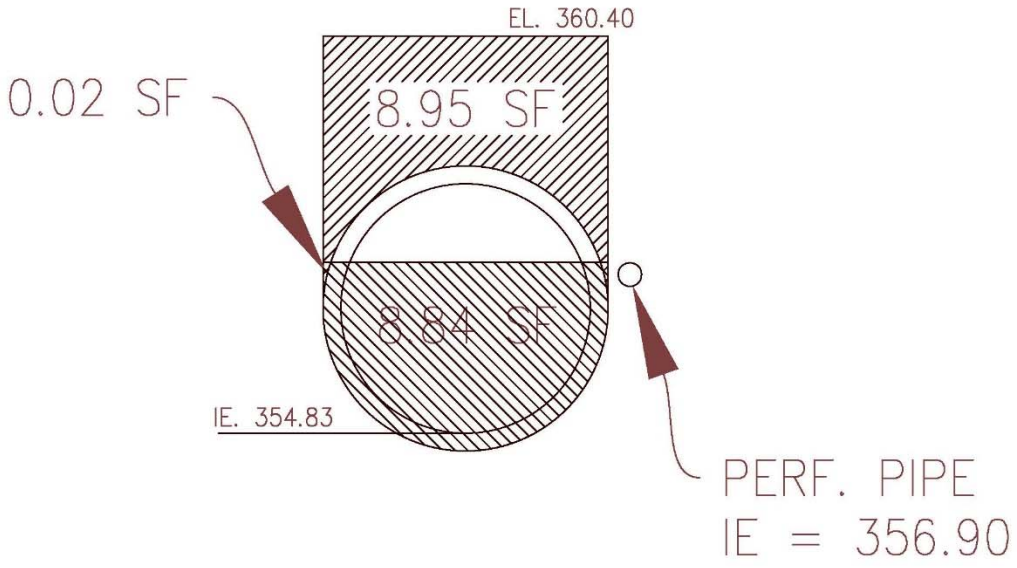
Detention Pipe Buoyancy Analysis 8-20-2023



Downward force

Soil above: (8.95 + 0.02 + 0.02) sf x 120 lb/cf = 1,078 lb/lf

Pipe weight per ADS = 26.4 lb/ft

Total = 1,105 lb/lf

Buoyancy force

Volume below saturated zone: 8.84 + 0.02 + 0.02 = 8.88 sf/lf

Upward force = 8.88 x 62.4 = 554 lb/lf

Safety Factor = 1,105/554 = 2.0