

Appendix A

MATERIALS

- Red brickwork
- Silver cladding panel system
- Aluminium windows and doors

**Granville House,
Wallingford Road,
Uxbridge UB8 2RW**

**PROPOSED
SOUTH ELEVATION**

Scale 1:200 at A3

Drawing No. CMR / P25 / 09 Rev. C

No 80 (Galaxy Building)



Sorting office

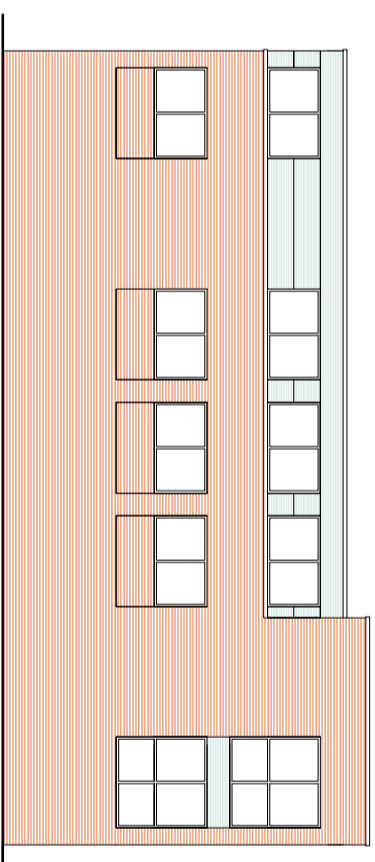
Grand Union Canal

Canal bridge

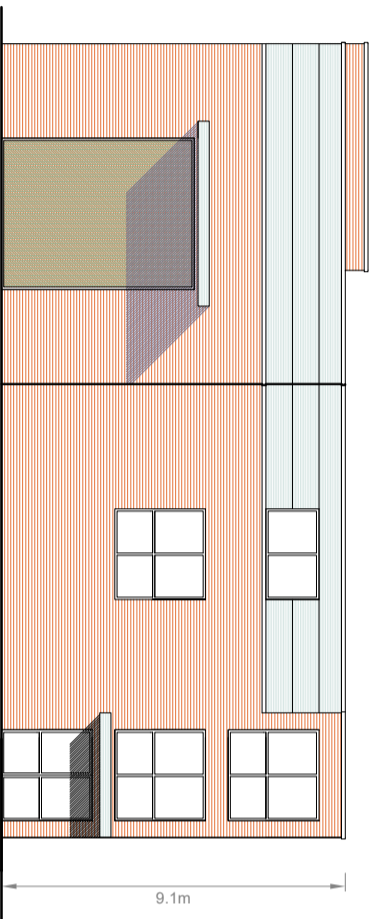




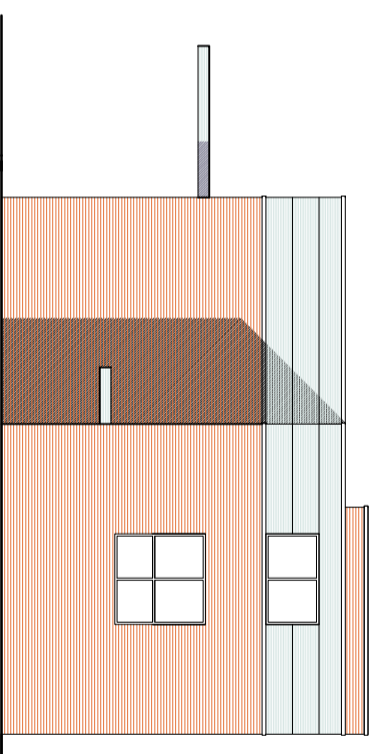
WEST



NORTH



SOUTH



EAST

MATERIALS

Red brickwork

Silver cladding panel system

Aluminium windows and doors

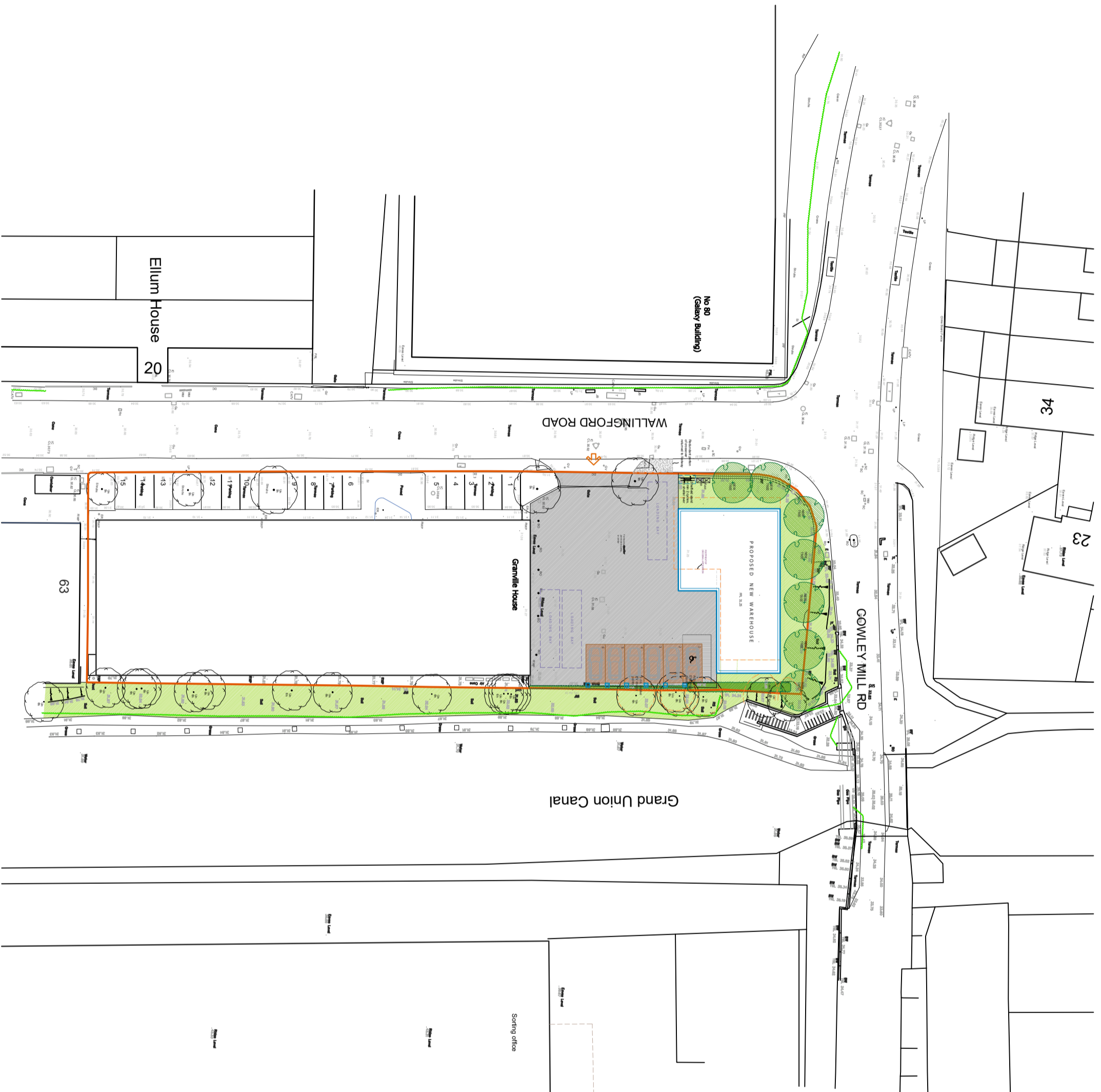


**Granville House,
Wallingford Road,
Uxbridge UB8 2RW**

PROPOSED ELEVATIONS

Scale 1:200 at A3

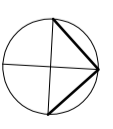
Drawing No. CMR / P25 / 10 Rev. C

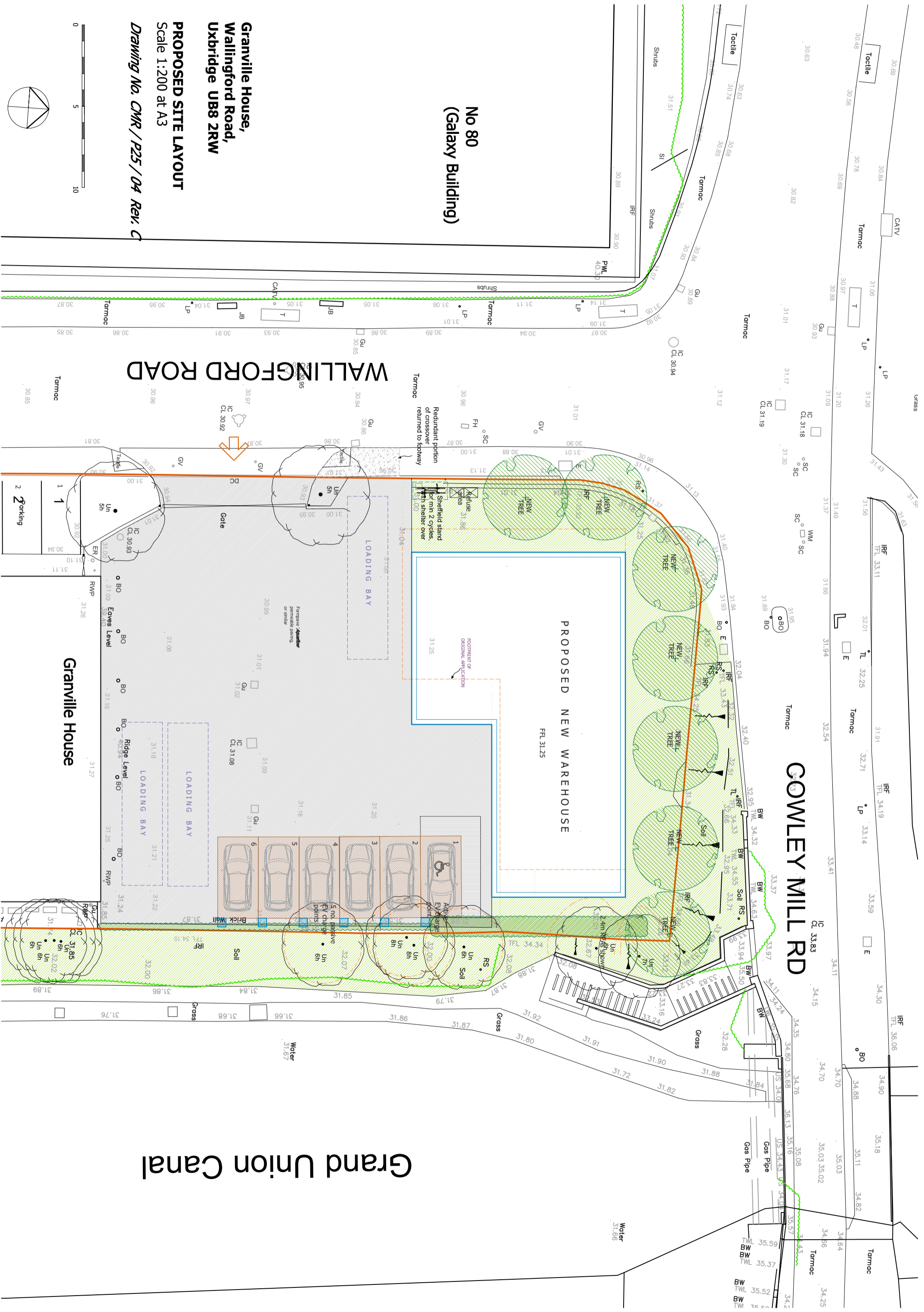


**Granville House,
Wallingford Road,
Uxbridge UB8 2RW**

PROPOSED BLOCK PLAN
Scale 1:500 at A3

Drawing No. CMR / P25 / 03 Rev. C

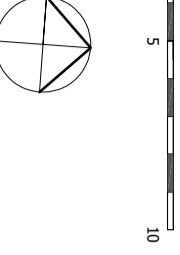




No 80
(Galaxy Building)

Granville House,
Wallingford Road,
Uxbridge UB8 2RW

PROPOSED SITE LAYOUT
Scale 1:200 at A3
Drawing No. CMR / P25 / 04 Rev. C



WALLINGFORD ROAD

COWLEY MILL RD

Grand Union Canal

Granville House

PROPOSED NEW WAREHOUSE

LOADING BAY

LOADING BAY

LOADING BAY

LOADING BAY

LOADING BAY

LOADING BAY

LOADING BAY

LOADING BAY

LOADING BAY

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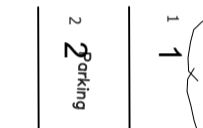
LOADING BAY

LOADING BAY

LOADING BAY

LOADING BAY

LOADING BAY



2 parking

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1

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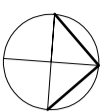
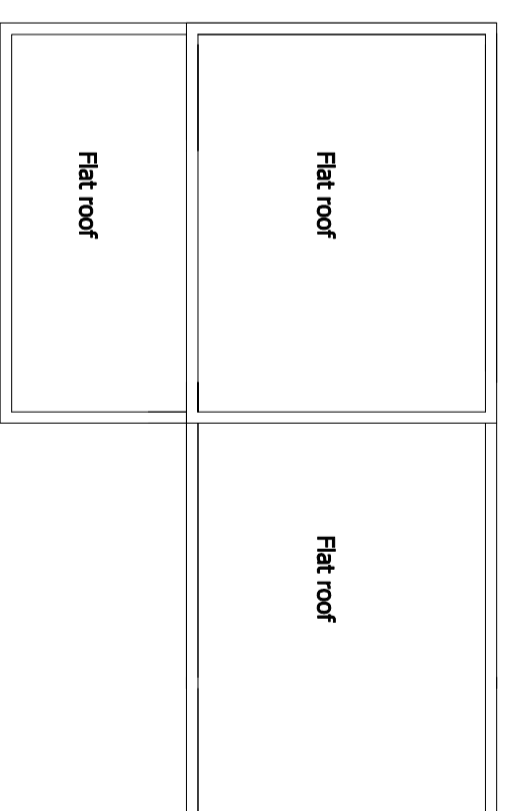
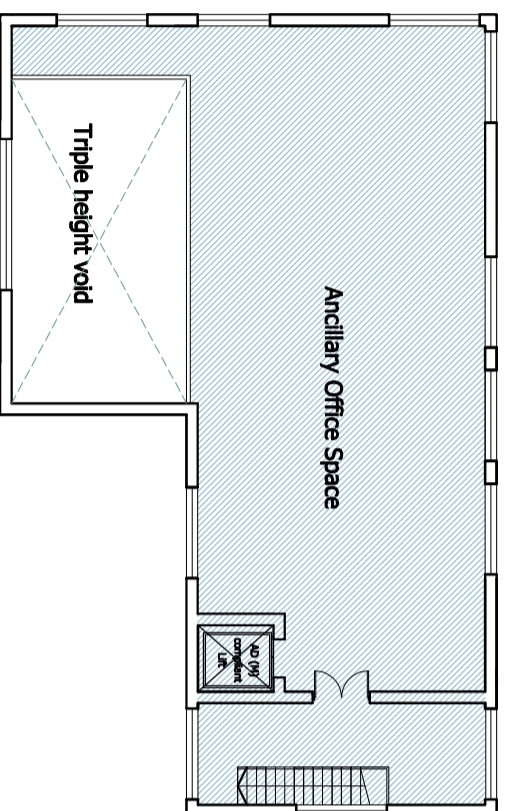
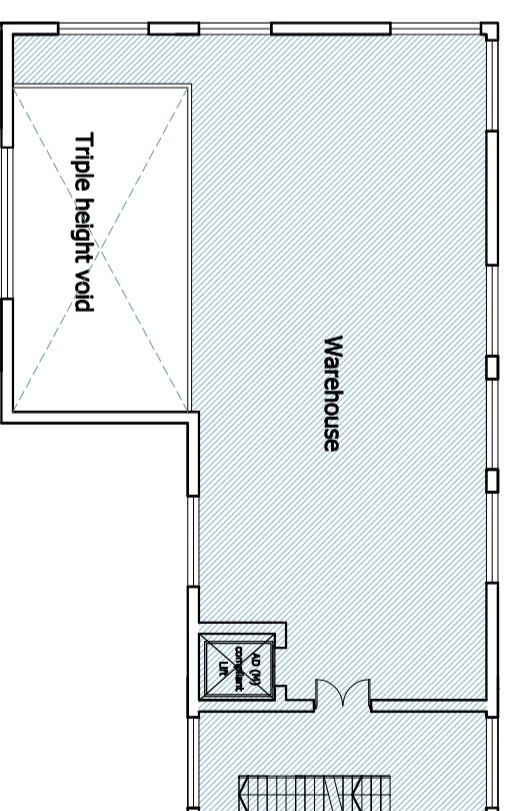
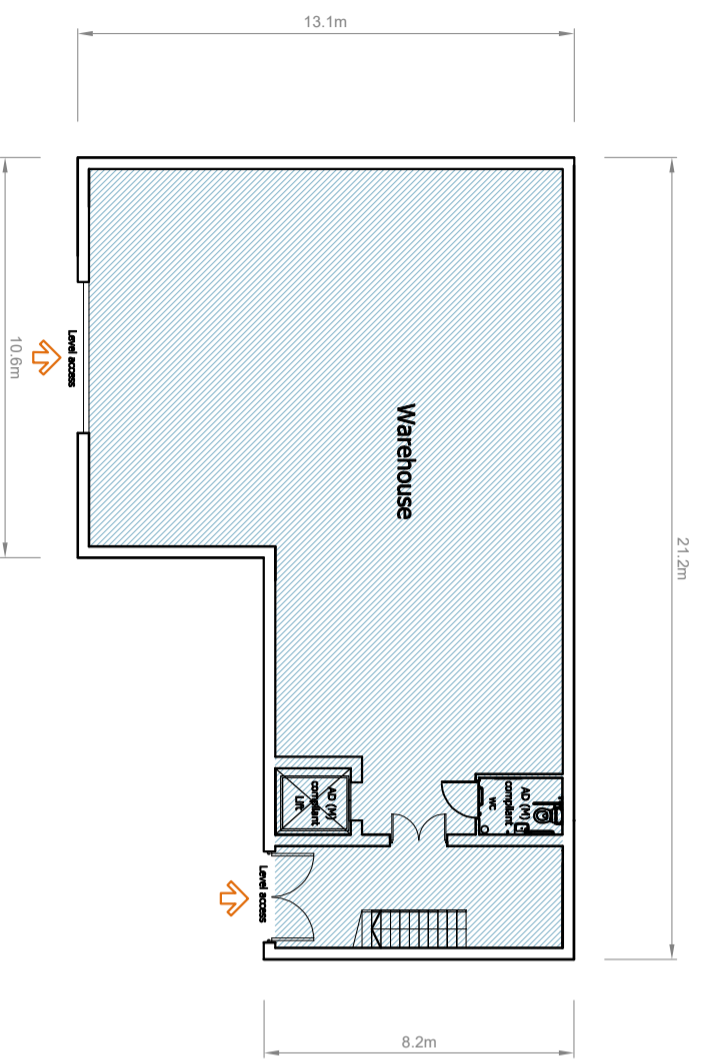
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1



**Granville House,
Wallingford Road,
Uxbridge UB8 2RW
PROPOSED FLOOR PLANS**

Scale 1:200 at A3

Drawing No. CMR / P25 / 05 Rev. C

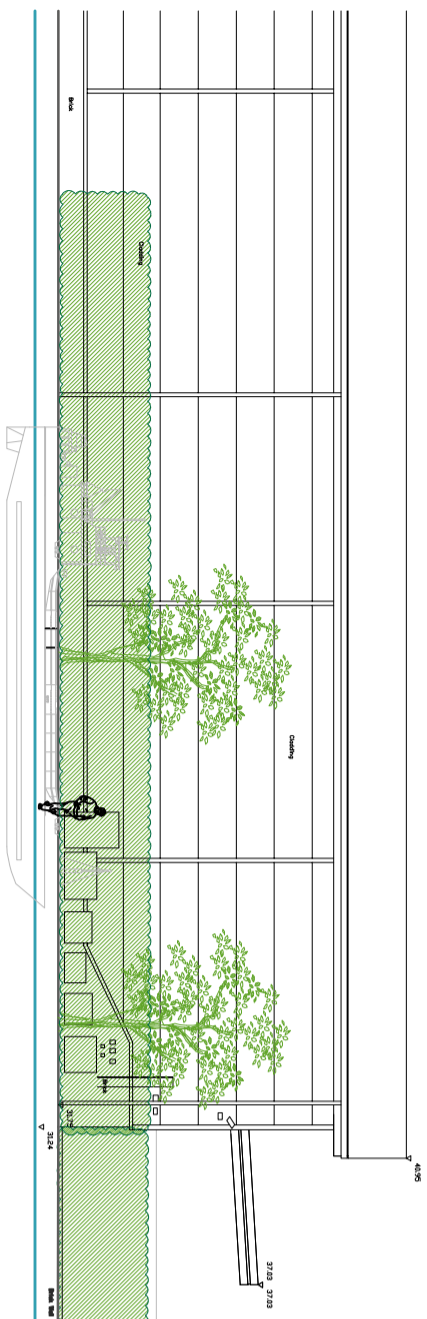
MATERIALS
Red brickwork
Silver cladding panel system
Aluminium windows and doors

**Granville House,
Wallingford Road,
Uxbridge UB8 2RW**

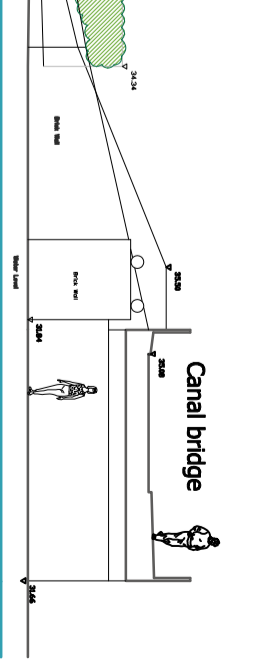
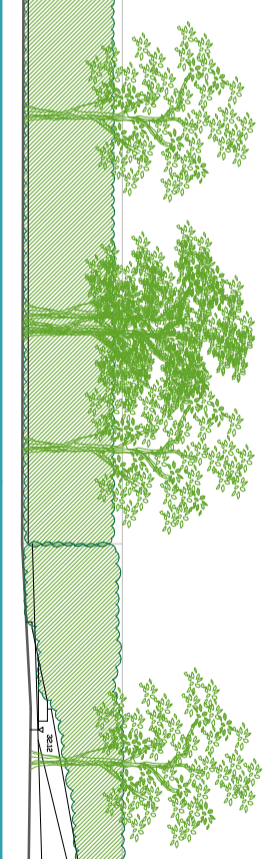
**EXISTING AND PROPOSED
EAST ELEVATION (TO CANAL)**
Scale 1:200 at A3

Drawing No. CMR / P25 / 06 Rev. C

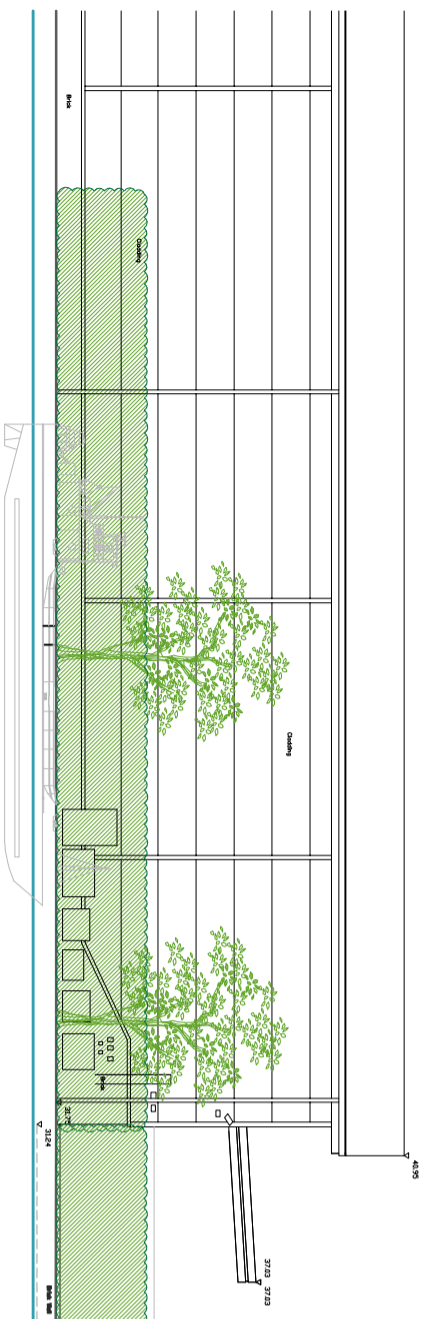
Granville House



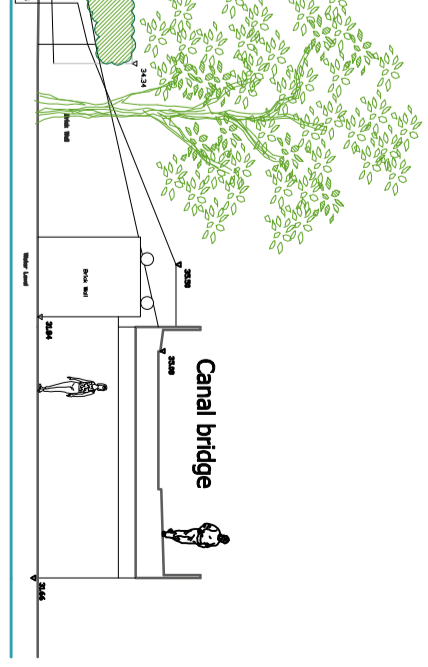
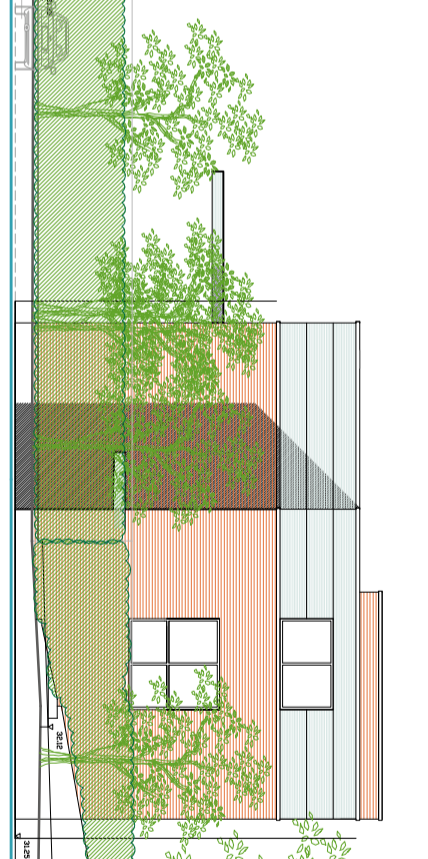
EXISTING



Granville House



PROPOSED

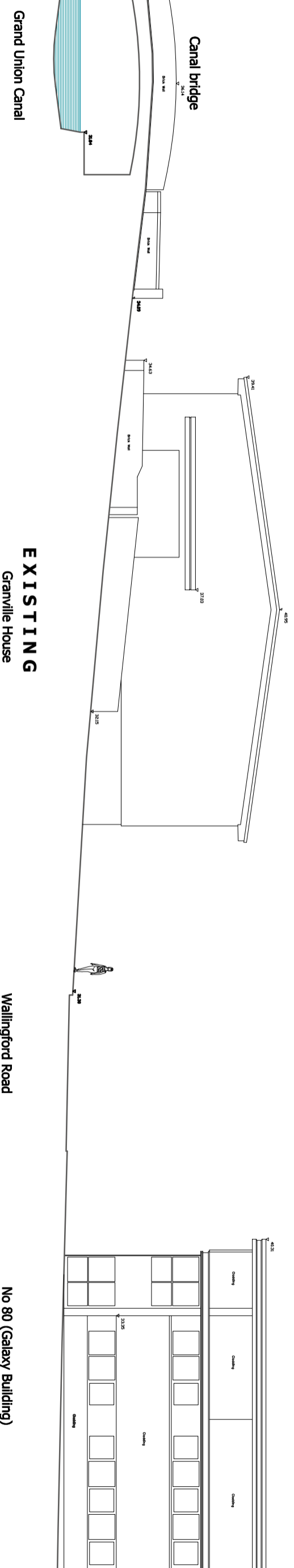


Proposed building



MATERIALS
 Red brickwork
 Silver cladding panel system
 Aluminium windows and doors

**Granville House,
 Wallingford Road,
 Uxbridge UB8 2RW**
**EXISTING AND PROPOSED
 NORTH ELEVATION
 (TO COWLEY MILL ROAD)**
 Scale 1:200 at A3
Drawing No. CMR / P25 / 07 Rev. C

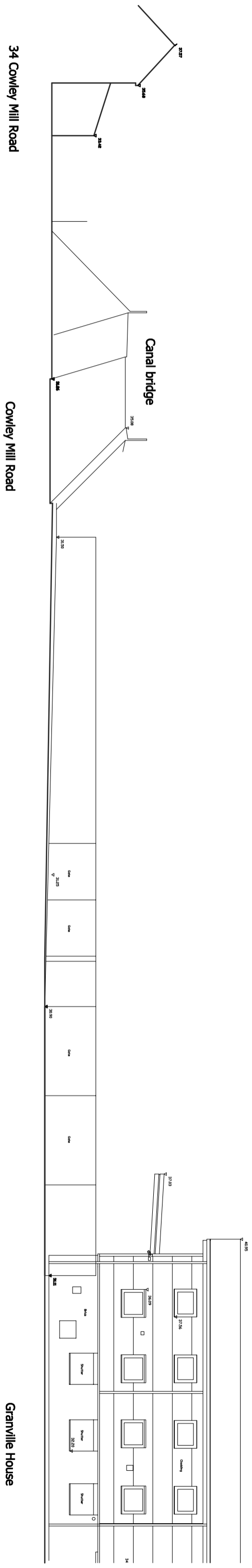


MATERIALS
Red brickwork
Silver cladding panel system
Aluminium windows and doors

**Granville House,
Wallingford Road,
Uxbridge UB8 2RW**

**EXISTING AND PROPOSED
WEST ELEVATION**
Scale 1:200 at A3

Drawing No. CMR / P25 / 08 Rev. C



EXISTING



34 Cowley Mill Road

Cowley Mill Road

Proposed building

Granville House



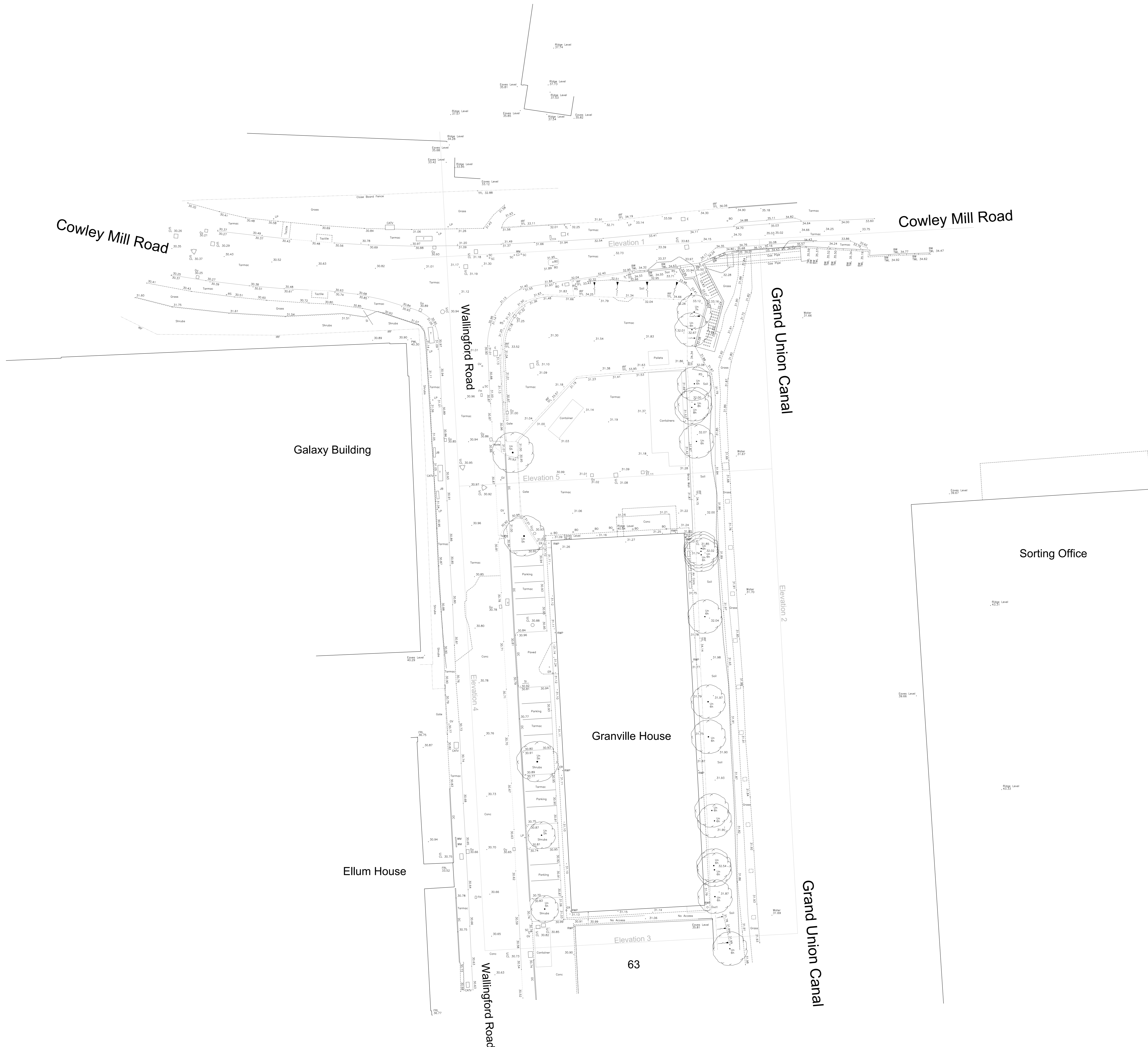
Appendix B



Note:

For safety reasons all underground drainage details are by visual inspection only.

Drainage must be verified on site before the commencement of any works.



Abbreviations:

| | | | |
|------|-----------------------|------|----------------------|
| BE | Bare Earth | OBF | Open Board Fence |
| Bol | Bollard | O/H | Overhead |
| BP | Brick Paving | OHC | Overhead Cable |
| BRW | Brick Retaining Wall | P | Post |
| BS | Bus Stop | PCF | Post & Chain Fence |
| BW | Brick Wall | PWL | Parapet Wall Fence |
| CATV | Cable TV | PRF | Post & Rail Fence |
| CBF | Close Board Fence | PWF | Post & Wire Fence |
| CL | Cover Level | RE | Rodding Eye |
| CLF | Chain Link Fence | RG | Road Gully |
| Conc | Concrete | RL | Ridge Level |
| CPS | Concrete Paving Slabs | RNP | Road Name Plate |
| CDC | Conc Drainage Channel | RS | Road Sign |
| DK | Drop Kerb | RW | Retaining Wall |
| DTL | Door Threshold | RWP | Rain Water Pipe |
| E | Electricity | SB | Silver Birch |
| EL | Eaves Level | SI | Sign Post |
| EP | Electricity Pole | SC | Stop Cock |
| ER | Earthing Rod | SPF | Stock Proof Fence |
| FH | Fire Hydrant | SRW | Stone Retaining Wall |
| FRL | Fist Roof Level | ST | Stump |
| GV | Gas | SV | Stop Valve |
| GP | Gate Post | SW | Stone Wall |
| Gu | Gully | Syc | Sycamore |
| h | Height (metres) | T | Telephone |
| IL | Invert Level | TFL | Top of Fence Level |
| IR | Iron Railing | TPav | Tactile Paving |
| IRF | Iron Railing Fence | Un | Unidentified |
| JB | Junction Box | UTL | Unable to Raise |
| LPN | London Plane | V | Vent |
| LPO | Lamp Post | VP | Vent Pipe |
| Mkr | Marker | W | Water |
| IC | Inspection Cover | | |
| MPF | Metal Palisade Fence | | |

Benchmark Details:

Survey Grid set to Ordnance Survey Grid via RTK network.
All Levels related to Ordnance Survey Datum via RTK network.

Drawing Title:

Topographical Survey

Job Title:

Granville House
Wallinford Road
Uxbridge
UB8 2RW

Scale: 1/200 Size: A0 Date: Feb 2025



Appendix C

Search address supplied: Kudos, Granville House, Wallingford Road, Uxbridge, UB8 2RW

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position and size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0800 009 4540, or use the contact details below:

Thames Water Utilities Ltd
Property Searches
Clearwater Court
Vastern Road
Reading
RG1 8DB

Email: property.searches@thameswater.co.uk

Web: thameswater.co.uk/propertysearches

Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority. Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners. The public sewer map relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus. The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

With regard to the fresh water supply, this site falls within the boundary of another water company. For more information, please redirect your enquiry to the following address:

Affinity Water Ltd

Asset Location Search



Property Searches

Tamblin Way
Hatfield
AL10 9EZ
Tel: 0845 7823333

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. You can do this by emailing customer.feedback@thameswater.co.uk with the email subject header 'Enquiry – TWOSA', along with details of the request.

If you have any questions regarding sewer connections, budget estimates, diversions or building over issues please direct them to our service desk which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Clean Water queries

Should you require any advice concerning clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available
















| Manhole Reference | Manhole Cover Level | Manhole Invert Level |
|-------------------|---------------------|----------------------|
| 9209 | n/a | n/a |
| 9201 | n/a | n/a |
| 0201 | 30.54 | 27.61 |
| 0205 | n/a | n/a |
| 0101 | n/a | n/a |
| 0204 | n/a | n/a |
| 021A | n/a | n/a |
| 021G | n/a | n/a |
| 9102 | 30.93 | 28.38 |
| 9105 | 30.9 | 29.2 |
| 9103 | 30.94 | 28.39 |
| 9202 | n/a | n/a |
| 8204 | n/a | n/a |
| 9205 | n/a | n/a |
| 8211 | n/a | n/a |
| 8210 | n/a | n/a |
| 8209 | n/a | n/a |
| 8203 | n/a | n/a |
| 9203 | n/a | n/a |
| 821E | n/a | n/a |
| 9204 | 30.78 | 29.39 |
| 821D | n/a | n/a |
| 911C | n/a | n/a |
| 911A | n/a | n/a |
| 911B | n/a | n/a |
| 9101 | 30.58 | 28.19 |
| 9104 | 30.58 | 28.98 |

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.









Asset Location Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

-  **Foul Sewer:** A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
-  **Surface Water Sewer:** A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.
-  **Combined Sewer:** A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
-  Storm Sewer
-  Sludge Sewer
-  Foul Trunk Sewer
-  Surface Trunk Sewer
-  Combined Trunk Sewer
-  Foul Rising Main
-  Surface Water Rising Main
-  Combined Rising Main
-  Vacuum
-  Thames Water Proposed
-  Vent Pipe
-  Gallery

Other Sewer Types (Not operated and maintained by Thames Water)

-  Sewer
-  Culverted Watercourse
-  Proposed
-  Decommissioned Sewer
-  Content of this drainage network is currently unknown
-  Ownership of this drainage network is currently unknown

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plan are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

-  Air Valve
-  Meter
-  Dam Chase
-  Vent
-  Fitting

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

-  Ancillary
-  Drop Pipe
-  Control Valve
-  Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

-  Inlet
-  Outfall
-  Undefined End




Other Symbols

Symbols used on maps which do not fall under other general categories.

-  Change of Characteristic Indicator
-  Public / Private Pumping Station
-  Invert Level
-  Summit

Areas

Lines denoting areas of underground surveys, etc.

-  Agreement
-  Chamber
-  Operational Site

Ducts or Crossings

-  Casement
 -  Conduit Bridge
 -  Subway
 -  Tunnel
- Ducts may contain high voltage cables. Please check with Thames Water.

5) 'na' or 'of' on a manhole indicates that data is unavailable.

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology, please contact Property Searches on 0800 009 4540.

Appendix D



TQ 08 SE/3
" 255
Mid. sec 6" 14 WE 1W
a. A051831

GROUND EXPLORATIONS LIMITED
BOREHOLE SECTION SHEET

Date **May**, 19.. **53**

CONTRACT NAME **PAUL Y**

ORDER NO. **UX-007334**

Bored for : **North Thames Gas Board.**

Address : **Uxbridge District.**

Address of Site : **Cowley Mill Road.**

District or Town : **Uxbridge.**

County : **Middlesex.**

Standing Water Level : **4'4"**

Below Surface :

Dia. of Borehole : **6** Inches.

Water Struck (1) **4'6"** (2) (3)

Boring Commenced : **21. 4. 53.**

Boring Completed : **21. 4. 53.**

Special Remarks :

Jar Samples : **3'0"-7301; 5'0"-7302; 11'0"-7303; 13'0"-7307; 18'6"-7308;
25'0"-7309; 30'0"-7310; 35'0"-7311; 40'0"-7312; Water-7 13;
Water-7303;**

Core Samples : **15'0"-16'6"-7314; 20'0"-21'6"-7315; 30'0"-31'6"-7316;
36'6"-40'0"-7317;**

Gravel Samples : **5'0"-7304; 10'0"-7305;**

| DESCRIPTION OF STRATA | Thickness | | Depth Below Surface | |
|---|-----------|----------|---------------------|----------|
| | Feet | Inches | Feet | Inches |
| Clients are requested to examine the samples of the Strata submitted, as the descriptions employed below are general terms and responsibility is not accepted for their application to commercial purposes. | | | | |
| No. 1 Boring | | | | |
| Topsoil | 0 | 3 | 0 | 3 |
| Sandy Clay and Lenses | 4 | 3 | 4 | 6 |
| Gravel and Sand | 7 | 0 | 11 | 6 |
| Brown Clay | 1 | 6 | 13 | 0 |
| Blue Clay | 27 | 0 | 40 | 0 |
| TOTAL FROM SURFACE ... | 40 | 0 | 40 | 0 |

This form is to be returned to Head Office immediately the borehole is finished.

Foreman's Signature..... Date **May, 1953.**



TQ 08SE/3
b. 051 831

GROUND EXPLORATIONS LIMITED
BOREHOLE SECTION SHEET

Date May 1953

CONTRACT NAME **DANLEY.**

ORDER NO. **Os-007334**

Bored for: **North Thames Gas Board**

Address: **Unbridge District.**

Address of Site: **Ooley Hill Road.**

District or Town: **Unbridge.**

County: **Middlesex.**

Standing Water Level: **4'0 1/2"**

Below Surface:

Dia. of Borehole: **6** Inches.

Water Struck (1) **6'6"** (2)

(3)

Boring Commenced: **21. 4. 53.**

Boring Completed: **24. 3. 53.**

Special Remarks:

Standing water level measured after hole had been left open during weekend.

Jar Samples: **2'0"-7310; 5'0"-7319; 8'0"-7320; 5'0"-7322; 10'0"-7323;
15'0"-7324; 20'0"-7325; 25'0"-7326; 30'0"-7327; 35'0"-7328;
40'0"-7329; Water-7321;**

Core Samples: **15'0"-6'6"-7330; 20'0"-21'6"-7331; 30'0"-31'6"-7332;
40'0"-41'6"-7333;**

| DESCRIPTION OF STRATA | Thickness | | Depth Below Surface | |
|--|-----------|--------|---------------------|--------|
| | Feet | Inches | Feet | Inches |
| <p>Clients are requested to examine the samples of the Strata submitted, as the descriptions employed below are general terms and responsibility is not accepted for their application to commercial purposes.</p> | | | | |
| <p>b No. 2 Boring</p> | | | | |
| Topsoil | 0 | 3 | 0 | 3 |
| Bandy Clay and stones | 1 | 6 | 1 | 9 |
| Gravel and sand | 6 | 3 | 8 | 0 |
| Brown Clay | 2 | 0 | 10 | 0 |
| Blue Clay | 31 | 6 | 41 | 6 |
| TOTAL FROM SURFACE ... | 41 | 6 | 41 | 6 |

This form is to be returned to Head Office immediately the borehole is finished.

Foreman's Signature..... Date May 1953.



TQ 08 SE/3
C. 051826.

GROUND EXPLORATIONS LIMITED
BOREHOLE SECTION SHEET

Date May, 1953.

CONTRACT NAME DARTLEY. ORDER NO. Ma-007334

Bored for: North Thames Gas Board.

Address: Uxbridge District.

Address of Site: Cowley Hill Road.

District or Town: Uxbridge.

County: Middlesex.

Standing Water Level: 5' 2 1/2" Below Surface: Dia. of Borehole: 6 Inches.

Water Struck (1) 5' 6" (2) (3)

Boring Commenced: 27. 4. 53. Boring Completed: 28. 4. 53.

Special Remarks:

Jar Samples: 3' 0"-7334; 3' 6"-7335; 10' 0"-7336; 10' 6"-7337; 15' 0"-7340;
20' 0"-7341; 25' 0"-7342; 30' 0"-7343; 35' 0"-7344; 40' 0"-7345;
40' 6"-7346; 40' 6"-7347;

Core Samples: 15' 0"-16' 6"-7346; 20' 0"-21' 6"-7347; 30' 0"-31' 6"-7348;
36' 6"-40' 0"-7349;

| DESCRIPTION OF STRATA | Thickness | | Depth Below Surface | |
|---|-----------|--------|---------------------|--------|
| | Feet | Inches | Feet | Inches |
| Clients are requested to examine the samples of the Strata submitted, as the descriptions employed below are general terms and responsibility is not accepted for their application to commercial purposes. | | | | |
| No. <u>3</u> Boring | | | | |
| Topsoil | 0 | 3 | 0 | 3 |
| Sandy Clay and Stones | 3 | 0 | 3 | 3 |
| Gravel | 3 | 6 | 6 | 9 |
| Brown Clay | 3 | 3 | 10 | 0 |
| Blue Clay | 30 | 0 | 40 | |
| (Claystones at 11' 6"-12' 0" and 23' 0"-24' 0") | | | | |
| TOTAL FROM SURFACE ... | | | | |
| | 40 | 0 | 40 | 0 |

This form is to be returned to Head Office immediately the borehole is finished.

Foreman's Signature..... Date May, 1953.



TQ 08 SE/3
1" 255
Mid rise 6" 14 WE 1W
a. A051831

GROUND EXPLORATIONS LIMITED
BOREHOLE SECTION SHEET

Date **May**, 19.. **53**

CONTRACT NAME **DANLY**

ORDER No. **HS-007334**

Bored for : **North Thames Gas Board.**

Address : **Uxbridge District.**

Address of Site : **Cowley Mill Road.**

District or Town : **Uxbridge.**

County : **Middlesex.**

Standing Water Level : **4' 4"**

Below Surface :

Dia. of Borehole : **6** Inches.

Water Struck (1) **4' 6"** (2) (3)

Boring Commenced : **21. 4. 53.**

Boring Completed : **23. 4. 53.**

Special Remarks :

Jar Samples : **3' 0"-7301; 5' 0"-7302; 11' 0"-7306; 13' 0"-7307; 18' 6"-7308;
25' 0"-7309; 30' 0"-7310; 35' 0"-7311; 40' 0"-7312; Water-7 13;
Water-7303;**

Core Samples : **15' 0"-16' 6"-7314; 20' 0"-21' 6"-7315; 30' 0"-31' 6"-7316;
36' 6"-40' 0"-7317;**

Gravel Samples : **5' 0"-7304; 10' 0"-7305;**

| DESCRIPTION OF STRATA | Thickness | | Depth Below Surface | |
|---|-----------|--------|---------------------|--------|
| | Feet | Inches | Feet | Inches |
| Clients are requested to examine the samples of the Strata submitted, as the descriptions employed below are general terms and responsibility is not accepted for their application to commercial purposes. | | | | |
| No. 1 Boring | | | | |
| Topsoil | 0 | 3 | 0 | 3 |
| Sandy Clay and Lenses | 4 | 3 | 4 | 6 |
| Gravel and Sand | 7 | 0 | 11 | 6 |
| Brown Clay | 1 | 6 | 13 | 0 |
| Blue Clay | 27 | 0 | 40 | 0 |
| TOTAL FROM SURFACE ... | | | | |
| | 40 | 0 | 40 | 0 |

This form is to be returned to Head Office immediately the borehole is finished.

Foreman's Signature..... Date **May, 1953.**



TQ 08 SE/3
C. 051826.

GROUND EXPLORATIONS LIMITED
BOREHOLE SECTION SHEET

Date May, 1953.

CONTRACT NAME DAVLEY. ORDER NO. Ma-007334

Bored for: North Thames Gas Board.

Address: Uxbridge District.

Address of Site: Cowley Hill Road.

District or Town: Uxbridge.

County: Middlesex.

Standing Water Level: 5'0 1/2" Below Surface: Dia. of Borehole: 6 Inches.

Water Struck (1) 5'6" (2) (3)

Boring Commenced: 27. 4. 53. Boring Completed: 28. 4. 53.

Special Remarks:

Jar Samples: 3'0"-7334; 3'6"-7335; 10'0"-7336; 10'6"-7337; 15'0"-7340;

20'0"-7341; 25'0"-7342; 30'0"-7343; 35'0"-7344; 40'0"-7345;

Water-7336; Water-7337;

Core Samples: 15'0"-16'6"-7346; 20'0"-21'6"-7347; 30'0"-31'6"-7348;

36'6"-40'0"-7349;

| DESCRIPTION OF STRATA | Thickness | | Depth Below Surface | |
|---|-----------|--------|---------------------|--------|
| | Feet | Inches | Feet | Inches |
| <p>Clients are requested to examine the samples of the Strata submitted, as the descriptions employed below are general terms and responsibility is not accepted for their application to commercial purposes.</p> <p>No. <u>3</u> Boring</p> | | | | |
| Topsoil | 0 | 3 | 0 | 3 |
| Sandy Clay and Stones | 3 | 0 | 3 | 3 |
| Gravel | 3 | 6 | 6 | 9 |
| Brown Clay | 3 | 3 | 10 | 0 |
| Blue Clay | 30 | 0 | 40 | |
| (Claystones at 11'6"-12'0" and 23'0"-24'0") | | | | |
| TOTAL FROM SURFACE ... | | | | |
| | 40 | 0 | 40 | 0 |

This form is to be returned to Head Office immediately the borehole is finished.

Foreman's Signature..... Date May, 1953.

Appendix E

The London Sustainable Drainage Proforma

Introduction

This proforma is intended to accompany a drainage strategy prepared for a planning application where required by national or local planning policy. It should be used to summarise the key outputs from the strategy to allow assessing officers at the Lead Local Flood Authority (LLFA) to quickly assess compliance with sustainable drainage (SuDS) planning

The proforma is divided into 4 sections, which are intended to be used as follows:

1. Site and project information - Provide summary details of the development, site and drainage
2. Proposed discharge arrangement – Summarise site ground conditions to determine potential for infiltration. Select a surface water discharge method (or mix of methods) following the hierarchical approach set out in the London Plan.
3. Drainage strategy – Prioritise SuDS measures that manage runoff as close to source as possible and contribute to the four main pillars of SuDS; amenity, biodiversity, water quality and water quantity.
4. Supporting information – Provide cross references to the page or section of the drainage strategy report where the detailed information to support each element can be found. This may be more than one reference for each

Policy

Drainage strategies for developments in the London Borough of Hillingdon need to comply with the following policies on SuDS:

1. [London Borough of Hillingdon Local Plan policies EM 6 and DMEI 10](#)
2. [London Plan policy 5.13](#) and draft [New London Plan policy S13](#)
3. [The National Planning Policy Framework \(NPPF\)](#)

Technical Guidance

- Post-development surface water discharge rate should be limited to greenfield runoff rates. Proposals for higher discharge rates should be agreed with the LLFA ahead of submission of the Planning Application. Clear evidence should be provided with the Planning Application to show why greenfield rates cannot be achieved.
- Greenfield runoff rate is the runoff rate from a site in its natural state, prior to any development. This should be calculated using one of the runoff estimation methods set out in Table 24.1 of CIRIA C753 The SuDS Manual.
- Attenuation storage volumes required to reduce post-development discharge rates to greenfield rates should be calculated using one of the runoff estimation methods set out in Table 24.1 of CIRIA C753 The SuDS Manual.
- 'CC' refers to climate change allowance from the current Environment Agency guidance.
- An operation and maintenance strategy for proposed SuDS measures should be submitted with the Planning Application and include the details set out in section 32.2 of CIRIA C753 The SuDS Manual. The manual should be site-specific and not directly reproduce parts of The SuDS Manual.
- Other useful sources of guidance are:
 - [o London Borough of Hillingdon sustainable drainage requirements](#)
 - [o The London Plan Sustainable Design and Construction SPG](#)
 - [o DEFRA non-statutory technical standards for sustainable drainage](#)
 - [o Environment Agency climate change guidance](#)
 - [o CIRIA C753 The SuDS Manual](#)

| | | |
|---------------------------|---|---|
| 1. Project & Site Details | Project / Site Name (including sub-catchment / stage / phase where appropriate) | Granville House, Uxbridge |
| | Address & post code | Granville House, Wallingford Road, Uxbridge, UB8 2RW |
| | OS Grid ref. (Easting, Northing) | E 504954 |
| | | N 183211 |
| | LPA reference (if applicable) | |
| | Brief description of proposed work | the provision of a new warehouse building with associated parking and servicing in the existing carpark at Granville House. |
| | Total site Area | 2600 m ² |
| | Total existing impervious area | m ² |
| | Total proposed impervious area | m ² |
| | Is the site in a surface water flood risk catchment (ref. local Surface Water Management Plan)? | |
| | Existing drainage connection type and location | |
| | Designer Name | |
| | Designer Position | |
| Designer Company | | |

| | | | |
|---|--|-----------------------|-----------------------|
| 2. Proposed Discharge Arrangements | 2a. Infiltration Feasibility | | |
| | Superficial geology classification | Alluvium | |
| | Bedrock geology classification | London Clay | |
| | Site infiltration rate | m/s | |
| | Depth to groundwater level | m below ground level | |
| | Is infiltration feasible? | No | |
| | 2b. Drainage Hierarchy | | |
| | | <i>Feasible (Y/N)</i> | <i>Proposed (Y/N)</i> |
| | 1 store rainwater for later use | Y | 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 | Y | Y |
| | 5 discharge rainwater direct to a watercourse | Y | N |
| | 6 discharge rainwater to a surface water sewer/drain | Y | N |
| | 7 discharge rainwater to the combined sewer. | N | N |
| | 2c. Proposed Discharge Details | | |
| Proposed discharge location | TWMH 9105 | | |
| Has the owner/regulator of the discharge location been consulted? | Y | | |

| 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 | | | | |
| 1 in 1 | 0.3 | 11.59 | | 1.1 |
| 1 in 30 | 0.81 | 25.80 | | 1.1 |
| 1 in 100 | 1.1 | 32.84 | | 1.1 |
| 1 in 100 + CC | | | | 1.1 |
| Climate change allowance used | | 40% | | |
| 3b. Principal Method of Flow Control | | | | |
| 3c. Proposed SuDS Measures | | | | |
| | Catchment area (m ²) | Plan area (m ³) | Storage vol. (m ³) | |
| Rainwater harvesting | 0 | | 0 | |
| Infiltration systems | 0 | | 0 | |
| Green roofs | 0 | 0 | 0 | |
| Blue roofs | 0 | 0 | 0 | |
| Filter strips | 0 | 0 | 0 | |
| Filter drains | 0 | 0 | 0 | |
| Bioretention / tree pits | 0 | 0 | 0 | |
| Pervious pavements | 0 | 0 | 0 | |
| Swales | 0 | 0 | 0 | |
| Basins/ponds | 0 | 0 | 0 | |
| Attenuation tanks | 0 | | 0 | |
| Total | 0 | 0 | 0 | |

3. Drainage Strategy

| 4a. Discharge & Drainage Strategy | Page/section of drainage report |
|---|---------------------------------|
| Infiltration feasibility (2a) – geotechnical factual and interpretive reports, including infiltration results | 21 |
| Drainage hierarchy (2b) | 20 |
| Proposed discharge details (2c) – utility plans, correspondence / approval from owner/regulator of discharge location | 22 |
| Discharge rates & storage (3a) – detailed hydrologic and hydraulic calculations | 21, 23 |
| Proposed SuDS measures & specifications (3b) | 21 – 25 |
| 4b. Other Supporting Details | Page/section of drainage report |
| Detailed Development Layout | |
| Detailed drainage design drawings, including exceedance flow routes | |
| Detailed landscaping plans | |
| Maintenance strategy | |
| Demonstration of how the proposed SuDS measures improve: | |
| a) water quality of the runoff? | |
| b) biodiversity? | |
| c) amenity? | |

4. Supporting Information

Appendix F

PRELIMINARY DRAINAGE CALCULATIONS

EXISTING SURFACE WATER

Existing site information:

| | | |
|--------------------|--------|----------------|
| Site Boundary Area | 2570 | m ² |
| Developable Area | 0.0821 | ha |
| Impermeable Area | 0.0821 | ha |



Modified Rational Method Equation:

$$Q_n = 2.78 CiA$$

where:

| | | | |
|-------|--|---|--|
| C | Runoff Coefficient = | 1 | (in this case 1 as using impermeable area) |
| i_n | Rainfall Intensity for n return period (mm/hr) | | |
| A | Impermeable Area (Ha) | | |
| Q_n | Runoff for n return period (l/s) | | |

The rainfall intensities for various return periods were extracted from Table 1(a) of the Transport and Road Research Laboratory Report - Estimated rainfall for drainage calculations in the United Kingdom (TRRL Report LR 595) by C. P. Young. For the 5 min duration.

| | |
|-----------|--------------|
| i_1 | 50.8 mm/hr |
| i_{30} | 113.02 mm/hr |
| i_{100} | 143.9 mm/hr |

Existing Surface Water Runoff:

Therefore:

| | | | C | | i_n | | A | | Q_n |
|-----------|------|---|-----|---|-------|---|--------|---|------------------|
| Q_1 | 2.78 | x | 1 | x | 50.8 | x | 0.0821 | = | 11.59 l/s |
| Q_{30} | 2.78 | x | 1 | x | 113.0 | x | 0.0821 | = | 25.80 l/s |
| Q_{100} | 2.78 | x | 1 | x | 143.9 | x | 0.0821 | = | 32.84 l/s |

Greenfield runoff

Method

Method

FEH statistical

| | <u>My value</u> | | <u>Map value</u> |
|------------------------------|------------------------------------|-----|------------------------------------|
| SAAR (mm) | <input type="text" value="636"/> | mm | <input type="text" value="636"/> |
| BFIHOST | <input type="text" value="0.283"/> | | |
| QMed-QBar conversion | <input type="text" value="1.136"/> | | <input type="text" value="1.136"/> |
| QMed (l/s) | <input type="text" value="0.311"/> | l/s | |
| QBar (FEH statistical) (l/s) | <input type="text" value="0.35"/> | l/s | |

Growth curve factors

| | <u>My value</u> | | <u>Map value</u> |
|------------------------|-----------------------------------|--|--------------------------------|
| Hydrological region | <input type="text" value="6"/> | | <input type="text" value="6"/> |
| 1 year growth factor | <input type="text" value="0.85"/> | | |
| 2 year growth factor | <input type="text" value="0.88"/> | | |
| 10 year growth factor | <input type="text" value="1.62"/> | | |
| 30 year growth factor | <input type="text" value="2.3"/> | | |
| 100 year growth factor | <input type="text" value="3.19"/> | | |
| 200 year growth factor | <input type="text" value="3.74"/> | | |

Results

| | | |
|---------------------------|--|-----|
| Method | <input type="text" value="FEH statistical"/> | |
| Flow rate 1 year (l/s) | <input type="text" value="0.3"/> | l/s |
| Flow rate 2 year (l/s) | <input type="text" value="0.31"/> | l/s |
| Flow rate 10 years (l/s) | <input type="text" value="0.57"/> | l/s |
| Flow rate 30 years (l/s) | <input type="text" value="0.81"/> | l/s |
| Flow rate 100 years (l/s) | <input type="text" value="1.1"/> | l/s |
| Flow rate 200 years (l/s) | <input type="text" value="1.3"/> | l/s |

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.0.1) developed by HR Wallingford and available at [uksuds.com](https://www.uksuds.com/) (<https://www.uksuds.com/>).

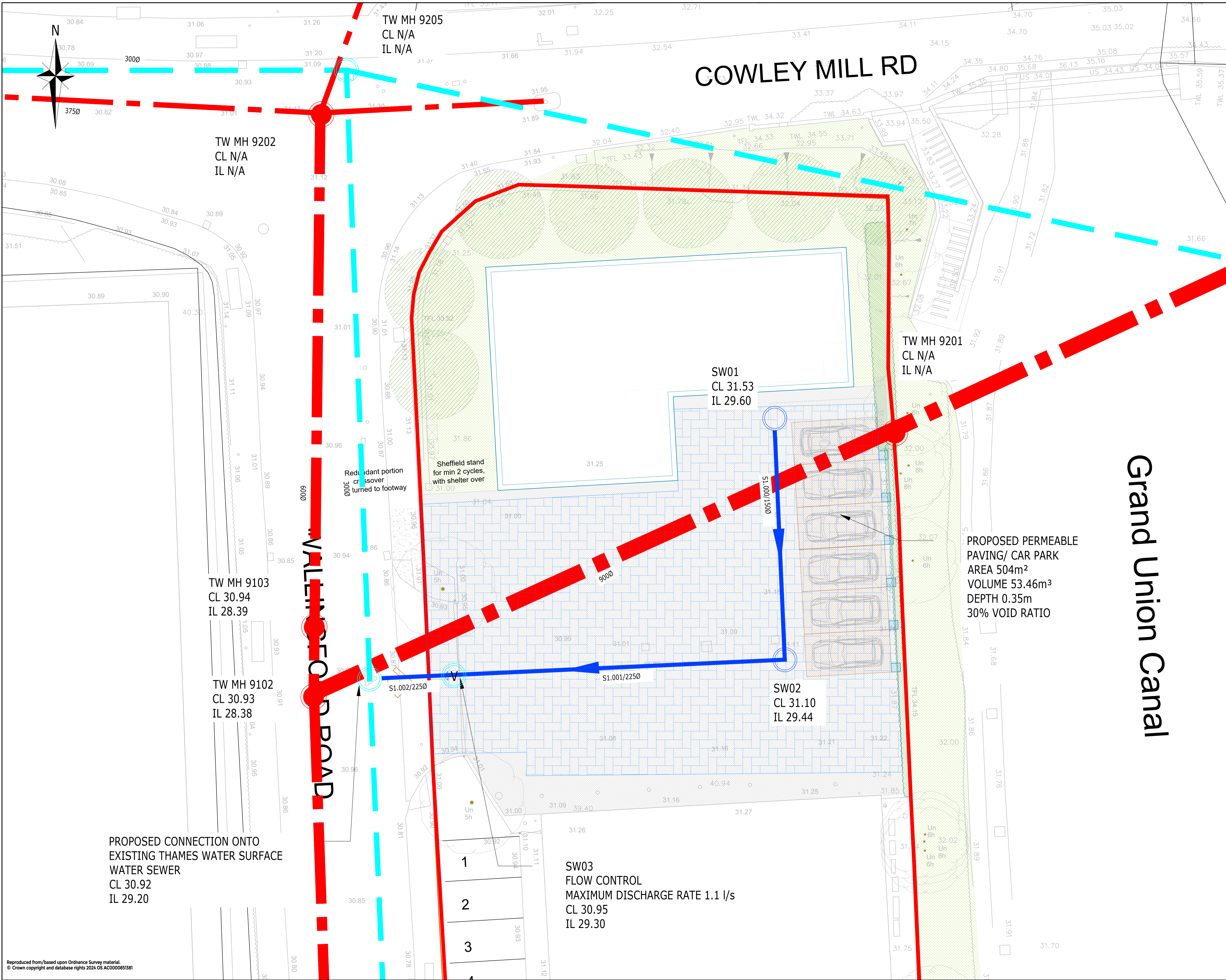
The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at [uksuds.com/terms-conditions](https://www.uksuds.com/terms-conditions)

(<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the

responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford

Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

Appendix G



LEGEND:

- SITE BOUNDARY
- PROPOSED SURFACE WATER SEWER
- EXISTING THAMES WATER SURFACE WATER SEWER
- EXISTING THAMES WATER FOUL WATER SEWER
- V PROPOSED FLOW CONTROL DEVICE
- ▨ PROPOSED PERMEABLE PAVING (30% VOID RATIO)

- NOTES:**
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION, INC. RISK ASSESSMENTS AND ALL OTHER RELATED DRAWINGS ISSUED BY THE ENGINEER.
 2. DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY.
 3. ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN METRES UNLESS OTHERWISE STATED.
 4. ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES ARE TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
 5. NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER.
 6. ANY WORKS OUTSIDE RED SITE BOUNDARY ARE FOR INFORMATION PURPOSES ONLY. UNLESS SPECIFICALLY NOTED, ALL WORKS OUTSIDE THE SITE BOUNDARY WILL BE UNDERTAKEN BY OTHERS UNDER A SEPARATE CONTRACT.



| | | | | | |
|-------------|----------------|---------|-----|-----|----------|
| B | Layout amended | LE | lb | BC | 01/03/26 |
| A | Layout amended | LE | JS | BC | 10/09/25 |
| Rev | Description | Drn | Chk | App | Date |
| Purpose: | | Status: | | | |
| PRELIMINARY | | - | | | |

ARDENT CONSULTING ENGINEERS
AN EMPLOYEE OWNED COMPANY

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52-56 Leadenhall Street
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EC3M 5JE

Tel: 020 7680 4088
Web: www.ardent-ce.co.uk
E-mail: enquiries@ardent-ce.co.uk

Client: **KUDOS ROADSHOW LTD**

Project Title: **GRANVILLE HOUSE, UXBRIDGE**

Drawing Title: **SURFACE WATER DRAINAGE STRATEGY**

| | | | |
|--|-------------------------|-------------|----------------------|
| Drawn by LE | Checked by JS | Approved by | Revision A |
| At Scale 1:100 | Date 04:06:25 | | |
| Drawing Number 2502850-ACE-XX-DR-C-0001A | | | |

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Appendix H

Design Settings

| | | | |
|--------------------------------------|--------|------------------------------------|---------------|
| Rainfall Methodology | FEH-22 | Minimum Velocity (m/s) | 1.00 |
| Return Period (years) | 100 | Connection Type | Level Inverts |
| Additional Flow (%) | 40 | Minimum Backdrop Height (m) | 0.200 |
| CV | 0.750 | Preferred Cover Depth (m) | 1.200 |
| Time of Entry (mins) | 4.00 | Include Intermediate Ground | ✓ |
| Maximum Time of Concentration (mins) | 30.00 | Enforce best practice design rules | ✓ |
| Maximum Rainfall (mm/hr) | 50.0 | | |

Nodes

| Name | Area (ha) | T of E (mins) | Cover Level (m) | Diameter (mm) | Easting (m) | Northing (m) | Depth (m) |
|--------|-----------|---------------|-----------------|---------------|-------------|--------------|-----------|
| MH01 | 0.023 | 4.00 | 31.530 | 1200 | 504955.139 | 183209.713 | 1.930 |
| MH02 | 0.058 | 4.00 | 31.100 | 1200 | 504956.002 | 183194.072 | 1.657 |
| MH03 | 0.000 | | 30.950 | 1200 | 504936.919 | 183193.201 | 1.621 |
| TW9105 | 0.000 | | 30.920 | 1200 | 504931.603 | 183192.934 | 1.623 |

Links

| Name | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) | T of C (mins) | Rain (mm/hr) |
|--------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|---------------|--------------|
| S1.000 | MH01 | MH02 | 15.665 | 0.600 | 29.600 | 29.443 | 0.157 | 100.0 | 150 | 4.26 | 50.0 |
| S1.001 | MH02 | MH03 | 19.103 | 0.600 | 29.443 | 29.329 | 0.114 | 167.0 | 225 | 4.58 | 50.0 |
| S1.002 | MH03 | TW9105 | 5.323 | 0.600 | 29.329 | 29.297 | 0.032 | 167.0 | 225 | 4.66 | 50.0 |





| Name | Vel (m/s) | Cap (l/s) | Flow (l/s) | US Depth (m) | DS Depth (m) | Σ Area (ha) | Σ Add Inflow (l/s) | Pro Depth (mm) | Pro Velocity (m/s) |
|--------|-----------|-----------|------------|--------------|--------------|-------------|--------------------|----------------|--------------------|
| S1.000 | 1.005 | 17.8 | 4.4 | 1.780 | 1.507 | 0.023 | 0.0 | 51 | 0.833 |
| S1.001 | 1.009 | 40.1 | 15.4 | 1.432 | 1.396 | 0.081 | 0.0 | 96 | 0.942 |
| S1.002 | 1.009 | 40.1 | 15.4 | 1.396 | 1.398 | 0.081 | 0.0 | 96 | 0.942 |

Pipeline Schedule

| Link | Length (m) | Slope (1:X) | Dia (mm) | Link Type | US CL (m) | US IL (m) | US Depth (m) | DS CL (m) | DS IL (m) | DS Depth (m) |
|--------|------------|-------------|----------|-----------|-----------|-----------|--------------|-----------|-----------|--------------|
| S1.000 | 15.665 | 100.0 | 150 | Circular | 31.530 | 29.600 | 1.780 | 31.100 | 29.443 | 1.507 |
| S1.001 | 19.103 | 167.0 | 225 | Circular | 31.100 | 29.443 | 1.432 | 30.950 | 29.329 | 1.396 |
| S1.002 | 5.323 | 167.0 | 225 | Circular | 30.950 | 29.329 | 1.396 | 30.920 | 29.297 | 1.398 |

| Link | US Node | Dia (mm) | Node Type | MH Type | DS Node | Dia (mm) | Node Type | MH Type |
|--------|---------|----------|-----------|-----------|---------|----------|-----------|-----------|
| S1.000 | MH01 | 1200 | Manhole | Adoptable | MH02 | 1200 | Manhole | Adoptable |
| S1.001 | MH02 | 1200 | Manhole | Adoptable | MH03 | 1200 | Manhole | Adoptable |
| S1.002 | MH03 | 1200 | Manhole | Adoptable | TW9105 | 1200 | Manhole | Adoptable |

Manhole Schedule

| Node | Easting (m) | Northing (m) | CL (m) | Depth (m) | Dia (mm) | Connections | Link | IL (m) | Dia (mm) | |
|--------|-------------|--------------|--------|-----------|----------|--|------|--------|----------|-----|
| MH01 | 504955.139 | 183209.713 | 31.530 | 1.930 | 1200 |  | 0 | S1.000 | 29.600 | 150 |
| MH02 | 504956.002 | 183194.072 | 31.100 | 1.657 | 1200 |  | 1 | S1.000 | 29.443 | 150 |
| MH03 | 504936.919 | 183193.201 | 30.950 | 1.621 | 1200 |  | 1 | S1.001 | 29.329 | 225 |
| TW9105 | 504931.603 | 183192.934 | 30.920 | 1.623 | 1200 |  | 1 | S1.002 | 29.297 | 225 |

Simulation Settings

| | | | | | |
|----------------------|--------|------------------------|--------|---|------|
| Rainfall Methodology | FEH-22 | Analysis Speed | Normal | Additional Storage (m ³ /ha) | 20.0 |
| Summer CV | 0.750 | Skip Steady State | x | Check Discharge Rate(s) | x |
| Winter CV | 0.840 | Drain Down Time (mins) | 240 | Check Discharge Volume | x |

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

| Return Period (years) | Climate Change (CC %) | Additional Area (A %) | Additional Flow (Q %) |
|-----------------------|-----------------------|-----------------------|-----------------------|
| 2 | 0 | 0 | 0 |
| 30 | 0 | 0 | 0 |
| 100 | 40 | 0 | 0 |

Node MH03 Online Hydro-Brake® Control

| | | | |
|--------------------------|--------|-------------------------|-----------------------------|
| Flap Valve | x | Objective (HE) | Minimise upstream storage |
| Replaces Downstream Link | ✓ | Sump Available | ✓ |
| Invert Level (m) | 29.329 | Product Number | CTL-SHE-0046-1100-1350-1100 |
| Design Depth (m) | 1.350 | Min Outlet Diameter (m) | 0.075 |
| Design Flow (l/s) | 1.1 | Min Node Diameter (mm) | 1200 |

Node MH02 Carpark Storage Structure

| | | | | | |
|-----------------------------|---------|---------------------------|--------|---------------|-------|
| Base Inf Coefficient (m/hr) | 0.00000 | Invert Level (m) | 29.443 | Slope (1:X) | 300.0 |
| Side Inf Coefficient (m/hr) | 0.00000 | Time to half empty (mins) | | Depth (m) | 0.350 |
| Safety Factor | 2.0 | Width (m) | 21.000 | Inf Depth (m) | |
| Porosity | 0.30 | Length (m) | 24.000 | | |

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.79%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m ³) | Flood (m ³) | Status |
|-------------------|---------|-------------|-----------|-----------|--------------|----------------------------|-------------------------|--------|
| 15 minute summer | MH01 | 10 | 29.644 | 0.044 | 3.2 | 0.0607 | 0.0000 | OK |
| 180 minute winter | MH02 | 140 | 29.526 | 0.083 | 3.2 | 6.6823 | 0.0000 | OK |
| 180 minute winter | MH03 | 136 | 29.531 | 0.202 | 1.6 | 0.2284 | 0.0000 | OK |
| 15 minute summer | TW9105 | 1 | 29.297 | 0.000 | 0.8 | 0.0000 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m ³) | Discharge Vol (m ³) |
|--------------------------------|---------|--------------|---------|---------------|----------------|----------|----------------------------|---------------------------------|
| 15 minute summer | MH01 | S1.000 | MH02 | 3.2 | 0.790 | 0.182 | 0.0684 | |
| 180 minute winter | MH02 | S1.001 | MH03 | 1.6 | 0.240 | 0.041 | 0.4860 | |
| 180 minute winter | MH03 | Hydro-Brake® | TW9105 | 0.8 | | | | 13.9 |

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.79%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m ³) | Flood (m ³) | Status |
|-------------------|---------|-------------|-----------|-----------|--------------|----------------------------|-------------------------|------------|
| 15 minute summer | MH01 | 10 | 29.682 | 0.082 | 9.6 | 0.1129 | 0.0000 | OK |
| 240 minute winter | MH02 | 232 | 29.642 | 0.199 | 6.3 | 24.4541 | 0.0000 | OK |
| 240 minute winter | MH03 | 232 | 29.642 | 0.313 | 1.4 | 0.3543 | 0.0000 | SURCHARGED |
| 15 minute summer | TW9105 | 1 | 29.297 | 0.000 | 0.8 | 0.0000 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m ³) | Discharge Vol (m ³) |
|--------------------------------|---------|--------------|---------|---------------|----------------|----------|----------------------------|---------------------------------|
| 15 minute summer | MH01 | S1.000 | MH02 | 9.6 | 1.052 | 0.542 | 0.1573 | |
| 240 minute winter | MH02 | S1.001 | MH03 | 1.4 | 0.260 | 0.035 | 0.7353 | |
| 240 minute winter | MH03 | Hydro-Brake® | TW9105 | 0.8 | | | | 21.3 |

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.79%

| Node Event | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m ³) | Flood (m ³) | Status |
|-------------------|---------|-------------|-----------|-----------|--------------|----------------------------|-------------------------|------------|
| 240 minute winter | MH01 | 236 | 30.803 | 1.203 | 3.2 | 1.6470 | 0.0000 | SURCHARGED |
| 240 minute winter | MH02 | 236 | 30.803 | 1.360 | 11.1 | 49.4417 | 0.0000 | FLOOD RISK |
| 240 minute winter | MH03 | 236 | 30.803 | 1.474 | 1.9 | 1.6670 | 0.0000 | FLOOD RISK |
| 15 minute summer | TW9105 | 1 | 29.297 | 0.000 | 0.8 | 0.0000 | 0.0000 | OK |

| Link Event (Upstream Depth) | US Node | Link | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m ³) | Discharge Vol (m ³) |
|--------------------------------|---------|--------------|---------|---------------|----------------|----------|----------------------------|---------------------------------|
| 240 minute winter | MH01 | S1.000 | MH02 | 3.1 | 0.403 | 0.174 | 0.2758 | |
| 240 minute winter | MH02 | S1.001 | MH03 | 1.9 | 0.306 | 0.047 | 0.7597 | |
| 240 minute winter | MH03 | Hydro-Brake® | TW9105 | 1.1 | | | | 22.1 |

Appendix I

**C753 SIMPLE INDEX TREATMENT
METHOD**
JUNE 2025

| Land use | Pollution hazard level | Total suspended solids (TSS) | Metals | Hydrocarbons |
|---|------------------------|------------------------------|------------|--------------|
| Residential roofs | Very low | 0.2 | 0.2 | 0.05 |
| Other roofs (typically commercial/industrial roofs) | Low | 0.3 | 0.2 | 0.05 |
| Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, home zones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie < 300 traffic movements/day | Low | 0.5 | 0.4 | 0.4 |
| Commercial yard and delivery areas, non-residential car parking with frequent change (e.g. hospitals, retail), all roads except low traffic roads and trunk roads/motorways | Medium | 0.7 | 0.6 | 0.7 |
| Sites with heavy pollution (e.g. haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured; industrial sites; trunk roads and motorways | High | 0.8 | 0.8 | 0.9 |

Table 1: Pollution hazard indices for different land use classifications
(land use in bold applicable for the development).

| Type of SuDS component | Mitigation indices | | |
|-------------------------------|--|------------|--------------|
| | TSS | Metals | Hydrocarbons |
| Filter strip | 0.4 | 0.4 | 0.5 |
| Filter drain | 0.4 | 0.4 | 0.4 |
| Swale | 0.5 | 0.6 | 0.6 |
| Bio retention system | 0.8 | 0.8 | 0.8 |
| Permeable pavement | 0.7 | 0.6 | 0.7 |
| Detention basin | 0.5 | 0.5 | 0.6 |
| Pond | 0.7 | 0.7 | 0.5 |
| Wetland | 0.8 | 0.8 | 0.8 |
| Proprietary treatment systems | These must demonstrate that they can address each of the contaminant types to acceptable levels for frequent events up to approximately the 1 in 1 year return period event, for inflow concentrations relevant to the contributing drainage area. | | |

Table 2: Indicative SuDS mitigation indices for discharges to surface waters
(bold text is applicable to this development).

**C753 SIMPLE INDEX TREATMENT
METHOD**
JUNE 2025

| For surface water discharge from Residential Parking Areas and Low Traffic Roads <300 traffic movements/day | | | |
|---|-----------------------------|--------|--------------|
| | Required mitigation indices | | |
| Source | TSS | Metals | Hydrocarbons |
| Medium | 0.7 | 0.6 | 0.7 |
| Type of SuDS component provided | | | |
| Permeable Paving | 0.7 | 0.6 | 0.7 |
| Check | +0.0 | +0.0 | +0.0 |

Table 3: SuDS mitigation indices provided

Appendix J

1.0 INTRODUCTION

- 1.1 The development at the Granville House, Uxbridge includes Sustainable Drainage Systems (SuDS) as part of the surface water drainage system including permeable paving/surfacing. This Technical Note sets out an outline management plan for the SuDS components.
- 1.2 The proposed SuDS components, in addition to addressing climate change, will bring a number of benefits in terms of water quality social, and environmental amenity.
- 1.3 The maintenance of all SuDS components will be in accord with the best practices and CIRIA document C753 "The SuDS Manual". Typical maintenance activities for the proposed SuDS components have been reproduced from Table 32.1 of "The SuDS Manual" in **Table 1** below.
- 1.4 The drainage features will be maintained and managed by a private management company responsible to the owner of the site.

Table 1: Typical SuDS Maintenance Activities

| Operation and maintenance activity | SuDS component | |
|---|----------------------------|-----------------------|
| | Permeable Paving/Surfacing | Conventional Pipework |
| Regular maintenance | | |
| Inspection | ■ | ■ |
| Litter and debris removal | ■ | ■ |
| Grass cutting | | |
| Weed and invasive plant control | □ | □ |
| Shrub management | □ | |
| Inspection of Perforated Pipework | □ | ■ |
| Inspection of inlet and outlet pipes and chambers | □ | ■ |
| Aquatic vegetation management | | |
| Occasional maintenance | | |
| Sediment management | ■ | ■ |
| Vegetation replacement | | |
| Vacuum sweeping and brushing | ■ | |
| Remedial maintenance | | |
| Structure rehabilitation / repair | □ | □ |
| ■ will be required □ may be required | | |

2.0 SuDS MANAGEMENT PLAN

- 2.1 This long-term Management Plan for the Sustainable Drainage System (SuDS) should be implemented at the site to ensure that the drainage network functions as designed. Maintenance and cleaning of catchpit manholes, connecting pipework and SuDS components will ensure adequate hydraulic performance.
- 2.2 This plan is intended to cover all on-site drainage structures. The Site Management Team should oversee and implement the SuDS Management Plan and designate a qualified person who will be responsible for the proper operation and maintenance of the surface water drainage structures.

Water Quality Management

- 2.3 The surface drainage network has been designed to protect and enhance the quality of surface water runoff through the removal of sediment and pollutants, in accordance with guidance presented in CIRIA C753 'The SuDS Manual'. The proposed permeable paving would provide sufficient treatment for the surface water runoff from the site.
- 2.4 Preventative maintenance of the system will include a comprehensive source reduction program of regular sweeping and litter removal, prohibitions on the use of pesticides and maintenance of bin areas.

Maintenance Program

- 2.5 The Site Management Team will conduct the SuDS Management Plan set out in this document. The responsible party will ensure that inspections and record keeping are timely and accurate.
- 2.6 Inspection & Maintenance Log Forms (attached) should include the date and physical conditions of the structures, depth of sediment in structures / features, evidence of overtopping or debris blockage and maintenance required of each structure.
- 2.7 Records of maintenance will be kept on file on-site and copies of Inspection & Maintenance Log sheets indicating all work and inspections will be available to the Council upon request.

Regular maintenance should include:

- Inspect paving surfacing and sweep any debris every 6 months, or as determined to be reasonable based on experience with the installed systems, to ensure that the permeable paving is working in the intended fashion.
- All litter shall be picked up and removed from the parking areas and external bin store.
- Inspection of external bin stores for spillage and scattered litter must be performed on a regular basis to prevent the spread of pollutants into the surface water drainage network.
- The inlets, outlet and vents and overflows of SuDS components should be checked annually and after large storms to ensure that they are in good condition and operating as designed. Regular maintenance includes inspection and identification of any areas that are not operating correctly monthly for the first 3 months and then every 6 months after.

Winter Maintenance Program

- 2.8 Ensure that drainage structures are not blocked by ice, snow, debris or rubbish during winter months. Inspections and maintenance should be carried out on a more regular basis due to likely adverse weather conditions.
- 2.9 Avoid de-icing agents wherever possible to allow bio-remediation of pollutants in SuDS features.

Operation and Maintenance requirements

- 2.10 Recommendations for the operation and maintenance including typical frequencies are included in **Table 2** below.

**Table 2: Typical SuDS Operation and Maintenance Requirements-
Permeable paving**

| SUDS Element | Permeable Paving | |
|-------------------------------|---|---|
| Maintenance Period | Maintenance Task | Frequency |
| Regular Maintenance | Brushing and vacuuming | Once a year or as required |
| Occasional Maintenance | Stabilise and mow contributing adjacent area | As required |
| | Removal of weed or management using glyphosate applied directly into weeds by an applicator rather than spraying | As required |
| Remedial Work | Remediate any landscaping which has been raised to within 50mm of the level of the paving | As required. |
| | Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to structural performance or a hazard to users. | As required. |
| | Rehabilitation of surface or upper structure by remedial sweeping | Every 10 to 15 years, or as required |
| Monitoring | Initial inspection | Monthly for three months after installation |
| | Inspect for evidence of poor operation and/or weed growth – if required, take remedial action | 3 monthly, 48hrs after large storms in first 6 months |
| | Inspect silt accumulation rates and establish appropriate brushing frequencies | Annually |
| | Monitor inspection chambers | Annually |

Pipework and Outfall Flap Valves

2.11 The connecting pipework under the site roads and outfall pipework, should be regularly checked to ensure there is no significant damage affecting the function of the proposed drainage system. This would include:

- Quarterly visual inspection of the upstream and downstream chambers / outfalls to ensure surface water flows through the network (also to be undertaken after severe storms);
- CCTV survey on an annual basis to inspect condition of pipework;
- Jetting of the pipework to remove sediment / blockages, as required; and
- Repairs / replacement of damaged or collapsed pipework, as required.

2.12 Flap valves are constructed in a way that minimum maintenance is required. To ensure correct functioning of the flap valve it is recommended to carry the following maintenance:

- Half yearly visual check of the flap valve;
- Half yearly visual inspection of the material sealing and replacement / cleaning, as required;
- Replacement / repair of damaged flap valve, as required.

Additional Support

2.13 In the event of concern or failure of a SuDS feature, it is recommended that Ardent Consulting Engineers are contacted to provide expert advice.

Drainage Operation and Maintenance Log

Site Maintenance Supervisor: _____ Date: _____

 Routine Response to rainfall event Other: _____

| Maintenance Area | Activity and Frequency | Date Performed | Comments |
|---------------------------------------|---|----------------|----------|
| Catchpit Manholes and Pipework | Monthly inspections of condition and operation | | |
| | Monthly (for the first 3 months) then as required; removal of silt accumulation | | |
| | Reparation of physical damage to pipes and chambers | | |
| Hard Surfaces / Paving | Rubbish, litter & debris removal on a monthly basis | | |
| | Inspect for evidence of poor operation and silt accumulation on a quarterly basis | | |
| | Specialist sweeping, jetting and vacuuming, as required | | |
| | Remediation of any depressions, rutting or broken paving elements, as required | | |
| Inlet, outlets and Headwalls | Inspect and identify areas not operating properly every 3 months (for the first 3 months) and every 6 months after. | | |

| | | | |
|--|---|--|--|
| | Monthly trash screens inspection and remove debris | | |
|--|---|--|--|