TECHNICAL NOTE

WATER | ENVIRONMENT

Water Environment Limited
6 Coppergate Mews
Brighton Road
Surbiton
London
KT6 5NE

Tel: 020 8545 9720

www.WaterEnvironment.co.uk

PROJECT	Ravensthorpe Petrol Filling Station Dewsbury WF13 3LR	CLIENT	MBH Design Studio Ltd	
TITLE	Flood Risk Assessment	REFERENCE	22174-FRA-TN-01	C01

AUTHOR	CHECKER	APPROVER
Francesco Rossato MSc (Civil-Hydraulics) BSc (Civil)	Claire Burroughs Msc DIC MEng (Hons) MCIWEM	Tony Clothier PhD, BSc Eng, (Civil) CEng, CEnv, C.WEM

REV	COMMENTS	DATE	AUTH	CHKR	APPR
C01	First issue	16/02/2023	FR	CB	TC

1 Introduction

1.1 Water Environment Limited were commissioned by MBH Design Studio Ltd to produce a Flood Risk Assessment (FRA) for the proposed development at Ravensthorpe Petrol Filling Station (PFS) located on Huddersfield Road, in Dewsbury, West Yorkshire. The site is located within the jurisdiction of Kirklees Council (KC), which also fulfil the role of the Lead Local Flood Authority (LLFA).

1.2 The GOV.UK Flood Map for Planning[1] shows the site to lie within the Flood Zone 2. A Flood Risk Assessment (FRA) is required to support a planning application on the site in accordance with the National Planning Policy Framework[2] (NPPF).

1.3 This document has been prepared with due consideration of the NPPF, the latest planning practise and guidance for Flood Risk and Coastal Change[3], the Environment Agency's (EA) Flood Risk Standing Advice (FRSA) for local planning authorities[4], and local flood risk documentation.

1.4 The proposed development is deemed as a "minor" development and is therefore able to follow the Environment Agency (EA) FRSA.

2 Description of Development

2.1 The site is known locally as the Shell Petrol Filling Station (PFS). The site is on Huddersfield Road, in an urban context. The site is approximately 200 m to the River Calder and the Calder and Hebble Navigation.

2.2 The exact location of the site in relation to the Calder can be seen in Figure 1.

[1] Available at: https://flood-map-for-planning.service.gov.uk/ [Accessed: 10/02/2023]
[2] Ministry of Housing, Communities and Local Government, Updated National Planning Policy Framework, July 2021
[3] Flood risk and coastal change - GOV.UK (www.gov.uk) [Accessed 10/02/2023]
[4] Review individual flood risk assessments: standing advice for local planning authorities - GOV.UK (www.gov.uk) [Accessed 10/02/2023]

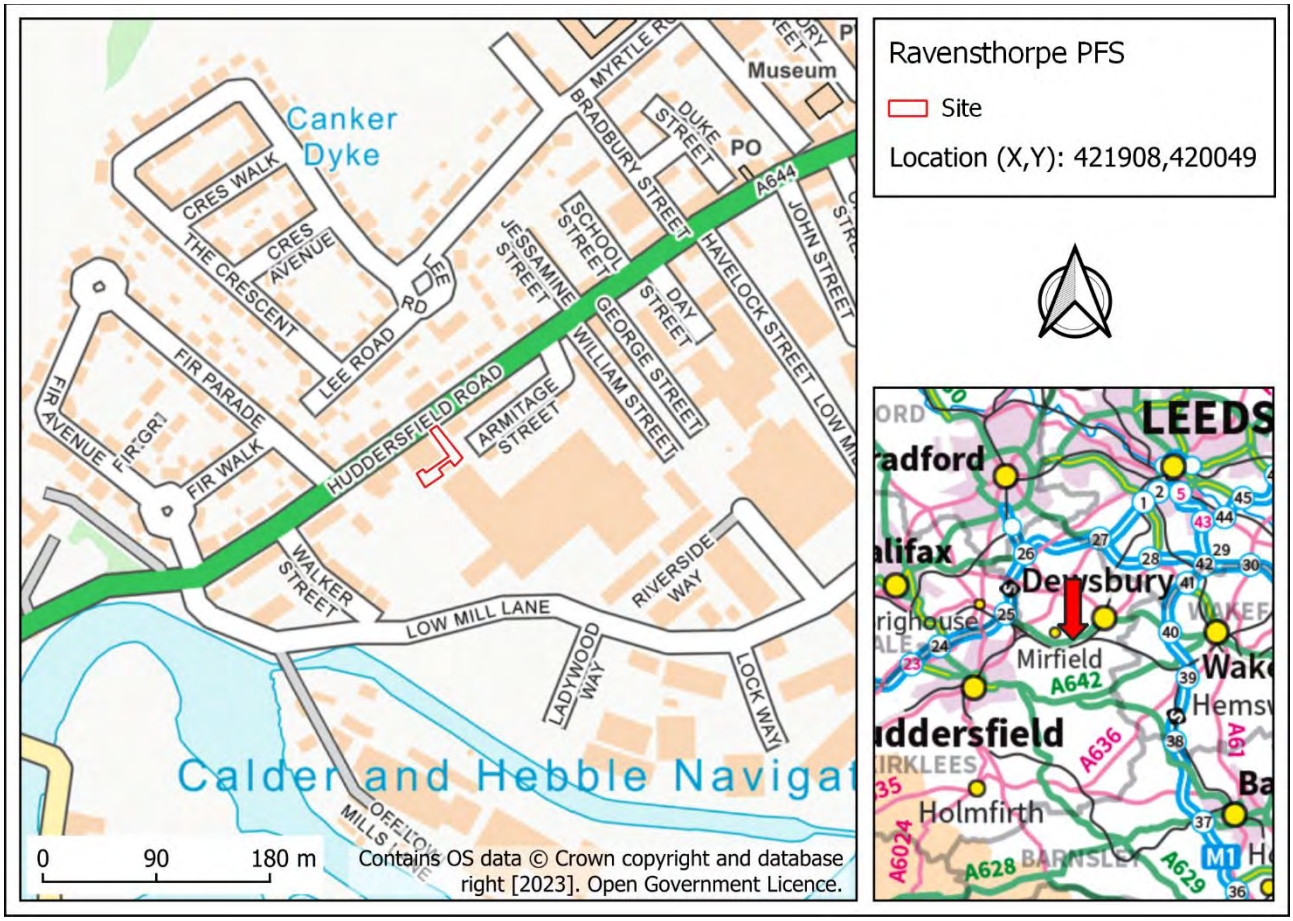


Figure 1: Site Location

2.3 The current site is used as a petrol filling station with a sales building and car wash.

2.4 The proposals include the demolition of the car wash, construction of the electrical vehicle charging facilities (six bays) with an associated electrical sub-station, two new jet wash, with existing fillers and vent stacks to be relocated. The site application area is 661 m^2.

2.5 The existing access route to the site is from Huddersfield Road, and is to be maintained post-development.

2.6 The current and proposed development drawings are attached in the appendix to this technical note.

2.7 Ground levels are assessed with the use of publicly available LiDAR[5]. As shown in Figure 2, levels on site vary from 42.80 m AOD at the access from Huddersfield Road, to 43.10 m AOD to the southwestern side of the site.

[5] Available at: https://environment.data.gov.uk/DefraDataDownload/?Mode=survey [Accessed: 10/02/2023]

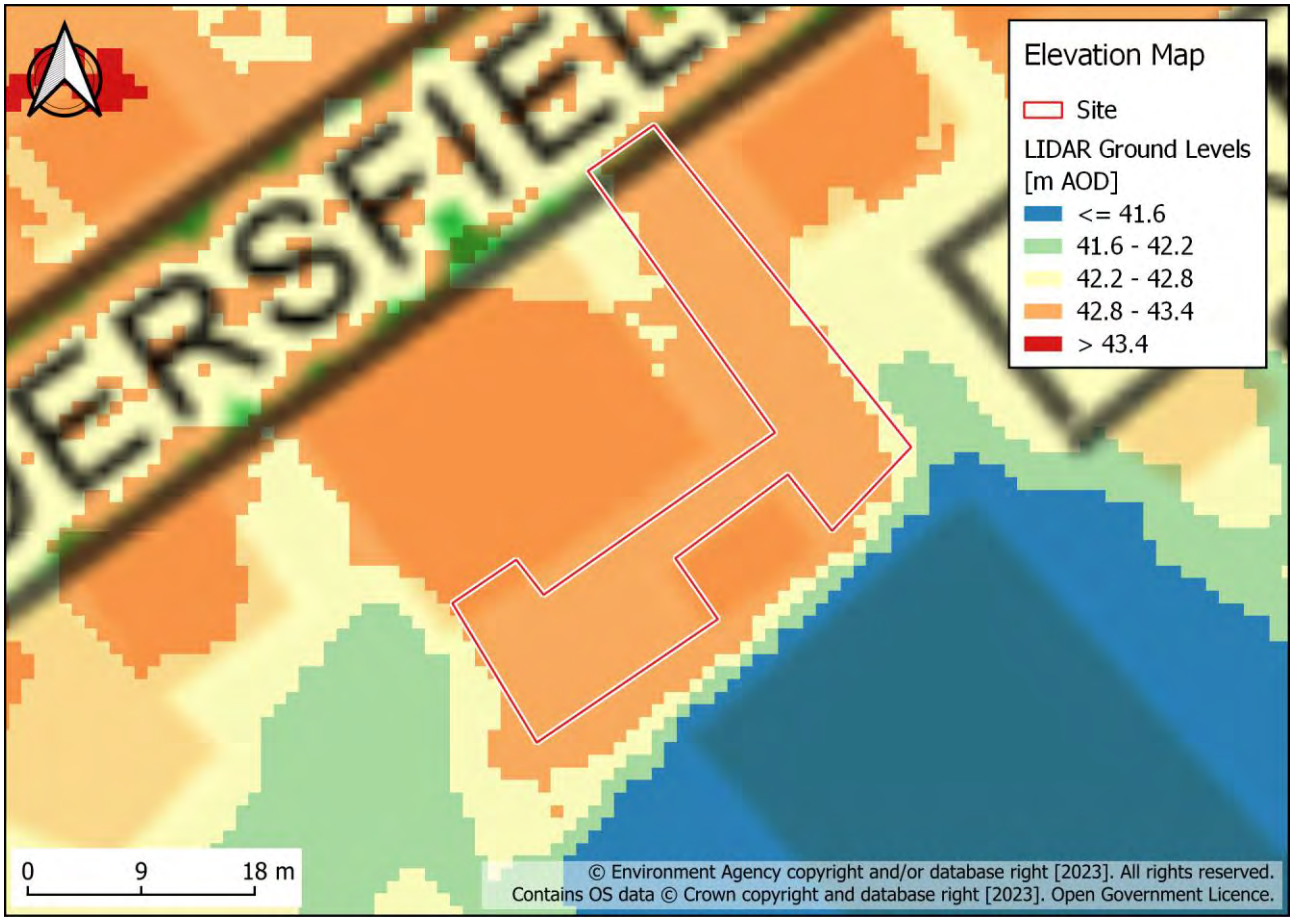


Figure 2: LiDAR Levels

3 Assessment of Flood Risk

3.1 In assessing the risk of flooding for the site the EA Product 4, Calder Catchment Strategic Flood Risk Assessment (SFRA)[6], Local Flood Risk Management Strategy[7] (LFRMS), Calder Catchment Flood Management Plan[8] (CFMP), Kirklees Preliminary Flood Risk Assessment[9], Kirklees Surface Water Management Plan[10] (SWMP) have been reviewed.

3.2 According to the SWMP, the Ravensthorpe area suffers from surface water flooding problems when the River Calder water levels are high and restrict the free discharge of the watercourses and public sewers, causing the drainage systems to back-up.

3.3 For the site, the primary source of risk of flooding to the site is from the River Calder, which has been reviewed with the current EA Product 4.

3.4 No documented history of flooding on site has been found to date, with the reviewed documents not including flooding that may have occurred after March 2022

[6] JBA Consulting, Calder Catchment Strategic Flood Risk Assessment – Volume II (Kirklees Council), July 2016
[7] Kirklees Council, Kirklees Local Flood Risk Management Strategy (February 2013)
[8] Environment Agency, Calder Catchment Management Plan, December 2010
[9] Flood Risk Regulations 2009, Preliminary Assessment Report for Kirklees
[10] Kirklees Surface Water Management Plan, February 2011

Risk of Flooding from the Rivers

3.5 The published GOV.UK Flood Map for Planning shows the site is located in Flood Zone 2, which relates to "medium risk" of flooding from the rivers or the sea (Figure 2). There are flood storage areas on the right bank of the River Calder, and there are no flood defences in the proximity of the site.

3.6 Due to elevated ground levels at the site, the site is not at risk of flooding from the sea.

3.7 The dark blue areas equate to Flood Zone 3 ('high risk', which for fluvial sources equates to a greater than 1% Annual Exceedance Probability - AEP) and the lighter blue to Flood Zone 2 ('medium risk', equating to between 0.1% - 1% AEP). The areas not highlighted in blue are classified as Flood Zone 1 which is at 'low risk' (equating to less than 0.1% AEP fluvial flooding).

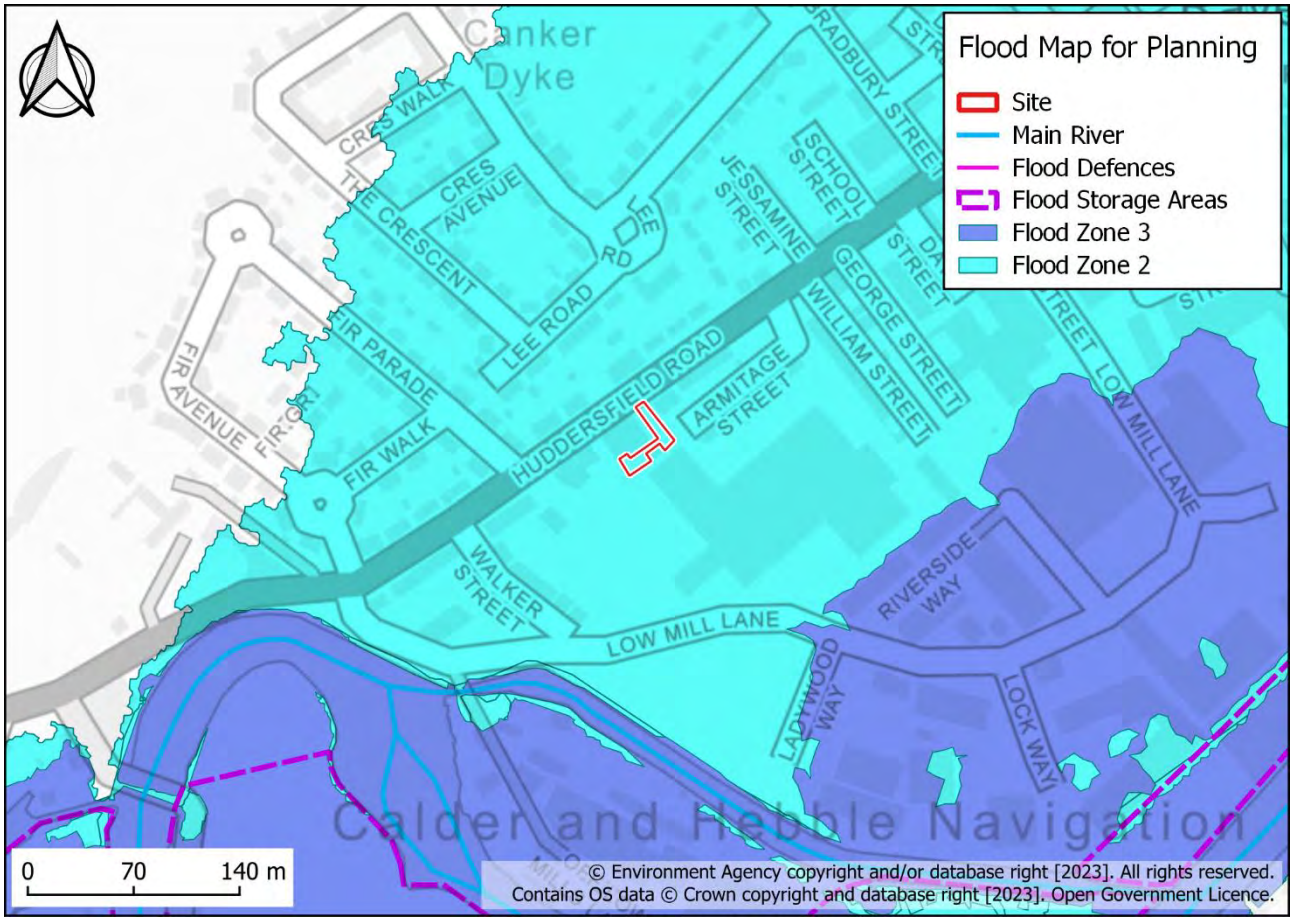


Figure 3: Flood Map for Planning

3.8 Detailed hydraulic modelling has been undertaken by the EA as part of the 2015 Calder and Canals Study. The EA have provided the latest detailed flooding information relevant to the site via a Flood Risk information Product 4 request (see appendix). The provided data includes modelled river levels for the 50%, 20%, 10%, 1%, 4%, 3.33%, 2%. 1.33%, 1%, 1% + 20% climate change, 0.5% and 0.1% AEP events.

3.9 The EA modelling shows the site is primarily not affected by the 1% AEP + 20% climate change event but the floodplain does creep onto the site in the south eastern corner. The floodplain outline and flood depth figure are appended to this document. The 0.1% AEP event is shown to flood the entirety of the site.

3.10 All planning applications must be assessed for the 1% AEP + climate change event (design event). The 20% climate change allowance was in use to February 2016 and has been since updated. The current best practice for climate change allowance is the NPPF, which defers to the National PPG to specify climate change allowances. The PPG recommends an increase in river flows depending on which river basin district the site lies in and the type of development. The range of allowances is based on percentiles which describe the proportion of possible scenarios that fall below an allowance level. The 'Central' allowance is based on the 50th percentile, the 'Higher Central' is based on the 70th percentile and the 'Upper end' is based on the 90th percentile.

3.11 The River Calder belongs to the Aire and Calder Management Catchment and the expected lifetime for the proposed scheme is 75 years due to the non-residential, service use. Therefore, the peak river flow climate change allowances are as shown in Table 1, up to the 2080's.

Table 1: Peak river flow allowances by management catchment

Management Catchment	Allowance Category	Total potential change anticipated for **the '2080s'**
Aire and Calder	Upper	51%
	Higher	31%
	Central	23%

3.12 A 75-year life span, as outlined with the PPG for commercial development, would take the development to the 2090s and it is therefore estimated that the total potential change would be 23% for the central allowance. Given the 2015 Calder and Canals Study has not been updated to reflect the latest climate change allowances, the current 0.1% AEP scenario for which depths on site are available has been used to assess the 'design event'.

3.13 According to the Product 4 provided by the EA, the critical flood water depths are between 0 and 250 mm at the area of the site where development is proposed (charging zone and substation). Accordingly, using the 0.1% AEP event as a surrogate of the 1% AEP + 23% climate change allowance event, the design flood water level is 43.35 m AOD (calculated as the highest level on-site plus the maximum flood depth). The site is at risk of flooding in the 0.1% AEP event.

3.14 The electrical substation is raised using an internal concrete slab plinth of roughly 150 mm. The location of the electrical substation is also raised above the general ground levels, as the position of this infrastructure is slightly elevated by roughly 150 mm (kerb height). In total, the substation is raised by 300 mm. This provides protection against flooding if the flood depth is less than 300 mm.

3.15 The proposed development has been designed with the highest possible levels and is unable to be raised further due to infrastructure related constraints. If flooding occurred and was greater than 300 mm in depth, the electrical substation equipment would trip out and its components would require an inspection post event. The proposed infrastructure equipment should be waterproofed if it is possible.

3.16 It is recommended that the site operators sign up to the EA's Flood Warning Service[11], as part of the flood management plan of the site.

3.17 When the flood warning is triggered, site operators should remain vigilant and the site should take the necessary actions, to ensure the protection and recoverability of the site. This may include turning off the electrical supply, preventing customers using the electrical charging facilities and getting customers to remove their cars (to outside of the floodplain). Once the site is safely shut down, staff should evacuate the area. Both local and on-site conditions should be carefully monitored and considered, and

[11] Available at: https://www.gov.uk/sign-up-for-flood-warnings

the decision to activate site-specific flood protection procedures should not wait for an official EA Flood Warning if there is a direct and immediate threat of flooding to the site.

3.18 The proposed development has implemented suitable measures to reduce the risk of damage flooding. In the case of an event larger than the design event, the occupiers of the PFS are aware of the consequences and how to manage the site.

Risk of Flooding from Surface Water

3.19 Flooding from surface water can occur following intense local rainfall events when floodwater is unable to infiltrate into the ground or discharge into natural or artificial drainage infrastructure. In an urban environment, the risk of flooding from surface water and from overloaded sewers is closely related, and both are included in the relevant surface water flooding datasets. Flood water subsequently follows the topography of the local area. Surface water flooding events are typically of a short duration but can be severe.

3.20 The GOV.UK online flood mapping includes the risk of surface water flooding. The surface water flood extent can be seen in Figure 4. The dark blue shaded areas represent 'High' surface water flood risk, which are predicted to flood with a 3.3% AEP. While the lighter blue areas are at 'Medium' risk of surface water flooding, with a 1% AEP. Pale blue areas are at 'Low' risk of surface water flooding, with a between 0.1% AEP. Areas not highlighted are classified at 'Very Low' risk of surface water flooding, with a less than 0.1% AEP.

3.21 The map shows that the site is at very low risk of "flooding" and therefore the risk of flooding to the development is low.

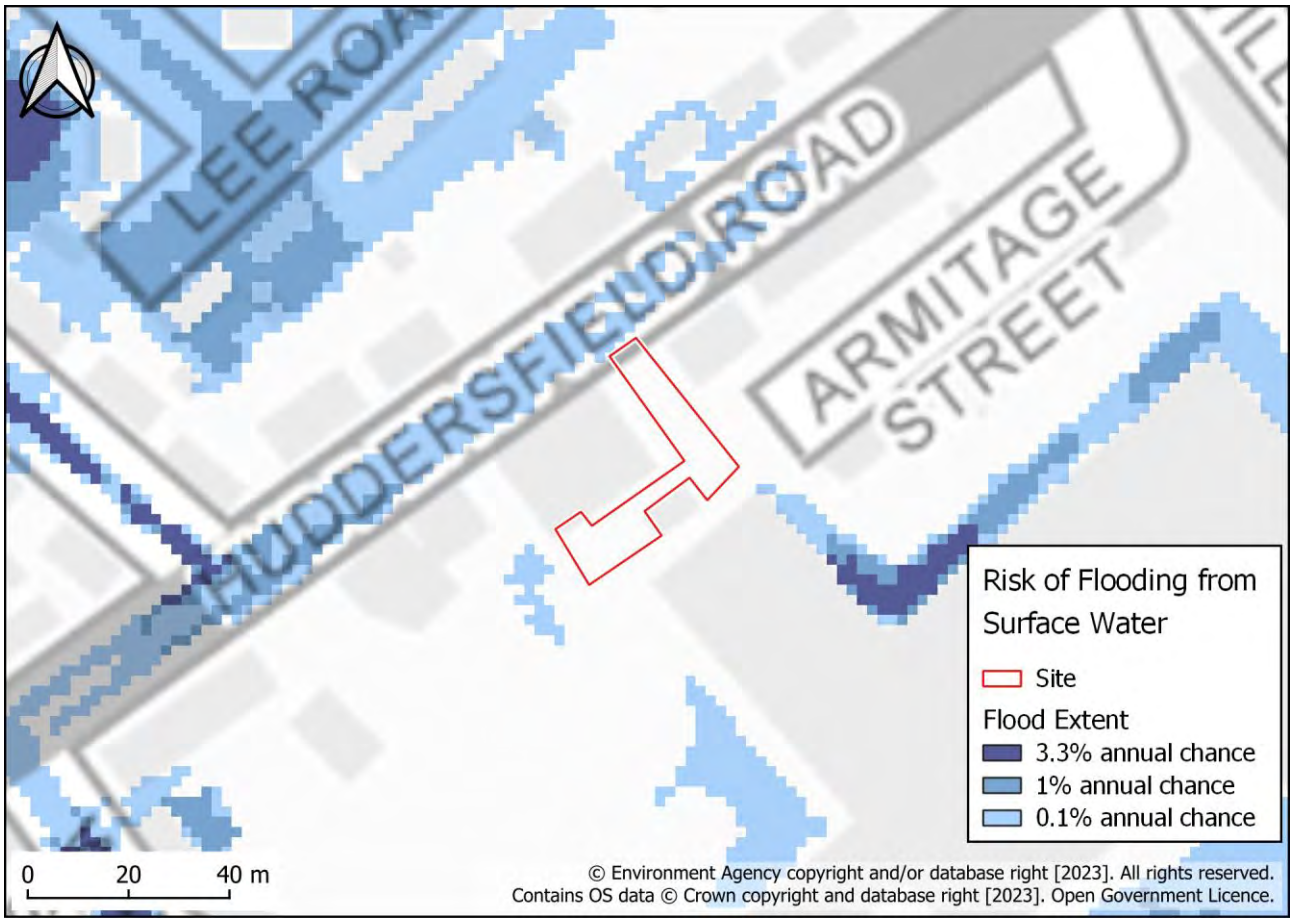


Figure 4: Risk from Surface Water Flood Extents

Risk of Flooding from Groundwater

3.22 Groundwater flooding occurs as a result of water rising up from an underlying aquifer or flowing from springs. This tends to occur after much longer periods of sustained high rainfall, and the areas at most risk are often low-lying where the water table is likely to be at shallow depth. Groundwater flooding can interact with other sources of flooding, exacerbating their risk by reducing the infiltration of flood water to ground. The primary mechanisms for elevated groundwater at the site are associated with periods of above average rainfall in permeable superficial deposits and hydraulic continuity of these deposits with high river water levels.

3.23 The British Geology Society (BGS) 1:50k geology map in Figure 5 indicates that the site has Alluvium superficial deposits (clay, silt, sand and gravel) over a Pennine Lower Coal Measures Formation bedrock (mudstone, siltstone and sandstone).

3.24 The GeoIndex Map[12] shows nearby borehole log SE22SW1070 showing layers of sand and clay to 10.6 m below ground level (BGL) before encountering several layers of mudstone and sandstone to 30 m BGL. Water was struck at three depths: 6.00 m MGL, 14.00 m BGL and 22.50 m BGL.

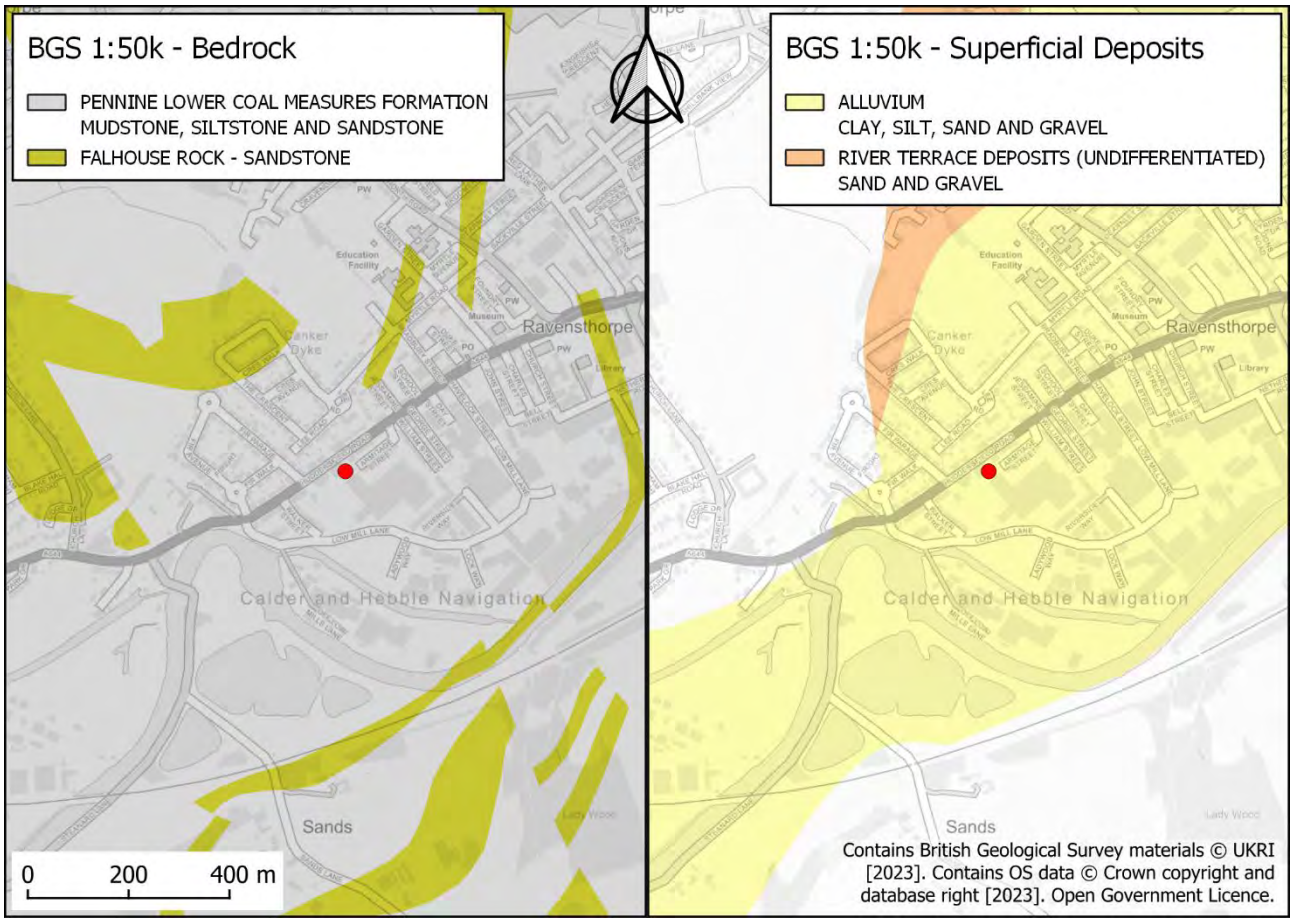


Figure 5: BGS Geology

3.25 The Department of Environment Farming and Rural Affairs (DEFRA) Magic Maps[13] show that the bedrock and superficial deposits are classified as a 'Secondary A' aquifer, defined as aquifers comprising permeable layers that can support local water supplies, and may form an important source of base flow to rivers. The site is not located in a groundwater Source Protection Zone (SPZ).

[12]Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html [Accessed 13/02/2023]
[13]Available at: https://magic.defra.gov.uk/MagicMap.aspx [Accessed 13/02/2023]

3.26 In addition the Groundwater Vulnerability Map shows the area as having 'Medium' to 'Medium-High' vulnerability.

3.27 The desktop data show the underlying geology could support groundwater.

3.28 The site and surrounding area are predominantly hard paved, which reduces the risk of emergence of groundwater at the surface. Any groundwater which does emerge at the surface would follow localised flow paths such as those shown in the surface water flooding maps and would flow overground and discharge to the local sewer system. The substation is to be located at least 300 mm above the forecourt level (150 mm internal concrete plinth within the subbase and also located on raised ground approx. 150 mm) which provides some protection from the emergence of groundwater at the surface.

3.29 The nature of development proposed will ensure that any below ground elements are fully protected from groundwater seepage and ingress of moisture. This means the below ground components should be waterproofed. There should therefore be no direct risk to the infrastructure as a result of changes in local groundwater level.

3.30 The risk of flooding from groundwater with the mitigation measures (waterproofing) and raised element of the substation should result in a low risk of groundwater flooding to the proposed development.

Risk of Flooding from Sewers

3.31 Sewer flooding generally results in localised short-term flooding caused by intense rainfall events overloading the capacity of sewers. Flooding from sewers and highways is linked to the risk of flooding from surface water in urban areas, with the exact source of flooding often indistinguishable.

3.32 The Yorkshire Water asset plans were requested. The site is shown to be within the proximity an 1810 mm and 600 mm combined sewers within Huddersfield Road.

3.33 According to the Kirklees LFRMS, there are some known sewer related flooding issues within the Kirklees catchment. However, overall sewer performance is satisfactory. There are no recorded incidents of sewer flooding within the area surrounding the site.

3.34 In the event of sewer flooding in the local area, any sewer flow surcharge would likely enter the local drainage system or be retained in the roadways and drain away from the site. The risk of flooding from sewers as a separate source from surface water flooding is therefore low.

3.35 The proposed development is considered to be at low risk of surface water and sewer flooding.

Risk of Flooding from Artificial Waterbodies

3.36 The GOV.UK 'Risk of Flooding from Reservoirs' online map shows that the development is at risk of flooding from reservoirs. This includes when there is high rainfall event and local watercourses are suspectable to out of bank flooding ('wet day').

3.37 The EA are the enforcement authority for the Reservoirs Act 1975 in England, they ensure that reservoirs are inspected regularly, and that all essential safety work is carried out. All reservoirs must be inspected and supervised by reservoir panel engineers. There has been no loss of life in the UK from reservoir flooding since 1925.

3.38 There are no other sources of artificial flooding that would constitute a source of flood risk to the site.

3.39 The risk of flooding from artificial waterbodies is therefore considered to be low.

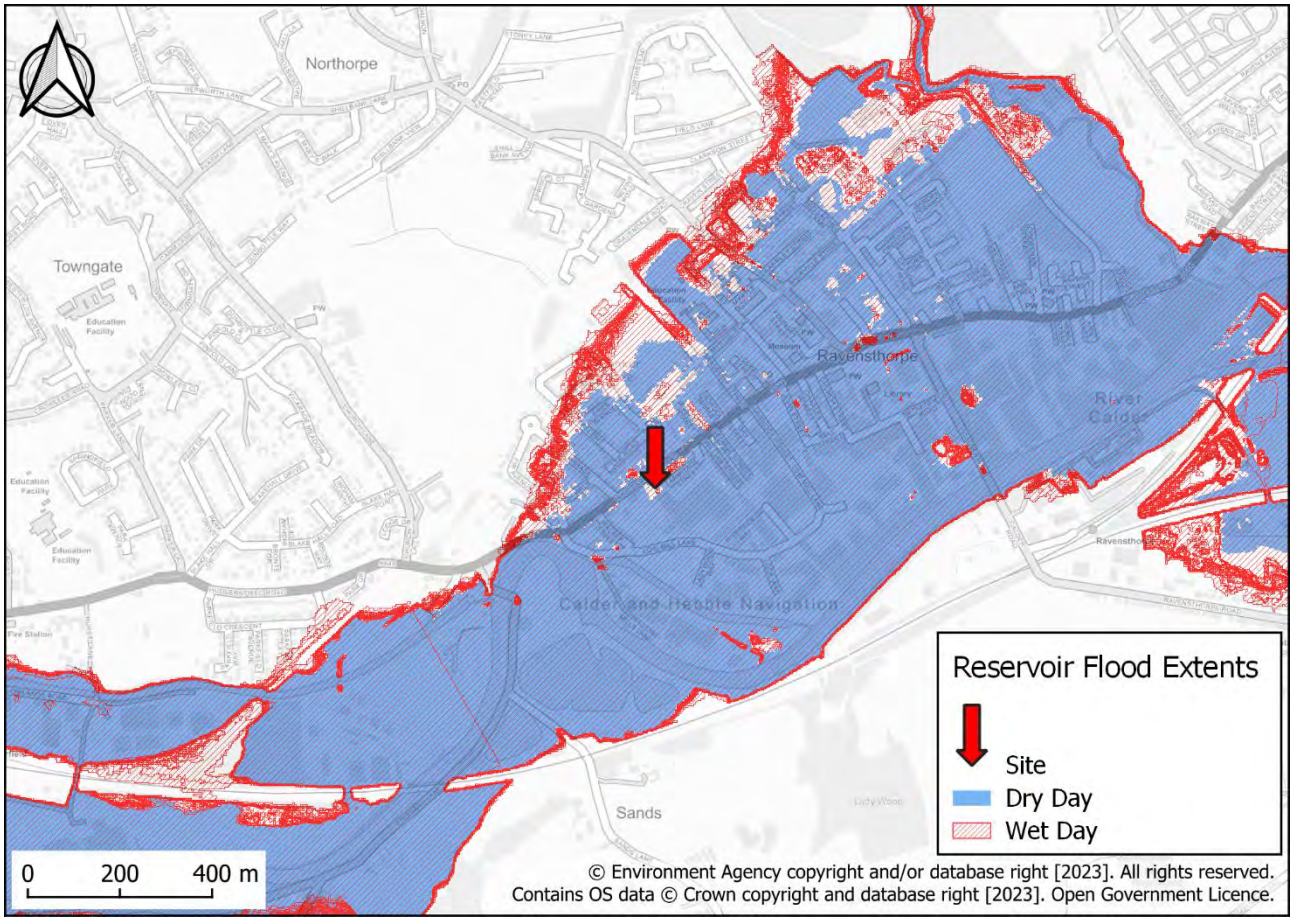


Figure 6: Reservoir Flooding

4 Conclusions

4.1 This technical note has assessed the risk of flooding from all sources.

4.2 The site is shown to be in in Flood Zone 2 of the River Calder (fluvial) and reservoir flooding

4.3 Using the 0.1% AEP fluvial simulation as a surrogate for the 1% AEP plus 23% climate change design event, the site is at risk of fluvial flooding. The flood water depth is between 0-250 mm, and the maximum flood water level is 43.35 m AOD (calculated as the highest level on-site plus the maximum flood depth).

4.4 The proposed substation has been raised as high as reasonably possible (300 mm above surrounding ground), which should be sufficient to raise it above the flood levels for shallower fluvial flooding events. However, flooding may still occur during the critical fluvial event.

4.5 The proposed development and site should implement a flood management plan as part of the works to protect the proposed infrastructure and ensure staff are able to safely shut down the site before evacuating themselves.

4.6 The proposed development is not at risk of flooding from any other source.

4.7 We believe that the information contained in this report in relation to flood risk provides sufficient information to demonstrate that the development proposals comply with the requirements of the NELC, and the NPPF.

Appendix

- Existing and Proposed Plans
- EA Product 4
- Yorkshire Water Asset Plans

NORTH

HUDDERSFIELD ROAD

Shelter

792

785

781

789

789a

804

811

813

821

42.7m

Bull's Head Hotel
(PH)

EXISTING ENTRANCE CROSSOVER

EXISTING EXIT CROSSOVER

RETROL INTERCEPTOR

LINE OF EXISTING CANOPY

AWI MACHINE

VAC MACHINE

VENT STACK TO BE RELOCATED AS INDICATED

EXISTING TANK FARM

P1

P2

P3

P4

P5

P6

NEW KERB LINE

FILLER TO BE RELOCATED AS INDICATED

POLE SIGN

NPU

Sales Building

ENTRANCE

CHARGING ZONE

PROPOSED 6no. EV BAYS
+6No ALPITRONIC HYC
150 EV CHARGERS

EXISTING FILLERS & VENTS TO BE RELOCATED

EV CANOPY

EXISTING CAR WASH TO BE REMOVED

2no. NEW JET WASHES
TO BE INSTALLED. 1
COVERED. 1 OPEN

2.8m SQ GRP
SUBSTATION ENCLOSURED

SUBSTATION ENCLOSURE

ARMITAG

31

33

35

37

43

45

41

47

39

49

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EV INFRASTRUCTURE



DENOTES DNO HV/LV SUBSTATION
Typial GRP Enclosure 2.8m x 2.8m
All to service provider standard details
TO ICP DETAILS



DENOTES CHARGING POST
ALPITRONICS HYC 150

0 10 20
SCALE - METRES - 1:200 @ A1

REV	DATE	DESCRIPTION	DRAWN/CHECKED
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REVISION NOTES

PLANNING

mbh
MBH Design Studio Ltd.
Rosemount House, Rosemount Avenue, West Byfleet, Surrey, KT14 6LB
www.mbhltd.com t: 01932 352 727 f: 01932 351 545

CLIENT

mfg motor fuel group

PROJECT
FS387 - RAVENSTHORPE SERVICE STATION
HUDDERSFIELD ROAD
DEWSBURY. WEST YORKSHIRE,
WF13 3LR

DRAWING TITLE
PROPOSED SITE LAYOUT

DRAWN BY	DATE	SCALE	PAPER SIZE
KM	14.10.2022	1:200	A1
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NORTH



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SCALE - METRES - 1:1250 @ A4

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KEY PLAN:

SITE BOUNDARY LINE
AREA - 1360SQM - 0.1360 HECTARES

SITE APPLICATION LINE
AREA - 661SQM - 0.0661 HECTARES

REV	DATE	DESCRIPTION	DRAWN/CHECKED
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mbh
MBH Design Studio Ltd.
Rosemount House, Rosemount Avenue, West Byfleet, Surrey, KT14 6LB
www.mbhltd.com t: 01932 352 727 f: 01932 351 545

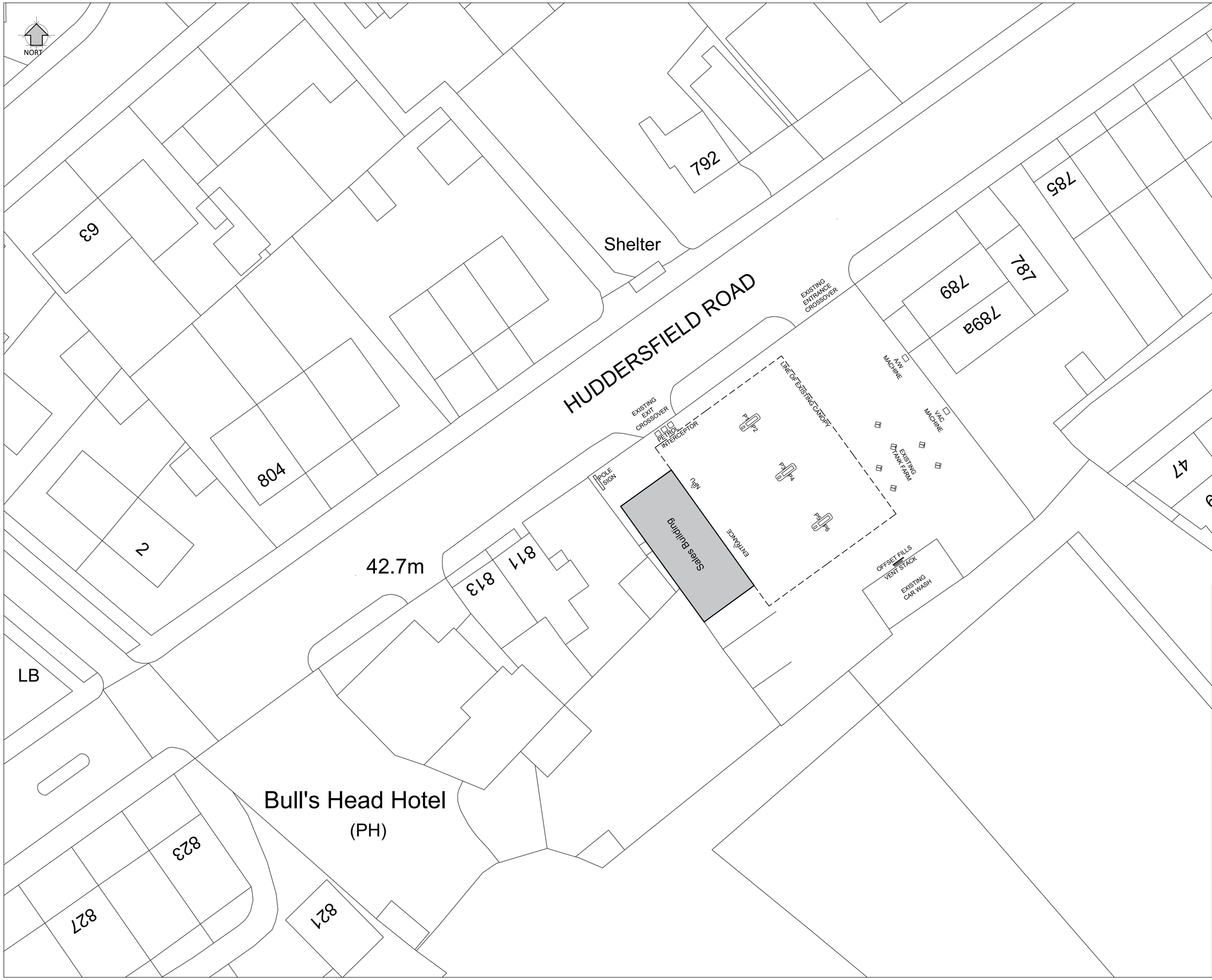
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LOCATION PLAN

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Rosemount House, Rosemount Avenue, West Byfleet, Surrey, KT14 6LB

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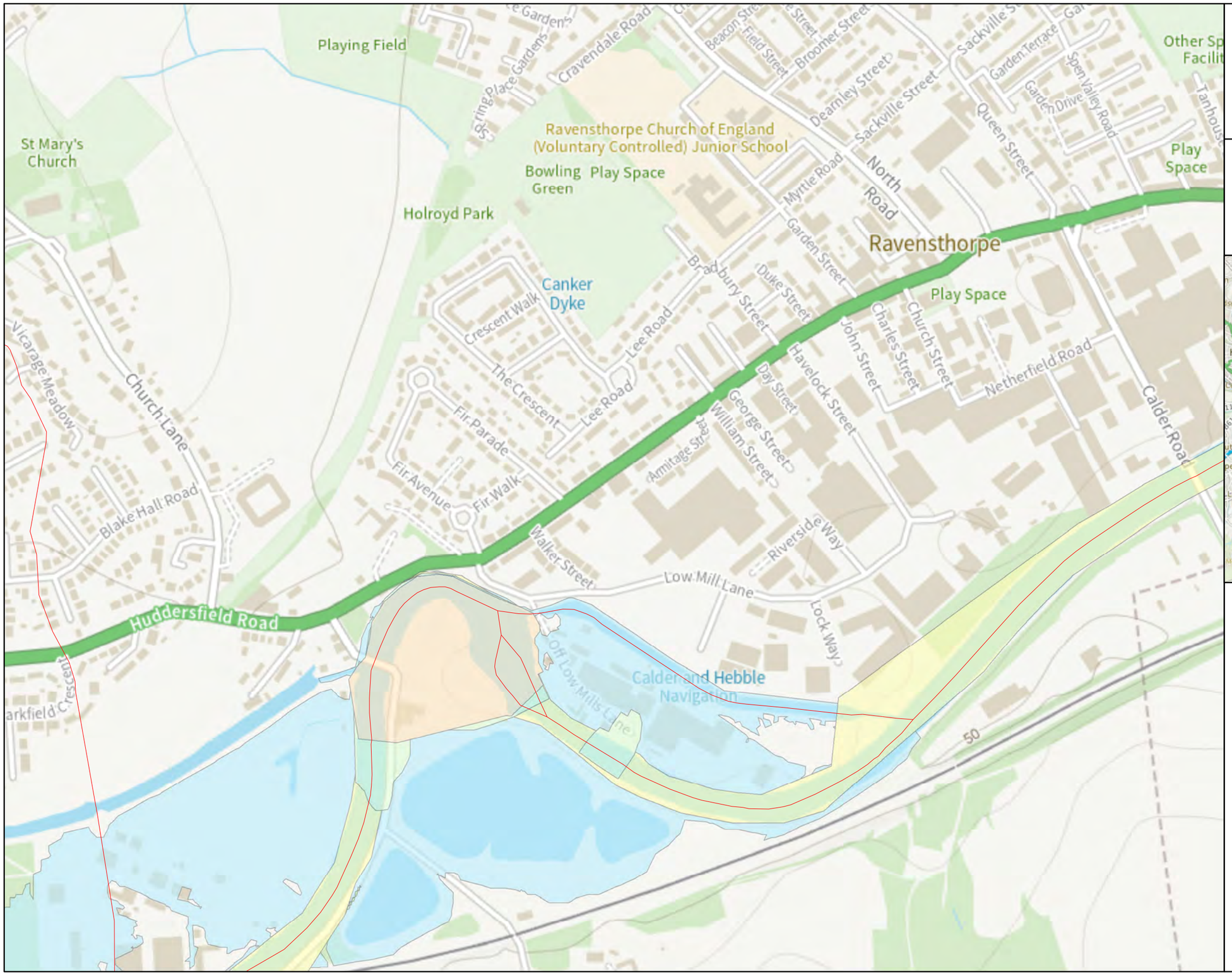
2015 Calder and Canals Undefended Model Results - RFI/2023/290090 (Level - mAOD, Flow - m³s)						
Annual Exceedance Probability (AEP)						
	100	100	101	101	1000	1000
	1% AEP (1 in 100)		1% AEP (1 in 100)+ 20 % CC		0.1% AEP (1 in 1000)	
Node Point	Max Stage	Max Flows	Max Stage	Max Flows	Max Stage	Max Flows
EA1231293_CALD09_0730u	41.01	471.99	41.396	552.024	42.32	787.99
EA1231293_CALD09_2324	42.78	363.96	43.09	449.777	43.95	512.50
EA1231293_CALD09_2127u	42.62	367.54	43.028	409.795	43.89	483.88
EA1231293_CALD09_1961	42.48	349.94	42.884	392.286	43.65	531.63
EA1231293_CALD09_1763	42.25	353.99	42.718	381.02	43.68	431.71
EA1231293_CAHN060026u	42.62	1.21	43.028	5.628	43.89	42.69
EA1231293_INT_413_2	43.42	5.38	43.632	37.029	44.15	171.57
EA1231293_INT_529_1	41.77	7.92	42.181	14.603	43.28	53.29
EA1231293_INT_302_2	41.77	7.91	42.177	10.249	43.21	69.80

2015 Calder and Canals (downstream of Sowerby Bridge) Defended Model Results - RFI/2023/290090 (Level - mAOD, Flow - m³s)

Node Point	Annual Exceedance Probability (AEP)																					
	2	2	5	5	10	10	25	25	30	30	50	50	75	75	100	100	101	101	200	200	1000	1000
	50% AEP (1 in 2)		20% AEP (1 in 5)		10% AEP (1 in 10)		4% AEP (1 in 25)		3.33% AEP (1 in 30)		2% AEP (1 in 50)		1.33% AEP (1 in 75)		1% AEP (1 in 100)		1% AEP (1 in 100) +20% CC		0.5% AEP (1 in 200)		0.1% AEP (1 in 1000)	
	Level (mAOD)	Flow (m3/s)	Level (mAOD)	Flow (m3/s)	Level (mAOD)	Flow (m3/s)	Level (mAOD)	Flow (m3/s)	Level (mAOD)	Flow (m3/s)	Level (mAOD)	Flow (m3/s)	Level (mAOD)	Flow (m3/s)	Level (mAOD)	Flow (m3/s)	Level (mAOD)	Flow (m3/s)	Level (mAOD)	Flow (m3/s)	Level (mAOD)	Flow (m3/s)
EA1231293_CALD09_0730u	39.54	225.63	40.08	306.76	40.21	327.51	40.67	410.49	40.75	424.54	40.91	454.91	41.02	477.5	41.03	474.12	41.38	560.61	41.26	532.17	42.31	785.51
EA1231293_CALD09_2324	41.7	230.67	42.01	311.38	42.08	327.63	42.42	372.05	42.49	373.66	42.64	376.27	42.74	377.74	42.72	415.59	43.09	383.1	42.98	365.77	43.93	514.49
EA1231293_CALD09_2127u	41.59	226.98	41.89	290.03	41.96	304.41	42.29	350.1	42.35	353.86	42.49	364.07	42.59	371.75	42.65	377.21	42.94	386.91	42.83	382.5	43.87	486.01
EA1231293_CALD09_1961	41.47	226.81	41.74	284.28	41.8	297.23	42.12	336.68	42.19	339.55	42.34	347.69	42.45	354.08	42.5	358.96	42.81	367.12	42.7	363.38	43.62	535.28
EA1231293_CALD09_1763	40.47	225.17	41.15	290.31	41.31	300.95	41.86	323.22	41.95	324.7	42.13	328.13	42.26	329.85	42.28	358.04	42.69	339.39	42.56	335.51	43.66	428.4
EA1231293_CAHN060026u	41.59	0.96	41.89	0.95	41.96	0.95	42.29	1.01	42.35	1.01	42.49	1.04	42.59	1.22	42.65	1.49	42.94	1.77	42.83	1.64	43.87	42.01
EA1231293_INT_413_2	42.84	0.92	42.94	0.92	43	0.92	43.36	2	43.38	2.89	43.41	4.63	43.42	5.32	43.44	5.85	43.46	8.11	43.45	7.27	44.24	170.53
EA1231293_INT_529_1	40.89	1.02	41.24	1.84	41.28	2.18	41.45	4.48	41.48	5.06	41.57	6.48	41.66	7.63	42.06	8.05	41.99	13.51	41.88	10.98	43.28	55.44
EA1231293_INT_302_2	40.89	0.75	41.24	1.82	41.28	2.16	41.44	4.47	41.48	5.05	41.57	6.48	41.65	7.63	42.06	6.85	41.98	17.84	41.88	11.56	43.21	70.52

RFI/2023/290090 Flood History Map centred on 791 Huddersfield Rd, Dewsbury WF13 3LR

Date created: 18/01/2023



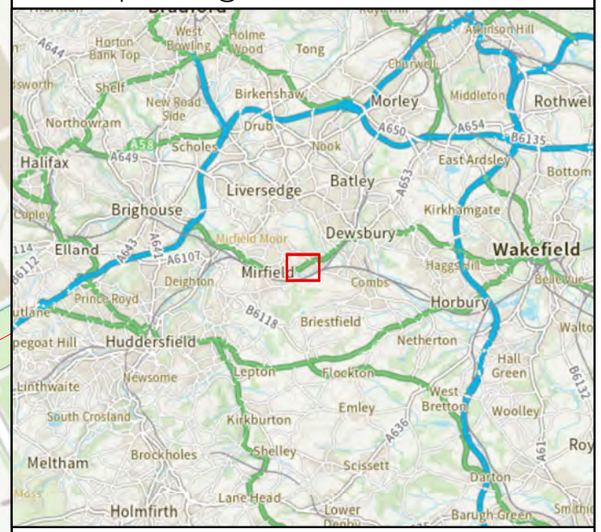
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Statutory_Main_Rivers

Recorded Flood Outlines

- 2022 February Flood Incident -Storm Dudley, Eunice and Franklin
- 2020 February Flood Incident - Storm Ciara
- 2020 February Flood Incident - Storm Ciara/Dennis
- 2019 March Flooding Yorkshire
- December 2015 Flood Event
- River Calder. Brighouse to Dewsbury
- 123 Autumn 2000

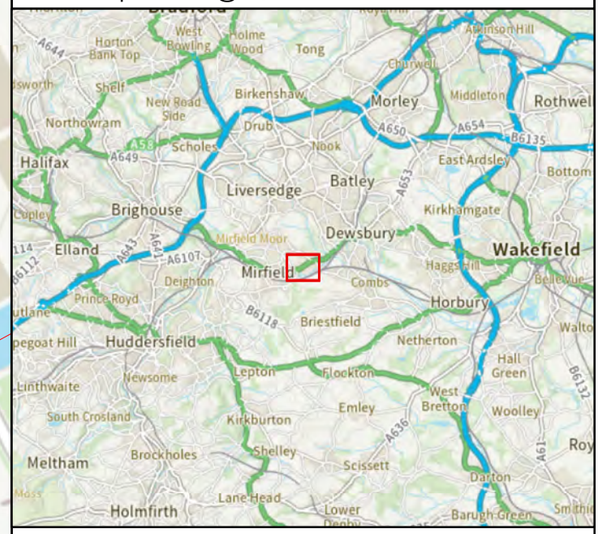
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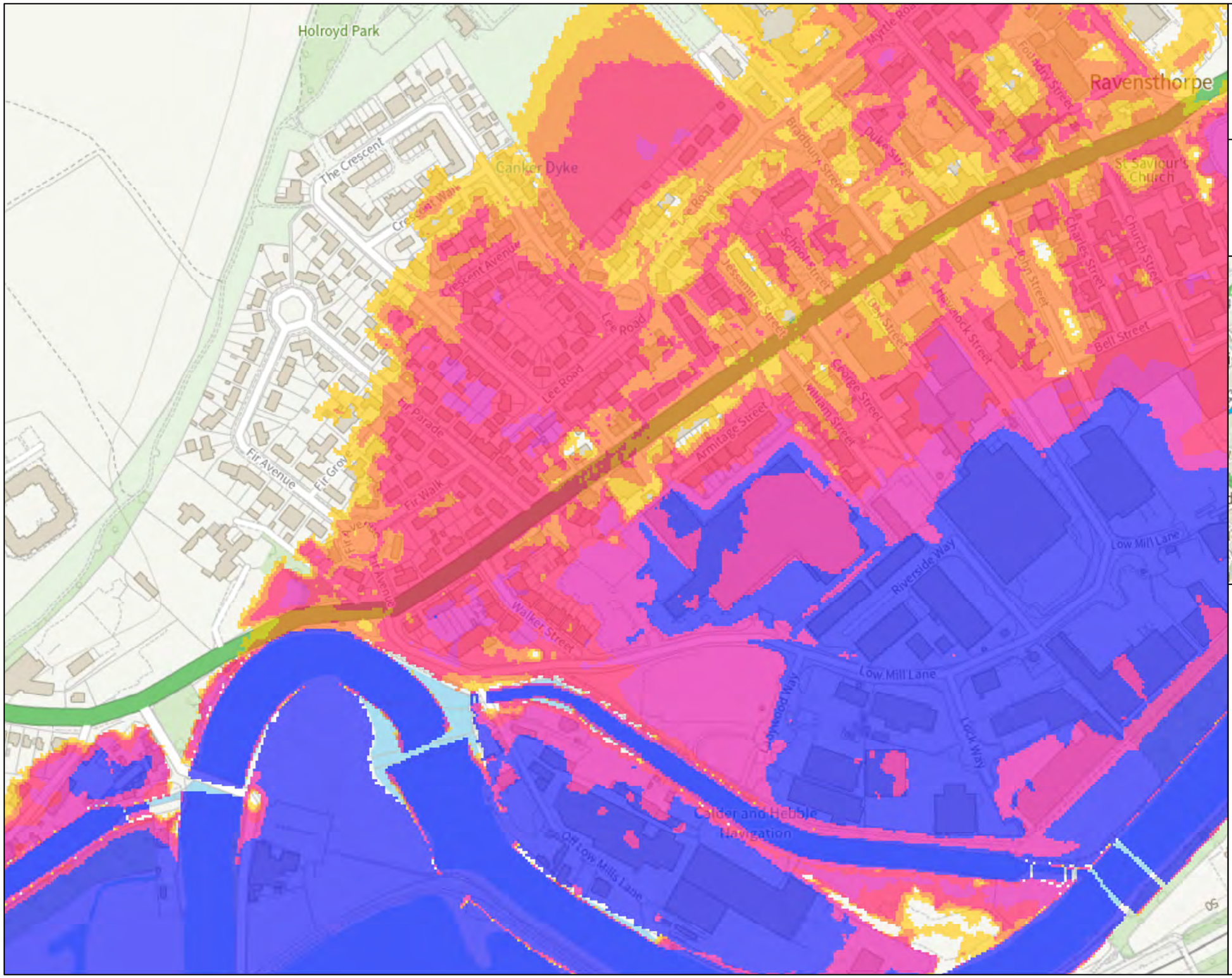
- Statutory_Main_Rivers
- 2015 Calder and Canals Node Points

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Date created: 18/01/2023



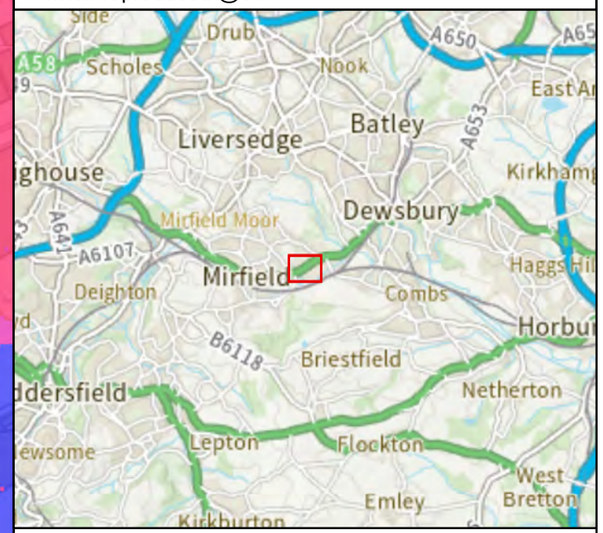
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Main River

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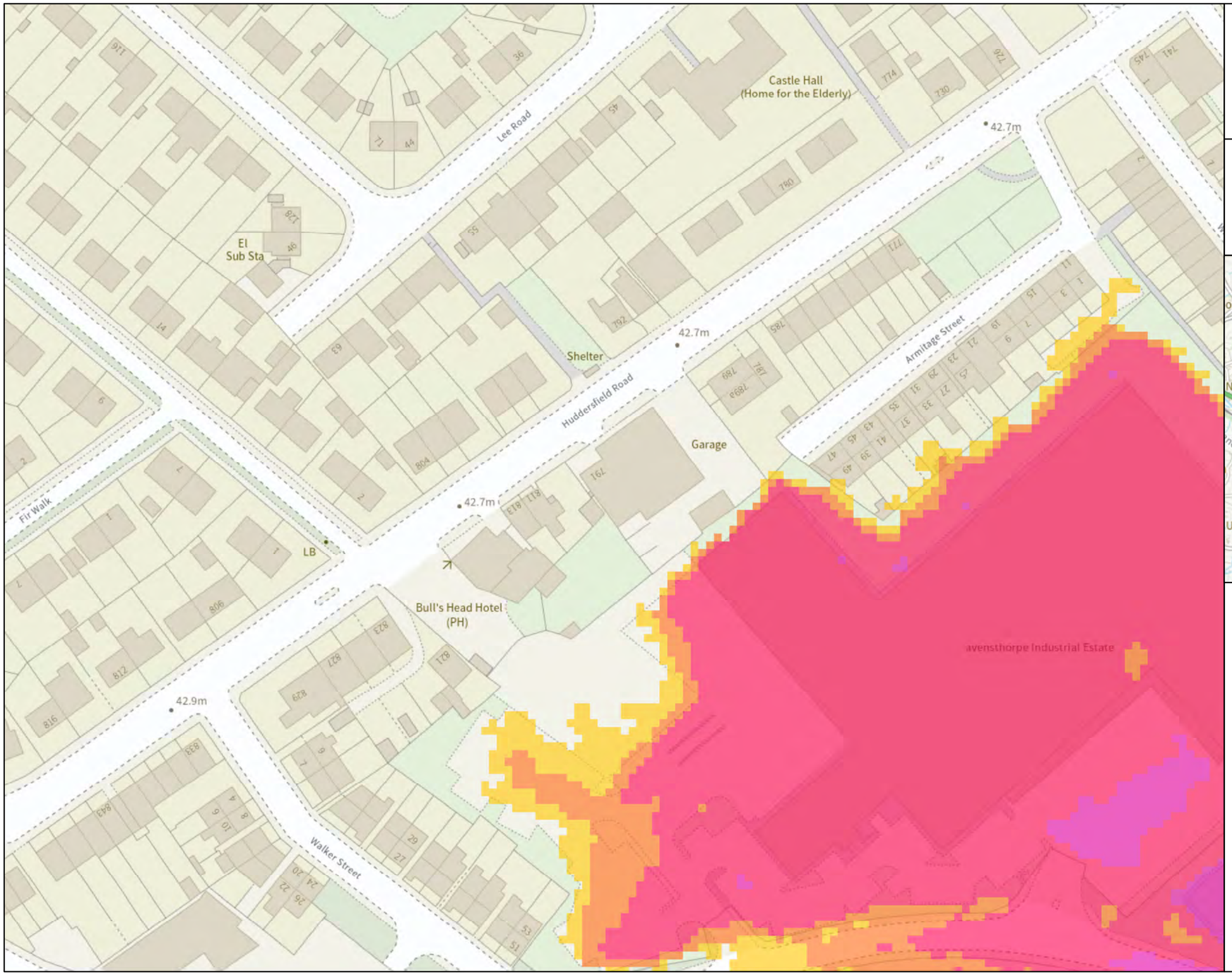
- 0 - 0.25
- 0.25 - 0.5
- 0.5 - 1.00
- 1.00 - 2.00
- > 2.00

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RFI/2023/290090 Depth Grid Map for the 1% AEP +20% CC

Date created: 18/01/2023



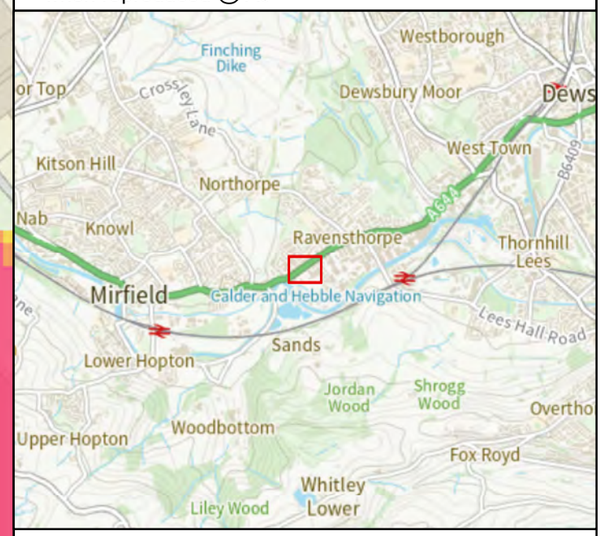
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LEGEND

Main River

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- 0 - 0.25
- 0.25 - 0.5
- 0.5 - 1.00
- 1.00 - 2.00
- > 2.00

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YORKSHIRE WATER
PROTECTION OF MAINS AND SERVICES

1. The position of Yorkshire Water Services Ltd (YWS) apparatus shown on the existing mains record drawing(s) indicates the ***general*** position and nature of our apparatus and the accuracy of this information cannot be guaranteed. Any damage to YWS apparatus as a result of your works may have serious consequences and you will be held responsible for all costs incurred. Prior to commencing major works, the exact location of apparatus must be determined on site, if necessary by excavating trial holes. The actual position of such apparatus and that of service pipes which have not been indicated must be established on site by contacting the Customer Helpline on 0845 124 24 24 for both water and sewerage.

2. The public sewer and water network is lawfully retained in its existing position and the sewerage and water undertaker is entitled to have it remain so without any disturbance. The provisions of section 159 of the Water Industry Act 1991 provides that the undertaker may "inspect, maintain, adjust, repair or alter" the network. Those rights are given to enable the undertaker to perform its statutory duties. Any development of the land or any other action that unacceptably hindered the exercise of those rights would be unlawful. The provisions contained in Section 185 of the Water Industry Act 1991 state that where it is reasonable to do so, a person may require the water supply undertaker to alter or remove a pipe where it is necessary to enable that person to carry out a proposed change of use of the land. The provisions contained in Section 185 also require the person making the request to pay the full cost of carrying out the necessary works.

3. Ground levels over existing YWS apparatus are to be maintained. Sewers in highways will ***generally*** be laid to give 1200mm of cover from finished ground level working to kerb races, other permanent identification of the limits of the road or to an agreed line and level. Substantial increases or decreases to this 1200mm depth of cover will result in the sewer being re-laid at your expense. Water mains and services will ***generally*** be laid with a minimum of 750mm depth of cover however some mains and services usually those installed over 50 years ago may have less ground cover.

4. If surface levels are to be decreased / increased significantly the effects on existing water supply apparatus will be carefully considered and if any alterations are necessary, the costs of the alterations will be recharged to you in full. Outlets on fire hydrants must be no more than 300mm below the new levels and all surface boxes must be adjusted as part of the scheme.

5. To enable future repair works to be carried out without hindrance; any pipe, cable, duct, etc. installed parallel to a water main or service pipe should not be installed directly over or within 300mm of a water main or service pipe or 1000mm of a waste water asset. Where a pipe, cable, duct, etc. crosses a main or service it should preferably cross perpendicular or at an angle of no less than 45o and with a minimum clearance of 150mm. These requirements apply to activities within an existing highway and are relevant to the installation of pipes, cables, ducts, etc. up to and including 250mm in diameter *(see illustration below)*. Necessary protection measures for installations greater than 250mm in diameter and/or in private land will need to be agreed on an individual basis. Installations within a new development site must comply with the National Joint Utilities Group publication Volume 2: NJUG Guidelines On The Positioning Of Underground Utilities Apparatus For New Development Sites.

6. All excavation works near to YW apparatus should be by hand digging only.

7. Backfilling with a suitable material to a minimum 300mm above YW apparatus is required.

8. Adequate support must be provided where any works pass under YW apparatus.

9. Jointing chambers, lighting columns and other structures must be installed in such a way that future repair or maintenance works to YW apparatus will not be hindered.

10. Apparatus such as; railings, sign posts, etc. must not be placed in such a way that they prevent access to or full operation of controlling valves, hydrants or similar apparatus. YWS surface boxes must not be covered or buried. Any adjustment, alteration or replacement of manhole covers must be agreed on site prior to the commencement of the works with a YWS Inspector who may be contacted via our Call Centre on 0845 124 24 24.

11. Explosives shall not be used within 100 metres of any Yorkshire Water Services apparatus or installations.

12. Vibrating plant should not be used directly over any apparatus. Movement or operation by vehicles or heavy plant is not to be permitted in the immediate vicinity of YWS plant or apparatus unless there has been prior consultation and, if necessary, adequate protection provided without cost to YWS.

13. ***Under no circumstances*** should thrust boring or similar trenchless techniques commence until the actual position of the Company's mains/services along the proposed route have been confirmed by trial holes.

14. Any alterations to the highway should be notified following the procedures outlined in the New Road and Street Works Act 1991 Code of Practice; Measures Necessary Where Apparatus Is Affected By Major Works (Diversionary Works).

15. You will be held responsible for any damage or loss to YWS apparatus during and after completion of work, caused by yourselves, your servant or agent. Any damage caused or observed to YWS plant or apparatus should be immediately reported to YWS. Should YW incur any costs as a result of non-compliance with the above, all costs will be rechargeable in full.

16. You should ensure that nothing is done on the site to prejudice the safety or operation of YWS employees, plant or apparatus.

17. In accordance with the New Roads and Street Works Act 1991, Chapter 22, Part 3, Section 80. The location of any identified YW asset "*which is not marked, or is wrongly marked, on the records made available*" should be communicated back to Yorkshire Water. The location of the apparatus should be identified on copies of the supplied plans which should be returned to Yorkshire Water (Asset Records Team) with photographic supporting evidence where possible.

18. The Government has decided that responsibility for private sewers serving two or more properties and lateral drains (the section of pipe beyond the boundary of a single property, connecting it to the public sewer) will be transferred to the water companies on Oct 1 2011.

Private pumping stations will also transfer during the period 1 October 2011 – 1 Oct 2016. Records of these assets may not yet be shown on the existing mains record drawing(s). If you encounter any of these assets you must inform Yorkshire Water Services Ltd (YWS).

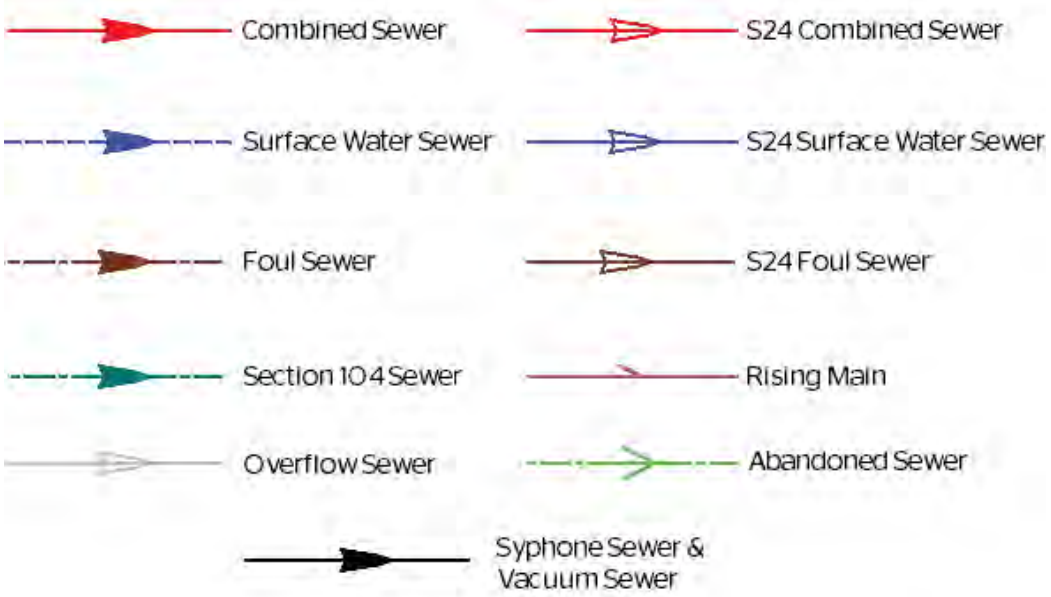
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20. This information is for guidance only and the position and depth of any YW apparatus is approximate only. Likewise, the nature and condition of any YW apparatus cannot be guaranteed. YW has no responsibility for recording the locations of privately owned apparatus. As of 1 October 2011, there may be some lateral drains and/or public sewers which are not documented on YW records but may still be present. For the avoidance of doubt, this information is not a substitute for appropriate professional and/or legal advice. YW accepts no responsibility for any inaccuracy or omissions in this information. The actual position of YW apparatus must be determined on site by excavating trail holes by hand. YW requires a minimum of two working days' written notice of the intention to excavate any trial holes before any excavation can be undertaken. If there are any queries in this respect please contact Yorkshire Water on 0845 124 24 24.

Property Identfier

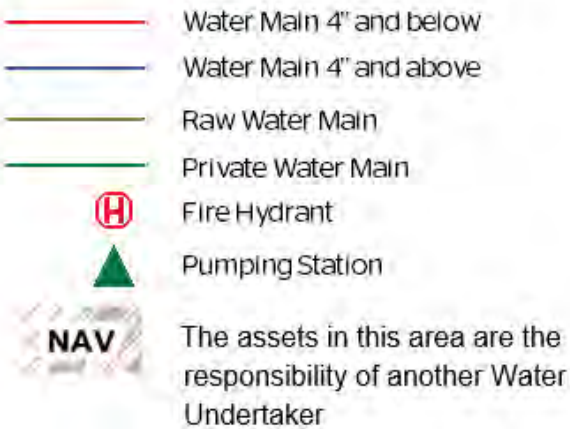


Sewer Legend

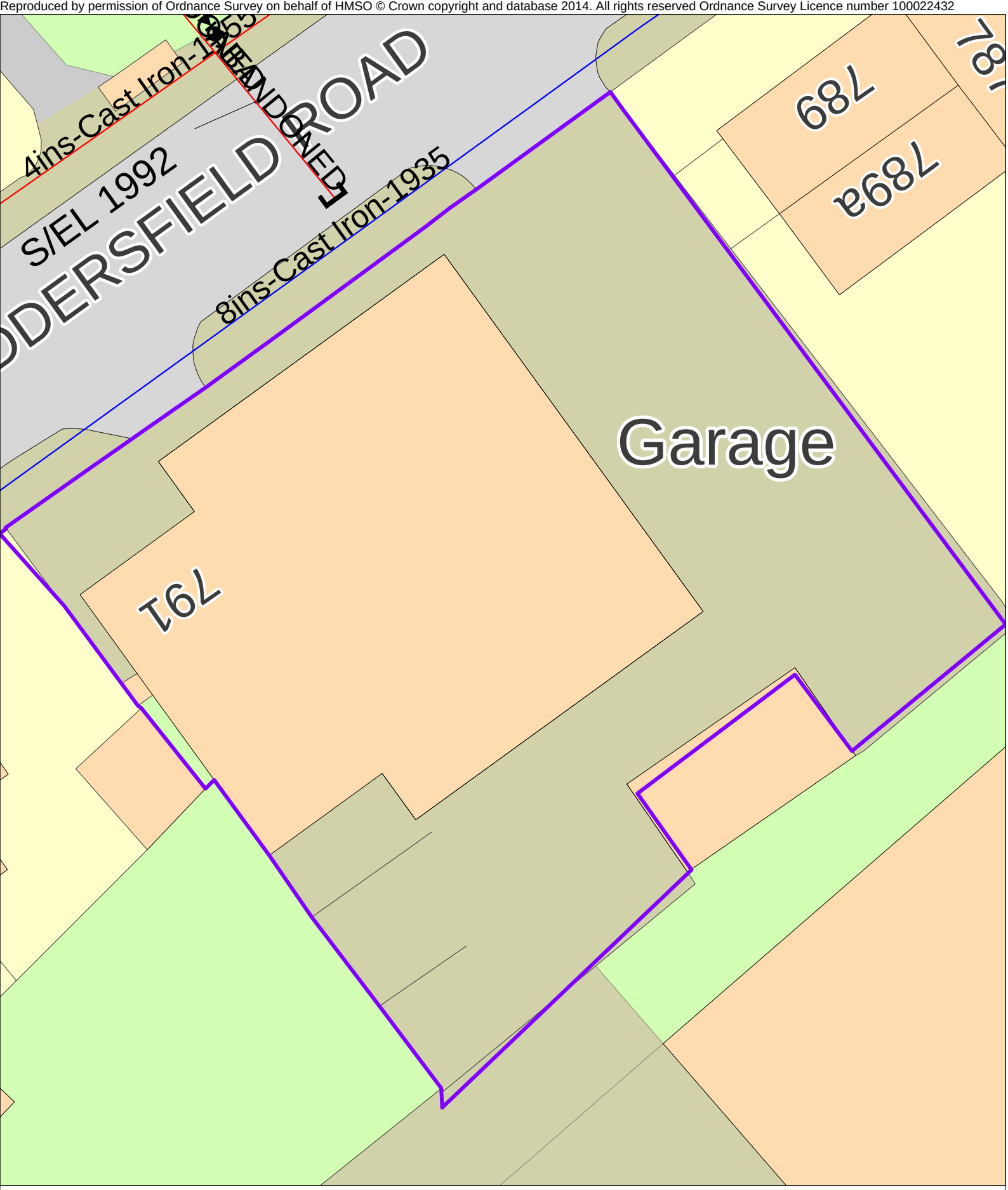


Please note that the direction of flow arrows may not always appear depending on the scale of the map.

Water Legend



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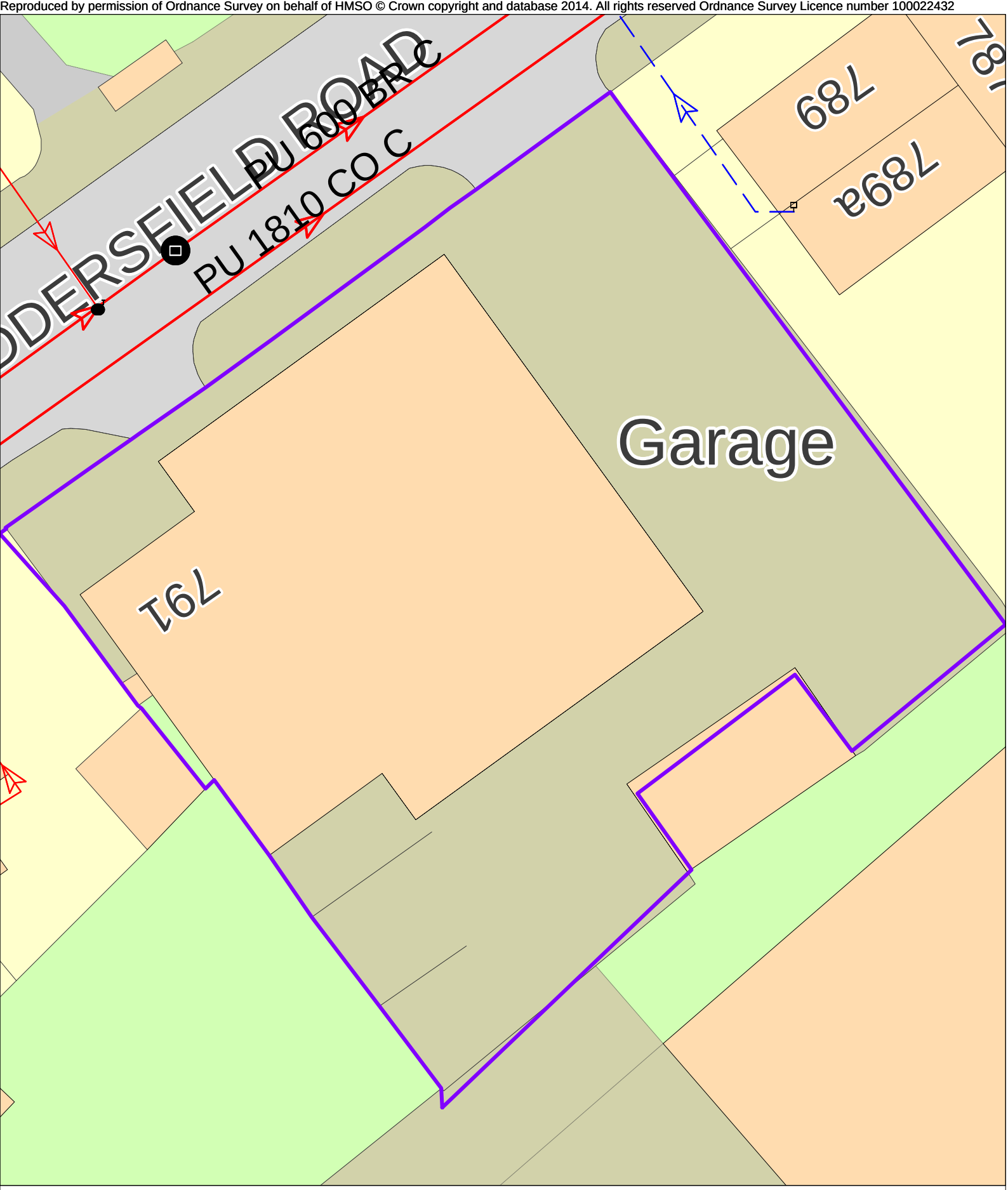


Public Clean Water Network 09/02/2023 12:22:41 OS Grid Coordinates: 421872 : 420024 Map Name : SE2120SE svcGISSafeMovePD

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Public Waste Water Network 09/02/2023 12:22:42 OS Grid Coordinates: 421872 : 420024 Map Name : SE2120SE svcGISSafeMovePD

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