

SURFACE WATER DRAINAGE SCHEME

for

Mr D WEBSTER

CONSTRUCTION OF A SINGLE RESIDENTIAL DWELLING

on

LAND ADJACENT No.5 STUBBINS LANE

RAMSBOTTOM, BL0 0PU

JANUARY 2025

REFORD

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1. INTRODUCTION

1.1 This surface water drainage scheme has been produced on behalf of Mr D Webster to discharge Condition 6 of the outline approval from Bury Metropolitan Borough Council (Reference 67718) for the construction of a single residential dwelling on land adjacent No.5 Stubbins Lane, Ramsbottom, BLO OPU. A location plan is included within Appendix A.

1.2 Condition 6 states the following:

No development shall commence until a surface water drainage scheme has been submitted to and approved in writing by the Local Planning Authority. The drainage scheme must include:

- (i) An investigation of the hierarchy of drainage options in the National Planning Practice Guidance (or any subsequent amendment thereof). This investigation shall include evidence of an assessment of ground conditions and the potential for infiltration of surface water;*
- (ii) A restricted rate of discharge of surface water agreed with the local planning authority (if it is agreed that infiltration is discounted by the investigations); and*
- (iii) A timetable for its implementation.*

The approved scheme shall also be in accordance with the Non-Statutory Technical Standards for Sustainable Drainage Systems (March 2015) or any subsequent replacement national standards.

The development hereby permitted shall be carried out only in accordance with the approved drainage scheme.

The approved scheme only shall be implemented prior to first occupation and thereafter maintained.

- 1.3 This surface water drainage scheme is to discharge Condition 6 of the outline approval. It describes the existing site conditions and proposed development. It assesses the potential impact of proposals on existing drainage and includes a proposed scheme for the provision of new drainage to serve the proposed development.
- 1.4 The disposal of foul water from the site will also be addressed.

2. BASE INFORMATION

Existing site

- 2.1 The site is located within the established residential area of Ramsbottom and lies on the western side of Stubbins Lane, from which access can be taken.
- 2.2 The site is a plot of land associated with and lying within the boundary of the adjacent property No.5 Stubbins Lane and comprises an overgrown garden area with a small number of trees and a hardstanding area with a garage structure. The land rises from Stubbins Lane to the west.
- 2.3 The site area is of an area that has been measured as 196m².

Site geology

- 2.4 The online Soilsmap Viewer has identified the site lying in a region characterised by slowly permeable seasonally wet acid loamy and clayey soils with impeded drainage.

Understanding of existing drainage local to the site

- 2.5 There are no watercourses immediately local to the development site. The nearest watercourse is the River Irwell that lies approx. 240m to the east of the site, beyond the East Lancashire Railway.
- 2.6 United Utilities sewer records have been obtained and are included within Appendix B. Immediately outside the site within Stubbins Lane is a 375mm diameter public combined sewer that continues along Factory Street to the south and the head of a 300mm diameter public surface water sewer that continues along Stubbins Lane to the north.

Proposed development

- 2.7 The development is to comprise the construction of a single residential dwelling.

3. PROPOSED DRAINAGE SCHEME

- 3.1 Foul and surface water are to be drained on separate systems. The proposed drainage layout is included within Appendix C.

Surface water drainage

- 3.2 In accordance with the National Standards for Sustainable Drainage, the surface water drainage scheme should incorporate the use of Sustainable Drainage (SUDS) where possible. The approach promotes the use infiltration features in the first instance. If drainage cannot be achieved solely through infiltration due to site conditions or contamination risks, the preferred options are (in order of preference):
- (i) a controlled discharge to a local waterbody or watercourse, or
 - (ii) a controlled discharge into the public sewer network (depending on availability and capacity).
- 3.3 The rate and volume of discharge should strive to provide betterment and be restricted to the pre-development values as far as practicable.
- 3.4 The online Soilsmap Viewer has identified the site lying in a region characterised by slowly permeable seasonally wet acid loamy and clayey soils with impeded drainage. In addition, the size of the site means it will not be possible for soakaways to be installed and comply with the requirements of Building Regulations. As such soakaways are not a feasible option for the disposal of surface water on this site.
- 3.5 There are no watercourses immediately local to the development site. The nearest watercourse is the River Irwell that lies approx. 240m to the east of the site, beyond the East Lancashire Railway. As such it would not be possible for a connection to be made to the watercourse.
- 3.6 United Utilities sewer records have been obtained and identify the head of a 300mm diameter public surface water sewer that continues along Stubbins Lane to the north.
- 3.7 It is therefore intended that surface water runoff from the development will be restricted to 2.0 l/s allowing surface water runoff generated by all rainfall events up

to the 100 year critical rain storm plus 45% on stored volumes to discharge into the public surface water sewer that lies within Stubbins Lane. The additional 45% is to allow for climate change and has been included in the surface water volume.

- 3.8 The proposed surface water drainage for the development will take runoff from the roofs of the proposed dwelling (roof area 70m²) and associated areas of hardstanding, which have a total area measured as 120m².
- 3.9 A surface water drainage design has been carried out for the proposed single residential dwelling for all events up to the 100 year critical rain storm plus 45% for climate change on stored volumes. Attenuation is provided within the proposed surface water system of pipes and manholes. The surface water drainage design is included within Appendix D.

Foul water drainage

- 3.10 United Utilities sewer records have been obtained and identify a 375mm diameter public combined sewer immediately outside the site within Stubbins Lane that continues along Factory Street to the south.
- 3.11 It is therefore intended that foul water from the proposed single residential dwelling will be collected by a piped system and discharged into the public combined sewer immediately outside the site within Stubbins Lane that continues along Factory Street to the south.

4. SUMMARY AND CONCLUSIONS

- 4.1 This surface water drainage scheme has been produced on behalf of Mr D Webster to discharge Condition 6 of the outline approval from Bury Metropolitan Borough Council (Reference 67718) for the construction of a single residential dwelling on land adjacent No.5 Stubbins Lane, Ramsbottom, BL0 0PU. The disposal of foul water from the site has also be addressed.
- 4.2 Infiltration of surface water back into the ground is not a feasible option for the disposal of surface water on this site.
- 4.3 There are no watercourses immediately local to the development site.
- 4.4 Surface water runoff from the development will be restricted to 2.0 l/s allowing surface water runoff generated by all rainfall events up to the 100 year critical rain storm plus 45% on stored volumes to discharge into the public surface water sewer that lies within Stubbins Lane.
- 4.5 Foul water from the proposed single residential dwelling will be collected by a piped system and discharged into the public combined sewer immediately outside the site within Stubbins Lane that continues along Factory Street to the south.

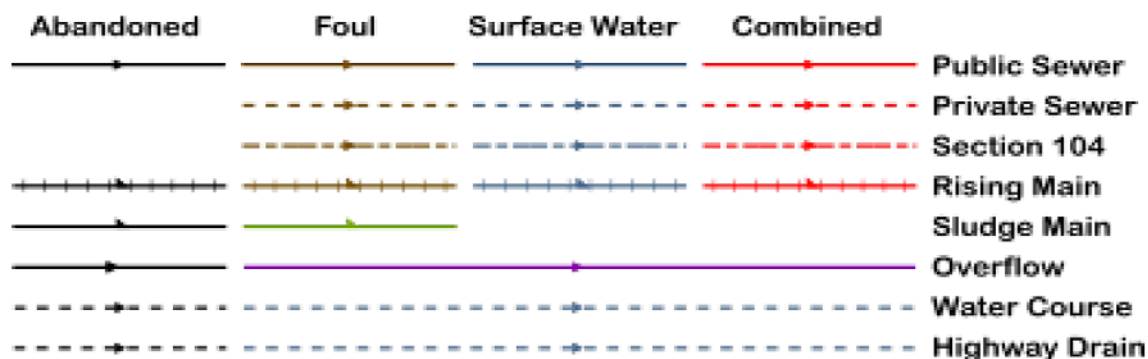
APPENDIX A



LOCATION PLAN

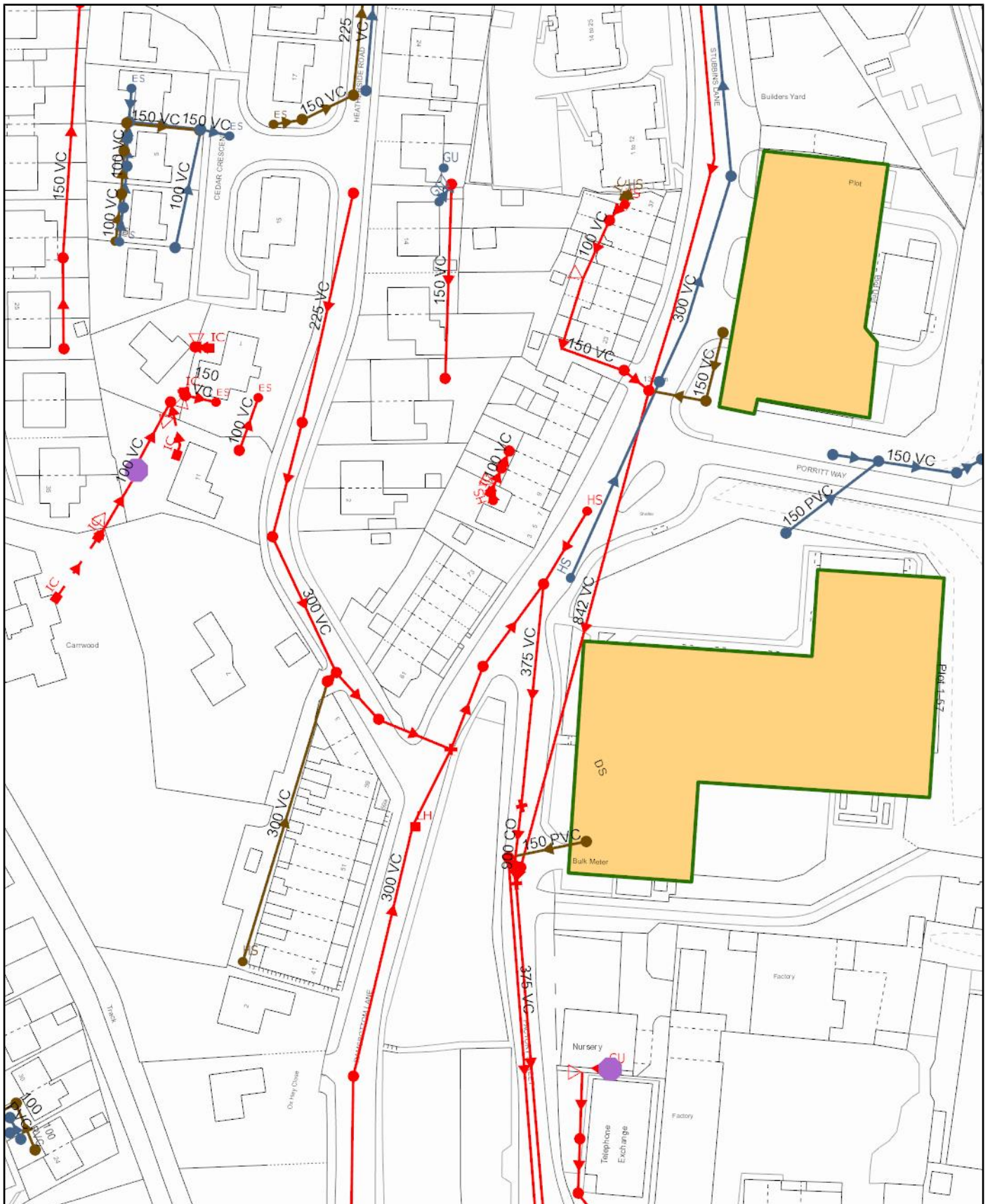
APPENDIX B

Wastewater Symbolology



All point assets follow the standard colour convention: **red** – combined **brown** - foul
blue – surface water **purple** - overflow

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



Scale: 1:1250
Date: 19/12/2024

SEWER RECORDS



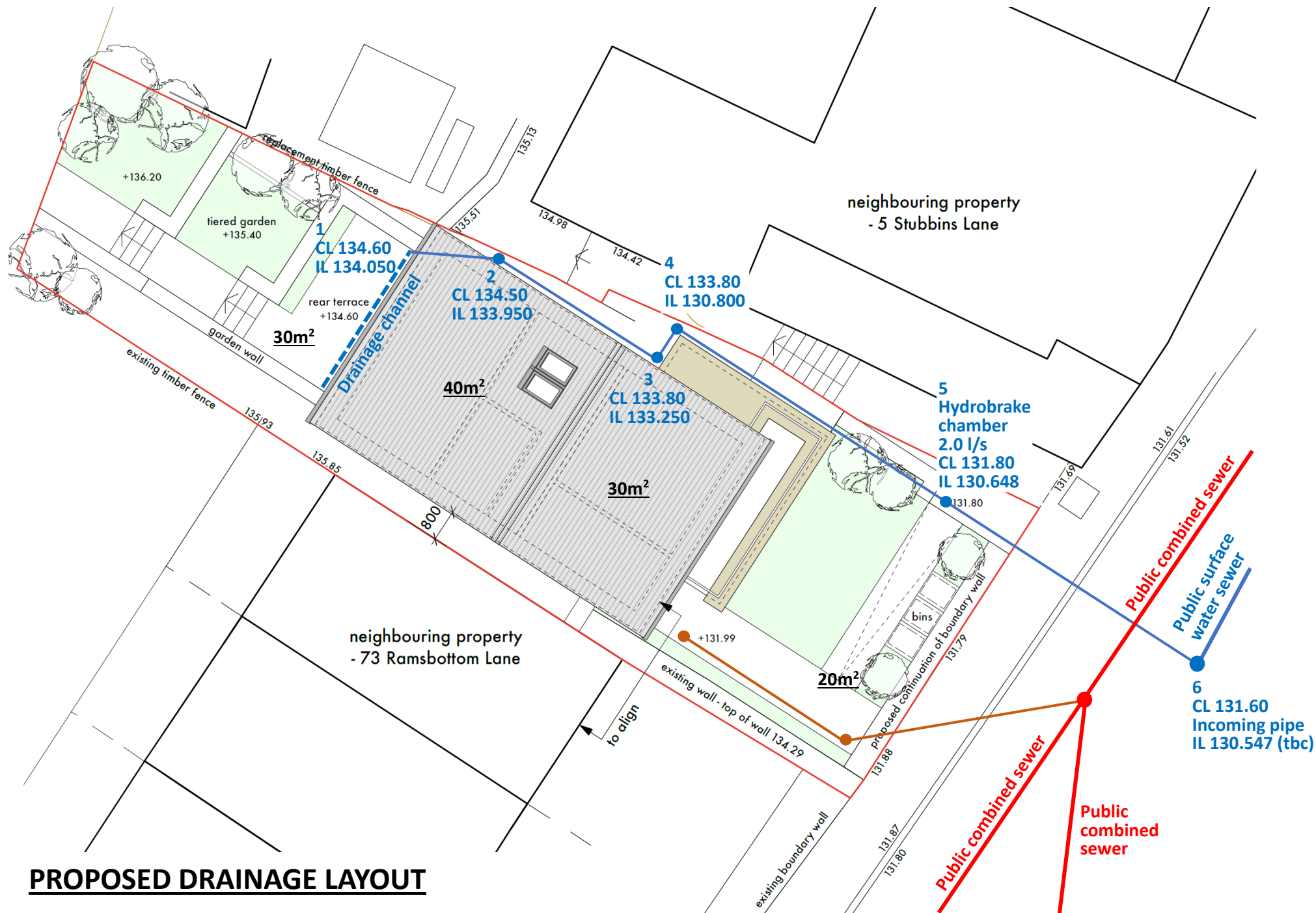
Water for the North West

Address or Site Reference: stubbins lane
Printed by: Property Searches

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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APPENDIX C



APPENDIX D

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	2	Maximum Rainfall (mm/hr)	75.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	19.300	Minimum Backdrop Height (m)	2.000
Ratio-R	0.250	Preferred Cover Depth (m)	0.450
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Depth (m)
1	0.003	5.00	134.600	100	0.550
2	0.004	5.00	134.500	450	0.550
3			133.800	450	0.550
4	0.003	5.00	133.800	450	3.000
5	0.002	5.00	131.800	1200	1.152
6			131.600	1200	1.053

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	1	2	3.000	0.600	134.050	133.950	0.100	30.0	100	5.04	53.1
1.001	2	3	4.000	0.600	133.950	133.250	0.700	5.7	100	5.06	53.0
1.002	3	4	1.000	0.600	133.250	133.200	0.050	20.0	100	5.07	53.0
1.003	4	5	9.000	0.600	130.800	130.648	0.152	59.2	100	5.22	52.4
1.004	5	6	6.000	0.600	130.648	130.547	0.101	59.4	100	5.31	52.1

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.414	11.1	0.4	0.450	0.450	0.003	0.0	14	0.681
1.001	3.256	25.6	1.0	0.450	0.450	0.007	0.0	14	1.576
1.002	1.734	13.6	1.0	0.450	0.500	0.007	0.0	18	1.008
1.003	1.003	7.9	1.4	2.900	1.052	0.010	0.0	29	0.755
1.004	1.001	7.9	1.7	1.052	0.953	0.012	0.0	32	0.799

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
1	134.600	0.550	100				
				0	1.000	134.050	100
2	134.500	0.550	450		1	1.000	133.950
				0	1.001	133.950	100
3	133.800	0.550	450		1	1.001	133.250
				0	1.002	133.250	100

Manhole Schedule

Node	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
4	133.800	3.000	450		1	1.002	133.200	100
					0	1.003	130.800	100
5	131.800	1.152	1200		1	1.003	130.648	100
					0	1.004	130.648	100
6	131.600	1.053	1200		1	1.004	130.547	100

Simulation Settings

Rainfall Methodology	FSR	Summer CV	0.750	Drain Down Time (mins)	240
FSR Region	England and Wales	Winter CV	0.840	Additional Storage (m³/ha)	20.0
M5-60 (mm)	19.300	Analysis Speed	Normal	Check Discharge Rate(s)	x
Ratio-R	0.250	Skip Steady State	x	Check Discharge Volume	x

Storm Durations

15 30 60 120 180 240 360 480 600 720 960 1440							
Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0	100	0	0	0
30	0	0	0	100	45	0	0

Node 5 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	130.648	Product Number	CTL-SHE-0066-2000-1100-2000
Design Depth (m)	1.100	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	2.0	Min Node Diameter (mm)	1200

Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	1	33	134.062	0.012	0.3	0.0014	0.0000	OK
15 minute winter	2	10	133.962	0.012	0.8	0.0037	0.0000	OK
15 minute winter	3	10	133.268	0.018	0.8	0.0029	0.0000	OK
15 minute winter	4	11	130.825	0.025	1.1	0.0044	0.0000	OK
15 minute winter	5	12	130.716	0.068	1.3	0.0798	0.0000	OK
15 minute summer	6	1	130.547	0.000	1.1	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	1	1.000	2	0.3	0.624	0.027	0.0014	
15 minute winter	2	1.001	3	0.8	1.066	0.031	0.0030	
15 minute winter	3	1.002	4	0.8	0.859	0.056	0.0009	
15 minute winter	4	1.003	5	1.1	0.471	0.134	0.0322	
15 minute winter	5	Hydro-Brake®	6	1.2				0.6

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	134.070	0.020	0.9	0.0024	0.0000	OK
15 minute winter	2	10	133.969	0.019	2.0	0.0057	0.0000	OK
15 minute winter	3	11	133.281	0.031	2.0	0.0049	0.0000	OK
15 minute winter	4	13	130.934	0.134	2.8	0.0241	0.0000	SURCHARGED
15 minute winter	5	14	130.926	0.278	3.0	0.3245	0.0000	SURCHARGED
15 minute summer	6	1	130.547	0.000	1.8	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	1.000	2	0.9	0.820	0.079	0.0032	
15 minute winter	2	1.001	3	2.0	1.309	0.077	0.0061	
15 minute winter	3	1.002	4	2.0	1.081	0.143	0.0018	
15 minute winter	4	1.003	5	2.5	0.419	0.317	0.0704	
15 minute winter	5	Hydro-Brake®	6	1.9				1.6

Results for 100 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	134.072	0.022	1.1	0.0026	0.0000	OK
15 minute winter	2	10	133.971	0.021	2.6	0.0065	0.0000	OK
15 minute winter	3	10	133.286	0.036	2.6	0.0057	0.0000	OK
30 minute winter	4	23	131.097	0.297	3.0	0.0532	0.0000	SURCHARGED
30 minute winter	5	23	131.091	0.443	2.9	0.5161	0.0000	SURCHARGED
15 minute summer	6	1	130.547	0.000	1.9	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	1.000	2	1.1	0.854	0.097	0.0038	
15 minute winter	2	1.001	3	2.6	1.390	0.100	0.0075	
15 minute winter	3	1.002	4	2.5	1.145	0.185	0.0022	
30 minute winter	4	1.003	5	2.4	0.471	0.310	0.0704	
30 minute winter	5	Hydro-Brake®	6	1.9				2.8

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	134.078	0.027	1.6	0.0032	0.0000	OK
15 minute winter	2	10	133.976	0.026	3.7	0.0078	0.0000	OK
15 minute winter	3	10	133.295	0.045	3.7	0.0071	0.0000	OK
30 minute winter	4	25	131.548	0.748	4.4	0.1339	0.0000	SURCHARGED
30 minute winter	5	25	131.542	0.894	3.7	1.0419	0.0000	FLOOD RISK
15 minute summer	6	1	130.547	0.000	1.9	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	1.000	2	1.6	0.952	0.142	0.0050	
15 minute winter	2	1.001	3	3.7	1.493	0.143	0.0099	
15 minute winter	3	1.002	4	3.6	1.241	0.267	0.0029	
30 minute winter	4	1.003	5	2.8	0.466	0.353	0.0704	
30 minute winter	5	Hydro-Brake®	6	1.9				4.2