

RECTANGULAR SPREAD FOOTING - PRELIMINARY

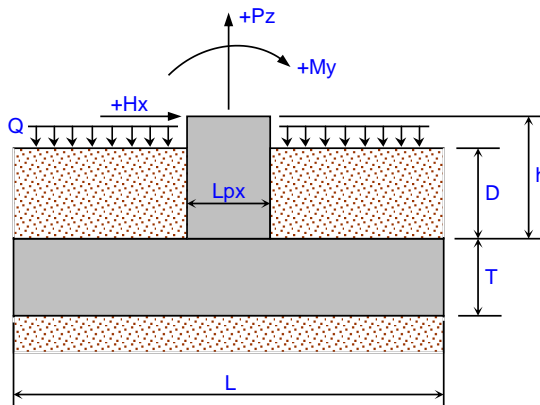
**For Assumed Rigid Footing with from 1 To 8 Piers
Subjected to Uniaxial or Biaxial Eccentricity**

Job Name:		Subject:	
Job Number:		Originator:	Checker:

Input Data:

Footing Data:

Footing Length, L = 9,000 ft.
 Footing Width, B = 7,250 ft.
 Footing Thickness, T = 1,300 ft.
 Concrete Unit Wt., γ_c = 0,150 kcf
 Soil Depth, D = 2,500 ft.
 Soil Unit Wt., γ_s = 0,110 kcf
 Pass. Press. Coef., Kp = 2,050
 Coef. of Base Friction, μ = 0,280
 Uniform Surcharge, Q = 0,000 ksf

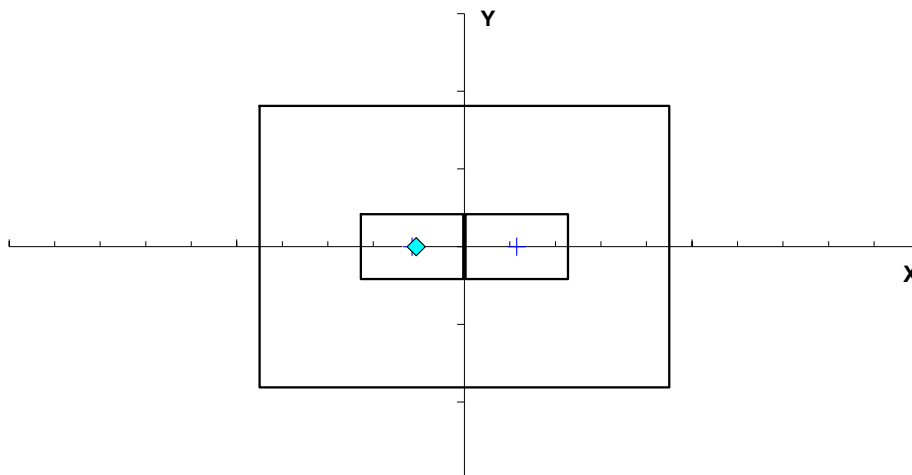


Pier/Loding Data:

Number of Piers = 2

Nomenclature

	Pier #1	Pier #2						
Xp (ft.) =	-1,150	1,150						
Yp (ft.) =	0,000	0,000						
Lpx (ft.) =	2,250	2,250						
Lpy (ft.) =	1,670	1,670						
h (ft.) =	2,500	2,500						
Pz (k) =	-88,50	-50,00						
Hx (k) =	-20,70	-15,00						
Hy (k) =	0,00	0,00						
Mx (ft-k) =	0,00	0,00						
My (ft-k) =	0,00	0,00						



FOOTING PLAN

(continued)

Results:

Total Resultant Load and Eccentricities:

$\Sigma P_z =$	-169,92	kips
$e_x =$	-1,06	ft. ($\leq L/6$)
$e_y =$	0,00	

Overturning Check:

$\Sigma M_{rx} =$	N.A.	ft-kips
$\Sigma M_{oy} =$	N.A.	ft-kips
$FS(ot)x =$	N.A.	
$\Sigma M_{ry} =$	720,36	ft-kips
$\Sigma M_{ox} =$	-135,66	ft-kips
$FS(ot)y =$	5,310	(≥ 1.5)

Sliding Check:

Pass(x) =	6,69	kips
Frict(x) =	47,58	kips
$FS(slid)x =$	1,520	(≥ 1.5)
Passive(y) =	8,31	kips
Frict(y) =	47,58	kips
$FS(slid)y =$	N.A.	

Uplift Check:

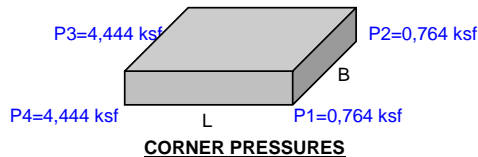
$\Sigma P_z(\text{down}) =$	-169,92	kips
$\Sigma P_z(\text{uplift}) =$	0,00	kips
$FS(\text{uplift}) =$	N.A.	

Bearing Length and % Bearing Area:

Dist. x =	N.A.	ft.
Dist. y =	N.A.	ft.
Brg. Lx =	9,000	ft.
Brg. Ly =	7,250	ft.
%Brg. Area =	100,00	%
Biaxial Case =	N.A.	

Gross Soil Bearing Corner Pressures:

P1 =	0,764	ksf
P2 =	0,764	ksf
P3 =	4,444	ksf
P4 =	4,444	ksf



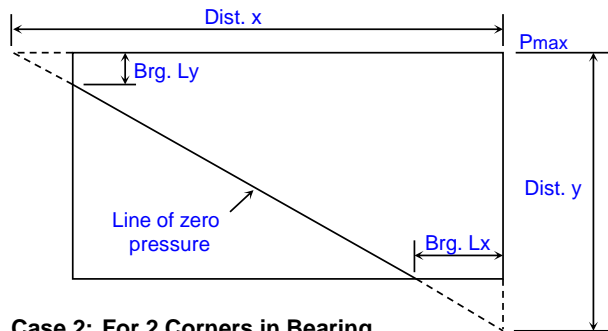
Maximum Net Soil Pressure:

$$P_{\max}(\text{net}) = P_{\max}(\text{gross}) - (D+T) \cdot \gamma_s$$

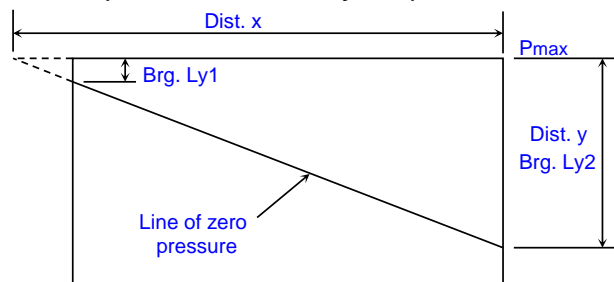
$$P_{\max}(\text{net}) = 4,026 \text{ ksf}$$

Nomenclature for Biaxial Eccentricity:

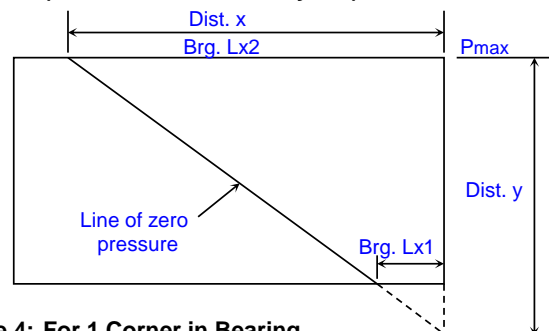
Case 1: For 3 Corners in Bearing (Dist. x > L and Dist. y > B)



Case 2: For 2 Corners in Bearing (Dist. x > L and Dist. y ≤ B)



Case 3: For 2 Corners in Bearing (Dist. x ≤ L and Dist. y > B)



Case 4: For 1 Corner in Bearing (Dist. x ≤ L and Dist. y ≤ B)

