

Site Analytical Services Ltd.							Site 15 HOWITT ROAD, BELSIZE PARK, LONDON NW3 4LX		Borehole Number BH1		
Boring Method CONTINUOUS FLIGHT AUGER		Casing Diameter 100mm cased to 0.00m			Ground Level (mOD)		Client ANESE INVESTMENTS LIMITED			Job Number 2336419	
		Location TQ272848			Dates 02/02/2023		Engineer			Sheet 1/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water		
0.25 0.50 0.75	D1 D2 D3					0.08	MADE GROUND: Concrete				
	(0.87)					MADE GROUND: Brown silty sandy clay containing brick and concrete fragments					
	0.95 (0.35) 1.30					MADE GROUND: Firm, brown orange silty clay containing occasional brick fragments					
1.30	Stiff, brown orange silty CLAY										
1.50 1.50	D5 V2 86										
2.00 2.00	D6 V3 106										
2.50 2.50	D7 V4 130										
3.00 3.00	D8 V5 140+										
4.00 4.00	D9 V6 140+					(5.00)					
	4.50 4.50					D10 V7 140+					
	5.00 5.00					D11 V8 140+					
6.00 6.00	D12 V9 140+						6.30	Stiff, dark brown grey silty CLAY			
7.00 7.00	D13 V10 140+										
8.00 8.00	D14 V11 140+						(3.70)				
9.00 9.00	D15 V12 140+										
Remarks D= Disturbed Sample V= Vane Test - Results in kPa Groundwater was not encountered during boring/excavation Excavating from 0.00m to 1.00m for 1 HOUR hour.								Scale (approx)	Logged By		
								1:50	SB		
								Figure No. 2336419.BH1			

Site Analytical Services Ltd.

Site

15 HOWITT ROAD, BELSIZE PARK, LONDON NW3 4LX

**Borehole
Number**
BH1

Boring Method

CONTINUOUS FLIGHT AUGER

Casing Diameter

100mm cased to 0.00m

Ground Level (mOD)

Client

ANESE INVESTMENTS LIMITED

Job Number
2336419

Location

TQ272848

Dates

02/02/2023

Engineer

Sheet
2/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
10.00 10.00	D16 V13 140+					10.00	Stiff, dark brown orange silty CLAY			
11.00 11.00	D17 V14 140+									
12.00 12.00	D18 V15 140+					(5.00)				
13.00 13.00	D19 V16 140+									
14.00 14.00	D20 V17 140+									
15.00 15.00	D21 V18 140+					15.00		Complete at 15.00m		

Remarks

D= Disturbed Sample

V= Vane Test - Results in kPa

Groundwater was not encountered during boring/excavation

Scale (approx)

1:50

Logged
By

SB

Figure No.

2336419.BH1

Site Analytical Services Ltd.

Site

15 HOWITT ROAD, BELSIZE PARK, LONDON NW3 4LX

Borehole

BH1

Installation Type
Single Installation

Dimensions

Internal Diameter of Tube [A] = 50 mm
Diameter of Filter Zone = 100 mm

Client	
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ANESE INVESTMENTS LIMITED

Job

Number
2336419

Location

TQ272848

Ground Level (mOD)

Engineer

Sheet

1/1

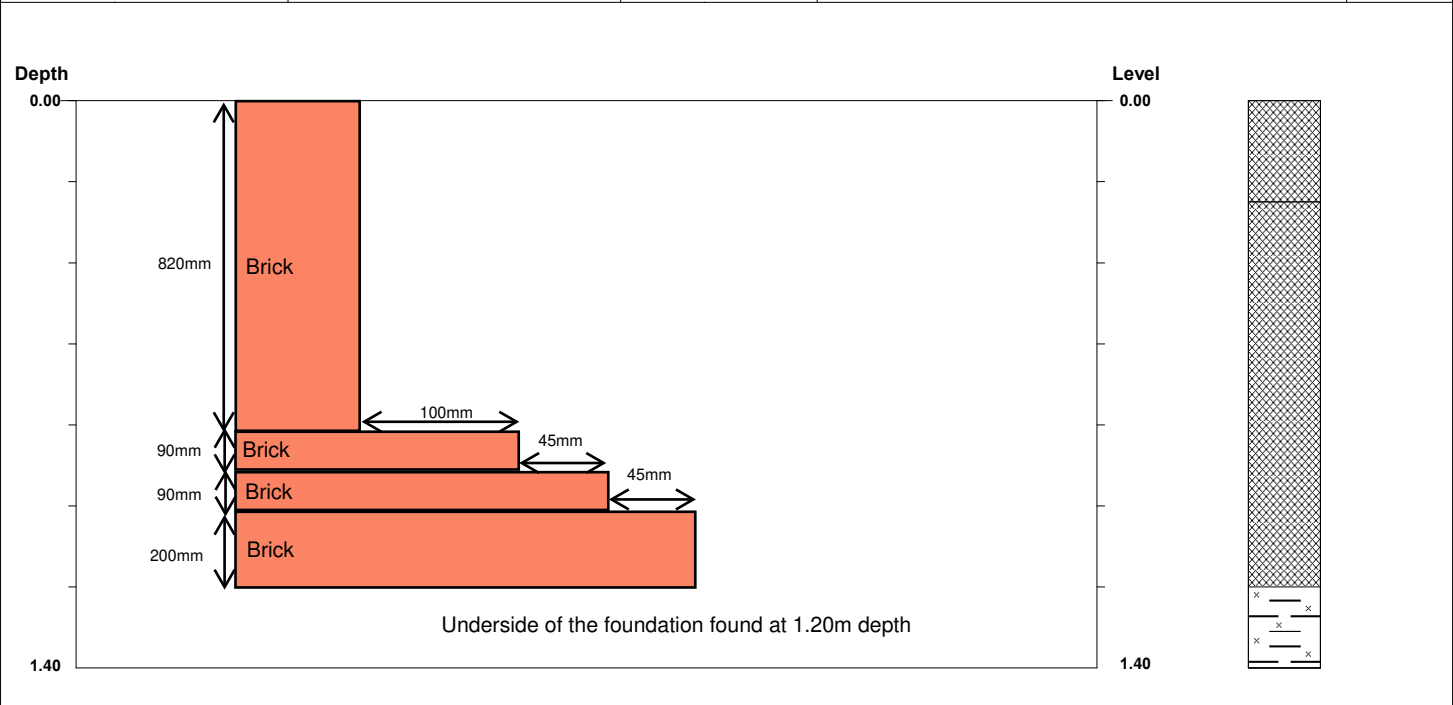
[illegible]

Remarks

Remarks
Lockable cover set in cement

Site Analytical Services Ltd.						Site 15 HOWITT ROAD, BELSIZE PARK, LONDON NW3 4LX		Trial Pit Number TP1	
Excavation Method HAND EXCAVATION		Dimensions 0.30m(W) x 0.30m(L) x 1.40m(D)		Ground Level (mOD)		Client ANESE INVESTMENTS LIMITED		Job Number 2336419	
		Location TQ272848		Dates 03/02/2023		Engineer		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
1.20 1.20	D1 V1 76				(0.25) 0.25 (0.95) 1.20 (0.20) 1.40	MADE GROUND: Dark brown sandy topsoil containing hardcore MADE GROUND: Dark brown silty sandy clay containing brick fragments Stiff, dark brown grey silty CLAY Complete at 1.40m		  	
Plan					Remarks				
.					Excavating from 0.00m to 1.00m for 1 HOUR hour.				
.					D= Disturbed Sample				
.					V= Vane Test - Results in kPa				
.					Groundwater was not encountered during boring/excavation				
.									
.									
.									
.									
.									
					Scale (approx)		Logged By		Figure No.
					1:50		SB		2336419.TP1

Site Analytical Services Ltd.			Site 15 HOWITT ROAD, BELSIZE PARK, LONDON NW3 4LX	Trial Pit Number TP1
Method Trial Pit	Dimensions 0.30m(W) x 0.30m(L) x 1.40m(D)	Ground Level (mOD)	Client ANESE INVESTMENTS LIMITED	Job Number 2336419
Orientation A D B C	Location TQ272848	Dates 03/02/2023	Engineer	Sheet 1/1



Strata			Samples and Tests		
Depth (m)	No.	Description	Depth (m)	Type	Field Records
0.00-0.25	1	MADE GROUND: Dark brown sandy topsoil containing hardcore	1.20 1.20	V1 76 D1	
0.25-1.20	2	MADE GROUND: Dark brown silty sandy clay containing brick fragments			
1.20-1.40	3	Stiff, dark brown grey silty CLAY			

			Excavation Method: HAND EXCAVATION
			Shoring / Support:
			Stability:
			Backfill:

Remarks D= Disturbed Sample V= Vane Test - Results in kPa Groundwater was not encountered during boring/excavation Excavating from 0.00m to 1.00m for 1 HOUR hour.	Logged By : SB Checked By : Figure No. : 2336419.TP1
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Site Analytical Services Ltd.						Site 15 HOWITT ROAD, BELSIZE PARK, LONDON NW3 4LX		Trial Pit Number TP2		
Excavation Method HAND EXCAVATION		Dimensions 0.30m(W) x 0.30m(L) x 0.70m(D)		Ground Level (mOD)		Client ANESE INVESTMENTS LIMITED		Job Number 2336419		
		Location TQ272848				Dates 03/02/2023		Engineer		Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water		
0.50 0.50	D1 V1 140+				0.05 (0.45) 0.50 (0.20) 0.70	MADE GROUND: Concrete MADE GROUND: Dark brown silty sandy clay containing brick and concrete fragments Stiff, brown orange silty CLAY Complete at 0.70m				
Plan .					Remarks Excavating from 0.00m to 1.00m for 1 HOUR hour. Groundwater was not encountered during boring/excavation V= Vane Test - Results in kPa D= Disturbed Sample					
					Scale (approx) 1:50		Logged By SB		Figure No. 2336419.TP2	

Site Analytical Services Ltd.			Site 15 HOWITT ROAD, BELSIZE PARK, LONDON NW3 4LX		Trial Pit Number TP2
Method Trial Pit		Dimensions 0.30m(W) x 0.30m(L) x 0.70m(D)	Ground Level (mOD)	Client ANESE INVESTMENTS LIMITED	Job Number 2336419
Orientation A D B C		Location TQ272848	Dates 03/02/2023	Engineer	Sheet 1/1
Depth 0.00 50mm Brick 30mm 100mm Brick 60mm 80mm Brick 60mm 70mm Brick 100mm 200mm Brick 150mm Drain 270mm from GL Underside of foundation found at 0.50m depth Only able to prove underside of foundation to 200mm due to drain. 0.70 Level 0.00 0.70 x — x x — x x — x x — x x — x					
Strata			Samples and Tests		
Depth (m)	No.	Description	Depth (m)	Type	Field Records
0.00-0.05	1	MADE GROUND: Concrete	0.50 0.50	V1 140+ D1	
0.05-0.50	2	MADE GROUND: Dark brown silty sandy clay containing brick and concrete fragments			
0.50-0.70	3	Stiff, brown orange silty CLAY			
			Excavation Method:		
			HAND EXCAVATION		
			Shoring / Support:		
			Stability:		
			Backfill:		
Remarks Groundwater was not encountered during boring/excavation V= Vane Test - Results in kPa D= Disturbed Sample Excavating from 0.00m to 1.00m for 1 HOUR hour.					
				Logged By : SB	
				Checked By :	
				Figure No. : 2336419.TP2	

APPENDIX B

Laboratory Test & Groundwater Monitoring Data

PLASTICITY INDEX & MOISTURE CONTENT DETERMINATIONS

BH/TP No.	Depth (m)	Natural Moisture (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 μ m (%)	Modified Plasticity Index (%)	Class
BH1	1.50	20	47	20	27	100	27	CI
	3.00	29	68	22	46	100	46	CH

Table 1

Steve Barrett
 Site Analytical Services Ltd
 Units 14 -15
 River Road Business Park
 33 River Road
 Barking
 Essex
 IG11 0EA
t: 0208 5948134
f: 0208 5948072
e: SAS -

i2 Analytical Ltd.
 7 Woodshots Meadow,
 Croxley Green
 Business Park,
 Watford,
 Herts,
 WD18 8YS
t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 23-16433

Project / Site name:	15 Howitt Road, Belsize Park, London NW3 4LX	Samples received on:	08/02/2023
Your job number:	23-36419	Samples instructed on/ Analysis started on:	08/02/2023
Your order number:	11396	Analysis completed by:	15/02/2023
Report Issue Number:	1	Report issued on:	15/02/2023
Samples Analysed:	5 soil samples		



Signed:
 Adam Fenwick
 Technical Reviewer
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
 Application of uncertainty of measurement would provide a range within which the true result lies.
 An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 23-16433

Project / Site name: 15 Howitt Road, Belsize Park, London NW3 4LX

Your Order No: 11396

Lab Sample Number				2578213	2578214	2578215	2578216	2578217
Sample Reference				BH1	BH1	BH1	BH1	BH1
Sample Number				6	10	13	17	20
Depth (m)				2.00	4.50	7.00	11.00	14.00
Date Sampled				02/02/2023	02/02/2023	02/02/2023	02/02/2023	02/02/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	20	20	19	18	19
Total mass of sample received	kg	0.001	NONE	1.5	1.5	1.5	1.5	1

Whole Sample Crushed		N/A	NONE	Crushed	Crushed	Crushed	Crushed	Crushed
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.7	7.7	7.8	7.8	7.7
Total Sulphate as SO ₄	%	0.005	MCERTS	0.025	1.47	0.858	0.987	0.841
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.11	2.9	2.9	2.9	2.9
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	6.9	140	110	100	110
Total Sulphur	%	0.005	MCERTS	0.017	0.421	0.488	0.803	0.746
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	28	820	840	840	820
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 23-16433

Project / Site name: 15 Howitt Road, Belsize Park, London NW3 4LX

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2578213	BH1	6	2	Light brown clay.
2578214	BH1	10	4.5	Light brown clay.
2578215	BH1	13	7	Brown clay.
2578216	BH1	17	11	Brown clay.
2578217	BH1	20	14	Brown clay.

Analytical Report Number : 23-16433

Project / Site name: 15 Howitt Road, Belsize Park, London NW3 4LX

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Crush Whole Sample	Either: Client specific preparation instructions - sample(s) crushed whole prior to analysis; OR Sample unsuitable for standard preparation and therefore crushed whole prior to analysis.	In house method, applicable to dry samples only.	L019-PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture

correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by

the client. The instructed on date indicates the date on which this information was provided to the laboratory.

GROUNDWATER MONITORING

GROUNDWATER MONITORING RECORD		
Date	Monitoring Position	Depth to Water m below ground level
14/02/2023	BH1	Dry

Table 2

GROUNDWATER MONITORING RECORD		
Date	Monitoring Position	Depth to Water m below ground level
21/02/2023	BH1	7.34

Table 2a

083353-CUR-XX-XX-T-GE-0001

15 Howitt Road, Belsize Park

Ground Movement Assessment



Appendix D Structural Loadings

NOTE
This drawing is copyright.
Do not scale, use figured dimensions only.
The contractor is to check all dimensions on site before commencement of the works.
Discrepancies must be reported immediately to the architect before proceeding.

REV	DATE	DESCRIPTION	CHK.
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PROPOSED LOADS

PLANNING

jane duncan
architects+
interiors

The Old Warehouse
Chalfont Station Road
Little Chalfont, Amersham
Bucks HP7 9PN

+44 (0)1494 766 999
info@janeduncanarchitects.co.uk
janeduncanarchitects.co.uk

CLIENT
Mr Socrates Ioannou

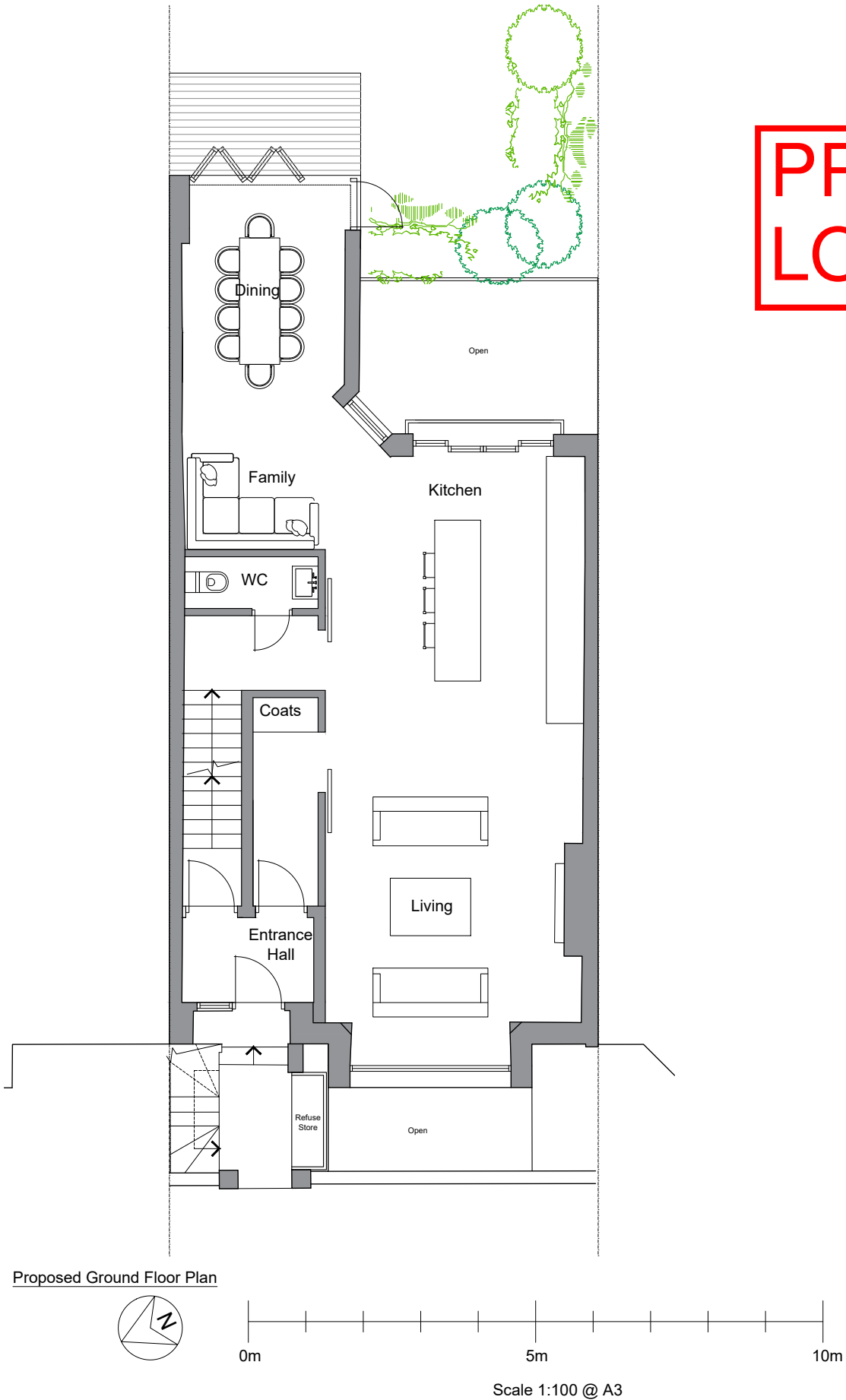
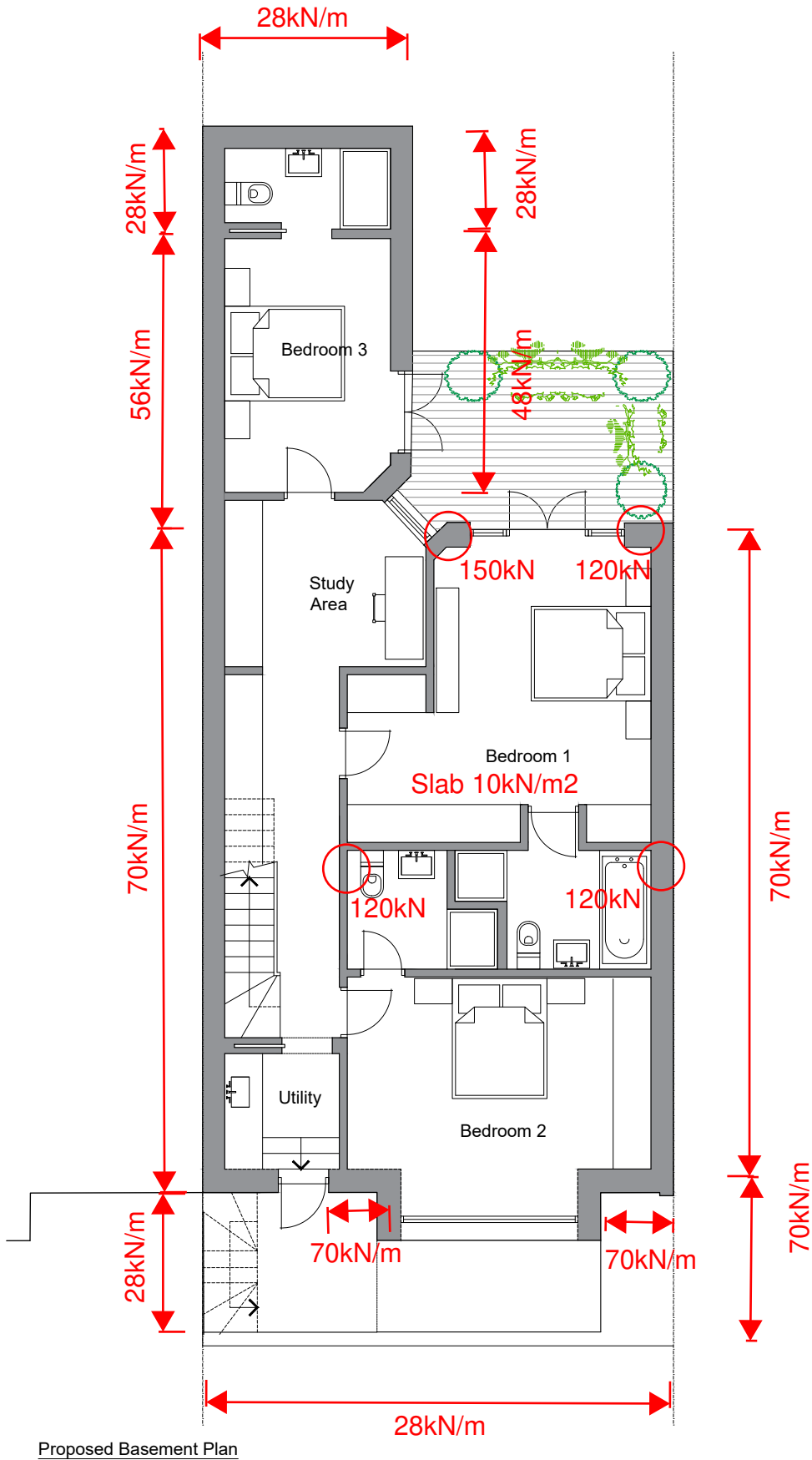
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15 Howitt Road, Belsize Park, London, NW3 4LX

PROJECT
IHR-226

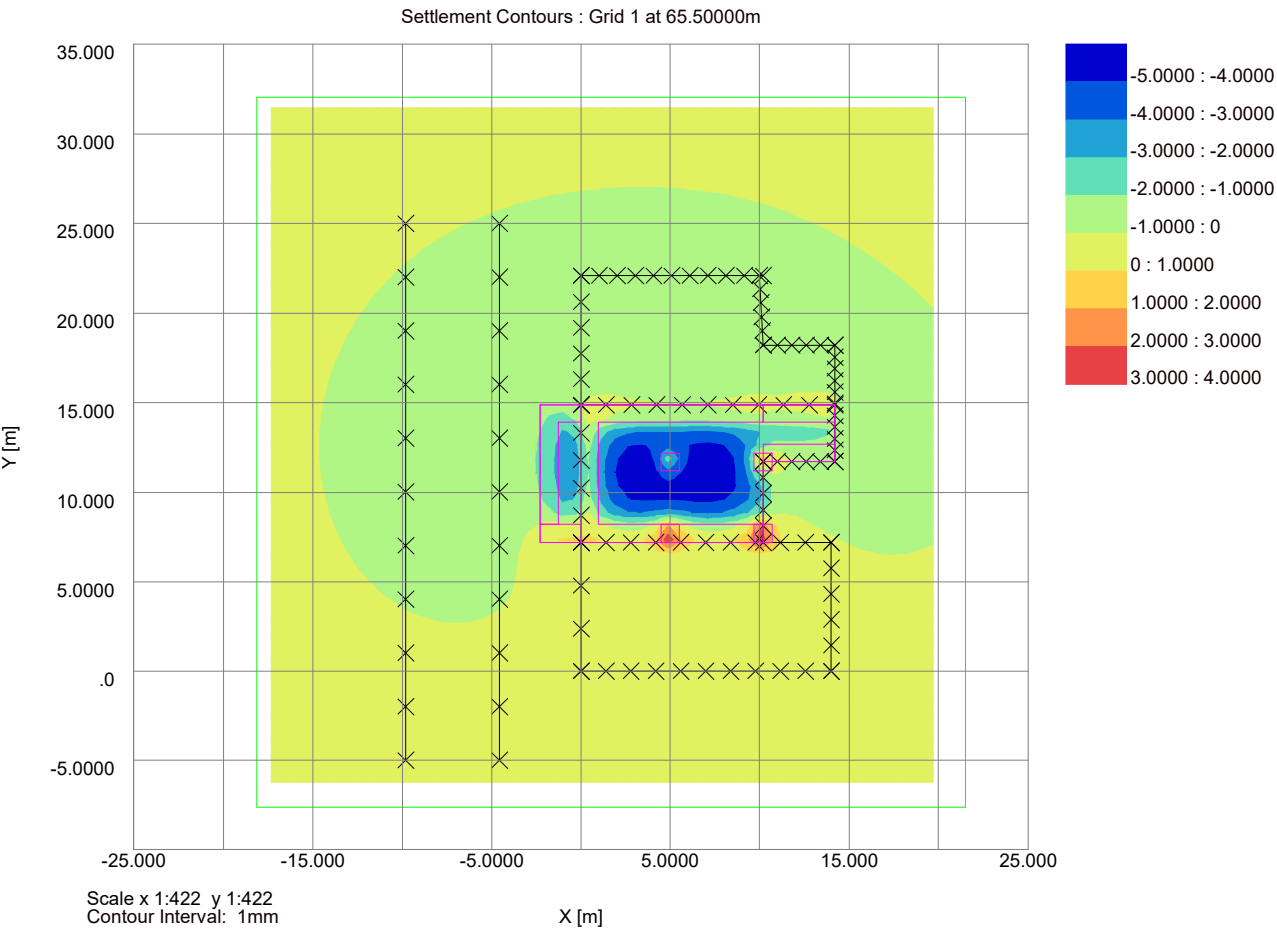
DRAWING TITLE
Proposed Plans

DRAWING NO. REV.
PL201

SCALE	DATE	DRAWN	CHECKED
1:100	25.10.22		



Appendix E Oasys PDisp Input and Output





Titles

Job No. :
Job Title :
Sub-title :
Calculation Heading :
Initials :
Checker :
Date Saved :
Date Checked :
Notes :
File Name : 15 Howitt Road - PDisp.pdd
File Path : \\LOFS03\Projects\083000.000-083999.000\083353 - 15 Howitt Road, Belsize Park\04-Production\4B-Documentation\GE\Ground Movement Assessment\Modelling

History

Date	Time	By	Notes
06-Mar-2023	12:29	Liam.Pallett	New
06-Mar-2023	15:49	Liam.Pallett	
07-Mar-2023	14:28	Liam.Pallett	Open

Analysis Options

General

Global Poisson's ratio: 0.20
Maximum allowable ratio between values of E: 1.5
Horizontal rigid boundary level: 53.00 [m OD]
Displacements at load centroids: Yes
GSA piled raft data : No

Elastic

Elastic : Yes

Consolidation

Consolidation : No

Soil ProfilesSoil Profile 1

Layer ref.	Name	Level at top	Number of intermediate displacement levels	Youngs Modulus : Top	Youngs Modulus : Btm.	Poissons ratio	Non-linear curve
		[mOD]		[kN/m²]	[kN/m²]		
1	Made Ground	68.000	5	3000.0	3000.0	0.20000	None
2	Upper London Clay	66.700	5	17200.	28000.	0.30000	None
3	Lower London Clay	65.000	5	28000.	28000.	0.30000	None

Soil Zones

Zone	Name	X min [m]	X max [m]	Y min [m]	Y max [m]	Profile
1	Soil Zone #	-18.148	21.514	-7.6116	32.082	Soil Profile 1

Rectangular Load Data

Load ref.	Name	Orientation of Plane	Centre (Global) : x	Centre (Global) : y	Centre (Global) : z	Position : Angle of local x from [Degrees]	Position : Width x or Radius [m]	Position : Length y [m]	Value : Normal (local z) [kN/m²]	Value : Tangential (local x) [kN/m²]	Value : Tangential (local y) [kN/m²]
			[m]	[m]	[m]		[m]		[kN/m²]	[kN/m²]	[kN/m²]
1	Point Load 1	Horizontal	9.00000	11.70000	65.50000	0.0	1.0000	1.0000	120.00	0.0	0.0
2	Point Load 2	Horizontal	5.00000	7.70000	65.50000	0.0	1.0000	1.0000	120.00	0.0	0.0
3	Point Load 3	Horizontal	10.20000	11.70000	65.50000	0.0	1.0000	1.0000	150.00	0.0	0.0
4	Point Load 4	Horizontal	10.20000	7.70000	65.50000	0.0	1.0000	1.0000	120.00	0.0	0.0

Polygonal Load Data

Load ref.	Name	Position : Level	Position : Polygon : Coords. : Rect. tolerance [%]	No. of Rectangles	Value : Normal (local z) [kN/m²]
		[m]	[m]		[kN/m²]
1	Slab and Soil Removal	65.50000	(-2.3,14.9) (14.2,14.9) (14.2,11.7) (10.2,11.7) (10.2,7.2) (-2.3,7.2)	10.000	2 -34.800
2	Underpinning	65.50000	(10.2,14.9) (0,14.9) (0,7.2) (10.2,7.2) (14.2,8.2) (1,8.2) (1,13.9) (10.2,13.9)	10.000	3 70.0000
3	Garden Wall	65.50000	(10.2,14.9) (14.2,14.9) (14.2,13.9) (10.2,13.9)	10.000	1 56.000
4	Garden Wall 2	65.50000	(14.2,11.7) (10.2,11.7) (10.2,12.7) (14.2,12.7)	10.000	1 48.000
5	Lightwel	65.50000	(0,7.2) (-2.3,7.2) (-2.3,8.2) (0,8.2)	10.000	1 70.000
6	Lightwell 2	65.50000	(-2.3,8.2) (-1.3,8.2) (-1.3,13.9) (0,13.9) (0,14.9) (-2.3,14.9)	10.000	2 28.000

Polygonal Loads' Rectangles

No.	Centre : x	Centre : y	Angle of local x from global X [Degrees]	Width x [m]	Depth y [m]
Load 1 : Slab and Soil Removal (Edge 2 optimal)					
1	3.95000	11.05000	0.0	12.500	7.7000
2	12.20000	13.30000	0.0	4.0000	3.2000
Load 2 : Underpinning (Edge 1 optimal)					
1	5.60000	14.40000	-180.00	9.2000	1.0000
2	0.50000	11.05000	-180.00	1.0000	7.7000
3	5.60000	7.70000	-180.00	9.2000	1.0000
Load 3 : Garden Wall (Edge 2 optimal)					
1	12.20000	14.40000	0.0	4.0000	1.0000
Load 4 : Garden Wall 2 (Edge 2 optimal)					
1	12.20000	12.20000	-180.00	4.0000	1.0000
Load 5 : Lightwel (Edge 2 optimal)					
1	-1.15000	7.70000	-180.00	2.3000	1.0000
Load 6 : Lightwell 2 (Edge 1 optimal)					
1	-1.80000	11.55000	0.0	1.0000	6.7000
2	-0.65000	14.40000	0.0	1.3000	1.0000

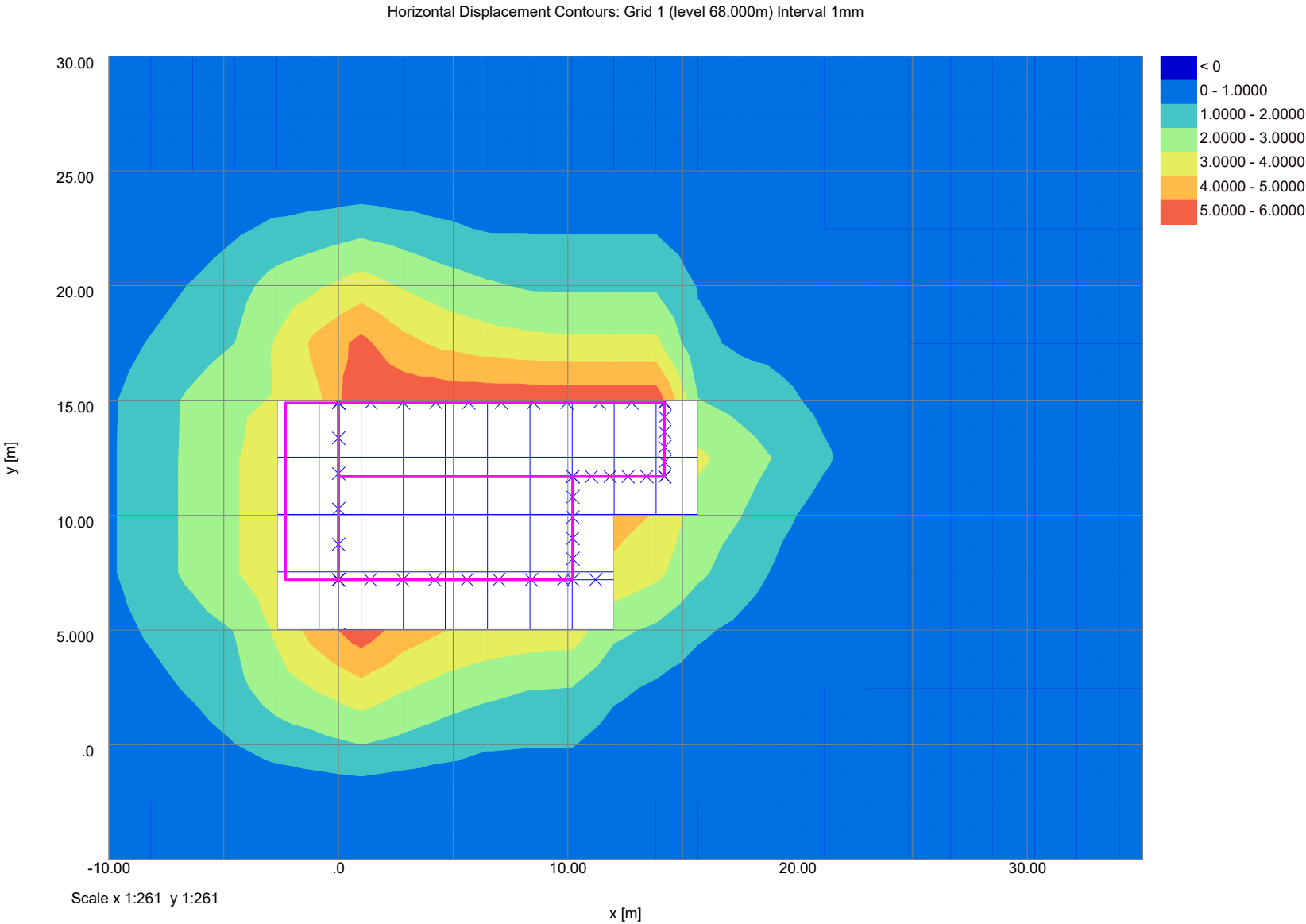
Displacement Lines

Name	X1 [m]	Y1 [m]	Z1 [m]	X2 [m]	Y2 [m]	Z2 [m]	Intervals [No.]	Calculate	Detailed Results
W1	0.00000	7.20000	68.00000	0.00000	14.90000	68.00000	5	Yes	No
W2	0.00000	14.90000	68.00000	14.20000	14.90000	68.00000	10	Yes	No
W3	0.00000	7.20000	68.00000	14.00000	7.20000	68.00000	10	Yes	No
W4	14.20000	11.70000	68.00000	14.20000	18.20000	68.00000	10	Yes	No
W5	14.20000	11.70000	68.00000	10.20000	11.70000	68.00000	5	Yes	No
W6	10.20000	11.70000	68.00000	10.20000	7.20000	68.00000	5	Yes	No
W7	0.00000	0.00000	68.00000	0.00000	7.20000	68.00000	3	Yes	No
W8	0.00000	0.00000	68.00000	14.00000	0.00000	68.00000	10	Yes	No
W9	14.00000	0.00000	68.00000	14.00000	7.20000	68.00000	5	Yes	No
W10	0.00000	14.90000	68.00000	0.00000	22.10000	68.00000	5	Yes	No
W11	0.00000	22.10000	68.00000	10.20000	22.10000	68.00000	10	Yes	No
W12	10.00000	22.10000	68.00000	10.20000	18.20000	68.00000	5	Yes	No
W13	10.20000	18.20000	68.00000	14.20000	18.20000	68.00000	5	Yes	No
Howitt Road 1	-9.80000	25.00000	68.00000	-9.80000	-5.00000	68.00000	10	Yes	No
Howitt Road 2	-4.60000	-5.00000	68.00000	-4.60000	25.00000	68.00000	10	Yes	No

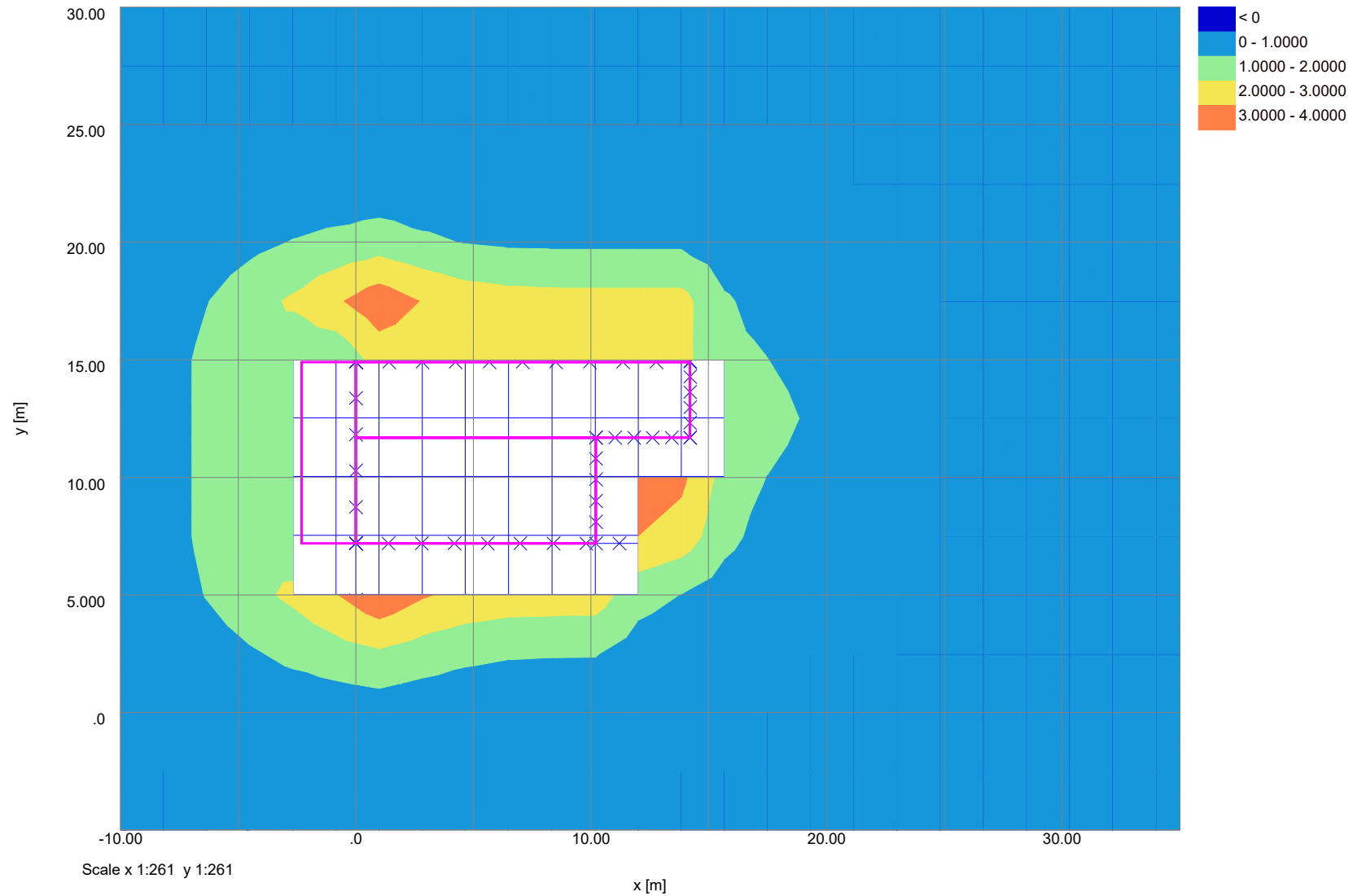
Displacement Grids

Name	X1	Y1	Z1	X2	Y2	Z2	Intervals	Calculate	Detailed			
	[m]	[m]	[m]	[m]	[m]	[m]	[No.]		Results			
Name	Extrusion: Direction	X1	Y1	Z1	X2	Y2	Z2	Intervals Along Line [No.]	Extrusion: Distance [m]	Extrusion: Intervals Along [No.]	Calculate	Detailed
Grid 2	Global Y	-17.33400	-6.20669	65.50000	19.68248	-	65.50000	50	37.68747	50	Yes	No

Appendix F Oasys XDisp Input and Output



Vertical Settlement Contours: Grid 1 (level 68.000m) (Interval 1mm)





Titles

Job No.:
Job Title:
Sub-title:
Calculation Heading:
Initials:
Checker:
Date Saved: 25-Aug-2023
Date Checked:
Notes:
File Name: 15 Howitt Close AS New.xdd
File Path: \\LOFS03\Projects\083000.000-083999.000\083353 - 15 Howitt Road, Belsize Park\04-Production\4B-Documentation\GE\Ground Movement Assessment\Modelling

History

Date	Time	By	Notes
23-Feb-2023	14:35	Liam.Pallett	New
23-Feb-2023	17:02	Liam.Pallett	
24-Feb-2023	12:27	Liam.Pallett	
24-Feb-2023	14:55	Liam.Pallett	
24-Feb-2023	16:13	Liam.Pallett	
07-Mar-2023	13:57	Andrew.Smith	
25-Aug-2023	10:48	Andrew.Smith	
25-Aug-2023	14:07	Liam.Pallett	

Displacement Lines

Ref.	Name	x1	y1	z1	x2	y2	z2	Intervals	Surface type imported for tunnels	Interpolate displacements	Calculate
		[m]	[m]	[m]	[m]	[m]	[m]	[No.]			
1	W1	0.00000	7.20000	68.00000	0.00000	14.90000	68.00000	5	Surface	Yes	Yes
2	W2	0.00000	14.90000	68.00000	14.20000	14.90000	68.00000	10	Surface	Yes	Yes
3	W3	0.00000	7.20000	68.00000	14.00000	7.20000	68.00000	10	Surface	Yes	Yes
4	W4	14.20000	11.70000	68.00000	14.20000	18.20000	68.00000	10	Surface	Yes	Yes
5	W5	14.20000	11.70000	68.00000	10.20000	11.70000	68.00000	5	Surface	Yes	Yes
6	W6	10.20000	11.70000	68.00000	10.20000	7.20000	68.00000	5	Surface	Yes	Yes
7	W7	0.00000	0.00000	68.00000	0.00000	7.20000	68.00000	5	Surface	Yes	Yes
8	W8	0.00000	0.00000	68.00000	14.00000	0.00000	68.00000	10	Surface	Yes	Yes
9	W9	14.00000	0.00000	68.00000	14.00000	7.20000	68.00000	5	Surface	Yes	Yes
10	W10	0.00000	14.90000	68.00000	0.00000	22.10000	68.00000	5	Surface	Yes	Yes
11	W11	0.00000	22.10000	68.00000	10.20000	22.10000	68.00000	10	Surface	Yes	Yes
12	W12	10.00000	22.10000	68.00000	10.20000	18.20000	68.00000	5	Surface	Yes	Yes
13	W13	10.20000	18.20000	68.00000	14.20000	18.20000	68.00000	5	Surface	Yes	Yes
14	W14	36.90000	5.90000	68.00000	25.50000	5.90000	68.00000	10	Surface	Yes	Yes
15	W15	25.50000	5.90000	68.00000	25.50000	57.50000	68.00000	10	Surface	Yes	Yes
16	Howitt Road 1	-9.80000	25.00000	68.00000	-9.80000	-5.00000	68.00000	10	Surface	Yes	Yes
17	Howitt Road 2	-4.60000	-5.00000	68.00000	-4.60000	25.00000	68.00000	10	Surface	Yes	Yes

Displacement Grids

Ref.	Name	Extrusion: Direction	Base line start: X	Base line start: Y	Base line Z (level)	Base line end: X	Base line end: Y	Base line Z (level)	Base line Intervals	Extrusion: Distance	Extrusion: Intervals	Surface type for tunnels	Calculate
			[m]	[m]	[m]	[m]	[m]	[m]	[No.]	[m]	[No.]		
1	1	Global X	-10.00000	-10.00000	68.00000	-	65.00000	68.00000	30	55.00000	30	Surface	Yes

Polygonal Excavations

Ref.	1					Excavation 1					
Excavation Name:						68.000					
Surface level [m]:						Positive					
Contribution:											
Corner	x	y	Base Level	Arc Enabled	Stiffened	Prev. Side:	Prev. Side:	Prev. Side:	Next Side:	Next Side:	Next Side:
	[m]	[m]	[m]			d	p1	p2*	d	p1	p2*
						[m]	[%]	[%]	[m]	[%]	[%]
1	0.0	7.2000	65.500	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
2	0.0	11.700	65.500	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
3	10.200	11.700	65.500	No	Yes	0.0	67.000	25.000	0.0	67.000	25.000
4	10.200	7.2000	65.500	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
Side	x1	y1	x2	y2	G.M. Curve: Vertical			G.M. Curve: Horizontal			
	[m]	[m]	[m]	[m]							
1	0.0	7.2000	0.0	11.700	No vertical ground movement			No horizontal ground movement			
2	0.0	11.700	10.200	11.700	No vertical ground movement			No horizontal ground movement			
3	10.200	11.700	10.200	7.2000	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))			Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))			
4	10.200	7.2000	0.0	7.2000	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))			Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))			
Ref.	2					Excavation 2					
Excavation Name:						68.000					
Surface level [m]:						Positive					
Contribution:											
Corner	x	y	Base Level	Arc Enabled	Stiffened	Prev. Side:	Prev. Side:	Prev. Side:	Next Side:	Next Side:	Next Side:
	[m]	[m]	[m]			d	p1	p2*	d	p1	p2*
						[m]	[%]	[%]	[m]	[%]	[%]
1	0.0	14.900	65.500	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
2	14.200	14.900	65.500	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
3	14.200	11.700	65.500	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
4	10.200	11.700	65.500	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
5	0.0	11.700	65.500	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
Side	x1	y1	x2	y2	G.M. Curve: Vertical			G.M. Curve: Horizontal			
	[m]	[m]	[m]	[m]							
1	0.0	14.900	14.200	14.900	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	14.200	14.900	14.200	11.700	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))			Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))			
3	14.200	11.700	10.200	11.700	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))			Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))			
4	10.200	11.700	0.0	11.700	No vertical ground movement			No horizontal ground movement			
5	0.0	11.700	0.0	14.900	No vertical ground movement			No horizontal ground movement			
Ref.	3					Copy of Excavation 1					
Excavation Name:						68.000					
Surface level [m]:						Positive					
Contribution:											
Corner	x	y	Base Level	Arc Enabled	Stiffened	Prev. Side:	Prev. Side:	Prev. Side:	Next Side:	Next Side:	Next Side:
	[m]	[m]	[m]			d	p1	p2*	d	p1	p2*
						[m]	[%]	[%]	[m]	[%]	[%]
1	0.0	7.2000	65.500	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
2	0.0	11.700	65.500	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
3	10.200	11.700	65.500	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
4	10.200	7.2000	65.500	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
Side	x1	y1	x2	y2	G.M. Curve: Vertical			G.M. Curve: Horizontal			
	[m]	[m]	[m]	[m]							

Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal
1	0.0	7.2000	0.0	11.700	No vertical ground movement	No horizontal ground movement
2	0.0	11.700	10.200	11.700	No vertical ground movement	No horizontal ground movement
3	10.200	11.700	10.200	7.2000	No vertical ground movement	No horizontal ground movement
4	10.200	7.2000	0.0	7.2000	Inst. of secant bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of secant bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))

Ref.	4										
Excavation Name:	Copy of Excavation 2										
Surface level [m]:	68.000										
Contribution:	Positive										
Corner	x	y	Base Level	Arc Enabled	Stiffened	Prev. Side: d	Prev. Side: p1	Prev. Side: p2*	Next Side: d	Next Side: p1	Next Side: p2*
	[m]	[m]	[m]			[m]	[%]	[%]	[m]	[%]	[%]
1	0.0	14.900	65.500	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
2	14.200	14.900	65.500	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
3	14.200	11.700	65.500	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
4	10.200	11.700	65.500	Yes	Yes	0.0	67.000	25.000	0.0	67.000	25.000
5	0.0	11.700	65.500	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	14.900	14.200	14.900	Inst. of secant bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(b))	Inst. of secant bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(a))
2	14.200	14.900	14.200	11.700	No vertical ground movement	No horizontal ground movement
3	14.200	11.700	10.200	11.700	No vertical ground movement	No horizontal ground movement
4	10.200	11.700	0.0	11.700	No vertical ground movement	No horizontal ground movement
5	0.0	11.700	0.0	14.900	No vertical ground movement	No horizontal ground movement

Ref.	5										
Excavation Name:	Lightwell										
Surface level [m]:	68.000										
Contribution:	Positive										
Corner	x	y	Base Level	Arc Enabled	Stiffened	Prev. Side: d	Prev. Side: p1	Prev. Side: p2*	Next Side: d	Next Side: p1	Next Side: p2*
	[m]	[m]	[m]			[m]	[%]	[%]	[m]	[%]	[%]
1	-2.3000	7.2000	65.500	Yes	No	-	-	-	-	-	-
2	-2.3000	14.900	65.500	Yes	No	-	-	-	-	-	-
3	0.0	14.900	65.500	Yes	No	-	-	-	-	-	-
4	0.0	7.2000	65.500	Yes	No	-	-	-	-	-	-

Side	x1 [m]	y1 [m]	x2 [m]	y2 [m]	G.M. Curve: Vertical	G.M. Curve: Horizontal
1	-2.3000	7.2000	-2.3000	14.900	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))
2	-2.3000	14.900	0.0	14.900	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))
3	0.0	14.900	0.0	7.2000	No vertical ground movement	No horizontal ground movement
4	0.0	7.2000	-2.3000	7.2000	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(b))	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(a))

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-3x ⁴ + 2.8495E-2x ³ - 1.0051E-1x ² + 1.0569E-1x + 3.8990E-2
Coeff. of Determination:	9.9991E-1

Curve Name:	Inst. of secant bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(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) (%)]
	[0.000,0.000,0.050][2.000,0.000,0.000]
Curve Fitting Method:	Polynomial
x Order:	1
y Order:	0
Polynomial: z =	-2.5E-2x + 5.0E-2
Coeff. of Determination:	1.0

Curve Name:	Exc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(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 ⁴ + 2.8495E-2x ³ - 1.0051E-1x ² + 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

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

Polynomial: z = 0.0

Coeff. of Determination:

Curve Name: Excc. 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) (%)

Curve Fitting Method: Polynomial

x Order: 1

y Order: 0

Polynomial: z = -3.75E-2x + 1.50E-1

Coeff. of Determination: 1.00

Curve Name: Inst. of secant bored pile wall in stiff clay (CIRIA C760 Fig. 6.8(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) (%)

Curve Fitting Method: Polynomial

x Order: 3

y Order: 0

Polynomial: z = -1.0610E-2x³ + 4.4203E-2x² - 9.6358E-2x + 8.0901E-2

Coeff. of Determination: 1.0000

Curve Name: Excc. in front of high stiffness wall in stiff clay (CIRIA C760 Fig. 6.15(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) (%)

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	Distance Along Line: End	Vertical Offsets from Line for Vertical Movement Calculations	Vertical Displacement Limit Sensitivity	Damage Category Strains	Poisson's Ratio	E/G
1	15 Howitt Road	W1	W1	0.00000	7.70000	0.0	0.10000	Burland Strain Limits	0.20000	2.6000
2	15 Howitt Road	15/17 PW	W2	0.00000	14.20000	0.0	0.10000	Burland Strain Limits	0.20000	2.6000
3	15 Howitt Road	13/15 PW	W3	0.00000	14.00000	0.0	0.10000	Burland Strain Limits	0.20000	2.6000
4	15 Howitt Road	Rear Extension - 15	W4	0.00000	6.50000	0.0	0.10000	Burland Strain Limits	0.20000	2.6000
5	15 Howitt Road	Side Extension - 15	W5	0.00000	4.00000	0.0	0.10000	Burland Strain Limits	0.20000	2.6000
6	15 Howitt Road	Rear Wall	W6	0.00000	4.49900	0.0	0.10000	Burland Strain Limits	0.20000	2.6000
7	17 Howitt Road	Front 17	W7	0.00000	7.20000	0.0	0.10000	Burland Strain Limits	0.20000	2.6000
8	17 Howitt Road	Side 17	W8	0.00000	14.00000	0.0	0.10000	Burland Strain Limits	0.20000	2.6000
9	17 Howitt Road	Rear 17	W9	0.00000	7.20000	0.0	0.10000	Burland Strain Limits	0.20000	2.6000
10	13 Howitt Road	Front 13	W10	0.00000	7.20000	0.0	0.10000	Burland Strain Limits	0.20000	2.6000
11	13 Howitt Road	Side 13	W11	0.00000	10.20000	0.0	0.10000	Burland Strain Limits	0.20000	2.6000
12	13 Howitt Road	Rear 13	W12	0.00000	3.90500	0.0	0.10000	Burland Strain Limits	0.20000	2.6000
13	13 Howitt Road	Side Extension 13	W13	0.00000	4.00000	0.0	0.10000	Burland Strain Limits	0.20000	2.6000
14	Holmesfield Court	Side	W14	0.00000	11.39900	0.0	0.10000	Burland Strain Limits	0.20000	2.6000
15	Holmesfield Court	Rear	W15	0.00000	51.60000	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: 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: N.A. from Edge of Beam in Tension
			[m]		[m³]	[m]	[m]	[m³]	[m]	[m]
1	15 Howitt Road	W1	12.000	Yes	576.00	12.000	12.000	144.00	6.0000	6.0000
2	15 Howitt Road	15/17 PW	12.000	Yes	576.00	12.000	12.000	144.00	6.0000	6.0000
3	15 Howitt Road	13/15 PW	12.000	Yes	576.00	12.000	12.000	144.00	6.0000	6.0000
4	15 Howitt Road	Rear Extension - 15	12.000	Yes	576.00	12.000	12.000	144.00	6.0000	6.0000
5	15 Howitt Road	Side Extension - 15	12.000	Yes	576.00	12.000	12.000	144.00	6.0000	6.0000
6	15 Howitt Road	Rear Wall	12.000	Yes	576.00	12.000	12.000	144.00	6.0000	6.0000
7	17 Howitt Road	Front 17	12.000	Yes	576.00	12.000	12.000	144.00	6.0000	6.0000
8	17 Howitt Road	Side 17	12.000	Yes	576.00	12.000	12.000	144.00	6.0000	6.0000
9	17 Howitt Road	Rear 17	12.000	Yes	576.00	12.000	12.000	144.00	6.0000	6.0000
10	13 Howitt Road	Front 13	12.000	Yes	576.00	12.000	12.000	144.00	6.0000	6.0000
11	13 Howitt Road	Side 13	12.000	Yes	576.00	12.000	12.000	144.00	6.0000	6.0000
12	13 Howitt Road	Rear 13	12.000	Yes	576.00	12.000	12.000	144.00	6.0000	6.0000
13	13 Howitt Road	Side Extension 13	12.000	Yes	576.00	12.000	12.000	144.00	6.0000	6.0000
14	Holmesfield Court	Side	15.000	Yes	1125.0	15.000	15.000	281.25	7.5000	7.5000
15	Holmesfield Court	Rear	15.000	Yes	1125.0	15.000	15.000	281.25	7.5000	7.5000

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 Embedded Wall Excavation PE1 : Excavation 1 intersects PE2 : Excavation 2 , PE4 : Copy of Excavation 2, and PE5 : Lightwell.
- 3 Embedded Wall Excavation PE2 : Excavation 2 intersects PE1 : Excavation 1 , PE3 : Copy of Excavation 1, and PE5 : Lightwell.
- 4 Embedded Wall Excavation PE3 : Copy of Excavation 1 intersects PE2 : Excavation 2 , PE4 : Copy of Excavation 2, and PE5 : Lightwell.
- 5 Embedded Wall Excavation PE4 : Copy of Excavation 2 intersects PE1 : Excavation 1 , PE3 : Copy of Excavation 1, and PE5 : Lightwell.
- 6 Embedded Wall Excavation PE5 : Lightwell intersects PE1 : Excavation 1 , PE2 : Excavation 2 , PE3 : Copy of Excavation 1, and PE4 : Copy of Excavation 2.

Errors

None

Displacement Results - Displacement Lines

Stage: Ref.	Stage: Name	Disp. Line: Ref.	Disp. Line: Name	Chainage	x	y	z	δx	δy	δz	δH//	δHperp.	Angle
					[m]	[m]	[m]	[mm]	[mm]	[mm]	[mm]	[mm]	[°]
0	Base Model 1	W1		0.0	0.00000	7.20000	68.00000	0.0	3.8088	1.2327	3.8088	0.0	90.000
				1.5400	0.00000	8.74000	68.00000	0.0	0.0	0.0	0.0	0.0	90.000
				3.0800	0.00000	10.28000	68.00000	0.0	0.0	0.0	0.0	0.0	90.000
				4.6200	0.00000	11.82000	68.00000	0.0	0.0	0.0	0.0	0.0	90.000
				6.1600	0.00000	13.36000	68.00000	0.0	0.0	0.0	0.0	0.0	90.000
				7.7000	0.00000	14.90000	68.00000	0.0	-3.8088	1.2327	-3.8088	0.0	90.000
	2	W2		0.0	0.00000	14.90000	68.00000	0.0	-3.8088	1.2327	0.0	-3.8088	0.0
				1.4200	1.42000	14.90000	68.00000	0.0	-5.7725	2.2248	0.0	-5.7725	0.0
				2.8400	2.84000	14.90000	68.00000	0.0	-5.7725	2.2248	0.0	-5.7725	0.0
				4.2600	4.26000	14.90000	68.00000	0.0	-5.7725	2.2248	0.0	-5.7725	0.0
				5.6800	5.68000	14.90000	68.00000	0.0	-5.7725	2.2248	0.0	-5.7725	0.0
				7.1000	7.10000	14.90000	68.00000	0.0	-5.7725	2.2248	0.0	-5.7725	0.0
				8.5200	8.52000	14.90000	68.00000	0.0	-5.7725	2.2248	0.0	-5.7725	0.0
				9.9400	9.94000	14.90000	68.00000	0.0	-5.7725	2.2248	0.0	-5.7725	0.0
				11.360	11.36000	14.90000	68.00000	0.0	-5.7725	2.2248	0.0	-5.7725	0.0
				12.780	12.78000	14.90000	68.00000	0.0	-5.7725	2.2248	0.0	-5.7725	0.0

Stage: Ref.	Stage: Name	Disp. Line: Ref.	Disp. Line: Name	Chainage	x	y	z	δx	δy	δz	δR//	δRperp.	Angle	
					[m]	[m]	[m]	[mm]	[mm]	[mm]	[mm]	[mm]	[°]	
					14.200	14.20000	14.90000	68.00000	-1.2563	-1.9338	1.0718	-1.2563	-1.9338	0.0
					0.0	0.00000	7.20000	68.00000	0.0	3.8088	1.2327	0.0	3.8088	0.0
					1.4000	1.40000	7.20000	68.00000	0.0	5.7725	2.2248	0.0	5.7725	0.0
					2.8000	2.80000	7.20000	68.00000	0.0	5.7725	2.2248	0.0	5.7725	0.0
					4.2000	4.20000	7.20000	68.00000	0.0	5.7725	2.2248	0.0	5.7725	0.0
					5.6000	5.60000	7.20000	68.00000	0.0	5.7725	2.2248	0.0	5.7725	0.0
					7.0000	7.00000	7.20000	68.00000	0.0	5.7725	2.2248	0.0	5.7725	0.0
					8.4000	8.40000	7.20000	68.00000	0.0	5.7725	2.2248	0.0	5.7725	0.0
					9.8000	9.80000	7.20000	68.00000	0.0	5.7725	2.2248	0.0	5.7725	0.0
					11.200	11.20000	7.20000	68.00000	-2.2613	2.0625	2.1714	-2.2613	2.0625	0.0
					12.600	12.60000	7.20000	68.00000	-1.9095	2.0625	1.9095	-1.9095	2.0625	0.0
					14.000	14.00000	7.20000	68.00000	-1.5578	2.0625	1.9443	-1.5578	2.0625	0.0
					0.0	14.20000	11.70000	68.00000	-2.0100	1.2563	1.0733	1.2563	2.0100	90.000
					0.65000	14.20000	12.35000	68.00000	-3.7500	0.0	0.97475	0.0	3.7500	90.000
					1.3000	14.20000	13.0000	68.00000	-3.7500	0.0	0.97475	0.0	3.7500	90.000
					1.9500	14.20000	13.65000	68.00000	-3.7500	0.0	0.97475	0.0	3.7500	90.000
					2.6000	14.20000	14.30000	68.00000	-3.7500	0.0	0.97475	0.0	3.7500	90.000
					3.2500	14.20000	14.95000	68.00000	0.0	-3.8230	1.5169	-3.8230	0.0	90.000
					3.9000	14.20000	15.60000	68.00000	0.0	-3.2939	1.7473	-3.2939	0.0	90.000
					4.5500	14.20000	16.25000	68.00000	0.0	-2.8448	1.8009	-2.8448	0.0	90.000
					5.2000	14.20000	16.90000	68.00000	0.0	-2.4568	1.7207	-2.4568	0.0	90.000
					5.8500	14.20000	17.55000	68.00000	0.0	-2.1112	1.5442	-2.1112	0.0	90.000
					6.5000	14.20000	18.20000	68.00000	0.0	-1.7893	1.3046	-1.7893	0.0	90.000
					0.0	14.20000	11.70000	68.00000	-2.0100	1.2563	1.0733	2.0100	-1.2563	180.00
					0.80000	13.40000	11.70000	68.00000	-0.85425	3.7500	1.4962	0.85425	-3.7500	180.00
					1.6000	12.60000	11.70000	68.00000	-0.95475	3.7500	1.5676	0.95475	-3.7500	180.00
					2.4000	11.80000	11.70000	68.00000	-1.0553	3.7500	1.5819	1.0553	-3.7500	180.00
					3.2000	11.00000	11.70000	68.00000	-1.1558	3.7500	1.5059	1.1558	-3.7500	180.00
					4.0000	10.20000	11.70000	68.00000	-1.2563	1.8750	0.81392	1.2563	-1.8750	180.00
					0.0	10.20000	11.70000	68.00000	-1.2563	1.8750	0.81392	-1.8750	-1.2563	270.00
					0.9000	10.20000	10.80000	68.00000	-3.7500	1.7910	1.7910	3.7500	270.00	
					1.8000	10.20000	9.90000	68.00000	-3.7500	1.5375	1.8861	-1.5375	-3.7500	270.00
					2.7000	10.20000	9.00000	68.00000	-3.7500	1.3688	1.8273	-1.3688	-3.7500	270.00
					3.6000	10.20000	8.10000	68.00000	-3.7500	1.2000	1.6808	-1.2000	-3.7500	270.00
					4.5000	10.20000	7.20000	68.00000	-1.2563	2.9650	1.5969	-2.9650	-1.2563	270.00
					0.0	0.00000	0.00000	68.00000	0.0	1.7535	0.35173	1.7535	0.0	90.000
					2.4000	0.00000	2.40000	68.00000	0.0	3.2565	1.5843	3.2565	0.0	90.000
					4.8000	0.00000	4.80000	68.00000	0.0	5.0903	3.3911	5.0903	0.0	90.000
					7.2000	0.00000	7.20000	68.00000	0.0	3.8088	1.2327	3.8088	0.0	90.000
					0.0	0.00000	0.00000	68.00000	0.0	1.7535	0.35173	0.0	1.7535	0.0
					1.4000	1.40000	0.00000	68.00000	0.0	1.9272	0.37630	0.0	1.9272	0.0
					2.8000	2.80000	0.00000	68.00000	0.0	1.7016	0.31483	0.0	1.7016	0.0
					4.2000	4.20000	0.00000	68.00000	0.0	1.4644	0.26568	0.0	1.4644	0.0
					5.6000	5.60000	0.00000	68.00000	0.0	1.2408	0.23749	0.0	1.2408	0.0
					7.0000	7.00000	0.00000	68.00000	0.0	1.0500	0.21062	0.0	1.0500	0.0
					8.4000	8.40000	0.00000	68.00000	0.0	1.0500	0.21062	0.0	1.0500	0.0
					9.8000	9.80000	0.00000	68.00000	0.0	1.0500	0.21062	0.0	1.0500	0.0
					11.200	11.20000	0.00000	68.00000	-0.044987	0.61056	0.12749	-0.044987	0.61056	0.0
					12.600	12.60000	0.00000	68.00000	-0.092579	0.45011	0.091763	-0.092579	0.45011	0.0
					14.000	14.00000	0.00000	68.00000	-0.10775	0.28600	0.054643	-0.10775	0.28600	0.0
					0.0	14.00000	0.00000	68.00000	-0.10775	0.28600	0.054643	0.28600	-0.10775	90.000
					1.4400	14.00000	1.44000	68.00000	-0.21576	0.41626	0.14492	0.41626	0.21576	90.000
					2.8800	14.00000	2.88000	68.00000	-0.36570	0.89507	0.35379	0.89507	0.36570	90.000
					4.3200	14.00000	4.32000	68.00000	-0.63409	1.3875	0.69247	1.3875	0.63409	90.000
					5.7600	14.00000	5.76000	68.00000	-1.0603	1.7792	1.2694	1.7792	1.0603	90.000
					7.2000	14.00000	7.20000	68.00000	-1.5578	2.0625	1.9443	2.0625	1.5578	90.000
					0.0	0.00000	14.90000	68.00000	0.0	-3.8088	1.2327	-3.8088	0.0	90.000
					1.4400	0.00000	16.34000	68.00000	0.0	-5.9978	3.5888	-5.9978	0.0	90.000
					2.8800	0.00000	17.78000	68.00000	0.0	-4.6656	3.1219	-4.6656	0.0	90.000
					4.3200	0.00000	19.22000	68.00000	0.0	-3.5571	1.9908	-3.5571	0.0	90.000
					5.7600	0.00000	20.66000	68.00000	0.0	-2.6533	0.95763	-2.6533	0.0	90.000
					7.2000	0.00000	22.10000	68.00000	0.0	-1.7535	0.35173	-1.7535	0.0	90.000
					0.0	0.00000	22.10000	68.00000	0.0	-1.7535	0.35173	0.0	-1.7535	0.0
					1.0200	1.02000	22.10000	68.00000	0.0	-1.9814	0.39153	0.0	-1.9814	0.0
					2.0400	2.04000	22.10000	68.00000	0.0	-1.8278	0.34824	0.0	-1.8278	0.0
					3.0600	3.06000	22.10000	68.00000	0.0	-1.6574	0.30415	0.0	-1.6574	0.0
					4.0800	4.08000	22.10000	68.00000	0.0	-1.4844	0.26900	0.0	-1.4844	0.0
					5.1000	5.10000	22.10000	68.00000	0.0	-1.3181	0.24580	0.0	-1.3181	0.0
					6.1200	6.12000	22.10000	68.00000	0.0	-1.1638	0.22920	0.0	-1.1638	0.0
					7.1400	7.14000	22.10000	68.00000	0.0	-1.0500	0.21062	0.0	-1.0500	0.0
					8.1600	8.16000	22.10000	68.00000	0.0	-1.0500	0.21062	0.0	-1.0500	0.0
					9.1800	9.18000	22.10000	68.00000	0.0	-1.0500	0.21062	0.0	-1.0500	0.0
					10.200	10.20000	22.10000	68.00000	0.0	-1.0500	0.21062	0.0	-1.0500	0.0
					0.0	10.00000	22.10000	68.00000	0.0	-1.0500	0.21062	1.0486	-0.053775	272.94
					0.78102	10.04000	21.32000	68.00000	0.0	-1.3425	0.37794	1.3407	0.068756	272.94
					1.5620	10.08000	20.54000	68.00000	0.0	-1.6350	0.61381	1.6329	-0.083736	272.94
					2.3431	10.12000	19.76000	68.00000	0.0	-1.9275	0.93970	1.9250	-0.098716	272.94
					3.1241	10.16000	18.98000	68.00000	0.0	-2.2200	1.4520	2.2171	-0.11370	272.94
					3.9051	10.20000	18.20000	68.00000	0.0	-2.6706	1.9472	2.6671	-0.13678	272.94
					0.0	10.20000	18.20000	68.00000	0.0	-2.6706	1.9472	0.0	-2.6706	0.0
					0.80000	11.00000	18.20000	68.00000	0.0	-2.6706	1.9472	0.0	-2.6706	0.0
					1.6000	11.80000	18.20000	68.00000	0.0	-2.6706	1.9472	0.0	-2.6706	0.0
					2.4000	12.60000	18.20000	68.00000	0.0	-2.6706	1.9472	0.0	-2.6706	0.0
					3.2000	13.40000	18.20000	68.00000	0.0	-2.6706	1.9472	0.0	-2.6706	0.0
					4.0000	14.20000	18.20000	68.00000	0.0	-1.7893	1.3046	0.0	-1.7893	0.0
					0.0	36.90000	5.90000	68.00000	0.0	0.0	0.0	0.0	0.0	180.00
					1.1400	35.76000	5.90000	68.00000	0.0	0.0	0.0	0.0	0.0	180.00
					2.2800	34.62000	5.90000	68.00000	0.0	0.0	0.0	0.0	0.0	180.00
					3.4200	33.48000	5.90000	68.00000	0.0	0.0	0.0	0.0	0.0	180.00
					4.5600	32.34000	5.90000	68.00000	0.0	0.0	0.0	0.0	0.0	180.00
					5.7000									

Stage: Ref.	Stage: Name	Disp. Grid: Ref.	Disp. Grid: Name	x	y	z	δx	δy	δz
				[m]	[m]	[m]	[mm]	[mm]	[mm]
				23.00000	-10.00000	68.00000	0.0	0.0	0.0
				24.83333	-10.00000	68.00000	0.0	0.0	0.0
				26.66667	-10.00000	68.00000	0.0	0.0	0.0
				28.50000	-10.00000	68.00000	0.0	0.0	0.0
				30.33333	-10.00000	68.00000	0.0	0.0	0.0
				32.16667	-10.00000	68.00000	0.0	0.0	0.0
				34.00000	-10.00000	68.00000	0.0	0.0	0.0
				35.83333	-10.00000	68.00000	0.0	0.0	0.0
				37.66667	-10.00000	68.00000	0.0	0.0	0.0
				39.50000	-10.00000	68.00000	0.0	0.0	0.0
				41.33333	-10.00000	68.00000	0.0	0.0	0.0
				43.16667	-10.00000	68.00000	0.0	0.0	0.0
				45.00000	-10.00000	68.00000	0.0	0.0	0.0
				-10.00000	-7.50000	68.00000	0.0	0.0	0.0
				-8.16667	-7.50000	68.00000	0.0	0.0	0.0
				-6.33333	-7.50000	68.00000	0.0	0.0	0.0
				-4.50000	-7.50000	68.00000	0.0	0.0	0.0
				-2.66667	-7.50000	68.00000	0.0	0.0	0.0
				-0.83333	-7.50000	68.00000	0.0	0.0	0.0
				1.00000	-7.50000	68.00000	0.0	0.0	0.0
				2.83333	-7.50000	68.00000	0.0	0.0	0.0
				4.66667	-7.50000	68.00000	0.0	0.0	0.0
				6.50000	-7.50000	68.00000	0.0	0.0	0.0
				8.33333	-7.50000	68.00000	0.0	0.0	0.0
				10.16667	-7.50000	68.00000	0.0	0.0	0.0
				12.00000	-7.50000	68.00000	0.0	0.0	0.0
				13.83333	-7.50000	68.00000	0.0	0.0	0.0
				15.66667	-7.50000	68.00000	0.0	0.0	0.0
				17.50000	-7.50000	68.00000	0.0	0.0	0.0
				19.33333	-7.50000	68.00000	0.0	0.0	0.0
				21.16667	-7.50000	68.00000	0.0	0.0	0.0
				23.00000	-7.50000	68.00000	0.0	0.0	0.0
				24.83333	-7.50000	68.00000	0.0	0.0	0.0
				26.66667	-7.50000	68.00000	0.0	0.0	0.0
				28.50000	-7.50000	68.00000	0.0	0.0	0.0
				30.33333	-7.50000	68.00000	0.0	0.0	0.0
				32.16667	-7.50000	68.00000	0.0	0.0	0.0
				34.00000	-7.50000	68.00000	0.0	0.0	0.0
				35.83333	-7.50000	68.00000	0.0	0.0	0.0
				37.66667	-7.50000	68.00000	0.0	0.0	0.0
				39.50000	-7.50000	68.00000	0.0	0.0	0.0
				41.33333	-7.50000	68.00000	0.0	0.0	0.0
				43.16667	-7.50000	68.00000	0.0	0.0	0.0
				45.00000	-7.50000	68.00000	0.0	0.0	0.0
				-10.00000	-5.00000	68.00000	0.0	0.0	0.0
				-8.16667	-5.00000	68.00000	0.0	0.0	0.0
				-6.33333	-5.00000	68.00000	0.0	0.0	0.0
				-4.50000	-5.00000	68.00000	0.0	0.0	0.0
				-2.66667	-5.00000	68.00000	0.0	0.0	0.0
				-0.83333	-5.00000	68.00000	0.0	0.0	0.0
				1.00000	-5.00000	68.00000	0.0	0.0	0.0
				2.83333	-5.00000	68.00000	0.0	0.0	0.0
				4.66667	-5.00000	68.00000	0.0	0.0	0.0
				6.50000	-5.00000	68.00000	0.0	0.0	0.0
				8.33333	-5.00000	68.00000	0.0	0.0	0.0
				10.16667	-5.00000	68.00000	0.0	0.0	0.0
				12.00000	-5.00000	68.00000	0.0	0.0	0.0
				13.83333	-5.00000	68.00000	0.0	0.0	0.0
				15.66667	-5.00000	68.00000	0.0	0.0	0.0
				17.50000	-5.00000	68.00000	0.0	0.0	0.0
				19.33333	-5.00000	68.00000	0.0	0.0	0.0
				21.16667	-5.00000	68.00000	0.0	0.0	0.0
				23.00000	-5.00000	68.00000	0.0	0.0	0.0
				24.83333	-5.00000	68.00000	0.0	0.0	0.0
				26.66667	-5.00000	68.00000	0.0	0.0	0.0
				28.50000	-5.00000	68.00000	0.0	0.0	0.0
				30.33333	-5.00000	68.00000	0.0	0.0	0.0
				32.16667	-5.00000	68.00000	0.0	0.0	0.0
				34.00000	-5.00000	68.00000	0.0	0.0	0.0
				35.83333	-5.00000	68.00000	0.0	0.0	0.0
				37.66667	-5.00000	68.00000	0.0	0.0	0.0
				39.50000	-5.00000	68.00000	0.0	0.0	0.0
				41.33333	-5.00000	68.00000	0.0	0.0	0.0
				43.16667	-5.00000	68.00000	0.0	0.0	0.0
				45.00000	-5.00000	68.00000	0.0	0.0	0.0
				-10.00000	-2.50000	68.00000	0.0	0.0	0.0
				-8.16667	-2.50000	68.00000	0.0	0.0	0.0
				-6.33333	-2.50000	68.00000	0.0	0.0	0.0
				-4.50000	-2.50000	68.00000	0.0028563	0.017260	0.0062161
				-2.66667	-2.50000	68.00000	0.0026435	0.10726	0.021387
				-0.83333	-2.50000	68.00000	0.0	0.17436	0.034114
				1.00000	-2.50000	68.00000	0.0	0.19962	0.039420
				2.83333	-2.50000	68.00000	0.0	0.11250	0.021764
				4.66667	-2.50000	68.00000	0.0	0.11250	0.021764
				6.50000	-2.50000	68.00000	0.0	0.11250	0.021764
				8.33333	-2.50000	68.00000	0.0	0.11250	0.021764
				10.16667	-2.50000	68.00000	0.0	0.11250	0.021764
				12.00000	-2.50000	68.00000	-0.0029436	0.028824	0.0074643
				13.83333	-2.50000	68.00000	0.0	0.0	0.0
				15.66667	-2.50000	68.00000	0.0	0.0	0.0
				17.50000	-2.50000	68.00000	0.0	0.0	0.0
				19.33333	-2.50000	68.00000	0.0	0.0	0.0
				21.16667	-2.50000	68.00000	0.0	0.0	0.0
				23.00000	-2.50000	68.00000	0.0	0.0	0.0
				24.83333	-2.50000	68.00000	0.0	0.0	0.0
				26.66667	-2.50000	68.00000	0.0	0.0	0.0
				28.50000	-2.50000	68.00000	0.0	0.0	0.0
				30.33333	-2.50000	68.00000	0.0	0.0	0.0
				32.16667	-2.50000	68.00000	0.0	0.0	0.0
				34.00000	-2.50000	68.00000	0.0	0.0	0.0
				35.83333	-2.50000	68.00000	0.0	0.0	0.0
				37.66667	-2.50000	68.00000	0.0	0.0	0.0
				39.50000	-2.50000	68.00000	0.0	0.0	0.0
				41.33333	-2.50000	68.00000	0.0	0.0	0.0
				43.16667	-2.50000	68.00000	0.0	0.0	0.0
				45.00000	-2.50000	68.00000	0.0	0.0	0.0
				-10.00000	0.00000	68.00000	0.0	0.0	0.0
				-8.16667	0.00000	68.00000	0.11630	0.15089	0.040183
				-6.33333	0.00000	68.00000	0.21300	0.48601	0.096288
				-4.50000	0.00000	68.00000	0.317496	0.96197	0.188818
				-2.66667	0.00000	68.00000	0.033899	1.4308	0.27721
				-0.83333	0.00000	68.00000	0.0	1.6778	0.33387
				1.00000	0.00000	68.00000	0.0	1.9841	0.39228
				2.83333	0.00000	68.00000	0.0	1.6960	0.31343
				4.66667	0.00000	68.00000	0.0	1.3875	0.25434
				6.50000	0.00000	68.00000	0.0	1.1099	0.22221
				8.33333	0.00000	68.00000	0.0	1.0500	0.21062
				10.16667	0.00000	68.00000	0.0	1.0500	0.21062
				12.00000	0.00000	68.00000	-0.075398	0.52116	0.10843
				13.83333	0.00000	68.00000	-0.10796	0.30485	0.058547
				15.66667	0.00000	68.00000	-0.074404	0.11616	0.026166
				17.50000	0.00000	68.00000	0.0	0.0	0.0
				19.33333	0.00000	68.00000	0.0	0.0	0.0
				21.16667	0.00000	68.00000	0.0	0.0	0.0
				23.00000	0.00000	68.00000	0.0	0.0	0.0
				24.83333	0.00000	68.00000	0.0	0.0	0.0
				26.66667	0.00000	68.00000	0.0	0.0	0.0
				28.50000	0.00000	68.00000	0.0	0.0	0.0
				30.33333	0.00000	68.00000	0.0	0.0	0.0
				32.16667	0.00000	68.00000	0.0	0.0	0.0
				34.00000	0.00000	68.00000	0.0	0.0	0.0
				35.83333	0.00000	68.00000	0.0	0.0	0.0
				37.66667	0.00000	68.00000	0.0	0.0	0.0
				39.50000	0.00000	68.00000	0.0	0.0	0.0
				41.33333	0.00000	68.00000	0.0	0.0	0.0
				43.16667	0.00000	68.00000	0.0	0.0	0.0
				45.00000	0.00000	68.00000	0.0	0.0	0.0
				-10.00000	2.50000	68.00000	0.23902	0.12807	0.050138
				-8.16667	2.50000	68.00000	0.53071	0.43635	0.16814
				-6.33333	2.50000	68.00000	0.64451	0.94402	0.46395
				-4.50000	2.50000	68.00000	0.50278	1.6439	0.86972
				-2.66667	2.50000	68.00000	0.098245	2.5630	1.2378
				-0.83333	2.50000	68.00000	0.0	3.1168	1.5427
				1.00000	2.50000	68.00000			

Stage: Ref.	Stage: Name	Disp. Grid: Ref.	Disp. Grid: Name	x	y	z	dx	dy	dz
				[m]	[m]	[m]	[mm]	[mm]	[mm]
				26.66667	2.50000	68.00000	0.0	0.0	0.0
				28.50000	2.50000	68.00000	0.0	0.0	0.0
				30.33333	2.50000	68.00000	0.0	0.0	0.0
				32.16667	2.50000	68.00000	0.0	0.0	0.0
				34.00000	2.50000	68.00000	0.0	0.0	0.0
				35.83333	2.50000	68.00000	0.0	0.0	0.0
				37.66667	2.50000	68.00000	0.0	0.0	0.0
				39.50000	2.50000	68.00000	0.0	0.0	0.0
				41.33333	2.50000	68.00000	0.0	0.0	0.0
				43.16667	2.50000	68.00000	0.0	0.0	0.0
				45.00000	2.50000	68.00000	0.0	0.0	0.0
				-10.00000	5.00000	68.00000	0.61462	0.13234	0.10782
				-8.16667	5.00000	68.00000	1.0805	0.36829	0.42573
				-6.33333	5.00000	68.00000	1.3827	0.77593	1.0446
				-4.50000	5.00000	68.00000	1.2916	1.5625	1.7084
				-2.66667	5.00000	68.00000	0.30633	3.1687	2.2027
				-0.83333	5.00000	68.00000	0.0	4.5356	2.9622
				1.00000	5.00000	68.00000	0.0	5.5741	3.7869
				2.83333	5.00000	68.00000	0.0	4.5134	3.0956
				4.66667	5.00000	68.00000	0.0	4.0118	2.7210
				6.50000	5.00000	68.00000	0.0	3.7471	2.5570
				8.33333	5.00000	68.00000	0.0	3.5878	2.5110
				10.16667	5.00000	68.00000	0.0	3.5027	2.5000
				12.00000	5.00000	68.00000	-0.58586	2.1493	1.3430
				13.83333	5.00000	68.00000	-0.81724	1.6114	0.97932
				15.66667	5.00000	68.00000	-0.19162	0.84103	0.48290
				17.50000	5.00000	68.00000	-0.59573	0.48670	0.18657
				19.33333	5.00000	68.00000	-0.24512	0.20446	0.062711
				21.16667	5.00000	68.00000	-0.032655	0.030568	0.011895
				23.00000	5.00000	68.00000	0.0	0.0	0.0
				24.83333	5.00000	68.00000	0.0	0.0	0.0
				26.66667	5.00000	68.00000	0.0	0.0	0.0
				28.50000	5.00000	68.00000	0.0	0.0	0.0
				30.33333	5.00000	68.00000	0.0	0.0	0.0
				32.16667	5.00000	68.00000	0.0	0.0	0.0
				34.00000	5.00000	68.00000	0.0	0.0	0.0
				35.83333	5.00000	68.00000	0.0	0.0	0.0
				37.66667	5.00000	68.00000	0.0	0.0	0.0
				39.50000	5.00000	68.00000	0.0	0.0	0.0
				41.33333	5.00000	68.00000	0.0	0.0	0.0
				43.16667	5.00000	68.00000	0.0	0.0	0.0
				45.00000	5.00000	68.00000	0.0	0.0	0.0
				-10.00000	7.50000	68.00000	0.86250	0.0	0.13934
				-8.16667	7.50000	68.00000	1.5500	0.0	0.53871
				-6.33333	7.50000	68.00000	2.2375	0.0	1.2410
				-4.50000	7.50000	68.00000	2.9250	0.0	1.8000
				-2.66667	7.50000	68.00000	3.6125	0.0	1.3105
				-0.83333	7.50000	68.00000	Point lies within an excavation.		
				1.00000	7.50000	68.00000	Point lies within an excavation.		
				2.83333	7.50000	68.00000	Point lies within an excavation.		
				4.66667	7.50000	68.00000	Point lies within an excavation.		
				6.50000	7.50000	68.00000	Point lies within an excavation.		
				8.33333	7.50000	68.00000	Point lies within an excavation.		
				10.16667	7.50000	68.00000	Point lies within an excavation.		
				12.00000	7.50000	68.00000	-3.0750	2.1750	2.9958
				13.83333	7.50000	68.00000	-2.3875	2.1750	2.5725
				15.66667	7.50000	68.00000	-1.9226	1.0208	1.3142
				17.50000	7.50000	68.00000	-1.3828	0.54832	0.57278
				19.33333	7.50000	68.00000	-0.70800	0.27563	0.21564
				21.16667	7.50000	68.00000	-0.26571	0.12079	0.05373
				23.00000	7.50000	68.00000	-0.040343	0.013241	0.010854
				24.83333	7.50000	68.00000	0.0	0.0	0.0
				26.66667	7.50000	68.00000	0.0	0.0	0.0
				28.50000	7.50000	68.00000	0.0	0.0	0.0
				30.33333	7.50000	68.00000	0.0	0.0	0.0
				32.16667	7.50000	68.00000	0.0	0.0	0.0
				34.00000	7.50000	68.00000	0.0	0.0	0.0
				35.83333	7.50000	68.00000	0.0	0.0	0.0
				37.66667	7.50000	68.00000	0.0	0.0	0.0
				39.50000	7.50000	68.00000	0.0	0.0	0.0
				41.33333	7.50000	68.00000	0.0	0.0	0.0
				43.16667	7.50000	68.00000	0.0	0.0	0.0
				45.00000	7.50000	68.00000	0.0	0.0	0.0
				-10.00000	10.00000	68.00000	0.86250	0.0	0.13934
				-8.16667	10.00000	68.00000	1.5500	0.0	0.53871
				-6.33333	10.00000	68.00000	2.2375	0.0	1.2410
				-4.50000	10.00000	68.00000	2.9250	0.0	1.8000
				-2.66667	10.00000	68.00000	3.6125	0.0	1.3105
				-0.83333	10.00000	68.00000	Point lies within an excavation.		
				1.00000	10.00000	68.00000	Point lies within an excavation.		
				2.83333	10.00000	68.00000	Point lies within an excavation.		
				4.66667	10.00000	68.00000	Point lies within an excavation.		
				6.50000	10.00000	68.00000	Point lies within an excavation.		
				8.33333	10.00000	68.00000	Point lies within an excavation.		
				10.16667	10.00000	68.00000	Point lies within an excavation.		
				12.00000	10.00000	68.00000	-3.0750	3.1125	3.6423
				13.83333	10.00000	68.00000	-2.3875	3.1125	3.2190
				15.66667	10.00000	68.00000	-2.3589	0.84139	1.6001
				17.50000	10.00000	68.00000	-1.9925	0.35704	0.97047
				19.33333	10.00000	68.00000	-1.1843	0.17531	0.46396
				21.16667	10.00000	68.00000	-0.57499	0.080820	0.13326
				23.00000	10.00000	68.00000	-0.22093	0.023628	0.032915
				24.83333	10.00000	68.00000	0.0	0.0	0.0
				26.66667	10.00000	68.00000	0.0	0.0	0.0
				28.50000	10.00000	68.00000	0.0	0.0	0.0
				30.33333	10.00000	68.00000	0.0	0.0	0.0
				32.16667	10.00000	68.00000	0.0	0.0	0.0
				34.00000	10.00000	68.00000	0.0	0.0	0.0
				35.83333	10.00000	68.00000	0.0	0.0	0.0
				37.66667	10.00000	68.00000	0.0	0.0	0.0
				39.50000	10.00000	68.00000	0.0	0.0	0.0
				41.33333	10.00000	68.00000	0.0	0.0	0.0
				43.16667	10.00000	68.00000	0.0	0.0	0.0
				45.00000	10.00000	68.00000	0.0	0.0	0.0
				-10.00000	12.50000	68.00000	0.86250	0.0	0.13934
				-8.16667	12.50000	68.00000	1.5500	0.0	0.53871
				-6.33333	12.50000	68.00000	2.2375	0.0	1.2410
				-4.50000	12.50000	68.00000	2.9250	0.0	1.8000
				-2.66667	12.50000	68.00000	3.6125	0.0	1.3105
				-0.83333	12.50000	68.00000	Point lies within an excavation.		
				1.00000	12.50000	68.00000	Point lies within an excavation.		
				2.83333	12.50000	68.00000	Point lies within an excavation.		
				4.66667	12.50000	68.00000	Point lies within an excavation.		
				6.50000	12.50000	68.00000	Point lies within an excavation.		
				8.33333	12.50000	68.00000	Point lies within an excavation.		
				10.16667	12.50000	68.00000	Point lies within an excavation.		
				12.00000	12.50000	68.00000	Point lies within an excavation.		
				13.83333	12.50000	68.00000	Point lies within an excavation.		
				15.66667	12.50000	68.00000	-3.2000	0.0	1.7961
				17.50000	12.50000	68.00000	-0.5125	0.0	1.5222
				19.33333	12.50000	68.00000	-1.8250	0.0	0.79798
				21.16667	12.50000	68.00000	-1.1375	0.0	0.25328
				23.00000	12.50000	68.00000	-0.45000	0.0	0.058865
				24.83333	12.50000	68.00000	0.0	0.0	0.0
				26.66667	12.50000	68.00000	0.0	0.0	0.0
				28.50000	12.50000	68.00000	0.0	0.0	0.0
				30.33333	12.50000	68.00000	0.0	0.0	0.0
				32.16667	12.50000	68.00000	0.0	0.0	0.0
				34.00000	12.50000	68.00000	0.0	0.0	0.0
				35.83333	12.50000	68.00000	0.0	0.0	0.0
				37.66667	12.50000	68.00000	0.0	0.0	0.0
				39.50000	12.50000	68.00000	0.0	0.0	0.0
				41.33333	12.50000	68.00000	0.0	0.0	0.0
				43.16667	12.50000	68.00000	0.0	0.0	0.0
				45.00000	12.50000	68.00000	0.0	0.0	0.0
				-10.00000	15.00000	68.00000	0.85513	-0.0071286	0.13927
				-8.16667	15.00000	68.00000	1.5329	-0.019493	0.53881
				-6.33333	15.00000	68.00000	2.2017	-0.042211	1.2425
				-4.50000	15.00000	68.00000	2.8396	-0.099142	1.8080
				-2.66667	15.00000	68.00000	2.9960	-0.64930	1.3482
				-0.83333	15.00000	68.00000	0.0	-3.8936	1.1770
				1.00000	15.00000	68.00000	0.0	-5.8544	2.4078

Stage: Ref.	Stage: Name	Disp. Grid: Ref.	Disp. Grid: Name	x	y	z	δx	δy	δz
				[m]	[m]	[m]	[mm]	[mm]	[mm]
				30.33333	15.00000	68.00000	0.0	0.0	0.0
				32.16667	15.00000	68.00000	0.0	0.0	0.0
				34.00000	15.00000	68.00000	0.0	0.0	0.0
				35.83333	15.00000	68.00000	0.0	0.0	0.0
				37.66667	15.00000	68.00000	0.0	0.0	0.0
				39.50000	15.00000	68.00000	0.0	0.0	0.0
				41.33333	15.00000	68.00000	0.0	0.0	0.0
				43.16667	15.00000	68.00000	0.0	0.0	0.0
				45.00000	15.00000	68.00000	0.0	0.0	0.0
				-10.00000	17.50000	68.00000	0.52673	-0.14560	0.097843
				-8.16667	17.50000	68.00000	0.98779	-0.40943	0.38554
				-6.33333	17.50000	68.00000	1.2395	-0.85764	0.96359
				-4.50000	17.50000	68.00000	1.1055	-1.6676	1.6135
				-2.66667	17.50000	68.00000	0.24665	-3.0999	2.1371
				-0.83333	17.50000	68.00000	0.0	-4.3330	2.8708
				1.00000	17.50000	68.00000	0.0	-5.2621	3.6185
				2.83333	17.50000	68.00000	0.0	-4.2800	2.9513
				4.66667	17.50000	68.00000	0.0	-3.7543	2.5619
				6.50000	17.50000	68.00000	0.0	-3.4616	2.3888
				8.33333	17.50000	68.00000	0.0	-3.2808	2.3409
				10.16667	17.50000	68.00000	0.0	-3.1891	2.3290
				12.00000	17.50000	68.00000	0.0	-3.1891	2.3290
				13.83333	17.50000	68.00000	0.0	-3.1891	2.3290
				15.66667	17.50000	68.00000	-0.43006	-1.1468	1.1076
				17.50000	17.50000	68.00000	-0.68096	-0.46190	0.65868
				19.33333	17.50000	68.00000	-0.66758	-0.23760	0.32709
				21.16667	17.50000	68.00000	-0.46054	-0.10932	0.10293
				23.00000	17.50000	68.00000	-0.15955	-0.028254	0.026973
				24.83333	17.50000	68.00000	0.0	0.0	0.0
				26.66667	17.50000	68.00000	0.0	0.0	0.0
				28.50000	17.50000	68.00000	0.0	0.0	0.0
				30.33333	17.50000	68.00000	0.0	0.0	0.0
				32.16667	17.50000	68.00000	0.0	0.0	0.0
				34.00000	17.50000	68.00000	0.0	0.0	0.0
				35.83333	17.50000	68.00000	0.0	0.0	0.0
				37.66667	17.50000	68.00000	0.0	0.0	0.0
				39.50000	17.50000	68.00000	0.0	0.0	0.0
				41.33333	17.50000	68.00000	0.0	0.0	0.0
				43.16667	17.50000	68.00000	0.0	0.0	0.0
				45.00000	17.50000	68.00000	0.0	0.0	0.0
				-10.00000	20.00000	68.00000	0.17985	-0.10673	0.042145
				-8.16667	20.00000	68.00000	0.45456	-0.40513	0.13555
				-6.33333	20.00000	68.00000	0.55876	-0.90414	0.37803
				-4.50000	20.00000	68.00000	0.43224	-1.5748	0.72489
				-2.66667	20.00000	68.00000	0.083732	-2.4052	1.0428
				-0.83333	20.00000	68.00000	0.0	-2.8947	1.2681
				1.00000	20.00000	68.00000	0.0	-3.4166	1.4891
				2.83333	20.00000	68.00000	0.0	-2.8954	1.1826
				4.66667	20.00000	68.00000	0.0	-2.4490	0.95022
				6.50000	20.00000	68.00000	0.0	-2.1135	0.84797
				8.33333	20.00000	68.00000	0.0	-1.8676	0.81699
				10.16667	20.00000	68.00000	0.0	-1.8375	0.81076
				12.00000	20.00000	68.00000	0.0	-1.8375	0.81076
				13.83333	20.00000	68.00000	0.0	-1.8375	0.81076
				15.66667	20.00000	68.00000	-0.15688	-0.91564	0.44650
				17.50000	20.00000	68.00000	-0.26910	-0.53418	0.25888
				19.33333	20.00000	68.00000	-0.26092	-0.25804	0.10243
				21.16667	20.00000	68.00000	-0.17012	-0.10304	0.035366
				23.00000	20.00000	68.00000	0.0	0.0	0.0
				24.83333	20.00000	68.00000	0.0	0.0	0.0
				26.66667	20.00000	68.00000	0.0	0.0	0.0
				28.50000	20.00000	68.00000	0.0	0.0	0.0
				30.33333	20.00000	68.00000	0.0	0.0	0.0
				32.16667	20.00000	68.00000	0.0	0.0	0.0
				34.00000	20.00000	68.00000	0.0	0.0	0.0
				35.83333	20.00000	68.00000	0.0	0.0	0.0
				37.66667	20.00000	68.00000	0.0	0.0	0.0
				39.50000	20.00000	68.00000	0.0	0.0	0.0
				41.33333	20.00000	68.00000	0.0	0.0	0.0
				43.16667	20.00000	68.00000	0.0	0.0	0.0
				45.00000	20.00000	68.00000	0.0	0.0	0.0
				-10.00000	22.50000	68.00000	0.0	0.0	0.0
				-8.16667	22.50000	68.00000	0.062631	-0.087022	0.026847
				-6.33333	22.50000	68.00000	0.16261	-0.37289	0.070773
				-4.50000	22.50000	68.00000	0.14045	-0.81074	0.13883
				-2.66667	22.50000	68.00000	0.027520	-1.2264	0.20121
				-0.83333	22.50000	68.00000	0.0	-1.4400	0.24071
				1.00000	22.50000	68.00000	0.0	-1.7025	0.28299
				2.83333	22.50000	68.00000	0.0	-1.4475	0.22812
				4.66667	22.50000	68.00000	0.0	-1.1634	0.18662
				6.50000	22.50000	68.00000	0.0	-0.90000	0.15151
				8.33333	22.50000	68.00000	0.0	-0.90000	0.15151
				10.16667	22.50000	68.00000	0.0	-0.90000	0.15151
				12.00000	22.50000	68.00000	0.0	-0.90000	0.15151
				13.83333	22.50000	68.00000	0.0	-0.90000	0.15151
				15.66667	22.50000	68.00000	-0.051423	-0.48138	0.084708
				17.50000	22.50000	68.00000	-0.083834	-0.28992	0.050135
				19.33333	22.50000	68.00000	-0.058769	-0.10950	0.024123
				21.16667	22.50000	68.00000	0.0	0.0	0.0
				23.00000	22.50000	68.00000	0.0	0.0	0.0
				24.83333	22.50000	68.00000	0.0	0.0	0.0
				26.66667	22.50000	68.00000	0.0	0.0	0.0
				28.50000	22.50000	68.00000	0.0	0.0	0.0
				30.33333	22.50000	68.00000	0.0	0.0	0.0
				32.16667	22.50000	68.00000	0.0	0.0	0.0
				34.00000	22.50000	68.00000	0.0	0.0	0.0
				35.83333	22.50000	68.00000	0.0	0.0	0.0
				37.66667	22.50000	68.00000	0.0	0.0	0.0
				39.50000	22.50000	68.00000	0.0	0.0	0.0
				41.33333	22.50000	68.00000	0.0	0.0	0.0
				43.16667	22.50000	68.00000	0.0	0.0	0.0
				45.00000	22.50000	68.00000	0.0	0.0	0.0
				-10.00000	25.00000	68.00000	0.0	0.0	0.0
				-8.16667	25.00000	68.00000	0.0	0.0	0.0
				-6.33333	25.00000	68.00000	0.0	0.0	0.0
				-4.50000	25.00000	68.00000	0.0	0.0	0.0
				-2.66667	25.00000	68.00000	0.0	0.0	0.0
				-0.83333	25.00000	68.00000	0.0	0.0	0.0
				1.00000	25.00000	68.00000	0.0	0.0	0.0
				2.83333	25.00000	68.00000	0.0	0.0	0.0
				4.66667	25.00000	68.00000	0.0	0.0	0.0
				6.50000	25.00000	68.00000	0.0	0.0	0.0
				8.33333	25.00000	68.00000	0.0	0.0	0.0
				10.16667	25.00000	68.00000	0.0	0.0	0.0
				12.00000	25.00000	68.00000	0.0	0.0	0.0
				13.83333	25.00000	68.00000	0.0	0.0	0.0
				15.66667	25.00000	68.00000	0.0	0.0	0.0
				17.50000	25.00000	68.00000	0.0	0.0	0.0
				19.33333	25.00000	68.00000	0.0	0.0	0.0
				21.16667	25.00000	68.00000	0.0	0.0	0.0
				23.00000	25.00000	68.00000	0.0	0.0	0.0
				24.83333	25.00000	68.00000	0.0	0.0	0.0
				26.66667	25.00000	68.00000	0.0	0.0	0.0
				28.50000	25.00000	68.00000	0.0	0.0	0.0
				30.33333	25.00000	68.00000	0.0	0.0	0.0
				32.16667	25.00000	68.00000	0.0	0.0	0.0
				34.00000	25.00000	68.00000	0.0	0.0	0.0
				35.83333	25.00000	68.00000	0.0	0.0	0.0
				37.66667	25.00000	68.00000	0.0	0.0	0.0
				39.50000	25.00000	68.00000	0.0	0.0	0.0
				41.33333	25.00000	68.00000	0.0	0.0	0.0
				43.16667	25.00000	68.00000	0.0	0.0	0.0
				45.00000	25.00000	68.00000	0.0	0.0	0.0
				-10.00000	27.50000	68.00000	0.0	0.0	0.0
				-8.16667	27.50000	68.00000	0.0	0.0	0.0
				-6.33333	27.50000	68.00000	0.0	0.0	0.0
				-4.50000	27.50000	68.00000	0.0	0.0	0.0
				-2.66667	27.50000	68.00000	0.0	0.0	0.0
				-0.83333	27.50000	68.00000	0.0	0.0	0.0
				1.00000	27.50000	68.00000	0.0	0.0	0.0

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Stage Ref.	Stage Name	Disp. Ref.	Disp. Grid: Name	x	y	z	δx	δy	δz
				[m]	[m]	[m]	[mm]	[mm]	[mm]
				45.00000	65.00000	68.00000	0.0	0.0	0.0

Specific Building Damage Results - Horizontal Displacements

Stage Ref.	Stage Name	Specific Building: Ref.	Specific Building: Name	Sub-building Name	Dist.	x	y	z	δx	δy	δx//	δy perp.
					[m]	[m]	[m]	[m]	[mm]	[mm]	[mm]	[mm]
0	Base Model	1	15 Howitt Road	W1	0.0	0.00000	7.20000	68.00000	0.0	3.8088	3.8088	0.0
					1.5400	0.00000	8.74000	68.00000	0.0	0.0	0.0	0.0
					3.0800	0.00000	10.28000	68.00000	0.0	0.0	0.0	0.0
					4.6200	0.00000	11.82000	68.00000	0.0	0.0	0.0	0.0
					6.1600	0.00000	13.36000	68.00000	0.0	0.0	0.0	0.0
					7.7000	0.00000	14.90000	68.00000	0.0	-3.8088	-3.8088	0.0
		2	15 Howitt Road	15/17 FW	0.0	0.00000	14.90000	68.00000	0.0	-3.8088	0.0	-3.8088
					1.4200	1.42000	14.90000	68.00000	0.0	-5.7725	0.0	-5.7725
					2.8400	2.84000	14.90000	68.00000	0.0	-5.7725	0.0	-5.7725
					4.2600	4.26000	14.90000	68.00000	0.0	-5.7725	0.0	-5.7725
					5.6800	5.68000	14.90000	68.00000	0.0	-5.7725	0.0	-5.7725
					7.1000	7.10000	14.90000	68.00000	0.0	-5.7725	0.0	-5.7725
					8.5200	8.52000	14.90000	68.00000	0.0	-5.7725	0.0	-5.7725
					9.9400	9.94000	14.90000	68.00000	0.0	-5.7725	0.0	-5.7725
					11.3600	11.36000	14.90000	68.00000	0.0	-5.7725	0.0	-5.7725
					12.7800	12.78000	14.90000	68.00000	0.0	-5.7725	0.0	-5.7725
					14.2000	14.20000	14.90000	68.00000	-1.2563	-1.9338	-1.2563	-1.9338
		3	15 Howitt Road	13/15 PW	0.0	0.00000	7.20000	68.00000	0.0	3.8088	0.0	3.8088
					1.4000	1.40000	7.20000	68.00000	0.0	5.7725	0.0	5.7725
					2.8000	2.80000	7.20000	68.00000	0.0	5.7725	0.0	5.7725
					4.2000	4.20000	7.20000	68.00000	0.0	5.7725	0.0	5.7725
					5.6000	5.60000	7.20000	68.00000	0.0	5.7725	0.0	5.7725
					7.0000	7.00000	7.20000	68.00000	0.0	5.7725	0.0	5.7725
					8.4000	8.40000	7.20000	68.00000	0.0	5.7725	0.0	5.7725
					9.8000	9.80000	7.20000	68.00000	0.0	5.7725	0.0	5.7725
					11.2000	11.20000	7.20000	68.00000	-2.2613	2.0625	-2.2613	2.0625
					12.6000	12.60000	7.20000	68.00000	-1.9095	2.0625	-1.9095	2.0625
					14.0000	14.00000	7.20000	68.00000	-1.5578	2.0625	-1.5578	2.0625
		4	15 Howitt Road	Rear Extension - 15	0.0	14.20000	11.70000	68.00000	-2.0100	1.2563	1.2563	2.0100
					0.65000	14.20000	12.35000	68.00000	-3.7500	0.0	0.0	3.7500
					1.3000	14.20000	13.00000	68.00000	-3.7500	0.0	0.0	3.7500
					1.9500	14.20000	13.65000	68.00000	-3.7500	0.0	0.0	3.7500
					2.6000	14.20000	14.30000	68.00000	-3.7500	0.0	0.0	3.7500
					3.2500	14.20000	14.95000	68.00000	0.0	-3.8230	-3.8230	0.0
					3.9000	14.20000	15.60000	68.00000	0.0	-3.2939	-3.2939	0.0
					4.5500	14.20000	16.25000	68.00000	0.0	-2.8448	-2.8448	0.0
					5.2000	14.20000	16.90000	68.00000	0.0	-2.4568	-2.4568	0.0
					5.8500	14.20000	17.55000	68.00000	0.0	-2.1112	-2.1112	0.0
					6.5000	14.20000	18.20000	68.00000	0.0	-1.7893	-1.7893	0.0
		5	15 Howitt Road	Side Extension - 15	0.0	14.20000	11.70000	68.00000	-2.0100	1.2563	2.0100	-1.2563
					0.80000	13.40000	11.70000	68.00000	-0.85425	3.7500	0.85425	-3.7500
					1.6000	12.60000	11.70000	68.00000	-0.95475	3.7500	0.95475	-3.7500
					2.4000	11.80000	11.70000	68.00000	-1.0553	3.7500	1.0553	-3.7500
					3.2000	11.00000	11.70000	68.00000	-1.1558	3.7500	1.1558	-3.7500
					4.0000	10.20000	11.70000	68.00000	-1.2563	1.8750	1.2563	-1.8750
		6	15 Howitt Road	Rear Wall	0.0	10.20000	11.70000	68.00000	-1.2563	1.8750	-1.8750	-1.2563
					0.90000	10.20000	10.80000	68.00000	-3.7500	1.7062	-1.7062	-3.7500
					1.8000	10.20000	9.90000	68.00000	-3.7500	1.5375	-1.5375	-3.7500
					2.7000	10.20000	9.00000	68.00000	-3.7500	1.3688	-1.3688	-3.7500
					3.6000	10.20000	8.10000	68.00000	-3.7500	1.2000	-1.2000	-3.7500
					4.5000	10.20000	7.20000	68.00000	-1.2563	2.9650	-2.9650	-1.2563
		7	17 Howitt Road	Front 17	0.0	0.00000	0.00000	68.00000	0.0	1.7535	1.7535	0.0
					2.4000	0.00000	2.40000	68.00000	0.0	3.2565	3.2565	0.0
					4.8000	0.00000	4.80000	68.00000	0.0	5.0903	5.0903	0.0
					7.2000	0.00000	7.20000	68.00000	0.0	3.8088	3.8088	0.0
		8	17 Howitt Road	Side 17	0.0	0.00000	0.00000	68.00000	0.0	1.7535	0.0	1.7535
					1.4000	1.40000	0.00000	68.00000	0.0	1.9272	0.0	1.9272
					2.8000	2.80000	0.00000	68.00000	0.0	1.7016	0.0	1.7016
					4.2000	4.20000	0.00000	68.00000	0.0	1.4644	0.0	1.4644
					5.6000	5.60000	0.00000	68.00000	0.0	1.2408	0.0	1.2408
					7.0000	7.00000	0.00000	68.00000	0.0	1.0500	0.0	1.0500
					8.4000	8.40000	0.00000	68.00000	0.0	1.0500	0.0	1.0500
					9.8000	9.80000	0.00000	68.00000	0.0	1.0500	0.0	1.0500
					11.2000	11.20000	0.00000	68.00000	-0.044987	0.61056	-0.044987	0.61056
					12.6000	12.60000	0.00000	68.00000	-0.092579	0.45011	-0.092579	0.45011
					14.0000	14.00000	0.00000	68.00000	-0.10775	0.28600	-0.10775	0.28600
		9	17 Howitt Road	Rear 17	0.0	14.00000	0.00000	68.00000	-0.10775	0.28600	0.28600	0.10775
					1.4400	14.00000	1.44000	68.00000	-0.21576	0.41626	0.41626	0.21576
					2.8800	14.00000	2.88000	68.00000	-0.36570	0.89507	0.89507	0.36570
					4.3200	14.00000	4.32000	68.00000	-0.63409	1.3875	1.3875	0.63409
					5.7600	14.00000	5.76000	68.00000	-1.0603	1.7792	1.7792	1.0603
					7.2000	14.00000	7.20000	68.00000	-1.5578	2.0625	2.0625	1.5578
		10	13 Howitt Road	Front 13	0.0	0.00000	14.90000	68.00000	0.0	-3.8088	-3.8088	0.0
					1.4400	0.00000	16.34000	68.00000	0.0	-5.9978	-5.9978	0.0
					2.8800	0.00000	17.78000	68.00000	0.0	-4.6656	-4.6656	0.0
					4.3200	0.00000	19.22000	68.00000	0.0	-3.5571	-3.5571	0.0
					5.7600	0.00000	20.66000	68.00000	0.0	-2.6553	-2.6553	0.0
					7.2000	0.00000	22.10000	68.00000	0.0	-1.7535	-1.7535	0.0
		11	13 Howitt Road	Side 13	0.0	0.00000	22.10000	68.00000	0.0	-1.7535	0.0	-1.7535
					1.0200	1.02000	22.10000	68.00000	0.0	-1.9814	0.0	-1.9814
					2.0400	2.04000	22.10000	68.00000	0.0	-1.8278	0.0	-1.8278
					3.0600	3.06000	22.10000	68.00000	0.0	-1.6574	0.0	-1.6574
					4.0800	4.08000	22.10000	68.00000	0.0	-1.4844	0.0	-1.4844
					5.1000	5.10000	22.10000	68.00000	0.0	-1.3181	0.0	-1.3181
					6.1200	6.12000	22.10000	68.00000	0.0	-1.1638	0.0	-1.1638
					7.1400	7.14000	22.10000	68.00000	0.0	-1.0500	0.0	-1.0500
					8.1600	8.16000	22.10000	68.00000	0.0	-1.0500	0.0	-1.0500
					9.1800	9.18000	22.10000	68.00000	0.0	-1.0500	0.0	-1.0500
					10.2000	10.20000	22.10000	68.00000	0.0	-1.0500	0.0	-1.0500
		12	13 Howitt Road	Rear 13	0.0	10.00000	22.10000	68.00000	0.0	-1.0500	1.0486	-0.053775
					0.78102	10.04000	21.32000	68.00000	0.0	-1.3425	1.3407	-0.068756
					1.5620	10.08000	20.54000	68.00000	0.0	-1.6350	1.6329	-0.083736
					2.3431	10.12000	19.76000	68.00000	0.0	-1.9275	1.9250	-0.098716
					3.1241	10.16000	18.98000	68.00000	0.0	-2.2200	2.2171	-0.11370
					3.9051	10.20000	18.20000	68.00000	0.0	-2.6706	2.6671	-0.13678
		13	13 Howitt Road	Side Extension 13	0.0	10.20000	18.20000	68.00000	0.0	-2.6706	0.0	-2.6706
					0.80000	11.00000	18.20000	68.00000	0.0	-2.6706	0.0	-2.6706
					1.6000	11.80000	18.20000	68.00000	0.0	-2.6706	0.0	-2.6706
					2.4000	12.60000	18.20000	68.00000	0.0	-2.6706	0.0	-2.6706
					3.2000	13.40000	18.20000	68.00000	0.0	-2.6706	0.0	-2.6706
		14	Holmeffield Court	Side	4.0000	14.20000	18.20000	68.00000	0.0	-1.7893	0.0	-1.7893
					0.0	36.90000	5.90000	68.00000	0.0	0.0	0.0	

Stage: Ref.	Stage: Name	Specific Building: Ref.	Specific Building: Name	Sub-building Name	Vertical Offset	Dist.	x	y	z	δz
					[m]	[m]	[m]	[m]	[m]	[mm]
						11.360	11.36000	14.90000	68.00000	2.2248
						12.780	12.78000	14.90000	68.00000	2.2248
						14.200	14.20000	14.90000	68.00000	1.0718
3		15	Howitt Road	13/15 PW	0.0	0.0	0.00000	7.20000	68.00000	1.2327
						1.4000	1.40000	7.20000	68.00000	2.2248
						2.8000	2.80000	7.20000	68.00000	2.2248
						4.2000	4.20000	7.20000	68.00000	2.2248
						5.6000	5.60000	7.20000	68.00000	2.2248
						7.0000	7.00000	7.20000	68.00000	2.2248
						8.4000	8.40000	7.20000	68.00000	2.2248
						9.8000	9.80000	7.20000	68.00000	2.2248
						11.200	11.20000	7.20000	68.00000	2.1714
						12.600	12.60000	7.20000	68.00000	2.2359
4		15	Howitt Road	Rear Extension - 15	0.0	14.000	14.00000	7.20000	68.00000	1.9443
						0.0	14.20000	11.70000	68.00000	1.0733
						0.65000	14.20000	12.35000	68.00000	0.97475
						1.3000	14.20000	13.00000	68.00000	0.97475
						1.9500	14.20000	13.65000	68.00000	0.97475
						2.6000	14.20000	14.30000	68.00000	0.97475
						3.2500	14.20000	14.95000	68.00000	1.5169
						3.9000	14.20000	15.60000	68.00000	1.7473
						4.5500	14.20000	16.25000	68.00000	1.8009
						5.2000	14.20000	16.90000	68.00000	1.7207
						5.8500	14.20000	17.55000	68.00000	1.5442
						6.5000	14.20000	18.20000	68.00000	1.3046
5		15	Howitt Road	Side Extension - 15	0.0	0.0	14.20000	11.70000	68.00000	0.9733
						0.80000	13.40000	11.70000	68.00000	1.4962
						1.6000	12.60000	11.70000	68.00000	1.5676
						2.4000	11.80000	11.70000	68.00000	1.5819
						3.2000	11.00000	11.70000	68.00000	1.5059
						4.0000	10.20000	11.70000	68.00000	0.81392
6		15	Howitt Road	Rear Wall	0.0	0.0	10.20000	11.70000	68.00000	0.81392
						0.90000	10.20000	10.80000	68.00000	1.7910
						1.8000	10.20000	9.90000	68.00000	1.8861
						2.7000	10.20000	9.00000	68.00000	1.8273
						3.6000	10.20000	8.10000	68.00000	1.6808
						4.5000	10.20000	7.20000	68.00000	1.5969
7		17	Howitt Road	Front 17	0.0	0.0	0.00000	0.00000	68.00000	0.35173
						2.4000	0.00000	2.40000	68.00000	1.5843
						4.8000	0.00000	4.80000	68.00000	3.3911
						7.2000	0.00000	7.20000	68.00000	1.2327
8		17	Howitt Road	Side 17	0.0	0.0	0.00000	0.00000	68.00000	0.35173
						1.4000	1.40000	0.00000	68.00000	0.37630
						2.8000	2.80000	0.00000	68.00000	0.31483
						4.2000	4.20000	0.00000	68.00000	0.26568
						5.6000	5.60000	0.00000	68.00000	0.23749
						7.0000	7.00000	0.00000	68.00000	0.21062
						8.4000	8.40000	0.00000	68.00000	0.21062
						9.8000	9.80000	0.00000	68.00000	0.21062
						11.200	11.20000	0.00000	68.00000	0.12749
						12.600	12.60000	0.00000	68.00000	0.051763
						14.000	14.00000	0.00000	68.00000	0.054643
9		17	Howitt Road	Rear 17	0.0	0.0	14.00000	0.00000	68.00000	0.054643
						1.4400	14.00000	1.44000	68.00000	0.14492
						2.8800	14.00000	2.88000	68.00000	0.35379
						4.3200	14.00000	4.32000	68.00000	0.69247
						5.7600	14.00000	5.76000	68.00000	1.2694
						7.2000	14.00000	7.20000	68.00000	1.9443
10		13	Howitt Road	Front 13	0.0	0.0	0.00000	14.90000	68.00000	1.2327
						1.4400	0.00000	16.34000	68.00000	3.5888
						2.8800	0.00000	17.78000	68.00000	3.1219
						4.3200	0.00000	19.22000	68.00000	1.9908
						5.7600	0.00000	20.66000	68.00000	0.95763
						7.2000	0.00000	22.10000	68.00000	0.35173
						0.0	0.00000	22.10000	68.00000	0.35173
11		13	Howitt Road	Side 13	0.0	1.0200	1.02000	22.10000	68.00000	0.39153
						2.0400	2.04000	22.10000	68.00000	0.34824
						3.0600	3.06000	22.10000	68.00000	0.30415
						4.0800	4.08000	22.10000	68.00000	0.26900
						5.1000	5.10000	22.10000	68.00000	0.24580
						6.1200	6.12000	22.10000	68.00000	0.22920
						7.1400	7.14000	22.10000	68.00000	0.21062
						8.1600	8.16000	22.10000	68.00000	0.21062
						9.1800	9.18000	22.10000	68.00000	0.21062
						10.200	10.20000	22.10000	68.00000	0.21062
12		13	Howitt Road	Rear 13	0.0	0.0	10.00000	22.10000	68.00000	0.21062
						0.78102	10.04000	21.32000	68.00000	0.37794
						1.5620	10.08000	20.54000	68.00000	0.61381
						2.3431	10.12000	19.76000	68.00000	0.93970
						3.1241	10.16000	18.98000	68.00000	1.4520
						3.9051	10.20000	18.20000	68.00000	1.9472
13		13	Howitt Road	Side Extension 13	0.0	0.0	10.20000	18.20000	68.00000	1.9472
						0.80000	11.00000	18.20000	68.00000	1.9472
						1.6000	11.80000	18.20000	68.00000	1.9472
						2.4000	12.60000	18.20000	68.00000	1.9472
						3.2000	13.40000	18.20000	68.00000	1.9472
						4.0000	14.20000	18.20000	68.00000	1.3046
14			Holmeffield Court	Side	0.0	0.0	36.90000	5.90000	68.00000	0.0
						1.1400	35.76000	5.90000	68.00000	0.0
						2.2800	34.62000	5.90000	68.00000	0.0
						3.4200	33.48000	5.90000	68.00000	0.0
						4.5600	32.34000	5.90000	68.00000	0.0
						5.7000	31.20000	5.90000	68.00000	0.0
						6.8400	30.06000	5.90000	68.00000	0.0
						7.9800	28.92000	5.90000	68.00000	0.0
						9.1200	27.78000	5.90000	68.00000	0.0
						10.260	26.64000	5.90000	68.00000	0.0
						11.400	25.50000	5.90000	68.00000	0.0
15			Holmeffield Court	Rear	0.0	0.0	25.50000	5.90000	68.00000	0.0
						5.1600	25.50000	11.06000	68.00000	0.0
						10.320	25.50000	16.22000	68.00000	0.0
						15.480	25.50000	21.38000	68.00000	0.0
						20.640	25.50000	26.54000	68.00000	0.0
						25.800	25.50000	31.70000	68.00000	0.0
						30.960	25.50000	36.86000	68.00000	0.0
						36.120	25.50000	42.02000	68.00000	0.0
						41.280	25.50000	47.18000	68.00000	0.0
						46.440	25.50000	52.34000	68.00000	0.0
						51.600	25.50000	57.50000	68.00000	0.0

Specific Building Damage Results - Detail

Stage: Ref.	Stage: Name	Specific Building: Ref.	Specific Building: Name	Sub-building Name	Vertical Offset	Segment	Start	Length	Curvature	Deflection	Average	Max	Max Gradient	Max Gradient	Min
Damage Category					from Line for Vertical Movement Calculations					Ratio	Horizontal Strain	Tensile Strain	of Horizontal Displacement Curve	of Vertical Displacement Curve	Radius of Curvature
					[m]		[m]	[m]		[%]	[%]	[%]			[m]
0	Base Model	1	15 Howitt Road	W1	0.0	1	0.0	7.7000	Hogging	0.016025	-0.098930	0.021805	0.0024794	802.42E-6	1533.8 0
(Negligible)		2	15 Howitt Road	15/17 PW	0.0	1	0.0	4.2600	None	0.015526	0.0	0.015040	0.0	-698.65E-6	1626.0 0
(Negligible)						2		4.2600	5.6800	None	0.0	0.0 35.763E-9	0.0	0.0 -	0
(Negligible)						3	9.9400	4.2600	None	0.018048	-0.029489	0.013078	885.47E-6	812.63E-6	1397.4 0
(Negligible)		3	15 Howitt Road	13/15 PW	0.0	1	0.0	4.2000	None	0.015747	0.0	0.015268	0.0	-708.63E-6	1580.5 0
(Negligible)						2	4.2000	2.8000	None	0.0	0.0 35.763E-9	0.0	0.0 -	0.0 -	0
(Negligible)						3	7.0000	2.5581	None	0.0	0.0 35.763E-9	0.0	0.0	0.0	147210. 0
(Negligible)						4	9.5581	0.32664	None	728.75E-6	-0.041905	0.0083916	0.0016178	38.139E-6	705750. 0
(Negligible)						5	9.8847	4.1153	None	0.0047609	-0.034527	0.0074147	0.0016178	208.27E-6	4131.3 0
(Negligible)		4	15 Howitt Road	Rear Extension - 15	0.0	1	0.0	3.0875	None	0.011573	-0.13355	0.027514	0.0059164	-839.08E-6	2188.7 0
(Negligible)						2	3.0875	3.4125	None	0.013210	0.031582	0.037244	0.0059164	-839.08E-6	2122.3 0
(Negligible)		5	15 Howitt Road	Side Extension - 15	0.0	1	0.0	4.0000	None	0.016588	-0.018844	0.012160	0.0014468	864.92E-6	856.31 0
(Negligible)		6	15 Howitt Road	Rear Wall	0.0	1	0.0	3.3547	None	0.021796	0.018750	0.031649	-187.46E-6	-0.0010854	761.64

Stage: Damage Category	Stage: Name	Specific Ref.	Specific Building: Name	Sub-building Name	Vertical Offset from Line for Vertical	Segment	Start	Length	Curvature	Deflection	Average Ratio	Max Horizontal Strain	Max Tensile Strain	Max Gradient of Horizontal	Max Gradient of Vertical Displacement	Min Radius of Curvature	
(Negligible)						3	7.6925	3.3960	None	0.0013881	-0.0012192	0.0010568		32.134E-6	59.379E-6	66337.0	
(Negligible)						4	11.089	0.11149	None	0.0	-0.0032133	642.69E-6		33.996E-6	59.379E-6	762340.0	
(Negligible)		9	17	Howitt Road	Rear 17	0.0	1	1.4400	5.7600	None	0.0060733	0.028581	0.032815	-341.86E-6	-468.59E-6	11813.0	
(Negligible)		10	13	Howitt Road	Front 13	0.0	1	0.0	4.3617	Sagging	0.048331	0.0063696	0.049451	0.0015225	-0.0016387	615.77	0
(Negligible)						2	4.3617	2.8383	None	0.0073784	0.062625	0.065272		-625.86E-6	717.04E-6	4073.4	1
(Very Slight)		11	13	Howitt Road	Side 13	0.0	1	0.0	2.7774	None	0.0018818	0.0	0.0018563	0.0	43.227E-6	10038.0	0
(Negligible)						2	2.7774	6.4026	None	525.46E-6	0.0	489.70E-6	0.0	43.227E-6	105800.0	0	
(Negligible)						3	9.1800	1.0200	None	0.0	0.0	35.763E-9	0.0	0.0	0.0	-	0
(Negligible)		12	13	Howitt Road	Rear 13	0.0	1	0.0	3.3821	None	0.0072613	0.038944	0.042030	-575.90E-6	-655.73E-6	5483.0	0
(Negligible)						2	3.3821	0.52291	None	0.0	0.057623	0.057623		-575.90E-6	-633.61E-6	8949.9	1
(Very Slight)		13	13	Howitt Road	Side Extension 13	0.0	1	0.0	1.6000	None	0.0	0.0	35.763E-9	0.0	0.0	-	0
(Negligible)						2	1.6000	2.4000	None	0.017849	0.0	0.017668	0.0	803.22E-6	796.80	0	
(Negligible)		14		Holmeffield Court	Side	0.0	All vertical displacements are less than the limit sensitivity.										
(Negligible)		15		Holmeffield Court	Rear	0.0	All vertical displacements are less than the limit sensitivity.										
Tensile horizontal strains are +ve, compressive horizontal strains are -ve.																	

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

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

Stage: Damage Category	Stage: Name	Specific Ref.	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 [mm]	Max Settlement [%]	Max Tensile Strain [%]	Max Gradient of Horizontal Displacement Curve	Max Gradient of Vertical Displacement Curve	Min Radius of Curvature (Hogging) [m]	Min Radius of Curvature (Sagging) [m]
0 (Negligible)	Base Model	1	15	Howitt Road	W1	0.0	0.016025	-0.098930	802.42E-6	1.2327	0.021805	0.0024794	802.42E-6	1533.8	-0
(Negligible)		2	15	Howitt Road	15/17 PW	0.0	0.018048	-0.029489	812.63E-6	2.2248	0.015040	885.47E-6	812.63E-6	-	-0
(Negligible)		3	15	Howitt Road	13/15 PW	0.0	0.015747	-0.041905	-708.63E-6	2.2354	0.015268	0.0016178	-708.63E-6	-	-0
(Negligible)		4	15	Howitt Road	Rear Extension - 15	0.0	0.013210	-0.13355	-839.08E-6	1.7997	0.037244	0.0059164	-839.08E-6	-	-0
(Negligible)		5	15	Howitt Road	Side Extension - 15	0.0	0.016588	-0.018844	864.92E-6	1.5816	0.012160	0.0014468	864.92E-6	-	-0
(Negligible)		6	15	Howitt Road	Rear Wall	0.0	0.021796	-0.15005	-0.0010854	1.8857	0.031649	0.0019650	-0.0010854	-	-0
(Very Slight)		7	17	Howitt Road	Front 17	0.0	0.039606	0.062625	899.81E-6	3.3900	0.062625	-763.49E-6	899.81E-6	-	1129.8
(Negligible)		8	17	Howitt Road	Side 17	0.0	0.0014235	-0.0032133	59.379E-6	0.37613	0.0013950	33.996E-6	59.379E-6	-	-0
(Negligible)		9	17	Howitt Road	Rear 17	0.0	0.0060733	0.028581	-468.59E-6	1.9443	0.032815	-341.86E-6	-468.59E-6	-	-0
(Negligible)		10	13	Howitt Road	Front 13	0.0	0.048331	0.062625	-0.0016387	3.5836	0.065272	0.0015225	-0.0016387	-	615.77
(Very Slight)		11	13	Howitt Road	Side 13	0.0	0.0018818	0.0	43.227E-6	0.39113	0.0018563	0.0	43.227E-6	-	-0
(Negligible)		12	13	Howitt Road	Rear 13	0.0	0.0072613	0.057623	-655.73E-6	1.9471	0.057623	-575.90E-6	-655.73E-6	-	-1
(Very Slight)		13	13	Howitt Road	Side Extension 13	0.0	0.017849	0.0	803.22E-6	1.9472	0.017668	0.0	803.22E-6	-	-0

Specific Building Damage Results - Critical Segments within Each Building

Stage: Damage Category	Stage: Name	Specific Ref.	Specific Building: Ref.	Specific Building: Name	Parameter	Critical Sub-Building	Critical Start Segment	End	Curvature	Max Slope	Max Settlement	Max Tensile Strain	Min Radius of Curvature (Hogging) [m]	Min Radius of Curvature (Sagging) [m]	Damage
0 (Negligible)	Base Model	0	15	Howitt Road	Max Slope	Rear Wall	1	0.0	3.3547	None	0.0010854	1.8857	0.031649	-	-0
(Negligible)					Max Settlement	13/15 PW	5	9.8847	14.000	None	208.27E-6	2.2354	0.0074147	-	-0
(Negligible)					Max Tensile Strain	Rear Extension - 15	2	3.0875	6.5000	None	839.08E-6	1.7997	0.037244	-	-0
(Negligible)					Min Radius of Curvature (Hogging)	W1	1	0.0	7.7000	Hogging	802.42E-6	1.2327	0.021805	1533.8	-0
(Negligible)					Min Radius of Curvature (Sagging)	-	-	-	-	-	-	-	-	-	-
(Negligible)		0	17	Howitt Road	Max Slope	Front 17	2	1.8063	7.2000	Sagging	899.81E-6	3.3900	0.045887	-	1129.8
(Negligible)					Max Settlement	Front 17	2	1.8063	7.2000	Sagging	899.81E-6	3.3900	0.045887	-	1129.8
(Negligible)					Max Tensile Strain	Front 17	1	0.0	1.8063	None	513.26E-6	1.2794	0.062625	-	-1 (Very Slight)
(Negligible)					Min Radius of Curvature (Hogging)	-	-	-	-	-	-	-	-	-	-
(Negligible)					Min Radius of Curvature (Sagging)	Front 17	2	1.8063	7.2000	Sagging	899.81E-6	3.3900	0.045887	-	1129.8
(Negligible)		0	13	Howitt Road	Max Slope	Front 13	1	0.0	4.3617	Sagging	0.0016387	3.5836	0.049451	-	615.77
(Negligible)					Max Settlement	Front 13	1	0.0	4.3617	Sagging	0.0016387	3.5836	0.049451	-	615.77
(Negligible)					Max Tensile Strain	Front 13	2	4.3617	7.2000	None	717.04E-6	1.9609	0.065272	-	-1 (Very Slight)
(Negligible)					Min Radius of Curvature (Hogging)	-	-	-	-	-	-	-	-	-	-
(Negligible)					Min Radius of Curvature (Sagging)	Front 13	1	0.0	4.3617	Sagging	0.0016387	3.5836	0.049451	-	615.77
(Negligible)		0		Holmeffield Court	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.										

Our Locations

Birmingham

2 The Wharf
Bridge Street
Birmingham
B1 2JS
T. 0121 643 4694
birmingham@curtins.com

Bristol

Quayside
40-58 Hotwell Road
Bristol
BS8 4UQ
T. 0117 302 7560
bristol@curtins.com

Cambridge

50 Cambridge Place
Cambridge
CB2 1NS
T. 01223 631 799
cambridge@curtins.com

Cardiff

3 Cwrt-y-Parc
Earlswood Road
Cardiff
CF14 5GH
T. 029 2068 0900
cardiff@curtins.com

Douglas

Varley House
29-31 Duke Street
Douglas
Isle of Man
IM1 2AZ
T. 01624 624 585
douglas@curtins.com

Dublin

11 Pembroke Lane
Dublin 2
D02 CX82
Ireland
T. +353 1 507 9447
dublin@curtins.com

Edinburgh

1a Belford Road
Edinburgh
EH4 3BL
T. 0131 225 2175
edinburgh@curtins.com

Glasgow

Queens House
29 St Vincent Place
Glasgow
G1 2DT
T. 0141 319 8777
glasgow@curtins.com

Kendal

Units 24 & 25 Riverside Place
K Village
Lound Road
Kendal
LA9 7FH
T. 01539 724 823
kendal@curtins.com

Leeds

Ground Floor
Rose Wharf
78-80 East Street
Leeds
LS9 8EE
T. 0113 274 8509
leeds@curtins.com

Liverpool

51-55 Tithebarn Street
Liverpool
L2 2SB
T. 0151 726 2000
liverpool@curtins.com

London

40 Compton Street
London
EC1V 0BD
T. 020 7324 2240
london@curtins.com

Manchester

Merchant Exchange
17-19 Whitworth Street West
Manchester
M1 5WG
T. 0161 236 2394
manchester@curtins.com

Nottingham

32a-34 Stoney Street
Nottingham
NG1 1LL
T. 0115 941 5551
nottingham@curtins.com



Appendix D. Groundwise Utilities Report

GROUNDWISE

Groundwise Searches Ltd



Groundwise Searches Limited

Suite 6, Princess Caroline House
1 High Street
Southend-on-Sea
Essex, SS1 1JE

Telephone 01702 615566
Email mail@groundwise.com
Website www.groundwise.com

Registered Office Address:
Matrix House, 12-16 Lionel Road
Canvey Island, Essex, England, SS8 9DE

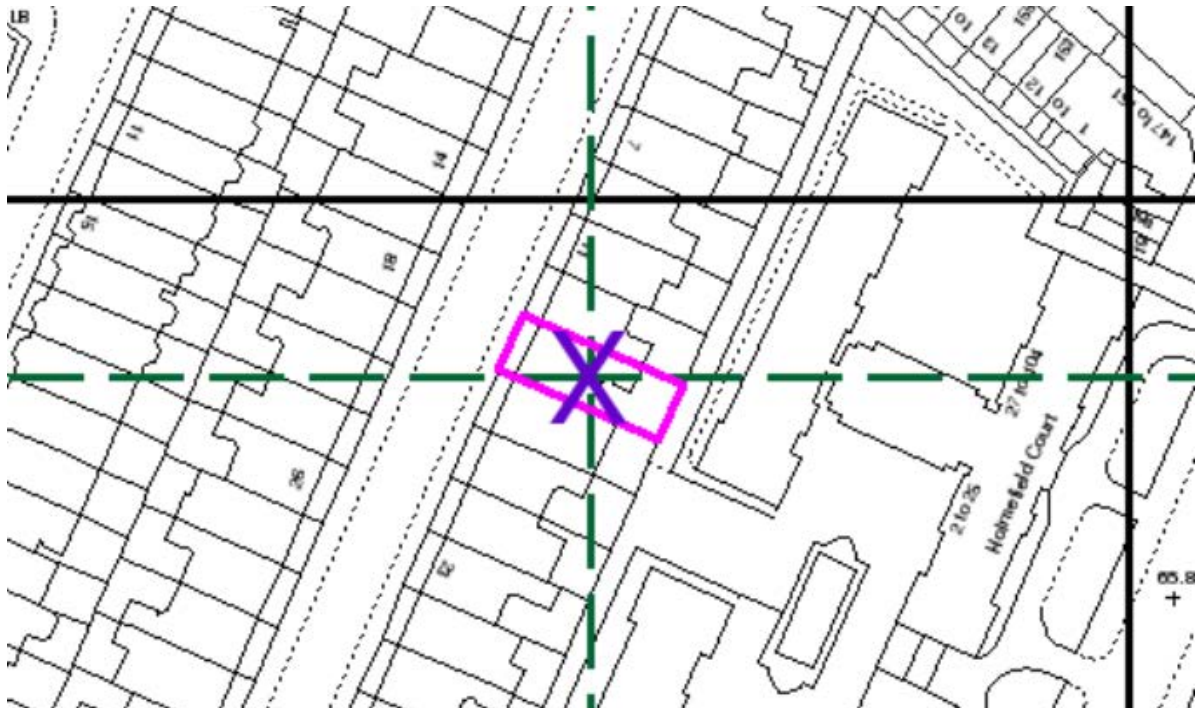


GROUNDWISE

Groundwise Searches Ltd

Product	Desktop Utility Search
Scope	PAS 128 – Level D

Groundwise Reference	32926DM-GWS
Site	15 Howitt Road, Belsize Park, London, NW3 4LX
Easting/Northing	527331,184979
Client	Tom Murray
Company	Site Analytical Services Ltd
Client Reference	15 Howitt Road
Purchase Order	11477/TPM



Researcher	Debbie Miller dmiller@groundwise.com
Quality Check	Francesca Margiotta fmargiotta@groundwise.com

Groundwise Searches Limited

Suite 6, Princess Caroline House
1 High Street
Southend-on-Sea
Essex, SS1 1JE

Telephone 01702 615566
Email mail@groundwise.com
Website www.groundwise.com

Registered Office Address:
Matrix House, 12-16 Lionel Road
Canvey Island, Essex, England, SS8 9DE



GROUNDWISE

Groundwise Searches Ltd

Groundwise Reference

32926DM-GWS

Site

15 Howitt Road, Belsize Park, London, NW3 4LX

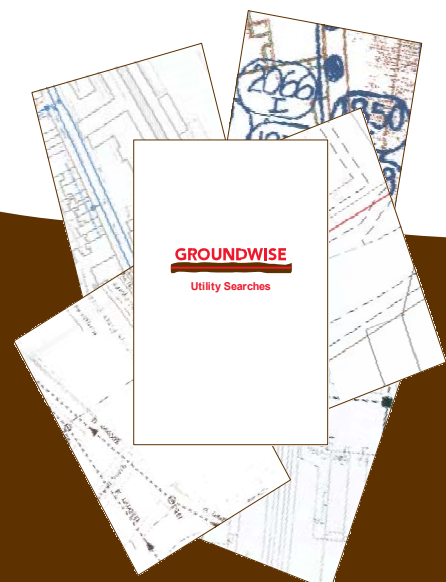
Version	Date Issued	Researcher	Notes
#1	27/02/2023	Debbie Miller	First batch of received utility data issued – outstanding results to be sent on receipt
#2	28/02/2023	Debbie Miller	Thames Water result added to Report.
#3	02/03/2023	Debbie Miller	TFL result added to Report.
#4	06/03/2023	Debbie Miller	MOD result added to Report.
#5	08/03/2023	Debbie Miller	Council request closed - Report is now complete

Groundwise Searches Limited

Suite 6, Princess Caroline House
1 High Street
Southend-on-Sea
Essex, SS1 1JE

Telephone 01702 615566
Email mail@groundwise.com
Website www.groundwise.com

*Registered Office Address:
Matrix House, 12-16 Lionel Road
Canvey Island, Essex, England, SS8 9DE*



GROUNDWISE

Groundwise Searches Ltd

Groundwise Reference

32926DM-GWS

Site

15 Howitt Road, Belsize Park, London, NW3 4LX

Click on a Data Supplier to view their response.

Type	Data Supplier	Date Sent	Assets in Area
Electricity	UK Power Networks	27/2	X
Electricity	Eclipse	27/2	
Electricity	NGET	27/2	
Electricity	Utility Assets Ltd	27/2	
Gas	Cadent	27/2	X
Mobile Phone Masts	Mast Data	27/2	
Telecom	BT	27/2	X
Telecom	C.A. Telecom - Colt	27/2	
Telecom	CityFibre	27/2	
Telecom	MBNL	27/2	
Telecom	OCU Group (Lumen Technologies)	27/2	
Telecom	Sky UK Ltd	27/2	
Telecom	Verizon	27/2	
Telecom	Virgin Media	27/2	X
Telecom	Vodafone	27/2	
Transport	High Speed 1 (HS1)	27/2	
Transport	High Speed 2 (HS2)	27/2	
Transport	London Underground HV Power Assets	27/2	
Transport	London Underground	27/2	
Transport	Network Rail	27/2	
Transport	Transport for London	2/3	
Tunnels	MOD	6/3	
Tunnels	Thames Tideway Tunnels	27/2	
Various	GTC	27/2	
Various	HSE	27/2	
Various	Leep Utilities	27/2	
Various	LinesearchbeforeUdig	27/2	
Water Mains	Thames Water	28/2	X
Sewers	Thames Water	28/2	X
Street Lighting	London Borough of Camden	Closed	

** Please note the Local Council will not always respond to our requests for asset information - this will be chased for 10 days from the original date of contact. The enquiry will then be marked as closed. Any Council (Street Lighting columns) data received after this point will be forwarded on receipt. Please contact us if you have any queries.

Our Ref: 28609139 Your Ref: 32926

Friday, 24 February 2023

Joe Shawyer
Suite 6 Princess Caroline House 1 High Street
Southend on Sea
Essex
SS1 1JE

Dear Joe Shawyer

Thank you for contacting us regarding UK Power Networks equipment at the above site. I have enclosed a copy of our records which show the electrical lines and/or electrical plant. I hope you find the information useful.

I have also enclosed a fact sheet which contains important information regarding the use of our plans and working around our equipment. Safety around our equipment is our number one priority so please ensure you have completed all workplace risk assessments before you begin any works.

Should your excavation affect our Extra High Voltage equipment (6.6 KV, 22 KV, 33 KV or 132 KV), please contact us to obtain a copy of the primary route drawings and associated cross sections.

If you have any further queries do not hesitate to contact us.

Plan Provision
0800 056 5866



This information is made available to you on the terms set out below. If you do not accept the terms of use set out in this fact sheet please do not use the plans and return them to UK Power Networks.

1. UK Power Networks does not warrant that the information provided to you is correct. You rely upon it at your own risk.
2. UK Power Networks does not exclude or limit its liability if it causes the death of any person or causes personal injury to a person where such death or personal injury is caused by its negligence.
3. Subject to paragraph 2 UK Power Networks has no liability to you in contract, in tort (including negligence), for breach of statutory duty or otherwise how for any loss, damage, costs, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of use) or any special or consequential loss or damage whatsoever.
4. The information about UK Power Networks electrical plant and/or electric lines provided to you belongs to and remains the property of UK Power Networks. You must not alter it in any respect.
5. The information provided to you about the electrical plant and/or electric lines depicted on the plans may NOT be a complete record of such apparatus belonging to UK Power Networks. The information provided relates to electric lines and/or electrical plant belonging to UK Power Networks that it believes to be present but the plans are not definitive: other electric lines and/or electrical plant may be present and that may or may not belong to UK Power Networks.
6. Other apparatus not belonging to UK Power Networks is not shown on the plan. It is your responsibility to make your own enquiries elsewhere to discover whether apparatus belonging to others is present. It would be prudent to assume that other apparatus is present.
7. You are responsible for ensuring that the information made available to you is passed to those acting on your behalf and that all such persons are made aware of the contents of this letter.
8. Because the information provided to you may not be accurate, you are recommended to ascertain the presence of UK Power Networks electric lines and/or electrical plant by the digging of trial holes. Trial holes should be dug by hand only.

Excavations must be carried out in line with the Health and Safety Executive guidance document HSG 47. We will not undertake this work. A copy of HSG 47 can be obtained from the Health and Safety Executives website.

All electric lines discovered must be considered LIVE and DANGEROUS at all times and must not be cut, resited, suspended, bent or interfered with unless specially authorised by UK Power Networks.

The electric line and electrical plant belonging to UK Power Networks remains so even when made dead and abandoned and any such electric line and/or electrical plant exposed shall be reported to UK Power Networks.

Where your works are likely to affect our electric lines and/or electrical plant an estimate of the price of any protective /diversionary works can be prepared by UK Power Networks Branch at Metropolitan House, Darkes Lane, Potters Bar, Herts. , EN6 1AG, telephone no. 0845 2340040



- 9 Any work near to any overhead electricity lines must be carried out by you in accordance with the Health and Safety Executive guidance document GS6 and the Electricity at Work Regulations.

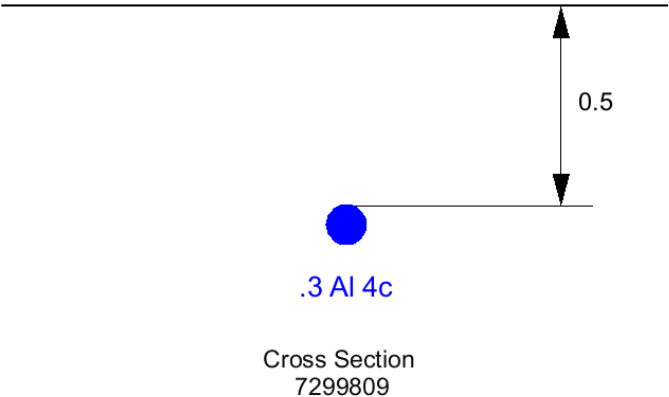
The GS6 Recommendations may be purchased from HSE Books or downloaded from the Energy Networks Association's website.

If given a reasonable period of prior notice UK Power Networks will attend on site without charge to advise how and where "goal posts" should be erected. If you wish to use this service, in the first instance please telephone: 0845 6014516 between 08:30 and 17:00 Monday to Friday.

10. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party.
11. If in carrying out work on land in, on, under or over which is installed an electric line and/or electrical plant that belongs to UK Power Networks you and/or anyone working on your behalf damages (however slightly) that apparatus you must inform immediately UK Power Networks by our emergency 24 hour three digit telephone number **105** providing;
- your name, address and telephone number;
 - the date, time and place at which such damage was caused;
 - a description of the electric line and/or electrical plant to which damage was caused;
 - the name of the person whom it appears to you is responsible for that damage;
 - the nature of the damage.
12. The expression "UK Power Networks" includes UK Power Networks (EPN) plc, UK Power Networks (LPN) plc, UK Power Networks (SEPN) plc, UK Power Networks and any of their successors and predecessors in title.



Cross Section : 7299809



1. The position of the apparatus shown on this drawing is believed to be correct but the original landmarks may have been altered since the apparatus was installed. 2. The exact position of the apparatus should be verified - use approved cable avoidance tools prior to excavation using suitable hand tools. 3. It is essential that trial holes are carefully made avoiding the use of mechanical tools or picks until the exact location of all the cables have been determined. 4. It must be assumed that there is a service cable into each property, lamp column and street sign, etc. 5. All cables must be treated as being live unless proved otherwise by UK Power Networks. 6. The information proved must be given to all people working near UK Power Networks plant and equipment. Do not use plans more than 3 months after the issue date for excavation purposes. 7. Please be aware that electric cables/lines belonging to other owners of licensed electricity distribution systems may be present and it is your responsibility to identify their location.	1. UK Power Networks does not warrant that the information provided to you is correct. You rely upon it at your own risk. 2. UK Power Networks does not exclude or limit its liability if it causes the death of any persons or causes personal injury to a person. 3. Subject to paragraph 2 UK Power Networks has no liability to you in contract, in tort (including negligence), for breach of statutory duty or otherwise for any loss, damage, cost, claims, demands, or expenses that you or any third party may suffer or incur as a result of using the information provided whether for physical damage to property or for any economic loss (including without limitation loss of profit, loss of opportunity, loss of savings, loss of goodwill, loss of business, loss of use) or any special or consequential loss or damage whatsoever. 4. This plan has been provided to you on the basis of the terms of use set out in the covering letter that accompanies this plan. If you do not accept and/or do not understand the terms of use set out in the covering letter you must not use the plan and must return it to the sender of the letter. 5. You are responsible for the security of the information provided to you. It must not be given, sold or made available upon payment of a fee to a third party.	IF IN DOUBT - ASK! PHONE 0800 056 5866 EMERGENCY - If you damage a cable or line Phone 0800 783 8838 (24hrs) URGENTLY 	 ALWAYS LOOK UP BEFORE YOU START WORK Refer to HSE Guidance note GS6 Maps produced at 1:2500 scale are Geo-Schematics which show LV mains cables and overhead lines (in some cases all voltages). Prior to carrying out excavations you must refer to the 1:500 records to determine the location of all known underground plant and equipment.
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UK Power Networks Feedback Tool

Please help UK Power Networks improve the accuracy of their network records and help make it safer for all those working around them in future.

All you need to do is:

1. Use your phone camera to scan the QR code:
2. Provide feedback on what you have found on site (good or bad)
3. Upload a photo if needed



Thank you for making the area a safer place to dig.

UK Power Networks, working with LSBUD

Microfilmed record
Issue new microfiche
when revisions are made
to this record.

TQ 2784
NW-N-NE

45-03/2

NOT CHECKED



LONDON
ELECTRICITY

London Electricity Board
Based upon the Ordnance Survey Map
with the exception of the correction of a
Stationary Office (Ordnance Survey) error.

NORTHERN AREA
261 City Road, EC1V 1LE Tel. 071-251 5161

Microfilmed record
Issue new microfiche
when revisions are made
to this record.

Caution
Not all services shown.
For details refer to service cards.

1:250

TQ 2784 NW
N-NE

45:03/2

Drawn by: E. FERREIRA 1001 4-9-81
Checked by: K. WONG 1001 7-10-81
Published by: 1001