Flood Risk Assessment

BPP House, Bristol

BPP Education

Prepared by:

SLR Consulting Limited

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SLR Project No.: 416.065128.00001

7 December 2023

Revision: 01

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
01	7 December 2023	Alyssa Jones	Nick Bosanko	Nick Bosanko

Basis of Report

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Table of Contents

Appendices

1.0 Introduction

1.1 Background

SLR Consulting Limited (SLR) has been appointed by BPP Education to prepare a Flood Risk Assessment (FRA) to support a planning application for the installation of a DDA complaint lift at BPP House, Bristol ("the site").

According to the Environment Agency (EA) Flood Map for Planning, the site is largely located within Flood Zone 2 (Medium Risk), but small areas are in Flood Zone 1 (Low Risk) and Flood Zone 3 (High Risk). Consequently, in accordance with the National Planning Policy Framework[1] (NPPF), an FRA is required to support the planning submission.

This FRA has been prepared under the direction of a Technical Director of Hydrology at SLR who specialises in flood risk and associated planning matters. Reporting has been completed in accordance with guidance presented within the NPPF and its associated Planning Practice Guidance[2] (PPG), taking due account of current best practice documents relating to the assessment of flood risk published by the British Standards Institution BS8533[3] and local planning policies.

1.2 Proposed Development

The proposed development consists of installation of a DDA complaint lift within the existing BPP House. The lift will be located on the eastern elevation and will provide access to the basement of the building. Access to the lift is provided via Grove Avenue to the east.

An existing and proposed layout plan is enclosed in Appendix A.

1.3 Aims and Objectives

The aim of this FRA is to demonstrate that the site can be developed safely, without exposing it to an unacceptable degree of flood risk and/or increasing the flood risk to third parties. The objectives of this FRA are to:

- Review the relevant planning policy documents to ensure that the development proposals are in accordance with these and other regional and local guidance.
- Undertake a desk-based review of the available flood risk information to assess past, current and future flood risk issues, taking into consideration the anticipated impacts of climate change.
- Identify flood mitigation requirements to ensure the development is safe from flooding, without impacting third parties.
- Summarise the above in an FRA.

1 Revised National Planning Policy Framework: Communities and Local Government (March 2012, Updated July 2021)

2 Planning Practice Guidance, Flood Risk and Coastal Change: Communities and Local Government (March 2014, Updated August 2022)

3 BS8533:2017, Assessing and managing flood risk in development: Code of Practice (2nd Edition, December 2017)

2.0 Site Description

2.1 Site Location

The wider site covers an area of approximately 0.03 hectares (ha) and the wheelchair lift covers an area of approximately 900 x 1250 mm. The site is centred at National Grid Reference (NGR) ST587724. A site location plan is provided in Figure 2-1.

Figure 2-1: Site Location Plan

The site is in central Bristol and is used for educational purposes. The River Frome/Bristol Floating Harbour is situated to the south, existing buildings surround the site and a park, known as Queen Square, is located to the north.

2.2 Topography

A topographical survey is not available; 1 m LiDAR DTM data has been used to assess elevations at the site, shown in Figure 2-2 . LiDAR data shows that the site is generally flat, with ground levels in the northeast at a maximum of approximately 9.8 m AOD and a minimum level of approximately 8.1

m AOD to the west. At the location of the proposed lift, ground levels are approximately 9.5 m AOD. The basement is at a lower level, but no finished floor levels are available.

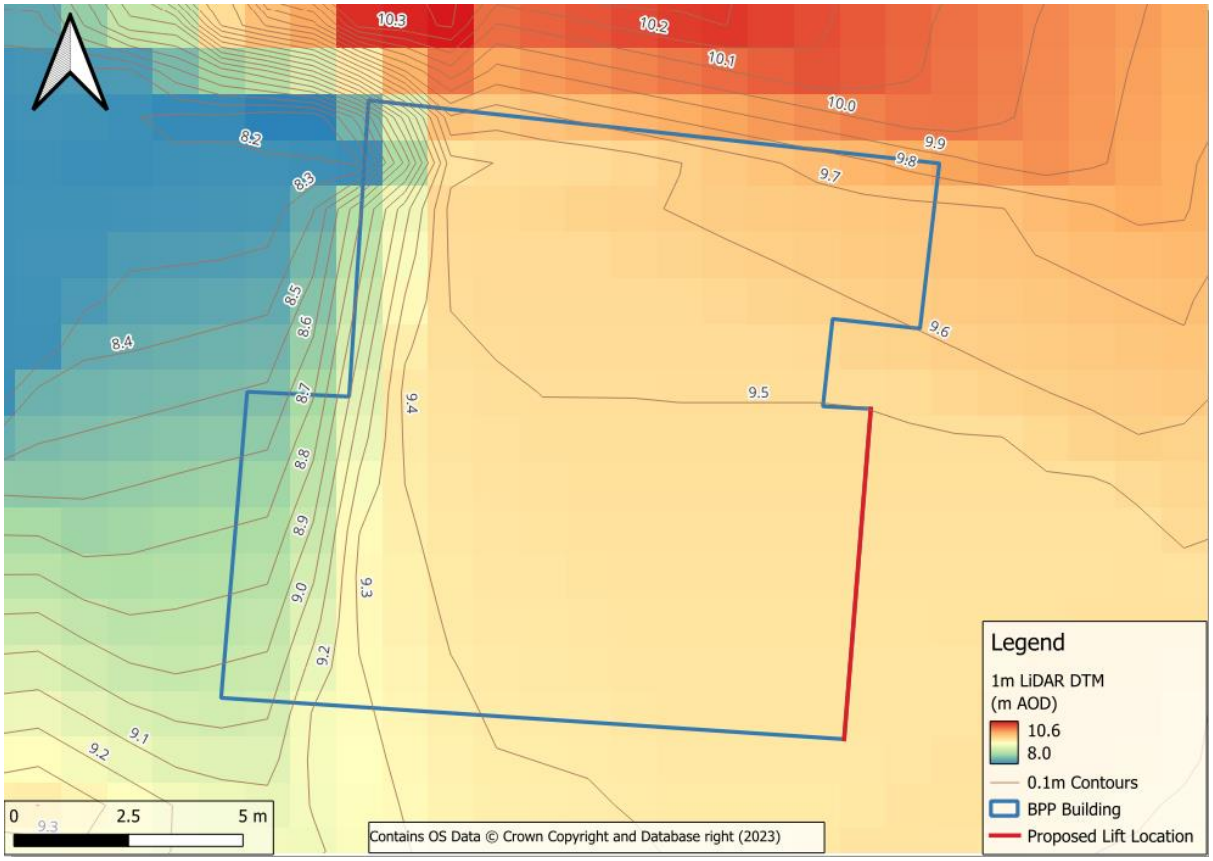


Figure 2-2 Ground Elevations

2.3 Hydrology

The Bristol Floating Harbour is located approximately 70 m south of the site, both the river Avon and the river Frome augment flow into the Bristol Harbour. The river Frome flows directly into the Floating Harbour. However, the River Avon links to the Floating Harbour via a weir at Feeder Road. The main River Avon channel flows around the Floating Harbour in The Cut, which is tidally influenced. The river Frome is not tidally influenced in normal conditions due to the Floating Harbour lock gates at Cumberland Basin.

2.4 Geology

British Geology Survey (BGS) mapping[4] indicates that the superficial deposits underlying the site comprise Tidal Flat Deposits of clay and silt. The solid geology underlying the site is indicated to be Sandstone of the Redcliffe Sandstone Member.

2.5 Hydrogeology

The bedrock (Redcliffe Sandstone Group) is designated as a Secondary A Aquifer. These are defined as "Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers".

The site is not located within a groundwater Source Protection Zone (SPZ).

4 BGS GeoIndex Onshore. Available at: https://mapapps2.bgs.ac.uk/geoindex/home.html

2.6 Drainage

According to the Wessex Water sewer maps (see Appendix B), a public foul sewer is located beneath Grove Avenue immediately east of the site. A strategic and public foul sewer is also located south of the site on The Grove. A public surface water sewer is also located beneath The Grove, approximately 15 m southeast of the site.

3.0 Planning Policy and Guidance

3.1 Proposal Summary

Planning approval is sought for modifications to an existing a educational development involving the installation of a DDA compliant lift.

Under the development types detailed in Annex 3 of NPPF, this development would be classified a "*More Vulnerable*" development type.

In line with PPG and best practice guidance (BS8533), and in the absence of more specific information[5], a 75-year lifetime is assumed for the existing building.

3.2 Flood Zone Classification

The definition of EA flood zones is provided in PPG *Table 1, as replicated below*:

- *Zone 1 - Low Probability* (Flood Zone 1) is defined as land which could be at risk of flooding from fluvial or tidal flood events with less than 0.1 % annual exceedance probability (AEP) (1 in 1,000 year) i.e., considered to be at 'low probability' of flooding.
- *Zone 2 - Medium Probability* (Flood Zone 2) is defined as land which could be at risk of flooding with an annual exceedance probability between 1 % (1 in 100 year) and 0.1 % (1 in 1,000 year) from fluvial sources and between 0.5 % (1 in 200 year) and 0.1 % (1 in 1,000 year) from tidal sources i.e., considered to be at 'medium probability' of flooding.
- *Zone 3a - High Probability* (Flood Zone 3a) is defined as land which could be at risk of flooding with an annual exceedance probability greater than 1 % (1 in 100 year) from fluvial sources and greater than 0.5 % (1 in 200 year) from tidal sources i.e., considered to be at 'high probability' of flooding.
- *Zone 3b - the Functional Floodplain* (Flood Zone 3b) is defined as land where water has to flow or be stored in times of flood. Local Planning Authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain in agreement with the Environment Agency. In the absence of definitive information, it is often defined as land that would flood with an AEP of 3.3 % (1:30 year) or greater, with any existing flood risk management infrastructure operating effectively.

According to the EA Flood Map for Planning[6] the site is designated as Flood Zone 1, Flood Zone 2 and Flood Zone 3.

3.3 National Planning Policy

3.3.1 Flood Risk Compatibility

As noted previously, the site includes an area of Flood Zone 2 and Flood Zone 3 and the proposed scheme is classified within the Annex 3 of NPPF as a "More Vulnerable" development type.

PPG Table 3: Flood risk vulnerability and flood zone 'incompatibility' (reproduced as Table 3-1) confirms that, with respect to flood risk, '*More Vulnerable*' development types are considered appropriate in Flood Zone 3, subject to the Exception Test.

[5] https://www.gov.uk/guidance/flood-risk-and-coastal-change accessed October 2023.

[6] https://flood-map-for-planning.service.gov.uk/ accessed October 2023

Table 3-1: Flood Risk Vulnerability and Flood Zone 'Incompatibility'

Flood Risk Vulnerability Classification (PPG Table 2)		Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Flood Zone (PPG Table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	Exception Test Required	✓	✓	✓
	Zone 3a†	Exception Test Required	x	Exception Test Required	✓	✓
	Zone 3b* (functional floodplain)	Exception Test Required	x	x	x	✓

Key:

✓ Development is appropriate

x Development should not be permitted

† In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

* In Flood Zone 3b (functional floodplain) essential infrastructure that has passed the Exception Test, and water-compatible uses, should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere.

3.4 Sequential Test and Exception Test

NPPF Paragraph 158 advises that the aim of the Sequential Test is to 'steer new development to areas with the lowest probability of flooding' and states:

'Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding.'

Where required, the Exception Test must show that the sustainability benefits of the development to the community outweigh the flood risk. It must also show that the development will be safe for its lifetime taking into account the vulnerability of its users and that it will not increase flood risk elsewhere.

Given that the planning application is for an installation within the existing building (rather than a new building), the Sequential Test or Exception Test is not necessary, because another location would be impractical.

However, it is still necessary to demonstrate that the development is safe from flooding for its lifetime, which is the purpose of this FRA.

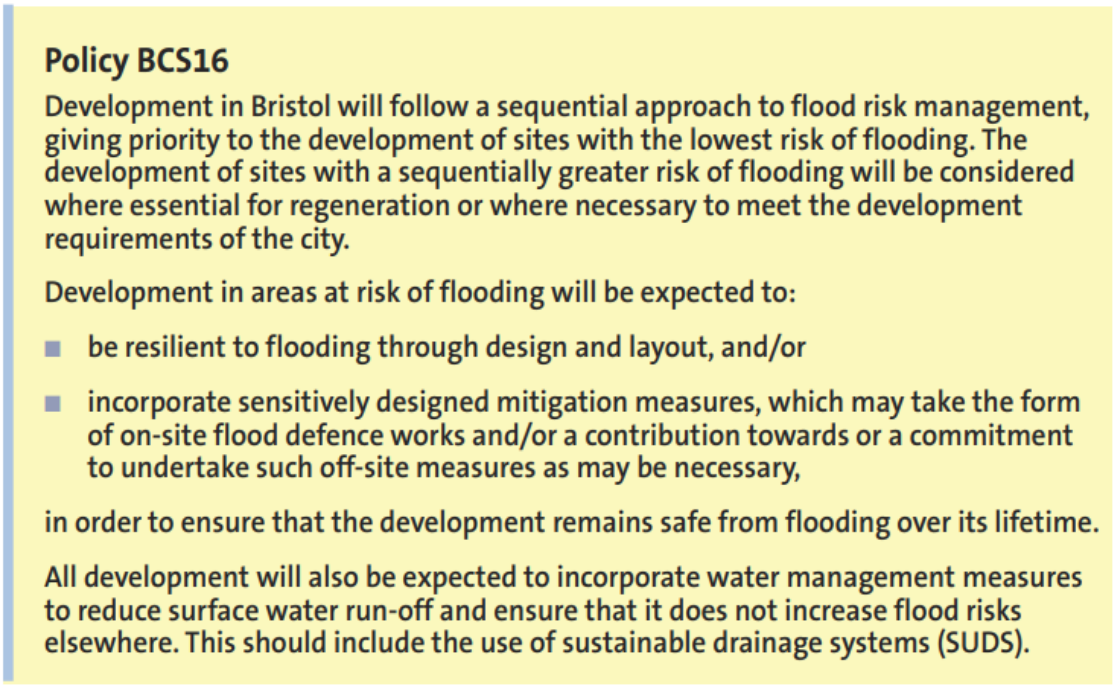
3.5 Local Planning Policy

The Bristol City Council Core Strategy was adopted in June 2011[7]. It serves as the council's main planning policy document and sets the overall approach for planning in Bristol.

Specific flooding policy is detailed in Policy BCS16 and refers to the use of the Sequential Test to determine appropriate locations for development. The relevant policy to this FRA has been extracted below as Figure 3-1.

[7] https://www.bristol.gov.uk/files/documents/64-core-strategy-web-pdf-low-res-with-links/file [accessed November 2023]

Figure 3-1: Bristol City Council Core Strategy Policy BCS16



Policy BCS16

Development in Bristol will follow a sequential approach to flood risk management, giving priority to the development of sites with the lowest risk of flooding. The development of sites with a sequentially greater risk of flooding will be considered where essential for regeneration or where necessary to meet the development requirements of the city.

Development in areas at risk of flooding will be expected to:

- be resilient to flooding through design and layout, and/or
- incorporate sensitively designed mitigation measures, which may take the form of on-site flood defence works and/or a contribution towards or a commitment to undertake such off-site measures as may be necessary,

in order to ensure that the development remains safe from flooding over its lifetime.

All development will also be expected to incorporate water management measures to reduce surface water run-off and ensure that it does not increase flood risks elsewhere. This should include the use of sustainable drainage systems (SUDS).

4.0 Potential Sources of Flooding

4.1 Methodology and Best Practice

This FRA report has been prepared in accordance with the advice and requirements prescribed in current best practice documents relating to management of flood risk in development published by the Construction Industry Research and Information Association (CIRIA)[8], and British Standard BS8533[3].

A screening study has been completed to identify whether there are any potential sources of flooding at the site which may warrant further consideration. If required, any potential significant flooding issues identified in the screening study are then considered in subsequent sections of this assessment.

4.2 Screening Study

Potential sources of flooding include:

- Flooding from the sea (tidal flooding);
- Flooding from rivers (fluvial flooding);
- Flooding from surface water;
- Flooding from groundwater;
- Flooding from sewers;
- Flooding from reservoirs, canals, and other artificial sources.

The flood risk from each of these potential sources is discussed below.

4.2.1 Flooding from the Sea and Rivers (Tidal and Fluvial Flooding)

The EA Flood Map for Planning locates the wider site within Flood Zone 1, 2 and 3; the proposed lift is located within Flood Zone 2 (see Figure 4-1).

In 2020 the LLFA completed a major flood modelling study for Bristol, which includes the River Avon and River Frome. This investigated both tidal and fluvial flood risk. We contacted the EA to request flood data from this study for the site, but that was unavailable at the time of writing.

Flood level data was previously made available from the LLFA. It shows that the site is not located in the present day defended tidal or fluvial floodplain. However, with the addition of the anticipated impacts of climate change, the site is affected.

Whilst flood level or depth data for the site was not provided explicitly, a series of model output grids were previously made available from the LLFA. Flood level data was extracted and is presented in Table 4-1.

Table 4-1 Defended Flood Level Data

Scenario	Description	Flood Level (m AOD)
Present Day	1 in 200 Tidal Dominated	-
Present Day	1 in 100 Fluvial Dominated	-
Present Day	1 in 1,000 Tidal Dominated	-
Present Day	1 in 1,000 Fluvial Dominated	-

8 CIRIA Report C624, Development and flood risk: guidance for the construction industry

Scenario	Description	Flood Level (m AOD)
2080	1 in 200 Tidal Dominated	9.69
2080	1 in 100 Fluvial Dominated	9.41

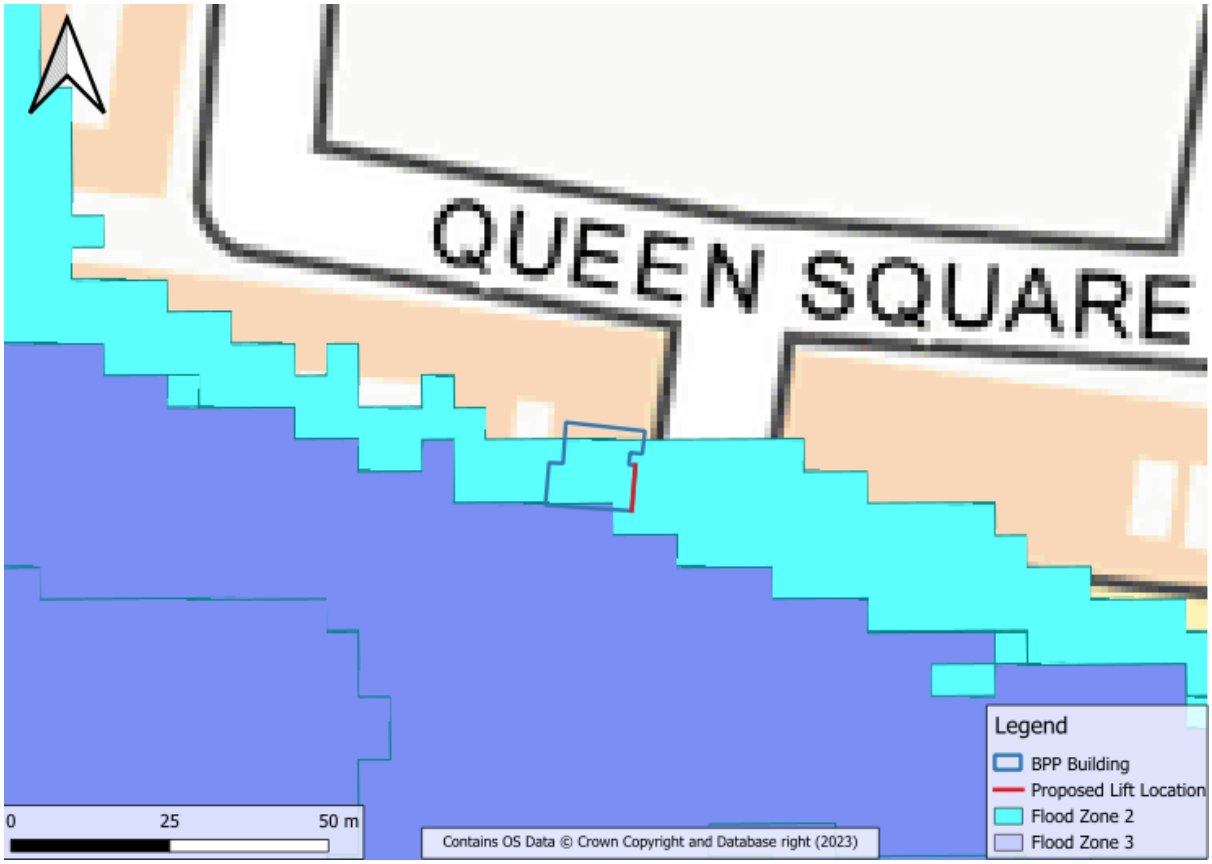
Flood level data has been extracted for the 2080 climate change event to consider the lifetime of the development (i.e., 75 years). The proposed lift is within an existing building, which is been in place for many years. Therefore, the 2080 scenario is considered appropriate.

The flood level data indicates that the site is at risk of tidal flooding, as a result of climate change. This is because the modelled flood level of 9.69 m AOD is above the approximate ground level at the site (i.e., 9.5 m AOD; refer to Section 2.2). This will result in a flood depth of approximately 0.19 m.

The 1 in 100 year plus climate change fluvial flood level is marginally below that of the approximate ground level at the site.

Given the information outlined, tidal flood risk is considered to be high, but fluvial flood risk is low. To protect the proposed development against the tidal flood risk and improve the safety of the existing development against the future tidal flood risk, flood mitigation measures are required. These are discussed in Chapter 5.

Figure 4-1: EA Flood Map for Planning



4.2.2 Flooding from Surface Water

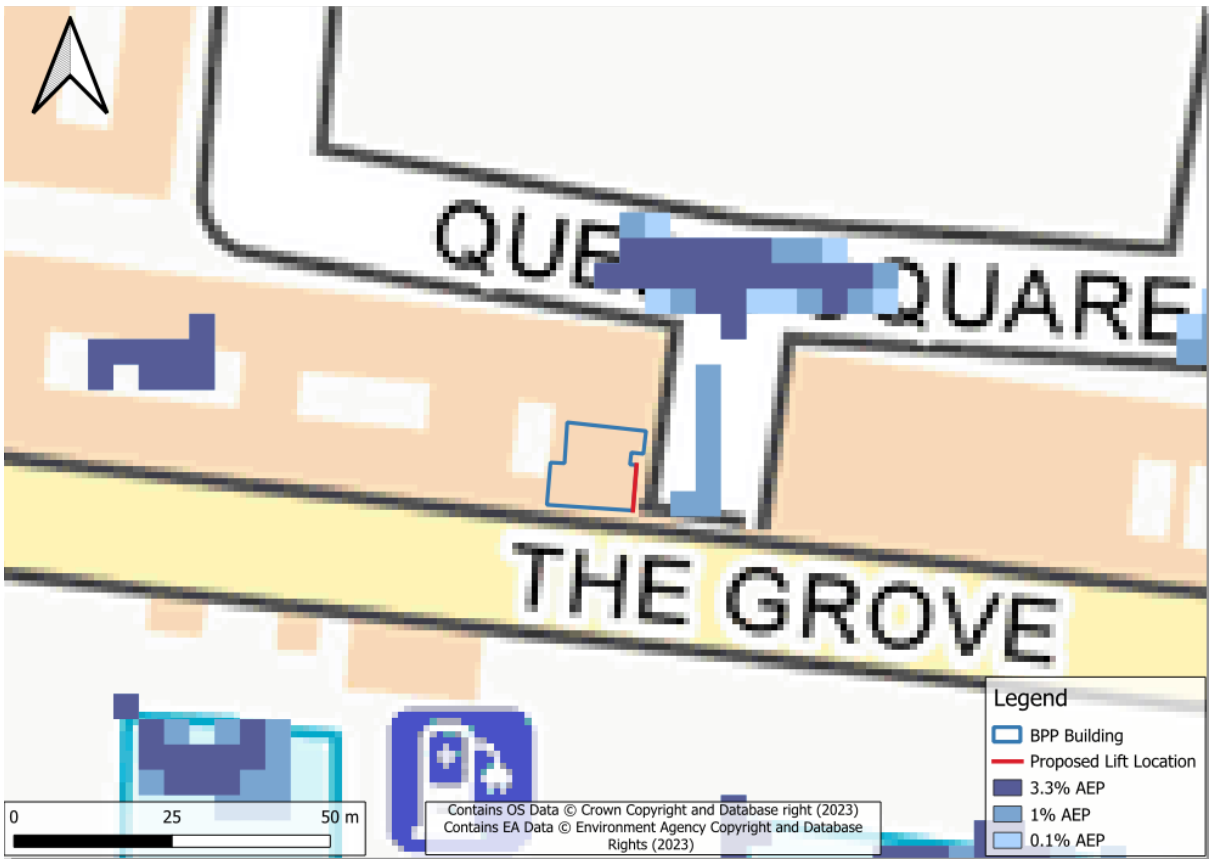
An extract of the EA's Surface Water flood map for the site and surrounding area is presented in Figure 4-2, where the EA define the surface water flood risk categories as:

- Very Low: less than 1 in 1,000 annual exceedance probability (0.1% AEP) of flooding in any given year;
- Low: less than 1 in 100 annual exceedance probability (1% AEP) but greater than or equal to 1 in 1,000 annual exceedance probability (0.1% AEP) of flooding in any given year;

- Medium: between 1 in 100 annual exceedance probability (1% AEP) and 1 in 30 annual exceedance probability (3.3% AEP) of flooding in any given year; and
- High: greater than 1 in 30 annual exceedance probability (3.3% AEP) of flooding in any given year.

The mapping suggests the surface water flood risk to the site is very low. No surface water flood flow paths are indicated within the site. Flood risk from surface water is therefore very low and is not considered further.

Figure 4-2: Flood Map for Surface Water



4.2.3 Flooding from Groundwater

Groundwater flooding can be defined as flooding caused by the emergence of water originating from subsurface strata. Groundwater flooding can occur where sites are located on permeable ground. After a prolonged period of rainfall and groundwater recharge, a considerable rise in the water table can result in inundation for extended periods of time.

The British Geological Survey (BGS) online mappings shows that the underlying bedrock is classified as Redcliffe Sandstone. Superficial deposits are present and are shown to be Tidal Flat Deposits. The underlying geology is not typically associated with significant groundwater flooding.

The Bristol City Council Level 1 (SFRA) (December 2020) does not identify any historic groundwater flood events in the vicinity of the site. The SFRA states that a Defra study completed in 2004 provides maps of groundwater flooding recorded during the most severe recent groundwater flooding episodes (winter 2000/2001 and winter 2003). It records no groundwater flooding incidents in the study area. The risk of groundwater flooding at the site is therefore assessed to be low.

4.2.4 Flooding from Sewers

As discussed in Chapter 2, there is significant sewer infrastructure in the area. However, if the sewers were to result in flooding, the dominant pathway would be to the south and towards the Bristol Floating Harbour. Furthermore, the risk from this source of flooding is anticipated to be less significant than the risk of flooding from fluvial or tidal sources.

Therefore, flood risk due to sewers is low and is not discussed further.

4.2.5 Flooding from Reservoirs, Canals and Other Artificial Sources

With reference to EA Mapping[9], the site lies within the flood extent of a reservoir breach scenario. The flooding associated with the Chew Valley Lake reservoir, and the site is at risk during a 'wet day' scenario i.e., when there is also flooding from rivers and not when river levels are normal. However, given the extensive regulation of reservoirs, the likelihood of a reservoir breach is low.

There are no other known artificial sources of flooding at or near the site.

The risk of flooding associated with a failure of a reservoir, canal or artificial source is therefore low and is not considered further.

4.2.6 Flood Screening Summary

Table 4-2 summarises the flood screening assessment.

Table 4-2: Potential Risk Posed by Flooding Sources

Source	Flood Risk Identified at Site?
Sea or Tidal Flooding	Yes
Rivers or Fluvial Flooding	No
Surface Water and Overland Flow	No
Groundwater	No
Sewers and Water Mains	No
Reservoirs, Canals and other Artificial Sources	No

9 Environment Agency Risk of Flooding from Reservoirs - Maximum Extent Flood Map

5.0 Flood Mitigation and Management

Most potential flood sources have been assessed to represent a low or very low risk and as such, flood mitigation measures for these are not required. However, the site is considered to be at risk from tidal flooding in the 1 in 200 year (2080) defended scenario. Therefore, flood mitigation is required to protect the site from this future tidal risk.

Given the flood depths estimated, it will not be practical to exclude floodwater should the anticipated impacts of climate change materialise. Therefore, under these very extreme conditions floodwater is likely to enter the basement and lift.

Limited opportunities exist to improve the flood resilience of the lift, but where practical, electrical components will be raised above ground level to minimise the impacts.

The most practical solution is likely to be to raise awareness of the flood risk and development a Flood Warning and Evacuation Plan.

5.1.1 Flood Warning and Evacuation Plan

A Flood Warning and Evacuation Plan should be prepared once planning permission has been granted.

Given that a safe refuge is available within upper floors, this will ensure occupants remain in safety should a flood event occur. However, occupants may also choose to evacuate if it is safe to do so.

It is likely that operation of the lift should be excluded in times of flood; all disabled occupants must evacuate the basement in advance of a flood.

For other occupants, a decision to evacuate or take shelter ultimately rests with the individual but sufficient time must be allowed to conduct the evacuation before flooding occurs. A timely warning is likely to allow safe refuge and/or evacuation to be achieved.

The Flood Warning and Evacuation Plan should be prepared based on a number of principles, as outlined below:

- Awareness should be raised of the local flood risk issues.
- Managers should sign up to the free Environment Agency Flood Warning Service, so appropriate steps can be undertaken in the event of a flood warning.
- In the event of a warning, it may be necessary to evacuate to areas outside of the theoretical floodplain. Safe access/egress routes should be identified.
- A flood kit should be stored in an appropriate location.
- Actions and procedures required post evacuation and post flooding should be identified.
- Flood warning and evacuation procedures should be included in training for all employees on the site.

5.1.2 Floodplain Compensation

No external works are proposed and therefore there will be no adverse impact on flood risk and floodplain compensation is not needed.

6.0 Surface Water Drainage Strategy

As the lift is to be located internally within the existing building the development will not alter the existing surface water drainage regime at the site.

Surface water drainage measures have therefore not been considered further, nor are any considered necessary.

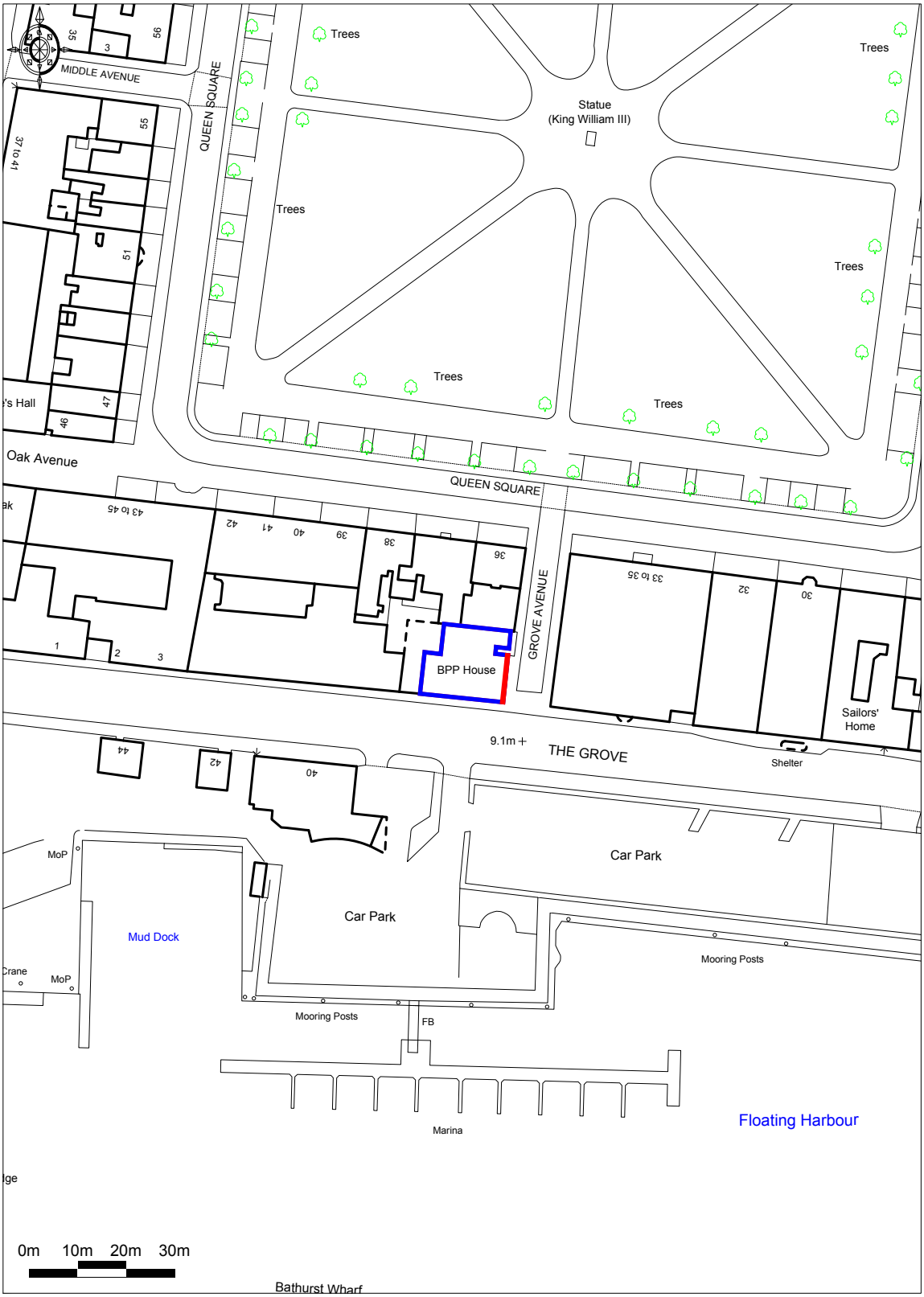
7.0 Conclusions

SLR Consulting Limited (SLR) has been appointed by BPP Education to prepare a Flood Risk Assessment (FRA) to support a planning submission for the installation of a DDA complaint lift at the BPP House, Bristol.

The location of the proposed lift is susceptible to tidal flood risk, should the anticipated impacts of climate change materialise.

To protect the proposed development against tidal flood risk and ensure that it is safe from flooding, flood mitigation measures have been identified. This has included a Flood Warning and Evacuation Plan.

Appendix A Layout Plans



Project	BPP, Grove Avenue, Bristol.	**LPA**	Bristol City Council	**Indigo Planning Limited** Toronto Square Leeds LS1 2HJ T 0113 380 0270 F 0113 380 0271 info@indigoplanning.com
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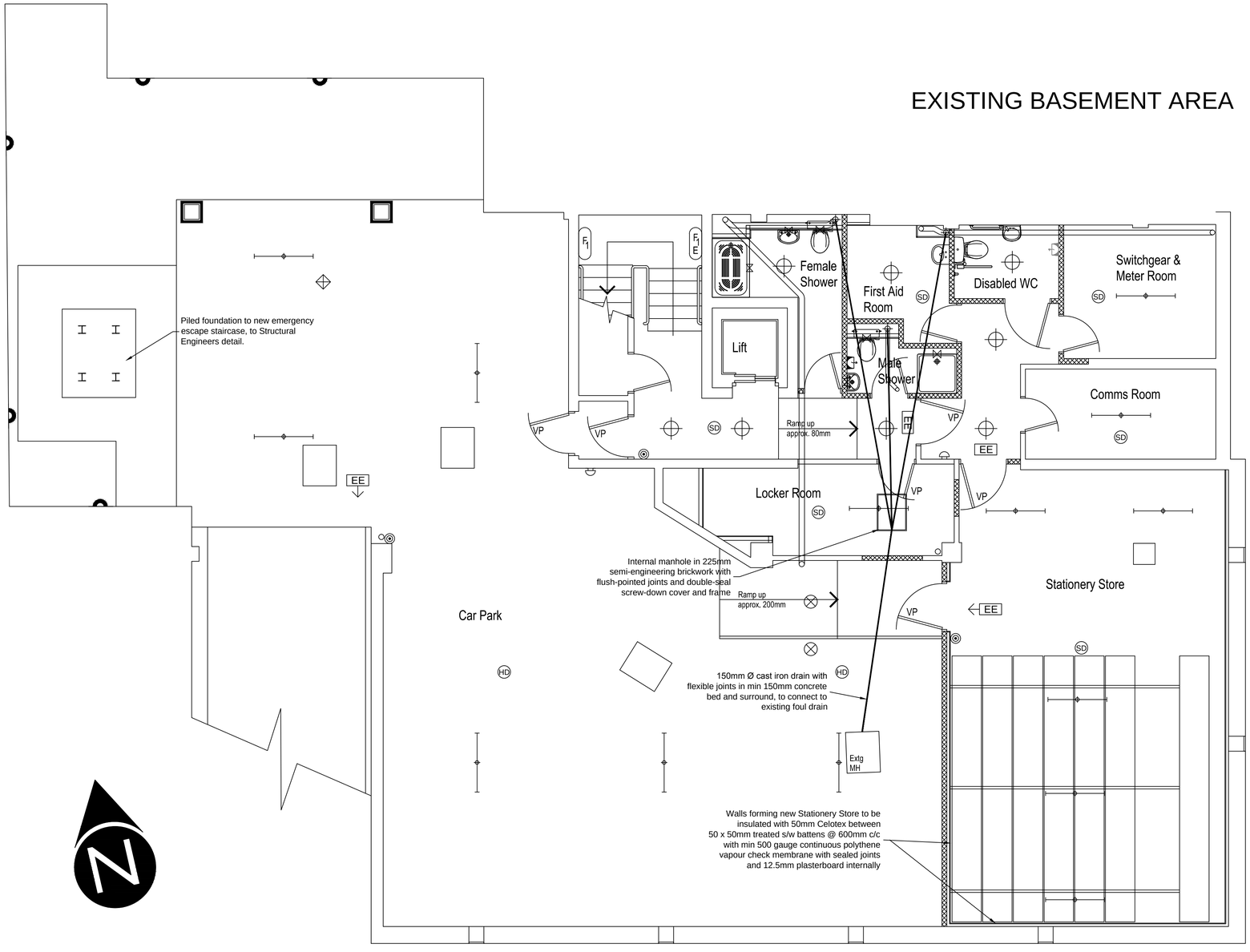
Client	BPP Holdings Ltd	**Scale:**	1:1250 @ A4	
		Project No:	02120040	
		Drawing No:	02120040.1	
		Drawn By:	NM	
Key	Site boundary			

EXISTING BASEMENT AREA



- Ceiling-mounted bulkhead lightfitting
- Fluorescent strip light
- External bulkhead lightfitting
- Circular bulkhead lightfitting
- Automatic smoke detector
- Automatic heat detector
- Directional emergency exit sign
- Break-glass alarm activator

REV	DESCRIPTION	DATE
1	NORTH ARROW ADDED	23/02/15

Survey data by others

CLIENT: BPP PROFESSIONAL EDUCATION

SITE: BPP HOUSE, GROVE AVENUE, QUEENS SQUARE BRISTOL BS1 4QY

DESCRIPTION: EXISTING BASEMENT LAYOUT

Date: 16/12/14	Scale: 1:50	E6287B-EX	Rev 1

form workplace solutions

Form House, York Way
Lancaster Road
High Wycombe
Buckinghamshire
HP12 3PY

Tel 01494 464686
Fax 01494 464683
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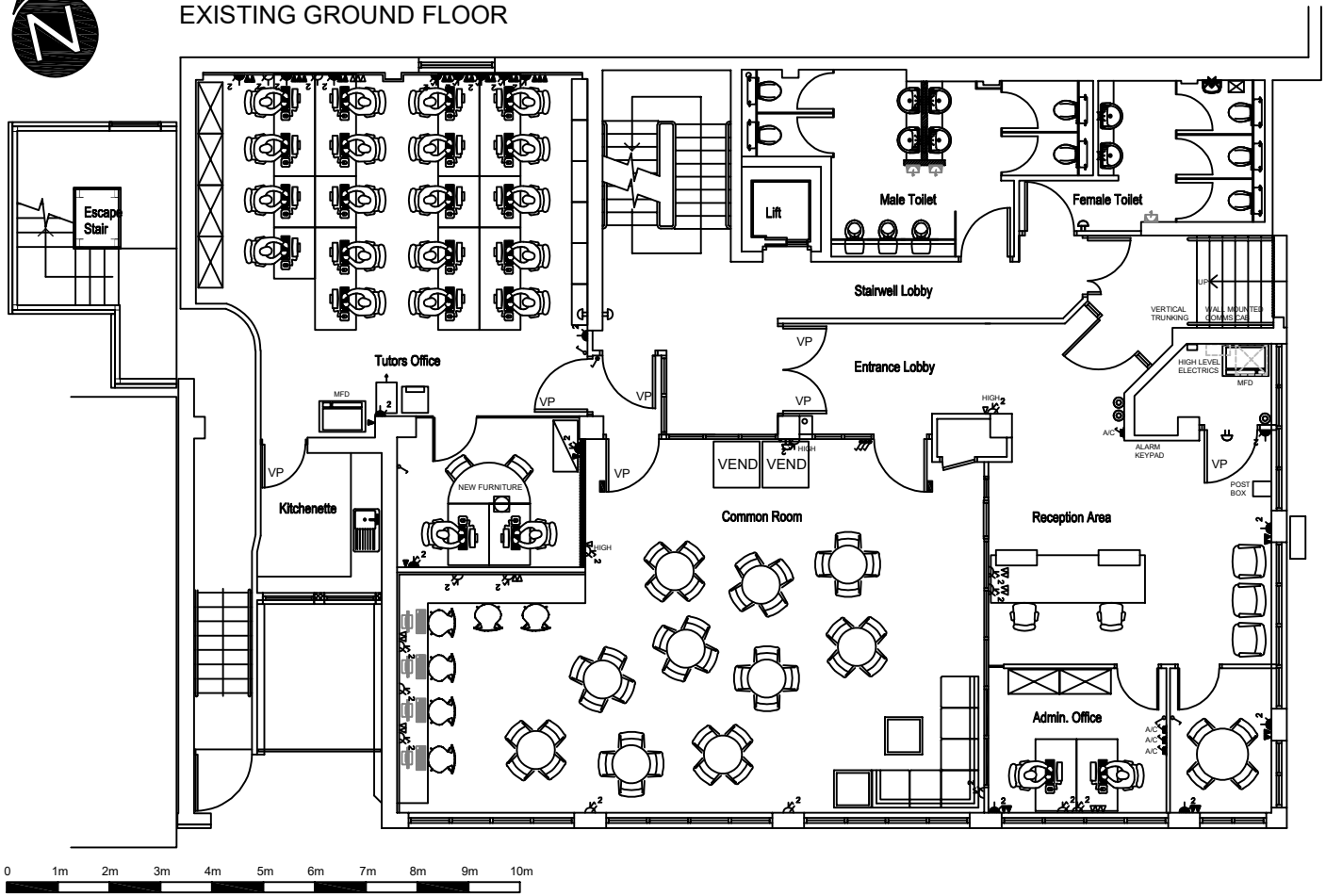
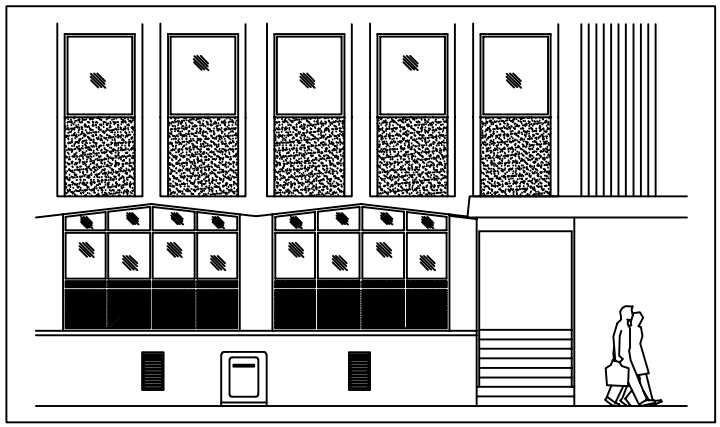
EXISTING GROUND FLOOR

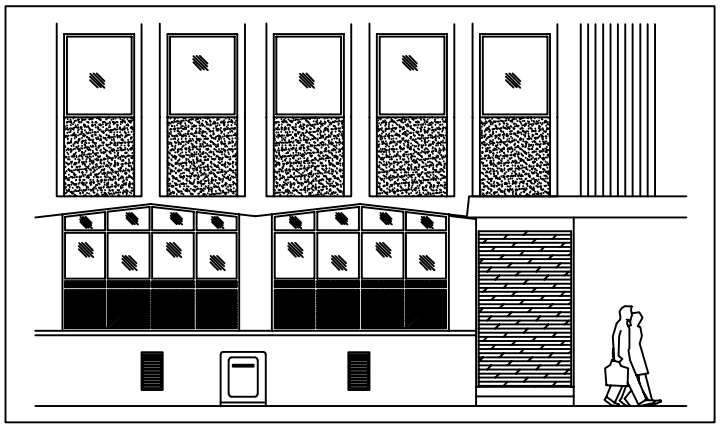


ELEVATION A

ELEVATION A



ROLLER SHUTTER - OPEN



ROLLER SHUTTER - CLOSED

KEY:

- NEW FULL HEIGHT DOUBLE GLAZED PARTITION WITH MANIFESTATION
- NEW SOLID PARTITION
- NEW SOUND RATED SOLID PARTITION
- NEW HALF HOUR FIRE RATED SOLID PARTITION
- NEW DOOR / NEW DOOR / EXISTING DOOR
- EXISTING 1200mm x 600mm VIVID WHITE CEILING GRID WITH LAY-IN MINERAL FIBRE TILES
- EXISTING 600mm x 600mm VIVID WHITE CEILING GRID WITH LAY-IN MINERAL FIBRE TILES
- EXISTING 600mm x 600mm SUPPLY A/C GRILLE
- EXISTING 600mm x 600mm EXTRACT A/C GRILLE
- EXISTING 600mm x 600mm 4 TUBE LUMINAIRE FITTING
- RELOCATED 600mm x 600mm 4 TUBE LUMINAIRE FITTING
- LUMINAIRE FITTING INSTALLED WITH EMERGENCY POWER BACKUP
- EXISTING RECESSED SPOTLIGHT FITTING
- EXISTING RUNNING MAN FIRE EXIT SIGNAGE
- EXISTING 3 COMPARTMENT FLOOR BOX
- EXISTING WIRELESS DATA POINT
- EXISTING PA SYSTEM
- NEW TELEPHONE OUTLET
- EXISTING TELEPHONE OUTLET
- NEW DOUBLE SWITCHED SOCKET OUT
- EXISTING DOUBLE SWITCHED SOCKET OUTLET
- NEW SINGLE SWITCHED SOCKET OUTLET
- EXISTING SINGLE SWITCHED SOCKET OUTLET
- NEW LIGHT SWITCH
- EXISTING LIGHT SWITCH
- NEW SWITCHED SPUR
- FIRE ALARM BELL
- EXISTING DETECTOR
- FIRE ALARM CALL POINT

REV	DESCRIPTION	DATE
1	NORTH ARROW ADDED	23/02/15
2	EXISTING ROLLER SHUTTER SHOWN	21/11/23

Survey data by form

CLIENT: BPP PROFESSIONAL EDUCATION

SITE: BPP HOUSE, GROVE AVENUE, QUEENS SQUARE BRISTOL BS1 4QY

DESCRIPTION: EXISTING GROUND FLOOR LAYOUT

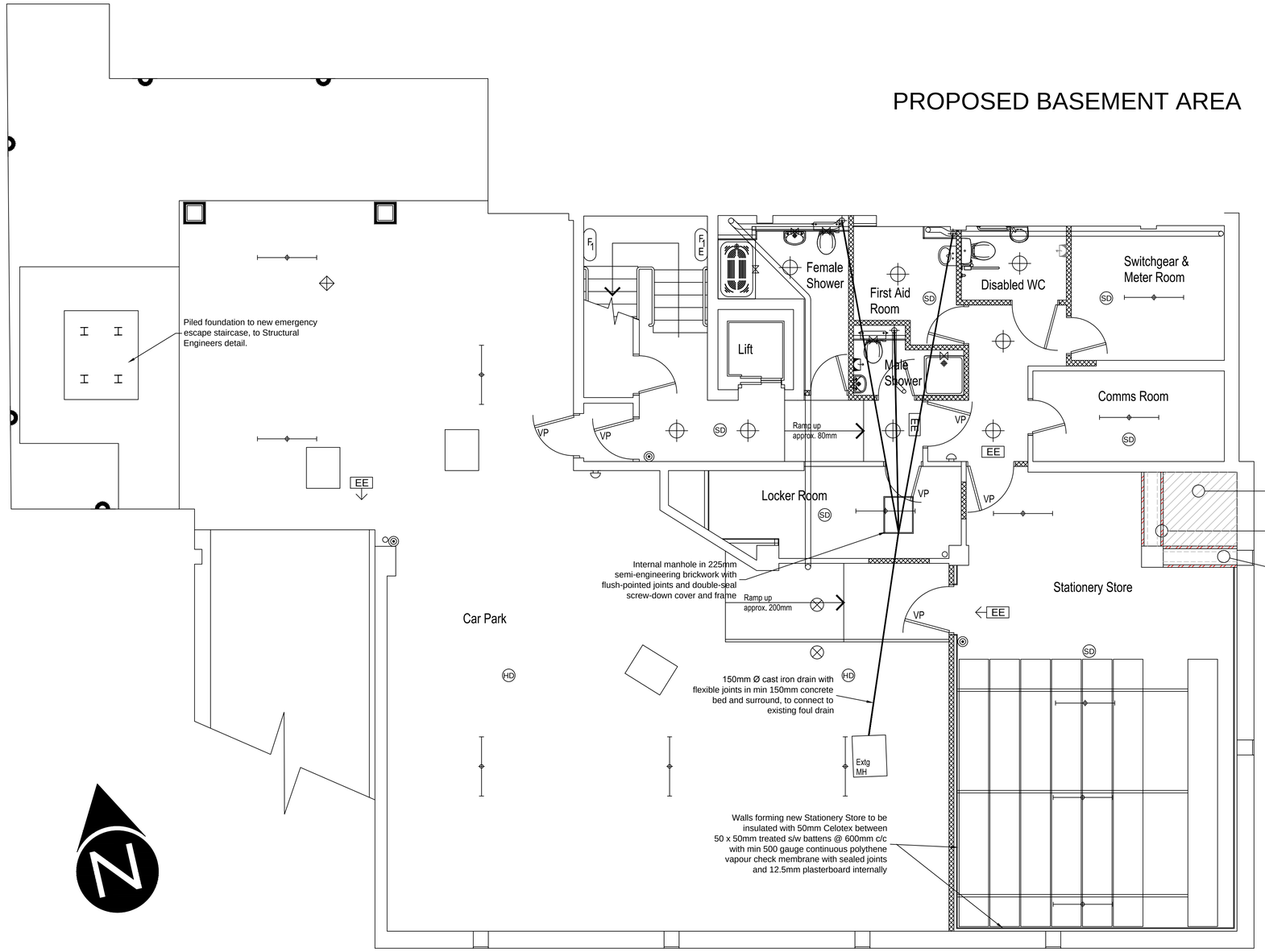
Date: 16/12/14	Scale: 1:50	E6287G-EX	Rev 2

form workplace solutions

Form House, York Way
Lancaster Road
High Wycombe
Buckinghamshire
HP12 3PY

Tel 01494 464686
Fax 01494 464683
www.formws.co.uk

PROPOSED BASEMENT AREA



Ceiling-mounted bulkhead lightfitting

Fluorescent strip light

External bulkhead lightfitting

Circular bulkhead lightfitting

Automatic smoke detector

Automatic heat detector

Directional emergency exit sign

Break-glass alarm activator

0 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

REV	DESCRIPTION	DATE
1	NORTH ARROW ADDED	23/02/15

Survey data by others

CLIENT: BPP PROFESSIONAL EDUCATION

SITE: BPP HOUSE, GROVE AVENUE, QUEENS SQUARE BRISTOL BS1 4QY

DESCRIPTION: PROPOSED BASEMENT LAYOUT

Date: 17/12/14	Scale: 1:50	E6287B-PR	Rev 1

form workplace solutions

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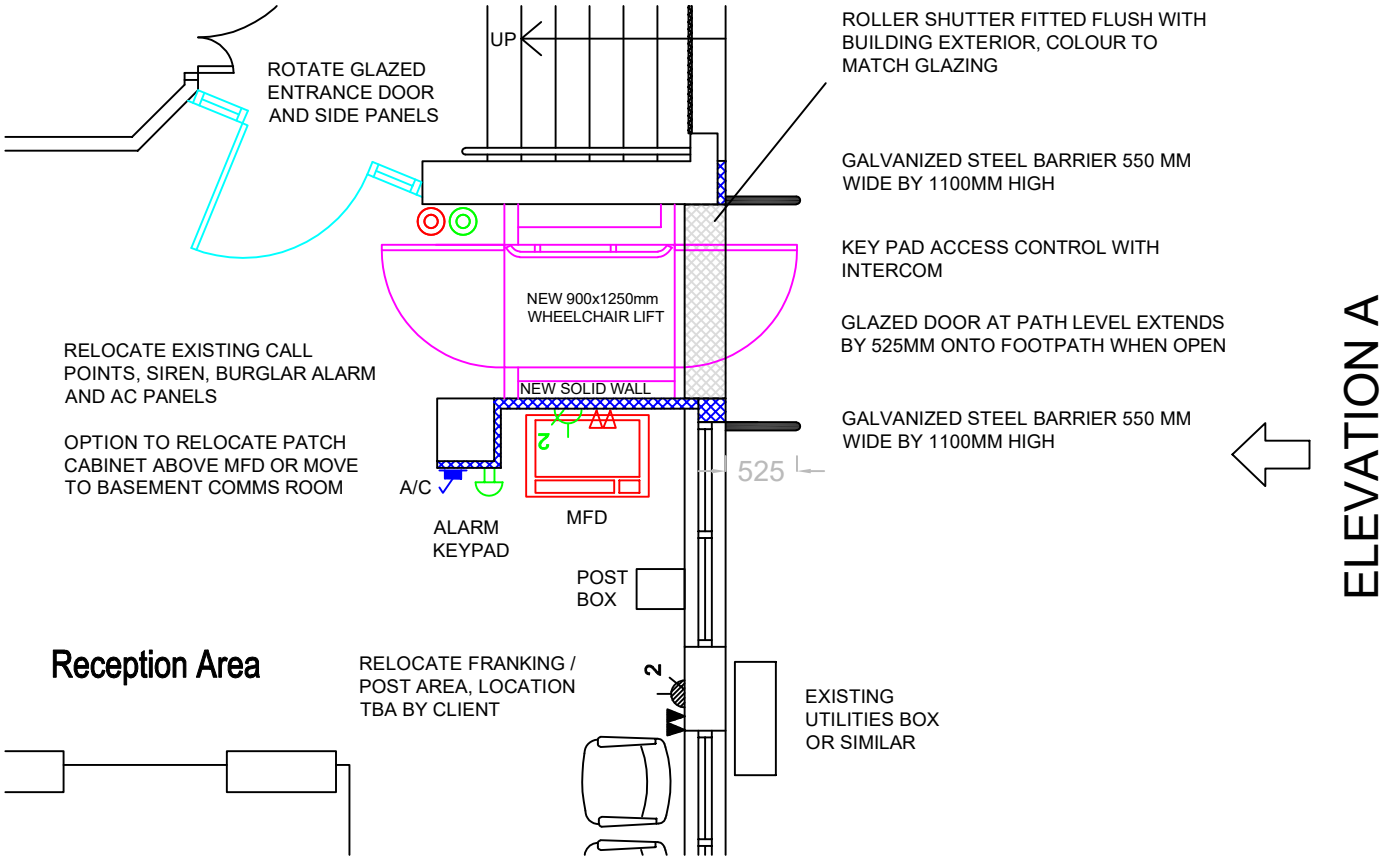
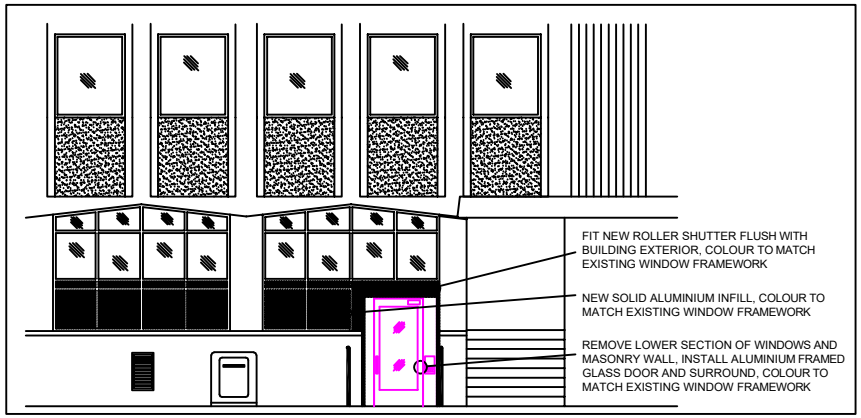
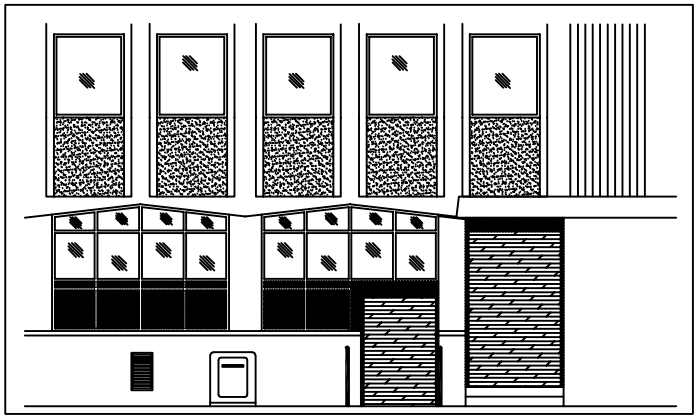
PROPOSED GROUND FLOOR



ELEVATION A - SCALE @ 1:50



ROLLER SHUTTERS - OPEN



ROLLER SHUTTERS - CLOSED

KEY:

- NEW FULL HEIGHT DOUBLE GLAZED PARTITION WITH MANIFESTATION
- NEW SOLID PARTITION
- NEW SOUND RATED SOLID PARTITION
- NEW HALF HOUR FIRE RATED SOLID PARTITION
- NEW DOOR / NEW DOOR / EXISTING DOOR
- EXISTING 1200mm x 600mm VIVID WHITE CEILING GRID WITH LAY-IN MINERAL FIBRE TILES
- EXISTING 600mm x 600mm VIVID WHITE CEILING GRID WITH LAY-IN MINERAL FIBRE TILES
- EXISTING 600mm x 600mm SUPPLY A/C GRILLE
- EXISTING 600mm x 600mm EXTRACT A/C GRILLE
- EXISTING 600mm x 600mm 4 TUBE LUMINAIRE FITTING
- RELOCATED 600mm x 600mm 4 TUBE LUMINAIRE FITTING
- LUMINAIRE FITTING INSTALLED WITH EMERGENCY POWER BACKUP
- EXISTING RECESSED SPOTLIGHT FITTING
- EXISTING RUNNING MAN FIRE EXIT SIGNAGE
- EXISTING 3 COMPARTMENT FLOOR BOX
- EXISTING WIRELESS DATA POINT
- EXISTING PA SYSTEM
- NEW TELEPHONE OUTLET
- EXISTING TELEPHONE OUTLET
- NEW DOUBLE SWITCHED SOCKET OUT
- EXISTING DOUBLE SWITCHED SOCKET OUTLET
- NEW SINGLE SWITCHED SOCKET OUTLET
- EXISTING SINGLE SWITCHED SOCKET OUTLET
- NEW LIGHT SWITCH
- EXISTING LIGHT SWITCH
- NEW SWITCHED SPUR
- FIRE ALARM BELL
- EXISTING DETECTOR
- FIRE ALARM CALL POINT

REV	DESCRIPTION	DATE
1	NORTH ARROW ADDED	23/02/15
2	DOUBLE LIFT ACCESS DOORS ADDED	08/04/15
3	REVISED DRAWING SCALE	08/04/15
4	REVISED LIFT POSITION	10/04/15
5	REVISED LIFT POSITION	08/05/15
6	LIFT UPDATE & ROLLER SHUTTER ADDED	16/11/23
7	ELEVATION UPDATE WITH ROLLER SHUTTER SHOWN OPEN AND CLOSED	21/11/23

Survey data by form

CLIENT: BPP PROFESSIONAL EDUCATION

SITE: BPP HOUSE, GROVE AVENUE, QUEENS SQUARE BRISTOL BS1 4QY

DESCRIPTION: PROPOSED GROUND FLOOR LAYOUT

Date: 17/12/14	Scale: 1:20	E6287G-PR	Rev 7

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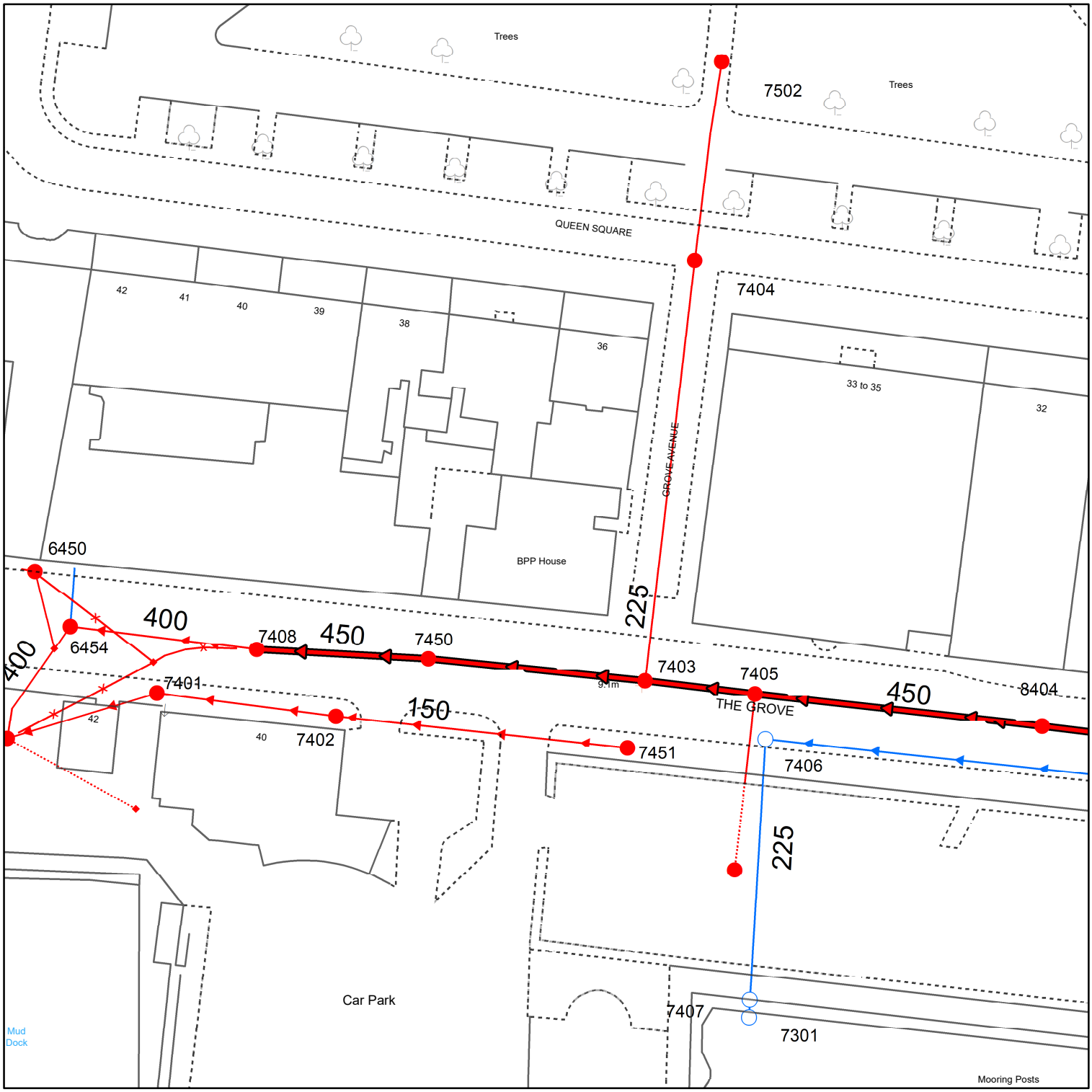
Appendix B Sewer Maps

Wessex Water Network Map



WATER MAINS
- Distribution
- Washout
- Raw Water
- Abandoned
- Private

FITTINGS
- Hydrant
- Other

SEWERS — STRATEGIC / PUBLIC / PRIVATE / SECTION 104
- Foul
- Surface
- Combined
- Abandoned

Colours generally indicate the use of the sewer/drain (i.e Red - Foul, Dark Blue - Surface, Magenta - Combined/Dual Use, Light Green - Highway Drain, Mid Green - Overflow). Some styles of line and symbol are shown on the key in sample/typical colours.

STRUCTURES
- Manhole - Foul
- Manhole - Surface
- Manhole - Combined
- Inlet
- Outfall
- Lamphole
- Bifurcation - Foul
- Bifurcation - Surface
- Bifurcation - Combined
- Combined Sewage Overflow
- Pumping Station - Surface
- Pumping Stn - Foul/Combined
- Gully
- Vent Column
- Rodding Eye
- Catchpit
- Flushing Chamber
- Soakaway
- Non Return Valve
- Air Valve
- Hatch Box
- Washout

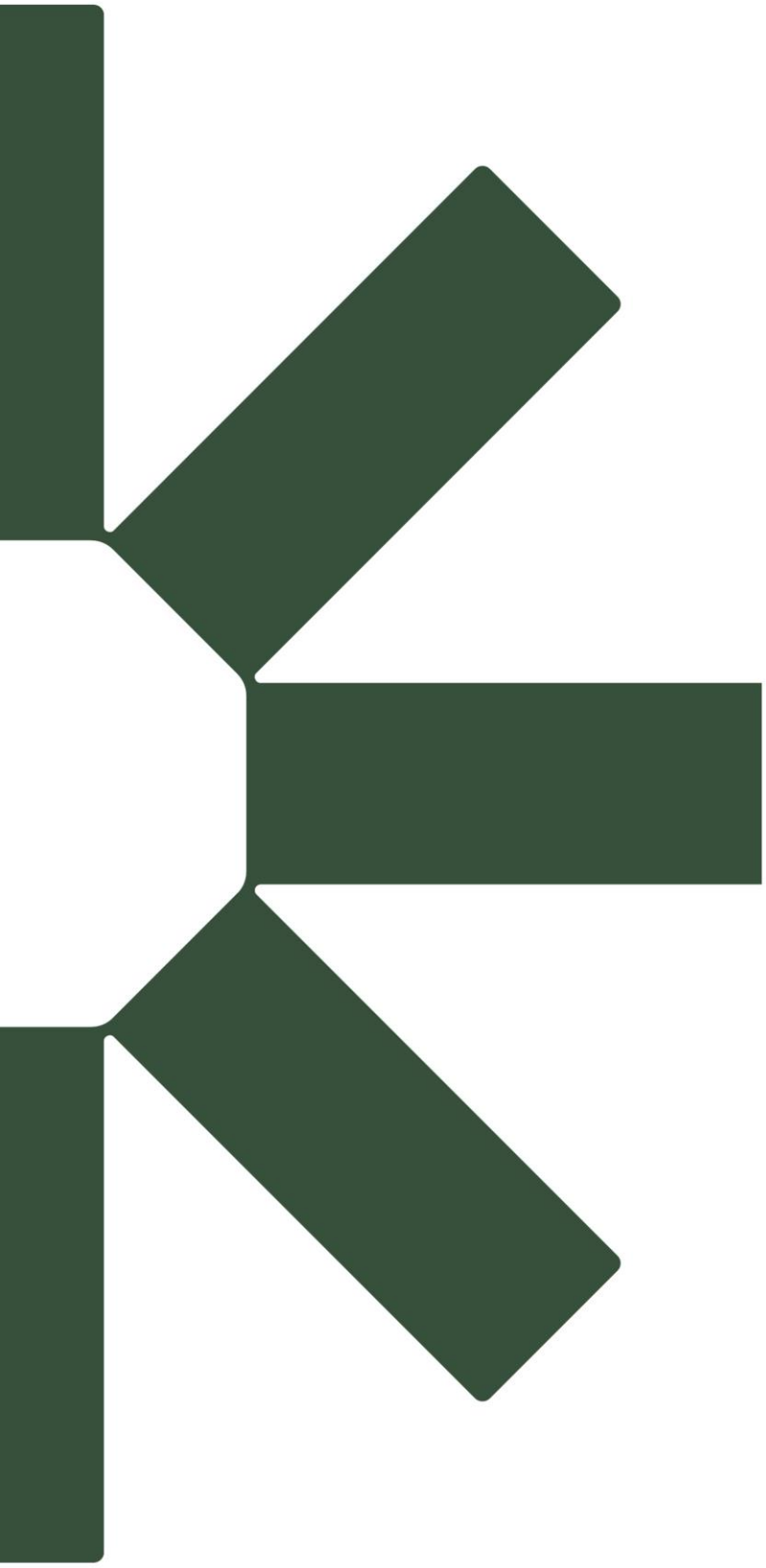
OTHER WESSEX PIPES
- Rising Mains
- Standby Rising Mains
- EDM — Effluent Disposal
- Overflow
- S — Syphon

NON-WESSEX / UNKNOWN
- Private Rising Mains
- CW — Culverted Watercourse
- H — Highway Drain
- ? — Use Unknown
- SU — Status Unknown

OTHER STRUCTURES
- Attenuation Tank
- Storage Tank
- Chamber
- Tunnel
- Interceptor

Wessex Water
YTL GROUP

Date: 23/11/2023
Centre: 358747, 172453
Scale: 1:625
(when printed at A4 size)



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