

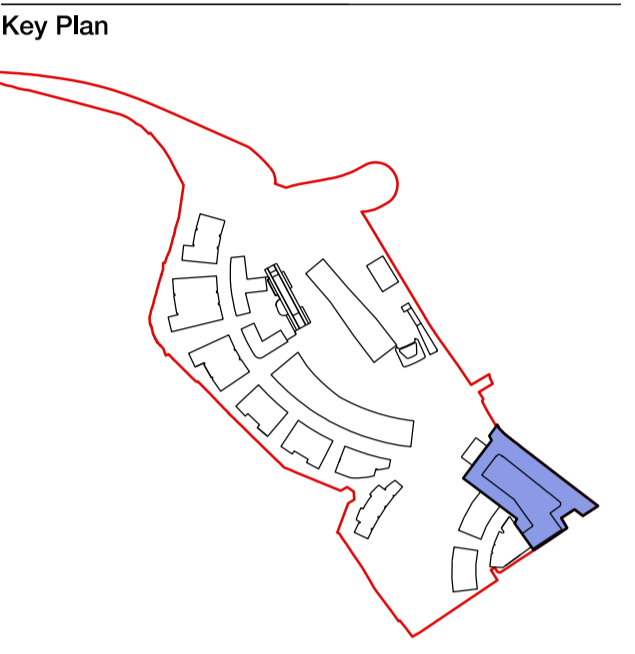


General Notes
 DO NOT SCALE. All dimensions must be checked on site, errors are to be reported.
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 Contractors must ensure that cross referenced drawings and specifications noted on these drawings are checked on a regular basis to ensure that the latest revisions are used.

Key Plan
 Thameside West planning application boundary
 Detailed and Outline application boundary



- Key**
-  Biodiverse roof
 -  Planting Species 1
 -  Planting Species 2
 -  'Interest' planting
 -  Raised planter
 -  Concrete block paving
 -  Seating
 -  Shrub and Ground Cover
 -  Tree specimen
 -  Hedge Species 1
 -  Hedge Species 2
 -  Hedge Species 3

Issue Record

Issue	By	Chk	Date
P06	For Information	TS	RM 17.04.2020
P05	GLA call in	TS	RM 27.03.2020
P04	Draft GLA planning	EP	RM 06.03.2020
P03	For Information	EP	TS 29.11.2018
P02	For Information	EP	TS 23.11.2018
P01	First Issue - For Information	EP	TS 07.11.2018

Title
 Phase 1 Landscape
 Roof Level

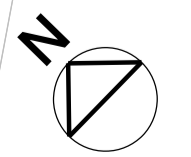
Project
 Thameside West Landscape

Scale
 1:250 @ A1 1:500 @ A3

Status
 S2 - For Information **Revision P06**

Drawing Number
 522-PT-MP-TYP-DR-L-PL-1017

Patel Taylor
 48 Rawstorne Street
 London EC1V 7ND
 T +44 (0)20 7278 2323
 www.pateltaylor.co.uk



Indicative future phase outline design

Indicative future phase outline design

Indicative future phase outline design

Indicative future phase outline design

Core

Core

Core

Core

1.5m glass balustrade to surround roof amenity space

Appendix B – Thames Water Asset Records

Asset location search



Property Searches

Groundwise Searches Ltd
Suite 8 Chichester House
45 Chichester Road
SOUTHEND ON SEA
SS1 2JU

Search address supplied Thames Side West
London
E16 1GB

Your reference 20616DM

Our reference ALS/ALS Standard/2017_3685831

Search date 9 November 2017

Keeping you up-to-date

Knowledge of features below the surface is essential in every development. The benefits of this not only include ensuring due diligence and avoiding risk, but also being able to ascertain the feasibility for any commercial or residential project.

An asset location search provides information on the location of known Thames Water clean and/or wastewater assets, including details of pipe sizes, direction of flow and depth. Please note that information on cover and invert levels will only be provided where the data is available.



Thames Water Utilities Ltd
Property Searches, PO Box 3189, Slough SL1 4WW
DX 151280 Slough 13



searches@thameswater.co.uk
www.thameswater-propertysearches.co.uk



0845 070 9148



Search address supplied: Thames Side West, London, E16 1GB

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

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:

TQ3980NE
TQ4080SW
TQ3980SE
TQ3980NW

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.

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

TQ3980NE
TQ4080SW



TQ3980SE
TQ3980NW

Enclosed is a map showing the approximate positions of our water mains and associated apparatus. Please note that records are not kept of the positions of individual domestic supplies.

For your information, there will be a pressure of at least 10m head at the outside stop valve. If you would like to know the static pressure, please contact our Customer Centre on 0800 316 9800. The Customer Centre can also arrange for a full flow and pressure test to be carried out for a fee.

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.

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

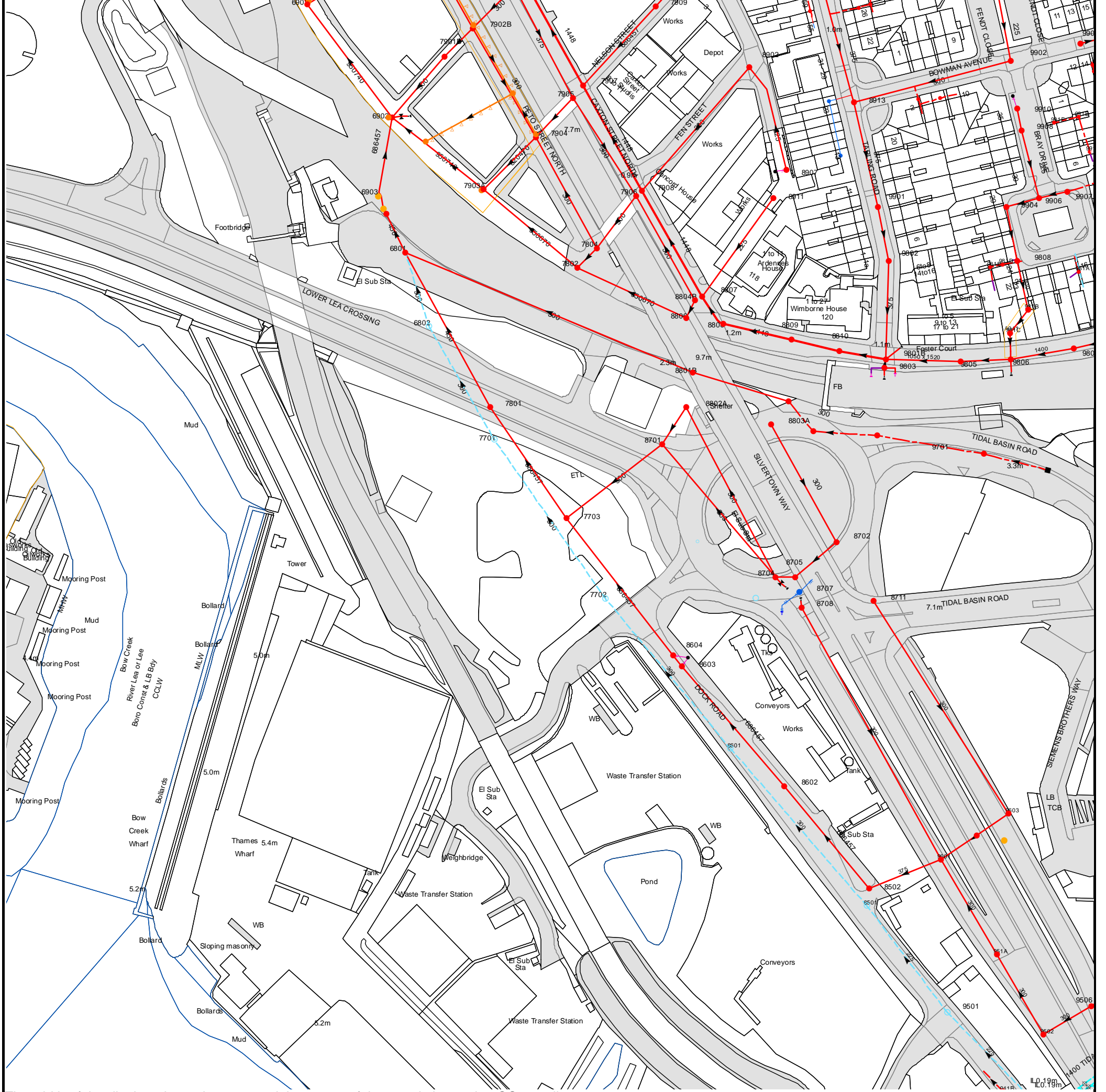
Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

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: 0800 009 3921
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 539750,180750

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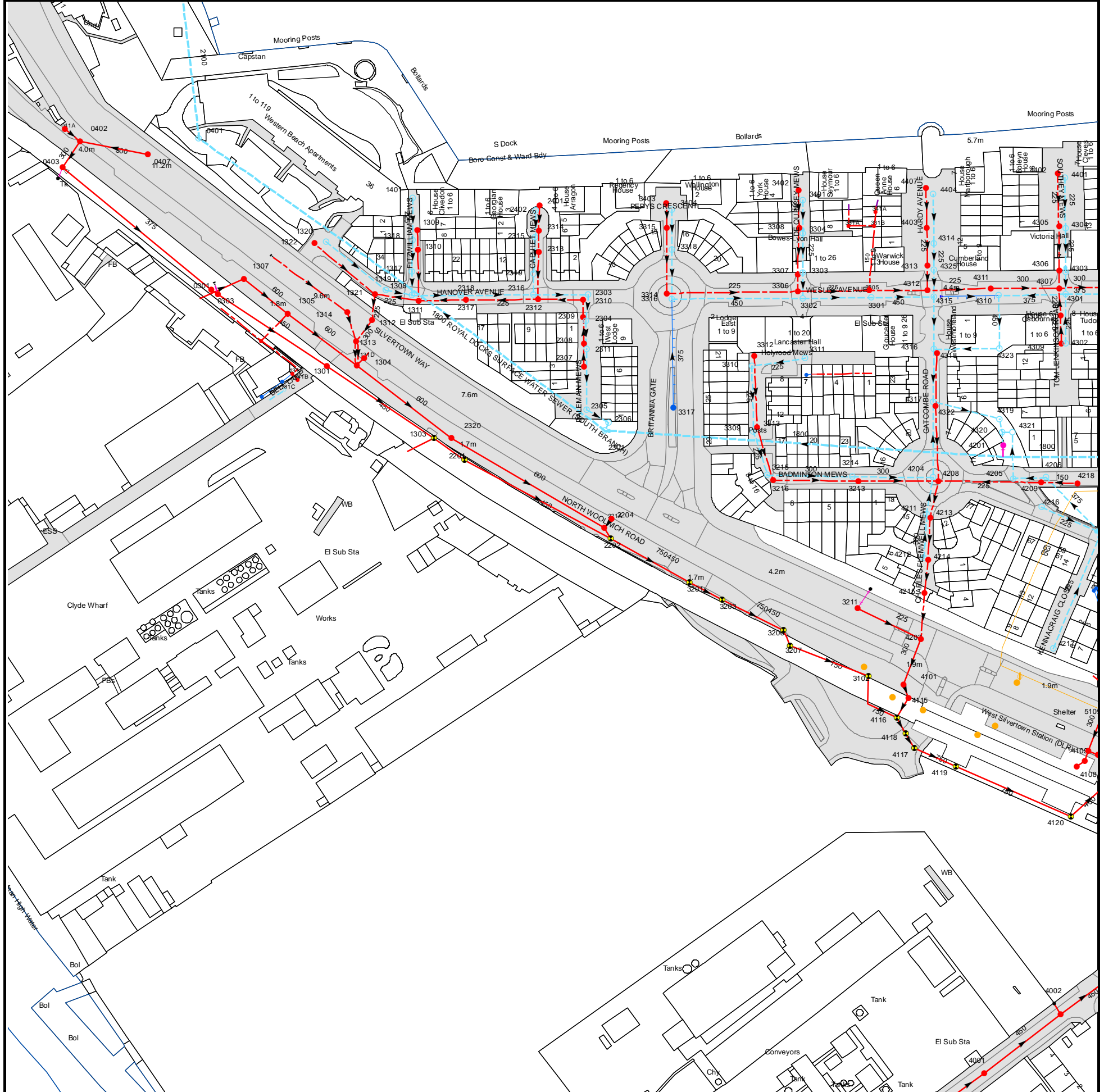
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NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
n/a	n/a	n/a
6902	1.51	-1.91
7901B	1.16	-1.28
7902B	1.14	-1.17
n/a	n/a	n/a
n/a	n/a	n/a
7905	.88	-1.19
7907	.88	-2.03
7909	.97	-1.48
991F	n/a	n/a
991E	n/a	n/a
9910	1.04	-.58
8913	.96	-1.05
891D	n/a	n/a
991I	n/a	n/a
991J	n/a	n/a
8902	.94	-1.51
9902	.98	-.53
891E	n/a	n/a
891B	n/a	n/a
891A	n/a	n/a
991G	n/a	n/a
991H	n/a	n/a
9903	1.01	-.48
6802	1.86	-1.07
8808	1.2	-2.1
8806	1.26	-1.74
8804B	1.05	-1.04
8807	1.09	-1.96
7802	1.18	-1.86
6801	1.54	-1.5
7804	1.12	-1.43
6903	1.55	-1.77
7906	.78	-1.47
7908	.78	-1.96
n/a	n/a	n/a
7903A	1.26	-1.75
n/a	n/a	n/a
7904	1.02	-1.65
n/a	n/a	n/a
n/a	n/a	n/a
981A	n/a	n/a
991D	n/a	n/a
8911	.93	-1.29
8907	.77	-.78
8809	1.03	-2.03
891C	n/a	n/a
9901	1	-1.1
9802	1.07	-1.33
981E	n/a	n/a
981D	n/a	n/a
9904	1.16	-1.12
981C	n/a	n/a
9808	1.26	-1.14
9908	1.11	-.62
981B	n/a	n/a
9906	1.15	-.82
9907	1.18	-.46
9807	1.19	-.19
8702	1.14	-.44
871A	n/a	n/a
7703	1.53	-1.69
9701	2.9	.13
8701	1.54	-1.05
7701	1.68	-.52
871C	n/a	n/a
881B	n/a	n/a
8803A	2.11	.46
8802A	1.92	-.69
7801	3.22	-.05
881A	n/a	n/a
8801B	2.19	-.88
9803	1.24	.21
9805	1.47	-1.99
9801B	1.08	-2.04
9806	1.66	-1.98
8810	1	-2.03
9502	1.41	-.97
9501	3.18	1.77
9506	1.25	-.85
951A	n/a	n/a
8501	1.78	.36
8502	1.61	-1.57
9601	1.3	-1.36
961A	n/a	n/a
9603	1.28	-1.09
8602	1.54	-1.66
8601	1.58	.01
8603	1.36	-1.74
8604	1.39	-1.68
8708	1.31	-.51

Manhole Reference	Manhole Cover Level	Manhole Invert Level
8711	.78	-.56
7702	1.68	-.26
871B	n/a	n/a
8707	1.29	-.81
8704	1.3	-.77
8705	1.36	-.72
6901	1.78	-1.91

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The width of the displayed area is 500m and the centre of the map is located at OS coordinates 540250,180250

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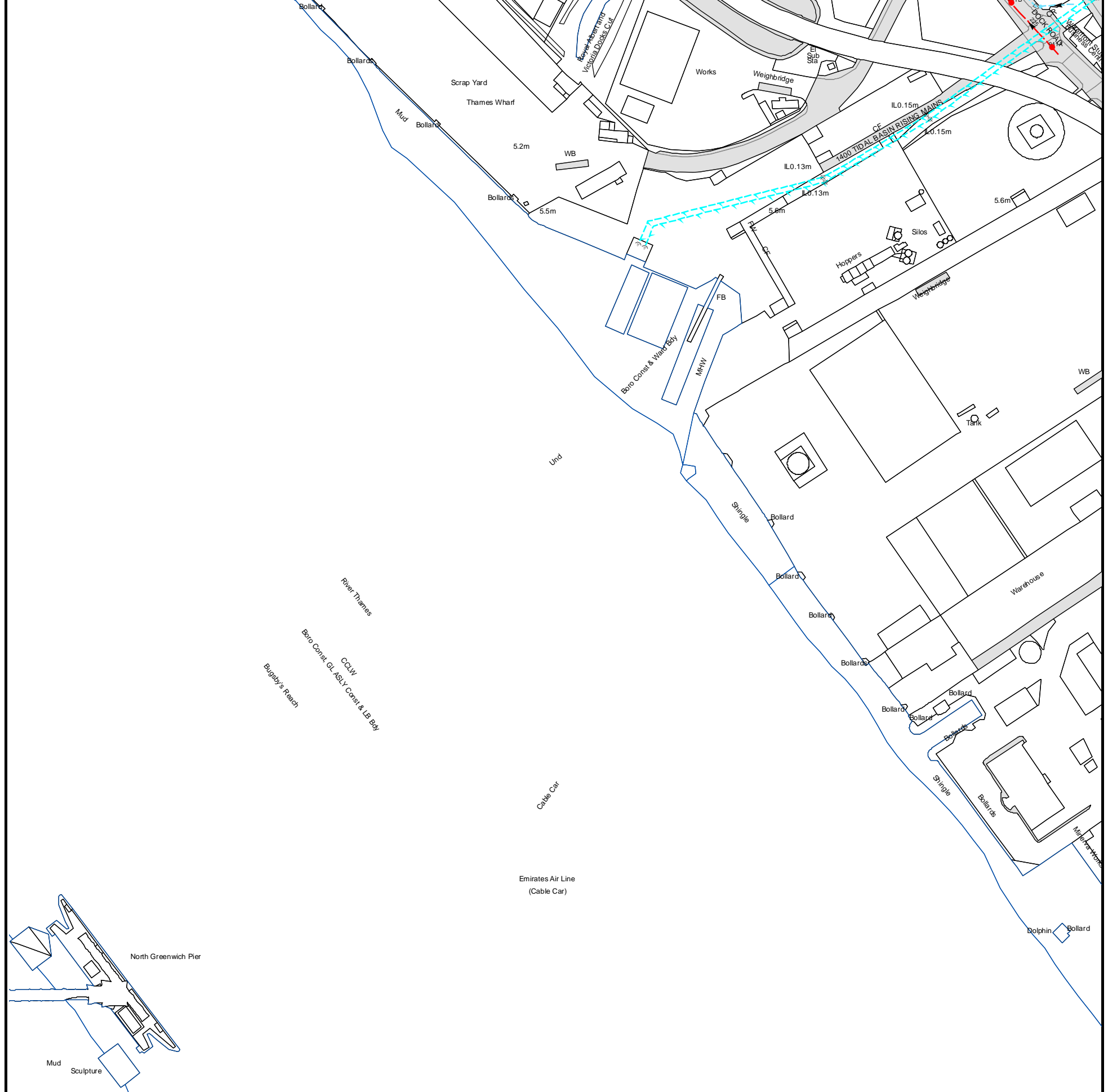
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NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
0403	3.12	.1
041A	n/a	n/a
3403	n/a	4.22
1401	n/a	n/a
0407	4.03	1.47
0402	3.97	1.37
0401	5.58	-14.48
4314	n/a	1.82
3304	n/a	3.4
4304	n/a	3.07
4403	n/a	n/a
3308	n/a	3.92
4305	n/a	n/a
331B	n/a	n/a
331A	n/a	n/a
341A	n/a	n/a
3401	n/a	4.36
4404	n/a	2
3402	n/a	4.2
4407	n/a	3.9
4401	n/a	4.4
4402	n/a	4
0301	2.14	.06
0303	2.12	.04
1307	2.05	.25
131G	n/a	n/a
131E	n/a	n/a
131F	n/a	n/a
131C	n/a	n/a
1305	1.97	.17
131A	n/a	n/a
131B	n/a	n/a
1322	n/a	n/a
1320	n/a	n/a
1301	1.77	.05
1314	n/a	1.29
1313	n/a	.56
1304	1.86	.14
131D	n/a	n/a
1312	n/a	1.36
1321	n/a	n/a
1319	n/a	n/a
1317	n/a	n/a
1308	n/a	n/a
1318	n/a	2.94
1309	n/a	3.06
1310	n/a	n/a
1311	n/a	2.62
1303	1.62	.02
2320	1.76	.08
2318	n/a	1.91
2201	1.65	.04
2317	n/a	n/a
2319	n/a	2.46
2316	n/a	1.77
2315	n/a	3.14
2402	n/a	3.78
2312	n/a	3.3
2313	n/a	3.77
2314	n/a	n/a
2401	n/a	4.35
2310	n/a	3.42
2309	n/a	3.58
2308	n/a	3.77
2307	n/a	4.16
2304	n/a	n/a
2311	n/a	n/a
2305	n/a	1.42
2303	n/a	1.66
2204	1.68	-.05
2301	4.26	-13.15
2306	n/a	n/a
2202	1.64	.01
221A	n/a	n/a
3314	n/a	n/a
3315	n/a	3.84
3318	n/a	4.05
3316	n/a	n/a
3404	n/a	3.44
3317	n/a	n/a
3201	1.64	-.15
3310	n/a	n/a
3309	n/a	n/a
3312	n/a	3.51
3313	n/a	3.28
3215	n/a	1.92
3216	n/a	n/a
3307	n/a	3.62
3306	n/a	n/a
3303	n/a	3.25
3302	n/a	1.94

Manhole Reference	Manhole Cover Level	Manhole Invert Level
3311	n/a	n/a
331C	n/a	n/a
3214	n/a	1.72
3213	n/a	2.8
3305	n/a	3.21
3301	n/a	1.66
4212	n/a	n/a
4211	n/a	n/a
4312	n/a	n/a
4313	n/a	3.14
4214	n/a	.71
4213	n/a	.82
4204	n/a	1.09
4317	n/a	.22
4325	n/a	1.72
4316	n/a	n/a
4315	n/a	1.4
4322	n/a	2.78
4318	n/a	2.98
4208	n/a	.95
4311	n/a	n/a
4310	n/a	1.14
4319	n/a	n/a
4323	n/a	n/a
4320	n/a	n/a
4201	1.77	-12.66
4321	n/a	n/a
4205	n/a	n/a
4209	n/a	1.27
4216	n/a	n/a
4206	n/a	n/a
4307	n/a	2.75
4306	n/a	3.07
4308	n/a	2.86
4309	n/a	3
4301	n/a	1.46
4303	n/a	2.34
4302	n/a	n/a
4218	n/a	n/a
421B	n/a	n/a
421A	n/a	n/a
4120	n/a	n/a
4119	n/a	n/a
4108	1.79	-.78
4109	2.34	-.38
4122	n/a	n/a
4121	n/a	n/a
4117	n/a	n/a
4118	n/a	n/a
4116	n/a	n/a
4115	n/a	n/a
4101	1.67	-.25
3102	1.54	n/a
4217	n/a	n/a
3207	n/a	n/a
4203	2	.39
3206	1.65	-.23
3211	2.53	.68
3203	1.66	-.14
4215	n/a	.6
4001	1.56	.35
4002	1.61	.32

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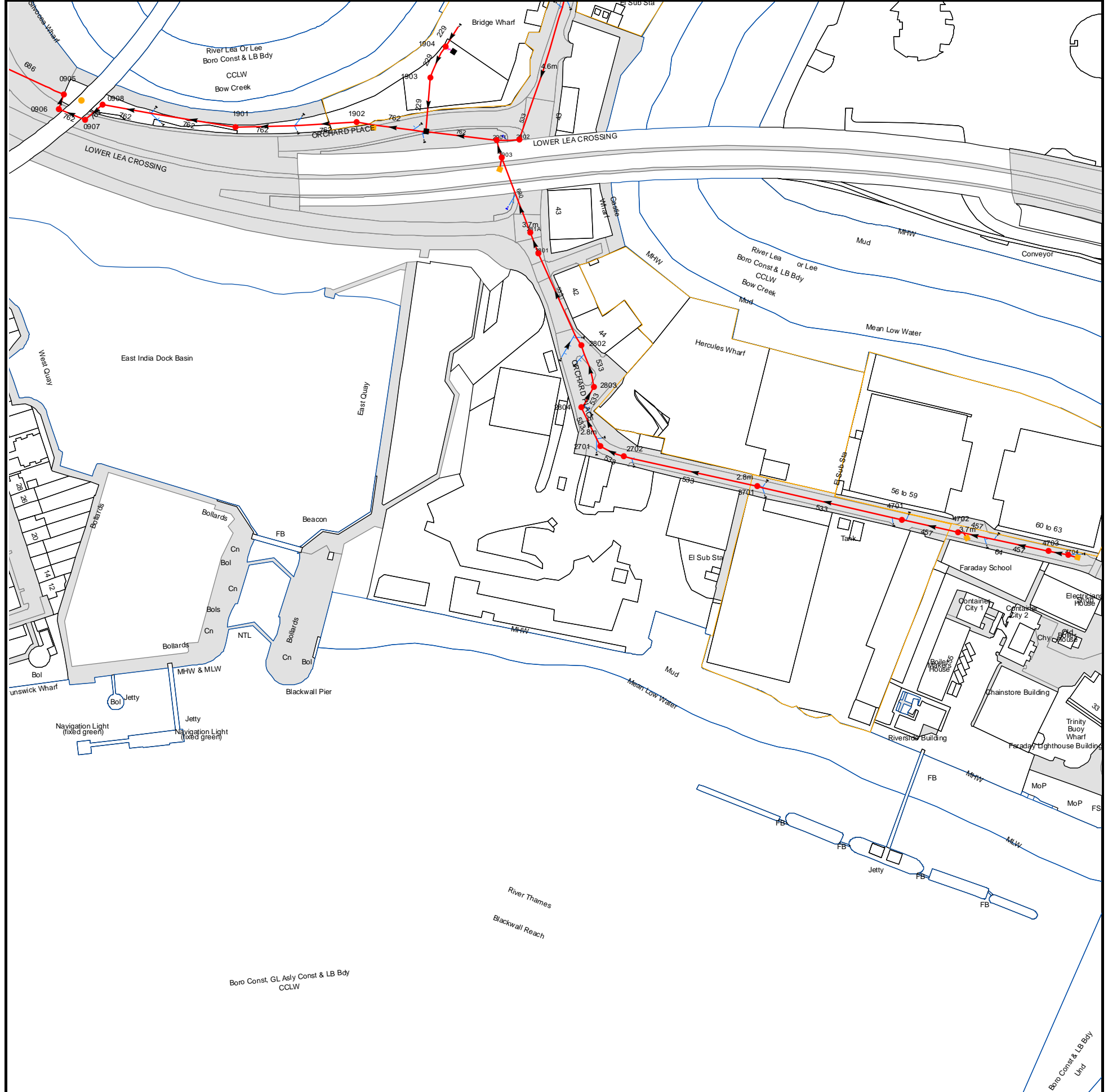


The width of the displayed area is 500m and the centre of the map is located at OS coordinates 539750,180250
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NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
941A	n/a	n/a
941B	n/a	n/a

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The width of the displayed area is 500m and the centre of the map is located at OS coordinates 539250,180750

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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Manhole Reference	Manhole Cover Level	Manhole Invert Level
4704	n/a	n/a
4703	n/a	n/a
4702	n/a	n/a
4701	n/a	n/a
3701	n/a	n/a
2702	n/a	n/a
2701	n/a	n/a
2804	n/a	n/a
2803	n/a	n/a
0908	n/a	n/a
1901	4.88	.28
1902	4.83	.43
1903	5.5	1.18
1904	5.42	1.33
2901	4.36	.53
2903	4.46	.06
2902	4.37	.66
281A	n/a	n/a
2801	3.44	.91
2802	2.59	.84
0906	n/a	n/a
0905	n/a	n/a
0907	n/a	n/a

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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.

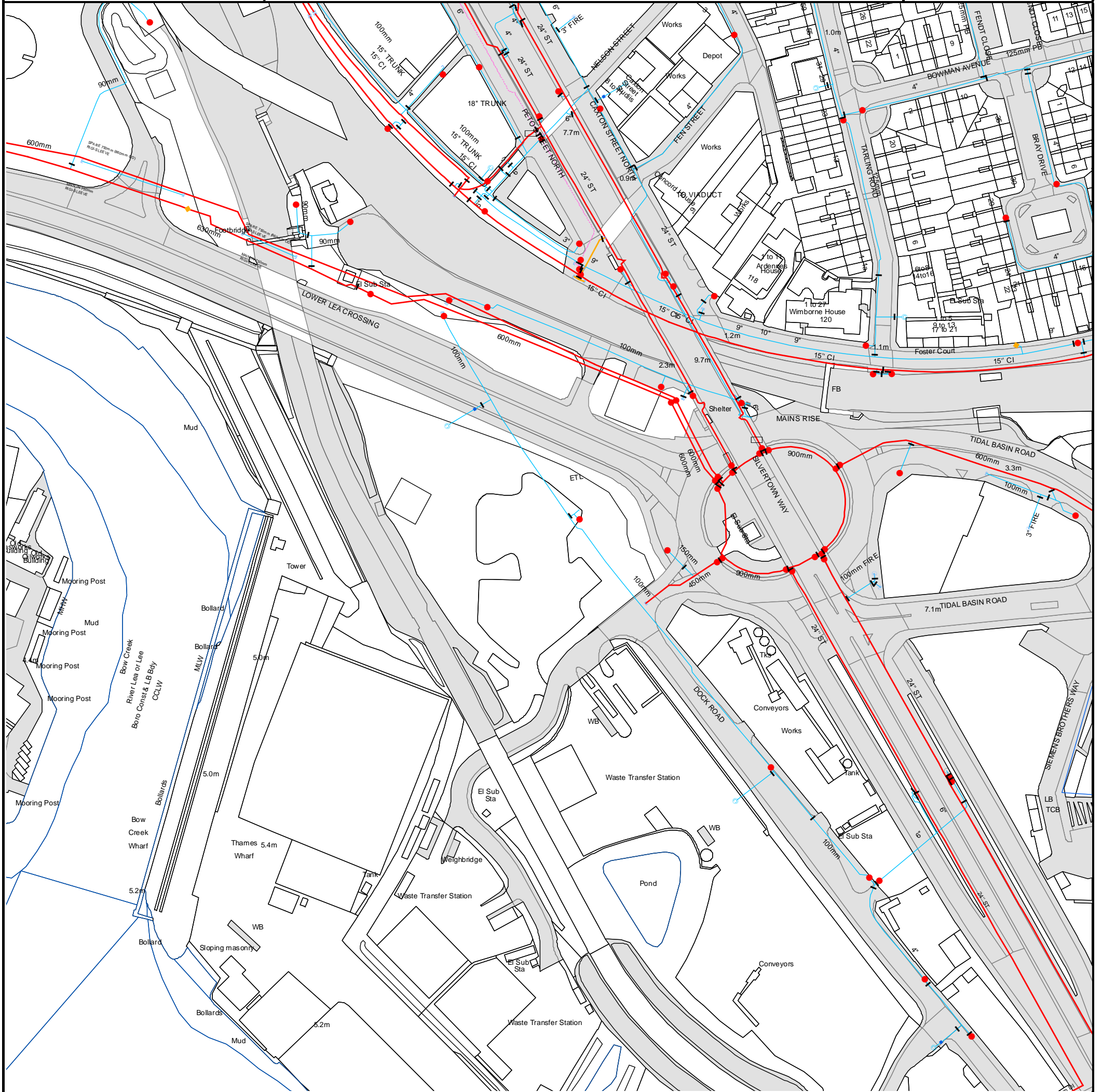
-  Agreement
-  Operational Site
-  Chamber
-  Tunnel
-  Conduit Bridge

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

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

Notes:

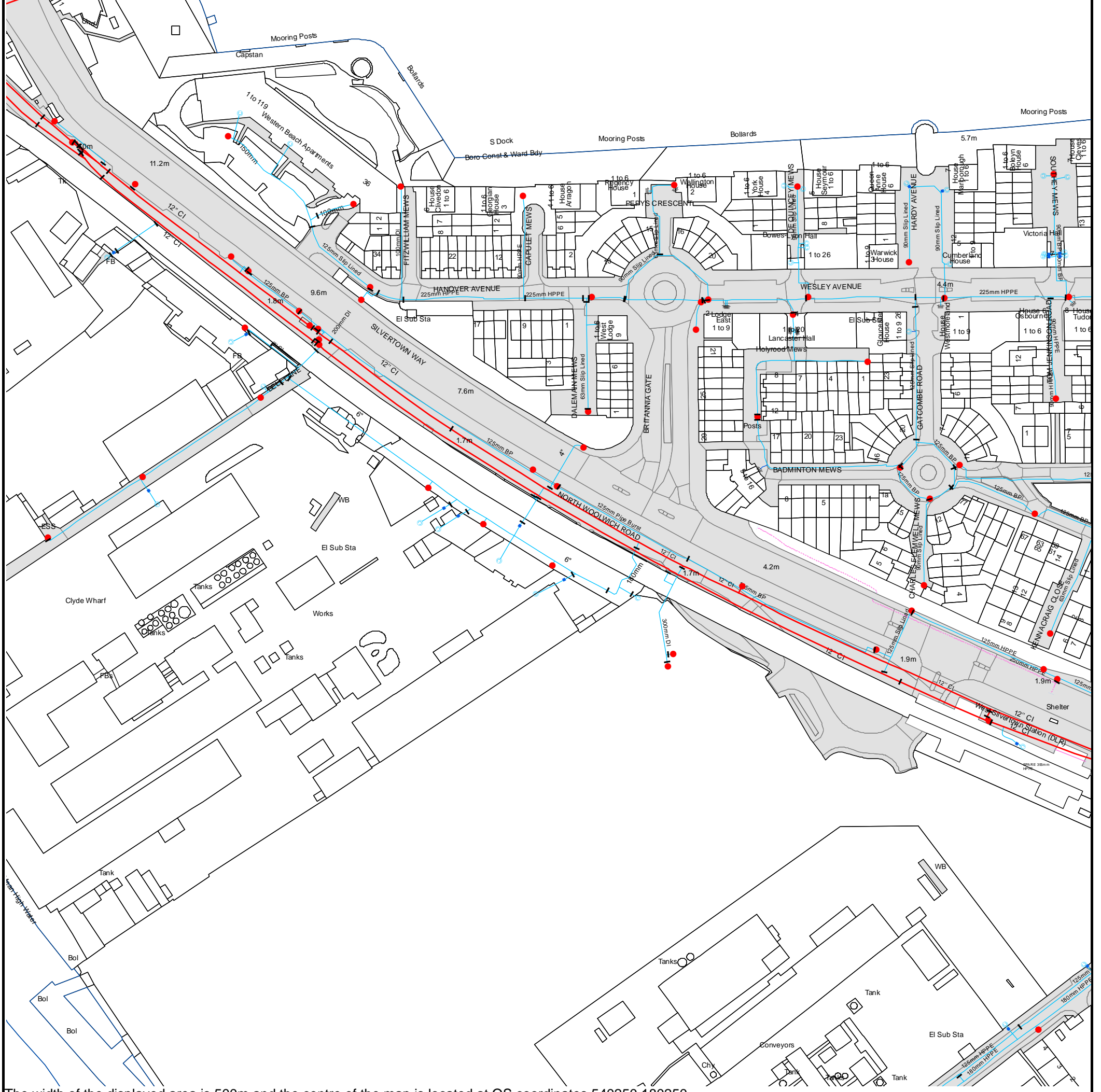
- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plans are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not 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.



The width of the displayed area is 500m and the centre of the map is located at OS coordinates 539750,180750

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.

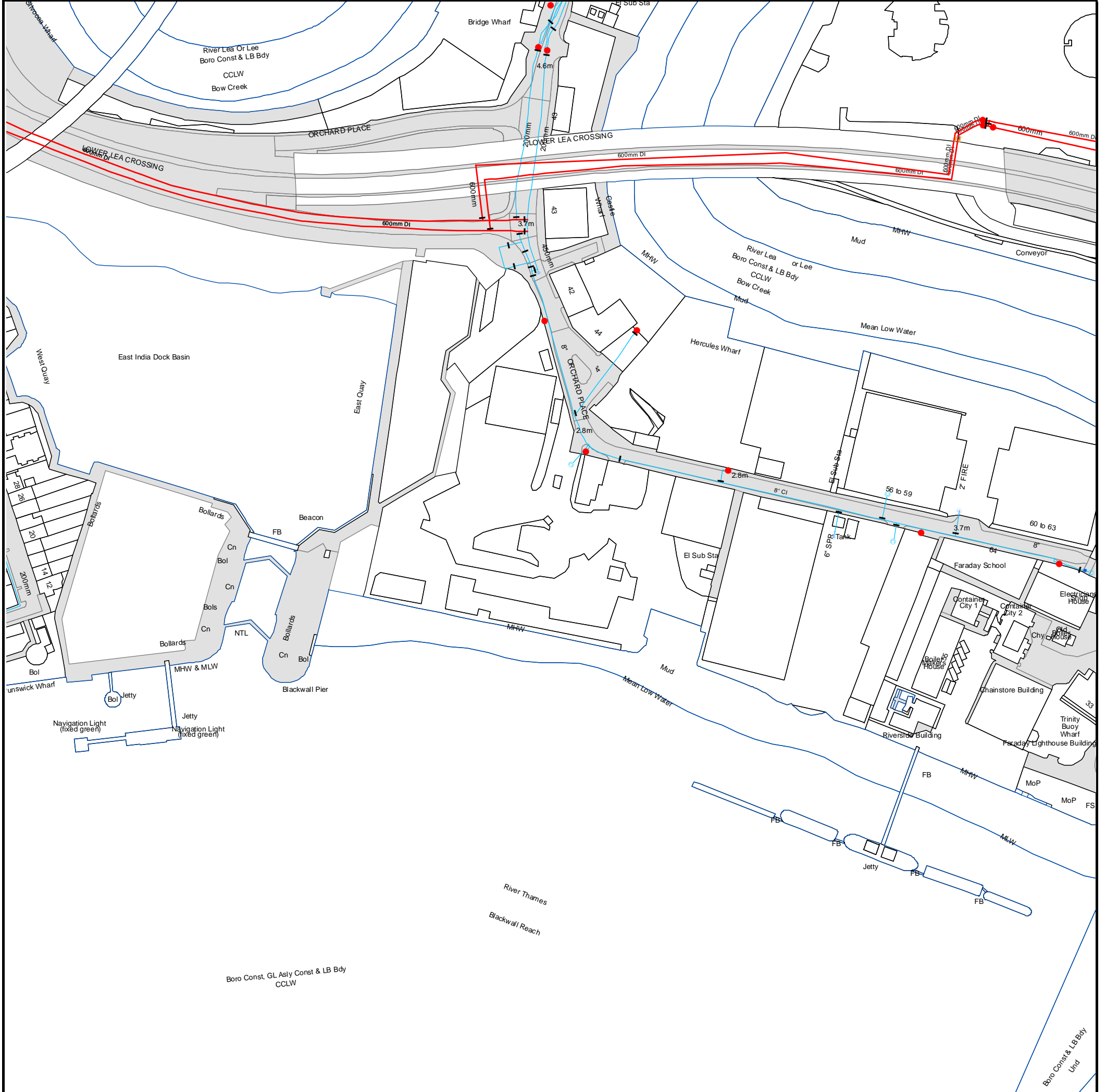


The width of the displayed area is 500m and the centre of the map is located at OS coordinates 540250,180250
 The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. 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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The width of the displayed area is 500m and the centre of the map is located at OS coordinates 539750,180250
 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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The width of the displayed area is 500m and the centre of the map is located at OS coordinates 539250,180750
 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.







ALS Water Map Key

Water Pipes (Operated & Maintained by Thames Water)


- 
Distribution Main: The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.
- 
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.
- 
Supply Main: A supply main indicates that the water main is used as a supply for a single property or group of properties.
- 
Fire Main: Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.
- 
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.

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 her 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
<p>Call 0845 070 9148 quoting your invoice number starting CBA or ADS / OSS</p>	<p>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</p>	<p>By calling your bank and quoting: Account number 90478703 Sort code 60-00-01 and your invoice number</p>	<p>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</p>

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

Appendix C – Existing Surface Water Calculations

Meinhardt UK Ltd		Page 1
283-288 High Holborn London WC1V 7HP	Thameside West	
Date 19/07/2018 File 180719 - THAMESIDE WEST...	Designed by PMG Checked by EP	
XP Solutions	Network 2017.1.2	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 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 Input Hydrographs 0 Number of Storage Structures 0
Number of Online Controls 0 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details


Rainfall Model FSR Ratio R 0.450
Region England and Wales Cv (Summer) 0.750
M5-60 (mm) 20.000 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 20, 30, 100
Climate Change (%) 0, 0, 0, 0

US/MH PN	Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	15 Winter	1	+0%	20/15 Summer	100/15 Summer			8.597
1.001	2	15 Winter	1	+0%	20/15 Summer				8.420
1.002	3	15 Winter	1	+0%	20/15 Summer				8.138
1.003	4	15 Winter	1	+0%	20/15 Summer				7.972
1.004	5	15 Winter	1	+0%	20/15 Summer				7.660
1.005	6	15 Winter	1	+0%	20/15 Summer				7.452

US/MH PN	Name	Surcharged Flooded			Pipe		Level Exceeded	
		Depth (m)	Volume (m ³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)		Status
1.000	1	-0.128	0.000	0.38		17.8	OK	2
1.001	2	-0.085	0.000	0.70		33.2	OK	
1.002	3	-0.149	0.000	0.50		48.4	OK	
1.003	4	-0.125	0.000	0.64		63.4	OK	
1.004	5	-0.198	0.000	0.46		78.3	OK	
1.005	6	-0.167	0.000	0.59		92.8	OK	

Meinhardt UK Ltd		Page 2
283-288 High Holborn London WC1V 7HP	Thameside West	
Date 19/07/2018 File 180719 - THAMESIDE WEST...	Designed by PMG Checked by EP	
XP Solutions	Network 2017.1.2	

20 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 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 Input Hydrographs 0 Number of Storage Structures 0
Number of Online Controls 0 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details


Rainfall Model FSR Ratio R 0.450
Region England and Wales Cv (Summer) 0.750
M5-60 (mm) 20.000 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 20, 30, 100
Climate Change (%) 0, 0, 0, 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	15 Winter	20	+0%	20/15 Summer	100/15 Summer			9.205
1.001	2	15 Winter	20	+0%	20/15 Summer				9.090
1.002	3	15 Winter	20	+0%	20/15 Summer				8.648
1.003	4	15 Winter	20	+0%	20/15 Summer				8.434
1.004	5	15 Winter	20	+0%	20/15 Summer				7.969
1.005	6	15 Winter	20	+0%	20/15 Summer				7.726

PN	US/MH Name	Surcharged Flooded		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m ³)	Flow / Cap. (l/s)	Flow (l/s)		
1.000	1	0.480	0.000	0.78	37.0	SURCHARGED	2
1.001	2	0.585	0.000	1.43	67.8	SURCHARGED	
1.002	3	0.361	0.000	1.05	101.2	SURCHARGED	
1.003	4	0.337	0.000	1.38	136.6	SURCHARGED	
1.004	5	0.111	0.000	1.00	172.4	SURCHARGED	
1.005	6	0.107	0.000	1.32	208.7	SURCHARGED	

Meinhardt UK Ltd		Page 3
283-288 High Holborn London WC1V 7HP	Thameside West	
Date 19/07/2018 File 180719 - THAMESIDE WEST...	Designed by PMG Checked by EP	
XP Solutions	Network 2017.1.2	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 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 Input Hydrographs 0 Number of Storage Structures 0
Number of Online Controls 0 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details


Rainfall Model FSR Ratio R 0.450
Region England and Wales Cv (Summer) 0.750
M5-60 (mm) 20.000 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 20, 30, 100
Climate Change (%) 0, 0, 0, 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Water Level (m)
1.000	1	15 Winter	30	+0%	20/15 Summer	100/15 Summer		9.439
1.001	2	15 Winter	30	+0%	20/15 Summer			9.311
1.002	3	15 Winter	30	+0%	20/15 Summer			8.820
1.003	4	15 Winter	30	+0%	20/15 Summer			8.579
1.004	5	15 Winter	30	+0%	20/15 Summer			8.052
1.005	6	15 Winter	30	+0%	20/15 Summer			7.775

PN	US/MH Name	Surcharged Flooded		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m ³)	Flow / Cap. (l/s)	Flow (l/s)		
1.000	1	0.714	0.000	0.83	39.4	SURCHARGED	2
1.001	2	0.806	0.000	1.55	73.4	SURCHARGED	
1.002	3	0.533	0.000	1.12	108.1	SURCHARGED	
1.003	4	0.482	0.000	1.46	144.7	SURCHARGED	
1.004	5	0.194	0.000	1.07	184.9	SURCHARGED	
1.005	6	0.156	0.000	1.42	225.4	SURCHARGED	

Meinhardt UK Ltd		Page 4
283-288 High Holborn London WC1V 7HP	Thameside West	
Date 19/07/2018 File 180719 - THAMESIDE WEST...	Designed by PMG Checked by EP	
XP Solutions	Network 2017.1.2	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 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 Input Hydrographs 0 Number of Storage Structures 0
Number of Online Controls 0 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.450
Region England and Wales Cv (Summer) 0.750
M5-60 (mm) 20.000 Cv (Winter) 0.840


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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 20, 30, 100
Climate Change (%) 0, 0, 0, 0

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
1.000	1	15 Winter	100	+0%	20/15 Summer	100/15 Summer			10.003
1.001	2	15 Winter	100	+0%	20/15 Summer				9.957
1.002	3	15 Winter	100	+0%	20/15 Summer				9.453
1.003	4	15 Winter	100	+0%	20/15 Summer				9.134
1.004	5	15 Winter	100	+0%	20/15 Summer				8.375
1.005	6	15 Winter	100	+0%	20/15 Summer				7.961

PN	US/MH Name	Surcharged Flooded		Pipe		Status	Level Exceeded
		Depth (m)	Volume (m ³)	Flow / Cap. (l/s)	Overflow (l/s)		
1.000	1	1.278	3.009	1.30	61.6	FLOOD	2
1.001	2	1.452	0.000	1.86	88.3	FLOOD RISK	
1.002	3	1.166	0.000	1.29	124.2	SURCHARGED	
1.003	4	1.037	0.000	1.76	174.2	SURCHARGED	
1.004	5	0.517	0.000	1.31	226.1	SURCHARGED	
1.005	6	0.342	0.000	1.76	279.6	SURCHARGED	

Appendix D – Proposed Surface Water Calculations

Meinhardt UK Ltd		Page 1
283-288 High Holborn London WC1V 7HP	Thameside West Phase 1	
Date 28/06/2019 File 2303---PHASE 1 DRAINAGE	Designed by JS Checked by EP	
XP Solutions	Network 2018.1.1	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 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 Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 6 Number of Storage Structures 7 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 0.450 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged
									Level (m)	Depth (m)
1.000	1	60 Winter	1	+0%					8.742	-0.150
1.001	1	1440 Winter	1	+0%					8.586	-0.118
1.002	2	15 Winter	1	+0%	100/15 Winter				1.085	-0.119
2.000	4	60 Winter	1	+0%					8.638	-0.150
2.001	4	1440 Winter	1	+0%					8.484	-0.116
1.003	2	15 Winter	1	+0%	30/60 Winter				0.983	-0.117
1.004	3	120 Winter	1	+0%	30/60 Winter				0.929	-0.196
1.005	3	120 Winter	1	+0%	30/15 Winter				0.969	-0.136
3.000	9	60 Winter	1	+0%					8.820	-0.150
3.001	10	1440 Winter	1	+0%	100/120 Winter				8.690	-0.092
3.002	4	15 Winter	1	+0%	100/15 Summer				1.193	-0.164
4.000	10	60 Winter	1	+0%					8.599	-0.150
4.001	10	1440 Winter	1	+0%	100/120 Summer				8.478	-0.083
3.003	5	15 Winter	1	+0%	30/15 Summer				1.000	-0.136
5.000	11	60 Winter	1	+0%					8.388	-0.150
5.001	11	1440 Winter	1	+0%	100/360 Winter				8.249	-0.101
1.006	4	120 Winter	1	+0%	1/30 Winter				0.968	0.043

PN	US/MH Name	Flooded		Pipe		Level Exceeded
		Volume (m ³)	Flow / Cap. (l/s)	Flow (l/s)	Status	
1.000	1	0.000	0.00	0.0	OK*	
1.001	1	0.000	0.00	0.0	OK	
1.002	2	0.000	0.09	1.2	OK	
2.000	4	0.000	0.00	0.0	OK*	
2.001	4	0.000	0.00	0.0	OK	
1.003	2	0.000	0.11	1.2	OK	
1.004	3	0.000	0.03	0.8	OK	
1.005	3	0.000	0.09	3.4	OK	

283-288 High Holborn
London
WC1V 7HP

Thameside West
Phase 1



Date 28/06/2019
File 2303---PHASE 1 DRAINAGE


Designed by JS
Checked by EP

XP Solutions

Network 2018.1.1

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded		Pipe		Status	Level Exceeded
		Volume (m ³)	Flow / Cap.	Flow / (l/s)	Flow (l/s)		
3.000	9	0.000	0.00		0.0	OK*	
3.001	10	0.000	0.00		0.1	OK	
3.002	4	0.000	0.16		6.6	OK	
4.000	10	0.000	0.00		0.0	OK*	
4.001	10	0.000	0.00		0.1	OK	
3.003	5	0.000	0.32		12.9	OK	
5.000	11	0.000	0.00		0.0	OK*	
5.001	11	0.000	0.00		0.1	OK	
1.006	4	0.000	0.04		2.8	SURCHARGED	

Meinhardt UK Ltd		Page 3
283-288 High Holborn London WC1V 7HP	Thameside West Phase 1	
Date 28/06/2019 File 2303---PHASE 1 DRAINAGE	Designed by JS Checked by EP	
XP Solutions	Network 2018.1.1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 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 Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 6 Number of Storage Structures 7 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 0.450 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged
									Level (m)	Depth (m)
1.000	1	60 Winter	30	+0%					8.742	-0.150
1.001	1	1440 Winter	30	+0%					8.624	-0.080
1.002	2	120 Winter	30	+0%	100/15 Winter				1.156	-0.048
2.000	4	60 Winter	30	+0%					8.638	-0.150
2.001	4	1440 Winter	30	+0%					8.523	-0.077
1.003	2	120 Winter	30	+0%	30/60 Winter				1.155	0.055
1.004	3	120 Winter	30	+0%	30/60 Winter				1.155	0.030
1.005	3	240 Winter	30	+0%	30/15 Winter				1.163	0.058
3.000	9	60 Winter	30	+0%					8.820	-0.150
3.001	10	1440 Winter	30	+0%	100/120 Winter				8.756	-0.026
3.002	4	15 Winter	30	+0%	100/15 Summer				1.246	-0.111
4.000	10	60 Winter	30	+0%					8.599	-0.150
4.001	10	1440 Winter	30	+0%	100/120 Summer				8.556	-0.005
3.003	5	60 Winter	30	+0%	30/15 Summer				1.229	0.093
5.000	11	60 Winter	30	+0%					8.388	-0.150
5.001	11	1440 Winter	30	+0%	100/360 Winter				8.305	-0.045
1.006	4	60 Winter	30	+0%	1/30 Winter				1.202	0.277

PN	US/MH Name	Flooded		Pipe		Level Exceeded
		Volume (m ³)	Flow / Cap. (l/s)	Flow (l/s)	Status	
1.000	1	0.000	0.00	0.0	OK*	
1.001	1	0.000	0.00	0.1	OK	
1.002	2	0.000	0.08	1.1	OK	
2.000	4	0.000	0.00	0.0	OK*	
2.001	4	0.000	0.00	0.1	OK	
1.003	2	0.000	0.11	1.2	SURCHARGED	
1.004	3	0.000	0.09	2.5	SURCHARGED	
1.005	3	0.000	0.11	4.3	SURCHARGED	

283-288 High Holborn
London
WC1V 7HP

Thameside West
Phase 1



Date 28/06/2019
File 2303---PHASE 1 DRAINAGE


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Checked by EP

XP Solutions

Network 2018.1.1

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded		Pipe		Status	Level Exceeded
		Volume (m ³)	Flow / Overflow Cap. (l/s)	Flow (l/s)			
3.000	9	0.000	0.00	0.0		OK*	
3.001	10	0.000	0.00	0.1		OK	
3.002	4	0.000	0.51	20.2		OK	
4.000	10	0.000	0.00	0.0		OK*	
4.001	10	0.000	0.00	0.1		OK	
3.003	5	0.000	0.41	16.2	SURCHARGED		
5.000	11	0.000	0.00	0.0		OK*	
5.001	11	0.000	0.00	0.1		OK	
1.006	4	0.000	0.04	2.8	SURCHARGED		

Meinhardt UK Ltd		Page 5
283-288 High Holborn London WC1V 7HP	Thameside West Phase 1	
Date 28/06/2019 File 2303---PHASE 1 DRAINAGE	Designed by JS Checked by EP	
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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coefficient 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 Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 6 Number of Storage Structures 7 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 0.450 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water	Surcharged
									Level (m)	Depth (m)
1.000	1	60 Winter	100	+40%					8.742	-0.150
1.001	1	1440 Winter	100	+40%					8.681	-0.023
1.002	2	240 Winter	100	+40%	100/15 Winter				1.549	0.345
2.000	4	60 Winter	100	+40%					8.638	-0.150
2.001	4	1440 Winter	100	+40%					8.583	-0.017
1.003	2	240 Winter	100	+40%	30/60 Winter				1.549	0.449
1.004	3	240 Winter	100	+40%	30/60 Winter				1.548	0.423
1.005	3	240 Winter	100	+40%	30/15 Winter				1.552	0.447
3.000	9	1440 Winter	100	+40%					8.859	-0.111
3.001	10	1440 Winter	100	+40%	100/120 Winter				8.859	0.077
3.002	4	15 Winter	100	+40%	100/15 Summer				1.868	0.511
4.000	10	1440 Winter	100	+40%					8.675	-0.074
4.001	10	1440 Winter	100	+40%	100/120 Summer				8.675	0.114
3.003	5	15 Winter	100	+40%	30/15 Summer				1.747	0.611
5.000	11	1440 Winter	100	+40%					8.394	-0.144
5.001	11	1440 Winter	100	+40%	100/360 Winter				8.392	0.042
1.006	4	240 Winter	100	+40%	1/30 Winter				1.549	0.624

PN	US/MH Name	Flooded		Pipe		Level Exceeded
		Volume (m ³)	Flow / Cap. (l/s)	Flow (l/s)	Status	
1.000	1	0.000	0.00	0.0	OK*	
1.001	1	0.000	0.00	0.1	OK	
1.002	2	0.000	0.08	1.1	SURCHARGED	
2.000	4	0.000	0.00	0.0	OK*	
2.001	4	0.000	0.00	0.1	OK	
1.003	2	0.000	0.09	1.0	SURCHARGED	
1.004	3	0.000	0.09	2.5	SURCHARGED	
1.005	3	0.000	0.08	3.3	SURCHARGED	

283-288 High Holborn
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Phase 1



Date 28/06/2019
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Network 2018.1.1

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded		Pipe		Status	Level Exceeded
		Volume (m ³)	Flow / Overflow Cap. (l/s)	Flow (l/s)			
3.000	9	0.000	0.00	0.0		OK*	
3.001	10	0.000	0.00	0.1		SURCHARGED	
3.002	4	0.000	0.76	30.2		SURCHARGED	
4.000	10	0.000	0.00	0.0		OK*	
4.001	10	0.000	0.00	0.2		SURCHARGED	
3.003	5	0.000	1.50	59.7		SURCHARGED	
5.000	11	0.000	0.00	0.0		OK*	
5.001	11	0.000	0.00	0.1		SURCHARGED	
1.006	4	0.000	0.04	2.9		SURCHARGED	

Appendix E – Proposed Foul Water Calculations



		Project Title		Project No.	
		Thameside West - Phase 1		2303	
		Part of Development		Calculation Sheet No:	
Proposed Foul Flows		1			
Drawing ref:		Check By:		Date	
				Calcs By: EP	
				Date 06/03/2020	

Development Type		1 bedroom	Water usage	210 l/day	Refer to table 1
Number of units		1	Water demand	210 l/day	Water usage * units
			Average Flow Rate	0.00 l/s	Water demand per second

Development Type		1 bedroom	Water usage	210 l/day	Refer to table 1
Number of units		184	Water demand	38640 l/day	Water usage * units
			Average Flow Rate	0.45 l/s	Water demand per second

Development Type		2 bedrooms	Water usage	130 l/day	Refer to table 1
Number of units		157	Water demand	20410 l/day	Water usage * units
			Average Flow Rate	0.24 l/s	Water demand per second

Development Type		3+ bedrooms	Water usage	100 l/day	Refer to table 1
Number of units		59	Water demand	5900 l/day	Water usage * units
			Average Flow Rate	0.07 l/s	Water demand per second

Industrial Units

Sewers for Adoption 7th Edition (design flow rate of 0.6l/s per hectare + 0.7l/s per hectare)

Average Flow Rate	0.57 l/s	Water demand per second
Total Average Flow Rate	1.33 l/s	Water demand per second
Total Peak Flow Rate	7.96 l/s	6 times average flow rate

Type of Building	Litres	Criteria/Unit
Dwellings		
1 bedroom	210	Bedroom
2 bedrooms	130	Bedroom
3+ bedrooms	100	Bedroom
Student en-suite	100	Bedroom
Student, communal	90	Bed Space
Nurses Home	120	Bed Space
Childrens Home	135	Bed Space
Elderly Sheltered	120	Bedroom
Elderly Care Home	135	Bed Space
Prison	150	Bedroom
Hotels		
Budget	135	Bedroom
Travel Inn/Lodge	150	Bedroom
4-5 Star Luxury	200	Bedroom

Table 1: Extract from Table 2 Plumbing Engineering Services Design Guide, 2002

Appendix F – London Borough of Newham Proforma

1. Project & Site Details	Project / Site Name (including sub-catchment / stage / phase where appropriate)	Thameside West, Unit 1
	Address & post code	Land on the corner of North Woolwich road and Bell Lane, E16 1YZ
	OS Grid ref. (Easting, Northing)	E 540112 N 180337
	LPA reference (if applicable)	
	Brief description of proposed work	Construction of proposed multi storey Residential Blocks
	Total site Area	7500 m ²
	Total existing impervious area	7500 m ²
	Total proposed impervious area	7500 m ²
	Is the site in a surface water flood risk catchment (ref. local Surface Water Management Plan)?	Not located within CDA as per Newham's Surface Water Management Plan
	Existing drainage connection type and location	Assumed connection to combined Thames Water sewer (tbc by survey)
	Designer Name	Jack Stokes
	Designer Position	Project Engineer
	Designer Company	Meinhardt UK

2. Proposed Discharge Arrangements	2a. Infiltration Feasibility		
	Superficial geology classification	Alluvium - Clay, Silt, Sand and Peat.	
	Bedrock geology classification	London Clay formation - Clay, Silt & Sand.	
	Site infiltration rate	tbc by SI	
	Depth to groundwater level	tbc by SI	
	Is infiltration feasible?	No, due to underlying London Clay	
	2b. Drainage Hierarchy		
		<i>Feasible (Y/N)</i>	<i>Proposed (Y/N)</i>
	1 store rainwater for later use	N	N
	2 use infiltration techniques, such as porous surfaces in non-clay areas	N	N
	3 attenuate rainwater in ponds or open water features for gradual release	N	N
	4 attenuate rainwater by storing in tanks or sealed water features for gradual release	Y	Y
	5 discharge rainwater direct to a watercourse	N	N
	6 discharge rainwater to a surface water sewer/drain	N	N
	7 discharge rainwater to the combined sewer.	Y	Y
2c. Proposed Discharge Details			
Proposed discharge location	Sewer in adjacent North Woolwich Rd		
Has the owner/regulator of the discharge location been consulted?	Yes, see Meinhardt drainage strategy		

3a. Discharge Rates & Required Storage				
	Greenfield (GF) runoff rate (l/s)	Existing discharge rate (l/s)	Required storage for GF rate (m ³)	Proposed discharge rate (l/s)
Qbar	2.9			
1 in 1	2.45	92.8	840	2.9
1 in 30	6.64	225.4	840	2.9
1 in 100	9.21	279.6	840	2.9
1 in 100 + CC			840	2.9
Climate change allowance used		40%		
3b. Principal Method of Flow Control		Vortex Flow Control		
3c. Proposed SuDS Measures				
	Catchment area (m ²)	Plan area (m ²)	Storage vol. (m ³)	
Rainwater harvesting	0		0	
Infiltration systems	0		0	
Green roofs	0	0	0	
Blue roofs	5000	2280	656	
Filter strips	0	0	0	
Filter drains	0	0	0	
Bioretention / tree pits	0	0	0	
Pervious pavements	0	0	0	
Swales	0	0	0	
Basins/ponds	0	0	0	
Attenuation tanks	2500		184	
Total	7500	2280	840	

4a. Discharge & Drainage Strategy	Page/section of drainage report
Infiltration feasibility (2a) – geotechnical factual and interpretive reports, including infiltration results	Section 2.1.3 Proposed Surface Water Drainage Strategy
Drainage hierarchy (2b)	As above
Proposed discharge details (2c) – utility plans, correspondence / approval from owner/regulator of discharge location	Section 2.1.2
Discharge rates & storage (3a) – detailed hydrologic and hydraulic calculations	Section 2.1.4 and Appendix D
Proposed SuDS measures & specifications (3b)	Section 3
4b. Other Supporting Details	Page/section of drainage report
Detailed Development Layout	Appendix A
Detailed drainage design drawings, including exceedance flow routes	Appendix A
Detailed landscaping plans	Appendix A
Maintenance strategy	Section 3
Demonstration of how the proposed SuDS measures improve:	
a) water quality of the runoff?	Section 3
b) biodiversity?	Section 3
c) amenity?	Section 3



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10-A: OUTLINE WASTE MANAGEMENT STRATEGY (OWMS) (UPDATED FOR MARCH 2020)

Thameside West

Operational Waste Management Strategy

035668

14 May 2020

Revision 03

Revision	Description	Issued by	Date	Checked
00	Draft	EW	22.11.2018	JS
01	Final	EW	13.12.2018	JS
02	May 2019 Submission	EW	17.05.2019	JS
03	May 2020 Submission	EW	14.05.2020	JS

author **Edward Wilkins**

date **14.05.2020**

approved **Jose Sorribes**

signature



date **14.05.2020**

..

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Glossary

Term	Definition
BoH	Back-of-House
DT	Design Team
ELWA	East London Waste Authority
ES	Environmental Statement
FM	Facilities Management
FoH	Front-of-House
GEA	Gross External Area
GLAP	GLA Land and Property
JWDP	Joint Waste Development Plan
LBN	London Borough of Newham
MSW	Municipal Solid Waste
OWMS	Operational Waste Management Strategy
SHL	Silvertown Homes Limited
SINC	Site of Importance for Nature Conservation

1 Introduction

This Operational Waste Management Strategy (OWMS) has been prepared by BuroHappold Engineering to accompany an Environmental Statement (ES) Addendum for the proposed Thameside West development in the London Borough of Newham (LBN). The planning application is being carried forward by Silvertown Homes Limited (SHL) and GLA Land and Property (GLAP) (the applicant).

The applicant intends to submit a hybrid planning application comprising:

1. Detailed planning application for Phase 1 with works to include: The proposed demolition of existing buildings and structures, the erection of buildings, including tall buildings, comprising: 401 residential Units (Use Class C3), 3,608 sqm (GEA) of flexible employment floorspace (Use Classes B1c and B8); 230 sqm (GEA) of flexible retail floorspace (Use Classes A1-A4); a new/altered access road from Dock Road/North Woolwich Road; new streets, open spaces, landscaping and public realm; car, motorcycle and bicycle parking spaces and servicing spaces; and other works incidental to the proposed development.
2. Outline planning application (all matters reserved) for the phased delivery of the balance of the site for the proposed demolition of existing buildings and structures; the erection of buildings, including tall buildings, comprising: a new local centre; a primary school (Use Class D1); residential and older person units (Use Class C3); flexible employment floorspace (Use Classes B1c, B2 and B8); flexible retail floorspace (Use Classes A1-A4); community and leisure floorspace (Use Classes D1 and D2); the construction of a new flood defence wall and delivery of ecological habitat adjacent to the River Thames and associated infrastructure; streets, open spaces, landscaping and public realm (including new park and SINC improvements); car, motorcycle and bicycle parking spaces and servicing spaces; utilities including energy centre and electricity substations; and other works incidental to the proposed development.

Figure 1-1 shows an indicative masterplan layout of the proposed development. The location and extent of Phase 1 within the wider masterplan have been marked in blue.

SHL, GLAP and the design team (DT) acknowledge that the management of solid waste is an important element to consider when buildings are designed. Planning for future operational waste management ensures that buildings will be able to operate efficiently and sustainably, while minimising impacts on design requirements and building performance. Waste management operations need to be safe, discreet, and efficient in order to minimise the impacts on the buildings' users and those responsible for the collection and onward treatment of waste.

The key aims of this OWMS are as follows:

- To provide outline estimations on the anticipated residential and non-residential waste generation within the proposed development;
- To provide a strategy for the management of the anticipated waste generation within the development, from the point where waste is generated to the point where it is collected;
- To provide outline guidance on waste management to ensure that adequate spatial provision for the clean and efficient storage and collection of waste is incorporated into the design;
- To allow waste to be disposed of easily, and be stored and collected in an efficient and discreet manner; and
- To ensure that national and local targets, as well as all of the applicant's waste management aims and aspirations, are met.

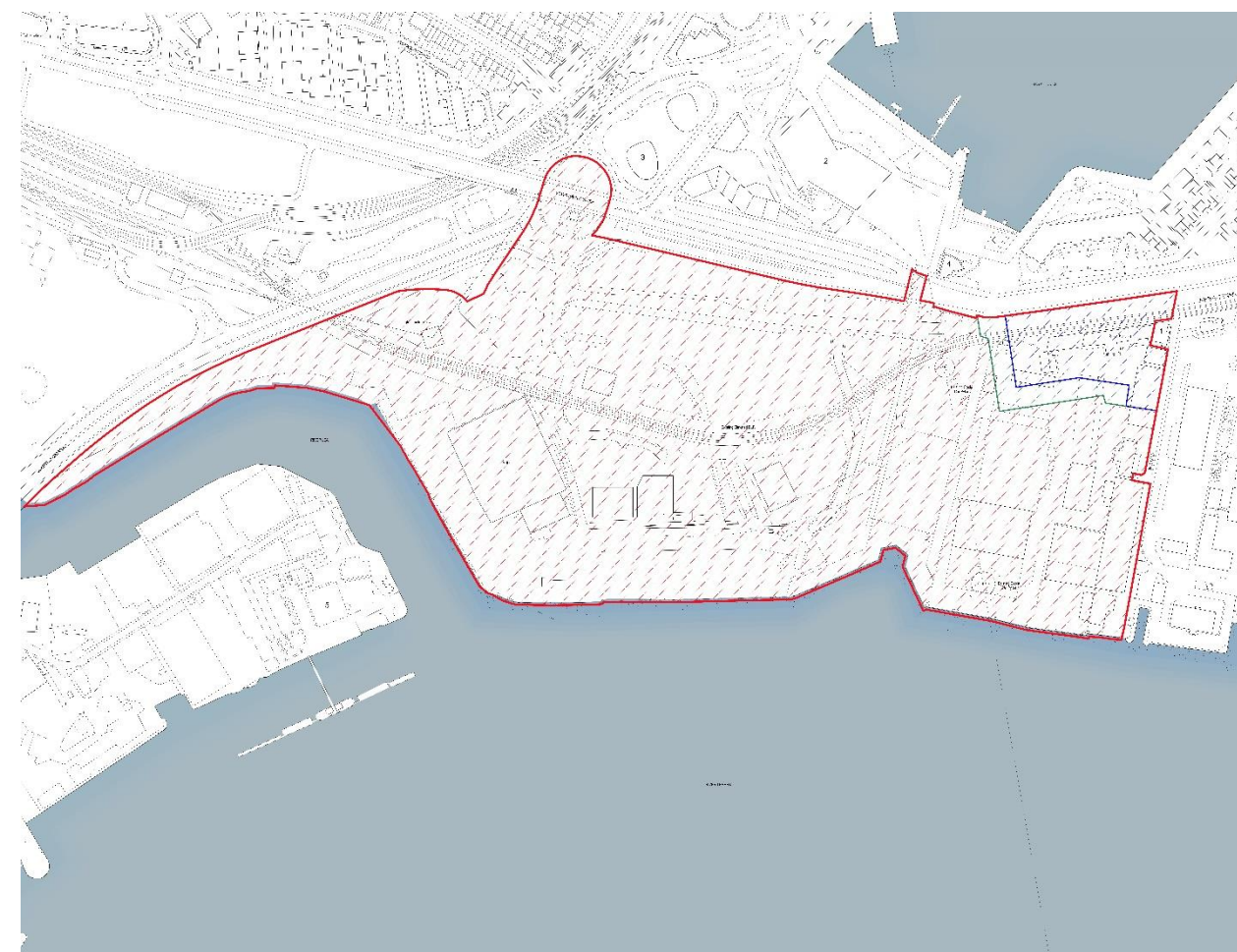


Figure 1-1 Indicative masterplan layout

The OWMS submitted at this stage covers Phase 1 in detail (including internal layouts, waste movement through the buildings and the sizing of waste storage rooms) and the wider site in outline. The OWMS should be updated at subsequent reserved matters stages for the components currently covered in outline to ensure that adequate waste storage is provided for each phase of the development.

2 Waste Management Policy and Guidance

2.1 Introduction

This section provides a summary of the most relevant national, regional and local policies and guidance relating to the management of waste in the proposed development. A more detailed review of the relevant policy and guidance is included in Appendix A.

2.2 National Context

- National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2019);
- National Planning Policy for Waste (Ministry of Housing, Communities and Local Government, 2014);
- Government Review of Waste Policy in England (Department for Environment, Food and Rural Affairs, 2011);
- Waste Management Plan for England (Department for Environment, Food and Rural Affairs, 2013); and
- Our Waste, Our Resources: A Strategy for England (Department for Environment, Food and Rural Affairs, 2018).

2.3 Regional Context

- The Mayor's Municipal Waste Management Strategy (GLA, 2011);
- The Mayor's Business Waste Management Strategy (GLA, 2011);
- London Plan (consolidated with alterations since 2011) (GLA, 2016); and
- The Intend to Publish London Plan (GLA, 2019).

2.4 Local Context

- Joint Waste Development Plan for the East London Waste Authority Boroughs (2012);
- LBN Waste Management Guidelines for Architects and Property Developers (LBN, 2014); and
- Newham Local Plan 2018: A 15 Year Plan Looking Ahead to 2033 (LBN, 2018).

2.5 Other Relevant Waste Guidance

- Making Space for Waste, A Practical Guide for Developers and Local Authorities (Association of Directors of Environment, Economy, Planning and Transport (ADEPT), 2010); and
- Building Regulations 2010 Part H6; and
- British Standards BS 5906:2005 Waste management in buildings – Code of practice.

2.6 Consultation with LBN

As part of the design process, BuroHappold regularly consulted LBN's Waste and Public Space Commissioner via telephone and e-mail. The proposed waste management strategy was also presented to LBN's Waste and Public Space Commissioner at a meeting held on 17th October 2018. The meeting minutes are included in Appendix B. During the meeting, it was agreed in principle that the residential units in Phases 1, 2 and 3 and the affordable units in the remaining phases would be served by the 'traditional' local authority collection option.

In order to reduce the space required for bin storage and collection, BuroHappold proposed that waste from the market units in the later phases would be compacted. While LBN expressed concern over the proposed collection of compactors by a private contractor, all parties present acknowledged that the waste management policy landscape would have evolved by the time the later phases are constructed, and that there are a number of potential waste management options available for these areas of the site. It was agreed in principle that while compacting areas would be shown in the outline planning submission, there will be scope to adapt the waste management strategy at reserved matters stages, if required.

3 Waste Movement and Collection (Detailed Component)

3.1 Introduction

This section describes the proposed strategy to store, move and collect all residential and non-residential waste generated by Phase 1 of the proposed development. This phase will provide a total of 401 residential units split across four cores, which are shown in Figure 3-1.

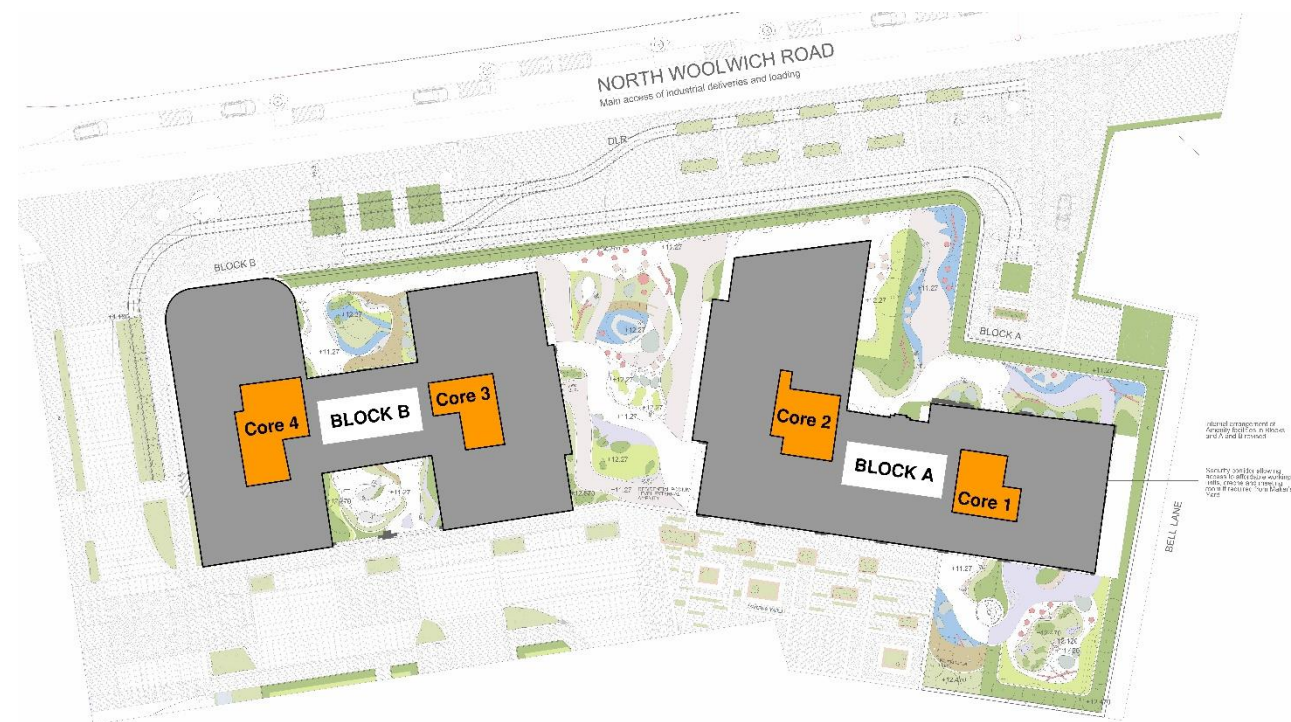


Figure 3-1 Phase 1 residential core names

Supporting facilities, including a crèche, community space and gym have been incorporated on a first floor podium, while at ground floor, two flexible employment units (assumed industrial use) have been provided. Two small flexible retail units have also been incorporated at mezzanine level in Block B.

3.2 Residential Units (C3)

Both the affordable and market units in Phase 1 will be served by the 'traditional' local authority collection option, as is illustrated schematically in Figure 3-2. In brief, waste will be stored in 1,100 litre containers and collected on a weekly basis by LBN's operatives.



Figure 3-2 Illustration of Phase 1 residential waste strategy

Internal Storage

To ensure that recyclables are collected separately from general refuse, adequate internal storage should be provided in all units for the separation of recyclable materials from other waste. The internal storage could take the form of a ventilated cupboard or drawer, typically located within the kitchen. Examples of internal waste storage systems are shown in Figure 3-3.



Figure 3-3 Examples of kitchen waste segregation units

Residential Waste Movement

LBN guidance states that residents should be required to walk no further than 30 metres horizontal distance when carrying refuse and recycling. To satisfy this requirement, four designated front-of-house (FoH) waste rooms have been incorporated, one for each residential core. Residents in Block A and Block B will move their bagged segregated waste via lifts or stairs down to their nearest FoH waste room. Full bins from Core 1 and Core 4 will then be swapped by an on-site facilities management (FM) team with empties from larger back-of-house (BoH) stores, where bins can be stacked to save space.

It has not been deemed possible to bring Core 2 and Core 3 in each block down to ground level, as the brief to the architects from the applicant has been to maximise the footprint of the industrial units in this space. As such, the FoH waste rooms for these two cores will be located at first floor podium level, while the FoH waste rooms for Core 1 and Core 4 will be located at ground level, as is shown in Figure 3-4. Meanwhile, the BoH bin store for Block A will be located at ground level adjacent to Core 1 and the BoH store for Block B adjacent to Core 4.

In line with LBN guidance, sufficient space has been provided across the FoH and BoH bin rooms to store waste generated over a period of one week, with residual waste and mixed recyclables stored in large 1,100 litre bins.

All waste storage rooms will be designed to comply with the recommendations set out in BS 5906:2005¹. For safety reasons, the waste rooms should be constructed within a fire compartment structure and fire extinguishers will be deployed in each room.

To ensure that recyclables are collected separately from general refuse, it is also recommended that appropriate signage on waste segregation is displayed in all FoH waste rooms and that residents receive a waste and recycling information pack when they move into their new home.

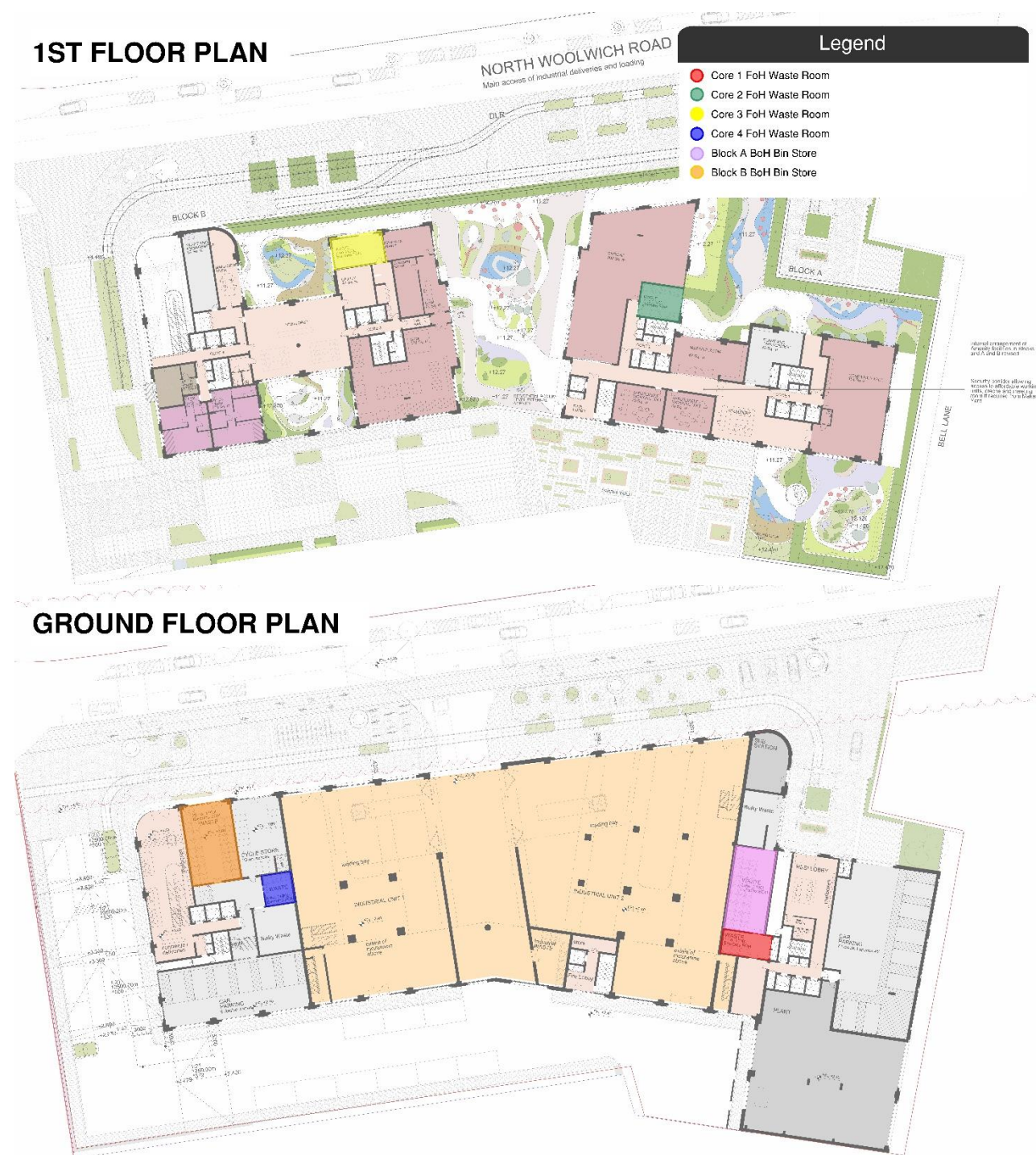


Figure 3-4 Indicative location of residential waste rooms

FM Team Waste Movement

An on-site FM team will manage residential waste generated in Phase 1. One of the FM team’s responsibilities will be to regularly inspect the FoH waste rooms and, when bins in the FoH areas are full, exchange them with empty bins from the BoH stores. The FoH waste rooms have been sized to provide sufficient space to store waste generated over a period of at least two days, although they could be emptied on a more frequent basis, if desired.

¹ British Standard BS 5906:2005 Waste management in buildings. Code of practice.

The other key role of the FM team will be to help move full bins to the designated collection points prior to collection. It is recommended that a pedestrian-controlled type tug is used for these operations. Space has been incorporated in the BoH waste rooms so that this piece of equipment can be stored.

The FM team should ensure that when bins are moved to the collection point, there is always at least one empty bin for residual waste and one empty bin for mixed recyclables left in each FoH bin room. In line with LBN guidance, this will ensure that residents attempting to dispose of non-recyclable refuse are able to do so without contaminating a recycling container.

FM Team Waste Movement (Core 2 and Core 3)

The FoH bin rooms for Core 2 and Core 3 are located at podium level and, as such, the FM team will not be able to move bins to the BoH rooms along an external route.

It is therefore proposed that the FM team move waste from the Core 2 and Core 3 FoH waste rooms to the BoH bin stores along the indicative routes shown in Figure 3-5. A separate BoH corridor has been incorporated in Block A to ensure that the FM team are not required to move waste through residential lobby areas. In Block B, waste will have to be moved a short distance through the residential lobby area. However, to ensure minimal disruption, these operations will be scheduled 'out-of-hours', when the lobby is used less frequently by residents.

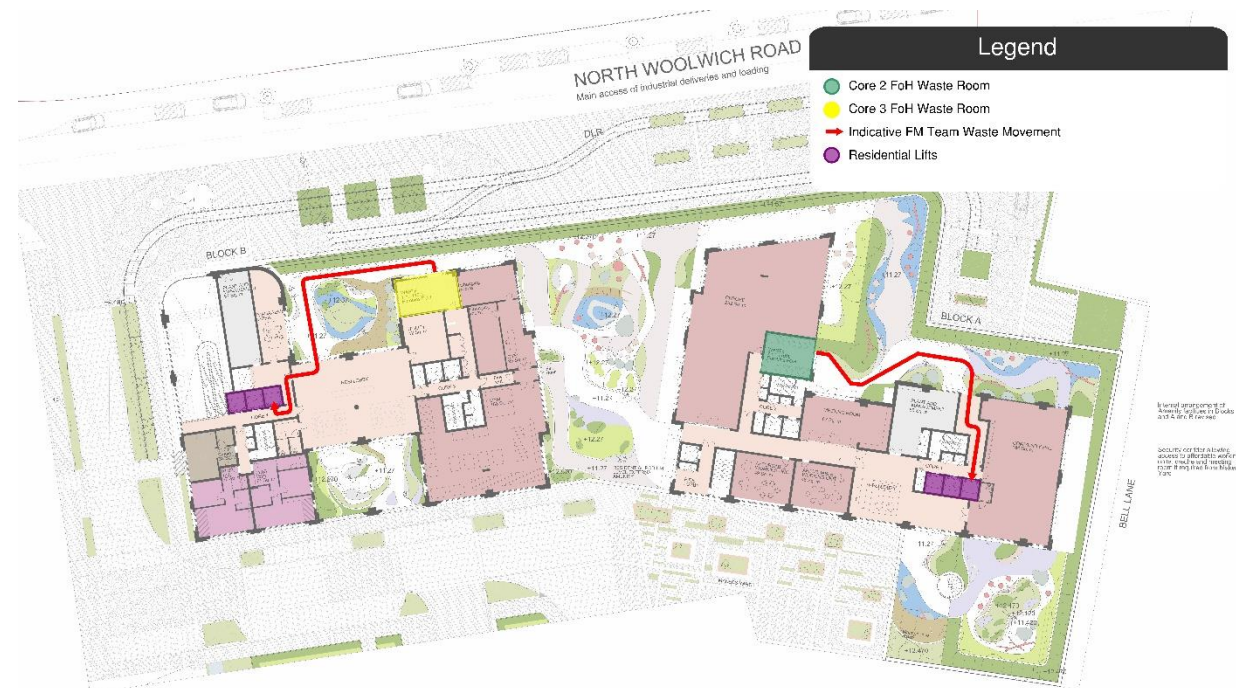


Figure 3-5 Indicative FM team waste movement routes for temporary waste management solution

It should be noted that the residential lifts are not designed for the movement of full 1,100 litre bins. As such, it is advised that the FM team move bagged waste to the BoH bin stores using waste trolleys instead. It is proposed that drop-front 1,100 litre bins are provided in the Core 2 and Core 3 FoH stores. The FM team will regularly remove bagged waste from these bins and trolley waste to LBN 1,100 litre bins in the BoH bin stores. While the drop-front bins would need to be rented (independently of LBN), the bins collected by LBN's operatives would still be those specified in their guidance. Going forward, there is potential to explore a number of alternative waste movement options for these cores.

Supporting Residential Facilities

It is expected that minimal quantities of waste will be generated in the supporting residential facilities, such as the gym, crèche and community space. Waste will be segregated into two streams (residual waste and mixed recyclables) and stored locally in small bins within these areas. The unit operators will collect bagged waste at the end of each day and transfer it to bins in the waste rooms at ground level, via the residential lifts.

Waste Collection

The local authority offers a weekly waste collection service for its residents. In line with this, residential waste from Phase 1 will be collected on a weekly basis by the LBN waste collection crew. For the purposes of this report, the refuse vehicle specified in their 2014 guidance (10.564 m (L) x 2.524 m (W) x 3.552 m (H), with 4.5 m operating height) has been tested. Residential bins from both blocks will be collected from the slip road adjacent to the building.

LBN guidance states that their operatives should not be required to move full bins any further than 10 metres from the waste room/designated collection area to the loading position at the back of the vehicle. It is proposed that, if required, the FM team will assist LBN's operatives with moving bins from the Block A BoH store, so that the collection crew are not required to move full bins over their specified distances. It is recommended that a keypad or code is used for gaining access to the Block A and Block B bin rooms and through the residential gate, with the code shared with collection staff and all arrangements agreed with LBN prior to installation.

The proposed waste collection arrangements for Block A and Block B have been illustrated schematically in Figure 3-6. Refuse vehicle swept paths for Phase 1 are included in Appendix C.

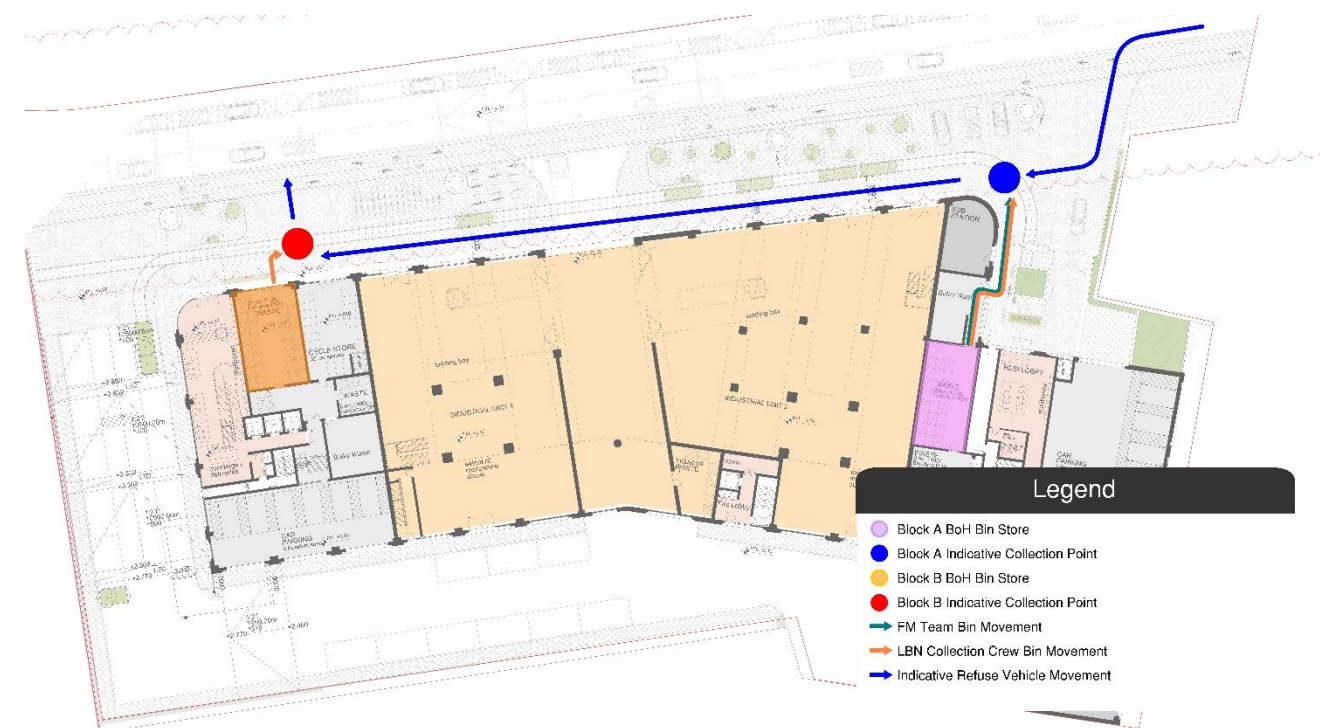


Figure 3-6 Indicative waste collection points and refuse vehicle movement routes

Bulky Waste

Dedicated storage areas for bulky waste have been provided at ground level. If residents have unwanted bulky waste items, they will notify the FM team who will then collect the items from the residential apartments and move them to the nearest bulky waste storage area. If necessary, the FM team could make use of an electric towing vehicle (equipped with a small trailer or similar) to assist with the movement of bulky items. When there are sufficient items in the bulky waste store, the FM team will arrange a collection with a private waste contractor. During the meeting held on 17th October 2018, LBN's Waste and Public Space Commissioner agreed to this approach in principle.

3.3 Non-Residential Uses (A1-A4, B1b, B1c, B2 (restricted), B8)

In addition to residential uses, Phase 1 also comprises up to 3,608 m² (GEA) of flexible employment floorspace and 230 m² (GEA) of flexible retail floorspace.

Figure 3-7 shows the location of the commercial units in Block A and Block B. Flexible employment floorspace has been incorporated at ground floor and mezzanine level and two flexible retail units have been provided in Block B at mezzanine level.

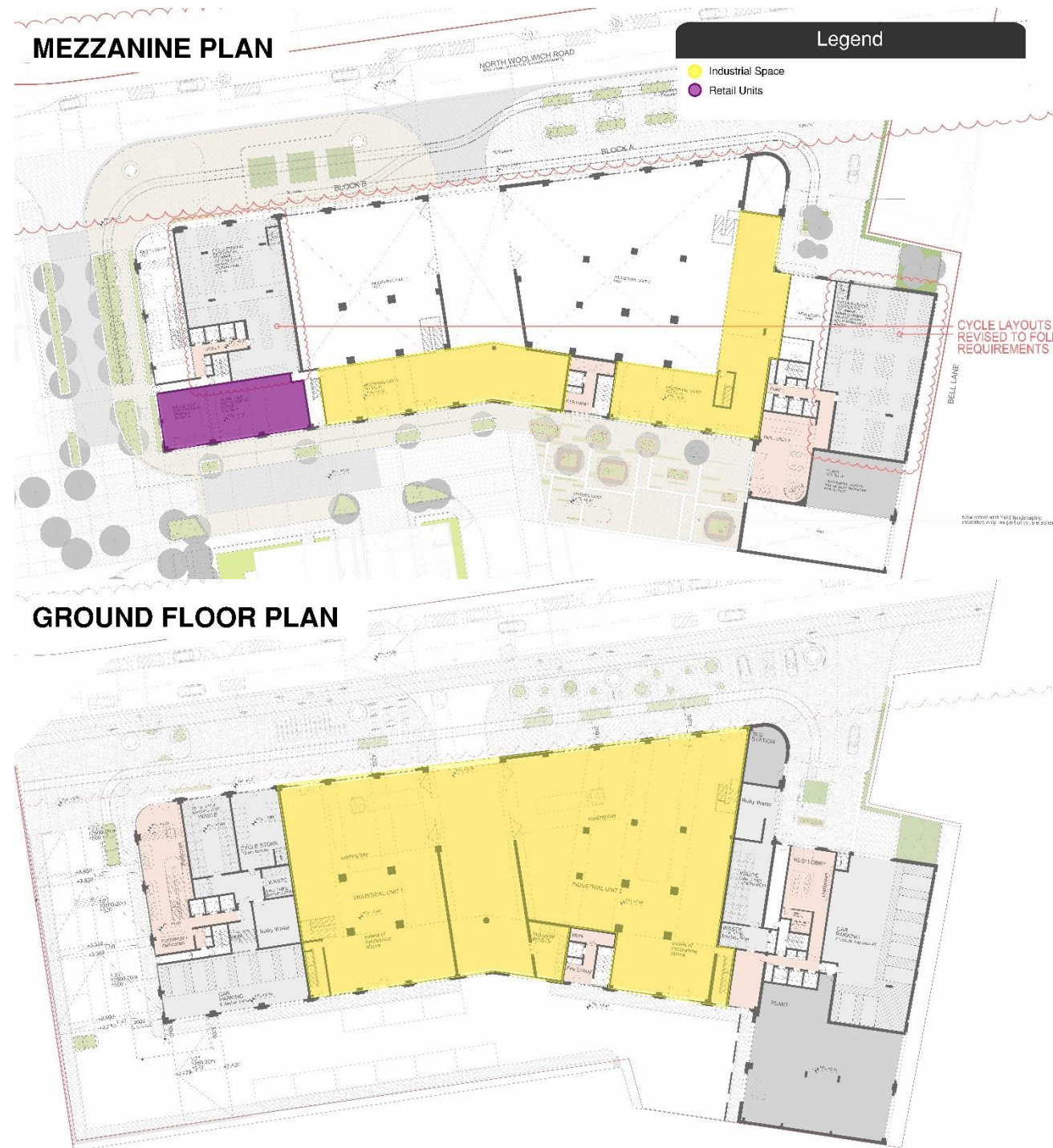


Figure 3-7 Indicative location of Phase 1 commercial units

Flexible Employment Floorspace

The waste strategy for the flexible employment floorspace is summarised in Figure 3-8. For the purposes of conservative assessment, it has been assumed that the two flexible employment units will be industrial land use.

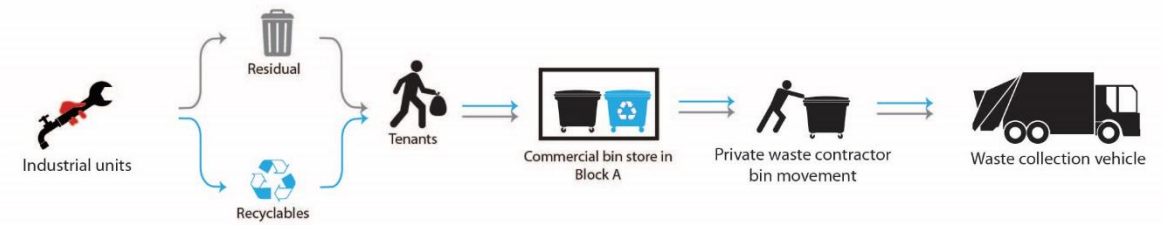


Figure 3-8 Illustration of waste strategy for industrial uses

Space for the temporary storage of waste will be provided internally within the footprint of each industrial unit. It is proposed that, as a minimum, waste from these units will be segregated into residual waste and mixed recyclables. Tenants will dispose of waste into small bins and, at appropriate times during the day, will be responsible for moving bagged segregated waste to 1,100 litre bins in a centralised waste storage area in Block A. Sufficient space has been provided to contain the estimated volume of mixed recyclables and residual waste arising between collections in large 1,100 litre bins. At this stage, it has been assumed that bins from the industrial units will be collected three times each week by a private contractor.

It is also recommended that space is incorporated in the waste room for the storage of special wastes (e.g. hazardous wastes) that may be generated depending on the tenants that occupy each of the units. A small secure cabinet for hazardous waste could be incorporated in the store. Industrial tenants would need to make their own arrangements for managing any non-standard types of waste.

Prior to collection, the private waste contractor will access the waste store and will wheel bins to a space adjacent to the Block A loading bays, from where they will be collected by a small, rear-end loader refuse vehicle. The waste contractor will then return empty bins back to the waste store. Figure 3-9 illustrates the bin movement operations and proposed collection point for the industrial uses.



Figure 3-9 Indicative bin movement and waste collection point for industrial units

Retail

Two flexible retail units will be incorporated at mezzanine level in Block B. It is proposed that small bins are included within each of the units and that, as a minimum, two-stream segregation (residual waste and mixed recyclables) is provided for. Due to their small size, it is expected that waste arisings from the retail units will be minimal. A small BoH area should be incorporated within each of the units with some space set aside for waste storage. Tenants will move their bagged segregated waste from the BoH area to a designated collection point on-street to allow for collection from the front of the units. It is recommended that bags are stored in a small shed or similar, so as to keep waste management operations as discreet as possible. A collection frequency of three times per week is recommended, although this could be reviewed depending on the tenants that occupy each of the units.

4 Waste Movement and Collection (Outline Component)

4.1 Introduction

This section describes the waste management strategy for the remaining residential and non-residential elements of the outline masterplan.

4.2 Residential Units (C3)

In order to save space and improve the efficiency of waste management operations, a 'hybrid' waste management strategy has been proposed as the preferred waste management option for the residential dwellings across the site. This strategy is illustrated schematically in Figure 4-1.

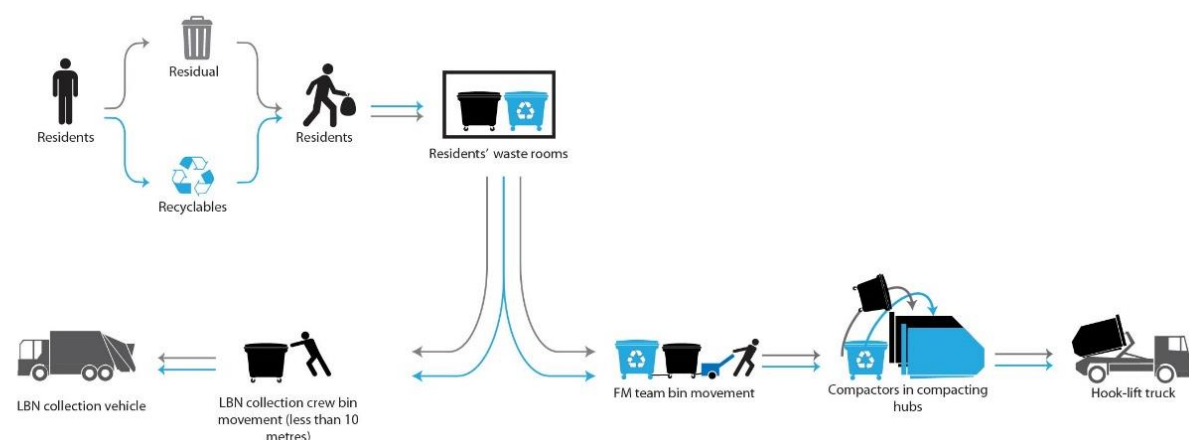


Figure 4-1 Illustration of proposed residential waste strategy for outline masterplan

In brief, waste from the 2,497 market units in Thameside Crescent, The Quays and Riverside Quarter will be compacted, while the remaining units across the scheme will be served by LBN's 'traditional' collection service, with all of their waste stored (and collected) in 1,100 litre bins.

For reference, The Landings is comprised of plots A, B and D, Parkside of plots C, E and F, The Quays of plots G, J, M and N, the Central Spine of plots H, K, L and P and Riverside Quarter of plots Q, R, S, T and U (see Figure 4-2).

While the hybrid strategy is the preferred waste management option for the site, it should be noted that this option is dependent on LBN being able to offer a compactor collection service in future. During the meeting with LBN's Waste and Public Space Commissioner, held on 17th October 2018, it was agreed that while LBN do not currently offer a compactor collection service, the waste management policy landscape will have evolved by the time The Quays and Riverside Quarter are constructed, meaning that there is potential for LBN to be able to collect compactors in future. As such, compacting areas have been shown in the outline planning submission. However, the design also provides adequate scope to adapt the waste management strategy at reserved matters stages, if required.



Figure 4-2 Indicative masterplan layout with plot names

Internal Storage

As in the detailed strategy for Phase 1, adequate internal storage will be provided in all residential units across the masterplan to facilitate the segregation of recyclable materials and other waste.

Residential Waste Movement

Residents in all blocks will move their bagged segregated waste via stairs or lifts to dedicated waste storage rooms at either basement or ground floor level. In line with LBN guidance, residents will not be required to move waste any further than 30 metres horizontal distance. One potential means of facilitating this is to incorporate FoH waste rooms and BoH bin stores, as has been done in Phase 1. This option will be explored further at reserved matters stages.

FM Team Waste Movement

An on-site FM team will manage residential waste across the site. One of their main responsibilities will be to regularly move waste from the market unit bin rooms in Thameside Crescent, The Quays and Riverside Quarter to portable compactors, which will be located at strategic points across the site. The waste rooms for these units will be emptied three times per week by the FM team, and have been sized to provide sufficient capacity to cater for this collection frequency.

The FM team will move bins to the appropriate compacting hub using an electric towing vehicle or similar. Bins will then be returned to the waste rooms once they have been emptied into the compactors. If desired, spare bins can be accommodated in the waste rooms to ensure that residents will always have somewhere to dispose of their waste.

Two compacting hubs have been incorporated within the outline masterplan, one in Thameside Crescent, the other in Riverside Quarter. Waste from the market unit bin rooms in Thameside Crescent and The Quays will be moved to the compacting hub in Thameside Crescent. Waste from the market units in Riverside Quarter will be moved to the compacting hub in Riverside Quarter, as is illustrated schematically in Figure 4-3.

In each of the compacting hubs, two portable compactors will be provided (one for mixed recyclables; one for residual waste). In order to reduce the number of servicing vehicle trips required each week, it has been advised that both mixed recyclables and residual waste are stored in large roll-on roll-off compactors, rather than in smaller skip-lift compactors. For the purposes of calculations, an approximate compactor capacity of 22 m³ has been assumed (see Section 6.2).

In addition to moving bins to/from the compacting hubs, the FM team will also be responsible for moving bins from the remaining waste rooms to designated collection areas across the site, as is elaborated further in the following section.

Waste Collection

The portable compactors will be collected by a hook-lift vehicle. The approximate dimensions of this vehicle are as follows: 8.658 m (L) x 2.500 m (W) x 3.474 m (H) (with compactor), with 5.5 m operating height clearance. Sufficient head clearance has been provided above all compactors to ensure that compactor loading operations can take place. Further details on compactor collection frequency are outlined in Section 6.2.

Meanwhile, all units in The Landings and Parkside, as well as the affordable units in Thameside Crescent and Riverside Quarter, will be served by the 'traditional' collection option and have their waste collected by LBN's operatives using a rear-loader vehicle. Where it is practicable (i.e. plots D, E and F), LBN's operatives will access residents' waste rooms directly and wheel bins a short distance to the collection vehicle before returning them.

In locations where it is not practicable to provide full access to the waste rooms, separate designated collection points have been provided. In line with LBN guidance, immediate access for waste collection vehicles will be facilitated, without the need for the crew to know an entry code, use a swipe card, or carry any fob/key.

Prior to collection, the on-site FM team will tow bins from the waste rooms to one of the designated collection areas. Due to the large number of bins that need collecting from these blocks, it is proposed that the designated collection areas are located in close proximity to the compactors, as there is space for temporary bin storage available here.

It is proposed that bins are collected from one of the compactor bays. To facilitate bin loading, 2 m clearance has been provided behind the stationary LBN refuse vehicle, as is illustrated in the refuse vehicle swept paths for the outline masterplan (see Appendix D). It should also be noted that sufficient head clearance has been provided in all designated collection areas to enable bin lifting operations.

The proposed collection points are shown indicatively in Figure 4-3.



Figure 4-3 Indicative residential waste collection points and movement routes for outline masterplan

Bulky Waste

As in the Phase 1 detailed strategy, if residents have unwanted bulky waste items, they will notify the FM team who will then collect the items from the residential apartments and move them to the nearest bulky waste storage area, where they will then be collected by a private waste contractor. In line with LBN guidance, the outline masterplan has been designed so that 10 m² of bulky waste storage is provided per 50 households.

During the meeting with LBN's Waste and Public Space Commissioner, held on 17th October 2018, the potential for using some of the space currently allocated for bulky waste to store bins instead was discussed. LBN's waste management division agreed to this proposal in principle and suggested that, if required, it was one option that could be explored at reserved matters stages.

4.3 Non-Residential Uses (A1-A4, B1b, B1c, B2, B8, D1 and D2)

The outline masterplan will also comprise a range of non-residential land uses, including a new local centre, a primary school (Use Class D1), flexible employment floorspace (Use Classes B1c, B2 and B8), flexible retail floorspace (Use Classes A1-A4) and community and leisure floorspace (Use Classes D1 and D2).

Space for the temporary storage of waste will be provided internally within the footprint of each non-residential unit, with tenants disposing of waste into small bins. As a minimum, the non-residential units will segregate residual waste and mixed recyclables, although, where appropriate, additional streams (e.g. organics, paper/card and glass) will also be segregated. Further details on segregation for each of the non-residential uses are provided in Section 6.3.

Tenants will then be responsible for moving waste from the small bins to larger bins in dedicated waste storage rooms within each unit. The location of these rooms will ensure that the distance tenants are required to move waste is kept to a minimum. The waste storage rooms will be designed to provide sufficient capacity to store the estimated volume of residual waste, mixed recyclables and – if required – glass, organics and paper/card arising between collections. It is anticipated that residual waste, mixed recyclables and paper/card will be stored in large 1,100 litre Eurobins, with glass stored in 360 litre Eurobins and organics in 240 litre Eurobins.

Prior to collection, tenants will need to move full bins to a centralised waste storage area. It is recommended that an electric towing vehicle or similar is used for these operations. All non-residential waste will be collected by private waste contractors using small, rear-end loader refuse vehicles. At this stage, it is anticipated that non-residential waste will be collected three times per week, although this collection frequency can be revised at reserved matters stages, if desired. Following collection, tenants will need to ensure that bins are moved back to the appropriate waste storage room.

Once the development is fully operational, it is proposed that waste from the non-residential uses in The Landings and Parkside will be collected from one of the designated servicing areas in this portion of the site. Meanwhile, commercial waste from The Quays and Riverside Quarter will be moved to the Riverside Quarter servicing area for collection. Bins will be stored here in the area adjacent to the residential compactors. In line with LBN guidance, this area will be split at reserved matters such that domestic and commercial waste bins are in separate secured areas. Meanwhile, waste from the industrial lozenge will be collected from a servicing area provided internally within this unit.

5 Waste Generation and Storage (Detailed Component)

5.1 Introduction

This section of the OWMS sets out the estimated waste generation and storage requirements for both the residential and commercial uses forming part of Phase 1.

5.2 Residential Units (C3)

Phase 1 of the proposed development will be comprised of two buildings (Block A and Block B), providing a total of 401 residential units. These units will be served by four cores, as is shown in Figure 3-1. The frozen residential unit mix for Phase 1 is shown in Table 5-1.

Table 5-1 Phase 1 frozen residential unit mix

Building	Number of Market Units						Number of Affordable Units					
	Studio	1 Bed	2 Bed	3 Bed	4 Bed	Total	Studio	1 Bed	2 Bed	3 Bed	4 Bed	Total
The Landings												
Plot A (Core 1)	0	0	0	0	0	0	0	40	20	0	0	60
Plot A (Core 2)	0	0	0	0	0	0	0	64	51	20	0	135
Plot B (Core 3)	0	42	47	21	1	111	0	0	0	0	0	0
Plot B (Core 4)	1	38	38	15	3	95	0	0	0	0	0	0
Total	1	80	85	36	4	206	0	104	71	20	0	195

LBN (2014) provides guidance on how to estimate weekly residential waste generation in their *Waste Management Guidelines for Architects and Developers*. As the average number of bedrooms in the dwellings is less than two, the BS 5906:2005 formula for calculating waste storage capacity has been used:

$$\text{Volume of waste (l/week)} = \text{number of units} \times \{(\text{volume arising per bedroom [70 l]} \times \text{average number of bedrooms}) + 30\}$$

In line with LBN guidance, this equation has been used to determine the capacity for residual waste, with recycling allocated as an additional 25-30% capacity on top of this.

Table 5-2 details the weekly waste generation for Phase 1 per residential core, as well as the compositional breakdown according to the LBN (2014) guidance.

Table 5-2 Total estimated residential waste generation for Phase 1

Building	Core	Number of units	Estimated waste generation (litres per week)		
			Residual waste	Recyclables	Total
Block A	1	60	7,400	2,220	9,620
	2	135	19,870	5,961	25,831
Block B	3	111	17,540	5,262	22,802
	4	95	14,890	4,467	19,357
TOTAL		401	59,700	17,910	77,610

In line with LBN guidance, sufficient space has been provided across the FoH and BoH bin rooms to store a week's worth of waste, with residual waste and mixed recyclables stored in large 1,100 litre bins. Table 5-3 shows the total indicative bin numbers required per block.

Table 5-3 Total indicative bin numbers per residential block

Building	Core	Indicative bin numbers per week*		
		Residual waste (1,100 litre)	Recyclables (1,100 litre)	Total
Block A	1 and 2	25	8	33
Block B	3 and 4	30	9	39
TOTAL		55	17	72

*Bin numbers have been rounded up if the decimal exceeds 0.2

As explained in Section 3, all residents in Phase 1 will dispose of their waste in FoH waste rooms. Four FoH waste rooms have been provided, one for each residential core. Sufficient space has been provided in these rooms to accommodate the expected waste generated by the residential uses over a two day period. In line with LBN guidance, 150 mm clearance has been provided around and between each bin. 2 metres clearance has also been provided in front of each bin to enable it to be accessed and safely moved without needing to move any of the other containers. Table 5-4 shows the total indicative bin numbers required in each FoH waste room.

Table 5-4 Indicative bin numbers per FoH residential waste room

Building	Core	Indicative bin numbers required*		
		Residual waste (1,100 litre)	Recyclables (1,100 litre)	Total
Block A	1	2	1	3
	2	5	2	7
Block B	3	5	2	7
	4	4	1	5
TOTAL		16	6	22

*Bin numbers have been rounded up if the decimal exceeds 0.2

Waste from the FoH rooms will be regularly moved to the BoH bin stores, two of which have been incorporated, one adjacent to Core 1, the other adjacent to Core 4. Sufficient space will be provided in these BoH bin stores to accommodate the remaining bins required to store a week's worth of waste. Table 5-5 shows the total indicative bin numbers required per week in each BoH bin store. The BoH stores will also need to accommodate the bin numbers shown in Table 5-4. Sufficient space has been incorporated in the BoH bin stores to ensure that this is the case.

Table 5-5 Indicative bin numbers per BoH bin store

Building	Core	Indicative bin numbers per week*		
		Residual waste (1,100 litre)	Recyclables (1,100 litre)	Total
Block A	1 and 2	18	5	23
Block B	3 and 4	21	6	27
TOTAL		39	11	50

* Bin numbers have been rounded up if the decimal exceeds 0.2

Bulky Waste

In addition, designated storage space should be provided for bulky waste. In line with LBN guidance, separate bulky waste storage areas have been incorporated from those containing normal refuse and recycling bins. LBN guidance states that the total floor area provided for storage of bulky waste should equate to 10 m² per 50 households. 80 m² would therefore be needed for bulky waste storage. This requirement has been met in the frozen design.

5.3 Non-Residential Uses (A1-A4, B1b, B1c, B2 (restricted), B8)

In addition to the 401 residential units, Phase 1 will also comprise flexible employment floorspace (Use Classes B1c and B8) and flexible retail floorspace (Use Classes A1-A4).

In the current plans, the flexible employment floorspace is shown to be industrial land use. For the purposes of conservative assessment, this use has been assumed in the calculations. Waste volumes for the industrial units have been based on the following assumptions:

- A waste generation rate of 5 litres per m² gross floor space per week;
- A minimum of two stream segregation: residual waste and mixed recyclables;
- A split of 70% residual waste and 30% recyclables; and
- A standard waste collection frequency of three times per week for all streams.

The final use of the flexible retail floorspace is still to be confirmed. However, due to the small size of the units, it has been assumed that restaurant land use is unlikely. It has therefore been assumed that the units will incorporate retail (A1) use.

The waste volumes for the flexible retail floorspace have been based on the following assumptions:

- A waste generation rate of 10 litres per m² gross floor space per week;
- A minimum of two stream segregation: residual waste and mixed recyclables; and
- A split of 50% residual waste and 50% recyclables.

Table 5-6 details the weekly waste generation for each of the commercial units in Phase 1.

Table 5-6 Total estimated commercial waste generation for Phase 1

Commercial unit	Building	GIA (m ²)	Estimated waste generation (litres per week)		
			Residual waste	Mixed recyclables	Total
Industrial unit 1	Block A	1,789	6,262	2,684	8,945
Industrial unit 2	Block B	1,561	5,464	2,342	7,805
Retail units	Block B	198	985	985	1,970

It is proposed that 1,100 litre Eurobins are used to store waste generated by the industrial units. For the purpose of conservative assessment, it has been assumed that the industrial space will be let out to multiple tenants (one tenant for industrial unit 1; one tenant for industrial unit 2). Each tenant will have its own clearly labelled bins, which will be stored in a shared bin room at ground level in Block A. In line with LBN guidance, commercial bins will be stored in a separate secured area from residential bins.

Sufficient space has been provided in this room to store the waste generated by the Phase 1 industrial units between collections. Table 5-7 shows the total indicative number of bins required for the Phase 1 industrial units. The numbers are based on the assumption that bins are collected three times per week.

Table 5-7 Indicative bin numbers for Phase 1 industrial units

Commercial unit	Indicative bin numbers (assuming bins are collected three times per week) *		
	Residual waste (1,100 litre bin)	Recyclables (1,100 litre bin)	Total number of bins
Industrial unit 1	2	1	3
Industrial unit 2	2	1	3

* Bin numbers have been rounded up if the decimal exceeds 0.2

As described in Section 3.3, weekly waste arisings from the flexible retail units are expected to be minimal. It is therefore proposed that waste will be stored internally within each of the units in small bins, with bags stored in an internal BoH area and collected on-street by a private contractor. A collection frequency of three times per week is recommended, although this can be altered, depending on the tenants that come to occupy these units.

6 Waste Generation and Storage (Outline Component)

6.1 Introduction

The proposed outline masterplan will comprise a number of buildings, which will provide up to 5,000 residential units, along with a new local centre, a primary school (Use Class D1), flexible employment floorspace (Use Classes B1c, B2 and B8), flexible retail floorspace (Use Classes A1-A4), and community and leisure floorspace (Use Classes D1 and D2).

In order to determine outline spatial requirements for the storage and collection of waste, estimated waste generation for both residential and non-residential uses has been calculated.

6.2 Residential Units (C3)

As outlined in Section 5.2, the BS 5906:2005 formula for calculating waste storage capacity has been used, as the average number of bedrooms across the scheme is less than two.

In line with LBN guidance, this calculation has been used to determine the capacity for residual waste, with recycling allocated as an additional 25-30% capacity on top of this. The indicative residential unit mix for the outline component is detailed in Table 6-1. It should be noted that the units from Phase 1 have also been included in Table 6.1.

Table 6-1 Indicative outline residential unit mix

Building	Number of Market Units						Number of Affordable Units					
	Studio	1 Bed	2 Bed	3 Bed	4 Bed	Total	Studio	1 Bed	2 Bed	3 Bed	4 Bed	Total
The Landings												
Plot A	0	0	0	0	0	0	0	104	71	20	0	195
Plot B	1	80	86	37	2	206	0	0	0	0	0	0
Plot D	0	0	0	0	0	0	0	16	109	69	12	206
Parkside												
Plot C	15	44	66	20	0	145	0	0	0	0	0	0
Plot E	26	45	55	0	0	126	0	35	64	42	0	141
Plot F	32	98	146	50	0	326	0	0	0	0	0	0
The Quays												
Plot G	32	96	144	48	0	320	0	0	0	0	0	0
Plot J	21	66	99	32	0	218	0	0	0	0	0	0
Plot M	23	59	96	27	0	205	0	0	0	0	0	0
Plot N	46	75	143	49	0	313	0	0	0	0	0	0
Thameside Crescent												
Plot H	0	0	0	0	0	0	0	29	59	46	9	143

Plot K	0	30	39	35	0	104	0	0	0	92	11	103
Plot L	0	33	73	0	0	106	0	0	21	0	84	105
Plot P	0	0	0	0	0	0	0	13	42	27	1	83
Riverside Quarter												
Plot Q	11	10	121	43	0	185	0	0	1	26	6	33
Plot R	84	122	260	76	0	542	0	0	0	0	0	0
Plot S	56	90	222	66	0	434	0	0	67	64	10	141
Plot T	0	0	0	0	0	0	56	86	204	77	0	423
Plot U	15	10	45	0	0	70	0	0	63	59	5	127
Total	362	858	1,594	482	4	3,300	56	283	701	522	138	1,700

Waste Generation

Table 6-2 shows the weekly waste generation for each residential plot, as well as the compositional breakdown according to the LBN (2014) guidance.

Table 6-2 Estimated weekly waste generation per residential plot

Residential Waste		Waste generation and composition		
Plot	Total no. of units	Residual waste (litres per week)	Mixed recyclables (litres per week)	Total waste to be stored in bin room(s) (litres per week)
The Landings				
Plot A	195	27,270	8,181	35,451
Plot B	206	32,430	9,729	42,159
Plot D	206	40,410	12,123	52,533
Parkside				
Plot C	145	21,920	6,576	28,496
Plot E	267	40,910	12,273	53,183
Plot F	326	49,820	14,946	64,766
The Quays				
Plot G	320	48,800	14,640	63,440
Plot J	218	33,210	9,963	43,173
Plot M	205	31,000	9,300	40,300

Plot N	313	48,170	14,451	62,621
Thameside Crescent				
Plot H	143	26,760	8,028	34,788
Plot K	207	43,520	13,056	56,576
Plot L	211	45,320	13,596	58,916
Plot P	83	15,230	4,569	19,799
Riverside Quarter				
Plot Q	218	41,260	12,378	53,638
Plot R	542	83,040	24,912	107,952
Plot S	575	98,030	29,409	127,439
Plot T	423	67,360	20,208	87,568
Plot U	197	36,570	10,971	47,541
TOTAL	5,000	831,030	249,309	1,080,339

Bin Numbers

As explained in Section 3.2, a 'hybrid' collection strategy is the preferred waste management option for the proposed development.

In the 'hybrid' collection option, waste from the 2,497 market units in Thameside Crescent, The Quays and Riverside Quarter would be compacted. This would greatly reduce the amount of space required for waste storage. Residents from these units would still dispose of their waste in waste rooms. However, these rooms would be emptied three times per week by the on-site FM team, with bins emptied into compactors.

The remaining 2,503 units (all dwellings in The Landings and Parkside, and the affordable dwellings in Thameside Crescent and Riverside Quarter) would still be served by the traditional local authority collection option.

Table 6-3 shows the total indicative bin numbers required in the residents' waste rooms per residential plot for the 'hybrid' strategy.

Table 6-3 Indicative bin numbers per residential plot ('hybrid' collection option)

Plot	Type of bin room(s)	Waste generation and composition		Total bins for residual waste (rounded)*	Total bins for mixed recyclables (rounded)*
		Residual waste to be stored in waste rooms (litres per week)	Mixed recyclables to be stored in waste rooms (litres per week)		
		1,100 litres			
The Landings					
Plot A	Shared	27,270	8,181	25	8

Plot B	Shared	32,430	9,729	30	9
Plot D	Shared	40,410	12,123	37	11
Parkside					
Plot C	Shared	21,920	6,576	20	6
Plot E	Shared	40,910	12,273	37	11
Plot F	Shared	49,820	14,946	46	14
The Quays					
Plot G	Market units	48,800	14,640	15	5
Plot J	Market units	33,210	9,963	10	3
Plot M	Market units	31,000	9,300	10	3
Plot N	Market units	48,170	14,451	15	5
Thameside Crescent					
Plot H	Affordable units	26,760	8,028	25	8
Plot K	Market units	43,520	13,056	6	2
	Affordable units	45,320	13,596	21	7
Plot L	Market units	15,230	4,569	5	2
	Affordable units	26,760	8,028	27	8
Plot P	Affordable units	43,520	13,056	14	4
Riverside Quarter					
Plot Q	Market units	41,260	12,378	10	3
	Affordable units	83,040	24,912	8	3
Plot R	Market units	98,030	29,409	25	8
Plot S	Market units	67,360	20,208	21	6
	Affordable units	36,570	10,971	27	8
Plot T	Affordable units	41,260	12,378	62	19
Plot U	Market units	83,040	24,912	3	1
	Affordable units	98,030	29,409	24	8
TOTAL		831,030	249,309	525	162

*assuming bins in Thameside Crescent, The Quays and Riverside Quarter market unit waste rooms are emptied into compactors three times per week. Bin numbers have been rounded up if the decimal exceeds 0.2.

This 'hybrid' option would require storage space being provided for approximately 687 x 1,100 litre Eurobins. This would save storage space for approximately 133 x 1,100 litre bins compared to if an all 'traditional' collection option were implemented.

In addition, compaction would greatly reduce the time and resources required by LBN to service the site. LBN would need to collect approximately 529 x 1,100 litre Eurobins per week, as they would not collect the bins from the market units in Thameside Crescent, The Quays and Riverside Quarter. This option would therefore save LBN collecting approximately 291 x 1,100 litre bins each week.

Compactor Requirements

Two compacting hubs have been incorporated within the outline masterplan, one located in Thameside Crescent, the other in Riverside Quarter. Waste from the market unit bin rooms in Thameside Crescent and The Quays will be moved to the compacting hub in Thameside Crescent. Waste from the market units in Riverside Quarter will be moved to the compacting hub in Riverside Quarter.

In each of the compacting hubs, two portable compactors (one for mixed recyclables; one for residual waste) have been provided. In order to reduce the number of servicing vehicle trips required each week, it has been assumed that both mixed recyclables and residual waste will be stored in large 22 m³ roll-on roll-off compactors, rather than in smaller skip-lift compactors.

The compaction ratios for both waste streams have been based on correspondence with portable compactor suppliers. A number of suppliers reported a compaction ratio for residual waste up to 6:1. However, to account for the fact that the residual waste stream will consist of organic waste and glass (both of which are dense materials), a lower compaction ratio has been assumed (4:1). A compaction ratio of 3:1 has been assumed for mixed recyclables, as a higher compaction ratio would spoil the quality of the recyclate.

Table 6-4 details the compactor requirements for the scheme, based on the assumptions above.

Table 6-4 Indicative compactor requirements (Thameside Crescent, The Quays and Riverside Quarter)

Compactor Requirements							
Waste generation and composition (market units only)				Number of compactors		Number of collections per week*	
Number of market units served by compactors	Total waste to be stored in compactors (litres per week)	Residual waste (litres per week)	Mixed recyclables (litres per week)	Residual waste	Mixed recyclables	Residual waste	Mixed recyclables
				22,000 litres	22,000 litres		
Thameside Crescent Compacting Hub							
1,266	253,396	194,920	58,476	1	1	3	1
Riverside Quarter Compacting Hub							
1,231	252,668	194,360	58,308	1	1	3	1

Bulky Waste

In addition, designated storage space should be provided for bulky waste. In line with LBN guidance, the total floor area provided for the storage of bulky waste should equate to 10 m² per 50 households. 1,000 m² would therefore be needed for bulky waste storage. In the current design, space for bulky waste storage has been provided in line with this requirement.

6.3 Non-Residential Uses (A1-A4, B1c, B2, B8, D1 and D2)

Waste estimations for the non-residential elements of the outline masterplan have been based on the parameters shown in Table 6-5.

Table 6-5 Outline parameters for non-residential elements

Plot	GIA (m ²)			
	Retail	General industrial	B1, B2 (restricted), B8 industrial	Community benefit
The Landings				
Plot A	0	0	1,789	0
Plot B	198	0	1,561	0
Plot D	0	0	791	0
The Quays				
Plot G	1,185	0	0	0
Plot J	393	0	0	0
Plot N	434	0	0	0
Riverside Quarter				
Plot Q	500	0	0	1,700
Plot R	1,030	0	0	0
Plot S	2,057	0	0	0
Plot T	474	0	0	0
Plot U	708	0	0	0
Other				
Industrial site	0	14,250	0	0
Nursery	0	0	0	943
Four-form entry primary school	0	0	0	4,058

These outline parameters have been used to estimate weekly waste volumes for each non-residential use. Waste generation estimations have been informed by the following assumptions, which have been gleaned from industry experience:

Flexible Retail Floorspace (A1-A4)

- As outlined in Section 5.3, it is assumed that the flexible retail units in Phase 1 will incorporate retail (A1) land use;
- For the purposes of conservative assessment, it is assumed that 50% of the remaining flexible retail floorspace will be café/restaurant (A3) land use and 50% retail (A1) land use. This is to ensure that sufficient waste storage space is provided in the flexible retail units for any future uses, as A3 land use tends to produce the highest volumes of waste;
- A waste generation rate of 10 litres per m² gross floor space per week has been assumed for A1 land use;
- A composition split of 50% residual and 50% mixed recyclables has been assumed for A1 land use;
- For A3 land use, a waste generation rate of 31 litres per m² gross floor space per week has been assumed;
- For A3 land use, a composition split of 20% residual waste, 10% mixed recyclables, 20% glass, 20% organics and 30% paper/card has been assumed; and
- A standard waste collection frequency of three times per week for all streams.

General Industrial / Flexible Employment Floorspace (B1c, B2, B8) / Community and Leisure (D1, D2)

- A waste generation rate of 5 litres per m² gross floor space per week;
- A composition split of 70% residual and 30% mixed recyclables; and
- A standard waste collection frequency of three times per week for all streams.

Nursery and Primary School

- It has been estimated that the nursery and four-form entry primary school will accommodate a maximum of 944 pupils;
- A waste generation rate of 11.25 litres per pupil per week;
- A composition split of 70% residual and 30% mixed recyclables; and
- A standard waste collection frequency of three times per week for all streams.

Table 6-6 details the weekly waste generation for each of the non-residential elements coming forward as part of the outline masterplan.

Table 6-6 Estimated weekly waste generation for non-residential elements of outline masterplan

Waste generation (litres per week)					
Plot	Residual waste	Mixed recyclables	Glass	Organics	Paper/card
The Landings					
Plot A (flexible employment)	6,262	2,684	0	0	0
Plot B (retail – A1)	990	990	0	0	0
Plot B (flexible employment)	5,464	2,342	0	0	0
Plot D (flexible employment)	2,769	1,187	0	0	0
The Quays					
Plot G (retail – A1)	2,963	2,963	0	0	0
Plot G (retail – A3)	3,674	1,837	3,674	3,674	5,510
Plot J (retail – A1)	983	983	0	0	0
Plot J (retail – A3)	1,218	609	1,218	1,218	1,827
Plot N (retail – A1)	1,085	1,085	0	0	0
Plot N (retail – A3)	1,345	673	1,345	1,345	2,018
Riverside Quarter					
Plot Q (retail – A1)	1,250	1,250	0	0	0
Plot Q (retail – A3)	1,550	775	1,550	1,550	2,325
Plot Q (community and leisure)	5,950	2,550	0	0	0
Plot R (retail – A1)	2,575	2,575	0	0	0
Plot R (retail – A3)	3,193	1,597	3,193	3,193	4,790
Plot S (retail – A1)	5,143	5,143	0	0	0
Plot S (retail – A3)	6,377	3,188	6,377	6,377	9,565
Plot T (retail – A1)	1,185	1,185	0	0	0
Plot T (retail – A3)	1,469	735	1,469	1,469	2,204
Plot U (retail – A1)	1,770	1,770	0	0	0
Plot U (retail – A3)	2,195	1,097	2,195	2,195	3,292

Other					
Industrial site	49,875	21,375	0	0	0
School/nursery	7,434	3,186	0	0	0

It is proposed that 1,100 litre Eurobins are used to store residual waste, mixed recyclables and paper/card. Meanwhile, glass will be stored in 360 litre Eurobins and organics in 240 litre Eurobins. For the purpose of conservative assessment, it has been assumed that the commercial space will be let out to multiple tenants and that each tenant will have its own clearly labelled bins. The indicative bin numbers for each non-residential element are shown in Table 6-7.

Table 6-7 Indicative bin numbers for non-residential elements of outline masterplan

Bin numbers (assuming three collections per week)*					
Plot	Residual waste (1,100 litre)	Mixed recyclables (1,100 litre)	Glass (360 litre)	Organics (240 litre)	Paper/card (1,100 litre)
The Landings					
Plot A (flexible employment)	2	1	0	0	0
Plot B (retail – A1)	1	1	0	0	0
Plot B (flexible employment)	2	1	0	0	0
Plot D (flexible employment)	1	1	0	0	0
The Quays					
Plot G (retail – A1)	1	1	0	0	0
Plot G (retail – A3)	1	1	4	5	2
Plot J (retail – A1)	1	1	0	0	0
Plot J (retail – A3)	1	1	1	2	1
Plot N (retail – A1)	1	1	0	0	0
Plot N (retail – A3)	1	1	2	2	1
Riverside Quarter					
Plot Q (retail – A1)	1	1	0	0	0
Plot Q (retail – A3)	1	1	2	2	1
Plot Q (community and leisure)	2	1	0	0	0
Plot R (retail – A1)	1	1	0	0	0

Plot R (retail – A3)	1	1	3	5	2
Plot S (retail – A1)	2	2	0	0	0
Plot S (retail – A3)	2	1	6	9	3
Plot T (retail – A1)	1	1	0	0	0
Plot T (retail – A3)	1	1	2	2	1
Plot U (retail – A1)	1	1	0	0	0
Plot U (retail – A3)	1	1	2	3	1
Other					
Industrial site	15	7	0	0	0
School/nursery	3	1	0	0	0

*bin numbers have been rounded up if the decimal exceeds 0.2

7 Conclusions

7.1 Summary

This OWMS has described how waste generated from the proposed Thameside West development will be managed once the development becomes operational. The document submitted at this stage sets out a long-term strategy for both the detailed and outline components of the proposed development, although it should be noted that the OWMS will need to be updated at subsequent reserved matters stages for the components currently covered in outline to ensure that adequate waste storage is provided for each phase of the development.

In terms of residential waste generation, it has been estimated that, in total, approximately 1,080,339 litres of waste will be produced by residents across the outline scheme each week. All residential units will be provided with sufficient internal storage to ensure that their waste can be segregated into mixed recyclables and residual waste.

Residents will carry their bagged waste via stairs or lifts to a dedicated waste room at basement, ground, or – as is the case in Phase 1 – first floor podium level. In Phase 1, waste storage facilities have been partitioned into FoH and BoH areas, on the basis that this will save space and mean that residents are not required to carry waste over LBN specified distances. It is recommended that this option is explored at reserved matters stages when the subsequent phases come forward in detail.

An on-site FM team will manage residential waste across the site and will be responsible for moving bins from Thameside Crescent, The Quays and Riverside Quarter market units to one of two compacting hubs, along with moving bins from other areas of the site to the appropriate designated collection area. The waste rooms serving Thameside Crescent, The Quays and Riverside Quarter market units have been sized to provide sufficient capacity for a thrice-weekly collection. The waste rooms across the remainder of the scheme provide sufficient capacity for a weekly collection.

All residential waste will be collected by LBN, so that residents are not required to pay twice for their waste collection. The strategy is therefore dependent on LBN being able to offer a compactor collection service in future, although there is adequate flexibility in the design to explore other potential waste management options at reserved matters stages, if required. LBN's waste management division agreed to this approach in principle when they were consulted.

Substantial quantities of waste will also be generated by the non-residential elements of the scheme. Tenants in those units will be responsible for transferring waste to bins in dedicated waste storage rooms and for presenting bins at the appropriate centralised storage area, ready for collection by a private contractor.

As a conservative estimate, it has been assumed that waste from the non-residential elements of the scheme will be collected three times per week, although this collection frequency can be revised, if desired.

7.2 Circular Economy Statement

In line with Policy SI7 of the Intend to Publish London Plan, the following measures outlined in this OWMS will help promote circular economy outcomes:

- Residential waste across the proposed development will be managed by an FM team, who will ensure that residents are well informed about best recycling practices;
- All residential dwellings will be provided with a number of small receptacles to allow residents to segregate recyclable waste;
- Dedicated waste storage rooms have been incorporated across the site, with sufficient capacity provided for both residual waste and mixed recyclables; and

- Dedicated storage points for bulky waste have been accommodated across the scheme. These spaces provide an opportunity – if desired – for residents and the FM team to promote re-use initiatives. For example, residents wanting to donate a piece of furniture for re-use could communicate this to other residents through the FM team.

Appendix A Waste Management Policy and Guidance

A.1 National Context

National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2019)

The National Planning Policy Framework (NPPF) notes that the purpose of the planning system is to contribute to the achievement of sustainable development. The document identifies three dimensions to sustainable development: economic, social and environmental. As part of its environmental role, the planning system should help to use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.

The 2012 NPPF did not contain specific waste policies, since national waste planning policy was published as part of the National Waste Management Plan for England. Similarly, the revised NPPF should be read in conjunction with the government's separate planning policy for waste. Where waste is mentioned, there is little difference between what is said in the 2012 and revised versions of the Framework. Both documents note that efforts must be made to minimise waste generation and to facilitate the sustainable use of recycled materials and minerals.

National Planning Policy for Waste (Ministry of Housing, Communities and Local Government, 2014)

The National Planning Policy for Waste document states that non-waste planning applications should consider the impact on existing and planned waste infrastructure and that suitable provision should be made for managing waste within new developments.

Government Review of Waste Policy in England (Department for Environment, Food and Rural Affairs, 2011)

This document prioritises efforts to manage waste in line with the waste hierarchy and reduce the carbon effect of managing waste. The document also encourages waste prevention and reuse, supporting greater resource efficiency and initiatives which reward and recognise individuals who reduce, reuse and recycle their waste. It also sets out plans to work with councils to increase the frequency and quality of waste collections and to make it easier to recycle.

Waste Management Plan for England (Department for Environment, Food and Rural Affairs, 2013)

This plan explains the measures that are already in place, starting with the government's waste review in 2011. It details the continued Courtauld Commitment, which sets new targets to reduce waste from the grocery sector by 1.1 million tonnes by 2015, with potential savings to industry and consumers of £1.6 billion. It goes on to detail new packaging targets, such as the aim to increase the recycling of plastic packaging to 42% by 2017. It also details the aim to improve quality at the Materials Recovery Facilities (MRF) that deal with much of the waste we generate.

Our Waste, Our Resources: A Strategy for England (Department for Environment, Food and Rural Affairs, 2018)

This strategy sets out plans to double resource productivity and eliminate avoidable wastes of all kinds by 2050. It includes details of how waste will be minimised and managed to reduce damage to the environment. The strategy gives a policy direction in line with Defra's (2018) 25 Year Environment Plan, with a particular focus on moving away from a traditional linear economic model towards a more sustainable and efficient circular model.

Relevant targets from this document include the following:

- To work towards achieving a 65% recycling rate for municipal solid waste (MSW) by 2035;
- To work towards sending 10% or less of MSW to landfill by 2035; and
- To eliminate all avoidable waste by 2050.

A.2 Regional Context

The Mayor's Municipal Waste Management Strategy (Greater London Authority, 2011)

This document sets out the former Mayor's policies and proposals for reducing the amount of municipal waste produced and increasing the amount of waste that is reused, recycled or composted. Broadly, the key targets are for zero waste to landfill, a reduction in household waste generation rates of 20%, an increase in recycling rates to 60% and the generation of energy from waste, where appropriate.

The Mayor's Business Waste Management Strategy (Greater London Authority, 2011)

This document sets out a range of initiatives aimed at helping London's businesses (i.e. shops, restaurants, office buildings, manufacturers, construction companies, etc.) to save money and minimise their harmful impacts on the environment through improved waste management. Of particular relevance are the former Mayor's proposals to ensure that buildings provide suitable storage and access for effective waste management.

London Plan (consolidated with alterations since 2011) (Greater London Authority, 2016)

This document describes an integrated economic, social, environmental and transport framework for the development of London over the 20 to 25 years following the issue of the plan. The plan sets out to improve the environment and tackle climate change, in part by improving London's recycling performance and waste management. The plan provides guidance on designing out waste in buildings during the early stages of a project and on the importance of sufficient and well-designed storage for recyclables, organic and residual waste. The plan also recognises the importance of implementing the waste hierarchy.

The waste policies included in the plan seek to manage as much of London's waste within London as practicable, with the aim of managing the equivalent of 100% of London's waste (municipal and commercial/industrial waste) arisings in London by 2026.

Intend to Publish London Plan (GLA, 2019)

Consultation on a new draft London Plan ended on 2nd March 2018. Examination in Public opened in January 2019. The revised plan is being developed to provide a new approach to the sustainable, inclusive growth and future development of London. The primary aim of the new plan is to provide a coherent strategy to address the ongoing housing crisis in the city by re-balancing development towards more affordable housing to allow a greater number of working Londoners to buy and rent in London. The new plan also aims to deliver a more socially integrated, environmentally sustainable, and health/wellbeing conscious city.

The new London Plan places an emphasis on London's need to become more energy self-sufficient. Currently, 95% of energy is sourced from outside of the Greater London Authority's (GLA) boundaries. Amongst other energy sources, the Mayor of London aims to increase the use of energy from waste schemes in district heating networks. In addition, the plan provides guidance and targets for London boroughs to achieve improved adoption of the waste hierarchy through promotion of circular economy initiatives, encouraging the re-use and recycling of materials, and reducing the amount of waste going for disposal. Further waste related policies in the London Plan build on previous London Plans' guidance regarding the need to ensure sufficient and well-designed waste management and storage facilities on site and to safeguard waste sites to accommodate future requirements.

The Intend to Publish London Plan places an emphasis on the need for all London boroughs to move towards a circular economy model, with sustainable waste practices being one key part of this ambition. In line with this aspiration, Policy SI7 of the Intend to Publish London Plan requires that new schemes in London are designed in a way that supports the reduction, re-use and recycling of operational waste.

More specifically, Policy SI7 – B (parts 4 and 5) refers to the need to:

- Ensure that sufficient storage space is provided within the development to support recycling and re-use purposes; and
- Ensure that assessments have been carried out to estimate the operational waste arisings that the proposed development will produce, as well as identifying how this waste will be stored, moved and finally collected.

A.3 Local Context

Joint Waste Development Plan for the East London Waste Authority Boroughs (2012)

The Joint Waste Development Plan (JWDP) covers the four East London Waste Authority (ELWA) boroughs: Barking & Dagenham, Havering, Newham, and Redbridge. It provides a planning strategy for sustainable waste management up until 2021.

Policy W1 of the JWDP aims to drive waste management up the waste hierarchy by promoting waste minimisation, materials reuse, recycling and recovery of resources.

LBN Waste Management Guidelines for Architects and Property Developers (LBN, 2014)

This document provides guidance for architects and developers of new residential, commercial and mixed-use units in Newham, to ensure that the arrangements for storing, collecting and managing waste are appropriate. Of specific relevance are the following guidelines:

- LBN currently provides weekly refuse collection services for residents living in purpose-built flats;
- LBN recommends that developers provide a total of 0.25 m³ (250 litres) of waste storage capacity per dwelling;
- However, for developments where the average number of bedrooms in the dwellings is less than two, developers may choose to follow the formula for calculating waste storage capacity as set out in BS 5906:2005;
- Where the BS 5906:2005 calculation is being used, it is recommended that this be used to determine the refuse capacity, with recycling allocated as an additional 25-30% capacity on top of this;
- For developments with more than six households, communal 1,100 litre Eurobin containers should be provided for both refuse and recycling;
- Communal bin storage areas must be located within the footprint of the development and ideally be at ground level;
- Bin storage areas should be easily accessible for the dwellings that they serve, with residents being required to walk no further than 30m from their front door;
- Operatives should not be required to move 1,100 litre bins any further than 10m, measured from the furthest point within the storage/collection area to the loading position at the back of the vehicle;
- Designated storage facilities must be provided for residents to deposit bulky waste items. The total floor area provided for storage of bulky waste must equate to 10m² per 50 households; and
- External storage areas for waste on mixed-use developments must be segregated, so that domestic and commercial waste bins are in separate secured areas.

Newham Local Plan 2018 (LBN, 2018)

This document sets out the development vision for the London Borough of Newham, based on an analysis of the challenges and opportunities faced by the borough. The document covers waste management at a high level. In line with the waste hierarchy, the borough is committed to maximising the resource value of waste products, prioritising reduction, reuse, recycling and energy recovery over disposing of residual waste in landfill.

Developments should ensure on-site handling and storage can meet the needs of the development and local collection arrangements without amenity impacts for occupiers or neighbours. This includes future-proofing through the facilitation of tri-separation and a separate food waste collection service.

A.4 Other Relevant Waste Guidance

Making Space for Waste, A Practical Guide for Developers and Local Authorities (Association of Directors of Environment, Economy, Planning and Transport (ADEPT), 2010)

This document has been prepared to allow developers to follow a step-by-step process when considering the design of waste facilities in new developments.

Building Regulations 2010 Part H6 and British Standards 5906:2005

These two documents set a number of recommendations based on best practice and efficiency principles. Of specific relevance are the following recommendations:

- Residents should not be required to carry waste more than 30 metres horizontally from the dwelling to designated waste disposal point;
- Commercial waste should be stored separately from residential waste in dedicated waste storage rooms and appropriate bins should be accommodated dependent on the nature of activities likely to take place;
- A minimum clear space of 150 mm should be provided between and around all bins in waste storage rooms;
- Adequate space must be provided for the easy and efficient movement of bins over smooth, continuous surfaces;
- For health and safety reasons, all waste storage rooms should only be accessible by the users, the facilities management (FM) team and the appointed waste collectors;
- Adequate lighting, drainage and ventilation conditions should be provided. A total ventilation area of minimum 0.2 m² of free air or six air changes per hour should be accommodated;
- A minimum of 2 m head clearance should be provided in waste storage rooms;
- Waste storage rooms should use double doors. Door width clearances should provide a minimum of 1.5 m of space. When appropriate, sliding doors may be used;
- Arrangements should be made in the waste storage room for washing down and draining the floor into a system suitable for receiving a polluted effluent; and

The walls and roofs of the waste storage rooms should be of non-combustible materials and have a fire resistance of one hour.

Appendix B LBN Waste Strategy Meeting Minutes

Minutes

Subject	Thameside West - Waste Strategy Meeting	Job no	035668
Place	London Borough of Newham	Date	17 October 2018
Present	Edward Wilkins (EW) (BuroHappold) Jose Sorribes (JS) (BuroHappld) Trevor Curson (TC) (BuroHappold) Giles Martin (GM) (Keystone) Helen Dennis (HD) (LBN) Claire Newitt (CN) (LBN)	Apologies	
Distribution	Charles Calverley (Keystone) Bethan James (GLA Land and Property) Emily Rix (Foster + Partners) Rachel Patel (Foster + Partners) Aidan Potter (John McAslan + Partners) Tatiana Vela (John McAslan + Partners) Justin Kenworthy (Barton Willmore) Sinéad Morrissey (Barton Willmore) Chris Mullett (BuroHappold) Clare Jones (BuroHappold) Nathaniel Gregory (Meinhardt) Erin Peek (Meinhardt)		

Objective of meeting: to discuss the proposed waste management strategy for Thameside West and to come to an agreed position for the planning submission.

Item	Action
1.0 Proposed waste management strategy	
1.1 EW outlined the proposed waste management strategy for Thameside West, explaining that a 'hybrid' strategy (part traditional/part compactor) was the preferred option, as an all traditional option would require excessive space for bin storage and collection.	
1.2 HD suggested that EW use the BS 5906:2005 generation rate in their calculations, as this would reduce the number of bins required across the site. EW to update waste generation calculations.	EW
1.3 HD noted that 25-30% additional capacity for recycling should be added when using the BS 5906:2005 generation rate, in line with LBN guidance.	

<p>1.4 HD expressed concern over the collection of compactors by a private contractor.</p> <p>1.5 TC explained that the compacting issue would only arise in the later phases (The Quays and Riverside Quarter). Residential waste from the earlier phases will be stored in bins and collected by LBN.</p> <p>1.6 GM explained that the scheme design was now frozen. While compacting areas will be shown in the outline planning submission, there will be scope to adapt the waste management strategy at reserved matters stages if required. HD agreed to this approach in principle and awaits confirmation from planning that they are happy this approach is acceptable.</p>	
<p>2.0 Options for planning submission</p> <p>2.1 GM/TC/HD agreed that the waste management policy landscape will have evolved by the time The Quays and Riverside Quarter are constructed, and that there are a number of potential waste management options available for these areas of the site.</p> <p>2.2 HD mentioned that LBN would be renewing the vehicle they use to collect underground bins.</p> <p>2.3 HD explained that one potential option is to use a truck model with a demountable body and interchangeable system, which can also be used to collect waste compactors and roll-on roll-off containers. HD to send over details of the truck options that LBN are considering.</p> <p>2.4 HD explained that purchasing a separate compactor collection truck might not be economical, due to the limited number of developments in Newham using compactors at present.</p> <p>2.5 GM suggested that there was potential to assist with the purchase of a compactor collection truck for LBN.</p> <p>2.6 HD stated that LBN would be happy to explore this as a potential option at reserved matters stages.</p> <p>2.7 HD also suggested that LBN's operatives might be reluctant to collect compactors from the development more than once a week.</p> <p>2.8 EW explained that more trucks/vehicle trips would likely be required for the all traditional bin collection option.</p> <p>2.9 HD stated that LBN would be happy to explore increasing bin collection frequency as a potential option. HD explained that this would be preferred over using a private contractor to collect compactors.</p> <p>3.0 Bulky waste storage</p> <p>3.1 EW asked if there was potential to use some space allocated for bulky waste storage to store bins instead. HD explained that this was a potential option that could be explored at reserved matters.</p> <p>3.2 HD explained that residents typically have to arrange their own bulky waste collections.</p> <p>3.3 GM stated that their preferred option would be for bulky waste collections to be arranged by site management. Site management can only manage bulky waste collections if the site opt to use a private contractor for these collections, rather than the LBN bulky waste chargeable service. HD agreed to this approach in principle.</p>	<p>HD</p>

4.0 Phase 1A waste collection points

- 4.1 EW explained the collection arrangements for Phase 1A.
- 4.2 EW explained that the current proposal is for bins from Block B (previously known as Block A) to be wheeled by an FM team to an external collection point by site management and collected by LBN from the adjacent slip road. HD agreed to this approach in principle.
- 4.3 HD stated that a tapered loading bay would need to be provided if bins from the external collection point were collected from North Woolwich Road. HD agreed to this arrangement in principle and explained that LBN would likely be able to restrict use of the loading bay so that it could only be used by refuse vehicles. Meinhardt to test vehicle access/egress.
- 4.4 HD agreed in principle to the refuse vehicle manoeuvres shown for Block A (previously known as Block B) in Meinhardt's drawing 2303-C-SK021.
- 4.5 GM suggested that the refuse vehicle follow the same manoeuvre as the fire tender in Meinhardt sketch 2303-C-SK021, reversing around the corner of Block A when making collections so that the rear of the vehicle is as close to the waste room as possible. HD agreed to this arrangement in principle. Meinhardt to test.

Meinhardt

Meinhardt

5.0 AOB

- 5.1 HD mentioned that LBN were using a different refuse collection vehicle to the one shown in their 2014 guidance.
- 5.2 HD stated that this vehicle was likely to be slightly smaller than the previous model. HD to send details of new collection vehicle to EW. Note: there is no need to carry out swept paths with the new vehicle if it is smaller than the one shown in the 2014 guidance. Using the vehicle from the 2014 guidance provides a more conservative assessment.

HD

The minutes detailed herein reflect the author's recollection of the discussions held during the meeting detailed above. If you feel that these minutes are inaccurate; proposed additions, corrections and/or comments must be submitted to the author in writing within five working days of the date of these minutes. If no written responses are received within this period, these minutes will be deemed the official record of the meeting.

Appendix C Refuse Vehicle Swept Path Diagrams (Phase 1)