FLOOD RISK ASSESSMENT

AT

1200 UXBRIDGE ROAD, HAYES, UB4 8JD

July 2018

TURNER JOMAS & ASSOCIATES

Environmental & Civil Engineers & Transport Planners

Turner Jomas & Associates Ltd
Lakeside House, 1 Furzeground Way, Stockley Park,
UB11 1BD

T: +44843 289 2187
F: +44872 115 4505
www.turnerjomas.com

TURNER JOMAS & ASSOCIATES

Environmental & Civil Engineers & Transport Planners

Version 1.1
July 2018
Our Ref: P16081437

For any queries relating to this report, please contact
Roni Savage
T: 0843 289 2187
E: rs@jomasassociates.com

Table of Contents

If this report has been released electronically, the appendices referred to herein can be found in the annexed zip folder/s as .pdf or .dwg files. If this report has been released in hard copy the appendices will be bound into the back of this report. Plans may be annexed separately as A1 or A0 copies where a bound-in A3 copy is not appropriate.

1.0 Scope 1

2.0 Executive Summary 1

3.0 Introduction 2

4.0 Purpose of the Report 2

5.0 Report Information Sources 2

6.0 Overview of British Legislation 2
- 6.1 National Planning Policy 2
- 6.2 Local Policy 3

7.0 Site Status and Environmental Setting 3
- 7.1 Site Location and Status 3

8.0 Assessment of Proposed Development 6
- 8.1 Proposed Development 6
- 8.2 Flood Resilience 6
- 8.3 SUDS Hierarchy Check 7

9.0 Flood Response & Management 8
- 9.1 Evacuation and Refuge 8
- 9.2 Surface Water Runoff – Flood Risk from the Development 8
- 9.3 Climate Change 8
- 9.4 Flood Risk Vulnerability 8

10.0 Conclusion 8

11.0 Appendices 9

1.0 Scope

This report contains the details of a Flood Risk Assessment carried out by Turner Jomas and Associates (TJA) for 1200 Uxbridge Road, Hayes, UB4 8JD, henceforth referred to as "the site" in this report.

This report has been prepared for Diamond Corporation and must not be relied upon by any other party without the explicit written permission of TJA. All parties to this report do not intend any of the terms of the Contracts (Right of Third Parties Act 1999) to apply to this report.

Please note this report does not purport to provide definitive legal advice nor can it be used to demonstrate that the site will never flood in the future.

The Executive Summary contains an overview of key findings and conclusions. However, no reliance should be placed on the Executive Summary until the whole of the report has been read.

Other sections of the report may contain information which puts into context the findings noted within the Executive Summary.

All rights reserved. No part of this report may be copied, edited, transmitted, reproduced, hired, lent, sold or disclosed without the prior written consent of TJA Ltd. Any action taken or omitted to be taken in reliance upon the content of this report is not permitted and may be unlawful. Copyright © TJA Ltd 2018.

2.0 Executive Summary

This FRA has been carried out in accordance with the National Planning Policy Framework (NPPF) and PPG. It is to be used to assist the Local Planning Authority (LPA) and Environment Agency (EA) when considering the flooding issues of the proposed development as part of a planning application.

The scheme is a change of use to residential in FZ1 and is NPPF / PPG compliant:

- Being located in an area of Flood Zone 1
- Bedrooms on ground floor and self-contained ground floor flats are appropriate
- Access & Egress in LOW hazard
- No increase in impermeable areas; given change of use, no additional SUDS are required
- REDUCES FLOOD RISK OVERALL:
    - Resilient building construction techniques

Scheme results in a better protected and flood future-proofed building than is existing.

Scheme is categorized as "More Vulnerable" development in FZ1, in accordance with the NPPF classifications the NPPF Exception test does not need to be passed.

Given the residual risk surface water flood setting, the level, extent and depth of flooding on the site can be managed in terms of resilient measures

Compliant with LBH Policies: no self-contained basement flats and site can operate safely in the unlikely event of a flood reaching the site & scheme addresses residual risk of flooding, as per NPPF / PPG & local policy.

The site is within a low probability area of flooding; based on the likely flooding risk, it is considered that the proposed development could be constructed and operated safely in flood risk terms without increasing flood risk elsewhere, in fact creating a betterment and is therefore appropriate development in accordance with the NPPF/NPPG 2015.

3.0 Introduction

The site boundary is provided in the location plan in Appendix A.

The FRA combined a desktop study, review of available information, consultations and an assessment of all sources of flooding posed to and from the site and proposed development, in accordance with National Planning Policy Framework (NPPF). Appropriate flood mitigation measures were then considered, either as already incorporated within the scheme or recommended for inclusion at detailed design stage. The suitability of the proposed development was also reviewed in the context of the NPPF and the technical guidance accompanying the NPPF.

4.0 Purpose of the Report

This FRA has been carried out in accordance with National Planning Policy Framework (NPPF). It is to be used to assist the Local Planning Authority (LPA) and Environment Agency (EA) when considering the flooding issues of the proposed development as part of a planning application.

The report provides the following information:

- An assessment of the flood risk posed to the site based on flood information and mapping provide by the EA and Strategic Flood Risk Assessment (SFRA);
- An assessment of the proposed development in terms of surface water run-off; and
- Proposals for measures to mitigate the flood risks posed to and from the development where appropriate
- An assessment of the change in impermeable and permeable areas as a result of the scheme
- The risk posed to the scheme and surrounding areas from the likely surface water regime as a result of the scheme
- Proposals for measures to mitigate the surface water risks posed from the development where appropriate

5.0 Report Information Sources

The information source used to undertake this FRA has been collected from the following sources:

- British Geological Survey Website and iGeology App
- EA Website
- London Borough of Hillingdon (LBH) SFRA
- LBH SUDS Local Guidance 2015 and as updated
- London Plan SUDS Guidance
- LBH / Drain London / EA Preliminary Flood Risk Assessments 2011 and as updated
- Internet mapping and searches

6.0 Overview of British Legislation

6.1 National Planning Policy

Note: where the report references NPPF this also covers PPG 2015.

The National Planning Policy Framework (NPPF) and PPG 2015 supercede all Planning Policy Statements (PPS's) and remaining Planning Policy Guidance (PPG's). Flood risk is retained as a key development consideration and is incorporated within Section 10: "Meeting the challenge of climate

change, flooding and coastal change":

> "Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere."

The Sequential and Exception Tests are retained as part of the NPPF/PPG. This report provides the flood risk assessment element of both tests where appropriate. It is the decision of the planning authority as to whether the tests can be fully passed.

6.2 Local Policy

Local Authorities consider flood risk through relevant environmental and climate change policies which enforce the requirements of the NPPF.

The Strategic Flood Risk Assessment (SFRA) is a key source of flood risk specific information for the area. The SFRA provides a more detailed review of flood risks and recommendations for ensuring developments can be constructed and operated safely in accordance with the NPPF. Greater detail of the SFRA is provided in the report.

London Plan SUDS Guidance compliant.

7.0 Site Status and Environmental Setting

7.1 Site Location and Status

The site is located at the junction of Newport Road and Uxbridge Road; the site is an existing 3 storey office block.

The whole of the site and access & egress are in EA FZ1.

Flood Sources	Site Status	Comment on flood risk posed to / from the development
Fluvial / Tidal	Site is in Flood Zone FZ1 defended	Scheme is change of use to residential in FZ1; access & egress also in FZ1: NPPF and PPG compliant No increase in impermeable areas. No basement flats so no highly vulnerable uses. Scheme with bedrooms on ground floor and self-contained ground floor flats is appropriate in flood risk terms
Groundwater	SFRA mapping indicates site not in area of groundwater flooding.	The proposed development will not increase the risk of groundwater flooding Low Risk
Artificial Sources	No artificial sources within 250m	Low Risk
Surface Water / Sewer Flooding	Site is located adjacent a surface water risk zone Condition, depth and location of surrounding infrastructure uncertain	No increase in impermeable areas. New modern flood resilience / resistance at ground floor is feasible Development will utilise existing connection to sewers, gravity drainage and non-return valves as appropriate Development will not significantly increase the peak flow or volume of discharge from the site: Low Risk: No further drainage assessment required as part of the FRA
Climate Change & new allowances	Included in the flood modelling extents Site not within climate change flood extent area	Development will not significantly increase the peak flow and volume of discharge from the site Low risk posed to and from the development

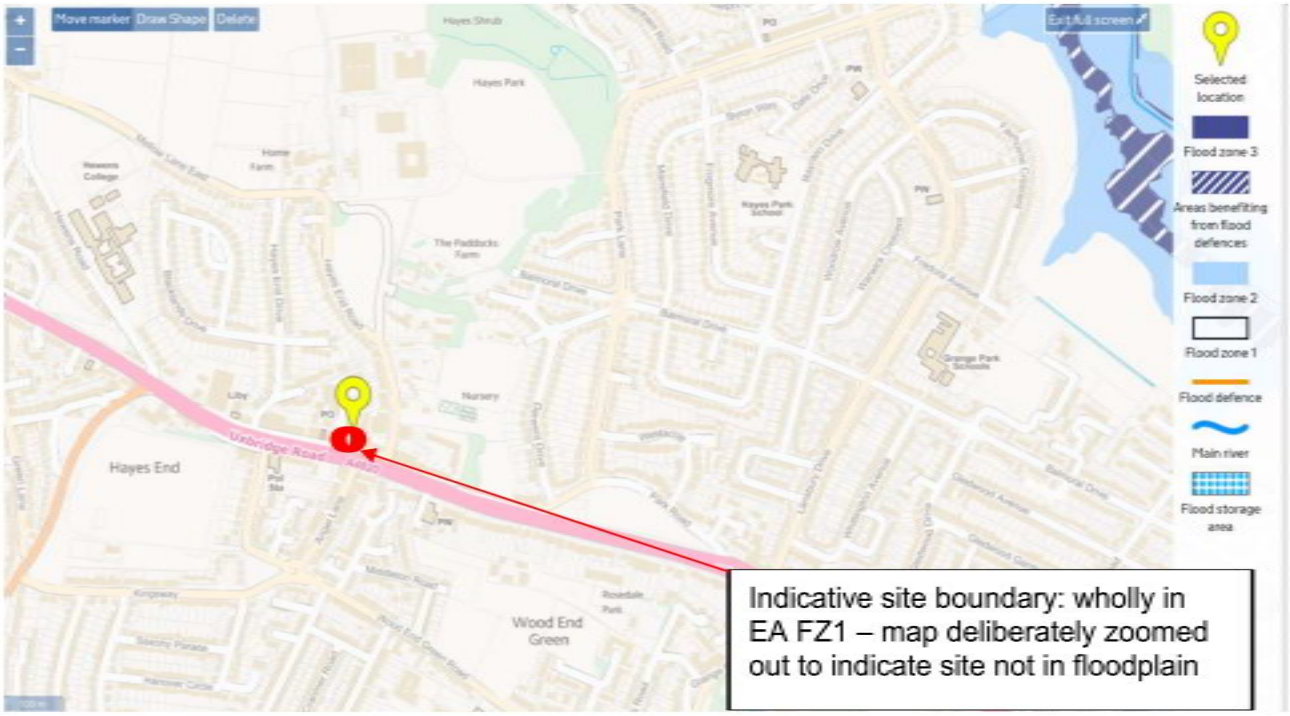


Table 1: Summary of flood sources and site setting

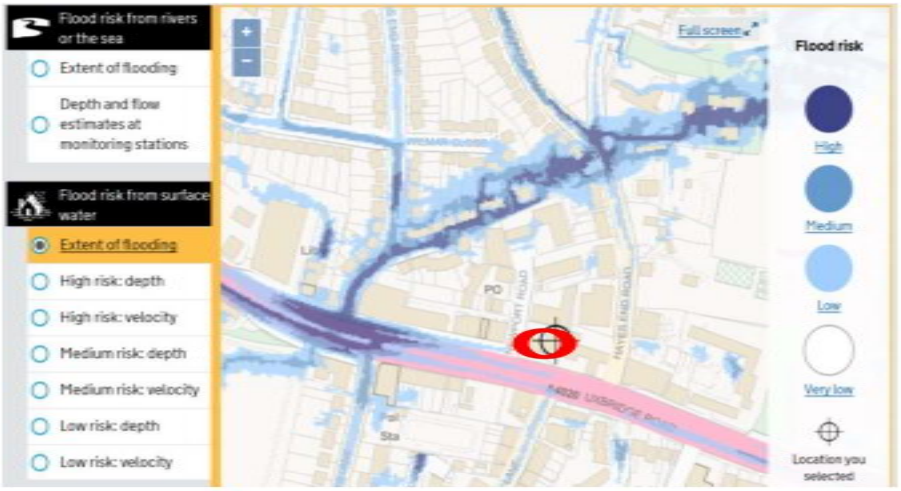
Flood Sources	Site Status	Comment on flood risk posed to / from the development
Fluvial / Tidal	Site and Access / egress in FZ1 Low Risk	Scheme can reduce flood risk overall by storage on site and infiltration SUDS where feasible Proposed development is new build which can incorporate suitable mitigation measures. Ground floor bedrooms and flat are considered appropriate given residual risk
Groundwater	SFRA indicates site not in potential elevated future groundwater risk area	The proposed development will not increase the risk of groundwater flooding; Low Risk
Artificial Sources	No artificial sources within 250m	Low Risk
Surface Water / Sewer Flooding	Site is not located within / adjacent a surface water risk zone / CDA but in general surface water risk area No sewers adjacent to site Condition, depth and location of surrounding infrastructure uncertain	LOW hazard Reduce flood risk overall Discharge to attenuation pond SUDS Gravity drainage where feasible and non-return valves Drainage strategy to ensure development will not increase the peak flow or volume of discharge from the site: Low Risk No further surface water mitigation required
Climate Change	Included in the flood modelling extents Site not within climate change flood extent area	Development will not significantly increase the peak flow and volume of discharge from the site Low risk posed to and from the development

7.2 EA New Surface Water Hazard Mapping / Council Mapping

The EA mapping is more up to date than the council data and mapping.

- Site within and surrounded by EA NO hazard in all the EA scenarios risk
- Scheme does not obstruct or displace any informal flowpaths

FLOOD RESILIENCE is correct operational approach to ensure protection in accordance with LBH council and EA policy.



See Table 1 above for the summary of flood risks posed to and from the scheme.

7.3 DESIGN RESPONSE TO MEET LBH & COUNCIL GUIDANCE

- No raising of ground finished floor level (FFL) required: but always advised if practicable
- Flood resilience on ground floor as standard and precautionary
- Flood resilient measures are appropriate to ensure the ability to return the site to operation as quickly as possible in the unlikely event of a flood
- No additional mitigation is required given the site is in FZ1 and in NO-LOW hazard EA surface water

8.0 Assessment of Proposed Development

8.1 Proposed Development

The proposed development comprises:

- Change existing offices to residential in FZ1
  - Self-contained ground floor flats and hence ground floor bedrooms are appropriate
- Precautionary flood resilience
- No increase in impermeable areas: no additional formal SUDS required

8.2 Flood Resilience

The proposed development will utilize the flood resilient techniques recommended in the NPPF Technical Guidance where appropriate and also the recommendations that have previously been issued by various councils:

As per previous correspondence with LBH planning officers and as agreed:

The FRA provides the recommended resilient measures that can be incorporated; because the scheme is a change of use, it will depend on the construction team as to what construction will actually need to be undertaken on the ground floor. This does not invalidate the point and recommendations of this FRA. The FRA cannot simply specify the exact measures that need to be changed; they are not required of planning.

BUT:

If any of these elements are required to be newly installed on the ground floor as part of the scheme they will be constructed following the resilience guidance:

- Plasterboards will be installed in horizontal sheets rather than conventional vertical installation methods to minimise the amount of plasterboard that could be damaged in a flood event
- Wall sockets will be raised to as high as is feasible and practicable in order to minimise damage if flood waters inundate the property
- The ground floor will be concrete in order to minimise damage and reduce the turnaround time for returning the property to full operation after a flood event
- Any new wood fixings on ground floor will be robust and/or protected by suitable coatings in order to minimise damage during a flood event
- Any new airbricks will be raised to as high as is feasible and practicable
- Any new Damp Proof Membrane if required will be installed above the main floor slab and tied in to the walls where appropriate, to reduce the turnaround time for returning the property to full operation after a flood event.
- The ground floor waterproofing will be extended to an appropriate level above existing ground levels.

8.3 SUDS Hierarchy Check

Concept SUDS Strategy

The following diagram indicates the philosophy behind the proposed SUDS strategy, and is taken from the EA's SUDS guidance:



(Source: Environment Agency, 2009)

Table 2 indicates the SUDS Hierarchy Appraisal for the site and proposed development:

Table 2: Site Specific SUDS Appraisal

SUDS Hierarchy	SUDS Technique	Potential Benefits			Site Specific	
		Flood Reduction	Pollution Reduction	Landscape & Wildlife Benefit	?	Scheme Specific SUDS Suitability Appraisal and Comment
Most Sustainable	Living Roofs	•	•	•	X	Not likely feasible given nature of existing roof construction. (Blue, Green and Brown roofs)
▲	Ponds / Basins	•	•	•	X	Not feasible or necessary given site is defined by footprint of the existing building
	Swales	•	•	•	X	Not feasible or necessary given site is defined by footprint of the existing building
	Infiltration Techniques	•	•		X	Not feasible or necessary given site is defined by footprint of the existing building
▼	Permeable Surfaces and Underground Storage	•	•		X	Not feasible or necessary given site is defined by footprint of the existing building
Least Sustainable	Tanked Systems	•			X	Not feasible or necessary given site is defined by footprint of the existing building

Key:
Potentially suitable at the site: * Incorporated in the scheme: ✓ Not suitable / possible at the site: X

9.0 Flood Response & Management

9.1 Evacuation and Refuge

Based on the likely flood risk and associated warning time, evacuation is usually preferred and feasible at this site, floodwaters are also not likely to enter the building.

As per the flood design response: ground floor bedrooms are considered appropriate given FZ1 location / low surface water hazard.

9.2 Surface Water Runoff – Flood Risk from the Development

In accordance with the NPPF/PPG, this FRA also considers the risks posed from the development to surrounding areas.

No increase in impermeable areas given change of use; no additional formal SUDS required.

The proposals will incorporate new low-water demand devices such that any increase in peak flow and volume of flow is likely to be negligible.

There will not be any significant increase in overland flow from the site.

9.3 Climate Change

The impact of climate change in accordance with the NPPF / PPG 2015 is likely to be an increase in the rainfall intensity in the future, which will increase peak storm flows to sewer.

Site in FZ1 and is a change of use of existing building.

The proposed development will incorporate (if new units are installed) low flush and reduced water demand showers and toilets. It is considered therefore that flows in the future are not likely to have a significant impact, even with an allowance for climate change.

The EA data incorporate likely increases in flood levels including an accommodation for climate change.

9.4 Flood Risk Vulnerability

According to the NPPF / PPG 2015 retained Flood Risk Vulnerability Classification, the proposed dwellings would be classified as “More Vulnerable.”

The NPPF also retained Flood Risk Vulnerability and Flood Zone “Compatibility” Classification; this states that a “More Vulnerable” development in Flood Zone 1 is appropriate without the need to pass the Exception Test.

Based on the data reviewed to date, the flood risk assessment recommends the scheme could be constructed and operated safely in flood risk terms without increasing flood risk elsewhere which is acceptable in accordance with the NPPF / PPG 2015.

10.0 Conclusion

The scheme is NPPF compliant:

- Being located in an area of Flood Zone 1
- REDUCES FLOOD RISK OVERALL:
- Robust resilient building construction techniques to meet EA and LBH requirements
- **Scheme results in a better protected and flood future-proofed building than is existing**

The site is within a low probability area of flooding from all sources and the scheme does not increase the risk of flooding; based on the likely flooding risk, it is considered that the proposed development could be constructed and operated safely in flood risk terms without increasing flood risk elsewhere, in fact creating a betterment and is therefore appropriate development in accordance with the NPPF/NPPG 2015

11.0 Appendices

A. Site Location

B. Proposed Floor Plans

JOMAS ASSOCIATES LTD
T: 0843 289 2187

Project Name	Uxbridge Road, Hayes	**Client**	Diamond Corporation
Project No.	P1608J1437	**Date**	11/07/2018
Title	Site Location Plan	**Prepared By**	AM

