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CONSULTING *DESIGN* *STUDIES* *EXPERT WITNESS*

554 Old Spanish Trail
Slidell, LA 70458

P.O. Box 2830
Slidell, LA 70459

985-649-5832
FAX 985-641-5950

July 22, 2011

To: Hunter Charbonnet
Casey Civil, LLC
1080 Old Spanish Trail, Ste.8
Slidell, LA 70458

REF: PNK Casino, Anchor Bolt Capacity Calculations

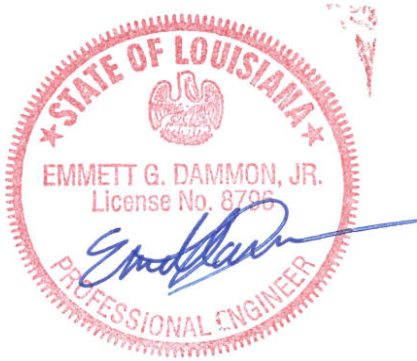
Dear Mr. Charbonnet,

The current reaction reports for this project provide the following data:
From Design Report SBS10.0 sp.2 88097 received 7/20/11:
Maximum vertical reaction on the sidewall A.B. = 11.76 kips
Maximum horizontal reaction on sidewall A.B. = 5.89 kips
From Star Building Systems reaction report received 7/22/11:
Maximum vertical reaction on endwall A.B. = 11.2 kips
Maximum horizontal reaction on endwall A.B. = 2.5 kips

Per the attached calculations, the proposed A.B. system **is adequate**.

Sincerely,

Emmett G. Dammon, P.E.
Dammon Engineering



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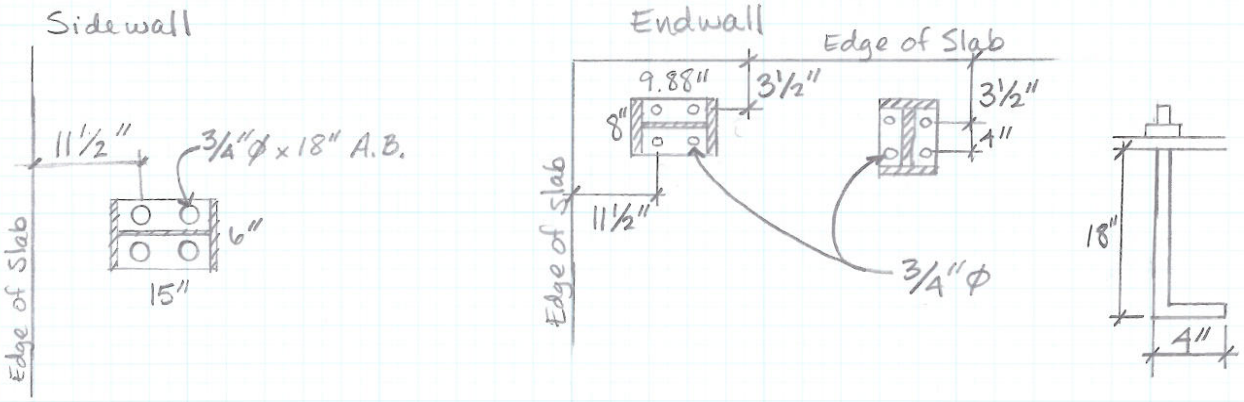
Anchor bolt capacity
Per ACI 318-08 App. D

Casey Civil - Pinnacle Casino
Baton Rouge, LA

Materials: Anchor bolts - ASTM F1554 gd. 36 $F_{nv} = 36$ ksi $F_{ut} = 58$ ksi
Concrete - 5000 psi, Norm. wt.

Loads: - Per Design Report SBS 10.0 sp2 88097 provided by Casey Civil
Sidewall:
max vert. = 11.76 k max horz. = 5.89 k
- Per Star Building System reactions report
Endwall:
max vert = 11.2k max horz. = 2.5 k

Geometry:



Capacity:

D.5.1 Steel Str. of A.B. in tension

$N_{sa} = nA_{se,N}f_{uta} = 4(0.44)(58) = 63.6$ k 63.6 > 11.76 OK

D.5.2 Concrete breakout strength of A.B. in tension

$$N_{cbg} = \frac{A_{NC}}{A_{NCO}} \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b$$

$N_b = 16\lambda\sqrt{f'_c}\, h_{ef}^{5/3} = 139.8$k

$A_{NCO} = 9h_{ef}^2 = 9(18)^2 = 2916$

$A_{NC} = 2403$ SW, 1836 EW

$\psi_{ec,N} = 1$

$\psi_{ed,N} = 0.83$ SW [D-11]
$= 0.74$ EW

$\psi_{c,N} = 1.25$

$\psi_{cp,N} = 0.16$ [D-13]

$N_{cbg} = 19.1$ k SW > 11.76
$= 13.0$ K EW > 11.2 OK

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D.5.3 Pullout Strength of Anchor in tension

$N_{pn} = \psi_{c,p} N_p = 13.5\,k$

$N_p = 0.9 f'_c e_h d_a = 0.9(5000)(4'')(3/4'') = 13.5\,k$ (single anchor) $N_{pn(single)} > 11.76$ OK

D.5.4 Conc. side-face blowout str. of a.b. in tension

$N_{sb} = (160 c_{a1}\sqrt{A_{brg}})\lambda\sqrt{f'_c} = (160(11.875'')\sqrt{(3/4 \times 4)})(1)\sqrt{5000} = 232.7\,k$ SW

$= 75.9\,k$ EW $\}$ >11.76 ok

D.6.1 Steel Str. of anchor in shear (D.6.1.2(b))

$V_{sa} = n\,0.6\,A_{se,v} f_{uta} = 4(0.6)(0.44)(125000) = 132K > 5.89\,k$ OK

D.6.2 Concrete str. of anchor in shear [Assume Case #2, total shear critical on rear anchor & its proj. area]

$V_{cbg} = \frac{A_{vc}}{A_{vco}} \psi_{ec,v} \psi_{ed,v} \psi_{c,v} \psi_{h,v} V_b$ [D-22]

$V_b = \left[7\left(\frac{l_e}{d_a}\right)^{0.2}\sqrt{d_a}\right]\lambda\sqrt{f'_c}\,(c_{a1})^{1.5}$

$= \left[7\left(\frac{4}{3/4}\right)^{0.2}\sqrt{3/4}\right](1)\sqrt{5000}\,(7.5'')^{1.5}$

$= 12305\,lb$ EW, $36560\,lb$ SW

$\psi_{ec,v} = 1$ $\psi_{ed,v} = 1$ $\psi_{c,v} = 1$ $\psi_{h,v} = 1$ $h_a = 13.25$

$A_{vc} = 2(1.5 c_{a1}) h_a = 298.13\,in^2$ EW, 576.4 SW

$A_{vco} = 4.5(c_{a1})^2 = 4.5(7.5)^2 = 253.13\,in^2$ EW, $946.1\,in^2$ SW

$V_{cbg} = \frac{298.13}{253.13}(V_b) = 14492\,lb$ EW, $43K$ SW

$\phi V_{cbg} = 10.1\,K$ EW $> 2.5K$ OK

$30.1\,K$ SW $> 5.89K$ OK

D.6.3 Concrete pryout strength of anchor in shear

$V_{cpg} = K_{cp} N_{cbg}$ where $K_{cp} = 2.0$ for $h_{ef} > 2.5''$

$= 2(19.1K)$ SW $= 38.2\,k$ SW $> 5.89\,k$ OK

$= 2(13K)$ EW $= 26\,k$ EW $> 2.5\,k$ OK

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