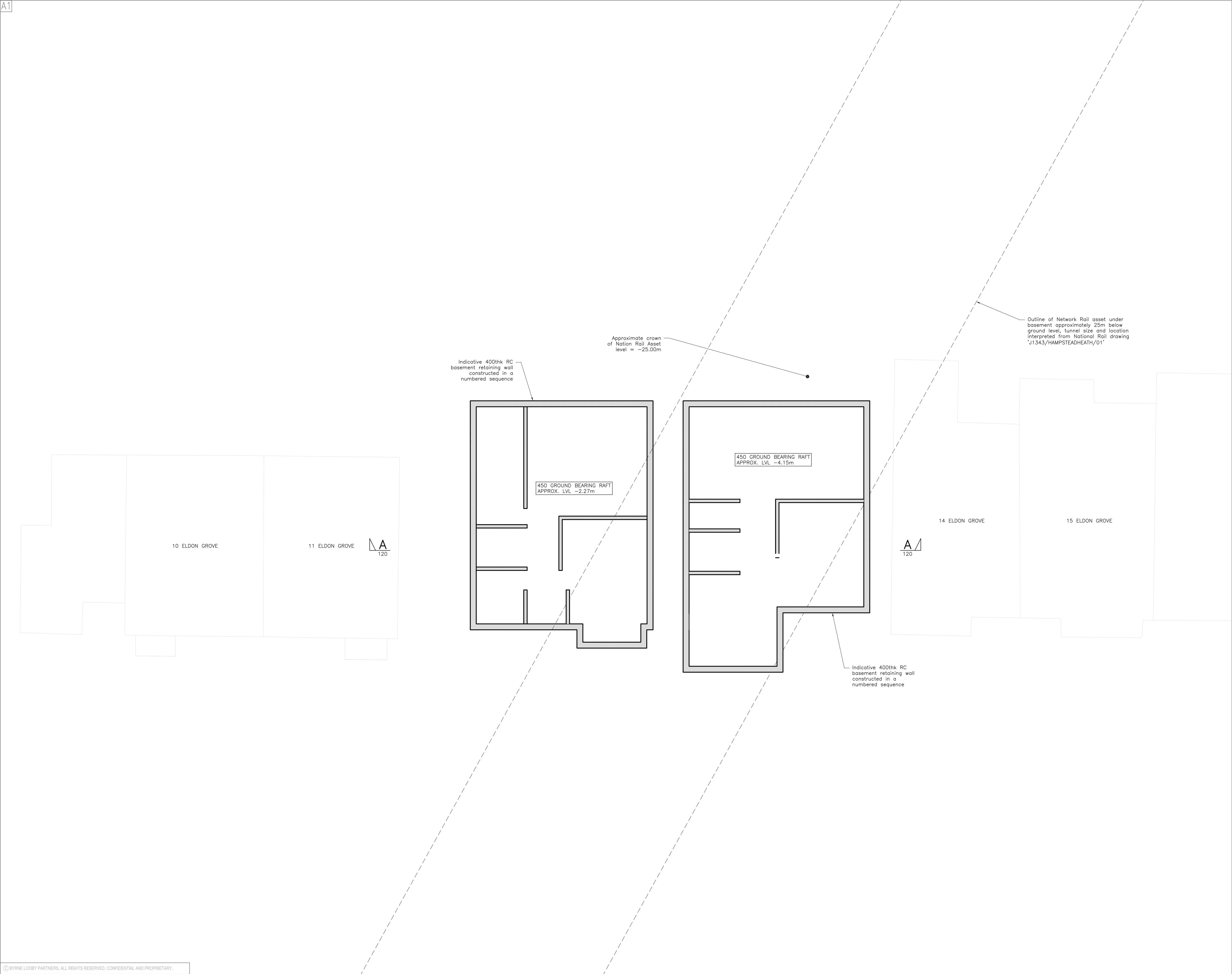


## Appendix C – Proposed Structural Drawings



GENERAL NOTES

- DO NOT SCALE OFF DRAWINGS.
- DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE. LEVELS IN METRES RELATIVE TO SITE DATUM.
- ALL DIMENSIONS TO BE CHECKED ON SITE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & DOCUMENTS.

B	08.12.20	Revised Scheme - Issued for Planning	OR		
A	22.05.19	Reduced Scheme - Issued for Network Rail Review	OR		
-	04.01.19	Issued for Network Rail Review	OR		

Rev	Date	Description	By	Chk	App
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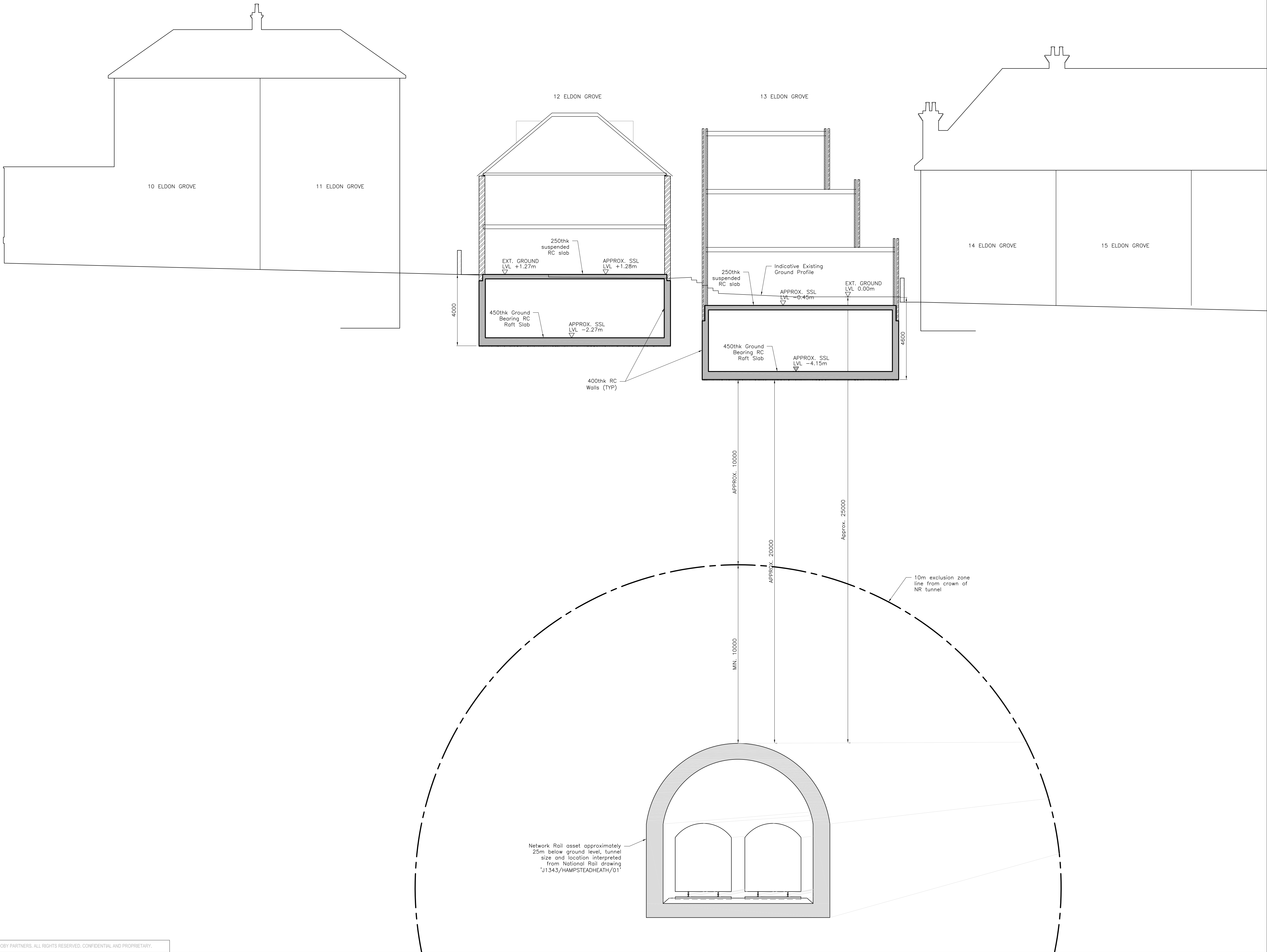
CLIENT  
James Vogl

PROJECT  
12-13 Eldon Grove  
Hampstead

DRAWING TITLE  
Proposed  
Basement Plan

STATUS  
PLANNING

Date	04.01.19	Scale	1:100	Drawn	OR	Chk	App
Project No.	9006	Dwg. No.	9006-120	Rev			B



GENERAL NOTES

- DO NOT SCALE OFF DRAWINGS.
- DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE. LEVELS IN METRES RELATIVE TO SITE DATUM.
- ALL DIMENSIONS TO BE CHECKED ON SITE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & DOCUMENTS.

B	08.12.20	Revised Scheme - Issued for Planning	OR		
A	22.05.19	Reduced Scheme - Issued for Network Rail Review	OR		
-	04.01.18	Issued for Network Rail Review	OR		

Rev	Date	Description	By	Chk	App
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CLIENT

James Vogl

PROJECT

12-13 Eldon Grove  
Hampstead

DRAWING TITLE

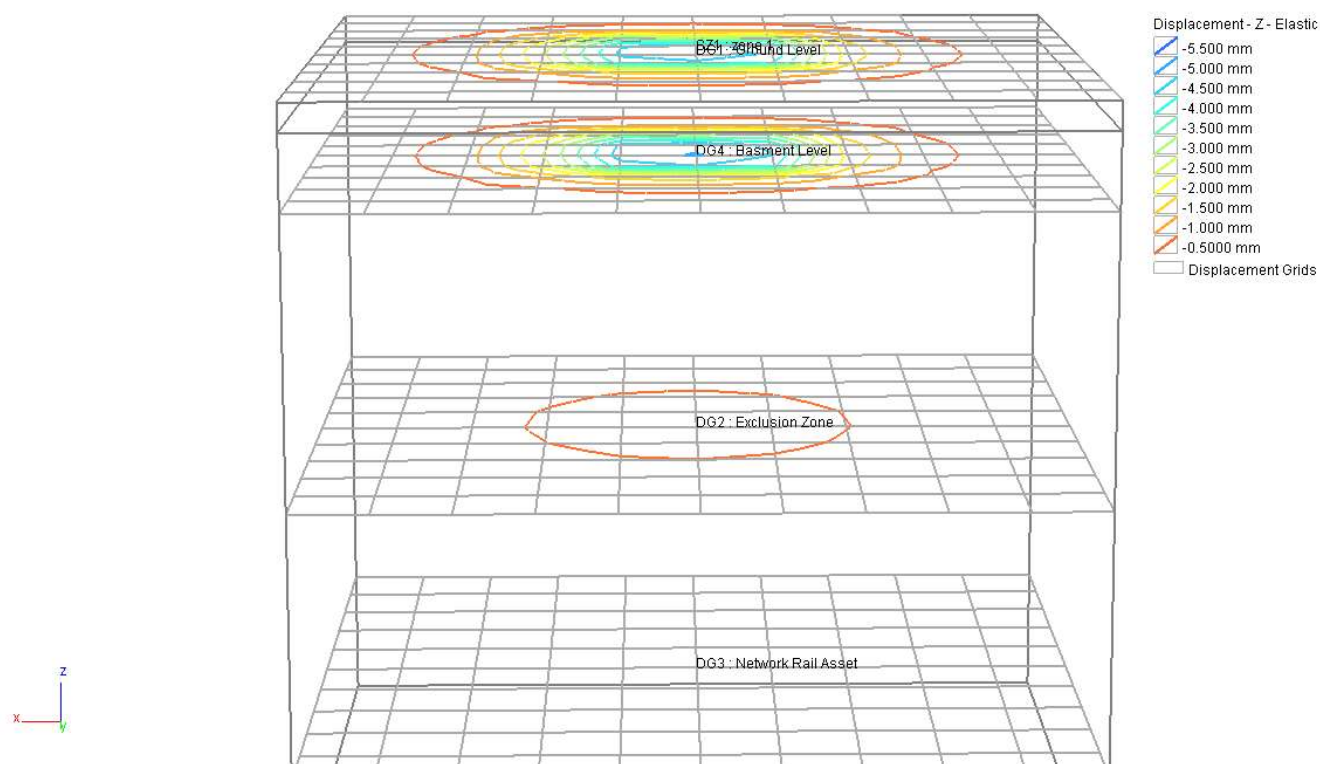
Proposed  
Section A-A

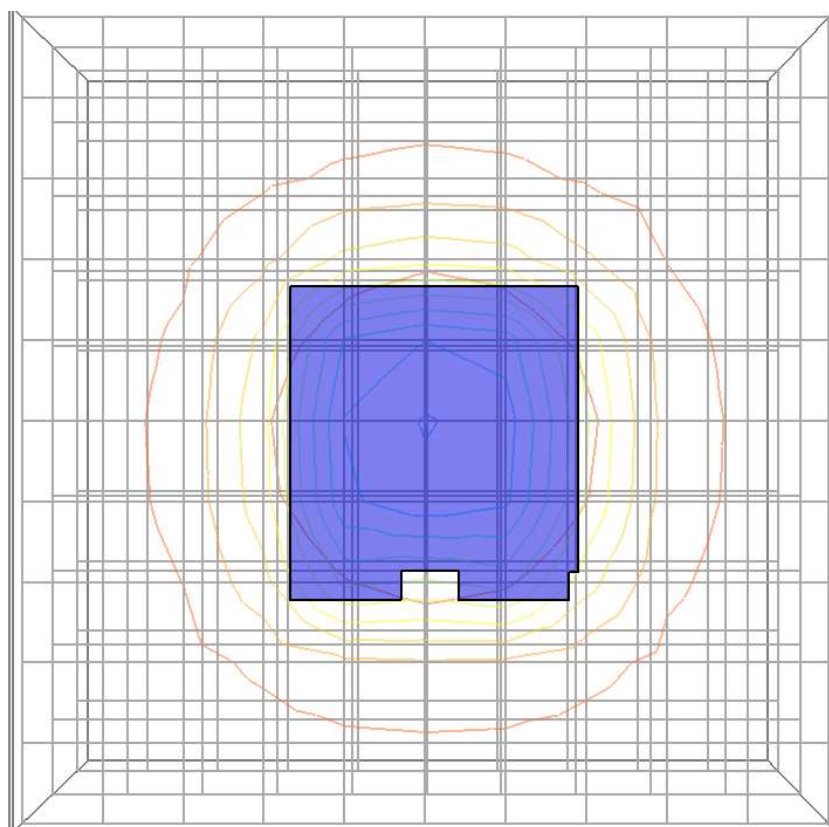
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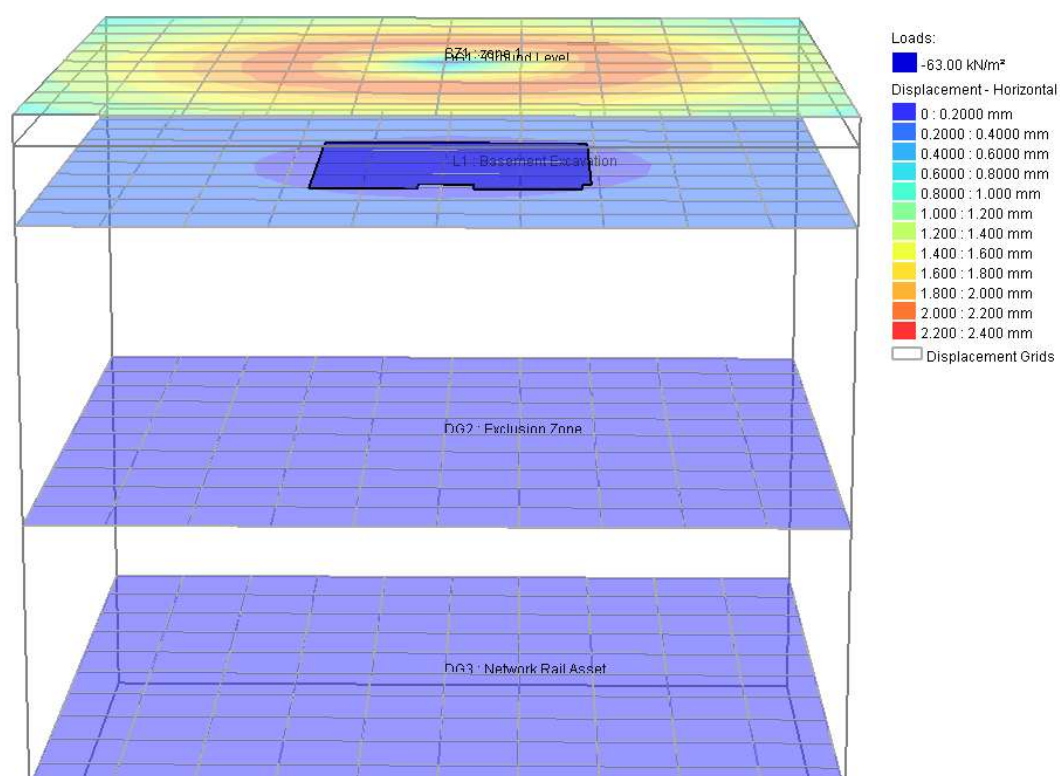
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Date	04.01.19	Scale	1:100	Drawn	OR	Chk	App
Project No.	9006	Dwg. No.	9006-108	Rev			

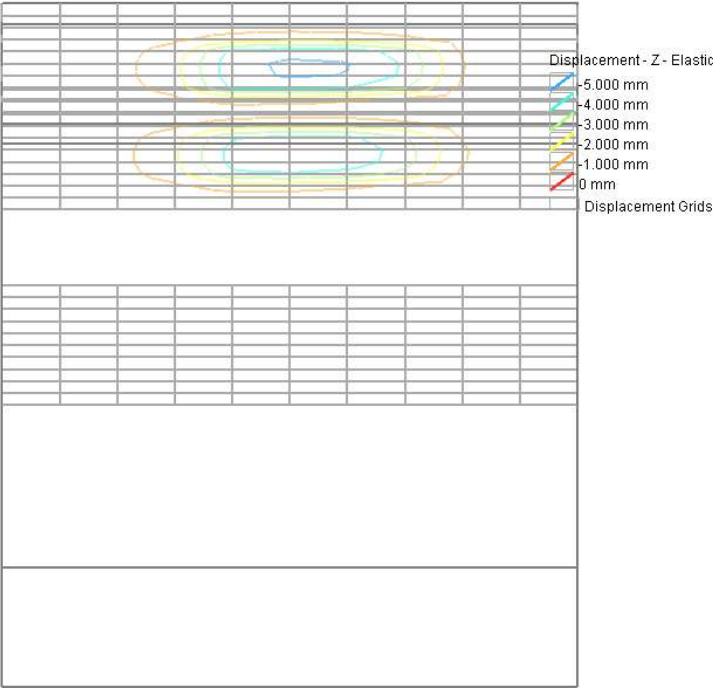
## Appendix D – GMA & Damage Impact Assessment





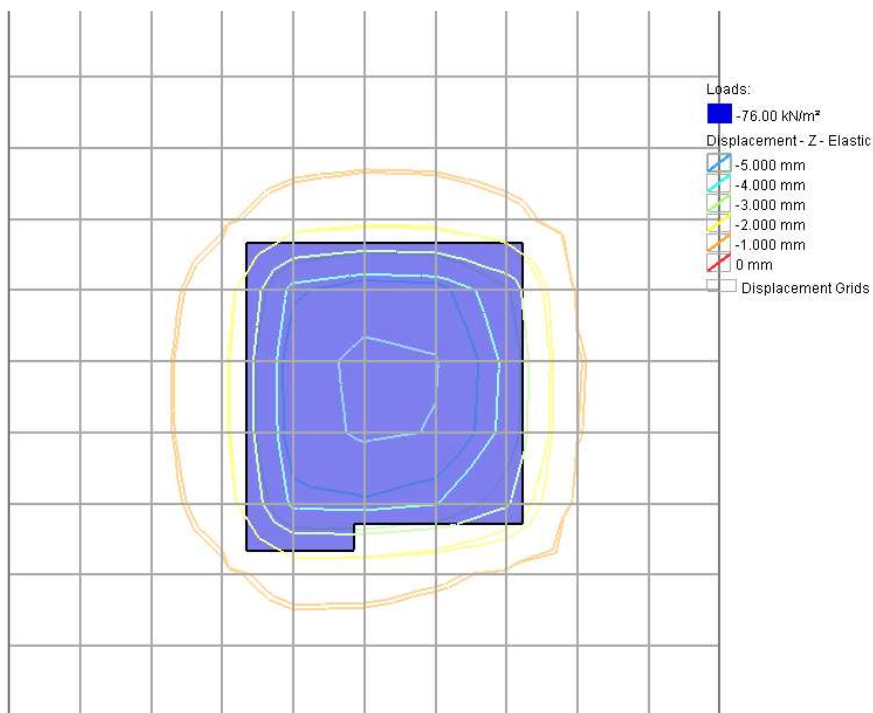


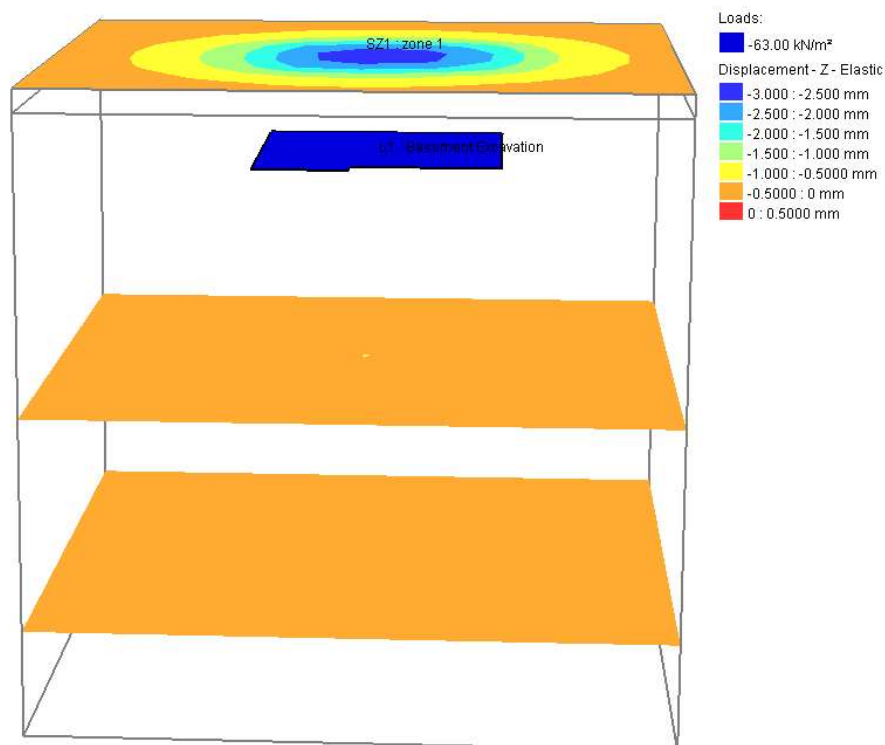
Job No.	Sheet No.	Rev.
P18-180		
Drg. Ref.		
Made by VB	Date	Checked





Job No.	Sheet No.	Rev.
<b>P18-180</b>		
Drg. Ref.		
Made by VB	Date	Checked





## Damage Categories

**Table 2.5** *Classification of visible damage to walls (after Burland et al, 1977, Boscardin and Cording, 1989; and Burland, 2001)*

Category of damage	Description of typical damage (ease of repair is underlined)	Approximate crack width (mm)	Limiting tensile strain $\epsilon_{lim}$ (per cent)
0 Negligible	Hairline cracks of less than about 0.1 mm are classed as negligible.	< 0.1	0.0–0.05
1 Very slight	<u>Fine cracks that can easily be treated during normal decoration.</u> Perhaps isolated slight fracture in building. Cracks in external brickwork visible on inspection.	< 1	0.05–0.075
2 Slight	<u>Cracks easily filled. Redecoration probably required.</u> Several slight fractures showing inside of building. Cracks are visible externally and <u>some repointing may be required externally</u> to ensure weathertightness. Doors and windows may stick slightly.	< 5	0.075–0.15
3 Moderate	<u>The cracks require some opening up and can be patched by a mason. Recurrent cracks can be masked by suitable linings. Repointing of external brickwork and possibly a small amount of brickwork to be replaced.</u> Doors and windows sticking. Service pipes may fracture. Weathertightness often impaired.	5–15 or a number of cracks > 3	0.15–0.3
4 Severe	<u>Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows.</u> Windows and frames distorted, floor sloping noticeably. Walls leaning or bulging noticeably, some loss of bearing in beams. Service pipes disrupted.	15–25 but also depends on number of cracks	> 0.3
5 Very severe	<u>This requires a major repair involving partial or complete rebuilding.</u> Beams lose bearings, walls lean badly and require shoring. Windows broken with distortion. Danger of instability.	usually > 25 but depends on number of cracks.	

## Appendix E – Structural Engineers Calculations

## **BASEMENT GLOBAL STABILITY - UPLIFT CALCULATIONS**

### **Design Parameters:**

Heave	= 30kN/m <sup>2</sup>
Hydrostatic	= 30kN/m <sup>2</sup>
Design Uplift Pressure	= 45kN/m <sup>2</sup>

Basement under existing house considered as worst case

### **Load Takedown – Floors**

#### **Substructure:**

	<u>Self-weight</u>
Base Slab (450+50+50)	= 13.5kN/m <sup>2</sup>
G Slab (250+50)	= 7.5kN/m <sup>2</sup>
<u>Total</u>	<u>= 21kN/m<sup>2</sup></u>

#### **Superstructure:**

1 <sup>st</sup> – 2 <sup>nd</sup> (150metal deck)	= 3.6kN/m <sup>2</sup> x 2 = 7.2kN/m <sup>2</sup>
Roof	= 1.0kN/m <sup>2</sup>
<u>Total</u>	<u>= 8.2kN/m<sup>2</sup></u>

### **Load Takedown – Walls:**

#### **Substructure:**

Ext. walls (400thk)	= 10kN/m <sup>2</sup> x 3.5m = 35kN/m	
Rationalise to area load	= 35kN/m x (12mx2 + 11mx2) / (12m x 11m)	= 12.5kN/m <sup>2</sup>
Int. walls (250thk)	= 6.0kN/m <sup>2</sup> x 3.5m = 21kN/m	
Rationalise to area load	= 21kN/m x (25m) / (12m x 11m)	= 4kN/m <sup>2</sup>
Loads simplified to act over full footprint of basement		

#### **Superstructure:**

External walls	= 6kN/m <sup>2</sup> x 3m + 4kN/m <sup>2</sup> x 3m = 30kN/m	
Rationalise to area load	= 30kN/m x (12mx2 + 11mx2) / (12m x 11m)	= 10.5kN/m <sup>2</sup>
Internal walls	= Ignore	
Loads simplified to act over full footprint of basement		

### **Design Resistance Load:**

For the design resistance load to uplift forces, only self-weight dead load is considered with a 0.9 load factor applied.

$$56.2\text{kN/m}^2 \times 0.9 = 50.5\text{kN/m}^2 > 45\text{kN/m}^2 \quad \text{OK}$$

**PRELIMINARY ELEMENT SIZING – BASEMENT**

The approach for preliminary element sizes for the basement structure is to achieve a stiff basement box capable of resisting design loads with minimal ground movement and element deflection. To achieve this, conservative span/depth ratios for the ground bearing elements of Span/10 and Span/12 will be used in element sizing as well as reduced ratios for other RC elements

Basement Raft Slab	=	5500mm / 12	=	450mm thick
Basement Ext. Walls	=	4000mm / 10	=	400mm thick
Basement Int. Walls	=	To match wall thickness		Min. 250mm thick
Ground Floor Slab	=	5500mm / 20	=	Say 250mm thick

## Appendix F – Other Reports

## SPECIFICATION FOR BUILDING MOVEMENT MONITORING

**Project:** 12-13 Eldon Grove  
**Project No.:** 9006  
**Document Ref.:** 9006 MMS 001  
**Date:** February 2020  
**By:** Oliver Roworth BSc CEng MStructE of Byrne Looby

### Background

The proposed works at 12-13 Eldon Grove involves the construction of 2No. single storey basements of approx. 4m depth, one under the existing main house building on the application site and the second adjacent on vacant land on the application site, both are proposed to be built in an underpin sequence to mitigate ground movements. The works include demolition of existing garage building, loft extension/conversion to the existing building and the construction of a new 2 storey load bearing masonry building over the second basement. Movement monitoring of the Party Walls is intended to assist in monitoring:

- Performance of temporary works.
- Construction methodology.
- Provide an early warning of excessive movement.

### Form and accuracy of monitoring

The methods of surveying are to be proposed by the Surveying Company and are to be appropriate for the site, proposed works and requirements of this specification.

Where precise levelling is to be used the equipment and methods used should provide an accuracy of  $\pm 1\text{mm}$ .

Where total station equipment is to be used the equipment and methods used should provide an accuracy of  $\pm 2\text{mm}$ .

### Location of Survey Targets

Refer to annotated drawings at the end of this specification.

Targets are to be securely fixed to the existing buildings.

The Contractor is to visit site to ensure that monitoring points can be safely installed, confirm line of sight and to confirm that they are monitored during the works.

### Frequency of readings

#### *Baseline readings:*

3 sets of readings are to be taken on a weekly basis with the first reading being taken a minimum of three weeks prior to the underpinning/basement wall construction works commencing.

#### *Readings during the underpinning/basement construction works and temporary works installation/removal:*

Readings are to be taken on a weekly basis.

#### *Readings during superstructure works:*

Readings are to be taken on a fortnightly basis until the trend indicates no further significant movement.



### Recording of results

Results of each monitoring visit are to be submitted to the CA and adjoining owner's surveyors within three working days of the survey being completed.

Results are to be provided in numerical tabular form and graphical form with a brief written summary of the findings indicating the current trigger value traffic light category.

Graphical records are to be annotated with construction activity at time of reading.

### Trigger Values

The following green, amber, and red trigger level values are to be set for vertical and horizontal movement.

	<i>Trigger Level</i>	<i>Action to be taken by Contractor</i>
Green	≤5mm	No action.
Amber	>5mm	Notify the CA and Party Wall Surveyor(s). Increase frequency of monitoring to bi-weekly. Contractor to inspect temporary works and produce a report to verify they are as designed, and review installed correctly with no free play or movement of connections/joints.
Red	>10mm	Implement measures to cease movements and notify CA and party wall surveyors. Works to halt on site to effected elevation & meeting held with party wall surveyors to agree a way forward.

Site Plan as Existing

KEY

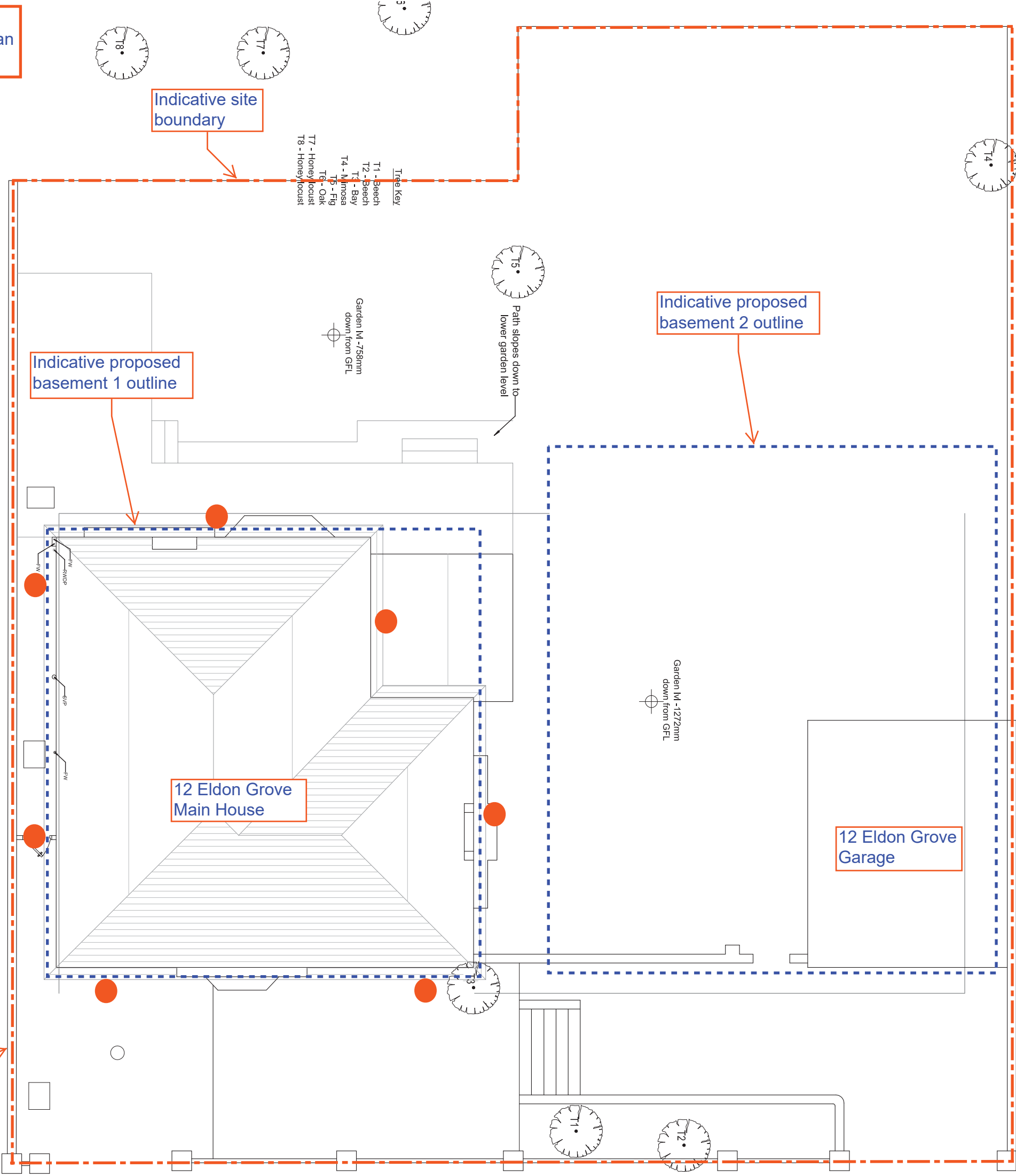
- Indicates location to receive 1No. low level and 1No. high level monitoring target
- Indicates location to receive 1No. low level monitoring target

NOTES

Low level targets to be set approx 1.5m up from G Floor level and high level targets to be set approx. 1m down from eaves level



11 Eldon Grove  
Main House



Indicative site  
boundary

Indicative proposed  
basement 1 outline

12 Eldon Grove  
Main House

12 Eldon Grove  
Garage

Indicative site  
boundary

Indicative proposed  
basement 2 outline

14 Eldon Grove  
Main House

Indicative site  
boundary

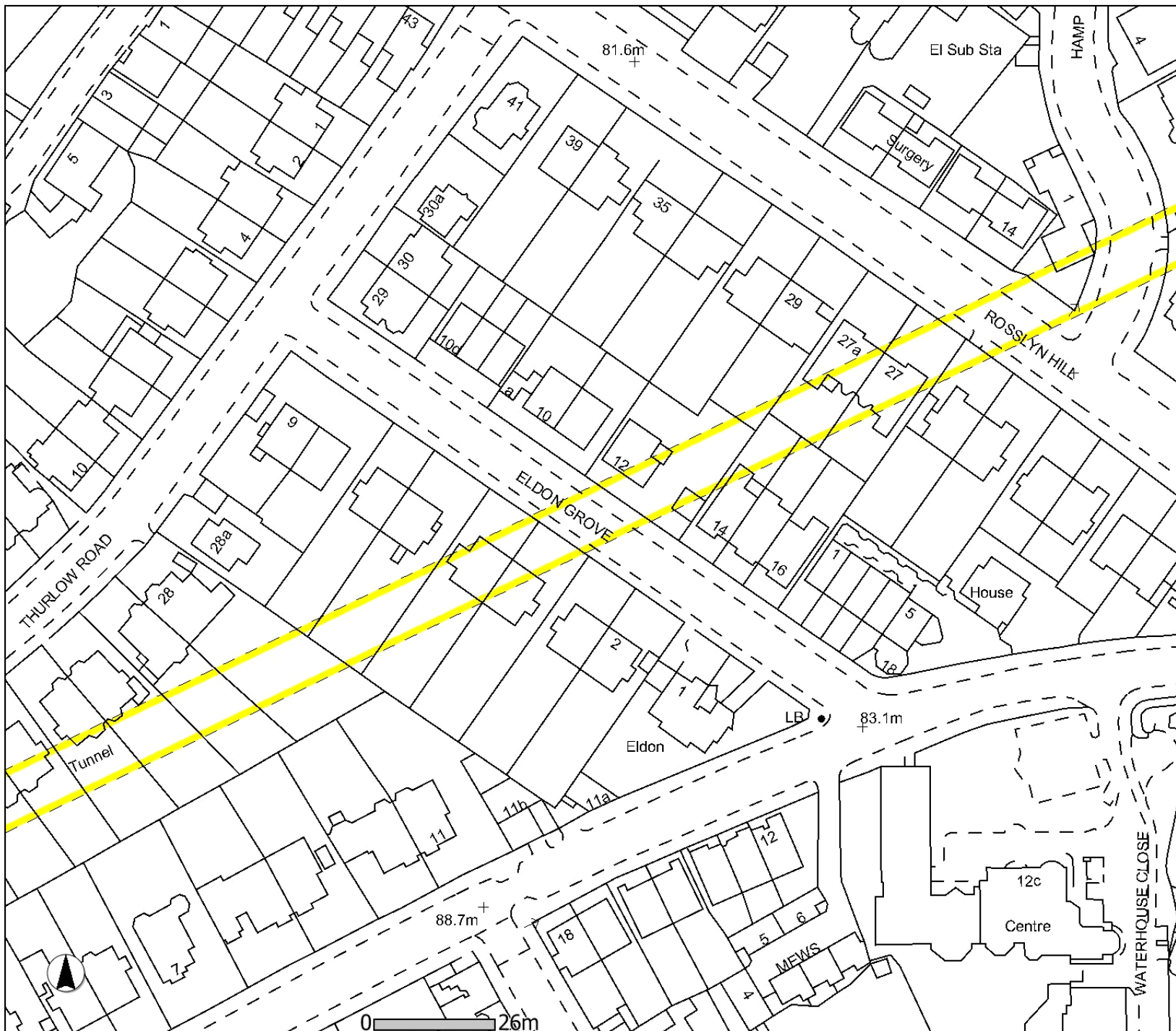
Tree Key  
T1 - Beech  
T2 - Beech  
T3 - Bay  
T4 - Mimosa  
T5 - Fig  
T6 - Oak  
T7 - Honey Locust  
T8 - Honey Locust

Garden M - 758mm  
down from GFL


Path slopes down to  
lower garden level

Garden M - 1272mm  
down from GFL

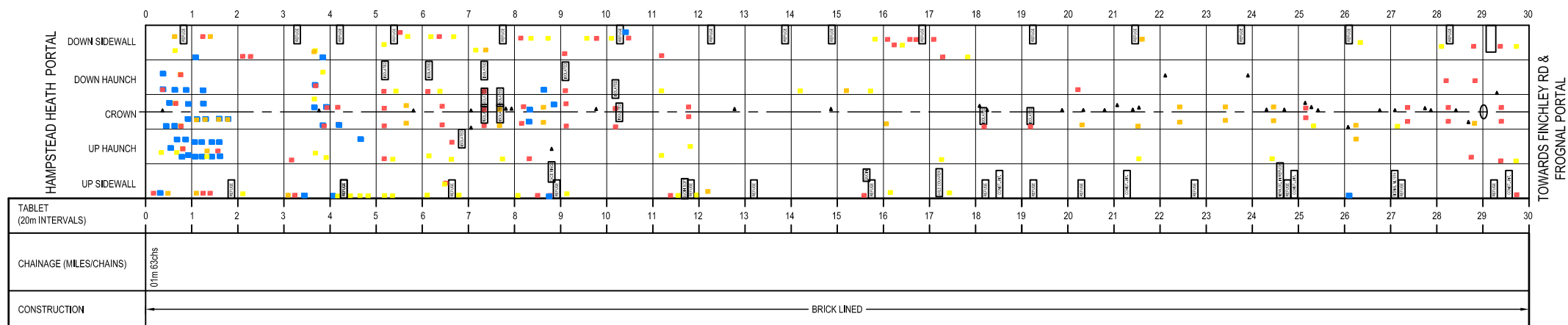
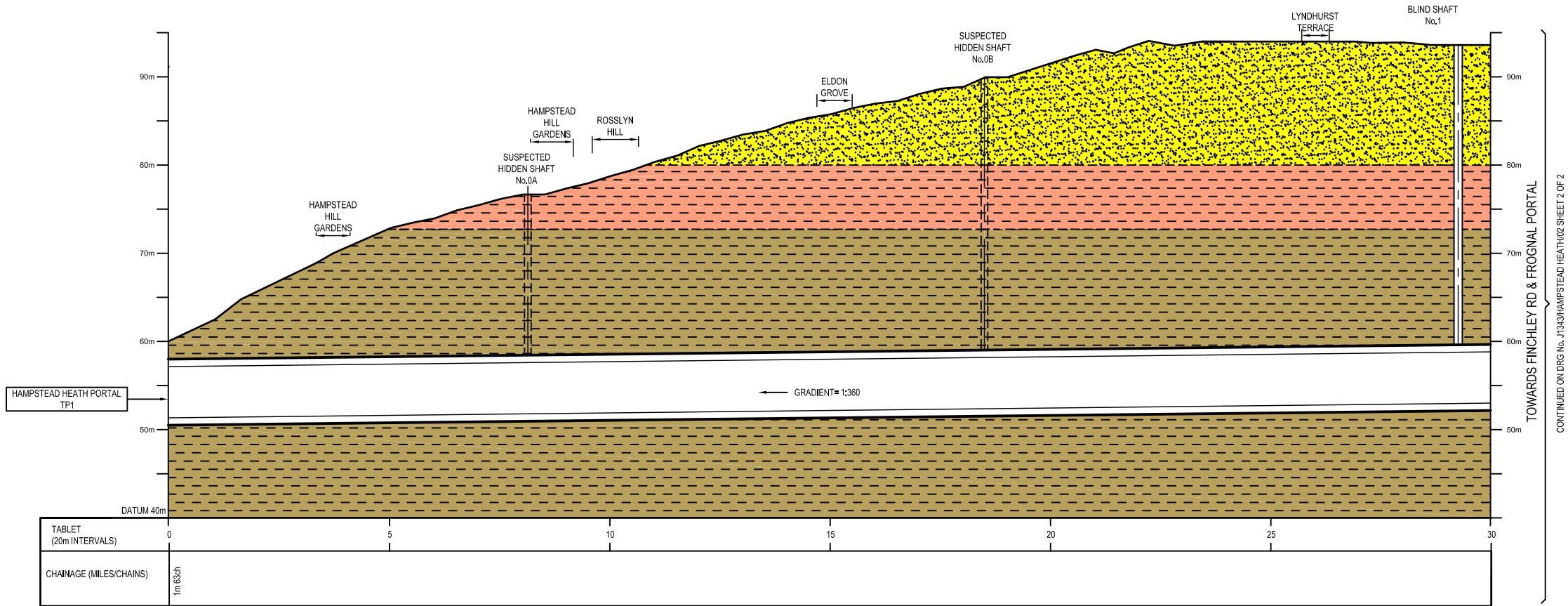
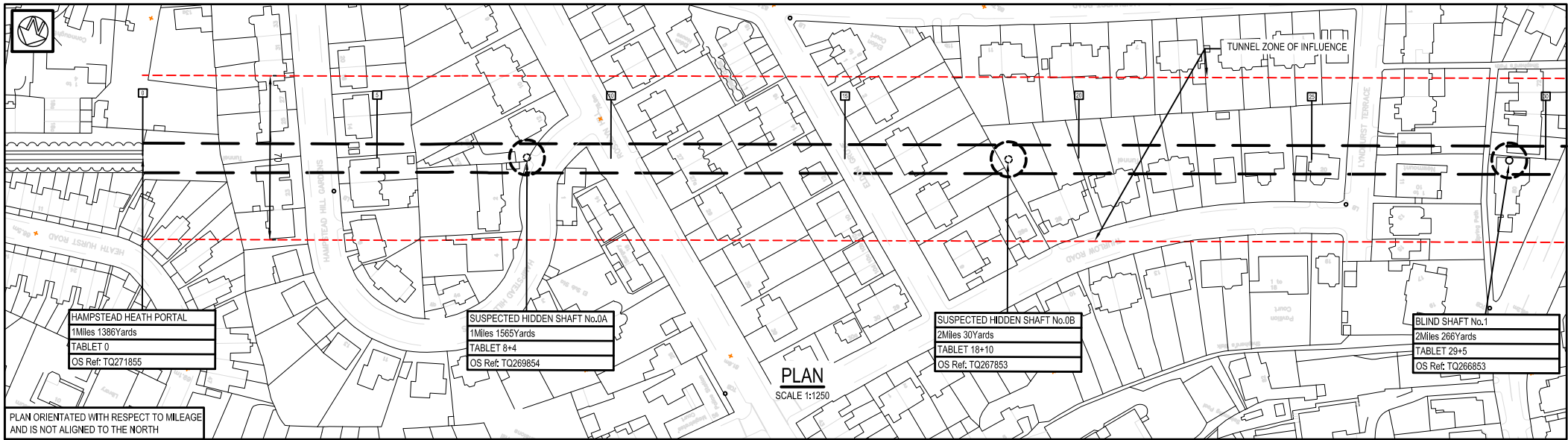
## Appendix G – Utility & Infrastructure Consultations



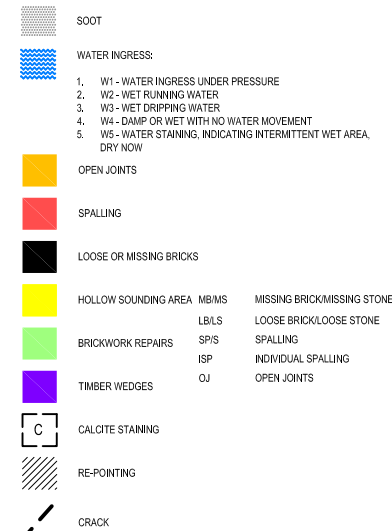
Centre of Map Window (E,N): 526849 , 185427

<b>HAMPSTEAD HEATH TUNNEL</b> Structure No.BOK2/5 @ 2.0014	
Plot Scale	1:1250
Plot Date	17/9/2015
	

Output Created from the GI Portal - A4 Landscape



CONDITION PLAN KEY:



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NOTES:

- ALL MEASUREMENTS ARE IN MILES AND YARDS UNLESS OTHERWISE STATED
- ALL LEVELS ARE IN METRES AND RELATE TO ORDNANCE DATUM UNLESS STATED OTHERWISE.
- ALL LEVELS, TOGETHER WITH THE GROUND PROFILE SHOWN ON THE LONGITUDINAL SECTION ARE APPROXIMATE AND ARE INTENDED FOR ILLUSTRATIVE PURPOSES ONLY.
- TUNNEL CONDITION KEY IN ACCORDANCE WITH NETWORK RAIL DOCUMENT NR/L3/0006/4C - HANDBOOK FOR THE EXAMINATION OF STRUCTURES PART 4C: RECORDING OF TUNNEL EXAMINATIONS AND CONDITION MARKING INDEX SCORE.
- TABLETS ARE AT 20m INTERVALS IN THIS TUNNEL. TABLET 0 AT HAMPSTEAD HEATH PORTAL.
- TUNNEL ZONE OF INFLUENCE = 35m EITHER SIDE OF TUNNEL CENTRELINE.  
SHAFT ZONE OF INFLUENCE = 7.5m EITHER SIDE OF SHAFT CENTRELINE
- THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE FOLLOWING DOCUMENTS:  
J1343/DESK STUDY/HAMPSTEAD HEATH TUNNEL :  
DESK STUDY REPORT  
J1343/HAMPSTEAD HEATH/02 : PLAN, GEOLOGICAL SECTION & TUNNEL CONDITION PLAN, SHEET 2 OF 2  
J1343/HAMPSTEAD HEATH/03 : LOCATION PLAN  
J1343/HAMPSTEAD HEATH/04 : GEOLOGICAL PLAN

GEOLOGICAL KEY



P1	FIRST ISSUE	BG	MAR	PH	3/05/14
Rev.	Revision Description	Drn	Chkd	Appd	Date

Status:

**DONALDSON ASSOCIATES**

Peat House  
Stuart Street  
Derby, DE1 2EQ  
Tel: 01332 343800  
Fax: 01332 613858  
E-Mail: derby@donaldsonassociates.com  
Website: www.donaldsonassociates.com

Client:



Project:

ANGLIAN UPGRADE  
TUNNEL MANAGEMENT STRATEGY

LINE:	CAMDEN ROAD WEST JUNCTION TO RICHMOND
E.L.R.:	BOK2
STRUCTURE REF No:	5
MILEAGE:	1 MILE 63 CHAINS TO 2 MILES 36 CHAINS
BETWEEN:	HAMPSTEAD HEATH AND FINCHLEY ROAD & FROGNAL
OS GRID REF:	TQ271855 TO TQ261851

Title:  
PLAN, GEOLOGICAL SECTION  
AND TUNNEL CONDITION SURVEY  
HAMPSTEAD HEATH TUNNEL BOK2/5  
SHEET 1 OF 2

Drawn by:	BG	Designed by:	MK	Checked:	MAR
Date:	MAY, 2014	Original Sheet Size:	A1	Approved:	PH

Scales:  
AS SHOWN

Drawing No:	J1343/HAMPSTEAD HEATH/01	Revision	P1
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