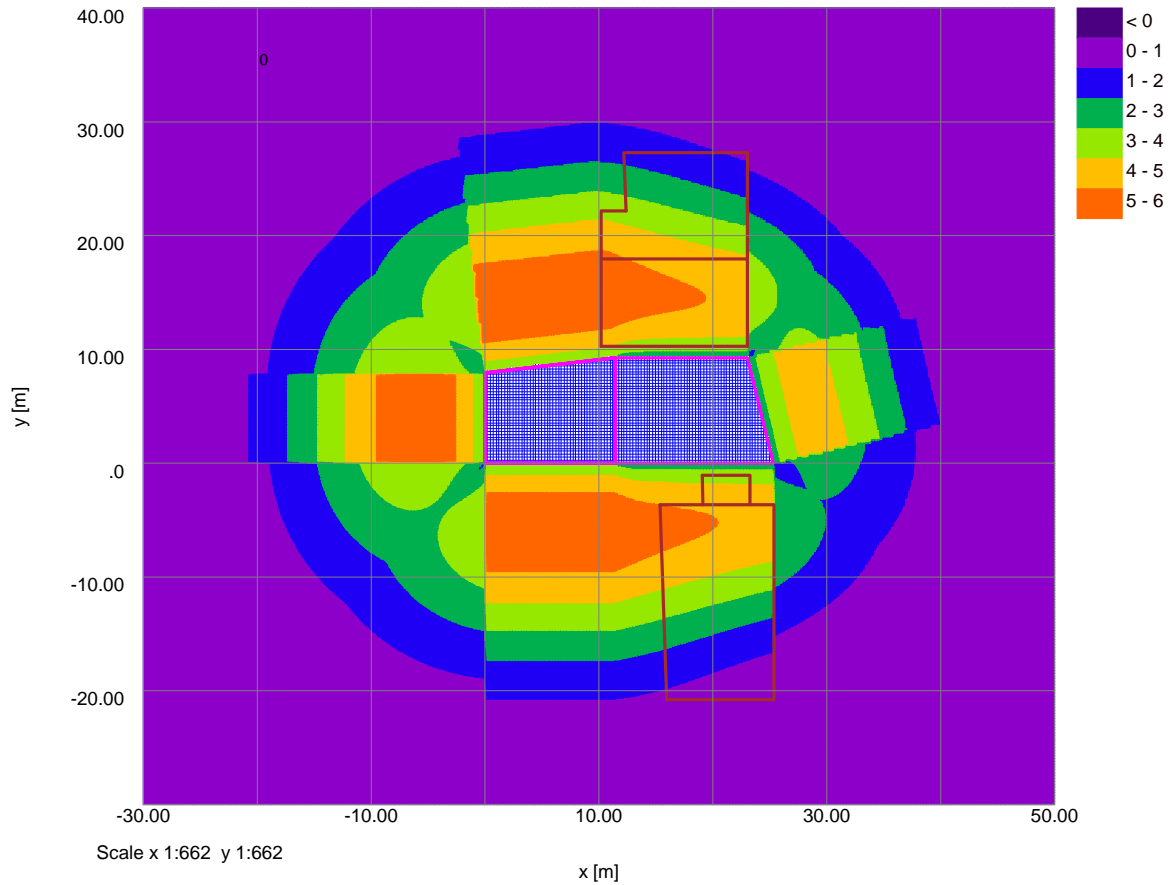


### 24 REDINGTON GARDENS

Ground Movement & Buildgin Damage Assessment  
Excavation in Front of a High Stiffness Secant Pile Wall in Stiff Clay

Job No.	Sheet No.	Rev.
1248		
Drg. Ref.		
Made by JB	Date 09-Nov-2015	Checked

Vertical Settlement Contours: Grid 1 (level 50.000m) (Interval 1mm)

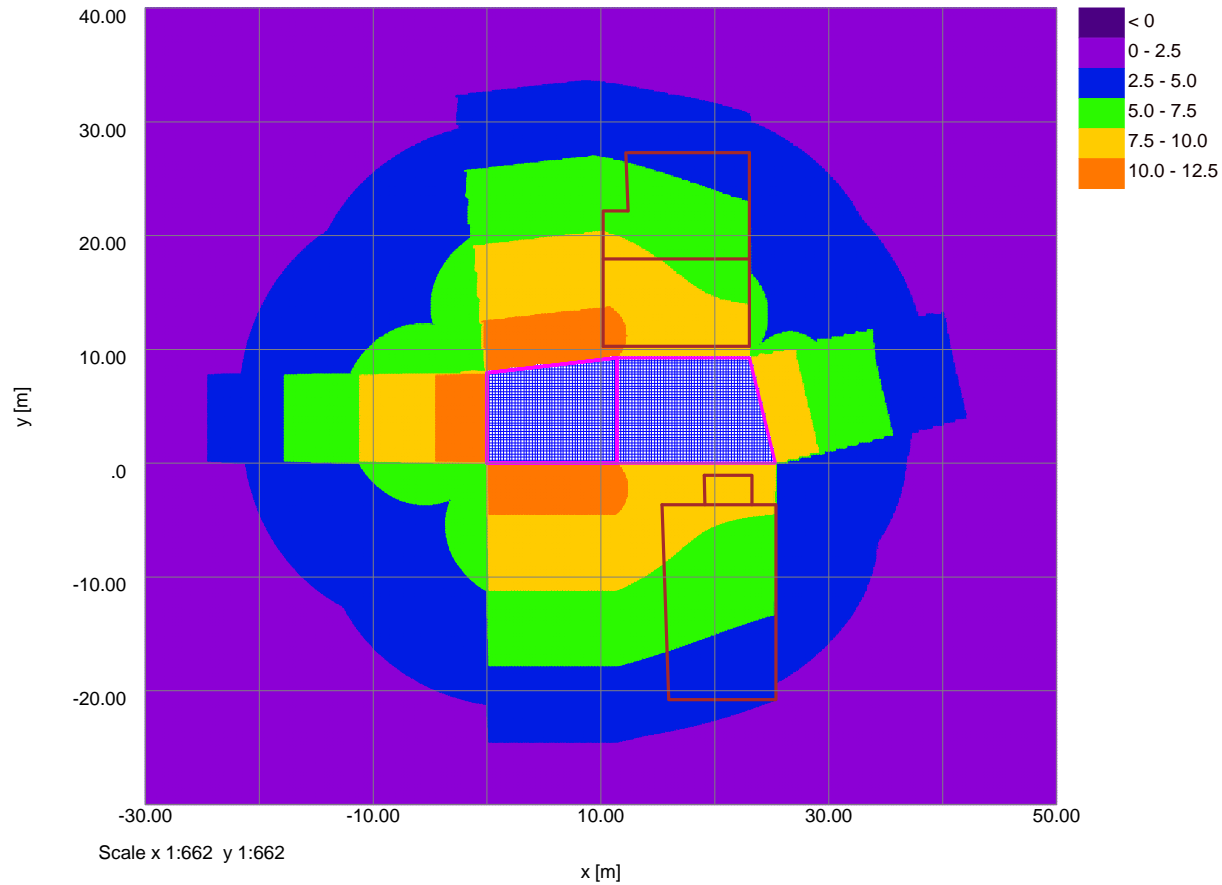


### 24 REDINGTON GARDENS

Ground Movement & Buildgin Damage Assessment  
Excavation in Front of a High Stiffness Secant Pile Wall in Stiff Clay

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Horizontal Displacement Contours: Grid 1 (level 50.000m) Interval 2.5mm





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**24 REDINGTON GARDENS**  
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<b>Job No.</b>	<b>Sheet No.</b>	<b>Rev.</b>
<b>1248</b>		
<b>Dr. Ref.</b>		
<b>Made by JB</b>	<b>Date 09-Nov-2015</b>	<b>Checked</b>

**Problem Type**

Problem Type : Tunnelling and Embedded Wall Excavations

**Displacement Data**

Type	Name	Direction of extrusion	Point/Line/Line for extrusion						No. of intervals across extrusion/line	Extrusion depth [m]	No. of intervals along extrusion	Calculate	Surface type for tunnels
			First point			Second point							
			X [m]	Y [m]	Z(level) [m]	X [m]	Y [m]	Z(level) [m]					
Line No. 7 Wall A		-	25.40000	-3.70000	50.00000	25.40000	-20.80000	50.00000	17	-	-	Yes	Surface
Line No. 7 Wall B		-	15.40000	-3.70000	50.00000	16.00000	-20.80000	50.00000	17	-	-	Yes	Surface
Line No. 7 Wall C		-	15.40000	-3.70000	50.00000	25.40000	-3.70000	50.00000	10	-	-	Yes	Surface
Line No. 7 Wall D		-	16.00000	-20.80000	50.00000	25.40000	-20.80000	50.00000	10	-	-	Yes	Surface
Line No. 7 Wall E		-	19.10000	-1.07500	50.00000	19.20000	-3.70000	50.00000	4	-	-	Yes	Surface
Line No. 7 Wall F		-	19.10000	-1.07500	50.00000	23.30000	-1.10000	50.00000	5	-	-	Yes	Surface
Line No. 7 Wall G		-	23.30000	-1.10000	50.00000	23.30000	-3.70000	50.00000	4	-	-	Yes	Surface
Line No. 25/26 Wall A		-	23.10000	10.30000	50.00000	23.10000	27.30000	50.00000	17	-	-	Yes	Surface
Line No. 25/26 Wall B		-	10.20000	10.30000	50.00000	10.20000	22.20000	50.00000	12	-	-	Yes	Surface
Line No. 25/26 Wall C		-	12.40000	22.20000	50.00000	12.20000	27.30000	50.00000	5	-	-	Yes	Surface
Line No. 25/26 Wall D		-	10.20000	10.30000	50.00000	23.10000	10.30000	50.00000	13	-	-	Yes	Surface
Line No. 25/26 Wall E		-	10.20000	18.00000	50.00000	23.10000	18.00000	50.00000	13	-	-	Yes	Surface
Line No. 25/26 Wall F		-	10.20000	22.20000	50.00000	12.40000	22.20000	50.00000	3	-	-	Yes	Surface
Line No. 25/26 Wall G		-	12.40000	27.30000	50.00000	23.10000	27.30000	50.00000	11	-	-	Yes	Surface

**Vertical Ground Movement Curves**

**Curve Name:** No vertical ground movement  
**Coordinates:** [Distance from wall / wall depth or max. excavation depth (x), Depth / wall depth or max. excavation depth (y), Settlement / wall depth or max. excavation depth (z) (%)]  
 [0.000,0.000,0.000][1.000,0.000,0.000][0.000,1.000,0.000][1.000,1.000,0.000]  
**Curve Fitting Method:** Polynomial  
**x Order:** 1  
**y Order:** 0  
**Polynomial:** z = 0.0x + 0.0  
**Coeff. of Determination:** -2147483648.E+2147483647

**Curve Name:** Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(b))  
**Coordinates:** [Distance from wall / wall depth or max. excavation depth (x), Depth / wall depth or max. excavation depth (y), Settlement / wall depth or max. excavation depth (z) (%)]  
 [0.000,0.000,0.039][0.100,0.000,0.049][0.200,0.000,0.056][0.300,0.000,0.062]  
 [0.400,0.000,0.067][0.500,0.000,0.070][0.600,0.000,0.072][0.700,0.000,0.073]  
 [0.800,0.000,0.073][0.900,0.000,0.072][1.000,0.000,0.070][1.100,0.000,0.068]  
 [1.200,0.000,0.065][1.300,0.000,0.061][1.400,0.000,0.058][1.500,0.000,0.054]  
 [1.600,0.000,0.050][1.700,0.000,0.046][1.800,0.000,0.042][1.900,0.000,0.038]  
 [2.000,0.000,0.034][2.100,0.000,0.030][2.200,0.000,0.027][2.300,0.000,0.023]  
 [2.400,0.000,0.020][2.500,0.000,0.017][2.600,0.000,0.014][2.700,0.000,0.012]  
 [2.800,0.000,0.010][2.900,0.000,0.008][3.000,0.000,0.007][3.100,0.000,0.005]  
 [3.200,0.000,0.004][3.300,0.000,0.004][3.400,0.000,0.003][3.500,0.000,0.002]  
 [3.600,0.000,0.002][3.700,0.000,0.002][3.800,0.000,0.001][3.900,0.000,0.001]  
 [4.000,0.000,0.000]  
**Curve Fitting Method:** Polynomial  
**x Order:** 4  
**y Order:** 0  
**Polynomial:** z = -2.6455E-3x<sup>4</sup> + 2.8495E-2x<sup>3</sup> - 1.0051E-1x<sup>2</sup> + 1.0569E-1x + 3.8990E-2  
**Coeff. of Determination:** 9.9991E-1

**Horizontal Ground Movement Curves**

**Curve Name:** No horizontal ground movement  
**Coordinates:** [Distance from wall / wall depth or max. excavation depth (x), Depth / wall depth or max. excavation depth (y), Horizontal movement / wall depth or max. excavation depth (z) (%)]  
 [0.000,0.000,0.000][1.000,0.000,0.000][0.000,1.000,0.000][1.000,1.000,0.000]  
**Curve Fitting Method:** Polynomial  
**x Order:** 0  
**y Order:** 0  
**Polynomial:** z = 0.0  
**Coeff. of Determination:** -2147483648.E+2147483647

**Curve Name:** Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(a))  
**Coordinates:** [Distance from wall / wall depth or max. excavation depth (x), Depth / wall depth or max. excavation depth (y), Horizontal movement / wall depth or max. excavation depth (z) (%)]  
 [0.000,0.000,0.150][4.000,0.000,0.000]  
**Curve Fitting Method:** Polynomial  
**x Order:** 1  
**y Order:** 0  
**Polynomial:** z = -3.75E-2x + 1.50E-1  
**Coeff. of Determination:** 1.00

**Polygonal Excavations**

**Excavation Name:** GENERAL - FL=44.0  
**Surface level [m]:** 50.000  
**Contribution:** Positive  
**Enabled:** Yes

Corner	x [m]	y [m]	Base Level [m]	Stiffened	Previous Side d [m]	pl [%]	p2* [%]	Next Side d [m]	pl [%]	p2* [%]
1	0.0	0.0	44.000	Yes	0.0	67.000	25.000	0.0	67.000	25.000
2	0.0	8.0000	44.000	Yes	0.0	67.000	25.000	0.0	67.000	25.000
3	11.400	9.3000	44.000	No	-	-	-	-	-	-
4	23.100	9.3000	44.000	Yes	0.0	67.000	25.000	0.0	67.000	25.000
5	25.300	0.0	44.000	Yes	0.0	67.000	25.000	0.0	67.000	25.000

Side	Corner 1		Corner 2		Ground Movement Curve	
	x [m]	y [m]	x [m]	y [m]	Vertical	Horizontal
1	0.0	0.0	0.0	0.0	8.0000 Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(b))	Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(a))
2	0.0	8.0000	11.400	9.3000	Excavation in front of high	Excavation in front of high



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Made by JB	Date 09-Nov-2015	Checked

Side	Corner 1		Corner 2		Ground Movement Curve	
	x [m]	y [m]	x [m]	y [m]	Vertical	Horizontal
3	11.400	9.3000	23.100	9.3000	stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(b)) Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(b))	stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(a)) Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(a))
4	23.100	9.3000	25.300	0.0	Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(b))	Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(a))
5	25.300	0.0	0.0	0.0	Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(b))	Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(a))

Excavation Name: SWIMMING POOL - FL=42.2  
 Surface level [m]: 50.000  
 Contribution: Positive  
 Enabled: Yes

Corner	x [m]	y [m]	Base Level [m]	Stiffened	Previous Side	Next Side				
					d [m]	pl [%]	p2* [%]	d [m]	pl [%]	p2* [%]
1	0.0	0.0	42.200	Yes	0.0	67.000	25.000	0.0	67.000	25.000
2	0.0	8.0000	42.200	Yes	0.0	67.000	25.000	0.0	67.000	25.000
3	11.400	9.3000	42.200	No	-	-	-	-	-	-
4	11.400	0.0	42.200	No	-	-	-	-	-	-

Side	Corner 1		Corner 2		Ground Movement Curve	
	x [m]	y [m]	x [m]	y [m]	Vertical	Horizontal
1	0.0	0.0	0.0	8.0000	Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(b))	Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(a))
2	0.0	8.0000	11.400	9.3000	Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(b))	Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(a))
3	11.400	9.3000	11.400	0.0	No vertical ground movement	No horizontal ground movement
4	11.400	0.0	0.0	0.0	Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(b))	Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(a))

Excavation Name: NEG SWIMMING POOL  
 Surface level [m]: 50.000  
 Contribution: Negative  
 Enabled: Yes

Corner	x [m]	y [m]	Base Level [m]	Stiffened	Previous Side	Next Side				
					d [m]	pl [%]	p2* [%]	d [m]	pl [%]	p2* [%]
1	0.0	0.0	44.000	Yes	0.0	67.000	25.000	0.0	67.000	25.000
2	0.0	8.0000	44.000	Yes	0.0	67.000	25.000	0.0	67.000	25.000
3	11.400	9.3000	44.000	No	-	-	-	-	-	-
4	11.400	0.0	44.000	No	-	-	-	-	-	-

Side	Corner 1		Corner 2		Ground Movement Curve	
	x [m]	y [m]	x [m]	y [m]	Vertical	Horizontal
1	0.0	0.0	0.0	8.0000	Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(b))	Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(a))
2	0.0	8.0000	11.400	9.3000	Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(b))	Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(a))
3	11.400	9.3000	11.400	0.0	No vertical ground movement	No horizontal ground movement
4	11.400	0.0	0.0	0.0	Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(b))	Excavation in front of high stiffness wall in stiff clay (CIRIA 580 Fig. 2.11(a))

### Damage Category Strains

Name	0 (Negligible)	1 (Very Slight)	2 (Slight)	3 (Moderate)
	to	to	to	to
	1 (Very Slight)	2 (Slight)	3 (Moderate)	4 (Severe)
Burland Strain Limits	0.0	500.00E-6	750.00E-6	0.0015000

### Specific Structures - Geometry

Structure Name	Sub-Structure Name	Displacement Line	Start Distance Along Line [m]	End Distance Along Line [m]	Vertical Offsets from Line for Movement Calculations [m]	Vertical Displacement Limit [mm]	Damage Category Strains	Poisson's Ratio	E/G
No. 7 Wall A	No. 7 Wall A	No. 7 Wall A	0.00000	17.10000	0.0	0.00100	Burland Strain Limits	0.20000	2.6000
No. 7 Wall B	No. 7 Wall B	No. 7 Wall B	0.00000	17.10000	0.0	0.00100	Burland Strain Limits	0.20000	2.6000
No. 7 Wall C	No. 7 Wall C	No. 7 Wall C	0.00000	9.90000	0.0	0.00100	Burland Strain Limits	0.20000	2.6000
No. 7 Wall D	No. 7 Wall D	No. 7 Wall D	0.00000	9.30000	0.0	0.00100	Burland Strain Limits	0.20000	2.6000
No. 7 Wall E	No. 7 Wall E	No. 7 Wall E	0.00000	2.60000	0.0	0.00100	Burland Strain Limits	0.20000	2.6000
No. 7 Wall F	No. 7 Wall F	No. 7 Wall F	0.00000	4.20000	0.0	0.00100	Burland Strain Limits	0.20000	2.6000
No. 7 Wall G	No. 7 Wall G	No. 7 Wall G	0.00000	2.60000	0.0	0.00100	Burland Strain Limits	0.20000	2.6000
No. 25/26 Wall A	No. 25/26 Wall A	No. 25/26 Wall A	0.00000	17.00000	0.0	0.00100	Burland Strain Limits	0.20000	2.6000
No. 25/26 Wall B	No. 25/26 Wall B	No. 25/26 Wall B	0.00000	11.80000	0.0	0.00100	Burland Strain Limits	0.20000	2.6000
No. 25/26 Wall C	No. 25/26 Wall C	No. 25/26 Wall C	0.00000	5.10000	0.0	0.00100	Burland Strain Limits	0.20000	2.6000
No. 25/26 Wall D	No. 25/26 Wall D	No. 25/26 Wall D	0.00000	12.90000	0.0	0.00100	Burland Strain Limits	0.20000	2.6000
No. 25/26 Wall E	No. 25/26 Wall E	No. 25/26 Wall E	0.00000	12.90000	0.0	0.00100	Burland Strain Limits	0.20000	2.6000
No. 25/26 Wall F	No. 25/26 Wall F	No. 25/26 Wall F	0.00000	2.20000	0.0	0.00100	Burland Strain Limits	0.20000	2.6000
No. 25/26 Wall G	No. 25/26 Wall G	No. 25/26 Wall G	0.00000	10.70000	0.0	0.00100	Burland Strain Limits	0.20000	2.6000

### Specific Structures - Bending Parameters

Structure Name	Sub-Structure Name	Height [m]	Default Properties	Hogging			Sagging		
				2nd Moment of Area (per unit width) [m <sup>3</sup> ]	Distance of Bending from N.A. [m]	2nd Moment of Area of Beam in Tension [m <sup>3</sup> ]	Distance of Bending from N.A. [m]	2nd Moment of Area of Beam in Tension [m <sup>3</sup> ]	Distance of Bending from N.A. [m]
No. 7 Wall A	No. 7 Wall A	7.0000	Yes	114.33	7.0000	7.0000	28.583	3.5000	3.5000
No. 7 Wall B	No. 7 Wall B	7.0000	Yes	114.33	7.0000	7.0000	28.583	3.5000	3.5000
No. 7 Wall C	No. 7 Wall C	7.0000	Yes	114.33	7.0000	7.0000	28.583	3.5000	3.5000
No. 7 Wall D	No. 7 Wall D	7.0000	Yes	114.33	7.0000	7.0000	28.583	3.5000	3.5000
No. 7 Wall E	No. 7 Wall E	3.0000	Yes	9.0000	3.0000	3.0000	2.2500	1.5000	1.5000
No. 7 Wall F	No. 7 Wall F	3.0000	Yes	9.0000	3.0000	3.0000	2.2500	1.5000	1.5000
No. 7 Wall G	No. 7 Wall G	3.0000	Yes	9.0000	3.0000	3.0000	2.2500	1.5000	1.5000
No. 25/26 Wall A	No. 25/26 Wall A	9.0000	Yes	243.00	9.0000	9.0000	60.750	4.5000	4.5000
No. 25/26 Wall B	No. 25/26 Wall B	9.0000	Yes	243.00	9.0000	9.0000	60.750	4.5000	4.5000
No. 25/26 Wall C	No. 25/26 Wall C	9.0000	Yes	243.00	9.0000	9.0000	60.750	4.5000	4.5000







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Job No.	Sheet No.	Rev.
<b>1248</b>		
Drg. Ref.		
Made by <b>JB</b>	Date <b>09-Nov-2015</b>	Checked

Dist.	Coordinates			Displacements	
	x	y	z	Horizontal displacement along the Line	Horizontal displacement perpendicular to Line
[m]	[m]	[m]	[m]	[mm]	[mm]
0.0	15.40000	-3.70000	50.00000	-0.94190	8.4838
1.000	16.40000	-3.70000	50.00000	-0.88024	8.2639
2.000	17.40000	-3.70000	50.00000	-0.80846	8.1111
3.000	18.40000	-3.70000	50.00000	-0.73892	8.0031
4.000	19.40000	-3.70000	50.00000	-0.67583	7.9251
5.000	20.40000	-3.70000	50.00000	-0.62009	7.8674
6.000	21.40000	-3.70000	50.00000	-0.57128	7.8239
7.000	22.40000	-3.70000	50.00000	-0.52863	7.7903
8.000	23.40000	-3.70000	50.00000	-0.49127	7.7640
9.000	24.40000	-3.70000	50.00000	-0.45841	7.7430
10.000	25.40000	-3.70000	50.00000	-0.54590	4.4247

Structure: No. 7 Wall D | Sub-structure: No. 7 Wall D

Dist.	Coordinates			Displacements	
	x	y	z	Horizontal displacement along the Line	Horizontal displacement perpendicular to Line
[m]	[m]	[m]	[m]	[mm]	[mm]
0.0	16.00000	-20.80000	50.00000	-0.50224	3.4710
0.94000	16.94000	-20.80000	50.00000	-0.57975	3.3767
1.88000	17.88000	-20.80000	50.00000	-0.64868	3.2822
2.82000	18.82000	-20.80000	50.00000	-0.70928	3.1883
3.76000	19.76000	-20.80000	50.00000	-0.76193	3.0957
4.70000	20.70000	-20.80000	50.00000	-0.80708	3.0051
5.64000	21.64000	-20.80000	50.00000	-0.84523	2.9169
6.58000	22.58000	-20.80000	50.00000	-0.87694	2.8315
7.52000	23.52000	-20.80000	50.00000	-0.89355	2.7335
8.46000	24.46000	-20.80000	50.00000	-0.85144	2.5560
9.40000	25.40000	-20.80000	50.00000	-0.80241	1.8714

Structure: No. 7 Wall E | Sub-structure: No. 7 Wall E

Dist.	Coordinates			Displacements	
	x	y	z	Horizontal displacement along the Line	Horizontal displacement perpendicular to Line
[m]	[m]	[m]	[m]	[mm]	[mm]
0.0	19.10000	-1.07500	50.00000	-0.23614	8.6298
0.65673	19.12500	-1.08000	50.00000	-0.36978	8.4337
1.3135	19.15000	-2.38750	50.00000	-0.49090	8.2559
1.9702	19.17500	-3.04375	50.00000	-0.59724	8.0924
2.6269	19.20000	-3.70000	50.00000	-0.68787	7.9388

Structure: No. 7 Wall F | Sub-structure: No. 7 Wall F

Dist.	Coordinates			Displacements	
	x	y	z	Horizontal displacement along the Line	Horizontal displacement perpendicular to Line
[m]	[m]	[m]	[m]	[mm]	[mm]
0.0	19.10000	-1.07500	50.00000	-0.23614	8.6298
0.84001	19.94000	-1.08000	50.00000	-0.21452	8.6221
1.68001	20.78000	-1.08000	50.00000	-0.19663	8.6159
2.52001	21.62000	-1.09000	50.00000	-0.18160	8.6106
3.3601	22.46000	-1.09500	50.00000	-0.16880	8.6061
4.2001	23.30000	-1.10000	50.00000	-0.15776	8.6021

Structure: No. 7 Wall G | Sub-structure: No. 7 Wall G

Dist.	Coordinates			Displacements	
	x	y	z	Horizontal displacement along the Line	Horizontal displacement perpendicular to Line
[m]	[m]	[m]	[m]	[mm]	[mm]
0.0	23.30000	-1.10000	50.00000	-0.15776	8.6021
0.65000	23.30000	-1.75000	50.00000	-0.24831	8.3803
1.3000	23.30000	-2.40000	50.00000	-0.33532	8.1676
1.9500	23.30000	-3.05000	50.00000	-0.41776	7.9633
2.6000	23.30000	-3.70000	50.00000	-0.49479	7.7663

Structure: No. 25/26 Wall A | Sub-structure: No. 25/26 Wall A

Dist.	Coordinates			Displacements	
	x	y	z	Horizontal displacement along the Line	Horizontal displacement perpendicular to Line
[m]	[m]	[m]	[m]	[mm]	[mm]
0.0	23.10000	10.30000	50.00000	-0.13618	-6.2113
1.000	23.10000	11.30000	50.00000	-0.26751	-5.9758
2.000	23.10000	12.30000	50.00000	-0.38975	-5.7605
3.000	23.10000	13.30000	50.00000	-0.49967	-5.5618
4.000	23.10000	14.30000	50.00000	-0.59531	-5.3759
5.000	23.10000	15.30000	50.00000	-0.67589	-5.1985
6.000	23.10000	16.30000	50.00000	-0.74167	-5.0261
7.000	23.10000	17.30000	50.00000	-0.79361	-4.8554
8.000	23.10000	18.30000	50.00000	-0.83311	-4.6841
9.000	23.10000	19.30000	50.00000	-0.86178	-4.5103
10.000	23.10000	20.30000	50.00000	-0.88126	-4.3327
11.000	23.10000	21.30000	50.00000	-0.89307	-4.1506
12.000	23.10000	22.30000	50.00000	-0.89861	-3.9635
13.000	23.10000	23.30000	50.00000	-0.89910	-3.7713
14.000	23.10000	24.30000	50.00000	-0.89556	-3.5741
15.000	23.10000	25.30000	50.00000	-0.88887	-3.3719
16.000	23.10000	26.30000	50.00000	-0.87973	-3.1651
17.000	23.10000	27.30000	50.00000	-0.86874	-2.9538

Structure: No. 25/26 Wall B | Sub-structure: No. 25/26 Wall B

Dist.	Coordinates			Displacements	
	x	y	z	Horizontal displacement along the Line	Horizontal displacement perpendicular to Line
[m]	[m]	[m]	[m]	[mm]	[mm]
0.0	10.20000	10.30000	50.00000	1.2776	-11.204
0.99167	10.20000	11.29167	50.00000	1.2358	-10.837
1.9833	10.20000	12.28333	50.00000	1.1939	-10.470
2.9750	10.20000	13.27500	50.00000	1.1520	-10.103
3.9667	10.20000	14.26667	50.00000	1.1102	-9.7354
4.9583	10.20000	15.25833	50.00000	1.0683	-9.3683
5.9500	10.20000	16.25000	50.00000	1.0265	-9.0012
6.9417	10.20000	17.24167	50.00000	0.98459	-8.6341
7.9333	10.20000	18.23333	50.00000	0.94273	-8.2670



BYLAND ENGINEERING LTD

24 REDINGTON GARDENS
Ground Movement & Buildgin Damage Assessment
Excavation in Front of a High Stiffness Secant Pile Wall in Stiff Clay

Table with Job No. 1248, Sheet No., Rev., Drg. Ref., Made by JB, Date 09-Nov-2015, Checked.

Table with columns: Dist., Coordinates (x, y, z), Displacements (Horizontal displacement along the line, Horizontal displacement perpendicular to Line). Rows 1-5.

Structure: No. 25/26 Wall C | Sub-structure: No. 25/26 Wall C

Table with columns: Dist., Coordinates (x, y, z), Displacements (Horizontal displacement along the line, Horizontal displacement perpendicular to Line). Rows 1-10.

Structure: No. 25/26 Wall D | Sub-structure: No. 25/26 Wall D

Table with columns: Dist., Coordinates (x, y, z), Displacements (Horizontal displacement along the line, Horizontal displacement perpendicular to Line). Rows 1-15.

Structure: No. 25/26 Wall E | Sub-structure: No. 25/26 Wall E

Table with columns: Dist., Coordinates (x, y, z), Displacements (Horizontal displacement along the line, Horizontal displacement perpendicular to Line). Rows 1-15.

Structure: No. 25/26 Wall F | Sub-structure: No. 25/26 Wall F

Table with columns: Dist., Coordinates (x, y, z), Displacements (Horizontal displacement along the line, Horizontal displacement perpendicular to Line). Rows 1-3.

Structure: No. 25/26 Wall G | Sub-structure: No. 25/26 Wall G

Table with columns: Dist., Coordinates (x, y, z), Displacements (Horizontal displacement along the line, Horizontal displacement perpendicular to Line). Rows 1-15.

Specific Building Damage Results - Vertical Displacements

Structure: No. 7 Wall A | Sub-structure: No. 7 Wall A

Table with columns: Dist., Coordinates (x, y, z), Displacements (z). Rows 1-15.





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**24 REDINGTON GARDENS**  
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Excavation in Front of a High Stiffness Secant Pile Wall in Stiff Clay

Job No.	Sheet No.	Rev.
1248		
Drg. Ref.		
Made by JB	Date 09-Nov-2015	Checked

Dist.	Coordinates			Displacements	
	x	y	z	x	z
[m]	[m]	[m]	[m]	[mm]	[mm]
15.088	25.40000	-18.78824	50.00000	0.44715	
16.094	25.40000	-19.79412	50.00000	0.37074	
17.100	25.40000	-20.80000	50.00000	0.29338	

Structure: No. 7 Wall B | Sub-structure: No. 7 Wall B

Dist.	Coordinates			Displacements	
	x	y	z	x	z
[m]	[m]	[m]	[m]	[mm]	[mm]
<b>Vertical Offset 1</b>					
0.0	15.40000	-3.70000	50.00000	4.9932	
1.0065	15.43529	-4.70588	50.00000	5.2003	
2.0130	15.47059	-5.71176	50.00000	5.2555	
3.0195	15.50588	-6.71765	50.00000	5.1868	
4.0260	15.54118	-7.72353	50.00000	5.0183	
5.0325	15.57647	-8.72941	50.00000	4.7714	
6.0390	15.61176	-9.73529	50.00000	4.4650	
7.0455	15.64706	-10.74118	50.00000	4.1159	
8.0520	15.68235	-11.74706	50.00000	3.7392	
9.0585	15.71765	-12.75294	50.00000	3.3482	
10.065	15.75294	-13.75882	50.00000	2.9546	
11.072	15.78824	-14.76471	50.00000	2.5687	
12.078	15.82353	-15.77059	50.00000	2.1911	
13.085	15.85882	-16.77647	50.00000	1.8531	
14.091	15.89412	-17.78235	50.00000	1.5362	
15.098	15.92941	-18.78824	50.00000	1.2530	
16.104	15.96471	-19.79412	50.00000	1.0062	
17.111	16.00000	-20.80000	50.00000	0.79722	

Structure: No. 7 Wall C | Sub-structure: No. 7 Wall C

Dist.	Coordinates			Displacements	
	x	y	z	x	z
[m]	[m]	[m]	[m]	[mm]	[mm]
<b>Vertical Offset 1</b>					
0.0	15.40000	-3.70000	50.00000	4.9932	
1.0000	16.40000	-3.70000	50.00000	4.9511	
2.0000	17.40000	-3.70000	50.00000	4.9171	
3.0000	18.40000	-3.70000	50.00000	4.8868	
4.0000	19.40000	-3.70000	50.00000	4.8573	
5.0000	20.40000	-3.70000	50.00000	4.8271	
6.0000	21.40000	-3.70000	50.00000	4.7954	
7.0000	22.40000	-3.70000	50.00000	4.7618	
8.0000	23.40000	-3.70000	50.00000	4.7265	
9.0000	24.40000	-3.70000	50.00000	4.6898	
10.000	25.40000	-3.70000	50.00000	4.7734	

Structure: No. 7 Wall D | Sub-structure: No. 7 Wall D

Dist.	Coordinates			Displacements	
	x	y	z	x	z
[m]	[m]	[m]	[m]	[mm]	[mm]
<b>Vertical Offset 1</b>					
0.0	16.00000	-20.80000	50.00000	0.79722	
0.94000	16.94000	-20.80000	50.00000	0.74559	
1.8800	17.88000	-20.80000	50.00000	0.69276	
2.8200	18.82000	-20.80000	50.00000	0.64020	
3.7600	19.76000	-20.80000	50.00000	0.58950	
4.7000	20.70000	-20.80000	50.00000	0.54234	
5.6400	21.64000	-20.80000	50.00000	0.50053	
6.5800	22.58000	-20.80000	50.00000	0.46602	
7.5200	23.52000	-20.80000	50.00000	0.44037	
8.4600	24.46000	-20.80000	50.00000	0.39761	
9.4000	25.40000	-20.80000	50.00000	0.29338	

Structure: No. 7 Wall E | Sub-structure: No. 7 Wall E

Dist.	Coordinates			Displacements	
	x	y	z	x	z
[m]	[m]	[m]	[m]	[mm]	[mm]
<b>Vertical Offset 1</b>					
0.0	19.10000	-1.07500	50.00000	3.4474	
0.65673	19.12500	-1.73125	50.00000	3.9574	
1.3135	19.15000	-2.38750	50.00000	4.3559	
1.9702	19.17500	-3.04375	50.00000	4.6543	
2.6269	19.20000	-3.70000	50.00000	4.8633	

Structure: No. 7 Wall F | Sub-structure: No. 7 Wall F

Dist.	Coordinates			Displacements	
	x	y	z	x	z
[m]	[m]	[m]	[m]	[mm]	[mm]
<b>Vertical Offset 1</b>					
0.0	19.10000	-1.07500	50.00000	3.4474	
0.84001	19.94000	-1.08000	50.00000	3.4452	
1.6800	20.78000	-1.08500	50.00000	3.4425	
2.5200	21.62000	-1.09000	50.00000	3.4392	
3.3601	22.46000	-1.09500	50.00000	3.4354	
4.2001	23.30000	-1.10000	50.00000	3.4310	

Structure: No. 7 Wall G | Sub-structure: No. 7 Wall G

Dist.	Coordinates			Displacements	
	x	y	z	x	z
[m]	[m]	[m]	[m]	[mm]	[mm]
<b>Vertical Offset 1</b>					
0.0	23.30000	-1.10000	50.00000	3.4310	
0.65000	23.30000	-1.75000	50.00000	3.9095	
1.3000	23.30000	-2.40000	50.00000	4.2783	
1.9500	23.30000	-3.05000	50.00000	4.5484	
2.6000	23.30000	-3.70000	50.00000	4.7301	

Structure: No. 25/26 Wall A | Sub-structure: No. 25/26 Wall A

Dist.	Coordinates			Displacements	
	x	y	z	x	z
[m]	[m]	[m]	[m]	[mm]	[mm]
<b>Vertical Offset 1</b>					
0.0	23.10000	10.30000	50.00000	2.4312	
1.0000	23.10000	11.30000	50.00000	2.9714	
2.0000	23.10000	12.30000	50.00000	3.3316	
3.0000	23.10000	13.30000	50.00000	3.5389	
4.0000	23.10000	14.30000	50.00000	3.6182	
5.0000	23.10000	15.30000	50.00000	3.5921	
6.0000	23.10000	16.30000	50.00000	3.4809	
7.0000	23.10000	17.30000	50.00000	3.3032	
8.0000	23.10000	18.30000	50.00000	3.0752	
9.0000	23.10000	19.30000	50.00000	2.8118	



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Job No.	Sheet No.	Rev.
1248		
Drg. Ref.		
Made by JB	Date 09-Nov-2015	Checked

Dist.	Coordinates			Displacements	
	x	y	z	x	z
[m]	[m]	[m]	[m]	[mm]	[mm]
10.000	23.10000	20.30000	50.00000	2.5258	
11.000	23.10000	21.30000	50.00000	2.2290	
12.000	23.10000	22.30000	50.00000	1.9314	
13.000	23.10000	23.30000	50.00000	1.6420	
14.000	23.10000	24.30000	50.00000	1.3686	
15.000	23.10000	25.30000	50.00000	1.1180	
16.000	23.10000	26.30000	50.00000	0.89597	
17.000	23.10000	27.30000	50.00000	0.70731	

Structure: No. 25/26 Wall B | Sub-structure: No. 25/26 Wall B

Dist.	Coordinates			Displacements	
	x	y	z	x	z
[m]	[m]	[m]	[m]	[mm]	[mm]
<b>Vertical Offset 1</b>					
0.0	10.20000	10.30000	50.00000	4.0773	
0.99167	10.20000	11.29167	50.00000	4.7433	
1.9833	10.20000	12.28333	50.00000	5.2138	
2.9750	10.20000	13.27500	50.00000	5.5124	
3.9667	10.20000	14.26667	50.00000	5.6612	
4.9583	10.20000	15.25833	50.00000	5.6815	
5.9500	10.20000	16.25000	50.00000	5.5928	
6.9417	10.20000	17.24167	50.00000	5.4137	
7.9333	10.20000	18.23333	50.00000	5.1635	
8.9250	10.20000	19.22500	50.00000	4.8521	
9.9167	10.20000	20.21667	50.00000	4.4953	
10.908	10.20000	21.20833	50.00000	4.1029	
11.900	10.20000	22.20000	50.00000	3.6954	

Structure: No. 25/26 Wall C | Sub-structure: No. 25/26 Wall C

Dist.	Coordinates			Displacements	
	x	y	z	x	z
[m]	[m]	[m]	[m]	[mm]	[mm]
<b>Vertical Offset 1</b>					
0.0	12.40000	22.20000	50.00000	3.5100	
1.0208	12.36000	23.22000	50.00000	3.1086	
2.0416	12.32000	24.24000	50.00000	2.7136	
3.0624	12.28000	25.26000	50.00000	2.3336	
4.0831	12.24000	26.28000	50.00000	1.9761	
5.1039	12.20000	27.30000	50.00000	1.6467	

Structure: No. 25/26 Wall D | Sub-structure: No. 25/26 Wall D

Dist.	Coordinates			Displacements	
	x	y	z	x	z
[m]	[m]	[m]	[m]	[mm]	[mm]
<b>Vertical Offset 1</b>					
0.0	10.20000	10.30000	50.00000	4.0773	
0.99231	11.19231	10.30000	50.00000	3.9878	
1.9846	12.18462	10.30000	50.00000	3.6440	
2.9769	13.17692	10.30000	50.00000	3.4911	
3.9692	14.16923	10.30000	50.00000	3.4340	
4.9615	15.16154	10.30000	50.00000	3.4082	
5.9538	16.15385	10.30000	50.00000	3.3943	
6.9462	17.14615	10.30000	50.00000	3.3852	
7.9385	18.13846	10.30000	50.00000	3.3781	
8.9308	19.13077	10.30000	50.00000	3.3715	
9.9231	20.12308	10.30000	50.00000	3.3648	
10.915	21.11538	10.30000	50.00000	3.3575	
11.908	22.10769	10.30000	50.00000	3.3497	
12.900	23.10000	10.30000	50.00000	2.4312	

Structure: No. 25/26 Wall E | Sub-structure: No. 25/26 Wall E

Dist.	Coordinates			Displacements	
	x	y	z	x	z
[m]	[m]	[m]	[m]	[mm]	[mm]
<b>Vertical Offset 1</b>					
0.0	10.20000	18.00000	50.00000	5.2266	
0.99231	11.19231	18.00000	50.00000	5.1474	
1.9846	12.18462	18.00000	50.00000	5.0244	
2.9769	13.17692	18.00000	50.00000	4.9126	
3.9692	14.16923	18.00000	50.00000	4.8118	
4.9615	15.16154	18.00000	50.00000	4.7203	
5.9538	16.15385	18.00000	50.00000	4.6397	
6.9462	17.14615	18.00000	50.00000	4.5559	
7.9385	18.13846	18.00000	50.00000	4.4787	
8.9308	19.13077	18.00000	50.00000	4.4028	
9.9231	20.12308	18.00000	50.00000	4.3268	
10.915	21.11538	18.00000	50.00000	4.2503	
11.908	22.10769	18.00000	50.00000	4.1728	
12.900	23.10000	18.00000	50.00000	3.1480	

Structure: No. 25/26 Wall F | Sub-structure: No. 25/26 Wall F

Dist.	Coordinates			Displacements	
	x	y	z	x	z
[m]	[m]	[m]	[m]	[mm]	[mm]
<b>Vertical Offset 1</b>					
0.0	10.20000	22.20000	50.00000	3.6954	
0.73333	10.93333	22.20000	50.00000	3.6459	
1.46667	11.66667	22.20000	50.00000	3.5803	
2.20000	12.40000	22.20000	50.00000	3.5100	

Structure: No. 25/26 Wall G | Sub-structure: No. 25/26 Wall G

Dist.	Coordinates			Displacements	
	x	y	z	x	z
[m]	[m]	[m]	[m]	[mm]	[mm]
<b>Vertical Offset 1</b>					
0.0	12.40000	27.30000	50.00000	1.6358	
0.97273	13.37273	27.30000	50.00000	1.5784	
1.9455	14.34545	27.30000	50.00000	1.5141	
2.9182	15.31818	27.30000	50.00000	1.4438	
3.8909	16.29091	27.30000	50.00000	1.3690	
4.8636	17.26364	27.30000	50.00000	1.2906	
5.8364	18.23636	27.30000	50.00000	1.2098	
6.8091	19.20909	27.30000	50.00000	1.1281	
7.7818	20.18182	27.30000	50.00000	1.0465	
8.7545	21.15455	27.30000	50.00000	0.96670	
9.7273	22.12727	27.30000	50.00000	0.89012	
10.700	23.10000	27.30000	50.00000	0.70731	

**Specific Building Damage Results - All Segments**

Structure: No. 7 Wall A | Sub-structure: No. 7 Wall A



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<b>Job No.</b>	<b>Sheet No.</b>	<b>Rev.</b>
<b>1248</b>		
<b>Dr. Ref.</b>		
<b>Made by JB</b>	<b>Date 09-Nov-2015</b>	<b>Checked</b>

Vertical Offset from Line for Vertical Movement Calculations	Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature	Damage Category
[m] 0.0		[m]	[m]		[%]	[%]	[%]			[m]	
	1	0.0	8.3827	Sagging	0.0048639	0.012885	0.019437	-141.33E-6	245.52E-6	10422.	(Negligible) 0
	2	8.3827	8.1596	Hogging	0.0027152	0.015863	0.018102	-320.65E-6	245.52E-6	28495.	(Negligible) 0
	3	16.542	0.55767	Hogging	0.0	0.032075	0.032075	-320.65E-6	76.883E-6	105560.	(Negligible) 0

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.

Structure: No. 7 Wall B | Sub-structure: No. 7 Wall B

Vertical Offset from Line for Vertical Movement Calculations	Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature	Damage Category
[m] 0.0		[m]	[m]		[%]	[%]	[%]			[m]	
	1	0.0	9.3480	Sagging	0.0083533	0.025067	0.036844	-329.64E-6	390.87E-6	6378.9	(Negligible) 0
	2	9.3480	7.7520	Hogging	0.0026889	0.034547	0.036671	-355.46E-6	390.87E-6	26355.	(Negligible) 0

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.

Structure: No. 7 Wall C | Sub-structure: No. 7 Wall C

Vertical Offset from Line for Vertical Movement Calculations	Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature	Damage Category
[m] 0.0		[m]	[m]		[%]	[%]	[%]			[m]	
	1	0.0	3.6799	Hogging	210.84E-6	0.0066814	0.0067652	-71.775E-6	42.113E-6	107350.	(Negligible) 0
	2	3.6799	6.2201	Sagging	0.023121	0.0025543	0.028840	87.495E-6	0.0019166	408.64	(Negligible) 0

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.

Structure: No. 7 Wall D | Sub-structure: No. 7 Wall D

Vertical Offset from Line for Vertical Movement Calculations	Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature	Damage Category
[m] 0.0		[m]	[m]		[%]	[%]	[%]			[m]	
	1	0.0	1.6303	Sagging	31.112E-6	-0.0078591	0.0015719	82.463E-6	56.208E-6	563460.	(Negligible) 0
	2	1.6303	5.0255	Hogging	319.97E-6	-0.0049330	0.0010028	73.332E-6	56.208E-6	122770.	(Negligible) 0
	3	6.6558	2.6442	Sagging	0.0015982	0.0026721	0.0035681	-52.158E-6	110.88E-6	11595.	(Negligible) 0

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.

Structure: No. 7 Wall E | Sub-structure: No. 7 Wall E

Vertical Offset from Line for Vertical Movement Calculations	Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature	Damage Category
[m] 0.0		[m]	[m]		[%]	[%]	[%]			[m]	
	1	0.0	2.6000	Sagging	0.0075947	0.025662	0.034153	-290.69E-6	-776.30E-6	3775.7	(Negligible) 0

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.

Structure: No. 7 Wall F | Sub-structure: No. 7 Wall F

Vertical Offset from Line for Vertical Movement Calculations	Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature	Damage Category
[m] 0.0		[m]	[m]		[%]	[%]	[%]			[m]	
	1	0.0	4.2000	Sagging	39.017E-6	0.0018700	0.0019259	-25.794E-6	5.2086E-6	1.2478E+6	(Negligible) 0

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.

Structure: No. 7 Wall G | Sub-structure: No. 7 Wall G

Vertical Offset from Line for Vertical Movement Calculations	Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature	Damage Category
[m] 0.0		[m]	[m]		[%]	[%]	[%]			[m]	
	1	0.0	2.6000	Sagging	0.0075675	0.032144	0.040604	-341.14E-6	-735.80E-6	3764.4	(Negligible) 0

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.

Structure: No. 25/26 Wall A | Sub-structure: No. 25/26 Wall A

Vertical Offset from Line for Vertical Movement Calculations	Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature	Damage Category
[m] 0.0		[m]	[m]		[%]	[%]	[%]			[m]	
	1	0.0	11.116	Sagging	0.011441	0.018734	0.034361	-235.41E-6	-540.08E-6	5356.3	(Negligible) 0
	2	11.116	5.8835	Hogging	0.0016461	0.019970	0.020776	-211.22E-6	297.55E-6	28921.	(Negligible) 0

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.

Structure: No. 25/26 Wall B | Sub-structure: No. 25/26 Wall B

Vertical Offset from Line for Vertical Movement Calculations	Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature	Damage Category
[m] 0.0		[m]	[m]		[%]	[%]	[%]			[m]	
	1	0.0	11.800	Sagging	0.014778	0.037177	0.057867	-378.49E-6	-671.35E-6	4886.9	1 (Very Slight)

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.

Structure: No. 25/26 Wall C | Sub-structure: No. 25/26 Wall C



<b>Job No.</b>	<b>Sheet No.</b>	<b>Rev.</b>
<b>1248</b>		
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<b>Made by</b>	<b>Date</b>	<b>Checked</b>
<b>JB</b>	<b>09-Nov-2015</b>	

Vertical Offset from Line for Vertical Movement	Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement	Maximum Gradient of Vertical Displacement	Min. Radius of Curvature	Damage Category
Calculations		[m]	[m]		[%]	[%]	[%]			[m]	
0.0	1	0.0	5.1000	Hogging	0.0011390	0.036257	0.036743	-365.41E-6	393.07E-6	35206.	0 (Negligible)

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.

Structure: No. 25/26 Wall D | Sub-structure: No. 25/26 Wall D

Vertical Offset from Line for Vertical Movement	Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement	Maximum Gradient of Vertical Displacement	Min. Radius of Curvature	Damage Category
Calculations		[m]	[m]		[%]	[%]	[%]			[m]	
0.0	1	0.0	1.7061	Sagging	0.0061958	-0.091568	0.018656	0.0022001	347.20E-6	2681.6	0 (Negligible)
	2	1.7061	7.1362	Hogging	0.0026555	0.0010865	0.0030691	0.0022001	347.20E-6	9654.9	0 (Negligible)
	3	8.8423	4.0577	Sagging	0.016818	0.0017478	0.016719	-29.326E-6	925.65E-6	865.10	0 (Negligible)

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.

Structure: No. 25/26 Wall E | Sub-structure: No. 25/26 Wall E

Vertical Offset from Line for Vertical Movement	Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement	Maximum Gradient of Vertical Displacement	Min. Radius of Curvature	Damage Category
Calculations		[m]	[m]		[%]	[%]	[%]			[m]	
0.0	1	0.0	2.1798	Sagging	0.0010455	-0.055522	0.011120	761.09E-6	123.95E-6	17136.	0 (Negligible)
	2	2.1798	6.9541	Hogging	517.79E-6	-0.0091956	0.0018616	227.84E-6	112.73E-6	93284.	0 (Negligible)
	3	9.1339	3.7661	Sagging	0.018480	0.0019829	0.018519	-26.609E-6	0.0010327	831.72	0 (Negligible)

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.

Structure: No. 25/26 Wall F | Sub-structure: No. 25/26 Wall F

Vertical Offset from Line for Vertical Movement	Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement	Maximum Gradient of Vertical Displacement	Min. Radius of Curvature	Damage Category
Calculations		[m]	[m]		[%]	[%]	[%]			[m]	
0.0	1	0.0	2.2000	Sagging	560.85E-6	-0.037074	0.0074217	528.16E-6	95.790E-6	28041.	0 (Negligible)

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.

Structure: No. 25/26 Wall G | Sub-structure: No. 25/26 Wall G

Vertical Offset from Line for Vertical Movement	Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement	Maximum Gradient of Vertical Displacement	Min. Radius of Curvature	Damage Category
Calculations		[m]	[m]		[%]	[%]	[%]			[m]	
0.0	1	0.0	6.5996	Sagging	374.41E-6	-0.0090116	0.0018124	123.91E-6	84.084E-6	129710.	0 (Negligible)
	2	6.5996	1.2461	Hogging	8.6664E-6	-0.0046463	929.30E-6	55.073E-6	84.084E-6	554410.	0 (Negligible)
	3	7.8457	2.8543	Sagging	0.0024069	-0.0028511	0.0017634	36.364E-6	187.93E-6	7082.9	0 (Negligible)

Tensile horizontal strains are +ve, compressive horizontal strains are -ve.

**Specific Building Damage Results - Critical Values for All Segments within Each Sub-Structure**

Structure: No. 7 Wall A | Sub-structure: No. 7 Wall A

Vertical Offset from Line for Vertical Movement	Deflection Ratio	Average Horizontal Strain	Maximum Slope	Maximum Settlement	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement	Maximum Gradient of Vertical Displacement	Min. Radius of Curvature (Hogging)	Min. Radius of Curvature (Sagging)	Damage Category
Calculations	[%]	[%]		[mm]	[%]			[m]	[m]	
0.0	0.0048639	0.032075	245.52E-6	2.8752	0.032075	-320.65E-6	245.52E-6	28495.	10422.0	0 (Negligible)

Structure: No. 7 Wall B | Sub-structure: No. 7 Wall B

Vertical Offset from Line for Vertical Movement	Deflection Ratio	Average Horizontal Strain	Maximum Slope	Maximum Settlement	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement	Maximum Gradient of Vertical Displacement	Min. Radius of Curvature (Hogging)	Min. Radius of Curvature (Sagging)	Damage Category
Calculations	[%]	[%]		[mm]	[%]			[m]	[m]	
0.0	0.0083533	0.034547	390.87E-6	5.2539	0.036844	-355.46E-6	390.87E-6	26355.	6378.9	0 (Negligible)

Structure: No. 7 Wall C | Sub-structure: No. 7 Wall C

Vertical Offset from Line for Vertical Movement	Deflection Ratio	Average Horizontal Strain	Maximum Slope	Maximum Settlement	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement	Maximum Gradient of Vertical Displacement	Min. Radius of Curvature (Hogging)	Min. Radius of Curvature (Sagging)	Damage Category
Calculations	[%]	[%]		[mm]	[%]			[m]	[m]	
0.0	0.023121	0.0066814	0.0019166	4.9932	0.028840	87.495E-6	0.0019166	107350.	408.64	0 (Negligible)

Structure: No. 7 Wall D | Sub-structure: No. 7 Wall D

Vertical Offset from Line for Vertical Movement	Deflection Ratio	Average Horizontal Strain	Maximum Slope	Maximum Settlement	Max. Tensile Strain	Maximum Gradient of Horizontal Displacement	Maximum Gradient of Vertical Displacement	Min. Radius of Curvature (Hogging)	Min. Radius of Curvature (Sagging)	Damage Category
Calculations	[%]	[%]		[mm]	[%]			[m]	[m]	
0.0	0.0015982	-0.0078591	110.88E-6	0.79722	0.0035681	82.463E-6	110.88E-6	122770.	11595.0	0 (Negligible)

Structure: No. 7 Wall E | Sub-structure: No. 7 Wall E



<b>Job No.</b>	<b>Sheet No.</b>	<b>Rev.</b>
<b>1248</b>		
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<b>JB</b>	<b>09-Nov-2015</b>	

Vertical Offset from Line for Vertical Movement	Deflection Ratio	Average Horizontal Strain	Maximum Slope	Maximum Settlement	Maximum Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature (Hogging)	Min. Radius of Curvature (Sagging)	Damage Category
Calculations	[%]	[%]		[mm]	[%]			[m]	[m]	
[m]	0.0075947	0.025662	-776.30E-6	4.8547	0.034153	-290.69E-6	-776.30E-6	-	3775.7	0 (Negligible)

Structure: No. 7 Wall F | Sub-structure: No. 7 Wall F

Vertical Offset from Line for Vertical Movement	Deflection Ratio	Average Horizontal Strain	Maximum Slope	Maximum Settlement	Maximum Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature (Hogging)	Min. Radius of Curvature (Sagging)	Damage Category
Calculations	[%]	[%]		[mm]	[%]			[m]	[m]	
[m]	39.017E-6	0.0018700	5.2086E-6	3.4474	0.0019259	-25.794E-6	5.2086E-6	-	1.2478E+6	0 (Negligible)

Structure: No. 7 Wall G | Sub-structure: No. 7 Wall G

Vertical Offset from Line for Vertical Movement	Deflection Ratio	Average Horizontal Strain	Maximum Slope	Maximum Settlement	Maximum Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature (Hogging)	Min. Radius of Curvature (Sagging)	Damage Category
Calculations	[%]	[%]		[mm]	[%]			[m]	[m]	
[m]	0.0075675	0.032144	-735.80E-6	4.7301	0.040604	-341.14E-6	-735.80E-6	-	3764.4	0 (Negligible)

Structure: No. 25/26 Wall A | Sub-structure: No. 25/26 Wall A

Vertical Offset from Line for Vertical Movement	Deflection Ratio	Average Horizontal Strain	Maximum Slope	Maximum Settlement	Maximum Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature (Hogging)	Min. Radius of Curvature (Sagging)	Damage Category
Calculations	[%]	[%]		[mm]	[%]			[m]	[m]	
[m]	0.011441	0.019970	-540.08E-6	3.6171	0.034361	-235.41E-6	-540.08E-6	28921.	5356.3	0 (Negligible)

Structure: No. 25/26 Wall B | Sub-structure: No. 25/26 Wall B

Vertical Offset from Line for Vertical Movement	Deflection Ratio	Average Horizontal Strain	Maximum Slope	Maximum Settlement	Maximum Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature (Hogging)	Min. Radius of Curvature (Sagging)	Damage Category
Calculations	[%]	[%]		[mm]	[%]			[m]	[m]	
[m]	0.014778	0.037177	-671.35E-6	5.6800	0.057867	-378.49E-6	-671.35E-6	-	4886.9	1 (Very Slight)

Structure: No. 25/26 Wall C | Sub-structure: No. 25/26 Wall C

Vertical Offset from Line for Vertical Movement	Deflection Ratio	Average Horizontal Strain	Maximum Slope	Maximum Settlement	Maximum Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature (Hogging)	Min. Radius of Curvature (Sagging)	Damage Category
Calculations	[%]	[%]		[mm]	[%]			[m]	[m]	
[m]	0.0011390	0.036257	393.07E-6	3.5100	0.036743	-365.41E-6	393.07E-6	35206.	-	0 (Negligible)

Structure: No. 25/26 Wall D | Sub-structure: No. 25/26 Wall D

Vertical Offset from Line for Vertical Movement	Deflection Ratio	Average Horizontal Strain	Maximum Slope	Maximum Settlement	Maximum Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature (Hogging)	Min. Radius of Curvature (Sagging)	Damage Category
Calculations	[%]	[%]		[mm]	[%]			[m]	[m]	
[m]	0.016818	-0.091568	925.65E-6	4.0773	0.018656	0.0022001	925.65E-6	9654.9	865.10	0 (Negligible)

Structure: No. 25/26 Wall E | Sub-structure: No. 25/26 Wall E

Vertical Offset from Line for Vertical Movement	Deflection Ratio	Average Horizontal Strain	Maximum Slope	Maximum Settlement	Maximum Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature (Hogging)	Min. Radius of Curvature (Sagging)	Damage Category
Calculations	[%]	[%]		[mm]	[%]			[m]	[m]	
[m]	0.018480	-0.055522	0.0010327	5.2266	0.018519	761.09E-6	0.0010327	93284.	831.72	0 (Negligible)

Structure: No. 25/26 Wall F | Sub-structure: No. 25/26 Wall F

Vertical Offset from Line for Vertical Movement	Deflection Ratio	Average Horizontal Strain	Maximum Slope	Maximum Settlement	Maximum Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature (Hogging)	Min. Radius of Curvature (Sagging)	Damage Category
Calculations	[%]	[%]		[mm]	[%]			[m]	[m]	
[m]	560.85E-6	-0.037074	95.790E-6	3.6954	0.0074217	528.16E-6	95.790E-6	-	28041.	0 (Negligible)

Structure: No. 25/26 Wall G | Sub-structure: No. 25/26 Wall G

Vertical Offset from Line for Vertical Movement	Deflection Ratio	Average Horizontal Strain	Maximum Slope	Maximum Settlement	Maximum Tensile Strain	Maximum Gradient of Horizontal Displacement Curve	Maximum Gradient of Vertical Displacement Curve	Min. Radius of Curvature (Hogging)	Min. Radius of Curvature (Sagging)	Damage Category
Calculations	[%]	[%]		[mm]	[%]			[m]	[m]	
[m]	0.0024069	-0.0090116	187.93E-6	1.6358	0.0018124	123.91E-6	187.93E-6	554410.	7082.9	0 (Negligible)

**Specific Building Damage Results - Critical Segments within Each Structure**

Structure Name	Parameter	Critical Sub-Structure	Critical Start Segment	End	Curvature	Maximum Slope	Maximum Settlement	Max. Tensile Strain	Min. Radius of Curvature (Hogging)	Min. Radius of Curvature (Sagging)	Damage Category
No. 7 Wall A	Maximum Slope	No. 7 Wall A	1	0.0	8.3827	Sagging	245.52E-6	2.8752	0.019437	10422.	0 (Negligible)
	Maximum Settlement	No. 7 Wall A	1	0.0	8.3827	Sagging	245.52E-6	2.8752	0.019437	10422.	0 (Negligible)
	Max. Tensile	No. 7 Wall A	3	16.542	17.100	Hogging	76.883E-6	0.33627	0.032075	105560.	- 0 (Negligible)



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**24 REDINGTON GARDENS**

**Ground Movement & Buildgin Damage Assessment**

**Excavation in Front of a High Stiffness Secant Pile Wall in Stiff Clay**

<b>Job No.</b>	<b>Sheet No.</b>	<b>Rev.</b>
<b>1248</b>		
<b>Dr. Ref.</b>		
<b>Made by JB</b>	<b>Date 09-Nov-2015</b>	<b>Checked</b>

Structure Name	Parameter	Critical Sub-Structure	Critical Segment	Start	End	Curvature	Maximum Slope	Maximum Settlement	Max. Tensile Strain	Min. Radius of Curvature (Hogging)	Min. Radius of Curvature (Sagging)	Damage Category
No. 7 Wall B	Strain	No. 7 Wall A		2	8.3827	16.542	Hogging	245.52E-6	1.7268	0.018102	28495.	- 0 (Negligible)
	Min. Radius of Curvature (Hogging)	No. 7 Wall A		1	0.0	8.3827	Sagging	245.52E-6	2.8752	0.019437	-	10422. 0 (Negligible)
	Min. Radius of Curvature (Sagging)	No. 7 Wall B		1	0.0	9.3480	Sagging	390.87E-6	5.2539	0.036844	-	6378.9 0 (Negligible)
	Maximum Slope	No. 7 Wall B		1	0.0	9.3480	Sagging	390.87E-6	5.2539	0.036844	-	6378.9 0 (Negligible)
	Maximum Settlement	No. 7 Wall B		1	0.0	9.3480	Sagging	390.87E-6	5.2539	0.036844	-	6378.9 0 (Negligible)
	Max. Tensile Strain	No. 7 Wall B		1	0.0	9.3480	Sagging	390.87E-6	5.2539	0.036844	-	6378.9 0 (Negligible)
No. 7 Wall C	Min. Radius of Curvature (Hogging)	No. 7 Wall B		2	9.3480	17.100	Hogging	390.87E-6	3.2350	0.036671	26355.	- 0 (Negligible)
	Min. Radius of Curvature (Sagging)	No. 7 Wall B		1	0.0	9.3480	Sagging	390.87E-6	5.2539	0.036844	-	6378.9 0 (Negligible)
	Maximum Slope	No. 7 Wall C		2	3.6799	9.9000	Sagging	0.0019166	4.8668	0.028840	-	408.64 0 (Negligible)
	Maximum Settlement	No. 7 Wall C		1	0.0	3.6799	Hogging	42.113E-6	4.9932	0.0067652	107350.	- 0 (Negligible)
	Max. Tensile Strain	No. 7 Wall C		2	3.6799	9.9000	Sagging	0.0019166	4.8668	0.028840	-	408.64 0 (Negligible)
	Min. Radius of Curvature (Hogging)	No. 7 Wall C		1	0.0	3.6799	Hogging	42.113E-6	4.9932	0.0067652	107350.	- 0 (Negligible)
No. 7 Wall D	Min. Radius of Curvature (Sagging)	No. 7 Wall C		2	3.6799	9.9000	Sagging	0.0019166	4.8668	0.028840	-	408.64 0 (Negligible)
	Maximum Slope	No. 7 Wall D		3	6.6558	9.3000	Sagging	110.88E-6	0.46395	0.0035681	-	11595. 0 (Negligible)
	Maximum Settlement	No. 7 Wall D		1	0.0	1.6303	Sagging	56.208E-6	0.79722	0.0015719	-	563460. 0 (Negligible)
	Max. Tensile Strain	No. 7 Wall D		3	6.6558	9.3000	Sagging	110.88E-6	0.46395	0.0035681	-	11595. 0 (Negligible)
	Min. Radius of Curvature (Hogging)	No. 7 Wall D		2	1.6303	6.6558	Hogging	56.208E-6	0.70679	0.0010028	122770.	- 0 (Negligible)
	Min. Radius of Curvature (Sagging)	No. 7 Wall D		3	6.6558	9.3000	Sagging	110.88E-6	0.46395	0.0035681	-	11595. 0 (Negligible)
No. 7 Wall E	Maximum Slope	No. 7 Wall E		1	0.0	2.6000	Sagging	776.30E-6	4.8547	0.034153	-	3775.7 0 (Negligible)
	Maximum Settlement	No. 7 Wall E		1	0.0	2.6000	Sagging	776.30E-6	4.8547	0.034153	-	3775.7 0 (Negligible)
	Max. Tensile Strain	No. 7 Wall E		1	0.0	2.6000	Sagging	776.30E-6	4.8547	0.034153	-	3775.7 0 (Negligible)
	Min. Radius of Curvature (Hogging)	No. 7 Wall E		1	0.0	2.6000	Sagging	776.30E-6	4.8547	0.034153	-	3775.7 0 (Negligible)
	Min. Radius of Curvature (Sagging)	No. 7 Wall E		1	0.0	2.6000	Sagging	776.30E-6	4.8547	0.034153	-	3775.7 0 (Negligible)
	Maximum Slope	No. 7 Wall F		1	0.0	4.2000	Sagging	5.2086E-6	3.4474	0.0019259	-	1.2478E+6 0 (Negligible)
No. 7 Wall F	Maximum Settlement	No. 7 Wall F		1	0.0	4.2000	Sagging	5.2086E-6	3.4474	0.0019259	-	1.2478E+6 0 (Negligible)
	Max. Tensile Strain	No. 7 Wall F		1	0.0	4.2000	Sagging	5.2086E-6	3.4474	0.0019259	-	1.2478E+6 0 (Negligible)
	Min. Radius of Curvature (Hogging)	No. 7 Wall F		1	0.0	4.2000	Sagging	5.2086E-6	3.4474	0.0019259	-	1.2478E+6 0 (Negligible)
	Min. Radius of Curvature (Sagging)	No. 7 Wall F		1	0.0	4.2000	Sagging	5.2086E-6	3.4474	0.0019259	-	1.2478E+6 0 (Negligible)
	Maximum Slope	No. 7 Wall G		1	0.0	2.6000	Sagging	735.80E-6	4.7301	0.040604	-	3764.4 0 (Negligible)
	Maximum Settlement	No. 7 Wall G		1	0.0	2.6000	Sagging	735.80E-6	4.7301	0.040604	-	3764.4 0 (Negligible)
No. 7 Wall G	Max. Tensile Strain	No. 7 Wall G		1	0.0	2.6000	Sagging	735.80E-6	4.7301	0.040604	-	3764.4 0 (Negligible)
	Min. Radius of Curvature (Hogging)	No. 7 Wall G		1	0.0	2.6000	Sagging	735.80E-6	4.7301	0.040604	-	3764.4 0 (Negligible)
	Min. Radius of Curvature (Sagging)	No. 7 Wall G		1	0.0	2.6000	Sagging	735.80E-6	4.7301	0.040604	-	3764.4 0 (Negligible)
	Maximum Slope	No. 25/26 Wall A		1	0.0	11.116	Sagging	540.08E-6	3.6171	0.034361	-	5356.3 0 (Negligible)
	Maximum Settlement	No. 25/26 Wall A		1	0.0	11.116	Sagging	540.08E-6	3.6171	0.034361	-	5356.3 0 (Negligible)
	Max. Tensile Strain	No. 25/26 Wall A		1	0.0	11.116	Sagging	540.08E-6	3.6171	0.034361	-	5356.3 0 (Negligible)
No. 25#26 Wall A	Min. Radius of Curvature (Hogging)	No. 25/26 Wall A		2	11.116	17.000	Hogging	297.55E-6	2.1943	0.020776	28921.	- 0 (Negligible)
	Min. Radius of Curvature (Sagging)	No. 25/26 Wall A		1	0.0	11.116	Sagging	540.08E-6	3.6171	0.034361	-	5356.3 0 (Negligible)
	Maximum Slope	No. 25/26 Wall B		1	0.0	11.800	Sagging	671.35E-6	5.6800	0.057867	-	4886.9 1 (Very Slight)
	Maximum Settlement	No. 25/26 Wall B		1	0.0	11.800	Sagging	671.35E-6	5.6800	0.057867	-	4886.9 1 (Very Slight)
	Max. Tensile Strain	No. 25/26 Wall B		1	0.0	11.800	Sagging	671.35E-6	5.6800	0.057867	-	4886.9 1 (Very Slight)
	Min. Radius of Curvature (Hogging)	No. 25/26 Wall B		1	0.0	11.800	Sagging	671.35E-6	5.6800	0.057867	-	4886.9 1 (Very Slight)
No. 25#26 Wall B	Min. Radius of Curvature (Sagging)	No. 25/26 Wall B		1	0.0	11.800	Sagging	671.35E-6	5.6800	0.057867	-	4886.9 1 (Very Slight)
	Maximum Slope	No. 25/26 Wall C		1	0.0	5.1000	Hogging	393.07E-6	3.5100	0.036743	35206.	- 0 (Negligible)
	Maximum Settlement	No. 25/26 Wall C		1	0.0	5.1000	Hogging	393.07E-6	3.5100	0.036743	35206.	- 0 (Negligible)
	Max. Tensile Strain	No. 25/26 Wall C		1	0.0	5.1000	Hogging	393.07E-6	3.5100	0.036743	35206.	- 0 (Negligible)
	Min. Radius of Curvature (Hogging)	No. 25/26 Wall C		1	0.0	5.1000	Hogging	393.07E-6	3.5100	0.036743	35206.	- 0 (Negligible)
	Min. Radius of Curvature (Sagging)	No. 25/26 Wall C		-	-	-	-	-	-	-	-	-
No. 25#26 Wall C	Maximum Slope	No. 25/26 Wall D		3	8.8423	12.900	Sagging	925.65E-6	3.3721	0.016719	-	865.10 0 (Negligible)
	Maximum Settlement	No. 25/26 Wall D		1	0.0	1.7061	Sagging	347.20E-6	4.0773	0.018656	-	2681.6 0 (Negligible)
	Max. Tensile Strain	No. 25/26 Wall D		1	0.0	1.7061	Sagging	347.20E-6	4.0773	0.018656	-	2681.6 0 (Negligible)
	Min. Radius of Curvature (Hogging)	No. 25/26 Wall D		2	1.7061	8.8423	Hogging	347.20E-6	3.7405	0.0030691	9654.9	- 0 (Negligible)
	Min. Radius of Curvature (Sagging)	No. 25/26 Wall D		3	8.8423	12.900	Sagging	925.65E-6	3.3721	0.016719	-	865.10 0 (Negligible)
	Maximum Slope	No. 25/26 Wall E		3	9.1339	12.900	Sagging	0.0010327	4.3872	0.018519	-	831.72 0 (Negligible)
No. 25#26 Wall D	Maximum Settlement	No. 25/26 Wall E		1	0.0	2.1798	Sagging	123.95E-6	5.2266	0.011120	-	17136. 0 (Negligible)
	Max. Tensile Strain	No. 25/26 Wall E		3	9.1339	12.900	Sagging	0.0010327	4.3872	0.018519	-	831.72 0 (Negligible)
	Min. Radius of Curvature (Hogging)	No. 25/26 Wall E		2	2.1798	9.1339	Hogging	112.73E-6	5.0024	0.0018616	93284.	- 0 (Negligible)



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<b>Made by</b>	<b>Date</b>	<b>Checked</b>
<b>JB</b>	<b>09-Nov-2015</b>	

Structure Name	Parameter	Critical Sub-Structure	Critical Segment	Start	End	Curvature	Maximum Slope	Maximum Settlement	Max. Tensile Strain	Min. Radius of Curvature (Hogging)	Min. Radius of Curvature (Sagging)	Damage Category
No. 25#26 Wall F	Min. Radius of Curvature (Sagging)	No. 25/26 Wall E		3 9.1339	12.900	Sagging	0.0010327	4.3872	0.018519	-	831.72 0	(Negligible)
	Maximum Slope	No. 25/26 Wall F		1 0.0	2.2000	Sagging	95.790E-6	3.6954	0.0074217	-	28041. 0	(Negligible)
	Maximum Settlement	No. 25/26 Wall F		1 0.0	2.2000	Sagging	95.790E-6	3.6954	0.0074217	-	28041. 0	(Negligible)
	Max. Tensile Strain	No. 25/26 Wall F		1 0.0	2.2000	Sagging	95.790E-6	3.6954	0.0074217	-	28041. 0	(Negligible)
No. 25#26 Wall G	Min. Radius of Curvature (Hogging)	No. 25/26 Wall F		1 0.0	2.2000	Sagging	95.790E-6	3.6954	0.0074217	-	28041. 0	(Negligible)
	Maximum Slope	No. 25/26 Wall G		3 7.8457	10.700	Sagging	187.93E-6	1.0413	0.0017634	-	7082.9 0	(Negligible)
	Maximum Settlement	No. 25/26 Wall G		1 0.0	6.5996	Sagging	84.084E-6	1.6358	0.0018124	-	129710. 0	(Negligible)
	Max. Tensile Strain	No. 25/26 Wall G		1 0.0	6.5996	Sagging	84.084E-6	1.6358	0.0018124	-	129710. 0	(Negligible)
No. 25#26 Wall G	Min. Radius of Curvature (Hogging)	No. 25/26 Wall G		2 6.5996	7.8457	Hogging	84.084E-6	1.1457	929.30E-6	554410.	- 0	(Negligible)
	Min. Radius of Curvature (Sagging)	No. 25/26 Wall G		3 7.8457	10.700	Sagging	187.93E-6	1.0413	0.0017634	-	7082.9 0	(Negligible)

**Specific Building Damage Results - All Combined Segments**

Structure: No. 7 Wall A | Sub-structure: No. 7 Wall A

Vertical Offset from Line for Vertical Movement Calculations	Combined Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Damage Category
[m]	[m]	[m]			[%]	[%]	[%]	
No structures have segments combined.								

Structure: No. 7 Wall B | Sub-structure: No. 7 Wall B

Vertical Offset from Line for Vertical Movement Calculations	Combined Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Damage Category
[m]	[m]	[m]			[%]	[%]	[%]	
No structures have segments combined.								

Structure: No. 7 Wall C | Sub-structure: No. 7 Wall C

Vertical Offset from Line for Vertical Movement Calculations	Combined Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Damage Category
[m]	[m]	[m]			[%]	[%]	[%]	
No structures have segments combined.								

Structure: No. 7 Wall D | Sub-structure: No. 7 Wall D

Vertical Offset from Line for Vertical Movement Calculations	Combined Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Damage Category
[m]	[m]	[m]			[%]	[%]	[%]	
No structures have segments combined.								

Structure: No. 7 Wall E | Sub-structure: No. 7 Wall E

Vertical Offset from Line for Vertical Movement Calculations	Combined Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Damage Category
[m]	[m]	[m]			[%]	[%]	[%]	
No structures have segments combined.								

Structure: No. 7 Wall F | Sub-structure: No. 7 Wall F

Vertical Offset from Line for Vertical Movement Calculations	Combined Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Damage Category
[m]	[m]	[m]			[%]	[%]	[%]	
No structures have segments combined.								

Structure: No. 7 Wall G | Sub-structure: No. 7 Wall G

Vertical Offset from Line for Vertical Movement Calculations	Combined Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Damage Category
[m]	[m]	[m]			[%]	[%]	[%]	
No structures have segments combined.								

Structure: No. 25/26 Wall A | Sub-structure: No. 25/26 Wall A

Vertical Offset from Line for Vertical Movement Calculations	Combined Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Damage Category
[m]	[m]	[m]			[%]	[%]	[%]	
No structures have segments combined.								

Structure: No. 25/26 Wall B | Sub-structure: No. 25/26 Wall B



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**24 REDINGTON GARDENS**  
Ground Movement & Buildgin Damage Assessment  
Excavation in Front of a High Stiffness Secant Pile Wall in Stiff Clay

Job No.	Sheet No.	Rev.
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Vertical Offset from Line for Vertical	Combined Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Damage Category
		[m]	[m]		[%]	[%]	[%]	
No structures have segments combined.								
Structure: No. 25/26 Wall C   Sub-structure: No. 25/26 Wall C								
Vertical Offset from Line for Vertical	Combined Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Damage Category
		[m]	[m]		[%]	[%]	[%]	
No structures have segments combined.								
Structure: No. 25/26 Wall D   Sub-structure: No. 25/26 Wall D								
Vertical Offset from Line for Vertical	Combined Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Damage Category
		[m]	[m]		[%]	[%]	[%]	
No structures have segments combined.								
Structure: No. 25/26 Wall E   Sub-structure: No. 25/26 Wall E								
Vertical Offset from Line for Vertical	Combined Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Damage Category
		[m]	[m]		[%]	[%]	[%]	
No structures have segments combined.								
Structure: No. 25/26 Wall F   Sub-structure: No. 25/26 Wall F								
Vertical Offset from Line for Vertical	Combined Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Damage Category
		[m]	[m]		[%]	[%]	[%]	
No structures have segments combined.								
Structure: No. 25/26 Wall G   Sub-structure: No. 25/26 Wall G								
Vertical Offset from Line for Vertical	Combined Segment	Start	Length	Curvature	Deflection Ratio	Average Horizontal Strain	Max. Tensile Strain	Damage Category
		[m]	[m]		[%]	[%]	[%]	
No structures have segments combined.								



### 24 REDINGTON GARDENS

Ground Movement & Buildgin Damage Assessment  
Excavation in Front of a Medium Stiffness Secant Pile Wall in Stiff Clay

Job No.	Sheet No.	Rev.
1248		
Drg. Ref.		
Made by JB	Date 09-Nov-2015	Checked

Grid 1 (level 50.000m)

