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Project:	6 Pandora Road		Section	Sheet	GMA - 1
Date	Jun-16	Rev	Date	Description	
By	PR				
Checked	PH				
Job No	150419		Status		Rev

Ref

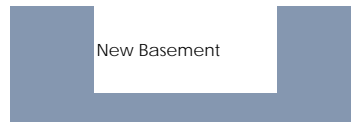## Movement of closest neighbouring property

Neighbouring building

Building width, L = **7000** mm

Distance to furthest point of building from excavation & installation, L_1 = **7000** mm

Height H= **8500** mm

L/H = 0.82

New Basement

Excav'n depth H_b= **3** m

analysis depth, D = 3 m

Note: the height of the neighbouring building varies. Conservatively, the lowest height is used (height to eaves).

Movement Assessment CIRIA C580: Embedded retaining walls - guidance for economic design

Table B

distance from wall in mm (x)	movement due to wall excavation	
	horizontal (δ_h) in mm	vertical (δ_v) in mm
0	-4.5	-1.2
1000	-4.1	-1.9
1500	-3.9	-2.3
2000	-3.8	-2.3
4000	-3.0	-1.8
6000	-2.3	-1.0
8000	-1.5	-0.5
10000	-0.8	0.0
12000	0.0	0.00
14000	0.0	0.0
16000	0.0	0.0
18000	0.0	0.0
20000	0.0	0.0

Potential movement due to excavation of wall

using parameters from Table 2.4 of CIRIA C580

(high stiffness: excavation will be propped during construction)

Horizontal Surface Movement / excavation depth = -0.15%

max δ_h = -0.15% x 3000 = -4.5 mm

Distance behind wall to negligible movement (multiple of excav'n depth) = 4

L_0 = 3000 x 4 = 12000 mm

Vertical Surface Movements

Distance behind wall to negligible movement (multiple of excav'n depth) = 3.5

L_0 = 3000 x 3.5 = 10500 mm

Total differential movement

(from Graph 1, Sheet GMA - 2)

Total Horizontal Movement	δ_h =	3.8	mm
Total Vertical Movement	Δ =	1.4	mm

TOTAL STRAIN (EXCAVATION AND INSTALLATION)

Table 2.5 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 Severe	>		0.30%

Max Anticipated Damage may be categorised as **'Very Slight' ; Category 1**

ϵ_{lim}	=	**0.075%**			
ϵ_h	=	0.054%	$\epsilon_h/\epsilon_{lim}$	=	0.71
Δ/L	=	0.019%	$\Delta/L/\epsilon_{lim}$	=	0.26

Table C

Distance from wall in mm (x)	Total Movement	
	horizontal (δ_h) in mm	vertical (δ_v) in mm
0	-4.5	-1.2
2000	-3.8	-2.3
4000	-3.0	-1.8
6000	-2.3	-1.0
8000	-1.5	-0.5
10000	-0.8	0.0
12000	0.0	0.0
14000	0.0	0.0
16000	0.0	0.0
18000	0.0	0.0
20000	0.0	0.0

values above used for Graph 1, GMA - 2 (separate sheet)

Graph 2: Fig 2.18b from CIRIA C580

L/H = 0.5
L/H = 1
L/H = 1.5
L/H = 2
L/H = 4
building

y-axis: $(-)\ \Delta/L/\varepsilon_{lim}$
x-axis: $\varepsilon_h/\varepsilon_{lim}$