

Report Title

Flood Risk Assessment

Property Address

Land Adjacent to B5344
Holmrook
Egremont
Cumbria

Client

Mr Nutsford

Our Reference

18-088r001

Date

17th April 2018

Prepared by

Colin Aimers
BEng Hons CEng MICE CEnv
Director

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Introduction

Kingmoor Consulting Ltd have been instructed to undertake a Flood Risk Assessment for a proposed new proposed residential development in accordance with the National Planning Policy Framework (March 2012), the associated Technical Guidance on Flood Risk, and the further Environment Agency guidelines as appropriate.

The site and proposed development are indicated on Location Plan reference 18-088 DWG001 as enclosed with this report.

The site is located adjacent to the B5344, on the western outskirts of Holmrook, Egremont, Cumbria. The site is owned by the Applicant.

With regard the sequential test, in the National Planning Policy Framework, it has been identified in the Local Plan published by the Local Authority that a number of developments in the village would be permitted subject these being regarded as infill development, within an area largely occupied by existing dwellings.

New foul water connections would be made from the new dwellings to the existing systems adjacent to the development.

The report should be read in conjunction with report ref 18-088r002 Drainage Strategy.

Flood Risk Assessment Criteria

A Flood Risk Assessment Report was obtained from the Environment Agency and identified that the site under consideration is within a Flood Zone 1. Mapping associated with this data is appended to this report.

The Flood Zone classifications are as follows :

- **Flood Zone 1** - land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%).
- **Flood Zone 2** - land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year.
- **Flood Zone 3** - land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.

In respect to the proposed development, the risk assessment shall consider the following areas :

- Flooding from Sea / Land / Groundwater
- Flooding from Sewers

Flooding from the Sea

Not considered applicable.

Flooding from the Land

It is considered that the development would not affect the surrounding land levels and therefore we consider that flooding from the land is considered to be **LOW**.

Flooding from Groundwater

We consider that the nature of the topoWe consider that the risk associated with Groundwater is **LOW**.

Flooding from Sewers

United Utilities (UU) information has been sought for the site. Records indicate that the main combined sewer pipe is located adjacent to the site boundary.

Discussions with UU will take place regarding the protection of this service and potential upgrade works and as such, we are assured that such works will prevent any potential for flooding on the site from the sewers. We therefore consider that the risk is **LOW** associated with the sewers.

Summary

The following table indicates a summary of the risks and control measures required.

Source of Flooding	Risk	Control Measures
Rivers	Low	None required
Sea	N/A	None required
Land	Low	Ensure flood routes are maintained around the site and properties consider flood resilience measures.
Groundwater	Low	Ensure flood routes are maintained around the site and properties consider flood resilience measures.
Sewers	Low	Ongoing discussions with UU regarding protection measures to the sewers and upgrades as required to protect the proposed development and surrounding properties.

Increase to Off Site Flooding

New developments should be designed to limit the surface water runoff to existing surface water discharge flow rates or better.

The proposed development shall be residential, it is therefore recommended that suitable systems are adopted in the design of the structure and its infrastructure, based around the principles of Sustainable Urban Drainage Schemes (SuDS). It is therefore considered that any final design solutions would be provided within the development following the hierarchy of drainage requirements as laid out in the Approved Document H of the Building Control Regulations with respect to SUDS and CIRIA C753 The SuDS Manual.

The following destinations must be considered for surface runoff in order of preference :

- Discharge to Ground
- Discharge to surface water body
- Discharge to surface water sewer
- Discharge to combined sewer

By implementing the above hierarchy and limiting proposed discharge flows to match existing discharge from the site, this will limit the risk of flooding downstream.

Flood Risk Vulnerability

Assessment

The vulnerability of the proposed development is assessed in accordance with the Technical Guidance to the National Planning Policy Framework published by the Department for Communities and Local Government in March 2012.

The report should consider if the development is acceptable for the Flood Zone Classification in accordance with Table 3 within the NPPF. The proposed development is residential and therefore classified as 'More Vulnerable', the site is considered as Flood Zone 1.

Flood Risk Vulnerability and Flood Zone 'Compatibility'

Flood risk vulnerability classification see table D2	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone 1	√	√	√	√	√
Zone 2	√	√	Exception test required	√	√
Zone 3a	Exception test required	√	X	Exception test required	√
Zone 3b 'functional flood plain'	Exception test required	√	X	X	X

√ Development is appropriate

X Development should not be permitted

Summary

The following represents

1. It is understood that the site is within a Flood Zone 1 based on the available information produced by the Environment Agency.
2. Access to the site is via infrastructure located in Flood Zone 1.
3. Residential development is considered more vulnerable and is considered appropriate under the National Planning Policy Framework on this site in terms of Flood Risk in flood zone 1 areas.
4. In accordance with Table 2 of the NPPF, we consider the development should *reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage systems.*
5. Mitigation measures associated with protection of the property from flooding from the adjacent sewage pipes will be implemented alongside the asset owners, United Utilities.
6. The proposed development shall not affect flooding routing around the site boundary.
7. The foul water from the site shall discharge to the adjacent sewer to the site.
8. Surface water from the site shall be designed in accordance with the principles of SUDS and shall be discussed in detail within report 18-088r002 Drainage Strategy for the site.

Appendix A - Flood Information

Flood map for planning

Your reference
18-088

Location (easting/northing)
307550/499497

Created
12 Apr 2018 3:16

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

This means:

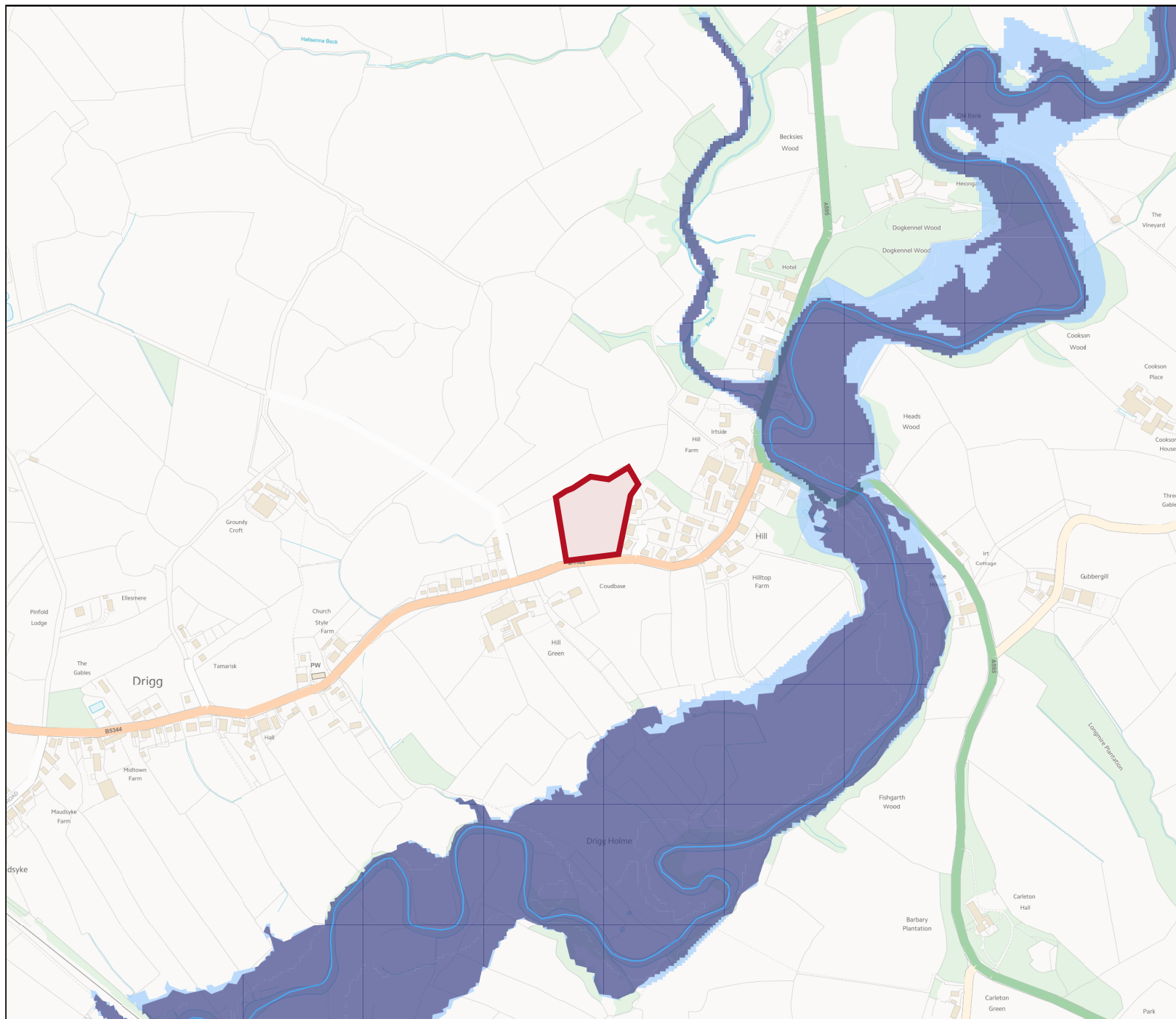
- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1 hectare or affected by other sources of flooding or in an area with critical drainage problems

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.

The Open Government Licence sets out the terms and conditions for using government data.
<https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>











Flood map for planning

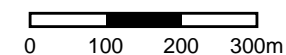
Your reference
18-088

Location (easting/northing)
307550/499497

Scale
1:10000

Created
12 Apr 2018 3:16

-  Selected area
-  Flood zone 3
-  Flood zone 3: areas benefitting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Flood storage area













Flood map for planning

Your reference
18-088

Location (easting/northing)
307550/499497

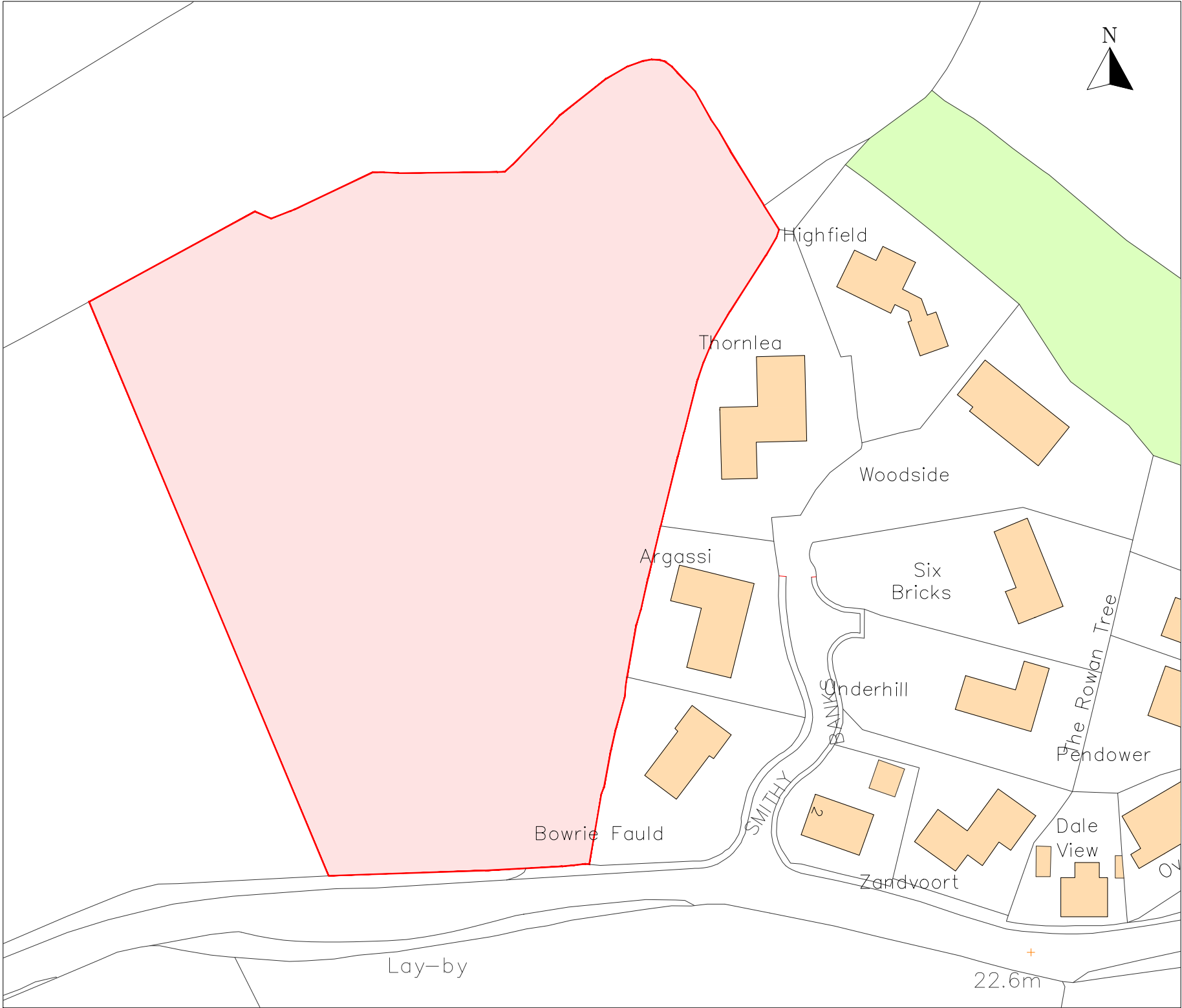
Scale
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Created
12 Apr 2018 3:16

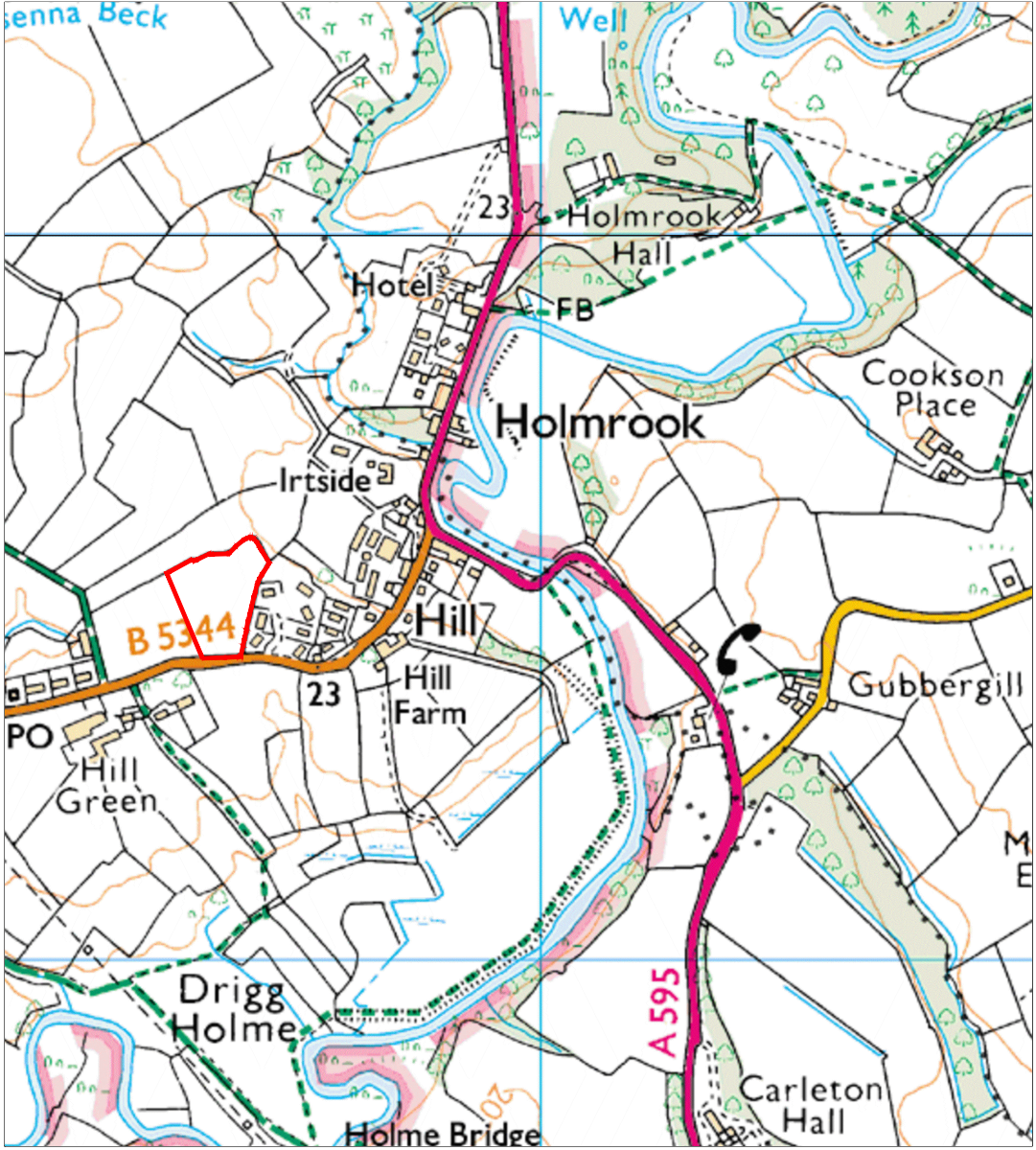
-  Selected area
-  Flood zone 3
-  Flood zone 3: areas benefiting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Flood storage area

0 20 40 60m

Appendix B - Site Location Plan



BLOCK PLAN
SCALE 1:1000



LOCATION PLAN
SCALE 1:10000

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6B CLIFFORD COURT, PARKHOUSE,
CARLISLE
T: 01228 915900
E: hello@kingmoorconsulting.co.uk

PROJECT PROPOSED RESIDENTIAL DEVELOPMENT HOLMROOK, EGREMONT			
TITLE LOCATION AND BLOCK PLAN			
SCALE AS NOTED	STATUS FOR PLANNING		
PAPER SIZE A3	DRAWN BY C AIMERS	CHECKED AND APPROVED C AIMERS	
PROJECT PHASE PLANNING	DATE APRIL 2018	DATE APRIL 2018	
DRAWING NUMBER 18-088-DWG001			REVISION A

Appendix C - United Utilities Information

Kingmoor Consulting Ltd

**6B Clifford Court
Clifford Way, Parkhouse
Carlisle, Cumbria
CA3 0JG**

FAO:

How to contact us:

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

**Your Ref: 18-088
Our Ref: UUPS-ORD-24291
Date: 13/04/2018**

Dear Sirs

Location: Holmrook

I acknowledge with thanks your request dated 13/04/2018 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

TERMS AND CONDITIONS - WASTERWATER 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)".

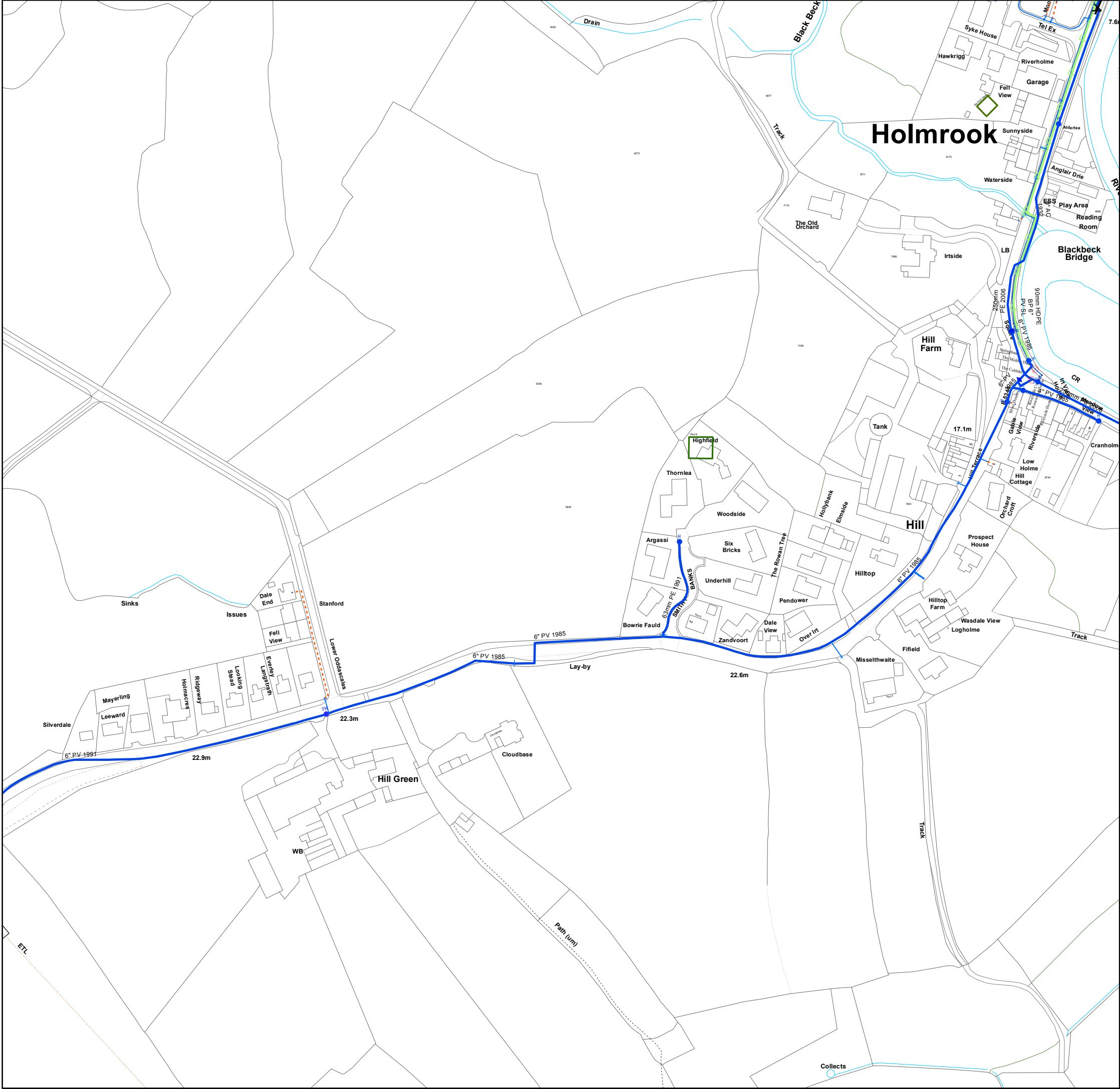
TERMS AND CONDITIONS:

- 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.

Clean Water Symbolology

Proposed	Abandoned	Live	
			Distribution Main
			Trunk Main
			Comms Pipe
			Private Pipe
			Concessionary Service
			Raw Water
			LDTM Raw Water
			LDTM Treated Water
			Air Valve
			AC Valve, open
			AC Valve, closed
			CC Valve, open
			CC Valve, closed
			Non Return Valve
			Pressure Management Valve
			OMS Valve
			Stop Tap
			Flow Meter
			Domestic Meter
			Commercial Meter
			Pump
			Hydrant
			Fire Hydrant
			Anode
			Chlorination Point
			De-chlorination Point
			Strainer Point
			Access Point
			Hatch Box
			IP Point
			Sampling Station
			Logger Box
			Bore Hole
			Inlet Point
			Bulk Supply Point
			End Cap
			Site Termination
			Change of Characteristic
			Condition Report
			<u>Property Types</u>
			Water Tower
			Valve House
			Booster Pumping Station
			Intake Pumping Station
			Water Treatment Works
			Supply Reservoir
			Service Reservoir
			Impounding Reservoir
			Pipe Bridge

Symbology for proposed assets is the same as above, but shown in **green**
Symbology for abandoned assets is the same as above, but shown in **black**



Extract from Map of Water Mains

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available

The actual positions may be different from those shown on the plan, private service pipes may be shown where a known record is available.

United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown. Crown copyright and database rights [2016] Ordnance Survey 100022432.

United Utilities Water Limited 2014
The plan is based upon the Ordnance Survey Map with the sanction of the Controller of H.M. Stationery Office.Crown and United Utilities copyrights are reserved. Unauthorised reproduction will infringe these copyrights.

Holmrook

Printed By: Property Searches Date: 13/04/2018

DO NOT SCALE
Approximate Scale: 1:2500





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.

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Reho	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
6402		FO	0	150			VC	25.36007	1 in 10
7402	21.75	CO	19.5	150			VC	42.94266	1 in 11
8401	16.06	CO	15.11	150			VC	39.51157	1 in 20
8601	9.33	CO	7.95	150			VC	42.2019	1 in 20
6404		FO	0	150			VC	12.6657	
6403		FO	0	150			VC	16.45431	
6405		FO	0	150			VC	21.87484	
6406		FO	0	150			VC	20.56976	
6407		FO	0	150			VC	12.71068	
6401	23.16	CO	21.8	150			VC	7.383966	1 in 115
7401	23.91	CO	21.38	150			VC	47.12068	1 in 38
								71.59771	

Reho	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

Outfall

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

Change of Characteristic

MANHOLE FUNCTION

FO Foul

SW Surface Water

CO Combined

OV Overflow

SEWER SHAPE

CI Circular

EG Egg

OV Oval

FT Flat Top

RE Rectangular

SQ Square

TR Trapezoidal

AR Arch

BA Barrel

HO HorseShoe

UN Unspecified

SEWER MATERIAL

AC Asbestos Cement

BR Brick

PE Polyethylene

RP Reinforced Plastic Matrix

CO Concrete

CSB Concrete Segment Bolted

CSU Concrete Segment Unbolted

CC Concrete Box Culverted

PSC Plastic / Steel Composite

GRC Glass Reinforced Plastic

DI Ductile Iron

PVC Polyvinyl Chloride

CI Cast Iron

SI Spun Iron

ST Steel

VC Vitrified Clay

PP Polypropylene

PF Pitch Fibre

MAC Masonry, Coursed

MAR Masonry, Random

U Unspecified

Address or Site Reference:


Holmrook,

Scale: 1:1250 Date: 13/04/2018

Sheet: 1 of 1

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SEWER RECORDS

United Utilities
helping life flow smoothly