Biazar, Shahab

From: Biazar, Shahab
Sent: Thursday, December 05, 2013 11:29 AM
To: 'Lawerance D. Read (lread@readengineering.com)'
Cc: Cherne, Curtis; Wolfe, Bryan K.; 'jab-engineering@hotmail.com'; 'tatefishburn@msn.com'
Subject: HME Specialists Grading and Drainage Plan (A12/D008C)
Attachments: f_056_floodproofing_nonres_5nov12.pdf

Hi,

Based upon the information provided in your submittal received 11-25-13, the above referenced plan cannot be approved for Building Permit until the following comments are addressed:

1. Please provide more detail and dimension on section C-C. Provide documentations that the slopes beyond the sidewalk within the right-of-way meet the roadside design guidelines.
2. Portion of the proposed retaining wall at the northeast corner of the project is extended into the right-of-way. This portion of the wall should be relocated to the east and outside the right-of-way.
3. Proposed sidewalks/retaining wall along Golf Course Road should be shifted west outside the right-of-way. The parking spaces can be changed to compact parking spaces if needed. A Site Plan Administrative Amendment will be required prior to Certification of Occupancy.
4. Floodproofing Certification for the retaining wall is required by the design engineer. A copy of the certification form is attached. http://www.fema.gov/media-library/assets/documents/2748?id=1600

If you have any questions, you can contact me at 924-3695.

Thanks and have a nice day

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RESULTANT LATERAL FORCE / FREESTANDING WATER

$F_h = \frac{1}{2} w H^2$ F_h - LATERAL FORCE #/lf

w - 62.4 #/cf

H - Height freestanding WATER - 5'

$F_h = \frac{1}{2}(62.4)5^2$

F_h = 780 #/lf

LATERAL FORCE DUE TO HYDROSTATIC PRESSURE FROM SATURATED SOIL

$F_{SAT} = \frac{1}{2} S D^2 + F_h$

S - EQUIV HEIGHT OF SATURATED SOIL → USE 100 #/ft

D - DEPTH → 4.6'

F - LATERAL FORCE FREESTANDING WATER

$F_{SAT} = \frac{1}{2}(100)(4.6)^2 + 780$ #/lf

F_{SAT} = 1838 #/lf

HYDRODYNAMIC FORCE

$F_d = C_d m \frac{1}{2}(v)^2 A$

C_d - drag coefficient → .025

m - MASS DENSITY OF WATER 1.94 slugs/cf

V - VELOCITY - 2 ft/sec

A - AREA OF WALL AFFECTED → 1 ft
x 5' HIGH

$F_d = (0.025)(1.94)\ 1/2\ (2)^2(5)$

$F_d = 0.485$ #/ft wall

IMPACT FORCES

$$F_i = \frac{WV}{gt}$$

W - object weight → 500 #

v - velocity ft/sec → 2 ft/sec

g - accel gravity → 32.2 ft/sec²

t - duration seconds → 1 sec

$$F_i = \frac{500 * 2}{32.2 * 1} = 31\ \#/lf$$