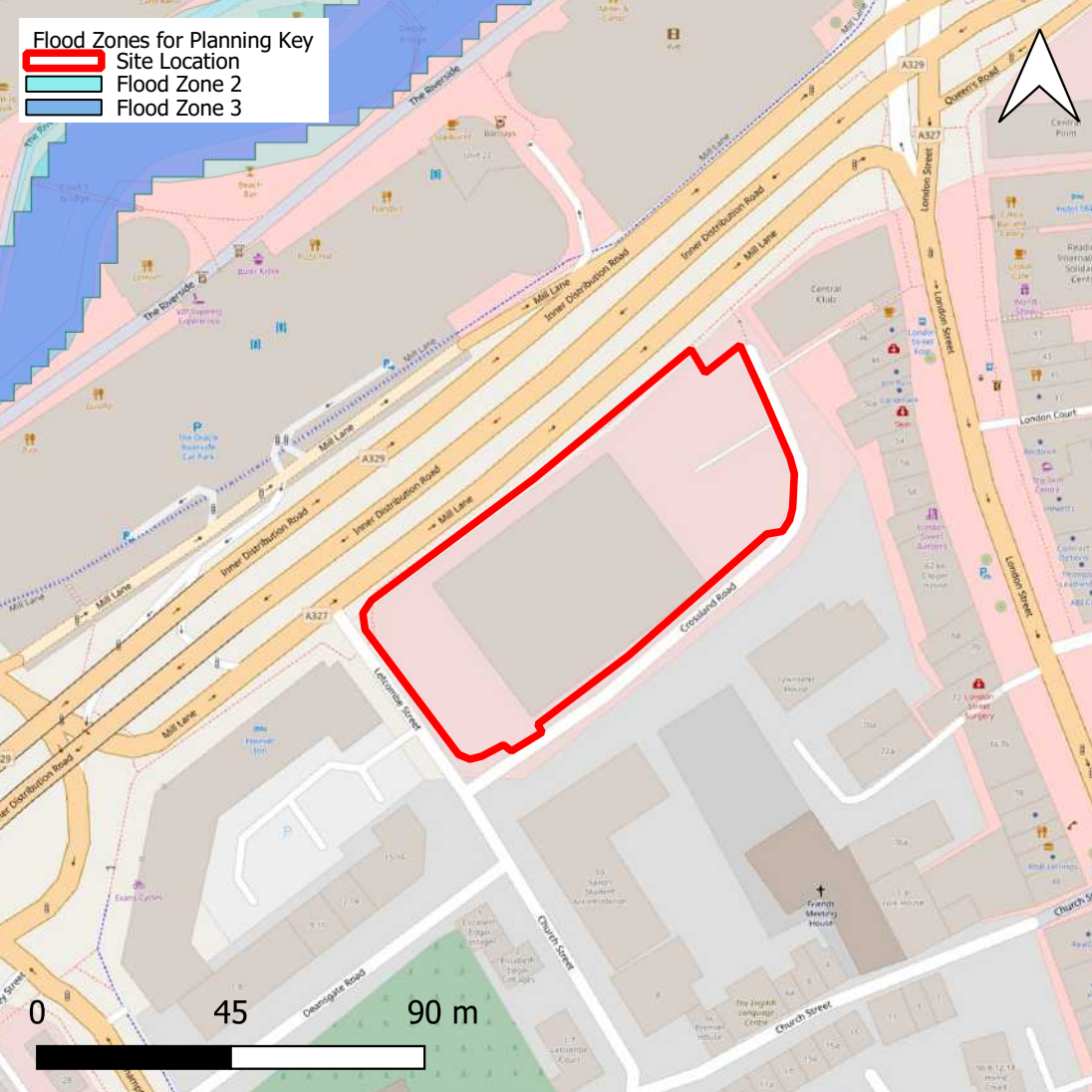


Appendix E

Flood Zone Maps

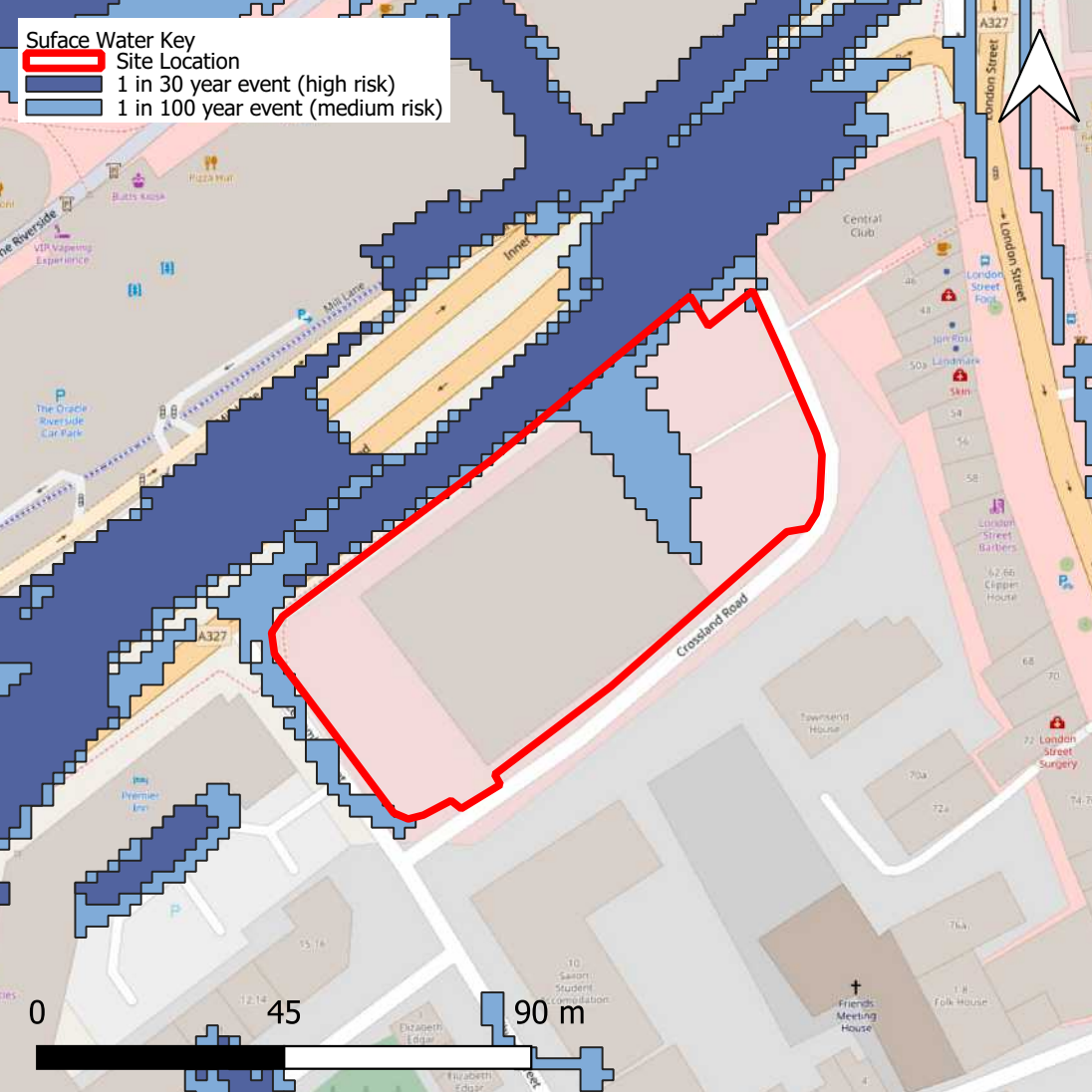
 Site Location
 Flood Zone 2
 Flood Zone 3

Flood Zone 2
Flood Zone 3



Surface Water Key

-  Site Location
-  1 in 30 year event (high risk)
-  1 in 100 year event (medium risk)

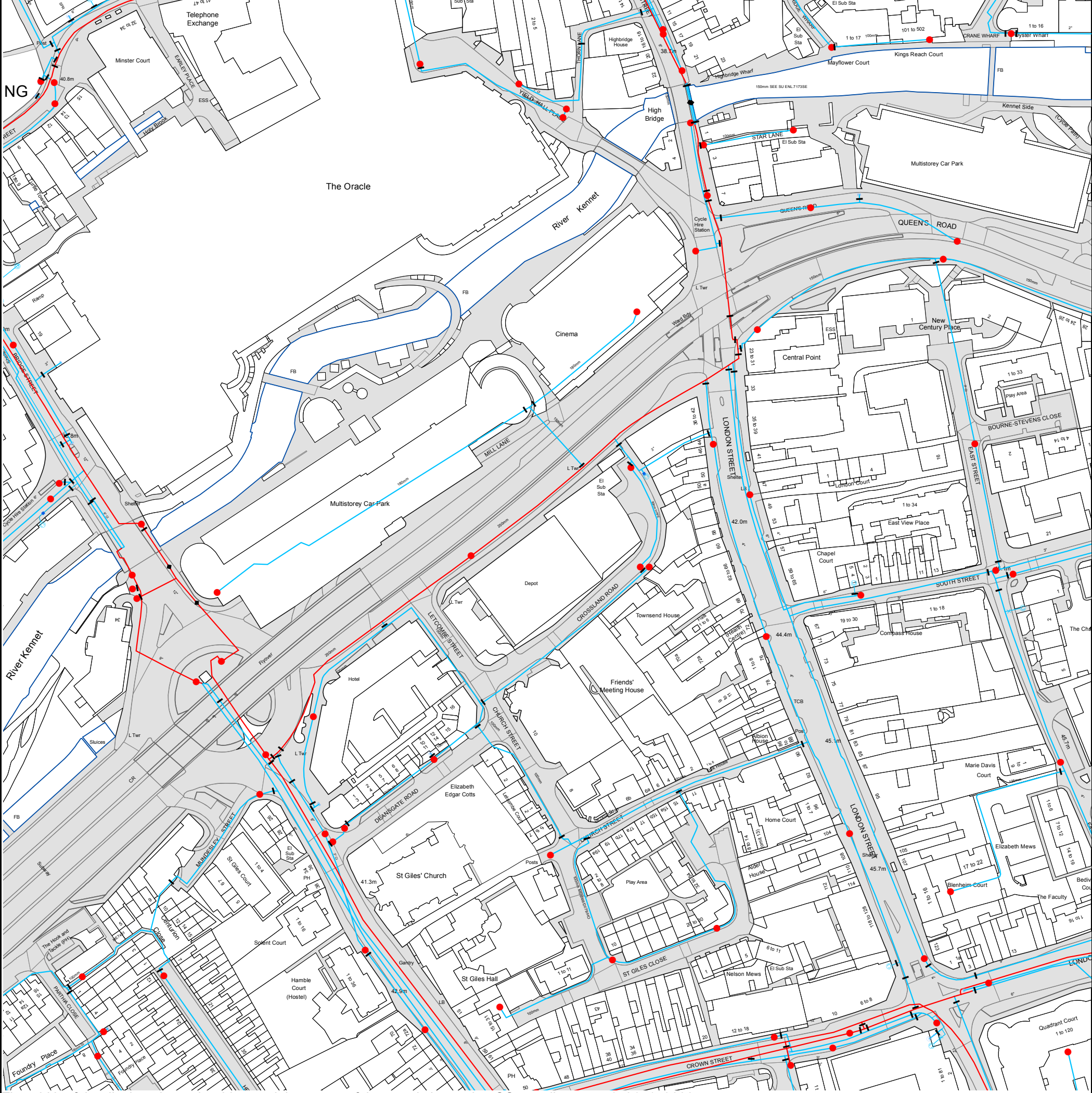


Appendix F

Thames Water Asset Maps



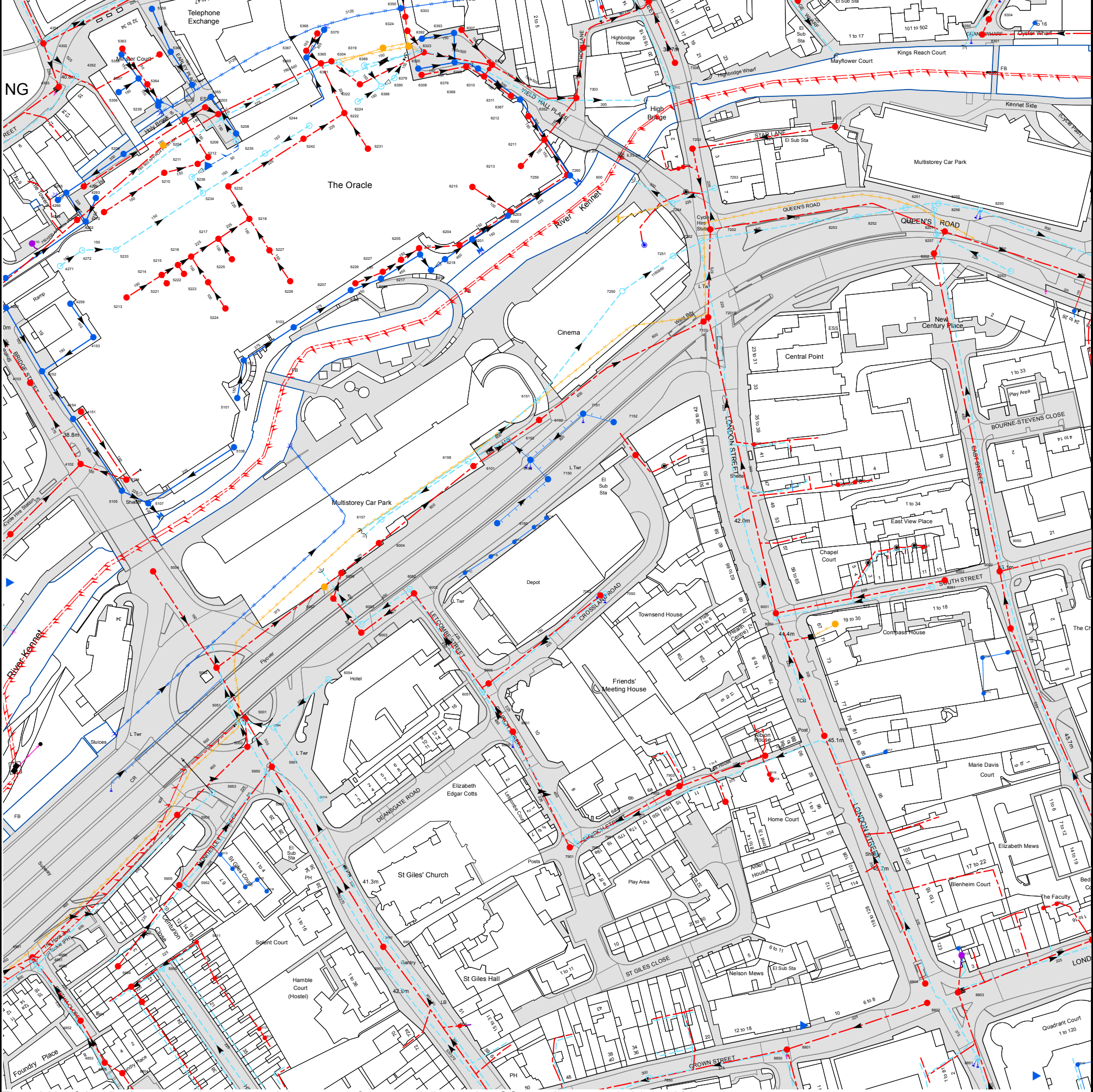
Asset Location Search Water Map - ALS/ALS Standard/2021 4550067



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 471701, 173098.
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

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Asset Location Search Sewer Map - ALS/ALS Standard/2021 4550067



The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 471701,173098
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
8350	37.17	35.99
8301	37.13	35.74
9304	37.28	35.69
931A	n/a	n/a
8251	38.26	36.28
801E	n/a	n/a
8051	45.66	44.14
8202	38.17	n/a
8256	n/a	n/a
8257	n/a	n/a
8255	n/a	n/a
8201	38.24	34.65
8003	45.56	42.4
8250	38.67	36.09
801D	n/a	n/a
801C	n/a	n/a
9050	44.24	42.8
9002	44.85	41.02
901B	n/a	n/a
9001	45.8	41.54
9253	n/a	n/a
921A	39.03	36.184
911A	n/a	n/a
911D	39.01	n/a
981D	n/a	n/a
981C	n/a	n/a
991B	n/a	n/a
991A	n/a	n/a
991E	n/a	n/a
581C	n/a	n/a
581D	n/a	n/a
681E	n/a	n/a
5807	n/a	n/a
581A	n/a	n/a
6951	42.07	39.51
5955	n/a	n/a
6901	41.96	38.37
5911	n/a	n/a
6950	41.89	38.99
421D	n/a	n/a
4266	39.2	37.63
4303	40.95	37.5
4265	39.2	37.83
4264	39.2	35.82
4269	39.2	36.75
4262	39.2	37.47
4263	39.2	38.14
4270	38	37.19
5233	37.07	36.11
5356	39.95	39
5209	39.8	37.97
5239	39.9	38.8
5210	38	36.9
5204	39.4	36.37
5236	37	35.79
5211	38	37.73
5234	37.08	35.83
5205	39.2	36.19
5212	38	36.67
5355	39.25	38.17
5104	39.7	36.92
4102	39.04	36.61
4154	38.9	37.35
4151	39.1	37.16
4103	38.95	36.37
4152	38.9	37.42
4153	39.2	37.63
4260	39.45	37.7
4259	38.6	37.85
5213	38	36.75
5221	38.2	36.77
5223	38.2	37.04
4261	39.6	38.33
5214	38	36.61
5222	38.2	36.76
4271	37.05	36.3
5215	38	36.56
5216	38	36.52
4272	37.05	36.22
4101	38.99	36.76
5105	39.7	37.13
5107	39.45	36.69
5004	n/a	n/a
5903	39.81	35.81
6319	37.8	36.37
6322	37.68	35.35
6389	38.35	37.5
6390	38.3	37.18
6350	39.11	n/a
6303	38.98	35.72
6324	38.85	37

Manhole Reference	Manhole Cover Level	Manhole Invert Level
6379	38.2	37.4
5361	39.75	38.35
5364	39.95	39.01
5357	39.95	38.9
4352	40.88	n/a
5365	38.25	35.42
6304	38	36.38
6321	38	35.4
5369	39.25	37.95
5358	39.95	39
53NF	n/a	n/a
5360	40.9	39.5
5367	39.25	37.5
5363	39.95	39.15
4302	41.55	38.44
4351	41.63	39.72
5368	39.25	37.75
5370	39.25	37.75
5359	42.4	41
5353	42.49	n/a
6212	38.2	36.34
6352	38.09	36.23
6367	38.2	36.89
7303	38.37	35.09
6311	38.2	36.53
731C	n/a	n/a
6310	38.2	36.33
6308	38.2	36.59
6368	38.2	36.96
6309	38.2	36.4
6306	38.2	35.23
7306	38.77	35.77
6376	38.2	37.1
6323	38.4	35.25
6320	38.4	36.3
7304	38.52	35.09
6392	38.45	37.4
6393	38.45	37.22
6307	38.45	37.4
731B	n/a	n/a
731A	n/a	n/a
7305	38.56	34.77
8355	38.03	36.39
7151	38.8	37.03
6151	38.19	n/a
7103	n/a	n/a
7201B	38.96	n/a
7250	38.6	n/a
6216	38.45	36.84
6218	38.25	36.72
7251	38.48	36.2
6217	38.2	36.86
6204	38.2	36.75
7252	38.41	n/a
6201	38	36.25
7202	38.45	34.9
8253	n/a	n/a
8252	38.25	35.98
6202	38	37.01
6203	38	36.56
7264	38.9	36.26
7253	37.92	36.99
6215	37.5	36.43
7260	39	36.4
7259	39.6	36.36
721A	n/a	n/a
6213	37.5	36.43
7203	38.52	n/a
6211	38.2	36.13
8203	37.29	35.95
5203	39.1	35.59
5217	38	36.44
5224	38.2	37.31
5232	38	36.28
5225	38.2	37.86
5108	38.2	37.28
5206	38.9	37.3
5208	38.95	38.32
5101	38.65	37.45
5102	39.1	37.11
5218	38	36.37
5235	37.05	35.99
5227	38.2	36.82
5226	38.2	37.04
5103	38.45	37.07
5242	38	36.11
5244	37.05	36.16
6222	38.35	35.96
6206	38.2	36.93
6207	38.2	37.2
6224	38.3	37.43
6231	n/a	n/a
6225	39	36.9

Manhole Reference	Manhole Cover Level	Manhole Invert Level
6388	38.3	37.32
6226	39	37.06
6227	39	36.95
6205	38.2	36.88
601C	n/a	n/a
6158	38.2	36.05
6101	38.56	34.99
6051	40.17	39.04
6005	40.17	38.02
601B	n/a	n/a
6150	38.91	n/a
6152	38.4	36.16
6001	40.7	38.17
6050	40.75	39.43
601A	n/a	n/a
6153	39.48	36.62
611B	n/a	n/a
6102	38.34	34.95
611A	n/a	n/a
7150	38.74	n/a
7002	41.07	39.06
7050	41.06	39.62
7152	38.68	n/a
71YY	n/a	n/a
711A	n/a	n/a
7001	44.85	42.63
8050	44.16	42.19
8001	44.12	n/a
8002	45.3	42.15
811A	n/a	n/a
811B	n/a	n/a
801F	n/a	n/a
5905	40.38	38.29
5952	40.37	39.14
5953	n/a	n/a
5002	n/a	n/a
591D	n/a	n/a
5051	39.49	37.18
591F	n/a	n/a
5050	39.28	37.37
5001	39.29	35.75
591C	n/a	n/a
5003	39.16	n/a
591E	n/a	n/a
591B	n/a	n/a
5950	39.5	n/a
5901	39.65	36.93
5054	n/a	n/a
5951	39.74	n/a
591A	n/a	n/a
6054	n/a	n/a
6057	38.9	35.58
6058	38.97	35.3
6053	39.07	36.94
6003	39.06	35.82
6004	38.67	n/a
6157	38.1	35.9
6052	39.21	37.32
6002	39.14	35.95
7850	44.47	42.17
8851	46.26	43.81
8850	45.06	42.74
8801	45.09	42.17
8802	46.24	n/a
8803	46.33	43.18
8804	46.39	43.09
891D	n/a	n/a
891C	n/a	n/a
7901	42.32	39.82
7950	42.27	40.5
7951	42.35	40.67
79ZV	n/a	n/a
7902	43.4	40.93
7903	43.58	41.16
891A	n/a	n/a
891B	n/a	n/a
4901	39.98	36.1
4950	39.97	38.57
4951	40.08	38.44
4952	40.11	39.24
4852	42.58	41.39
4804	42.47	40.17
4853	43.09	41.78
4805	43.08	42.12
5904	n/a	n/a
5804	n/a	n/a
5806	n/a	n/a

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.



ALS Water Map Key

Water Pipes (Operated & Maintained by Thames Water)

4"	Distribution Main: The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.
16"	Trunk Main: A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.
3" SUPPLY	Supply Main: A supply main indicates that the water main is used as a supply for a single property or group of properties.
3" FIRE	Fire Main: Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.
3" METERED	Metered Pipe: A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.
	Transmission Tunnel: A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.
	Proposed Main: A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

PIPE DIAMETER	DEPTH BELOW GROUND
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 8")
600mm and bigger (24" plus)	1200mm (4')

Valves

	General Purpose Valve
	Air Valve
	Pressure Control Valve
	Customer Valve

Hydrants

	Single Hydrant
--	----------------

Meters

	Meter
--	-------

End Items

Symbol indicating what happens at the end of a water main.

	Blank Flange
	Capped End
	Emptying Pit
	Undefined End
	Manifold
	Customer Supply
	Fire Supply

Operational Sites

	Booster Station
	Other
	Other (Proposed)
	Pumping Station
	Service Reservoir
	Shaft Inspection
	Treatment Works
	Unknown
	Water Tower

Other Symbols

	Data Logger
--	-------------

Other Water Pipes (Not Operated or Maintained by Thames Water)

	Other Water Company Main: Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.
	Private Main: Indicates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.



ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

	Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.		Trunk Foul
	Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.		Trunk Combined
	Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.		Bio-solids (Sludge)
	Trunk Surface Water		Proposed Thames Water Foul Sewer
	Storm Relief		Proposed Thames Water Rising Main
	Vent Pipe		Foul Rising Main
	Proposed Thames Surface Water Sewer		Combined Rising Main
	Gallery		Proposed Thames Water Rising Main
	Surface Water Rising Main		Vacuum
	Sludge Rising Main		

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plans are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
- 5) 'na' or 'D' on a manhole level indicates that data is unavailable.

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

	Air Valve
	Dam Chase
	Fitting
	Meter
	Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

	Control Valve
	Drop Pipe
	Ancillary
	Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol, Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

	Outfall
	Undefined End
	Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

	Public/Private Pumping Station
	Change of characteristic indicator (C.O.C.I.)
	Invert Level
	Summit

Areas

Lines denoting areas of underground surveys, etc.

	Agreement
	Operational Site
	Chamber
	Tunnel
	Conduit Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

	Foul Sewer		Surface Water Sewer
	Combined Sewer		Gully
	Culverted Watercourse		Proposed
			Abandoned Sewer

- 6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Searches on 0800 009 4540.

Appendix G

MicroDrainage Calculations

W A Fairhurst & Partners		Page 1
1 Arngrove Court Barrack Road Newcastle upon Tyne NE4 6DB		
Date 10/04/2024 09:13 File 156833 MD Model 23-02-20...	Designed by fmoore Checked by	
Micro Drainage Network 2020.1.3		

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	100	PIMP (%)	100
M5-60 (mm)	18.700	Add Flow / Climate Change (%)	0
Ratio R	0.400	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Storm

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	44.419	0.099	450.0	0.033	5.00	0.0	0.600	o	450	Pipe/Conduit	
S1.001	31.037	0.069	450.0	0.007	0.00	0.0	0.600	o	450	Pipe/Conduit	
S1.002	9.714	0.065	150.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S2.000	19.778	0.364	54.3	0.126	5.00	0.0	0.600	o	225	Pipe/Conduit	
S3.000	4.103	0.689	6.0	0.000	5.00	0.0	0.600	o	150	Pipe/Conduit	
S2.001	20.563	0.137	150.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	5.78	38.273	0.033	0.0	0.0	0.0	0.95	151.4	4.4
S1.001	50.00	6.32	38.174	0.039	0.0	0.0	0.0	0.95	151.4	5.3
S1.002	50.00	6.52	38.105	0.039	0.0	0.0	0.0	0.82	14.5	5.3
S2.000	50.00	5.19	38.600	0.126	0.0	0.0	0.0	1.78	70.7	17.1
S3.000	50.00	5.02	39.000	0.000	0.0	0.0	0.0	4.16	73.5	0.0
S2.001	50.00	5.51	38.236	0.126	0.0	0.0	0.0	1.07	42.4	17.1

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Designed by fmoore

Checked by

Network 2020.1.3

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.014	0.014	0.014
	User	-	100	0.007	0.007	0.020
	User	-	100	0.004	0.004	0.025
	User	-	100	0.008	0.008	0.033
1.001	User	-	100	0.004	0.004	0.004
	User	-	100	0.002	0.002	0.007
1.002	-	-	100	0.000	0.000	0.000
2.000	User	-	100	0.085	0.085	0.085
	User	-	100	0.008	0.008	0.094
	User	-	100	0.033	0.033	0.126
3.000	-	-	100	0.000	0.000	0.000
2.001	-	-	100	0.000	0.000	0.000
2.002	-	-	100	0.000	0.000	0.000
4.000	User	-	100	0.002	0.002	0.002
	User	-	100	0.048	0.048	0.050
5.000	User	-	100	0.079	0.079	0.079
	User	-	100	0.002	0.002	0.081
2.003	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.297	0.297	0.297

W A Fairhurst & Partners										Page 4																																																																																																																																																																													
1 Arngrove Court Barrack Road Newcastle upon Tyne NE4 6DB																																																																																																																																																																																							
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Micro Drainage	Network 2020.1.3																	
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Date 10/04/2024 09:13		Designed by fmoore					
File 156833 MD Model 23-02-20...		Checked by					
Micro Drainage		Network 2020.1.3					
Online Controls for Storm							
Hydro-Brake® Optimum Manhole: S3, DS/PN: S1.002, Volume (m³): 6.9							
Unit Reference MD-SHE-0029-5000-1495-5000							
Design Head (m) 1.495							
Design Flow (l/s) 0.5							
Flush-Flo™ Calculated							
Objective Minimise upstream storage							
Application Surface							
Sump Available Yes							
Diameter (mm) 29							
Invert Level (m) 38.105							
Minimum Outlet Pipe Diameter (mm) 75							
Suggested Manhole Diameter (mm) 1200							
Control Points		Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)	
Design Point (Calculated)		1.495	0.5	Kick-Flo®	0.262	0.2	
Flush-Flo™		0.129	0.3	Mean Flow over Head Range	-	0.4	
The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated							
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.3	1.200	0.5	3.000	0.7	7.000	1.0
0.200	0.3	1.400	0.5	3.500	0.7	7.500	1.0
0.300	0.3	1.600	0.5	4.000	0.8	8.000	1.1
0.400	0.3	1.800	0.5	4.500	0.8	8.500	1.1
0.500	0.3	2.000	0.6	5.000	0.9	9.000	1.1
0.600	0.3	2.200	0.6	5.500	0.9	9.500	1.1
0.800	0.4	2.400	0.6	6.000	0.9		
1.000	0.4	2.600	0.6	6.500	1.0		
Pump Manhole: S9, DS/PN: S2.003, Volume (m³): 4.5							
Invert Level (m) 37.450							
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	1.5000	0.700	1.5000	1.300	1.5000	1.900	1.5000
0.200	1.5000	0.800	1.5000	1.400	1.5000	2.000	1.5000
0.300	1.5000	0.900	1.5000	1.500	1.5000	2.100	1.5000
0.400	1.5000	1.000	1.5000	1.600	1.5000	2.200	1.5000
0.500	1.5000	1.100	1.5000	1.700	1.5000	2.300	1.5000
0.600	1.5000	1.200	1.5000	1.800	1.5000	2.400	1.5000
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Storage Structures for Storm Cellular Storage Manhole: S5, DS/PN: S2.001 Invert Level (m) 38.300 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><thead><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr></thead><tbody><tr><td>0.000</td><td>54.0</td><td>0.0</td><td>0.801</td><td>0.0</td><td>0.0</td></tr><tr><td>0.800</td><td>54.0</td><td>0.0</td><td></td><td></td><td></td></tr></tbody></table> Cellular Storage Manhole: S9, DS/PN: S2.003 Invert Level (m) 37.500 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><thead><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr></thead><tbody><tr><td>0.000</td><td>82.5</td><td>0.0</td><td>1.201</td><td>0.0</td><td>0.0</td></tr><tr><td>1.200</td><td>82.5</td><td>0.0</td><td></td><td></td><td></td></tr></tbody></table>			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	54.0	0.0	0.801	0.0	0.0	0.800	54.0	0.0				Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	82.5	0.0	1.201	0.0	0.0	1.200	82.5	0.0			
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for Storm

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Online Controls 2 Number of Storage Structures 2 Number of Real Time Controls 0

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	18.700	Cv (Winter)	0.840

Analysis Timestep 2.5 Second Increment (Extended)

Profile(s)	Summer and Winter
------------	-------------------

Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720,

Return Period(s) (years) 1, 30, 100

Climate Change (%) 0, 35, 40

WARNING: Half Drain Time has not been calculated as the structure is too full.

PN	US/MH		Return Period	Climate Change	First (X)		First (Y)		First (Z)	Overflow Act.
	Name	Storm			Surcharge		Flood		Overflow	
S1.000	S1	240	Winter	30	+35%	30/180	Winter	100/120	Winter	
S1.001	S2	240	Winter	30	+35%	30/120	Winter	100/120	Winter	
S1.002	S3	240	Winter	30	+35%	1/15	Summer	100/120	Winter	
S2.000	S4	15	Winter	30	+35%	100/15	Summer			
S3.000	SIC	15	Summer	30	+35%	100/480	Winter			
S2.001	S5	360	Winter	30	+35%	30/120	Winter			
S2.002	S6	360	Winter	30	+35%	30/60	Winter			
S4.000	S8	360	Winter	30	+35%	30/30	Winter			
S5.000	S7	360	Winter	30	+35%	30/15	Winter			
S2.003	S9	360	Winter	30	+35%	1/15	Summer			

Appendix H

Thames Water Pre-Planning Response

Sophie Clarke-Bernal

From: DEVELOPER.SERVICES@THAMESWATER.CO.U
<DEVELOPER.SERVICES@THAMESWATER.CO.UK>
Sent: 21 February 2024 08:32
To: Afif Hossain
Cc: Stuart Conley; Sujay Kumar; Steven Kirsopp; Civils Newcastle
Subject: RE: RE: RE: RE: DS6111205 - JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN - (Pre Planning Enquiry)

Dear Afif,

Site Address: JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN
Wastewater Pre-Planning Ref: DS6111205

Thanks for your email below.

Your surface water flows should be restricted to a maximum range of **2-5** litres/sec/hectare for all storm events up to and including 1:100yr+40%CC in accordance with CIRIA guidelines.

Please refer to the site local authority SUD's strategy requirement, some local authority have different run-off rate requirements.

e.g London Borough of Hillingdon request **2** l/s/ha.

The surface water discharge rate should be calculated based on the total impermeable area of the site, looking at the information you have submitted the site is approximately 0.38 hectares (3800sqm) therefore the site should not discharge more than 2.0 litres/sec, again please refer to site local authority SUD's strategy requirement.

Should you have any queries please do not hesitate to contact me.

Kind regards,

Colins Akemche

Clean & Waste Pre-Planning Engineer
Adoption Team - Developer Services

Thames Water - Developer Services - Ground Floor West - Clearwater Court - Vastern Road
Reading -Berkshire - RG1 8DB - Tel: 0800 009 3921

Email: developer.services@thameswater.co.uk - Web: www.developerservices.co.uk

Original Text

From: Afif Hossain <afif.hossain@fairhurst.co.uk>
To: DEVELOPER.SERVICES@THAMESWATER.CO.U
<DEVELOPER.SERVICES@THAMESWATER.CO.UK>
Sujay Kumar <sujay.kumar@fairhurst.co.uk>;Steven Kirsopp
CC: <steven.kirsopp@fairhurst.co.uk>;Civils Newcastle <civilsnewcastle@fairhurst.co.uk>;Stuart
Conley <stuart.conley@fairhurst.co.uk>
Sent: 14.02.24 10:30:09
Subject: RE: RE: RE: DS6111205 - JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1
2HN - (Pre Planning Enquiry)

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Good Morning,

Just to keep up to date with this, we are currently gathering information regarding internal drainage with the M&E consultants and will get back to you with this information as soon as possible. In the meantime, would it be possible for you to give us some information regarding the maximum surface water discharge rate at which we are able to discharge in to the existing Thames Water surface water sewer for each connection point? Thank you.

Kind Regards,

Afif

Afif Hossain MEng (Hons) GMICE
Graduate Civil Engineer



1 Arngrove Court
Barrack Road
Newcastle upon Tyne, NE4 6DB
Tel: 0191 221 0505 DD: 0191 816 1546
Website: www.fairhurst.co.uk

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🌱 Consider the environment. Please don't print this e-mail unless you really need to.

From: DEVELOPER.SERVICES@THAMESWATER.CO.U <DEVELOPER.SERVICES@THAMESWATER.CO.UK>

Sent: 05 February 2024 09:56

To: Afif Hossain <afif.hossain@fairhurst.co.uk>

Cc: Sujay Kumar <sujay.kumar@fairhurst.co.uk>; Steven Kirsopp <steven.kirsopp@fairhurst.co.uk>; Civils Newcastle <civilsnewcastle@fairhurst.co.uk>

Subject: RE: RE: RE: DS6111205 - JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN - (Pre Planning Enquiry)

Dear Afif,

Site Address: JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN

Wastewater Pre-Planning Ref: DS6111205

Thanks for your email below along with supporting information.

Due to the proposed 3 different discharging points for foul water, can you provide me with a development breakdown with the number or units discharging at each point.

Discharge point 1	F2 - 7002	number of flats
Discharge point 2	F9 – between 6005 & 6002	number of flats
Discharge point 3	F5 - 6005	number of flats

Should you have any queries please do not hesitate to contact me.

Kind regards,

Colins Akemche

Clean & Waste Pre-Planning Engineer
Adoption Team - Developer Services

Thames Water - Developer Services - Ground Floor West - Clearwater Court - Vastern Road
Reading -Berkshire - RG1 8DB - Tel: 0800 009 3921

Original Text

From: Afif Hossain <afif.hossain@fairhurst.co.uk>
To: [DEVELOPER.SERVICES@THAMESWATER.CO.U](mailto:DEVELOPER.SERVICES@THAMESWATER.CO.UK)
<DEVELOPER.SERVICES@THAMESWATER.CO.UK>
CC: Sujay Kumar <sujay.kumar@fairhurst.co.uk>; Steven Kirsopp
<steven.kirsopp@fairhurst.co.uk>; Civils Newcastle <civilsnewcastle@fairhurst.co.uk>
Sent: 29.01.24 10:46:39
Subject: RE: RE: DS6111205 - JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN -
(Pre Planning Enquiry)

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Hello,

Please find attached the latest proposed drainage layout and updated pre-planning enquiry form as requested. Thank you.

Kind Regards,

Afif

Afif Hossain MEng (Hons) GMICE
Graduate Civil Engineer



engineering solutions, delivering results

1 Arngrove Court
Barrack Road
Newcastle upon Tyne, NE4 6DB
Tel: 0191 221 0505 DD: 0191 816 1546
Website: www.fairhurst.co.uk

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From: [DEVELOPER.SERVICES@THAMESWATER.CO.U](mailto:DEVELOPER.SERVICES@THAMESWATER.CO.UK) <DEVELOPER.SERVICES@THAMESWATER.CO.UK>

Sent: 23 January 2024 09:55

To: Afif Hossain <afif.hossain@fairhurst.co.uk>

Cc: Sujay Kumar <sujay.kumar@fairhurst.co.uk>

Subject: RE: RE: DS6111205 - JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN - (Pre Planning Enquiry)

Dear Afif,

Site Address: JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN
Wastewater Pre-Planning Ref: DS6111205

Thank you for your email below.

Please be advised any information regarding our assets can be obtained by contacting our Property Searches Team on the following:

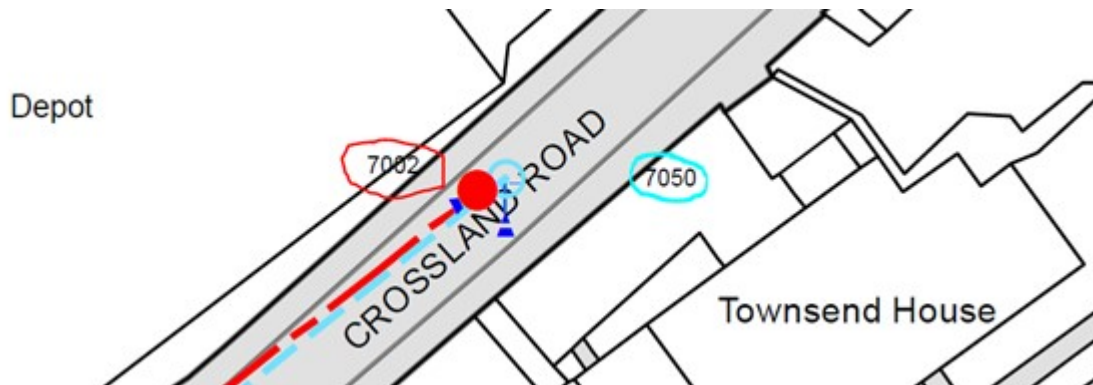
Property searches

Email: onlinecustomers@thameswater.co.uk

Web: [Contact us - Thames Water Property Searches \(thameswater-propertysearches.co.uk\)](http://Contact us - Thames Water Property Searches (thameswater-propertysearches.co.uk))

Tel: 0800 009 4540

I believe the sewer records/information you have is no different to what we currently have on our system.



The surface water manhole on Crossland Road is referenced 7050, the manhole levels can be found on page 6 of 8 (Ref 7050 – cover level 41.06 – invert level 39.62)

The foul water manhole also on Crossland Road is referenced 7002, the manhole levels can also be found of page 6 of 8 (Ref 7002 – cover level 41.07 – invert level 39.06).

7150	38.74	n/a
7002	41.07	39.06
7050	41.06	39.62
7152	38.68	n/a

As stated within the sewer records, accuracy cannot be guaranteed therefore the information is indicative. We would always recommend a sewer survey to be undertaken should you wish to have accurate information.

Should you have any queries please do not hesitate to contact me.

Kind regards,

Colins Akemche

Clean & Waste Pre-Planning Engineer
Adoption Team - Developer Services

Thames Water - Developer Services - Ground Floor West - Clearwater Court - Vastern Road
Reading -Berkshire - RG1 8DB - Tel: 0800 009 3921

Email: developer.services@thameswater.co.uk - Web: www.developerservices.co.uk

Original Text

From: Afif Hossain <afif.hossain@fairhurst.co.uk>

To: [DEVELOPER.SERVICES@THAMESWATER.CO.U](mailto:DEVELOPER.SERVICES@THAMESWATER.CO.UK)
<DEVELOPER.SERVICES@THAMESWATER.CO.UK>

CC: Sujay Kumar <sujay.kumar@fairhurst.co.uk>

Sent: 16.01.24 15:24:25

Subject: RE: DS6111205 - JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN - (Pre Planning Enquiry)

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Hello Darnell,

Please find attached the Thames Water Sewer Map provided by the client for the development area of JLP Mill Lane with post code RG1 2HN, National Grid Reference: SU 71697 73087 (see also attached site location plan). Can you please send an updated sewer map as the one we have seems to be incorrect with combined manhole 7002 overlapping an unnamed surface water manhole on Crossland Road and no foul water networks in the area. Along with this could you please provide the cover and invert levels of the manholes in the area. After we have received this information we will update our drainage strategy accordingly and provide you with the information required to progress with the enquiry. Thank you.

Kind Regards,

Afif

Afif Hossain MEng (Hons) GMICE
Graduate Civil Engineer



1 Arngrove Court
Barrack Road
Newcastle upon Tyne, NE4 6DB
Tel: 0191 221 0505 DD: 0191 816 1546
Website: www.fairhurst.co.uk

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From: DEVELOPER.SERVICES@THAMESWATER.CO.UK <DEVELOPER.SERVICES@THAMESWATER.CO.UK>

Sent: 16 January 2024 14:56

To: Afif Hossain <afif.hossain@fairhurst.co.uk>

Subject: DS6111205 - JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN - (Pre Planning Enquiry)

Dear Mr Hossain,

Site Address: JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN

Wastewater Pre-Planning Ref: DS6111205

Thank you for your wastewater Pre-planning application at: JPL Mill Lane, Mill Lane, Kategrove Coley, Reading, Berks, RG1 2HN

A preliminary review has been undertaken and based upon the information supplied it has been determined that we are missing the following:

Essential information: Foul Water

Combined discharge:

The proposed combined discharge at the above site is not permitted because there are separate foul and surface water sewers near the proposed development site.

Section 106 of the water Industry Act 1991 requires that where separate foul and surface water sewers are provided, the respective foul and surface water drainage should be split and should drain to the respective foul and surface water sewers.

Based on this, the foul water drain will need to discharge into the existing foul sewer and surface water into the existing surface water sewer.

Once the above information has been amended, I will proceed with further review and provide feedback on the capacity within the foul and surface water network.

Should you have any queries please do not hesitate to contact me.

Kind regards,

Darnell Francis on behalf of Colins Akemche

Technical Coordinator Build Overs, Thames Valley

Service Delivery

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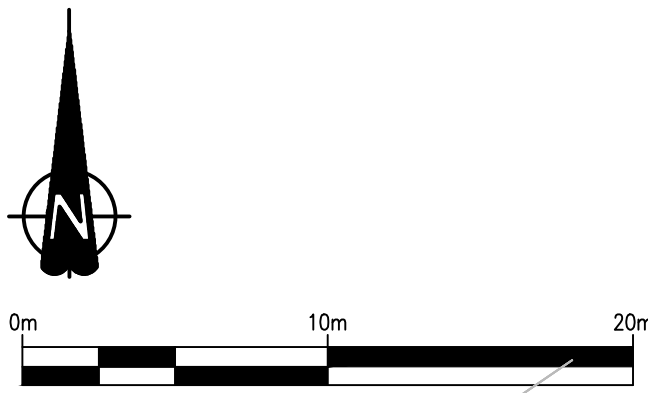
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Appendix I

Proposed Private and Adoptable Drainage Strategies



DRAINAGE SHOWN ON THIS DRAWING IS SUBJECT TO:

- APPROVALS FROM ALL RELEVANT AUTHORITIES TO DISCHARGE AND CONNECT TO ADOPTED SEWERS ;
- EXISTING SERVICES AND EASEMENTS;
- HIGHWAY APPROVAL;
- CONFIRMATION OF POP-UP LOCATIONS;
- DETAILED SIPHONIC ROOF DRAINAGE DESIGN;
- DETAILED DRAINAGE DESIGN;
- DETAILED LEVEL DESIGN.

DRAINAGE SHOWN ON THIS DRAWING IS TO BE READ IN CONJUNCTION WITH FAIRHURST FLOOD RISK ASSESSMENT DOC. REF. DID/156833/02

EXACT POSITION OF THAMES WATER SURFACE AND FOUL WATER SEWERS ARE STILL TO BE CONFIRMED. ADDITIONAL TOPOGRAPHICAL AND UTILITIES SURVEY REQUIRED

RAIN WATER PIPE AND INTERNAL FOUL CONNECTIONS TO BE CONFIRMED BY MEP

RAIN WATER HARVESTER DETAILS TO PROVIDED BY MEP, LOCATION TO CONFIRMED.

Do not scale from this drawing.
SAFETY HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARD/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING RISKS AND INFORMATION.
RISKS LISTED HERE ARE NOT EXHAUSTIVE. REFER TO DESIGN ASSESSMENT FORM NO.
CONSTRUCTION: EXISTING LIVE SERVICES. WORKING ADJACENT TO A LIVE CARRIAGEWAY. WORKING AT HEIGHT (EXCAVATIONS).
FOR INFORMATION RELATING TO USE, CLEANING AND MAINTENANCE SEE THE HEALTH AND SAFETY FILE.
IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.

- NOTES
1. This drawing is based on the following received information:
Camlins, SY743-000-0001 - General Arrangement - Public Realm and Landscape,
Hoare Lea, 08278-HRL-PH-00-DR-P-503002 Connect to Drain
Cloud 10, 0714 - T(1) - Topographical Survey (1 of 2),
Cloud 10, 0714 - T(2) - Topographical Survey (2 of 2),
Cloud 10, 0714 - U(1) - Utilities Survey (1 of 2),
Cloud 10, 0714 - U(2) - Utilities Survey (2 of 2).
 2. This drawing is to be read in conjunction with all of the relevant FAIRHURST drawings.
 3. All Invert levels and cover levels are to be confirmed as per the site survey information.
 4. All private drainage to be built accordance with Building Regulation requirements.
 5. The position, line and diameter of all existing drainage apparatus should be confirmed on site prior to the commencement of the works. Any discrepancies should be reported to the Engineer in writing immediately.
 6. All internal drainage routing and exact setting out to be confirmed.
 7. Contractor to confirm if new drainage clashes with existing foundations or masonry walls. Engineer advise should be sought.

- KEY
- Site Boundary
 - Proposed surface water sewer
 - Proposed cellular attenuation tank
 - Proposed siphonic rainwater down pipe (siphonic drainage design by others)
 - Proposed permeable paving
 - Proposed foul water sewer
 - Existing Thames Water combined sewer
 - Existing Thames Water surface water sewer
 - Proposed external retaining wall

P05	01/05/24	RED LINE BOUNDARY UPDATED TO SITE LAYOUT.	FM	SKT	SKT
P04	01/04/24	REVISED TO SUIT NEW SITE LAYOUT. ISSUED FOR RIBA STAGE 2	FM	SKT	JG
P03	01/03/24	AMENDED TO SUIT NEW SITE LAYOUT AND 2L/S RESTRICTED FLOW RATE. SET BY THAMES WATER.	FM	SKT	JG
P02	29/01/24	AMENDED TO SUIT THAMES WATER EXISTING PUBLIC SEWERS AND NEW SITE LAYOUT. PACKAGE PUMP STATION ADDED TO MANHOLE S10.	AFH	SNK	JG

Rev.	Date	Description	Drwn.	Chkd.	Appd.
FAIRHURST 1 Arngrove Court Barnack Road, Newcastle-upon-Tyne NE4 6DB Tel: 0191 221 0505 Fax: 0844 381 4412 Client: djp JOHN LEWIS PARTNERSHIP					

Project Title:
FORMER JOHN LEWIS DEPOT
LETCOMBE STREET, READING.

Drawing Title:
PROPOSED DRAINAGE LAYOUT

Scale at A1: 1:250	Status: RIBA Stage 2	Approved: JG
Drawn: SNK	Checked: SKT	Date: 19/01/24
Date: 19/01/24	Date: 19/01/24	Date: 19/01/24
Drawing No.: 08278-FAI-CV-XX-M2-C-2001	Revision: P05	

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