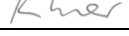
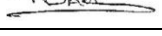
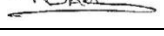
technical note

elliottwood

Title:	**Tavis House, 1-6 Tavistock Square, London, WC1H 9NA**	Date Approved:	**19.03.24**
Discipline:	**Civil Engineering**	Author:	**Keri Trimmer**
Note Ref:	**2200531-EWP-ZZ-XX-TN-0001**		

revision:	P4	prepared by:	Keri Trimmer	checked by:	Paul Davis	approved by:	Paul Davis
date:	22.03.24	signature:		signature:		signature:	

1.1 Introduction

This Surface Water Drainage Statement has been prepared in support of an application at Tavis House, 1-6 Tavistock Square, London, WC1H 9NA for Section 73 amendments for:-

"Variation of condition 2, 9, 13 and 15 approved under planning permission reference 2021/6105/P on 1 December 2023 for 'Refurbishment and extension of the existing building to provide new entrances, a new roof top pavilion, roof top plant equipment and enclosures, rear extension and cycle parking associated with Class E use together with new hard and soft landscaping and other ancillary works'. NAMELY amendments to external rear facades, rooftop plant and other associated works."

Planning permission for a similar scheme was approved on 1 December 2023 under reference 2021/6105/P for the:

"Refurbishment and extension of the existing building to provide new entrances, a new roof top pavilion, roof top plant equipment and enclosures, rear extension and cycle parking associated with Class E use together with new hard and soft landscaping and other ancillary works".

This S73 application has been submitted to allow the building to be used for flexible lab-enabled space resulting in changes to the rear façade and roof top level to allow for additional plant associated with laboratories. This report has been prepared as an addendum to the approved document to capture minor changes to the building in respect of the proposed blue roof.

This report should be read in conjunction with the site-specific Flood Risk Assessment undertaken by Elliott Wood, reference 2200531-EWP-ZZ-XX-RP-C-0001. The purpose of this technical note is to explain the existing drainage arrangements and the approach taken with regards to the site wide SuDS strategy.

1.2 Site Location

The site is located within the London Borough of Camden (LBC). It is located to the north of the junction between Tavistock Square and Tavistock Place, opposite Tavistock Square Gardens. The site is located approximately 550m to the southeast of London Euston National Rail station. The River Thames runs approximately 1,800m to the southeast of the site. The site centred OS grid reference is 529973E: 182345N.

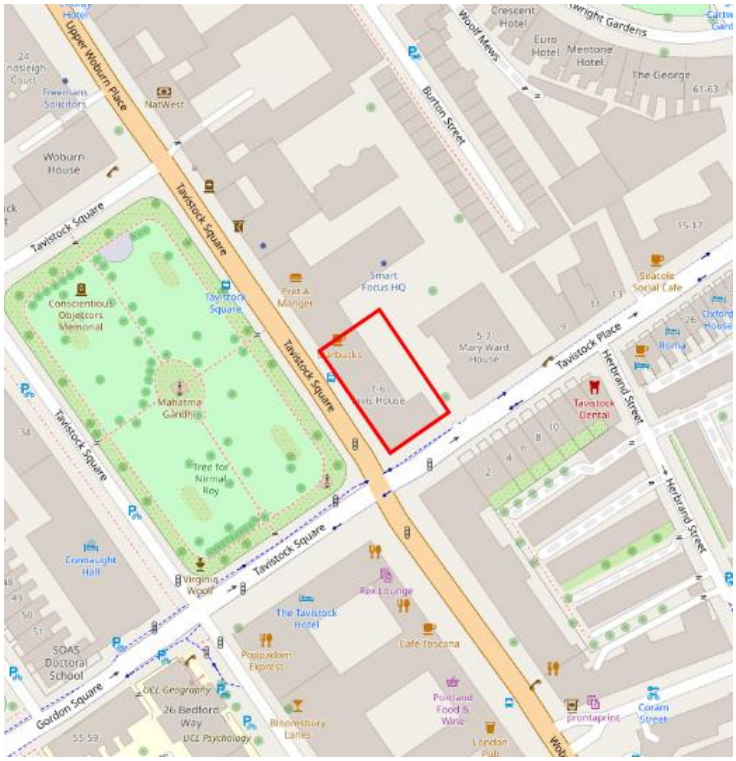


Figure 1: Site Location Plan

1.3 Existing Development

The existing building fronts Tavistock Square & Tavistock Place and consists of a lower ground floor, ground floor, 8 storeys above ground floor and a roof plant pavilion. The site also includes an external parking / delivery area to the east of the existing building.

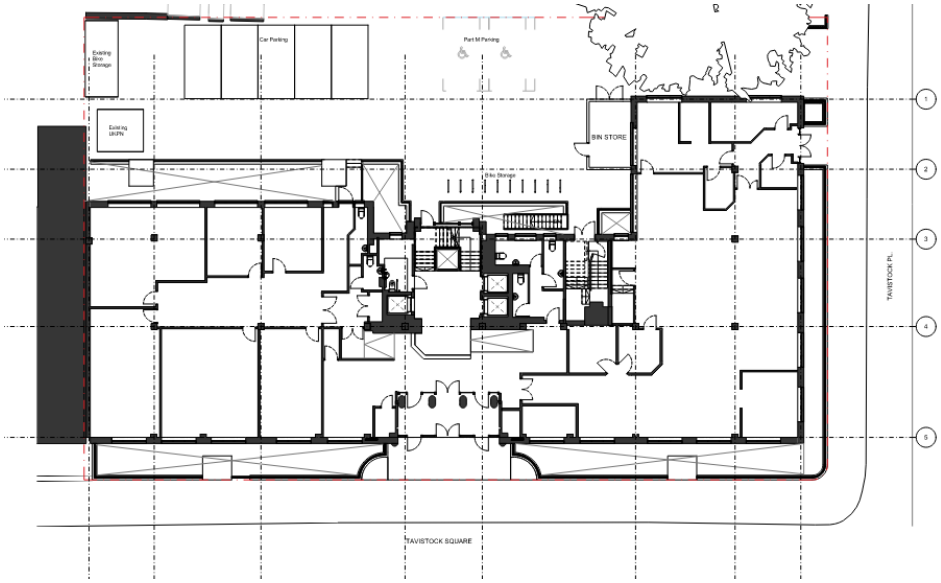


Figure 2: Existing Site Plan

The total area of the existing site is approximately 1,450m^2, of which approximately 1,000m2 is occupied by the building footprint. The entire site is considered to be positively drained impermeable area in the existing scenario.

1.4 Topography

Existing site surveys have been undertaken by Plowman Craven June 2021; drawings can be found in **Appendix A**. This shows the following levels:

- Existing Basement Level = Approx. 21.76m AOD
- Front Lightwell (Tavistock Square) = Approx. 22.20-22.30m AOD
- External Ground Level = Approx. 24.50m- 24.70m AOD

External levels generally fall away from building entrances at ground floor level and the external areas drain to a low point in the centre of the existing car park.

1.5 Underlying Geology

By inspection of existing British Geological Survey (BGS) borehole data at nearby locations and our understanding of local ground conditions in the area; the following ground conditions are anticipated to be present on site. Site investigations will be required to verify the anticipated underlying geology.

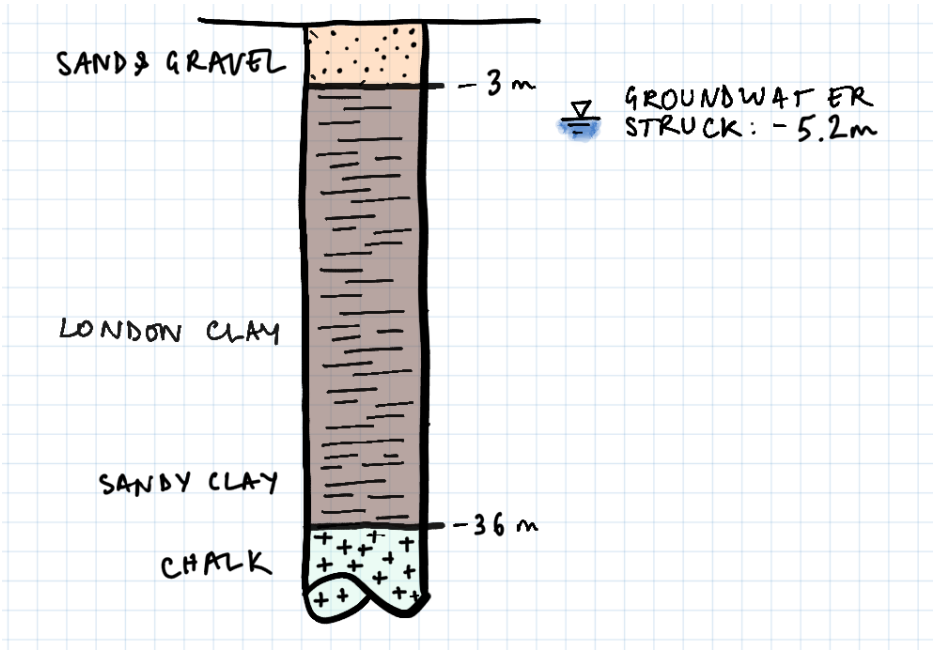


Figure 3 - Summary of local borehole data

1.6 Existing Drainage

Public sewer records have been obtained from Thames Water. An extract of the asset plan is shown in Figure 4.

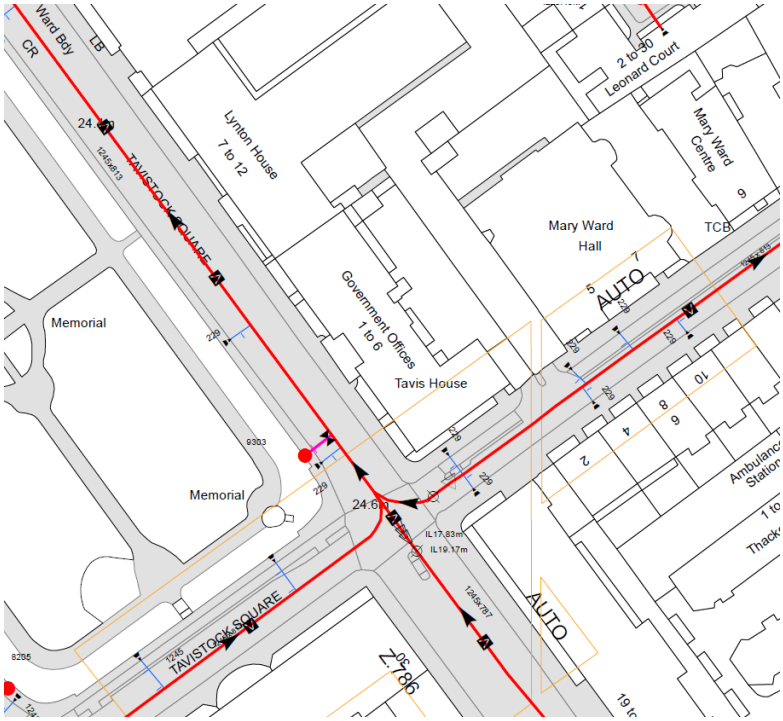


Figure 4 - Thames Water – Sewer Records

Records show that 1245x813mm combined water sewers are located within Tavistock Square and Tavistock Place, to the south and west of the site. The sewers in Tavistock Place converge at the junction with Tavistock Square before running along Tavistock Square in a north westerly direction.

An additional 1245x787mm combined water sewer connects at the junction between Tavistock Square and Tavistock Place from Woburn Place. Thames Waters sewer records are presented in full within **Appendix B**.

1.7 Existing Site-Wide Drainage Network

A CCTV survey of the site-wide private drainage network was undertaken by GO Drainage in September 2021. Extracts from the CCTV report can be found within **Appendix C**. The existing site currently drains both foul water and surface water via a single 225mm diameter combined water outfall pipe, which connects into the offsite Thames Water sewer beneath Tavistock Square.

The existing private drainage network is located predominantly at lower ground floor level, with the demarcation manhole located within the lightwell fronting Tavistock Square. There is an existing gully network within the ground floor external parking / delivery area, which connects into the head of the lower ground floor drainage network. An existing grease trap was identified in the eastern lightwell which was found to be surcharged at the time of visit.

The existing drainage network was found to consist of cast iron pipework and concrete manhole chambers, some of which are located internally within the buildings lower ground floor.

1.8 Existing Surface Water Run-Off

The surface water run-off rate from the existing site has been calculated using the Modified Rational method based on the following average rainfall intensities.

Table 1: Average Rainfall Intensity (15 min Storm Duration)

Return Period	Av. Rainfall Intensity (mm/hr)
1 Year	31.70
30 Year	79.90
100 Year	101.90
100 Year + 40%	142.60

Based on a positively drained area of 1,450m^2 the surface water run-off rate for the existing scenario are as follows, refer to **Appendix D** for brownfield site run-off calculations.

Table 2: Existing Surface Water Run-Off Rate

Return Period	Run-Off (l/s)
1 Year	12.5
30 Year	31.4
100 Year	40.0
100 Year + 40%	56.1

1.9 Proposed Development

The proposed development can be described as follows:

"Refurbishment and extension of the existing building to provide new entrances, a new roof top pavilion, roof top plant equipment and enclosures, rear extension and cycle parking associated with Class E use together with new hard and soft landscaping and other ancillary works'. NAMELY amendments to external rear facades, rooftop plant and other associated works."

The number of storeys remains as per the existing approved 2021 scheme.

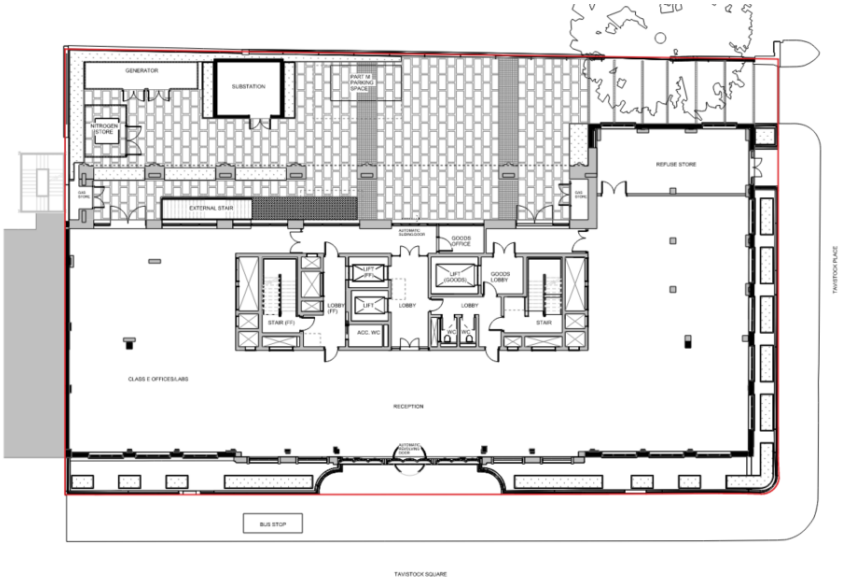


Figure 5 - Proposed Scheme

Refer to the Architects proposed plans for further details.

1.10 Requirement for Sustainable Drainage Systems (SuDS)

Refer to **Appendix E** for the proposed drainage drawings.

We understand that the proposals have been classed as a minor development. Therefore, the introduction of SuDS is not a necessity, nor is meeting Camden thresholds for surface water run-off reductions. Opportunities for SuDS devices have however been explored for the building.

The SuDS strategy has previously been approved and conditioned as part of planning application 2021/6015/P dated 1st December 2023. The condition related to SuDS was as follows:

SuDS: Further details Prior to commencement of above ground works (excluding demolition and site preparation works), full details of the sustainable drainage system [including 666sqm blue roof at 8th and 9th floor level] shall be submitted to and approved in writing by the local planning authority. Such a system should be designed to accommodate all storms up to and including a 1:100 year storm with a 40% provision for climate change such that flooding does not occur in any part of a building or in any utility plant susceptible to water, or on any part of the entire development site for up to and including a 1:30 year storm. The details shall demonstrate a run-off rate conforming to the greenfield run-off rate or other rate of 1.3l/s approved by the Local Planning Authority. An up to date drainage statement, SuDS pro-forma, a lifetime maintenance plan and supporting evidence should be provided including: " The proposed SuDS or drainage measures including storage capacities " The proposed surface water discharge rates or volumes Systems shall thereafter be retained and maintained in accordance with the approved details.

It should be noted that since this condition was imposed the roof layout has changed to accommodate plant associated with a lab-enabled building and subsequently the extent of blue roof and the achievable run-off rates also need to be revised. The updated strategy looks to break the blue roof into 4 sections as per the image below (blue hatch).

Figure 6 - Extent of proposed blue roof (hatched blue)

It is proposed to install a blue roof system over the 8th floor, 9th floor and top roof level. It is not possible to install a blue roof across the 8th floor terrace (hatched red in Figure 6), as the build-up needs to be minimised across this footprint in order to achieve sufficient height in the lab space below.

The proposed blue roof coverage and catchments are shown in Table 3. The table also shows the surface water run-off that would be generated from each area should no blue roof be installed.

Table 3: Blue Roof Run-Off Rates

Blue Roof Reference	Level	Catchment Area	Blue Roof Coverage	Run-off in 1 in 100 year + 40% CC (l/s)	Equivalent Run-off in 1 in 100 year + 40% CC (l/s) – If Blue Roof Wasn't Installed
Blue Roof 1	8th Floor	310m²	280m²	0.84	12.0
Blue Roof 2	Top Roof	137m²	100m²	0.37	5.3
Blue Roof 3	9th Floor	98m²	72m²	0.26	3.8
Blue Roof 4	9th Floor	195m²	136m²	0.53	7.5
Totals:		**740m²**	**588m²**	**2.0 l/s**	**28.6 l/s (97% betterment)**

Refer to **Appendix F** for blue roof hydraulic calculations, which are based on a 97mm deep blue roof system. As can be seen from the table above the total blue roof extent proposed (588m²) has reduced slightly from the previous conditioned strategy (666m²) and due to the need to fragment the roof sections the run-off rate has also slightly increased. However these changes are driven by the revised layout, the principle of the strategy remains, which is to install a blue roof wherever possible. Exceedance flows will remain unchanged from the existing site.

The strategy overall is deemed to be a significant betterment when compared to the existing scenario.

1.11 SuDS / Drainage Maintenance Strategy

All drainage and any potential SuDS will be maintained by the building management company for the lifetime of the development in accordance with the SuDS Manual as summarised below.

Modular System / Blue Roofs (If installed)

Maintenance Schedule	Required Action	Recommended Frequency
Regular	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly
	Debris removal from catchment surface (where may cause risks to performance)	Monthly
	Remove sediment from pre-treatment structures	Annually, or as required
Remedial actions	Repair/rehabilitation of inlets, outlets, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually and after large storms

Gullies / Linear channels

Inspection and removal of debris from silt trap once a year; preferably after leaf fall in the autumn.

Drainage pipes, manholes and silt traps

Inspect manholes & silt traps for build-up of silt and general debris once a year; preferably after leaf fall in the autumn. If silt/debris is building up, then clean with jetting lorry / gully sucker and inspect pipe – repeat cleaning if required. If the pipes to be jetted are plastic then a high flow, low pressure setting should be used so that the pipes are not damaged.

Unusual / unresolved problems

If the drainage system is still holding water following cleaning with a jetter, or the jetting of the system removes excessive amounts of debris this may indicate greater issues within the system. A CCTV survey is likely to be required and further advice should be sought from a drainage engineer.

NOTE: Manhole covers can be heavy and suitable lifting equipment / procedures should be used. Where possible, personnel should not enter manholes to carry out maintenance.

1.12 Pro Formas

Refer **Appendix G** for the relevant drainage Pro Forma.

1.13 Foul Water Drainage

It is proposed that foul drainage from the new development drains to the existing Thames Water sewer beneath Tavistock Square as per the existing arrangement. A capacity enquiry has been submitted to Thames Water who have confirmed the offsite sewer network has capacity to drain the development.

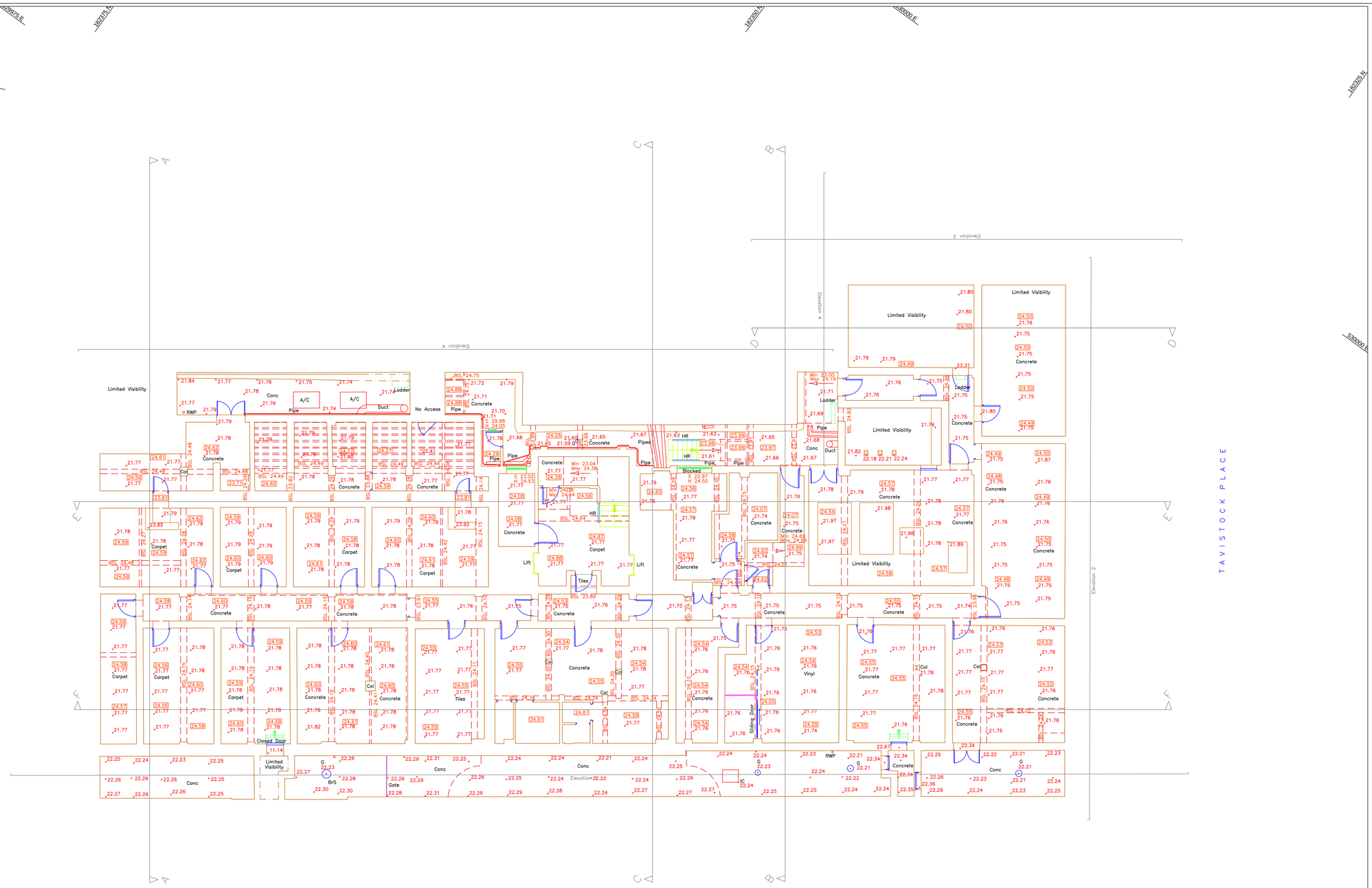
1.14 Conclusion

As the scheme proposals have been classed as a minor development, the introduction of SuDS is not a necessity, nor is meeting Camden thresholds for surface water run-off reductions. Opportunities for SuDS devices have however been explored.

It is proposed to install a blue roof system over the 8th floor, 9th floor and top roof level.

The implementation of a blue roof over the noted roof areas will restrict run-off for a catchment of 740m^2, from what would have been a rate of 28.60 l/s down to 2.0 l/s.

Appendix A – Topographical Survey



STANDARD ABBREVIATIONS

A/C	Air Conditioner	IRF	Iron Railing Fence
AH	Arch Height	IRS	Illuminated Road Sign
AL	Arch Level	JB	Junction Box
ASH	Arch Spring Height	L	Light
ASL	Arch Spring Level	LB	Litter Bin
B	Bollard	LP	Lamp Post
BGP	Break Glass Point	Max	Maximum
BH	Beam Height	MH	Manhole
Br	Brick	Min	Minimum
BRW	Brick Retaining Wall	O/H	Overhead
BSL	Beam Soffit Level	OSBM	Ordnance Survey Bench Mark
BT	British Telecom	P	Post
BW	Brick Wall	PB	Pillar Box
CBF	Close Boarded Fence	PLI	Pavement Light
CCTV	Closed Circuit Television	PS	Paving Stones
Chy	Chimney	Rad	Radiator
CL	Cover Level	RDM	Recessed Door Mat
CLF	Chain Link Fence	RE	Rodding Eye
Col	Column	RS	Road Sign
Conc	Concrete	RSJ	Rolled Steel Joist
CPS	Concrete Paving Slabs	RWP	Rain Water Pipe
CTV	Cable Television IC	s	spread
Cup	Cupboard	S	Window Sill Height/Level
DH	Door Head Height	SBM	Site Bench Mark
DP	Down Pipe	SC	Stop Cock
DrC	Drainage Channel	SH	Spring Height
EIC	Electrical Inspection Cover	SL	Sump Level
EJB	Electrical Junction Box	Slt	Skylight
EM	Electricity Meter	SO	Smoke Outlet
ER	Earthing Rod	SP	Sign Post
ESG	Electrical Switchgear	SS	Security Sensor
FA	Fire Alarm	SV	Stop Valve
FB	Flower Bed	T	Telephone
FE	Fire Extinguisher	Tac	Tactile Paving
FH	Fire Hydrant	TBM	Temporary Bench Mark
FHR	Fire Hose Reel	TCB	Telephone Call Box
FL	Floor Level	TIC	Telephone Inspection Cover
FR	Floodlight	TJB	Telephone Junction Box
g	girth	TL	Traffic Light
Gully	Gully	TLCB	Traffic Light Control Box
GC	Gas Cock	TLIC	Traffic Light Inspection Cover
GM	Gas Meter	TP	Telephone Pole
GV	Gas Valve	Typ	Typical
H	Window Head Height/Level	V	Vent
h	height	VP	Vent Pipe
HB	Hand Basin	WH	Water Heater
HR	Handrail	WM	Water Meter
IC	Inspection Cover	WV	Water Valve
IL	Invert Level		

LEGEND

- (2.70) Floor to ceiling/false ceiling height with F prefix
- [22.70] Ceiling level/false ceiling level with F prefix
- Stair/Step arrows point up
- Sloping ceiling arrows point up
- Roof arrows point down
- Assumed detail

The identification of service covers has been made by a surface inspection only - critical identifications should be verified by the lifting of covers or a full utilities survey

Due to the inherent instability of paper materials, drawings plotted on paper may be stretched and distorted - dimensions scaled from paper plots should therefore be treated with caution

This drawing has been produced for the purpose of the original commissioning agent. Plowman Craven Limited will accept no responsibility for details that are subsequently found to be the consequence of undisclosed facts or that were obscured from view at the time of survey or that have been altered since the survey.

See www.plowmancraven.co.uk for full terms and conditions of contract.

SHEET LAYOUT

46590F-01

ISSUES & REVISIONS

Issue	Details	By	Date
A prov 1	Drawing incomplete and unchecked	PCL	16/09/21
A	Final Issue	PCL	01/10/21

This Floor Plan has been extracted from revit model, no. 46590-PCL-BG-ZZ-M3-G-0001_BuildingModel-S3-P01, dated 16/08/21.

This survey is commensurate with Level of Detail (LOD) 3 and Level of Information (LOI) 300. Please refer to BIM Checklist E02521-PCL-ZZ-ZZ-SP-G-0101_BIMCHECKLIST-S3-P01.

Levels have been taken from point cloud data and consequently may reveal minor discrepancies.

All levels are in metres and are above Ordnance Survey Newlyn Datum derived by multiple network RTK GPS observations

The survey grid shown on this drawing is positioned on Ordnance Survey (OS) National Grid, obtained by multiple network RTK GPS observations

Unless otherwise stated, levels have been taken to finished floor surface

All quoted dimensions are in metres

Drawing units are metres

CLIENT

Quartz Project Services Limited

34 Dover Street
London
W1S 4NG

PROJECT TITLE

Tavis House

Tavistock Square, WC1H 9NA

Basement Floor Plan

PRESENTATION SCALE 1:100 @ A1

DATE OF ORIGINAL SURVEY June 2021

PC PROJECT No. 46590 CHECKED MG

DRAWING No. 46590F-01 ISSUE A

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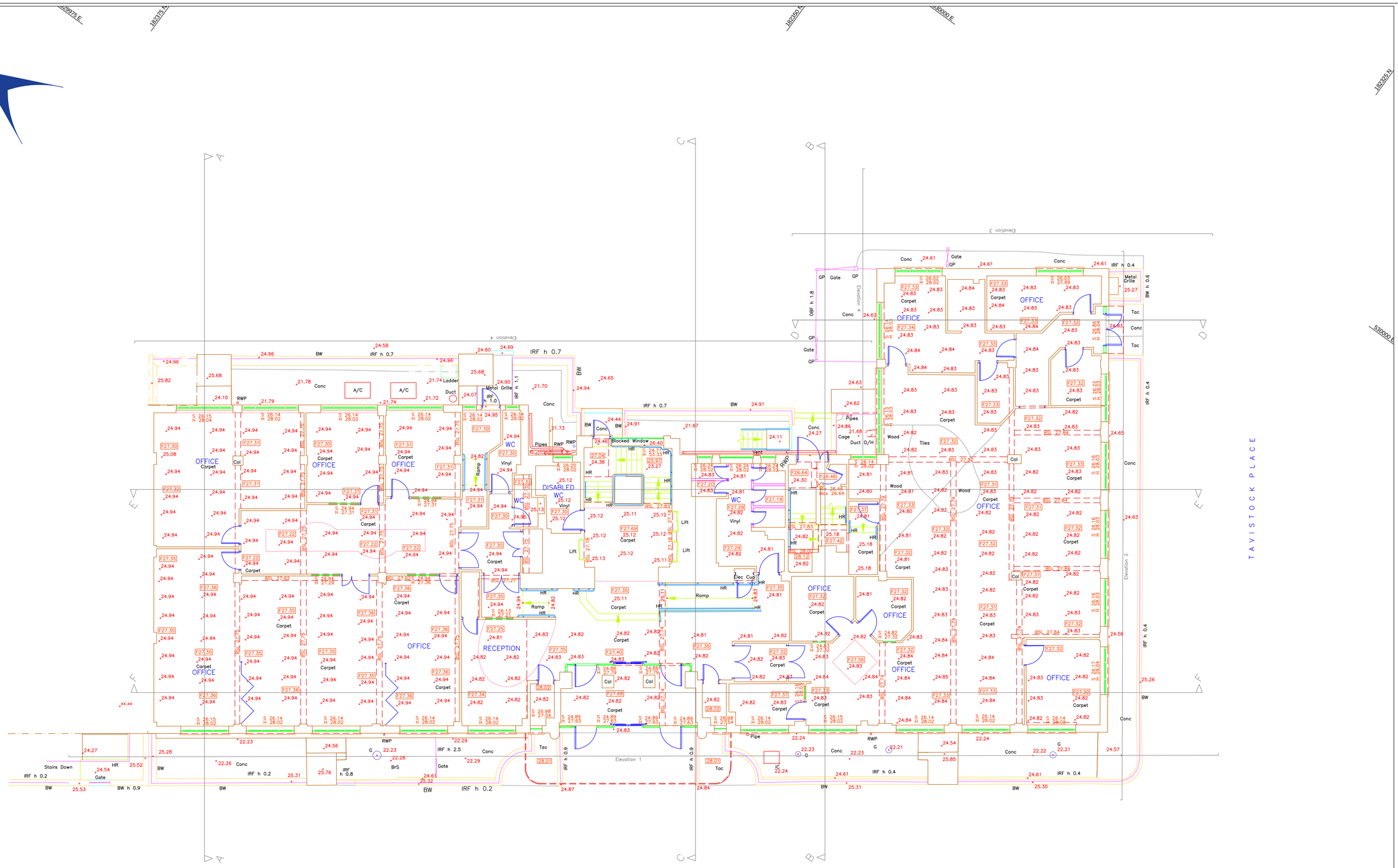

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SHEET LAYOUT

46590F-02

ISSUES & REVISIONS

Issue	Details	By	Date
A prov 1	Drawing incomplete and unchecked	PCL	16/09/21
A	Final Issue	PCL	01/10/21

This Floor Plan has been extracted from revit model, no. 46590-PCL-BG-ZZ-M3-G-0001_BuildingModel-S3-P01, dated 16/08/21.

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CLIENT

Quartz Project Services Limited

34 Dover Street
London
W1S 4NG

PROJECT TITLE

Tavis House

Tavistock Square, WC1H 9NA

Ground Floor Plan

PRESENTATION SCALE 1:100 @ A1

DATE OF ORIGINAL SURVEY June 2021

PC PROJECT No. 46590 CHECKED MG

DRAWING No. ISSUE

46590F-02 A

Plowman Craven

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Web: www.plowmancraven.co.uk

Appendix B – Thames Water Records

Asset location search

Property Searches

Elliott Wood Partnership Limited
LONDON
W1W 7TY

Search address supplied

Law Centres Network
Tavis House 1-6
Tavistock Square
London
WC1H 9NA

Your reference 1-6 Tavistock Square

Our reference ALS/ALS Standard/2021_4419903

Search date 5 May 2021

Knowledge of features below the surface is essential for every development

The benefits of this knowledge not only include ensuring due diligence and avoiding risk, but also being able to ascertain the feasibility of any development.

Did you know that Thames Water Property Searches can also provide a variety of utility searches including a more comprehensive view of utility providers' assets (across up to 35-45 different providers), as well as more focused searches relating to specific major utility companies such as National Grid (gas and electric).

Contact us to find out more.

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

0800 009 4540

Asset location search

Property Searches

Search address supplied: Law Centres Network, Tavis House 1-6, Tavistock Square, London, WC1H 9NA

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 searchprovides 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 0800 009 4540, 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.

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.

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

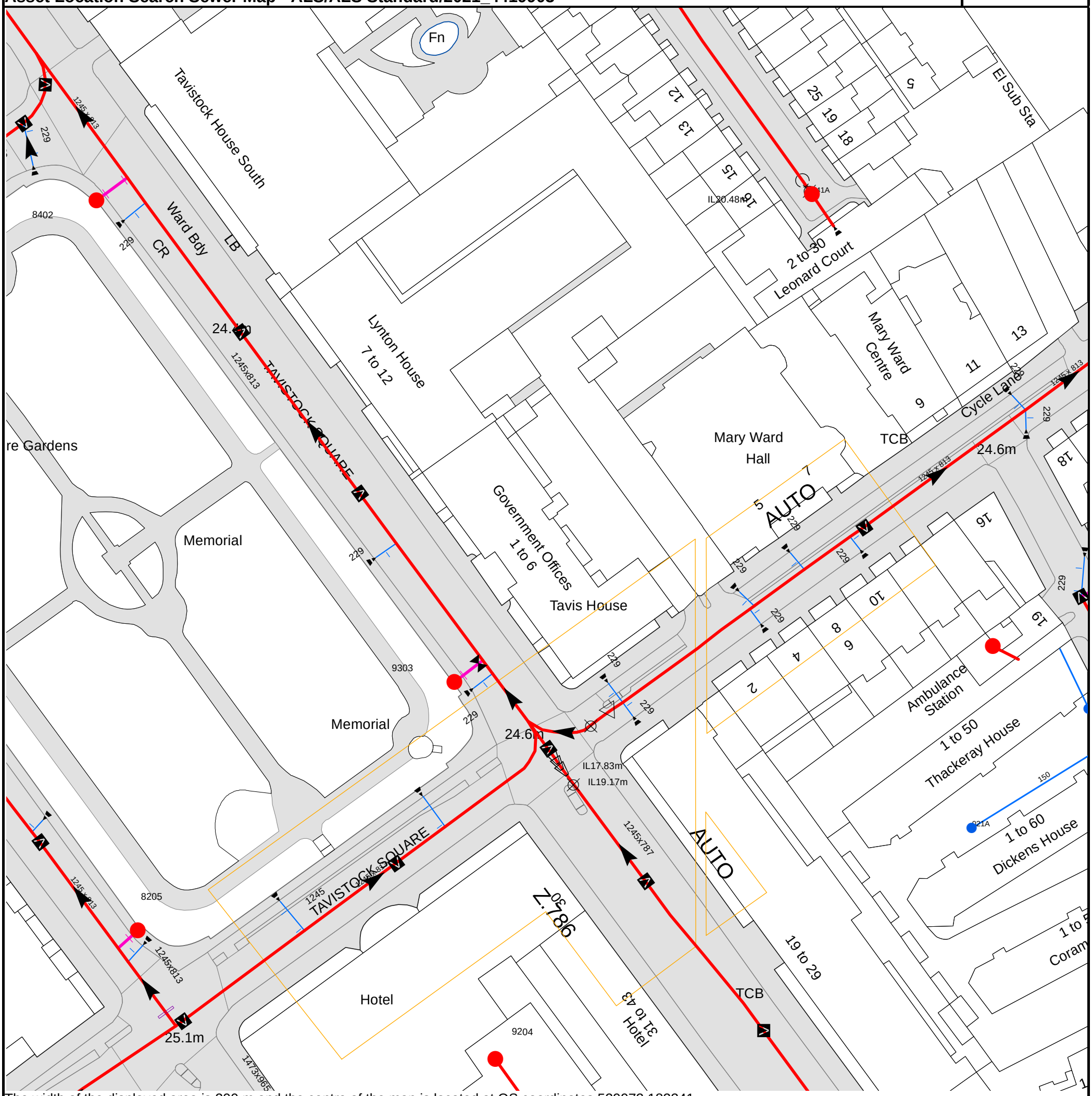
Clean Water queries

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

Asset Location Search Sewer Map - ALS/ALS Standard/2021_4419903



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 529972,182341

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.

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
031A	n/a	n/a
8402	n/a	n/a
8205	n/a	n/a
9303	n/a	n/a
9204	24.98	21.47
041A	n/a	n/a
021A	n/a	n/a
03DI	n/a	n/a

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

ALS 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

Gulley

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 milimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Searches on 0800 009 4540.

Asset Location Search Water Map - ALS/ALS Standard/2021_4419903

The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 529972, 182341.

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

ALS Water Map Key

Water Pipes (Operated & Maintained by Thames Water)

4"

Distribution Main: The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.

16"

Trunk Main: A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.

3" SUPPLY

Supply Main: A supply main indicates that the water main is used as a supply for a single property or group of properties.

3" FIRE

Fire Main: Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.

3" METERED

Metered Pipe: A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.

Transmission Tunnel: A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.

Proposed Main: A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

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

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')

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: Indiates 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**
Call **0800 009 4540** quoting your invoice number starting CBA or ADS / OSS	Account number **90478703** Sort code **60-00-01** A remittance advice must be sent to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW.** or email **ps.billing@thameswater.co.uk**	By calling your bank and quoting: Account number **90478703** Sort code **60-00-01** and your invoice number	Made payable to '**Thames Water Utilities Ltd**' Write your Thames Water account number on the back. Send to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW** or by DX to **151280 Slough 13**

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

Keri Trimmer

Elliott Wood
55 Whitfield Street
London
W1T 4AH

Wastewater pre-planning
Our ref DS6091545

14 January 2022

Pre-planning enquiry: Confirmation of sufficient capacity

Site: Tavis House, Tavistock Square, London, WC1H 9NA

Dear Keri,

Thank you for providing information on your development.

Existing site: offices (6903m^2)
Proposed site: offices (7897m^2)
Proposed foul water discharge by gravity to Tavistock Square Combined Sewer 1245mmx813mm

We have completed the assessment of the foul water flows based on the information submitted in your application with the purpose of assessing sewerage capacity within the existing Thames Water sewer network.

Foul Water

If your proposals progress in line with the details you've provided, we're pleased to confirm that there will be sufficient sewerage capacity in the adjacent combined sewer network to serve your development.

This confirmation is valid for 12 months or for the life of any planning approval that this information is used to support, to a maximum of three years.

You'll need to keep us informed of any changes to your design – for example, an increase in the number or density of homes. Such changes could mean there is no longer sufficient capacity.

Surface Water

In accordance with the Building Act 2000 Clause H3.3, positive connection of surface water to a public sewer will only be consented when it can be demonstrated that the hierarchy of disposal methods have been examined and proven to be impracticable. Before we can consider your surface water needs, you'll need written approval from the lead local flood authority that you have followed the sequential approach to the disposal of surface water and considered all practical means.

When developing a site, policy SI 13 of the London Plan states “Development proposals should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible. There should also be a preference for green over grey features, in line with the following drainage hierarchy:”.

The disposal hierarchy being:

1. rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation)
2. rainwater infiltration to ground at or close to source
3. rainwater attenuation in green infrastructure features for gradual release (for example green roofs, rain gardens)
4. rainwater discharge direct to a watercourse (unless not appropriate)
5. controlled rainwater discharge to a surface water sewer or drain
6. controlled rainwater discharge to a combined sewer

Where connection to the public sewerage network is still required to manage surface water flows, we will accept these flows at a discharge rate in line with CIRIA’s best practice guide on SuDS or that stated within the sites planning approval.

Please see the attached ‘Planning your wastewater’ leaflet for additional information.

What happens next?

Please make sure you submit your connection application, giving us at least 21 days’ notice of the date you wish to make your new connection/s.

If you have any further questions, please contact me on 0800 009 3921.

Kind Regards,

Leigh Khan
Developer Services – Adoptions Engineer
Tel: 0800 009 3921
developer.services@thameswater.co.uk
Get advice on making your sewer connection correctly at connectright.org.uk
Clearwater Court, Vastern Road, Reading, RG1 8DB
Find us online at developers.thameswater.co.uk

Appendix C– CCTV Survey

BELOW GROUND DRAINAGE NOTES

1. Existing drainage layout based on Archive drawings dated April 1939 and CCTV survey undertaken by GoDrainage Ltd ref CV.02173.

Gully drains ground floor external parking / delivery area.

Gully drains ground floor external parking / delivery area.

Gully drains ground floor external parking / delivery area.

G

G

G

100Ø

Gully network backdrops down light-well wall and connects into basement /lower ground level network.

MH2

MH1

MH1A

MH3

MH4

UP

UP

150Ø

100Ø

100Ø

100Ø

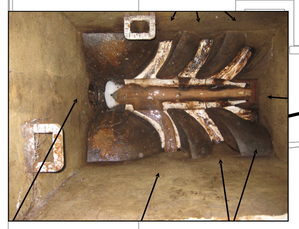
100Ø

150Ø

100Ø

100Ø

225Ø



Existing 225mm outfall pipe connects to Thames Water Combined Water Sewer.

1245x813 Thames Water Combined Water sewer beneath Tavistock Square.

TAVISTOCK SQAURE

TAVISTOCK PLACE

1
2
3
4
5

A B C D E F G H

NOTE: ALL BELOW GROUND DRAINAGE WAS FOUND TO BE IN RELATIVELTY POOR CONDITION WITH LARGE SCALE DEBRIS AND SCALING WITHIN THE PIPEWORK.

This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.

Do not scale from this drawing.

LEGEND

- COMBINED WATER MANHOLE
- EXISTING COMBINED WATER
- EXISTING SURFACE WATER
- G GULLY
- EXISTING BUILDING

NOT FOR CONSTRUCTION

rev	sc	date	by	chk	description
P1	S2	23.11.21	HHu	HHu	Issued for information

Drawing title
Existing Below Ground Drainage

scale (s): 1:100@ A1; 1:200@A3
date: November 2021
drawn: HHu

elliottwood | engineering a bettersociety

Elliott Wood Partnership Ltd
Central London • Wimbledon • Nottingham
Consulting Structural and Civil Engineers
(020) 7499 5888 • elliottwood.co.uk

Project
Tavis House,
Tavistock Square,
London

Drawing status: Preliminary
Status: S2
Revision: P1

Project no. | Originator | Zone | Level | Type | Role | drg no.
2200531-EWP-ZZ-B1-DR-C-0090