



**GEO-ENVIRONMENTAL CONSULTING**

**BEK Geo-Environmental Consulting**

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**01254 377622**

Our Ref: BEK/25079/250702/SPL

02 July 2025

Sunbright Property Limited  
50 Liverpool Road  
Salford  
M5 4LT

### **Preliminary Drainage Strategy – Land at Mount Pleasant, Simister, Bury**

BEK Enviro (BEK) has been instructed by Sunbright Property Ltd to provide a Preliminary Drainage Strategy for the proposed development of 7No Residential Properties located on land south of Mount Pleasant, Simister, Bury.

#### **Existing Site**

At present the site comprises of undeveloped green space to the south east of Mount Pleasant in Simister, Bury, Greater Manchester.

It is noted that a pond is located to the west of the site, however at the time of writing no investigations have been undertaken to determine the catchment in which the pond is serving or if it is fed from a culverted watercourse or runoff from the surrounding land.

No formal watercourses are located within the vicinity of the proposed development site.

#### **Development Proposals**

Development proposals include for the erection of 7No residential properties within access road direct from Mount Pleasant and associated off road parking

- The developable area of the site is approximately 0.276Ha

#### **Existing Sewers**

United Utilities Sewer Records show that the nearest mapped public surface water sewer is located within the front garden of No32 Mount Pleasant and the nearest public combined sewer is located within the highway outside No4 Mount Pleasant.

#### **Hierarchy of Surface Water Disposal**

In accordance with the NPPF and the Non-Statutory Technical Standards for SUDS: Practice Guidance the discharge of surface water shall comply with the drainage hierarchy detailed within

the National Planning Policy Framework, Planning Practice Guidance and within Building Regulations Part H and specifies the following methods in order of preference:

- Infiltration via soakaway or other suitable infiltration device
- Discharge to watercourse
- Discharge to public sewer

### Infiltration

Soilscape Maps show that the underlying ground is considered to be '*Freely draining slightly acid loamy soils*'.

Local borehole logs from the local vicinity identify the underlying ground to comprises of gravel and sand down in excess of 2.2m BGL.

Taking the above into consideration, the use of infiltration methods such as soakaways to dispose of surface water from the proposed development may be viable following on-site percolation testing.

### Watercourse

There are no formal watercourses in the local vicinity of the site in which surface water could be disposed.

It is noted that the catchment of the pond is unknown at present, therefore any additional surface water flows may contribute to the capacity of the pond being exceeded, which could potentially result in flooding of local properties.

### Sewer

Failing the suitability of soakaways, it is recommended that surface water is directed into the public surface water sewer network located within Mount Pleasant north of the site.

### **Indicative Infiltration Rates**

Indicative infiltration rates have been estimated using the Construction Industry Research and Information Association (CIRIA) Project Report 21 for the lowest sand rate.

- Worst-Case Sand Infiltration Rate = 0.036m/hr

### **Greenfield Runoff Rates**

Greenfield runoff rates have been calculated using the total developable area of the site i.e. 0.276Ha using the IH124 Method, the 1 in 2 Year Event is provided below:

- $Q_{Bar} = 1.9l/s$

### **Proposed Discharge Rates**

In the event soakaways are not viable it is recommended that surface water from the new development does not exceed existing greenfield  $Q_{Bar}$  rate for the 1 in 100 year + 45% climate change event with an additional 10% applied for urban creep.

- Proposed Discharge Rate = 1.9l/s

## Indicative Attenuation Volumes

Indicative attenuation volumes have been calculated for a total impermeable developable area which equates to 0.276Ha for both soakaways and discharge to public sewer.

### *Soakaway*

- 1 in 100 year + 45% Climate Change Event + 10% Urban Creep = Between 98m<sup>3</sup> & 300m<sup>3</sup>

### *Discharge to Sewer*

- 1 in 100 year + 45% Climate Change Event + 10% Urban Creep = Between 266m<sup>3</sup> & 392m<sup>3</sup>

## Preliminary Drainage Strategy

Within the Preliminary Drainage Strategy, flows from the roof and areas of hardstanding could be directed into a geo-cell soakaway tank located within the access road direct from Mount Pleasant.

Failing the use of soakaways, flows could be attenuated within a geo-cell tank in the same location, with flows connected into the public surface water sewer within Mount Pleasant, pending consent from United Utilities.

Indicative soakaway and tank sizes are provided below which accommodate a volume between the indicative attenuation volumes.

### *Indicative Soakaway Tank Details*

- Area = 200m<sup>2</sup>
- Depth of Crate = 1.200m
- Porosity = 0.95
- Volume = 241m<sup>3</sup>

### *Indicative Attenuation Tank Details*

- Area = 200m<sup>2</sup>
- Depth of Crate = 1.600m
- Porosity = 0.95
- Volume = 304m<sup>3</sup>

## Foul Flows

Foul flows from the proposed development could be directed into the public combined sewer network located within Mount Pleasant, following consent from United Utilities.

It is recommended that prior to detailed design that further investigations are undertaken to determine if there are any public combined sewers further east within Mount Pleasant, this will be any drain that serves more than a single property.

## Maintenance and Management

Following development, the drainage network serving the site will remain private, upon request from the LPA the developer is to provide evidence of the funding mechanism for the management and maintenance of the drainage system.

General operational maintenance requirements table from CIRIA is provided below, which describes periodic maintenance and frequency for attenuation tanks.

| TABLE 21.3 Operation and maintenance requirements for attenuation storage tanks |                                                                                                                                                                                                        |                                     |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Maintenance schedule                                                            | Required action                                                                                                                                                                                        | Typical frequency                   |
| Regular maintenance                                                             | Inspect and identify any areas that are not operating correctly. If required, take remedial action                                                                                                     | Monthly for 3 months, then annually |
|                                                                                 | Remove debris from the catchment surface (where it may cause risks to performance)                                                                                                                     | Monthly                             |
|                                                                                 | For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary. | Annually                            |
|                                                                                 | Remove sediment from pre-treatment structures and/or internal forebays                                                                                                                                 | Annually, or as required            |
| Remedial actions                                                                | Repair/rehabilitate inlets, outlet, overflows and vents                                                                                                                                                | As required                         |
| Monitoring                                                                      | Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed                                                                             | Annually                            |
|                                                                                 | Survey inside of tank for sediment build-up and remove if necessary                                                                                                                                    | Every 5 years or as required        |

I trust the above is satisfactory. Should you require anything further please do not hesitate to contact the undersigned.

Yours sincerely



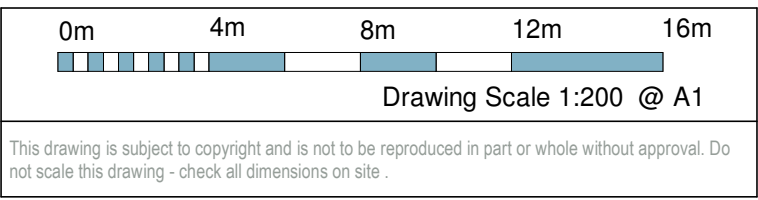
**DAVID EMMOTT**

*BSc (Hons) MSc MEnvSc CEnv*

- Annex A – Development Proposals
- Annex B – Desktop Ground Conditions
- Annex C – Greenfield Runoff Rates
- Annex D – United Utilities Sewer Records
- Annex E – Indicative Attenuation Volumes
- Annex F – Potential Location of Soakaway/Tank Drawing

## ANNEX A

### Development Proposals



| LEGEND                             |  |
|------------------------------------|--|
| DEVELOPABLE AREA                   |  |
| HARD LANDSCAPE                     |  |
| SOFT LANDSCAPE (PRIVATE)           |  |
| SOFT LANDSCAPE (PUBLIC)            |  |
| PROPOSED TREES                     |  |
| PROPOSED HEDGEROWS                 |  |
| PROPOSED FENCING/ WALL             |  |
| 2 NO. 2B4P DWELLINGS               |  |
| 5 NO. 3B5P DWELLINGS               |  |
| 14 PARKING SPACES (2 PER DWELLING) |  |

DEVELOPABLE AREA CIRCA: 4,100 SQM

|     |                           |    |          |
|-----|---------------------------|----|----------|
| P4  | ROAD TURNING HEAD AMENDED | PD | 19.05.23 |
| P3  | HOUSING NUMBERS REDUCED   | PD | 15.05.25 |
| P2  | HOUSE TYPES REVISED       | PD | 12.11.24 |
| P1  | FIRST ISSUE               | PD | 07.11.24 |
| Rev | Description               | By | Date     |

Cassidy+Ashton

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C+A

Architecture + Building Surveying + Town Planning

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10 Hunters Walk, Canal Street, Chester, CH1 4EB T: 01244 402 900  
St Andrews Business Centre, Mold, Flintshire, CH7 1XB T: 01352 706 246

Client

C4 PLUS

Project  
**MOUNT PLEASANT HOUSING DEVELOPMENT**  
**SIMISTER**

Drawing Title  
**PROPOSED SITE PLAN**

Drawn by PD Checked by AB Date 07.11.24

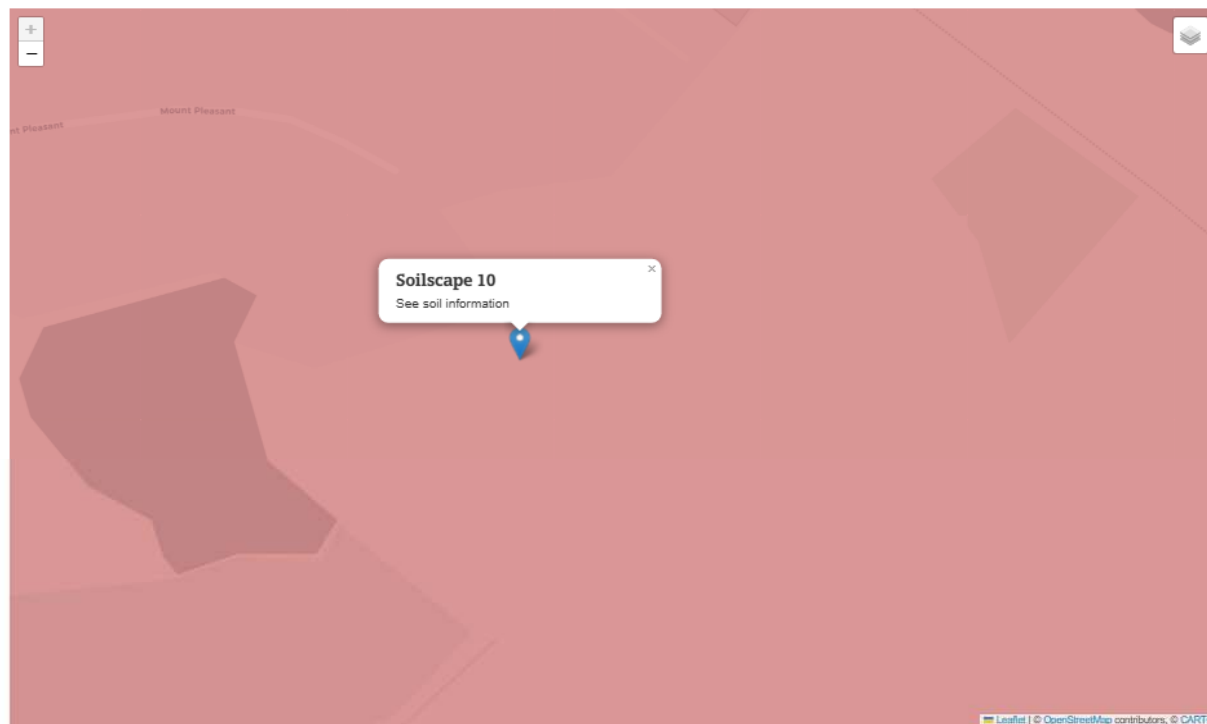
Suitability S2- FOR INFORMATION Scale @ A1 As indicated

12929 MPH-CAA-V1-ZZ-D-A-1003 P4

C+A JOB NO. PROJECT - ORIGINATOR - VOL. - LEVEL - TYPE - ROLE - NUMBER REV.

## ANNEX B

### Desk Top Ground Conditions



© Developed by Cranfield University and Sponsored by DEFRA [Privacy feedback](#)

## Soil Information

### Soilscape 10:

Freely draining slightly acid sandy soils

#### Texture:

Sandy

#### Coverage:

England: 2.8%, Wales: 0.3%, England & Wales: 2.5%

#### Drainage:

Freely draining



#### Fertility:

Low



#### Landcover:

Arable

#### Habitats:

Acid dry pastures; acid deciduous and coniferous woodland; potential for lowland heath

#### Carbon:

Low

#### Drains to:

Groundwater

#### Water protection:

Particularly vulnerable to leaching of nitrate and pesticides to groundwater; Highly erodible under arable and vegetable crops, where sloping, resulting in eutrophication and clogging of stream bed with sand.

#### General cropping:

Suitable for wide range of spring and autumn sown crops including irrigated roots, potatoes and field vegetables; lime and fertiliser rapidly leached; shortage of soil moisture will limit yield without irrigation



Status  
Prelim  
02/11/2007



# BOREHOLE LOG

Borehole No  
DS/M60/2/30A  
Sheet 1 of 1

## M60 Package 2 Sandgate Overbridge to River Irk

Client: AmeyMouchel

Job No: 1771

Consultant: Atkins

|                                   |                                       |                          |
|-----------------------------------|---------------------------------------|--------------------------|
| Date Started: 08/08/2007          | Initial WS Barrel Diameter (mm): 87   | Coordinates: E 383155.86 |
| Date Complete: 08/08/2007         | Initial CP / WS Casing Diameter (mm): | N 406081.17              |
| Hole Type: WS                     | Rotary Casing Type:                   | Ground Level: 98.16m OD  |
| Equipment: Hand Held WS Equipment | Core Barrel:                          | Plunge: 90 degrees       |
|                                   | Core Bit:                             | Scale: 1:50              |

| Description of Strata                                                                                                                       | Legend | Depth | Reduced Level | Samples |       | U* | In Situ Testing |      |        | Install - m/c/s |
|---------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|---------------|---------|-------|----|-----------------|------|--------|-----------------|
|                                                                                                                                             |        |       |               | Type    | Depth |    | Depth           | Test | Result |                 |
| MADE GROUND: Black slightly clayey slightly gravelly fine and medium sand with occasional rootlets. Gravel is subangular fine of sandstone. |        | 0.30  | 97.86         | D       | 0.30  |    |                 |      |        |                 |
|                                                                                                                                             |        |       |               | D       | 0.60  |    |                 |      |        |                 |
|                                                                                                                                             |        |       |               | D       | 0.90  |    |                 |      |        |                 |
|                                                                                                                                             |        |       |               | B       | 1.20  |    |                 |      |        |                 |
|                                                                                                                                             |        |       |               | D       | 1.40  |    |                 |      |        |                 |
| MADE GROUND: Brown slightly clayey slightly gravelly fine and medium sand. Gravel is subangular fine to coarse of sandstone.                |        | 1.70  | 96.46         | D       | 1.70  |    |                 |      |        |                 |
|                                                                                                                                             |        |       |               | D       | 2.00  |    |                 |      |        |                 |
| MADE GROUND: Brown silty sandy slightly gravelly clay. Gravel is subangular fine and medium of sandstone.                                   |        | 2.20  | 95.96         |         |       |    |                 |      |        |                 |
| End of Borehole at 2.20 m                                                                                                                   |        |       |               |         |       |    |                 |      |        |                 |

|    |                             |     |                                  |      |                              |                                                                                       |                   |
|----|-----------------------------|-----|----------------------------------|------|------------------------------|---------------------------------------------------------------------------------------|-------------------|
| U  | Undisturbed U100 Sample     | TCR | Total Core Recovery              | PP   | Pocket Penetrometer (kPa)    | WS                                                                                    | Windowless Sample |
| P  | Piston Sample               | SCR | Solid Core Recovery              | S    | Standard Penetration Test    | CP                                                                                    | Cable Percussion  |
| L  | Dando Terrier liner sample  | RQD | Rock Quality Designation         | C    | Cone Penetration Test        | RO                                                                                    | Rotary Open Hole  |
| D  | Small Disturbed Sample      | FI  | Fracture Index                   | 32   | N for full 300mm penetration | RC                                                                                    | Rotary Cored      |
| B  | Bulk Disturbed Sample       | NI  | Non Intact                       | /175 | For given penetration (mm)   | Installation                                                                          |                   |
| LB | Large Bulk Disturbed Sample | U*  | Blows to drive U100 /U86         | /25# | Sealing blows only (mm)      |  | Slotted Pipe      |
| W  | Water Sample                | NA  | Not Applicable                   | NP   | No Penetration               |  | Piezometer Tip    |
| G  | Gas Sample                  | HV  | In-situ Hand Shear Vane Test     | PR   | Pressuremeter Test           |  | Grout             |
| MC | Moisture Content Sample     | P = | Peak HV Shear Strength (kPa)     | K    | Permeability Test (m/s)      |  | Gravel Filter     |
| NR | No Recovery                 | R = | Residual HV Shear Strength (kPa) | DC   | Disturbed Chemical           |  | Concrete          |

## ANNEX C

### Greenfield Runoff Rates

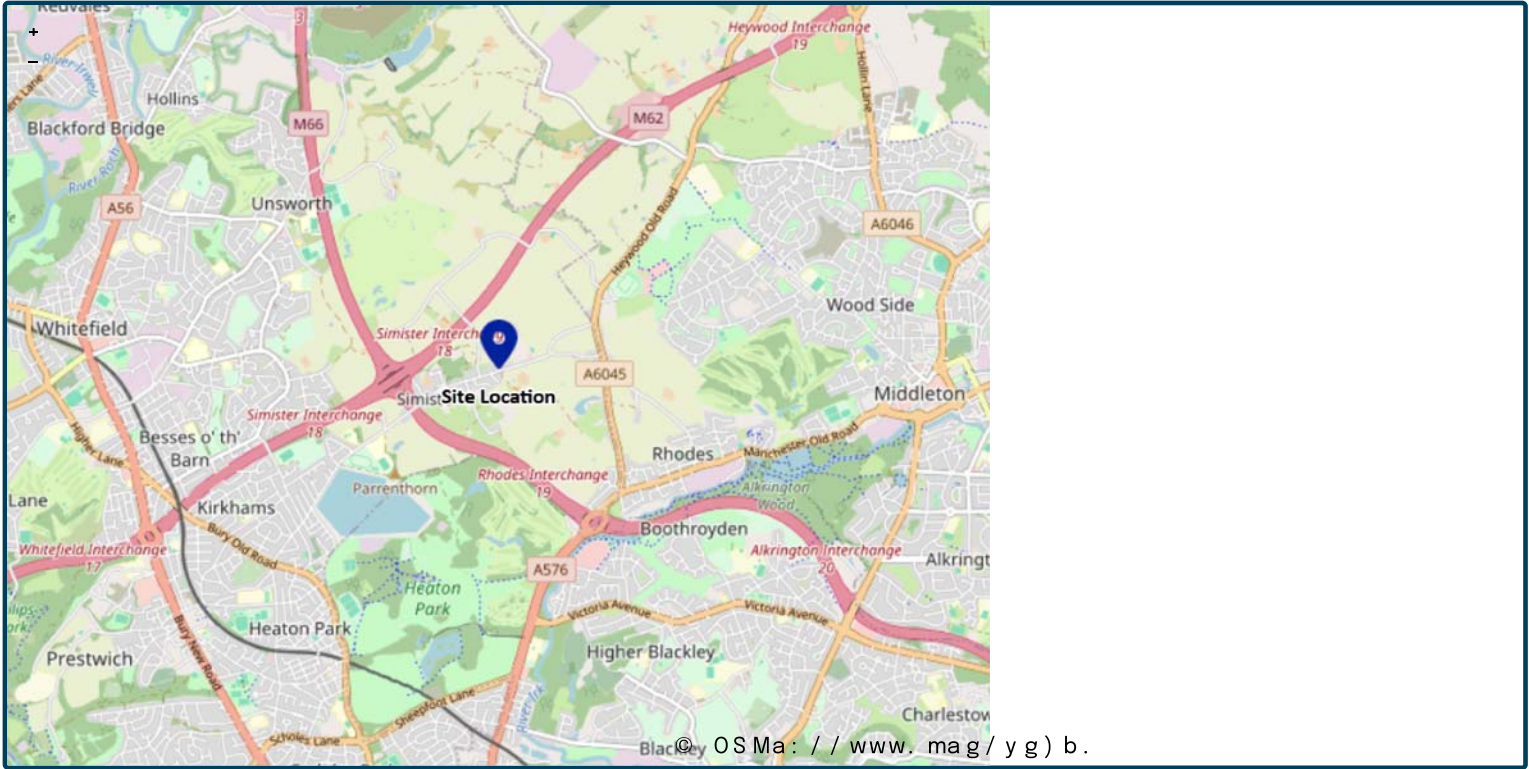
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Eme Ag y g “ R f ff m a g m e f n  
(CIRIA, 2015) – yfSDSdf, 2015) Tfmagmay be  
thbf g f g f f w a ff f m .

Project details

|               |                      |
|---------------|----------------------|
| Date          | <input type="text"/> |
| Calculated by | <input type="text"/> |
| Reference     | <input type="text"/> |
| Model version | 201                  |

Location

|               |                      |
|---------------|----------------------|
| Site name     | <input type="text"/> |
| Site location | <input type="text"/> |



|               |                      |  |
|---------------|----------------------|--|
| Site easting  | <input type="text"/> |  |
| Site northing | 405850               |  |

Sitedetails

|                      |      |    |
|----------------------|------|----|
| Total site area (ha) | 0276 | ha |
|----------------------|------|----|

Method

Method

I H4 2

I H4 2

|                            | My value                     |             | Map value      |
|----------------------------|------------------------------|-------------|----------------|
| SAAR (mm)                  | <div>999</div> <div>mm</div> | <div></div> | <div>999</div> |
| How should SPR be derived? | <div></div>                  |             |                |
| WRAP soil type             | <div>4</div>                 | <div></div> | <div>4</div>   |
| SPR                        | <div></div> <div></div>      |             |                |
| QBar (IH124) (l/s)         | <div>2</div> <div>l/s</div>  |             |                |

Gwtcuvfacs

|                        | My value                   |             | Map value     |
|------------------------|----------------------------|-------------|---------------|
| Hydrological region    | <div>10</div>              | <div></div> | <div>10</div> |
| 1 year growth factor   | <div></div> <div></div>    |             |               |
| 2 year growth factor   | <div></div> <div></div>    |             |               |
| 10 year growth factor  | <div>1</div> <div></div>   |             |               |
| 30 year growth factor  | <div>1</div> <div></div>   |             |               |
| 100 year growth factor | <div>2</div> <div></div>   |             |               |
| 200 year growth factor | <div>2.3</div> <div></div> |             |               |

Rsts

|                           |                                |
|---------------------------|--------------------------------|
| Method                    | <div>I H1 2</div>              |
| Flow rate 1 year (l/s)    | <div>1</div> <div>l/s</div>    |
| Flow rate 2 year (l/s)    | <div>1. 9</div> <div>l/s</div> |
| Flow rate 10 years (l/s)  | <div>2</div> <div>l/s</div>    |
| Flow rate 30 years (l/s)  | <div></div> <div>l/s</div>     |
| Flow rate 100 years (l/s) | <div>4</div> <div>l/s</div>    |
| Flow rate 200 years (l/s) | <div>4. 8</div> <div>l/s</div> |

Disclaimer

This was produced using Gnfilunff as a main l ( . 0 . ) v l p b R Wallingf an available l a u k s u s . c m ( p s : / T u s f i s l i s s u b j c U K S u D S m s a n c n i i n s a n l i c n c a g m e n ( p s : / / w w w . u k s u s . c m / m s - c n i i n s ) . T u p u s f m i s l a v b n u s r e p n s i b i l i f u s s f i s l . N i a b i l i w i l l b a c c p b R Wallingf, Envi nmen Agnc, Cnf Ecl ganl g, Wall ingfd Hyd\$ bu i n s a n g a n i s a i n f u s f s a a i n s i g n p a i n a l c a a c i s i c s f a n a i n a g s c m e .

## ANNEX D

### United Utilities Sewer Records

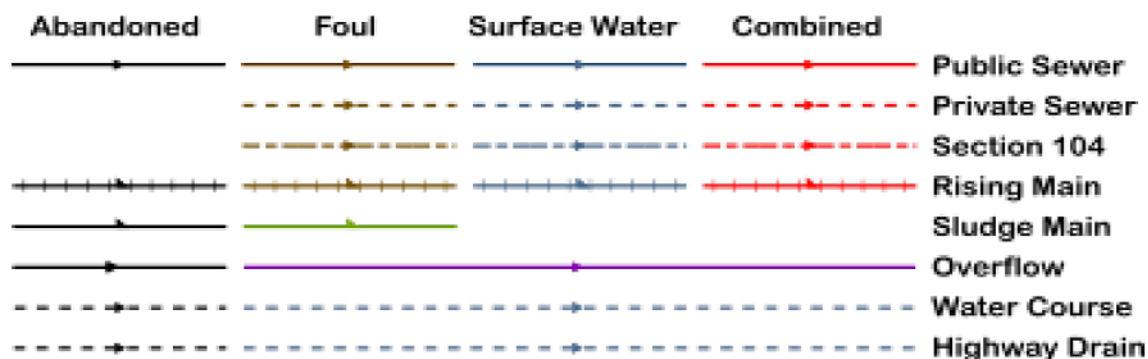
## TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

### TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

## Wastewater Symbolology



All point assets follow the standard colour convention: **red** – combined **brown** - foul  
**blue** – surface water **purple** - overflow

|                         |                                     |
|-------------------------|-------------------------------------|
| <b>Manhole</b>          | <b>Side Entry Manhole</b>           |
| <b>Head of System</b>   | <b>Outfall</b>                      |
| <b>Extent of Survey</b> | <b>Screen Chamber</b>               |
| <b>Rodding Eye</b>      | <b>Inspection Chamber</b>           |
| <b>Inlet</b>            | <b>Bifurcation Chamber</b>          |
| <b>Discharge Point</b>  | <b>Lamp Hole</b>                    |
| <b>Vortex</b>           | <b>T Junction / Saddle</b>          |
| <b>Penstock</b>         | <b>Catchpit</b>                     |
| <b>Washout Chamber</b>  | <b>Valve Chamber</b>                |
| <b>Valve</b>            | <b>Vent Column</b>                  |
| <b>Air Valve</b>        | <b>Vortex Chamber</b>               |
| <b>Non Return Valve</b> | <b>Penstock Chamber</b>             |
| <b>Soakaway</b>         | <b>Network Storage Tank</b>         |
| <b>Gully</b>            | <b>Sewer Overflow</b>               |
| <b>Cascade</b>          | <b>Ww Treatment Works</b>           |
| <b>Flow Meter</b>       | <b>Ww Pumping Station</b>           |
| <b>Hatch Box</b>        | <b>Septic Tank</b>                  |
| <b>Oil Interceptor</b>  | <b>Control Kiosk</b>                |
| <b>Summit</b>           | <b>DNM Network Monitoring Point</b> |
| <b>Drop Shaft</b>       | <b>Change of Characteristic</b>     |
| <b>Orifice Plate</b>    |                                     |



## ANNEX E

### Indicative Attenuation Volumes

### Storage Estimate

|                                                                     |                                      |                                       |
|---------------------------------------------------------------------|--------------------------------------|---------------------------------------|
| Return Period (years)                                               | <input type="text" value="100"/>     | <input type="button" value="OK"/>     |
| Climate Change (%)                                                  | <input type="text" value="55"/>      | <input type="button" value="Cancel"/> |
| Impermeable Area (ha)                                               | <input type="text" value="0.276"/>   | <input type="button" value="Update"/> |
| Peak Discharge (l/s)                                                | <input type="text" value="1.900"/>   |                                       |
| Infiltration Coefficient (m/hr)<br>(leave blank if no infiltration) | <input type="text" value="0.03600"/> | <input type="button" value="Calc"/>   |
| Required Storage (m <sup>3</sup> )                                  | <input type="button" value="Calc"/>  |                                       |
| from                                                                | <input type="text" value="266"/>     |                                       |
| to                                                                  | <input type="text" value="392"/>     |                                       |
| With infiltration (m <sup>3</sup> )                                 |                                      |                                       |
| from                                                                | <input type="text" value="98"/>      |                                       |
| to                                                                  | <input type="text" value="300"/>     |                                       |

## ANNEX F

### Potential Location of Soakaway/Tank Drawing



- GENERAL NOTES:
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DOCUMENTATION.
  - DO NOT SCALE FROM THIS DRAWING, USE ONLY PRINTED DIMENSIONS.
  - DESIGN BASED UPON PRELIMINARY ESTIMATED SITE LEVELS ONLY.
  - EXISTING DRAINAGE WITHIN SITE (NOT SHOWN) TO BE ABANDONED OR DIVERTED ACCORDINGLY.
  - THE INDICATIVE SURFACE WATER DRAINAGE STRATEGY IS BASED ON A CELLULAR SOAKAWAY/STORAGE ATTENUATION SOLUTION. ALTERNATIVE SUDS OPTIONS SUCH AS SUBBASE MAY BE CONSIDERED AT THE DETAILED DESIGN STAGE SO LONG AS THE SAME STORAGE VOLUME IS DELIVERED. FINAL FORM AND LOCATION OF ATTENUATION STRUCTURE TO BE CONFIRMED AT DETAILED DESIGN.
  - THE INDICATIVE SURFACE WATER DRAINAGE DESIGN IS MODELLED ON THE BASIS OF A SINGLE CELLULAR SOAKAWAY/STORAGE TANK BENEATH THE ACCESS ROAD.
  - OUTFALL ARRANGEMENTS SUBJECT TO AGREEMENT AND APPROPRIATE CONSENT FROM UNITED UTILITIES, ENVIRONMENT AGENCY AND/OR LEAD LOCAL FLOOD AUTHORITY.
  - STRATEGY SUBJECT TO AGREEMENT WITH LEAD LOCAL FLOOD AUTHORITY AND UNITED UTILITIES AS APPROPRIATE.
  - THIS DRAWING HAS BEEN PREPARED TO SUPPORT A PLANNING APPLICATION AND INITIAL ASSESSMENTS IT IS NOT SUITABLE FOR BUILDING REGULATION APPROVAL OR TO SUPPORT FULL APPLICATIONS TO UNITED UTILITIES.

KEY

--- PUBLIC COMBINED SEWER

MH PROPOSED COMBINED MANHOLE

[Blue Hatched Box] ATTENUATION/SOAKAWAY TANK

| SURFACE WATER ATTENUATION                                                                                                          | SURFACE WATER ATTENUATION                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| GEO-CELLULAR SOAKAWAY TANK<br>AREA = 200m <sup>2</sup><br>DEPTH OF CRATE = 1.200m<br>POROSITY = 0.95<br>VOLUME = 241m <sup>3</sup> | GEO-CELLULAR ATTENUATION TANK<br>AREA = 200m <sup>2</sup><br>DEPTH OF CRATE = 1.600m<br>POROSITY = 0.95<br>VOLUME = 304m <sup>3</sup> |
| INDICATIVE ATTENUATION VOLUMES BETWEEN<br>98m <sup>3</sup> - 300m <sup>3</sup>                                                     | INDICATIVE ATTENUATION VOLUMES BETWEEN<br>266m <sup>3</sup> - 392m <sup>3</sup>                                                       |
| BASED ON INDICATIVE INFILTRATION RATES FOR GRAVEL 0.036M/HR.                                                                       | SW TO DISCHARGE TO PUBLIC SEWER WITHIN MOUNT PLEASANT RESTRICTED TO QBAR 1.9L/S                                                       |

FOUL FLOWS

FOUL FLOWS FROM THE PROPOSED DEVELOPMENT SITE TO DISCHARGE INTO THE PUBLIC SEWER NETWORK LOCATED WITHIN MOUNT PLEASANT FOLLOWING CONSENT FROM UNITED UTILITIES.

| REVISION                                                                                                                                                                                                                                          | COMMENT | DATE                              | BY                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------------------------------|---------------------|
| <br><b>BEK ENVIRONMENTAL CONSULTING ENGINEERS LTD</b><br>No 2, Landwick Court, Altham Business Park, Metcalf Dr.<br>Altham, BEK BB5 5GY<br>TEL: 01254 377622 |         | CLIENT:<br>SUNBRIGHT PROPERTY LTD | DATE:<br>02/07/2025 |
| PROJECT:<br>LAND AT MOUNT PLEASANT<br>SIMISTER BURY                                                                                                                                                                                               |         | DRAWN BY:<br>CV                   | STATUS:             |
| DRAWING TITLE:<br>PRELIMINARY DRAINAGE STRATEGY                                                                                                                                                                                                   |         | SCALE:<br>1:200                   |                     |
| DRAWING REFERENCE:<br>2025-039-01                                                                                                                                                                                                                 |         | SIZE:<br>A1                       | REVISION:           |