

## Prepared on behalf of

## Fairhurst

### Proposed Residential Development Flat 1, 28 Canfield Gardens, London, NW6 3LA Flood Risk Assessment

## Acknowledgements:

### **Disclaimer**

*The methodology adopted and the sources of information used by Sanderson Associates (Consulting Engineers) Ltd in providing its services are outlined within this Report.*

*Any information provided by third parties and referred to herein has not been checked or verified by Sanderson Associates (Consulting Engineers) Ltd, unless otherwise expressly stated within this report.*

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## Appendices

### **APPENDIX A - Drawings**

*Proposed Layout Plans*

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## 1 Introduction

Sanderson Associates (Consulting Engineers) Ltd have been appointed to undertake a Flood Risk Assessment for a proposed residential (flat) development located at Flat 1, 28 Canfield Gardens, London, NW6 3LA.

- 1.1 This Flood Risk Assessment has been undertaken in accordance with the National Planning Policy Framework (NPPF) March 2012 and the associated Planning Practice Guidance, 2014 for developments of this type and the flood zone location.
- 1.2 The assessment discusses the flood risk to the site, using a risk based approach and reference to the Sequential and Exception Test where appropriate.
- 1.3 A formal consultation with the Environment Agency has not taken place as their generalised mapping data shows the site is located within fluvial Flood Zone 1. Environment Agency and local water authority mapping data has been reviewed and referred to during the production of this report.

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## **2 Existing Situation**

### **2.1 Existing Site Description**

- 2.1.1 The property is located within the Canfield Gardens area of the Swiss Cottage electoral ward in the London borough of Camden. A plan is included in Appendix A of this report which shows the site location and surroundings. An O.S Reference for the site is: 526101,184515.
- 2.1.2 The site is brownfield as it currently contains an existing four storey (including basement) brick built residential property with associated gardens/yard areas to the frontage (southeast) and rear (northwest).
- 2.1.3 The site is bound to the north by gardens, to the east by residential properties, to the south by Canfield Garden and to the west by residential properties.
- 2.1.4 The closest main watercourse to the site is the River Brent which is located approximately 4.5km to the west at its closest point and generally flows from north to south prior to out falling into the River Thames. The River Thames is located approximately 5.5km to the south at its closest point. Figure 2 of the Camden Strategic Flood Risk Assessment also shows a wholly culverted watercourse that is located 2.0km to the east at its closest point and flows south from its source at lakes on Hampstead Heath.

### **3 Proposed Development**

- 3.1 It is proposed that part of the existing residential dwelling is re-developed, maintaining its residential use. The ground floor and basement of the property will be developed into a residential flat, development plans show that the basement will include three bedrooms, bathrooms and a utility room. The first floor will contain a living room, kitchen and a bedroom. Light wells are shown to both the frontage and rear of the property.
- 3.2 It is proposed that access/egress to property will remain as per existing from the site's frontage onto Canfield Gardens.
- 3.3 The site is proposed to be developed in line with the received layout which is contained in Appendix A of this report.

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## **4 Flood Risk**

### **4.1 *Surface Water Flooding***

4.1.1 The main risk of flooding from overland flow comes from water channelled in the local highway network, impermeable areas within the vicinity of the site and land at a higher elevation.

4.1.2 Environment Agency surface water mapping has been reviewed which shows areas at an elevated risk of surface water flooding for differing storm return periods.

4.1.3 Surface water flood mapping shows that the area of the site, in general, has a 'Very Low' risk of surface water flooding. A very low risk is land that has a less than 1 in 1000 annual probability of surface water flooding. A 'Very Low' risk is the lowest risk classifications in line with surface water flood zone delineation. Figure 3v of the Camden Strategic Flood Risk Assessment also confirms that the site is not at an elevated risk from this source.

4.1.4 The surface water mapping shows that there are very few areas within the vicinity of the site that are at an elevated risk of surface water flooding, the closest being to the north in the vicinity of Compayne Gardens. At this location two areas at an elevated risk are shown to the frontage and rear of properties on the north side of the street, the areas are isolated with a limited disbursement which suggests relative low points in the local topography where surface water collects during low probability storm events, they also do not form elements of flow path areas.

### **4.2 *Flooding from Rivers / Watercourses***

4.2.1 Reviewed fluvial flood mapping confirms that the site wholly falls within Flood Zone 1. This is land that has been assessed to have a less than a 1 in 1000 (<0.1%) annual probability of flooding from a fluvial Source in any given year. The closest area of higher probability flood zone (Flood Zone 2) is located approximately 5.0km to the southwest in the general vicinity of Goldhawk Road.



4.2.2 As the site is remote from and at a relatively higher elevation (circa +40m in accordance with contour data) than the limits of areas of Flood Zones 2 & 3, the risk from a fluvial source can be deemed to be very low.

#### **4.3 *Flooding from Sewers***

4.3.1 If any of the sewers/drainage apparatus adjacent to the site were to surcharge and flood, it is likely that any floodwaters would be shallow, relatively slow moving and constrained within the limits of the carriageway.

4.3.2 At the time of writing the report there was no evidence available to suggest the site has been directly affected from flooding from overloaded sewers/drainage apparatus in the past; therefore the risk of flooding from sewers would be considered low. It is likely that sewer flooding would have similar flow path to those shown for surface water, but constrained to the area of failure.

#### **4.4 *Flooding from Groundwater***

4.4.1 The potential for groundwater flooding has been assessed in a separate Basement Impact Assessment. Please refer to the supplementary document with regards to groundwater conditions in the area.

#### **4.5 *Climate Change***

4.5.1 It is generally considered that the intensity of rainfall will increase by up to 30% by the year 2085 and that winter months will become proportionately wetter.

4.5.2 These factors have been considered in the assessment of flood risk from all sources including watercourses.

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## **5 Sequential and Exception Test**

### **5.1 Sequential Approach**

- 5.1.1 The site is considered to lie within Flood Zone 1 as confirmed by the Environment Agency and local authority data.
- 5.1.2 The site is currently a residential development, in accordance with Table 2 of (PPG 2014, Planning Practice Guidance 2014) its current use is classed as being 'More Vulnerable' in terms of flood risk vulnerability.
- 5.1.3 The proposed residential use of the site, in accordance with Table 2 (PPG 2014, Planning Practice Guidance 2014) is classed as being 'More Vulnerable' in terms of flood risk vulnerability.
- 5.1.4 In accordance with Table 3 (PPG 2014, Planning Practice Guidance 2014) a 'More Vulnerable' development located in Flood Zone 1 is an appropriate development, therefore the full Sequential or Exception Test would not be required as part of a planning application for this development.

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## **6 General Mitigation Measures**

- 6.1 It is important that any proposed development, that has the potential to change the flood mechanisms on a site, is designed such that there is no increased flood risk to the site itself, or sites upstream and downstream of the development. Below is a list of mitigation measures that will assist in protecting the development.
- 6.2 A 150mm upstand should be provided on the light well surrounds, although the site is not shown on Environment Agency or Camden evidence to be at an elevated risk from this source, the above would reduce the risk of localised surface water accumulations at the developments external interface.
- 6.3 Drains within the limits of the site should be regularly inspected and cleared where necessary to reduce the risk of blockages and flooding within onsite apparatus.
- 6.4 Basement and ground floor electrical circuits should be set a minimum of 450mm above the finished floor level (in accordance with the Part M of the Building Regulations 2000). The basement electrical circuits should be run to sockets and switches from the ceiling cavity above.
- 6.5 Any hard standing areas to the outside of the development should fall away from entrance points to the building, wherever possible, with a minimum gradient of 1 in 100.
- 6.6 As the development is located on the lower floors of an existing property, there is limited opportunity to introduce measures to control surface water. All new appliances within the proposed development should have a robust water efficiency rating to minimise water usage and discharge into the local sewer network. It would also be recommended that non-return valves are included on the developments drainage connections to the external network.

## **7 Conclusion**

- 7.1 This report serves to review and assess the sources of potential flooding to the site, the impact of the proposed development on the flood mechanisms of the site and the impact on the surrounding area in accordance with NPPF.
- 7.2 Sequential and Exception Tests have been assessed in accordance with NPPF and it is concluded that the development is suitable for this location.
- 7.3 The flood risk to the site from a number of sources of flooding have been assessed, suitable mitigation measures have been recommended in response to the assessed risk and advice has been given regarding managing surface water from the site
- 7.4 This report concludes that the site can be developed without increasing flood risk to the site itself and other sites in the vicinity with the implementation of suitable mitigation measures.

***APPENDIX A - Drawings***  
***Proposed Layout Plans***

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# 01 - EXISTING BASEMENT FLOOR PLAN

DRAWING Ref.  
28CanfieldBasement@Camden16052016

RCB

DRAWN :

1/50

NW63LA

00

A3

SHEET :

01/06/2016

DATED :

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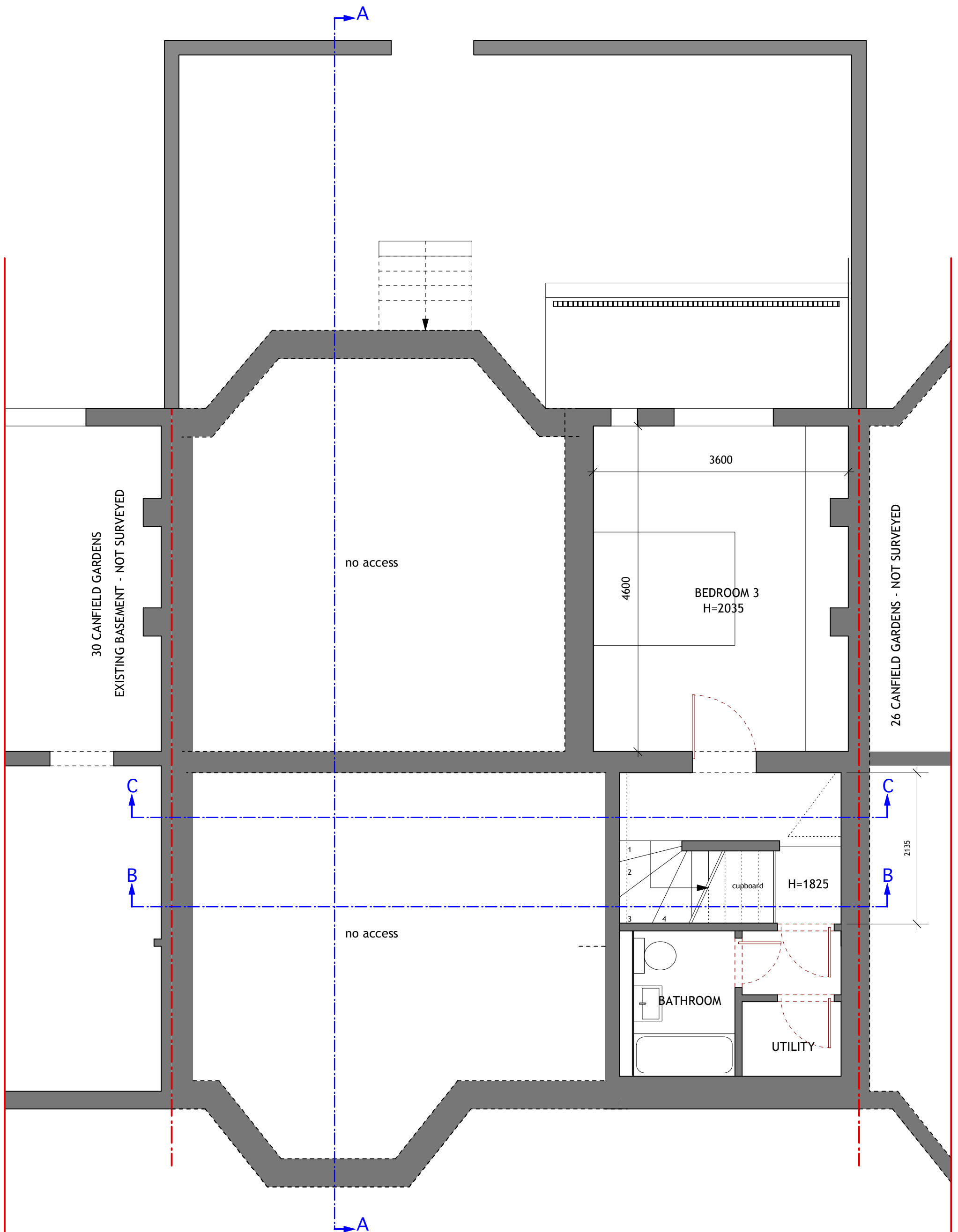
PROJ.No.

REV.No.

28 CANFIELD GARDENS  
LONDON NW6 3LA

PROJECT

DRAWING NAME



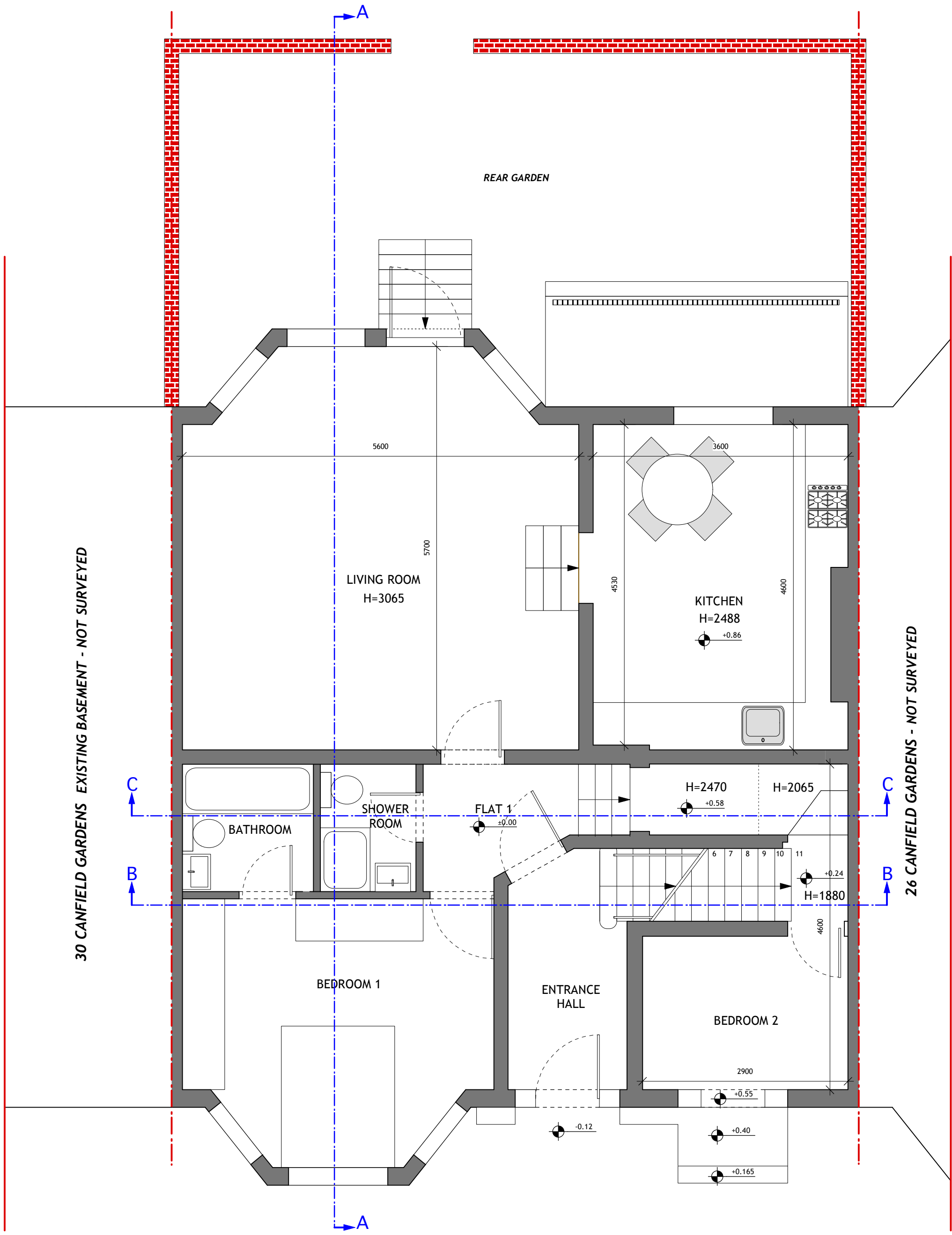


# 02 - EXISTING GROUND FLOOR PLAN

**28 CANFIELD GARDENS  
 LONDON NW6 3LA**

PROJECT

DRAWING NAME



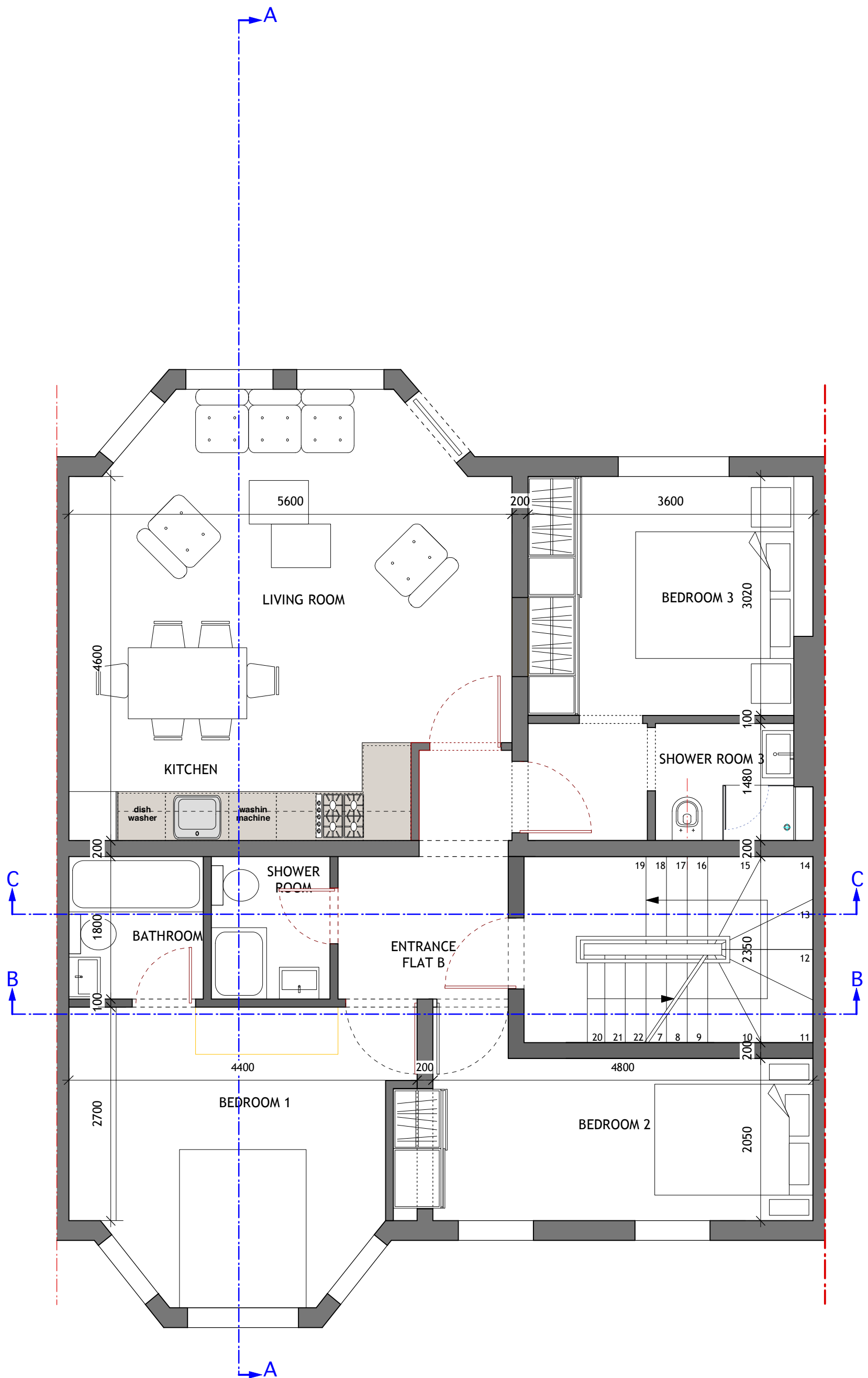


# 03 - EXISTING FIRST FLOOR PLAN

**28 CANFIELD GARDENS  
 LONDON NW6 3LA**

PROJECT

DRAWING NAME

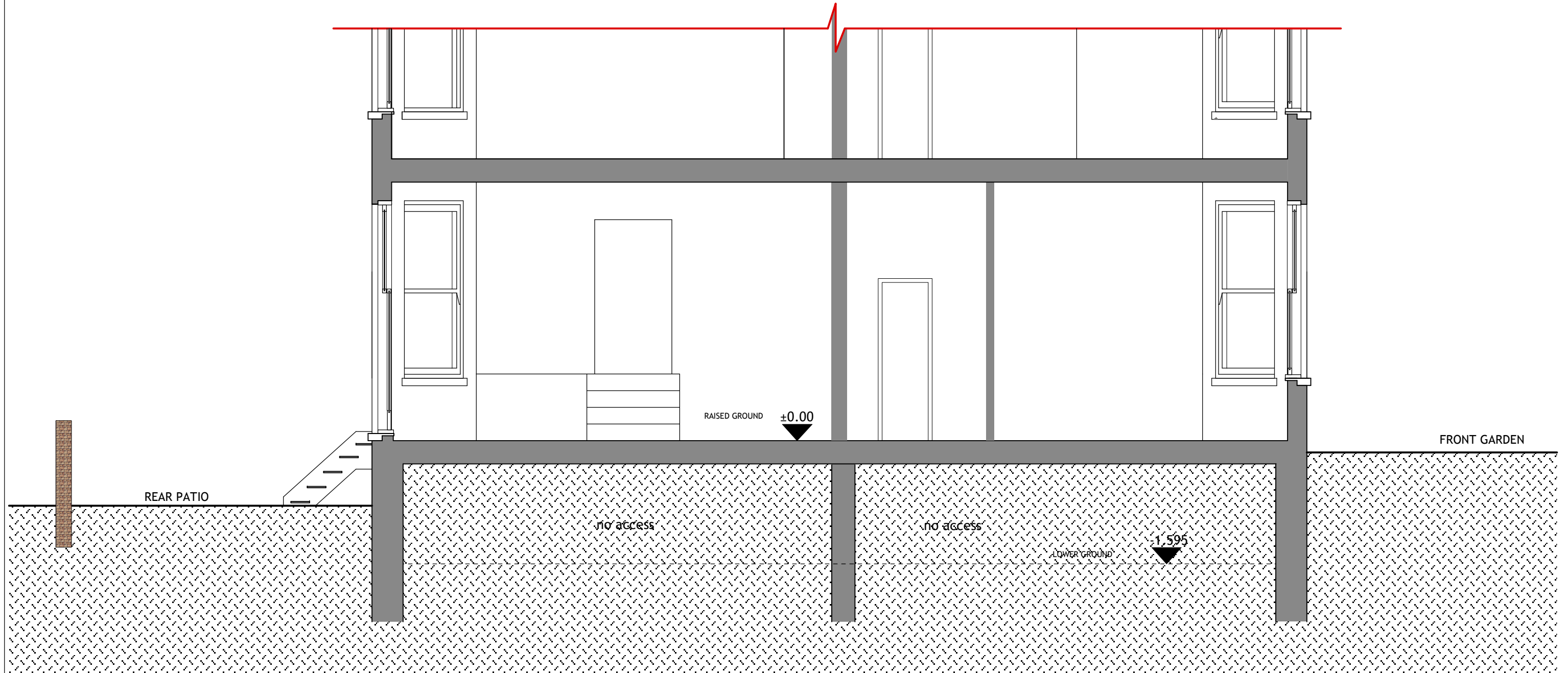






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# 05 - EXISTING SECTIONS BB & CC

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RCB

DRAWN :

1/50

NW63LA

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A3

SHEET :

01/06/2016

SCALE :

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REV. No.

DATED :

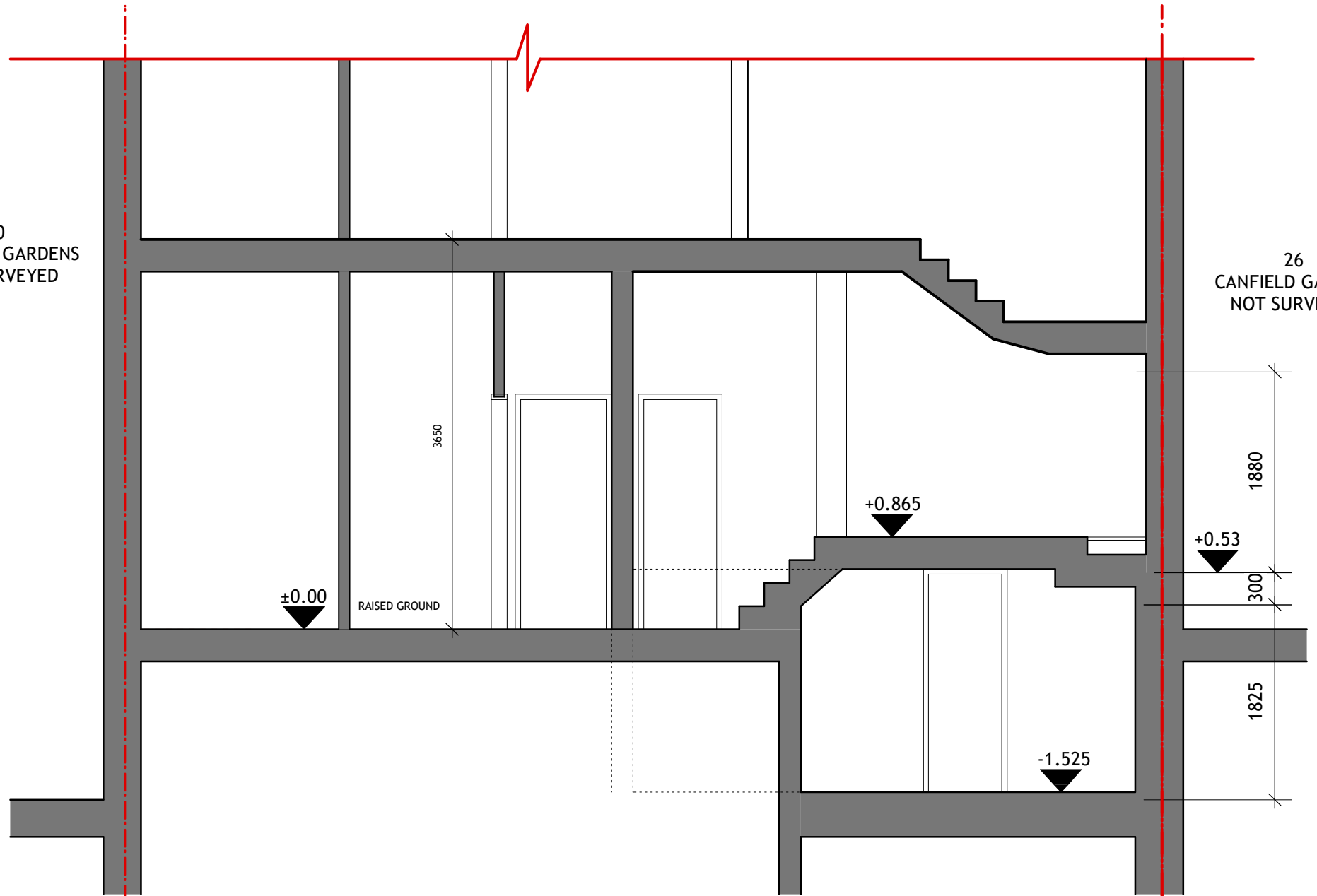
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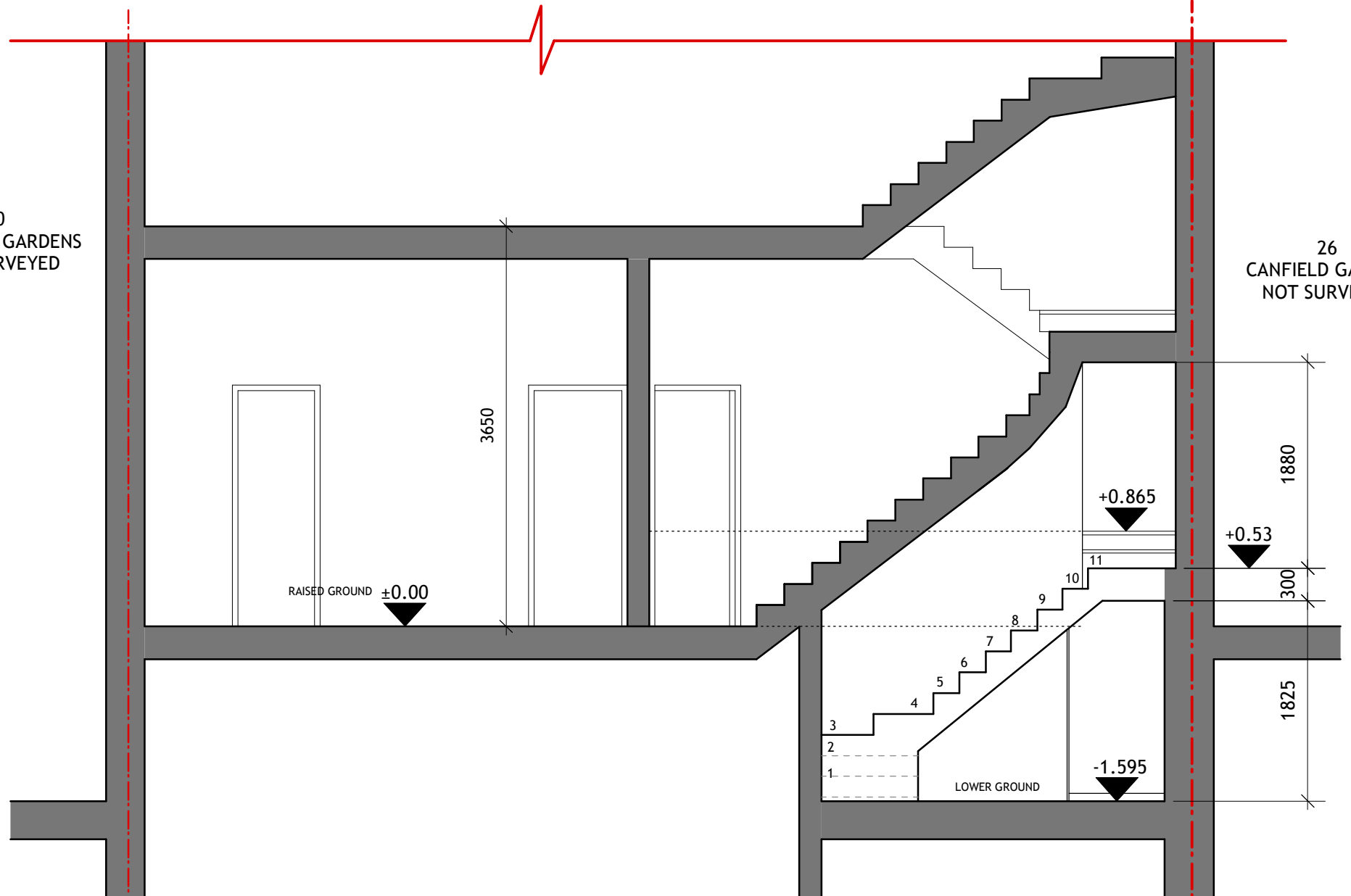
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CANFIELD GARDENS  
NOT SURVEYED



SECTION CC

30  
CANFIELD GARDENS  
NOT SURVEYED

26  
CANFIELD GARDENS  
NOT SURVEYED



SECTION BB



# 06 - EXISTING FRONT ELEVATION

**28 CANFIELD GARDENS  
LONDON NW6 3LA**

PROJECT

DRAWING NAME





# 07 - EXISTING REAR ELEVATION

DRAWING Ref.  
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RCB

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NW63LA

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01/06/2016

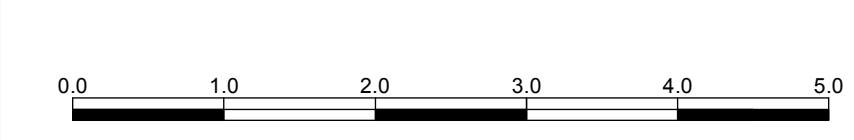
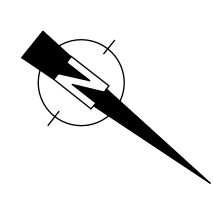
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28 CANFIELD GARDENS  
LONDON NW6 3LA

PROJECT

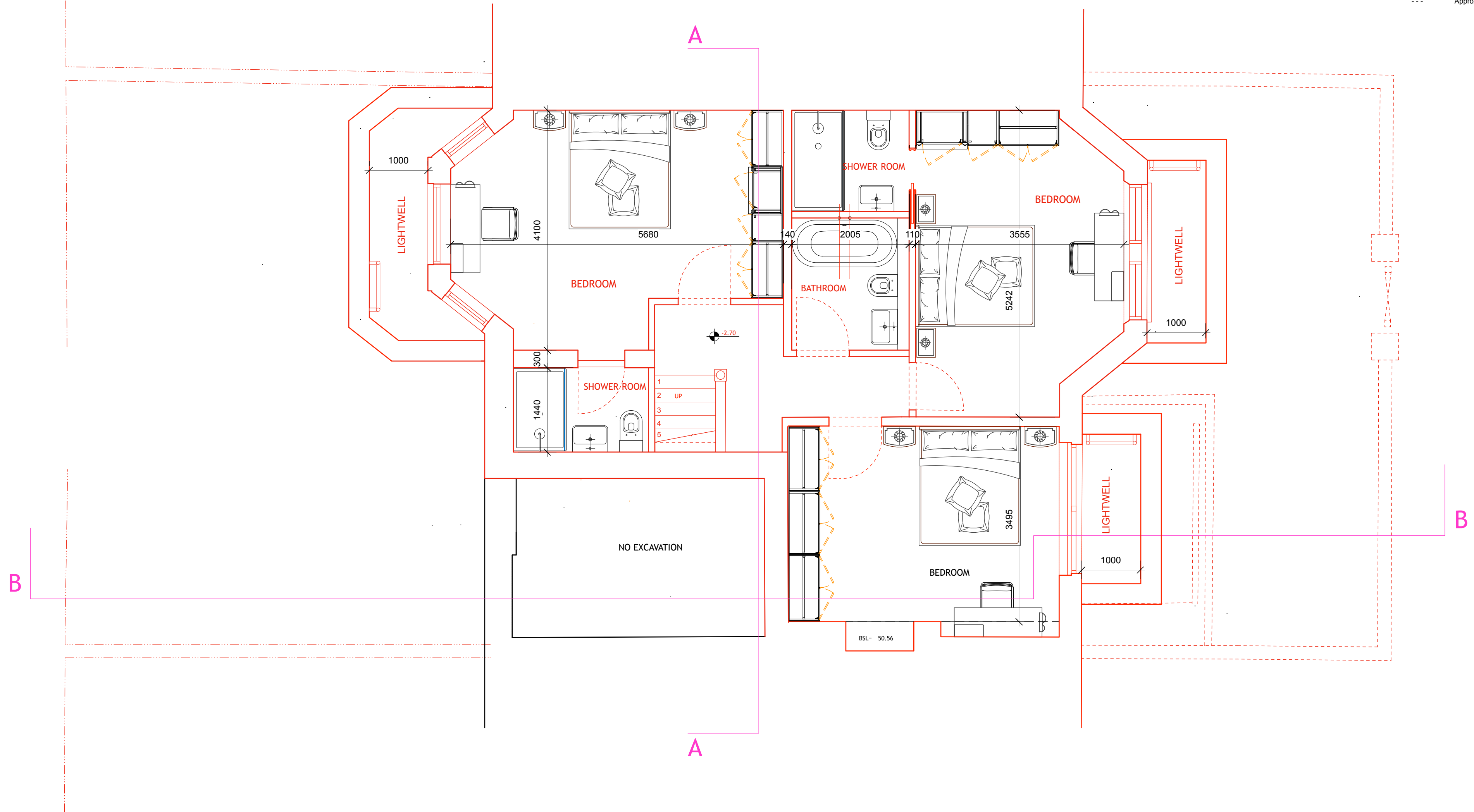
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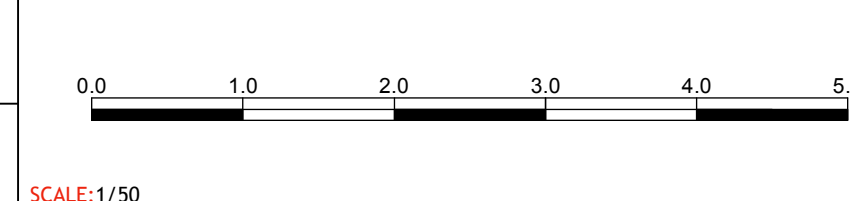
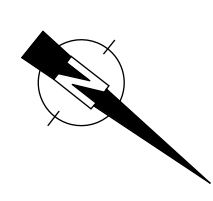


Building Abbreviations		LEGEND:	
BL	Basement Level	—	Foul Water Pipe
BH	Beam Soffit Height	—	Surface Water Pipe
BSL	Beam Soffit Level	○	2100
C	Cill Height from FFL	○	25.56
DP	Down Pipe	—	CH
DPC	Damp Proof Course	—	Ceiling Height
DH	Door Height	—	EJB
DHL	Door Head Level	—	Electricity Junction Box
FFL	Finished Floor Level	—	EC
		—	Electricity Cover
		—	EP
		—	Electricity Pole
		—	ER
		—	Earthing Rod
		—	FH
		—	Fire Hydrant
		—	FIG
		—	Feed Into Ground
		—	FW
		—	Foul Water
		—	GU
		—	Gully
		—	GV
		—	Gas Valve
		—	H
		—	Height
		—	IC
		—	Inspection Cover
		—	IL
		—	Invert Level
		—	IR
		—	Iron Railing Fence
		—	KO
		—	Kerb Outlet
		—	LB
		—	Litter Bin
		—	LC
		—	Lamp Column
		—	LP
		—	Lamp Post
		—	MH
		—	Manhole
		—	HD
		—	Heating Duct Height
		—	H
		—	Height
		—	RWP
		—	Rain Water Pipe
		—	SL
		—	Soffit Level
		—	SVP
		—	Soil and Vent Pipe
		—	VP
		—	Vent Pipe
		—	W
		—	Window Height from cill
		—	Direction of Floor Joist Span
		—	C Level
		—	Cill Level
		—	H Level
		—	Window Head Level
		—	Detail Approx.
		—	CSU
		—	Ceiling slopes up
		—	F-H
		—	Floor - Window head Ht
		—	SPR
		—	Spread
		—	STA
		—	Traverse Station
		—	SV
		—	Stop Valve
		—	SVP
		—	Soil Vent Pipe
		—	SW
		—	Storm Water
		—	TB
		—	Telephone Box
		—	TBM
		—	Temporary Bench Mark
		—	TFR
		—	Taken From Records
		—	TJB
		—	Telephone Junction Box
		—	TPT
		—	Trial Pit
		—	TL
		—	Traffic Light
		—	TP
		—	Telephone Pole
		—	UTL
		—	Unable To Lift
		—	UTT
		—	Unable To Trace
		—	VP
		—	Vent Pipe
		—	WKH
		—	Water Key Hole
		—	WM
		—	Water Meter
		—	WV
		—	Water Valve
		—	---
		—	Approximate

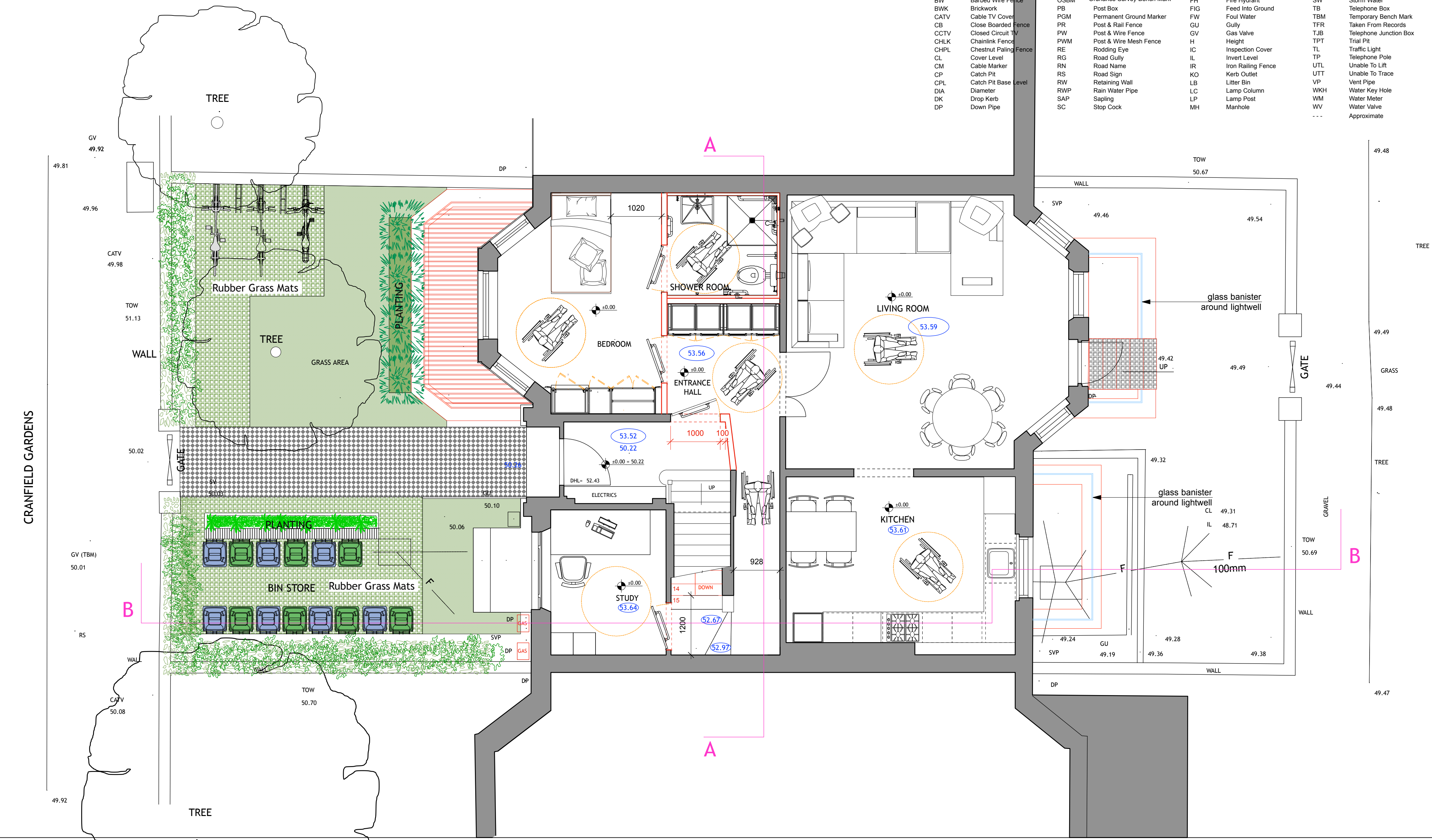
Topographical Abbreviations		Assumed Route		Marker	
A/R	Assumed Route	MKR	Marker	EJB	Electricity Junction Box
BH	Borehole	MT	Mercury Telecom Cover	EC	Electricity Cover
BOL	Bollard	OHC	Overhead Cable	EP	Electricity Pole
BT	British Telecom Cover	OHP	Overhead Pipe	ER	Earthing Rod
BW	Barbed Wire Fence	OSBM	Ordnance Survey Bench Mark	FH	Fire Hydrant
BWK	Brickwork	PB	Post Box	FIG	Feed Into Ground
CATV	Cable TV Cover	PGM	Permanent Ground Marker	FW	Foul Water
CB	Close Boarded Fence	PR	Post & Rail Fence	GU	Gully
CCTV	Closed Circuit TV	PW	Post & Wire Fence	GV	Gas Valve
CHLK	Chainlink Fence	PWM	Post & Wire Mesh Fence	H	Height
CHPL	Chestnut Paling Fence	RE	Rodding Eye	IC	Inspection Cover
CL	Cover Level	RG	Road Gully	IL	Invert Level
CM	Cable Marker	RN	Road Name	IR	Iron Railing Fence
CP	Catch Pit	RS	Road Sign	KO	Kerb Outlet
CPL	Catch Pit Base Level	RW	Retaining Wall	LB	Litter Bin
DIA	Diameter	RWP	Rain Water Pipe	LC	Lamp Column
DK	Drop Kerb	SAP	Sapling	LP	Lamp Post
DP	Down Pipe	SC	Stop Cock	MH	Manhole

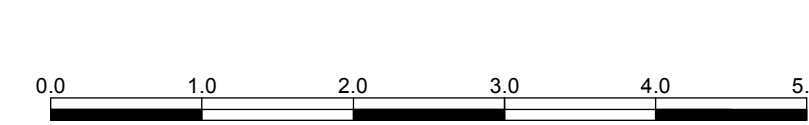
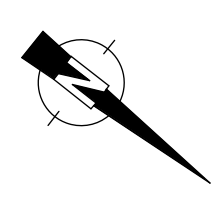




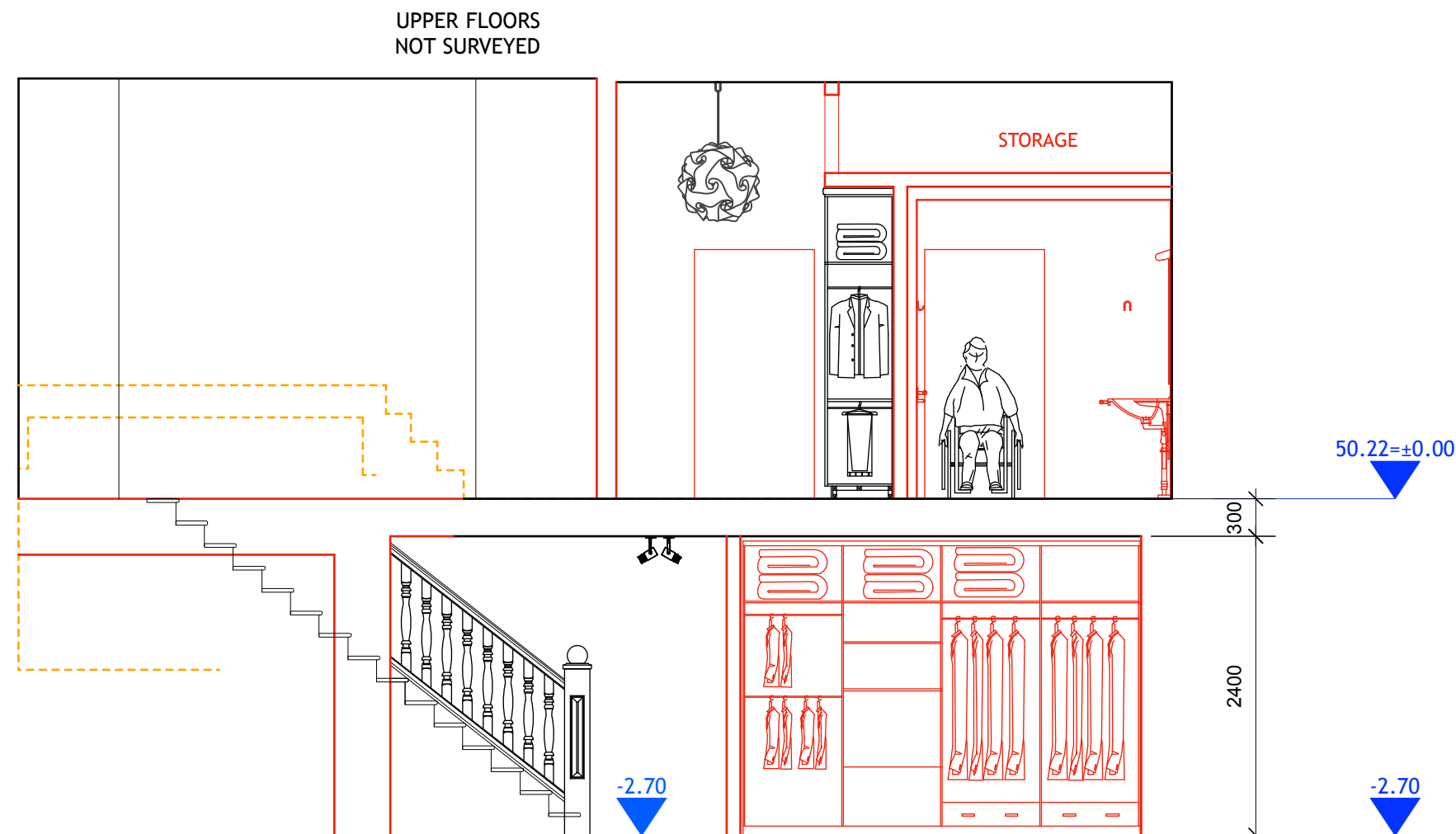


Building Abbreviations		Topographical Abbreviations	
BL	Basement Level	A/R	Assumed Route
BH	Beam Soffit Height	BH	Borehole
BSL	Beam Soffit Level	BOL	Bollard
C	Cill Height from FFL	BT	British Telecom Cover
DP	Down Pipe	BW	Barbed Wire Fence
DPC	Damp Proof Course	BWK	Brickwork
DH	Door Height	CATV	Cable TV Cover
DHL	Door Head Level	CB	Close Boarded Fence
FFL	Finished Floor Level	CCTV	Closed Circuit TV
		CHLK	Chainlink Fence
		CHPL	Chestnut Paling Fence
		CL	Cover Level
		CM	Cable Marker
		CP	Catch Pit
		CPL	Catch Pit Base Level
		DIA	Diameter
		DK	Drop Kerb
		DP	Down Pipe
		MKR	Marker
		MT	Mercury Telecom Cover
		OHC	Overhead Cable
		OHP	Overhead Pipe
		OSBM	Ordnance Survey Bench Mark
		PB	Post Box
		PGM	Permanent Ground Marker
		PR	Post & Rail Fence
		PW	Post & Wire Fence
		PWM	Post & Wire Mesh Fence
		RE	Rodding Eye
		RG	Road Gully
		RN	Road Name
		RS	Road Sign
		RW	Retaining Wall
		RWP	Rain Water Pipe
		SAP	Sapping
		SC	Stop Cock
		CH	Ceiling Height
		EJB	Electricity Junction Box
		EC	Electricity Cover
		EP	Electricity Pole
		ER	Earthing Rod
		FH	Fire Hydrant
		FIG	Feed Into Ground
		FW	Foul Water
		GU	Gully
		GV	Gas Valve
		H	Height
		IC	Inspection Cover
		IL	Invert Level
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		UTL	Unable To Lift
		UTT	Unable To Trace
		VP	Vent Pipe
		WKH	Water Key Hole
		WM	Water Meter
		WV	Water Valve
		---	Approximate



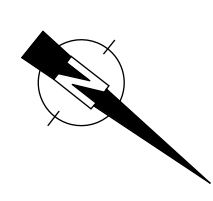


Building Abbreviations	
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DPC	Damp Proof Course
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DHL	Door Head Level
FFL	Finished Floor Level
F	Foul Water Pipe
S	Surface Water Pipe
HD	Heating Duct Height
H	Height
RWP	Rain Water Pipe
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GV	Gas Valve
H	Height
IC	Inspection Cover
IL	Invert Level
IR	Iron Railing Fence
KO	Kerb Outlet
LB	Litter Bin
LC	Lamp Column
LP	Lamp Post
MH	Manhole
SPR	Spread
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UTT	Unable To Trace
VP	Vent Pipe
WKH	Water Key Hole
WM	Water Meter
WV	Water Valve
---	Approximate

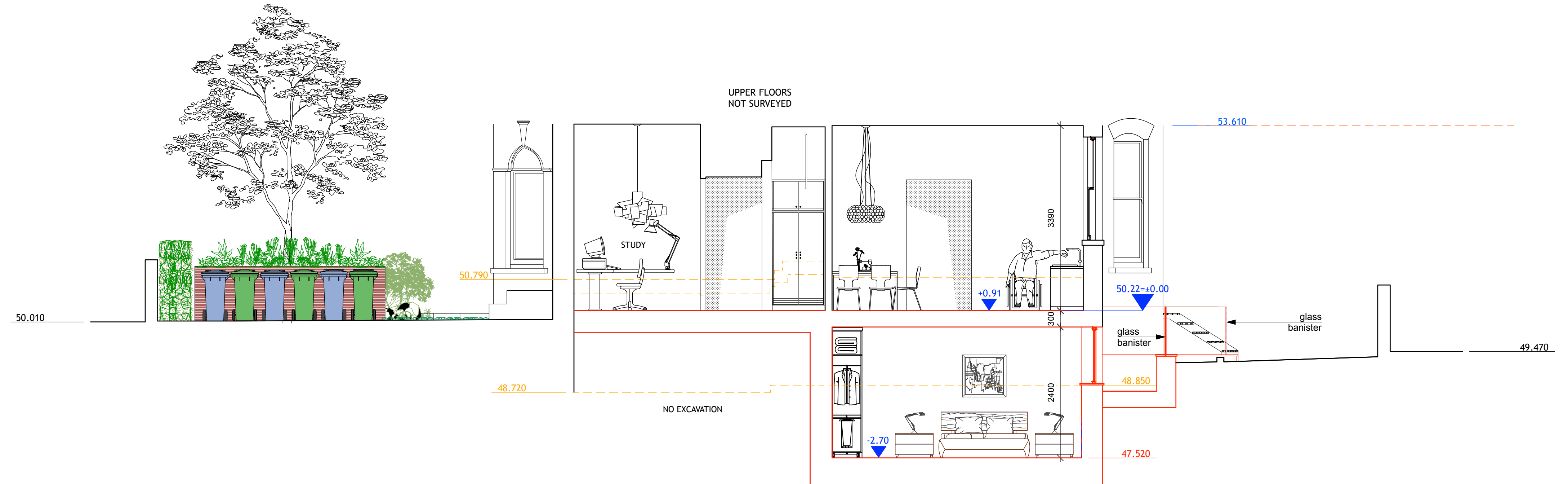


DATUM 46.00m





Building Abbreviations		Topographical Abbreviations	
BL	Basement Level	A/R	Assumed Route
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BSL	Beam Soffit Level	BOL	Bollard
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		CPL	Catch Pit Base Level
		DIA	Diameter
		DK	Drop Kerb
		DP	Down Pipe
		MKR	Marker
		MT	Mercury Telecom Cover
		OHC	Overhead Cable
		OHP	Overhead Pipe
		OSBM	Ordnance Survey Bench Mark
		PB	Post Box
		PGM	Permanent Ground Marker
		PR	Post & Rail Fence
		PW	Post & Wire Fence
		PWM	Post & Wire Mesh Fence
		RE	Rodding Eye
		RG	Road Gully
		RN	Road Name
		RS	Road Sign
		RW	Retaining Wall
		RWP	Rain Water Pipe
		SAP	Sapling
		SC	Stop Cock
		CH	Ceiling Height
		EJB	Electricity Junction Box
		EC	Electricity Cover
		EP	Electricity Pole
		ER	Earthing Rod
		FH	Fire Hydrant
		FIG	Feed Into Ground
		FW	Foul Water
		GU	Gully
		GV	Gas Valve
		H	Height
		IC	Inspection Cover
		IL	Invert Level
		IR	Iron Railing Fence
		KO	Kerb Outlet
		LB	Litter Bin
		LC	Lamp Column
		LP	Lamp Post
		MH	Manhole
		HD	Heating Duct Height
		H	Height
		RWP	Rain Water Pipe
		SL	Soil Level
		SVP	Soil and Vent Pipe
		VP	Vent Pipe
		W	Window Height from cill
		↔	Direction of Floor Joist Span
		C Level	Cill Level
		H Level	Window Head Level Detail Approx.
		CSU	Ceiling slopes up
		F-H	Floor - Window head Ht
		SPR	Spread
		STA	Traverse Station
		SV	Stop Valve
		SVP	Soil Vent Pipe
		SW	Storm Water
		TB	Telephone Box
		TBM	Temporary Bench Mark
		TFR	Taken From Records
		TJB	Telephone Junction Box
		TPT	Trial Pit
		TL	Traffic Light
		TP	Telephone Pole
		UTL	Unable To Lift
		UTT	Unable To Trace
		VP	Vent Pipe
		WKH	Water Key Hole
		WM	Water Meter
		WV	Water Valve
		---	Approximate



DATUM 46.00m





# 13 - PROPOSED FRONT ELEVATION

**28 CANFIELD GARDENS  
LONDON NW6 3LA**

PROJECT

DRAWING NAME



NEW LIGHTWELL WITH  
VEHICULAR GRILLE FLUSH  
WITH 215 BRICK EDGING

brick

render

28

WHITE TIMBER FRAMED  
WINDOWS  
TO MATCH EXISTING

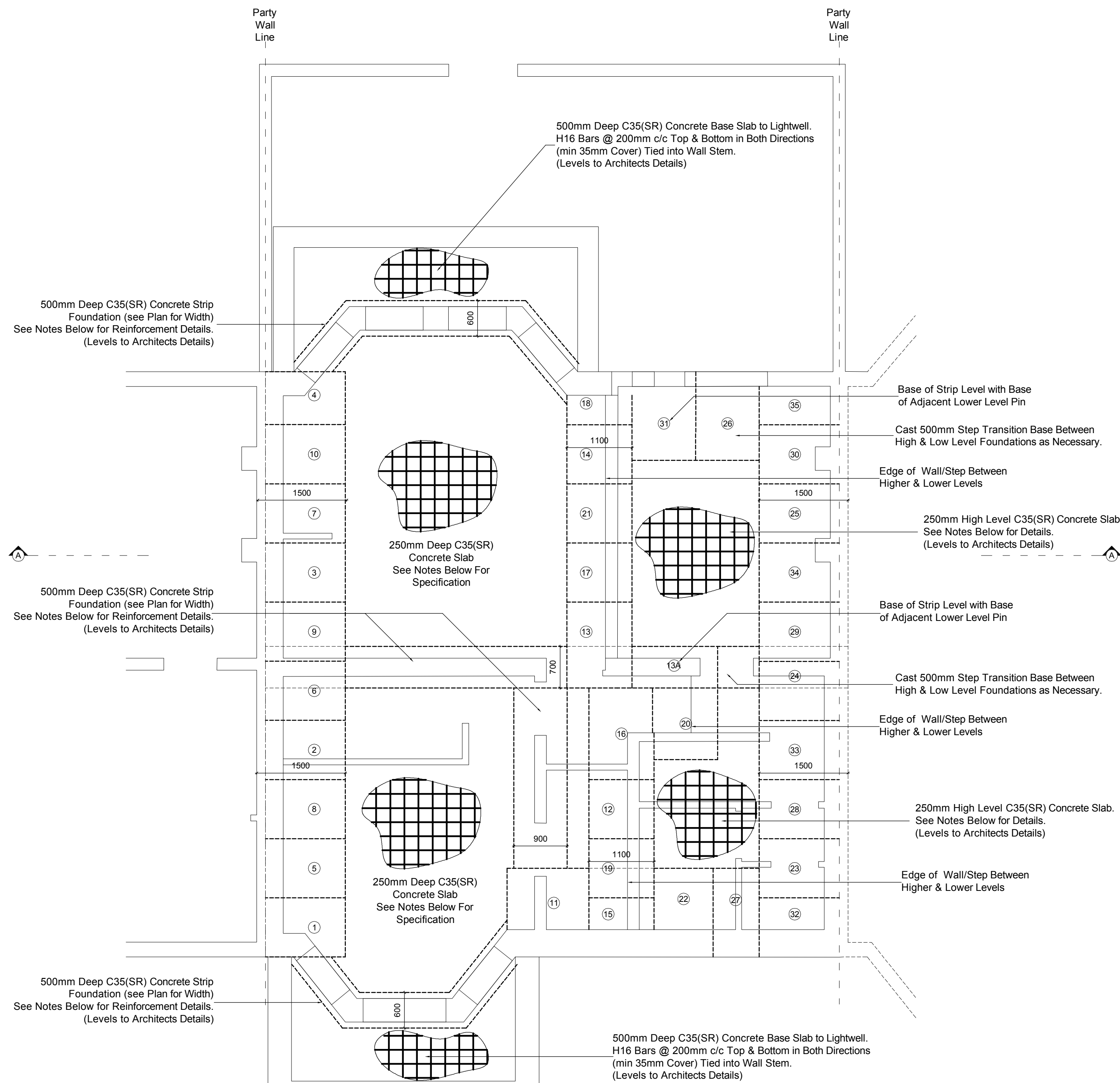
WHITE PAINTED WALLS

WHITE PAINTED WALLS



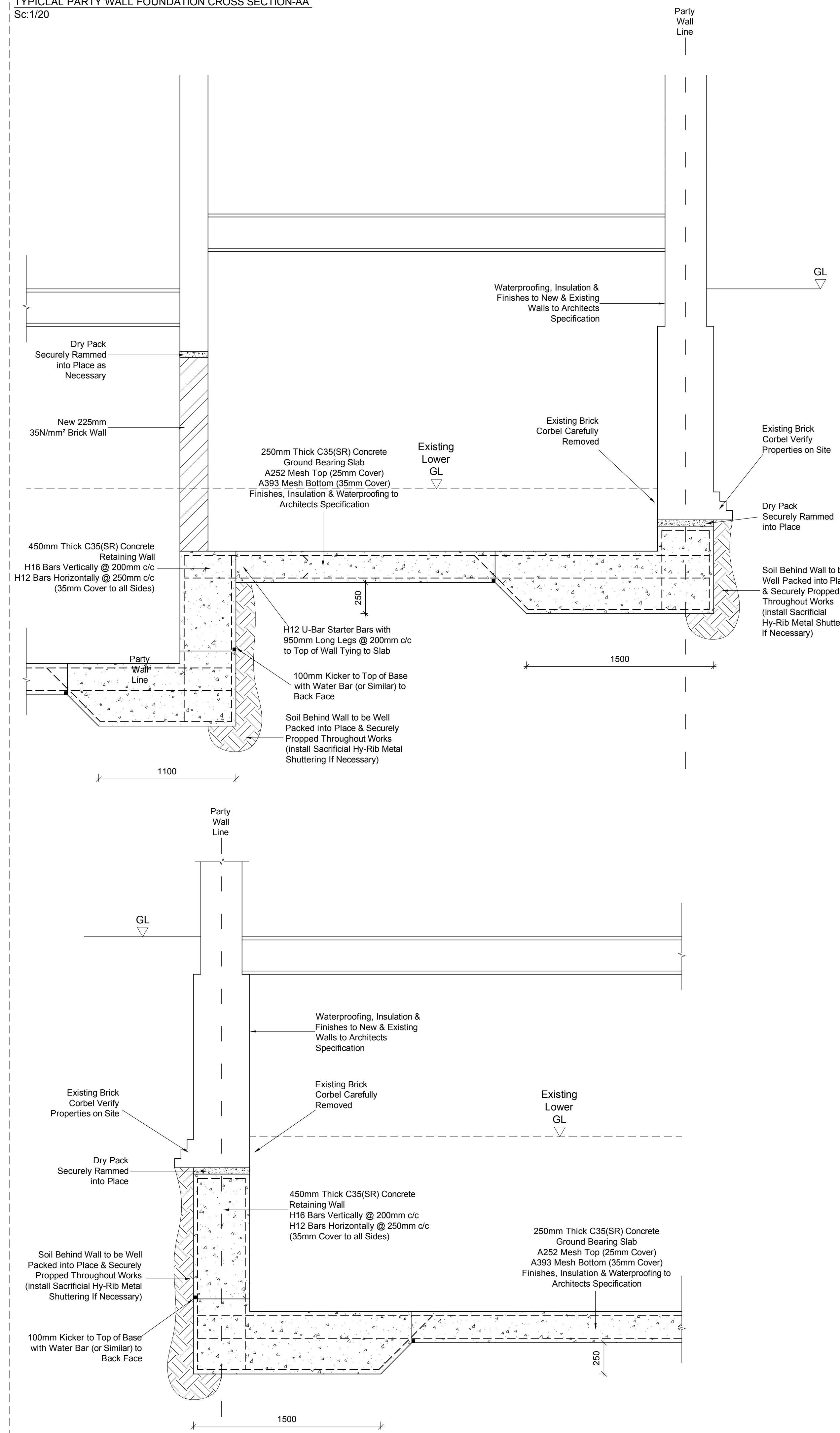
# 14 - PROPOSED REAR ELEVATION





- NEW FLOOR NOTES**
- New Basement Floor to be 250mm Deep C-35(SR) Ground Bearing Concrete Slab at Both High & Low Levels.
  - Split High & Low Floor Levels (Top of SSL & FFL to Architects Details).
  - Reinforcement: A-252 Mesh Top (25mm Cover), A393 Mesh Bottom (35mm Cover).
  - 40d Lap Between Foundation Base Starter Bars & Slab Reinforcement.
  - Water Bar (or Similar) Water Proof Joints Between Edge of Concrete Slab & Foundation Base Joints.
  - Internal Insulation, Finishes & Waterproofing to Architects Specification.
  - Drainage Below Slab to Specialist Contractors Specification.

- NEW FOUNDATION NOTES**
- New Basement Retaining Wall & Strip Foundations to be 500mm Deep C-35(SR) Ground Bearing Concrete Section at Both High & Low Levels.
  - Depth of High Level Bases Adjacent to Low Levels Foundations to Match Level (Top of SSL & FFL to Architects Details).
  - Transition Bases Raising 500mm Between Lower & Higher Levels to be Cast as Necessary.
  - Reinforcement to Strip Foundation: Top to Match Slab, A-252 Mesh Upper (25mm Cover), A393 Mesh Lower (35mm Cover), With Further A-393 Mesh to Base (50mm Cover).
  - Reinforcement to Bases to Match with Retaining Wall Stems (see Sections for Details).
  - Starter Bars to Wall to Extend 800mm Above Top of SSL of Foundation Base.
  - Retaining Wall Bases to be Cast in 1000mm Wide Sequences Sections (see plan for sequence).
  - Water Bar (or Similar) Water Proof Joints Between Edge of Concrete Slab & Foundation Base Joints.
  - Internal Insulation, Finishes & Waterproofing to Architects Specification.

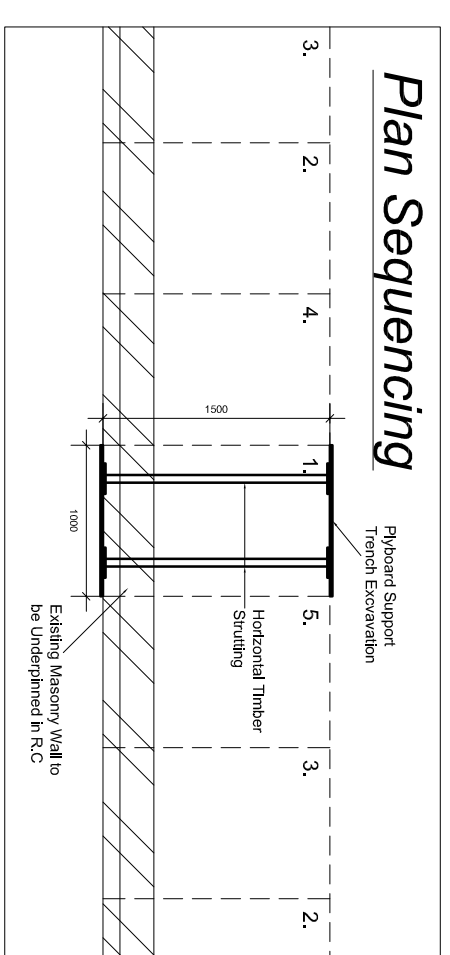
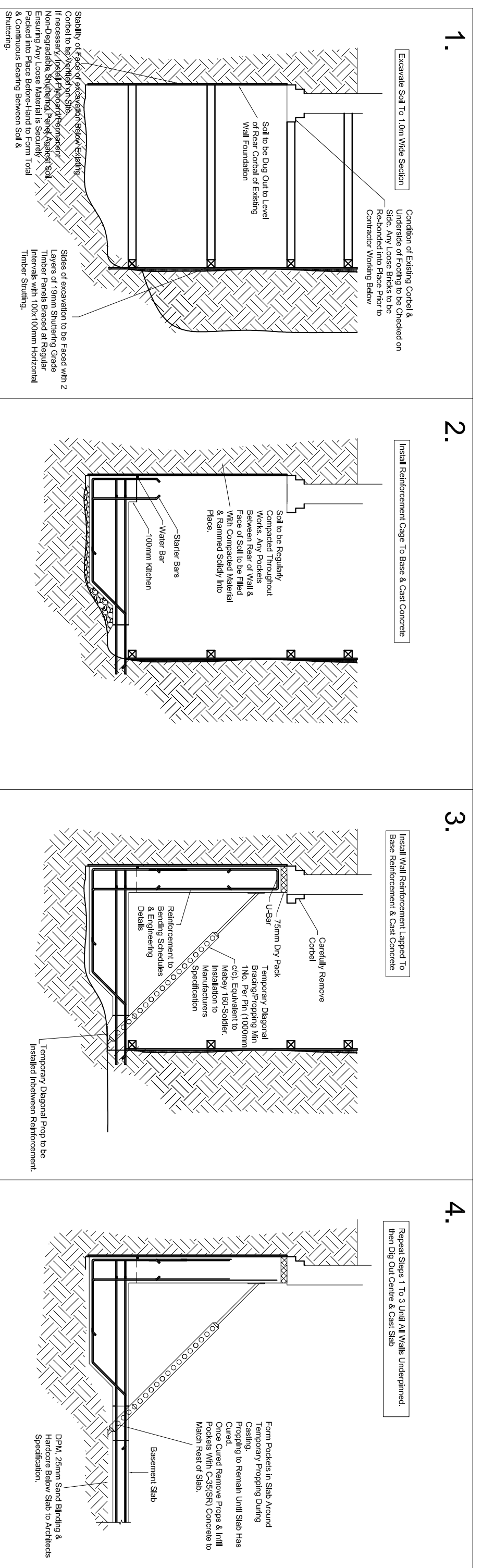


- NOTES**
- For General Notes Refer to Drawing No.2
- Reinforced Concrete Notes**
- All dimensions to be verified on site.
  - Read in conjunction with architect's drawings.
  - Reinforced concrete beam/slab/wall to be cast in grade 35N/mm<sup>2</sup> concrete and reinforced in accordance with design information and reinforcement schedules, provided by the engineer - min cement content 330kg/m<sup>3</sup>.
  - Ready mix concrete must be obtained from a plant, which holds a current certificate of accreditation under the quality scheme for ready mix concrete.
  - No concrete is to be placed when the ambient air temperature is less than 5° c.
  - Reinforcement shall be: (to bs 8110).
  - All main bars to be Grade 500 (high yield) noted 'H'. Plain bars (i.e. Links) also to be Grade 500 (high yield) unless stated otherwise [in which case, to BS 4449, Grade 250 (mild steel)].
  - Reinforcement to be fixed adequately using tying wire or steel clips.
  - Concrete cover to be min 35mm cover, unless stated otherwise on drawing.
  - Unless noted otherwise on drawings, all reinforcement is to be lapped 40d (where d is the diameter of the larger bar).
  - All works to be approved by the building control officer.
  - All waterproofing and drainage to architect's specification.
  - No work is to commence on site prior to building control approval of structural details.
  - Drawing to be read with engineering specification (including diagrammatical details) & architectural specification.

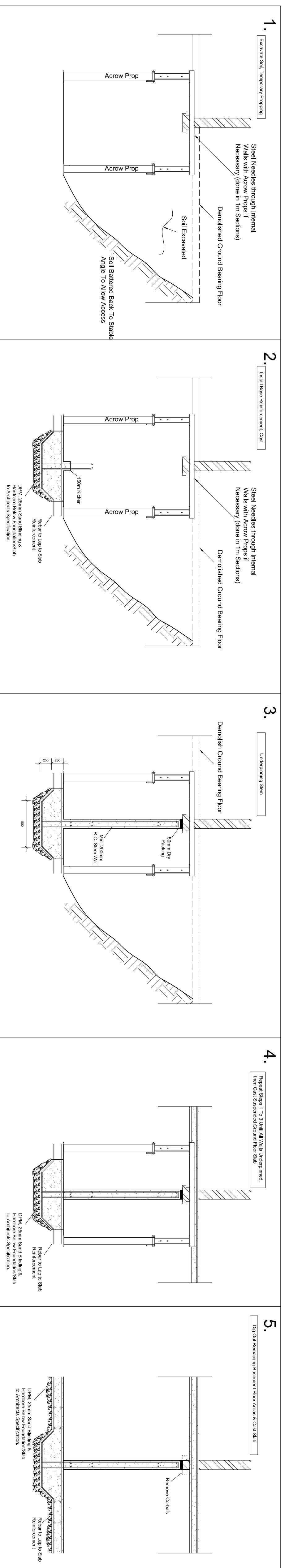
- Excavation for retaining walls**
- Trial pit to be excavated to confirm existence of any existing structure.
  - Working in strips not exceeding 1m long excavate to required depth adjacent to existing structure.
  - Lay reinforcement on adequate spacers, cast new concrete and allow 24 hours to cure.
  - Never excavate two adjacent strips without allowing 3 days between operations.
  - Ensure water bar is installed correctly between base and wall.
  - Construct wall reinforcement & allow for bonding into next section of wall. Cast concrete to required height.
  - Ensure ground behind new foundation & wall is fully backfilled and compacted. Check at regular intervals to ensure this during construction.
  - When adjacent sections are opened up the exposed concrete surfaces should be thoroughly cleaned of all loose material & scabbled to form a good key.
  - Foundations to be 1000mm wide unless noted otherwise.
  - All new concrete below ground to be sulphate resisting cement conc. Grade 35.
  - Reinforcement shall be to bs-8110 with main bars to be grade 500(high yield).
  - Ready mix concrete must be obtained from a plant which holds a current certificate of accreditation under the quality scheme for ready mix concrete.
  - No concrete is to be placed when the ambient air temperature is less than 5° c.

Title: Foundation Plan & Details			
Preliminary			
A	29/12/16	Sequenced Bases to Latest Spec	PS
Rev	Date	Description	Apr
Martin Redston Associates Consulting Civil & Structural Engineers			
4 Edward Square, London N1 QSP			
Tel: 020-7837 5377 Fax: 020-7837 3211			
6 Hole Lane, London NW7 3NX			
Tel: 020-8959 1666 Fax: 020-8906 8503			
Date:	JULY 2016	Sheet No.:	Rev
Eng:	PS	Scale:	1:50@A1
Job No.:	16-440	1 A	
Project: 28 CANFIELD GARDENS, LONDON, NW6			

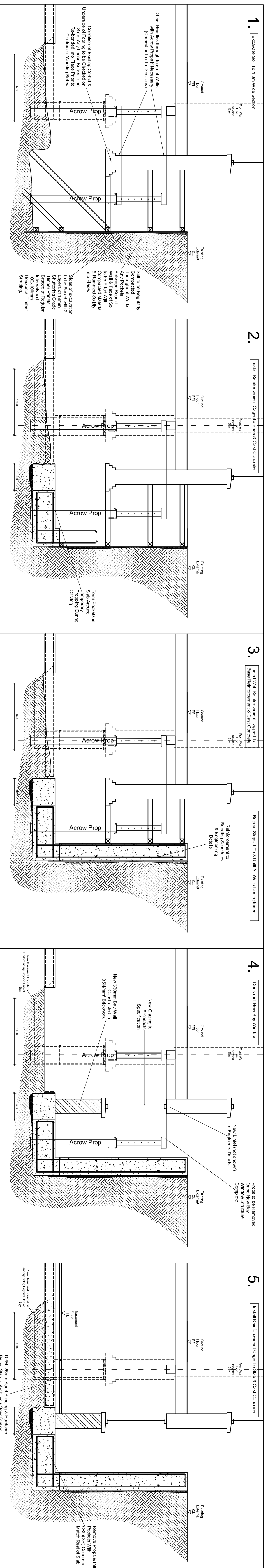
# EXTERNAL WALL UNDERPINNING



# INTERNAL WALL UNDERPINNING - Main House



# LIGHTWELL WALL UNDERPINNING



## NOTES

- All dimensions to be verified on site.
- Read in conjunction with architect's drawings.
- All workwork designed to EN3 referenced to EN3 and EN1090.
- All steel members to be grade S275JR steel unless otherwise stated.
- Apply 2 coats of red oxide primer/2 coats zinc rich primer in all steel prior to erection.
- All the protection to architect's specification provide min. 5 hour fire resistance capability to all steel (e.g. 12.5mm plasterboard and 75mm brick).
- All steel below ground floor level to be encased in 75mm concrete unless noted otherwise.
- All welding to be done in accordance with BS 5954.
- All back bolts to be grade S8.
- All timberwork designed to BS 5268 OR EN5.
- Double and triple joints to be bolted together with M12 bolts + 6mm dia. 17° compression and washer plate @ 450 cc unless otherwise noted.
- Connections:  
TIMBER BRICK: BAT SPN hanger when there is a minimum of 275mm of brickwork hangers or queen studs.  
TIMBER: TIMBER: BAT JIFY or MAM SPEEDY hanger or framing notch.  
RAFTER: TIMBER: 100mm x 100mm x 100mm. Do not skew nail any connection.  
ALLOW FOR BAT M305 STRAPS @ 1200 cc for restraint of joists and all wall plates.
- Concrete padstone to be grade C28 (1:2:4).
- Foundation concrete to be grade C40.
- Foundations to be 600mm below any root activity (min 1000mm depth unless otherwise noted).
- All temporary propping by the contractor.
- New brickwork to be 35N/mm<sup>2</sup> new brickwork to be 35N/mm<sup>2</sup> set in 1:1.5 mortar unless noted otherwise.
- All new masonry to be fixed to existing with full profiles.
- All waterproofing and drainage to architect's specification.
- All work to be approved by the building control officer.
- No work to commence on site prior to building control approval of structural details.
- Any excavations works within 3m of any adjoining property or party structure may be subject to party wall agreement.
- Any beams, joist hangers, or other structural works attached to party wall may be subject to party wall agreement.
- Floor joists strapped to main brick walls in accordance with A3 dependent on collapse continues down to foundation level.
- Vertical expansion joints:  
Every 12 metre height in brickwork.  
Every 12 metre height in blockwork.
- If contractor has preferred alternative method of construction please call us.

- ### Reinforced Concrete Notes
- Refer to Drawing No. 1
- Third pit to be excavated to confirm existence of any existing services.
  - Working in strips not exceeding 1m long excavate to required depth adjacent to existing structure.
  - Lay reinforcement on adequate spacers, cast new concrete and allow 24 hours to cure.
  - Never excavate two adjacent strips without allowing 3 days between operations.
  - Ensure water bar is installed correctly between concrete wall reinforcement & allow for bonding into next section of wall. Cast concrete for required height.
  - Ensure ground behind new foundation & wall is fully backfilled and compacted. Check at regular intervals to ensure this during construction.
  - When adjacent sections are opened up the exposed concrete surfaces should be thoroughly cleaned of all loose material & washed to form good key.
  - Foundations to be 1000mm wide unless noted otherwise.
  - All new concrete below ground to be supplied resisting cement once, Grade 35.
  - Reinforcement shall be to BS-8110 with main bars to be grade S40 (high yield).
  - Ready mix concrete must be delivered from a plant with batch & certificate for concrete.
  - Concrete to be placed under the quality assurance for ready mix concrete.
  - No concrete to be placed when the ambient air temperature is less than 5° C.

- ### Excavation for retaining wall
- Third pit to be excavated to confirm existence of any existing services.
  - Working in strips not exceeding 1m long excavate to required depth adjacent to existing structure.
  - Lay reinforcement on adequate spacers, cast new concrete and allow 24 hours to cure.
  - Never excavate two adjacent strips without allowing 3 days between operations.
  - Ensure water bar is installed correctly between concrete wall reinforcement & allow for bonding into next section of wall. Cast concrete for required height.
  - Ensure ground behind new foundation & wall is fully backfilled and compacted. Check at regular intervals to ensure this during construction.
  - When adjacent sections are opened up the exposed concrete surfaces should be thoroughly cleaned of all loose material & washed to form good key.
  - Foundations to be 1000mm wide unless noted otherwise.
  - All new concrete below ground to be supplied resisting cement once, Grade 35.
  - Reinforcement shall be to BS-8110 with main bars to be grade S40 (high yield).
  - Ready mix concrete must be delivered from a plant with batch & certificate for concrete.
  - Concrete to be placed under the quality assurance for ready mix concrete.
  - No concrete to be placed when the ambient air temperature is less than 5° C.

Rev	Date	Description	App
A	15/11/19	B/L: Lightwell Sequence Added	PS

**Typical Sequence of Underpinning Propping Preliminary for Planning/Basement Impact Assessment**

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 Consulting Civil & Structural Engineers  
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Date:	Sheet No.:	Rev
JAN 2017	PS	2
Scale: 1:50 @ A1		A

Project: 28 CAMFIELD GARDENS, LONDON