Engineering Information Sheet

CROFT STRUCTURAL ENGINEERS
Clock Shop Mews
Rear of 60 Saxon Road
London SE25 5EH
T: 020 8684 4744
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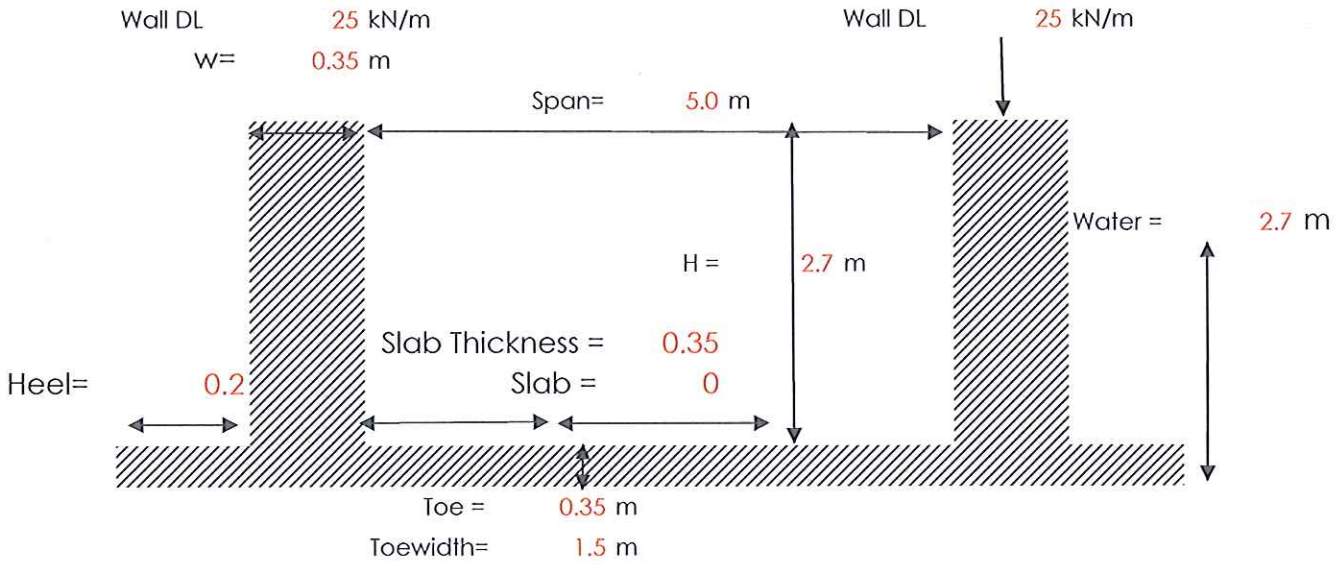
Project: 14f Avenue Road			Section: Basement	Sheet:
Date: 11.2014 By: EJ Checked: CT	Rev	Date	Description: Uplift and Heave check	
Job Number: 141005	Status:			Rev: Rev -

Reference:



Uplift Calc

Total Dead Load =	Slab=	8.75 kN/m			
	Toe and heel =	35.875 kN/m			
	Wall =	47.25			
	Soil=(	4.32 +	5.4) x 2=	19.44	5.4
	Total Dead load =	161.315 kN/m			
Total Uplift Force=		153.9 kN/m	f.o.s.=	1.04818	No Global Uplift

Slab Uplift

Slab =	8.75 kN/m	Uplift =	27
Service Moment =	-57.0313 kNm/m		
Factored Design moment=	-68.2031 kNm/m		
Factored Design shear =	-54.5625 kN/m		

Global Heave

Weight of building =	161.315 kN/m		
Weight of soil removed =	232.2		
% change	31%	place	31% of Slab area as heave protection
Wide of Heave protection =	1.74007 m	place	1.74 m of Slab area as heave protection

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Date 11.14 By Ej Checked CT	Rev Date: Settlement checks		
Job Number: 141005	Status: Settlement		Rev
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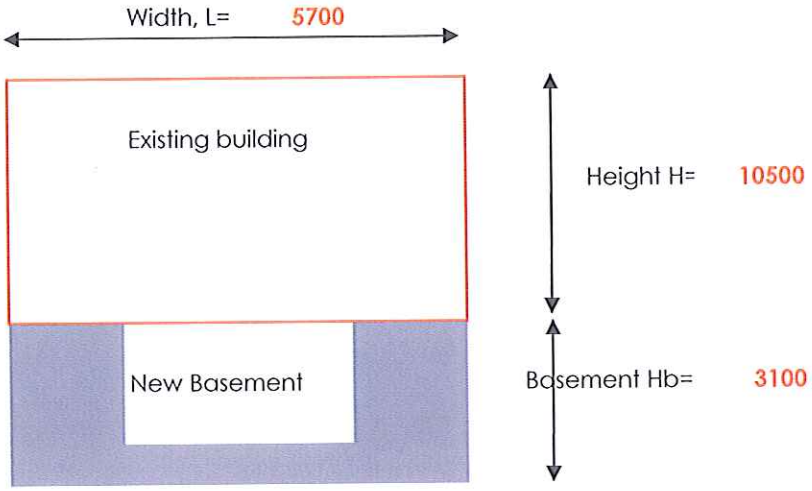


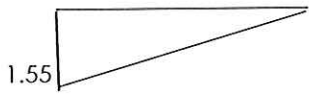
L/H = 0.54286

Horizontal movement Assessment CIRIA C580: Embedded Retaining walls - Guide to Ecomonic Design

Potential Movement Due to wall installation

Horizontal surface movement = 0.05%

DeltaH = 0.05% x 3100 = 1.55 mm



= 0.33333 mm/m

Vertical Surface Movement = 0.05%

Delta V = 0.05% x 3100 = 1.55 mm

Distance behind wall wall to neglibible movement

lh = 3100 x 1.5 = 4650 mm

Potential Movement Due to wall Excavation

Horizontal surface movement = 0.15%

DeltaH = 0.15% x 3100 = 4.65 mm

= 0.375 mm/m

Vertical Surface Movement = 0.10%

Delta V = 0.10% x 3100 = 3.1 mm

Distance behind wall wall to neglibible movement

lh = 3100 x 4 = 12400 mm

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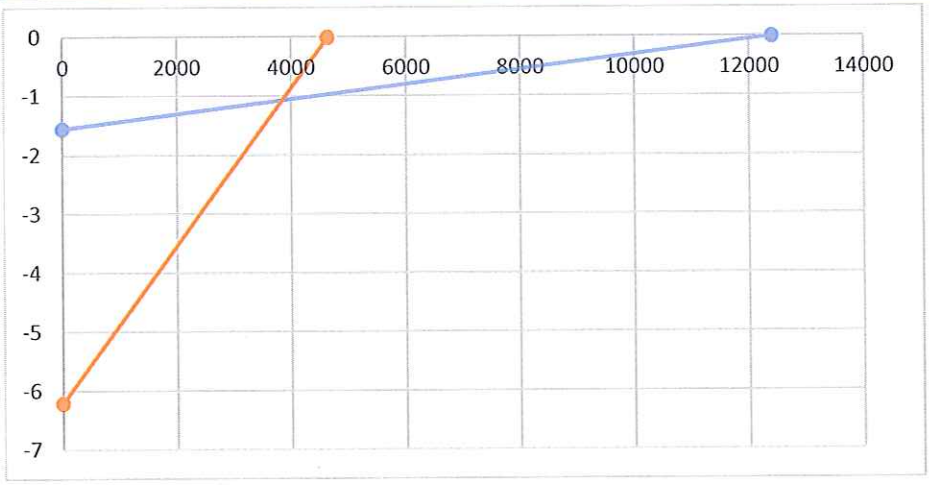
		Excavation movement		Installation movement	
		Distance	delta V	Distance	delta V
Nodes	x	12400	0	4650	0
	y	0	-1.55	0	-6.2



Determine Horizontal Movement

$$\text{delta I} = \frac{6.2 \text{ mm}}{12400 \text{ mm}} = 0.05\%$$

Table 2.4 CIRIA C580

Category of Damage	Normal Degree	Limiting Tensile Strain %		
0	Negligible	0.00%	-	0.05%
1	Very slight	0.05%	-	0.075%
2	Slight	0.075%	-	0.15%
3	Moderate	0.15%	-	0.30%
4 to 5	Severe to Very Server	>		0.30%
5				

Anticipated Damagae May be Categorised as **"Negligible to very Slight Category 0-1"**