Notes:

Key

Application site GIA = 819m²

Applicant's land ownership GIA = 723m²

Proposed building Total GIA = 1311m²

B (GA) 100 **Ground Floor Plan**
Scale 1:100

KEY

1 Access
- 1a Main college entrance
- 1b Cafe/gallery entrance
- 1c Fire escape door
- 1d New code-operated gate
- 1e New Sheffield cycle stand for 2no. visitor cycles
- 1f New cycle racks for 30no. student/staff cycles
- 1g New foldable accessible stairlift
- 1h New roof access ladder

2 Glazing
- 2a New double-glazed light-coloured powdercoated aluminium framed window
- 2b New full height double-glazed light-coloured powdercoated aluminium picture window
- 2c New glazed blocks
- 2d New flat fixed rooflight
- 2e New pitched rooflight within sawtooth roof
- 2f New double-glazed light-coloured powdercoated aluminium framed door

3 Walls
- 3a New acoustic lining to party wall
- 3b New thermal lining to external wall
- 3c New red brickwork boundary wall
- 3d New half height red brickwork boundary wall with dark metal railings above
- 3e New grey fibre cement clad refuse/cycle store wall

4 Roofs
- 4a New grey flat roof membrane
- 4b New intensive green roof with gravel border
- 4c New biosolar roof (intensive green roof with PVs)
- 4d New light-coloured powdercoated aluminium coping

5 Services
- 5a New dark-coloured powdercoated aluminium rainwater goods to replace existing throughout
- 5b New air source heat pump
- 5c New MVHR unit
- 5d New photovoltaic panels

6 Landscaping
- 6a New permeable dark-coloured brick paving
- 6b New planted bed with brickwork border
- 6c New tree within planted bed
- 6d New low level planter for climbing plants
- 6e New gravel infill to neighbouring driveway
- 6f Neighbouring garden made good after works

0 1 2 3 4 5 10 Metre
Paper Scale 1:100

Rev	Date	Issue	Drawn	Check
I	14/08/2023	Planning	SC	RD
H	09/08/2023	Issued to Consultants for Coordination	SC	RD
G	31/07/2023	Stage 3 Cost Issue	SC	RD
F	17/07/2023	Design Freeze for Coordination	CW	SC
E	11/07/2023	Issued to Client for comment	SC	RD
D	19/06/2023	Issued to Consultants for Coordination	SC	RD

CDC Studio

Studio. 17 Comberton Rd, Cambridge CB23 7BA
5-7 Tanner St, London, SE1 3LE
info@cdcstudio.co.uk T. 01223 262413

Project : 81 Belsize Park Gardens

Client : Fine Arts College Ltd

Address : 81 Belsize Park Gardens, Belsize Park, London NW3 4NJ

Date : 24/02/2023

Scale @ A1 : 1:100

Drawing Title : Proposed Ground Floor Plan

Drawing No. : 4279 CDC XX GR DR A (GA) 100

Rev. : I

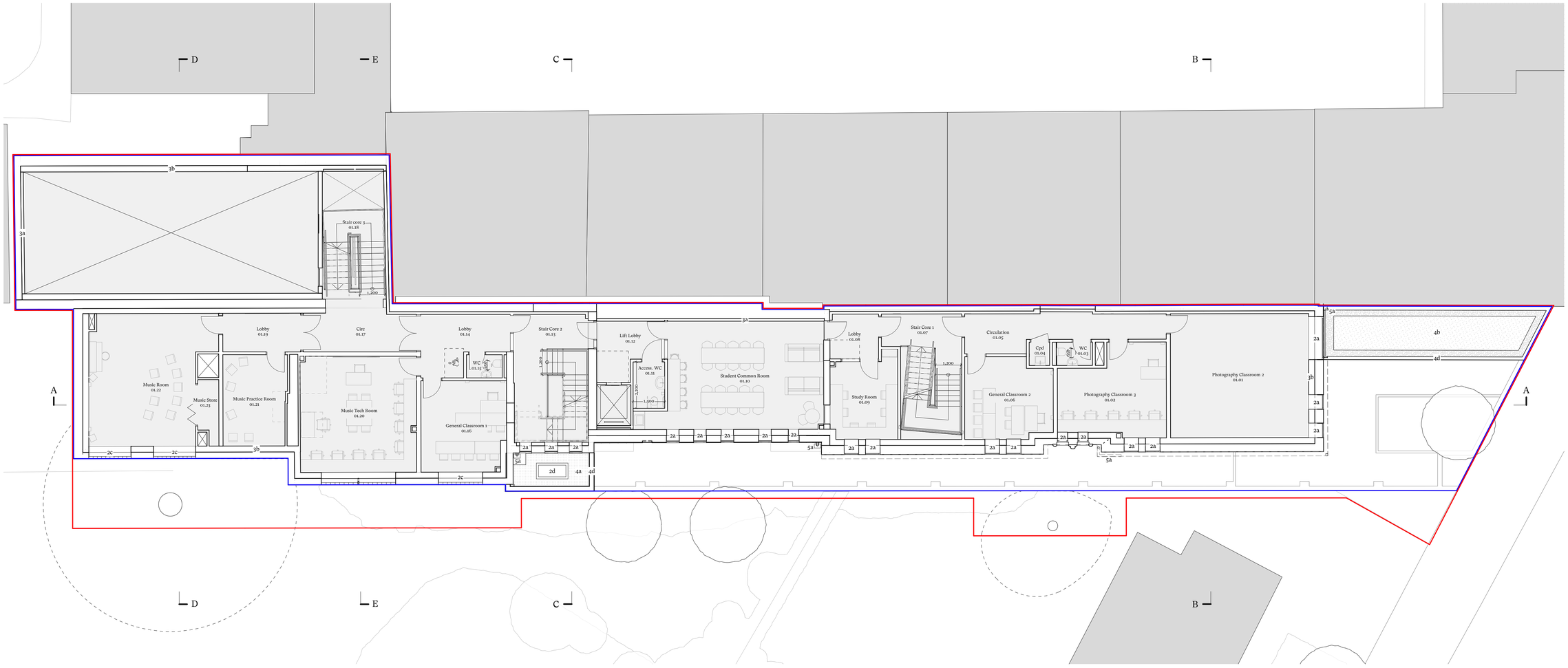
Notes:

Key

Application site
GIA = 802m²

Applicant's land ownership
GIA = 706m²

Proposed building Total GIA = 1311m²



A (GA) 110 **First Floor Plan**
Scale 1:100

KEY

1 Access
1a Main college entrance
1b Cafe/gallery entrance
1c Fire escape door
1d New code-operated gate
1e New Sheffield cycle stand for 2no. visitor cycles
1f New cycle racks for 30no. student/staff cycles
1g New foldable accessible stairlift
1h New roof access ladder

2 Glazing
2a New double-glazed light-coloured powdercoated aluminium framed window
2b New full height double-glazed light-coloured powdercoated aluminium picture window
2c New glazed blocks
2d New flat fixed rooflight
2e New pitched rooflight within sawtooth roof
2f New double-glazed light-coloured powdercoated aluminium framed door

3 Walls
3a New acoustic lining to party wall
3b New thermal lining to external wall
3c New red brickwork boundary wall
3d New half height red brickwork boundary wall with dark metal railings above
3e New grey fibre cement clad refuse/cycle store wall

4 Roofs
4a New grey flat roof membrane
4b New intensive green roof with gravel border
4c New biosolar roof (intensive green roof with PVs)
4d New light-coloured powdercoated aluminium coping

5 Services
5a New dark-coloured powdercoated aluminium rainwater goods to replace existing throughout
5b New air source heat pump
5c New MVHR unit
5d New photovoltaic panels

6 Landscaping
6a New permeable dark-coloured brick paving
6b New planted bed with brickwork border
6c New tree within planted bed
6d New low level planter for climbing plants
6e New gravel infill to neighbouring driveway
6f Neighbouring garden made good after works

0 1 2 3 4 5 10 Metre
Paper Scale 1:100

Rev	Date	Issue	Drawn	Check
I	14/08/2023	Planning	SC	RD
H	09/08/2023	Issued to Consultants for Coordination	SC	RD
G	31/07/2023	Stage 3 Cost Issue	SC	RD
F	17/07/2023	Design Freeze for Coordination	CW	SC
E	11/07/2023	Issued to Client for comment	SC	RD
D	19/06/2023	Issued to Consultants for Coordination	SC	RD

CDC Studio

Studio. 17 Comberton Rd, Cambridge CB23 7BA
5-7 Tanner St, London, SE1 3LE
info@cdcstudio.co.uk T. 01223 262413

Project :
81 Belsize Park Gardens

Client :
Fine Arts College Ltd

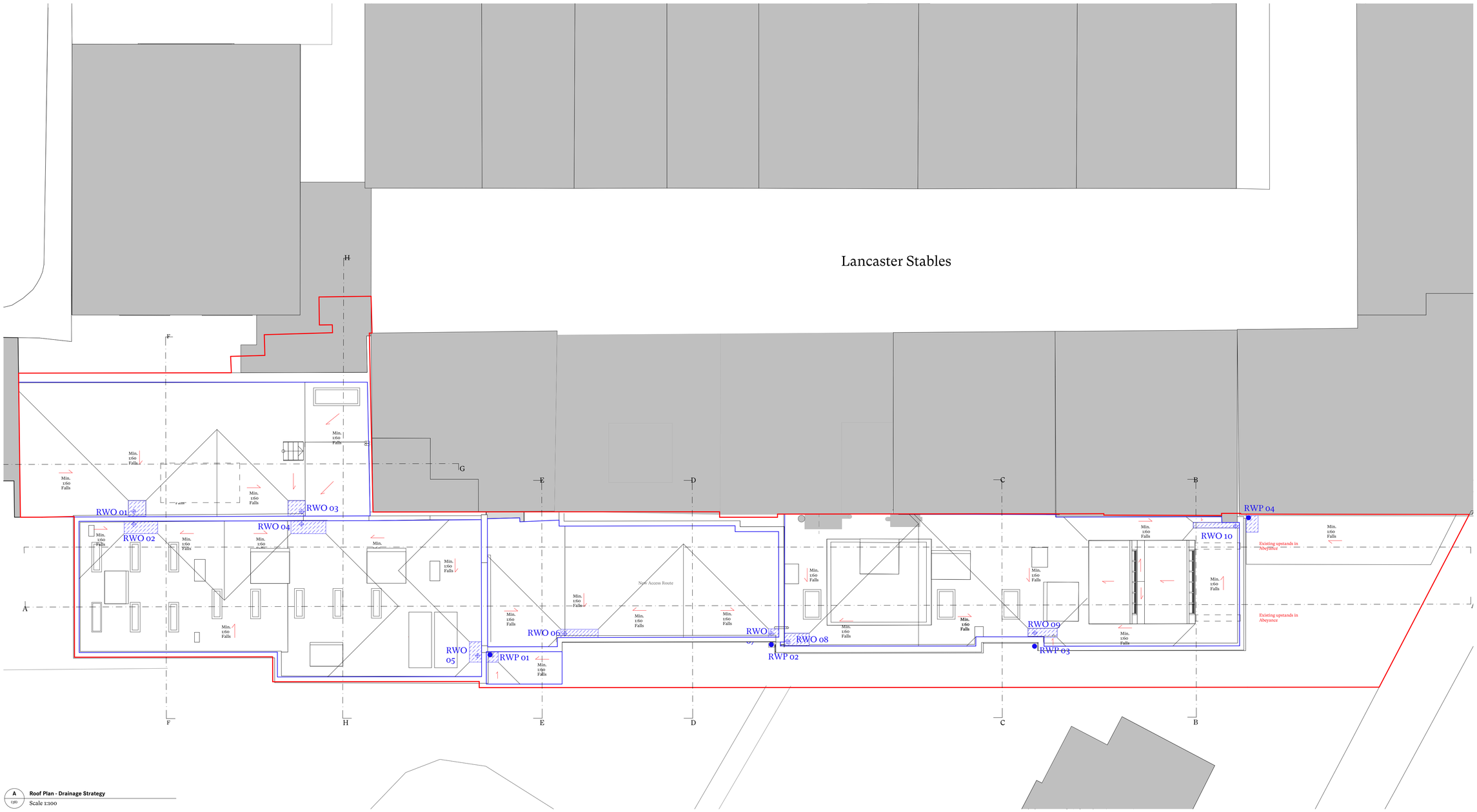
Address :
81 Belsize Park Gardens, Belsize Park, London NW3 4NJ

Date : 24/02/2023
Scale @ A1 : 1:100

Drawing Title :
Proposed First Floor Plan

Drawing No. : 4279 CDC XX 01 DR A (GA) 110
Rev. : I

Notes:



A (58) **Roof Plan - Drainage Strategy**
Scale 1:100

0 1 2 3 4 5 10 Metres
Paper Scale 1:100

Rev	Date	Issue	Drawn	Check
-	28/07/2023	Stage 3 Cost Issue	SC	RD

CDC Studio

Studio. 17 Camberton Rd, Cambridge CB23 7BA
5-7 Tanner St, London, SE1 3LE
info@cdcstudio.co.uk T. 01223 262413

Project :
81 Belsize Park Gardens

Client :
Fine Arts College Ltd

Address :
81 Belsize Park Gardens, Belsize Park, London NW3 4NJ

Date : 30/06/2023
Scale @ A1 : 1:100

Drawing Title :
Rainwater Drainage Strategy - Roof Plan

Drawing No. : 4279 CDC XX XX DR A (58)
Rev. : -

Notes:

KEY

1 Main entrance
2 Cafe entrance
3 Code operated gate
4 New double glazed windows throughout
5 Acoustic lining
6 Principal's office entrance
7 Thermal lining
8 External RWP
9 External door
10 Dry riser
11 Fire escape door
12 Secondary entrance
13 Green roof
14 Flat rooflight
15 Flat roof
16 New glass blocks
17 ASHP
18 Ductwork outlet
19 AHU
20 Pitched rooflight
21 MVHR
22 Gravel
23 Parapet
24 PV
25 Roof access ladder

Learning Spaces
Multi-Use Space
Cafe
Circulation
Ancillary Spaces (WC, Plant, etc.)

A (GA) 140 **Roof Plan**
Scale 1:100

0 1 2 3 4 5 10 Metre
Paper Scale 1:100

DRAFT

Rev	Date	Issue	Drawn	Check
H - WIP	Work in Progress	Planning	SC	RD
G	31/07/2023	Stage 3 Cost Issue	SC	RD
F	17/07/2023	Design Freeze for Coordination	CW	SC
E	11/07/2023	Issued to Client for comment	SC	RD
D	19/06/2023	Issued to Consultants for Coordination	SC	RD
C	02/06/2023	Stage 3 issue to cost consultant	CW	SC

CDC Studio

Studio. 17 Comberton Rd, Cambridge CB23 7BA
5-7 Tanner St, London, SE1 3LE
info@cdcstudio.co.uk T. 01223 262413

Project :
81 Belsize Park Gardens

Client :
Fine Arts College Ltd

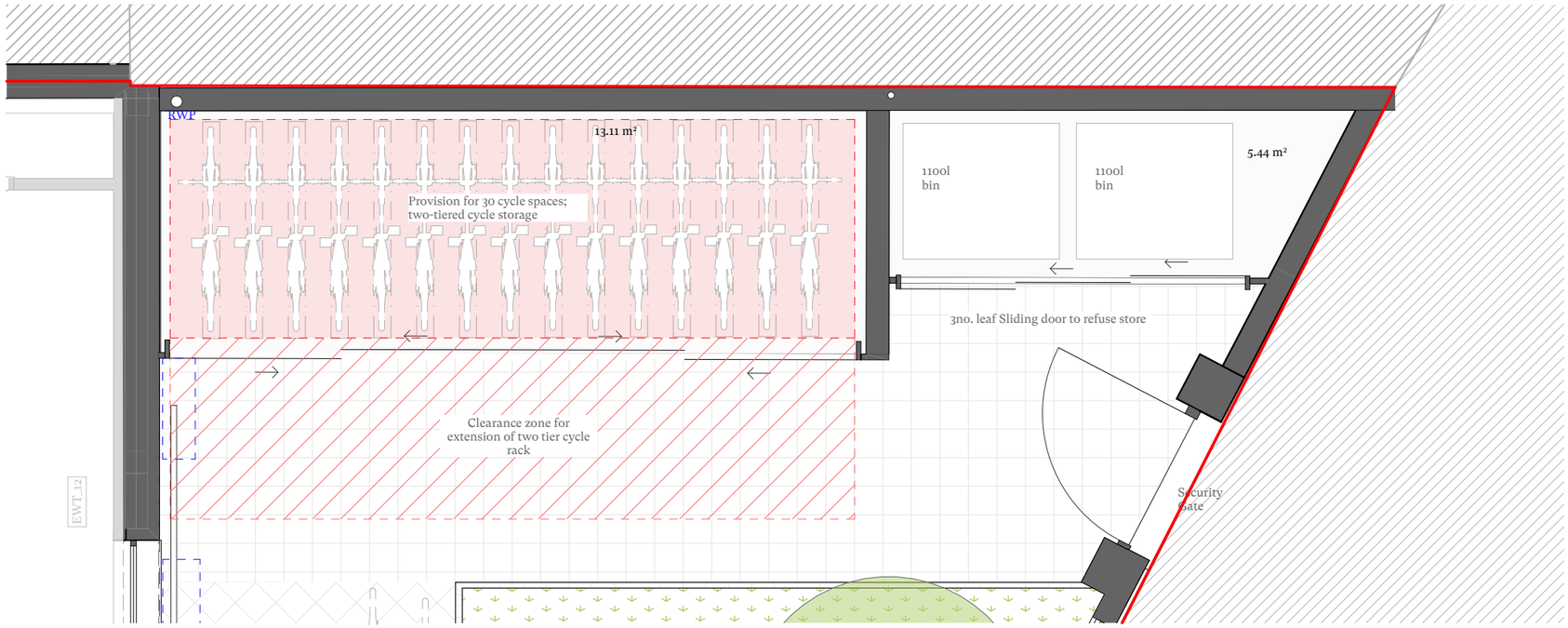
Address :
81 Belsize Park Gardens, Belsize Park, London NW3 4NJ

Date : 24/02/2023
Scale @ A1 : 1:100

Drawing Title :
Proposed Roof Plan

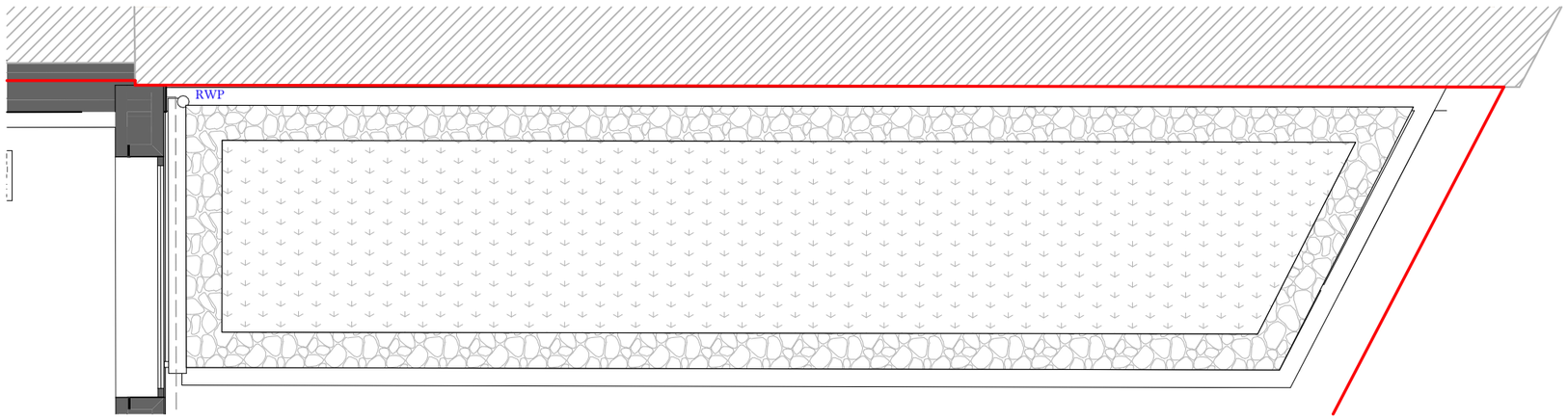
Drawing No. : 4279 CDC XX RL DR A (GA) 140
Rev. : H - WIP

Notes:



A (81) 100 **Cycle Refuse Store Ground Floor Plan**

Scale 1:50



B (81) 100 **Cycle Refuse Store Roof Plan**

Scale 1:50

0 1 2 3 4 5 Metre
Paper Scale 1:50

Rev	Date	Issue	Drawn	Check
A	28/07/2023	Stage 3 Cost Issue	SC	RD
-	07/07/2023	DRAFT Issue to Planning	CW	SC

CDC Studio

Studio. 17 Comberton Rd, Cambridge CB23 7BA
5-7 Tanner St, London, SE1 3LE
info@cdcstudio.co.uk T. 01223 262413

Project :
81 Belsize Park Gardens

Client :
Fine Arts College Ltd

Address :
81 Belsize Park Gardens, Belsize Park, London NW3 4NJ

Date :

Scale @ A3 :
1:50

Drawing Title :
Cycle and Refuse Store Plans

Drawing No. :
4279 CDC XX A (81) 100

Rev. :
A

NORTH
Grid North

Lancaster Stables

Belsize Park Gardens

Note: UTS hatched area due to materials obstructing.

Appendix B – CCTV Drainage Survey

PAS 128: 2014 QUALITY LEVEL GUIDE

Q-LEVEL	DESCRIPTION	ACC.	Q-LEVEL	DESCRIPTION
QL-D	Service positions taken from records.	Undefined	QL-B2	Horizontal & vertical location using only one geophysical technique.
QL-C	Visual evidence of service existence but undetectable by geophysical technology.	Undefined	QL-B1	Horizontal & vertical location using multiple geophysical techniques.
QL-B4	Undetectable service present shown as an assumed route. (AR)	H: +/- 500mm V: N/A	QL-A	Horizontal & vertical position verification by open excavation, manholes and/or inspection chambers.
QL-B3	Horizontal location by one geophysical technique but with none or poor depth information.			

DETECTION METHOD
IN ACCORDANCE WITH PAS 128: 2014 SURVEY TYPE B

DRAINAGE SURVEY
All accessible Manholes and Inspection chambers have had their respective covers lifted with pipe sizes, inverts, chamber sizes/types and service data recorded from ground level. All connections from DPs, Gullies, Drains, VP's, RE's and lampholes have been proven wherever possible using audible connections (AC) and/or sonde instrumentation where applicable. Where these methods have proved unsuccessful then assumed (AR) straight line connections will be shown.

CCTV DRAINAGE SURVEY
All accessible Manholes and Inspection chambers have had their respective covers lifted with pipe sizes, inverts, chamber sizes/type and service data recorded from ground level. Pipework has been traced, accessed and collected for post processing. Drainage layout, including manhole covers not located by topographical survey, may be taken from CCTV chainage and will be shown as indicative only.

Electricity
Elec cables will have been predominantly located using EML methodology with electronically derived depths shown. GPR techniques will be employed to achieve greater quality levels as required.

British Telecoms
BT cables will have been predominantly located using EML methodology with electronically derived depths shown. GPR techniques will be employed to achieve greater quality levels as required. Due to current laws and legislation protecting all BT apparatus, cabling can only be located remotely. We therefore compare all our telecom findings against record information to produce the final service layout. In some instances, where high amount of cable ducts are present, we may only be able to identify a linear centre peak signal rather than identifying all the individual duct positions. For further information regarding Telecoms apparatus, please contact Openreach directly.

Cable TV & Communications
CTV and/or Com cables will have been predominantly located using EML methodology with electronically derived depths shown. GPR techniques will be employed to achieve greater quality levels as required.

Fibre Optic
FO cables will have been predominantly located using GPR methodology. This is due to the materials used within fibre optic cabling. In some rare instances, tracer cabling or conductible non fibre optic cabling will be present within some or all ducting. When this is the case, both EML and GPR methodology will be combined to identify service network and achieve greater quality levels.

Lighting, Traffic Signal & Security Cables
LC, TS and/or Sec cables will have been predominantly located using EML methodology with electronically derived depths shown. GPR techniques will be employed to achieve greater quality levels as required.

Gas & Water Inc. Fuel Pipes and Hot Water Pipes
GM/GS and/or WM/WS pipe work will have been attempted and located using both EML & GPR methodology with electronically derived depths shown for the former and depths to crown levels shown for the latter.
When the Gas/Water pipe work is constructed using conductible materials, then we are able to to employ multiple geophysical techniques to identify service network and achieve greater quality levels. When a non conductible material is used, GPR methodology will be employed to locate and plot the final service layout.

Ground Penetrating Radar
GPR methodology is used to identify and locate all non metallic, non conductible piping and cabling. We also employ GPR to obtain a greater accuracy levels on EML located services. The GPR has a greater success rate on pipe or service diameter upward of Ø63mm,C63mm, as size increments increase, so does the chance of detection. The GPR can produces varying results and as such, wouldn't be used as an independent utility surveying instrument.

Unidentified Traces
All UITs will have been predominantly located using EML methodology with electronically derived depths shown. GPR techniques will be employed to achieve greater quality levels as required. Every effort has been made to identify the service but in this instance, is not achievable. We recommend excavation work to determine identity and depth where applicable.

Scarring (QL-C)
Scarring has been identified on site with a potential of an undetectable service present.

Assumed Routes & Taken from Records (QL-B4/D)
Assumed routes (AR) are shown if there is evidence that a service exists but we are unable to trace it whilst on site. The surveyor will attempt to locate various risers/ics/valves/meters (service evidence) etc. around site area to successfully determine an assumed route between these points. If there is little evidence on site but they believe a service is still present, then a common sense approach to an assumed route shall be employed.

Taken from records (TFR) are service routes that are taken from STAT record plans or previous survey information and overlaid onto our drawings.

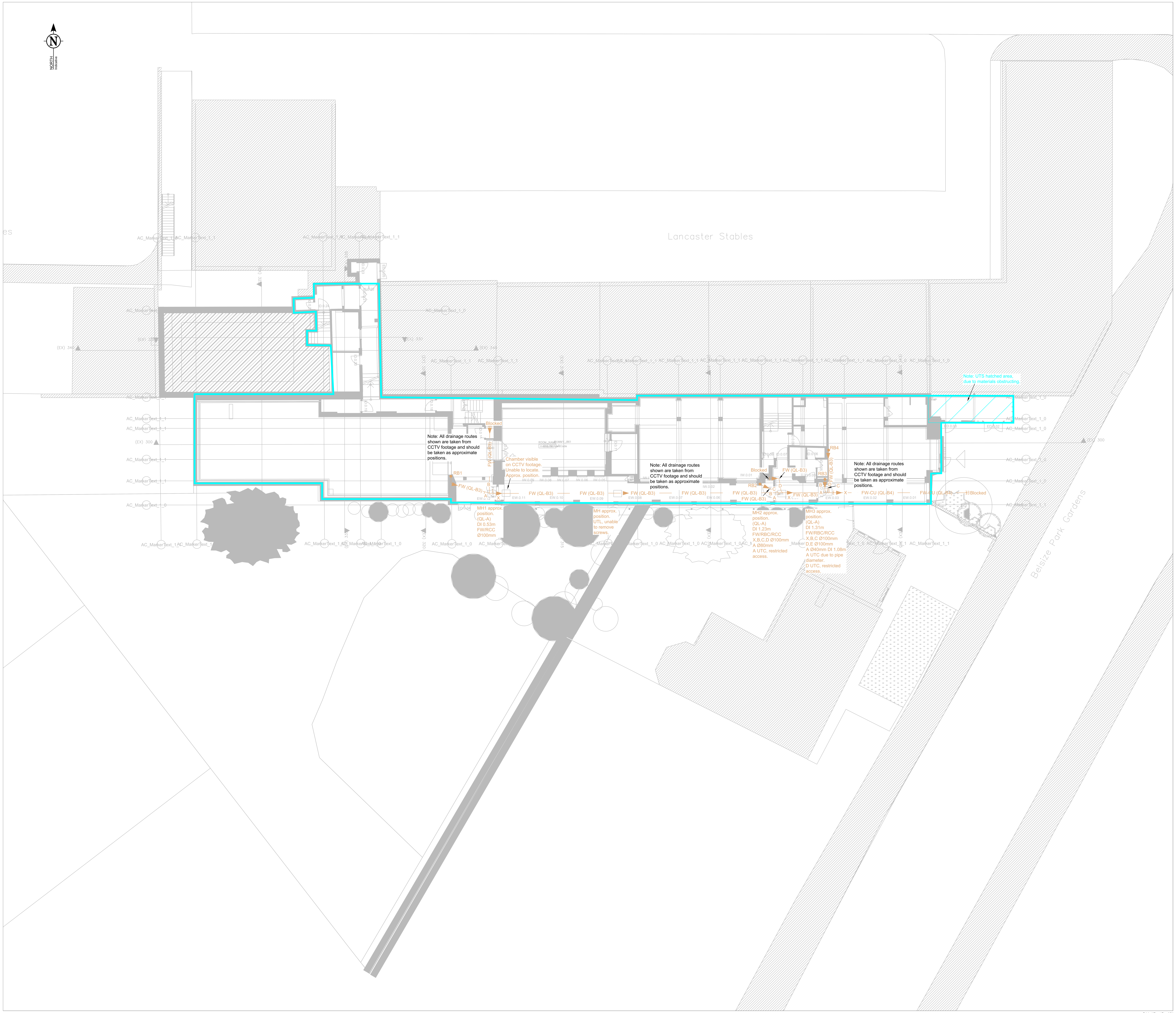
SURVEY RECOMMENDATIONS

We recommend a PAS utility survey of the entire site to establish the position of underground services.

To undertake a sonde drainage survey of the entire site area to establish a more comprehensive drainage network.

The sewers with high levels of silt or blockages to be jetted to extend the CCTV drainage survey, if any of these areas are deemed critical or of high importance.

Due to the geophysical nature of subsurface technology, we always recommend excavation works to be carried out within critical areas for verification and to eliminate the possibility of undetectable services present.



UTILITIES & UNDERGROUND INVESTIGATIONS

ABBREVIATIONS & SYMBOLS

1D 5C	1 Duct 5 Cables	DCr	Depth To Crown	RBC	Rectangular Brick Chamber
Ø	Diameter	DI	Depth To Invert	RCC	Rectangular Conc Chamber
AC	Audible Connection	DS	Depth To Silt	RE	Rodding Eye
AG	Above Ground	DTB	Depth To Base	SA	Survey Abandoned
AR	Assumed Route	DTW	Depth To Water	SL	Silt Level
BL	Base Level	DTS	Depth To Surcharge	SuL	Surcharge Level
CB	Concrete Benching	EBD	External Backdrop	TFR	Taken From Records
CBC	Circular Brick Chamber	EOT	End Of Trace	UTC	Unable To CCTV
CCC	Circular Conc Chamber	IBD	Internal Backdrop	UTDO	Unable To Determine Outfall
CL	Cover Level	IL	Invert Level	UTL	Unable To Lift
CPC	Circ Plastic Chamber	OH	Overhead	UTS	Unable To Survey
CrL	Crown Level	PDR	Poor Depth Response	UTT	Unable To Trace
CU	Camera Under Water	RB ●	Rest Bend	WL	Water Level

BT — BT CABLE(S)
O/BT — OVERHEAD BT CABLE(S)
COM — COMMUNICATIONS CABLE(S)
CTV — CABLE TV CABLE(S)
DUCT — EMPTY DUCT
E — ELECTRIC CABLE(S)
O/E — OVERHEAD ELECTRIC CABLE(S)
FO — FIBREOPTIC CABLE(S)
FUEL — FUEL PIPE(S)
GM — GAS MAIN
GS — GAS SERVICE
GPR — GROUND PENETRATING RADAR (GPR) TRACE
HW — HOT WATER PIPE
LC — LIGHTING CIRCUIT
OIL — OIL PIPE(S)
SCAR — VISIBLE SCARRING
SEC — SECURITY CABLING
TC — TELECOM CABLE(S)
TS — TRAFFIC SIGNAL
UIS — UNIDENTIFIED SERVICE
UIT — UNIDENTIFIED TRACE
WM — WATER MAIN
WS — WATER SERVICE
CW — COMBINED SEWER
CW RM — COMBINED WATER RISING MAIN
EW — EFFLUENT WATER
FOUL SEWER
FW RM — FOUL WATER RISING MAIN
RM — RISING MAIN
SURFACE WATER SEWER
SW RM — SURFACE WATER RISING MAIN
INVESTIGATION EXTENTS

Note: .... — UTILITIES COMMENT BOX (GENERAL NOTES)
d0.37m — DEPTH TO SERVICE
??-AC — AUDIBLE CONNECTION
??-AG — SERVICE ABOVE GROUND
??-CU — CAMERA UNDER WATER
??-OH — SERVICE OVERHEAD

NORTH
Indicative

DRAWING NOTES

All below ground details shown have been identified from above ground without excavation. Survey Solution use electro-magnetic and/or ground penetrating radar (GPR) methods to investigate for underground utilities, services and features. Results using these methods are not infallible and we recommend trial excavations are carried out for verification of positions, depths and identification.

Any areas on the drawing where services or features have not been shown are not necessarily clear of services or features but are an indication that no items have been identified during our investigations. All reasonable care and normal good practice should still be employed during design and construction processes.

Certain types of services such as plastic or concrete pipes, some conduit and ducting where direct access can not be achieved for tracing may not be shown and alternative locating methods should be used.

Survey Solutions has used all reasonable care to research available service records but the completeness or use of the service records supplied to or by Survey Solutions cannot be guaranteed. Therefore Survey Solutions cannot be held responsible for any features annotated as 'taken from records' (TFR).

Depths obtained using electro-magnetic or GPR are effected by ground conditions and should be treated as indicative only. Electro-magnetic depths to utilities and services are generally taken to the centre of a feature, GPR depths to the top of a feature and drainage depth shown to inverts, unless otherwise indicated.

Drainage pipe sizes will be obtained without entering the chamber and therefore should be treated as approximate. Pipe dimensions which have not been obtained visually will be taken from records when available.

All services, drainage and utilities routes are assumed straight between access points, unless otherwise stated. The numbers of cables in runs will not be shown unless specifically requested. All services are below ground unless indicated.

Services, utilities and features may not have been surveyed if obstructed or not reasonably visible or accessible at the time of survey.

Survey Solutions accept no responsibility for the completeness or accuracy of either the topographical survey or base mapping on this project.

All critical dimensions and measurements should be checked and verified with any errors or discrepancies notified to Survey Solutions immediately. The accuracy of the digital data is the same as the plotting scale implies. All dimensions are in metres unless otherwise stated.

The contractor must check and verify all site and building dimensions, levels, utilities and drainage details and connections prior to commencing work.

Do not scale from this drawing.

GENERAL SYNOPSIS

This survey has been carried out in accordance with PAS 128: 2014 & our version of the Royal Institution of Chartered Surveyors (RICS) specification for Measured Surveys of Land, Buildings and Utilities. Our survey extents have been agreed and confirmed with formal acceptance of 48251BWUG from MHA Structural Design. If you have any queries regarding the final services layout, please may we ask you to carefully read all the information within this title block in its entirety before continuing to do so.

TOPOGRAPHICAL/.DWG DRAWING INFORMATION
TOPOGRAPHICAL SURVEY DATE - 09/12/2022

SURVEY TYPE	DESCRIPTION	EFFECT ON SURVEY RESULTS
TOPO	Client supplied	
OUTDATED		
OS		
NTS		

GENERAL SITE CONDITIONS
ABOVE AVERAGE

ADDITIONAL INFORMATION	EFFECT ON SURVEY RESULTS

DESKTOP UTILITY RECORDS (PAS 128: 2014 SURVEY TYPE D)
PREREQUISITE FOR PAS 128: 2014 SURVEY TYPE B
COMMISSIONED: NO

UTILITY	AVAILABILITY	UTILITY COMPANY PROVIDER
SEWER	NO	N/A
WATER MAIN	N/A	N/A
GAS MAIN	N/A	N/A
TELECOM	N/A	N/A
CABLE TV	N/A	N/A
ELECTRICITY	N/A	N/A
OIL PIPES	N/A	N/A
OTHER	NO	N/A

REV	DESCRIPTION	DRAWN	CHECKED	APPR.	SURVEY DATE

SURVEY SOLUTIONS
LAND SURVEYING
BUILDING SURVEYING
UNDERGROUND SURVEYING
SITE ENGINEERING
MONITORING
0845 040 5969
survey-solutions.co.uk
IPSWICH BEDFORD COVENTRY GLASGOW LONDON MANCHESTER NORWICH NOTTINGHAM YEOVIL

PROJECT TITLE 81A BELSIZE PARK GARDENS, BELSIZE PARK, LONDON, NW3 4NJ.				
DRAWING DETAIL CCTV DRAINAGE SURVEY. SHEET 1 OF 1				
CLIENT MHA STRUCTURAL DESIGN				SCALE 1:100
SURVEYOR SJH	SURVEY DATE 22/03/2023	CHECKED BY AJM	APPROVED BY GSB	DWG STATUS FINAL
DRAWING NUMBER 48251BWUG-01			REVISION	ISSUE DATE 14/04/2023

RICS · chartered ices · THE SURVEY ASSOCIATION · ISO 9001 REGISTERED FIRM · QMS ISO 14001 : 2015 REGISTERED

Original Sheet Size A0H

Appendix C - Proposed Drainage Strategy, Supporting Calculations & Correspondence

NOTES

1. This drawing is to be read in conjunction with all relevant architects', engineers', and specialists' drawings, bills of quantities and specifications.
2. Do not scale off this drawing.
3. All dimensions are to be confirmed on site by the contractor.
4. Refer to MHA drawing 130 for all general notes.

KEY

- Existing Combined Drainage
- Proposed Surface Drainage
- Proposed Combined Drainage
- Proposed Foul Drainage
- Proposed Perforated Pipe
- RWP — Proposed RWP
- Proposed Green Roof Exact details TBC
- Proposed Pervious Pavement Depth: 0.5m
- Proposed Rainwater Garden

Rev.	Date	Made by	Amendments
C	18.08.2023	FJ	Revised to suit site layout
B	18.08.2023	FJ	Revised to suit site layout
A	08.08.2023	FJ	Issued for Preliminary
-	31.07.2023	FJ	Initial issue - Draft

Status

PRELIMINARY

MHA STRUCTURAL DESIGN

London +44 (0)207 375 6340
Cambridge +44 (0)1223 776340
mhastructuraldesign.com

Job Title

81 BELSIZE PARK GARDENS

Drawing Title

PROPOSED DRAINAGE STRATEGY LAYOUT

Scales 1:200

Drawn	Date	Checked
FJ	AUG 2023	CH

Job No	Drawing No	Revision
22064	100	C

Project:	Date:		
81 BELSIZE PARK GARDENS Project No: 22064	31/07/2023		
	Designed by: FJ	Checked by: CH	Approved By: CH
Report Details: Type: Inflows Storm Phase: Existing Network	MHA STRUCTURAL DESIGN: London: +44 (0)207 375 6340 Cambridge: +44 (0)1223 776340 mhastructuraldesign.com		

MHA STRUCTURAL DESIGN

1.000 - 172.93m

Type : Catchment Area

Area (ha)	0.017

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100
Urban Creep (%)	0

2.000 - 60.01m

Type : Catchment Area

Area (ha)	0.006

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100
Urban Creep (%)	0

1.000 - 22.04m

Type : Catchment Area

Area (ha)	0.002

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100
Urban Creep (%)	0

1.001 - 16.32m

Type : Catchment Area

Area (ha)	0.002

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100
Urban Creep (%)	0

1.003 - 20.96m

Type : Catchment Area

Area (ha)	0.002

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100
Urban Creep (%)	0

1.003 - 10.10m

Type : Catchment Area

Area (ha)	0.001

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100
Urban Creep (%)	0

Catchment Area

Type : Catchment Area

Area (ha)	0.009

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100
Urban Creep (%)	0

Catchment Area (1)

Type : Catchment Area

Area (ha)	0.007

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100
Urban Creep (%)	0

Catchment Area (2)

Type : Catchment Area

Area (ha)	0.008

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100
Urban Creep (%)	0

Project:	Date:		
81 BELSIZE PARK GARDENS	31/07/2023		
Project No:	Designed by:	Checked by:	Approved By:
22064	FJ	CH	CH
Report Title:	MHA STRUCTURAL DESIGN:		
Rainfall Analysis Criteria	London: +44 (0)207 375 6340 Cambridge: +44 (0)1223 776340 mhastructuraldesign.com		

MHA STRUCTURAL DESIGN

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Use Catchment Values
Junction Flood Risk Margin (mm)	0
Perform No Discharge Analysis	☐

Rainfall

FSR

Type: FSR

Region	England And Wales
M5-60 (mm)	20.0
Ratio R	0.400
Summer	☑
Winter	☑

Return Period

Return Period (years)	Increase Rainfall (%)
1.0	0.000
30.0	35.000
100.0	40.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
240	480
360	720
480	960
960	1920
1440	2880

Project:	Date:		
81 BELSIZE PARK GARDENS Project No: 22064	31/07/2023		
	Designed by: FJ	Checked by: CH	Approved By: CH
Report Details: Type: Junctions Summary Storm Phase: Existing Network	MHA STRUCTURAL DESIGN: London: +44 (0)207 375 6340 Cambridge: +44 (0)1223 776340 mhastructuraldesign.com		

MHA STRUCTURAL DESIGN

FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MH1	FSR: 1 years: +0 %: 15 mins: Winter	0.000	-0.530	-0.483	0.047	4.0	0.030	0.000	3.9	1.834	OK
MH	FSR: 1 years: +0 %: 15 mins: Winter	0.000	-0.750	-0.705	0.045	4.8	0.028	0.000	4.7	2.263	OK
MH2	FSR: 1 years: +0 %: 15 mins: Winter	0.000	-1.230	-1.163	0.067	6.0	0.042	0.000	5.9	2.874	OK
MH4	FSR: 1 years: +0 %: 15 mins: Winter	0.000	-1.750	-1.686	0.064	7.0	0.072	0.000	6.8	3.463	OK
S1	FSR: 1 years: +0 %: 15 mins: Winter	0.000	-0.900	-0.890	0.010	0.8	0.002	0.000	0.8	0.392	OK
Outfall	FSR: 1 years: +0 %: 15 mins: Winter	0.000	-1.900	-1.844	0.056	6.8	0.000	0.000	6.8	3.463	OK
MH3	FSR: 1 years: +0 %: 15 mins: Winter	0.000	-1.310	-1.260	0.050	6.2	0.032	0.000	6.1	3.009	OK

Project:	Date:		
81 BELSIZE PARK GARDENS Project No: 22064	31/07/2023		
	Designed by: FJ	Checked by: CH	Approved By: CH
Report Details: Type: Junctions Summary Storm Phase: Existing Network	MHA STRUCTURAL DESIGN: London: +44 (0)207 375 6340 Cambridge: +44 (0)1223 776340 mhastructuraldesign.com		

MHA STRUCTURAL DESIGN

FSR: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MH1	FSR: 30 years: +35 %: 15 mins: Winter	0.000	-0.530	-0.210	0.320	13.2	0.203	0.000	9.6	6.182	Surcharged
MH	FSR: 30 years: +35 %: 15 mins: Winter	0.000	-0.750	-0.352	0.398	12.8	0.253	0.000	10.0	7.658	Surcharged
MH2	FSR: 30 years: +35 %: 15 mins: Winter	0.000	-1.230	-0.701	0.529	14.4	0.337	0.000	12.4	9.732	Surcharged
MH4	FSR: 30 years: +35 %: 15 mins: Winter	0.000	-1.750	-1.448	0.302	14.9	0.341	0.000	14.8	11.731	Surcharged
S1	FSR: 30 years: +35 %: 15 mins: Winter	0.000	-0.900	-0.883	0.017	2.8	0.003	0.000	2.8	1.296	OK
Outfall	FSR: 30 years: +35 %: 15 mins: Summer	0.000	-1.900	-1.800	0.100	14.1	0.000	0.000	14.1	10.421	OK
MH3	FSR: 30 years: +35 %: 15 mins: Winter	0.000	-1.310	-0.895	0.415	13.3	0.264	0.000	13.4	10.197	Surcharged

Project:	Date:		
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	Designed by: FJ	Checked by: CH	Approved By: CH
Report Details: Type: Junctions Summary Storm Phase: Existing Network	MHA STRUCTURAL DESIGN: London: +44 (0)207 375 6340 Cambridge: +44 (0)1223 776340 mhastructuraldesign.com		

MHA STRUCTURAL DESIGN

FSR: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MH1	FSR: 100 years: +40 %: 15 mins: Winter	0.000	-0.530	0.001	0.531	17.1	1.843	1.506	9.5	8.358	Flood
MH	FSR: 100 years: +40 %: 30 mins: Winter	0.000	-0.750	-0.163	0.587	11.7	0.373	0.000	10.6	13.376	Surcharged
MH2	FSR: 100 years: +40 %: 15 mins: Winter	0.000	-1.230	-0.545	0.685	16.8	0.436	0.000	13.8	13.131	Surcharged
MH4	FSR: 100 years: +40 %: 30 mins: Winter	0.000	-1.750	-1.371	0.379	16.8	0.428	0.000	16.5	20.529	Surcharged
S1	FSR: 100 years: +40 %: 15 mins: Winter	0.000	-0.900	-0.881	0.019	3.6	0.003	0.000	3.6	1.754	OK
Outfall	FSR: 100 years: +40 %: 15 mins: Summer	0.000	-1.900	-1.800	0.100	15.9	0.000	0.000	15.8	14.094	OK
MH3	FSR: 100 years: +40 %: 15 mins: Winter	0.000	-1.310	-0.757	0.553	15.1	0.352	0.000	14.3	13.777	Surcharged

Project:	Date:		
81 BELSIZE PARK GARDENS Project No: 22064	31/07/2023		
	Designed by: FJ	Checked by:	Approved By:
Report Details: Type: Inflows Storm Phase: Surface Network 1	MHA STRUCTURAL DESIGN: London: +44 (0)207 375 6340 Cambridge: +44 (0)1223 776340 mhastructuraldesign.com		

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1.000 - 172.93m

Type : Catchment Area

Area (ha)	0.017

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100
Urban Creep (%)	0

2.000 - 60.01m

Type : Catchment Area

Area (ha)	0.006

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100
Urban Creep (%)	0

1.000 - 22.04m

Type : Catchment Area

Area (ha)	0.002

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100
Urban Creep (%)	0

1.001 - 16.32m

Type : Catchment Area

Area (ha)	0.002

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100
Urban Creep (%)	0

1.003 - 20.96m

Type : Catchment Area

Area (ha)	0.002

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100
Urban Creep (%)	0

1.003 - 10.10m

Type : Catchment Area

Area (ha)	0.001

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.750
Winter Volumetric Runoff	0.840
Time of Concentration (mins)	5
Percentage Impervious (%)	100
Urban Creep (%)	0

Green Roof 1

Type : Catchment Area

Area (ha)	0.009

Dynamic Sizing

Runoff Method	Green Roof
Summer Volumetric Runoff Coefficient	0.750
Winter Volumetric Runoff Coefficient	0.840
Depression Storage (mm)	40
Evapotranspiration (mm/day)	3.0
Decay Coefficiency	0.050
Time Delay (mins)	120
Urban Creep (%)	0

Green Roof 2

Type : Catchment Area

Area (ha)	0.007

Dynamic Sizing

Runoff Method	Green Roof
Summer Volumetric Runoff Coefficient	0.750
Winter Volumetric Runoff Coefficient	0.840
Depression Storage (mm)	40
Evapotranspiration (mm/day)	3.0
Decay Coefficiency	0.050
Time Delay (mins)	120
Urban Creep (%)	0

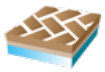
Green Roof 3

Type : Catchment Area

Area (ha)	0.008

Dynamic Sizing

Runoff Method	Green Roof
Summer Volumetric Runoff Coefficient	0.750
Winter Volumetric Runoff Coefficient	0.840
Depression Storage (mm)	40
Evapotranspiration (mm/day)	3.0
Decay Coefficiency	0.050
Time Delay (mins)	120
Urban Creep (%)	0



Porous Paving

Type : Porous Paving

Dimensions

Exceedance Level (m)	0.000
Depth (m)	0.450
Base Level (m)	-0.450
Paving Layer Depth (mm)	60
Membrane Percolation (m/hr)	3.0
Porosity (%)	30
Length (m)	2.019
Long. Slope (1:X)	350.00
Width (m)	8.043
Total Volume (m³)	1.899

Outlets

Outlet

Outgoing Connection	Pipe
Outlet Type	Free Discharge

Advanced

Base Infiltration Rate (m/hr)	0.0
Side Infiltration Rate (m/hr)	0.0
Safety Factor	2.0
Conductivity (m/hr)	500.0

Project:	Date:		
81 BELSIZE PARK GARDENS Project No: 22064	31/07/2023 Designed by: FJ	Checked by:	Approved By:
Report Title: Rainfall Analysis Criteria	MHA STRUCTURAL DESIGN: London: +44 (0)207 375 6340 Cambridge: +44 (0)1223 776340 mhastructuraldesign.com		

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Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Use Catchment Values
Junction Flood Risk Margin (mm)	0
Perform No Discharge Analysis	☐

Rainfall

FSR

Type: FSR

Region	England And Wales
M5-60 (mm)	20.0
Ratio R	0.400
Summer	☑
Winter	☑

Return Period

Return Period (years)	Increase Rainfall (%)
1.0	0.000
30.0	35.000
100.0	40.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
240	480
360	720
480	960
960	1920
1440	2880

Project:	Date:		
81 BELSIZE PARK GARDENS Project No: 22064	31/07/2023 Designed by: FJ	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Surface Network 1	MHA STRUCTURAL DESIGN: London: +44 (0)207 375 6340 Cambridge: +44 (0)1223 776340 mhastructuraldesign.com		

MHA STRUCTURAL DESIGN

FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MH1	FSR: 1 years: +0 %: 15 mins: Winter	0.000	-0.530	-0.492	0.038	2.7	0.024	0.000	2.7	1.266	OK
MH	FSR: 1 years: +0 %: 15 mins: Winter	0.000	-0.750	-0.718	0.032	2.7	0.021	0.000	2.6	1.264	OK
MH2	FSR: 1 years: +0 %: 15 mins: Winter	0.000	-1.230	-1.188	0.042	2.8	0.026	0.000	2.7	1.367	OK
MH4	FSR: 1 years: +0 %: 15 mins: Winter	0.000	-1.750	-1.706	0.044	3.9	0.050	0.000	3.8	1.957	OK
S1	FSR: 1 years: +0 %: 15 mins: Winter	0.000	-0.900	-0.890	0.010	0.8	0.002	0.000	0.8	0.392	OK
Outfall	FSR: 1 years: +0 %: 15 mins: Winter	0.000	-1.900	-1.860	0.040	3.8	0.000	0.000	3.8	1.957	OK
MH3	FSR: 1 years: +0 %: 15 mins: Winter	0.000	-1.310	-1.276	0.034	3.0	0.021	0.000	3.0	1.503	OK

Project:	Date:		
81 BELSIZE PARK GARDENS Project No: 22064	31/07/2023		
	Designed by: FJ	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Surface Network 1	MHA STRUCTURAL DESIGN: London: +44 (0)207 375 6340 Cambridge: +44 (0)1223 776340 mhastructuraldesign.com		

MHA STRUCTURAL DESIGN

FSR: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MH1	FSR: 30 years: +35 %: 15 mins: Winter	0.000	-0.530	-0.444	0.086	9.1	0.055	0.000	8.8	4.199	OK
MH	FSR: 30 years: +35 %: 15 mins: Winter	0.000	-0.750	-0.685	0.065	8.8	0.041	0.000	8.6	4.197	OK
MH2	FSR: 30 years: +35 %: 15 mins: Winter	0.000	-1.230	-1.129	0.101	9.4	0.064	0.000	8.6	4.548	Surcharged
MH4	FSR: 30 years: +35 %: 15 mins: Winter	0.000	-1.750	-1.592	0.158	12.9	0.179	0.000	11.4	6.498	Surcharged
S1	FSR: 30 years: +35 %: 15 mins: Winter	0.000	-0.900	-0.883	0.017	2.8	0.003	0.000	2.8	1.289	OK
Outfall	FSR: 30 years: +35 %: 15 mins: Winter	0.000	-1.900	-1.800	0.100	11.4	0.000	0.000	11.5	6.498	OK
MH3	FSR: 30 years: +35 %: 15 mins: Winter	0.000	-1.310	-1.242	0.068	9.6	0.043	0.000	9.6	4.993	OK

Project:	Date:		
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Report Details: Type: Junctions Summary Storm Phase: Surface Network 1	MHA STRUCTURAL DESIGN: London: +44 (0)207 375 6340 Cambridge: +44 (0)1223 776340 mhastructuraldesign.com		

MHA STRUCTURAL DESIGN

FSR: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MH1	FSR: 100 years: +40 %: 15 mins: Winter	0.000	-0.530	-0.342	0.188	12.2	0.119	0.000	10.5	5.652	Surcharged
MH	FSR: 100 years: +40 %: 15 mins: Winter	0.000	-0.750	-0.674	0.076	10.5	0.048	0.000	10.3	5.646	OK
MH2	FSR: 100 years: +40 %: 15 mins: Winter	0.000	-1.230	-1.055	0.175	11.3	0.111	0.000	10.0	6.120	Surcharged
MH4	FSR: 100 years: +40 %: 15 mins: Winter	0.000	-1.750	-1.509	0.241	14.2	0.272	0.000	13.5	8.751	Surcharged
S1	FSR: 100 years: +40 %: 15 mins: Winter	0.000	-0.900	-0.880	0.020	3.8	0.003	0.000	3.7	1.742	OK
Outfall	FSR: 100 years: +40 %: 15 mins: Summer	0.000	-1.900	-1.800	0.100	13.2	0.000	0.000	13.2	7.815	OK
MH3	FSR: 100 years: +40 %: 15 mins: Winter	0.000	-1.310	-1.191	0.119	11.3	0.076	0.000	10.4	6.718	Surcharged

1. Project & Site Details

Project / Site Name (including sub-catchment / stage / phase where appropriate)	81 Belsize Park Gardens
Address & post code	81 Belsize Park Gardens, NW3 4NJ
OS Grid ref. (Easting, Northing)	E:527395
	N:184639
LPA reference (if applicable)	
Brief description of proposed work	A refurbishment of an existing three-story college building in Belsize Park to convert the current use Class E (Gym/Leisure centre) to F1 (Education - Secondary School).
Total site Area	723m2
Total existing impervious area	708.8m2
Total proposed impervious area	692m2
Is the site in a surface water flood risk catchment (ref. local Surface Water Management Plan)?	No
Existing drainage connection type and location	The site currently does not have a surface drainage network. The surface water currently discharges into the foul drainage. This has been picked up during the drainage CCTV survey.
Designer Name	Brandon Davis
Designer Position	Engineer
Designer Company	MHA Structural Design

2. Proposed Discharge Arrangements

2a. Infiltration Feasibility

Superficial geology classification	Unproductive	
Bedrock geology classification	London Clay Formation	
Site infiltration rate	n/a	m/s
Depth to groundwater level	n/a	m below ground level
Is infiltration feasible?	No	

2b. Drainage Hierarchy

	Feasible (Y/N)	*Proposed (Y/N)*
1 store rainwater for later use	N	N
2 use infiltration techniques, such as porous surfaces in non-clay areas	N	N
3 attenuate rainwater in ponds or open water features for gradual release	N	N
4 attenuate rainwater by storing in tanks or sealed water features for gradual release	N	N
5 discharge rainwater direct to a watercourse	N	N
6 discharge rainwater to a surface water sewer/drain	N	N
7 discharge rainwater to the combined sewer.	Y	Y

2c. Proposed Discharge Details

Proposed discharge location	Existing Combined Drainage
Has the owner/regulator of the discharge location been consulted?	TBC

3. Drainage Strategy

3a. Discharge Rates & Required Storage

	Greenfield (GF) runoff rate (l/s)	*Existing discharge rate (l/s)*	*Required storage for GF rate (m^3)*	*Proposed discharge rate (l/s)*
Qbar	0.43			
1 in 1	0.37	6.8	-	3.8
1 in 30	1	14.1	-	8.9
1 in 100	1.38	14.5	-	10.7
1 in 100 + CC			-	13.2
Climate change allowance used		40%		
3b. Principal Method of Flow Control		Free Discharge. Please refer to FRA report for further clarification.		

3c. Proposed SuDS Measures

	Catchment area (m^2)	*Plan area (m^2)*	*Storage vol. (m^3)*
Rainwater harvesting	0		0
Infiltration systems	0		0
Green roofs	282	282	3.3
Blue roofs	0	0	0
Filter strips	0	0	0
Filter drains	0	0	0
Bioretention / tree pits	0	0	0
Pervious pavements	22	17.2	2.6
Swales	0	0	0
Basins/ponds	0	0	0
Attenuation tanks	0		0
Total	304	299.2	**5.9**

4. Supporting Information

4a. Discharge & Drainage Strategy	*Page/section of drainage report*
Infiltration feasibility (2a) – geotechnical factual and interpretive reports, including infiltration results	1.4
Drainage hierarchy (2b)	pg.10 - Please refer to the report for further clarification.
Proposed discharge details (2c) – utility plans, correspondence / approval from owner/regulator of discharge location	pg.10 - The connection will be into the existing drainage network. Discharge consent will need to be agreed with approving body by the contractor due to the requirements for provision of RAMS.
Discharge rates & storage (3a) – detailed hydrologic and hydraulic calculations	11
Proposed SuDS measures & specifications (3b)	10
4b. Other Supporting Details	*Page/section of drainage report*
Detailed Development Layout	Appendix A
Detailed drainage design drawings, including exceedance flow routes	Appendix C
Detailed landscaping plans	Appendix A
Maintenance strategy	13
Demonstration of how the proposed SuDS measures improve:	page.11-12 & Appendix C
a) water quality of the runoff?	By implementing Green roofs, porous pavement and rainwater garden
b) biodiversity?	By providing above ground SuDS features wherever possible and reducing the proposed impervious area.
c) amenity?	N/A