Land adjacent to Centre Vale

Todmorden Road, Littleborough

Flood Risk Assessment

October 2020



Waterco

Assessment | Modelling | Design

Project Information	
Project:	Land adjacent to Centre Vale, Littleborough
Report Title:	Flood Risk Assessment
Client:	Mr Tom Bell
Instruction:	The instruction to undertake this Flood Risk Assessment was received from the Client.
File Ref:	13292-FRA-01

Approval Record	
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Document History		
Revision	**Date**	**Comment**
01	28/10/2020	First issue

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Introduction

Waterco has been commissioned to undertake a Flood Risk Assessment in relation to part retrospective works relating to an access track on land adjacent to 19 Centre Vale, Todmorden Road, Littleborough, OL15 9EL.

The purpose of this report is to outline the potential flood risk to the site, and to determine the impact of the development on flood risk elsewhere (if any). This report has been prepared in accordance with the guidance contained in the National Planning Policy Framework (NPPF) and the National Planning Practice Guidance (NPPG): Flood Risk and Coastal Change.

Existing Conditions & Retrospective Works

The site covers an area of approximately 4,020m^2 and is located at National Grid Reference (NGR): 394226, 417139. A location plan and an aerial image are included in Appendix A.

The site is generally undeveloped scrub land. Anecdotal information provided by the Client suggests that the site is currently used for the keeping of fowl. An access track is located in the western extent of the site and leads to a storage area. The access track links to Todmorden Road in the west.

The retrospective works included raising, levelling and widening of the vehicular access in the western extent of the site, together with entrance gates, timber fencing and engineering operation with the removal of trees/shrubs from the site. The retrospective works undertaken are shown on the 'Proposed Retrospective Works' drawing in Appendix B.

Online mapping (including Google Maps / Google Streetview imagery, accessed October 2020) shows that the site is bordered by residential properties to the north, residential properties and Todmorden Road to the west, the River Roch to the east and undeveloped land to the south.

Topographical Levels

Topographical levels have been altered in the location of the access track in the western extent of the site. Site levels prior to site alterations are shown on a topographical survey undertaken by Survey Operations Ltd in April 2018 (Appendix B). Site levels prior to development, in the location of the access track, range from a high of 149metres Above Ordnance Datum (m AOD) adjacent to Todmorden Road to a low of 147.26m AOD in the south. Pre-development levels in the location of the access track along the western edge of the site generally vary from 148m AOD to 147.26m AOD.

Site levels following alterations are identified on the topographical survey undertaken by Survey Systems in May 2019. Site levels adjacent to Todmorden Road have been lowered to approximately 148.17m AOD. Site levels along the majority of the access track along the western edge of the site vary between 147.7m AOD and 147.8m AOD. Site levels on the eastern edge of the access track have therefore been raised by approximately 0.6m.

On average, site levels have been raised by approximately 500mm over an area of approximately 143m².

Ground Conditions

The British Geological Survey (BGS) online mapping (1:50,000 scale) indicates that the majority of the site is predominantly underlain by superficial deposits of Alluvium generally comprising clay, silt, sand and gravel. The western extent of the site is underlain by Alluvial Fan Deposits generally comprising sand and gravel. The superficial deposits are identified as being underlain by the Pennine Lower Coal Measures Formation consisting of Mudstone, Siltstone and Sandstone.

The geological mapping is available at a scale of 1:50,000 and as such may not be accurate on a site-specific basis.

The EA's 'Source Protection Zones' data, viewed from MAGIC's online mapping [accessed October 2020], indicates that the site is not located within a Groundwater Source Protection Zone.

The Cranfield University 'Soilscapes' map [accessed October 2020] indicates that the site is underlain by *'Freely draining slightly acid loamy soils'.*

Flood Zone Classification

The EA 'Flood Map for Planning', included in Appendix C, shows that the majority of the wider site is located within Flood Zone 3 – an area considered to be at flood risk with a 1% (1 in 100) or greater annual probability of fluvial flooding. The western extent of the site, and location of the access track, is shown to be located within an area outside of the extreme flood extent (Flood Zone 1), meaning it has a less than 0.1% (1 in 1000) annual probability of flooding.

This report details the flood risk to the site and the potential impact of the development on flood risk elsewhere over its lifetime.

Local Policy

The Rochdale Adopted Core Strategy (October 2016) contains the following policies relating to flood risk:

'G8 - Managing water resources and flood risk

We will ensure that new development (including flood risk mitigation measures) does not lead to any form of increased flooding locally or further downstream, does not impede natural water and flood risk management, is not detrimental to existing or potential flood storage areas, contributes where possible to alleviating existing flood risk, is itself well protected from flood risk and ensures prudent use of water resources. We will require:

a. Compliance with a 'sequential' approach to new development and flood risk, directing development away from areas of high risk, in accordance with the National Planning Policy Framework;

b. Full regard to and compliance with the advice of the Environment Agency (or equivalent agency) and the objectives and priorities for flood risk management set out in the Local Flood Risk Management Strategy, including any mitigation measures recommended for particular sites;

c. Full regard to the published evidence of local flood risk and its significance as included in Strategic Flood Risk Assessments, Surface Water Management Plans and other recognised sources of flood risk data and the production of additional Flood Risk Assessments (FRAs) as appropriate;

d. Incorporation of appropriate measures for the management of surface and flood water, including flood storage areas, Sustainable Urban Drainage Systems (SUDS) and the protection of 'overland flow paths';

*e. Compliance with any Surface Water Management Plan or drainage strategies produced, such as for the *identified critical drainage areas of Littleborough and Heywood;*

f. The avoidance of culverting, and support the opening up of existing culverts wherever possible;

g. The incorporation of measures for the conservation of water to minimise potable water consumption, including rainwater collection measures, which should be integral to the design of buildings and spaces;

h. Development that does not directly or indirectly lead to pollution of existing water resources such as watercourses and groundwater or the derogation of the quantity of groundwater;

i. The incorporation of measures to improve water quality; and

j. The taking of opportunities to improve the habitat value of watercourses and water bodies.

In addition, we will identify additional flood storage areas which will be protected from development.

The Rochdale Borough Strategy for Flood Risk Management 2014-2024, the Greater Manchester Strategic Flood Risk Management Framework (September 2018) and the Rochdale Metropolitan Borough Council Preliminary Flood Risk Assessment (May2011) have been reviewed and inform this report.

Consultation

A pre-planning opinion request was submitted to the EA in August 2020. In their response, the EA referred to their response provided for planning application reference: SO/2020/120121/01-L01. The EA response (Appendix C) states:

'Environment Agency position

In the absence of a flood risk assessment (FRA), we object to this application and recommend that planning permission is refused.

Reasons

The application site lies within Flood Zone 3, which is land defined by the planning practice guidance as having a high probability of flooding. The National Planning Policy Framework (paragraph 163, footnote 50) states that an FRA must be submitted when development is proposed in such locations.

An FRA is vital to making informed planning decisions. In its absence, the flood risks posed by the development flood are unknown. This is sufficient reason for refusing planning permission.

We note the application is retrospective and includes land raising. The land raising could have resulted in a loss of flood plain storage and potential increase in flood risk elsewhere. The Environment Agency's Rochdale and Littleborough flood risk management scheme includes proposals, which will require construction activities at the application site. The FRA should show how the retrospective works may benefit the Flood Risk Management Scheme.

Overcoming our objection

To overcome our objection, the applicant must submit a FRA with evidence to demonstrate that the development has not reduced flood plain storage and will not impact on the EA's ability to deliver the FRMS.

If this cannot be achieved, we are likely to maintain our objection. Please re-consult us on any revised FRA submitted and we'll respond within 21 days of receiving it.'

Sources of Flooding and Probability

Fluvial

The nearest watercourse is the River Roch which is located immediately east of the site and approximately 45m from the access track. The River Roch flows south in this location. Other watercourses in the area include Town House Brook which is located approximately 250m south-west of the site. Town House Brook flows south-east in this location and joins the River Roch approximately 410m south of the site.

The development site is located in an area which benefits from flood defences in the form of walls and an embankment along the River Roch. Flood defence data has been obtained from the EA in October 2020 and is included in Appendix D. A flood defence embankment (EA asset number: 130621) is located along the eastern boundary of the site and has an upstream crest level of 147.47m AOD and a downstream crest level of 147.28m AOD.

Fluvial flooding could occur if the River Roch overtopped its banks and defences during or following an extreme rainfall event.

The EA 'Historical Flood Map' (Appendix C) and historical flood information obtained from the EA in October 2020 (Appendix D) indicates that there are no records of fluvial flooding affecting the site. Fluvial flooding has been recorded on land immediately south of the site in February 2002.

EA Estimated Flood Levels

Estimated flood levels have been obtained from the EA in October 2020. The flood levels are derived from the EA Rochdale and Littleborough 2013 modelling study. The EA modelled data is included in Appendix D. As shown in Figure 1, the location of the access track is primarily in Flood Zone 1 and outside of the 0.1% Annual Exceedance Probability (AEP) flood extent. A small extent of the access track is shown within Flood Zone 3. It is unknown whether the published EA flood map pre-dates the alterations made to site levels.

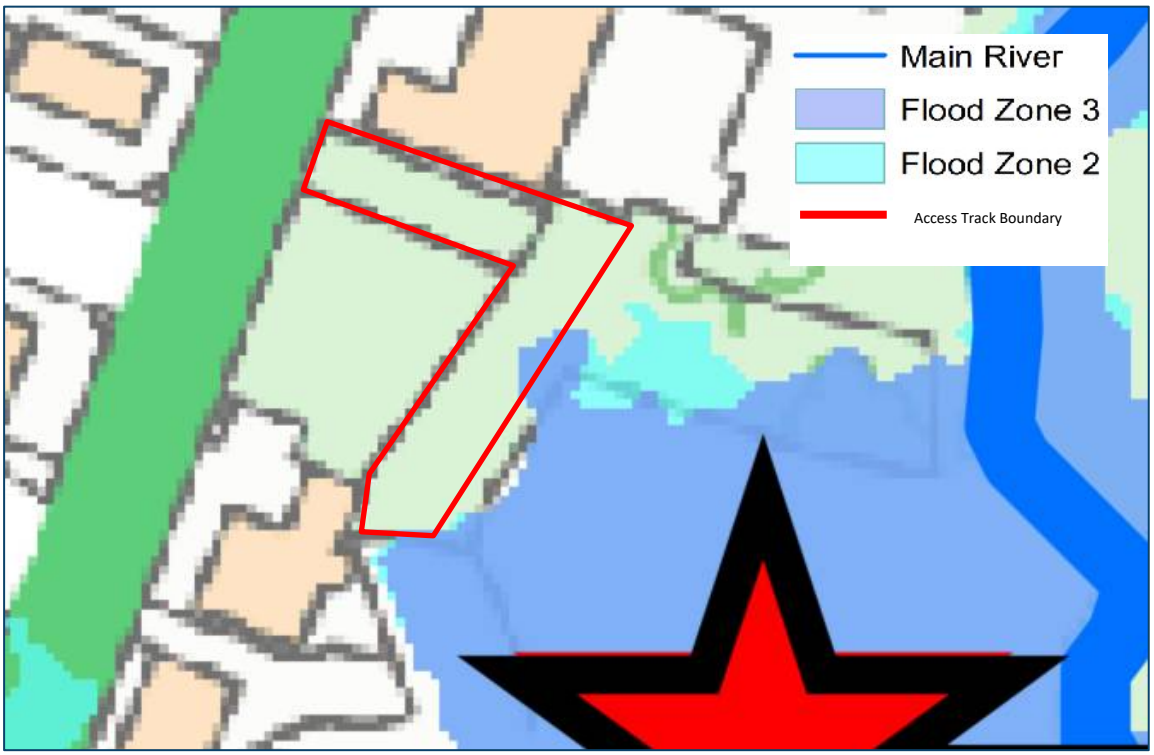

Figure 1 – EA Flood Map for Planning

EA flood level data has been provided for an undefended and defended scenarios. An undefended scenario represents removal of all flood defences.

Undefended Scenario

A summary of the in-channel flood levels during the undefended scenario is provided in Table 1. The flood levels are taken from EA node 4. The node location is shown on the EA 'Detailed Flood Map' in Appendix D.

Table 1 - EA Undefended Flood Levels

Modelled Water Level (m AOD)			
1% AEP	1% AEP + 35% CC*	1% AEP + 70% CC	0.1% AEP
147.59	147.66	147.72	147.68

* Climate Change

The EA have also provided modelled water levels within the floodplain immediately east of the access track

for the undefended scenario. Flood levels east of the access track for an undefended event vary from 147.53m AOD during the 1% AEP event, 147.57m AOD during the 1% AEP plus 35% CC event and 147.68m AOD during the 0.1% AEP event.

Pre-Development

A comparison of flood levels and pre-development site levels shows that the eastern and southern extents of the ground in the location of the access track (an area of approximately 143m²) are at risk of flooding. Flood depths up to 330mm are estimated during the 1% AEP event. Flood depths increase to 370mm during the 1% AEP plus 35% CC event and 480mm during the 0.1% AEP event. The western and northern extents of the ground in the location of the access track (pre-development) are shown to be flood free.

Post-Development

With post-development and current site levels considered, the access track is shown to be flood free during the undefended 1% AEP, 1% AEP plus 35% CC and 0.1% AEP events. Minimal flooding of up to 20mm is estimated during the 1% AEP plus 70% CC event.

Defended Scenario

A summary of the in-channel flood levels during the defended scenario is provided in Table 2.

Table 2 - EA Defended Flood Levels

Modelled Water Level (m AODN)			
1% AEP	1% AEP + 35% CC	1% AEP + 70% CC	0.1% AEP
147.75	147.84	147.86	147.84

Pre-Development

A comparison of flood levels and pre-development site levels shows that the eastern and southern extents of the ground in the location of the access track (an area of approximately 143m²) are at risk of flooding. Flood depths up to 490mm are estimated during the 1% AEP event. Flood depths increase to 580mm during the 1% AEP plus 35% CC and 0.1% AEP events. The western extent of the ground in the location of the access track (pre-development) is shown to be flood free. The northern extent of the ground in the location of the access track (pre-development) is shown to flood with depths up to 300mm.

Post-Development

With post-development and current site levels considered, the access track is shown to be at risk of shallow depth flooding. During the 1% AEP, 1% AEP plus 70% CC and 0.1% AEP events, flood depths are generally less than 100mm.

Summary

It can be concluded that pre-development, the southern and eastern extents of the ground in the location of the access track (an area of approximately 143m²) are at risk of flooding. Flood depths of up to 580mm are estimated during the defended 1% AEP plus 35% CC and 0.1% AEP events. With post-development and current site levels considered the access track is shown to be flood free during the undefended 1% AEP, 1% AEP plus 35% CC and 0.1% AEP events. Shallow depth flooding less than 100mm is estimated during the

equivalent defended events.

Tidal

The location of the access track is situated at a minimum of approximately 147.26m AOD (pre-development) and is significantly above sea level. Therefore, there is no risk from tidal flooding.

Surface Water

Surface water flooding occurs when rainwater does not drain away through the normal drainage system or soak into the ground. It is usually associated with high intensity rainfall events but can also occur with lower intensity rainfall or melting snow where the ground is saturated, frozen or developed, resulting in overland flow and ponding in depressions in topography. Surface water flooding can occur anywhere without warning. However, flow paths can be determined by consideration of contours and relative levels.

The EA 'Flood Risk from Surface Water' map (Appendix C) indicates that the location of the access track is at very low risk of surface water flooding, meaning it has less than 0.1% annual probability of flooding.

There are no distinct flow routes in the area which would direct any potential surface water flooding towards the site.

It can therefore be concluded that the risk of surface water flooding in the location of the access track is very low.

Sewer

Flooding from sewers can occur when a sewer is overwhelmed by heavy rainfall, becomes blocked, is damaged, or is of inadequate capacity. Flooding is mostly applicable to combined and surface water sewers.

Public sewer records have been obtained from United Utilities (UU) in August 2020 and are included in Appendix E.

The UU sewer plans identify a 450mm public combined sewer within Todmorden Road. There are no public sewers within the site.

Any potential flooding arising from the 450mm combined sewer within Todmorden road would be directed south-west, away from the site, following the topography of the road. It can therefore be concluded that the risk of sewer flooding is very low.

Groundwater

Groundwater flooding occurs when water levels underneath the ground rise above normal levels. Prolonged heavy rainfall soaks into the ground and can cause the ground to become saturated. This results in rising groundwater levels which leads to flooding above ground.

Groundwater levels correspond with river levels. As such, a high water table could be present during periods of prolonged high-water levels in the River Roch. There are no records of groundwater flooding at the site.

The location of the access track comprises locally elevated ground (for both the pre- and post-development scenarios) and it can therefore be concluded that the risk of groundwater flooding is low.

Artificial Sources

Rochdale Canal is located approximately 215m east of the site. Canals are controlled waterbodies which are inspected regularly. Therefore, the likelihood of the canal overtopping or breaching is very low. The site is separated from the canal by the River Roch. In the unlikely event of flooding from the canal, flood flows would be intercepted by the River Roch and would not affect the site.

The EA 'Flood Risk from Reservoirs' map (Appendix C) shows that the site is at risk from a failure of the reservoirs summarised in Table 3.

Table 3 - EA Flooding from Reservoirs

Name	Location	Owner
Blackstone Edge	SD9684718042	United Utilities Water plc
Hollingworth Lake	SD9402015140	United Utilities Water plc

The EA state that reservoir flooding is extremely unlikely to happen. All large reservoirs must be inspected and supervised by reservoir panel engineers. As the enforcement authority for the Reservoirs Act 1975 in England, the EA ensure that reservoirs are inspected regularly, and essential safety work is carried out.

It can therefore be concluded that the risk of flooding from artificial sources is very low.

Summary of Potential Flooding

It can be concluded that fluvial flooding is the main potential source of flood risk to the site. Pre-development, the southern and eastern extents of the ground in the location of the access track (an area of approximately 143m²) are at risk of flooding. Flood depths of up to 580mm are estimated during the defended 1% AEP plus 35% CC and 0.1% AEP events. With post-development and current site levels considered, the access track is shown to be flood free during the undefended 1% AEP, 1% AEP plus 35% CC and 0.1% AEP events. Shallow depth flooding less than 100mm is estimated during the equivalent defended events.

The associated flood risk to the location of the access track pre-and post-development has been used to assess the impact of the ground alterations associated with the access track on flood risk elsewhere.

Impact on Flood Risk Elsewhere

The assessment of flood risk elsewhere caused as a result of the access track has been made using the defended scenario flood levels (worst-case).

The works associated with the access track involved raising ground levels over an area of approximately 143m². Average flood depths over the area of ground raising (pre-development) are approximately 580mm

during the defended 1% AEP plus 35% CC and 0.1% AEP events. Average flood depths across the access track post-development are approximately 80mm during the defended 1% AEP plus 35% CC and 0.1% AEP events. The access track therefore has potential to displace up to 71.5m³ of flood storage (calculated by multiplying the area of site raising (143m²) by the difference in flood depths in the location of the access pre-and post-development (500mm).

In order to ensure the estimated 71.5m³ of flood storage does not increase flood risk elsewhere, flood compensatory storage should be provided. Flood compensatory storage could be provided within land owned by the Client immediately east of the access track. Flood storage should be provided at the edge of the flood extent and should be designed so that flood waters can freely drain back into the River Roch following a flood event.

The 71.5m³ of flood storage could be provided by lowering an area of approximately 240m² by 300mm. The excavated material should be removed off site to an area within Flood Zone 1. A plan showing the conceptual flood compensation scheme is included as Appendix F.

In order to more accurately quantify the impact of the development on flood risk elsewhere, hydraulic modelling will be required.

Conclusions

The retrospective works included raising, levelling and widening of the vehicular access in the western extent of the site, together with entrance gates, timber fencing and engineering operation with the removal of trees/shrubs from the site.

Site levels prior to development, in the location of the access track, range from a high of 149metres Above Ordnance Datum (m AOD) adjacent to Todmorden Road to a low of 147.25m AOD in the south. Pre-development levels in the location of the access track along the western edge of the site generally vary from 148m AOD to 147.26m AOD.

Following site alterations, ground levels adjacent to Todmorden Road have been lowered to approximately 148.17m AOD. Site levels along the majority of the access track along the western edge of the site vary between 147.7m AOD and 147.8m AOD. On average, site levels have been raised by approximately 500mm over an area of approximately 143m².

The EA 'Flood Map for Planning' shows that the majority of the location of the access track is located within an area outside of the extreme flood extent (Flood Zone 1), meaning it has a less than 0.1% (1 in 1000) annual probability of flooding. It is unknown whether the published flood mapping has been updated following the ground alterations at the site.

Modelled flood level data has been obtained from the EA and shows that pre-development, the southern and eastern extents of the ground in the location of the access track (an area of approximately 143m²) are at risk of flooding. Flood depths of up to 580mm are estimated during the defended 1% AEP plus 35% CC and 0.1% AEP events. With post-development and current site levels considered the access track is shown to be flood free during the undefended 1% AEP, 1% AEP plus 35% CC and 0.1% AEP events. Shallow depth flooding less than 100mm is estimated during the equivalent defended events.

Based on the identified flood risk, the access track has potential to displace up to 71.5m³ of flood storage (calculated by multiplying the area of site raising (143m²) by the difference in flood depths in the location of the access pre-and post-development (500mm).

In order to ensure the estimated 71.5m³ of flood storage does not increase flood risk elsewhere, flood compensatory storage should be provided. Flood storage should be provided at the edge of the flood extent and should be designed so that flood waters can freely drain back into the River Roch following a flood event. The 71.5m³ of storage could be provided by lowering an area of approximately 240m² by 300mm. The excavated material should be removed off site to an area within Flood Zone 1.

Recommendations

1. Submit this Flood Risk Assessment to the Planning Authority in support of the retrospective Planning Application.

2. Provide 71.5m³ of flood compensatory storage.

Appendix A Location Plan and Aerial Image

N

IGALE CL

CENTRE VALE CL

FERRAND LODGE

RIVER ROCH

0 10 20 40 60 80 100 m

NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Boundary
- Watercourses / Water Bodies



CLIENT:

MR TOM BELL

waterco

www.waterco.co.uk

SCHEME:

LAND ADJACENT TO CENTRE VALE, LITTLEBOROUGH

PLOT TITLE:

LOCATION PLAN

PLOT STATUS:	DATE:
FINAL	22/10/2020

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE @ A3:
CM	JR	AW	1:1,000 (UNLESS STATED OTHERWISE)

PLOT NAME:	REV:
13292-Location_Plan	-

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LEGEND

Site Boundary



CLIENT:

MR TOM BELL

waterco

www.waterco.co.uk

SCHEME:

LAND ADJACENT TO CENTRE VALE, LITTLEBOROUGH

PLOT TITLE:

AERIAL PLAN

PLOT STATUS:	DATE:
FINAL	22/10/2020

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE @ A3:
CM	JR	AW	1:1,000 (UNLESS STATED OTHERWISE)

PLOT NAME:	REV:
13292-Aerial_Plan	-

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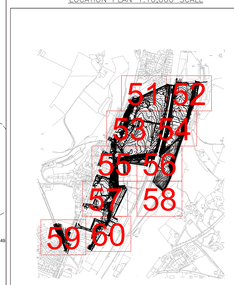
Appendix B Topographical Data & Development Plans

Pre-Development

Original Drawing Size: A0

LOCATION PLAN 1:10,000 SCALE



SHEET LAYOUT

Areas within bold dashed line surveyed April 2018.

X Indicates Photo Location & Direction.

LEVELS IN PARENTHESIS INDICATE TOP OF WALLS.

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
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SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PWF	POST & WIRE FENCE
AV	AIR VALVE	FHr	FIRE HYDRANT MARKER	RB	RODDING BAY
BB	BOLLARD	FL	FENCE LOW	RE	RODDING EYE
BR	BELOW REMOVE	FM	FENCE POST	RG	ROAD GUN
BT	BOUNDARY STONE	FMH	FOUL MANHOLE	RM	RAILWAY MILEPOST
BV	BOWVALE	G	GULLY	RWP	RAINWATER PIPE
BW	BED WELL	GL	GAS LEVEL	SA	SOIL VENT
BWa	BED WELL	GP	GATE POST	SCH	STONE CHIPS
BS	BUS STOP	GM	GAS MARKER	SK	SOMKAWAY
BSt	BUS STOP MARK	GV	GAS VALVE	SL	SOMKAWAY LEVEL
BW	BRICK WALL	HW	HEDG WALL	SMH	SURFACE WATER MANHOLE
BWF	BARBED WIRE FENCE	IC	INSPECTION CHAMBER	SWP	SHEET METAL PILING
CF	CORRUGATED IRON FENCE	IL	INVERT LEVEL	TA	TRIAL HOLE
CF	CORRUGATED IRON FENCE	IW	IRON RAILING FENCE	TH	LOCKSTAY
CL	COVER LEVEL	MF	INTERMEDIATE FENCE	TV	SLUICE VALVE
CON	CONCRETE FENCE	MH	MANHOLE COVER	TWF	TIMBER POST & WIRE
CONC	CONCRETE	KG	KERB INLET GULLY	UWF	UNDER WIRE FENCE
CP	CONCRETE POST	LS	LETT SIGN	TEM	TEMPORARY BENCH MARK
CR	CORRUGATED IRON FENCE	LP	LAMP POST	TEMP	TEMPORARY TRAFFIC SIGNPOST
CR	CYCLE RACK	LV	LAMP POST	TC	TELECOM CABINET
CTV	CABLE TV MANHOLE	MB	MOORING BOLLARD	TMH	TELECOM MANHOLE
DF	DRAIN FIRE	MF	MISCELLANEOUS FENCING	TP	TELEGRAPH POLE
DH	DROP KERB	MV	MANHOLE	TL	TRAFFIC LIGHT
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DP	DRAIN POINT	MP	MILEPOST PILE	TP	TELEGRAPH POLE
DPC	DAMP PROOF COURSE	MRF	METAL RAILING FENCE	TRS	TIMBER RUBBING STRIP
DR	DRAIN	MS	MILE STONE	TS	TREE STUMP
EB	ELECTRIC BIN	NR	NATIONAL RAIL	TSR	TIMBER STEEL RAILINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	UP	VENT PIPE
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	WB	WATER BOX
EF	ELECTRICITY BOX FENCE	OS	ORDNANCE SURVEY	WC	WATER COURSE/WATER LINE
ECP	ELECTRICITY CABLE POT	OSR	OPEN STEEL RAILINGS	WM	WATER METER
EMH	ELECTRICITY MANHOLE	P	POST	WMH	WATER MANHOLE
EP	ELECTRICITY POLE	PB	PILLAR BOX	WP	WOODEN POST
ES	EARTHING STUD	PM	PARKING METER	WPF	WOODEN POST & RAIL FENCE
ETD	ELECTRICITY TO DISTRIBUTION LINE	PO	POST	WV	WASH VALVE
FB	FLOWER BIN	PRF	POST & RAIL FENCE	YG	YARD GULLY
FBI	FOOTBRIDGE	PTM	PARKING TICKET MACHINE	(Abbreviations apply to Ed survey data only)	

REV.	AMENDMENT	DRN	CHK'D	DATE
A	CARAVAN STORAGE AREA	JR	MH	09/18

CONTROL USED:			STATIONS ESTABLISHED:		
TYPE	DESCRIPTION	LEVEL	NAME	CO-ORDINATES	LEVEL
XXX	XX XXXX XXXX	XX.XX	XX	XXXX.XXX XXXX.XXX	XX.XX
E3	SD 9470 1758	158.178			

Environment Agency

Lutra House, Dodd Way, Walton Summit, Bamber Bridge, Preston, PR5 8BX

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PROJECT/WATERCOURSE

Rochdale & Littleborough - Figure 2/3

SITE/LIMITS

APPROXIMATE SITE CENTRE (SD 9427 1711)

SURVEYED BY: Survey Operations Ltd		Ref:180315,/180316,/180322,/180314
SURVEY DATE: April 2018		
SCALE: 1:200	DRN: NR	CHK'D: TP
DATUM: OSDN (OSGM/TN15)	DATE: Apr 18	DATE: Apr 18
GRID: National	DRAWING NO. J01035/055	REV. A
CAD FILENAME: J01035_050-059.dwg		

Site Location

Site Location

TODMORDEN ROAD (A6033)

Centre Vale Allotment Gardens

Moorland Street

Unit 50

Depot

El Sub Sta

EXISTING HOUSING

EXISTING BUILDING

ROUGH GRASS

ROUGH GROUND

TREES/BUSHES

TARMAC

CONC

GRASS

GRAVEL

SHED

CONTAINER

CABIN

MP1 MP2 MP3 MP4 MP5 MP6 MP7 MP8

M6 M7 M8 M9 M10

CS 1 CS 2

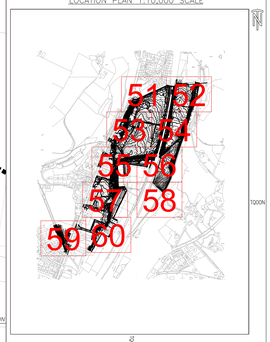
SO8

417100N 417050N 417000N 416950N

3000E 3050E

Original Drawing Size: A0

LOCATION PLAN 1:10,000 SCALE



SHEET LAYOUT

Areas within bold dashed line surveyed April 2018.

X Indicates Photo Location & Direction.

LEVELS IN PARENTHESIS INDICATE TOP OF WALLS.

NOTES:
1. A REPORT HAS BEEN PRODUCED FOR THIS SURVEY.
2. ORDNANCE SURVEY MATERIAL REPRODUCED WITH THE PERMISSION OF THE CONTROLLER OF H.M.S.O. © CROWN COPYRIGHT LICENCE NO. 100026380.

SURVEY LEGEND

AB	AIR BRICK	FH	FIRE HYDRANT	PMF	POST & WIRE FENCE
AV	AIR VALVE	FHM	FIRE HYDRANT MARKER	RB	RIGHT BANK
BH	BOREHOLE	FP	FENCE POST	RE	RAILWAY LINE
BR	BELOW REACH	FR	FENCE POST	RL	ROAD LIGHT
BDY	BOUNDARY	FWM	FOUL WATER MANHOLE	RTW	RETAINING WALL
BOL	BOLLARD	G	GULLY	SCP	SOIL VENT PIPE
BL	BED LEVEL	GL	GROUND LEVEL	SP	STOP COCK
BRK	BRICKWORK	GP	GATE POST	SOP	STAND PIPE
BT	BT MANHOLE	GV	GAS VALVE	TK	TRACK KERB
BM	BENCH MARK	GV	GAS VALVE	TL	SUPPLY LEVEL
BW	BRICK WALL	HW	HEAD WALL	SMH	SURFACE WATER MANHOLE
CBF	CLOSE BOARDED FENCE	IC	INSPECTION CHAMBER	TP	TELEGRAPH POLE
CBF	CLOSE BOARDED FENCE	IL	INVERT LEVEL	TS	GAS POST
CF	CORRUGATED IRON FENCE	MF	IRON RAILING FENCE	TW	STATUS
CH	CHIMNEY STACK	JB	JUNCTION BOX	UV	UNDERGROUND VALVE
CLF	CHAIN LINK FENCE	JB	JUNCTION BOX	VP	SOIL VENT PIPE
CP	CONCRETE POST	LB	LAMP BRACKET TO GULLY	WF	WOODEN POST & WIRE FENCE
CP	CONCRETE POST	LE	LEFT BANK	TBM	TEMPORARY BENCH MARK
CPF	CONCRETE PALING FENCE	LTP	LIGHTING POST	TCP/TP	TELEPHONE CALL BOX/POST
CV	CULVERT	LP	LAMP POST	TEL	TELEPHONE POLE
CTV	CABLE TV MANHOLE	MB	MOORING BOLLARD	TMH	TELECOM MANHOLE
DH	DRAIN HOLE	MF	METAL RAILING FENCE	TP	TELEGRAPH POLE
DK	DROP KERB	MH	MANHOLE	TS	TRAFFIC LIGHTS
DL	DECK LEVEL	MKR	MARKER	TLB	TRAFFIC LIGHT BOX
DP	DRAIN POINT	MP	MARKER POST	TR	TRAFFIC LIGHT POLE
DPC	DAMP PROOF COURSE	MPF	METAL PALING FENCE	TRS	TRAFFIC RUBBING STRIP
DR	DRAIN	MS	MILE STONE	TS	TREE STUMP
DW	DOG WASTE BIN	MW	MASONRY WALL	TW	TIMBER POST, RAILS PALINGS
EA	ENVIRONMENT AGENCY	NRA	NATIONAL RIVERS AUTHORITY	UP	UNDER PIPE
EB	ELECTRICITY BOX	OHC	OVERHEAD CABLE	WB	WASTE BIN
EF	ELECTRICITY FENCE	OHL	OVERHEAD LINE	WC	WATER COURSE/WATER LINE
EOF	ELECTRICITY CABLE/ FIT	OSR	OPEN STEEL RAILING	WM	WATER METER
EMH	ELECTRICITY MANHOLE	P	PILE	WMF	WIRE MESH FENCE
EP	ELECTRICITY POLE	PB	POSTAL BOX	WP	WOODEN POST
ER	EARTHING ROD	PM	PARKING METER	WPR	WOODEN POST & RAIL FENCE
ETL	ELECTRICITY TRANSMISSION LINE	POF	POST & FENCE	WV	WATER VALVE
FB	FLOWER BED	PR	POST & RAIL FENCE	WW	WOODEN WALL
FBR	FOOTBRIDGE	PTM	PARKING TICKET MACHINE		(Abbreviations apply to the survey data only)

REV.	AMENDMENT	DRN	CHKD	DATE
A	CARAVAN STORAGE AREA	JR	MH	09/18

CONTROL USED:

TYPE	DESCRIPTION	LEVEL
XXX	XX XXXX XXXX	XX.XX
E3	SD 9470 1758	158.178

STATIONS ESTABLISHED:

TYPE	NAME	CO-ORDINATES	LEVEL
XX	XXXX.XXX	XXXX.XXX	XX.XX

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Environment Agency
Lutra House, Dodd Way, Walton Summit, Bamber Bridge, Preston, PR5 8BX

PROJECT/WATERCOURSE
Rochdale & Littleborough – Figure 2/3

SITE/LIMITS
APPROXIMATE SITE CENTRE (SD 9427 1711)

SURVEYED BY: Survey Operations Ltd		Ref: NR315/18C216/18C022/18C014
SURVEY DATE: April 2018		
SCALE: 1:200	DRN: NR	CHKD: TP
DATUM: OSDN (OSGM/TN15)	DATE: Apr 18	DATE: Apr 18
GRID: National	DRAWING NO. J01035/057	REV. A
CAD FILENAME: J01035_050~059.dwg		

Post-Development



Topographical Survey Legend

B	Bollard	h	Height	RWP	Rain Water Pipe	Level Prefix Descriptions	
BS	Bus Stop	Hyd	Hydrant	SP	Soil Pipe	AL	Arch Level
BT	Telecommunications IC	IC	Inspection Cover	SPS	Stone Paving Slabs	BL	Bed Level
CCTV	CCTV Viewing Dome	KD	Kerb Drop	SS	Sign Stand	CL	Cill Level
CTV	Cable Television Cover	KO	Kerb Outlet	SVal	Cable Stop	EL	Eaves Level
DP	Downpipe	LB	Letter Box	SV	Stop Valve	FL	Floor Level
DR	Drain	LP	Lamp Post	TCB	Telephone Call Box	IL	Invert Level
Elec	Electrical IC	MH	Utility Marker	TL	Traffic Light	OL	Overhead Cable Leve
EP	Electric Pole	MP	Marker Post	TP	Tactile Paving	PL	Parapet Level
ER	Earth Rod	NP	Name Plate	TPS	Tactile Paving Slabs	RL	Roofridge Level
FP	Flagpole	P	Post	VP	Vent Pipe	SL	Soffit Level
FT	Floodlight	PM	Parking Meter	WM	Water Meter	Spr	Arch Springing Level
G	Gully	RE	Rodding Eye	WO	Water Outlet	TF	Top Of Fence Level
GP	Guard Post	RS	Road Sign	UTL	Unable To Lift	TW	Top Of Wall Level
GV	Gas Valve	RTW	Retaining Wall			Thr	Threshold Level
						WL	Water Level

Fence Annotation:

B/W	Barbed Wire	C/A	Chain Link
C/B	Closed Boarded	C/P	Chain Link Panel
C/I	Corrugated Iron	H/R	Hand Rail
C/A	Chain Link	I/R	Iron Railings
C/AP	Chain Link Panel	O/B	Open Boarded
H/R	Hand Rail	P/C	Post & Chain
I/R	Iron Railings	P/R	Post & Rail
O/B	Open Boarded	P/W	Post & Wire
P/C	Post & Chain	W/M	Wire Mesh
P/R	Post & Rail		
P/W	Post & Wire		
W/M	Wire Mesh		

Levels defining edge of carriageway are observed at channel (bottom of kerb). Unless otherwise stated.

Survey Station Coordinates

Stn	Easting	Northing	Level
1.00	394246.76	417124.54	147.32
GPS1	394204.70	417157.89	148.20
GPS2	394193.09	417129.96	147.69
2.00	394265.88	417084.30	147.97

Please note:

Any discrepancy found between an Ordnance Survey benchmark and an OSGB15 computed orthometric height is likely to be due to bench mark subsidence or uplift and, assuming precise GPS survey has been carefully carried out, the orthometric height given by OSGB15 should be considered correct in preference to archive benchmark heights. OSGB15 converts GPS ellipsoid heights to orthometric heights above mean sea level.

Head and Registered Office
Survey Systems Ltd
Willow Bank House
Old Road
Handforth • Wilmslow
Cheshire SK9 3AZ
Tel. 01625 533444
Fax 01625 526815
mail@survsys.co.uk
www.survsys.co.uk

Levels are related to **OSGB15**
Value **n/a**

Coordinates are related to **National Grid** (GPS)

Scale **1:200**

0 2 4 6 8 10 12 14 16 18
metres

The accuracy of this survey is commensurate with the drawing scale specified within the title block. Copyright in this drawing remains with Survey Systems Ltd. Do not scale from this drawing, work to figured dimensions. Check all dimensions on-site. In the event of any discrepancy, please refer query to Survey Systems Ltd.

Client James Campbell Associates Ltd

Title

Topographical Survey
Todmorden Road
Littleborough
OL15 9EZ

Surveyed NB CM | Drawn GAT
Date May 2019 | Checked AG
File name 19434 | Revision No. | Sheet size A0
Drawing No. **SSL:19434:200:1:1**

SURVEYsystems

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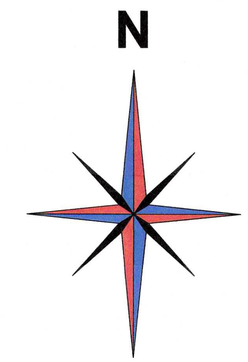
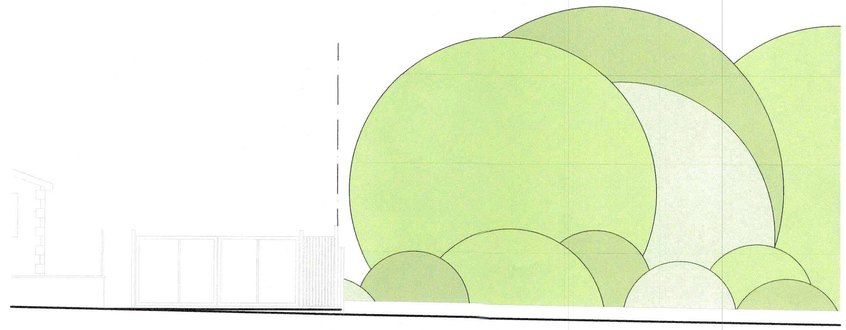
Any discrepancies discovered or items found that where not visible at the time of the initial survey should be reported to James Campbell Associates Ltd for consultation with our client.

CONSTRUCTION NOTES:-



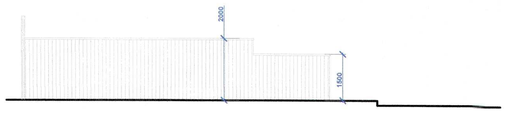
AS BUILT SITE PLAN





AS BUILT TODMORDEN ROAD ELEVATION
1:100

AS BUILT FENCE DETAIL A - PLAN
1:50



AS BUILT FENCE DETAIL A - ELEVATION
1:100

RUBBLE AND SOIL IN FILLED AREA
NEW LEVELS

HARDCORE ENTRANCE ROAD

BANKING REMOVED

NEW TIMBER FENCING (See Fence Detail A)

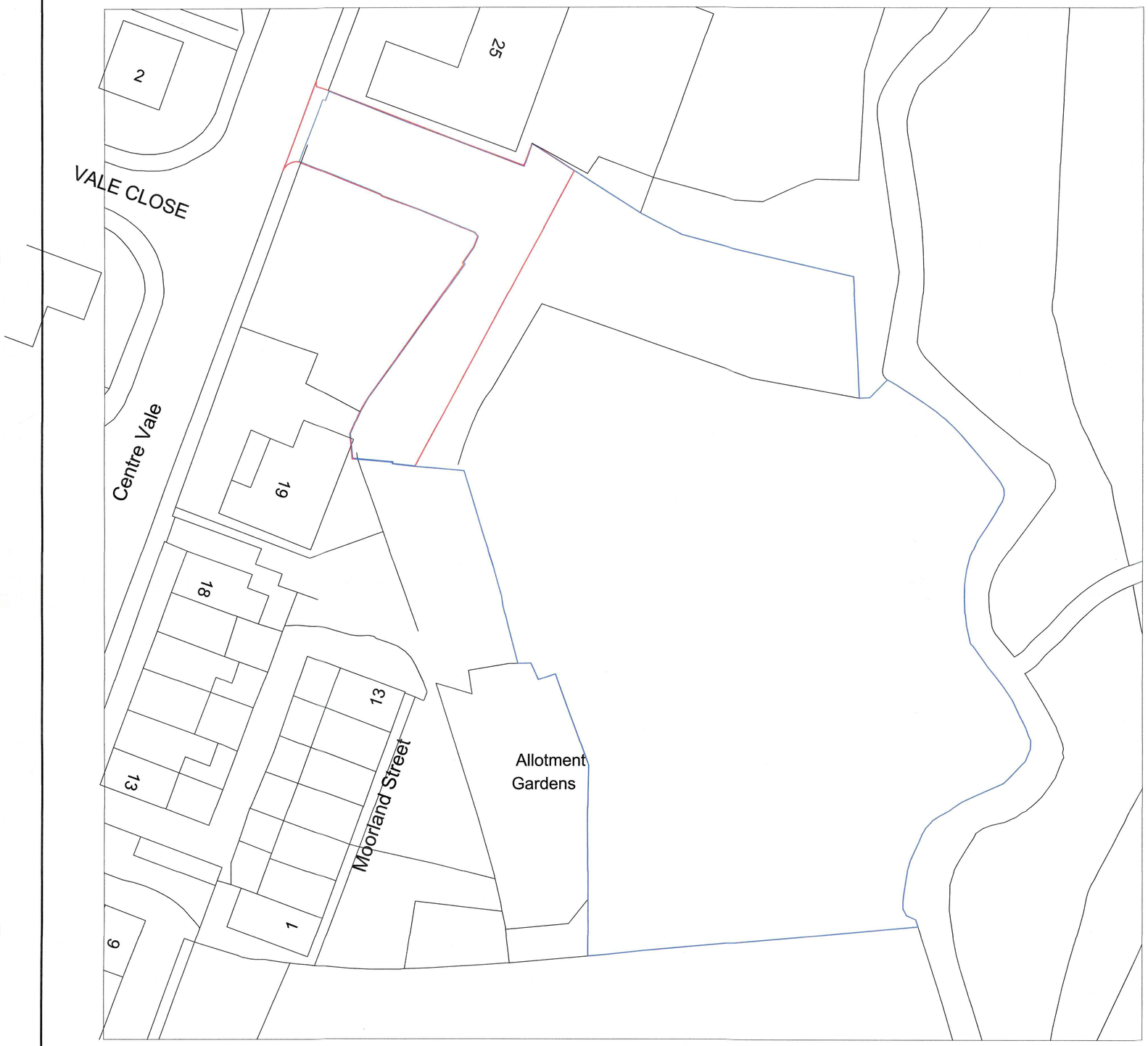
DRAWING TITLE
AS BUILT SITE PLAN

JAMES CAMPBELL ASSOCIATES LTD
CHARTERED ARCHITECTURAL SERVICES
CIOB
CIAT
Campbell House
173 Rochdale Road
Firgrove
Rochdale
OL16 3BN
Tel: 01706 354888
Mob: 07817 623183
Email: admin@jamescampbellassociates.co.uk
Web: www.jamescampbellassociates.co.uk

PROJECT
PROPOSED RETROSPECTIVE WORKS

LOCATION
Land off Todmorden Road Littleborough

DRAWN:-	Frank James Smith	DRAWING NUMBER:-
DATE:-	August 2019	19.1973.3A
SCALE:-	1:250 at A1	
ISSUE:-	A	



EXISTING SITE PLAN

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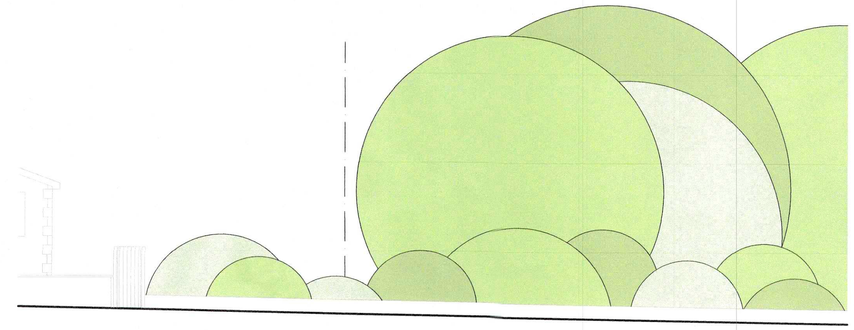
CONSTRUCTION NOTES:-

N



EXISTING TODMORDEN ROAD ELEVATION

DRAWING TITLE

EXISTING SITE PLAN

JAMES CAMPBELL ASSOCIATES LTD
CHARTERED ARCHITECTURAL SERVICES
CIOB
CIAT

Campbell House
173 Rochdale Road
Firgrove
Rochdale
OL16 3BN

Tel: 01706 354888
Mob: 07817 623183

Email: admin@jamescampbellassociates.co.uk
Web: www.jamescampbellassociates.co.uk

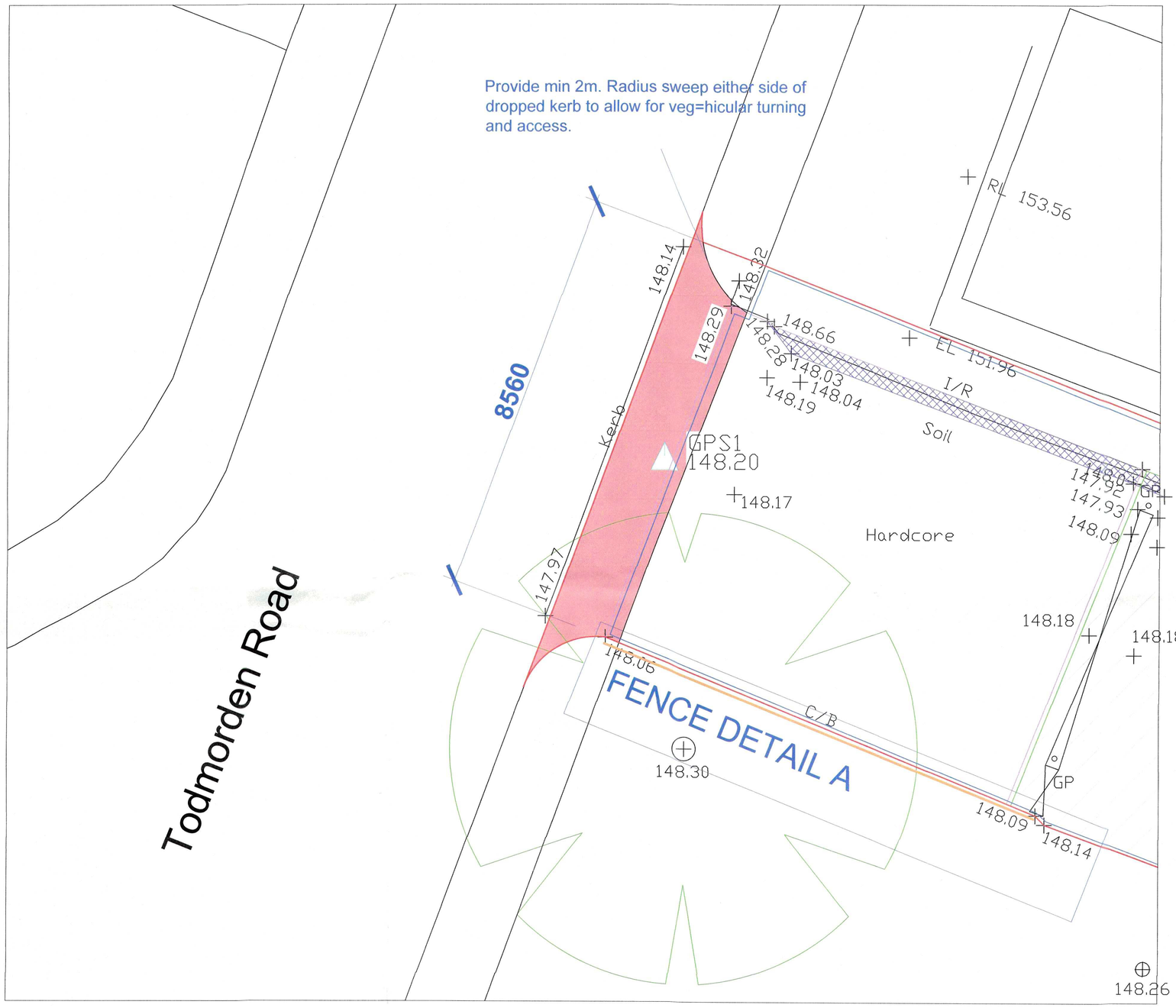
PROJECT

PROPOSED RETROSPECTIVE WORKS

LOCATION

Land off Todmorden Road
Littleborough

DRAWN:-	Frank James Smith	DRAWING NUMBER:-
DATE:-	August 2019	19.1973.1B
SCALE:-	1:250 at A1	
ISSUE:-	B	



PROPOSED ROAD DETAILS

HARDCORE ENTRANCE ROAD

PROPOSED DROPPED KERB
NEW LEVELS

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CONSTRUCTION NOTES:-

DRAWING TITLE
PROPOSED ROAD DETAILS

JAMES CAMPBELL ASSOCIATES LTD
CHARTERED ARCHITECTURAL SERVICES
CIOB
CIAT
Campbell House
173 Rochdale Road
Firgrove
Rochdale
OL16 3BN
Tel: 01706 354888
Mob: 07817 623183
Email: admin@jamescampbellassociates.co.uk
Web: www.jamescampbellassociates.co.uk

PROJECT
PROPOSED RETROSPECTIVE WORKS

LOCATION
Land off Todmorden Road Littleborough

DRAWN:-	Frank James Smith	DRAWING NUMBER:-
DATE:-	August 2019	19.1973.5
SCALE:-	1:50 at A1	
ISSUE:-		



PROPOSED SITE PLAN

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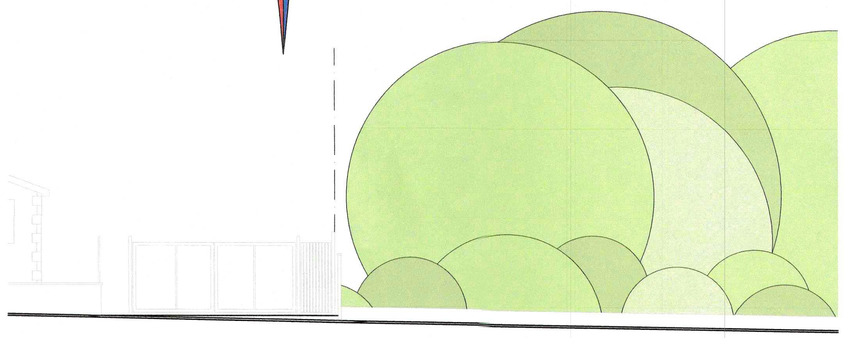
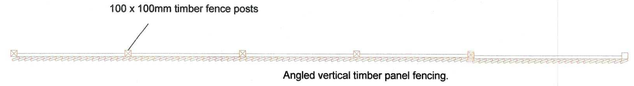
CONSTRUCTION NOTES:-

N



PROPOSED TODMORDEN ROAD ELEVATION

1:100



AS BUILT FENCE PLAN

1:50



AS BUILT FENCE ELEVATION

1:100

PROPOSED DROPPED KERB
NEW LEVELS

RUBBLE AND SOIL IN FILLED AREA

HARDCORE ENTRANCE ROAD

BANKING REMOVED

NEW TIMBER FENCING (See Fence Detail A)

DRAWING TITLE
PROPOSED SITE PLAN

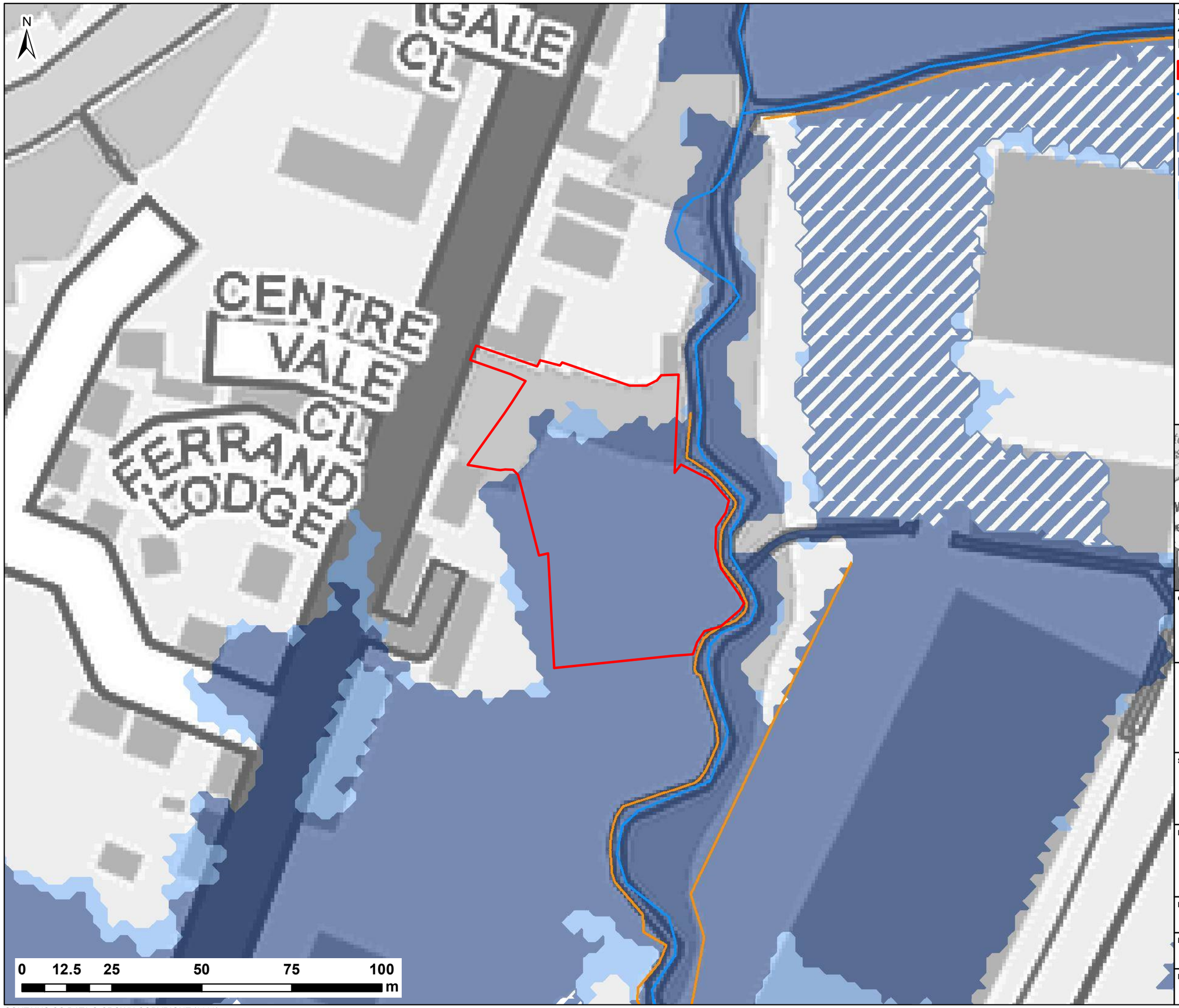
JAMES CAMPBELL ASSOCIATES LTD
CHARTERED ARCHITECTURAL SERVICES
CIOB
CIAT
Campbell House
173 Rochdale Road
Firgrove
Rochdale
OL16 3BN
Tel: 01706 354888
Mob: 07817 623183
Email: admin@jamescampbellassociates.co.uk
Web: www.jamescampbellassociates.co.uk

PROJECT
PROPOSED RETROSPECTIVE WORKS

LOCATION
Land off Todmorden Road
Littleborough

DRAWN:-	Frank James Smith	DRAWING NUMBER:-
DATE:-	August 2019	19.1973.4B
SCALE:-	1:250 at A1	
ISSUE:-	B	

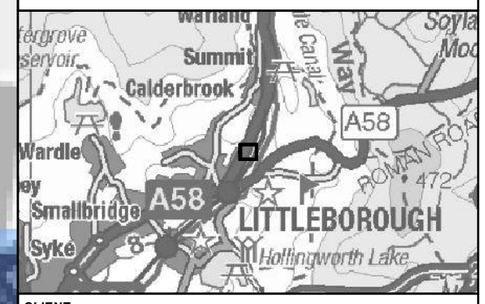
Appendix C NRW Flood Maps and Correspondence



NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Boundary
- EA Main Rivers
- EA Flood Defences
- Areas Benefitting from Flood Defence
- EA Flood Zone 3
- EA Flood Zone 2



CLIENT:

MR TOM BELL

waterco

www.waterco.co.uk

SCHEME:

LAND ADJACENT TO CENTRE VALE, LITTLEBOROUGH

PLOT TITLE:

EA FLOOD MAP FOR PLANNING

DATA ACCESSED SEPTEMBER 2020

PLOT STATUS:			DATE:
FINAL			22/10/2020
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE @ A3:
CM	JR	AW	1:1,000 (UNLESS STATED OTHERWISE)
PLOT NAME:			REV:
13292-EA_FZ_FM			-

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NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Boundary
- Historical Flood Map



CLIENT:

MR TOM BELL

waterco

www.waterco.co.uk

SCHEME:

LAND ADJACENT TO CENTRE VALE, LITTLEBOROUGH

PLOT TITLE:

EA HISTORICAL FLOOD MAP

DATA ACCESSED SEPTEMBER 2020

PLOT STATUS:			DATE:
FINAL			22/10/2020
DRAWN: CM	CHECKED: JR	APPROVED: AW	PLOT SCALE @ A3: 1:1,000 (UNLESS STATED OTHERWISE)
PLOT NAME: 13292-EA_Hist			REV: -

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EA FLOODING FROM RESERVOIR DATA © CROWN COPYRIGHT (2020)

N

0 10 20 40 60 80 100 m

NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Boundary
- Low (between 0.1% and 1.0%)
- Medium (between 1.0% and 3.3%)
- High (3.3% or greater)



CLIENT:

MR TOM BELL

www.waterco.co.uk

SCHEME:

LAND ADJACENT TO CENTRE VALE, LITTLEBOROUGH

PLOT TITLE:

EA FLOOD RISK FROM SURFACE WATER

DATA ACCESSED SEPTEMBER 2020

PLOT STATUS:	DATE:
FINAL	22/10/2020

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE @ A3:
CM	JR	AW	1:1,000 (UNLESS STATED OTHERWISE)

PLOT NAME:	REV:
13292-EA_SW_FM	-

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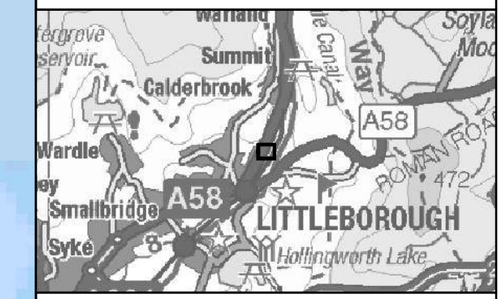
N

0 12.5 25 50 75 100 m

NOTES:
1) ALL DIMENSIONS ARE IN METRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS STATED OTHERWISE

LEGEND

- Site Boundary
- EA Reservoir Flood Map



CLIENT:

MR TOM BELL

waterco

www.waterco.co.uk

SCHEME:

LAND ADJACENT TO CENTRE VALE, LITTLEBOROUGH

PLOT TITLE:

EA FLOOD RISK FROM RESERVOIRS

DATA ACCESSED SEPTEMBER 2020

PLOT STATUS:	DATE:
FINAL	22/10/2020

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE @ A3:
CM	JR	AW	1:1,000 (UNLESS STATED OTHERWISE)

PLOT NAME:	REV:
13292-EA_Res	-

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EA FLOODING FROM RESERVOIR DATA © CROWN COPYRIGHT (2020)

Our ref: SO/2020/120121/01-L01
Your ref: 19/01046/FUL

Date: 19 March 2020

Rochdale Metropolitan Borough Council
Development Control
Number One Riverside
Smith Street
ROCHDALE
Lancashire
OL16 1XU

Dear Sir/Madam

RETROSPECTIVE GROUND WORKS, REMOVAL OF EARTH AND MINOR SHRUBS, INSTALLATION OF SITE ENTRANCE GATE, NEW TIMBER FENCING AND MINOR RAISING OF GROUND LEVEL ON SITE. PROPOSED CREATION OF DROPPED KERB OFF TODMORDEN RD LAND OFF TODMORDEN RD LITTLEBOROUGH, ROCHDALE, OL15 9EZ

Thank you for referring the above application to the Environment Agency. We would wish to make the following comments.

Environment Agency position

In the absence of a flood risk assessment (FRA), we object to this application and recommend that planning permission is refused.

Reasons

The application site lies within Flood Zone *3*, which is land defined by the planning practice guidance as having a *high* probability of flooding. The National Planning Policy Framework (paragraph 163, footnote 50) states that an FRA must be submitted when development is proposed in such locations.

An FRA is vital to making informed planning decisions. In its absence, the flood risks posed by the development flood are unknown. This is sufficient reason for refusing planning permission.

We note the application is retrospective and includes land raising. The land raising could have resulted in a loss of flood plain storage and potential increase in flood risk elsewhere. The Environment Agency's Rochdale and Littleborough flood risk management scheme includes proposals, which will require construction activities at the application site. The FRA should show how the retrospective works may benefit the Flood Risk Management Scheme.

Overcoming our objection

To overcome our objection, the applicant must submit a FRA with evidence to demonstrate that the development has not reduced flood plain storage and will not impact on the EA's ability to deliver the FRMS.

If this cannot be achieved, we are likely to maintain our objection. Please re-consult us on any revised FRA submitted and we'll respond within 21 days of receiving it.

Advice to Applicant

Guidance on how to prepare a flood risk assessment can be found at https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications

Please forward a copy of this letter to the applicant.

Yours faithfully

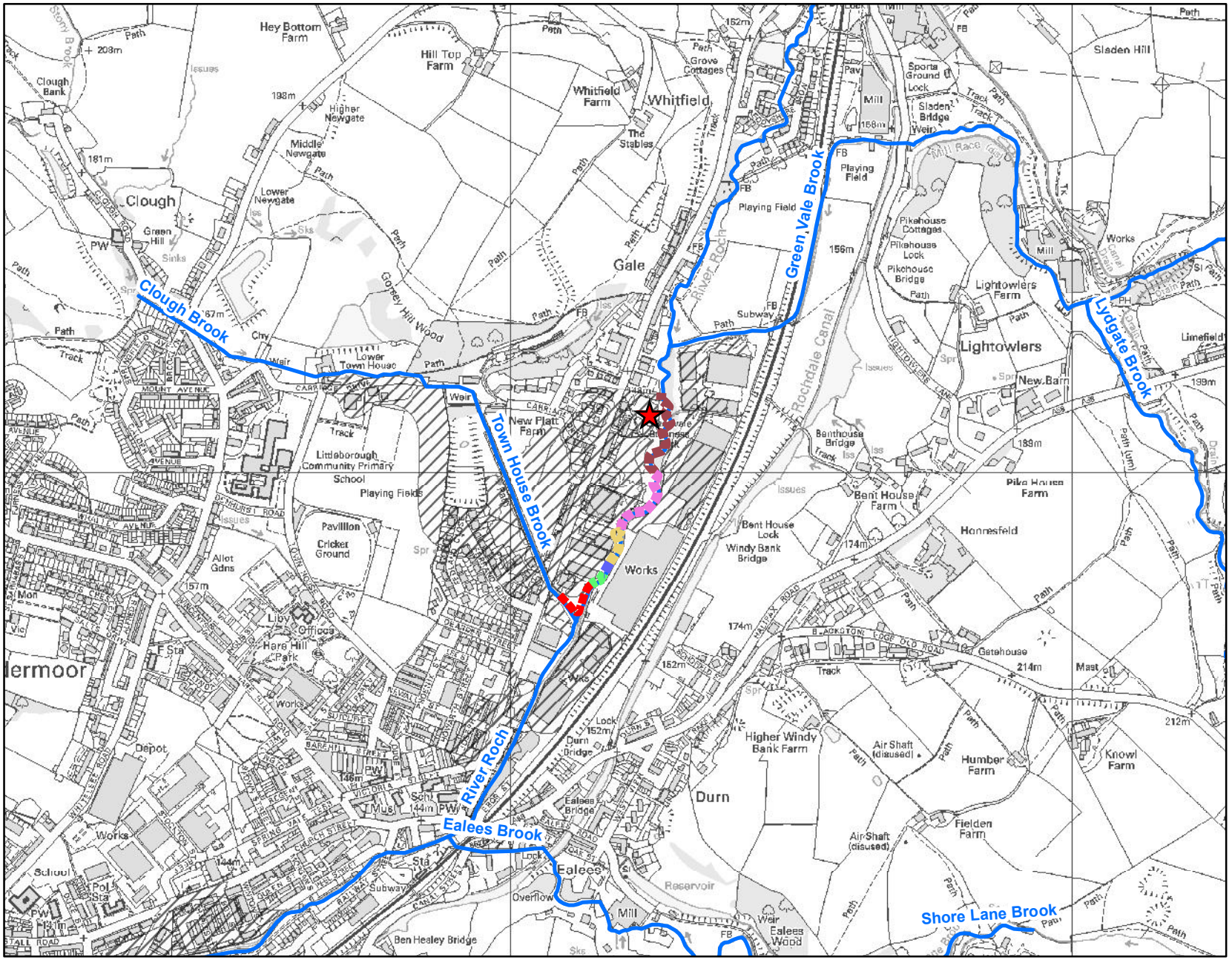
Mrs SYLVIA WHITTINGHAM
Planning Advisor

Direct dial 0203 0251059
Direct e-mail sylvia.whittingham@environment-agency.gov.uk

End

Appendix D EA Modelled Output Data

Flood Defence Map centred on Todmorden Road, Rochdale, Littleborough OL15 9AF.
Created on 01/09/2020 [GMMC180978CC]



Environment Agency

1:10,001

N

Legend

- Site Location
- **Defences (EA maintained)**
- **Asset ID**
- 9110
- 9111
- 9112
- 130621
- 181966
- 38263
- Main River
- Areas Benefiting

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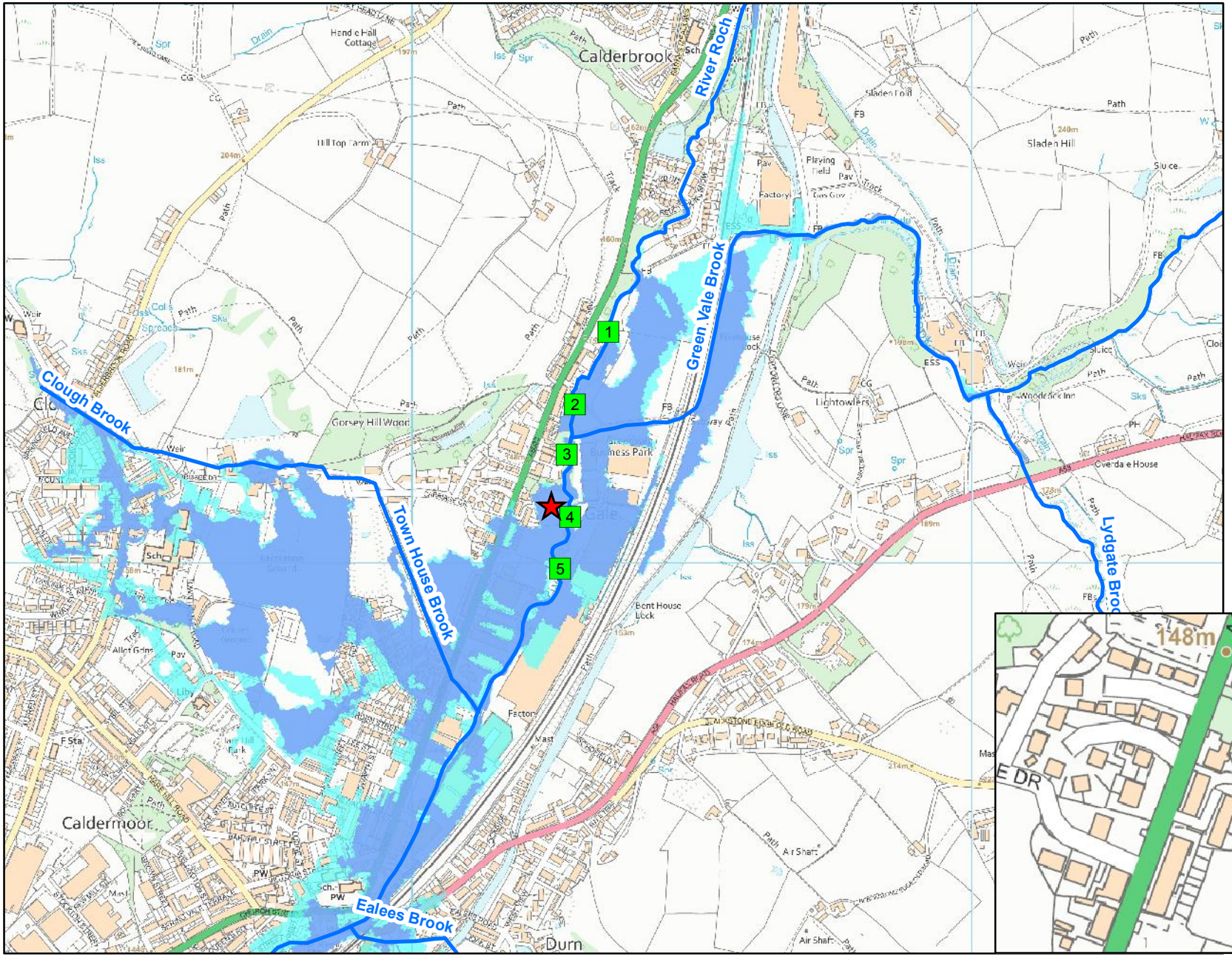
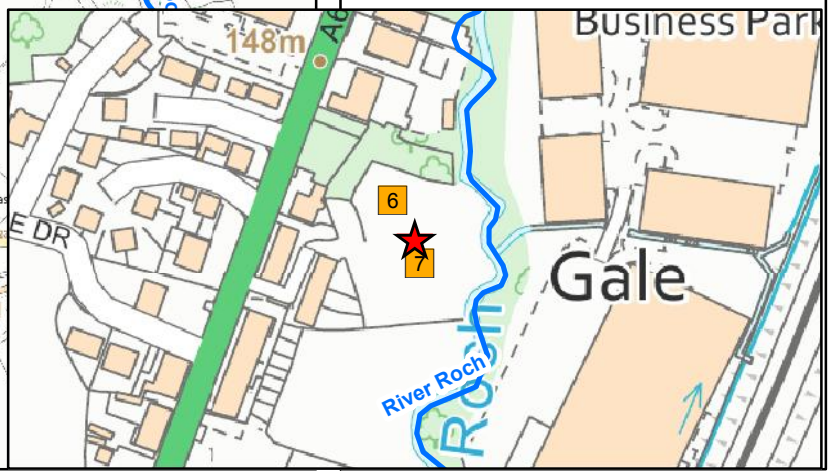
Detailed Flood Map centred on Todmorden Road, Rochdale, Littleborough OL15 9AF.
Created on 01/09/2020 [GMMC180978CC]





Environment Agency

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N

Legend

- Site Location
- Model Measurements
- 2D Level
- Main River
- Flood Zone 3
- Flood Zone 2

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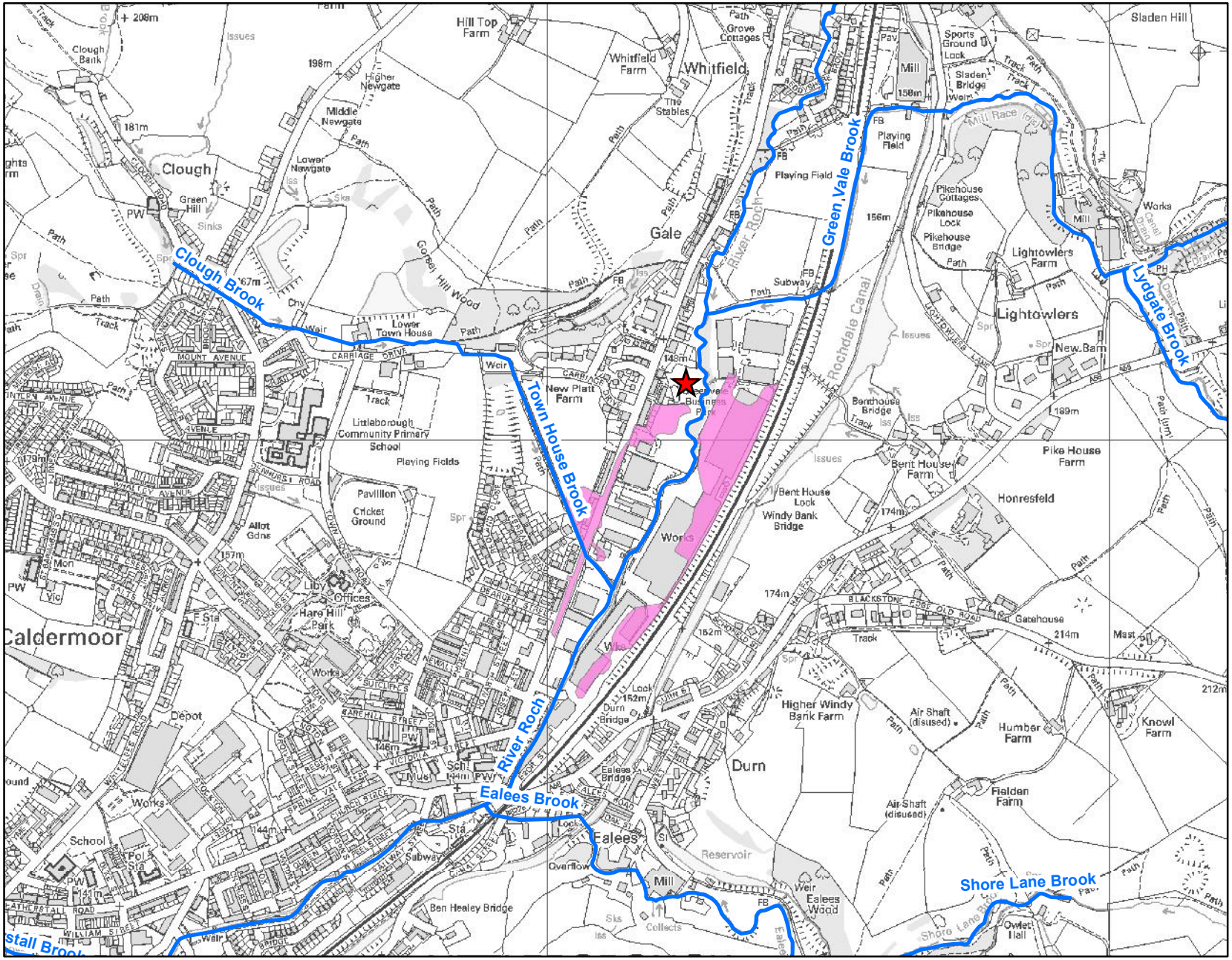
Recorded Flood Outline Map centred on Todmorden Road, Rochdale, Littleborough OL15 9AF.
Created on 01/09/2020 [GMMC180978CC]



Environment Agency

1:10,001

N

Legend

- Site Location
- **Recorded Flood Outline**
  - **Start Date**
    - 08/02/2002
- Main River

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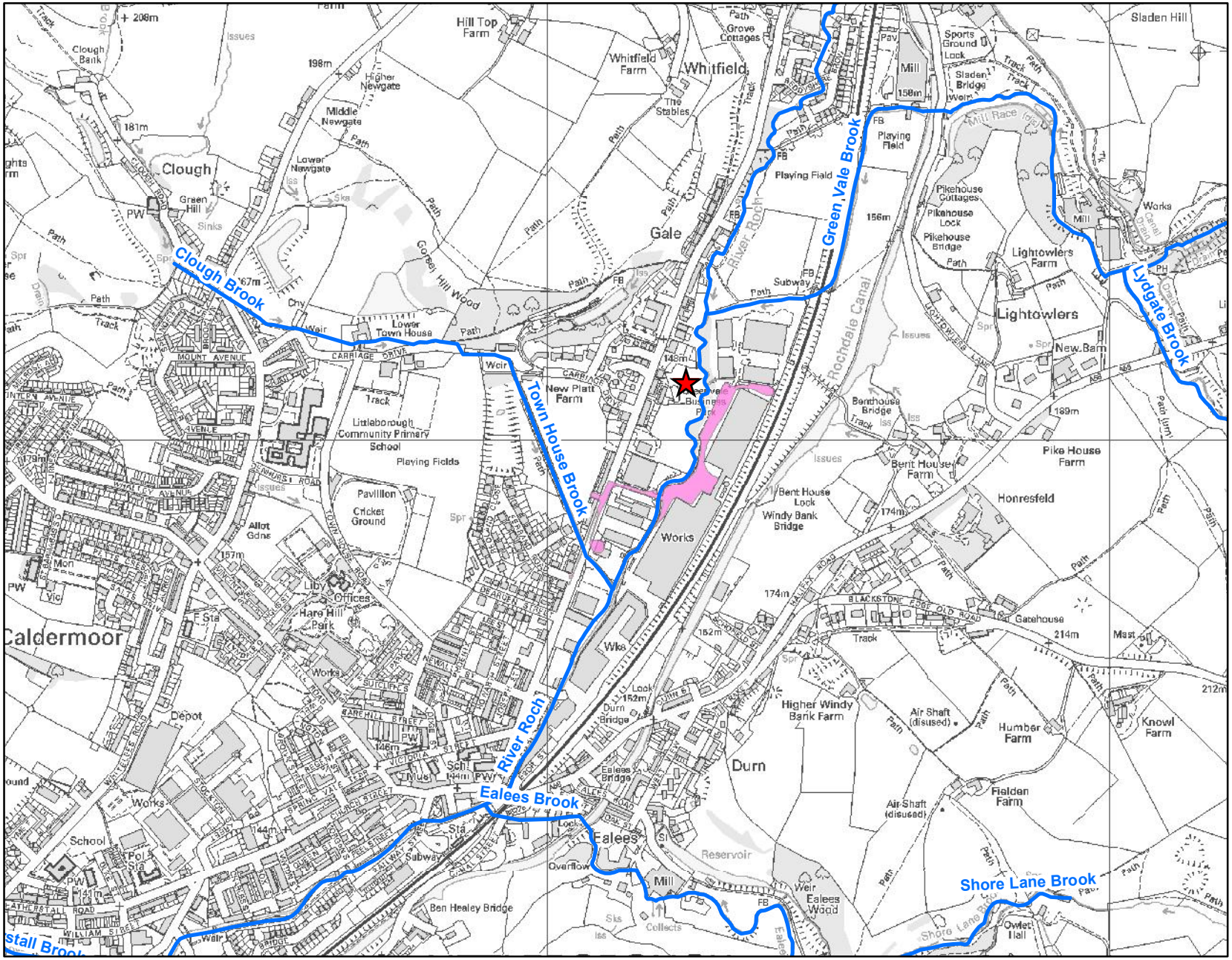
Recorded Flood Outline Map centred on Todmorden Road, Rochdale, Littleborough OL15 9AF.
Created on 01/09/2020 [GMMC180978CC]



Environment Agency

1:10,001

N

Legend

- Site Location
- **Recorded Flood Outline**
  - **Start Date**
    - 06/07/2012
- Main River

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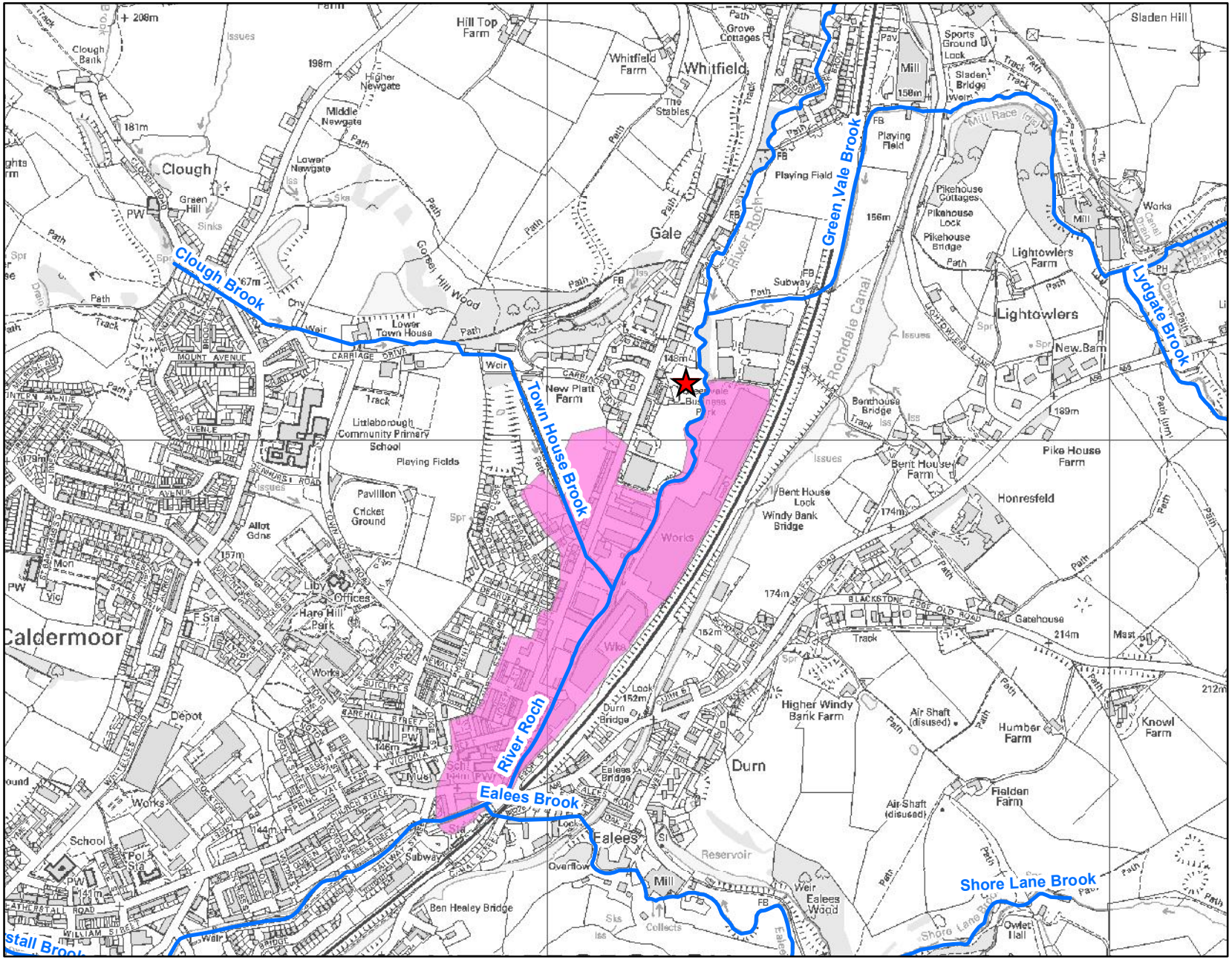
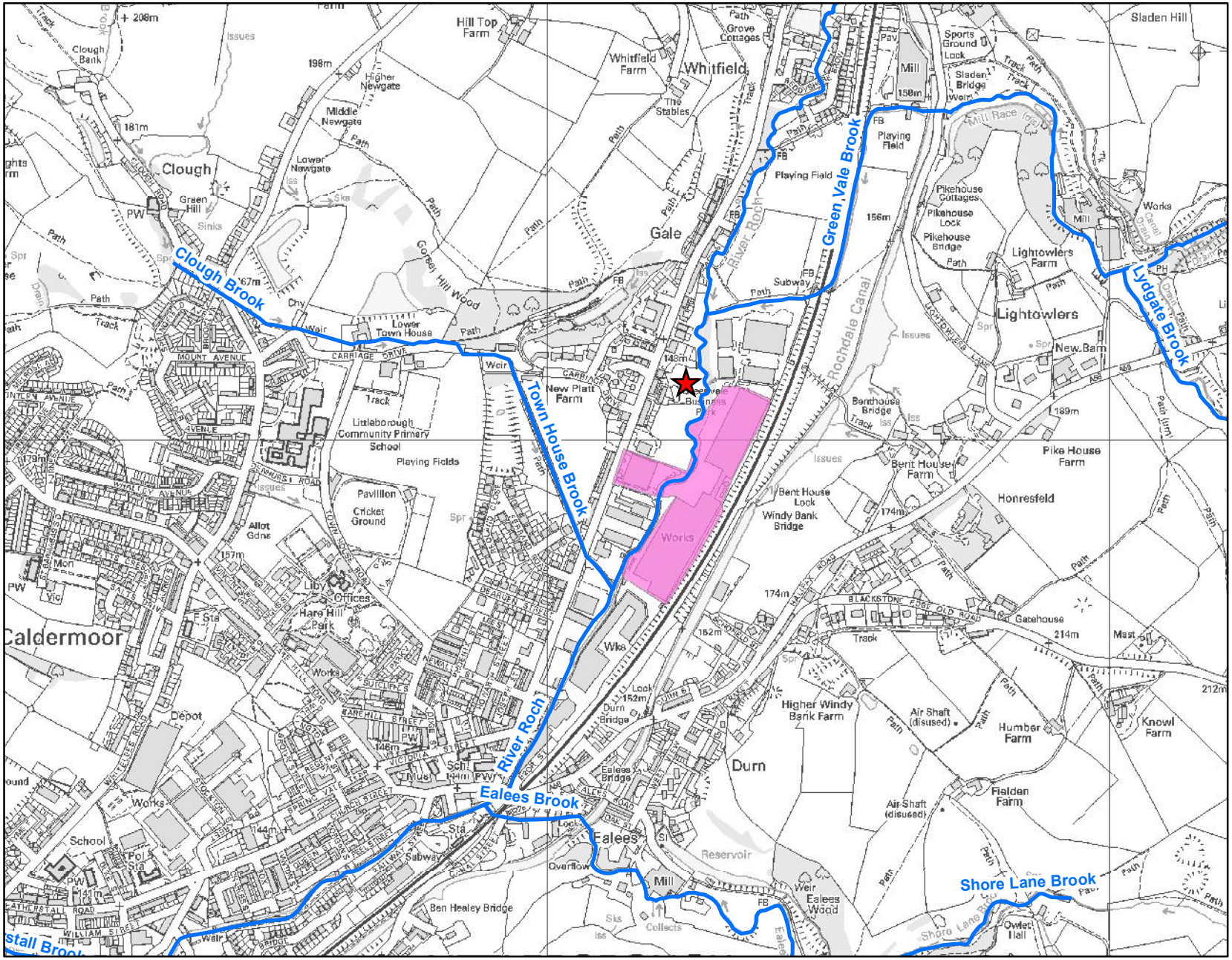
Recorded Flood Outline Map centred on Todmorden Road, Rochdale, Littleborough OL15 9AF.
Created on 01/09/2020 [GMMC180978CC]


Clough Brook
Town House Brook
River Roch
Ealees Brook
Green Vale Brook
Lydgate Brook
Shore Lane Brook
Rochdale Canal
Caldermoor
Durn
Ealees
Gale
Whitfield
Clough
Lightowlers
Littleborough Community Primary School
Playing Fields
Cricket Ground
Pavillion
Hare Hill Park
Depot
Works
Reservoir
Ben Healey Bridge
Windy Bank Bridge
Bent House Lock
Bent House Farm
Pike House Farm
Honresfeld
Higher Windy Bank Farm
Humber Farm
Fielden Farm
Knowl Farm
Air Shaft (disused)
Air Shaft (disused)
Eealees Wood
Owlet Hall
Lightowlers Farm
Pikehouse Bridge
Pikehouse Lock
Pikehouse Cottages
Benthouse Bridge
New Barn
Sladen Hill
Sports Ground
Playing Field
Mill
Works
Gatehouse
Mast
Overflow
Subway
Weir
Lock
Bridge
Hill Top Farm
Whitfield Farm
The Stables
Grove Cottages
Higher Newgate
Middle Newgate
Lower Newgate
Green Hill
Gorsey Hill Wood
New Platt Farm
Lower Town House
Allot Gdns
Liby
Offices
Mus
Sch
Pol Sta
F Sta
Vic
Mon
PW
Chy
Sks
Spr
Issues
Collects
FB
Path
Track
Drain
Pav
Ref
Mill Race
Mill Race (dis)
Canal Drain
Drain (dis)
Path (dis)
Path (um)
Path (dis)
Path (um)
Path
Track
Subway
Weir
Lock
Bridge
Overflow
Reservoir
Mill
Works
Gatehouse
Mast
Playing Field
Playing Fields
Cricket Ground
Pavillion
Hare Hill Park
Depot
Works
School
Pol Sta

Recorded Flood Outline Map centred on Todmorden Road, Rochdale, Littleborough OL15 9AF.
Created on 01/09/2020 [GMMC180978CC]



Legend

- Site Location
- **Recorded Flood Outline**
  - **Start Date**
    - 16/03/2019
- Main River

1:10,001

N

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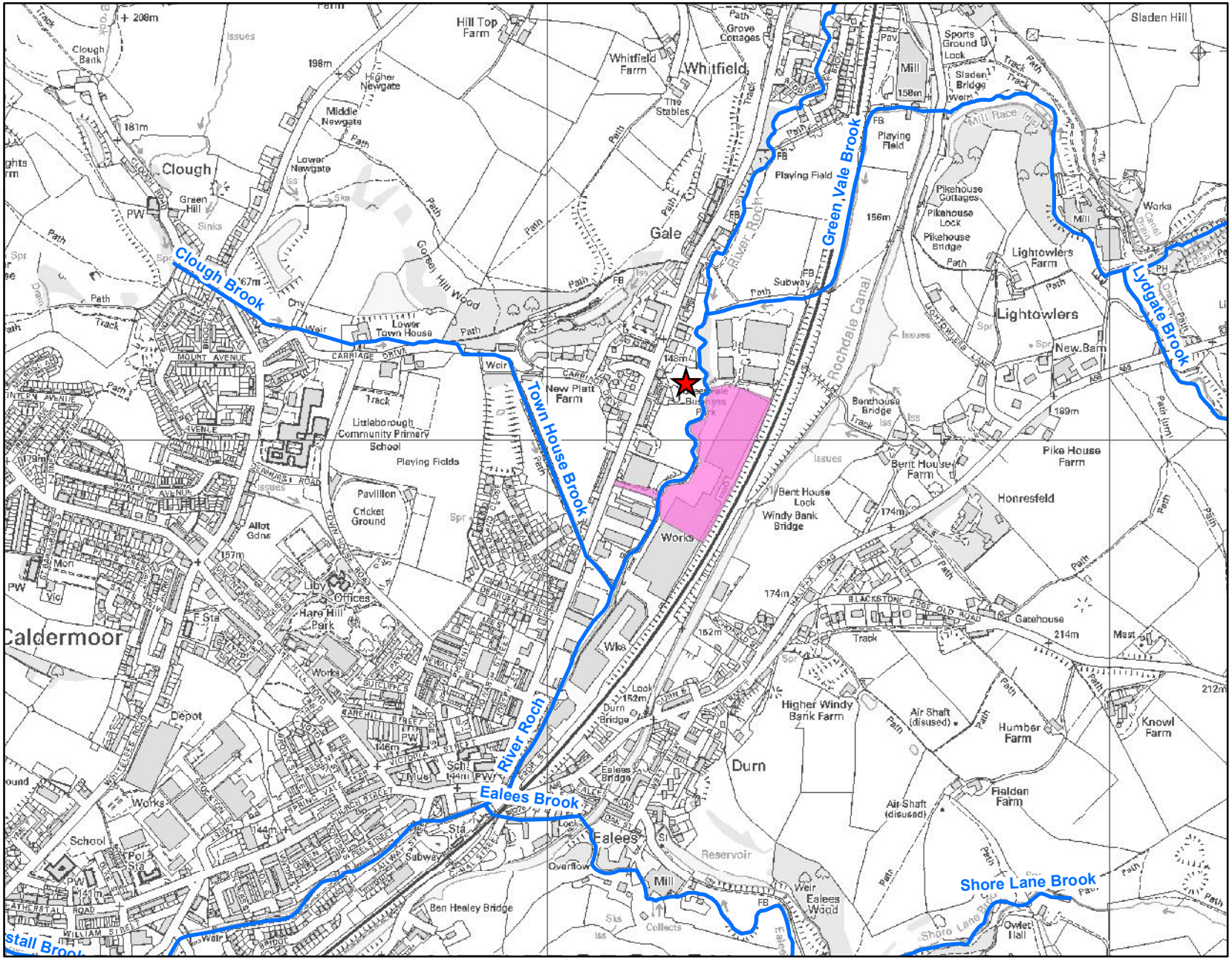
Recorded Flood Outline Map centred on Todmorden Road, Rochdale, Littleborough OL15 9AF.
Created on 01/09/2020 [GMMC180978CC]



Environment Agency

1:10,001

N

Legend

- Site Location
- **Recorded Flood Outline**
  - **Start Date**
    - 28/07/2019
- Main River

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					Undefended							Defended						
Map Reference	Model Node Reference	Easting	Northing	Data	5 % AEP (1 in 20 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 35% increase in flow	1 % AEP (1 in 100 year) + 70% increase in flow	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)	5 % AEP (1 in 20 year)	1.33 % AEP (1 in 75 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 35% increase in flow	1 % AEP (1 in 100 year) + 70% increase in flow	0.5 % AEP (1 in 200 year)	0.1 % AEP (1 in 1000 year)
1	ea013_model_ROCH05_10801	394350	417414	Modelled Water Level (m aodN)	150.90	150.96	150.96	150.99	151.00	150.97	150.99	150.90	150.96	150.96	150.99	151.00	150.97	150.99
				Modelled Flow (cumecs)	8.77	10.28	10.41	11.30	11.93	10.68	11.58	8.77	10.28	10.41	11.30	11.93	10.68	11.57
2	ea013_model_ROCH05_10566	394290	417284	Modelled Water Level (m aodN)	149.35	149.50	149.51	149.69	149.83	149.55	149.72	149.37	149.64	149.67	149.95	150.21	149.74	150.09
				Modelled Flow (cumecs)	6.26	6.33	6.34	6.42	6.41	6.36	6.40	6.23	6.30	6.31	6.36	6.35	6.34	6.39
3	ea013_model_ROCH05_10477	394276	417195	Modelled Water Level (m aodN)	148.65	148.85	148.87	149.08	149.23	148.92	149.12	148.67	149.02	149.06	149.38	149.65	149.13	149.55
				Modelled Flow (cumecs)	14.71	18.70	19.18	24.39	29.01	20.19	25.53	14.97	22.79	23.73	33.04	40.46	25.74	36.30
4	ea013_model_ROCH05_10355	394282	417083	Modelled Water Level (m aodN)	147.50	147.59	147.59	147.66	147.72	147.60	147.68	147.64	147.74	147.75	147.84	147.86	147.78	147.84
				Modelled Flow (cumecs)	12.94	15.10	15.32	17.53	19.32	15.73	18.12	12.94	15.32	15.75	20.09	20.45	16.86	19.70
5	ea013_model_ROCH05_10255	394264	416991	Modelled Water Level (m aodN)	147.03	147.14	147.15	147.28	147.38	147.19	147.32	147.28	147.43	147.44	147.54	147.60	147.47	147.56
				Modelled Flow (cumecs)	7.90	8.36	8.49	9.66	10.78	8.79	9.95	12.72	13.43	13.56	14.27	14.58	13.80	14.36

					Undefended		
Map Reference	Model Node Reference	Easting	Northing	Data	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + Climate Change*	0.1 % AEP (1 in 1000 year)
6	2D Level	394240	417121	Modelled Water Level (m aodN)	147.53	145.57	147.68
7		394251	417092	Modelled Water Level (m aodN)	147.55	147.55	147.64

Model data taken from Rochdale and Littleborough 2013 Study

AEP - Annual Exceedence Probability

m aodN - metres above ordnance datum Newlyn

cumecs - cubic metres per second

Notes:

*Climate Change Scenario - 35% and 70% increases in flow calculated for the 2080's (2070 - 2115). Please see https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances for more information regarding the new climate change guidance. The location of the site and the type (vulnerability) of development determine the climate change allowances to consider in any flood risk assessment.

*Climate Change Scenario - We only hold climate change measurements based on the previous climate change guidance (20% increase in flow). The new climate change guidance is available at https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances. The location of the site and the type (vulnerability) of development determine the climate change allowances to consider in any flood risk assessment.

Recorded Flood Outlines

Flood Event Code	Name	Start Date	End Date	Source of Flooding	Cause of Flooding
18489	Towh	08/02/2002	09/02/2002	Main River	Channel capacity exceeded (no raised defences)
24568	Greenvale Business Park	06/07/2012	06/07/2012	Main River	overtopping of defences
4079729	Littleborough	26/12/2015	26/12/2015	Main River	overtopping of defences
4086001	Greenvale Business Park	16/03/2019	16/03/2019	Unknown	Unknown
4087046	Littleborough	28/07/2019	31/07/2019	Main River	Channel capacity exceeded (no raised defences)

Flood Defences

Start Date	Asset Type	Asset ID	Standard of Protection	†Overall Condition Grade	Upstream Actual Crest Level (m aod)	Downstream Actual Crest Level (m aod)
01/01/2005	Wall	38264	100	3	145.72	145.73
01/01/2005	Wall	9110	100	3	145.87	145.90
01/01/2005	Wall	9111	100	2	146.09	146.07
01/01/2005	Wall	9112	100	3	146.62	145.99
01/01/2005	Embankment	130621	100	4	147.47	147.28
01/01/2005	Wall	181966	100	5	147.30	149.90

† Overall condition of the asset based on the (weighted) condition of each element of the latest inspection of the asset. See the attached document 'Visual Condition Grading of FCRM Assets' for interpretation of score given.

Appendix E UU Sewer Plan

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

Waterco

Waterco
Ion parcwr,
ruthin, denbighshire
ll15 1nj

FAO:

Your Ref: 13292
Our Ref: UUPS-ORD-183415
Date: 13/08/2020

Dear Sirs

Location: Land adjacent to centre vale

I acknowledge with thanks your request dated 06/08/2020 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

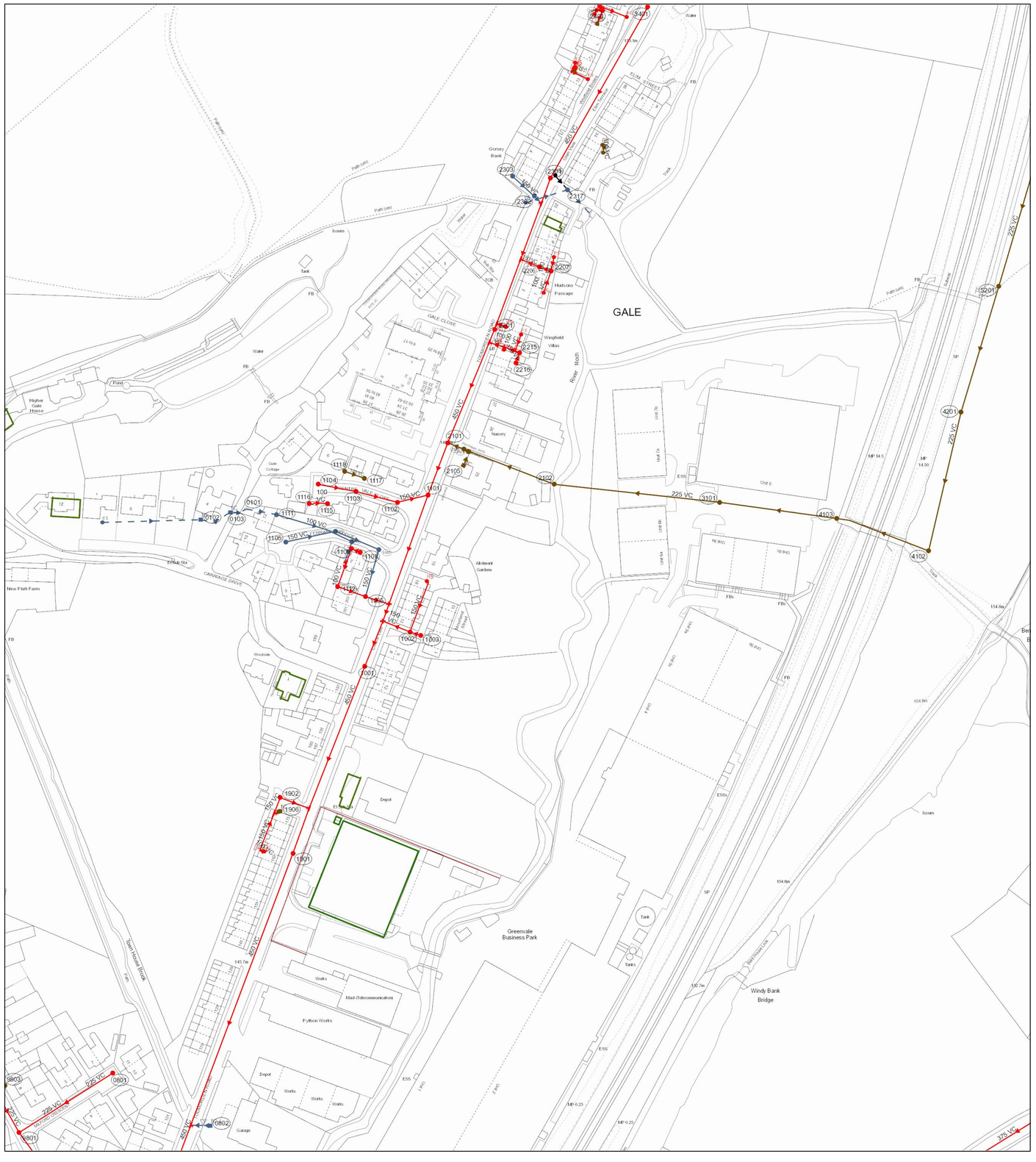
TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

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.

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Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
1109		CO		100			VC	22.44206	
1116		CO		100			VC	10.43549	
2303	152.51	SW	151.74	150			VC	16.27882	1 in 20
1901	146.17	CO	143.36	450			VC	201.8981	1 in 217.092537
9803	146.03	FO	144.6	150			VC	5.830952	
1108		CO		100			VC	5.207314	
1106	147.4	SW	145.82	150			VC	26.0866	1 in 174
2206		CO		150			VC	11.19287	
2102	148.13	FO	146.03	225			VC	9.472942	
1118		FO		100			VC	11.676	
4201	149.48	FO	148	225			VC	79.07591	1 in 100
1109		CO		100			VC	16.42708	
1105	147.75	SW	146.04	150			VC	28.27162	1 in 129
3101	147.85	FO	146.09	225			VC	92.54189	1 in 1851
4102	149.08	FO	147.19	225			VC	54.24097	
2216		CO		150			VC	6.017098	
0801	144.91	CO	143.41	225			VC	61.58734	1 in 280
2207		CO		150			VC	6.953722	
1102	147.55	CO	145.4	150			VC	17.46425	1 in 76
2102	148.13	FO		225			VC	53.85162	
9801	145.75	CO	143.12	225			VC	30.80584	
1003	147.33	CO	146.37	150			VC	6.324555	1 in 20
4103		FO	0	225			VC	65.62012	
1107	147.36	SW	145.67	150			VC	27.18848	1 in 53
1005	147.54	CO	145.16	150			VC	13.66018	
1101	147.9	CO	145.1	450			VC	64.25653	
3401	155.88	CO	152.53	450			VC	109.2749	1 in 34
1111		SW		100			VC	44.58603	
1104	147.16	CO	145.9	150			VC	21.37756	1 in 113
2101	148.42	CO	145.44	450			VC	31.01612	1 in 111
5201	150.4	FO	0	225			VC	73.08215	
1113		SW		100			VC	12.67283	
1103	147.49	CO	145.7	150			VC	23.76973	1 in 82
1002	147.13	CO	146.05	150			VC	16.15549	
2104		FO		100			VC	3.244369	
2317		SW		0			UN	18.64853	
2215		CO		150			VC	9.400115	
1001	146.8	CO	144.02	450			VC	111.4353	1 in 253
2302	151.58	SW	150.62	150			VC	5.656854	
2401		CO		100			VC	2.969848	
1902	146.41	CO	145.84	150			VC	17.08801	
2402		CO		150			VC	16.31431	
2301	152.07	CO	149.3	450			VC	89.53869	1 in 34
2201	149.67	CO	146.59	450			VC	68.15424	1 in 61

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
- 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	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
CC	Concrete Box Culverted
PSC	Plastic / Steel Composite
GRC	Glass Reinforecd 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:

Land adjacent to centre vale,

Scale: 1:1250 **Date:** 13/08/2020

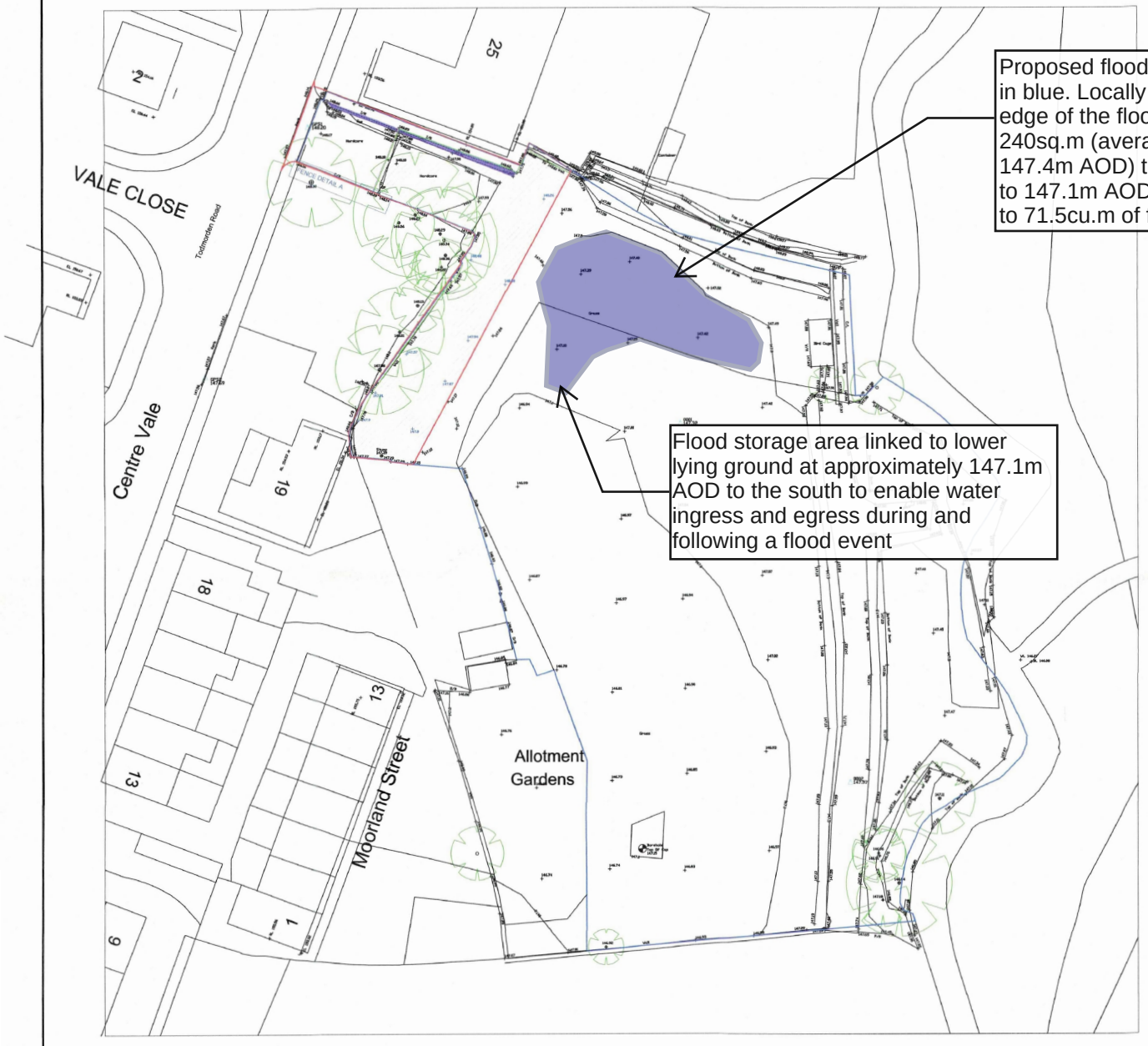
Sheet: 1 of 1

Printed by: Property Searches

SEWER RECORDS

United Utilities — helping life flow smoothly

Appendix F Flood Compensatory Storage Plan



Indicative Flood Compensation Scheme

This drawing is an amendment of drawing 19.1973.3A drawn by JCA Ltd

N

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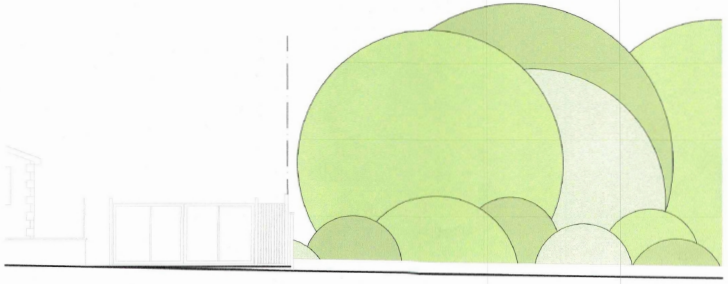
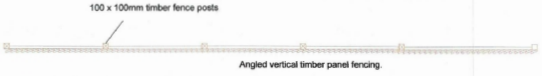
CONSTRUCTION NOTES:-

The contract for the works is between the client and his / her contractor. Contractor to visit site, study the details provided within the drawing and be familiar with both the work to be carried out in accordance with the details provided. Any stated dimension must be checked prior to any form of construction. All works and materials to comply with all relevant British Standards and care of protective BBA certificate. The materials specified within the drawing are a guide for the contractor as they are recognised materials with genuine BBA certificates etc. Any contractor who decides to use any different materials than that listed on the drawing must inform James Campbell Associates Ltd.

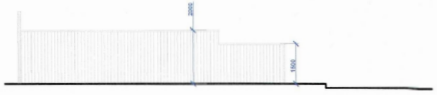
Any discrepancies discovered or items found that where not visible at the time of the initial survey should be reported to James Campbell Associates Ltd for consultation with our client.



AS BUILT TODMORDEN ROAD ELEVATION
1:100



AS BUILT FENCE DETAIL A - PLAN
1:50



AS BUILT FENCE DETAIL A - ELEVATION
1:100

RUBBLE AND SOIL IN FILLED AREA
NEW LEVELS

HARDCORE ENTRANCE ROAD

BANKING REMOVED

NEW TIMBER FENCING (See Fence Detail A)

DRAWING TITLE
AS BUILT SITE PLAN

JAMES CAMPBELL ASSOCIATES LTD
CHARTERED ARCHITECTURAL SERVICES
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OL16 3BN
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Email: admin@jamescampbellassociates.co.uk
Web: www.jamescampbellassociates.co.uk

PROJECT
PROPOSED RETROSPECTIVE WORKS

LOCATION
Land off Todmorden Road
Littleborough

DRAWN:-	Frank James Smith	DRAWING NUMBER:-
DATE:-	August 2019	19.1973.3A
SCALE:-	1:250 at A1	
ISSUE:-	A	