Project No: 23113

Project: Arrochar,
Prescot Road
Melling
Sefton
L31 1AT

Subject: SuDS Drainage Statement

Date: 7th December 2023 (Issue 02)

FLOOD FLOW LTD

CONSULTING CIVIL AND STRUCTURAL ENGINEERS

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1.0 GENERAL

This drainage statement has been prepared to support the planning application for a proposed Erection of 4 no. dwellings to be accessed from existing entrance off Prescot Road.

The site is currently featuring an existing dwelling and outbuildings as shown below.

Figure 1 – Site Location Plan

2.0 DRAINAGE DESIGN

2.1 Surface Water Drainage

2.1.1 Flood Risk

The site is less than 1.0 ha and lies wholly within the Zone 1 Flood Map. This means the land is assessed as having a low probability of flooding, which is less than 1 in 1000 (<0.1%). As such a site-specific Flood Risk Assessment is not required.

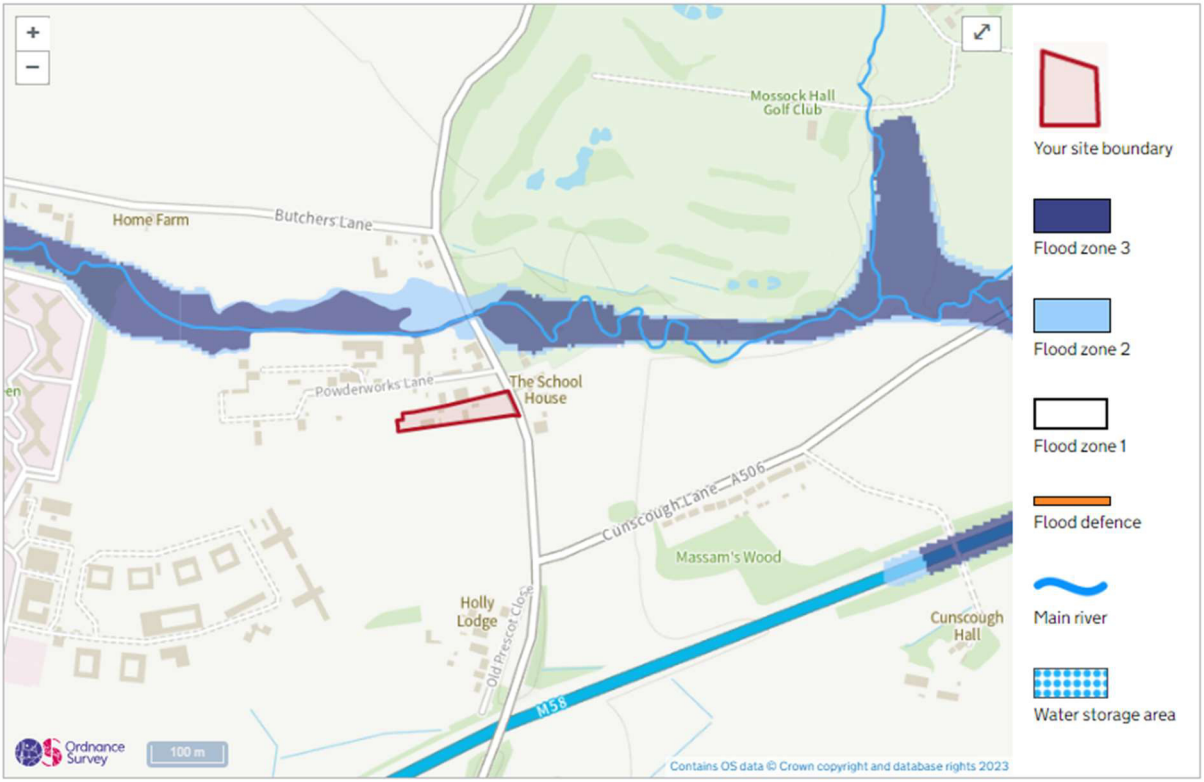


Figure 2 – Flood Map for Planning

2.1.2 Drainage Strategy

1st Choice - Discharge to Soakaway

In accordance with the Building Regulations hierarchy for the disposal of surface water drainage, the initial consideration will be for a soak-a-way system.

Percolation tests have not been carried out at the development site. From online soil data the site is "Naturally wet very acid sandy and loamy soils" and the BGS website states Till, Devensian - Diamicton superficial deposits.

Due to poor percolation results soakaways are not considered viable.

2nd Choice - Discharge to Watercourse

The second consideration is disposal of surface water to watercourses/ ditches. There is a brook near the proposed development. This is not the preferred discharge option for surface water discharge due to the distance of the connection. However, the existing highways drainage is likely to connect into the brook.

3rd Choice - Discharge to Sewer

The third option in the drainage hierarchy is to discharge into the existing public sewers. There are no public surface water sewers recorded in Prescot Road– see Appendix A and Figure 3 below.

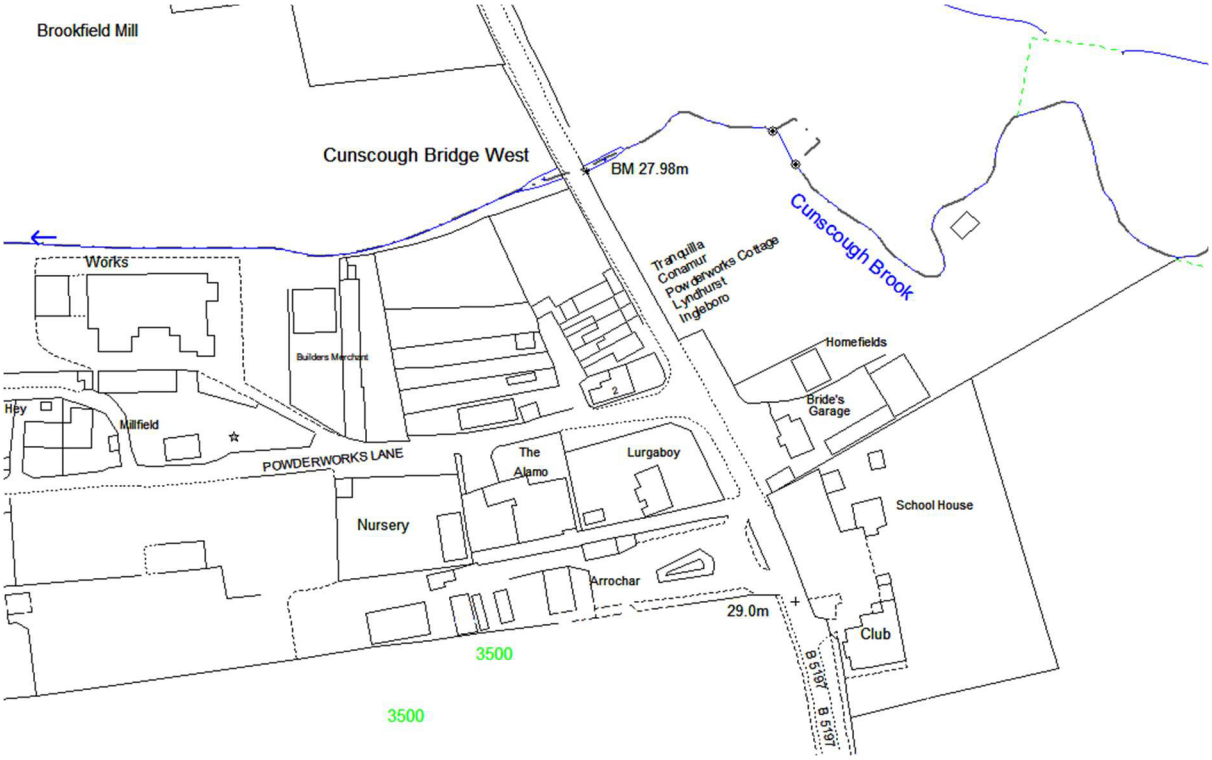


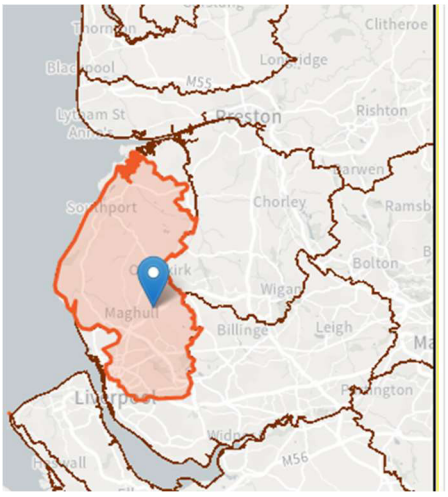
Figure 3.1 – Extract from United Utilities records

There is an existing highways drainage network serving Prescot Road and it is preferred to connect into this network.

Figure 3.2 – Image of existing pipe and gully network

The surface water runoff generated from the existing site has been calculated at 9.87 l/s based on an existing impermeable area of 1418m^2, using the modified rational method and rainfall of 50mm/hr. Including 50% betterment would provide 4.9 l/s maximum discharge.

The proposed impermeable area has been calculated at 1604m^2, which is more than the existing impermeable area. The flow rate proposed above has been used to restrict the flow and estimate the required attenuation contained in Appendix B.



1% annual exceedance rainfall event

Epoch

	Central allowance	Upper end allowance
2050s	25%	40%
2070s	30%	45%

*Use '2050s' for development with a lifetime up 2060 and use the 2070s epoch for development with a lifetime between 2061 and 2125.

Figure 4 – Climate Change

The design criteria for network modelling to be used for the site is:

- 1 in 30 year no surcharging of the surface water network.
- 1 in 100 year (+ 45% climate change, see Figure 4 above) will be contained within the attenuation, and the volume has been indicated for the development site.
- The roof water for the proposed development will also enter the existing ditch.
- A bypass separator upstream of the proposed attenuation structure is not considered a requirement due to the limited number of parking bays for the proposed development.

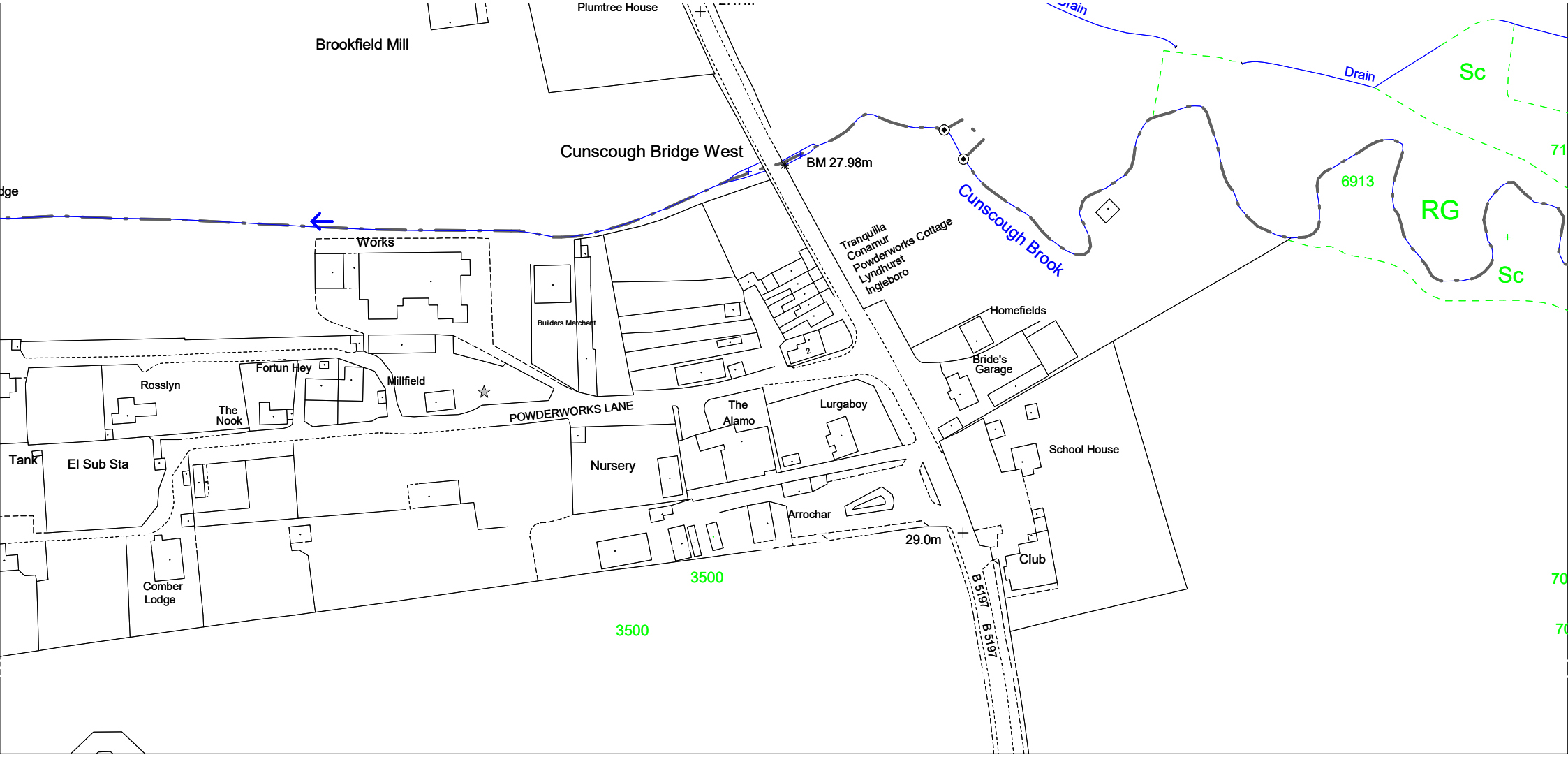
2.2 Foul Drainage

The foul drainage for the proposed development is to be connected into a proposed Bio Disc sewage treatment plant as shown on the drainage layout.

Appendices

- Appendix A - United Utilities Drainage Records
- Appendix B - Attenuation Calculations
- Appendix C - Flood Flow Drawing Number 23113.001A – Drainage Layout.
- Appendix D - Flood Map for Planning

APPENDIX A


Plumtree House
Brookfield Mill
Drain
Drain
Sc
Cunscough Bridge West
BM 27.98m
71
6913
RG
Sc
Cunscough Brook
Works
Tranquilla
Conamur
Powderworks Cottage
Lyndhurst
Ingleboro
Builders Merchant
Homefields
Bride's
Garage
Fortun Hey
Rosslyn
Millfield
The
Nook
POWDERWORKS LANE
The
Alamo
Lurgaboy
School House
Tank
El Sub Sta
Nursery
Arrochar
29.0m
Club
Comber
Lodge
3500
3500
B 5197
B 5197
70
70

APPENDIX B

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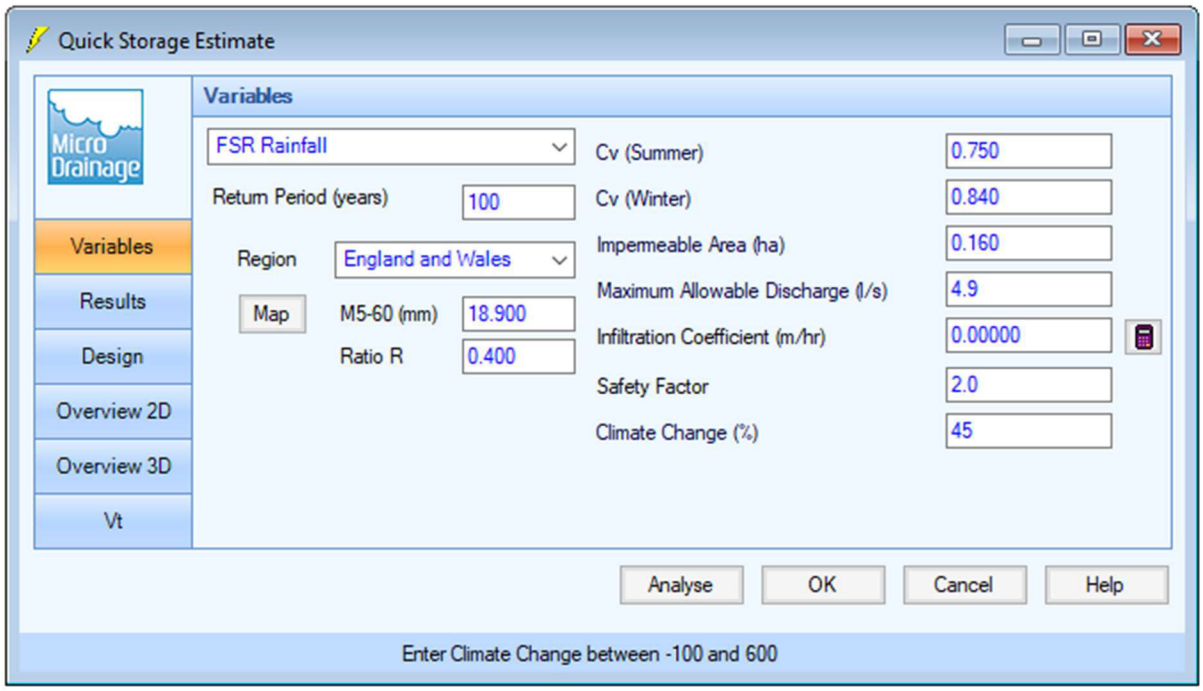
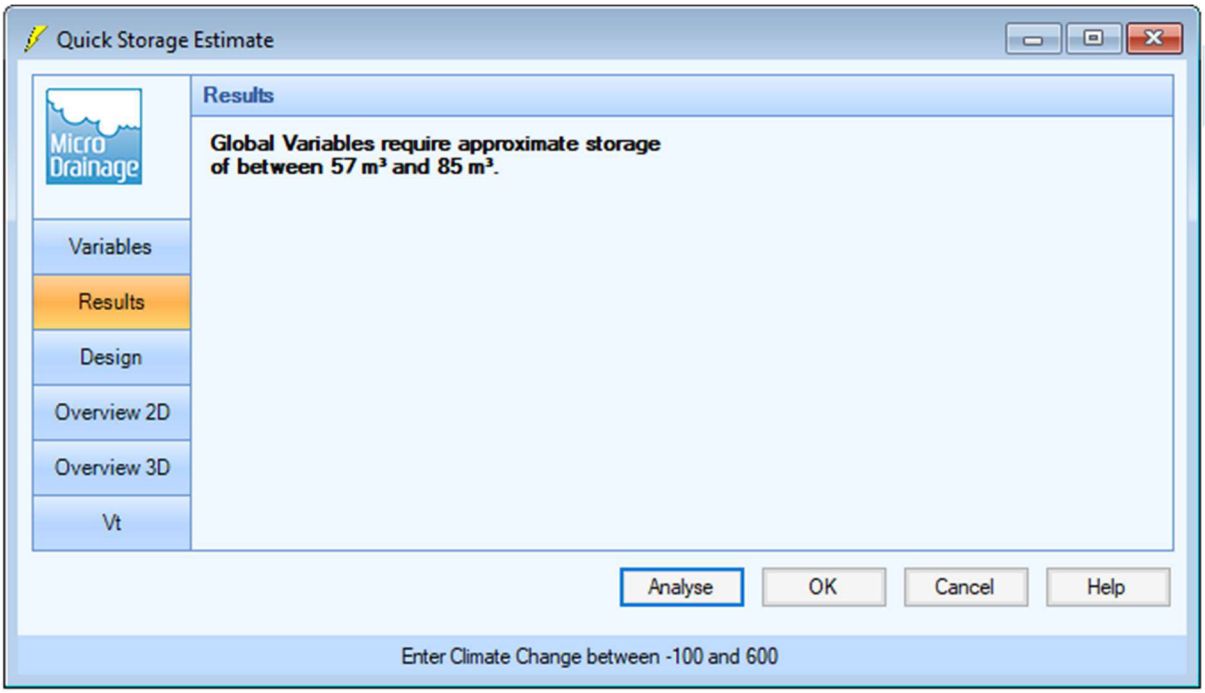
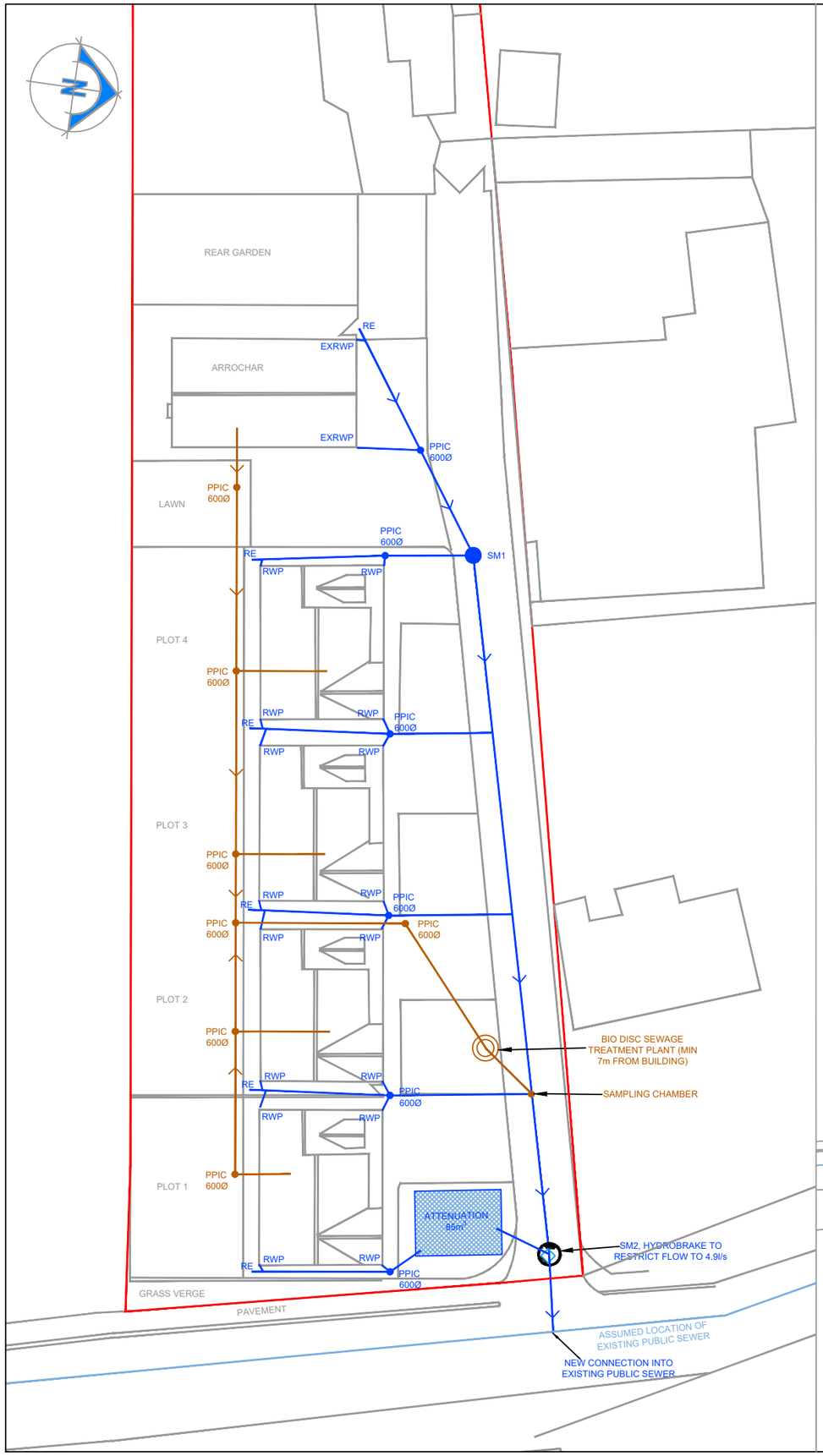
Attenuation Calculations





APPENDIX C



LEGEND

- SITE BOUNDARY
- SMH — SURFACE WATER MANHOLE
- SURFACE WATER PIPE
- PPIC — POLYPROPYLENE INSPECTION CHAMBER - SW
- PPIC — POLYPROPYLENE INSPECTION CHAMBER
- FMH — FOUL WATER MANHOLE
- FOUL WATER PIPE
- CMH — COMBINED WATER MANHOLE
- COMBINED WATER PIPE
- EXSMH — EX SURFACE WATER MANHOLE
- EX SURFACE WATER PIPE
- EXFMH — EX FOUL WATER MANHOLE
- EX FOUL WATER PIPE
- EXMH — EX COMBINED SEWER MANHOLE
- EX COMBINED SEWER PIPE
- PROPOSED ATTENUATION (PRIVATE)

DRAINAGE NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON THE DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED AND VERIFIED ONSITE.
3. ALL DRAINAGE WORKS TO BE IN ACCORDANCE WITH THE CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY (CESWI) AS INCLUDED IN SEWERS FOR ADOPTION 7TH EDITION, THE REQUIREMENTS OF APPROVED DOCUMENT H (2015 EDITION), BUILDING REGULATIONS 2000 AND THE DETAILS PROVIDED ON THE CONTRACT DRAWINGS.
4. THE CONTRACTOR MUST SURVEY THE RETAINED DRAINAGE AND REPORT THE LINE, LEVEL AND CONDITION OF THE EXISTING DRAINAGE TO THE ENGINEER. WE WOULD RECOMMEND THAT THE EXISTING DRAINAGE TO BE SURVEYED IS CLEANSED BEFORE UNDERTAKING THESE WORKS.
5. ANY REDUNDANT MANHOLES ARE TO BE BROKEN OUT AND BACKFILLED WITH A APPROVED COMPACTED GRANULAR MATERIAL. REDUNDANT PIPES ARE TO BE FILLED WITH A 10:1 PFA/CEMENT MIX OR BROKEN OUT AND BACKFILLED WITH A APPROVED COMPACTED GRANULAR MATERIAL.
6. ALL FOUL AND SURFACE WATER DRAINS UP TO AND INCLUDING 300MM DIAMETER ARE TO BE VITRIFIED CLAY SUCH AS HEPWORTH SUPERSLEVE/SUPERSEAL OR SIMILAR APPROVED (BS EN 295-1). ALL PIPES GREATER THAN 300MM DIAMETER TO BE CONCRETE CLASS 120 (BS EN 1916:2002). ALL CONCRETE MANHOLES TO BE IN ACCORDANCE WITH BS EN 1917.
7. AS AN ALTERNATIVE (SUBJECT TO THE CLIENTS APPROVAL) THE CONTRACTOR MAY USE STRUCTURAL WALLED PIPES (WISA 4-35-01 & BS EN 13476) SUCH AS;
   - POLYSEWER - POLYPIPE BUILDING PRODUCTS - SIZE 150mm TO 300mm
   - QUANTUM- MARLEY - SIZE 150mm TO 300mm
   - ULTRARIB - UPONOR - SIZE 150mm TO 300mm
   - ULTRARIB - WAVIN - SIZE 150mm TO 300mm
   - RIDGISEWER - POLYPIPE CIVILS LTD - SIZE 400mm TO 900mm
   - WEHOLITE - ASSET INTERNATIONAL - SIZE 450mm TO 3000mm
8. PIPES LAID WITHIN VEHICLE TRAFFICKED AREAS WITH LESS THAN 900mm OF COVER SHALL BE SURROUNDED IN CLASS Z BEDDING. PIPES LESS THAN 300mm BELOW THE UNDERSIDE OF A GROUND FLOOR SLAB SHALL BE SURROUNDED IN CLASS Z BEDDING. WHERE CLASS Z BEDDING IS USED AS A SURROUND A COMPRESSIBLE MATERIAL MUST BE PLACED AT EVERY PIPE JOINT. ALL OTHER PIPES ARE TO BE LAID IN A CLASS S BEDDING.
9. ALL DRAINAGE MUST BE PROTECTED DURING CONSTRUCTION WHERE INTERMEDIATE COVER IS LESS THAN 900mm.
10. WHERE FOUL AND SURFACE DRAINS/SEWERS CROSS WITHIN 100mm OF EACH OTHER CONCRETE PROTECTION (CLASS Z BEDDING) MANY BE REQUIRED TO PREVENT ANY POTENTIAL CONTAMINATION.
11. ALL COVER LEVELS ARE APPROXIMATE ONLY. ALL MANHOLE COVERS TO BE SET AT THE PROPOSED FINISHED PAVEMENT OR FLOOR LEVEL. REFER TO THE ARCHITECTS PROPOSED LEVELS DRAWING FOR LEVEL CONFIRMATION.
12. FOR TYPICAL MANHOLE CONSTRUCTION DETAILS, PIPE BEDDING/TRENCH DETAILS AND OTHER ASSOCIATED DRAINAGE DETAILS. REFER TO SGI TYPICAL DETAILS DRAWING.
13. ALL FOUL AND SURFACE WATER CONNECTIONS TO BE 100MM DIAMETER UNLESS STATED. ALL EXTERNAL GULLY CONNECTIONS AND CHANNEL DRAIN SUMP/GULLY CONNECTIONS TO BE 150mm DIAMETER UNLESS STATED. ALL GULLY AND CHANNEL DRAIN OUTLETS TO BE TRAPPED AND RODDABLE. ALL INTERNAL GULLIES AND CHANNEL DRAINS TO BE SPECIFIED BY OTHERS.
14. CHANNELS DRAINS TO BE FITTED WITH A HEALGUARD CAST IRON GRATING. GRATINGS TO BE TO LOAD CLASS D400 SPECIFICATION UNLESS OTHERWISE AGREED. LINEAR CHANNELS TO HAVE A 200mm MINIMUM CONCRETE BED AND HAUNCH.
15. ALL FOUL STACKS AND RWP'S TO HAVE LOW LEVEL RODDING ACCESS PLATES UNLESS AN ALTERNATIVE MEANS OF ACCESS IS AGREED. ACCESS POINT SIZE TO BE IN ACCORDANCE WITH DOCUMENT H AND SITED ABOVE ANY CONNECTED GROUND FLOOR APPLIANCE SPILL LEVEL.
16. ALL CONNECTIONS PASSING THROUGH FOUNDATION BASES AND/OR EDGE BEAMS TO BE WITHIN SEALED SLEEVES. ALTERNATIVELY CONNECTIONS MAY BE CAST-IN WITH FLEXIBLE JOINTS NOT GREATER THAN 150mm FROM FACE OF THE CONCRETE.
17. ALL MANHOLE COVERS LOCATED WITHIN THE ROAD AND CAR PARKING AREAS TO BE D400 CLASS. COVERS WITHIN HARD AND SOFT LANDSCAPED AREAS WITH PEDESTRIAN TRAFFIC ONLY TO BE B125 CLASS. COVERS LOCATED WITHIN BLOCKS/SLAB PAVING AREAS TO BE RECESSED TO SUIT THE PROPOSED PAVING AND OF THE APPROPRIATE GRADE. ALL INTERNAL COVERS TO BE RECESSED WITH DOUBLE SEALED BOLT DOWN COVERS SUCH AS HOWE GREEN 5000 SERIES OR SIMILAR APPROVED.
18. CHANNELS WITHIN TYPE 1 & 2 MANHOLES MUST USE PRE-FORMED CLAYWARE SECTIONS FOR PIPES UP TO AND INCLUDING 300mm DIAMETER. CHANNELS TO BE SET AT THE APPROPRIATE INCOMING AND OUTGOING PIPE GRADIENTS.
19. ALL MANHOLES CONNECTIONS TO BE FORMED AT SOFFIT TO SOFFIT UNLESS OTHERWISE STATED. ALL BRANCH CONNECTIONS TO BE MADE WITH SWEPT BENDS IN THE DIRECTION OF FLOW IN THE MAIN SEWER.
20. INTERNAL DRAINAGE CONNECTIONS ARE PROVIDED TO THE PENETRATION POSITIONS SHOWN ON AND COORDINATED BY THE ARCHITECT/M&E CONSULTANT.
21. EXTERNAL LINEAR CHANNEL DRAINS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS AND SHALL DISCHARGE VIA TRAPPED RODDABLE GULLY UNITS UNLESS ADVISED OTHERWISE.
22. THE TYPE AND SIZE OF THE SEPARATOR IS SPECIFIED ON THIS DRAWING AND SHALL BE A CLASS 1 TYPE. IT SHALL BE INSTALLED IN COMPLETE ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS AND VENTED VIA 75mmØ PIPE WORK. THE INTERCEPTOR REQUIRES POWER FOR THE HIGH LEVEL OIL ALARM AND THE ARRANGEMENT SHALL BE INTRINSICALLY SAFE AND EXPLOSION PROOF. THE CONTRACTOR SHALL PROVIDE THE REQUIRED DUCTING & CABLING TO INTERNAL MONITORING POSITION TOGETHER WITH AUDIO AND VISUAL MONITORING UNIT ALL IN ACCORDANCE WITH BS7671:2008 +A1:2011
23. ALL RWP AND SVP POSITIONS ASSUMED, TO BE CONFIRMED
24. COVER LEVELS BASED ON ARCHITECT'S SITE LEVELS

RESIDUAL RISKS

REV	DESCRIPTION	DRAWN	APPROVED	DATE
A	AMENDED SITE BOUNDARY	JJ	AJ	07/12/23

STATUS

PLANNING

FLOOD FLOW LTD
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Client

SUSAN LOPPY

Project

PROPOSED DEVELOPMENT AT
ARROCHAR, PRESCOT ROAD
MELLING

Title

INDICATIVE DRAINAGE LAYOUT

Drawn	AJ	Checked	JJ
Date	01/08/23	Date	01/08/23
Scale	1:200	A1	

Drawing number 23113-001 A

APPENDIX D

Flood map for planning

Your reference	Location (easting/northing)	Created
23113	**340391/403039**	**2 Aug 2023 7:02**

Your selected location is in flood zone 1, an area with a low probability of flooding.

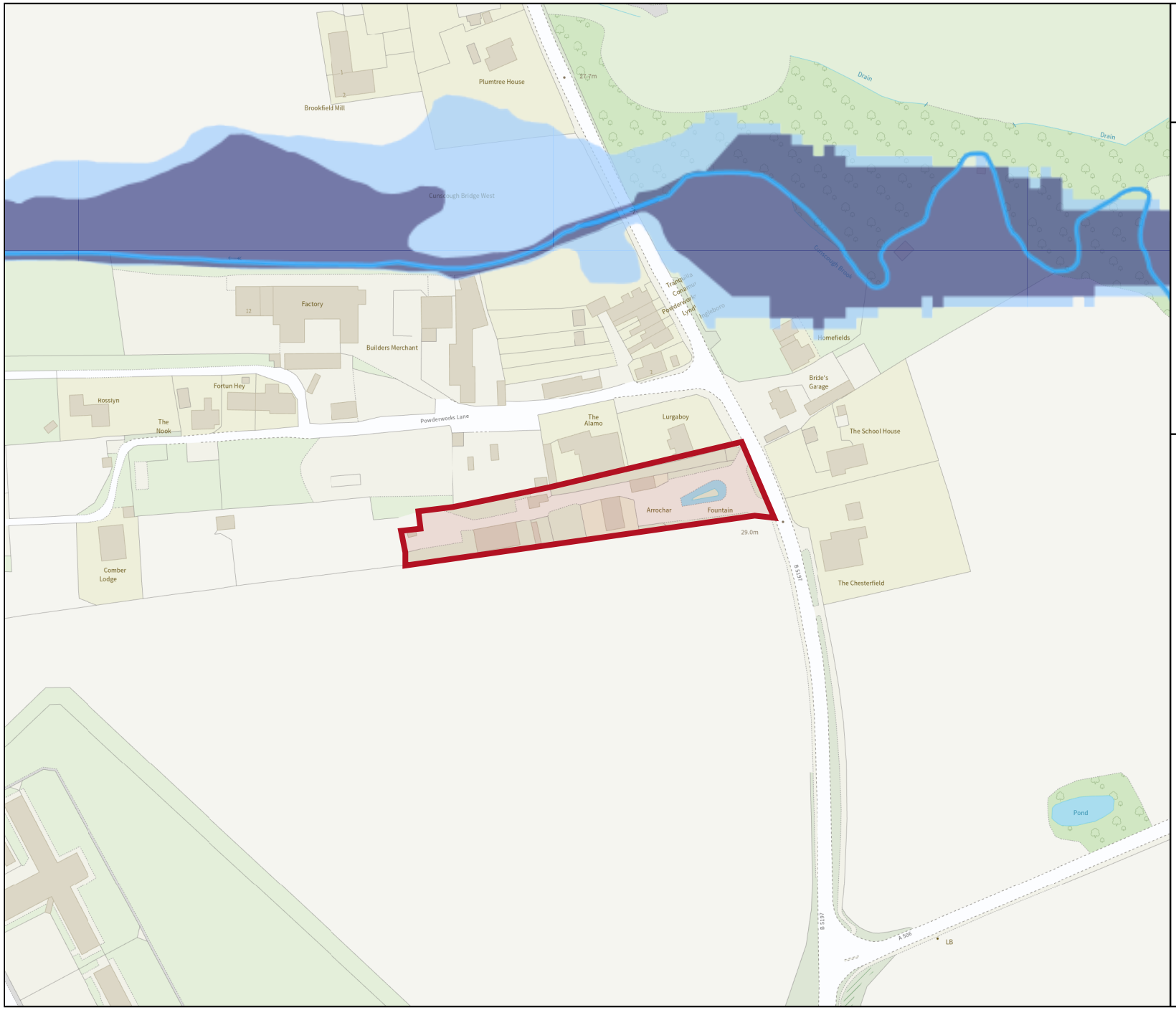
You will need to do a flood risk assessment if your site is **any of the following:**

- bigger that 1 hectare (ha)
- In an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.



Environment Agency

Flood map for planning

Your reference
23113

Location (easting/northing)
340391/403039

Scale
1:2500

Created
2 Aug 2023 7:02

- Selected area
- Flood zone 3
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

0 20 40 60m