Project No: 2024.188

Project: The Growing House
Higher Lane
Longridge
Preston
PR3 2YX

Subject: Flood Risk Assessment and Drainage Strategy for Planning Purposes

Date: September 2024

GRAHAM SCHOFIELD ASSOCIATES

CONSULTING CIVIL AND STRUCTURAL ENGINEERS

Suite 3 Balfour Court
Off Hough Lane
Leyland PR25 2TF

Tel (01772) 459383
Website: grahamschofieldassociates.co.uk
Email: reception@gsa72.co.uk

1.0 INTRODUCTION

1.1 Scope of Project

It is proposed to develop a greenfield site off Higher Lane, Longridge, Preston PR3 2YX which will comprise a single new build residential property with an extended entrance drive and external permeable and impermeable surfacing. The proposals are as shown on the accompanying Architects drawings numbered 01003 and 01004. The location of the land subject to the planning application is identified on the Location Plan.

1.2 Sources of Information

In April 2015, the National Policy for Technical Requirements for Drainage were reinforced as part of the Planning Policy 25 to reflect flooding problems which several parts of the country had experienced in recent years leading up to the introduction of the new legislation.

In general terms, sites in excess of 1.0 Ha in area, or within known areas of risk of flooding, require both a Flood Risk Assessment and an appropriate drainage strategy.

The proposed development site has an area of exactly 0.16 Ha and lies within Flood Zone 1 of the Environment Agencies Flood Zone maps, therefore a Flood Risk Assessment is not necessary.

A Drainage Strategy will therefore be carried out using the following information:

- United Utilities Sewer Records – **Appendix 'A'**
- Location Plan – **Appendix 'B'**
- Drawing No. 2024.188.001 Site Topography – **Appendix 'C'**
- Jackson-Crane Architecture Drawing Numbers 01003 and 01004 – **Appendix 'D'**

- Drawing Number 2024.188.002 Indicative Drainage Layout – **Appendix 'E'**

- HR Wallingford Quick Storage Estimation **– Appendix 'F'**

1.3 Policy Content

A high-level assessment has concluded the site to be of low risk. However, in accordance with "Technical Guidance to the National Planning Policy Framework" the application of a sustainable drainage system shall be adopted to reduce the overall level of flood risk in the area and beyond.

At present, the area of the proposed development site is predominantly agricultural land and therefore considered to be permeable. The proposed development will largely be covered with 'formal' surfacing consisting, buildings, external pathways, soft and hard landscaping resulting in a 75/25 split between impermeable and permeable areas. As such, a sustainable drainage solution will be proposed with allowance made for 40% climate change and 10% for urban creep.

2.0 EXISTING SITE DESCRIPTION AND LOCATION

2.1 Site Description

2.1.1 The site is located off Higher Lane, Longridge, Preston PR3 2YX

2.1.2 The proposed development site is bound by land, to all sides, also owned by the Applicant that consists of agricultural land in its entirety.

2.1.3 The proposed development will briefly comprise, a single substantial new build residential property, access drive, rewilding of a strip of land adjacent to the existing woodland, restoration to rich hay meadow and additional tree planting.

2.1.4 The proposed site development area for the house and garden is 0.16 Hectares and lies within Flood Zone 1.

2.2 Topography

2.2.1 A "walk over" survey has been carried out to compliment our drawing number 2024.188.001 showing the LiDAR contours superimposed onto the Ordnance Survey Open Rivers record for the site. The above information confirms the site to be falling from the northeast corner to the southwest corner with a level difference of approximately 25m.

2.3 Hydrological Setting

2.3.1 Ordnance survey mapping and our walk over survey indicates the closest watercourse to the site is Cowley Brook which is classified as an Ordinary Watercourse and forms the western boundary of the site.

2.3.2 The site has previously been used for Agricultural purposes and as such has a traditional network of field ditches which discharge into Cowley Brook.

2.4 Geology and Hydrogeology

2.4.1 A site specific Site Investigation has not been carried out. However, reference to the British Geological Survey map for the area indicates the drift deposits to be Aluvium comprising clays, silts sand and gravels overlying the solid deposits of sandstone.

2.4.2 The drift and solid geology are designated as Secondary Aquifers of medium vulnerability.

3.0 FLOOD RISK

3.1 The Environment Agency Flood maps indicate the site to be located entirely within Flood Zone 1, land assessed as having less than a 1 in 1000 annual probability of river or sea flooding i.e. 0.1% Annual Exceedance Probability, in any one year.

3.2 Cowley Brook is located on the western boundary of the site. The flood mapping indicates the absence of any localised flooding.

3.3 Beyond the ditches outlined in section 2.3.2 there are no reservoirs, canals, ponds or other artificial watercourses or water bodies in the vicinity of the site.

4.0 SURFACE WATER MANAGEMENT

4.1 Preliminary drainage calculations for returns of 1 in 100 years plus 40% climate change & 10% for urban creep, together with a proposed site drainage plan and accompanying details, have been prepared by Graham Schofield Associates which is summarised below and included in **Appendices 'E' & 'F'**.

- An assessment for the disposal of the surface water drainage was carried out in accordance with the preferred hierarchy thus: -

  i. To soakaway – dependent upon site substrata.

  ii. Nearest Watercourse.

iii. Designed to sustainable drainage standards for brownfield site with attenuation to limit the rate of discharge.

4.2 Sub surface ground conditions comprise Aluvium deposits which are highly unlikely to sustain any long-term effective soakaway system of surface water drainage.

4.3 Cowley Brook is the nearest natural watercourse and forms the western site boundary.

4.4 It is intended that the surface water runoff from the proposed buildings, yard area and upper access road will be collected by rainwater pipes and gullies before being discharged into a traditional network of manholes and underground drainage pipes. Attenuation storage is to be provided upstream of a flow-controlled manhole prior to discharge at a flow rate to mimic the existing green field run-off rate into Cowley Brook. Cowley Brook is an Ordinary Water Course and an application for consent to discharge will be required from the Local Flood Authority.

4.5 It is proposed to drain the existing length of access road, up to the property by cambering the finished levels so that surface water runoff discharges into the soft verges to either side.

4.6 The area covered by the building, and external hard and soft landscaping of 0.16 hectares will result in a QBAR of 1.6 litre/sec and a subsequent storage requirement of 78 m3 to satisfy a 1 in 100-year return and allowance for 40% climate change and an urban creep factor of 1.1.

5.0 FOUL DRAINAGE

5.1 The foul drainage from the house shall be collected via. traditional pipework and collected and treated by a proprietary Package Sewage Treatment Plant (probably a single bio-disc unit) appropriately sized and combined with the restricted flow from the surface water system before discharge into Cowley Brook. The aforementioned application for discharge into Cowley Brook will include the combined surface and treated water.

Appendix 'A'

United Utilities Water Sewer Records

United Utilities
Water for the North West

How to contact us:

United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

Graham Schofield Associates

Suite 3 Balfour Court
off Hough Lane, Leyland
Preston,
PR25 2TF

FAO:

Your Ref: 2024.188
Our Ref: UUPS-ORD-598854
Date: 09/09/2024

Dear Sirs

Location: COWLEY BROOK COTTAGE HIGHER ROAD, LONGRIDGE, PRESTON, PR3 2YX

I acknowledge with thanks your request dated 05/09/2024 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. http://www.unitedutilities.com/work-near-asset.aspx .

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please contact us .

Yours Faithfully,

Karen McCormack
Property Searches Manager

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

Water for the North West

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.

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

LEGEND

Abandoned	Foul	Surface Water	Combined	
				Public Sewer
				Private Sewer
				Section 104
				Rising Main
				Sludge Main
				Overflow
				Water Course
				Highway Drain

All point assets follow the standard colour convention:

red - combined **blue - surface water**
brown - foul **purple - overflow**

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

MANHOLE FUNCTION

FO	Foul
SW	Surface Water
CO	Combined
OV	Overflow

SEWER SHAPE

CI	Circular	TR	Trapezoidal
EG	Egg	AR	Arch
OV	Oval	BA	Barrel
FT	Flat Top	HO	HorseShoe
RE	Rectangular	UN	Unspecified
SQ	Square		

SEWER MATERIAL

AC	Asbestos Cement
BR	Brick
PE	Polyethylene
RP	Reinforced Plastic Matrix
CO	Concrete
CSB	Concrete Segment Bolted
CSU	Concrete Segment Unbolted
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PP	Polypropylene
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Address or Site Reference:

COWLEY BROOK COTTAGE HIGHER ROAD,
LONGRIDGE,
PRESTON,
PR3 2YX

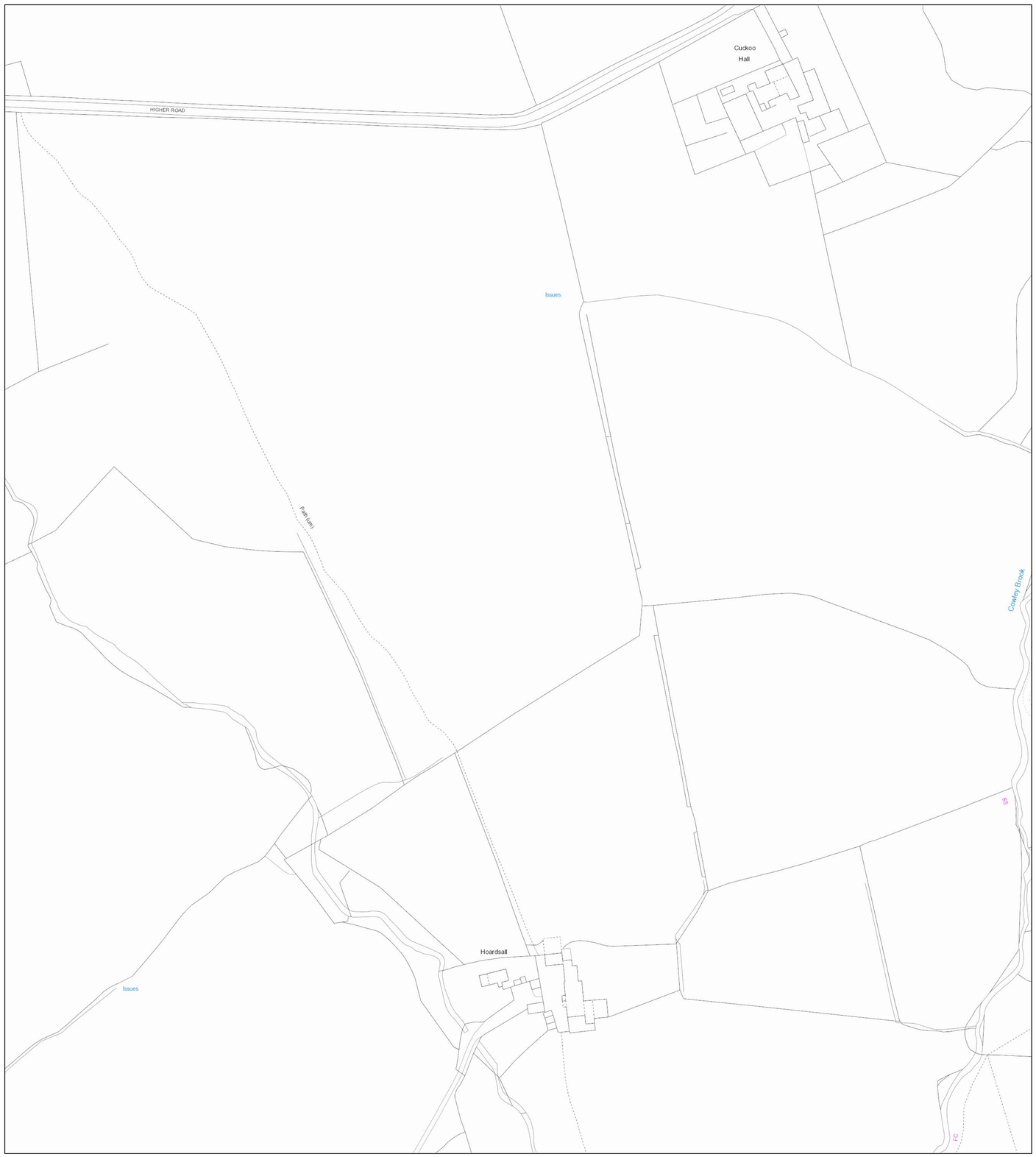
OS sheet Number: SD6438NW
Scale: 1:1250 **Date:** 09/09/2024

Sheet: 1 of 4

Printed by: Property Searches

SEWER RECORDS

United Utilities
Water for the North West



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- Private Sewer
- Section 104
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- Highway Drain

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COWLEY BROOK COTTAGE HIGHER ROAD,
LONGRIDGE,
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PR3 2YX

OS sheet Number: SD6338NE

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SEWER RECORDS

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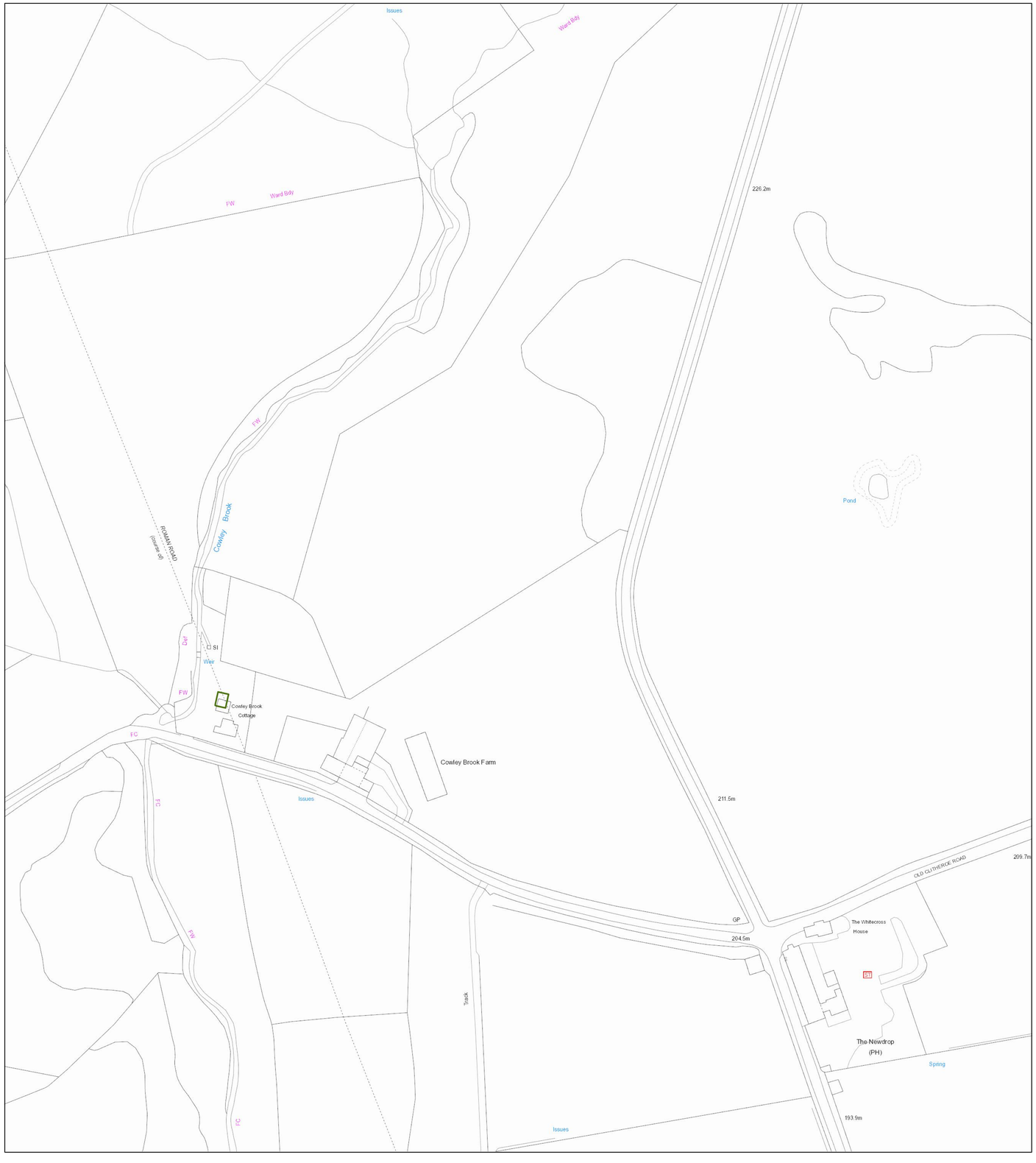
Water for the North West



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OS sheet Number: SD6439SW
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SEWER RECORDS

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Water for the North West

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PR3 2YX

OS sheet Number: SD6339SE

Scale: 1:1250 **Date:** 09/09/2024

Sheet: 4 of 4

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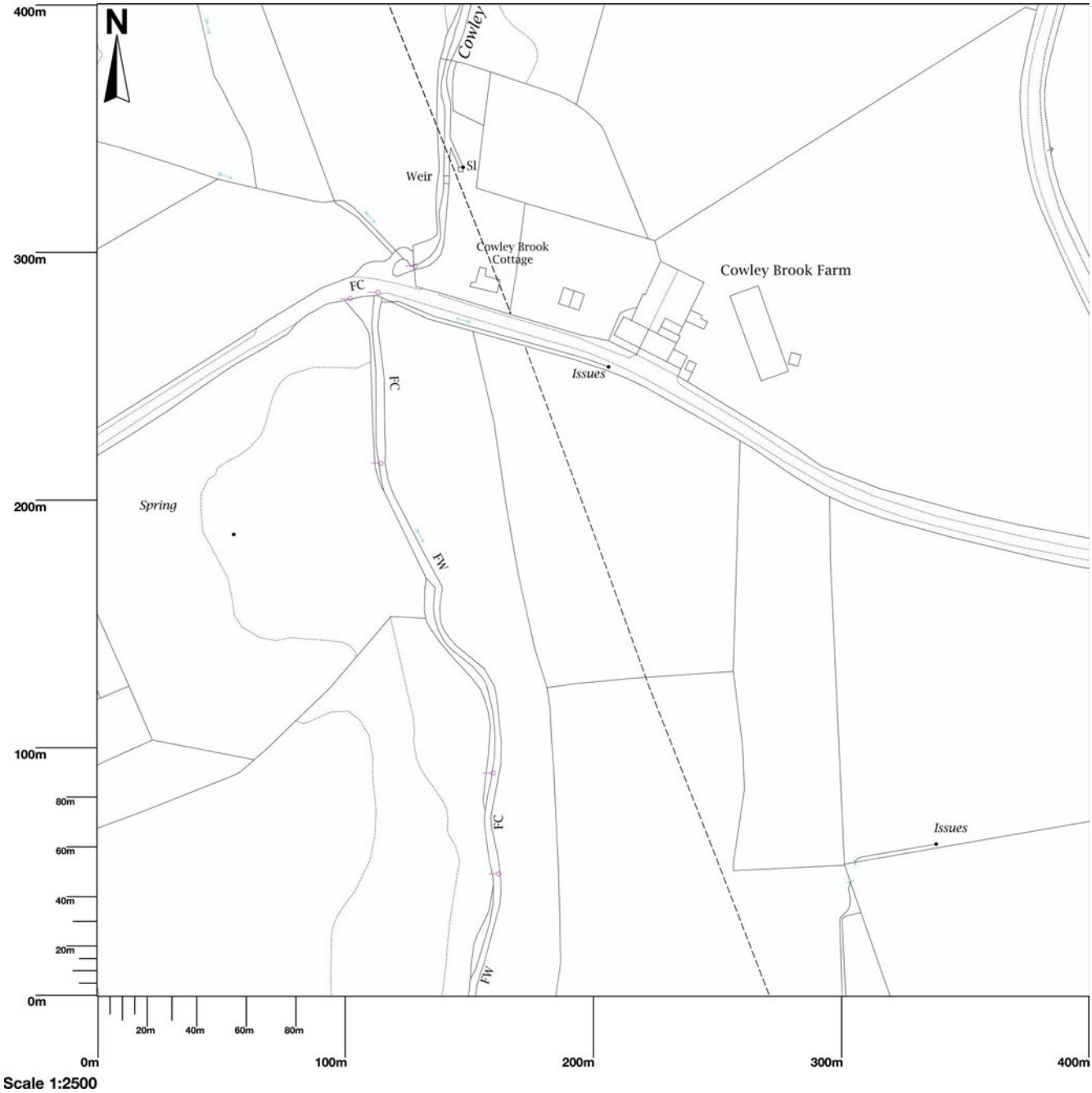
SEWER RECORDS

United Utilities
Water for the North West

Appendix 'B'

Location Plan

Higher Road, Longridge, Preston, PR3 2YX



Appendix 'C'

Drawing No. 2024.188.001 Site Topography

KEY / NOTES:

- SITE BOUNDARY
- MAJOR CONTOURS - 5m INTERVALS
- MINOR CONTOURS - 1m INTERVALS
- ORDINARY WATERCOURSE COWLEY BROOK

REV.	DESCRIPTION	DRAWN	APPROVED	DATE

STATUS

PLANNING

GRAHAM SCHOFIELD ASSOCIATES
Consulting Civil and Structural Engineers
Suite 3 Balfour Court,
Leyland
PR25 2TF
tel: (01772) 459383
email: reception@gsa72.co.uk

GSA

client
MR NEIL RICHARDS

project
THE GROWING HOUSE
HIGHER ROAD, LONGRIDGE
PRESTON PR3 2YX

title
SITE TOPOGRAPHY
LIDAR 2M DTM (DIGITAL TERRAIN MODEL)

drawn LE	checked GS	drawing number	
date 19/09/24	date 19/09/24	2024 - 188 - 001	
scale 1:1000	A1		

Appendix 'D'

Jackson-Crane Architecture Drawing Nos. 01003 and 01004

Jackson-Crane Architecture

7 The Courtyard, 2C High Street,
Ruddington,
Nottingham,
NG11 6ER

0115 837 0123
hello@jackson-crane.com
www.jackson-crane.com

project north

N

Potential area for small car parking area for visitors to view roman road

Course of the roman road. to be verified on site by Roman Road Association

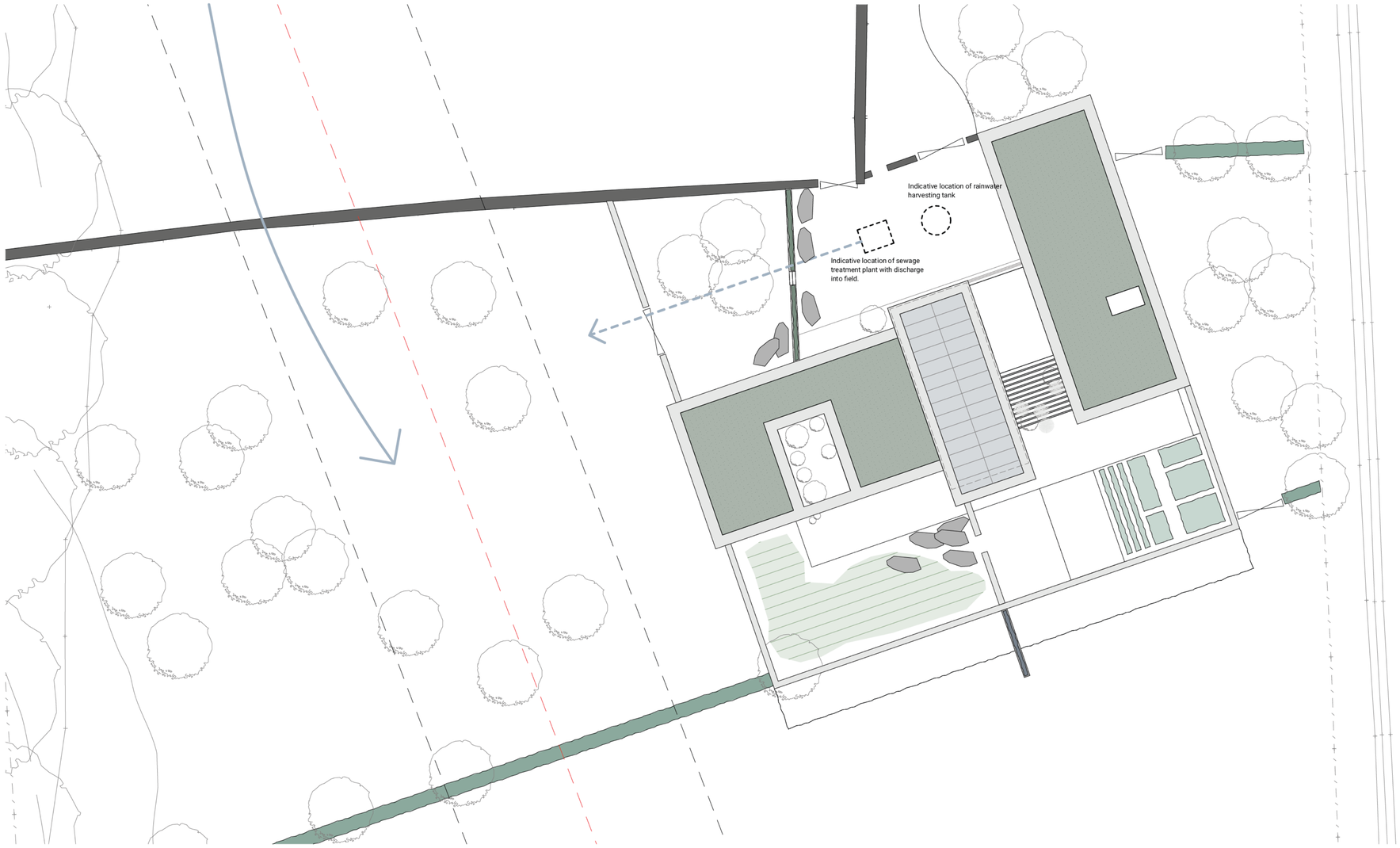
Location of natural spring. Water to be redirected to the house for irrigation of crops.

Location of a previously identified stone wall pen.

revisions

Rev	Description	Date	Initials

status	Work In Progress
client	Mr Neil Richards
project	Higher Road, Longridge, Preston, PR3 2YX
drawing title	Site Plan as Proposed
revision	
drawn by	DJC
approved by	DJC
paper size	A3
project number	20-002
scale	1:500
drawing no:	01003



Jackson-Crane Architecture

7 The Courtyard, 2C High Street,
Ruddington,
Nottingham,
NG11 6ER

0115 837 0123
hello@jackson-crane.com
www.jackson-crane.com

notes

project north

revisions

Rev	Description	Date	Initials

status: Planning

client: Mr Neil Richards

project: Higher Road, Longridge, Preston, PR3 2YX

drawing title: Garden Plan

revision:

drawn by: DJC

approved by: DJC

paper size: A1

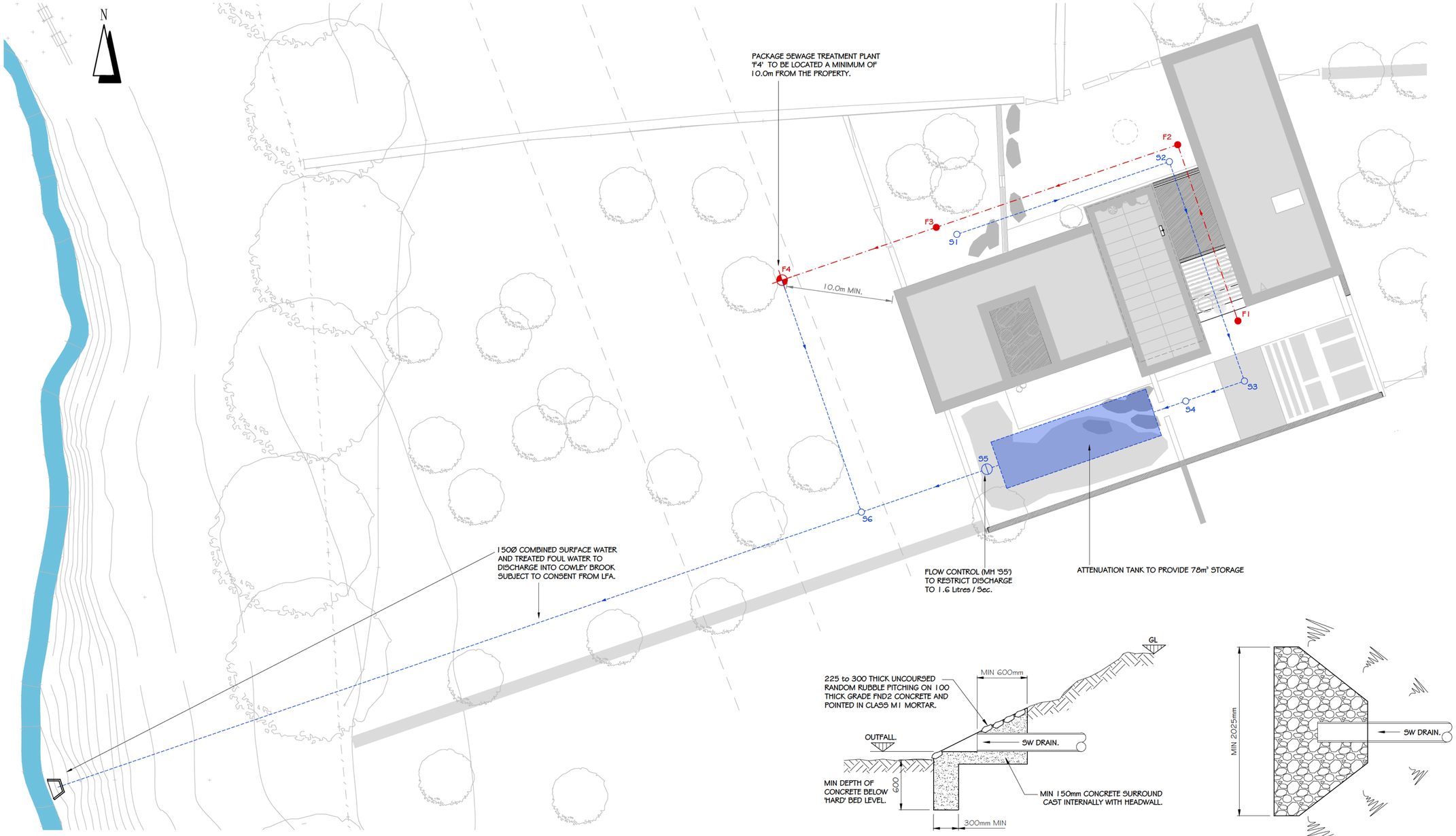
project number: 20-002

scale: 1:200

drawing no: 01004

Appendix 'E'

Drawing No. 2024.188.002 Indicative Drainage Layout



PLAN. 1:200

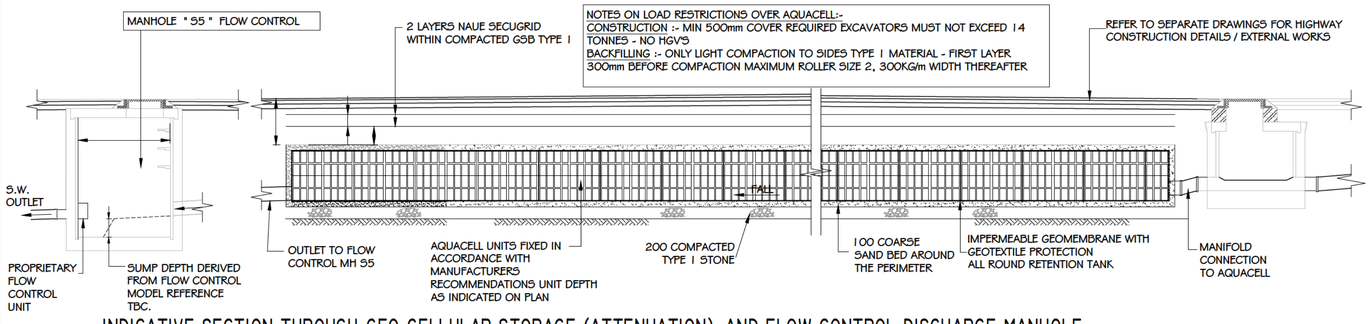
LEGEND

- PROPOSED SURFACE WATER DRAIN AND IC
- PROPOSED FOUL WATER DRAIN AND IC
- PROPOSED PACKAGE SEWAGE TREATMENT PLANT
- PROPOSED ATTENUATION TANK
- EXISTING WATER COURSE

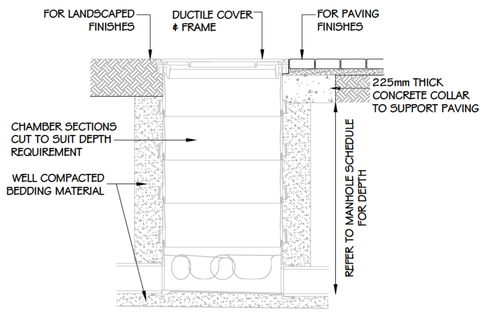
ALL PIPEWORK TO BE 100Ø MIN. U.N.O.

SECTION ON OUTFALL. 1:25

PLAN ON OUTFALL 1:25

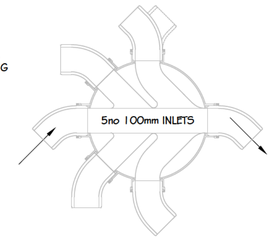


INDICATIVE SECTION THROUGH GEO-CELLULAR STORAGE (ATTENUATION), AND FLOW CONTROL DISCHARGE MANHOLE 1:50



POLYPROPYLENE INSPECTION CHAMBER 940mm DEEP. CUT TO INTERMEDIATE SIZES AS REQUIRED DUCTILE IRON COVER & FRAME, SUITABLE FOR USE IN SITUATIONS WHERE WHEEL LOADS DO NOT EXCEED 1.5 TONNES. CONCRETE COLLAR FORMED INSITU MAY BE USED IN TRAFFICKED AREAS - AND ALSO WHERE SOFT GROUND FINISH SURROUNDS COVER. SEE MANHOLE SCHEDULE FOR FURTHER DETAILS.

POLYPROPELENE INSPECTION CHAMBER 1:25



REV.	DESCRIPTION	DRAWN	APPROVED	DATE

STATUS

PLANNING

GRAHAM SCHOFIELD ASSOCIATES
Consulting Civil and Structural Engineers
Suite 3 Balfour Court,
Leyland
PR25 2TF
tel: (01772) 459383
email: reception@gsa72.co.uk

GSA

client
MR NEIL RICHARDS

project
THE GROWING HOUSE
HIGHER ROAD, LONGRIDGE
PRESTON PR3 2YX

title
INDICATIVE DRAINAGE LAYOUT AND DETAILS

drawn CS	checked GS	drawing number	
date 19/09/24	date 19/09/24	2024 - 188 - 002	
scale 1:200 UNO	A1		

Appendix 'F'

HR Wallingford Quick Storage Estimation

Surface water storage requirements for sites

www.uksuds.com | Storage estimation tool

Calculated by:	[redacted]
Site name:	2024.188
Site location:	Higher Lane, Longridge PR3 2YX

This is an estimation of the storage volume requirements that are needed to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). It is not to be used for detailed design of drainage systems. It is recommended that hydraulic modelling software is used to calculate volume requirements and design details before finalising the design of the drainage scheme.

Site Details

Latitude:	53.84613° N
Longitude:	2.54559° W
Reference:	2641897443
Date:	Sep 18 2024 11:20

Site characteristics

Total site area (ha):	0.16
Significant public open space (ha):	0
Area positively drained (ha):	0.16
Impermeable area (ha):	0.12
Percentage of drained area that is impermeable (%):	75
Impervious area drained via infiltration (ha):	0
Return period for infiltration system design (year):	100
Impervious area drained to rainwater harvesting (ha):	0
Return period for rainwater harvesting system (year):	10
Compliance factor for rainwater harvesting system (%):	100
Net site area for storage volume design (ha):	0.16
Net impermable area for storage volume design (ha):	0.13
Pervious area contribution to runoff (%):	30

* where rainwater harvesting or infiltration has been used for managing surface water runoff such that the effective impermeable area is less than 50% of the 'area positively drained', the 'net site area' and the estimates of Q_{BAR} and other flow rates will have been reduced accordingly.

Methodology

esti	IH124
Q_{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	4	4
SPR:	0.47	0.47

Hydrological characteristics

	Default	Edited
Rainfall 100 yrs 6 hrs:	--	70
Rainfall 100 yrs 12 hrs:	--	100.8
FEH / FSR conversion factor:	1.2	1.2
SAAR (mm):	1306	1306
M5-60 Rainfall Depth (mm):	20	20
'r' Ratio M5-60/M5-2 day:	0.3	0.3
Hydological region:	10	10
Growth curve factor 1 year:	0.87	0.87
Growth curve factor 10 year:	1.38	1.38
Growth curve factor 30 year:	1.7	1.7

Design criteria

Climate change allowance factor:	1.4
Urban creep allowance factor:	1.1
Volume control approach	Use long term storage
Interception rainfall depth (mm):	5
Minimum flow rate (l/s):	2

Growth curve factor 100 years:	2.08	2.08
Q_{BAR} for total site area (l/s):	1.6	1.6
Q_{BAR} for net site area (l/s):	1.6	1.6

Site discharge rates

	Default	Edited
1 in 1 year (l/s):	2	2
1 in 30 years (l/s):	2.7	2.7
1 in 100 year (l/s):	3.3	3.3

Estimated storage volumes

	Default	Edited
Attenuation storage 1/100 years (m^3):	71	71
Long term storage 1/100 years (m^3):	7	7
Total storage 1/100 years (m^3):	78	78