

Flood Risk Assessment
AEG7363_UB10_Uxbridge_01

Site Address: 29 The Avenue
Ickenham
Uxbridge
London Borough of Hillingdon
UB10 8NR

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UK Experts in Flood Modelling, Flood Risk Assessments, and Surface Water Drainage Strategies

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Document Issue Record

Project: Flood Risk Assessment

Prepared for: Jackie Bowler

Reference: AEG7363_UB10_Uxbridge_01

Site Location: 29 The Avenue, Ickenham, Uxbridge, London Borough of Hillingdon, UB10 8NR

Issue	Date	Author	Check	Auth.	Comments
1	04/04/2025	Jacob Caddick	JA	DS	First issue
2	18/07/2025	Jacob Caddick	-	-	Alter location of Compensatory Flood Storage

Please Note:

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Summary

Development Description	Existing	Proposed
Development Type	A residential dwelling	It is understood that the development is for the construction of a replacement dwelling following demolition of an existing property
EA Vulnerability Classification	More Vulnerable	More Vulnerable
Ground Floor Level	The topographical survey confirms that land levels on site range from 37.07m AOD in the north corner of the site to 37.96m AOD along the southeastern boundary of the site	No change
Level of Sleeping Accommodation	First Floor	First Floor
Site Size	1624m²	No change
Risk to Development	**Summary**	**Comment**
EA Flood Zone	Flood Zones 1 and 2	River Pinn
Flood Source	Fluvial and Pluvial	
SFRA Available	West London Strategic Flood Risk Assessment (West London Boroughs, 2018)	
Management Measures	**Summary**	**Comment**
Ground floor level above extreme flood levels	Yes	Dwelling is outside all modelled fluvial events (up to 1in1000year). FFLs are shown to be raised c.300mm-400mm above ground level, and above predicted surface water flood depths.
Safe Access/Egress Route	Yes	See Section 5.
Flood Resilient Design	Yes	See Section 5

Flood Warning and Evacuation Plan	N/A[1]	Residents should sign up to the EA Flood Warning Service for the 'River Pinn at Ickenham'.
Offsite Impacts	**Summary**	**Comment**
Displacement of floodwater	Yes	It has been demonstrated that sufficient flood compensatory storage can be provided on site to ensure flood risk is not increased elsewhere
Increase in surface run-off generation	Negligible	Small scale SuDS such as rainwater planters and water butts should be used where possible in external areas to provide betterment.
Impact on hydraulic performance of channels	No	Closest EA Main River is c.100m from dwelling.

[1] not required for this assessment

[2] data not available.

1. Introduction

1.1. Aegaea were commissioned by Jackie Bowler to undertake a Flood Risk Assessment (FRA) to facilitate a planning application for the proposed development. This FRA has been prepared in accordance with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance.

1.2. This FRA is intended to support a full planning application and as such the level of detail included is commensurate and subject to the nature of the proposals.

Site Overview

1.3. The site of the proposed development is 29 The Avenue, Ickenham, Uxbridge, London Borough of Hillingdon, UB10 8NR (Figure 1).

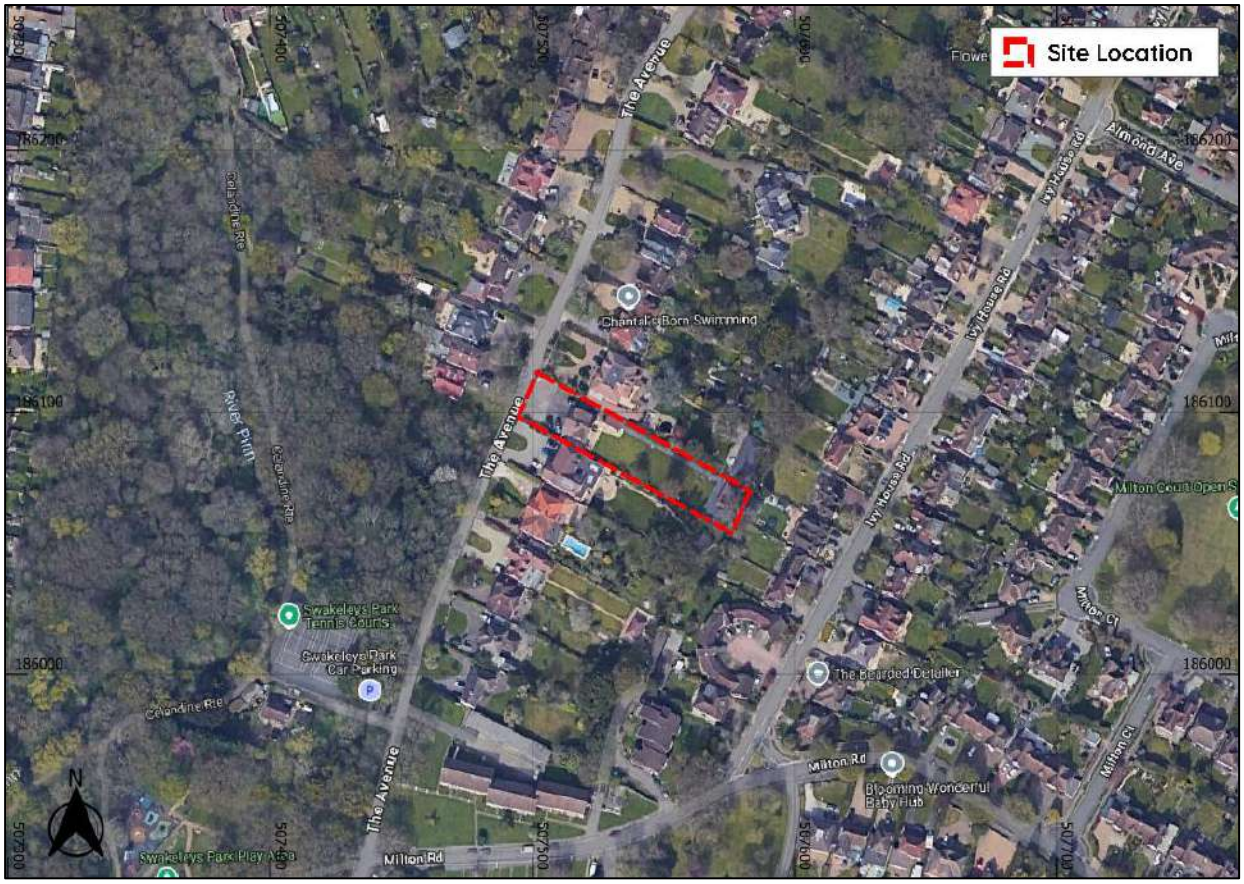

Figure 1: Site Location (Google Satellite Imagery. Contains public sector information licensed under the Open Government Licence v3.0)

1.4. It is understood that the development is for the construction of a replacement dwelling following demolition of an existing property. Design proposals are attached within Appendix A.

1.5. A topographical survey has been provided by the client (Appendix B). The survey confirms that land levels on site range from 37.07m AOD in the north corner of the site to 37.96m AOD along the southeastern boundary of the site. Thus, land levels on site are considered to rise to the rear of the site away from the existing dwelling.

1.6. Environment Agency Light Detection and Ranging (LiDAR) data Digital Terrain Model has been used to give a visual representation of the topography of the site (Figure 2).

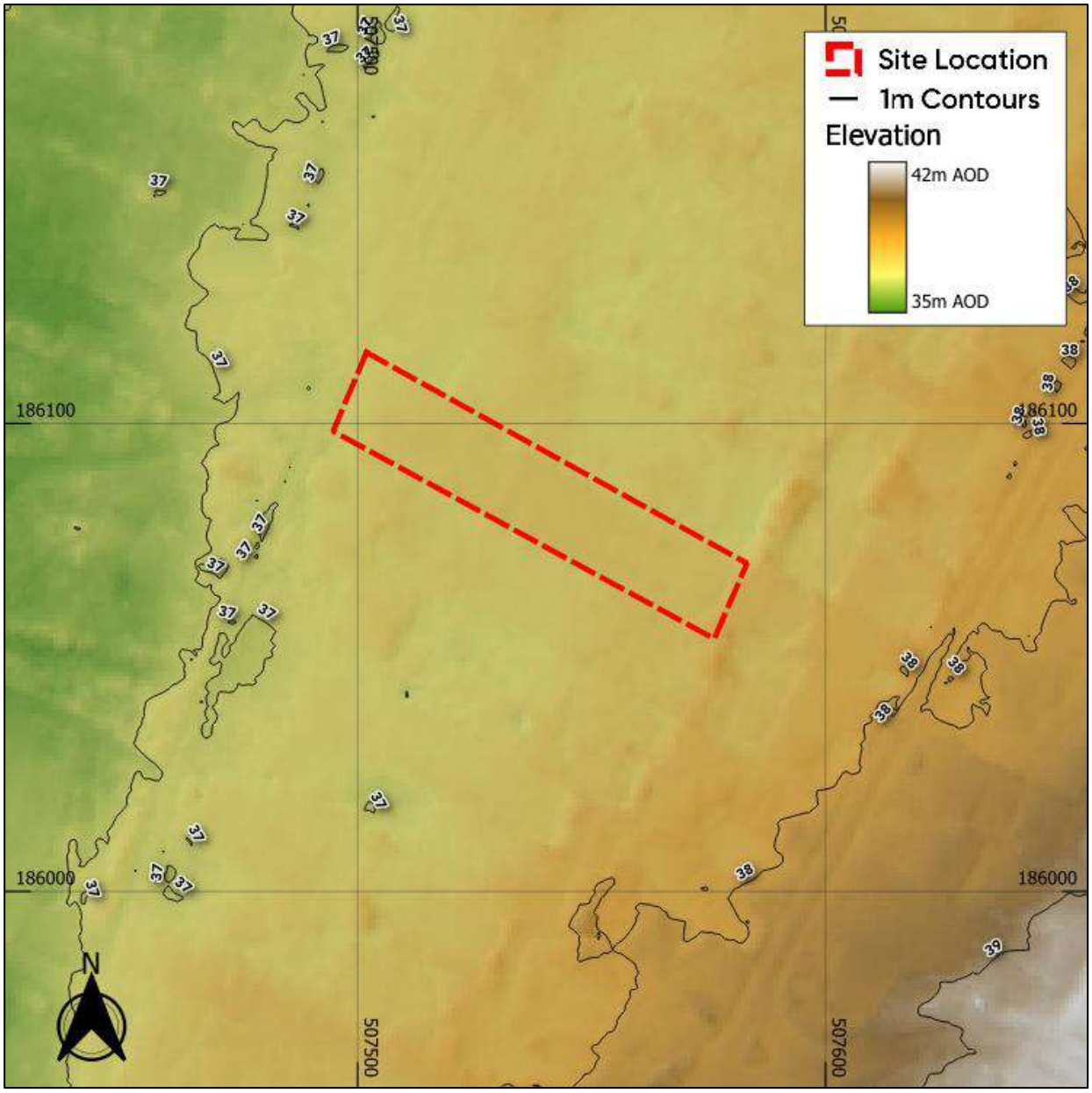

Figure 2: Site Topography (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

1.7. Hillingdon Council is the Local Planning Authority (LPA) for the site and also the designated Lead Local Flood Authority (LLFA). The site sits within the Environment Agency's Hertfordshire and North London region.

Planning Policy and Guidance

1.8. UK government planning guidance states[1] that an FRA is required for developments which are:

- *in flood zone 2 or 3 including minor development and change of use*
- *more than 1 hectare (ha) in flood zone 1*
- *less than 1 ha in flood zone 1, including a change of use in development type to a more vulnerable class (for example from commercial to residential), where they could be affected by sources of flooding other than rivers and the sea (for example surface water drains, reservoirs)*
- *in an area within flood zone 1 which has critical drainage problems as notified by the Environment Agency*

1.9. The site is located within Flood Zone 2. According to NPPF Footnote 63 an FRA is required.

1.10. The objective of this FRA is to demonstrate that the proposals are acceptable in terms of flood risk. This report summarises the findings of the study and specifically addresses the following issues in the context of the current legislative regime:

- Fluvial/tidal flood risk
- Surface water flood risk
- Risk of flooding from other sources

[1] **https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications#when-you-need-an-assessment**

2. Planning Policy

2.1. Inappropriate development in a flood risk area could pose significant risk in terms of personal safety and damage to property for the occupiers of the development or for people elsewhere. The approach taken in the assessment of flood risk at the planning stage is set out in national, regional, and local planning policy and associated guidance. This section summarises the key policies and guidance relevant to the proposed development.

National Planning Policy Framework (NPPF)

2.2. The National Planning Policy Framework[2] (NPPF) (MHCLG, 2024) which includes UK Government policy on development and flood risk states:

> *170. Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.*
>
> *181. When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:*
>
> *a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;*
>
> *b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;*
>
> *c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;*

[2] **https://www.gov.uk/guidance/national-planning-policy-framework, last updated Dec 2024**

d) any residual risk can be safely managed; and

e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.

176. Applications for some minor development and changes of use should also not be subject to the sequential test, nor the exception test [set out below], but should still meet the requirements for site-specific flood risk assessments set out in footnote 63.

2.3. Footnote 63 of the NPPF states:

A site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.

2.4. Flood Zones in England are defined as follows:

Table 1: Flood Zone Definitions

Flood Zone	Definition
Zone 1 Low Probability	Land having less than 1 in 1,000 annual probability of river or sea flooding (all land outside Zones 2 and 3).
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding.
Zone 3a High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding.
Zone 3b The Functional Floodplain	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise:

	land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)

2.5. An FRA should be appropriate to the scale, nature, and location of the development. It should identify and assess the risk from all sources of flooding to and from the development and demonstrate how any flood risks will be managed over the lifetime of the development.

2.6. An assessment of hydrological impacts should be undertaken, including to surface water runoff and impacts to drainage networks in order to demonstrate how flood risk to others will be managed following development and taking climate change into account.

The London Plan

2.7. The London Plan prepared by the Greater London Authority in 2021 sets out the policies for development in the region.

2.8. Policy SI 12 Flood risk management outlines the requirements for new development within the region. It states:

> *A. Current and expected flood risk from all sources (as defined in paragraph 9.2.12) across London should be managed in a sustainable and cost-effective way in collaboration with the Environment Agency, the Lead Local Flood Authorities, developers and infrastructure providers.*
>
> *B. Development Plans should use the Mayor's Regional Flood Risk Appraisal and their Strategic Flood Risk Assessment as well as Local Flood Risk Management Strategies, where necessary, to identify areas where particular and cumulative flood risk issues exist and develop actions and policy approaches aimed at reducing these risks. Boroughs should cooperate and jointly address cross-boundary flood risk issues including with authorities outside London.*

C. Development proposals should ensure that flood risk is minimised and mitigated, and that residual risk is addressed. This should include, where possible, making space for water and aiming for development to be set back from the banks of watercourses.

D. Developments Plans and development proposals should contribute to the delivery of the measures set out in Thames Estuary 2100 Plan. The Mayor will work with the Environment Agency and relevant local planning authorities, including authorities outside London, to safeguard an appropriate location for a new Thames Barrier.

E. Development proposals for utility services should be designed to remain operational under flood conditions and buildings should be designed for quick recovery following a flood.

F. Development proposals adjacent to flood defences will be required to protect the integrity of flood defences and allow access for future maintenance and upgrading. Unless exceptional circumstances are demonstrated for not doing so, development proposals should be set back from flood defences to allow for any foreseeable future maintenance and upgrades in a sustainable and cost-effective way.

G. Natural flood management methods should be employed in development proposals due to their multiple benefits including increasing flood storage and creating recreational areas and habitat.

2.9. Additionally, 'Policy SI 13 Sustainable drainage' outlines the requirements for new development within the region. It states:

A. Lead Local Flood Authorities should identify - through their Local Flood Risk Management Strategies and Surface Water Management Plans - areas where there are particular surface water management issues and aim to reduce these risks. Increases in surface water run-off outside these areas also need to be identified and addressed.

B. 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:

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.

C. Development proposals for impermeable surfacing should normally be resisted unless they can be shown to be unavoidable, including on small surfaces such as front gardens and driveways.

D. Drainage should be designed and implemented in ways that promote multiple benefits including increased water use efficiency, improved water quality, and enhanced biodiversity, urban greening, amenity and recreation.

Local Plan

2.10. The Local Plan prepared by the Local Planning Authority, Hillingdon Council, sets out the policies for development in the local area. The plan set out a vision for 2026 and was adopted in November 2012.

2.11. Policy EM6 Flood Risk Management outlines the requirements for new development within the area. It states:

The Council will require new development to be directed away from Flood Zones 2 and 3 in accordance with the principles of the National Planning Policy Framework (NPPF).

The subsequent Hillingdon Local Plan: Part 2 -Site Specific Allocations LDD will be subjected to the Sequential Test in accordance with the NPPF.

Sites will only be allocated within Flood Zones 2 or 3 where there are overriding issues that outweigh flood risk. In these instances, policy criteria will be set requiring future applicants of these sites to demonstrate that flood risk can be suitably mitigated.

The Council will require all development across the borough to use sustainable urban drainage systems (SUDS) unless demonstrated that it is not viable. The Council will encourage SUDS to be linked to water efficiency methods. The Council may require

developer contributions to guarantee the long term maintenance and performance of SUDS is to an appropriate standard.

Sequential and Exception Tests

2.12. The Sequential and Exception Tests are applied in specific cases defined by UK Government policy. Their purpose is to drive development to areas of low flood risk and to support developments which improve flood risk for developments in areas at risk of flooding.

Sequential Test

2.13. This FRA demonstrates that the site is not at risk of flooding now and in the future, therefore according to paragraph 175 of the NPPF the development is exempt from completing a Sequential Test.

2.14. The proposed dwelling is located on land identified to be located outside of the modelled fluvial extents.

2.15. Therefore, as per paragraph 175 of the NPPF, a sequential approach to the site layout has been adopted and therefore there is no need to implement the Sequential Test.

Exception Test

2.16. The Exception Test is applied to sites based on the Flood Zone and the nature of the development. As the proposed development consists of a residential dwelling it would be classed as 'More Vulnerable' in line with government development use classes.

2.17. The Flood Risk Vulnerability Classification table[3] provided below in Table 2 shows which vulnerabilities are appropriate in each Flood Zone.

2.18. The proposed development sits within Flood Zone 2 and Flood Zone 1 and the proposed change of use is to 'More Vulnerable'. Table 2 shows Flood Zone 2 is an appropriate location for 'More Vulnerable' uses without the need for an Exception Test.

[3] **https://www.gov.uk/guidance/flood-risk-and-coastal-change#table2**

Table 2: Flood risk vulnerability and flood zone 'incompatibility'

Flood Zones	Flood Risk Vulnerability Classification				
	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a	Exception Test required	x	Exception Test required	✓	✓
Zone 3b	Exception Test required	x	x	x	✓

Summary

2.19. This flood risk assessment has been prepared with due consideration to the above local and national policy.

3. Consultation and Review

Consultation

3.1. The Environment Agency have provided the Lower Pinn FAS (2024) flood model to enable flood analysis of the site. Correspondence is included within Appendix C.

Documents and Online Mapping

3.2. Local Governments and Lead Local Flood Authorities provide documents which contain data and policies on flood risk and new development in their areas. These documents are introduced and briefly summarised below. For the purposes of this FRA, these documents have been reviewed for relevant information and any relevant data is discussed within the appropriate sub heading of this report.

3.3. The following sources of information have been reviewed for this assessment:

- Flood Map for Planning on the Environment Agency website[4]
- Long Term Flood Risk Information on the Environment Agency website[5]
- National Planning Policy Framework (NPPF) (Department for Levelling Up, Housing and Communities, 2023)
- Planning Practice Guidance - Flood Risk and Coastal Change (Department for Levelling Up, Housing and Communities, 2022)
- Geoindex Onshore (British Geological Survey, 2023)[6]
- The London Plan (Greater London Authority, 2021)[7]
- Local Plan: Part 1 - Strategic Policies (Hillingdon Council, 2012)[8]

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[4] https://flood-map-for-planning.service.gov.uk/
[5] https://www.gov.uk/check-long-term-flood-risk
[6] https://www.epsom-ewell.gov.uk/sites/default/files/documents/residents/planning/planning-policy/Core%20Strategy%202007.pdf
[7] https://www.london.gov.uk/sites/default/files/the_london_plan_2021.pdf
[8]https://www.hillingdon.gov.uk/media/3080/Local-Plan-Part-1---Strategic-Policies/pdf/Local_Plan_Part_1_Strategic_Policies_15_feb_2013_a_1_1.pdf?m=1598370401647

- Preliminary Flood Risk Assessment (Hillingdon Council, 2011)[9]
- West London Strategic Flood Risk Assessment (Hillingdon Council, 2018)[10]
- Local Flood Risk Management Strategy 2015 (Hillingdon Council, 2016)[11]

Preliminary Flood Risk Assessment (PFRA)

3.4. The PFRA, published in 2011, is a high-level appraisal of flood risk across Lead Local Flood Authority Hillingdon Council. The flood risk from all sources, including fluvial, surface water, groundwater, and surcharged sewers is evaluated. It is the basis upon which the Local Flood Risk Management Strategy is produced.

3.5. The PFRA summarises historical flood incidents in Hillingdon Council. The site is recorded as having been affected by a flood event.

Strategic Flood Risk Assessment (SFRA)

3.6. The SFRA, published in 2018, provides the evidence base for the Local Planning Authority Hillingdon Council Local Plan and guidance for consideration when determining planning applications. The SFRA seeks to place new development into areas of lower flood risk taking into account current flood risk, future flood risk, and the effect a proposed development would have on the risk of flooding.

3.7. The SFRA mapping provided by Hillingdon Council has been used throughout production of this report as a source of information, particularly pertaining to historical flood incidents.

Local Flood Risk Management Strategy (LFRMS)

3.8. The Local Flood Risk Management Strategy sets out roles and responsibilities for flood risk management, assesses the risk of flooding in the area, where funding can be found to manage flood risk, and the policies, objectives, and actions of the Lead Local Flood Authority.

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[9]https://modgov.hillingdon.gov.uk/documents/s8734/Appendix%20-%20Flood%20Appraisal.pdf
[10]https://westlondonsfra.london/
[11]https://www.hillingdon.gov.uk/media/4499/Local-Flooding-Risk-Management-Strategy/pdf/Appendix_A_-_Local_Flood_Risk_Management_Strategy_2016_1.pdf?m=1610451478887

3.9. The Hillingdon Council LFRMS is used within this report to identify any flood management infrastructure and historical incidences of flooding.

4. Sources of Flood Risk

Fluvial

4.1. Flooding from watercourses arises when flows exceed the capacity of the channel, or where a restrictive structure is encountered, resulting in water overtopping the banks into the floodplain.

Main Rivers and Ordinary Watercourses

4.2. The River Pinn flows c.100m west of the site and is classified as an EA main river at this location.

4.3. There is no other mapped watercourses could be found in the vicinity of the site, according to OS mapping.

EA Flood Map for Planning

4.4. The EA Flood Map for Planning (2025) shows the site is located with Flood Zones 1 and 2 (Figure 3).

4.5. Flood Zone 2 indicates land having between a 1 in 100 (1%) and 1 in 1,000 (0.1%) annual probability of river flooding. Flood Zone 1 shows land having less than 1 in 1,000 annual probability of river flooding (all land outside Zones 2 and 3).

4.6. Flood Zone 2 is shown to impact the western side of the site, including the proposed and existing dwelling footprints (Figure 3).

4.7. Integration of the mapping shows that the Flood Zone extent within the boundary of the site is based off recorded historical events. The modelled Flood Zone 2 extent is shown to impact the western boundary line, however, not the proposed/existing dwellings.

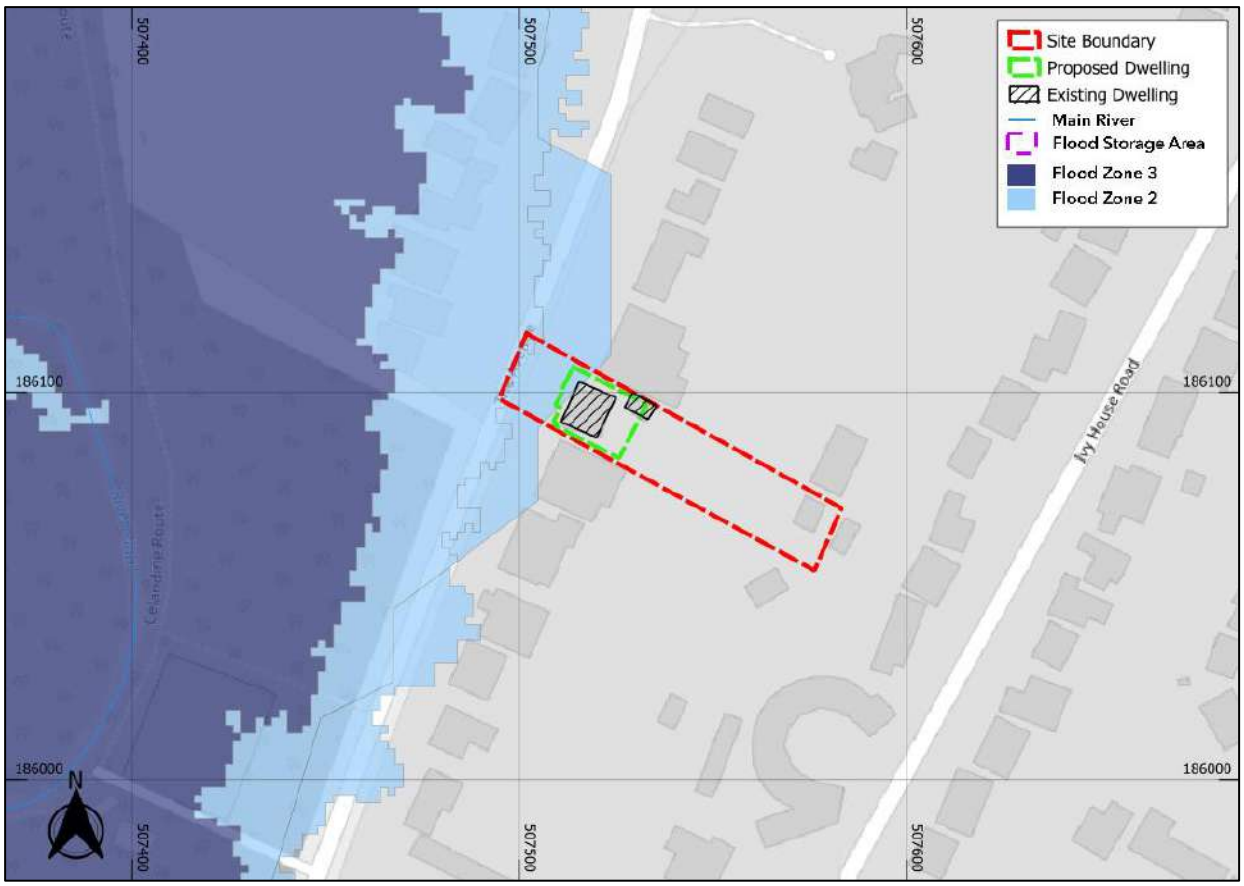

Figure 3: EA Flood Map for Planning (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

Historical Fluvial Flooding

4.8. Our review of Recorded and Historical Flood Outlines shows main river fluvial flooding on-site in 1988 caused by channel capacity exceeded (no raised defences) (Figure 4).

4.9. Since 1988, the site is shown to be within the presence of flood defences.

Flood Defences

4.10. The site has been shown to benefit from flood defence infrastructure along the River Pinn.

4.11. The EA have provided flood defence data for the vicinity of the site from the Asset Information Management System database (AIMS)[12]. Defences consist of natural high ground (natural bank) along the left and right bank. Defence crest levels within the vicinity of the site are shown to be at 37.5m AOD. As elevations lowest elevations on site are approximately 37.07m AOD, the site could be considered to benefit from the existing flood defences.

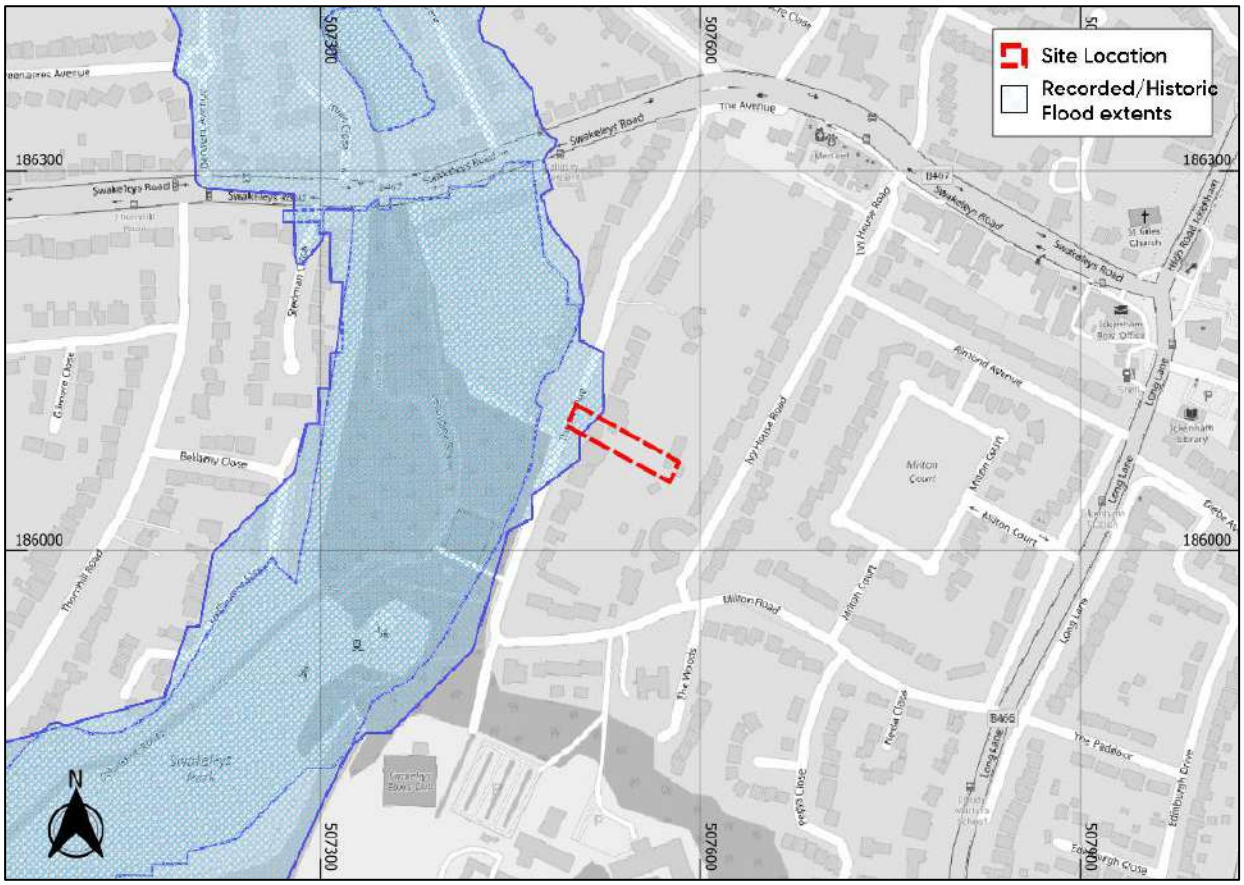

Figure 4: EA Historic Flood Mapping (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

4.12. Considering the presence of flood defences near the site, the historical flood outlines are not representative of the current flood risk to the development site.

[12] **https://environment.data.gov.uk/asset-management/index.html**

Lower Pinn FAS (2024)

4.13. The EA have provided modelled outputs, in the form of depth grids, from the Lower Pinn FAS (2024) modelling study (Appendix C).

Present Day Scenarios

4.14. Figure 5 shows the site is not impacted in the defended modelled 1 in 30 and 1 in 100year events.

4.15. The western boundary of the site is estimated to be impacted in the 1 in 1000year extent. The existing and proposed dwelling footprints are shown to be outside the flood extent. 2D floodplain node data shows a flood level of 37.19m AOD in this location, with an estimated ground level of 37.09m AOD, this would give a flood depth of 100mm along the western boundary.

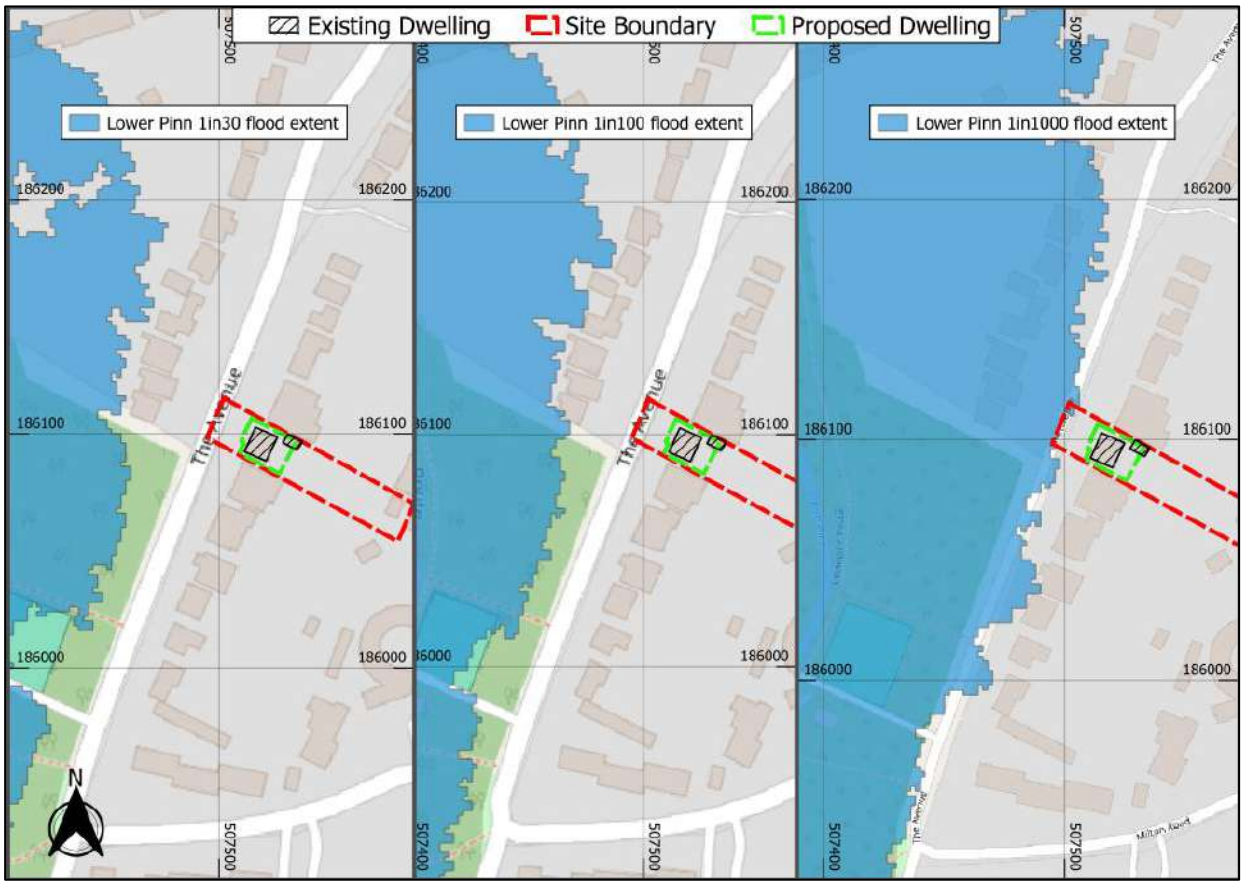

Figure 5: Lower Pinn FAS (2024) Present Day scenarios (© Environment Agency, Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

Climate Change Scenario

4.16. The site is located within the Colne management catchment. Given the land use is residential, a 100 year lifespan is considered appropriate, therefore the 2080s epoch requires the central allowance to be applied with a +21% increase in flows.

4.17. Figure 6 below shows that the site will not be impacted by the modelled 1in100 year +CC (21%) scenario.

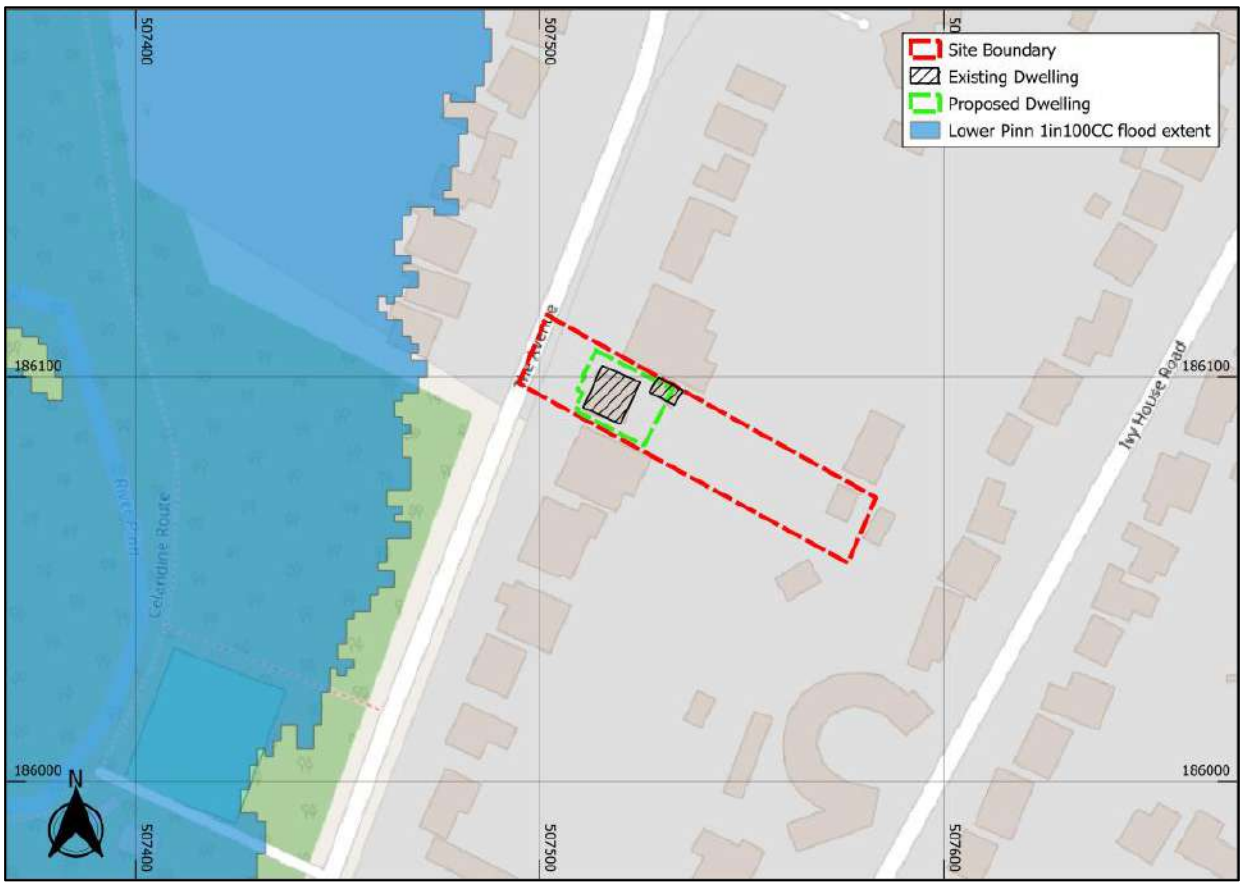

Figure 6: Lower Pinn FAS (2024) 100CC flood extent (© Environment Agency, Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

Fluvial Risk Summary

4.18. Based on the modelled fluvial flood data, the proposed dwelling is shown to be located outside all modelled events up to the 1 in 1000year scenario, thus it can be considered that the development is at a low risk of fluvial flooding.

Tidal

4.19. Tidal flooding occurs when a high tide and high winds combine to elevate sea levels. An area behind coastal flood defences can still flood if waves overtop the defences or break through them. Tidal flooding can also occur a long way from the coast by raising river levels. Water may overtop the river bank or river defences when tide levels are high.

4.20. The site is a significant distance from any tidal source and above the anticipated extreme tidal levels, even when considering the impacts of climate change.

4.21. The risk of flooding from tidal sources is considered to be low.

Canals

4.22. The Canal and River Trust (CRT) generally maintains canal levels using reservoirs, feeders, and boreholes and manages water levels by transferring it within the canal system.

4.23. According to CRT mapping there are no canals identified within 1km of the site[13].

4.24. The risk of flooding to this site from canals is considered to be low.

Pluvial

4.25. Pluvial flooding can occur during prolonged or intense storm events when the infiltration potential of soils, or the capacity of drainage infrastructure is overwhelmed leading to the accumulation of surface water and the generation of overland flow routes.

4.26. The new National Flood Risk Assessment (NaFRA2), published in Jan 2025, has updated the Risk of Flooding from Surface Water (RoFSW) products which show the chance of flooding from surface water to areas of land.

4.27. The RoFSW products are an assessment of where surface water flooding may occur when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead. It includes information about flooding extents and

[13] **https://canalrivertrust.org.uk/canals-and-rivers**

depths including the potential impact of climate change on flood risk, based on the latest UK Climate Projections (UKCP18).

4.28. Risk is displayed as one of three likelihood categories:

- High - greater than or equal to 1 in 30 (3.3%) chance of flooding in any year.
- Medium – Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance of flooding in any given year.
- Low – Less than 1 in 100 (1%) but greater than or equal to 1 in 1000 (0.1%) chance of flooding in any given year.

4.29. The new RoFSW depth mapping shows the annual chance of flooding (based on the three risk categories listed above) beyond a specific depth, for depths at the following intervals from 20cm to 120cm:

- 0.2m, 0.3m, 0.6m, 0.9m, 1.2m

4.30. As well as present day risk of flooding from surface water, climate change scenarios have been produced to indicate the predicted impacts of climate change on future flood risk. The climate change allowances are based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5. A near-term epoch (2040 – 2060 "2050s" epoch) and central allowances are being used initially, to support short and medium-term decisions informed by the highest flood likelihood projections.

RoFSW Present Day Scenario

4.31. The EA Online 'Flood Risk from Surface Water' map (Jan 2025) indicates that the site and proposed dwelling footprint is with the 'High' to 'Low' risk areas, with c.70% of the footprint outside the flood risk areas (Figure 7).

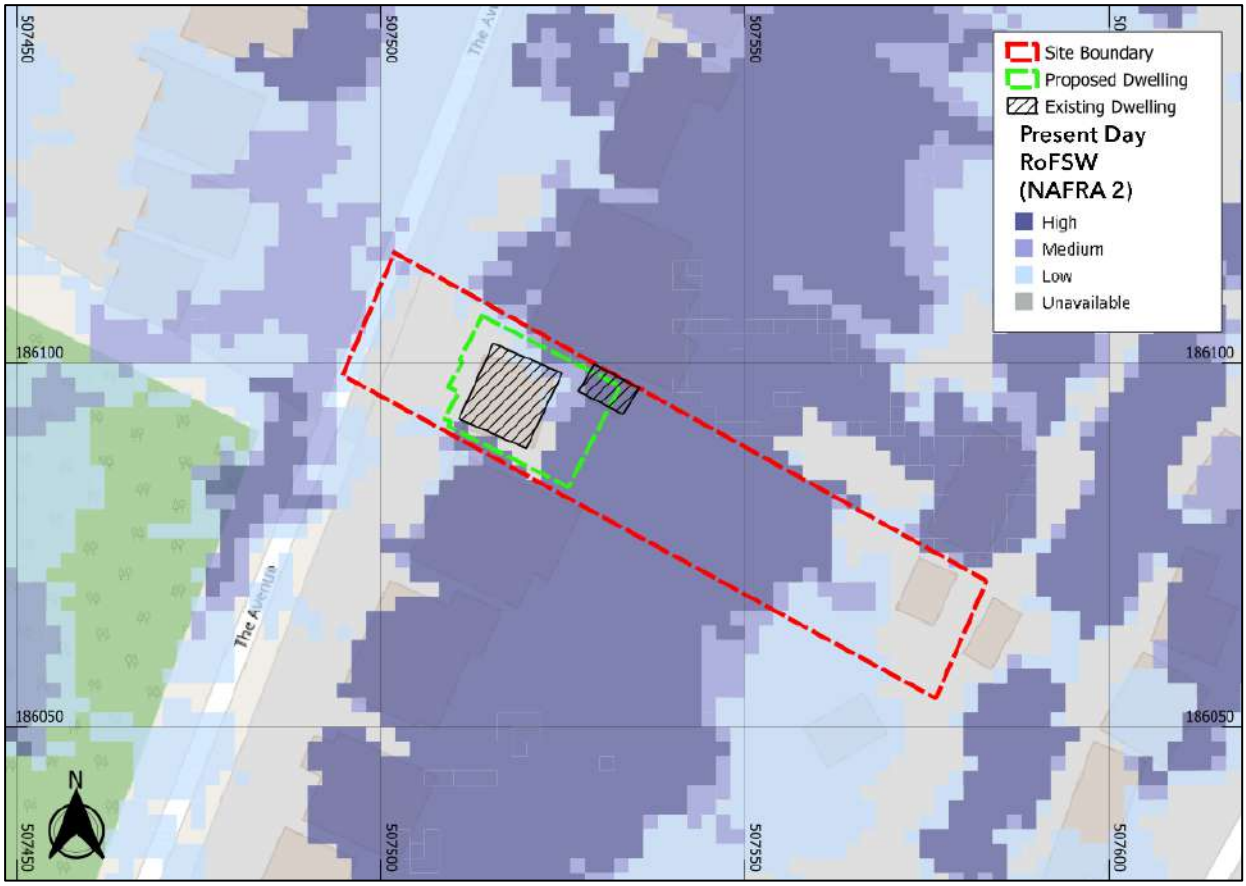

Figure 7: EA Present Day Surface Water Flood Risk Mapping (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.)

RoFSW Present Day Likelihood of Depths Exceeding 0.2m

4.32. Analysis of the present day RoFSW flood depth map for likelihood of flood depths exceeding 0.2m shows the proposed dwelling has a 'High' to 'Low' likelihood of depths exceeding 0.2m along its eastern elevation. With c.80% of the footprint outside the flood risk areas (Figure 8).

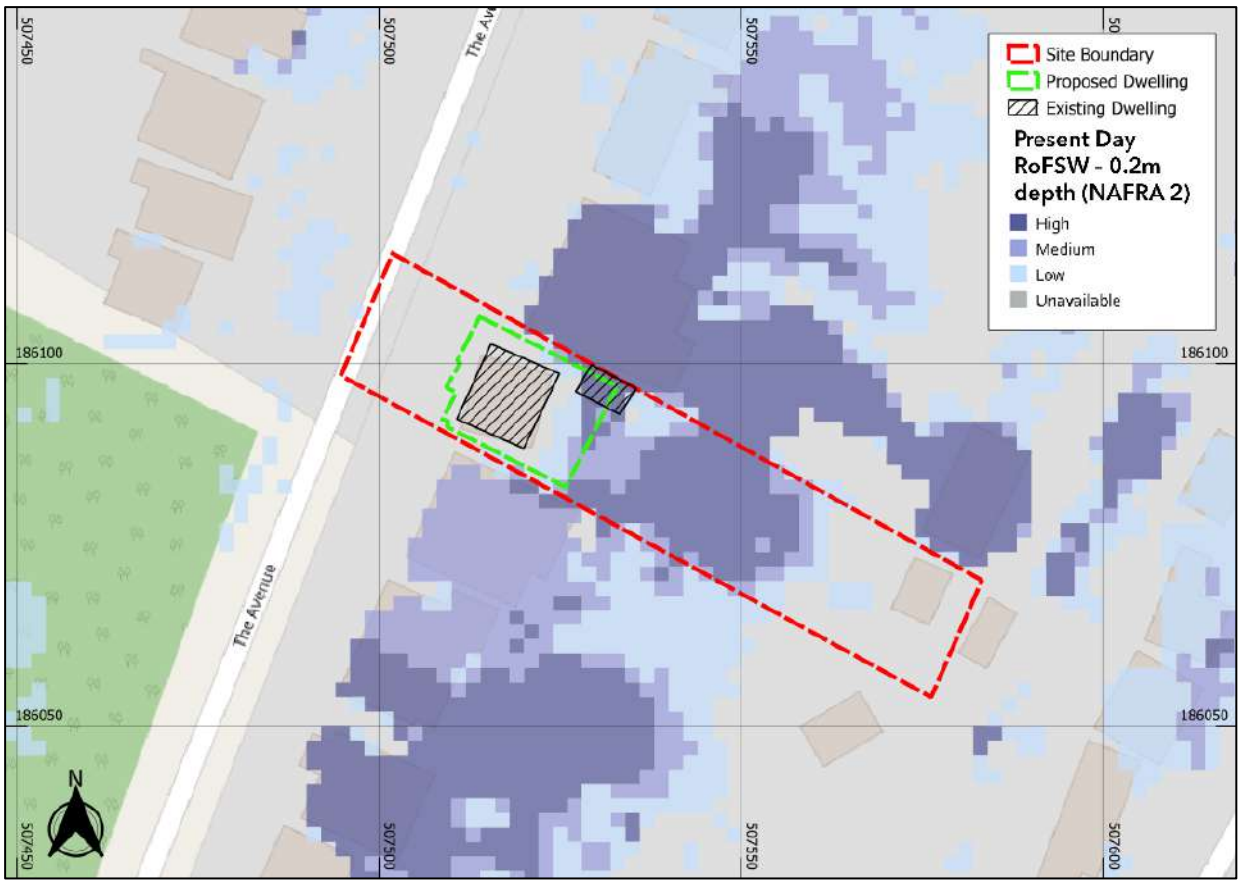

Figure 8: RoFSW Present Day Likelihood of Depths Exceeding 0.2m (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.)

RoFSW Present Day Likelihood of Depths Exceeding 0.3m

4.33. The present day RoFSW flood depth map for likelihood of flood depths exceeding 0.3m shows the eastern side of the proposed dwelling footprint has a 'Low' likelihood of flood depths exceeding 0.3m (Figure 9). c.90% of the footprint outside the flood risk areas.

4.34. The rear garden areas east of the proposed dwelling has a 'Medium' to 'Low' likelihood of flood depths exceeding 0.3m.

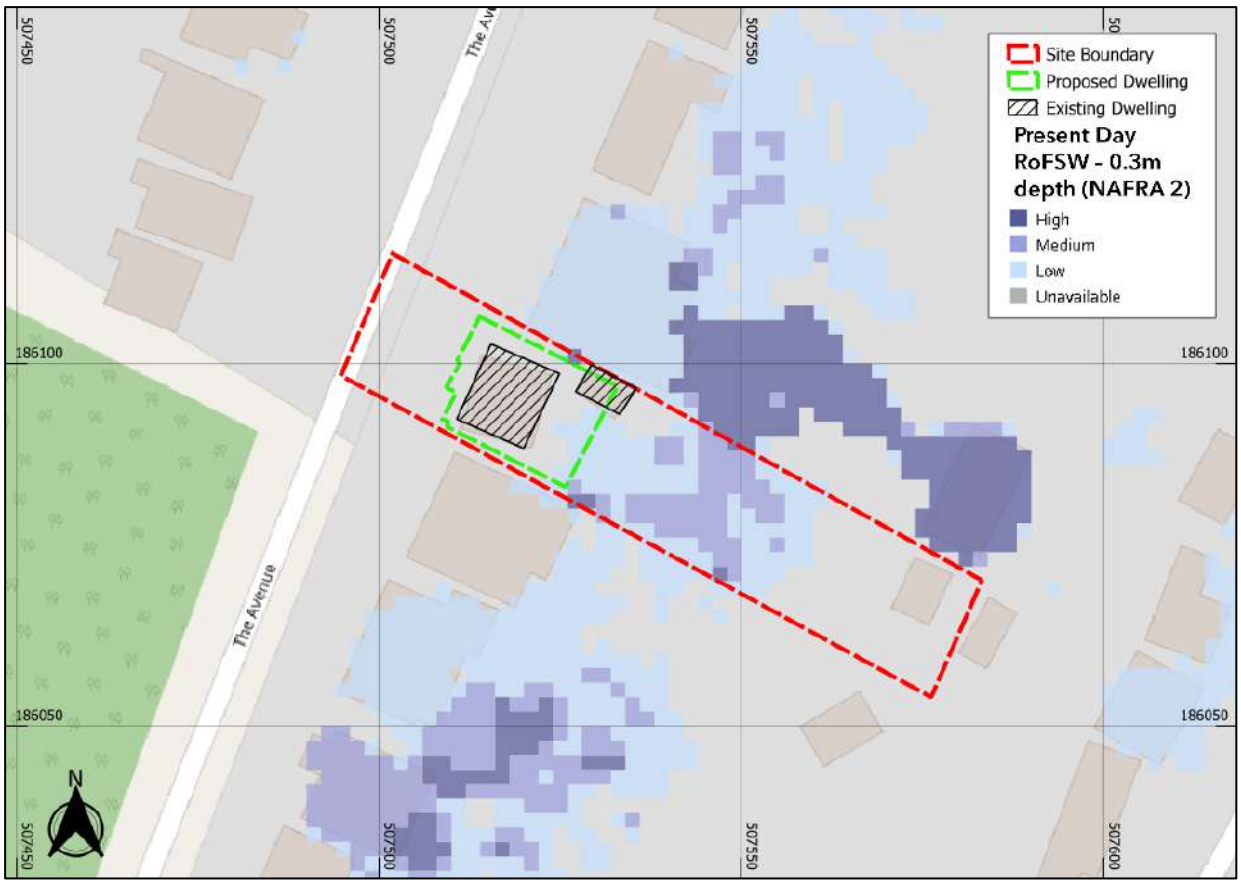

Figure 9: RoFSW Present Day Likelihood of Depths Exceeding 0.3m (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.)

RoFSW Present Day Likelihood of Depths Exceeding 0.6m

4.35. Analysis of the present day RoFSW flood depth map for likelihood of flood depths exceeding 0.6m shows less none of the site is at risk of flood depths exceeding 0.6m (Figure 10).

4.36. Flood depths have not observed on site for the other modelled intervals above 0.6m.

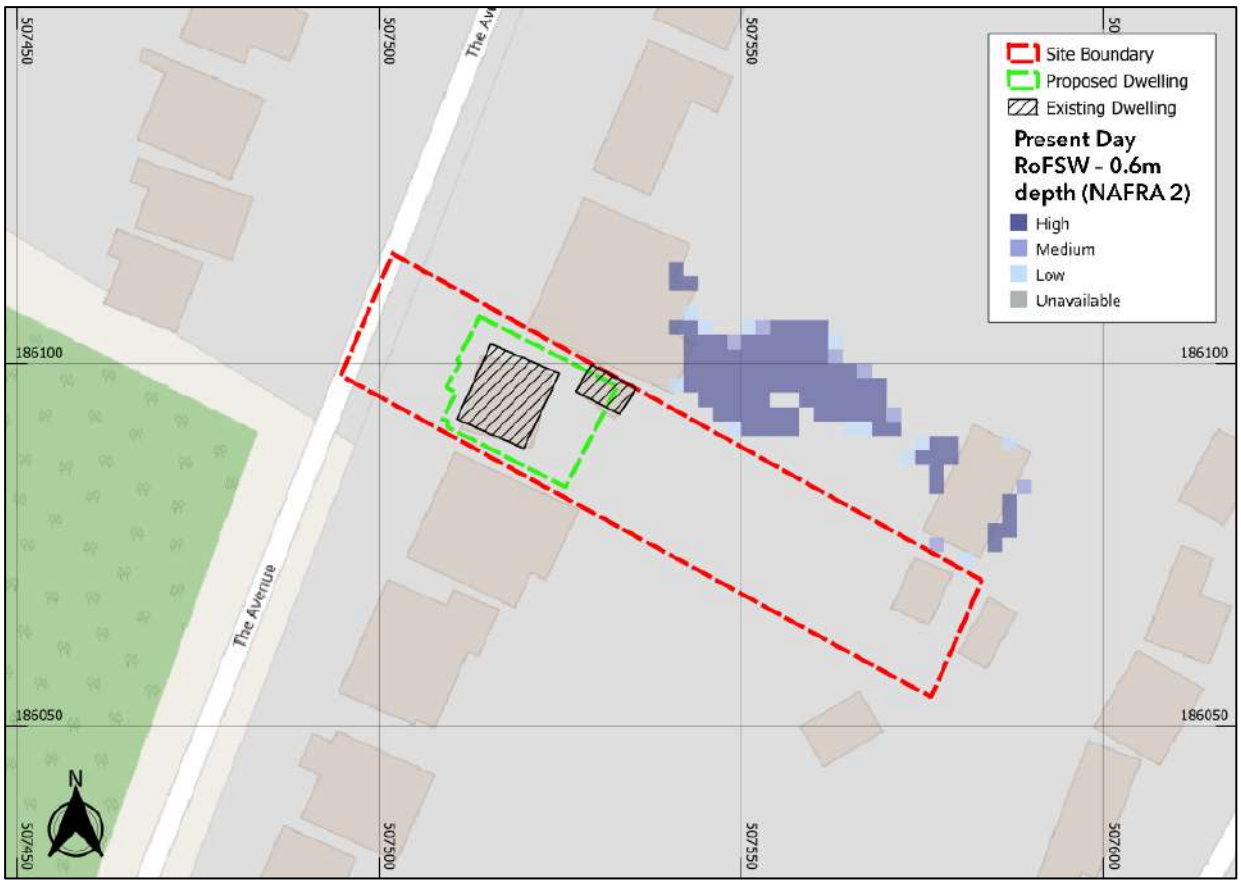

Figure 10: RoFSW Present Day Likelihood of Depths Exceeding 0.6m (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.)

RoFSW Climate Change Scenario

4.37. The 'Flood Risk from Surface Water – Climate Change' map indicates that entire site and proposed dwelling is located within a 'High' to 'low' risk of flooding area (Figure 11).

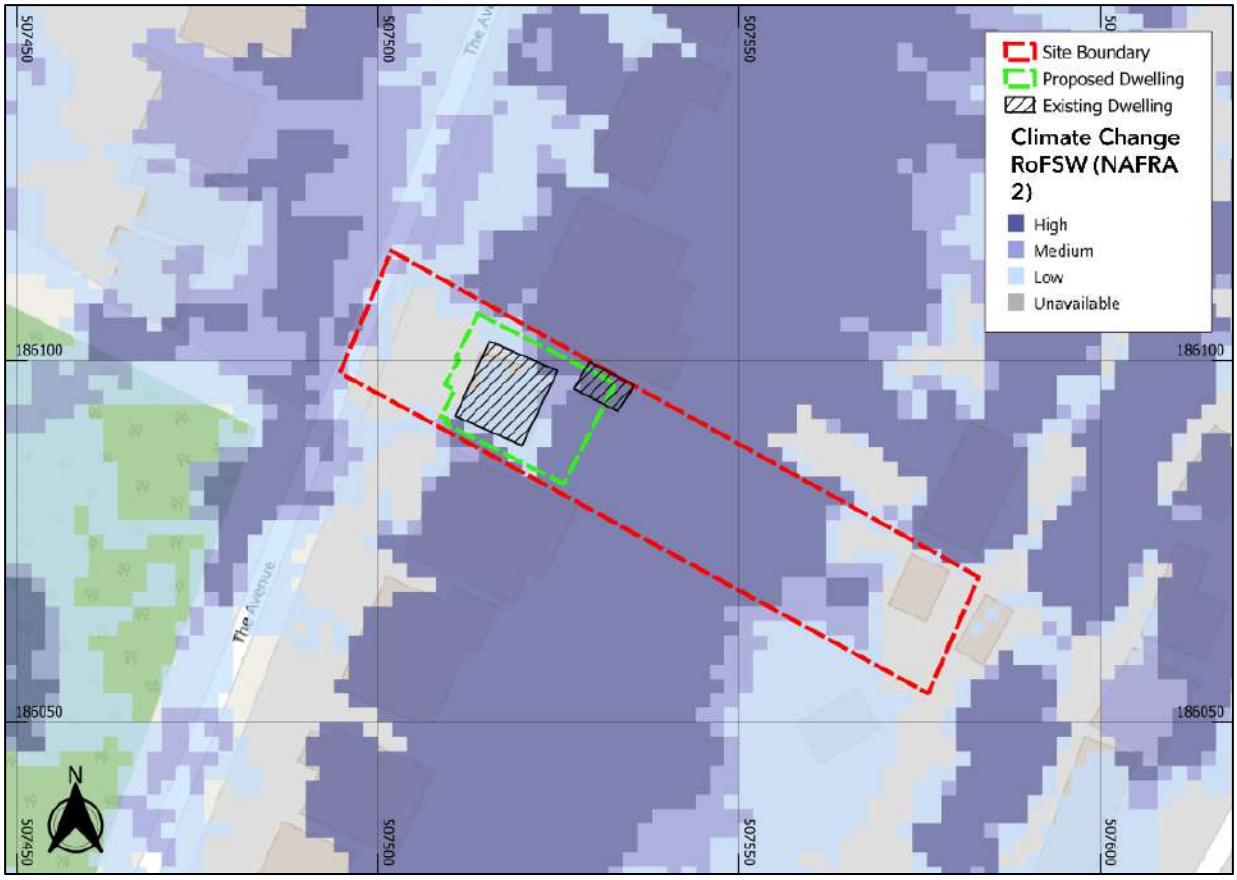

Figure 11: EA Climate Change Surface Water Flood Risk with Climate Change Mapping (Base map from Ordnance Survey, © Crown Copyright 2022. Contains public sector information licensed under the Open Government Licence v3.0)

RoFSW climate change Likelihood of Depths Exceeding 0.2m

4.38. Analysis of the climate change RoFSW flood depth mapping for likelihood of flood depths exceeding 0.2m shows the proposed dwelling has a 'High' to 'Low' likelihood of depths exceeding 0.2m along its eastern elevation and central areas of the rear garden (Figure 12).

4.39. It is also shown that c.70% of the footprint outside the flood risk areas.

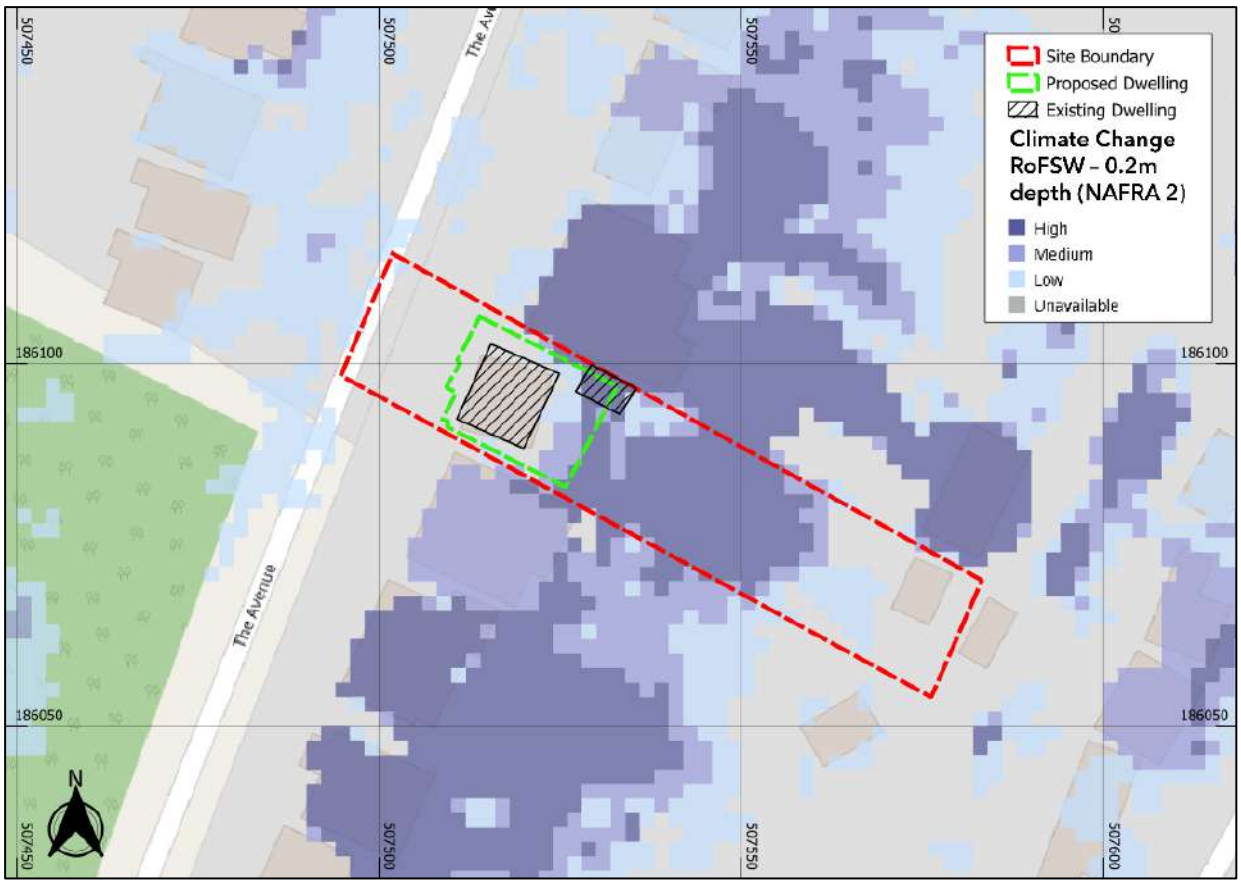

Figure 12: RoFSW climate change Likelihood of Depths Exceeding 0.2m (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.)

RoFSW climate change Likelihood of Depths Exceeding 0.3m

4.40. Analysis of the climate change RoFSW flood depth map for likelihood of flood depths exceeding 0.3m shows the proposed dwelling footprint has a 'Low' to 'Medium' likelihood of depths exceeding 0.3m (Figure 13). With c.80% of the footprint outside the flood risk areas

4.41. Areas of the rear garden are shown to have a 'High' likelihood of depths exceeding 0.3m.

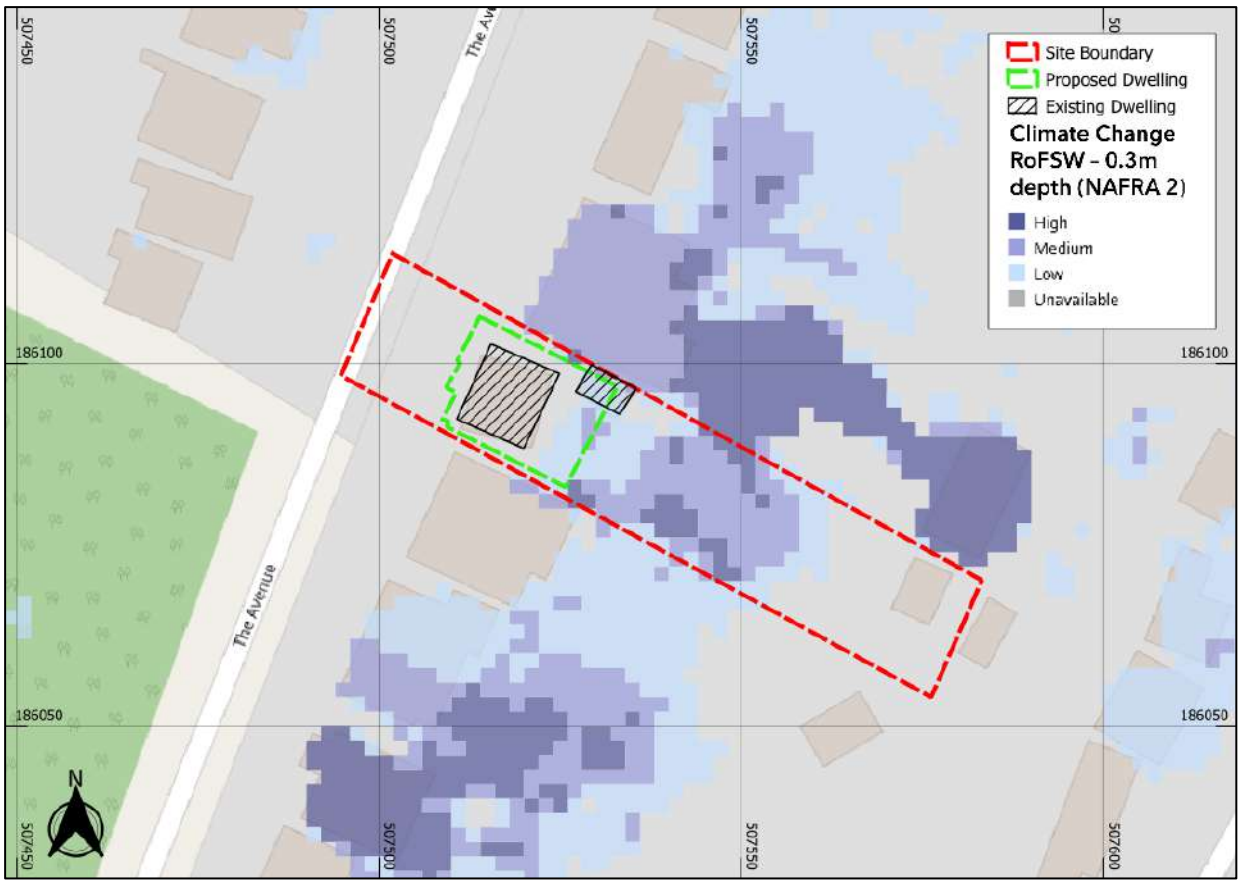

Figure 13: RoFSW climate change Likelihood of Depths Exceeding 0.3m (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.)

RoFSW climate change Likelihood of Depths Exceeding 0.6m

4.42. Analysis of the climate change RoFSW flood depth map for likelihood of flood depths exceeding 0.6m shows the entire site is unlikely to experience flood depths exceeding 0.6m (Figure 14).

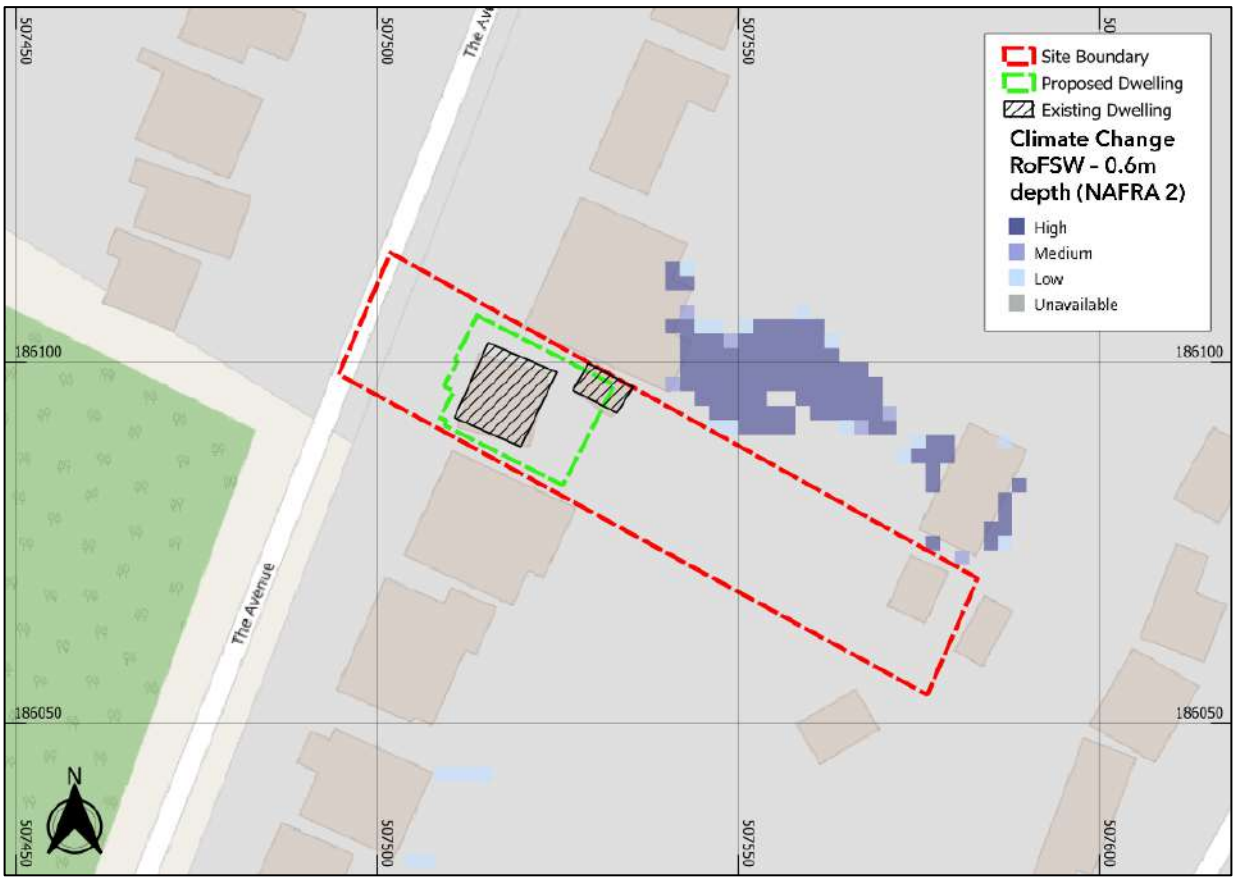

Figure 14: RoFSW Climate Change Likelihood of Depths Exceeding 0.6m (Base map from Ordnance Survey, © Crown Copyright 2022. Contains public sector information licensed under the Open Government Licence v3.0)

Pluvial Risk Summary

4.43. Based on RoFSW Climate Change mapping, the proposed new dwelling is shown to have a 'High' to 'Low' likelihood of depths over 0.2m and 'Medium' to 'Low' chance of depths over 0.3m.

4.44. Based on this it can be considered that the proposed new dwelling is at a moderate risk of pluvial flooding.

4.45. It recognised that within the West London SFRA, Floodplain Compensation is required when the proposed development could result in the displacement of pluvial flood waters. Calculations have been included within Section 5.

Reservoirs

4.46. Large waterbodies or reservoirs that have walls built above the surrounding ground level pose a risk of flooding. Walls could fail due to old age, accident, or because excess flood water has

been added to the reservoir. Although a breach is unlikely the consequences would be significant, leading to rapid inundation of the downstream floodplain.

4.47. According to the EA's Flood Risk from Reservoirs mapping (Figure 15) the site is shown to be at risk of flooding during a wet and dry day reservoir failure flood scenario.

4.48. It is estimated that if the George V FSA and Ruislip Lido reservoirs were to fail, it could result in the site being affected. See Long Term Flood Risk Mapping for more information[14].

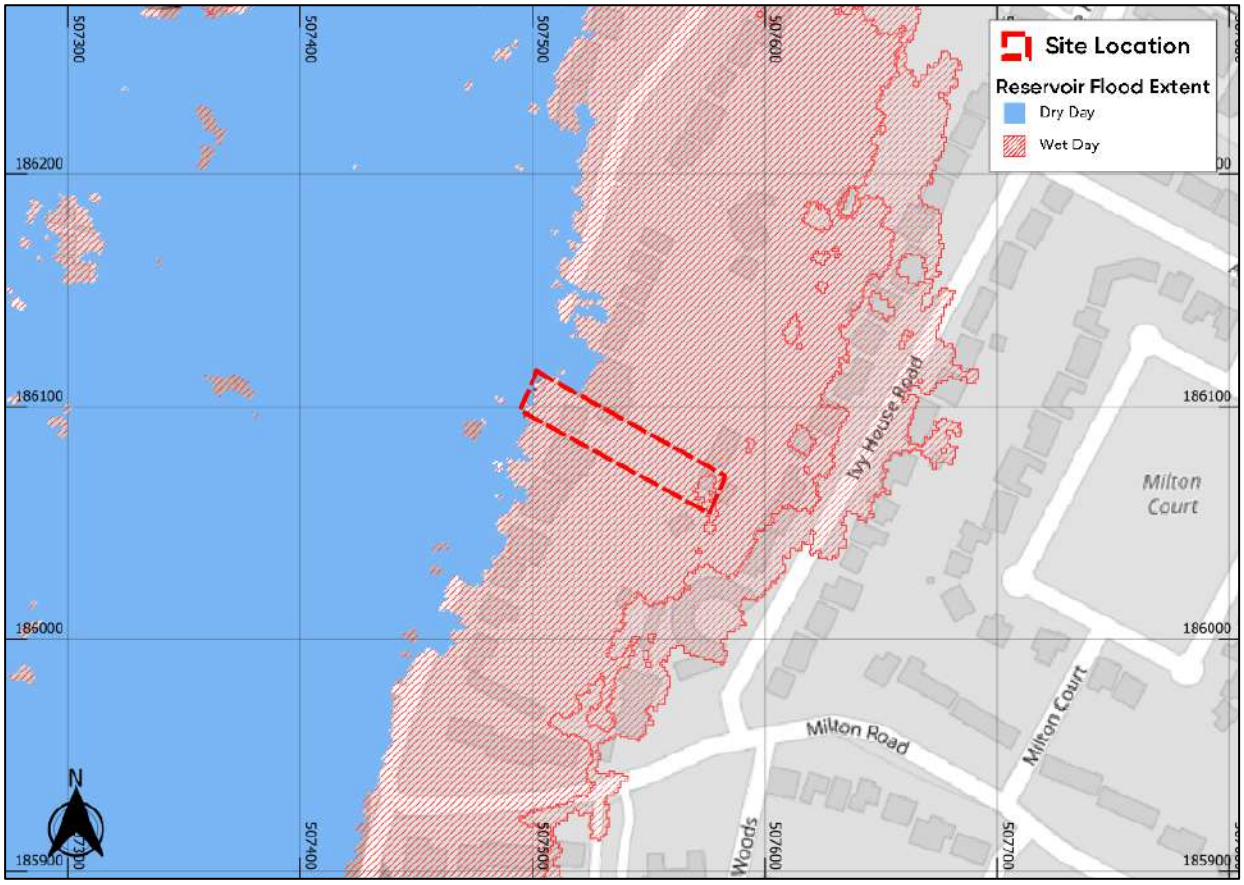

Figure 15: EA Reservoir Flood Risk Mapping (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). ©https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.0)

4.49. All large reservoirs must be inspected and supervised by reservoir panel engineers as detailed by the Reservoir Act 1975 in England and Wales. The EA are responsible to ensure that reservoirs

[14] **https://check-long-term-flood-risk.service.gov.uk/postcode**

are regularly inspected and essential safety work carried out. As reservoirs are highly managed the maximum flood extent provided in the EA Risk of Flooding from Reservoirs mapping is considered a worst-case scenario.

4.50. Therefore, given these criteria, the site is considered to be at a low risk of flooding from the result of reservoir failure

Groundwater

4.51. Groundwater flooding occurs in areas where underlying geology is permeable and water can rise within the strata sufficiently to breach the surface.

4.52. The British Geological Survey's (BGS) mapping shows no superficial deposits underlying the site. The bedrock underlying the site is Lambeth Group comprising Clay, Silt and Sand.

4.53. The Historical BGS borehole dataset records show no publicly available boreholes within 200m of the site.

4.54. The West London SFRA (2018) includes the EA's Areas Susceptible to Groundwater Flooding mapping. The site is within a 1km square grid of which less than 25% has been marked as being susceptible to groundwater flooding (Figure 19).

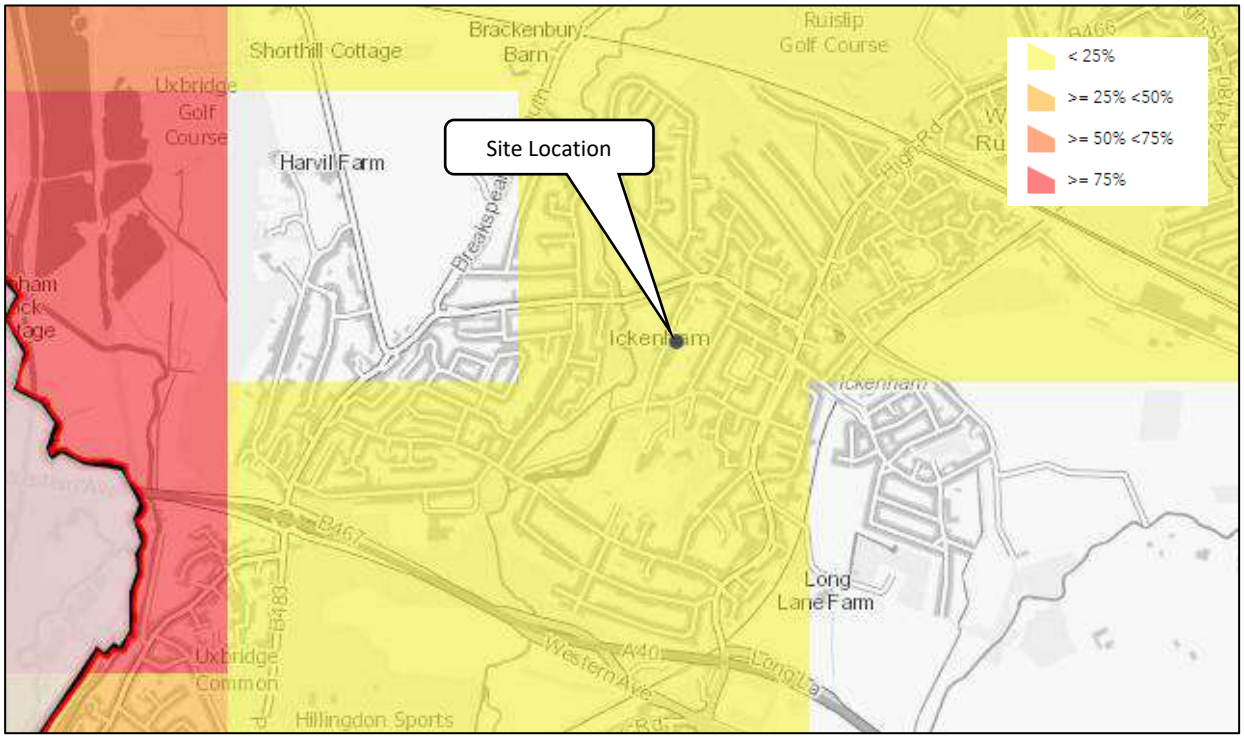

Figure 16: Areas Susceptible to Groundwater Flooding, (West London SFRA) (Site Location at Black Dot)

4.55. As the development proposals do not include any proposed subterrain levels the risk from groundwater to the development is considered to be low.

Sewers

4.56. Foul or surface water sewers can be a cause of flooding if the drainage network becomes overwhelmed, either by blockage or due to local development beyond the designed capabilities of the drainage system.

4.57. The SFRA provides mapping of historical sewer flood incident records kept by the local authority. The site is located within a postcode shown to have 41-60 incidents.

4.58. The location of these incidents is unknown in relation to the site.

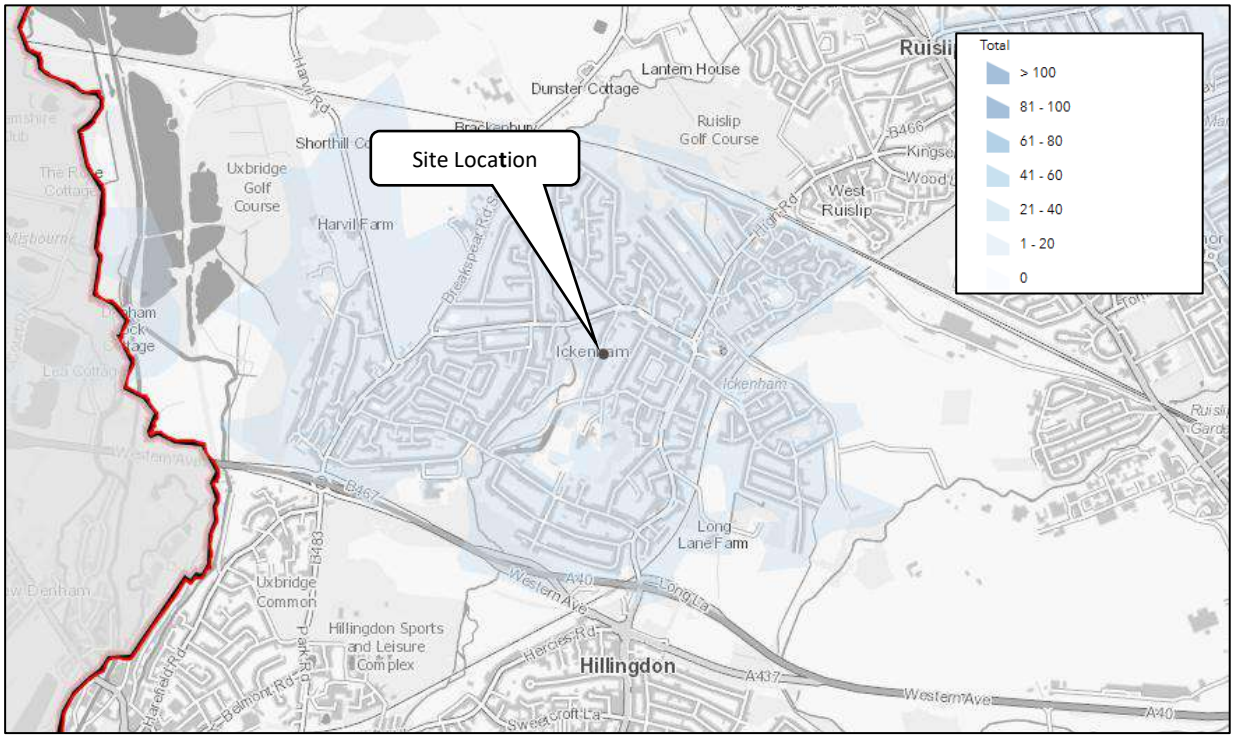

Figure 17: Sewer Flooding Records, (West London SFRA) (Site Location at Black Dot)

4.59. Based on Google StreetView, no manholes or highway drains can be seen along The Avenue road, thus all drainage much be below ground or not exist at this location. Even if drainage/sewer network was to be present below The Avenue road, the road is c.400mm below the proposed dwelling with ground levels sloping away from the new property, thus if a sewer flood event was to occur it would be expected that flows would travel away from the proposed dwelling and not ingress into the planned new dwelling.

4.60. The development is therefore considered to be at low risk of flooding from sewers.

5. Flood Risk Mitigation

Fluvial

5.1. The proposed replacement dwelling has been shown to be located outside all modelled fluvial scenarios (up to 1in1000year). Therefore, no direct mitigation is required.

5.2. To reduce any residual risk residents should sign up to EA Flood Warning area.

Pluvial

5.3. The dwelling has been considered to be at a moderate risk of pluvial flooding; therefore, the following measures should be incorporated within the building where appropriate to protect the building from residual flood risk, in accordance with the CLG Report, *Improving the Flood Performance of New Buildings - Flood Resilient Construction (2007)*[15] including measures such as the below:

- *Design proposals show Finished floor levels to be raised c.300mm-400mm above ground level. Detail design stage should design FFLs to be at least 300mm above ground level to reduce risk of surface water ingress.*
- *Raised wiring and power outlets at ground floor level with sockets to be at least 300mm above the as built level*
- *A SMART Airbrick® (or similar) is to be installed to ensure water ingress goes not occur into the buildings.*
- *Non-return valves should be installed on all new and existing drainage. Maintenance of these valves is important to ensure their continued effectiveness so should be maintained in line with manufactures recommendations.*
- *Any new plumbing insulation to be of closed cell design.*
- *Dampproof membranes should be included within the design of the buildings to minimise the passage of water through ground floors.*

[15] **https://assets.publishing.service.gov.uk/media/602d673ee90e0709e8d085d8/Improving_the_Flood_Resilience_of_Buildings_Through_Improved_Materials__Methods_and_Details_Technical_Report.pdf**

Impermeable polythene membranes should be at least 1200 gauge to minimise ripping. Effective methods of joining membrane sections are overlaps of 300mm and taping (mastic tape with an overlap of 50mm minimum). Care should be taken not to stretch the membrane to retain a waterproof layer.

- *Windows and patio doors are vulnerable to flood water and similar measures to those used for doors should be taken. Particular care should be taken to ensure adequate sealing of any PVC window/door sills to the fabric of the house. Of concern would be excessive water pressure on the glazing of patio doors. Double glazing conforming to the relevant standards would, in principle, adequately resist the pressures generated by flood waters.*

Increase to Flood Risk Elsewhere

5.4. Dwelling is shown to be outside modelled fluvial events therefore the development will not result in the displacement of fluvial flood waters and not increase flood risk elsewhere as a result of fluvial flooding.

5.5. Calculations have been given below to ensure that sufficient flood compensatory storage can be provided on site to ensure pluvial flood risk is not increased elsewhere.

5.6. Furthermore, it is also recommended that small scale SuDS are implemented to reduce run-off from the proposed dwelling. Such as rainwater planters and water butts at the base of downpipes. All SuDS features should be used were possible in external areas to provide betterment in terms of runoff rates and provide storage of rainwater in day-to-day rainfall events.

Flood Warnings and Access/Egress

5.7. During the design fluvial event (1in100+21% CC), dry access/egress is possible from the site north and south along The Avenue road (Figure 18). Furthermore, according to climate change RoFSW mapping, access/egress is achievable north and south along The Avenue road, areas at the exit of the site are shown to have a 'Low' likelihood of depths exceeding 0.2m, which is deemed to be low hazard and it can be considered to provide safe access/egress from the site (Figure 18).

5.8. If flood waters have accumulated along The Avenue road, safe refuge can be sought at the first floor level within the new dwelling, well above any modelled flood level.

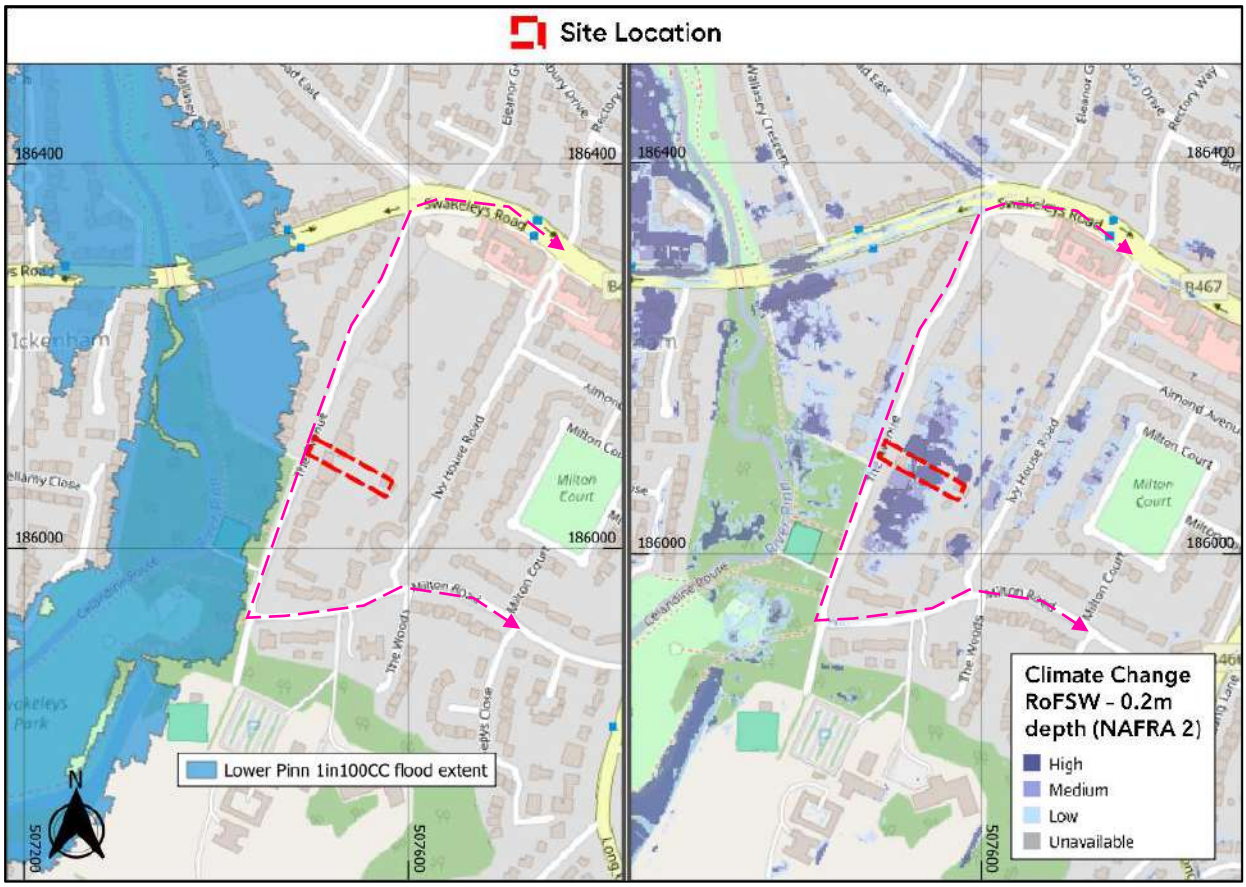

Figure 18: Possible evacuation routes shown in Pink Arrows (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.)

5.9. Residents should sign up to the EA Flood Warning Service for the 'River Pinn at Ickenham'. This warning area will provide warning if there is a risk of flooding within the area.

5.10. This service allows site residents of the dwelling to register an address, which is at risk of flooding, along with contact details so that in the event of a flood being forecast, the residents will be sent an alert directly to their chosen method of contact. Residents should sign up to this and make this service available to all site users where applicable.

5.11. The EA aim to provide a minimum of 1 to 2 hours of lead time for Flood Warnings in fluvial areas. The Flood Alert stage is used to warn of the possibility of flooding. It is issued earlier than a flood warning, to give advance notice of the possibility of flooding. The EA aims to provide

between 2 and 12 hours lead time between a Flood Alert being issued and possible flooding occurring.

5.12. As such it would be expected that should the service function as intended, a Flood Alert would be issued between 2 and 12 hours before flooding, and a Warning issued up to 6 hours in advance. This means that prior evacuation of the site before flooding should be achievable with adequate warning.

5.13. Flood warnings/alerts can be enforced at any time of the day or night. Signing up for this service provides residents some notice before a flood event. Flood alerts and warnings provide occupants with time to take necessary action, e.g. communication of the risk of flooding to other residents etc, evacuation from the dwelling or to a safe level, and removal of valuable items out of reach of flooding.

Other Sources

5.14. Flood risks from tidal, groundwater, reservoirs and canals are considered to be low, therefore additional mitigation is not a requirement.

Compensatory Flood Storage

5.15. The West London SFRA states the following with regards to Compensatory Flood Storage (CFS):

> *Where developments are proposed within Flood Zone 3a (surface water), flood plain compensation must account for predicted flood depths for the 1 in 30yr and 1 in 100yr RoFSW mapping or depths predicted by site specific modelling.*

5.16. The latest RoFSW mapping (2025) shows the likelihood of depths occurring within a certain area. The Climate Change 'Medium' risk scenarios are considered to be the 'design' event. Over the different depth intervals (0.2, 0.3, 0.6 etc.) the 'Medium' risk sicario will be used as the 'design' event for CFS. Given mapping shows likelihood up to a certain depth the worse case scenario is used, for example in the 0.2m interval a depth of 0.3m will be used to estimate volume of CFS required.

5.17. Due to the increase to the footprint from the existing dwelling to the proposed dwelling, it is expected that CFS is provided to account for this decrease in floodplain storage.

5.18. Figure 19 shows the area within the proposed footprint which is impacted in 'Medium' likelihood scenario.

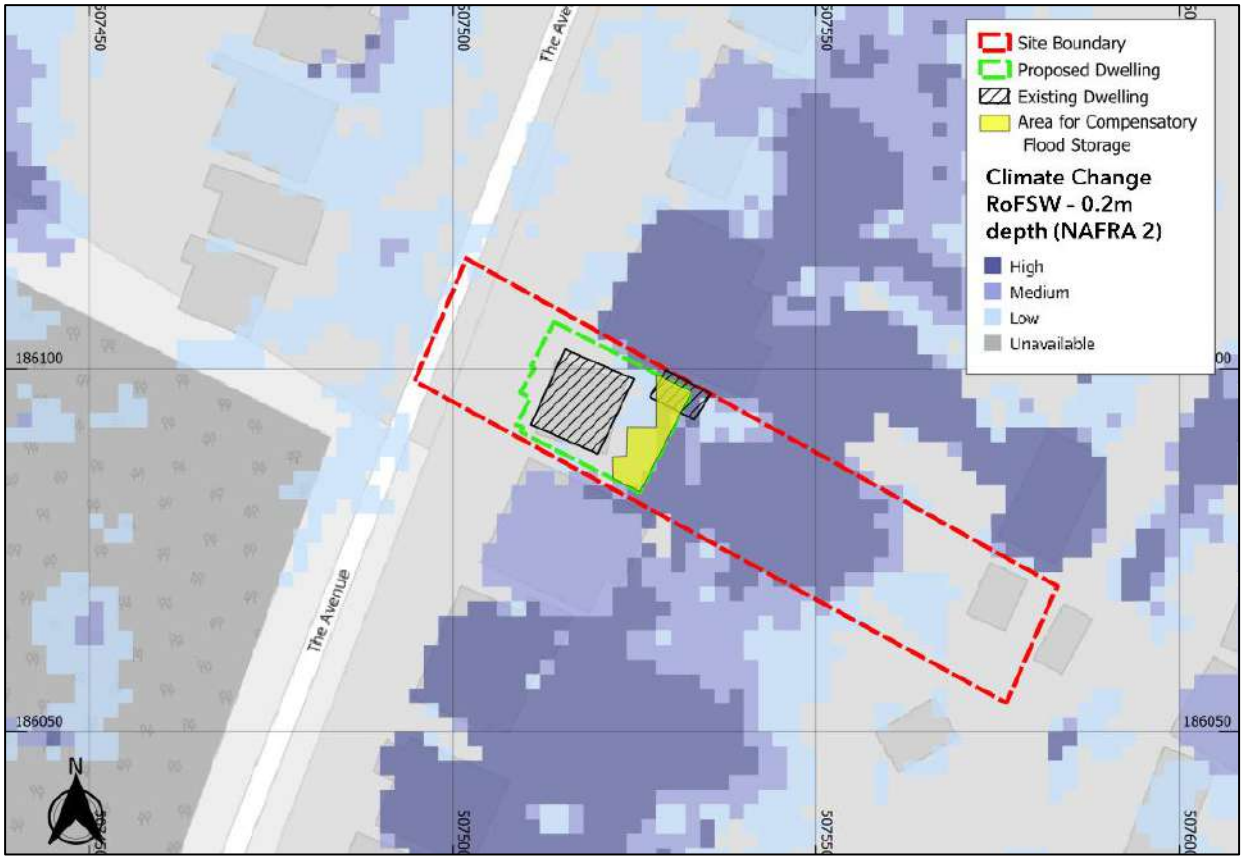

Figure 19: Area highlighting of increased footprint within Medium likelihood RoFSW climate change mapping (Base map and data from OpenStreetMap and OpenStreetMap Foundation (CC-BY-SA). © https://www.openstreetmap.org and contributors. Contains public sector information licensed under the Open Government Licence v3.)

5.19. The latest 'Medium' risk climate change RoFSW mapping shows areas in the proposed footprint impacted in the likelihood of depths up to 0.2m and up to 0.3m, thus both these scenarios will be considered in compensation estimates.

5.20. The proposed increase in built footprint totals 170m^2. Given flood depths in this area are equal 65m^2 within the 0.2m interval and 10m^2 within the 0.3m interval, this equates to 25.5m^3 of storage required to offset the increase in built footprint.

5.21. Compensatory flood storage should be provided on level for level and volume for volume basis by gradually lowering ground levels. The minimum volume of Compensatory Flood Storage (CFS) to be provided will equate to the volume of flood water displaced by the proposed development.

5.22. It is proposed to lower a small area in the rear garden to provide the necessary CFS, the compensation area is shown in pink on Figure 20. The compensation area totals 51m^2 and

therefore will be required to be lowered by 0.3m. This will provide an additional 25.5m³ of flood compensatory storage.

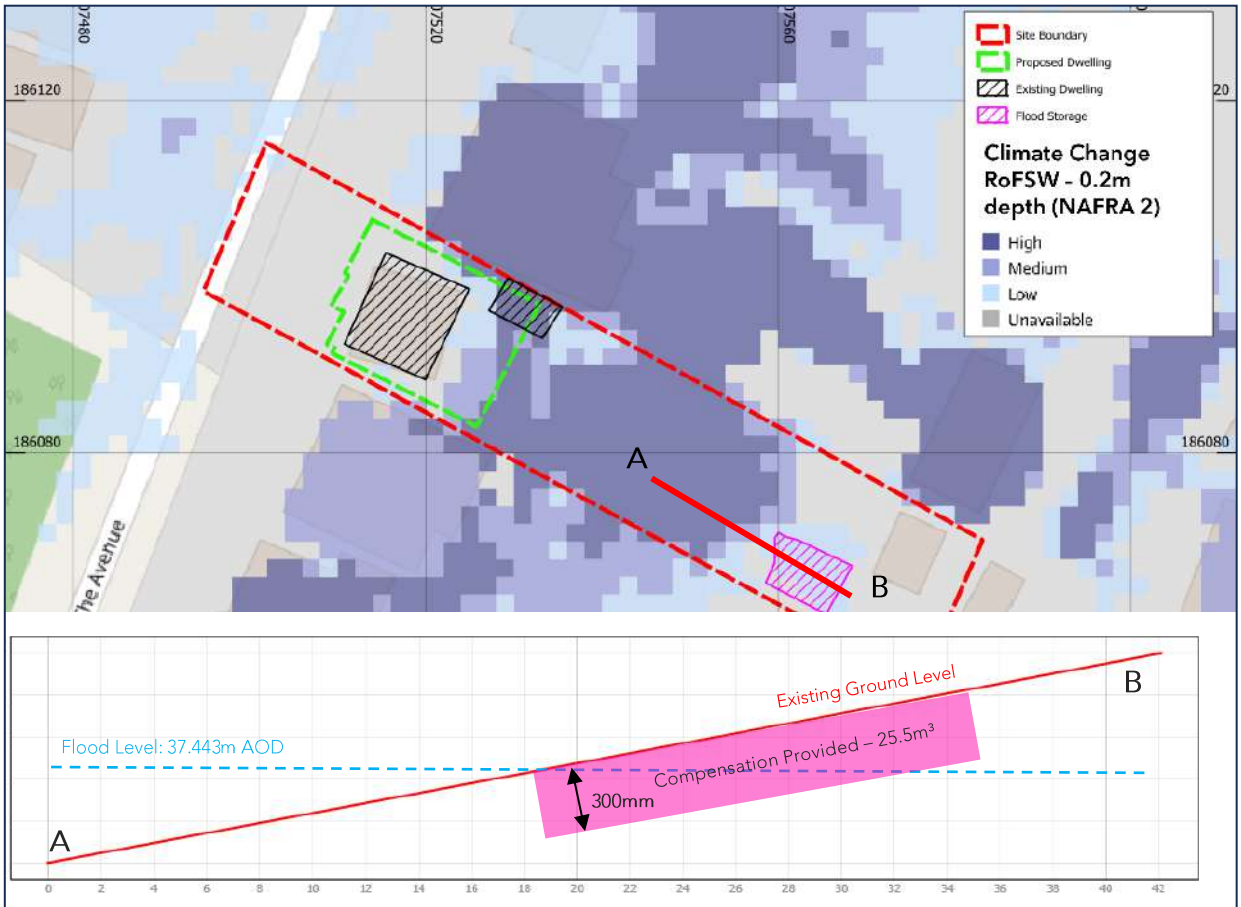

Figure 20: Proposed Compensation Area and Levels Cross Section

5.23. The information above demonstrates that sufficient flood compensatory storage can be provided on site to ensure flood risk is not increased elsewhere

6. Conclusions

6.1. This FRA has been undertaken with reference to the requirements of NPPF and Planning Practice Guidance with respect to the development at 29 The Avenue, Ickenham, Uxbridge, London Borough of Hillingdon, UB10 8NR. It has been written to support a planning application and prepared with due consideration to the nature of the proposed development to provide the appropriate level of detail.

6.2. An assessment of the risk of flooding from all sources has been undertaken and is summarised in the table below:

Source of Flooding	Flood Risk Summary
Fluvial	The site is located within the EAs Flood Map for Planning Flood Zone 2. Based on the Lower Pinn FAS (2024) modelling study, the proposed dwelling is shown to be located outside all modelled events up to the 1 in 1000year scenario. Thus, it can be considered that the development is at a low risk of fluvial flooding.
Pluvial	Based on RoFSW Climate Change mapping, the proposed new dwelling is shown to have a 'High' to 'Low' likelihood of depths over 0.2m and 'Medium' to 'Low' chance of depths over 0.3m. Based on this it can be considered that the proposed new dwelling is at a moderate risk of pluvial flooding.
Tidal Reservoirs Groundwater Sewers Canals	The site is considered to be at low risk from other sources.

6.3. The FRA supports the planning application and demonstrates that there is an acceptable level of flood risk to the site if the mitigation strategies recommended are implemented in the scheme. The development does not increase flood risk off site or to the wider area.

6.4. This Flood Risk Assessment should be submitted as part of the planning application to satisfy the requirements under NPPF.

Appendix A - Development Proposals

FOR CONSTRUCTION PURPOSES DO NOT SCALE FROM THIS DRAWING. ALL DIMENSIONS TO BE CHECKED ON SITE. ANY DISCREPANCIES MUST BE REPORTED TO THE ARCHITECT FOR VERIFICATION PRIOR TO COMMENCEMENT OF THE EFFECTED WORKS. IF IN DOUBT ASK. THIS DRAWING IS COPYRIGHT.

Rev No	Date	Revision note
P1	04th Aug '22	Preliminary issue.

BLOCK PLAN
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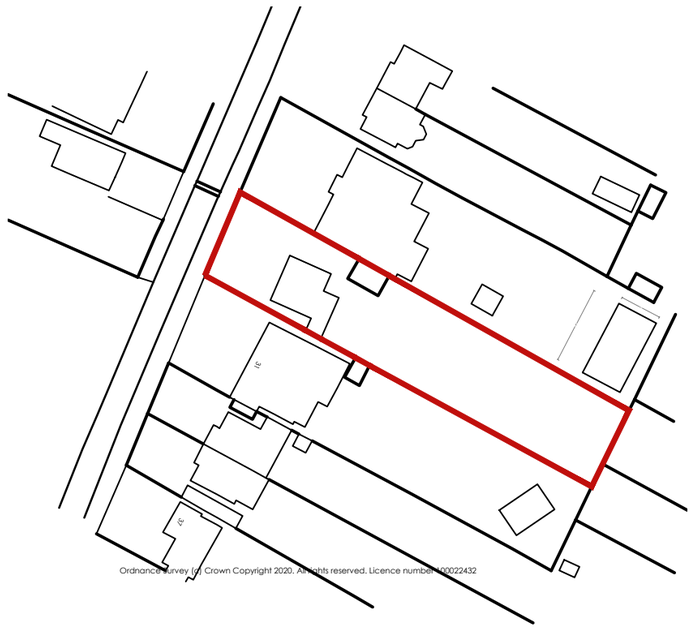

SITE LOCATION PLAN
SCALE 1:1250

N

SCALE - METRES
0 10 20 30 40 50 60 70
0 50 100 150 200 250
SCALE - FEET

JOB TITLE

THE AVENUE
ICKENHAM
UXBRIDGE UB10 8NR

DRG TITLE

SITE LOCATION & BLOCK PLANS

SCALE		DATE
1:200, 1250 @ A3		Aug '22
JOB NO.	DRG NO.	REV
11055	101	P1

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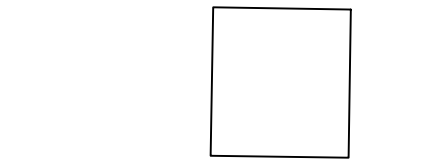
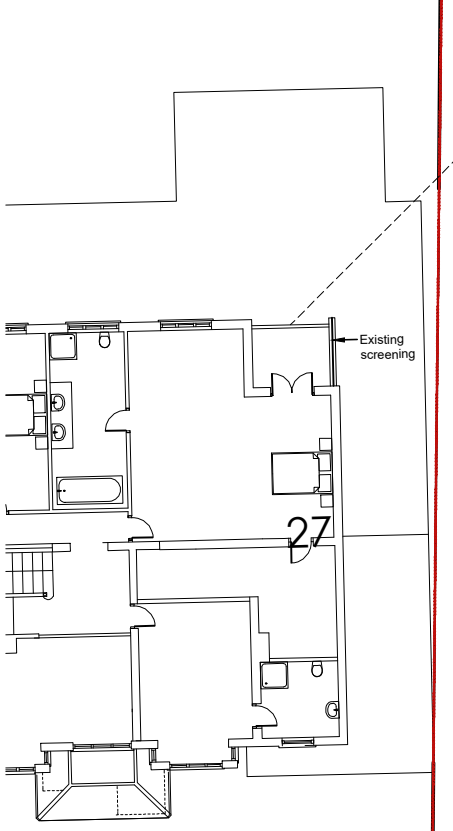
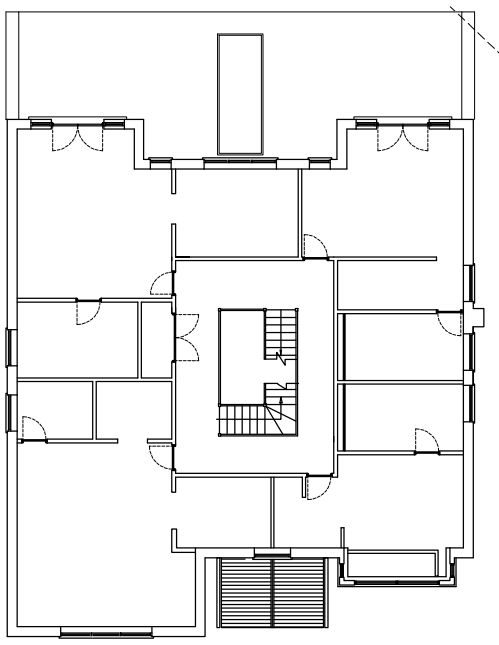
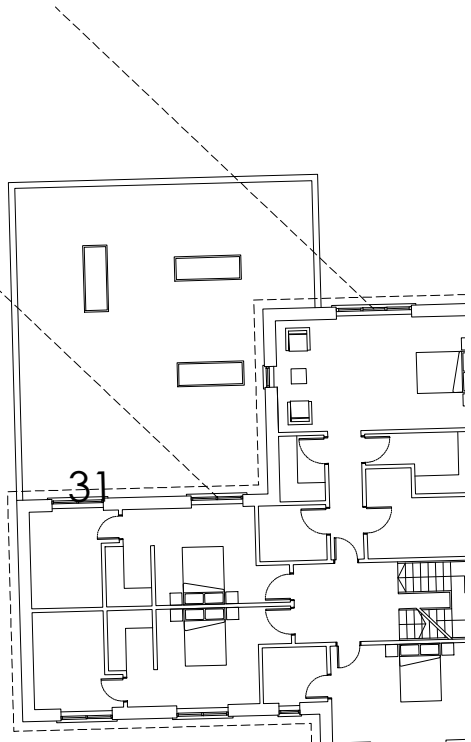
RevNo	Date	Revision note
P1	31st Oct '22	Preliminary issue.
P2	28th Nov '22	Proposal revised









SCALE - METRES

0 5 10 15 20

0 25 50

SCALE - FEET

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JOB TITLE
29 THE AVENUE
ICKENHAM
UXBRIDGE UB10 8NR

DRG TITLE
NEW DWELLING - PROPOSAL IMPACT AT FIRST FLOOR

SCALE @ A3	DATE
1: 250 @ A3	OCT 2021

JOB NO.	DRG NO.	REV
11055	137	P2

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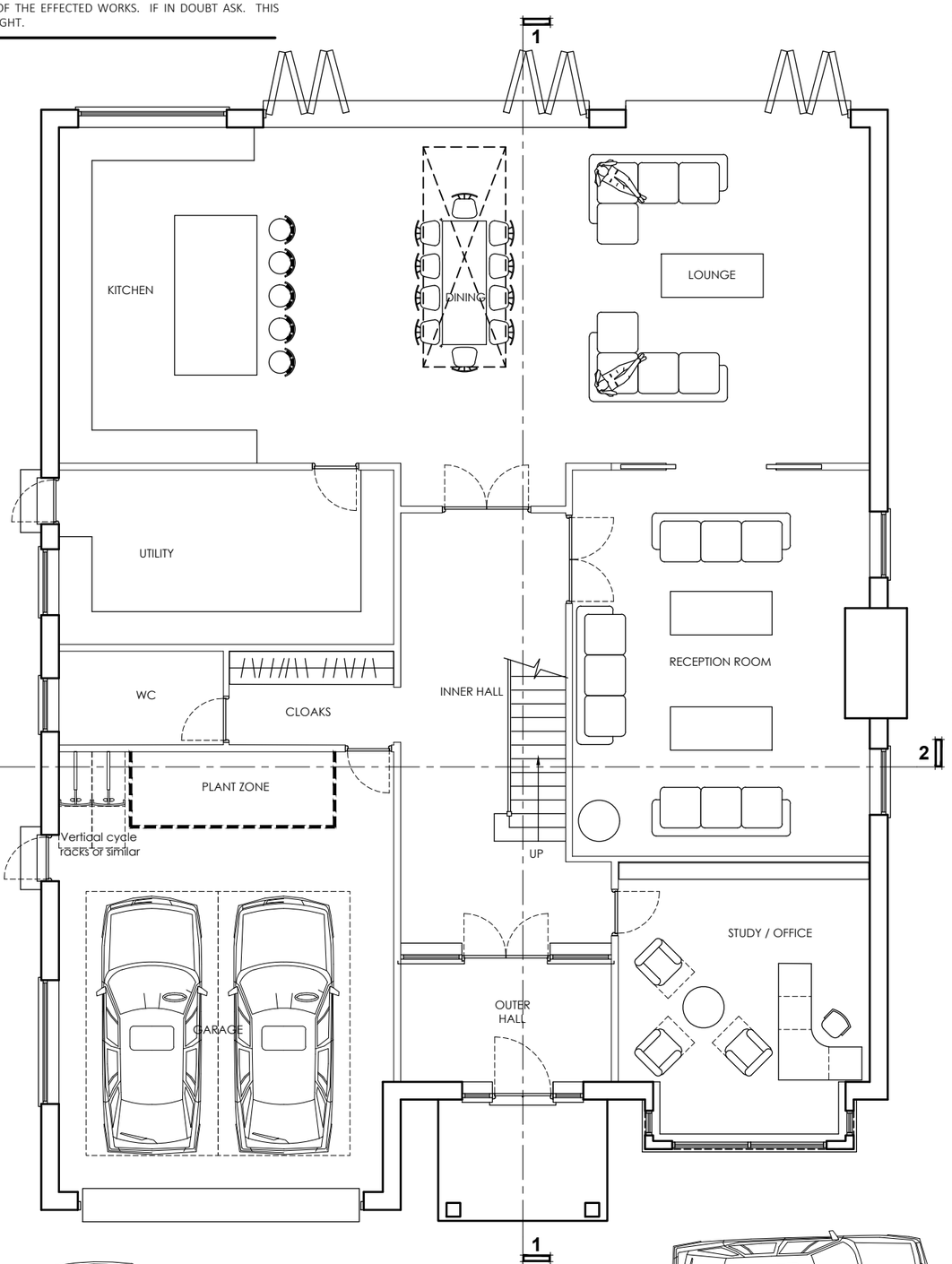
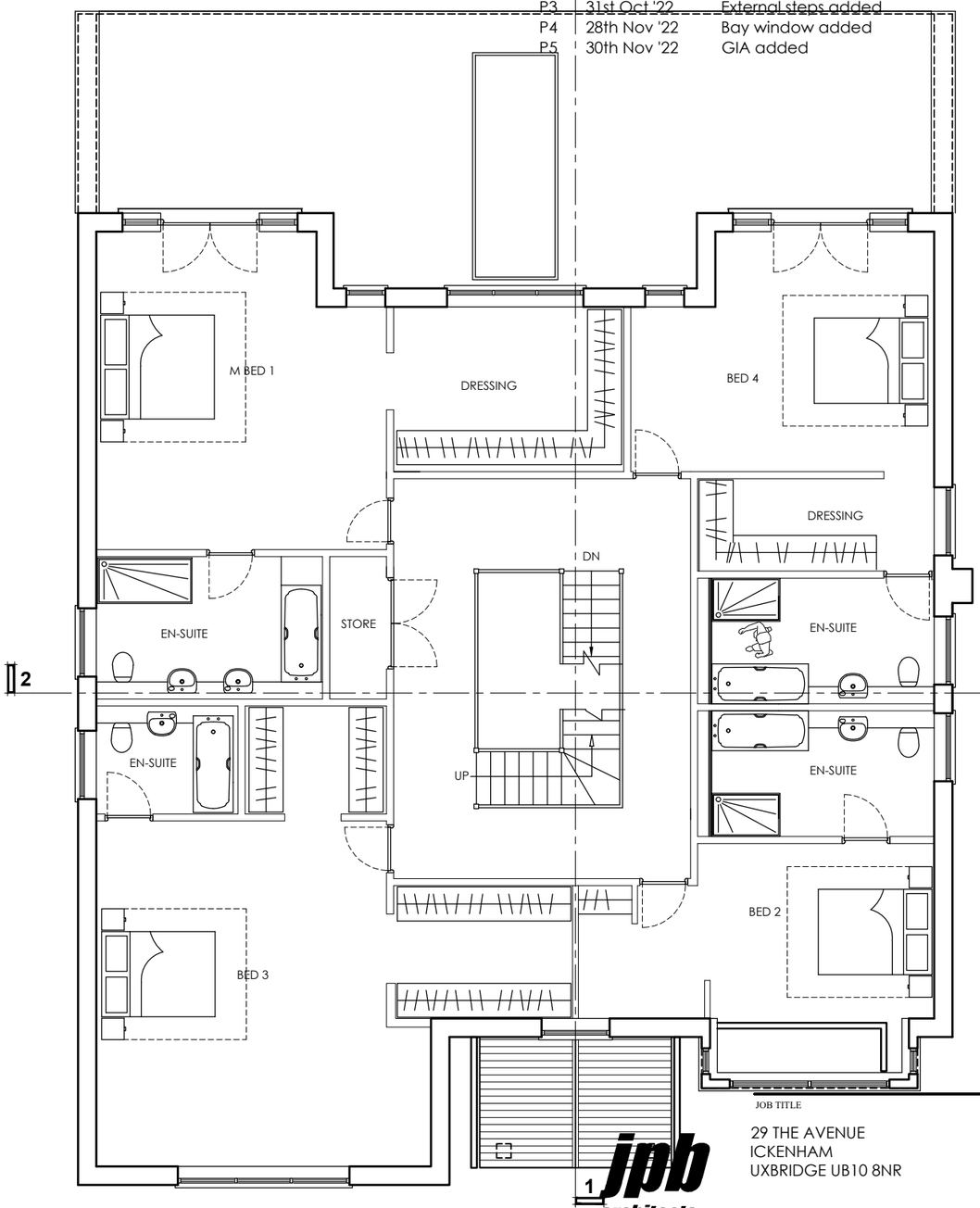
Rev No	Date	Revision note
P1	12th May '22	Preliminary issue.
P2	07th June '22	Section reference lines added
P3	31st Oct '22	External steps added
P4	28th Nov '22	Bay window added
P5	30th Nov '22	GIA added



GROUND FLOOR PLAN
GIA 269sq m



FIRST FLOOR PLAN
GIA 206sq m

SCALE - METRES
0 1 2 3 4 5 6
0 5 10 15 20
SCALE - FEET

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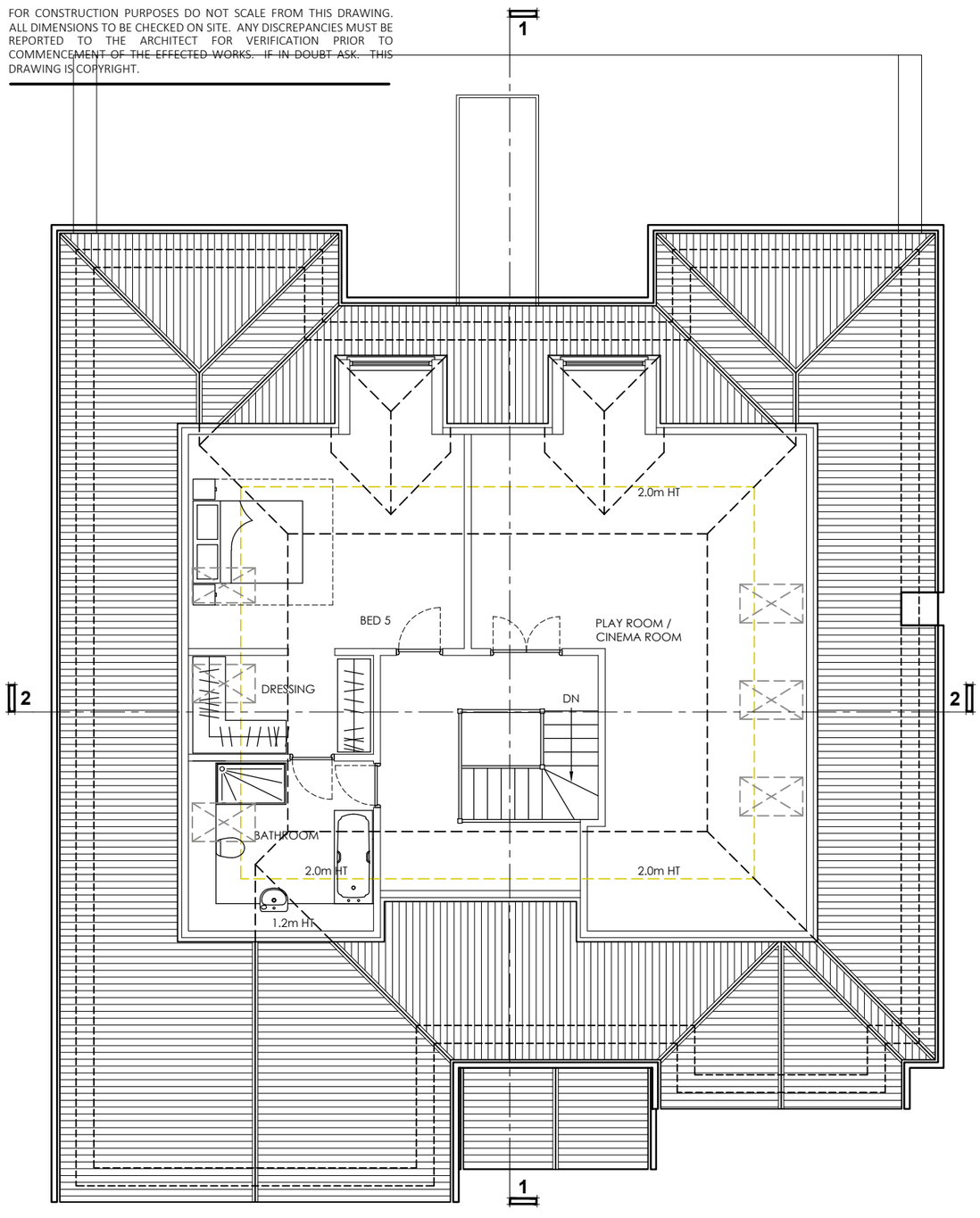
JOB TITLE
29 THE AVENUE
ICKENHAM
UXBRIDGE UB10 8NR

DRG TITLE
NEW DWELLING
GROUND FLOOR PLAN, FIRST FLOOR PLAN

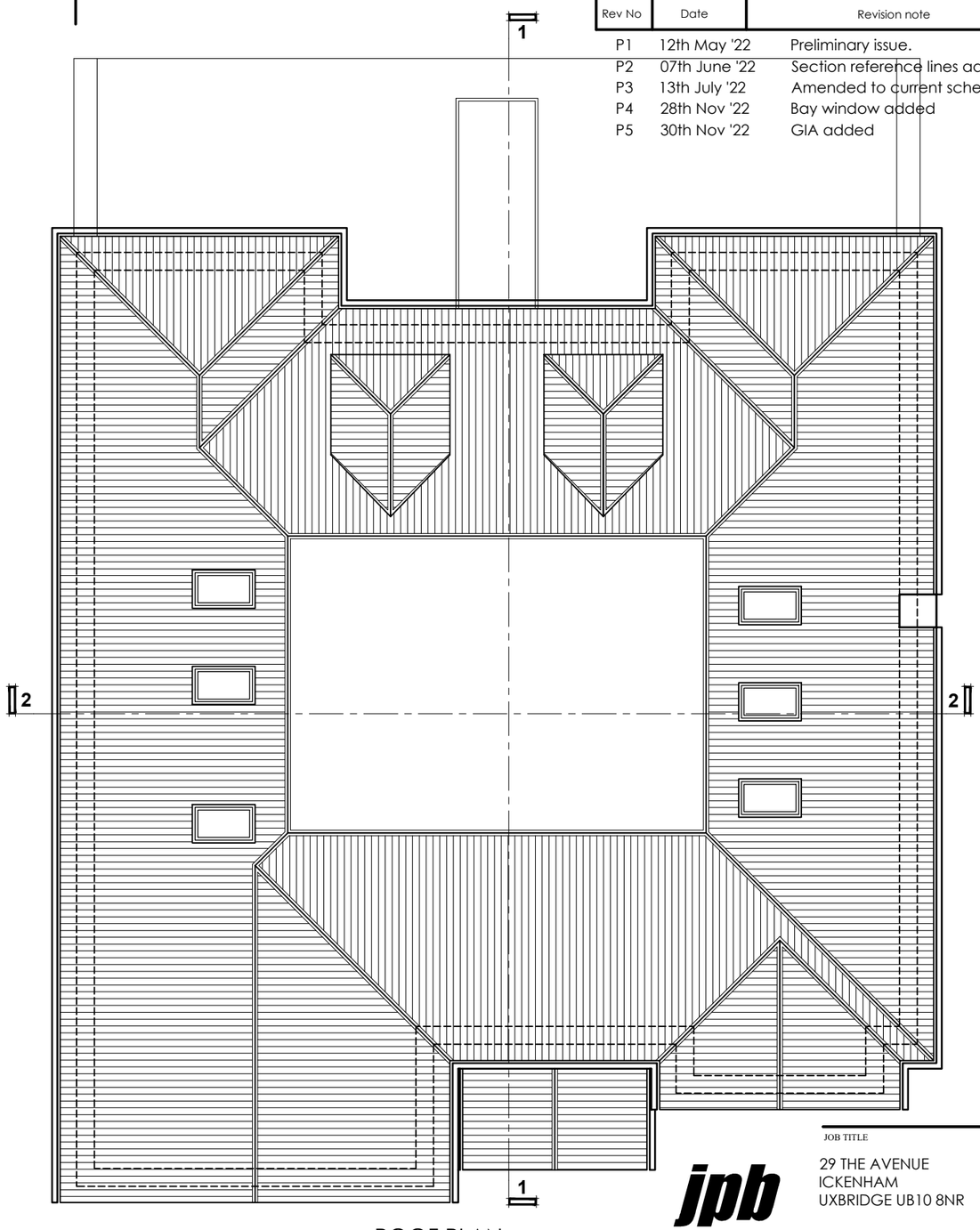
SCALE @ A3	DATE
1: 100 @ A3	OCT 2021

JOB NO.	DRG NO.	REV
11055	131	P5

Rev No	Date	Revision note
P1	12th May '22	Preliminary issue.
P2	07th June '22	Section reference lines added, layout revised
P3	13th July '22	Amended to current scheme proposal
P4	28th Nov '22	Bay window added
P5	30th Nov '22	GIA added



LOFT PLAN
GIA 103sq m



ROOF PLAN

SCALE - METRES
0 1 2 3 4 5 6
SCALE - FEET
0 5 10 15 20

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JOB TITLE

29 THE AVENUE
ICKENHAM
UXBRIDGE UB10 8NR

DRG TITLE

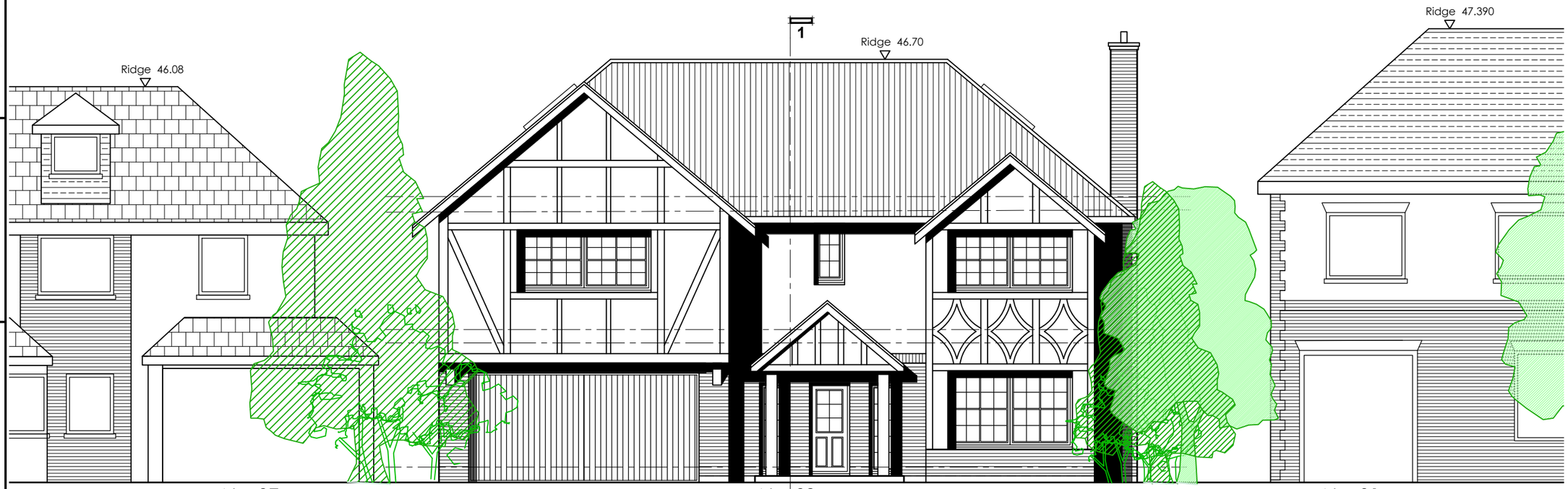
NEW DWELLING
LOFT PLAN, ROOF PLAN

SCALE @ A3	DATE
1: 100 @ A3	OCT 2021

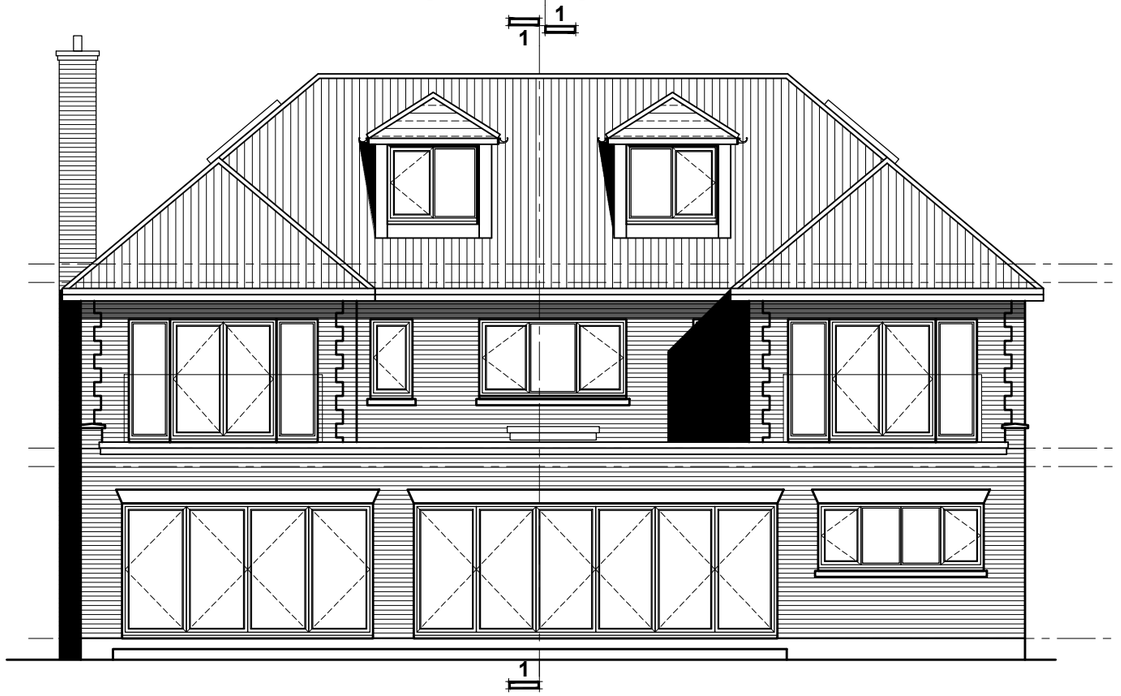
JOB NO.	DRG NO.	REV
11055	132	P5

FOR CONSTRUCTION PURPOSES DO NOT SCALE FROM THIS DRAWING. ALL DIMENSIONS TO BE CHECKED ON SITE. ANY DISCREPANCIES MUST BE REPORTED TO THE ARCHITECT FOR VERIFICATION PRIOR TO COMMENCEMENT OF THE EFFECTED WORKS. IF IN DOUBT ASK. THIS DRAWING IS COPYRIGHT.

Rev No	Date	Revision note
P3	13th July '22	Elevations revised
P4	31st Oct '22	Elevations revised
P5	28th Nov '22	Elevations revised
P6	21st July '23	Elevations revised



FRONT ELEVATION



REAR ELEVATION

SCALE - METRES

0 1 2 3 4 5 6

0 5 10 15 20

SCALE - FEET

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JOB TITLE

29 THE AVENUE
ICKENHAM
UXBRIDGE UB10 8NR

DRG TITLE

NEW DWELLING - PROPOSED FRONT AND REAR ELEVATIONS

SCALE @ A3	DATE
1: 100 @ A3	OCT 2021

JOB NO.	DRG NO.	REV
11055	133	P6

Rev No	Date	Revision note
P1	12th May '22	Preliminary issue.
P2	07th June '22	Section reference lines added
P3	13th July '22	Elevations revised
P4	31st Oct '22	Elevations revised
P5	28th Nov '22	Elevations revised

SIDE ELEVATION 2
FACING No 27

SIDE ELEVATION
FACING No 31

SCALE - METRES
0 1 2 3 4 5 6
0 5 10 15 20
SCALE - FEET

JOB TITLE

29 THE AVENUE
ICKENHAM
UXBRIDGE UB10 8NR

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DRG TITLE

NEW DWELLING - PROPOSED SIDE ELEVATIONS

SCALE @ A3		DATE
1: 100 @ A3		OCT 2021
JOB NO.	DRG NO.	REV
11055	134	P5

Appendix B - Topographic Survey

THE AVENUE
SLEEPING POLICEMAN
BT
FLOWER BED
ASPHALT
MH
DOUBLE GATES
No. 29
CHIMNEY
CONCRETE
GARAGE
PAVING
LAWN
CONIFER
OAK
ELEC BOX + WATER SUPPLY
ELEC OUTLET
ANNEXE
SLATE CHIPPINGS
SMALL CONIFERS
IC
G

UNCONTROLLED WHEN PRINTED

FOR REVIEW PURPOSES ONLY

NOTES

All dimensions are in metres.

LEGEND

cl	cover level
e	eaves
g	gully
ic	inspection cover
mh	manhole
r	ridge
t	top

REFERENCES

Rev	Revision	Drawn	Design	Appd	Date

Client

Project Title

29 THE AVENUE, ICKENHAM

INSTALCOM
Instalcom Ltd, Borehamwood Ind Park, Rowley Lane, Borehamwood, Herts, WD6 5PZ
Tel: 0208 731 4600 Fax: 0208 731 4601
www.instalcom.co.uk

O'CONNOR UTILITIES LTD.
Head Office, Unit 10, Sandfold Lane, Levenshulme, Manchester, M19 3BJ
Tel: 0161 248 3300 Fax: 0161 248 9933
www.oculltd.co.uk

Title: TOPOGRAPHIC SURVEY

Drawn	Designer	Checked	Date Approved
xx	xx	xx	xx/xx/xx

Drawing No: CCXXXXX_XXXX_XXXX_XXXXXX_000XXX

Status	Scale	Rev
INFORMATION	1:125 @A1	-

G:\EHV - Electrical\29 - ROBERT HOWES\Jobs\Ickenham\ickenham survey r1.dwg

Appendix C - Consultation

Jacob Caddick

From:	NET Enquiries <HNLenquiries@environment-agency.gov.uk> on behalf of NET Enquiries
Sent:	12 March 2025 14:43
To:	'lisa@aegaea.com'
Subject:	HNL400777/AS - Enquiry regarding 29 The Avenue, Ickenham, Uxbridge, London Borough of Hillingdon, UB10 8NR
Attachments:	HNL Guidance on using Product 6 data in a Flood Risk Assessment v5.pdf

Dear Lisa

Enquiry regarding Product 5 & 6 for FRA at 29 The Avenue, Ickenham, Uxbridge, London Borough of Hillingdon, UB10 8NR

Thank you for your enquiry which was received on 13 February 2025.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

Please note that we have recently changed our process for responding to modelled data requests, please read the information within this letter for further details.
Your request for a Product 4 falls under the exemption in provision 6(1)(a) and (b) of the Environmental Information Regulations 2004 (EIR) which states that
'……6.—(1) Where an applicant requests that the information be made available in a particular form or format, a public authority shall make it so available, unless—
(a) it is reasonable for it to make the information available in another form or format; or
(b) the information is already publicly available and easily accessible to the applicant in another form or format……'
On this occasion we are not providing the information in the Product 4 format for the following reasons:

- Complying with the preference would incur a significant cost, which the public authority [The Environment Agency] cannot pass on to the requester;
- Providing shapefiles used to create a Product 4 allows us to make the information available at a lower cost; and
- The impact on the available resources of the public authority [The Environment Agency], of supplying shapefiles used to create a Product 4, is therefore much less.

We are licensing the supplied data to you under the Environment Agency Conditional Licence. You must first check this supporting information, to determine if the conditions of use are suitable for your purposes. If the conditions for use are not suitable for your purposes, this information is not provided with a licence for use, and the data is provided for the right to read only.

Product 4 data is derived from the shapefiles supplied below and the following open data sources:

Flood Zone 3 https://data.gov.uk/dataset/flood-map-for-planning-rivers-and-sea-flood-zone-3

Flood Zone 2 https://data.gov.uk/dataset/flood-map-for-planning-rivers-and-sea-flood-zone-2

Historic Flood Map https://data.gov.uk/dataset/historic-flood-map1

Please note, that the Flood Map for Planning is available to view and export maps for your site at: https://flood-map-for-planning.service.gov.uk/

Please note that our historic flood event maps may not be comprehensive. We would therefore advise that you make further enquiries locally with specific reference to flooding at your location.

You should consider contacting the relevant Local Planning Authority and/or water/sewerage undertaker for the area.

Please be aware that flooding can come from different sources. Examples of these are:

- from rivers or the sea.
- surface water (i.e. rainwater flowing over or accumulating on the ground before it is able to enter rivers or the drainage system). Please contact the Lead Local Flood Authorities the Greater London Authority and London Borough of Hillingdon.
- overflowing or backing up of sewer or drainage systems which have been overwhelmed. Please contact the local Water Company.
- groundwater rising up from underground aquifers.

Currently the Environment Agency can only supply flood risk data relating to the chance of flooding from rivers or the sea.

Please find attached guidance on how to use this data.

The following information is not available under the Open Government Licence but we may be able to license it to you under the Environment Agency Conditional Licence:

Name	Products 5 and 6
Description	Lower Pinn FAS (2024)
Link to data	https://ea.sharefile.com/public/share/web-sb894cadb9e77445895cc6b50f8f286db
Licence	Environment Agency Conditional Licence
Conditions	1.0 You may use the Information for your internal or personal purposes and may only sublicense others to use it if you do so under a written licence which includes the terms of these conditions and the agreement and in particular may not allow any period of use longer than the period licensed to you. 2.0 Notwithstanding the fact that the standard wording of the Environment Agency Conditional Licence indicates that it is perpetual, this Licence has a limited duration of 5 years at the end of which it will terminate automatically without notice. 3.0 We have restricted use of the Information as a result of legal restrictions placed upon us to protect the rights or confidentialities of others. In this instance it is because of third party data. If you contact us in writing (this includes email) we will, as far as confidentiality rules allow, provide you with details including, if available, how you might seek permission from a third party to extend your use rights. 4.1 The Information may contain some data that we believe is within the definition of “personal data” under the Data Protection Act 1998 but we consider that we will not be in breach of the Act if we disclose it to you with

	conditions set out in this condition and the conditions above. This personal data comprises names of individuals or commentary relating to property that may be owned by an individual or commentary relating to the activities of an individual. 4.2 Under the Act a person who holds and uses or passes to others personal data is responsible for any compliance with the Act and so we have no option but to warn you that this means you have responsibility to check that you are compliant with the Act in respect of this personal data. 5.0 The location of public water supply abstraction sources must not be published to a resolution more detailed than 1km2. Information about the operation of flood assets should not be published. 6.1 Where we have supplied model data which may include model inputs or outputs you agree to supply to the Environment Agency copies of any assessments/studies and related outputs, modifications or derivatives created pursuant to the supply to you of the Information, all of which are hereinafter referred to as “the Data”. 6.2 You agree, in the public interest to grant to the Environment Agency a perpetual royalty free non-exclusive licence to use the Data or any part thereof for its internal purposes or to use it in any way as part of Environment Agency derivative products which it supplies free of charge to others such as incorporation into the Environment Agency's Open Data mapping products.
Information Warnings	Please be aware that model data is not raw, factual or measured but comprises of estimations or modelled results based on the data available to us. The flood zones on the Flood Map For Planning are outdated due to the pause on updates whilst we wait for the publication of NaFRA2 in 2025 (https://www.gov.uk/guidance/updates-to-national-flood-and-coastal-erosion-risk-information). Please note this is a new model for the Lower Pinn informing the interim flood zones (included in the ShareFile link) and these flood zones should be used over those currently available on the Flood Map for Planning. It is important to note that this model has been designed for catchment wide flood risk mapping, with an intended use on a strategic/appraisal/design scale. It was not created specifically for Flood Risk Assessments, or to produce flood levels for particular development sites within the catchment. If you are intending to use the model for planning purposes, you must review and update the model where necessary to ensure it is site specific, fit for your intended purpose, and to best practice standards. Please also note that any model changes will need to be reviewed by the Environment Agency as part of the Flood Risk Assessment submission. Further guidance around undertaking hydraulic modelling can be found here: River modelling: technical standards and assessment - GOV.UK (www.gov.uk).

However, you MUST first check the supporting information and the above link to determine if the conditions on use are suitable for your purposes. If they aren’t, this information is not provided with a licence for use, and the data is provided for read right only.

Here is the link to the climate change allowances:
https://www.gov.uk/government/publications/peak-river-flow-climate-change-allowances-by-management-catchment

Further details about the Environment Agency information supplied can be found on the GOV.UK website:

https://www.gov.uk/browse/environment-countryside/flooding-extreme-weather

If you have requested this information to help inform a development proposal, then you should note the information on GOV.UK on the use of Environment Agency Information for Flood Risk Assessments:

https://www.gov.uk/planning-applications-assessing-flood-risk
https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

Data Available Online

Many of our flood datasets are available online:

- **You can view and download flood risk maps from our website at:** http://watermaps.environment-agency.gov.uk/wiyby/wiyby.aspx?topic=floodmap#x=357683&y=355134&scale=2
- **Flood Map For Planning** (Flood Zone 2, Flood Zone 3 ,Flood Storage Areas, Flood Defences)
- Risk of Flooding from Rivers and Sea
- Historic Flood Map
- Assets and Defences
- Current Flood Warnings
- Open data

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Kind Regards,

Annette Smith
Customers and Engagement Officer
Environment Agency, Hertfordshire and North London
Alchemy, Bessemer Road, Welwyn Garden City, Hertfordshire, AL7 1HE
Direct email HNLenquiries@environment-agency.gov.uk

My usual working hours are 8.30am to 3pm, Mondays to Wednesdays

From: Lisa Slater <lisa@aegaea.com>
Sent: 13 February 2025 17:40
To: NET Enquiries <HNLenquiries@environment-agency.gov.uk>
Subject: RE: Data Request -29 The Avenue, Ickenham, Uxbridge, London Borough of Hillingdon, UB10 8NR (our ref 7363)

Dear Team,

Please can we request product 4-7 for the attached site

We require the following information:

1d and 2d modelled flood levels and flows including an allowance for climate change where available for the defended and undefended scenario
Modelled breach flood levels and flows including an allowance for climate change where available
Historic flood records
Flood defence and structure information including type, standard of protection, and crest heights.
Details of any relevant flood defence or management schemes, including future schemes.

Kind Regards,

Lisa Slater
Operation Manager
t: +44 (0) 1323 923956
e: lisa@aegaea.com

aegaea
water, civils and environment

Water, Civils and Environmental Consulting