

182037
VEHICLE MAINTENANCE UNIT (VMU)
OCADO HATFIELD DISTRIBUTION CENTRE

DRAINAGE STATEMENT

AUGUST 2018

Document Control:

Revision	Date	Prepared	Checked	Approved
PL0	16/08/18	JC	TB	ED

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1.0 Introduction

This Drainage Statement has been prepared to support the planning submission for the construction of a Vehicle Maintenance Unit (VMU) at Ocado Hatfield Distribution Centre, Hatfield Business Park, Hatfield.

The purpose of this drainage statement is to assess the impact of surface water run-off as a result of the proposed development. This drainage statement is required to establish any potential increased vulnerability of the site as a result of the proposed development in relation to flooding.

2.0 Site Layout and Proposed Development

2.1 Site Location

The site of the proposed development is identified in Figure 1 below and is located off Mosquito Way, Hatfield, Hertfordshire. The nearest post code is: AL10 9BD.



Figure 1 Site Location

The site is bounded on the north by Hatfield Avenue, on the west by Booker Cash and Carry, on the east by Gypsy Moth Avenue and on the south by an existing housing estate.

2.2 Proposed Development

The proposed development will involve removing existing portable offices from an existing hardstanding area and providing a new Vehicle Maintenance Unit. The location of the new VMU is shown on Figure 2.



Figure 2 Location of Proposed VMU

The Proposed VMU layout is shown in Figure 3 below. The existing portable offices will be removed and the new VMU will sit on the existing hardstanding yard. There is no increase to impermeable area associated with this development.

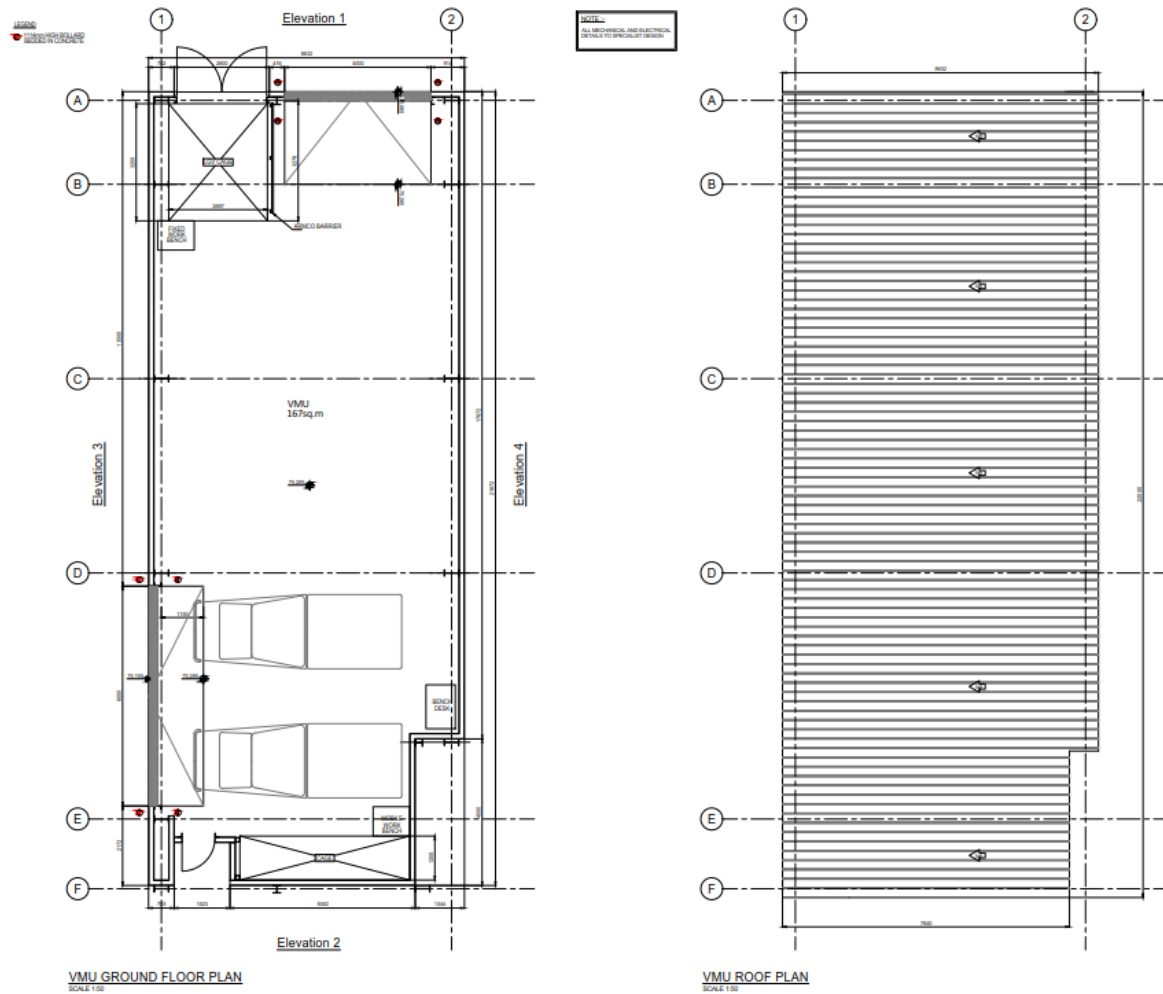


Figure 3 - Proposed VMU layout

3.0 Potential Sources of Flood Risk to the Site

Eireng obtained the Strategic Flood Risk Assessment 2015 (SFRA) for the area from Welwyn Hatfield Borough Council and reviewed the contents with regard to this drainage statement.

The Environment Agency (EA) is the key source of flood record data with numerous records and maps referenced in this report.

3.1 Fluvial and Coastal Flooding Risk

A review of the online Environmental Agency (EA) flood mapping data (see Figure 4 below) shows that the site is located in a Zone 1 flood risk area and is not affected by fluvial or coastal flooding. Table D3 of the National Planning Policy Framework Technical Guidance, Development and Flood Risk, indicates that all types of development will be suitable in flood risk Zone 1.

As such the risk of fluvial or coastal flooding on site can be considered low.

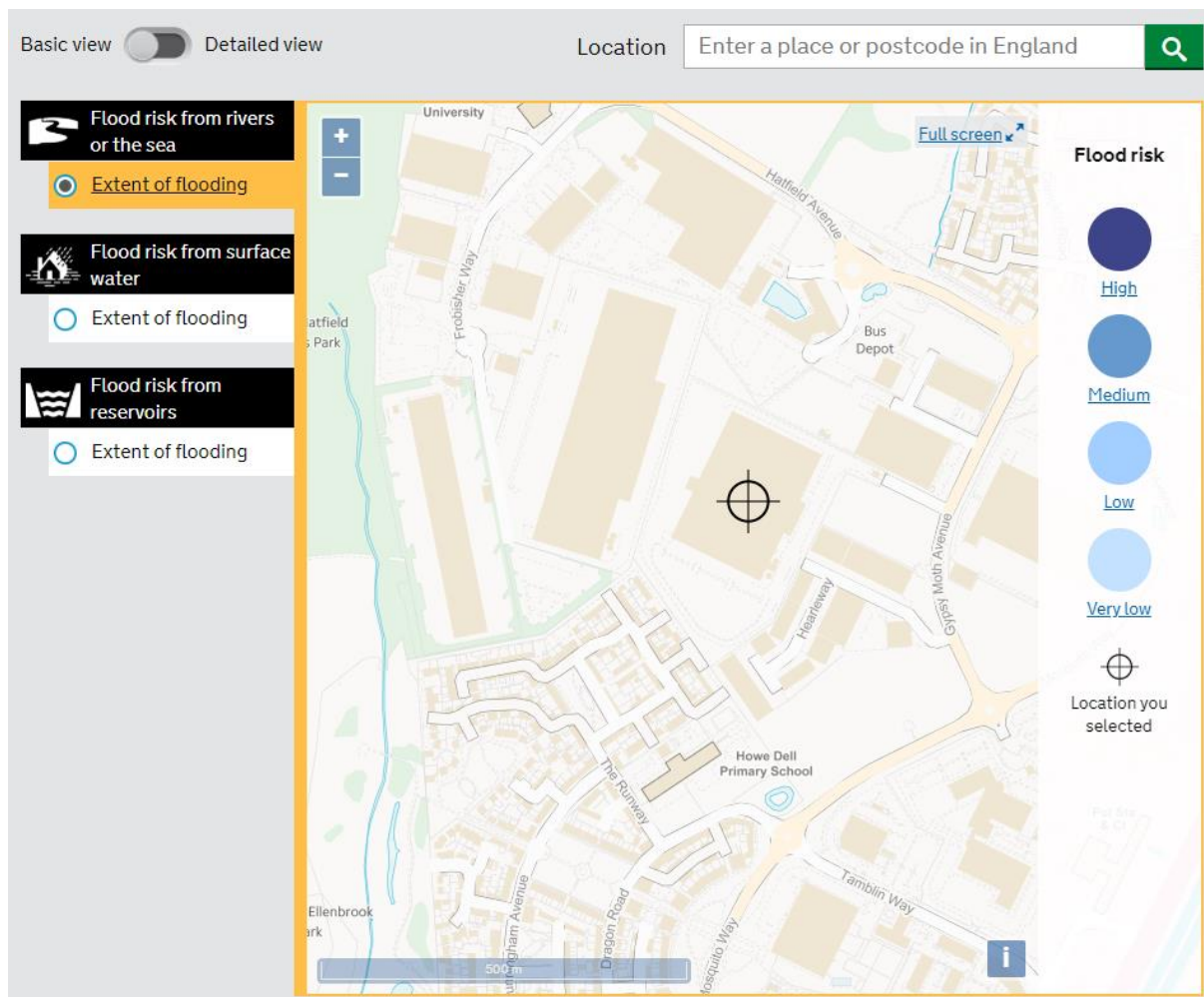


Figure 4 - Fluvial and Coastal Flooding Risk

3.2 Surface Water Flooding Risk

A review of the online Environmental Agency (EA) flood mapping data (see Figure 5 below) shows that there is a risk of surface water flooding along the west and south east sides of the building.

The flood risk areas highlighted on the site are related to the HGV loading bays to the west side of the building which ramp down to 1.2m below FFL (Finished Floor Level) at the building line and van loading bays to the south east of the building which ramp down to the 0.9m below FFL. Both areas are served by Channel Drains discharging to the main surface water sewers on site. There is no anecdotal evidence of flooding at these locations on site.

As such the risk of surface water flooding on site can be considered low.

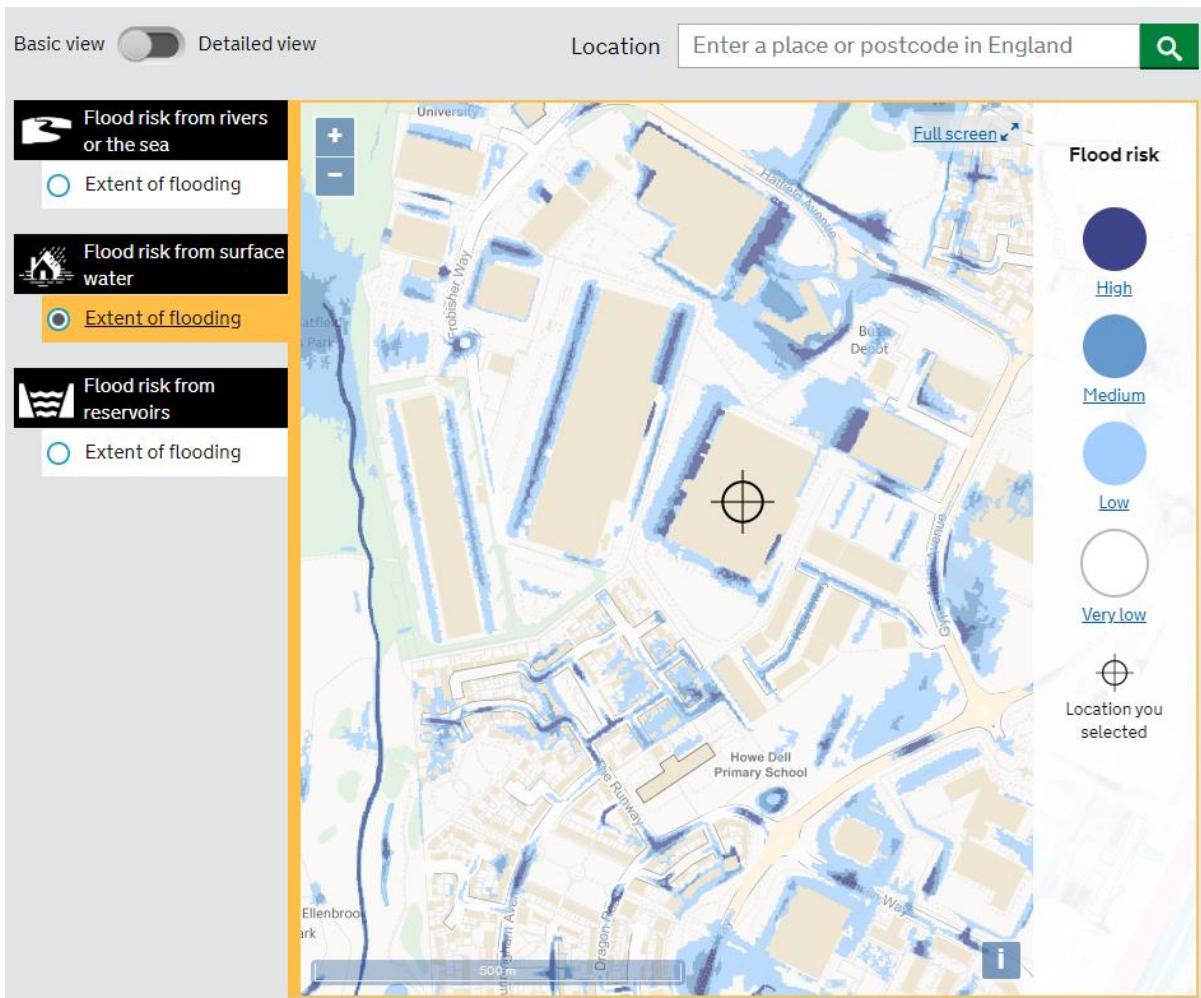


Figure 5 Surface Water Flooding Risk

3.3 Reservoir Breach Flooding Risk

A review of the online Environmental Agency (EA) flood mapping data (see Figure 6 below) shows that the site is not located in an area at risk of flooding as a result of a reservoir breach and as such the flood risk can be considered low.

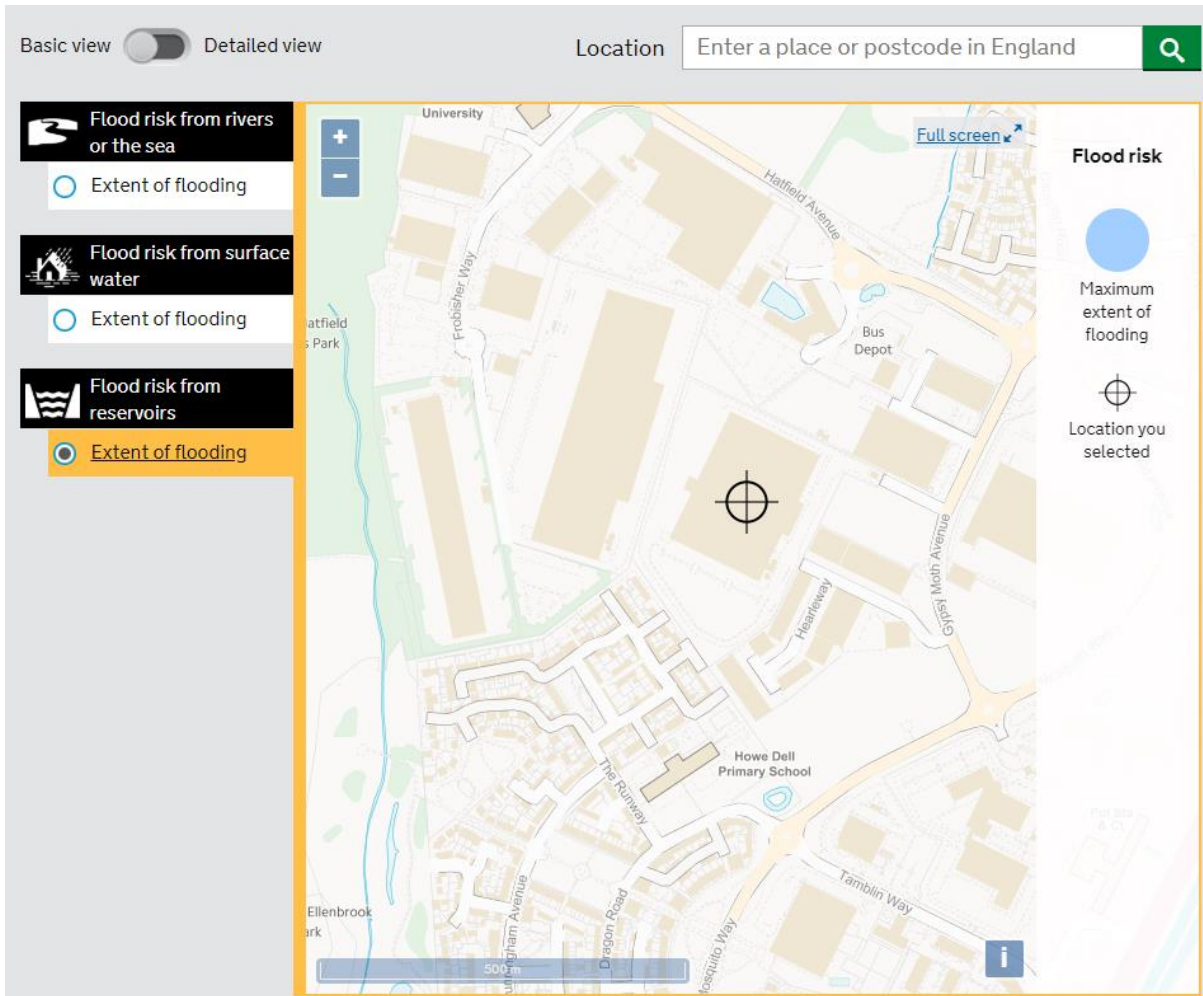


Figure 6 Reservoir Breach Flooding Risk

3.4 Groundwater Flooding Risk

A review of the Strategic Flood Risk Assessment 2015 (SFRA) conducted for Welwyn Hatfield Borough Council shows that the site is not considered at risk of groundwater flooding and as such the groundwater flood risk can be considered low.

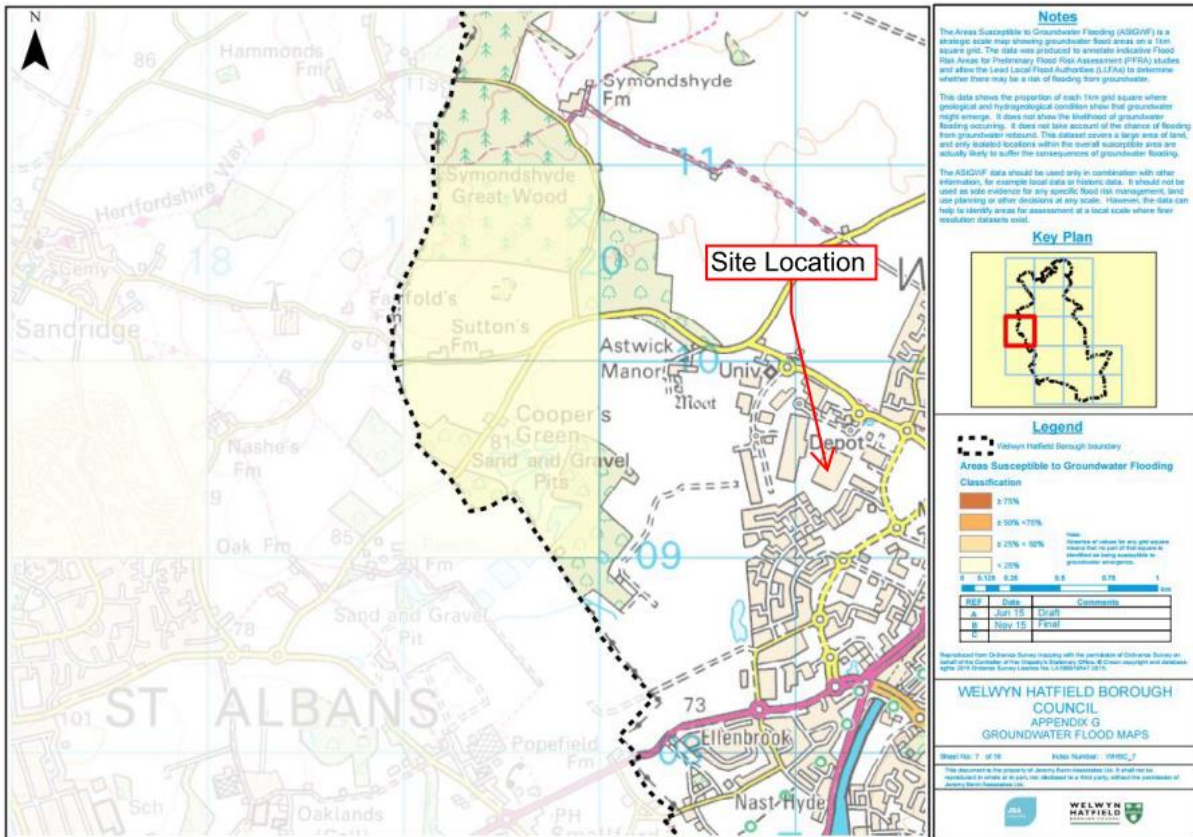


Figure 7 Groundwater Flood Risk

3.5 Existing Sewer Flood Risk

The existing site is positively drained by a surface water sewer network. This network is regularly maintained as part of the overall site maintenance procedures. There is no anecdotal evidence of flooding from the existing drainage network and as such the flood risk can be considered low.

The SFRA 2015 does not identify any critical issues relating to any failures of existing sewer in this area.

4.0 Surface Water Drainage

4.1 Existing Surface Water Drainage

The existing site drainage consists of channel drains, gullies and rainwater downpipes discharging into two oversized pipe networks (See Appendix A for an Existing As-Built Drainage drawing). The surface water system on the site is split into two separate systems, SW Network No.1 gathers and conveys runoff from the north and the east of the site and SW Network No.2 gathers and conveys runoff from the south and west of the site.

SW network No.1 collects runoff into an oversized 1050 mm dia. pipe network. This network is limited to a discharge rate of 200 l/s via a Hydrobrake and passes through a petrol interceptor before discharging into the Hatfield Business Park private sewer network on Gypsy Moth Avenue.

SW network No.2 collects runoff into an oversized 900mm & 1050 mm dia. pipe network. This network is limited to a discharge rate of 450 l/s and passes through a petrol interceptor before discharging to the Hatfield Business Park sewer network which is Thames Water infrastructure. (See Appendix B for Existing As-Built Model Results and Appendix C for Thames Water Records)

The proposed VMU location is currently an impermeable hardstanding area with a portable office, the impermeable area drains to ground which falls to an ACO channel before entering the 1000 dia. oversized concrete sewer.

4.2 Proposed Surface Water Drainage

Eireng obtained the 'SuDS Design Guidance for Hertfordshire' (March 2015) from Hertfordshire County Council and reviewed the contents to assess any opportunities to incorporate sustainable drainage methods in the development. Due to the ground conditions and current site layout, SuDS such as soakaways, swales, filter strips etc. are not suitable for installation.

The current site benefits from SuDS in the form of oversized pipe attenuation which incorporates the impermeable area of the proposed site into calculations (Appendix B). It is proposed to collect all rainwater from the site via downpipes which will arrive to a common manhole located at the south west corner of the proposed VMU. The surface water pipework will tie in with flow to an existing MH located ~10m south east of the VMU. The receiving surface water sewer is 1050 dia.

5.0 Foul Drainage

There is no foul drainage proposed as part of the VMU works.

6.0 Summary and Conclusions

The proposed VMU building will not increase the impermeable area of the site.

There is no increased flood vulnerability of the site as a result of the proposed VMU.

The surface water flood mapping shows some areas on site are at risk of flooding - this has been analysed in section 3.2 and the location of these risk areas coincides with loading bays on site below the FFL of VMU.

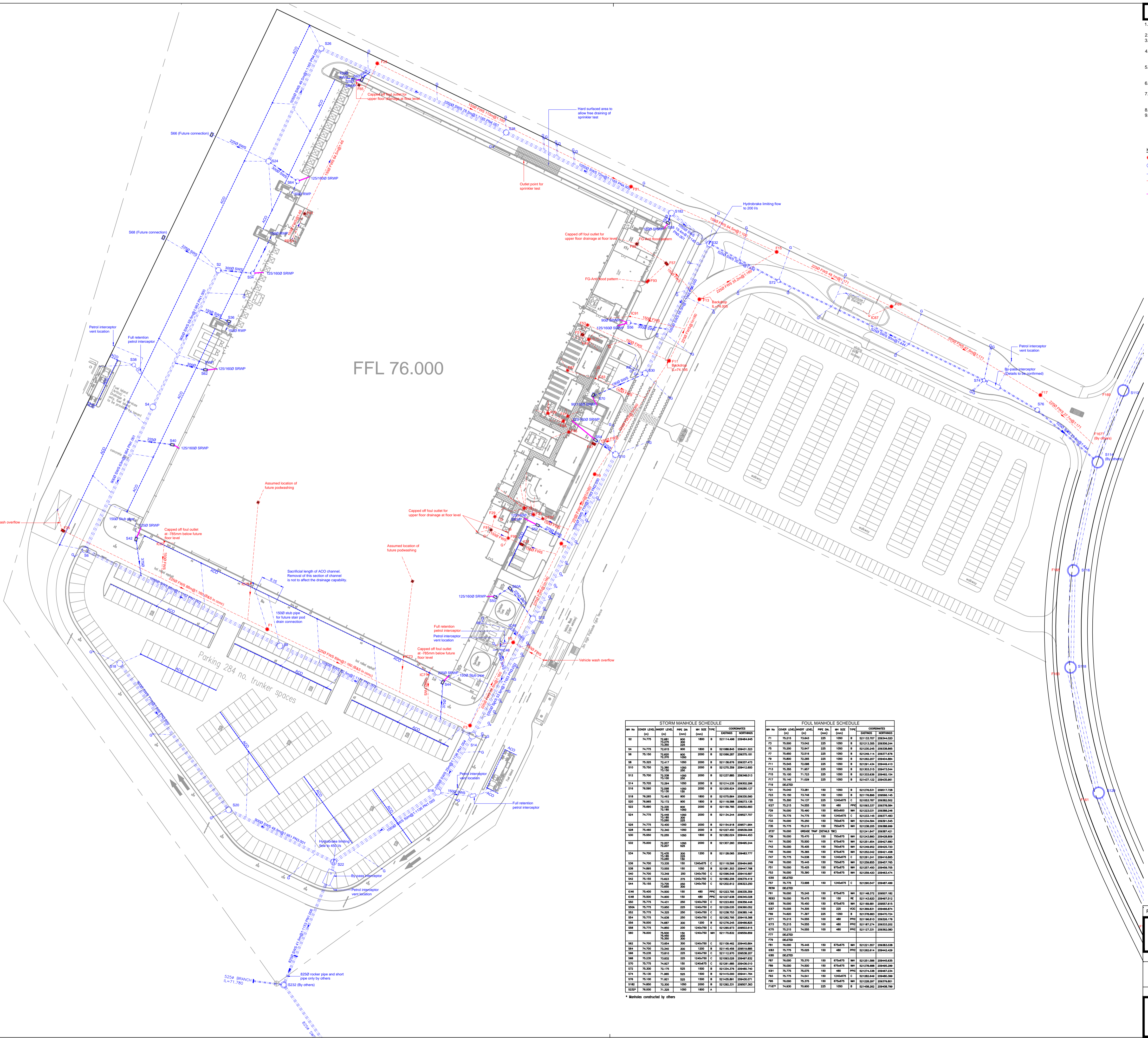
Appendix A – Existing Drainage Drawing

NOTES

- This drawing is to be read in conjunction with all other engineers, architects, M&E engineers and other specialist drawings.
- All levels are based on Ordnance datum.
- All construction methods, workmanship and testing to comply with the WSA Sewers for adoption Fourth Edition.
- All pipes to be extra strength vitrified clay to BS EN 205 (BS 65) or concrete to BS 5911, laid on a class S bedding unless otherwise stated. Clayware and concrete pipes are to be socket and spigot type.
- Where cover to pipes is less than 1200mm under carriageway or vehicular access areas they shall be surrounded with 150mm of Class C20 concrete, flexibility of joints to be maintained by using compressible fibre board at each pipe joint.
- Private drainage connections to public sewers shall have a minimum diameter of 150mm beneath adoptable highway.
- Manhole covers and frames to be double triangular, Class D 400 cast iron, non rocking, to BS EN 124 (BS 497). Internal manhole covers to be double sealed, locking with airtight cover and frame recessed to accept floor covering (50mm min).
- Hinged gully grate and frame to BS EN 124, Grade D 400, non rocking.
- When in a highway the outside of the sewer shall be at least 1.0m from the kerbline and the outside of manholes shall be at least 0.5m from the kerb line.

KEY

- Foul manholes
- Storm manholes
- Storm drains
- Foul drains
- All internal foul water pipes to be 100mm dia ESVC bed & surround in concrete.
- Sapflow drainage (Provided by Sapflow, installed by main contractor)
- 1500 gully connection



FFL 76.000

STORM MANHOLE SCHEDULE						
MH No	COVER LEVEL	MANHOLE LEVEL	PIPE DIA	PIPE TYPE	COORDINATES	REMARKS
S2	74.775	72.850	300	PPC	52114.466	20444.245
S3	74.775	72.850	300	PPC	52114.466	20444.245
S4	74.775	72.850	300	PPC	52114.466	20444.245
S5	74.775	72.850	300	PPC	52114.466	20444.245
S6	74.775	72.850	300	PPC	52114.466	20444.245
S7	74.775	72.850	300	PPC	52114.466	20444.245
S8	74.775	72.850	300	PPC	52114.466	20444.245
S9	74.775	72.850	300	PPC	52114.466	20444.245
S10	74.775	72.850	300	PPC	52114.466	20444.245
S11	74.775	72.850	300	PPC	52114.466	20444.245
S12	74.775	72.850	300	PPC	52114.466	20444.245
S13	74.775	72.850	300	PPC	52114.466	20444.245
S14	74.775	72.850	300	PPC	52114.466	20444.245
S15	74.775	72.850	300	PPC	52114.466	20444.245
S16	74.775	72.850	300	PPC	52114.466	20444.245
S17	74.775	72.850	300	PPC	52114.466	20444.245
S18	74.775	72.850	300	PPC	52114.466	20444.245
S19	74.775	72.850	300	PPC	52114.466	20444.245
S20	74.775	72.850	300	PPC	52114.466	20444.245
S21	74.775	72.850	300	PPC	52114.466	20444.245
S22	74.775	72.850	300	PPC	52114.466	20444.245

FOUL MANHOLE SCHEDULE						
MH No	COVER LEVEL	MANHOLE LEVEL	PIPE DIA	PIPE TYPE	COORDINATES	REMARKS
F1	74.775	73.443	225	PPC	52113.207	20434.000
F2	74.775	73.443	225	PPC	52113.207	20434.000
F3	74.775	73.443	225	PPC	52113.207	20434.000
F4	74.775	73.443	225	PPC	52113.207	20434.000
F5	74.775	73.443	225	PPC	52113.207	20434.000
F6	74.775	73.443	225	PPC	52113.207	20434.000
F7	74.775	73.443	225	PPC	52113.207	20434.000
F8	74.775	73.443	225	PPC	52113.207	20434.000
F9	74.775	73.443	225	PPC	52113.207	20434.000
F10	74.775	73.443	225	PPC	52113.207	20434.000
F11	74.775	73.443	225	PPC	52113.207	20434.000
F12	74.775	73.443	225	PPC	52113.207	20434.000
F13	74.775	73.443	225	PPC	52113.207	20434.000
F14	74.775	73.443	225	PPC	52113.207	20434.000
F15	74.775	73.443	225	PPC	52113.207	20434.000
F16	74.775	73.443	225	PPC	52113.207	20434.000
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F36	74.775	73.443	225	PPC	52113.207	20434.000
F37	74.775	73.443	225	PPC	52113.207	20434.000
F38	74.775	73.443	225	PPC	52113.207	20434.000
F39	74.775	73.443	225	PPC	52113.207	20434.000
F40	74.775	73.443	225	PPC	52113.207	20434.000
F41	74.775	73.443	225	PPC	52113.207	20434.000
F42	74.775	73.443	225	PPC	52113.207	20434.000
F43	74.775	73.443	225	PPC	52113.207	20434.000
F44	74.775	73.443	225	PPC	52113.207	20434.000
F45	74.775	73.443	225	PPC	52113.207	20434.000
F46	74.775	73.443	225	PPC	52113.207	20434.000
F47	74.775	73.443	225	PPC	52113.207	20434.000
F48	74.775	73.443	225	PPC	52113.207	20434.000
F49	74.775	73.443	225	PPC	52113.207	20434.000
F50	74.775	73.443	225	PPC	52113.207	20434.000
F51	74.775	73.443	225	PPC	52113.207	20434.000
F52	74.775	73.443	225	PPC	52113.207	20434.000
F53	74.775	73.443	225	PPC	52113.207	20434.000
F54	74.775	73.443	225	PPC	52113.207	20434.000
F55	74.775	73.443	225	PPC	52113.207	20434.000
F56	74.775	73.443	225	PPC	52113.207	20434.000
F57	74.775	73.443	225	PPC	52113.207	20434.000
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F80	74.775	73.443	225	PPC	52113.207	20434.000
F81	74.775	73.443	225	PPC	52113.207	20434.000
F82	74.775	73.443	225	PPC	52113.207	20434.000
F83	74.775	73.443	225	PPC	52113.207	20434.000
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F95	74.775	73.443	225	PPC	52113.207	20434.000
F96	74.775	73.443	225	PPC	52113.207	20434.000
F97	74.775	73.443	225	PPC	52113.207	20434.000
F98	74.775	73.443	225	PPC	52113.207	20434.000
F99	74.775	73.443	225	PPC	52113.207	20434.000
F100	74.775	73.443	225	PPC	52113.207	20434.000

AS BUILT

Rev	Date	Description	Checked By
R	23/10/02	Drainage connection from MH F29 joined to MH F33.	J.L.
Q	14/08/02	Minor amendments to some as built levels.	J.L.
P	16/07/02	As built.	J.L.
N	12/09/01	Drainage arrangement to sprinkler tank area amended.	C.J.
M	11/07/01	Access road gully locations amended to suit revised levels.	C.J.
L	02/07/01	Drainage scheme updated to latest AJA arrangement.	C.J.
K	13/06/01	Drainage scheme updated to latest AJA arrangement. Site layout updated to latest AJA arrangement.	C.J.
J	16/05/01	Storm outfall diameter amended. Levels added for revised drainage runs F15 to F167 & S30 to S114.	C.J.
I	15/05/01	Storm and foul outfall routes amended.	C.J.
H	26/04/01	MH co-ordinates added. Minor amendments.	C.J.
G	10/04/01	Drainage scheme updated to latest AJA site layout & Sapflow layout. F93 & 95 added.	C.J.
F	27/03/01	Drainage scheme updated to latest AJA layouts.	C.J.
E	12/03/01	Minor amendments following comments.	C.J.
D	20/02/01	Minor amendments, MH schedule revised.	C.J.
C	19/02/01	Drainage scheme updated to latest AJA and IEI layouts.	C.J.
B	17/01/01	Drainage scheme updated.	C.J.
A	7/12/00	ISSUED FOR COMMENTS	C.J.

Project	LM SOLUTIONS HATFIELD BUSINESS PARK	Drawing Number	6800/414 R
Scale	1:500	Date	27/11/00

Title
As Built Drainage layout

Drawn by C.J. Checked by Project Engineer G.C.

Appendix B – Existing Site Surface Water Model

48a Patrick Street
Dun Laoghaire Co. Dublin
Ireland



Date 15/11/2016 16:55

Designed by tbyrne

File Ocado Hatfield existing north.mdx

Checked by

Micro Drainage

Network 2016.1

Summary Wizard of 30 minute 30 year Winter I+0% for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coefficient 0.800
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
Region England and Wales Ratio R 0.440 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status ON
Analysis Timestep 2.5 Second Increment (Extended) Inertia Status ON
DTS Status OFF

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 2, 30
Climate Change (%) 0, 0

PN	US/MH Name	Storm Rank	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Pipe Flow / Cap. (l/s)	Overflow (l/s)	Pipe Flow (l/s)	Status
1.000	1	4	73.504	-0.136	0.000	0.57		55.7	OK
2.000	2	4	73.403	-0.087	0.000	0.37		8.6	OK*
3.000	3	4	73.807	-0.083	0.000	0.41		13.9	OK*
1.001	1	1	73.350	-0.146	0.000	0.22		95.3	OK
1.002	2	1	73.339	-0.137	0.000	0.15		101.5	OK*
1.003	3	1	73.319	-0.136	0.000	0.24		93.9	OK
4.000	7	4	73.602	-0.163	0.000	0.43		59.9	OK
1.004	4	1	73.309	-0.128	0.000	0.13		124.3	OK*
1.005	5	1	73.231	-0.156	0.000	0.11		87.3	OK
5.000	10	4	73.627	-0.094	0.000	0.64		56.8	OK
1.006	6	1	73.169	-0.155	0.000	0.31		115.4	OK
6.000	7	4	75.047	-0.105	0.000	0.55		76.2	OK
6.001	8	1	73.238	-0.069	0.000	0.28		103.4	OK
7.000	14	4	74.663	-0.217	0.000	0.17		50.8	OK
6.002	9	1	73.225	-0.065	0.000	0.19		153.5	OK*
1.007	7	1	73.162	0.429	0.000	0.99		190.6	SURCHARGED
1.008	8	1	72.627	-0.037	0.000	0.94		201.5	OK
1.009	9	1	72.462	0.000	0.000	1.07		197.2	OK
1.010	10	1	72.346	-0.062	0.000	1.00		192.7	OK

48a Patrick Street
 Dun Laoghaire Co. Dublin
 Ireland



Date 16/11/2016 10:05

Designed by tbyrne

File Ocado Hatfield existing south.mdx

Checked by

Micro Drainage

Network 2016.1

Summary Wizard of 30 minute 30 year Winter I+0% for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
 Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coefficient 0.800
 Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 1 Number of Storage Structures 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.437 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status ON
 Analysis Timestep 2.5 Second Increment (Extended) Inertia Status ON
 DTS Status OFF

Profile(s) Summer and Winter

Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440

Return Period(s) (years) 2, 30

Climate Change (%) 0, 0

PN	US/MH Name	Storm Rank	Water Surcharged			Flooded		Pipe Flow (l/s)	Pipe Flow (l/s)	Status
			Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow			
1.000	1	4	73.633	-0.092	0.000	0.81	74.6	OK		
1.001	s2	1	73.588	0.000	0.000	0.42	114.0	OK		
1.002	2	1	73.570	0.000	0.000	0.34	153.8	OK*		
1.003	3	1	73.546	0.000	0.000	0.52	209.5	OK*		
1.004	s4	1	73.525	0.000	0.000	0.91	263.8	OK		
1.005	5	1	73.510	0.000	0.000	0.35	298.3	SURCHARGED*		
1.006	s6	1	73.423	0.000	0.000	0.74	322.6	OK		
1.007	7	1	73.403	0.000	0.000	0.47	360.4	OK		
1.008	8	1	73.318	-0.033	0.000	0.42	336.1	OK		
2.000	9	1	73.348	-0.082	0.000	0.09	52.9	OK		
3.000	11	4	74.607	-0.202	0.000	0.24	69.0	OK		
2.001	10	1	73.321	-0.074	0.000	0.22	122.4	OK		
4.000	13	4	74.674	-0.214	0.000	0.18	53.5	OK		
2.002	11	1	73.282	-0.084	0.000	0.24	181.5	OK		
5.000	13	4	73.878	-0.183	0.000	0.32	57.9	OK		
1.009	9	1	73.209	-0.069	0.000	0.92	421.9	OK		
1.010	10	1	73.183	-0.072	0.000	0.58	424.4	OK		
6.000	14	1	73.205	-0.188	0.000	0.16	86.3	OK		
6.001	15	1	73.148	-0.169	0.000	0.22	111.8	OK		
1.011	11	1	73.103	0.116	0.000	1.03	430.2	SURCHARGED		

Appendix C – Thames Water Records

Asset Location Search



Clearwater Court
Vastern Road
READING
RG1 8DB

Search address supplied Ocado Ltd
Gypsy Moth Avenue
Hatfield
AL10 9BD

Your reference 162080

Our reference ALS/ALS Standard/2016_3440288

Search date 27 October 2016

Notification of Price Changes...

From **1 September 2016** Thames Water Property Searches will be increasing the prices of its Asset Location Searches. This will be the first price rise in three years and is in line with the RPI at 1.84%. The increase follows significant capital investment in improving our systems and infrastructure.

Enquiries received with a higher payment prior to 1 September 2016 will be non-refundable. For further details on the price increase please visit our website at

www.thameswater-propertysearches.co.uk



Asset Location Search



Search address supplied: Ocado Ltd , Gypsy Moth Avenue , Hatfield , AL10 9BD

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0845 070 9148, or use the address below:

Thames Water Utilities Ltd
Property Searches
PO Box 3189
Slough
SL1 4WW

Email: searches@thameswater.co.uk

Web: www.thameswater-propertysearches.co.uk

Asset Location Search



Waste Water Services

Please provide a copy extract from the public sewer map.

The following quartiles have been printed as they fall within Thames' sewerage area:

TL2109SW
TL2009SE
TL2109NW

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

Following examination of our statutory maps, Thames Water has been unable to find any plans of water mains within this area. If you require a connection to the public

Asset Location Search



water supply system, please write to:

New Connections / Diversions
Thames Water
Network Services Business Centre
Brentford
Middlesex
TW8 0EE

Tel: 0845 850 2777
Fax: 0207 713 3858
Email: developer.services@thameswater.co.uk

The following quartiles have not been printed as they are out of Thames' water catchment area. For details of the assets requested please contact the water company indicated below:

TL2109SW	Affinity Water
TL2009SE	Affinity Water
TL2109NW	Affinity Water

Affinity Water Ltd
Tamblin Way
Hatfield
AL10 9EZ

Tel: 0845 7823333

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

A charge will be added to your suppliers account.

Asset Location Search



Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

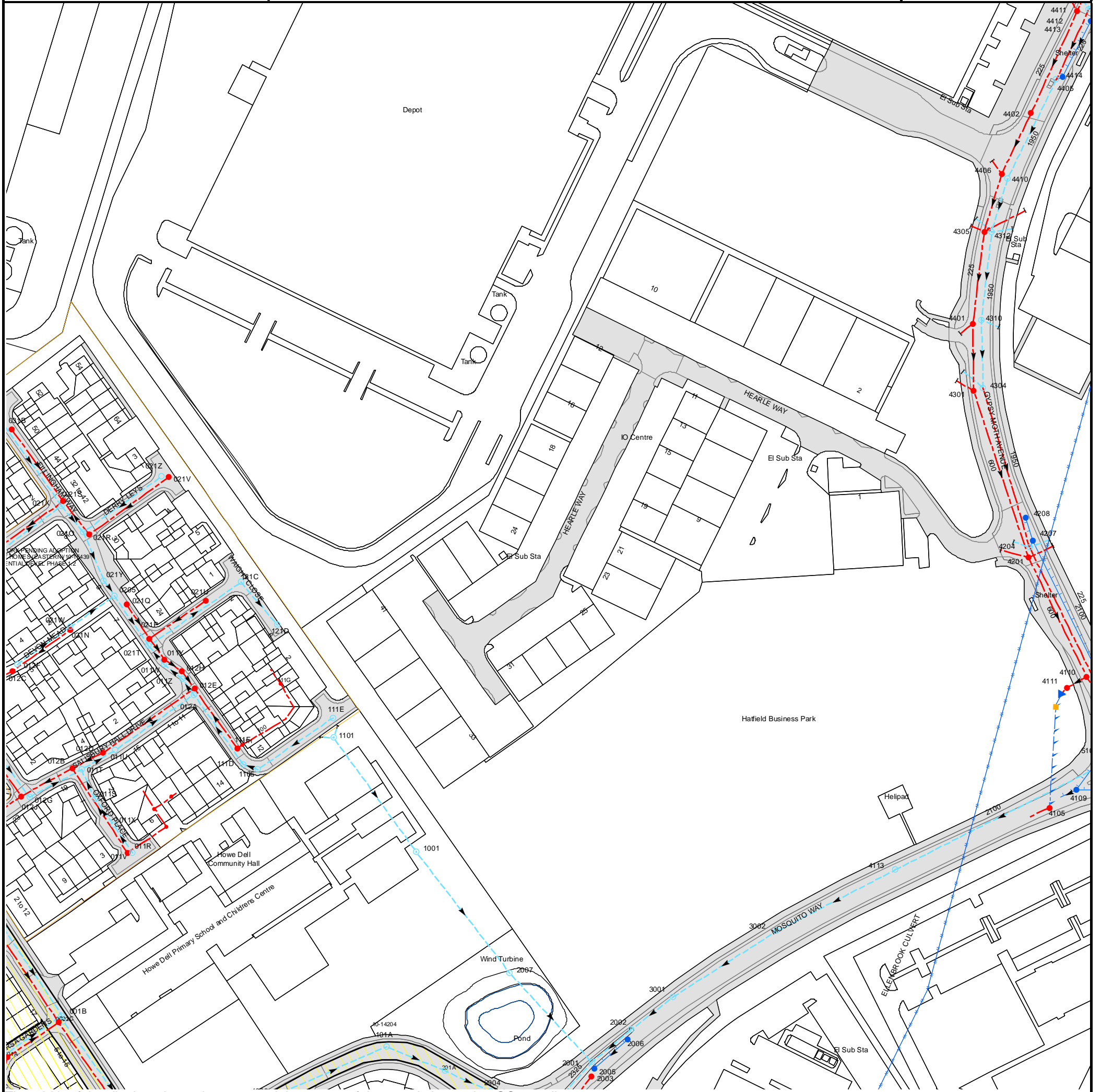
Tel: 0845 850 2777
Email: developer.services@thameswater.co.uk

Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0845 850 2777
Email: developer.services@thameswater.co.uk



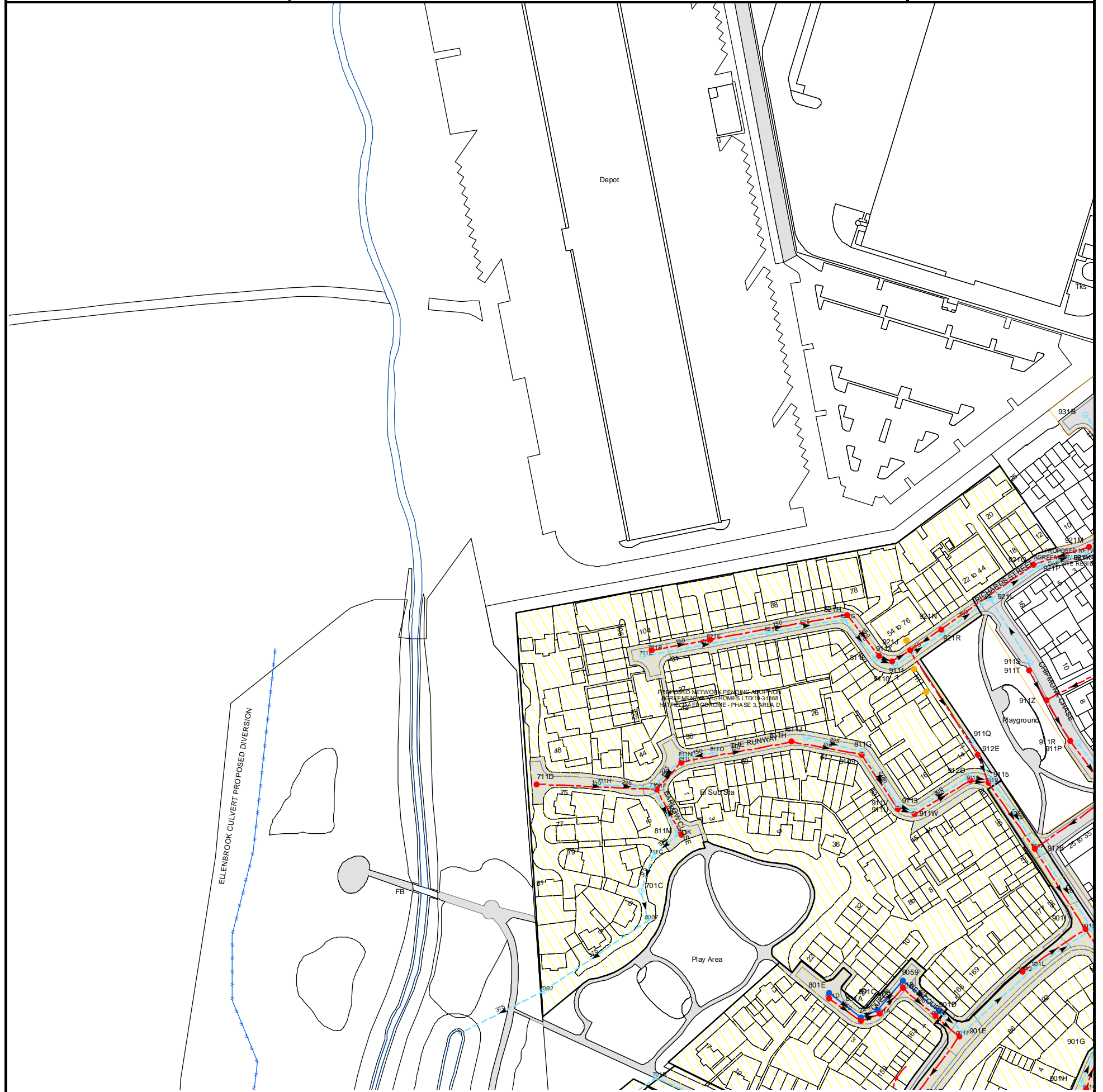
The width of the displayed area is 500m and the centre of the map is located at OS coordinates 521250,209250
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. 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
4113	n/a	n/a
4105	n/a	n/a
4109	75.32	73.27
2007	n/a	n/a
2003	n/a	n/a
2001	n/a	n/a
2005	n/a	n/a
2006	n/a	n/a
2002	n/a	n/a
3001	n/a	n/a
3002	n/a	n/a
001C	76.1	73.24
011S	n/a	n/a
011X	n/a	n/a
011V	n/a	n/a
011R	n/a	n/a
012L	n/a	n/a
012M	n/a	n/a
012K	n/a	n/a
101A	75	71.47
1001	n/a	n/a
201A	n/a	n/a
011W	n/a	n/a
012F	n/a	n/a
011Y	n/a	n/a
021T	n/a	n/a
021P	n/a	n/a
021N	n/a	n/a
021W	n/a	n/a
121D	n/a	n/a
021Q	n/a	n/a
021U	n/a	n/a
0205	n/a	n/a
121C	n/a	n/a
021Y	n/a	n/a
021R	n/a	n/a
021O	n/a	n/a
021X	n/a	n/a
021S	n/a	n/a
021V	n/a	n/a
021Z	n/a	n/a
031B	n/a	n/a
012J	n/a	n/a
011T	n/a	n/a
1105	n/a	n/a
012B	n/a	n/a
111D	n/a	n/a
012D	n/a	n/a
011U	n/a	n/a
111F	n/a	n/a
111H	n/a	n/a
1101	n/a	n/a
111E	n/a	n/a
012A	n/a	n/a
012E	n/a	n/a
111G	n/a	n/a
011Z	n/a	n/a
012C	n/a	n/a
012H	n/a	n/a
001A	75.8	n/a
012G	n/a	n/a
0002	76.01	71.97
001B	76.12	73.22
4310	74.38	70.26
4312	74.63	70.31
4305	74.63	70.62
4410	75	70.37
4406	75.05	70.95
4402	75.22	71.1
4405	75.25	70.41
4414	75.26	73.56
4413	75.56	74.03
4411	75.68	73.4
4412	75.71	70.48
4111	74.32	68.03
4110	75.49	68.47
4201	75.13	68.95
4204	75.2	69.96
4207	75.17	73.11
4208	74.95	73.21
4301	74.89	69.64
4304	74.71	70.19
4401	74.57	70.35

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.



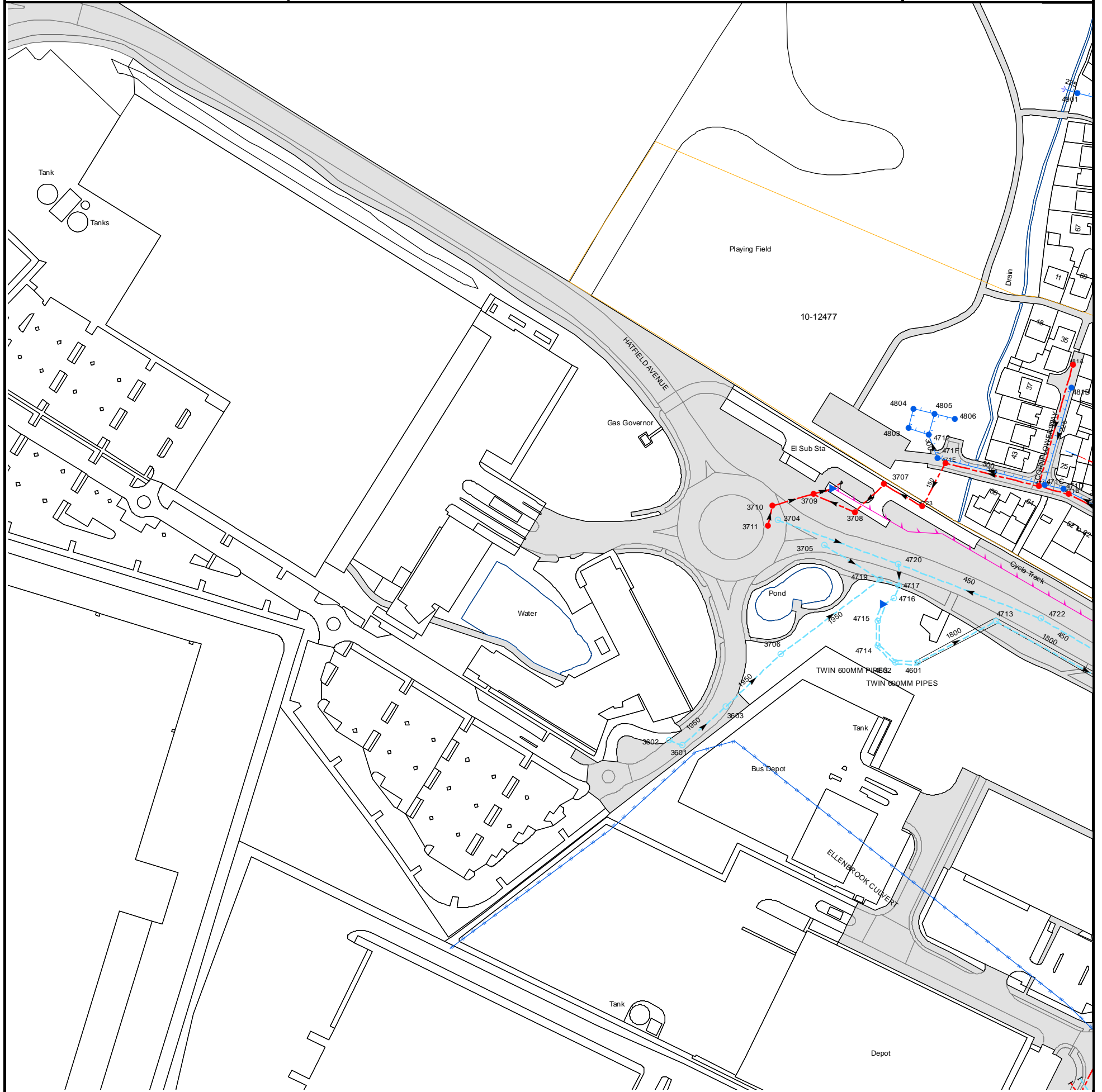
The width of the displayed area is 500m and the centre of the map is located at OS coordinates 520750,209250
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. 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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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
911S	n/a	n/a
921L	n/a	n/a
921P	n/a	n/a
921Q	76.48	n/a
921K	n/a	n/a
921M	n/a	n/a
931B	n/a	n/a
9119	76.08	72.78
9115	76.13	74.68
9118	76.03	73.04
912D	76.01	74.73
912E	76.97	72.9
911P	n/a	n/a
911Q	n/a	n/a
911R	n/a	n/a
911Z	n/a	n/a
911T	n/a	n/a
901F	76.79	74.67
901E	76.74	74.13
901J	76.32	73.44
911A	76.05	72.45
901L	75.27	73.98
911B	75.99	74.01
901H	75.85	n/a
901K	76.08	72.22
901I	76.11	73.94
901G	75.77	n/a
7002	76.95	74.63
701C	76.61	74.84
8007	76.79	74.7
711G	76.67	74.98
701B	77.335	74.785
811M	76.59	75.08
811K	76.69	74.9
801E	77.677	76.252
801D	77.454	75.9
801A	77.397	75.952
801B	77.387	75.604
801C	77.427	75.815
901A	77.406	75.453
901M	n/a	n/a
901B	77.341	75.194
9059	77.347	75.519
911W	75.99	73.8
901C	76.664	74.778
901D	76.665	74.19
9113	76.06	74.86
911U	76.05	73.86
911V	76.07	74.89
711F	76.48	74.73
711I	76.45	75.16
711H	76.3	75.24
711D	76.7	75.37
811I	76.65	74.63
811N	76.6	75.23
8109	76.34	74.06
811O	76.53	75.28
811G	76.36	75.09
811H	76.57	74.27
811J	76.59	75.2
9111	75.99	74.07
9110	76.02	73.66
811L	76.08	74.13
711E	76.94	74.96
911X	76.06	73.79
921J	76	73.39
721B	77.03	74.55
821F	76.81	74.48
921R	76.08	73.86
821E	76.66	74.67
921N	76.08	73.5
821G	76.31	74.26
821H	76.31	73.96

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.



The width of the displayed area is 500m and the centre of the map is located at OS coordinates 521250,209750
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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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
3601	75.15	70.59
3602	75	70.61
3603	75.25	70.41
4601	75.31	71.13
4602	75.51	72.78
3706	75	70.19
4714	75.57	73.23
4715	76.03	73.65
4716	n/a	n/a
4717	n/a	n/a
4719	75.25	70.01
4720	n/a	n/a
3705	n/a	n/a
3711	n/a	n/a
3704	n/a	n/a
3708	75.42	71.7
4723	76.05	72.82
3710	n/a	n/a
3709	75.34	69.97
3707	75.92	72.21
471E	76.53	72.98
471F	76.54	74.18
4712	n/a	n/a
4803	n/a	n/a
4806	75.6	74.15
4805	n/a	n/a
4804	n/a	n/a
4901	n/a	75.38
481B	75.97	74.73
481A	75.95	73.65
471B	75.99	73.55
471D	75.98	74.55
471A	76.16	73.25
471C	76.09	74.4
4713	75.95	71.05
4722	74.95	71.04

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





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

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 '0' on a manhole level indicates that data is unavailable.
- 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 Insight on 0845 070 9148.

Terms and Conditions

All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
3. All invoices are strictly due for payment 14 days from due date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service, or will be held to be invalid.
4. Thames Water does not accept post-dated cheques-any cheques received will be processed for payment on date of receipt.
5. In case of dispute TWUL's terms and conditions shall apply.
6. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
7. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
8. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (cashoperations@thameswater.co.uk).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0800 316 9800

If you are unhappy with our service you can speak to your original goods or customer service provider. If you are not satisfied with the response, your complaint will be reviewed by the Customer Services Director. You can write to him at: Thames Water Utilities Ltd. PO Box 492, Swindon, SN38 8TU.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to Consumer Council for Water on 0121 345 1000 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

Ways to pay your bill

Credit Card	BACS Payment	Telephone Banking	Cheque
Call 0845 070 9148 quoting your invoice number starting CBA or ADS.	Account number 90478703 Sort code 60-00-01 A remittance advice must be sent to: Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW. or email ps.billing@thameswater.co.uk	By calling your bank and quoting: Account number 90478703 Sort code 60-00-01 and your invoice number	Made payable to ' Thames Water Utilities Ltd ' Write your Thames Water account number on the back. Send to: Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW or by DX to 151280 Slough 13

Thames Water Utilities Ltd Registered in England & Wales No. 2366661 Registered Office Clearwater Court, Vastern Rd, Reading, Berks, RG1 8DB.



Search Code

IMPORTANT CONSUMER PROTECTION INFORMATION

This search has been produced by Thames Water Property Searches, Clearwater Court, Vastern Road, Reading RG1 8DB, which is registered with the Property Codes Compliance Board (PCCB) as a subscriber to the Search Code. The PCCB independently monitors how registered search firms maintain compliance with the Code.

The Search Code:

- provides protection for homebuyers, sellers, estate agents, conveyancers and mortgage lenders who rely on the information included in property search reports undertaken by subscribers on residential and commercial property within the United Kingdom
- sets out minimum standards which firms compiling and selling search reports have to meet
- promotes the best practise and quality standards within the industry for the benefit of consumers and property professionals
- enables consumers and property professionals to have confidence in firms which subscribe to the code, their products and services.

By giving you this information, the search firm is confirming that they keep to the principles of the Code. This provides important protection for you.

The Code's core principles

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports
- act with integrity and carry out work with due skill, care and diligence
- at all times maintain adequate and appropriate insurance to protect consumers
- conduct business in an honest, fair and professional manner
- handle complaints speedily and fairly
- ensure that products and services comply with industry registration rules and standards and relevant laws
- monitor their compliance with the Code

Complaints

If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure. If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award compensation of up to £5,000 to you if he finds that you have suffered actual loss as a result of your search provider failing to keep to the Code.

Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs or to the PCCB.

TPOs Contact Details

The Property Ombudsman scheme
Milford House
43-55 Milford Street
Salisbury
Wiltshire SP1 2BP
Tel: 01722 333306
Fax: 01722 332296
Email: admin@tpos.co.uk

You can get more information about the PCCB from www.propertycodes.org.uk

PLEASE ASK YOUR SEARCH PROVIDER IF YOU WOULD LIKE A COPY OF THE SEARCH CODE