FLOOD RISK ASSESSMENT

14 Pelham Street, London, SW7 2NG

Proposed Single Storey Extension

June 2019

REFERENCE: 47073
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APPENDIX A – Extension Drawings
1.0 Introduction

1.1 AAH Planning Consultants have been commissioned to undertake a Flood Risk Assessment of the development at 14 Pelham Street in Kensington, London. The purpose of this report is to accompany a planning application which specifically relates to a single storey extension of the existing property to increase the habitable ground floor space.

1.2 The National Planning Policy Framework (NPPF) identifies that Flood Risk Assessments should be conducted for developments proposed on the floodplain of rivers, sites potentially subject to coastal flooding, and for developments greater than 1 hectare or located within critical drainage areas. The site is in an area broadly classified by the Environment Agency (EA) as Flood Zone 1, within the administrative area of The Royal Borough of Kensington and Chelsea Council Local Planning Authority. Sewer infrastructure in the surrounding area is controlled by Thames Water.

1.3 In accordance with the NPPF the proposal would be classified as a “Minor development’ i.e. ‘Householder development: e.g. sheds, garages, games rooms etc. within the curtilage of the existing dwelling in addition to physical extensions to an existing dwelling itself”. This definition excludes any development that would create a separate dwelling within the curtilage of the existing dwelling e.g. subdivision of houses into flats. Because the proposal is minor development it need not undergo the NPPF Sequential and Exception Tests.

1.4 The NPPF states that “The EA provides ‘standing advice’ on flood risk” and this should be used to allow Local Authorities “to make decisions on low-risk applications where flood risk is an issue, without directly consulting the Agency for an individual response”. The EA’s ‘Householder and other minor extensions in Flood Zones 2 and 3’ flood risk standing advice states that for compliance with the NPPF, “Floor levels within the proposed development will be set no lower than existing levels AND flood proofing of the proposed development has been incorporated where appropriate” or that “Floor levels within the extension will be set 300mm above the known or modelled 1 in 100 annual probability river flood (1%) or 1 in 200 annual probability sea flood (0.5%) in any year”.

1.5 The Royal Borough of Kensington and Chelsea Strategic Flood Risk Assessment (SFRA) make it clear that development will not be permitted unless it is safe and does not increase flood risk elsewhere. Development should not constrain the natural function of the floodplain, either by impeding flow or reducing storage capacity.
1.6 The location of the extension within an existing domestic curtilage is such that it would not lie within nor disrupt defined flood flow routes due to the intermediate presence of existing buildings and their boundary treatments. No specialist building design measures are proposed in this regard.

2.0 Existing Site

2.1 The site subject to planning consideration is to the rear of 14 Pelham Street in Kensington. The property is located adjacent to South Kensington tube station with Cromwell Road 220m to the north and Fulham Road 250m to the south. The River Thames is 1.3km to the south. The property is a 5-storey, red-brick terrace accessed from Pelham Street to the north. At the rear of the property is a private, predominantly gardened curtilage which contains a several well-established trees.

2.2 Currently, the lower ground floor level leads out into the garden to the rear of the property and the ground floor level is accessed from the front of the property. The ground floor / access level to the front of the property is approximately 500mm above the ground level to the front of the property.

3.0 Development Proposal

3.1 The proposed development would see two small, single-storey adjacent extensions constructed to form a new continuous study room. One section of the extension will infill an existing corner of the building which is currently an ‘L’ shape. This part of the extension will only provide new floor space on the lower ground flood level (approximately 1.29m x 1.94m) but will provide access to the basement and ground floor levels via a new staircase. As such, this part of the extension will extend up to the same ceiling height as the ground floor level to allow uninhibited conveyance between the two floors. The second part of the extension, also single storey, (approximately 2.05m wide and 1.7m deep) will be joined to the southern face of the property on the eastern half of the rear wall. This will connect directly to the other part of the extension and will house a small study area. The western, set-back part of the extension will have access via an external door to the garden.

3.2 The floor level of the extension will match the existing lower ground floor level so there is no change in flood risk to the existing property. The extension will be clad externally in white painted timber and large sections of double glazing with materials sympathetic to those already in use in the adjacent buildings.
4.0 Fluvial/Tidal Flooding

4.1 The Environment Agency’s flood map for planning divides England and Wales into areas of Flood Zone 1, 2 and 3 which have a low, medium and high risk of flooding by main rivers and the sea. The property is partially located in Flood Zone 1 as published by the flood map for planning with this area at risk of fluvial (non-tidal) flooding with an annual exceedance probability (AEP) of less than 0.1%.

4.2 The main cited risk of fluvial flooding to the plot is from the River Thames which is located approximately 1.25km to the south. However, the closest flood risk zone associated with the River Thames (Very Low Risk) is approximately 985m from the property. Even this area which is at Very Low Risk from flooding is an area that benefits from flood defences, hence the area being at ‘very low risk’. The extent of the defences and the effect they have can be found in figure 1 below.

![Figure 1: EA Flood Map for planning](image-url)
4.3 As stated in The Royal Borough of Kensington and Chelsea’s SFRA (Strategic Flood Risk Assessment), “From a flood risk perspective all land uses are acceptable within Flood Zone 1. Flood risk is not considered to be a significant constraint to development”. Therefore, based on the given SFRA and the EA flood maps, there is not sufficient risk to require any changes be made to the design of the extension to 14 Pelham Street.

5.0 Pluvial Flood Risk

5.1 The EA flood map for surface water (FMfSW) divides England and Wales into areas with a very low, low, medium and high annual risk of surface water flooding:

- **Very low**: has a chance of flooding on average of less than 1 in 1000 (0.1%).
- **Low**: has a chance of flooding on average between 1 in 1000 (0.1%) - 1 in 100 (1%),
- **Medium**: has a chance of flooding on average between 1 in 100 (1%) - 1 in 30 (3.3%)
- **High**: has a chance of flooding on average greater than 1 in 30 (3.3%).

5.2 In general terms the surface water flood map alone should not be used to assess flood risk at individual site level but when used to consider catchment-wide surface water flows (which are also indicative of catchment-wide pluvial flow), this resource is a useful tool in determining generalised flood risk to an area.

5.3 The FMfSW shows that the footprint for development is at a ‘very low risk’ of surface water flooding. No areas adjacent to the development location are at any higher risk, as gardens to the rear of the row of terraces on Pelham Street are all indicated as very low risk areas. There are areas at higher risk of surface water flooding to the front of the properties on Pelham Street, however, there is no route for surface water to move from the front to the rear of the properties as they are terraced. As a result, the risk of surface water flooding to the front of the property does not affect the risk at the rear and therefore, does not affect the development location.

5.4 The FMfSW covering the proposal site is included in Figure 2 below.

5.5 Based on the development area being in an area at very low risk of surface water flooding there is no issue with the current extension design, as of the date of this report.
6.0 Groundwater Flood Risk

6.1 The British Geological Survey (BGS) maps show the site to be underlain by superficial deposits of Kempton Park Gravel Member (Sand and Gravel) over a bedrock of London Clay. The BGS hydrogeology maps show the London Clay bedrock as ‘Rocks with essentially no groundwater’.

6.2 The BGS has published numerous borehole records in reasonable proximity to the development location in all directions. Of the nearest boreholes examined, the highest recorded water level was 9ft down from the surface. In comparison to other borehole records this was a relatively high water level with the next highest level measured at 21ft below the surface, with many others not identifying any groundwater in the borehole’s extent. There is no conclusive groundwater data associated with these borehole records in regards to the possible current groundwater profile.

6.3 The presence of South Kensington tube station (on the London Underground network) is a feature to be taken into account when assessing potential groundwater flood risk to the development. The station and tunnels are situated at a much lower depth then the property and the ground level of the proposed development. As such, should ground water reach the level of the station this would be dealt with by local groundwater measures (i.e pumping used to keep the underground network dry) or the tunnels themselves would drain the
groundwater away from the station and therefore the property. Due to this proximity with a much lower lying area, the risk of groundwater flooding should not be considered an obstruction to the proposed development.

7.0 Reservoir Flood Risk

7.1 The Environment Agency ‘Risk of Flooding from Reservoirs’ map indicates areas where peoples' lives would be in danger as a result of an uncontrolled release of water from a reservoir. The location of this development lies outside the Environment Agency’s maximum extent of reservoir flooding map and therefore is not at risk of flooding from any uncontrolled reservoir releases.

7.2 Risk of Flooding from Reservoirs map is shown in Figure 3 below:

![Figure 3: Environment Agency Risk of Flooding from Reservoirs Map](image)

7.3 In terms of an annual exceedance probability of occurrence, the Environment Agency acknowledges in their flood map annotations that reservoir flooding is extremely unlikely to happen. There has been no loss of life in the UK from reservoir flooding since 1925 with all large reservoirs inspected and supervised by reservoir panel engineers. As the enforcement authority for the Reservoirs Act 1975 in England, the Environment Agency ensures that reservoirs are inspected regularly and essential safety work is carried out.

7.4 The risk of reservoir flooding is considered to be a low risk in terms of its annual exceedance probability and as such no specific flood resistant or resilient mitigating design measures are proposed to address this.
8.0 Surface Water Drainage

8.1 Although the site of the extension is not currently drained, the drainage of the site using Sustainable Drainage Systems (SuDS) is a fundamental point for consideration as part of the planning application process.

8.2 The main principle behind SuDS is to replicate natural drainage wherever possible. This can be achieved by increasing infiltration, attenuating surface water run-off and reducing the rate of surface water flows. SuDS also provide opportunities to improve water quality by removing sediment and pollutants from flows that may enter receiving water bodies. The preferred surface water drainage principles are outlined in CIRIA’s SuDS Manual (C753). The SuDS hierarchy of drainage techniques contained within C753 prioritises interventions to prevent or reduce the impact of the development as close as possible to the source as follows:

1. Prevention – prevent run off and pollution
2. Source control – control run-off at or as close as possible to its source
3. Site control – manage water on site
4. Regional control – manage water from a number of areas in a single location

8.3 The site itself is not thought to be compatible with the existing property drainage, however if possible, this could be used as a last resort to drain the surface water generated by the new extension. The use of SuDS should be prioritised on the site and where applicable features such as a green roof, rainwater planters or water butts should be implemented. However, as the plans currently show, a pitched roof would make the use of a green roof unfeasible and a soakaway would likely encroach on the property or its neighbours’ foundations to a preventative extent. Therefore, a form of local surface water storage would seem most applicable at this stage. A water butt, rainwater planter or small storage device would appear practicable for a development on this scale and would not affect the extension design as they can be easily sized and placed.
9.0 Conclusion

9.1 The proposed development would see the erection of a rear single storey extension to the dwelling 14 Pelham Street in South Kensington. The extension would provide a continuum of existing habitable space at lower ground floor level only and for a new study area and a new access route to the above and below floors. All other renovations to the building will be internal and not covered by this FRA. The proposal is considered as ‘minor development’ by local and national planning policy documents; as such the scope of flood risk assessment is in line with these policy requirements and Environment Agency Standing Advice.

9.2 The development site is located in Flood Zone 1 with an annual exceedance probability (AEP) of less than 0.1%. The main risk of flooding to the site is derived from the potential surface water flood risk at the front of the property. Modelled flood plains show that the property is not at risk from 1 in 100 year plus climate change flooding events, even at the property’s lower level (the garden and basement level). As stated in The Royal Borough of Kensington and Chelsea’s SFRA (Strategic Flood Risk Assessment), “From a flood risk perspective all land uses are acceptable within Flood Zone 1. Flood risk is not considered to be a significant constraint to development”.

9.3 The site of the proposed extension is classified as a very low surface water flood risk area. The risk of groundwater flooding is not quantified by this report in lieu of intrusive site investigation information however the presence of the South Kensington tube station provides confidence that groundwater would not reach the surface under normal circumstances, as there is no record of this station (which sits as a much lower ground level) flooding due to groundwater. The surface water, groundwater and reservoir flood risk are not considered to be prohibitive in the design of this extension.

9.4 The proposals are considered to comply with the requirements of the National Planning Policy Framework.
APPENDIX A:

Extension Drawings
Proposed Basement Plan

Proposed Ground and Lower Ground Floor Plans

Proposed Extensions Roof Plan - First Floor Plan

Number 1700
Title Proposed Basement, Lower Ground and Extension Roof Plans

Scale @ A3 1:50
Revision 00
Date 29-11-2018
Project No. 181002
Project 14 Pelham Street
SW7 2NG

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Proposed Rear Elevation and Sections

Proposed Rear Elevation E-01

Proposed Section AA

Lighting design to be developed

Proposed Section BB

Lighting design to be developed

Proposed Section CC

Lighting design to be developed

Project No. 181002

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proposed rear extension - white painted timber and double glazing enclosure
white painted timber and double glazing enclosure

white painted timber and double glazing enclosure

Proposed Extension - External Perspective 02 - Birds Eye View

Proposed Extension - External Perspective 02 - Birds Eye View

Scale 1:100 @ A3
- Trench heater to reduce draft from windows
- Desk
- Proposed staircase with storage below

Proposed Extension - Internal Perspective 01
Proposed Extension - Internal Perspective 02

- Rooflight above with integral blind
- Lighting design to be developed
- Design of overpanel under review
- Trench heater to reduce draft from windows
- Garden views

Proposed Internal Perspective 02