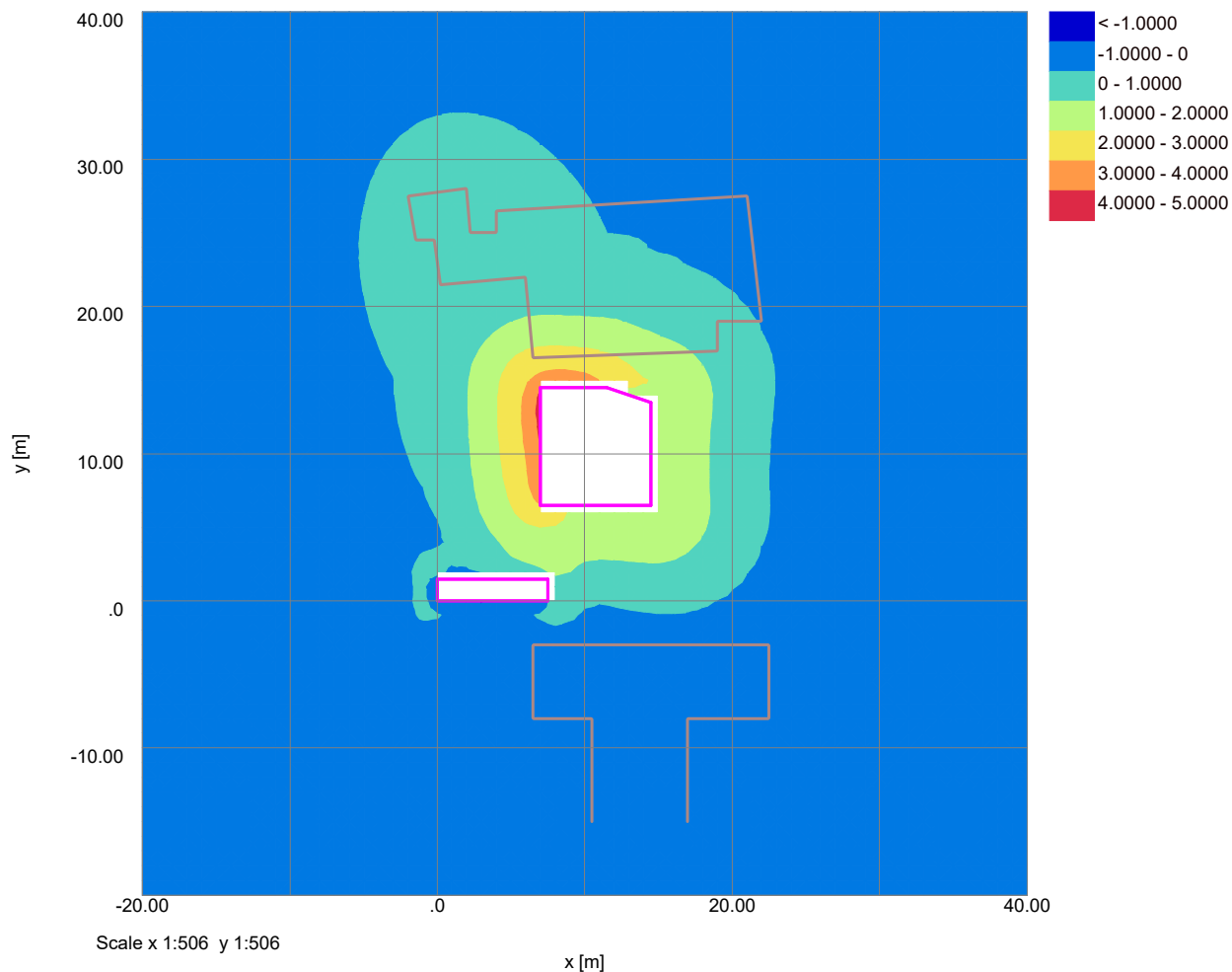


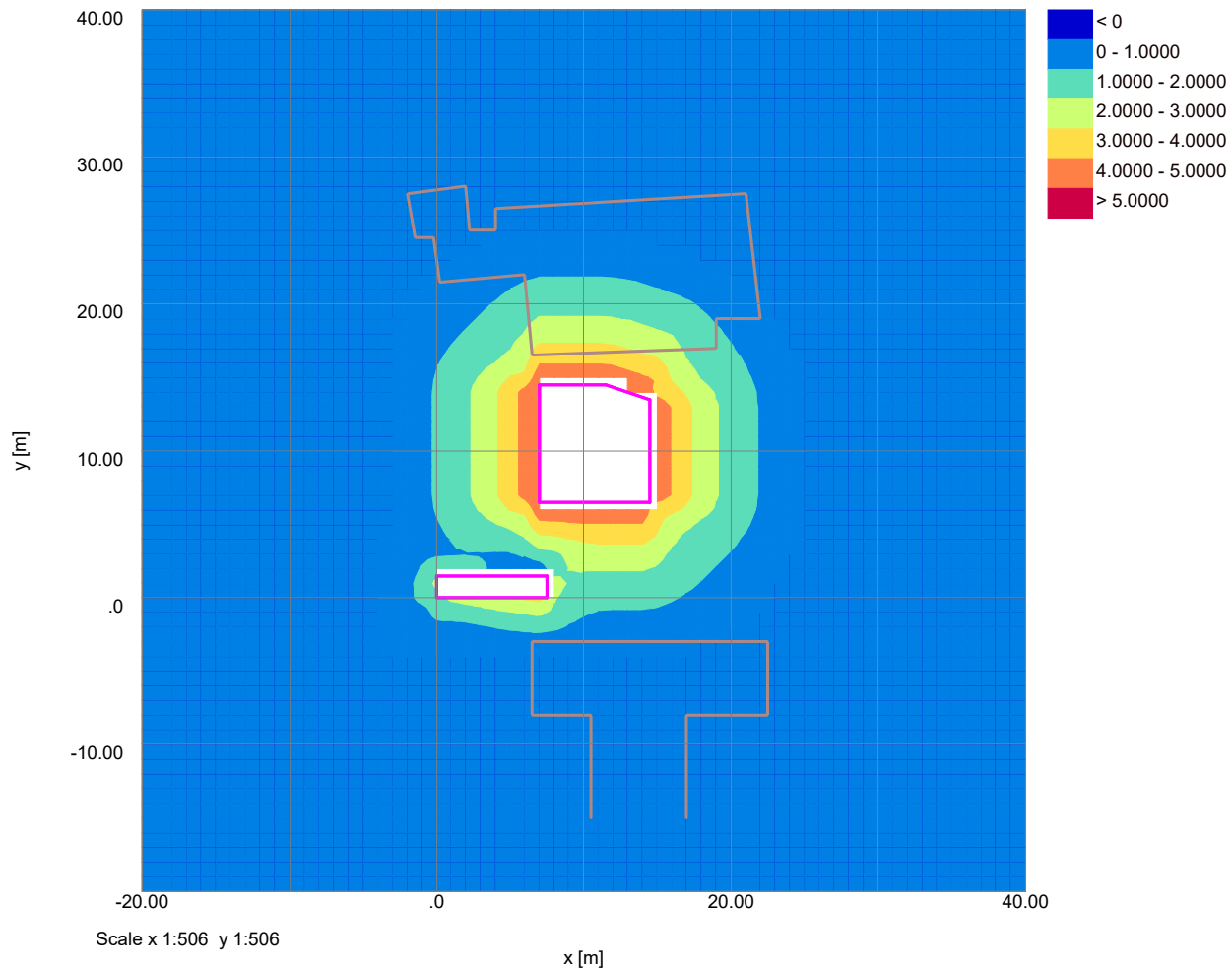
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Vertical Settlement Contours: Grid 1 (level 9.000m) (Interval 1mm)



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Horizontal Displacement Contours: Grid 1 (level 9.000m) Interval 1mm





8 Oakhill Avenue

Ground Movement Assessment

Stage 1 - Wall Installation

Job No.	Sheet No.	Rev.
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Made by MP	Date 02-Mar-2020	Checked

Specific Building Damage Results - Detail

Stage: Ref.	Stage: Name	Specific Building: Ref.	Specific Building: Name	Sub-building Name	Vertical Offset from Line for Vertical Movement Calculations [m]	Segment	Start [m]	Length [m]	Curvature	Deflection Ratio [%]	Average Horizontal Strain [%]	Max Tensile Strain [%]	Max Gradient of Horizontal Displacement Curve	Max Gradient of Vertical Displacement Curve	Min Radius of Curvature [m]	Damage Category
0	Base Model	1	No 6 Oakhill Avenue	A	0.0	1	0.0	4.3385	None	0.0036415	0.010812	0.013131	-278.97E-6	254.35E-6	5930.3	0 (Negligible)
		2	No 6 Oakhill Avenue	B	0.0	All vertical displacements are less than the limit sensitivity.										
		3	No 6 Oakhill Avenue	C	0.0	All vertical displacements are less than the limit sensitivity.										
		4	No 6 Oakhill Avenue	D	0.0	All vertical displacements are less than the limit sensitivity.										
		5	No 6 Oakhill Avenue	E	0.0	All vertical displacements are less than the limit sensitivity.										
		6	No 6 Oakhill Avenue	F	0.0	All vertical displacements are less than the limit sensitivity.										
		7	No 6 Oakhill Avenue	G	0.0	All vertical displacements are less than the limit sensitivity.										
		8	No 6 Oakhill Avenue	H	0.0	All vertical displacements are less than the limit sensitivity.										
		9	No 6 Oakhill Avenue	I	0.0	All vertical displacements are less than the limit sensitivity.										
		10	No 6 Oakhill Avenue	J	0.0	All vertical displacements are less than the limit sensitivity.										
		11	No 6 Oakhill Avenue	K	0.0	All vertical displacements are less than the limit sensitivity.										
		12	No 6 Oakhill Avenue	L	0.0	All vertical displacements are less than the limit sensitivity.										
		13	No 6 Oakhill Avenue	M	0.0	All vertical displacements are less than the limit sensitivity.										
		14	No 6 Oakhill Avenue	N	0.0	1	3.5457	2.8492	None	0.0012826	0.0024547	0.0030055	-41.816E-6	-120.50E-6	52671.0	0 (Negligible)
						2	6.3950	6.0150	None	0.0024173	-0.0027091	0.0016614	46.652E-6	-120.50E-6	21295.0	0 (Negligible)
		15	No 10A Oakhill Avenue	A	0.0	All vertical displacements are less than the limit sensitivity.										
		16	No 10A Oakhill Avenue	B	0.0	All vertical displacements are less than the limit sensitivity.										
		17	No 10A Oakhill Avenue	C	0.0	All vertical displacements are less than the limit sensitivity.										
		18	No 10A Oakhill Avenue	D	0.0	All vertical displacements are less than the limit sensitivity.										
		19	No 10A Oakhill Avenue	E	0.0	All vertical displacements are less than the limit sensitivity.										
		20	No 10A Oakhill Avenue	F	0.0	All vertical displacements are less than the limit sensitivity.										
		21	No 10A Oakhill Avenue	G	0.0	All vertical displacements are less than the limit sensitivity.										

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



8 Oakhill Avenue

Ground Movement Assessment

Stage 2 - Bulk Excavation

Job No.	Sheet No.	Rev.
J19232		
Drg. Ref.		
Made by MP	Date 02-Mar-2020	Checked

Specific Building Damage Results - Detail

Stage: Ref.	Stage: Name	Specific Building: Ref.	Specific Building: Name	Sub-building Name	Vertical Offset from Line for Vertical Movement Calculations [m]	Segment	Start [m]	Length [m]	Curvature	Deflection Ratio [%]	Average Horizontal Strain [%]	Max Tensile Strain [%]	Max Gradient of Horizontal Displacement Curve	Max Gradient of Vertical Displacement Curve	Min Radius of Curvature [m]	Damage Category
0	Base Model	1	No 6 Oakhill Avenue	A	0.0	1	0.0	1.4649	None	454.99E-6	0.051174	0.051276	-530.75E-6	405.16E-6	31381.1	1 (Very Slight)
		2	No 6 Oakhill Avenue	B	0.0	2	1.4649	3.9581	None	0.0036697	0.035436	0.037585	-456.53E-6	405.16E-6	8401.5	0 (Negligible)
		3	No 6 Oakhill Avenue	C	0.0	All vertical displacements are less than the limit sensitivity.										
		4	No 6 Oakhill Avenue	D	0.0	All vertical displacements are less than the limit sensitivity.										
		5	No 6 Oakhill Avenue	E	0.0	All vertical displacements are less than the limit sensitivity.										
		6	No 6 Oakhill Avenue	F	0.0	All vertical displacements are less than the limit sensitivity.										
		7	No 6 Oakhill Avenue	G	0.0	All vertical displacements are less than the limit sensitivity.										
		8	No 6 Oakhill Avenue	H	0.0	All vertical displacements are less than the limit sensitivity.										
		9	No 6 Oakhill Avenue	I	0.0	All vertical displacements are less than the limit sensitivity.										
		10	No 6 Oakhill Avenue	J	0.0	All vertical displacements are less than the limit sensitivity.										
		11	No 6 Oakhill Avenue	K	0.0	All vertical displacements are less than the limit sensitivity.										
		12	No 6 Oakhill Avenue	L	0.0	1	2.8990	0.0	None	0.0	0.0	35.763E-9	-86.154E-6	-80.090E-6	24675.0	0 (Negligible)
		13	No 6 Oakhill Avenue	M	0.0	1	0.0	1.8990	None	0.0	0.0040291	0.0040291	-40.290E-6	-158.00E-6	-	0 (Negligible)
		14	No 6 Oakhill Avenue	N	0.0	1	0.0	12.410	None	0.0027056	-0.011622	0.0025892	304.48E-6	-252.18E-6	19660.0	0 (Negligible)
		15	No 10A Oakhill Avenue	A	0.0	All vertical displacements are less than the limit sensitivity.										
		16	No 10A Oakhill Avenue	B	0.0	All vertical displacements are less than the limit sensitivity.										
		17	No 10A Oakhill Avenue	C	0.0	1	0.98000	1.4652	None	188.31E-6	0.0	187.29E-6	0.0	36.235E-6	109970.0	0 (Negligible)
						2	2.4452	2.4548	None	0.0015648	0.020965	0.021547	-524.87E-6	48.793E-6	10807.0	0 (Negligible)
		18	No 10A Oakhill Avenue	D	0.0	1	0.0	3.2650	None	349.75E-6	-887.44E-6	277.05E-6	35.805E-6	-14.957E-6	87843.0	0 (Negligible)
						2	3.2650	2.9377	None	299.97E-6	798.08E-6	930.73E-6	-33.020E-6	-16.970E-6	520890.0	0 (Negligible)
						3	6.2027	1.7473	None	0.0	0.0	35.763E-9	7.2912E-6	-13.471E-6	340330.0	0 (Negligible)
		19	No 10A Oakhill Avenue	E	0.0	All vertical displacements are less than the limit sensitivity.										
		20	No 10A Oakhill Avenue	F	0.0	All vertical displacements are less than the limit sensitivity.										
		21	No 10A Oakhill Avenue	G	0.0	All vertical displacements are less than the limit sensitivity.										

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



8 Oakhill Avenue

Ground Movement Assessment

Stage 3 - Application of basement slab loading

Job No.	Sheet No.	Rev.
J19232		
Drg. Ref.		
Made by MP	Date 02-Mar-2020	Checked

Specific Building Damage Results - Detail

Stage: Ref.	Stage: Name	Specific Building: Ref.	Specific Building: Name	Sub-building Name	Vertical Offset from Line for Vertical Movement Calculations [m]	Segment	Start [m]	Length [m]	Curvature	Deflection Ratio	Average Horizontal Strain	Max Tensile Strain	Max Gradient of Horizontal Displacement Curve	Max Gradient of Vertical Displacement Curve	Min Radius of Curvature [m]	Damage Category
0	Base Model	1	No 6 Oakhill Avenue	A	0.0	1	0.0	1.0315	None	0.0	0.053103	0.053103	-530.75E-6	439.49E-6	58953.1	1 (Very Slight)
		2	No 6 Oakhill Avenue	B	0.0	2	1.0315	4.3915	None	0.0041419	0.036537	0.039203	-530.75E-6	448.21E-6	8089.0	0 (Negligible)
						1	0.0	2.6193	None	318.63E-6	-0.0058524	0.0011844	77.990E-6	30.938E-6	68352.0	0 (Negligible)
						2	2.6193	0.21675	None	0.0	-0.0031450	629.03E-6	31.451E-6	30.938E-6	703050.0	0 (Negligible)
		3	No 6 Oakhill Avenue	C	0.0	All vertical displacements are less than the limit sensitivity.										
		4	No 6 Oakhill Avenue	D	0.0	All vertical displacements are less than the limit sensitivity.										
		5	No 6 Oakhill Avenue	E	0.0	All vertical displacements are less than the limit sensitivity.										
		6	No 6 Oakhill Avenue	F	0.0	All vertical displacements are less than the limit sensitivity.										
		7	No 6 Oakhill Avenue	G	0.0	All vertical displacements are less than the limit sensitivity.										
		8	No 6 Oakhill Avenue	H	0.0	All vertical displacements are less than the limit sensitivity.										
		9	No 6 Oakhill Avenue	I	0.0	All vertical displacements are less than the limit sensitivity.										
		10	No 6 Oakhill Avenue	J	0.0	All vertical displacements are less than the limit sensitivity.										
		11	No 6 Oakhill Avenue	K	0.0	All vertical displacements are less than the limit sensitivity.										
		12	No 6 Oakhill Avenue	L	0.0	1	1.9333	0.96567	None	0.0	0.0086162	0.0086161	-132.10E-6	-93.879E-6	23798.0	0 (Negligible)
		13	No 6 Oakhill Avenue	M	0.0	1	0.0	1.8990	None	0.0	0.0040291	0.0040291	-40.290E-6	-175.92E-6	-0	0 (Negligible)
		14	No 6 Oakhill Avenue	N	0.0	1	0.0	12.410	None	0.0039420	-0.011622	0.0028754	304.48E-6	-280.52E-6	21742.0	0 (Negligible)
		15	No 10A Oakhill Avenue	A	0.0	All vertical displacements are less than the limit sensitivity.										
		16	No 10A Oakhill Avenue	B	0.0	All vertical displacements are less than the limit sensitivity.										
		17	No 10A Oakhill Avenue	C	0.0	1	2.9400	1.9600	None	0.0017845	0.026257	0.026790	-524.87E-6	38.912E-6	10558.0	0 (Negligible)
		18	No 10A Oakhill Avenue	D	0.0	1	0.0	0.0	None	0.0	0.0	35.763E-9	35.805E-6	-18.689E-6	81099.0	0 (Negligible)
		19	No 10A Oakhill Avenue	E	0.0	All vertical displacements are less than the limit sensitivity.										
		20	No 10A Oakhill Avenue	F	0.0	All vertical displacements are less than the limit sensitivity.										
		21	No 10A Oakhill Avenue	G	0.0	All vertical displacements are less than the limit sensitivity.										

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



8 Oakhill Avenue

Ground Movement Assessment

Stage 4 - Total Movements

Job No.	Sheet No.	Rev.
J19232		
Drg. Ref.		
Made by MP	Date 02-Mar-2020	Checked

Specific Building Damage Results - Detail

Stage: Ref.	Stage: Name	Specific Building: Ref.	Specific Building: Name	Sub-building Name	Vertical Offset from Line for Vertical Movement Calculations [m]	Segment	Start [m]	Length [m]	Curvature [%]	Deflection Ratio [%]	Average Horizontal Strain [%]	Max Tensile Strain [%]	Max Gradient of Horizontal Displacement Curve	Max Gradient of Vertical Displacement Curve	Min Radius of Curvature [m]	Damage Category
0	Base Model	1	No 6 Oakhill Avenue	A	0.0	1	0.0	5.4230	None	0.0045909	0.039688	0.043249	-530.75E-6	491.96E-6	7895.5 0	(Negligible)
		2	No 6 Oakhill Avenue	B	0.0	1	0.0	2.6782	None	340.87E-6	-0.0057929	0.0011746	77.990E-6	32.513E-6	64584. 0	(Negligible)
						2	2.6782	0.15787	None	0.0	-0.0031450	629.03E-6	31.451E-6	32.513E-6	932180. 0	(Negligible)
		3	No 6 Oakhill Avenue	C	0.0	All vertical displacements are less than the limit sensitivity.										
		4	No 6 Oakhill Avenue	D	0.0	All vertical displacements are less than the limit sensitivity.										
		5	No 6 Oakhill Avenue	E	0.0	All vertical displacements are less than the limit sensitivity.										
		6	No 6 Oakhill Avenue	F	0.0	All vertical displacements are less than the limit sensitivity.										
		7	No 6 Oakhill Avenue	G	0.0	All vertical displacements are less than the limit sensitivity.										
		8	No 6 Oakhill Avenue	H	0.0	All vertical displacements are less than the limit sensitivity.										
		9	No 6 Oakhill Avenue	I	0.0	All vertical displacements are less than the limit sensitivity.										
		10	No 6 Oakhill Avenue	J	0.0	All vertical displacements are less than the limit sensitivity.										
		11	No 6 Oakhill Avenue	K	0.0	All vertical displacements are less than the limit sensitivity.										
		12	No 6 Oakhill Avenue	L	0.0	1	2.8990	0.0	None	0.0	0.0	35.763E-9	-86.154E-6	-92.354E-6	23545. 0	(Negligible)
		13	No 6 Oakhill Avenue	M	0.0	1	0.0	1.8990	None	0.0	0.0040291	0.0040291	-40.290E-6	-168.01E-6	- 0	(Negligible)
		14	No 6 Oakhill Avenue	N	0.0	1	0.0	12.410	None	0.0036591	-0.011622	0.0028015	304.48E-6	-276.59E-6	14492. 0	(Negligible)
		15	No 10A Oakhill Avenue	A	0.0	1	5.9571	0.99186	None	0.0	0.0	35.763E-9	0.0	16.081E-6	390440. 0	(Negligible)
		16	No 10A Oakhill Avenue	B	0.0	1	0.0	3.8990	None	44.269E-6	0.0	42.593E-6	0.0	8.7789E-6	645900. 0	(Negligible)
		17	No 10A Oakhill Avenue	C	0.0	1	0.0	2.8457	None	377.22E-6	0.0	369.54E-6	0.0	53.325E-6	71579. 0	(Negligible)
						2	2.8457	2.0543	None	0.0014014	0.025052	0.025490	-524.87E-6	72.963E-6	12624. 0	(Negligible)
		18	No 10A Oakhill Avenue	D	0.0	1	0.0	11.446	None	521.37E-6	-78.793E-6	608.43E-6	35.805E-6	-42.627E-6	77051. 0	(Negligible)
						2	11.446	0.47858	None	0.0	729.11E-6	729.10E-6	-7.2911E-6	-9.6823E-6	1.2522E+6 0	(Negligible)
		19	No 10A Oakhill Avenue	E	0.0	All vertical displacements are less than the limit sensitivity.										
		20	No 10A Oakhill Avenue	F	0.0	All vertical displacements are less than the limit sensitivity.										
		21	No 10A Oakhill Avenue	G	0.0	All vertical displacements are less than the limit sensitivity.										

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

Geotechnical & Environmental Associates
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