4.8 Climate Change

The climate change allowances are predictions of anticipated change for:

- peak river flow by river basin district
- peak rainfall intensity
- sea level rise
- offshore wind speed and extreme wave height

EA guidance Flood Risk Assessments – Climate Change Allowance (<u>https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances#table-</u><u>1)</u> gives data for the Thames Basin of England in which the site lies.

The Environment Agency has published the following the following peak flow allowances for the South East basin.

Table 4.1 Peak Flow Allowances for South East Basin

River basin district	Allowance category	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Thames	Upper end	25%	35%	70%
	Higher central	15%	25%	35%
	Central	10%	15%	25%

London Borough of Camden SFRA Strategic Flood Risk Assessment dated July 2014 produced by URS has adopted the following predicted climatic changes as presented in Table 4.5. These figures have been taken from Table 2 of the Environment Agency Guidance note: 'Climate change allowance for planners'

Table 4.2 Climate Change Allowance for calculation of future peak rainfall intensity.

Parameter	1990 to 2025	2025 to 2055	2055 to 2085	2085 to 2115
Peak rainfall	+5%	+10%	+20%	+30%
intensity				

The effects of climate change must be considered in the design of the flood risk mitigation and drainage schemes for the proposed development.

4.9 Off-Site Impact

As the site is not situated in a Flood Zone 2 or Flood Zone 3 there is negligible risk from the proposed development on any neighbouring properties in relation to flooding.

Section 5 Site Drainage Strategy

5.1 Wastewater Drainage Strategy

A Wastewater Drainage Strategy comprising a gravity flow sewer should take wastewater to a local sewer, provided one is available and has adequate capacity.

5.2 Surface Water Drainage

Reference must be made to The SuDS Manual C753 CIRIA November 2015 and Advice Note on contents of a Surface Water Drainage Statement produced by London Borough of Camden. The SuDS design for the proposed development will implement a SuDS "management train" to use a variety of drainage techniques in series to incrementally reduce pollution, flow rates, volumes and frequency of runoff. Run-off prevention and source control ensures that flows are managed, and silt is removed towards the beginning of the drainage system. The SuDS "management train" comprises:

Prevention - good housekeeping measures within development **Source control** - managing runoff at or near its source where it falls as rain **Site control** - dealing with runoff within or local to the development site

The final aspect of the SuDS management train is the concept of off-site regional control, which is the control of runoff in amenity space SuDS features before final outfall.

Within Camden, SuDS systems must be designed in accordance with London Plan policy 5.13 and Camden Development Policy 23 (Water). This requires that developments should utilise sustainable urban drainage systems (SUDS) unless there are practical reasons for not doing so and reduce the pressure on the combined sewer network. The SUDs should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible in line with the following drainage hierarchy:

- 1. store rainwater for later use
- 2. use infiltration techniques, such as porous surfaces in non-clay areas
- 3. attenuate rainwater in ponds or open water features for gradual release
- 4. attenuate rainwater by storing in tanks or sealed water features for gradual release
- 5. discharge rainwater direct to a watercourse
- 6. discharge rainwater to a surface water sewer/drain
- 7. discharge rainwater to the combined sewer

The hierarchy above seeks to ensure that surface water run-off is controlled as near to its source as possible to mimic natural drainage systems and retain water on or near to the site, in contrast to traditional drainage approaches, which tend to pipe water off-site as quickly as possible.

Soils Limited

Before disposal of surface water to the public sewer is considered all other options set out in the drainage hierarchy should be exhausted. When no other practicable alternative exists to dispose of surface water other than the public sewer, the Water Company or its agents should confirm that there is adequate spare capacity in the existing system taking future development requirements into account.

Camden Planning Guidance 3 (CPG3) requires developments to achieve a greenfield run off rate once SuDS have been installed. Where it can be demonstrated that this is not feasible, a minimum 50% reduction in run off rate across the development is required

The site is situated on the bedrock of the London Clay Formation with no overlying superficial deposits recorded. Based on the cohesive nature of the underlying London Clay it is unlikely that a greenfield run off rate will be achievable and therefore only a 50% reduction in run off rate may be possible.

Section 6 Conclusions

This Flood Risk Assessment has been undertaken in accordance National Planning Policy Framework and the Technical Guidance to the NPPF following the principles outlined in the Flood Risk and Coastal Change guidance, Site Specific Flood Risk Assessment checklist.

At the time of reporting the development of the site comprised the re-building of the front elevation of building following partial collapse; an extension to the existing basement, including 2x front lightwells and 2x rear lightwells; rear extension to ground, first and second floors and roof level; alterations to fenestration, all in connection with conversion of former 1x 5-bed single family dwelling house to 3x 2-bed flats and 1x 3-bed flat

The site is not a risk from fluvial flooding as it is not situated within a recorded Flood Zone. The EA/NRW maps indicate that the site is at risk of surface water flooding from 1 in 1000-year events. The supplied EA/NRW Historic Flood Map does not record any historic surface water flooding events within 500m of the site.

The JBA Risk Management Limited Data indicated the risk of the Pluvial flooding on site from 75 year return, 200 year return and 1000 year return.

The site is not situated in area where the BGS consider there to be a risk from groundwater flooding. The information supplied by GEOSmart indicated that there was a negligible risk from groundwater flooding.

The Flood Risk Assessment undertaken by Soils Limited has demonstrated that there is a risk from pluvial flooding in the west and south of the site.

On the basis of the findings of the assessment it is considered that the site is at risk of potentially significant levels of pluvial flooding in the south and west of the site. However, it may be possible to design appropriate measures within the construction of the building to overcome potential ingress of water into the property. These forms of mitigation could include, but not be limited to; the installation of raised thresholds, domestic flood barriers, flood resilient finishes, raised kerbs around lightwells, basement sumps and non-hygroscopic plaster.

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Appendix A Flood Screening Report

Appendix B London Borough of Camden SFRA Strategic Flood Risk Assessment



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Figure I - Site Location Map

Job Number 18224	Project 163 Sumatra Road, West Hampstead, London, NW6 IPN
Client	Date
Drawing and Planning Ltd	February 2020



Figure 2 - Aerial Photograph

Project

163 Sumatra Road, West Hampstead, London, NW6 IPN

Client

Drawing and Planning Ltd

Date

February 2020

Job Number 18224

Appendix A Flood Screening Report





EA/NRW Flood Data Map (1:10,000)

General

Specified Site
 Specified Buffer(s)

(5) Specified Butter(s)

X Bearing Reference Point

Flood Data

Extreme Flooding from Rivers or Sea without Defences (Zone 2)

Flooding from Rivers or Sea without Defences (Zone 3)

Area Benefiting from Flood Defence

Flood Water Storage Areas

--- Flood Defence

Contours (height in metres)

Standard Contour ______ Master Contour _____

Spot Height

167.8

MLW =	Mean	Low	Water
MHAY	Mean	High	Water

EA/NRW Flood Data Map - Slice A



Order Details

Order Number:	235148911_1_1
Customer Ref:	18224
National Grid Reference:	525300, 184870
Slice:	A
Site Area (Ha):	0.03
Search Buffer (m):	1000

Site Details

163, Sumatra Road, LONDON, NW6 1PN

JBA 75 Year Return Flood Map (Undefended) (1:10,000)

General

Specified Site
 Specified Buffer(s)

X Bearing Reference Point

Modelled Flood Depth

JBA 75 Year Return Flood Map (Undefended) -Slice A

Order Details

235148911_1_1
18224
525300, 184870
A
0.03
1000

Site Details

163, Sumatra Road, LONDON, NW6 1PN

Tel: Fax: Web:

JBA 100 Year Return Flood Map (Undefended) (1:10,000)

General

Specified Site
 Specified Buffer(s)
 Bearing Reference Point

Modelled Flood Depth

JBA 100 Year Return Flood Map (Undefended) -Slice A

Order Details

Order Number:	235148911_1_1
Customer Ref:	18224
National Grid Reference:	525300, 184870
Slice:	A
Site Area (Ha):	0.03
Search Buffer (m):	1000

Site Details

163, Sumatra Road, LONDON, NW6 1PN

Tel: Fax: Web:

JBA 200 Year Return Flood Map (Undefended) (1:10,000)

General

Specified Site
 Specified Buffer(s)

X Bearing Reference Point

Modelled Flood Depth

JBA 200 Year Return Flood Map (Undefended) -Slice A

Order Details

235148911_1_1
18224
525300, 184870
A
0.03
1000

Site Details

163, Sumatra Road, LONDON, NW6 1PN

Tel: 0 Fax: 0 Web: w

JBA 1000 Year Return Flood Map (Undefended) (1:10,000)

General

Specified Site
 Specified Buffer(s)

X Bearing Reference Point

Modelled Flood Depth

JBA 1000 Year Return Flood Map (Undefended) -Slice A

Order Details

235148911_1_1
18224
525300, 184870
A
0.03
1000

Site Details

163, Sumatra Road, LONDON, NW6 1PN

Tel: Fax: Web:

JBA Canal Failure Map (1:10,000)

JBA Canal Failure Flood Map - Slice A

Order Details

Order Number:	235148911_1_1
Customer Ref:	18224
National Grid Reference:	525300, 184870
Slice:	A
Site Area (Ha):	0.03
Search Buffer (m):	1000

Site Details

163, Sumatra Road, LONDON, NW6 1PN

Tel: Fax: Web:

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EA/NRW Surface Water 30 Year Return Depth Map (1:10,000)

