Ædifica case engineering

Ædifica Case Engineering
796 Merus Court
St. Louis, MO 63026

T 636 349 1600
F 636 349 1730
aedificacase.com

Client Missouri Rusher SC
Project Retaining Wall
Made by AEM Checked by

Page ___ of ___
Date
Preliminary ☐
Final ☐

Catch Net Post Anchorage

4" schedule 40 pipe extends 16'-0" above grade

Wind Loads

$F = q_h G C_f A_s$

$q_h = 0.00256(1.0)(1.0)(1.0)(90)^2(1.0) = 20.7 psf$

6.5.8 $G = 0.85$

6-21 $C_f \Rightarrow \frac{h}{d} = \frac{16 \times 12}{4.5} = 42.7 > 25$

$\frac{4.5}{12}\sqrt{20.7} = 10.24 > 2.5 \Rightarrow C_f = 1.0$

$F = (20.7 psf)(0.85)(1.0)(\frac{4.5}{12})(16) = 106 lbs$

$M = (106 lbs)(\frac{16}{2}) = 845 lb\text{-}ft$

Using 4'-0" x 4'-0" Footing

for full compression $e < \frac{B}{6} = \frac{4}{6} = 0.67$

$e = \frac{M}{P} \Rightarrow P_{req'd} = \frac{845}{0.67} = 1261 lbs$

$4' \times 4' \times 10' Ft_3 = 13.3 ct$

$\gamma_c = 150 pcf$

Wt of Conc $= 13.3 \times 150 = 1992 lbs > 1261 lbs$ ✓

$e = \frac{845}{1992} = 0.42$

$q_{max} = \frac{1992}{(4 \times 4)}\left(1 + \frac{6(0.42)}{4}\right) = 203 psf$ ✓