Titles

Job No.: J13674
Job Title: 46 Inverness Street
Sub-title: London, NW1 7HB
Calculation Heading: X1
Initials: TRL
Checker:
Date Saved: 15-Aug-2018
Date Checked:
Notes:
File Name: X - undrained movements due to excavation in front of wall (OUTPUT FILE).xdd
File Path: S:\SI Data\Job\J13674 London NW1\GMA\XDisp - (X)

History

Date	Time	By	Notes
24-Jul-2018	10:55	thomasl	
07-Aug-2018	12:14	thomasl	
07-Aug-2018	13:15	thomasl	
15-Aug-2018	12:02	thomasl	
11-Mar-2020	09:03	thomasl	

Displacement Lines

Ref.	Name	x1 [m]	y1 [m]	z1 [m]	x2 [m]	y2 [m]	z2 [m]	Intervals [No.]	Surface type for tunnels	Interpolate imported displacements	Calculate
1	Line 1	-0.78000	3.38000	-1.10000	-10.05000	1.45000	-1.10000	16	Surface	Yes	Yes
2	Line 2	1.50000	4.65000	-1.10000	0.15000	10.45000	-1.10000	12	Surface	Yes	Yes
3	Line 3	9.00000	5.98000	-1.10000	9.00000	13.48000	-1.10000	15	Surface	Yes	Yes
4	Line 4	9.00000	1.70000	0.00000	14.50000	1.70000	0.00000	11	Surface	Yes	Yes
5	Line 5	4.50000	0.00000	0.00000	4.50000	-14.50000	0.00000	29	Surface	Yes	Yes

Polygonal Excavations

Ref. 1
Excavation Name: Basement
Surface level [m]: -1.1000
Contribution: Positive

Corner	x [m]	y [m]	Base Level [m]	Arc Enabled	Stiffened	Prev. Side: d [m]	Prev. Side: p1 [%]	Prev. Side: p2* [%]	Next Side: d [m]	Next Side: p1 [%]	Next Side: p2* [%]
1	0.0	0.0	-3.1000	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
2	-0.80000	4.0000	-3.1000	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
3	-0.50000	4.0000	-3.1000	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
4	0.50000	0.0	-3.1000	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000

Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal
1	0.0	0.0	-0.80000	4.0000	Exc. in front of high stiffness wall in stiff clay (CIRIA C580 Fig. 2.11(b))	Exc. in front of high stiffness wall in stiff clay (CIRIA C580 Fig. 2.11(a))
2	-0.80000	4.0000	-0.50000	4.0000	No vertical ground movement	No horizontal ground movement
3	-0.50000	4.0000	0.50000	0.0	No vertical ground movement	No horizontal ground movement
4	0.50000	0.0	0.0	0.0	No vertical ground movement	No horizontal ground movement

Ref. 2
Excavation Name: Basement near 24 GC rear wall
Surface level [m]: -1.1000
Contribution: Positive

Corner	x [m]	y [m]	Base Level [m]	Arc Enabled	Stiffened	Prev. Side: d [m]	Prev. Side: p1 [%]	Prev. Side: p2* [%]	Next Side: d [m]	Next Side: p1 [%]	Next Side: p2* [%]
1	-0.30000	4.0000	-3.1000	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
2	5.0500	5.5000	-3.1000	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
3	5.0000	5.0000	-3.1000	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
4	-0.30000	3.5000	-3.1000	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000

Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal
1	-0.30000	4.0000	5.0500	5.5000	Exc. in front of high stiffness wall in stiff clay (CIRIA C580 Fig. 2.11(b))	Exc. in front of high stiffness wall in stiff clay (CIRIA C580 Fig. 2.11(a))
2	5.0500	5.5000	5.0000	5.0000	No vertical ground movement	No horizontal ground movement
3	5.0000	5.0000	-0.30000	3.5000	No vertical ground movement	No horizontal ground movement
4	-0.30000	3.5000	-0.30000	4.0000	No vertical ground movement	No horizontal ground movement

Ref. 3
Excavation Name: Basement front (Inverness St)
Surface level [m]: 0.0
Contribution: Positive

Corner	x [m]	y [m]	Base Level [m]	Arc Enabled	Stiffened	Prev. Side: d [m]	Prev. Side: p1 [%]	Prev. Side: p2* [%]	Next Side: d [m]	Next Side: p1 [%]	Next Side: p2* [%]
1	0.50000	0.0	-3.1000	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
2	0.50000	0.50000	-3.1000	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
3	8.5000	0.50000	-3.1000	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
4	8.5000	0.0	-3.1000	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000

Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal
1	0.50000	0.0	0.50000	0.50000	No vertical ground movement	No horizontal ground movement
2	0.50000	0.50000	8.5000	0.50000	No vertical ground movement	No horizontal ground movement
3	8.5000	0.50000	8.5000	0.0	No vertical ground movement	No horizontal ground movement
4	8.5000	0.0	0.50000	0.0	Exc. in front of high stiffness wall in stiff clay (CIRIA C580 Fig. 2.11(b))	Exc. in front of high stiffness wall in stiff clay (CIRIA C580 Fig. 2.11(a))

Ref. 4

Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal

Excavation Name: Corner nr. 46 Inv St side elev
Surface level [m]: -1.1000
Contribution: Positive

Corner	x [m]	y [m]	Base Level [m]	Arc Enabled	Stiffened	Prev. Side: d [m]	Prev. Side: p1 [%]	Prev. Side: p2* [%]	Next Side: d [m]	Next Side: p1 [%]	Next Side: p2* [%]
1	5.5000	5.3500	-3.1000	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
2	9.5000	5.9500	-3.1000	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
3	9.5000	5.4500	-3.1000	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
4	5.6000	4.9000	-3.1000	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000

Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal
1	5.5000	5.3500	9.5000	5.9500	Exc. in front of high stiffness wall in stiff clay (CIRIA C580 Fig. 2.11(b))	Exc. in front of high stiffness wall in stiff clay (CIRIA C580 Fig. 2.11(a))
2	9.5000	5.9500	9.5000	5.4500	No vertical ground movement	No horizontal ground movement
3	9.5000	5.4500	5.6000	4.9000	No vertical ground movement	No horizontal ground movement
4	5.6000	4.9000	5.5000	5.3500	No vertical ground movement	No horizontal ground movement

Circular Excavations

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:

Curve Name: **Exc. in front of high stiffness wall in stiff clay (CIRIA C580 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 = $-2.6455E\text{-}3x^4 + 2.8495E\text{-}2x^3 - 1.0051E\text{-}1x^2 + 1.0569E\text{-}1x + 3.8990E\text{-}2$
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:

Curve Name: **Exc. in front of high stiffness wall in stiff clay (CIRIA C580 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

Damage Category Strains

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

Specific Buildings - Geometry

Ref.	Building Name	Sub-Building Name	Displacement Line	Distance Along Line: Start [m]	Distance Along Line: End [m]	Vertical Offsets from Line for Vertical Movement Calculations [m]	Vertical Displacement Limit Sensitivity [mm]	Damage Category Strains	Poisson's Ratio	E/G
1	24 Gloucester Crescent (side elevation)	Sub 1	Line 1	0.00000	8.00000	0.0	0.10000	Burland Strain Limits	0.20000	2.6000
2	24 Gloucester Crescent (rear elevation)		Line 2	0.00000	5.95000	0.0	0.10000	Burland Strain Limits	0.20000	2.6000
3	46 Inverness Street (side elevation)		Line 3	0.00000	7.50000	0.0	0.10000	Burland Strain Limits	0.20000	2.6000
4	46 Inverness Street (front elevation)		Line 4	0.00000	5.00000	0.0	0.10000	Burland Strain Limits	0.20000	2.6000

Specific Buildings - Bending Parameters

Ref.	Building Name	Sub-Building Name	Height	Default Hogging: 2nd Mom. of Area (per unit width)	Hogging: Dist. of Bending Strain from N.A.	Hogging: Dist. of N.A. from Edge of Beam in Tension	Sagging: 2nd Mom. of Area (per unit width)	Sagging: Dist. of Bending Strain from N.A.	Sagging: Dist. of N.A. from Edge of Beam in Tension

		[m]		[m³]	[m]	[m]	[m³]	[m]	[m]
1	24 Gloucester Crescent (side elevation) Sub 1	15.500	Yes	1241.3	15.500	15.500	310.32	7.7500	7.7500
2	24 Gloucester Crescent (rear elevation)	15.500	Yes	1241.3	15.500	15.500	310.32	7.7500	7.7500
3	46 Inverness Street (side elevation)	12.200	Yes	605.28	12.200	12.200	151.32	6.1000	6.1000
4	46 Inverness Street (front elevation)	12.200	Yes	605.28	12.200	12.200	151.32	6.1000	6.1000

Warnings

1 Multiple excavations have been specified. Displacements resulting from each excavation are summed with no account taken of the interactions between excavations (e.g. overlapping zones of influence or 'shielding' of one excavation by another).

2 If an embedded wall excavation is assigned a 'surface' ground movement curve then displacements induced by it can only be calculated for those points that are level with the embedded wall excavation's 'surface level'. Others are ignored. An example of such a combination, for which displacements will not be calculated is Excavation XP1/Side 1/Line 4/Vertical. This is an example only. There are 17 others.

3 If an embedded wall excavation is assigned a 'sub-surface' ground movement curve then displacements induced by it can only be calculated for those points that are level with or below the embedded wall excavation's 'surface level'. Others are ignored. An example of such a combination, for which displacements will not be calculated is Excavation XP1/Side 2/Line 4/Vertical. This is an example only. There are 35 others.

Errors

None

Displacement Results - Displacement Lines

Stage: Ref.	Stage: Name	Disp. Line: Ref.	Disp. Line: Name	Chainage [m]	x [m]	y [m]	z [m]	δx [mm]	δy [mm]	δz [mm]	δH// [mm]	δHperp. [mm]	Angle [°]
0	Base Model	1	Line 1	0.0	-0.78000	3.38000	-1.10000	2.9042	0.58085	0.88244	-2.9617	0.023311	191.76
				0.59180	-1.35938	3.25937	-1.10000	2.6866	0.53733	1.2942	-2.7398	0.021564	191.76
				1.1836	-1.93875	3.13875	-1.10000	2.4690	0.49381	1.4503	-2.5178	0.019817	191.76
				1.7754	-2.51813	3.01812	-1.10000	2.2514	0.45028	1.4231	-2.2959	0.018071	191.76
				2.3672	-3.09750	2.89750	-1.10000	2.0338	0.40676	1.2752	-2.0740	0.016324	191.76
				2.9590	-3.67688	2.77687	-1.10000	1.8162	0.36324	1.0593	-1.8521	0.014578	191.76
				3.5508	-4.25625	2.65625	-1.10000	1.5986	0.31972	0.81864	-1.6302	0.012831	191.76
				4.1426	-4.83563	2.53563	-1.10000	1.3810	0.27620	0.58650	-1.4083	0.011084	191.76
				4.7344	-5.41500	2.41500	-1.10000	1.1634	0.23268	0.38654	-1.1864	0.0093377	191.76
				5.3262	-5.99438	2.29437	-1.10000	0.94577	0.18915	0.23268	-0.96447	0.0075911	191.76
				5.9180	-6.57375	2.17375	-1.10000	0.72816	0.14563	0.12907	-0.74256	0.0058445	191.76
				6.5098	-7.15313	2.05312	-1.10000	0.51055	0.10211	0.070146	-0.52065	0.0040979	191.76
				7.1016	-7.73250	1.93250	-1.10000	0.29294	0.058589	0.040621	-0.29874	0.0023513	191.76
				7.6934	-8.31188	1.81187	-1.10000	0.075336	0.015067	0.015458	-0.076825	604.67E-6	191.76
				8.2852	-8.89125	1.69125	-1.10000	0.0	0.0	0.0	0.0	0.0	191.76
				8.8770	-9.47063	1.57062	-1.10000	0.0	0.0	0.0	0.0	0.0	191.76
				9.4688	-10.05000	1.45000	-1.10000	0.0	0.0	0.0	0.0	0.0	191.76
		2	Line 2	0.0	1.50000	4.65000	-1.10000	0.79862	-2.8574	0.92673	-2.9641	-0.13006	103.10
				0.49625	1.38750	5.13333	-1.10000	0.75598	-2.7287	1.2970	-2.8290	-0.11771	103.10
				0.99251	1.27500	5.61667	-1.10000	0.71254	-2.5947	1.4785	-2.6886	-0.10578	103.10
				1.4888	1.16250	6.10000	-1.10000	0.66789	-2.4526	1.5129	-2.5401	-0.094500	103.10
				1.9850	1.05000	6.58333	-1.10000	0.62177	-2.3007	1.4380	-2.3818	-0.084012	103.10
				2.4813	0.93750	7.06667	-1.10000	0.57407	-2.1383	1.2884	-2.2128	-0.074370	103.10
				2.9775	0.82500	7.55000	-1.10000	0.52482	-1.9655	1.0944	-2.0334	-0.065567	103.10
				3.4738	0.71250	8.03333	-1.10000	0.47409	-1.7829	0.88266	-1.8440	-0.057555	103.10
				3.9700	0.60000	8.51667	-1.10000	0.42202	-1.5914	0.67471	-1.6456	-0.050265	103.10
				4.4663	0.48750	9.00000	-1.10000	0.36930	-1.3955	0.48779	-1.4429	-0.043324	103.10
				4.9625	0.37500	9.48333	-1.10000	0.31562	-1.1933	0.33239	-1.2337	-0.036895	103.10
				5.4588	0.26250	9.96667	-1.10000	0.26053	-0.98155	0.21353	-1.0151	-0.031230	103.10
				5.9550	0.15000	10.45000	-1.10000	0.20420	-0.76158	0.13073	-0.78804	-0.026230	103.10
		3	Line 3	0.0	9.00000	5.98000	-1.10000	0.45686	-2.9911	0.91397	-2.9911	-0.45686	90.000
				0.50000	9.00000	6.48000	-1.10000	0.43850	-2.8404	1.2910	-2.8404	-0.43850	90.000
				1.0000	9.00000	6.98000	-1.10000	0.41864	-2.6843	1.4765	-2.6843	-0.41864	90.000
				1.5000	9.00000	7.48000	-1.10000	0.39686	-2.5213	1.5132	-2.5213	-0.39686	90.000
				2.0000	9.00000	7.98000	-1.10000	0.37296	-2.3508	1.4399	-2.3508	-0.37296	90.000
				2.5000	9.00000	8.48000	-1.10000	0.34692	-2.1727	1.2915	-2.1727	-0.34692	90.000
				3.0000	9.00000	8.98000	-1.10000	0.31886	-1.9873	1.0990	-1.9873	-0.31886	90.000
				3.5000	9.00000	9.48000	-1.10000	0.19095	-1.1421	0.54924	-1.1421	-0.19095	90.000
				4.0000	9.00000	9.98000	-1.10000	0.16859	-1.0056	0.41566	-1.0056	-0.16859	90.000
				4.5000	9.00000	10.48000	-1.10000	0.14610	-0.87090	0.29841	-0.87090	-0.14610	90.000
				5.0000	9.00000	10.98000	-1.10000	0.12285	-0.73502	0.20245	-0.73502	-0.12285	90.000
				5.5000	9.00000	11.48000	-1.10000	0.098308	-0.59564	0.12961	-0.59564	-0.098308	90.000
				6.0000	9.00000	11.98000	-1.10000	0.072597	-0.45297	0.078317	-0.45297	-0.072597	90.000
				6.5000	9.00000	12.48000	-1.10000	0.046364	-0.30909	0.042871	-0.30909	-0.046364	90.000
				7.0000	9.00000	12.98000	-1.10000	0.030302	-0.20202	0.026753	-0.20202	-0.030302	90.000
				7.5000	9.00000	13.48000	-1.10000	0.014376	-0.095842	0.015676	-0.095842	-0.014376	90.000
		4	Line 4	0.0	9.00000	1.70000	0.00000	0.0	0.0	0.0	0.0	0.0	0.0
				0.50000	9.50000	1.70000	0.00000	0.0	0.0	0.0	0.0	0.0	0.0
				1.0000	10.00000	1.70000	0.00000	0.0	0.0	0.0	0.0	0.0	0.0
				1.5000	10.50000	1.70000	0.00000	0.0	0.0	0.0	0.0	0.0	0.0
				2.0000	11.00000	1.70000	0.00000	0.0	0.0	0.0	0.0	0.0	0.0
				2.5000	11.50000	1.70000	0.00000	0.0	0.0	0.0	0.0	0.0	0.0
				3.0000	12.00000	1.70000	0.00000	0.0	0.0	0.0	0.0	0.0	0.0
				3.5000	12.50000	1.70000	0.00000	0.0	0.0	0.0	0.0	0.0	0.0
				4.0000	13.00000	1.70000	0.00000	0.0	0.0	0.0	0.0	0.0	0.0
				4.5000	13.50000	1.70000	0.00000	0.0	0.0	0.0	0.0	0.0	0.0
				5.0000	14.00000	1.70000	0.00000	0.0	0.0	0.0	0.0	0.0	0.0
				5.5000	14.50000	1.70000	0.00000	0.0	0.0	0.0	0.0	0.0	0.0
		5	Line 5	0.0	4.50000	0.00000	0.00000	0.0	4.6500	1.2087	-4.6500	0.0	270.00
				0.50000	4.50000	-0.50000	0.00000	0.0	4.4625	1.6598	-4.4625	0.0	270.00
				1.0000	4.50000	-1.00000	0.00000	0.0	4.2750	1.9702	-4.2750	0.0	270.00
				1.5000	4.50000	-1.50000	0.00000	0.0	4.0875	2.1602	-4.0875	0.0	270.00
				2.0000	4.50000	-2.00000	0.00000	0.0	3.9000	2.2487	-3.9000	0.0	270.00
				2.5000	4.50000	-2.50000	0.00000	0.0	3.7125	2.2533	-3.7125	0.0	270.00
				3.0000	4.50000	-3.00000	0.00000	0.0	3.5250	2.1902	-3.5250	0.0	270.00
				3.5000	4.50000	-3.50000	0.00000	0.0	3.3375	2.0743	-3.3375	0.0	270.00
				4.0000	4.50000	-4.00000	0.00000	0.0	3.1500	1.9193	-3.1500	0.0	270.00
				4.5000	4.50000	-4.50000	0.00000	0.0	2.9625	1.7373	-2.9625	0.0	270.00
				5.0000	4.50000	-5.00000	0.00000	0.0	2.7750	1.5394	-2.7750	0.0	270.00
				5.5000	4.50000	-5.50000	0.00000	0.0	2.5875	1.3349	-2.5875	0.0	270.00
				6.0000	4.50000	-6.00000	0.00000	0.0	2.4000	1.1323	-2.4000	0.0	270.00
				6.5000	4.50000	-6.50000	0.00000	0.0	2.2125	0.93848	-2.2125	0.0	270.00
				7.0000	4.50000	-7.00000	0.00000	0.0	2.0250	0.75894	-2.0250	0.0	270.00
				7.5000	4.50000	-7.50000	0.00000	0.0	1.8375	0.59798	-1.8375	0.0	270.00
				8.0000	4.50000	-8.00000	0.00000	0.0	1.6500	0.45853	-1.6500	0.0	270.00
				8.5000	4.50000	-8.50000	0.00000	0.0	1.4625	0.34218	-1.4625	0.0	270.00
				9.0000	4.50000	-9.00000	0.00000	0.0	1.2750	0.24919	-1.2750	0.0	270.00
				9.5000	4.50000	-9.50000	0.00000	0.0	1.0875	0.17848	-1.0875	0.0	270.00
				10.000	4.50000	-10.00000	0.00000	0.0	0.90000	0.12765	-0.90000	0.0	270.00
				10.500	4.50000	-10.50000	0.00000	0.0	0.71250	0.092977	-0.71250	0.0	270.00
				11.000	4.50000	-11.00000	0.00000	0.0	0.52500	0.069378	-0.52500	0.0	270.00
				11.500	4.50000	-11.50000	0.00000	0.0	0.33750	0.050458	-0.33750	0.0	270.00
				12.000	4.50000	-12.00000	0.00000	0.0	0.15000	0.028485	-0.15000	0.0	270.00
				12.500	4.50000	-12.50000	0.00000	0.0	0.0	0.0	0.0	0.0	270.00
				13.000	4.50000	-13.00000	0.00000	0.0	0.0	0.0	0.0	0.0	270.00
				13.500	4.50000	-13.50000	0.00000	0.0	0.0	0.0	0.0	0.0	270.00
				14.000	4.50000	-14.00000	0.00000	0.0	0.0	0.0	0.0	0.0	270.00
				14.500	4.50000	-14.50000	0.00000	0.0	0.0	0.0	0.0	0.0	270.00

Stage: Ref.	Stage: Name	Disp. Line: Ref.	Disp. Line: Name	Chainage [m]	x [m]	y [m]	z [m]	δx [mm]	δy [mm]	δz [mm]	δH// [mm]	δHperp. [mm]	Angle [°]

Specific Building Damage Results - Horizontal Displacements

Stage: Ref.	Stage: Name	Specific Building: Ref.	Specific Building: Name	Sub-building Name	Dist. [m]	x [m]	y [m]	z [m]	δx [mm]	δy [mm]	δH// [mm]	δHperp. [mm]
0	Base Model	1	24 Gloucester Crescent (side elevation)	Sub 1	0.0	-0.78000	3.38000	-1.10000	2.9042	0.58085	-2.9617	0.023311
					0.59180	-1.35938	3.25937	-1.10000	2.6866	0.53733	-2.7398	0.021564
					1.1836	-1.93875	3.13875	-1.10000	2.4690	0.49381	-2.5178	0.019817
					1.7754	-2.51813	3.01812	-1.10000	2.2514	0.45028	-2.2959	0.018071
					2.3672	-3.09750	2.89750	-1.10000	2.0338	0.40676	-2.0740	0.016324
					2.9590	-3.67688	2.77687	-1.10000	1.8162	0.36324	-1.8521	0.014578
					3.5508	-4.25625	2.65625	-1.10000	1.5986	0.31972	-1.6302	0.012831
					4.1426	-4.83563	2.53563	-1.10000	1.3810	0.27620	-1.4083	0.011084
					4.7344	-5.41500	2.41500	-1.10000	1.1634	0.23268	-1.1864	0.0093377
					5.3262	-5.99438	2.29437	-1.10000	0.94577	0.18915	-0.96447	0.0075911
					5.9180	-6.57375	2.17375	-1.10000	0.72816	0.14563	-0.74256	0.0058445
					6.5098	-7.15313	2.05312	-1.10000	0.51055	0.10211	-0.52065	0.0040979
					7.1016	-7.73250	1.93250	-1.10000	0.29294	0.058589	-0.29874	0.0023513
					7.6934	-8.31188	1.81187	-1.10000	0.075336	0.015067	-0.076825	604.67E-6
					8.2852	-8.89125	1.69125	-1.10000	0.0	0.0	0.0	0.0
					8.8770	-9.47063	1.57062	-1.10000	0.0	0.0	0.0	0.0
					9.4688	-10.05000	1.45000	-1.10000	0.0	0.0	0.0	0.0
		2	24 Gloucester Crescent (rear elevation)		0.0	1.50000	4.65000	-1.10000	0.79862	-2.8574	-2.9641	-0.13006
					0.49625	1.38750	5.13333	-1.10000	0.75598	-2.7287	-2.8290	-0.11771
					0.99251	1.27500	5.61667	-1.10000	0.71254	-2.5947	-2.6886	-0.10578
					1.4888	1.16250	6.10000	-1.10000	0.66789	-2.4526	-2.5401	-0.094500
					1.9850	1.05000	6.58333	-1.10000	0.62177	-2.3007	-2.3818	-0.084012
					2.4813	0.93750	7.06667	-1.10000	0.57407	-2.1383	-2.2128	-0.074370
					2.9775	0.82500	7.55000	-1.10000	0.52482	-1.9655	-2.0334	-0.065567
					3.4738	0.71250	8.03333	-1.10000	0.47409	-1.7829	-1.8440	-0.057555
					3.9700	0.60000	8.51667	-1.10000	0.42202	-1.5914	-1.6456	-0.050265
					4.4663	0.48750	9.00000	-1.10000	0.36930	-1.3955	-1.4429	-0.043324
					4.9625	0.37500	9.48333	-1.10000	0.31562	-1.1933	-1.2337	-0.036895
					5.4588	0.26250	9.96667	-1.10000	0.26053	-0.98155	-1.0151	-0.031230
					5.9550	0.15000	10.45000	-1.10000	0.20420	-0.76158	-0.78804	-0.026230
		3	46 Inverness Street (side elevation)		0.0	9.00000	5.98000	-1.10000	0.45686	-2.9911	-2.9911	-0.45686
					0.50000	9.00000	6.48000	-1.10000	0.43850	-2.8404	-2.8404	-0.43850
					1.0000	9.00000	6.98000	-1.10000	0.41864	-2.6843	-2.6843	-0.41864
					1.5000	9.00000	7.48000	-1.10000	0.39686	-2.5213	-2.5213	-0.39686
					2.0000	9.00000	7.98000	-1.10000	0.37296	-2.3508	-2.3508	-0.37296
					2.5000	9.00000	8.48000	-1.10000	0.34692	-2.1727	-2.1727	-0.34692
					3.0000	9.00000	8.98000	-1.10000	0.31886	-1.9873	-1.9873	-0.31886
					3.5000	9.00000	9.48000	-1.10000	0.19095	-1.1421	-1.1421	-0.19095
					4.0000	9.00000	9.98000	-1.10000	0.16859	-1.0056	-1.0056	-0.16859
					4.5000	9.00000	10.48000	-1.10000	0.14610	-0.87090	-0.87090	-0.14610
					5.0000	9.00000	10.98000	-1.10000	0.12285	-0.73502	-0.73502	-0.12285
					5.5000	9.00000	11.48000	-1.10000	0.098308	-0.59564	-0.59564	-0.098308
					6.0000	9.00000	11.98000	-1.10000	0.072597	-0.45297	-0.45297	-0.072597
					6.5000	9.00000	12.48000	-1.10000	0.046364	-0.30909	-0.30909	-0.046364
					7.0000	9.00000	12.98000	-1.10000	0.030302	-0.20202	-0.20202	-0.030302
					7.5000	9.00000	13.48000	-1.10000	0.014376	-0.095842	-0.095842	-0.014376
		4	46 Inverness Street (front elevation)		0.0	9.00000	1.70000	0.00000	0.0	0.0	0.0	0.0
					0.50000	9.50000	1.70000	0.00000	0.0	0.0	0.0	0.0
					1.0000	10.00000	1.70000	0.00000	0.0	0.0	0.0	0.0
					1.5000	10.50000	1.70000	0.00000	0.0	0.0	0.0	0.0
					2.0000	11.00000	1.70000	0.00000	0.0	0.0	0.0	0.0
					2.5000	11.50000	1.70000	0.00000	0.0	0.0	0.0	0.0
					3.0000	12.00000	1.70000	0.00000	0.0	0.0	0.0	0.0
					3.5000	12.50000	1.70000	0.00000	0.0	0.0	0.0	0.0
					4.0000	13.00000	1.70000	0.00000	0.0	0.0	0.0	0.0
					4.5000	13.50000	1.70000	0.00000	0.0	0.0	0.0	0.0
					5.0000	14.00000	1.70000	0.00000	0.0	0.0	0.0	0.0
					5.5000	14.50000	1.70000	0.00000	0.0	0.0	0.0	0.0

Specific Building Damage Results - Vertical Displacements

Stage: Ref.	Stage: Name	Specific Building: Ref.	Specific Building: Name	Sub-building Name	Vertical Offset [m]	Dist. [m]	x [m]	y [m]	z [m]	δz [mm]
0	Base Model	1	24 Gloucester Crescent (side elevation)	Sub 1	0.0	0.0	-0.78000	3.38000	-1.10000	0.88244
						0.59180	-1.35938	3.25937	-1.10000	1.2942
						1.1836	-1.93875	3.13875	-1.10000	1.4503
						1.7754	-2.51813	3.01812	-1.10000	1.4231
						2.3672	-3.09750	2.89750	-1.10000	1.2752
						2.9590	-3.67688	2.77687	-1.10000	1.0593
						3.5508	-4.25625	2.65625	-1.10000	0.81864
						4.1426	-4.83563	2.53563	-1.10000	0.58650
						4.7344	-5.41500	2.41500	-1.10000	0.38654
						5.3262	-5.99438	2.29437	-1.10000	0.23268
						5.9180	-6.57375	2.17375	-1.10000	0.12907
						6.5098	-7.15313	2.05312	-1.10000	0.070146
						7.1016	-7.73250	1.93250	-1.10000	0.040621
						7.6934	-8.31188	1.81187	-1.10000	0.015458
						8.2852	-8.89125	1.69125	-1.10000	0.0
						8.8770	-9.47063	1.57062	-1.10000	0.0
						9.4688	-10.05000	1.45000	-1.10000	0.0
		2	24 Gloucester Crescent (rear elevation)		0.0	0.0	1.50000	4.65000	-1.10000	0.92673
						0.49625	1.38750	5.13333	-1.10000	1.2970
						0.99251	1.27500	5.61667	-1.10000	1.4785
						1.4888	1.16250	6.10000	-1.10000	1.5129
						1.9850	1.05000	6.58333	-1.10000	1.4380
						2.4813	0.93750	7.06667	-1.10000	1.2884
						2.9775	0.82500	7.55000	-1.10000	1.0944
						3.4738	0.71250	8.03333	-1.10000	0.88266
						3.9700	0.60000	8.51667	-1.10000	0.67471
						4.4663	0.48750	9.00000	-1.10000	0.48779
						4.9625	0.37500	9.48333	-1.10000	0.33239
						5.4588	0.26250	9.96667	-1.10000	0.21353
						5.9550	0.15000	10.45000	-1.10000	0.13073
		3	46 Inverness Street (side elevation)		0.0	0.0	9.00000	5.98000	-1.10000	0.91397
						0.50000	9.00000	6.48000	-1.10000	1.2910
						1.0000	9.00000	6.98000	-1.10000	1.4765
						1.5000	9.00000	7.48000	-1.10000	1.5132
						2.0000	9.00000	7.98000	-1.10000	1.4399
						2.5000	9.00000	8.48000	-1.10000	1.2915
						3.0000	9.00000	8.98000	-1.10000	1.0990
						3.5000	9.00000	9.48000	-1.10000	0.54924
						4.0000	9.00000	9.98000	-1.10000	0.41566
						4.5000	9.00000	10.48000	-1.10000	0.29841
						5.0000	9.00000	10.98000	-1.10000	0.20245
						5.5000	9.00000	11.48000	-1.10000	0.12961
						6.0000	9.00000	11.98000	-1.10000	0.078317
						6.5000	9.00000	12.48000	-1.10000	0.042871
						7.0000	9.00000	12.98000	-1.10000	0.026753
						7.5000	9.00000	13.48000	-1.10000	0.015676
		4	46 Inverness Street (front elevation)		0.0	0.0	9.00000	1.70000	0.00000	0.0
						0.50000	9.50000	1.70000	0.00000	0.0
						1.0000	10.00000	1.70000	0.00000	0.0
						1.5000	10.50000	1.70000	0.00000	0.0
						2.0000	11.00000	1.70000	0.00000	0.0
						2.5000	11.50000	1.70000	0.00000	0.0
						3.0000	12.00000	1.70000	0.00000	0.0
						3.5000	12.50000	1.70000	0.00000	0.0
						4.0000	13.00000	1.70000	0.00000	0.0

Stage Ref.	Stage: Name	Specific Building Ref.	Specific Building: Name	Sub-building Name	Vertical Offset [m]	Dist. [m]	x [m]	y [m]	z [mm]	δz
						4.5000	13.50000	1.70000	0.00000	0.0
						5.0000	14.00000	1.70000	0.00000	0.0
						5.5000	14.50000	1.70000	0.00000	0.0

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]	Min Damage Category
0	Base Model	1	24 Gloucester Crescent (side elevation)	Sub 1	0.0	1	0.0	3.4423	None	0.016677	0.037498	0.043125	-374.84E-6	-695.53E-6	1280.5	0 (Negligible)
						2	3.4423	2.4757	None	0.0037548	0.037498	0.038414	-374.84E-6	406.56E-6	7337.9	0 (Negligible)
		2	24 Gloucester Crescent (rear elevation)		0.0	1	0.0	3.4120	None	0.017385	0.032136	0.038674	-381.41E-6	-745.96E-6	1237.2	0 (Negligible)
						2	3.4120	2.5380	None	0.0040010	0.042444	0.043445	-457.25E-6	426.61E-6	6786.7	0 (Negligible)
		3	46 Inverness Street (side elevation)		0.0	1	0.0	3.2053	None	0.019252	0.042145	0.049791	-0.0016875	0.0010977	1237.3	0 (Negligible)
						2	3.2053	2.2947	None	0.0099334	0.045523	0.048371	-0.0016875	0.0010977	2040.5	0 (Negligible)
		4	46 Inverness Street (front elevation)		0.0 All vertical displacements are less than the limit sensitivity.											

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

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

Stage Ref.	Stage: Name	Specific Building Ref.	Specific Building: Name	Sub-building Name	Vertical Offset from Line for Vertical Movement Calculations [m]	Deflection Ratio [%]	Average Horizontal Strain [%]	Max Slope Curvature (Sagging)	Max Settlement [mm]	Max Tensile Strain [%]	Max Gradient of Horizontal Displacement Curve	Max Gradient of Vertical Displacement Curve	Min Radius of Curvature (Hogging) [m]	Min Radius [m]	Damage Category
0	Base Model	1	24 Gloucester Crescent (side elevation)	Sub 1	0.0	0.016677	0.037498	-695.53E-6	1.4500	0.043125	-374.84E-6	-695.53E-6	-		0 (Negligible)
		2	24 Gloucester Crescent (rear elevation)		0.0	0.017385	0.042444	-745.96E-6	1.5124	0.043445	-457.25E-6	-745.96E-6	-		0 (Negligible)
		3	46 Inverness Street (side elevation)		0.0	0.019252	0.045523	0.0010977	1.5124	0.049791	-0.0016875	0.0010977	-		0 (Negligible)

Specific Building Damage Results - Critical Segments within Each Building

Stage Ref.	Stage: Name	Specific Building Ref.	Specific Building: Name	Parameter	Critical Sub-Building	Critical Segment	Start [m]	End [m]	Curvature	Max Slope	Max Settlement [mm]	Max Tensile Strain [%]	Min Radius of Curvature (Hogging) [m]	Min Radius of Curvature (Sagging) [m]	Damage Category
0	Base Model	0	24 Gloucester Crescent (side elevation)	Max Slope	Sub 1	1	0.0	3.4423	Sagging	**695.53E-6**	1.4500	0.043125	-	1280.5	0 (Negligible)
				Max Settlement	Sub 1	1	0.0	3.4423	Sagging	695.53E-6	**1.4500**	0.043125	-	1280.5	0 (Negligible)
				Max Tensile Strain	Sub 1	1	0.0	3.4423	Sagging	695.53E-6	1.4500	**0.043125**	-	1280.5	0 (Negligible)
				Min Radius of Curvature (Hogging)	-	-	-	-	-	-	-	-	-	-	-
				Min Radius of Curvature (Sagging)	-	-	-	-	-	-	-	-	-	-	-
		0	24 Gloucester Crescent (rear elevation)	Max Slope		1	0.0	3.4120	Sagging	**745.96E-6**	1.5124	0.038674	-	1237.2	0 (Negligible)
				Max Settlement		1	0.0	3.4120	Sagging	745.96E-6	**1.5124**	0.038674	-	1237.2	0 (Negligible)
				Max Tensile Strain		2	3.4120	5.9500	Sagging	426.61E-6	0.90903	**0.043445**	-	6786.7	0 (Negligible)
				Min Radius of Curvature (Hogging)	-	-	-	-	-	-	-	-	-	-	-
				Min Radius of Curvature (Sagging)	-	-	-	-	-	-	-	-	-	-	-
		0	46 Inverness Street (side elevation)	Max Slope		1	0.0	3.2053	Sagging	**0.0010977**	1.5124	0.049791	-	1237.3	0 (Negligible)
				Max Settlement		1	0.0	3.2053	Sagging	0.0010977	**1.5124**	0.049791	-	1237.3	0 (Negligible)
				Max Tensile Strain		1	0.0	3.2053	Sagging	0.0010977	1.5124	**0.049791**	-	1237.3	0 (Negligible)
				Min Radius of Curvature (Hogging)	-	-	-	-	-	-	-	-	-	-	-
				Min Radius of Curvature (Sagging)	-	-	-	-	-	-	-	-	-	-	-
		0	46 Inverness Street (front elevation)	All vertical displacements are less than the limit sensitivity.											
				All vertical displacements are less than the limit sensitivity.											
				All vertical displacements are less than the limit sensitivity.											
				All vertical displacements are less than the limit sensitivity.											
				All vertical displacements are less than the limit sensitivity.											