Simon Merrony Architects Co. Limited

SIMON MERRONY ARCHITECTS

Flood Risk Assessment

assessing the effect of the proposal on groundwater flooding

ref **24/2033/HOT**

to **24 Upper Teddington Road, Hampton Wick, KT1 4DY**

REV A

Introduction

This flood risk assessment is submitted in support of the following proposals:

Part 2 storey part single storey rear and side extension to existing detached house. Alterations to roof to raise ridge and increase roof pitch and add two front and rear pitched side facing dormers. New fenestration and replacement of existing fenestration. House to be re- rendered in smooth finish.

At **24 Upper Teddington Road, Hampton Wick, KT1 4DY**

This statement is produced to assess the effect of the proposal on groundwater flooding.

Site Location

24 Upper Teddington Road is situated in the residential area of Hampton Wick.

It is set back c. 18m from Upper Teddington Road which is a main (A) road and adjacent to a Doctor's surgery, situated in a converted Victorian villa, and a residential block of flats.

Figure 1 – google maps satellite view of site location

The rear garden is mainly grassed with some planting. The front parking area is gravel. The surroundings are mostly residential in build-up however both immediate neighbours have hard surfacing for parking areas. These neighbouring sites also include some landscaping, and a large number of mature trees surround the site.

The site is relatively flat with the topographical survey taking datum heights of c. 10.10 on the land surrounding the house. The rearmost point of the garden the levels are c. 10.30 and the road is at 9.83. This would suggest a slight incline towards the road with a difference of c. 0.5m across the entire site. (Topographic survey data can be provided if requested).

Proposals Overview

The proposals enlarge an existing dwellinghouse to provide more living accommodation over 3 levels. No sleeping accommodation is proposed at ground floor. Proposed is an extension with a step down of c. 300mm within the living space to the rear of the property. This step down has necessitated this assessment, and this area will be the focus of the report.

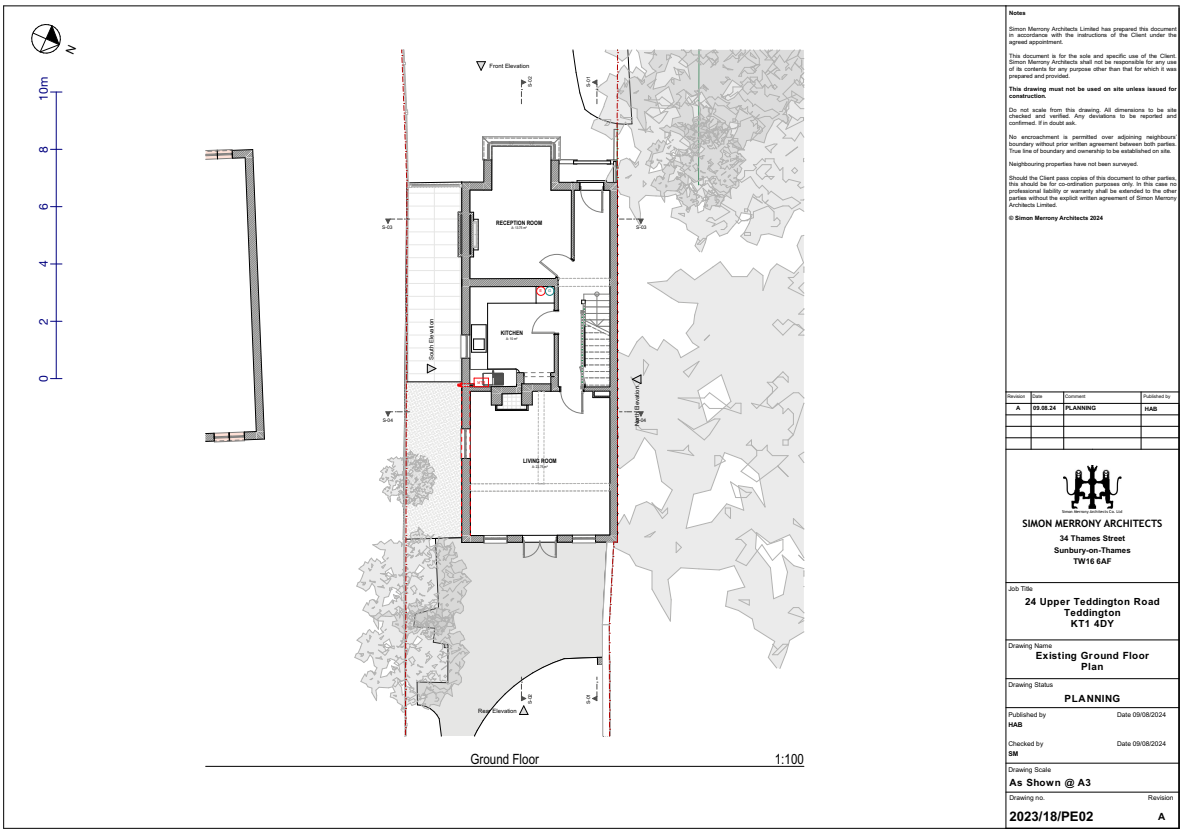

Figure 2 – Existing Floor Plan (NTS)

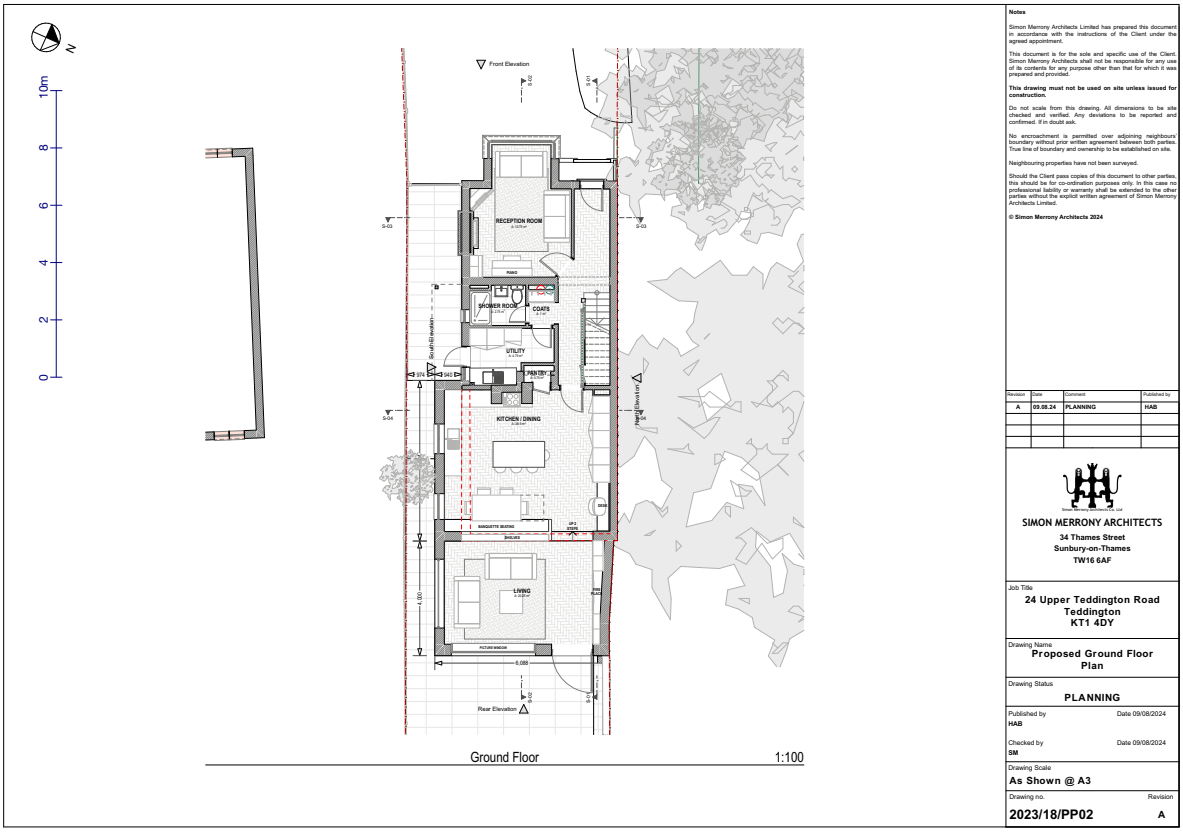

Figure 3 –Proposed Floor Plan (NTS)

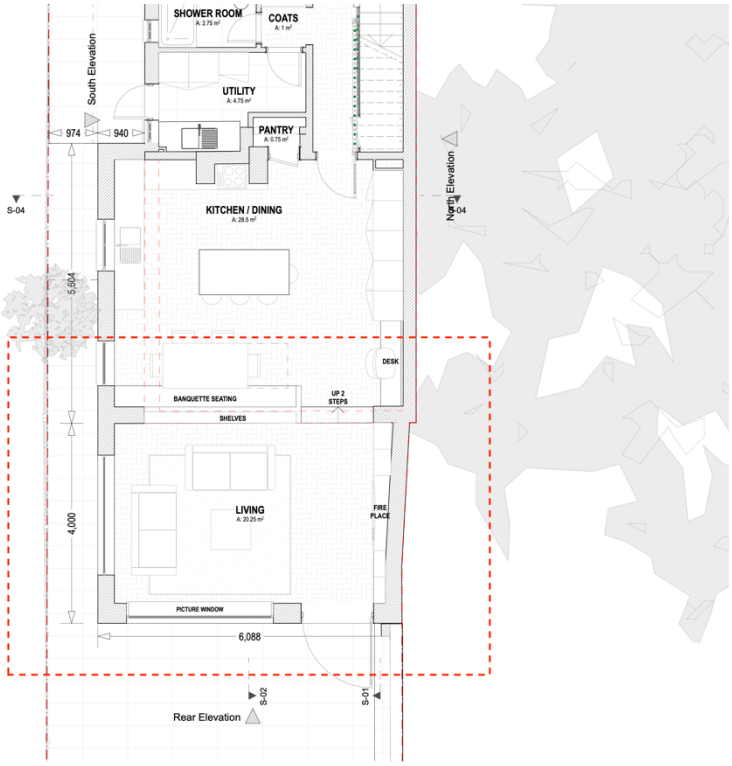

Figure 4 –Proposed Extension including step down

Flood Risk Classification

Utilising the government's flood maps service we can establish that the site is in Flood Zone 1 which is the area with the lowest probability of flooding – a less than 1 in 1000 annual chance of flooding from rivers or the sea.

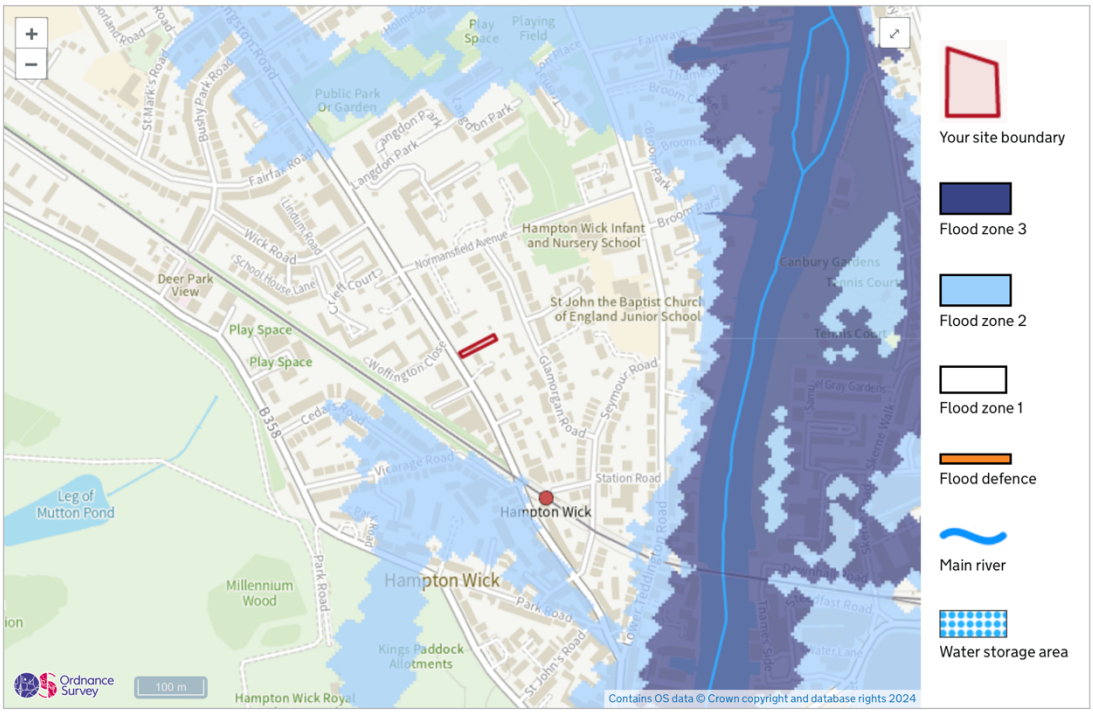

Figure 5 – Risk of Flooding from rivers and sea

The figure below shows the risk from reservoir flooding. The building would be at risk if the reservoir failed, and the rivers were also in flooding. The Environment Agency state that this is an extremely unlikely event.

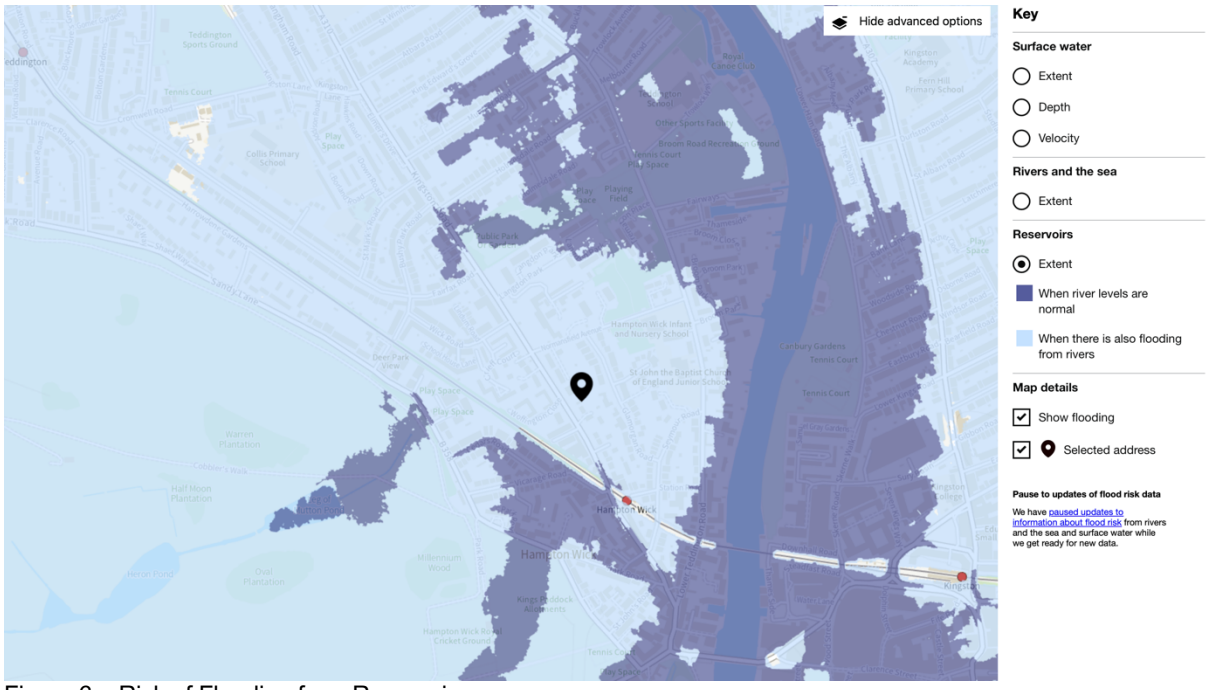

Figure 6 – Risk of Flooding from Reservoirs

Finally, the government surface water data does not show a risk of surface water flooding at this site, but a Medium Risk (1 in 33 year storm event) is identified behind ‘Bushy Court’ which is c. 20m away.

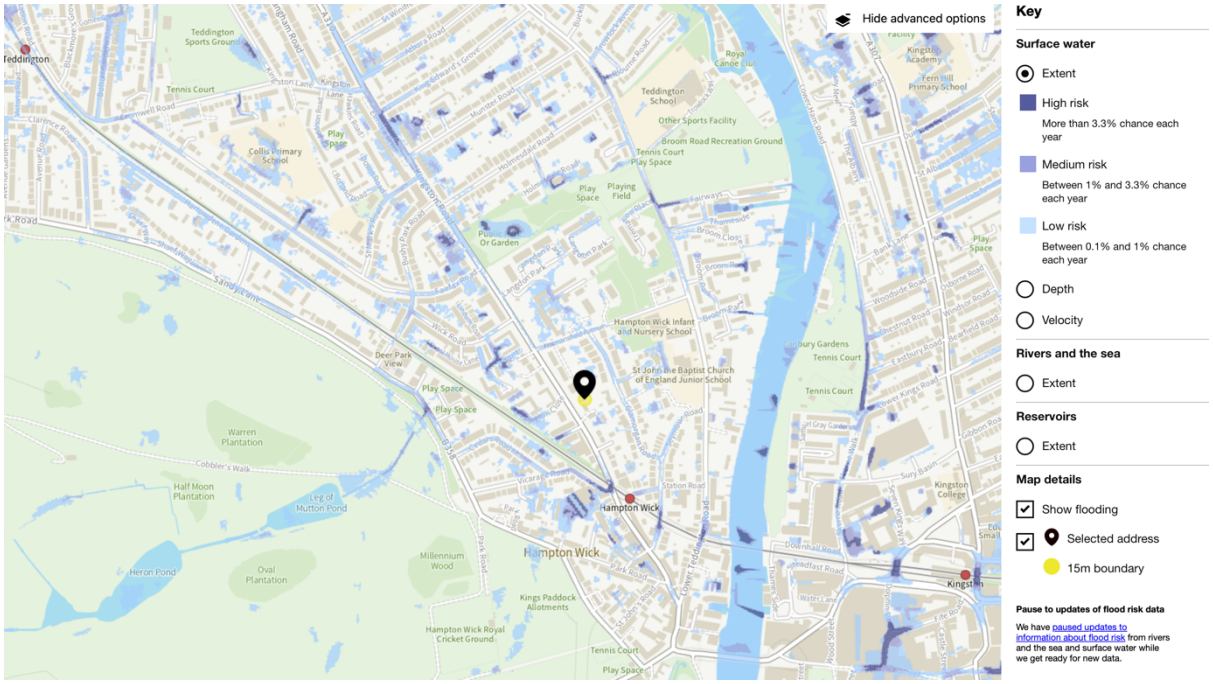

Figure 7 – Risk of Flooding from surface water

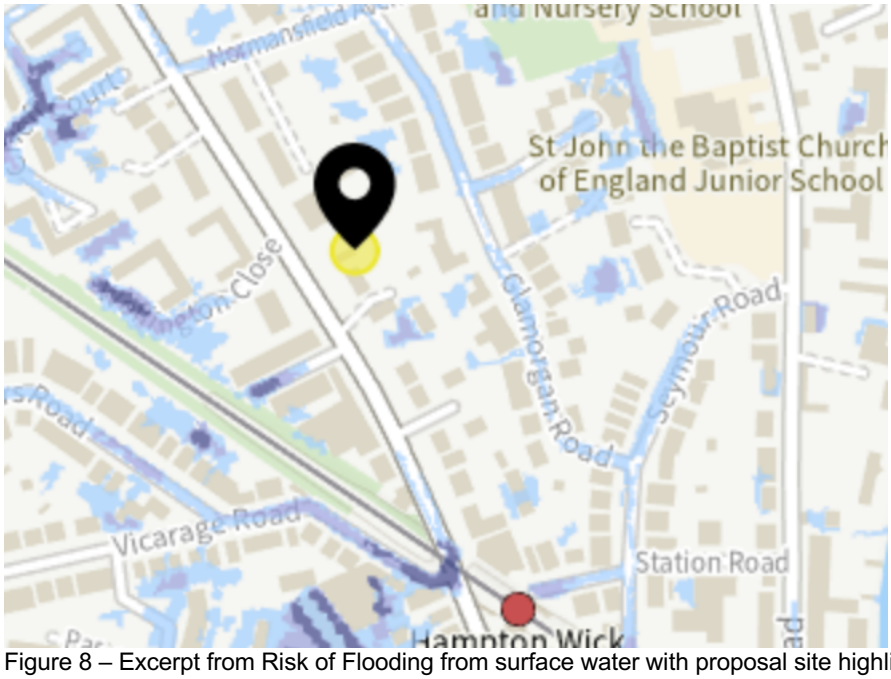

Figure 8 – Excerpt from Risk of Flooding from surface water with proposal site highlighted

Finally, utilising their online SFRA mapping system, Richmond upon Thames identify the area of Hampton Wick as an area susceptible to groundwater flood of between 50% and 74.9% (note it is not clear what this percentage refers to, but we understand this rating accommodates a number of sources including the government sources referred to above).

This assessment will consider the mitigation from surface water/ ground water flooding.

Groundwater Flood Risk

Section 5.6 of the London Borough of Richmond Upon Thames Strategic Flood Risk Assessment – Level 1 version 1.3 (page 23) states the following

Groundwater flooding occurs because of the underground water table rising, which can result in water emerging through the ground and causing flooding. This source of flooding tends to occur after extensive periods of heavy rainfall, potentially occurring for weeks or months. During these periods, a greater volume of water infiltrates through the ground, causing an underlying aquifer to rise above its regular depth below the ground's surface. Springs and low-lying areas, where the water table is likely to be closer to the surface, pose greater risk of groundwater flooding. Groundwater flooding can occur in areas where the underlying soil and bedrock can become saturated with water. Therefore, ground composition and aquifer vulnerability are significant influences on the potential rate of groundwater flooding.

Section 5.6.1 Impacts of climate change states:

Groundwater flooding is currently not modelled, therefore there are no predicted maps demonstrating how groundwater flood risk may change with climate change. However, there are a number of potential ways in which climate change could impact groundwater flood risk. Rainfall intensity and duration variability could lead to a long-term decline in groundwater storage and an increase in groundwater drought periods and severity. The EA's UK climate change projections for peak rainfall intensity predicts rainfall intensity to increase during rainfall events. This could result in an increased frequency and severity of groundwater-related floods.

Proposed Flood Mitigation

It is to be noted that the surface water flood map above doesn't take into consideration any drainage in the area that will reduce the risk of flooding identified.

When the works are carried out drainage will be installed that will prevent any ponding and stop any water entering the property. The surface water flows from the existing building will already either discharge into a soakaway or the local sewer network.

Relatively, the increase in impermeable area is minimal, so it is envisaged that new drainage will be connected to a new soakaway. This soakaway will be 'oversized' (above the size required by the BCO) to increase capacity.

Permeable surfaces will be used across the site where possible to reduce the overall impermeable area. Only in unavoidable areas of impermeable external surface the drainage will be discharged into soakaways.

The drainage in /around the extension will be appropriately designed to accommodate the step down. The levels directly around the building will fall away from the dwelling and drainage will be installed in low spots to collect and water and discharge into the drainage system. In practice this means a gulley/ French drain will be placed around the perimeter of the extension to collect water and discharge this to the new soakaway. An additional gulley will be located at the perimeter of the proposed patio area.

This will ensure and water displaced by the extension will be collected and discharged appropriately.

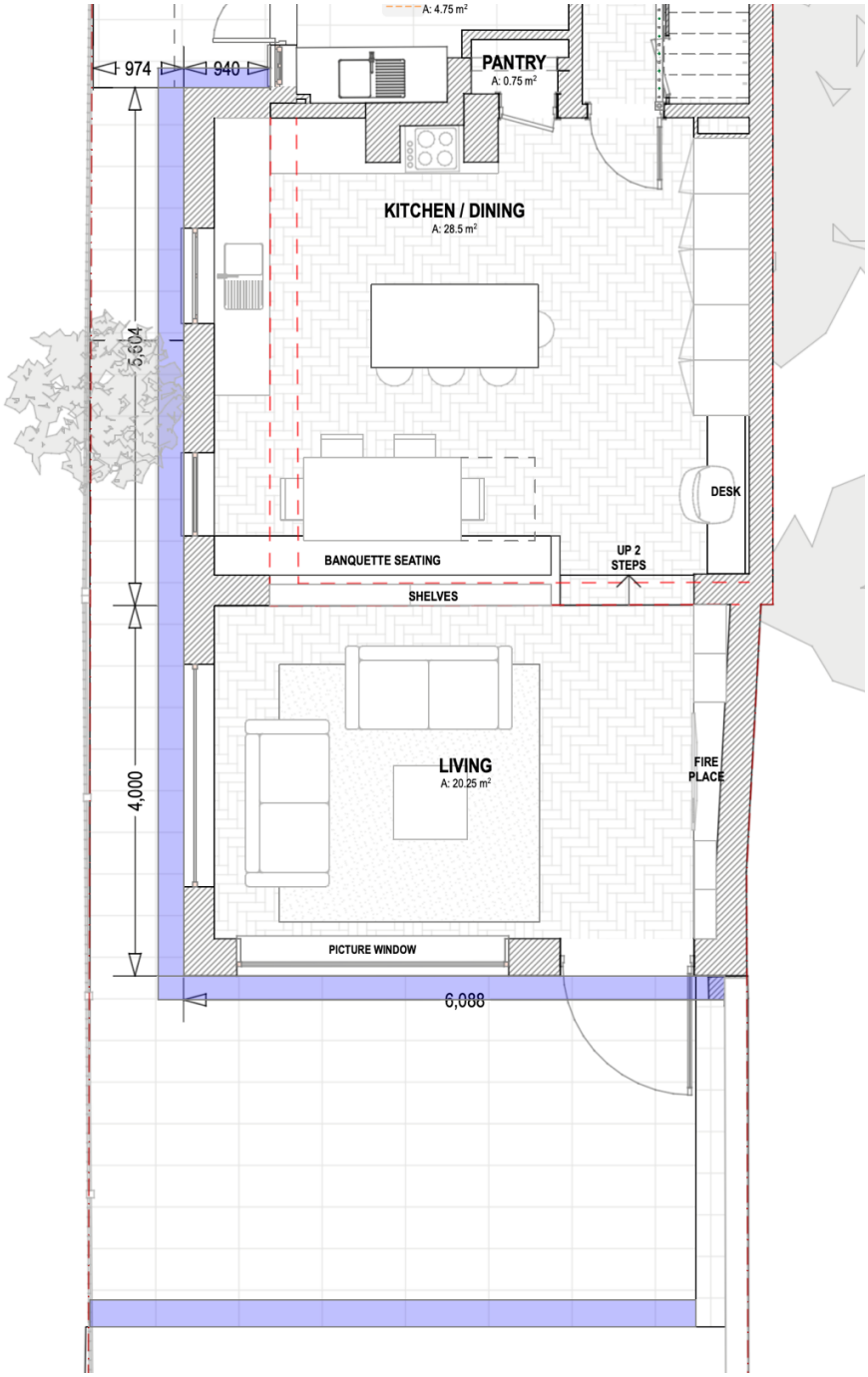

Figure 9 – Excerpt from proposed floor plan (NTS) with proposed gulleys/ French drains in blue

Conclusion

Due to the mitigation measures outlined and the minor nature of the proposal it is not anticipated that the proposed development will impact the flow profile of groundwater related flow or surface water to downstream areas or that it will increase groundwater related flood risk to neighbouring properties. Mitigation from the risk of surface water has been demonstrated.

The works will not increase the vulnerability classification of the site and the increase in impermeable area is minimal.

Therefore, the development is deemed appropriate in terms of flood risk.