BASEMENT IMPACT ASSESSMENT

At

13 KYLEMORE ROAD
LONDON
NW6 2PT

Job No: **141040**
Date: **AUGUST 2015**

MW Design & Consulting Limited
Consulting Structural Engineer and Building Design Consultant

Churchfield House
Churchfield Road
Chalfont St Peter
Buckinghamshire
SL9 9EW

T 01753 888587

E enquiries@mwdesignconsult.co.uk

Design Information – Structural

Introduction

Camden Council will only permit basement and underground developments that do not:

- Cause harm to the built and natural environment and local amenity
- Result in flooding
- Lead to ground instability

The internal walls are masonry on the ground floor and stud walls on the first floor with timber suspended floors on the ground and first floor. The roof is pitched and supported on the external brickwork and internal load bearing stud walls.

The property is an existing two storey mid terraced property with an existing semi-basement towards the front part of the house. At the rear of the existing house the floor to ceiling height is increased due to the property being at split level throughout.

This basement impact assessment has been prepared to justify these requirements to the local town planners so they can make an informed decision on the proposed construction works.

Proposed works

The proposed work constitutes increasing the existing height of the semi-basement at the front of the property and forming a new terraced garden area with steps down to the lower ground level. This will be constructed using mass concrete underpinning the existing external walls. The existing bay fronted window will be constructed at basement level to provide additional natural daylight at basement level.

In addition, at the same time it is proposed that alterations throughout the house and a loft conversion is to be undertaken.

The basement method of construction will be carried out as follows:

1. Excavate front to allow for conveyor to be inserted.
2. Form front of basement with cantilevered retaining walls.
3. Slowly work from the front to the rear inserting 1200 long concrete underpinning sections.
4. Cast ground slab.
5. Waterproof internal space as required with a drained cavity system.

Intended end-user requirements Family/domestic use (1 dwelling)

Loading requirements (Eurocode 1-1-1)

	UDL kN/m2	Concentrated Loads kN
Domestic Single Dwellings	1.5	2.0
The basement does not lie within a 45 angle of the highway, therefore Highways loading is not required to be applied.		

Number of storeys	3 becoming 4 Is Live Load Reduction included in design	No

Progressive collapse	(Design for consequences of localized failure in building from and unspecified cause)	
Is the Development Multi Occupancy	No	
EC1-1-7 (Progressive collapse)	Consequence Class	Example of categorisation of building type and occupancy
	Class 1	Houses not exceeding 4 storeys
Progressive collapse Change of use	To NHBC guidance compliance is only required to other floors if a material change of use occurs to the property.	
	Initial Building Class	1
	Proposed Building Class	1
	If class has changed material change has occurred	No
Compliance Measures EC1-1-7	Class 1 – No Requirements Provided a building has been designed and constructed in accordance with the rules given in EN1990 to EN1999 for satisfying stability in normal use, no specific consideration is necessary with regard to accidental actions from unidentified causes.	
Lateral stability Exposure and wind loading conditions	Wind action = 0.6kN/m2	
Stability Design	The existing masonry walls which carry the stability of the house are not being altered. The mass concrete underpinning is designed to carry the vertical loading applied from above. The lateral earth pressure exerts a horizontal force on the	

	external walls. They will be checked for resistance to any overturning that this produces.	
Lateral Actions	Lateral Forces applied from: Soil loads Hydrostatic pressure Surcharge loading These produce retaining wall thrust; this is restrained by the opposing walls/foundations.	
1 Basement Impact Screening Groundwater flow	Section 1 – Subterranean flow screening chart	
	1. a.	Is the site located directly above an aquifer?
		No. The site is underlain by London Clay. The site is not near boundary of soil interfaces. It is not considered that the new basement will cause new springs to appear.
	b.	Will the proposed basement extend beneath the water table surface? Unknown. Carry forward to scoping stage.
	2.	Is the site within 100m of a watercourse, well used/disused or potential spring line? No. OS maps and local walkover survey show no wells, watercourses or potential spring lines within 100m of the site.
	3.	Will the proposed basement development result in a change in the proportion of hard surfaces/paved areas? No. there are no works expected in the gardens apart from the front light well.
	4.	As part of the site drainage will more surface water (eg. rainfall and run-off) than at present be discharged to the ground (eg. via Soakaways and or SUDS)? No. Existing roof Drainage will run into the existing drainage system. Surface water will still discharge to ground.
Slope Stability	Section 2 – Slope Stability screening flowchart	
	1.	Does the existing site include slopes, natural or man

		made greater than 7° (approximately 1 in 8)? No. Difference in height between the rear garden and front is less than 1 in 8 slope (approx flat). There are no major falls within 20m which will increase the risk of land slip. Refer to Map 2.
	2.	Will the proposed re profiling of landscaping at site change slopes at the property boundary to more than 7° (approximately 1 in 8)? No. Proposed landscaping does not affect the slope.
	3.	Does the development neighbouring land including railway cuttings and the like with a slope greater than 7° (approximately 1 in 8)? No. There are no railway cuttings adjacent to the property.
	4.	Is the site within a wider hillside setting in which the general slope is greater than 7° (approximately 1 in 8)? No. The slope of the wider hillside setting is as per the property, approximately flat.
	5.	Is the London Clay the shallowest strata on site? Yes.
	6.	Will any tree/s be felled as part of the proposed development and/or are any of the works proposed within any tree protection. No. No local trees are to be felled.
	7.	Is there a history of seasonal shrink-swell subsidence in the local area, and/or evidence of such effects at the site? Unknown.
	8.	Is the site within 100m of a watercourse or a potential spring line? No. OS maps and local walkover survey show no wells, watercourses or potential spring lines within 100m of the site.
	9.	Is the site within an area of previously worked ground? No. From historical maps, the site has been residential for a substantial period of time.
	10.	Is the site within an aquifer. If so will the proposed basement extend beneath the water table such that dewatering may be required during construction. No. The site is underlain by London Clay.

		Site Water Table Unknown – Knowledge of groundwater table required. Trial pit will be completed prior to undertaking the work. The design of the foundation will be to the new EuroCodes which requires the water table to be considered to full height this allows for local flooding/burst water mains, etc.
		Carry forward to scoping stage.
	11.	Is the site within 5m of a highway or pedestrian footway? Yes. Site is within 5m of the footpath/alleyway and the road surface is further than 5m from the front bay structure. Carry forward to scoping stage.
	12.	Will the proposed basement significantly increase the differential depth of foundations relative to the neighbouring properties. No. The differential depth will only be increased by approximately 0.8m. The footing will be bearing on London Clay and no significant change will occur. Party wall will be underpinned. Existing footings are expected to be corbelled masonry approx. 600mm below ground level. Carry forward to scoping stage.
	13.	Is the site over (or within the exclusion zone) of any tunnels, eg. railway lines. No. Nearest is the Overground Rail, + 65m from site, approximately.
Surface flow and flooding	Section 3 – Surface flow and flooding screening flowchart.	
	1.	As part of the proposed site drainage, will surface water flows (eg. volume of rainfall and peak run-off) be materially changed from the existing route. No. The rainwater run-off will still percolate into the ground.
	2.	Will the proposed basement development result in a change to the hard surfaced/pave external areas? No. The amount of hard standing will remain unchanged.
	3.	Will the proposed basement result in changes to the inflows (instantaneous and long term of surface water being received by adjacent properties or downstream watercourses)? No. The proposed development will enter the current drainage system.

	4.	Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses? No. We propose a 150mm layer of compacted type 1 should be provided to prevent damming.
	5.	Is the site in an area known to be at risk from surface water flooding? No. From LDF flood risk maps, the street is within a low risk area of flooding from surface water.
2 Basement Impact Scoping Groundwater flow	The British Geological Survey drift sheet 270 shows the underlying strata is London Clay. The property and adjacent railway is evident on these maps at this time, and is known to have been constructed in the middle of the 19th Century. It is unlikely therefore the land under this site had industrial uses at any time in its history. A trial pit investigation has previously been undertaken which confirm the exact depth of the existing foundations as 600mm below ground level at the back of the property. The basement is within 5m of the footpath. A Line at 45° from the base of the footings does not interect with the pavement. Therefore no highways loading will be allowed for. The front is a drive and it will be designed for a 5kN/m2 surcharge. As the party wall is to be underpinned and will leave the party wall with a deeper footing than the neighbour's other walls, the design should look at the available bearing capacity. As part of the Party Wall agreement a pre-condition survey will be carried out. The design will consider the impact of the deeper footings.	
Surface flow and flooding	This proposal is considered to be in an area of low risk of flooding. The flow of surface water (above the basement) will need to be considered. A 150mm high protrusion above ground level of the wall from the lightwell will minimise the risk of localized flooding through the lightwell.	
Foundation type	Mass Concrete Underpinning bases.	

Vicinity of trees	Some shrubbery and general vegetation in the neighbouring garden. A mature tree is also present in the neighbouring garden.	
Special precautions due to trees	N/A	
Drainage effects on Structure	Drainage Design is Non Structural Note any build over agreements	
Underground	The West London (Overground) Line is within the vicinity to the north of the property. The proposed works will not directly affect LUL assets.	
Basement design	Typical loadings and lateral stress pattern	
Water Table	Has a soil investigation been carried out No	
Water Table Level	Unknown water table level	
	Unknown water table Design Basement Depth < 4m : Design to BS8102 Guidance Water table set at ¾ of basement depth. Check for uplift for all garden basements, bungalows and basements beneath two storey buildings.	
Undermining of Existing Structure	Check for 5kN/m2 if within 45° of pavement Garden Surcharge 2.5kN/m2 Surcharge for adjacent property 1.5kN/m2 =+ 4kN/m2 for concrete ground bearing slab. Adjacent properties All adjacent property's footings within 45° to have additional geotechnical engineers input.	
Soil above garden structures	No code guidance for the minimum soil required above a garden basement.	
	For trees	1000mm deep
	For grass	400mm deep
	Patios	200mm deep
	Camden prefer 100mm depth in gardens. Typically stated on planning, but not a building control requirement.	
Drainage and damp	Assumed that drainage and damp proofing is by others. Details are not provide within our brief.	
	Our recommendation is that drained cavity systems are used to habitable basements with pumped sumps. This is a specialist contractor design item.	
	Concrete is not designed BS 8007. But where possible BS 8007 detailing is observed to help limit crack widths of concrete.	
Design	Design reinforcement in wall for K values	
	Design overall stability to K & K values	
Temporary Works	Walls are designed to be temporarily stable.	

	Temporary propping details will be required for the ground and soil and this must be provided by the contractor. Their details should be forwarded to M W Design & Consulting Limited.
Party Wall	Party Wall Notices will be required. Works are to be completed to the Party Wall consisting of installing padstones and spreader padstones together with the underpinning works.
Temporary Works	Temporary works are to be contractor's responsibility. Any loads required can be provided on request. Walls are designed to be temporarily stable. Temporary propping details will be required for the ground and soil and this must be provided by the contractor. Their details should be forwarded to M W Design & Consulting Limited.
Structural Design Not Supplied	Loads are supplied to allow for contractor/manufacturer design. Any structural steelwork connections to be designed by steelwork contractor. Contractor to provide/supply fabrication drawings and calculations where necessary. Temporarysupport structure is contractor's responsibility. Loads supplied on request. Setting out from Architectural information. Items not required by Part A of the building regulations: Services searches for electrical, drainage, Thames Water, Comms, gas etc. by others.

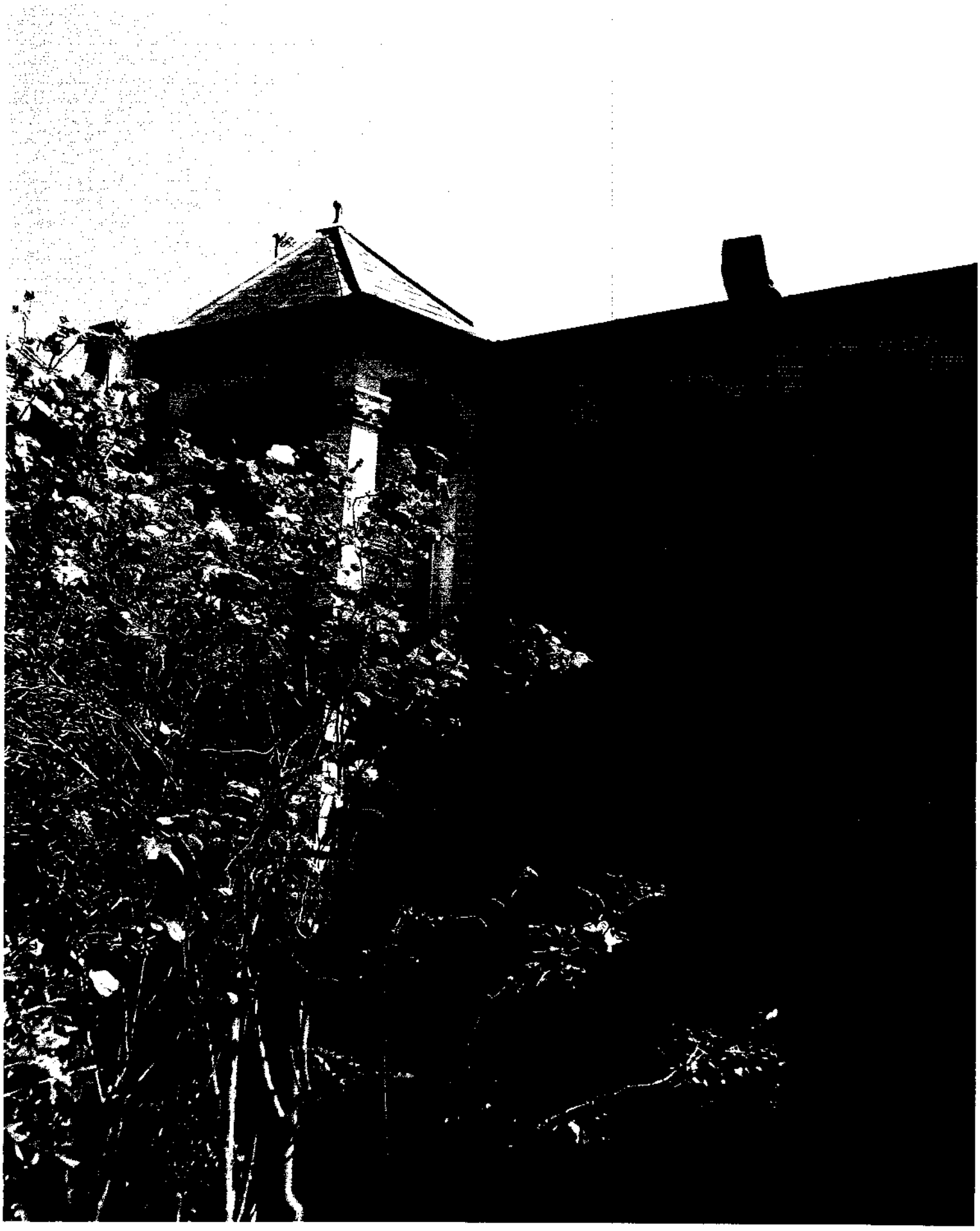
Approving Authority	London Borough of Camden Town Hall Extension Argyle Street London WC1H 8NJ

Signed by.....

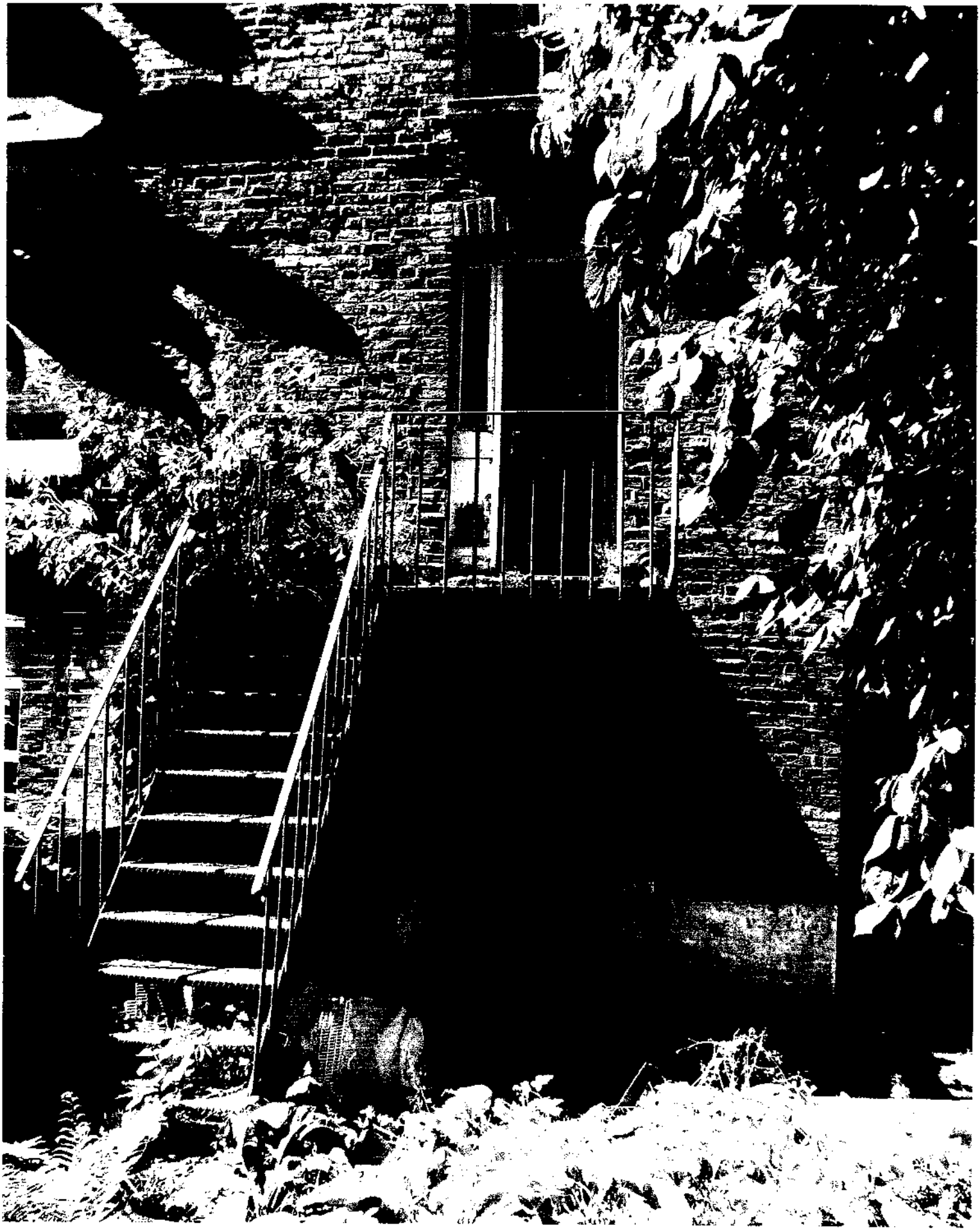
Simon Maddox IEng, AMIStructE

APPENDIX A

SITE PHOTOGRAPHS



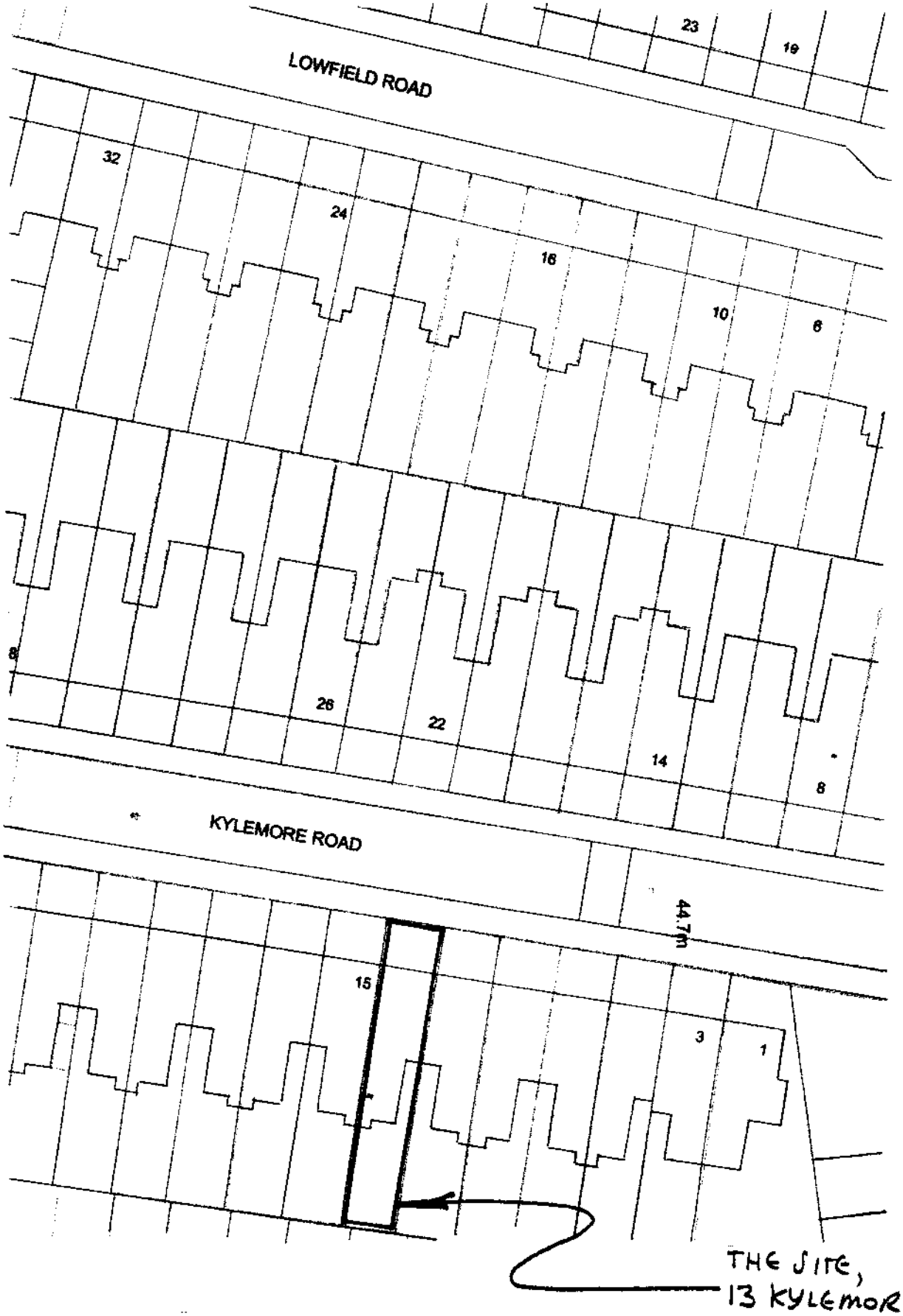
EXISTING FRONT ELEVATION



EXISTING REAR ELEVATION

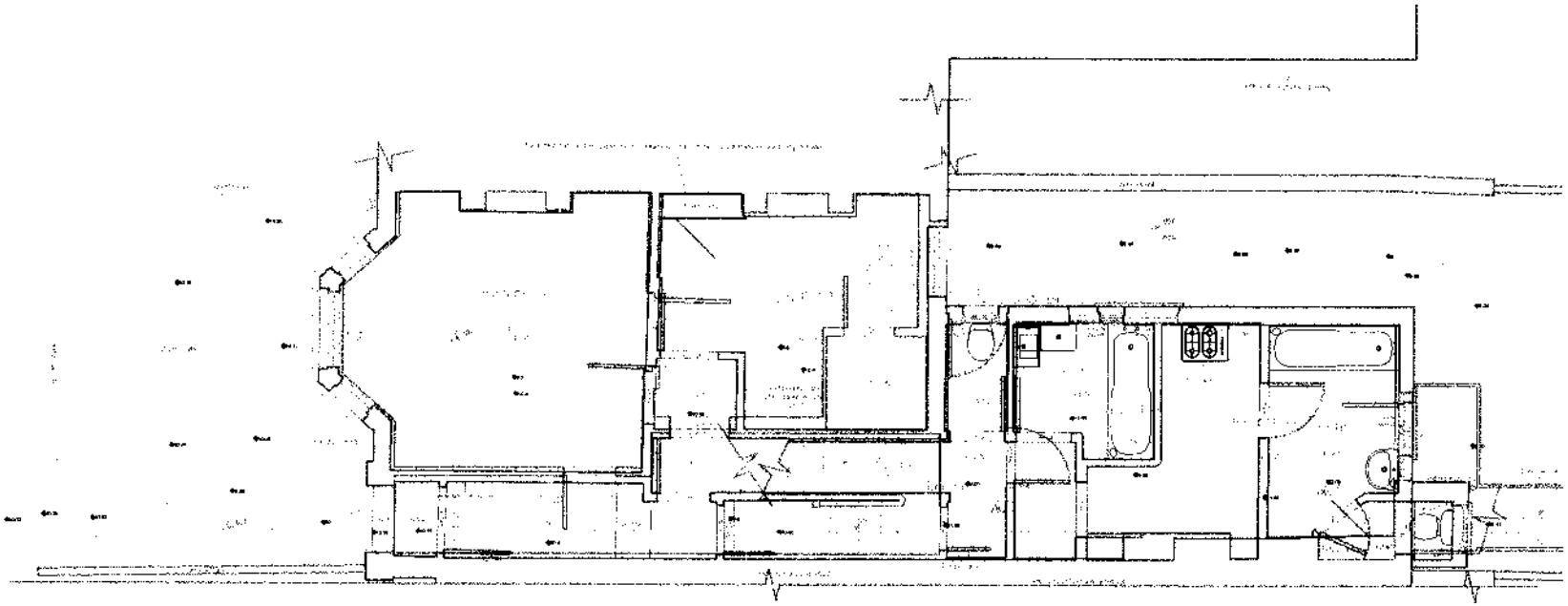
APPENDIX B

BLOCK & SITE LOCATION PLANS



SITE LOCATION PLAN

(SCALE 1:500)

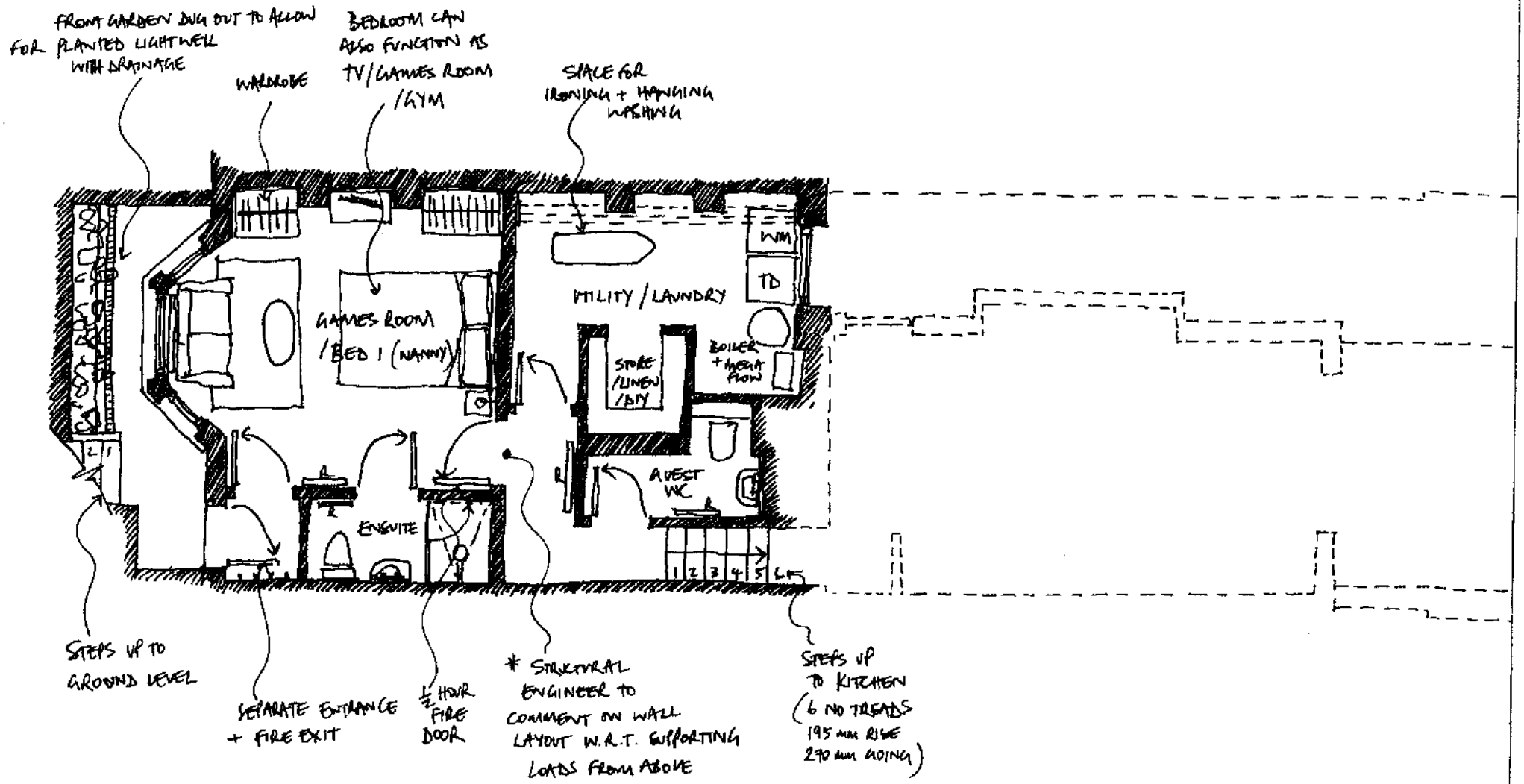


EXISTING BLOCK PLAN

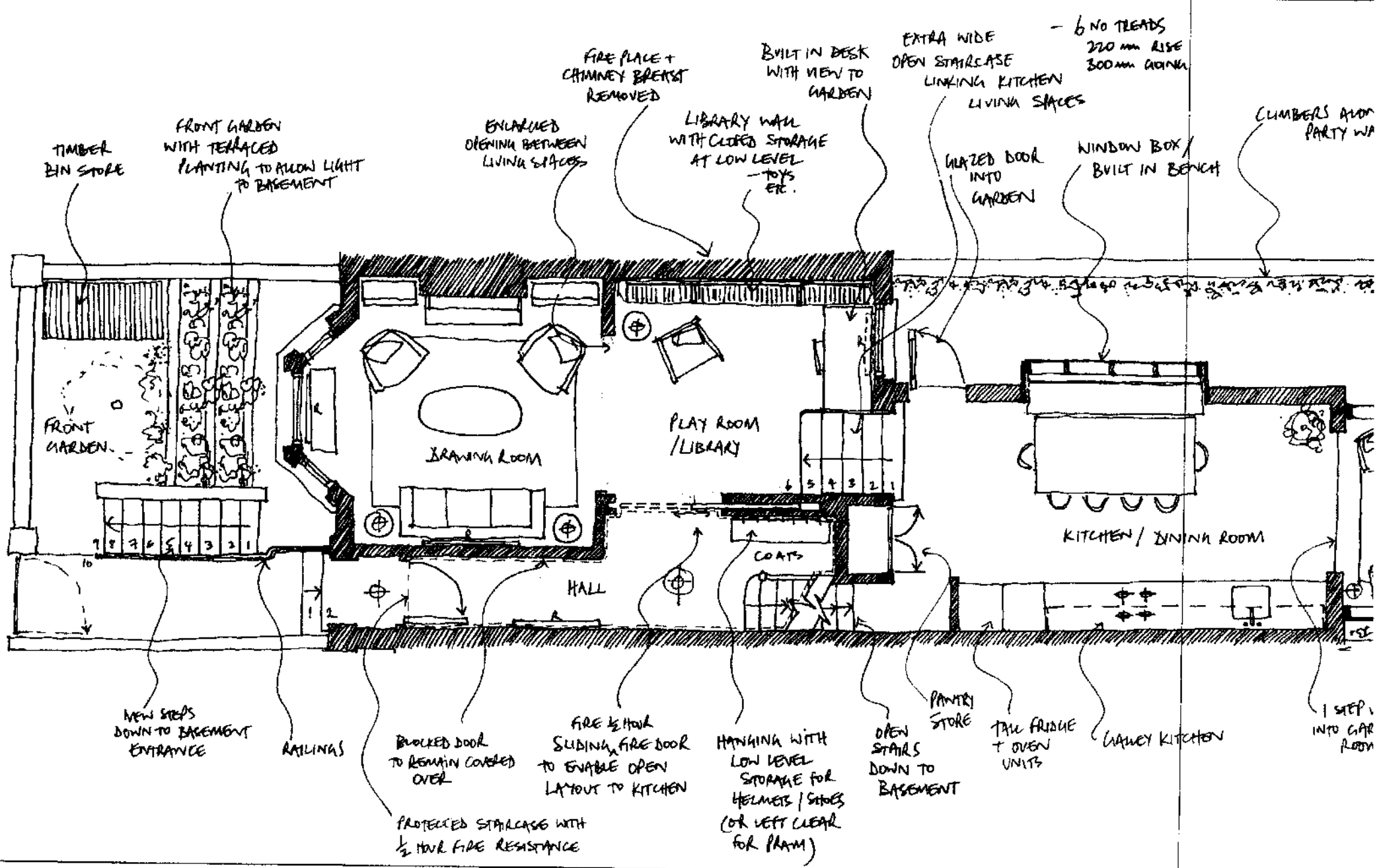
(SCALE 1:100)

APPENDIX C

ARCHITECTS SCHEME PROPOSALS



PROJECT KYLEMORE ROAD PROJECT ADDRESS 13 KYLEMORE ROAD LONDON NW6 2PT JOB REF. KR	ARCHITECT LAURA DEWE MATHEWS A. 104 BALCORNE STREET LONDON E8 7AU E. STUDIO@LAURADEWEMATHEWS.COM M. 07985 819 736	1M 2M 3M SCALE 1:50 @ A3 SHEET FOR COMMENT	NOTE: Do not scale from drawings use annotated dimensions only. The contractor is to verify all dimensions and levels on site prior to starting work or fabrication. Errors and omission to be reported. Drawing to be read in conjunction with all other relevant drawings and specifications by all design disciplines. The contractor must ensure he has copies of all such documents. Laura Dewe Mathews is the owner of the copyright subsisting in these drawings, plans and specifications.	DWG NAME PROPOSED BASEMENT PLAN DWG NO. KR_P_01 REV -	



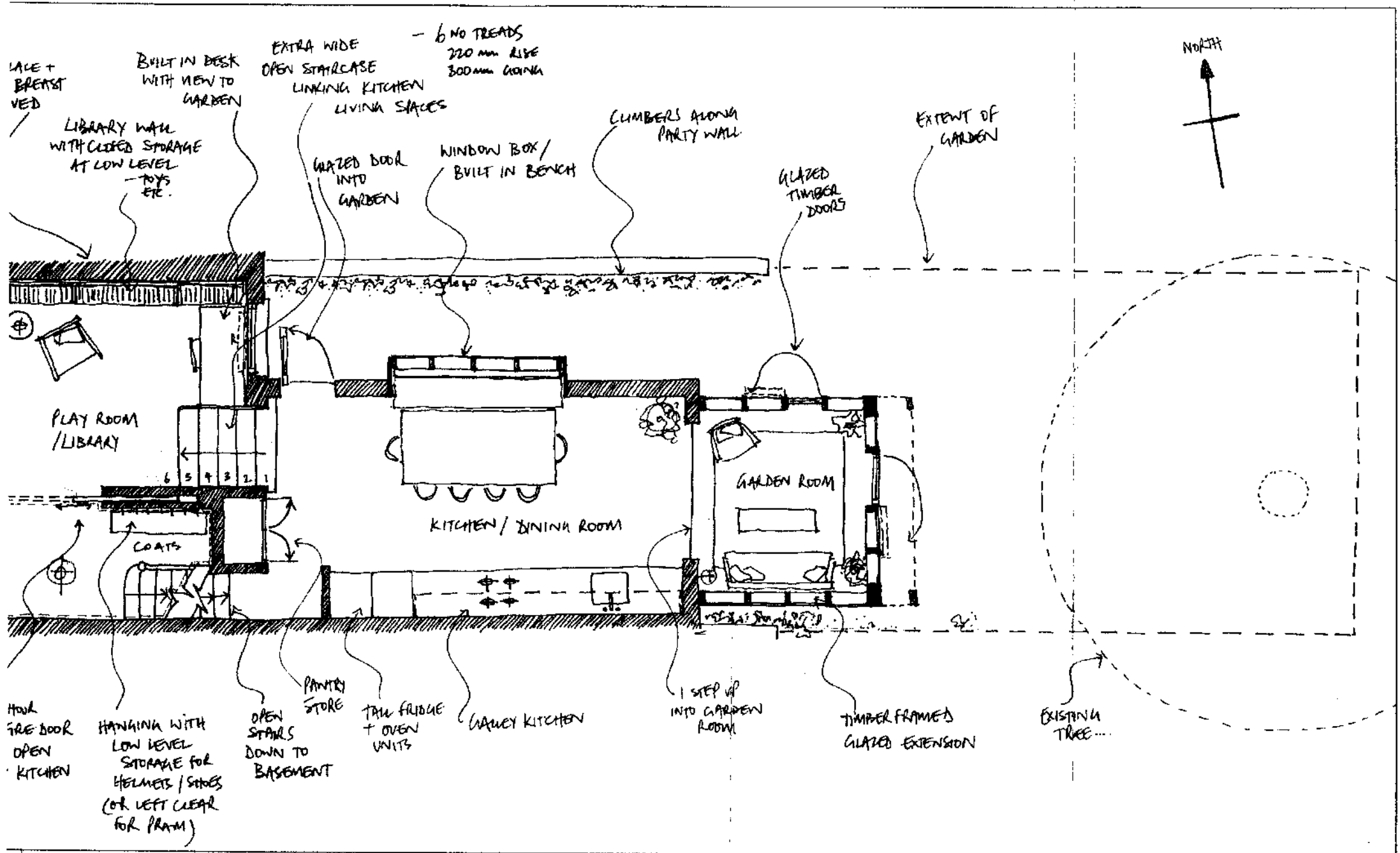
PROJECT	KYLEMORE ROAD
PROJECT ADDRESS	13 KYLEMORE ROAD LONDON NW6 2PT
JOB REF.	KR

ARCHITECT
LAURA DEWE MATHEWS
A. 104 BALCORNE STREET LONDON E9 7AU
E. STUDIO@LAURADEWEMATHEWS.COM
M. 07985 919 736

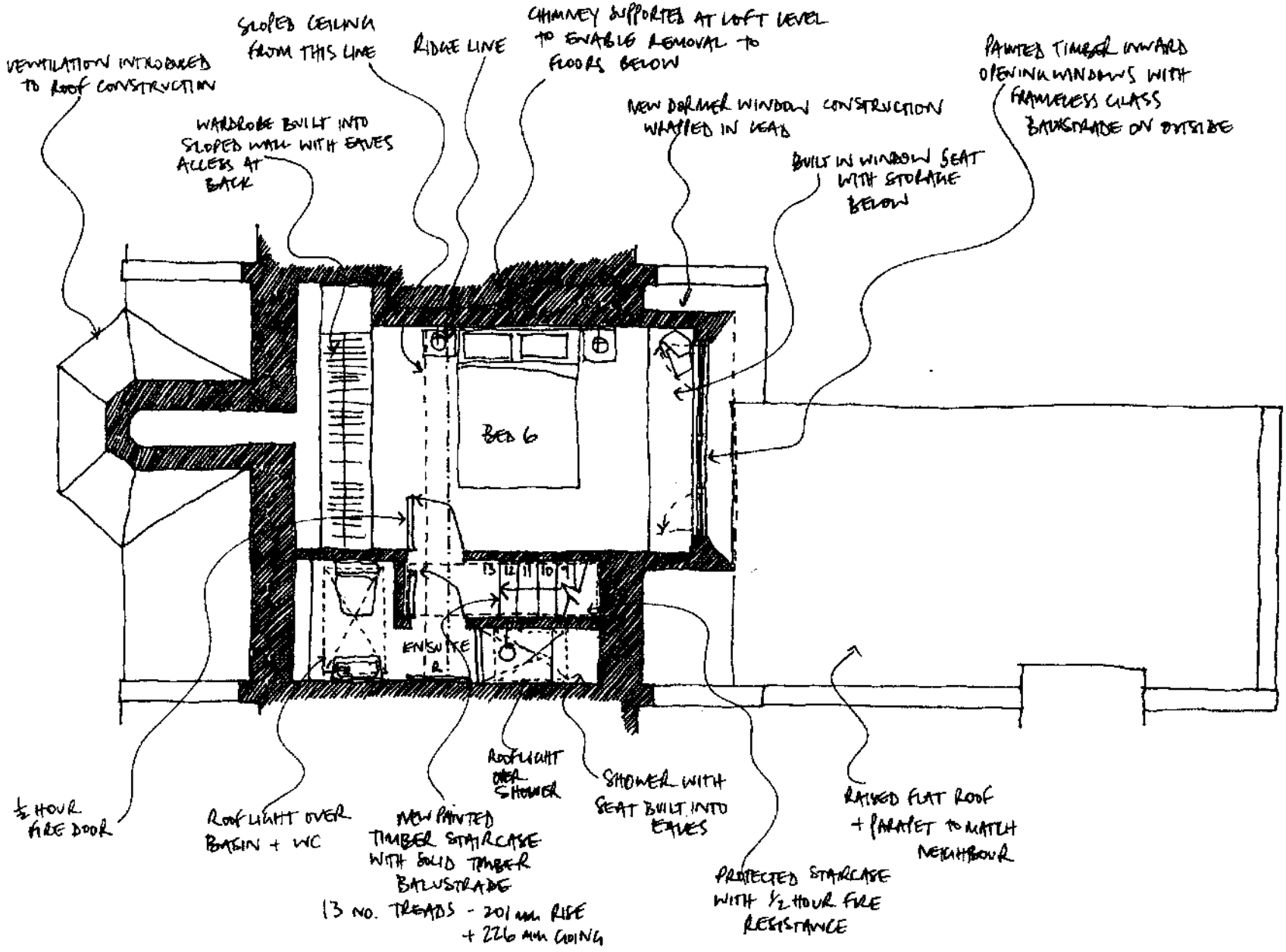
1M 2M

SCALE 1:50 @ A3 SHEET

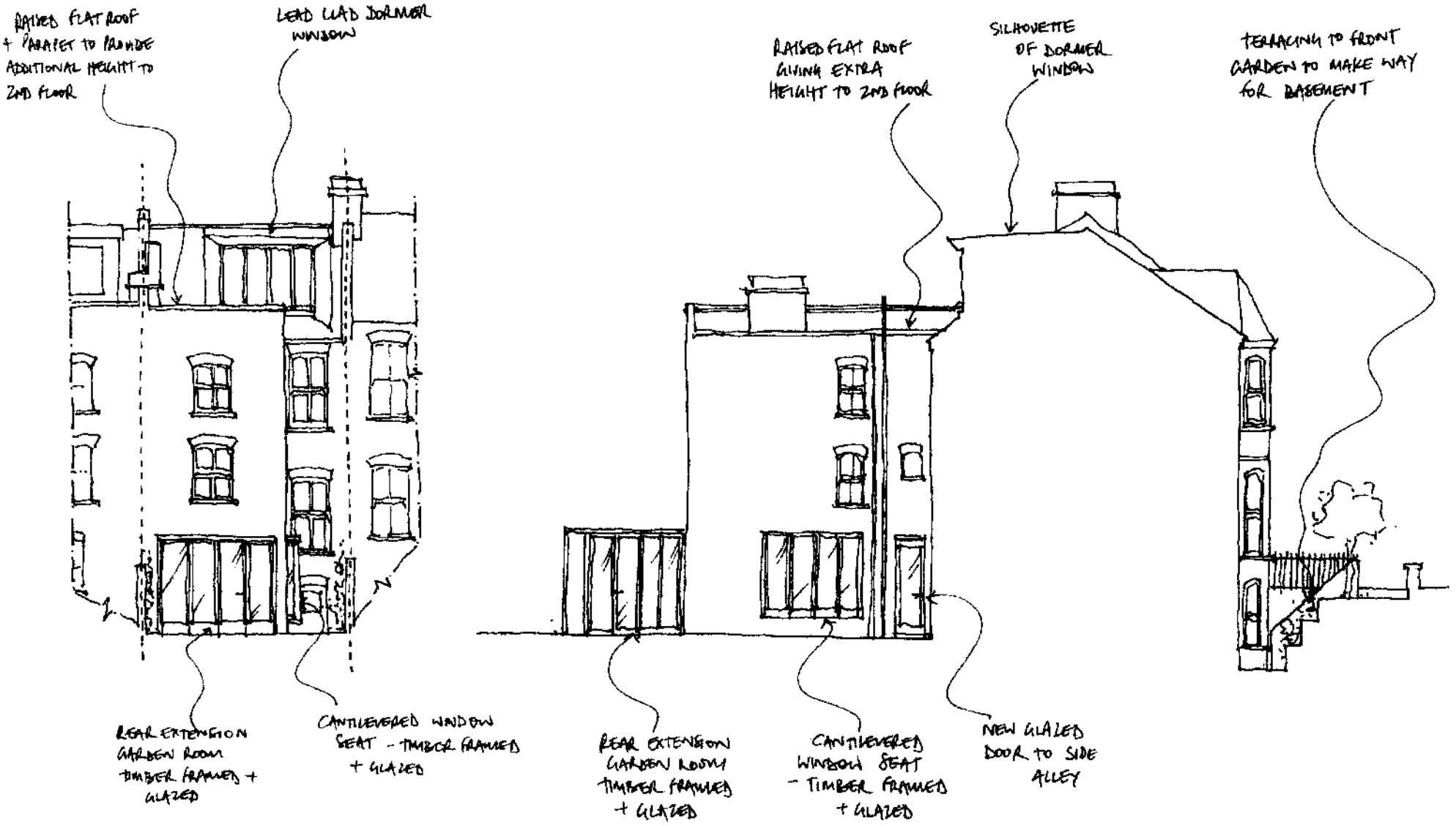
FOR COMMEN



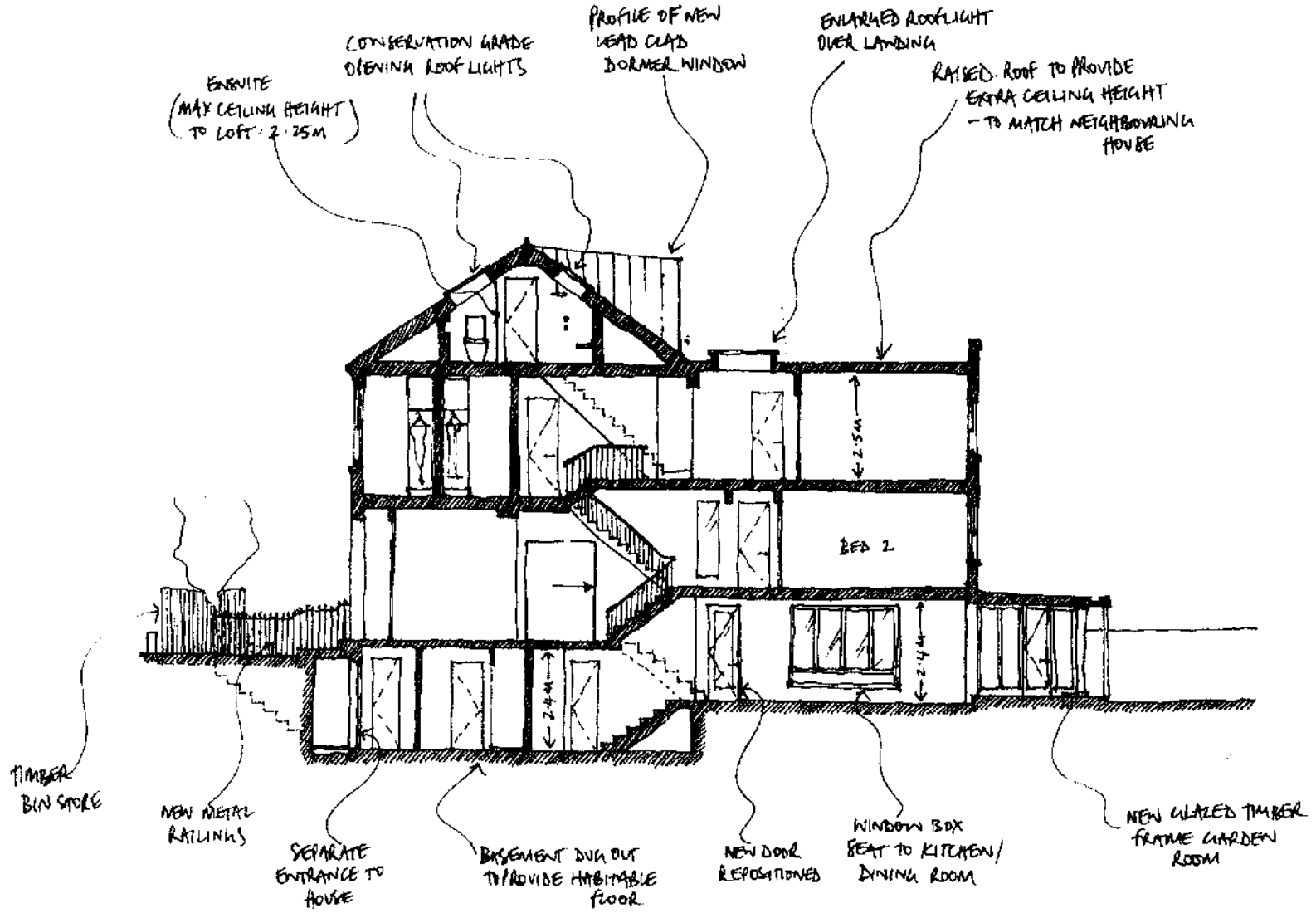
PROJECT KYLEMORE ROAD PROJECT ADDRESS 13 KYLEMORE ROAD LONDON NW6 2PT JOB REF. KR	ARCHITECT LAURA DEWE MATHEWS A. 104 BALCORNE STREET LONDON E8 7AU E. STUDIO@LAURADEWEMATHEWS.COM M. 07985 919 736	1M 2M 3M SCALE 1:50 @ A3 SHEET FOR COMMENT	NOTE: Do not scale from drawings use annotated dimensions only. The contractor is to verify all dimensions and levels on site prior to starting work or fabrication. Errors and omission to be reported. Drawing to be read in conjunction with all other relevant drawings and specifications by all design disciplines. The contractor must ensure he has copies of all such documents. Laura Dewe Mathews is the owner of the copyright subsisting in these drawings, plans and specifications.	DWG NAME PROPOSED GROUND FLOOR PLAN DWG NO. KR_P_02 REV -	



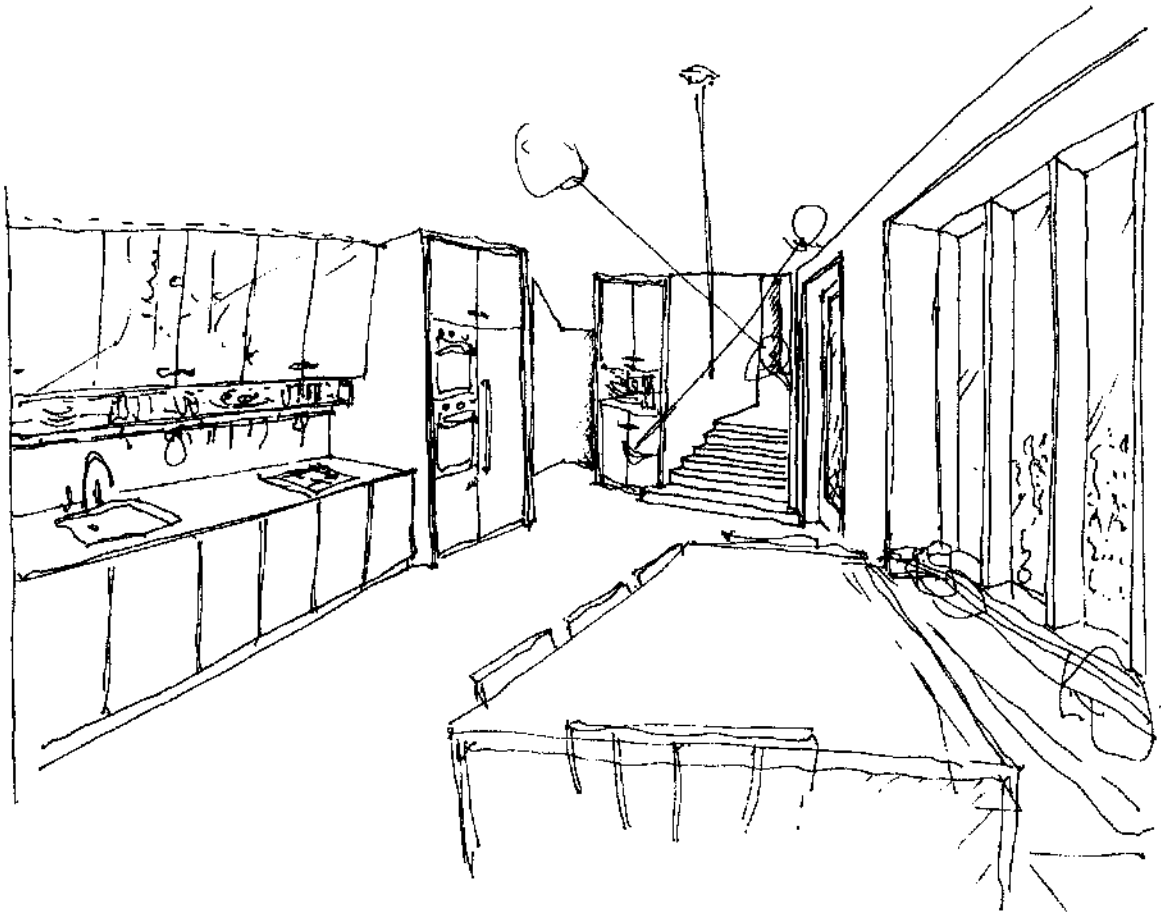
PROJECT **KYLEMORE ROAD** PROJECT ADDRESS 13 KYLEMORE ROAD LONDON NW6 2PT JOB REF. KR	ARCHITECT LAURA DEWE MATHEWS A. 104 BALCORNE STREET LONDON E9 7AU E. STUDIO@LAURADEWEMATHEWS.COM M. 07985 919 736	1M 2M 3M SCALE 1:50 @ A3 SHEET **FOR COMMENT**	NOTE: Do not scale from drawings use annotated dimensions only. The contractor is to verify all dimensions and levels on site prior to starting work or fabrication. Errors and omission to be reported. Drawing to be read in conjunction with all other relevant drawings and specifications by all design disciplines. The contractor must ensure he has copies of all such documents. Laura Dewe Mathews is the owner of the copyright subsisting in these drawings, plans and specifications.	DWG NAME **PROPOSED LOFT FLOOR PLAN v1I** DWG NO. KR_P_05 REV -



PROJECT KYLEMORE ROAD PROJECT ADDRESS 13 KYLEMORE ROAD LONDON NW6 2PT JOB REF. KR	ARCHITECT LAURA DEWE MATHEWS A. 104 BALCORNE STREET LONDON E9 7AU E. STUDIO@LAURADEWEMATHEWS.COM M. 07985 919 786	0.5m 1m 2m 3m 5m SCALE 1:100 @ A3 SHEET FOR COMMENT	NOTE: Do not scale from drawings use annotated dimensions only. The contractor is to verify all dimensions and levels on site prior to starting work or fabrication. Errors and omission to be reported. Drawing to be read in conjunction with all other relevant drawings and specifications by all design disciplines. The contractor must ensure he has copies of all such documents. Laura Dewe Mathews is the owner of the copyright subsisting in these drawings, plans and specifications.	DWG NAME PROPOSED REAR AND SIDE ELEVATIONS DWG NO. KR_P_06 REV -

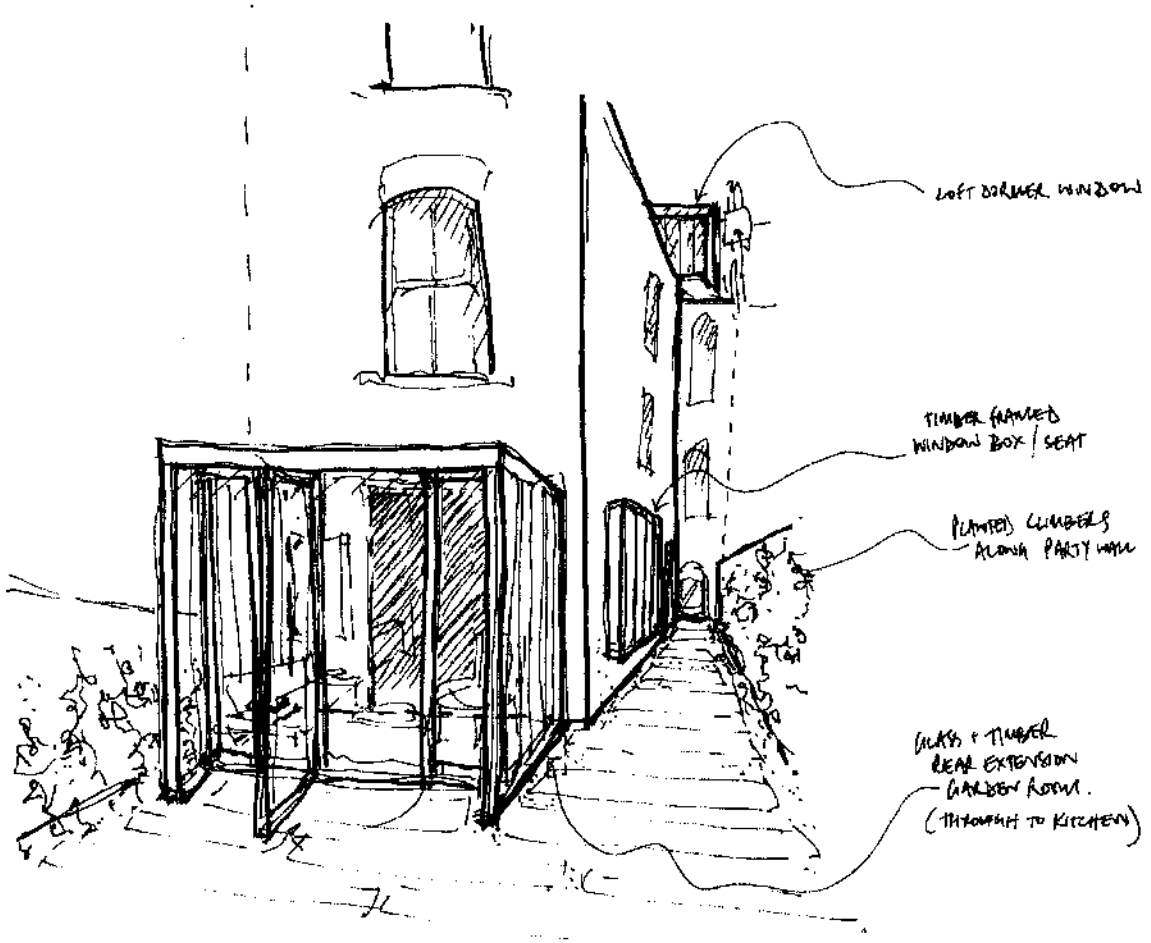


PROJECT KYLEMORE ROAD PROJECT ADDRESS 13 KYLEMORE ROAD LONDON NW6 2PT JOB REF. KR	ARCHITECT LAURA DEWE MATHEWS A. 104 BALCORNE STREET LONDON E9 7AU E. STUDIO@LAURADEWEMATHEWS.COM M. 07885 919 736	0.5m 1m 2m 3m 5m SCALE 1:100 @ A3 SHEET FOR COMMENT	NOTE: Do not scale from drawings use annotated dimensions only. The contractor is to verify all dimensions and levels on site prior to starting work or fabrication. Errors and omission to be reported. Drawing to be read in conjunction with all other relevant drawings and specifications by all design disciplines. The contractor must ensure he has copies of all such documents. Laura Dewe Mathews is the owner of the copyright subsisting in these drawings, plans and specifications.	DWG NAME PROPOSED SECTION DWG NO. KR_P_07	REV -



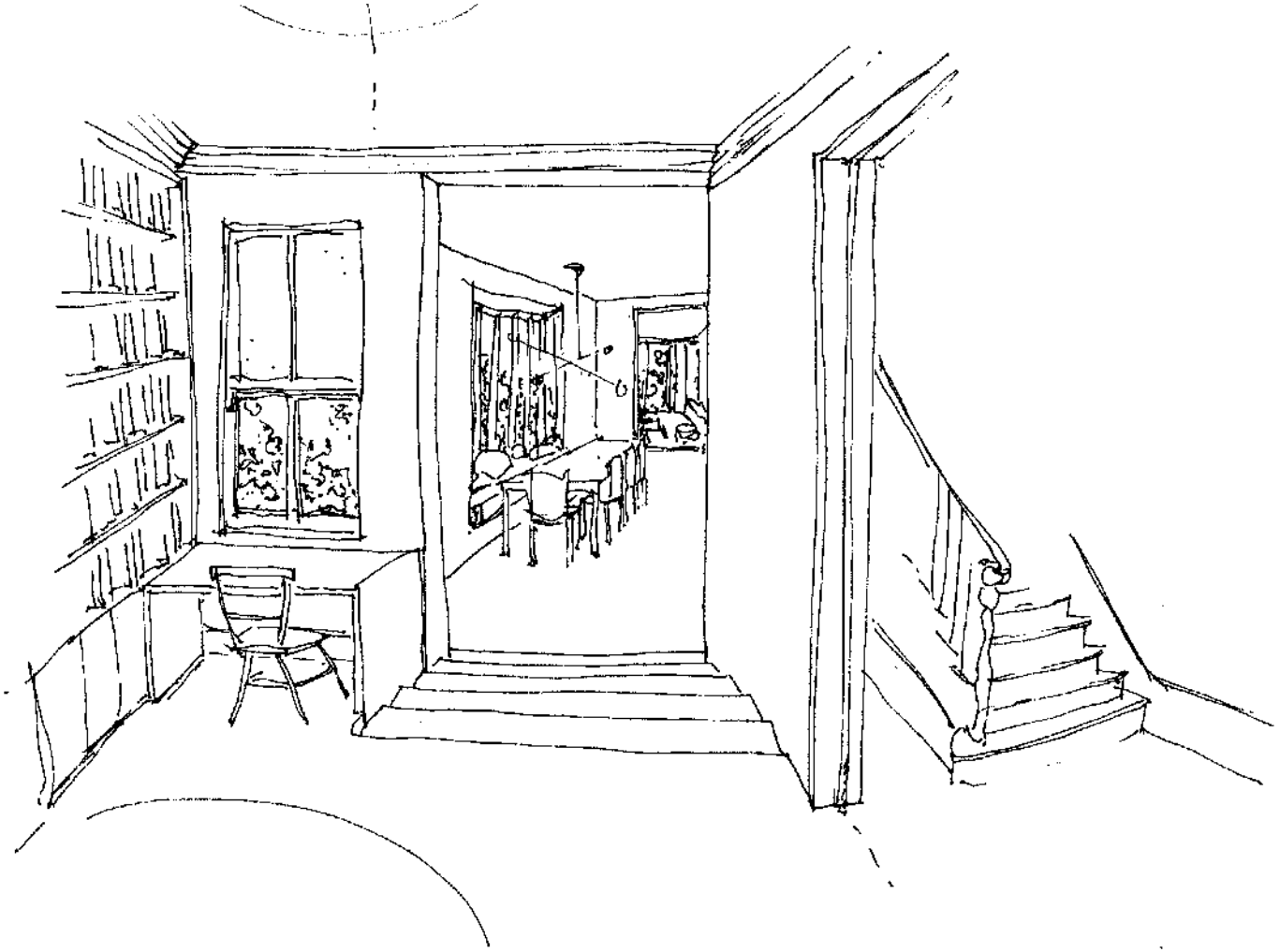
VIEW OF KITCHEN / DINING AREA

KYLEMORE ROAD APRIL 2015



VIEW OF REAR EXTENSION AND SIDE ALLEY FROM GARDEN

KYLEMORE ROAD APRIL 2015



VIEW OF PLAYROOM / LIBRARY LOOKING THROUGH TO KITCHEN / DINING AREA

KYLEMORE ROAD APRIL 2015