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# Tavis House,
# 1-6 Tavistock Square,
# London, WC1H 9NA

Flood Risk Assessment

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| | | Remarks: | Issued for Comment | | | | |
|---|---|---|---|---|---|---|---|
| Revision: | P4 | Prepared by: | Keri Trimmer<br>MEng (Hons)<br>CEng MICE | Checked by: | Paul Davis<br>BEng (Hons)<br>MSc<br>CEng MICE | Approved by: | Paul Davis<br>BEng (Hons)<br>MSc<br>CEng MICE |
| Date: | 22/03/2024 | Signature: |  | Signature: |  | Signature: |  |

# Contents



# Appendices

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# One

## Executive Summary

Flood zone information published by GOV.uk shows that the development is located within Flood Zone 1, and is therefore at very low risk of fluvial flooding.

A review of all other potential sources of flooding has found the site be at low risk, providing a suitable drainage scheme is in place.

This report demonstrates that the proposed development has a low probability of flooding. It is considered that the information provided within this report satisfies the requirements of the National Planning Policy Framework, London Local Plan and The London Borough of Camden Flood Risk Management Strategy.

# Two

## Introduction

This Flood Risk Assessment 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 layout.

The site is located within the London Borough of Camden (LBC) who are also the Lead Local Flood Authority (LLFA) for the area. The site is located within a Critical Drainage Area (CDA) as defined by LBC but outside of a Local Flood Risk Zone.

This FRA will assess the risk of flooding to the site and review the impact the proposed development will have with regards to flood risk to surrounding properties. This is in line with the requirements of the National Planning Policy Framework (NPPF).

The Flood Risk Mechanisms being considered as part of this Flood Risk Assessment (FRA) are as follows:

- Rivers and Sea
- Overland Flow
- Flooding from Artificial Waterbodies
- Infrastructure Failure / Sewer Flooding
- Groundwater

# Three

## Site Context

### 3.1 Site Location

The site is located in 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 south east of the site.

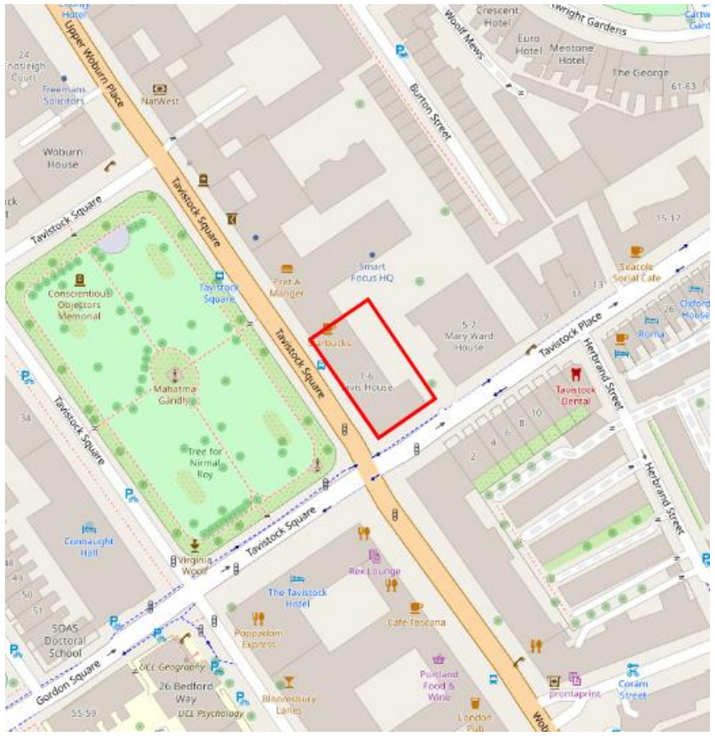


**Figure 1**: Site Location Plan

The site centred OS grid reference is 529973E: 182345N and the total site boundary is approximately 1,450m$^2$ (0.15ha).

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## 3.2 Existing Site

The existing building fronts Tavistock Square and 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.

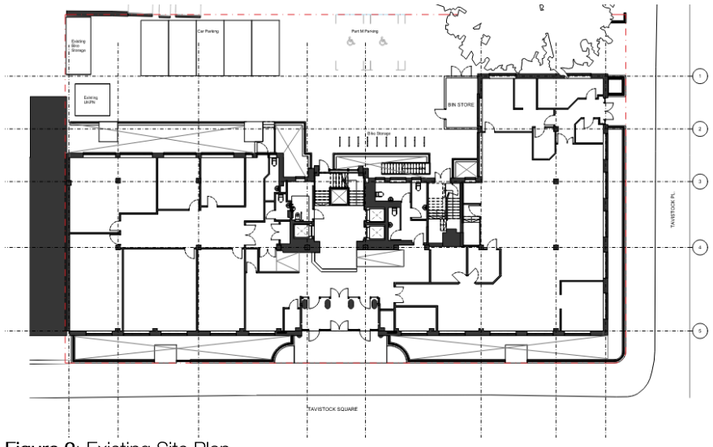


**Figure 2**: Existing Site Plan

The entire site is considered to be a positively drained impermeable area in the existing scenario.

## 3.3 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.

## 3.4 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.

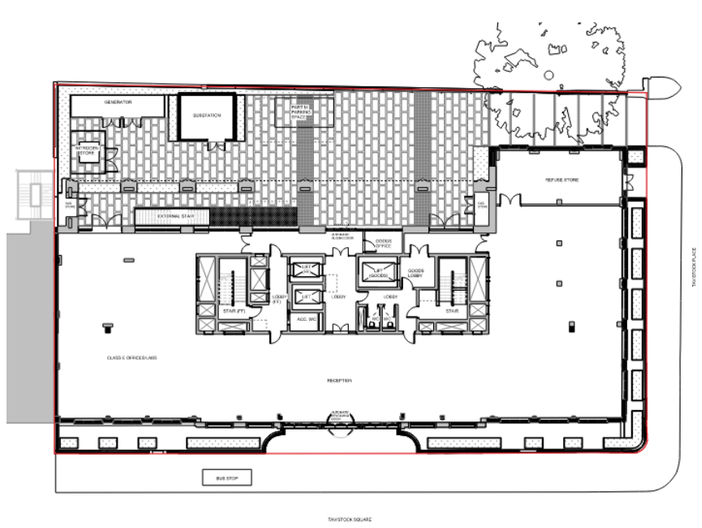


**Figure 3:** Proposed Site Plan

Refer to the Architects proposed plans for further details.

# Four

# Planning and Flood Risk Policy

## 4.1 Policy Summary

This Flood Risk Assessment has been written in accordance with GOV.uk guidelines and the NPPF. Flood risk will be assessed for the following flood risk mechanisms:

- Rivers and Seas
- Overground Surface Water Flows
- Sewer Flooding / Infrastructure Failure
- Groundwater
- Artificial Waterbodies

The following documents have been reviewed in preparation of this flood risk assessment:

- The London Borough of Camden Flood Risk Management Strategy
- London Borough of Camden SFRA 2014
- The London Local Plan 2021
- GOV.uk flood risk maps
- Camden Local Plan 2017

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# Five

## Flood Risk Assessment

It is important to assess the flood risk posed to the development of this Site from all sources of flooding, in accordance with National Planning Policy Framework (NPPF) requirements.

The flood risk mechanisms being considered as part of this Flood Risk Assessment (FRA) are as follows:

- Fluvial and tidal sources;
- Surface water;
- Groundwater;
- Flooding from Artificial Waterbodies;
- Sewers / Infrastructure Failure

### 5.1 Flooding from Fluvial and Tidal Sources

In accordance with the GOV.uk flood maps for planning, the Site is in Flood Zone 1 - land and property assessed as having less than a 0.1% (1 in 1,000) annual probability of river or sea flooding in any given year.

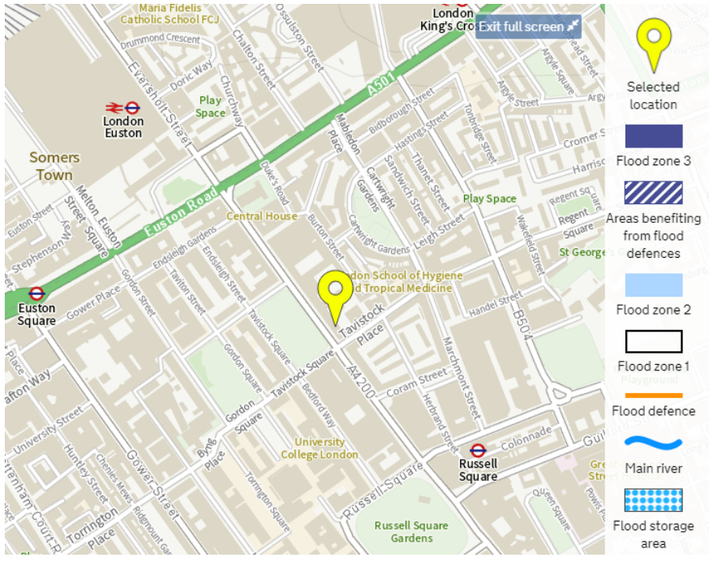


Figure 4: GOV.UK Flood Map for Planning – Flood risk from rivers or the sea

Therefore, the risk of the development flooding from rivers and sea is **very low.**

### 5.2 Flooding from Surface Water

Surface water flooding occurs when intense rainfall is unable to soak into the ground or enter drainage systems, because of blockages, or breakages in water pipes or where the drainage capacity has been exceeded. The extent of surface water flooding will depend upon the rainfall event, the degree of saturation of the soil, the permeability of soils and the topography of the site.

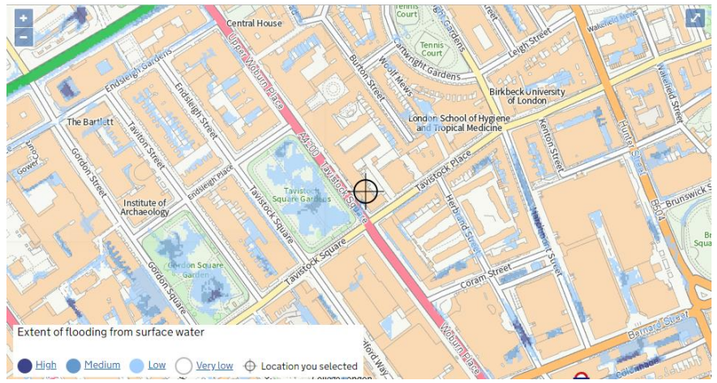


Figure 5: GOV.UK Flood Map for Planning – Flood risk from surface water

A review of the GOV.uk flood risk from surface water map indicates that the site is at 'very low' risk of surface water flooding. There are localised areas to the west of the site which are defined as having low to medium risk of surface water flooding.

Levels on site will be designed to route surface water away from building edges where possible. This will increase the buildings resilience to flooding from overland flow.

After review of the relevant information, the risk of flooding from overland surface water flow is considered to be **very low**.

### 5.3 Flooding from Groundwater

Groundwater flooding can occur following an extended prolonged period of low intensity rainfall. The future risk from this source is more uncertain than surface water as the climate change predictions indicate that although sea levels will rise, thus possibly raising groundwater levels, overall summer rainfall will decrease, therefore having a long-term effect of lowering the groundwater levels. However, long periods of wet weather are predicted to increase, and these are the type of weather patterns that can cause groundwater flooding to occur.

A review of the BGS maps show the site is situated on a bedrock of London Clay Formation with superficial deposits Lynch Hill Gravel Member. The closest historic borehole is located to the southeast of Tavistock Square Gardens. The borehole indicates medium to coarse sand and gravel, above a layer of stiff grey-blue silty fissured clay. Groundwater was discovered at a depth of approximately 3mBGL and is understood to be perched over the clay substrata. At a depth of 10mBGL groundwater was found to be seeping from a sandy pocket within the clay strata.

The LBC SFRA mapping shows 1 No. previous historic groundwater flooding incident in the vicinity of the site, on the southern side of Tavistock Place (reported by the Environment Agency). The development site area is however shown to be outside of areas with increased susceptibility of elevated groundwater.

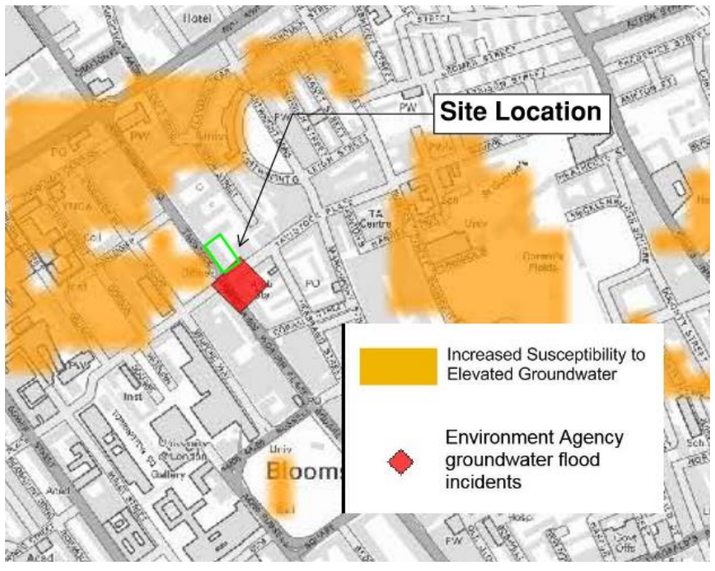


Figure 6: LBC SFRA Groundwater Map Figure 4e

The existing site benefits from an existing basement level, which is to be retained as part of the proposed works. Elliott Wood are not aware of any previous groundwater flooding incidents at the site, within the existing basement.

After review of the above information the risk of flooding from groundwater is considered to be **low**.

## 5.4 Flooding from Artificial Water Bodies

Review of the GOV.uk flood risk from reservoirs map indicates that the site is not located within a reservoir Flood Risk Zone (an area expected to flood if a local reservoir were to fail or be breached).

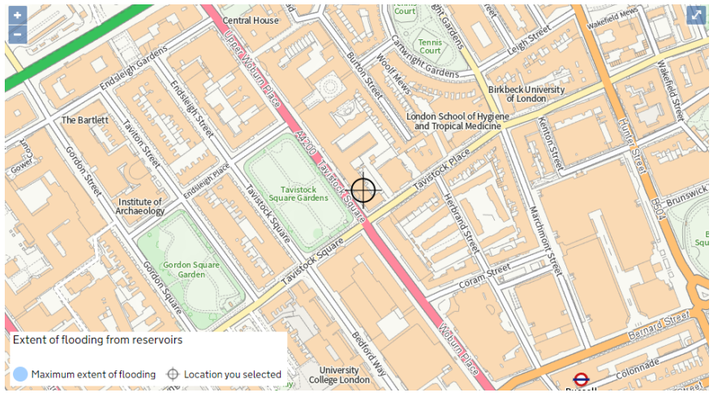


**Figure 7:** GOV.UK Flood Map for Planning – Flood risk from reservoirs

Following review of the relevant information, the risk of flooding from artificial water bodies is considered to be **very low**.

## 5.5 Flooding from Infrastructure / Sewer Failure

Public sewer records have been obtained from Thames Water. The 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.

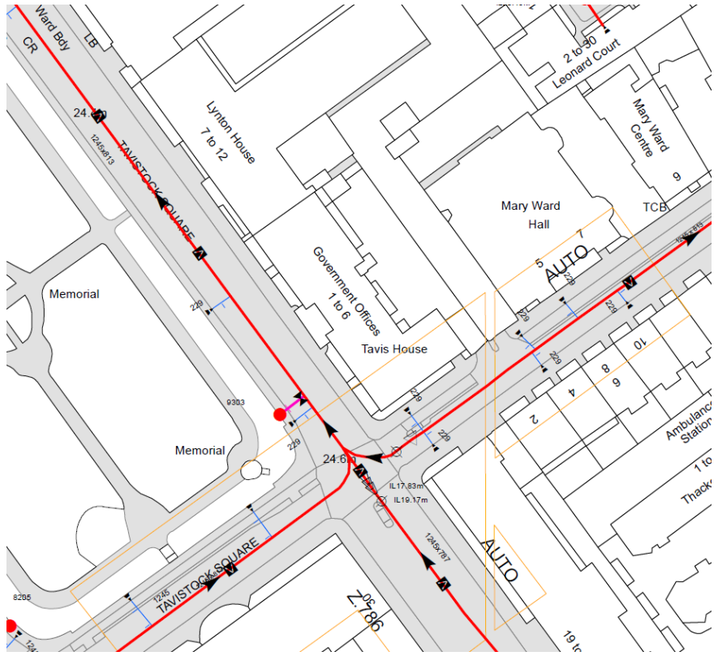


**Figure 8:** Thames Water – Sewer Records

The existing site discharges to the combined sewer within Tavistock Square, which is shown to be approximately 6.8m deep.

Thames Water are responsible for operating and maintaining their sewer infrastructure, therefore the likelihood of surcharge due to blockages is expected to be low. LBC SFRA mapping also shows that the site is located outside of any areas reported to have historic sewer flooding incidents.

As a result, the risk of flooding from infrastructure and sewer failure is considered to be **low**.

# Six

## Conclusion

In accordance with the GOV.uk flood maps for planning, the site is in Flood Zone 1 - land and property assessed as having less than a 0.1% chance of flooding from tidal sources in any given year.

Flood risk from fluvial and tidal sources, surface water, sewers, groundwater, flooding from Artificial Waterbodies and infrastructure failure is considered to be low for this site. Safe access and egress from the site is maintained when considered alongside all sources of potential flooding.

As the development is located within Flood Zone 1, neither the Sequential nor Exception Test need to be applied.

The proposed development does not increase flood risk to the site or surrounding area and is considered safe from the risk of flooding for its lifetime

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# Appendices

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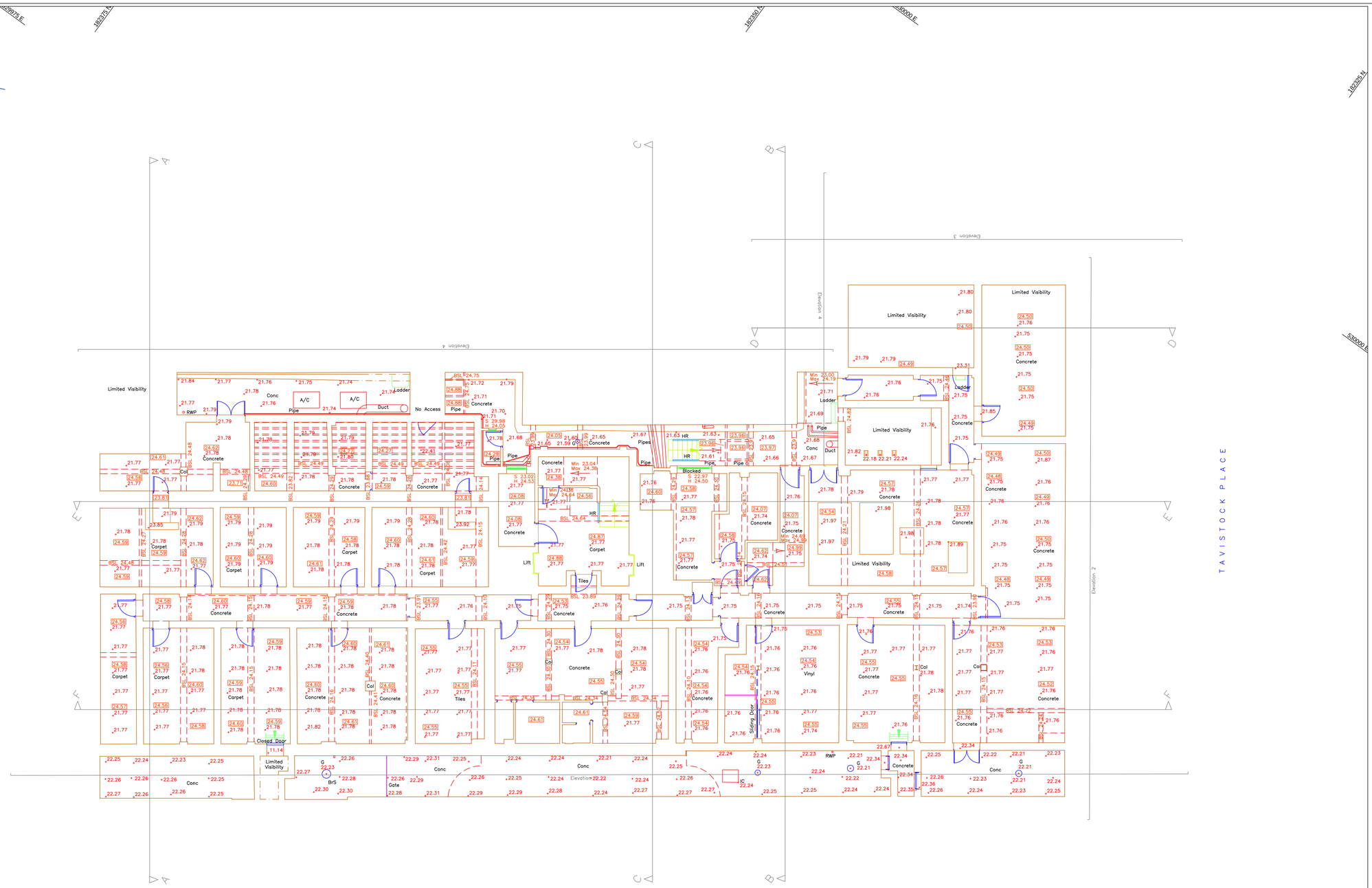
A Topographical Survey




## 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 | | 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

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## 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.

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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

Plowman Craven

Plowman Craven House
2 Lea Business Park
Lower Luton Road
Harpenden
Hertfordshire
AL5 5EQ

Tel: +44 (0)1582 765566
Email: post@plowmancraven.co.uk
Web: www.plowmancraven.co.uk

115 Southwark Bridge Road
London
SE1 0AX

Tel: +44 (0)207 490 7700

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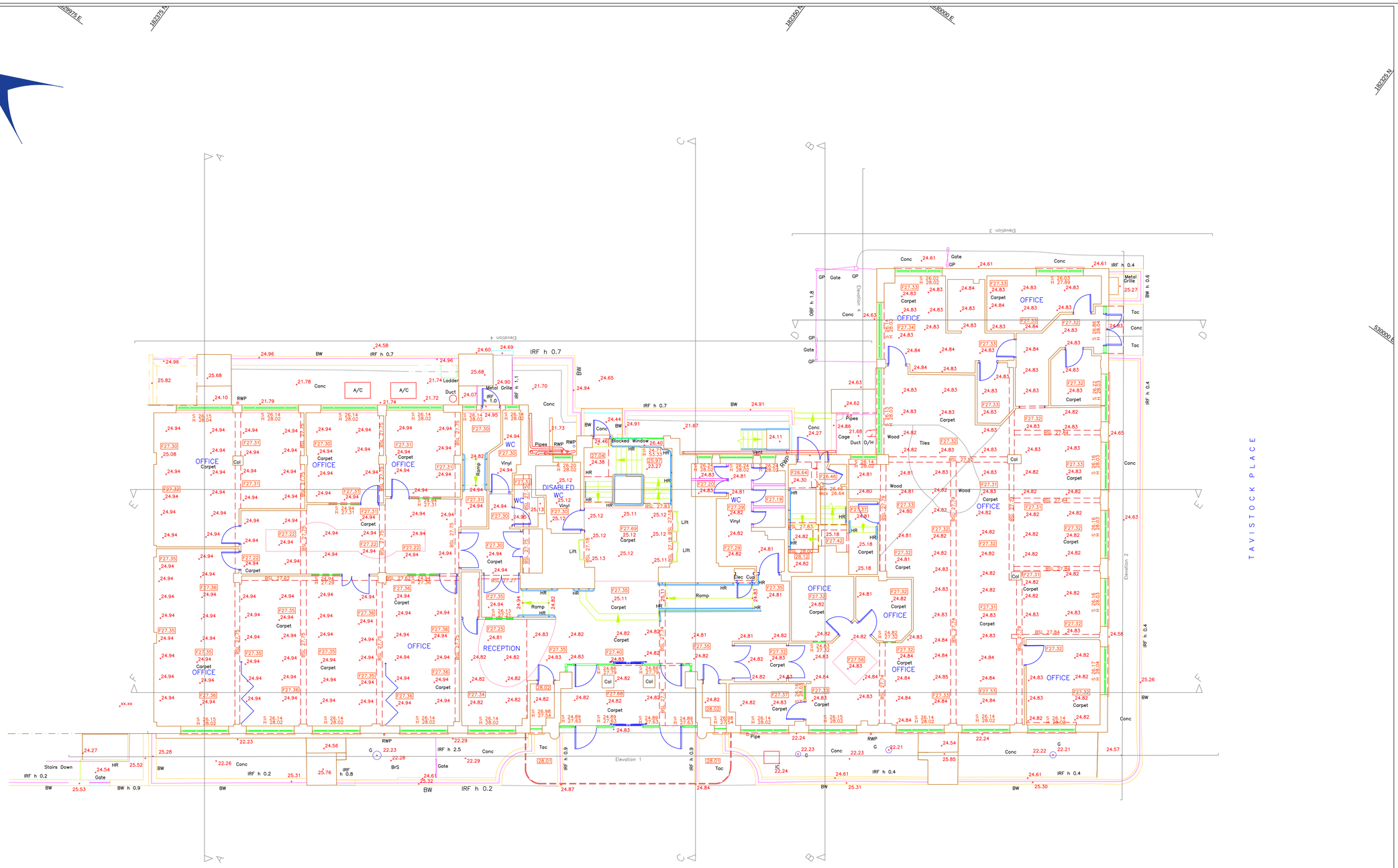


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## ISSUES & REVISIONS

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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

Plowman Craven House
2 Lea Business Park
Lower Luton Road
Harpenden
Hertfordshire
AL5 5EQ

Tel: +44 (0)1582 765566

115 Southwark Bridge Road
London
SE1 0AX

Tel: +44 (0)207 490 7700

Email: post@plowmancraven.co.uk
Web: www.plowmancraven.co.uk

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**London**
55 Whitfield Street
Fitzrovia
W1T 4AH
+44 207 499 5888

**Wimbledon**
241 The Broadway
London
SW19 1SD
+44 208 544 0033

**Nottingham**
1 Sampsons Yard
Halifax Place
Nottingham
NG1 1QN
+44 870 460 0061

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