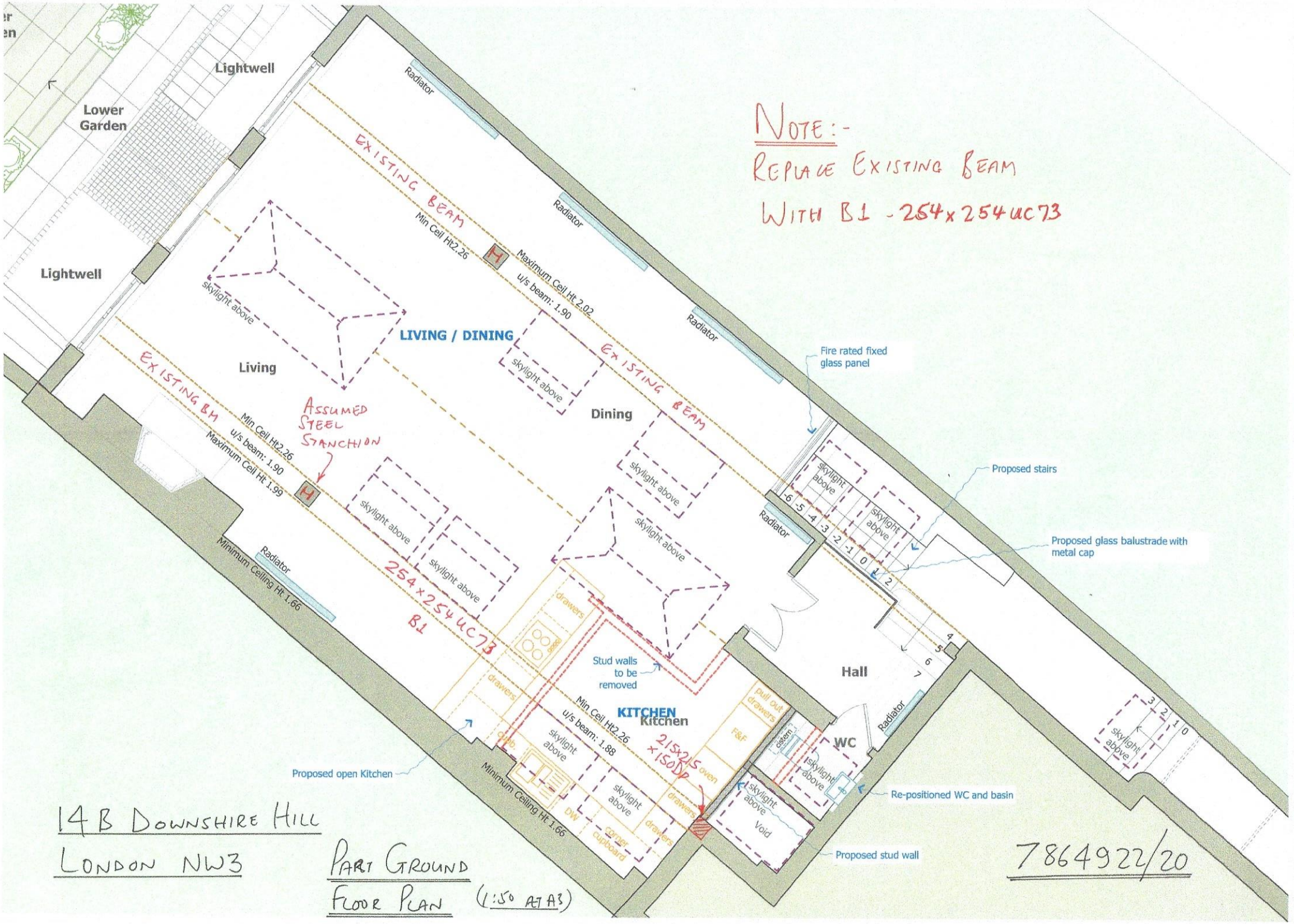
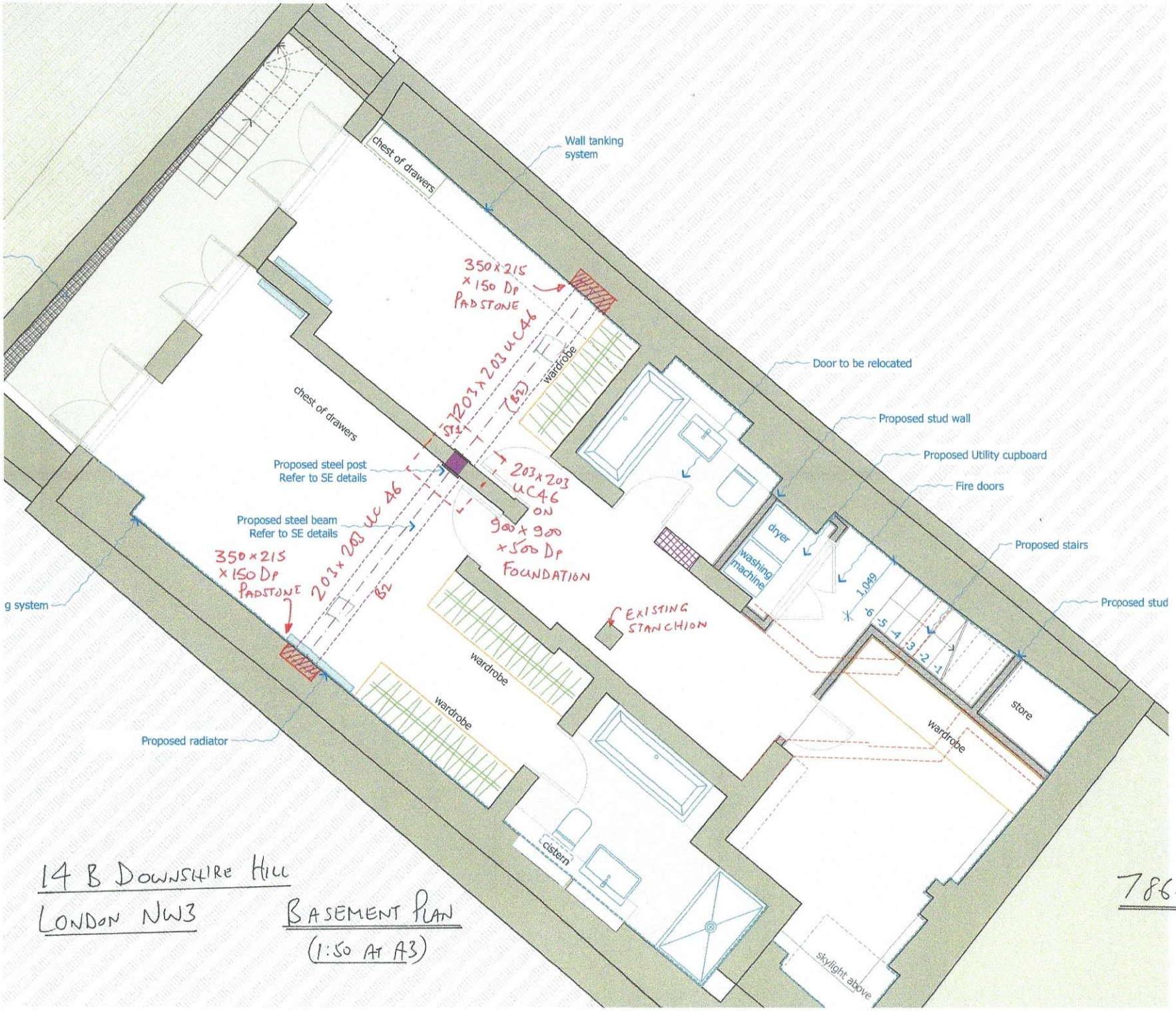
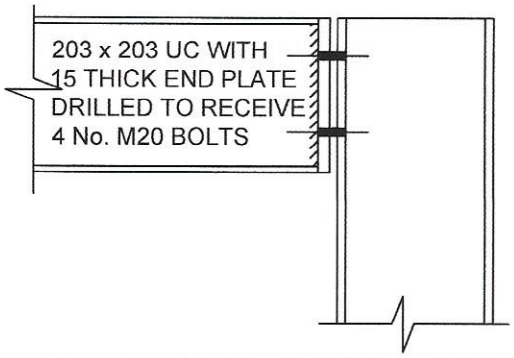

NOTE:-
REPLACE EXISTING BEAM
WITH B1 - 254x254 UC73
Lightwell
Lower Garden
Lightwell
Radiator
EXISTING BEAM
Min Ceil Ht2.26
Maximum Ceil Ht 2.02
u/s beam: 1.90
skylight above
LIVING / DINING
Living
Dining
Fire rated fixed glass panel
Proposed stairs
Proposed glass balustrade with metal cap
ASSUMED STEEL STANCHION
Maximum Ceil Ht 1.98
254x254 UC73
B1
Minimum Ceiling Ht 1.66
Stud walls to be removed
KITCHEN
Kitchen
drawers
pull out drawers
F&F
sink
DW
corner cupboard
215x215 oven x150DP
Hall
WC
cistern
Void
Proposed open Kitchen
Re-positioned WC and basin
Proposed stud wall
14B DOWNSHIRE HILL
LONDON NW3
PART GROUND FLOOR PLAN
(1:50 AT A3)
7864922/20



14 B Downshire Hill
London NW3

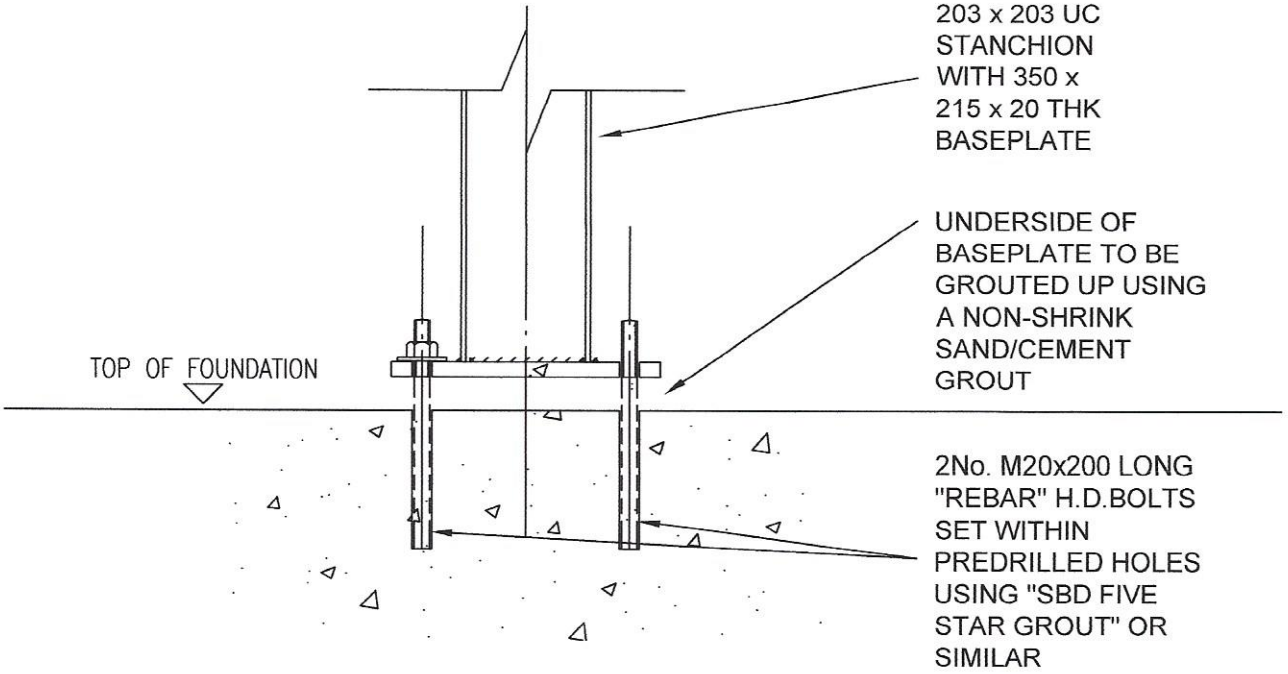
Basement Plan
(1:50 At A3)

7864922/21



STANCHION TO BE KEMFIXED TO EXISTING BRICKWORK AT 600c/c VERTICALLY FOR RESTRAINT

203 x 203 UC BEAM / 203 x 203 UC STANCHION



203 x 203 UC BASEPLATE AT FOUNDATION

Rev	Description	Dwn	Date	Chkd

Drawing Status: CONSTRUCTION

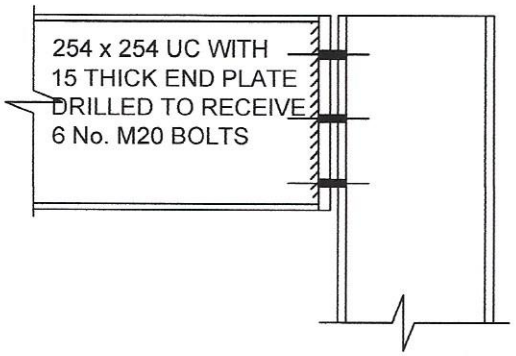
VERSI ASSOCIATES LTD
STRUCTURAL ENGINEERS

6 VERWOOD ROAD, NORTH HARROW, MIDDLESEX, HA2 6LD : Tel : 07958 721212
email: riyaz@rversi.plus.com

Job: 14B DOWNSHIRE HILL
LONDON NW3

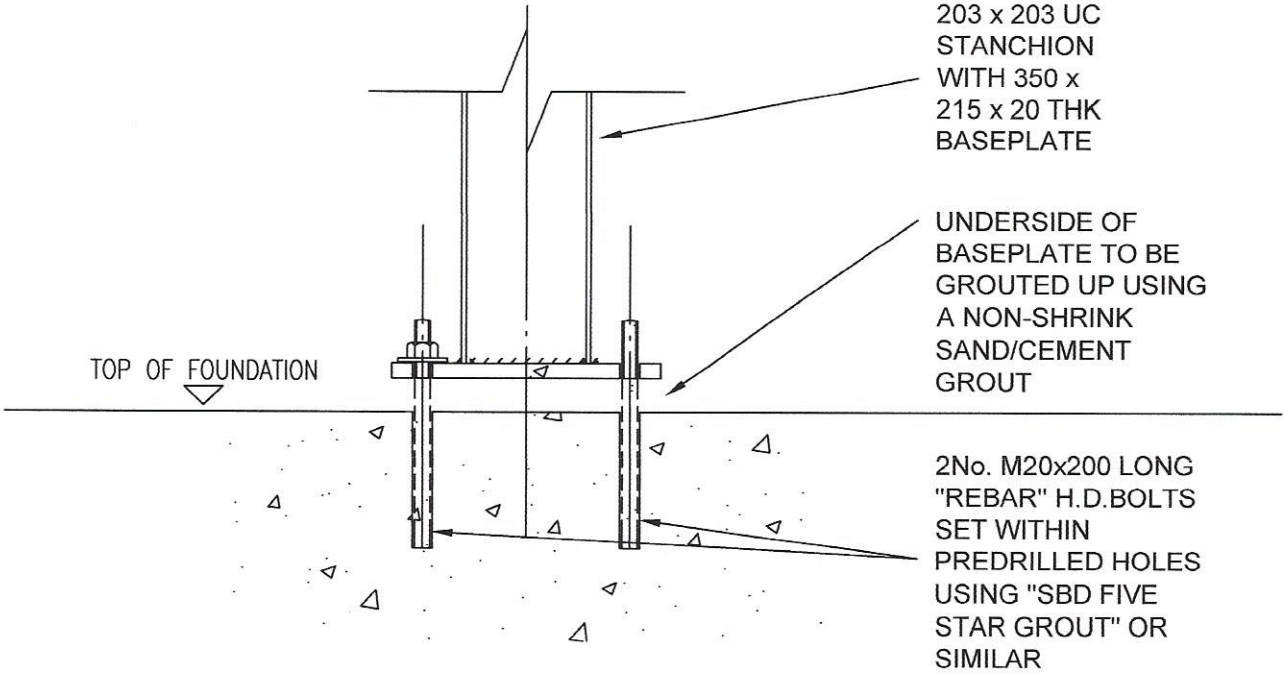
BEAM / STANCHION & STANCHION BASEPLATE DETAILS

Date	NOVEMBER 2021	Drawing Number	Revision
A4 Scale		7864922 / 22	
Drawn	RJV		
Checked			



STANCHION TO BE KEMFIXED TO EXISTING BRICKWORK AT 600c/c VERTICALLY FOR RESTRAINT

254 x 254 UC BEAM / 203 x 203 UC STANCHION



203 x 203 UC BASEPLATE AT FOUNDATION

Rev	Description	Dwn	Date	Chkd

Drawing Status: CONSTRUCTION

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LONDON NW3

BEAM / STANCHION
& STANCHION BASEPLATE
DETAILS

Date	NOVEMBER 2021
A4 Scale	
Drawn	RJV
Checked	

Drawing Number: 7864922 / 23

Revision:

NOTES:-

1 WORK TO BE CARRIED OUT WITH PROPER MATERIALS AND IN A WORKMANLIKE & SAFE MANNER IN ACCORDANCE WITH CDM REGULATIONS.

2 MATERIALS TO COMPLY WITH RELEVANT BRITISH & EUROPEAN STANDARDS AND USED IN ACCORDANCE WITH APPROPRIATE AGREEMENT CERTIFICATES. INCLUDE TESTING OF STRUCTURE FOR SOUND SEPARATION AND MODIFICATION TO COMPLY WITH PART E.

3 ALL STRUCTURAL TIMBERS, ROOF TIMBERS AND EXTERNAL JOINERY TO BE TREATED WITH APPROPRIATE PRESERVATIVE.

4 PROVIDE STRUTTING AT MID-SPAN OF JOISTS SPANNING 2.5 - 4.5M AND AT THIRD SPAN FOR JOISTS OVER 4.5M.

5 FLOOR AND ROOF JOISTS AND RAFTERS TO BE SECURLY FIXED, WITH TIMBER NOGGINGS AND RESTRAINED BY 30mm x 5mm MILD STEEL STRAPS, TAKEN ACROSS AND FIXED TO 3No JOISTS @ 1000mm c/c. STRAPS TO BE TURNED UP 100mm AND FIXED TO EXISTING WALL.

6 TIMBER RAFTERS AND FLOOR JOISTS IN PAIRS OR THREES TO BE BOLTED TOGETHER WITH M10 BOLTS AT 500 CENTRES.

7 ALL TIMBER DESIGNED TO BS 5268 AND TO BE GRADE C24 TO BS 5268.

8 ALL STEELWORK DESIGNED TO BS 5950 AND TO BE GRADE S275 TO BS 4360. ALL STEELWORK MUST BE SOURCED FROM A CE APPROVED SUPPLIER/FABRICATOR AND CARRY A CE MARKING.

9 ALL BOLTS TO BE GRADE 8.8 TO BS 4190 UNO.

10 ALL WELDS TO BE 6mm FULL PROFILE FILLET WELDS UNLESS NOTED.

11 ALL STEELWORK TO BE ENCASED WITH FIRE BOARD TO PROVIDE APPROPRIATE FIRE RESISTANCE.

12 WHERE TWIN BEAMS ARE SPECIFIED SPACERS AND THROUGH BOLTS (M12 BOLTS) TO BE USED TO AT 500mm CENTRES TO TIE THE BEAMS TOGETHER.

13 ALL LOADBEARING MASONRY TO BE IN ACCORDANCE WITH BS 5628.

14 ALL BLOCKS TO BE MIN 7.3 N/mm^2 UNLESS NOTED OTHERWISE

15 MORTAR TO BE (iii) ABOVE DPC AND (i) BELOW DPC.

16 WALL TIES TO BE TYPE 2 STAINLESS STEEL AND TO BE PROVIDED AT 450 CENTRES VERTICALLY AND 900 CENTRES HORIZONTALLY STAGGERED.

17 ALL LINTELS TO HAVE A MIN 150mm BEARING UNLESS NOTED OTHERWISE.

NOTES CONTINUED:-

18 ALL FOUNDATIONS TO BE TAKEN DOWN TO GOOD GROUND CAPABLE OF SUPPORTING A MINIMUM BEARING PRESSURE OF 100 kN/m^2 TO THE SATISFACTION OF THE BUILDING INSPECTOR

19 ALL FOUNDATIONS TO BE SYMMETRICAL UNDER WALLS AND STANCHIONS UNLESS NOTED OTHERWISE

20 CONCRETE IN FOUNDATIONS TO BE GRADE FND2 UNLESS NOTED OTHERWISE.

21 THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT HIS OPERATIONS DO NOT IN ANY WAY IMPAIR THE SAFETY OR STABILITY OF THE EXISTING STRUCTURE. HE SHALL PROVIDE ANY TEMPORARY SUPPORTS REQUIRED FOR THIS PURPOSE, AND SHALL CAREFULLY INSPECT THE CONDITION OF THE STRUCTURE BOTH BEFORE AND AFTER THE EXECUTION OF THE WORK.

LOADING

Sloping Roof	On Plan							
	Tiles	=	0.70					
	Battens, felt, insulation	=	0.10					
	Rafters	=	0.20					
	Ceiling	=	0.15					
			1.15		1.40	=	1.61	
	Imposed	=	0.75		1.60	=	1.20	
			1.90				2.81	kN/m²
Flat Roof								
	Roof sheeting	=	0.15					
	Roofing felt	=	0.15					
	Insulation	=	0.40					
	Firrings & joists	=	0.20					
	Plasterboard	=	0.15					
			1.05	*	1.40	=	1.47	
	Imposed	=	0.75	*	1.60	=	1.20	
			1.80				2.67	kN/m²
Ground Floor								
	Flooring	=	0.25					
	Joists	=	0.25					
	Ceiling	=	0.25					
			0.75	*	1.40	=	1.05	
	Imposed	=	1.50	*	1.60	=	2.40	
			2.25				3.45	kN/m²
External Solid Brickwall								
	215mm brickwall	=	4.30					
	Plaster	=	0.25					
			4.55	*	1.40	=	6.37	kN/m²
External Cavity Wall								
	103mm brickwall	=	2.20					
	100mm blockwall	=	1.40					
	Plaster	=	0.25					
			3.85	*	1.40	=	5.39	kN/m²
Internal Blockwall								
	100mm blockwall	=	1.50					
	Plaster	=	0.50					
			2.00	*	1.40	=	2.80	kN/m²
Stud Wall		=	0.50				0.70	kN/m²

Beam supporting roof **B 1**

				Factored		Unfactored
Span (L)	=	8.3 m				
Sloping roof	=	2.81 x 3.00	=	8.43		5.70
TOTAL			**W1** =	**8.43 kN/m**	**W2** =	**5.70 kN/m**

Bending Moment = $W1 \times L^2/8$ = **73 kNm**

I required = $\dfrac{5 \times W2 \times L^4 \times 10^9}{384 \times 205 \times 10^3 \times (L/360) \times 10^4}$ = **7452 cm^4**

Use Beam Section 254 x 254 UC 73, I_{xx} = 11300 cm^4, M_b = 160 kNm

Reactions

Service Reaction **R1** = W2 x L / 2 = **23.7 kN**
Factored Reaction **R2** = W1 x L / 2 = **35.0 kN**

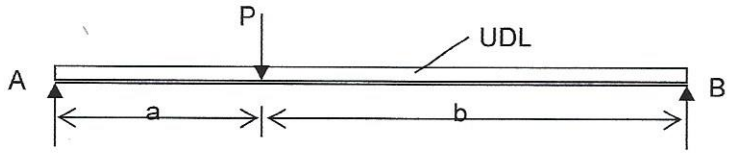
For 215mm thick existing wall
Length of spreader required = $(R1 \times 10^3) / (0.42 \times 215 \times 1.5)$ = **175 mm**
Provide 215 x 215 x 150 deep mass concrete padstone.

Beam in basement supporting post and floor **B 2**

Span (L) = **3.9 m**

Beam loads (kN/m)

UDL Loads			Factored		Unfactored
Ground Floor	=	3.45 x 4.00	= 13.80		9.00
Stud wall	=	0.70 x 2.70	= 1.89		1.35
TOTAL		**W1** =	**15.69 kN/m**	**W2** =	**10.35 kN/m**



Point Load a = 1.20 m b = 2.70 m

		Factored	Unfactored	
Point Load from Beam	**B1 +**	**P1** =	**52.69**	**35.63** = **P2**

Bending Moment = $W1 \times L^2/8 + P1 \times a \times b / L$ = **74 kNm**

I required = $\left\{ \frac{5 \times W2 \times L}{384} + \frac{P2[3a/L - 4(a/L)^3]}{48} \right\} \frac{L^3}{E(L/360)}$ = **3003 cm^4**

Use Beam Section 203 x 203 UC 46, I_{xx} = 4560 cm^4, M_b = 100 kNm

Reactions

Service Reaction at A	**$R1_a$**	= W2 x L / 2 + P2 x b / L	=	**44.8 kN**
Factored Reaction at A	**$R2_a$**	= W1 x L / 2 + P1 x b / L	=	**67.1 kN**
Service Reaction at B	**$R1_b$**	= W2 x L / 2 + P2 x a / L	=	**31.1 kN**
Factored Reaction at B	**$R2_b$**	= W1 x L / 2 + P1 x a / L	=	**46.8 kN**

At A
For 215mm thick existing wall
Length of spreader required = $(R1 \times 10^3) / (0.42 \times 215 \times 1.5)$ = **331 mm**
Provide 350 x 215 x 150 deep mass concrete padstone.

At B
For 215mm thick existing wall
Length of spreader required = $(R1 \times 10^3) / (0.42 \times 215 \times 1.5)$ = **230 mm**
Provide 350 x 215 x 150 deep mass concrete padstone.

Stanchion supporting beams B2 **ST 1**

Load on stanchion (kN)

		Factored		Unfactored
Beams B2 x 2	=	94	=	62
TOTAL	**W1** =	**94 kN**	**W2** =	**62 kN**

Axial Load on stanchion W1 = 93.6 kN

Moment in stanchion M_{xx} = 18.7 kNm

Try 203 x 203 UC 46 Le = 3 m

P_{cy} = 1250 kN M_b = 125 kNm

Combining

$$\frac{W1}{P_{cy}} + \frac{M_{xx}}{M_b} = \mathbf{0.225} < \mathbf{1.00}$$ Okay

Use 203 x 203 UC 46 Stanchion

Foundation

Presumed Ground Bearing Capacity (P_b) = 100 kN/m²

Size of foundation required = **0.62 m²**

Provide 850 x 850 x 500 deep mass concrete pad foundation