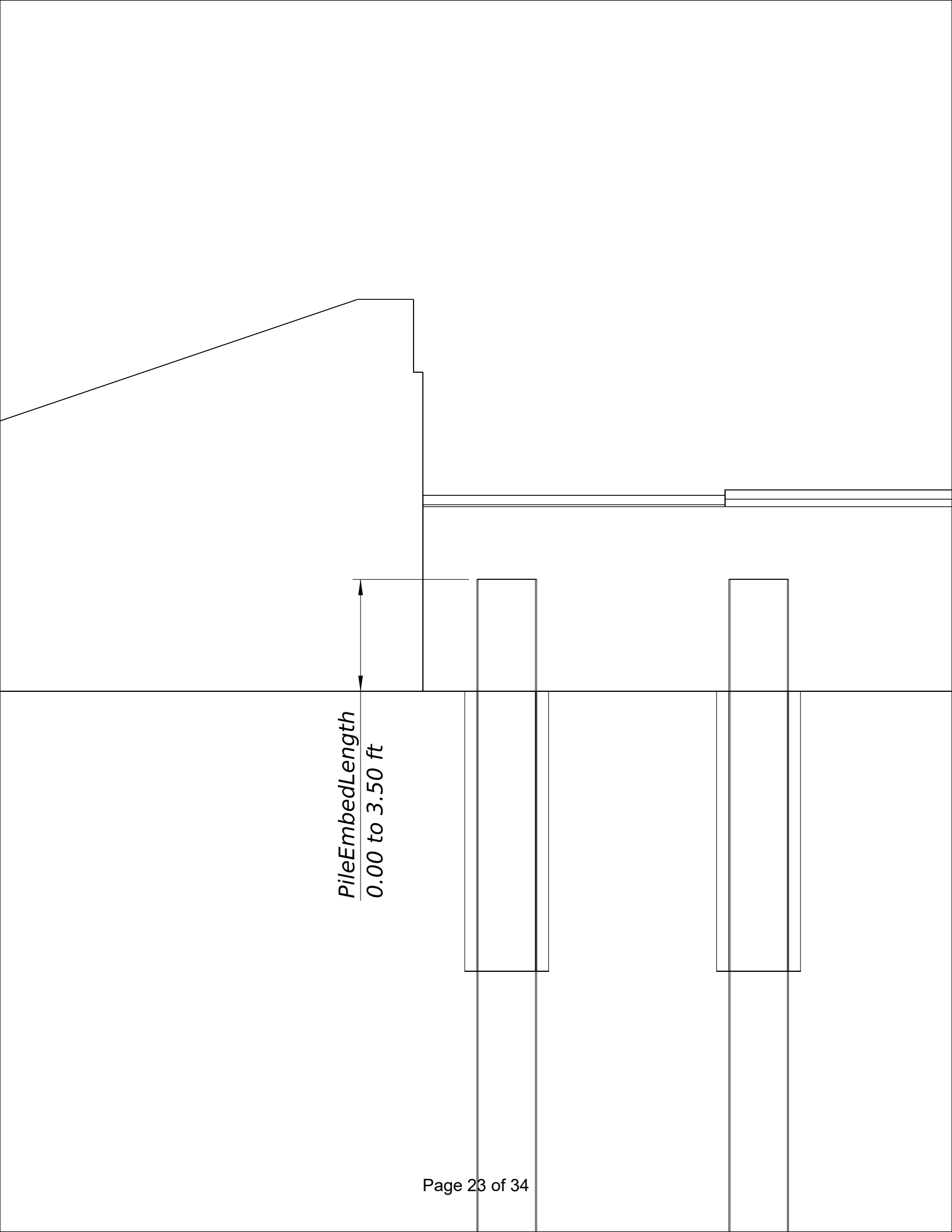


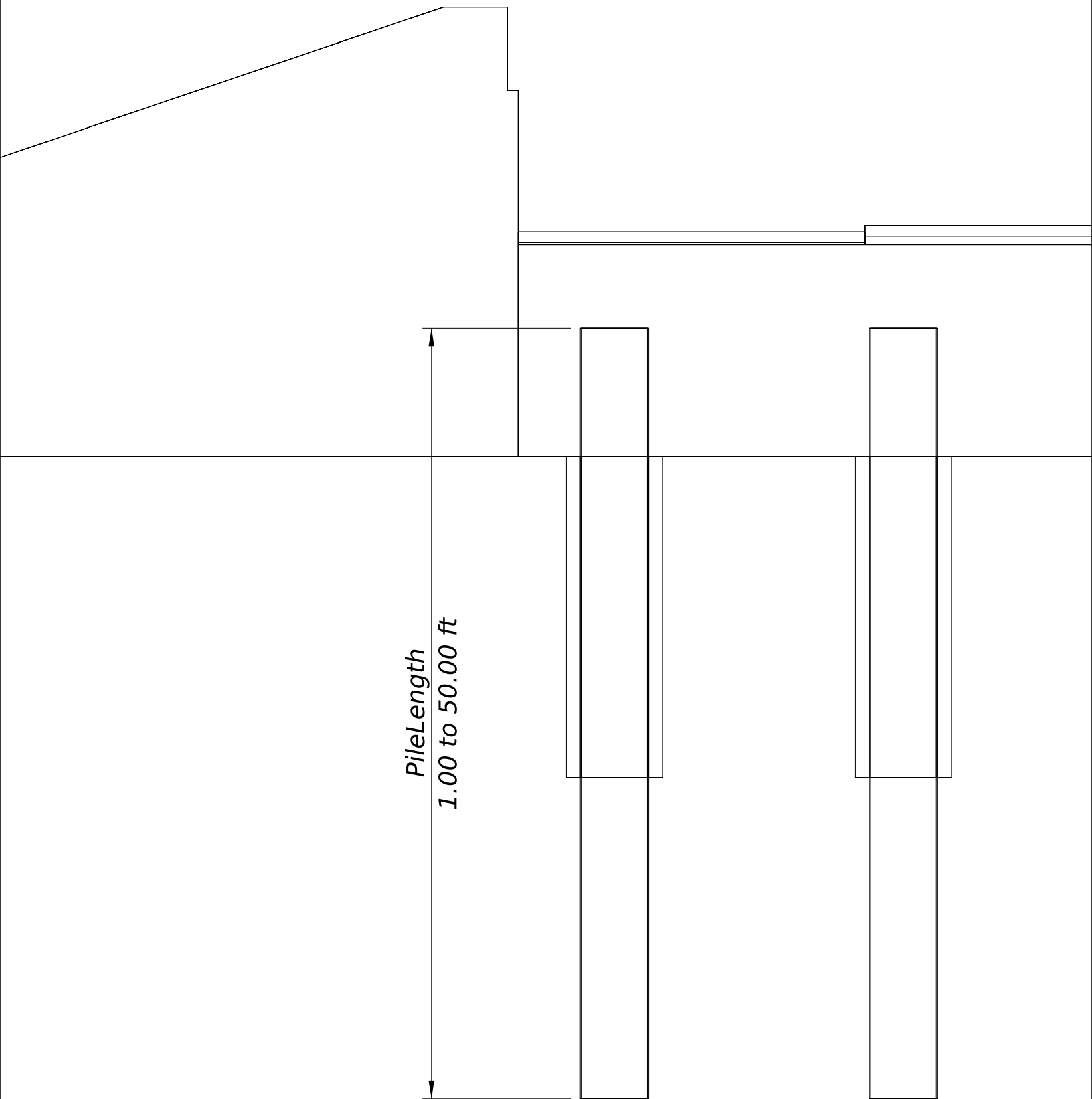


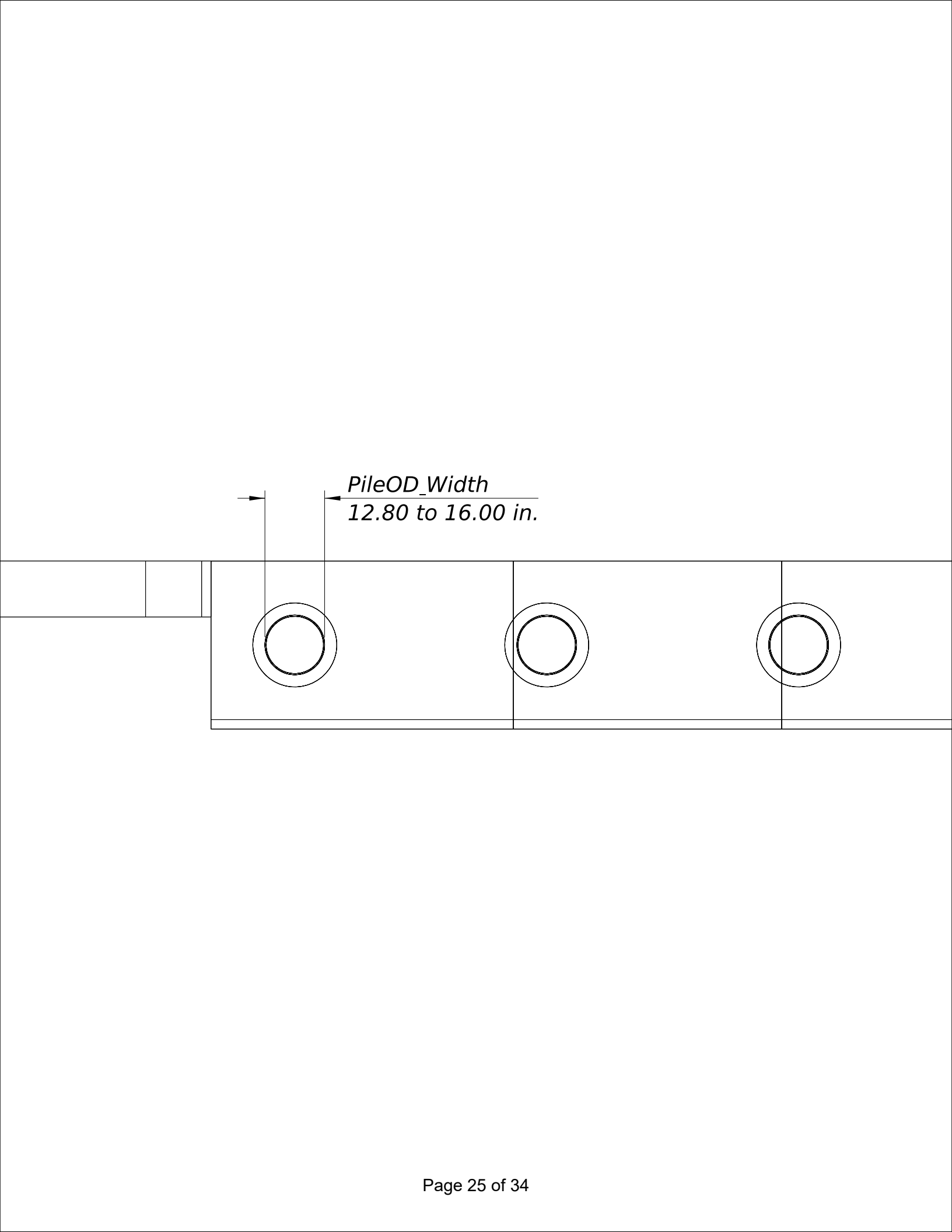


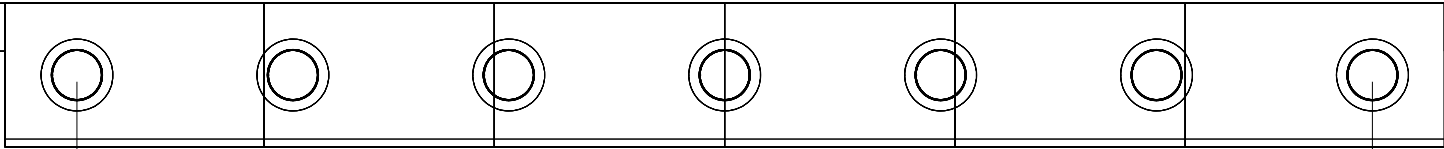
PileEdgeOffset
0.00 to 8.00 ft





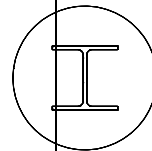
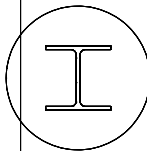
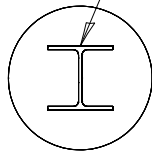




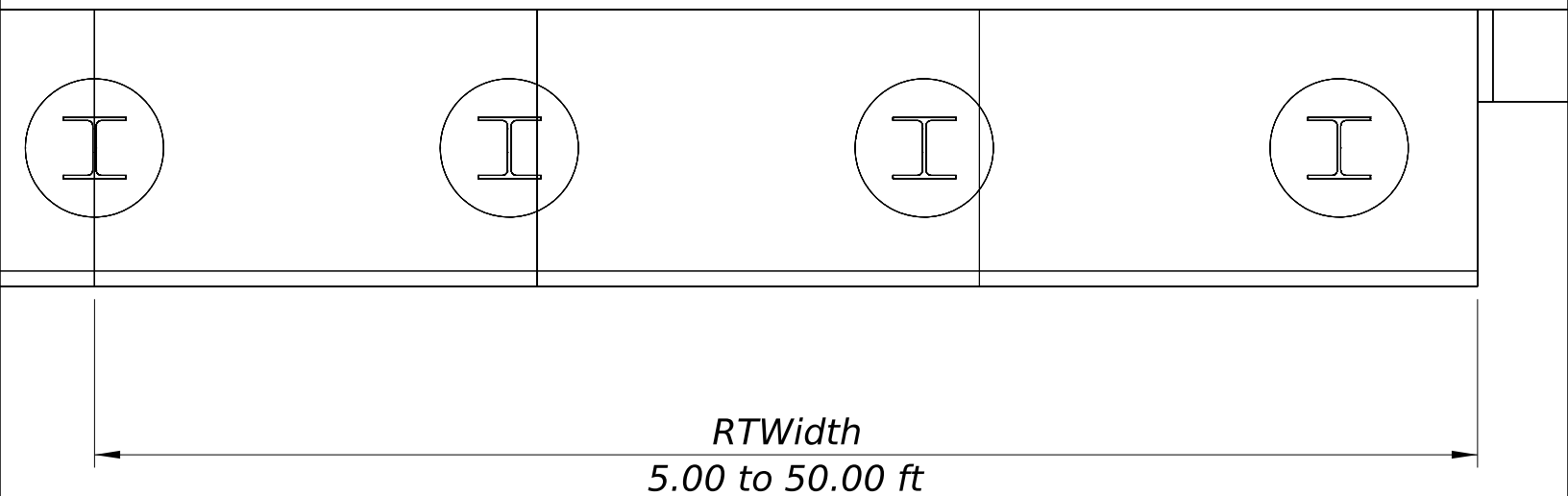


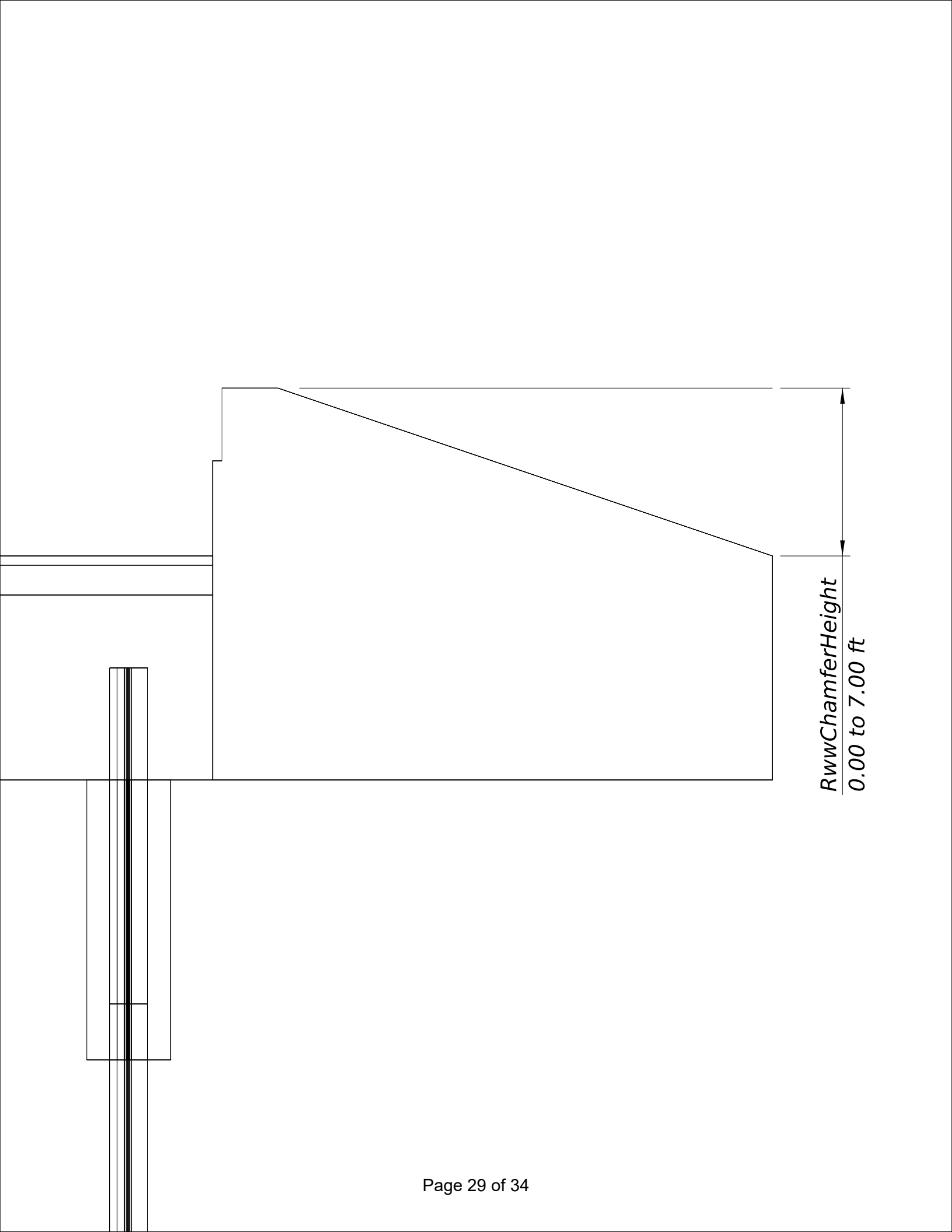
PileQty
2 to 20

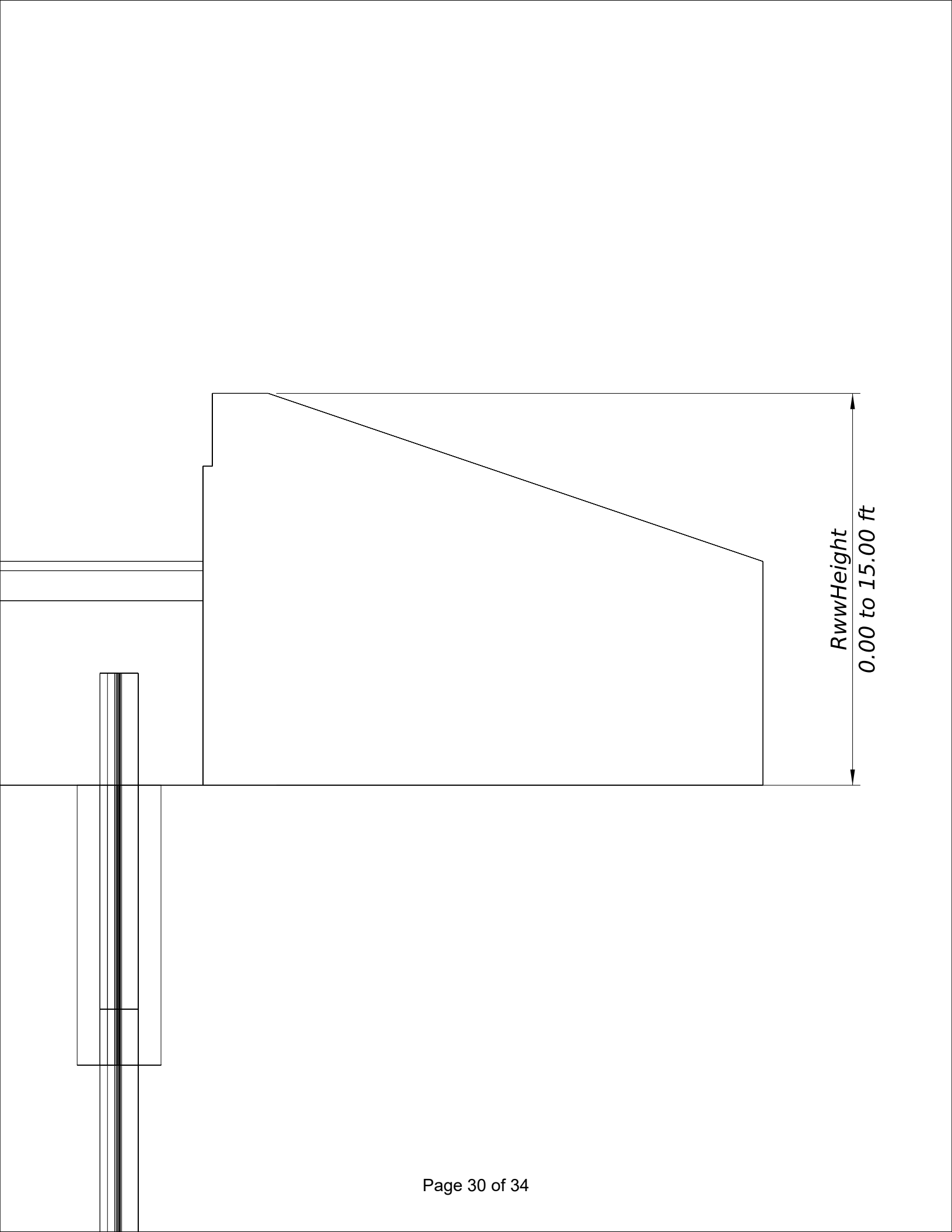
PileType (None, HP-With CE, HP-Without CE,
MS-With CE, MS-Without CE, or PC)

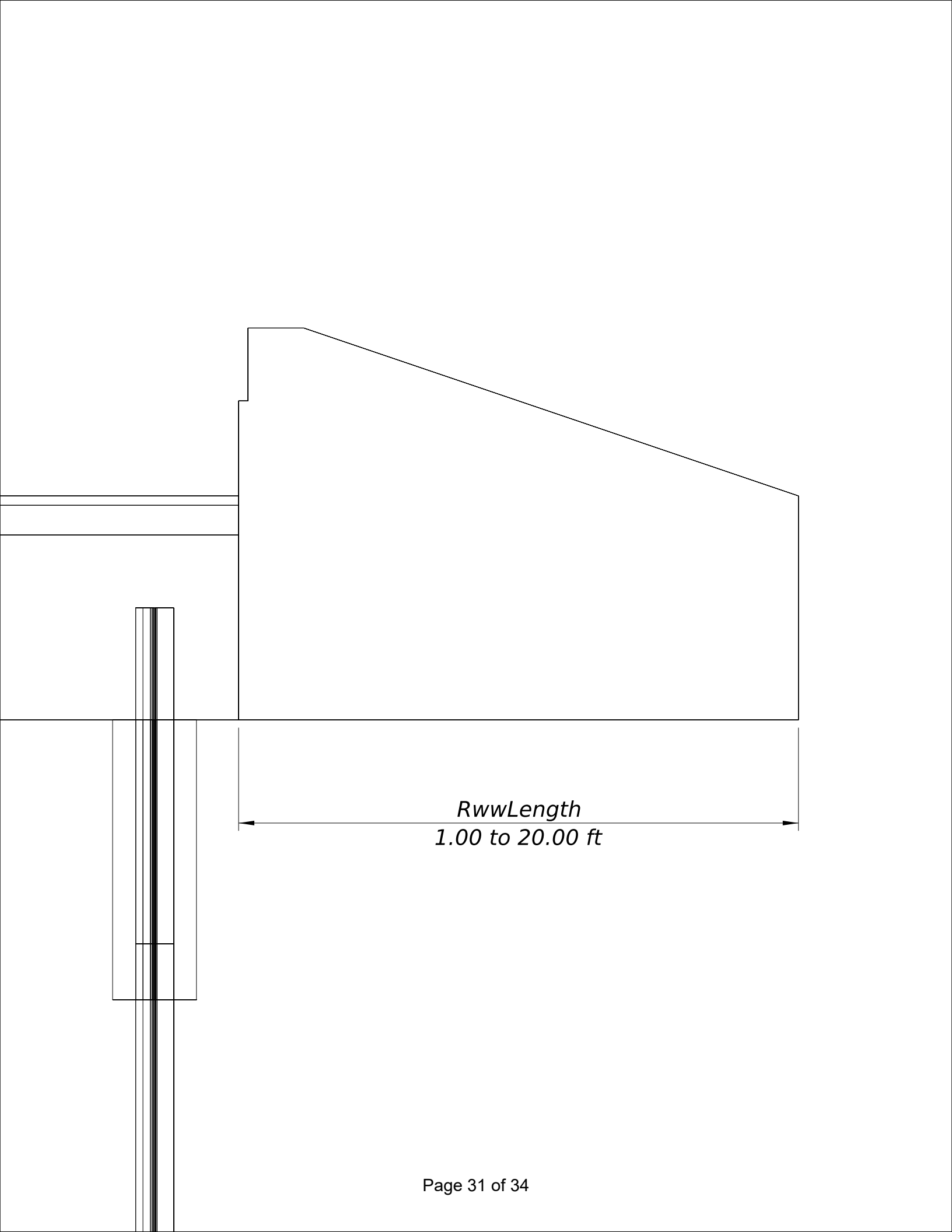


Value must be keyed in manually.



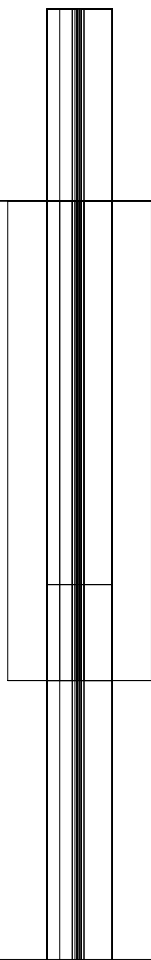


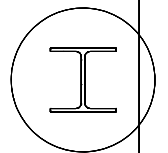
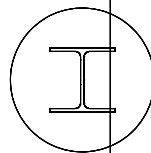
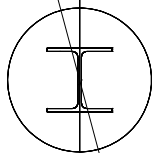
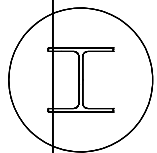
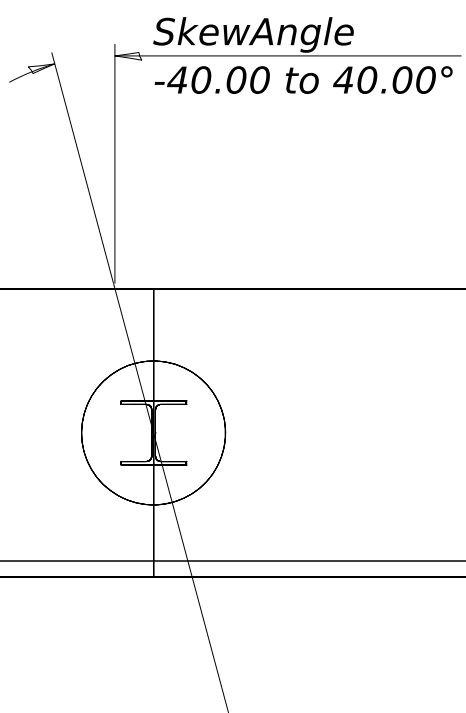




RwwLength
1.00 to 20.00 ft

$R_{ww} \text{NotchThick}$
0.00 to 3.00 ft





WwThickness
1.00 to 5.00 ft

