

**FLOOD RISK ASSESSMENT
&
Throughflow Screening
&
SUDS Strategy**

**Richmond SFRA 2020/21 & LP21 compliant
London Plan SI.12 and SI.13 compliant**

AT

**Workshops to rear of 1 High Street, Hampton Hill,
TW12 1NA**

May 2022

Ark Environmental Consultancy Ltd

Table of Contents

If this report has been released electronically, the appendices referred to herein can be found in the annexed zip folder/s as .pdf or .dwg files. If this report has been released in hard copy the appendices will be bound into the back of this report. Plans may be annexed separately as A1 or A0 copies where a bound-in A3 copy is not appropriate.

1.0	Scope.....	4
2.0	Introduction	4
3.0	Existing Site Status and Environmental Setting	4
3.1	Site Location and Topography	4
3.2	Flood Status including new climate change allowances	4
3.3	Geology / Hydrogeology and Throughflow Zones	5
3.4	Richmond and EA 2022 Surface Water Flood Hazard	6
3.5	Summary of other Flood Risks Posed to and From Site and Scheme	6
3.6	Existing Drainage.....	7
4.0	Throughflow Screening / Groundwater Hazards	7
4.1	Throughflow Screening	7
5.0	SUDS Strategy.....	8
5.1	Existing site	8
5.2	SUDS Assessment and Specifications	8
5.3	Flood resilience / resistance.....	9
6.0	Summary.....	9

1.0 Scope

This report contains the details of a flood risk assessment statement for planning carried out by Ark Environmental Consulting Limited (“ARK Ltd”) for Workshops to the rear of 1 High Street, Hampton Hill, TW12 1NA, henceforth referred to as “the site” in this report.

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All parties to this report do not intend any of the terms of the Contracts (Right of Third Parties Act 1999) to apply to this report.

Please note this report does not purport to provide definitive legal advice nor can it be used to demonstrate that the site will never flood in the future or provide exact specifications / warranties for the products used.

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2.0 Introduction

The information source used to undertake this FRA & SUDS / Drainage Strategy has been collected from the following sources:

- British Geological Survey Website;
- EA Website;
- Richmond Strategic Flood Risk Assessment 2020 / 2021
- DRAIN LONDON Preliminary (Surface Water) Flood Risk Assessment for London Borough of Richmond. (GLA & Environment Agency, June 2011)
- Internet mapping and searches

3.0 Existing Site Status and Environmental Setting

3.1 Site Location and Topography

This site is an existing commercial building with external porous / permeable and paved areas.

The site is wholly in Flood Zone 1 and not within any new climate change flood extents but 2.0m west and south is adjacent to the Longford River which is fully canalised at this section.

Topography Requirement

A full topographic survey is provided in Appendix A. Raised floor levels are not an option that is required i.e. given no comparison of flood heights vs a structure relative to ordnance datum is required for a FZ1 setting outside of the climate change extents based on the available data.

3.2 Flood Status including new climate change allowances

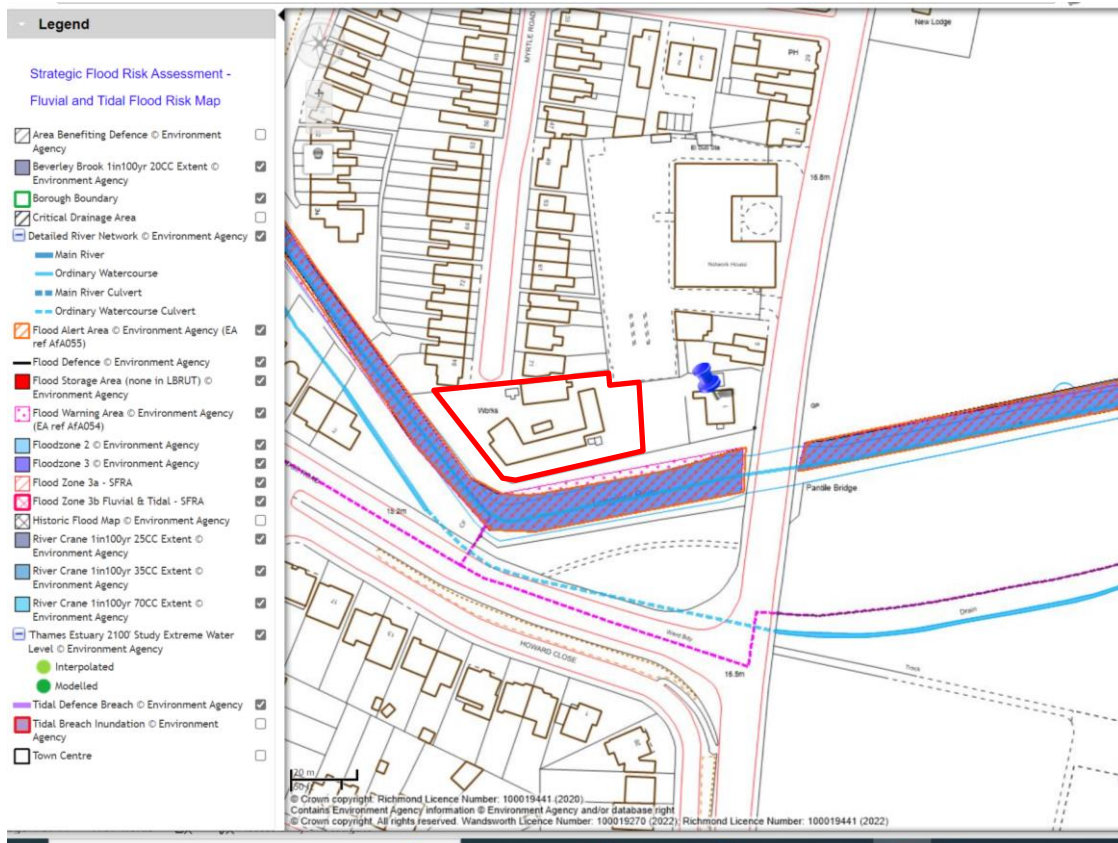
The site is wholly in FZ1. The 1in1000year remains in channel.

The site is not within a functional floodplain, even if the new August 2022 PPG for Flood Risk change to the 1in30year for a functional floodplain is taken into consideration.

The site is not within any tidal or fluvial new climate change flood extents based on the data.

This is all corroborated by the Richmond SFRA 2020 / 2021.

Critical: access & egress is always in FZ1 and to unrestricted FZ1.



3.3 Geology / Hydrogeology and Throughflow Zones

Based on BGS mapping, surrounding borehole records and the council SFRA, the site is underlain by:

Bedrock: London Clay

Superficial deposits: Taplow Gravel

Strata and Flood Risk (Groundwater):

The site is within the policy area of likely elevated groundwater hazards.

The scheme is a change of use.

No lower ground or basement floors included in the scheme.

No complex or novel engineering approaches are required.

Strata and Drainage / SUDS

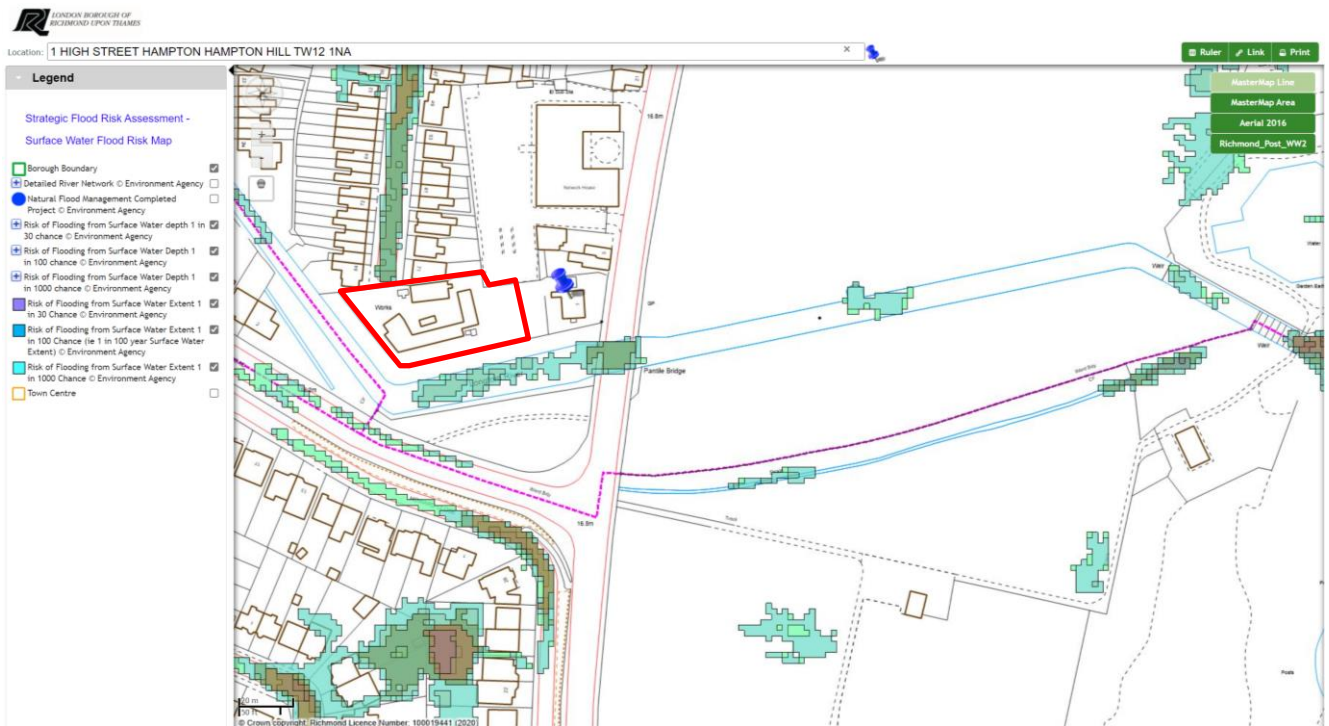
Given the main Bedrock is London Clay and the site is constrained, infiltration measures are not appropriate.

However, the new Richmond SFRA 2020/21 includes new Throughflow Zone to consider the soil throughflow of perched water within the upper levels of clay.

But the site is not within a Richmond Throughflow zone: see specific section on Throughflow Screening.

3.4 Richmond and EA 2022 Surface Water Flood Hazard

- The site is in No hazard even in the extreme future years surface water scenario
- Adjacent to the 1in1000year residual surface water flood extents
- Access on to Myrtle Road is in the medium hazard but does not extend to the site
- No flood displacement
- Correct approach:
 - flood resilience



3.5 Summary of other Flood Risks Posed to and From Site and Scheme

Flood Sources	Site Status	Comment on flood risk posed to / from the development
Groundwater	Site is within an area of potential for elevated groundwater flooding Engineering to address	Scheme will not increase the risk posed to or from groundwater based on the available engineering design requirements Suitable waterproofing Not in the Throughflow Zone
Artificial Sources	Site is not within EA general Reservoir Flood Warning area No other artificial sources with likely flood flowpaths that could reach the site	Low Risk
Climate Change	Included in the flood modelling extents 40% used in the SUDS storage calculations	Development will manage the peak flow and volume of discharge from the site Low risk posed to and from the development

3.6 Existing Drainage

The site is an existing site with sewer connections.

The scheme does not need to alter the connections.

There is no evidence of any existing SUDS.

The site currently discharges 100% unattenuated by (standard site):

- Low Order Storms: direct to sewer / to the watercourse
- Higher Order Storms: majority to sewer

4.0 Throughflow Screening / Groundwater Hazards

4.1 Throughflow Screening

Of relevance to the Throughflow screening, site and scheme specifically:

- The site is not within the Throughflow zone

No additional ground investigation is required at this stage to verify this assessment.

No further Throughflow assessment is required based on site and scheme specifics.

5.0 SUDS Strategy

5.1 Existing site

The existing landscaping comprises a mix of hardstanding adjacent to structures and porous overgrown areas.

5.2 SUDS Assessment and Specifications

Formal infiltration is not feasible due to the geology / hydrogeology and site constraints (2.0m from a watercourse).

The most sustainable approach the maximisation of porous and permeable areas complemented with additional Source Control SUDS storage where feasible.

Type of SUDS	Source Control	Dimensions	Potential Retrofit Storage Given Change of Use
Rain Garden Planters Take discharge direct from RWP Splayed end / diverters to the RWP	YES	Assume minimum 8.0m perimeter length by 0.3m width = 2.4m ² Use minimum 0.4m height retention = 0.96m ³	0.96m ³
Maximise Porous and Permeable Areas	YES	Scheme results in a maximisation of porous and permeable areas	n/a
Lined Granular Angular Storage under patio areas (or Cellular Storage if combined connection)	YES	Minimum area of the 5 parking areas = 61.25m ² Use 0.20m depth of additional granular angular storage = 12.25m ³ Assume 30% void space = 3.67m ³	3.67m ³
Green / Sedum Roof Areas with additional cellular tray storage system	YES	Potential to retrofit on cycle and bin storage (re-using existing structures) Minimum 6.0m ² Assume a 0.10m depth storage Assume 85% void ration = 0.51m ³	0.51m ³

5.3 Flood resilience / resistance

The following flood resilient measures will be incorporated where feasible / where works are required

- Electrics to be installed top-down where feasible
- Non-return valves as standard for ground floor
- Any new waterproofing to be installed to above ground level as appropriate
- Plasterboards will be installed in horizontal sheets on ground rather than conventional vertical installation methods to minimise the amount of plasterboard that could be damaged in a flood event
- Wall sockets will be raised to as high as is feasible and practicable in order to minimise damage if flood waters inundate the property
- Any wood fixings on the ground floor will be robust and/or protected by suitable coatings in order to minimise damage during a flood event
- The Damp Proof Membrane will be installed above the main floor slab and tied in to the walls where appropriate, to reduce the turnaround time for returning the property to full operation after a flood event.

6.0 Summary

The scheme will be flood future-proofed for the lifetime of the scheme.

- Existing future-proofing: site is in FZ1
- Access to Myrtle Road is within and to unrestricted FZ1
- Ground floor bedrooms and self contained ground floor flats are appropriate in this flood setting based on the available data
 - Flood extents remain in channel within the Longford River
 - Surcharge from a blockage is a residual hazard

The scheme:

- SUDS storage of the highest form feasible for a change of use scheme
 - Rain garden planters: Source Control and storage
 - Any new permeable paving with integrated storage: Source Control and storage

Throughflow Screening:

Site is not within the Throughflow Zone. No further calculations are required

- The scheme includes full flood resilience
- No novel or complex engineering requirements

The scheme will result in lifetime flood future-proofed dwellings which address climate change using SUDS.

Reusing and enhancing the existing system is the most sustainable approach.

Based on the likely flooding risk, it is considered that the proposed development can be constructed and operated safely in flood risk terms, without increasing flood risk elsewhere and is therefore appropriate development in accordance with the NPPF/PPG.

APPENDICES

APPENDIX A

Husband & Partners Architects

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514000m

514100m

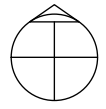
514200m

514300m

170700m

170700m

NORTH



0m 25 50 75

1:1250@A3

Location plan 1:1250@A3

170600m

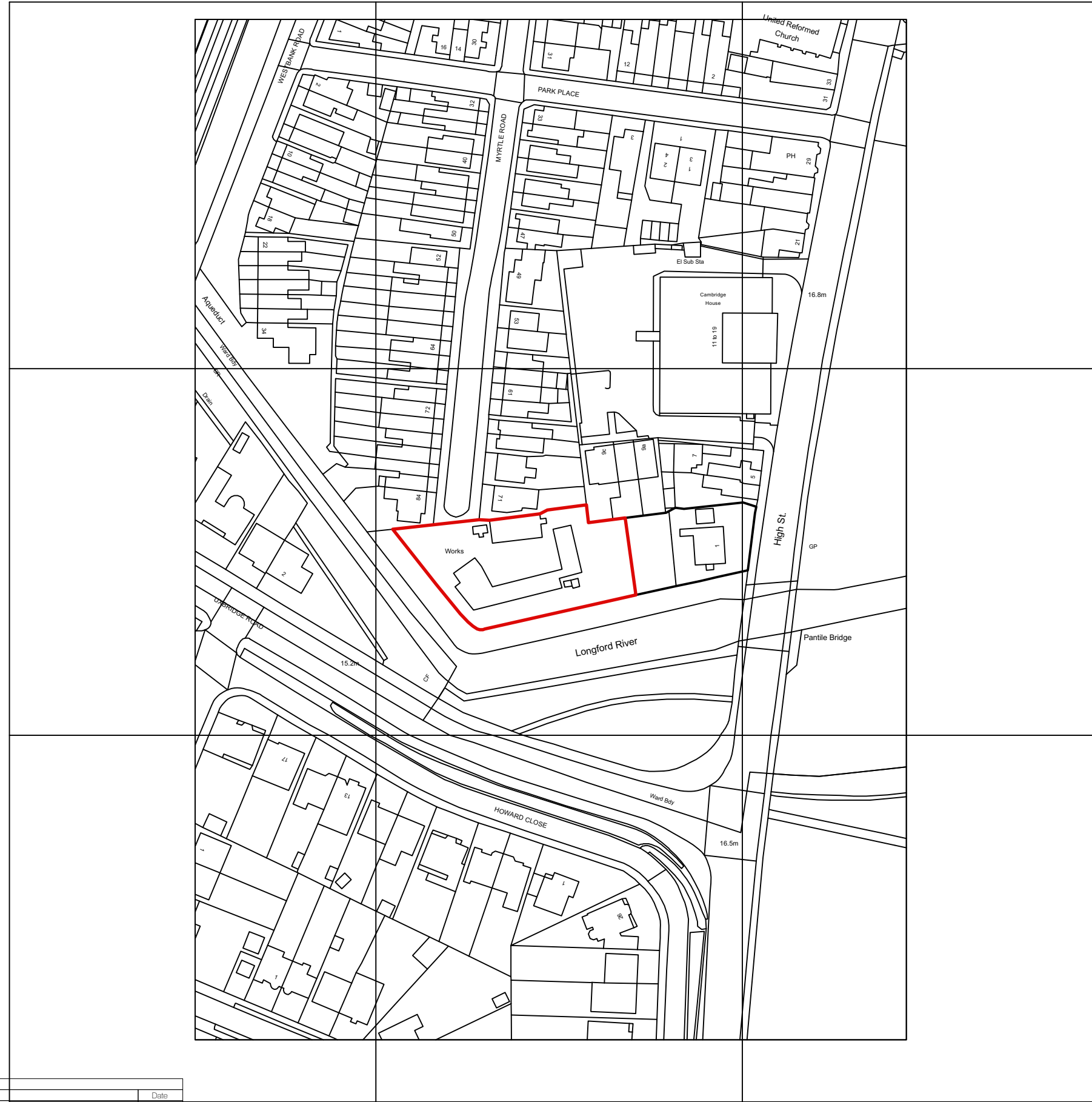
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170500m

170500m

170400m

170400m



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Revision	Description	
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Client: 514200m 1 High Street, Hampton Hill, TW12 1NA

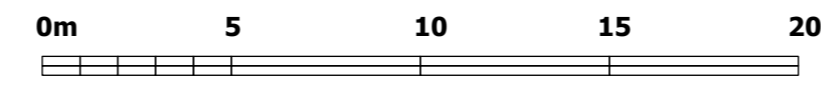
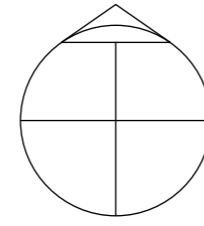
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Date	Scale	Project No.	Drawing No.	Revision
June 2022	1:1250@A3	2538	L01	-

170600 N

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25TN	514126.855	170549.874	16.311
35TN	514146.476	170553.747	16.424
45TN	514148.694	170559.348	16.355
55TN	514161.657	170554.195	16.387
65TN	514203.394	170558.531	17.247
2225TN	514201.764	170552.756	17.697
2226TN	514214.799	170551.334	17.377

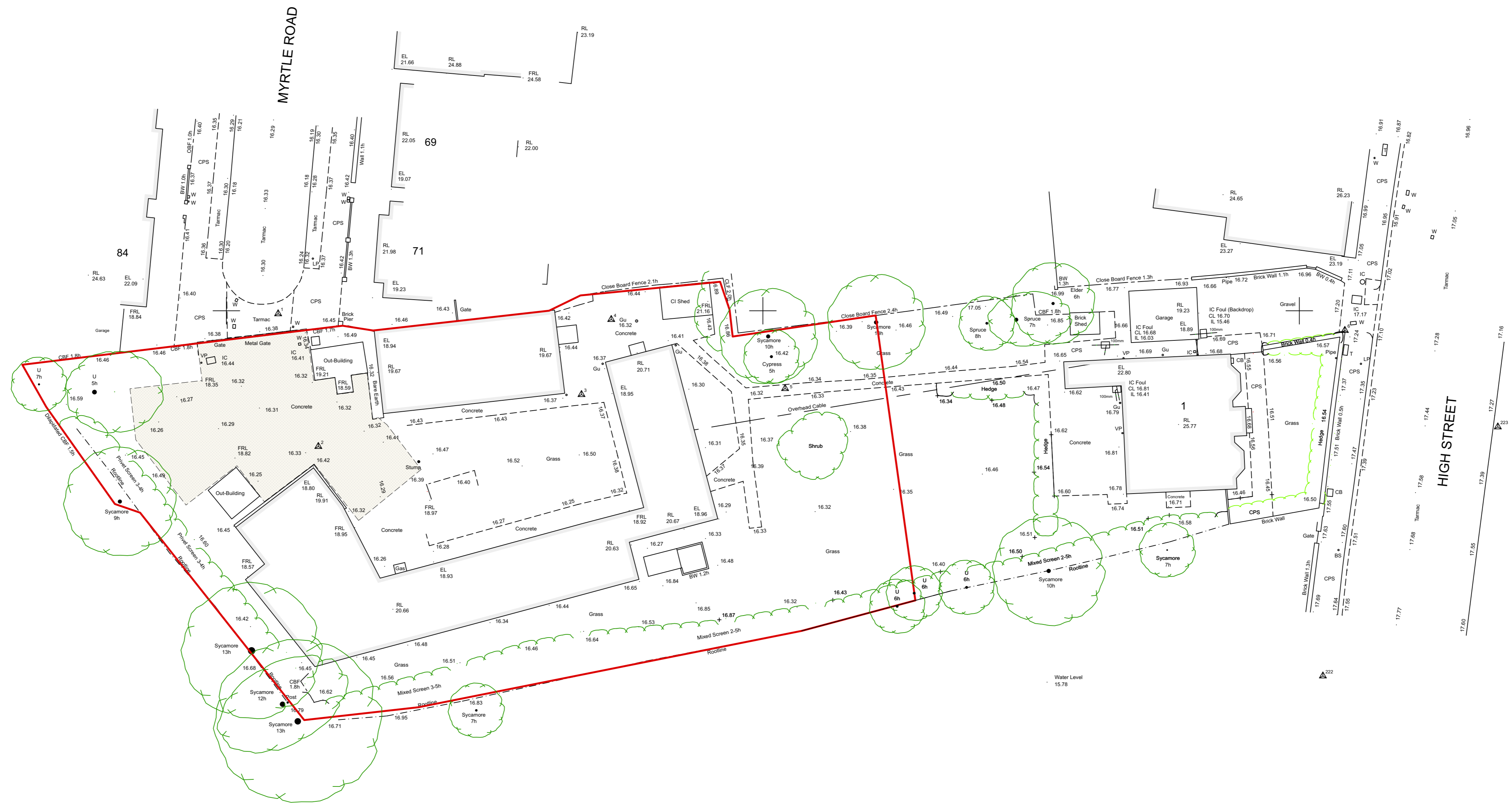
NORTH



1:200@A1

EL. 23.15

170560 N



170520 N

BLOCK PLAN 1:200 @ A1



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1 High Street, Hampton Hill, TW12 1NA

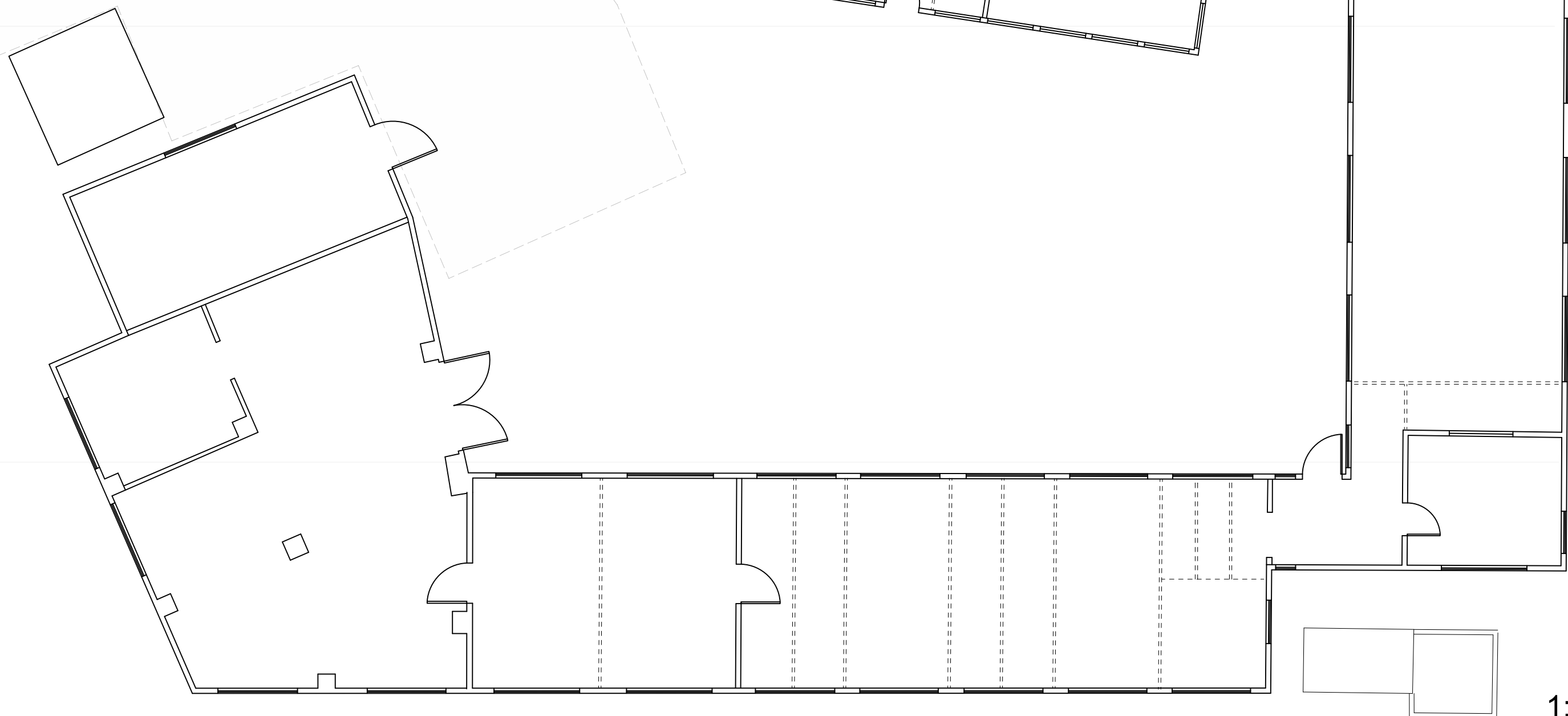
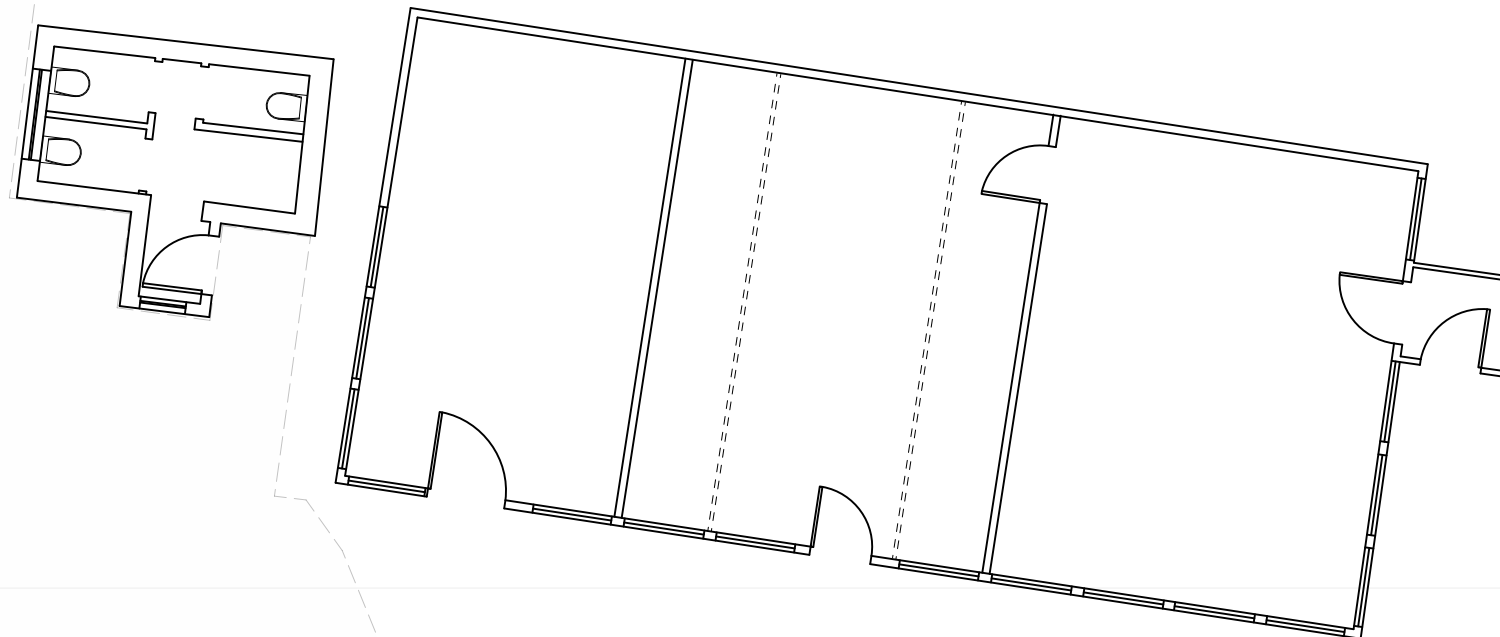
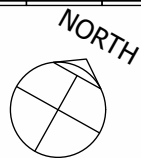
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Revision	Description	Date		
Drawing Title: Topographical survey / Block plan				
Date	Scale	Project No.	Drawing No.	Revision
June 2022	1:200@A1	2538	TOPO01	-

Husband & Partners Architects

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0m 1 2 3 5
1:100@A3



1:100 @ A3

Revision Notes:		
Revision	Description	Date
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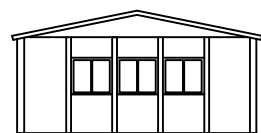
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		Date: June 2022	Scale: 1:100@A3	Project No.: 2538	Drawing No.: SURV01
				Revision: -	

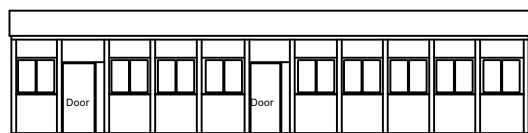
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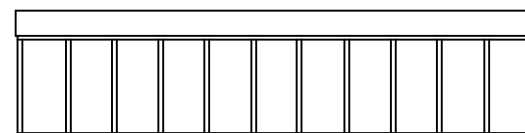


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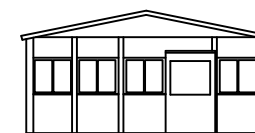
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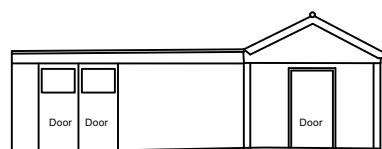
Elevation 1A



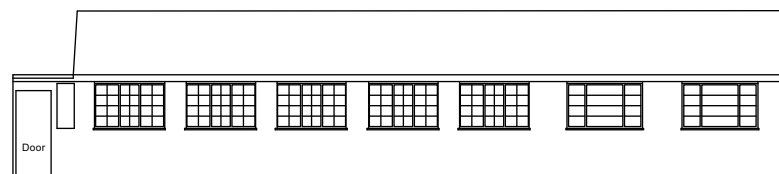
Elevation 1B



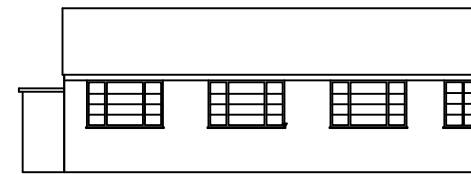
Elevation 1C



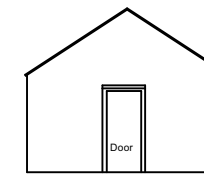
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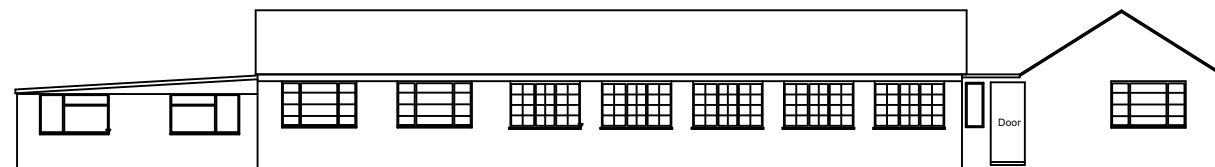
Elevation 2A



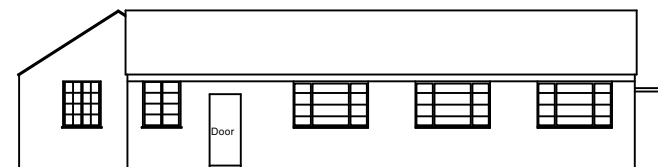
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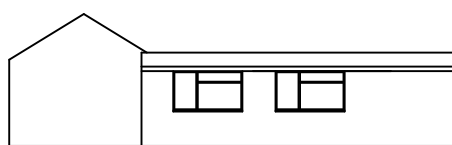
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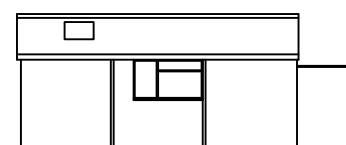
Elevation 2E



Elevation 2D



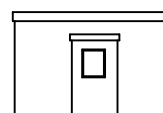
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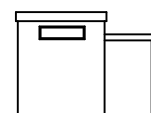
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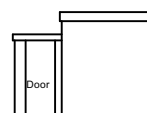
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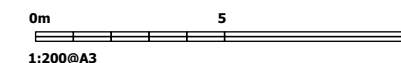
A



B



C



Revision Notes:		
Revision	Description	Date
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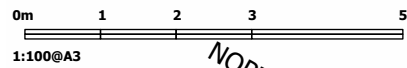
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Client:

Drawing Title: Elevations as Existing				
Date June 2022	Scale 1:200@A3	Project No. 2538	Drawing No. SURV02	Revision -

APPENDIX B

Existing building used for refuse and recycling (5 x 240L). Additional space available for further recycling and food waste if required.



Schedule of accommodation

- Flat 1 [2bed,3p]= GIA = Proposed 84 Sq M
- Flat 2 [1bed,2p]= GIA = Proposed 64 Sq M
- Flat 3 [1bed,2p]= GIA = Proposed 62 Sq M
- Flat 4 [1 bed,1p]= GIA = Proposed 52 Sq M (Studio)
- Flat 5 [1 bed,2p]= GIA = Proposed 65 Sq M

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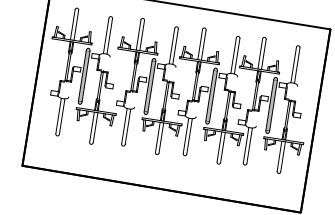
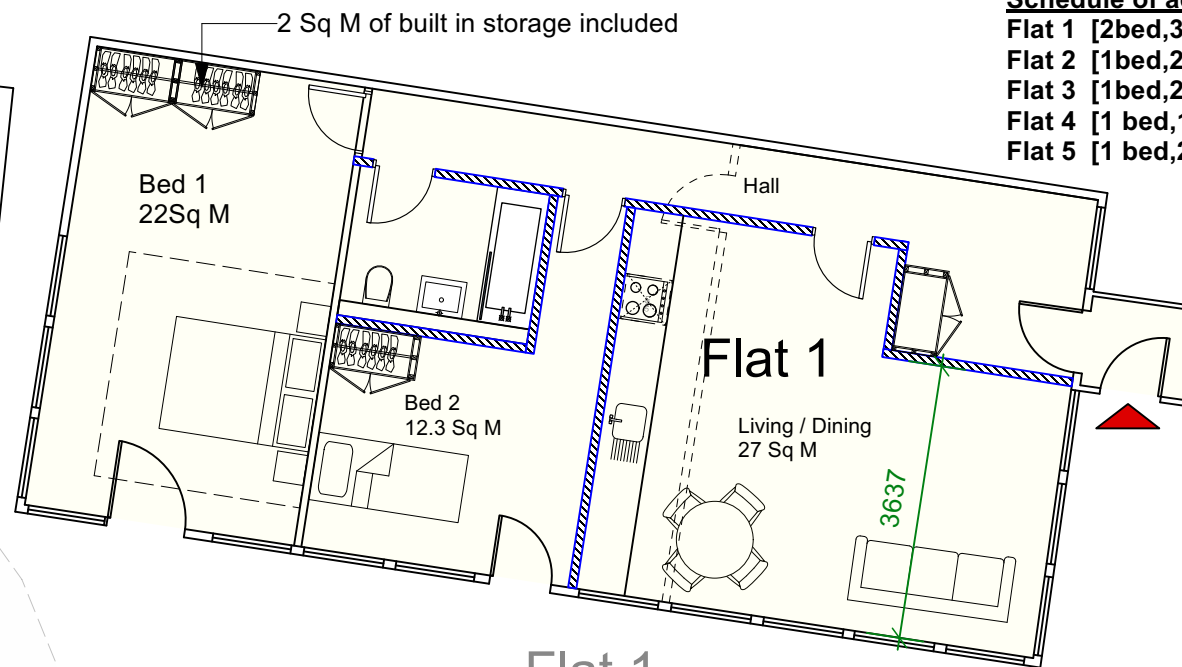
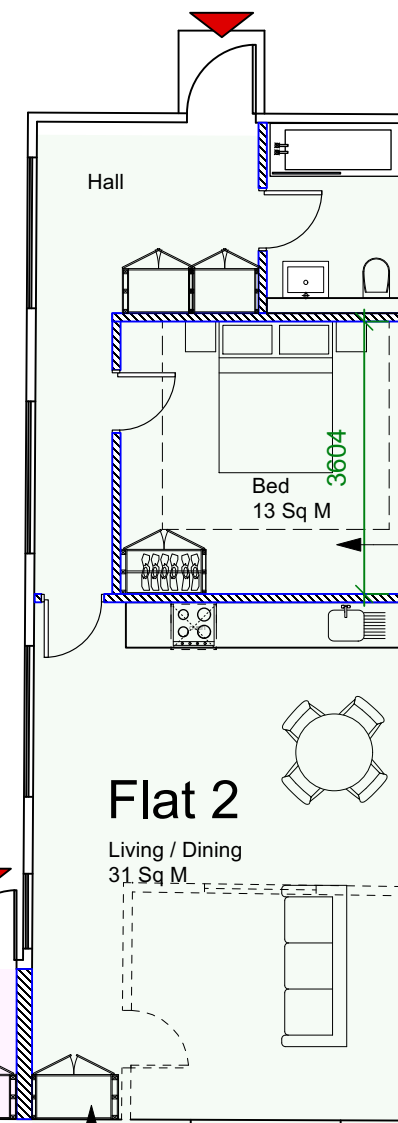


Table 3.3 Minimum space standards for new dwellings⁽⁷⁾

Number of bedrooms	Number of bed spaces	Minimum GIA (m ²)			Built-in storage (m ²)
		1 storey dwellings	2 storey dwellings	3 storey dwellings	
1b	1p	39 (37)*			1.0
	2p	50	58		1.5
2b	3p	61	70		2.0
	4p	70	79		

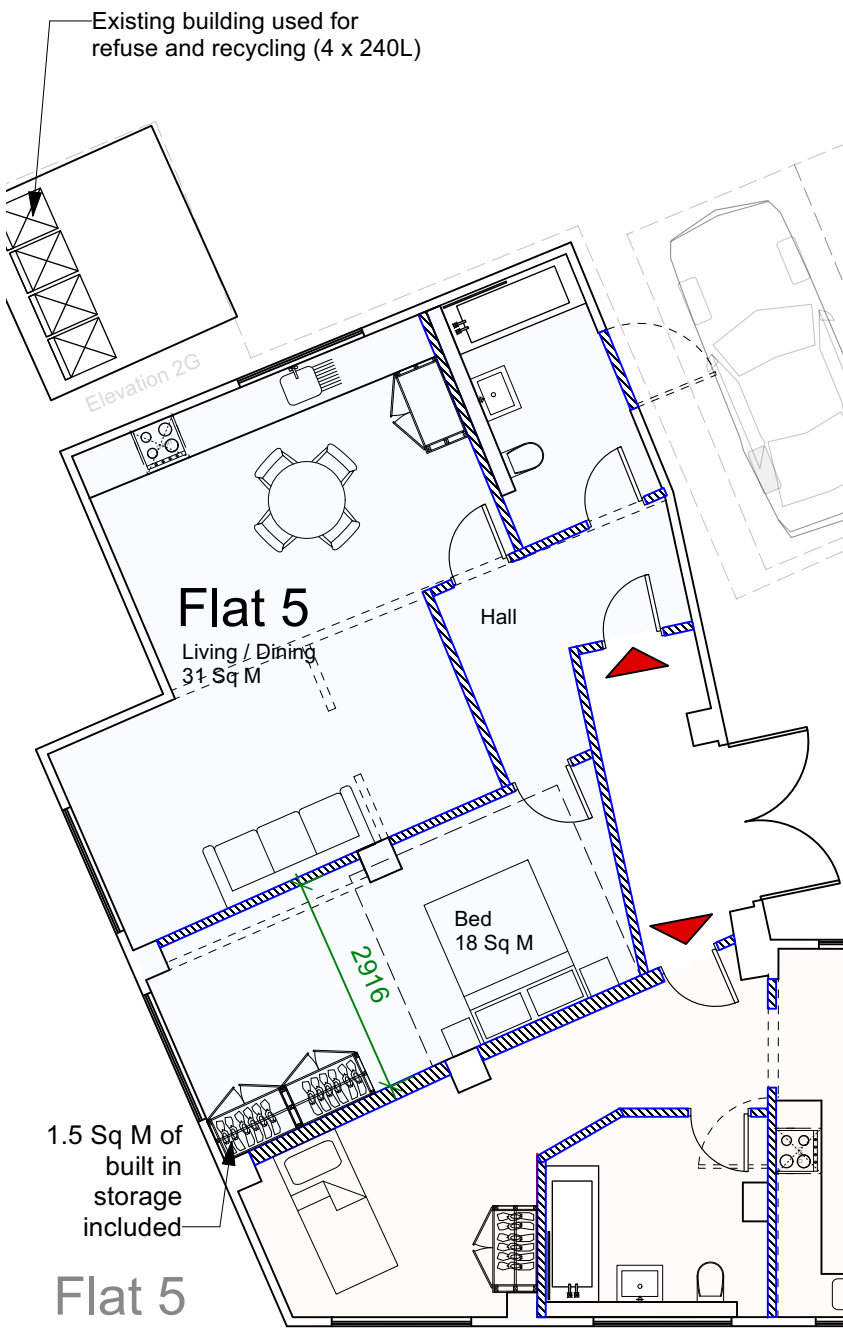


Flat 1
84sq m



Flat 2
64sq m

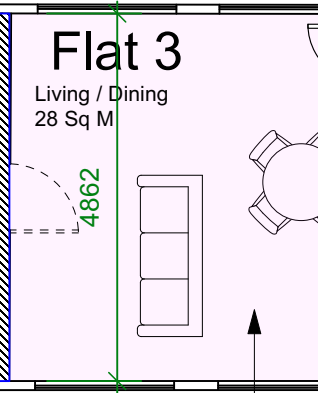
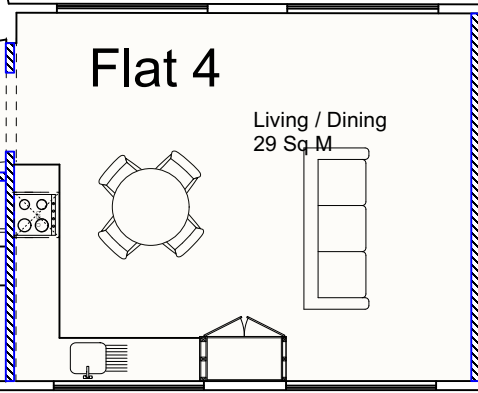
All double bedrooms exceed minimum area of 12 sq m



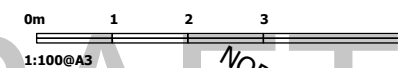
Flat 5
65sq m

Flat 4
52 sq m

Flat 3
62sq m



All main sitting areas width comply with 'London housing design guide' (2.8m width)



DRAFT

Revision	Description	Date
-	-	-

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Project: 1 High Street, Hampton Hill, TW12 1NA

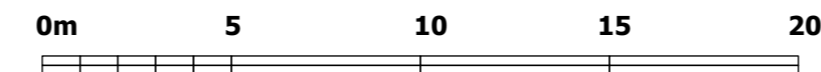
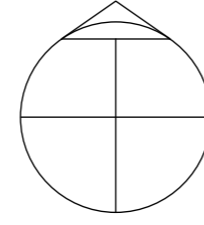
Client:

Drawing Title: Floor plans as Proposed				
Date: June 2022	Scale: 1:100@A3	Project No.: 2538	Drawing No.: PL01	Revision: -

170600 N



NORTH



1:200@A1

SURVEY STATIONS			
Name	Easting	Northing	Height
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281TN	514228.855	170549.674	16.311
381TN	514146.476	170583.747	16.424
481TN	514146.694	170556.348	16.352
581TN	514161.657	170554.195	16.387
681TN	514203.366	170566.821	17.247
22281TN	514201.756	170532.750	17.697
22282TN	514214.756	170551.334	17.377

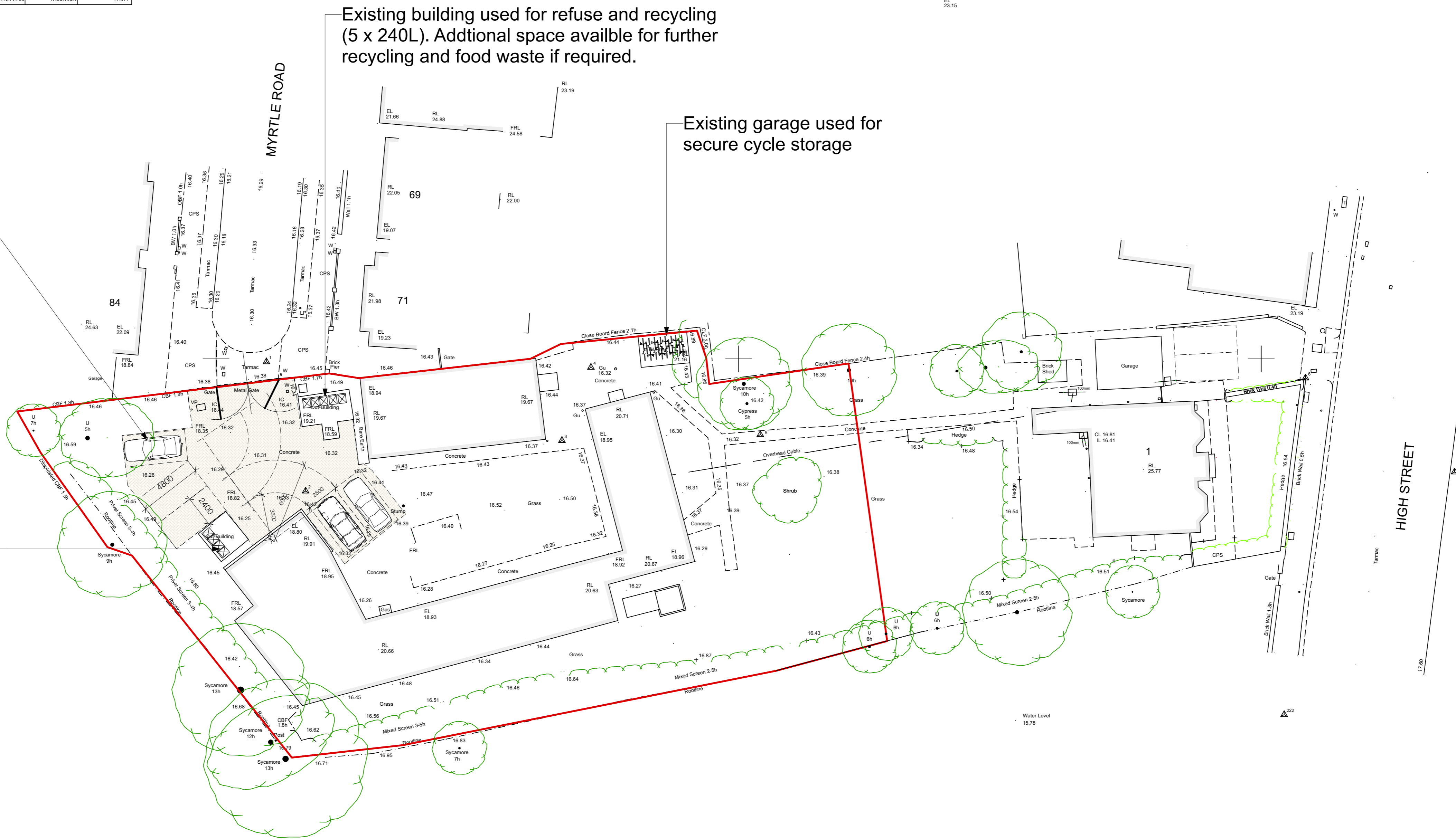
Existing building used for refuse and recycling (5 x 240L). Additional space available for further recycling and food waste if required.

Existing garage used for secure cycle storage

Parking for five vehicles

Existing building used for refuse and recycling (4 x 240L).

Additional space available for further recycling and food waste if required.



BLOCK PLAN 1:200 @ A1

170520 N



Revision Notes:				
Revision	Description	Date		
Drawing Title: Topographical survey / Proposed Block plan				
Date: June 2022	Scale: 1:200@A1	Project No.: 2538	Drawing No.: TOPO02	Revision: -