

Supplementary Design Statement

68 Chiltern Road, Baldock, SG7 6LS

Deep Retrofit and Extension Scheme

Foreword:

Following the refusal of application ref. 24/01489/FPH, this Supplementary Design Statement (SDS) has been prepared to support a revised proposal which responds to the reasons for refusal on the previous application and details the design rationale behind the project.

The list below outlines those topics which are addressed in the SDS for ease of reference. This proposal has been developed with sustainability at the heart of it to exemplify what Policy D1 of the North Herts Local Plan seeks to achieve. The project seeks to push the boundaries of what a retrofit project can achieve and where all properties should be aiming for, for us to reach net zero by 2050. Importantly, the proposal is now considered to accord with D1, D2, D3, SECN12 and T2 of the North Herts Local Plan and should therefore be considered acceptable.

The statement contains the following sections:

- 1) Background to the Scheme
- 2) How our design addresses the concerns outlined in the rejected application 24/01489/FPH
- 3) Design Response
- 4) Design Input – Examples of style, materials and local context
- 5) Shadow Analysis
- 6) Summary

1) Background to the Scheme:

The property was purchased in a state of complete disrepair, with no functioning boiler or working lights. Our aim is to dramatically improve both the internal and external appearance of the building along with providing an example to the local residents of a deep retrofit project.

Nearly all elements of our design have been chosen for their environmental benefits, apart from areas where we need to be in keeping with the rest of the street, in this case, we have added render a material with high embodied carbon.

We are using PHPP design principles to form the basis of this design, using the Enerphit principles. This is the new Passivhaus refurbishment standards on retrofit projects and, aiming to dramatically improve the energy efficiency of a property, allows improvement on the current EPC rating of E up to an impressive EPC A. We aim to use this property to show off exemplary design, by using high-quality materials and retrofit principles to show that retrofit and efficiency doesn't need to be ugly, all whilst complimenting the existing dwelling (North Hertfordshire Local Plan - Section 9.6).

The property will house the following green tech:

- Triple glazing – 0.82 u-value or better. Minimum standard set by Building Regulations is 1.8w/mk
- External wall insulation
- Mechanical Ventilation and Heat Recovery (MVHR)
- Exceeding the requirements of the building regulations U-Values throughout
- Air Source Heat Pump – ASHP – Improving air quality through zero emissions (D4)
- Airtightness measures throughout
- Electric Car Charger
- Water heat recovery from bath/shower waste
- Solar panels and Battery

All of the above shows we are working towards creating a highly sustainable property taking Policy D1 into account.

2) Changes from the previous application:

- Removal of porch – highly contentious in the previous application due to the flat roof and timber cladding, which differed from neighbouring properties. We need to get this application through as we will not have anywhere to live without approval. Therefore, we made the decision to remove the porch in totality as it is not essential.
- Removal of the bike store to bring back the side extension by 2.4m to be less visible from the street view.
- Changed the front and side elevation of the ground floor extension from timber cladding to white render to be in keeping with the street scene and the existing property.

Each element of the design has been broken down below with an explanation as to how the design was put together:

3) Design response

Use of a Flat Roof

It was noted in the first application that the flat roofs were not in keeping with the rest of the street. It should be acknowledged that the wording of Policy D1 encourages the promotion of applications which would respond positively to the sites local context.

The reasons for choosing a flat roof are:

- Reduce external area/envelope – having a flat roof reduces the external surface area of the building, thus reducing the internal cubic meterage which needs to be heated creating a sustainable home (Policy D1 and SSPD 1.19)
- Warm roof – flat roofs allow for the installation of a warm roof which results in fewer junctions between the sheets of insulation and is less complex in its insulation process and easier to achieve airtightness.
- Allows joist voids for MVHR (Mechanical Ventilation and Heat Recovery) ducting and cabling without reducing thermal efficiency.
- Using a warm flat roof reduces the likelihood of breaking through vapour barrier and causing mould issues and rework issues.
- PIR between joists increases the margin for error creating heat loss. A warm roof allows for fewer joints in PIR and cutting angles and therefore reduce heat loss.
- Flat roofs are also present on many other properties in the street along with their garages and from the current frontage of property 68, the garage appears to have a flat roof.
- Increased solar area should there be a need for an increased need for solar (additional electric car). Future proofing for changes in technology and lifestyle (D1)

It is also worth noting that whilst most extensions in the street have a sloped roof near the front elevation, most existing garages appear to have a flat roof from the street view. At the rear there is a mixture of both flat roofed and sloped roof extensions.

Policy D1 of the North Herts Local Plan seeks for new development to respond positively to the local context. As detailed above, the use of a flat roof for this project is an exemplary use of sustainable design that would be a positive addition to the area. The use of a flat roof is not wholly out of keeping with the surrounding area and would not result in undue harm in an area lacking any notable architectural features. The proposal would therefore be a positive addition to the areas and is therefore considered acceptable in this regard.

North Herts Sustainability SPD - Section 1 – Paragraph 1.19 – Form Factor - A building loses heat through its surface area, therefore the more volume a building has in relation to its surface area the better. The form-factor ratio refers to the area of external envelope through which heat will escape compared to the area of usable internal building area, the lower the form factor the more energy efficient it will be. This does require keeping the building's shape simple but this can be made more appealing through use of different materials and surface treatments. A ratio of 0.3 or less is generally recommended.

Lastly, we addressed initial concerns that the flat roof isn't in keeping with neighbouring properties, by removing the bike store to bring back the side extension by 2.4m. Therefore, it is more in line with neighbouring properties flat roof extensions that are visible from the street view, as shown in Section 4 – Design Input.

Use of A Timber Frame

- There is no need for steel support on timber structure reducing the likelihood of thermal bridging.
- Greater thermal efficiency and reduced wall thickness build-ups, reducing the external projection of the extension.
- Less embodied carbon than brick and block construction. (D1)
- The speed of construction limits the construction noise and disruption to the neighbourhood.

The use of a timber frame is a key element of this project's aim to deliver a highly sustainable home and is considered to hold weight in favour of the proposal.

Timber to Façade of rear extension and loft extension

- Sustainable material (Sustainable materials – D1)
- Reduces the need for cement carrier board as it is a timber framed extension – which would be required if we rendered it.
- Traditional methods are not sustainable, utilising carbon-intensive materials.
- Naturally protected from the weather by utilising Shou Sugi ban weathering technique. It has been proven to last over 80 years without deteriorating/miscolouring.

Please note, previously the planning officers' concerns about the use of timber as cladding have only been about the elements visible to the street view and not the timber on the rear extension or loft extension.

The Height of the Extension

- Dictated by high existing ceiling heights within the house

- Reduces thermal envelope by not having a sloped roof (see flat roof section above)
- The neighbouring property at number 66 has a block build wall along the boundary edge which prevents any direct overlooking and ensures that any perceived impact on amenity to the neighbouring resident is non-existent.
- Sun does not reach back windows until 1pm. Adjoining property at No 66 own wall blocks sunlight into their property for most months of the year. See solar modelling below.
- The extension does not go out any further than that of the adjoining property's garage extension at no 66. The neighbour's garage extension also sits higher in their garden.
- Designs out the ability to be able to jump on to the roof for an attempted burglary (Design out opportunity for crime – Policy D1).

Please note, previously the planning officer did not have concerns about the extension height and size on the latest application.

Sustainable Features

- Hip to gable within the loft to house solar array on front elevation. Increasing the available area for solar.
- No additional windows on the side elevation to reduce solar gain.
- Venting Passivhaus roof lights dissipate heat and provide excellent thermal efficiency.

Sight Lines from Finished Floor Levels of Extension

- It is impossible to overlook into the neighbour's garden due to their existing garden wall. See image below

4) Design Input – Examples of style, materials and local context

Black Shou Sugi Ban Timber cladding shown – a high quality material that adds texture and depth to any build. Proposed for the rear elevation.



Black timber used on a property on Norton Road, Baldock, a property with more heritage and period features.





Timber cladding is shown in various locations across Baldock including in the neighbouring street along with a render in most instances – similar to our proposed scheme:





The property in its current state with the neighbour's flat roof extension visible from the street:



The neighbouring properties (66) current extension and wall which blocks any vantage point from the proposed extension into the neighbouring property. The garden wall is the most dominant feature within the area (Policy D2).



66's significant height of extension into the neighbouring northern garden, it is much taller than our proposed scheme at over 4m high.



Google Earth Imagery showing where extensions have been built to the south of northern properties and extended out further on Chiltern Road. All extensions are newer than their northern counterparts.



5) Shadow Analysis

This analysis shows the impact on 1 of the number 66's 3 patio/ seating areas within their garden. The shadow is not cast into the window of any living areas of the neighbouring property. There is a slight impact on the door window within the utility room (not a living space) of the neighbouring extension however most of the impact is from the existing wall. At worst the proposed extension casts a shadow of 1-1.5m² for brief periods of time onto the neighbouring property's 180m² garden.

The scene is set using the 3D model below which has been set to the orientation of the properties. Note the existing wall is the predominant feature of the area and the greatest influence when blocking any light. Its constant is shown in the modelling below.

Note: this model is based on the first application – this new scheme has 150mm less depth than the previous proposal so the impact is even more minimal.



The impact of shadow from the proposed extension is circled in yellow.
The impact from the neighbour's existing boundary wall is shown in pink.

April Shadow Analysis



Figure 1- 1st April - 10am

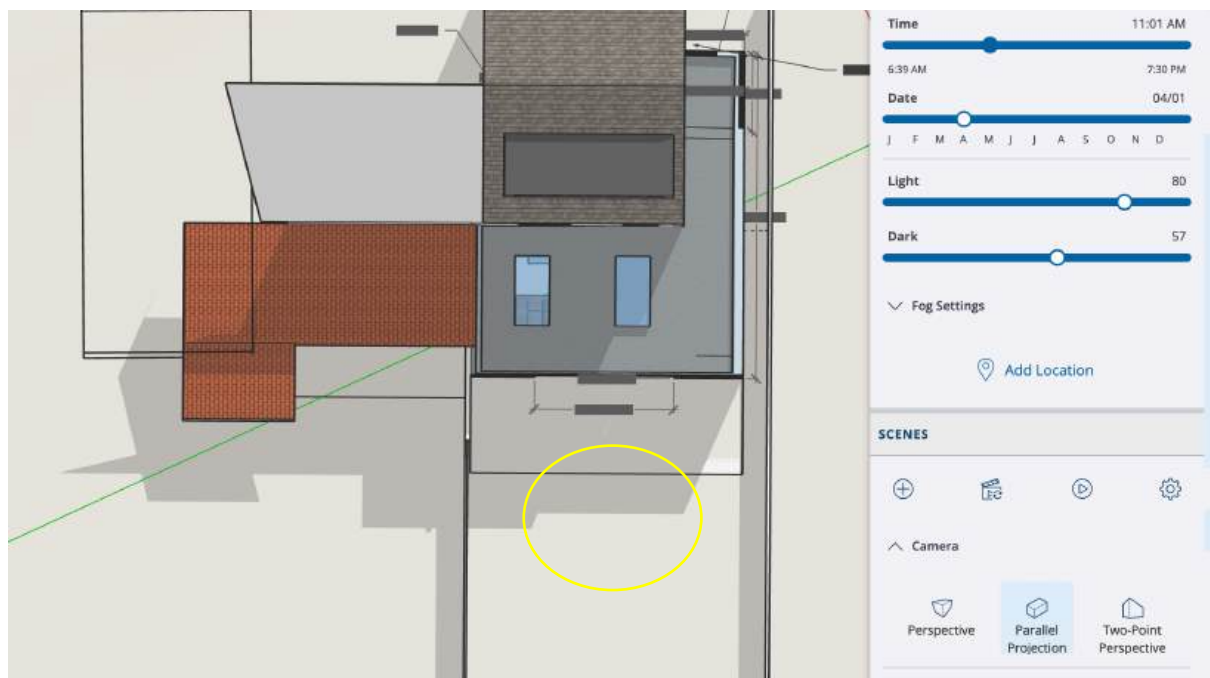


Figure 2 - 1st April - 11:01am

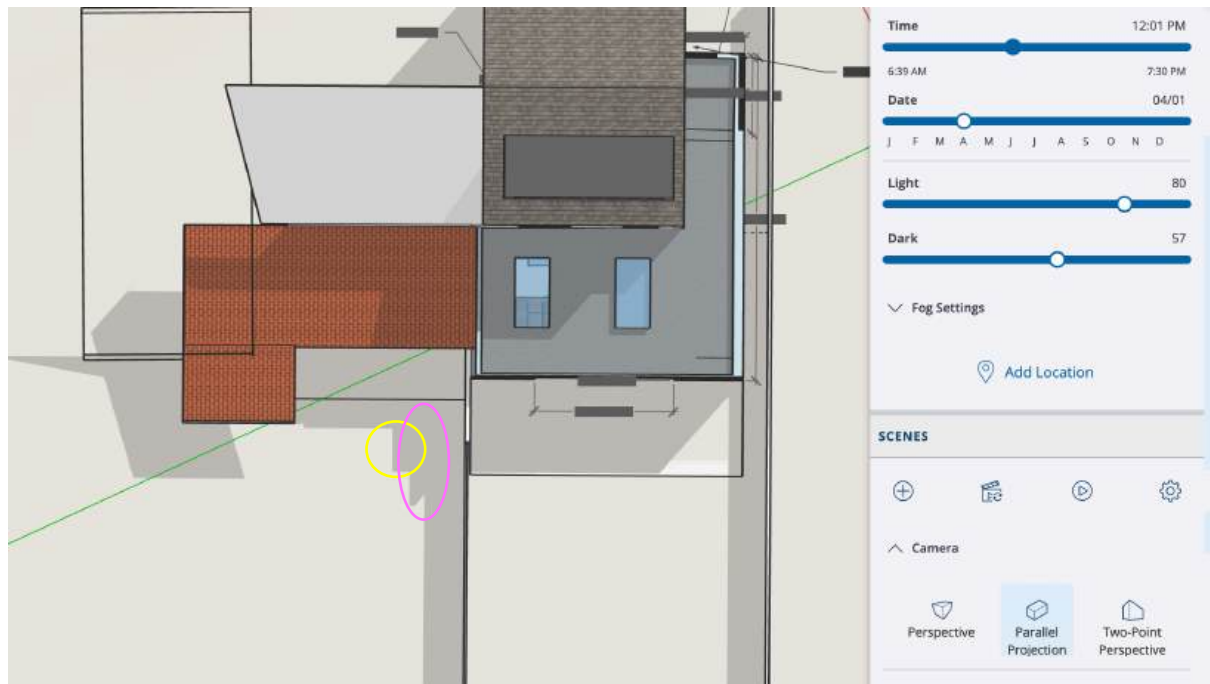


Figure 3 - 1st April - 12:01pm

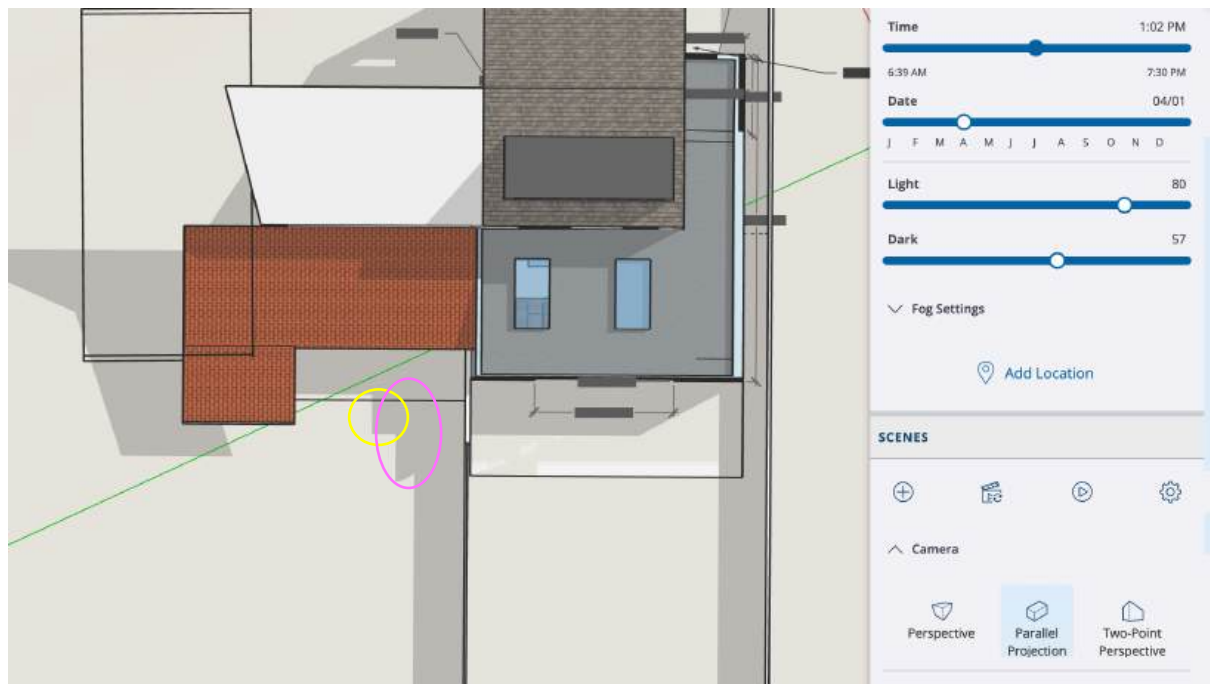


Figure 4 - 1st April - 1:02pm



Figure 5 - 1st April - 2:00pm

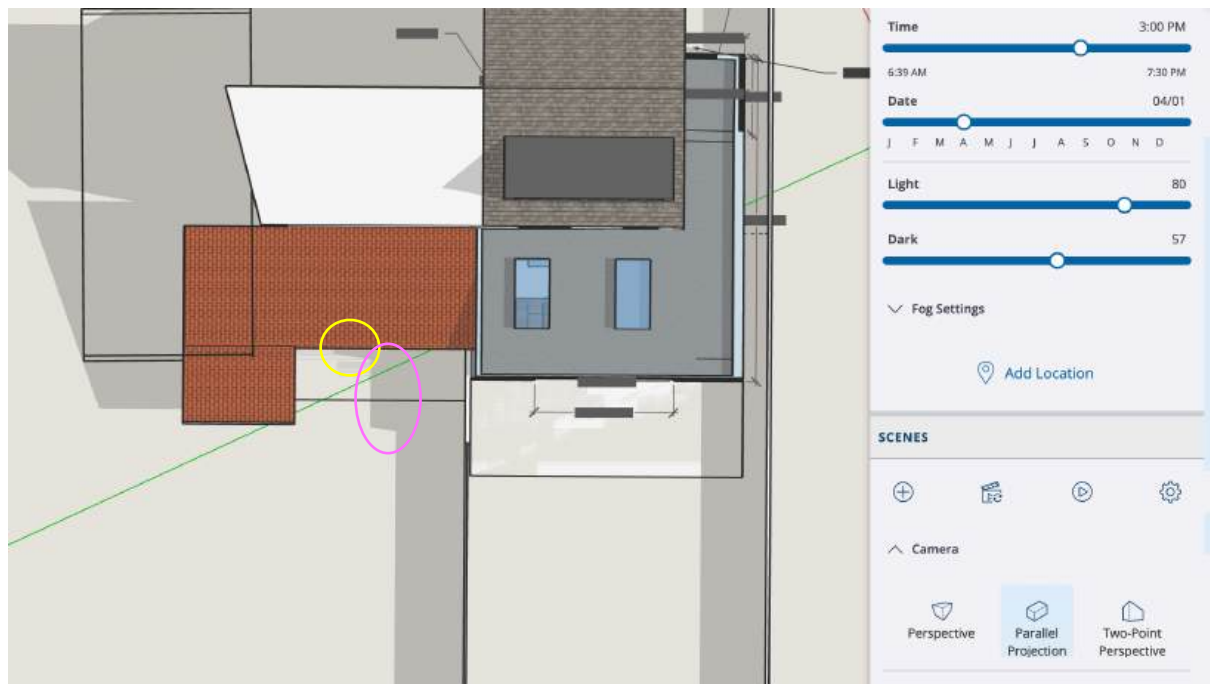


Figure 6 - 1st April - 3:00pm

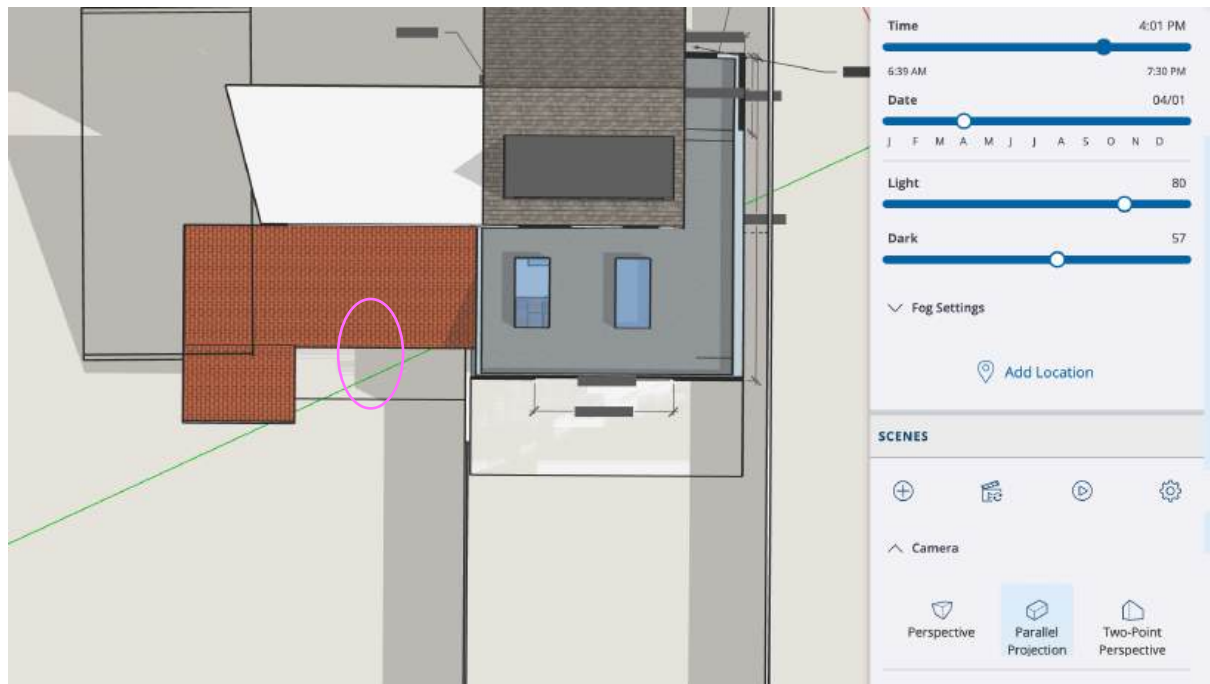


Figure 7 - 1st April - 4:01pm

September Shadow Analysis



Figure 8 - 1st Sept - 10am

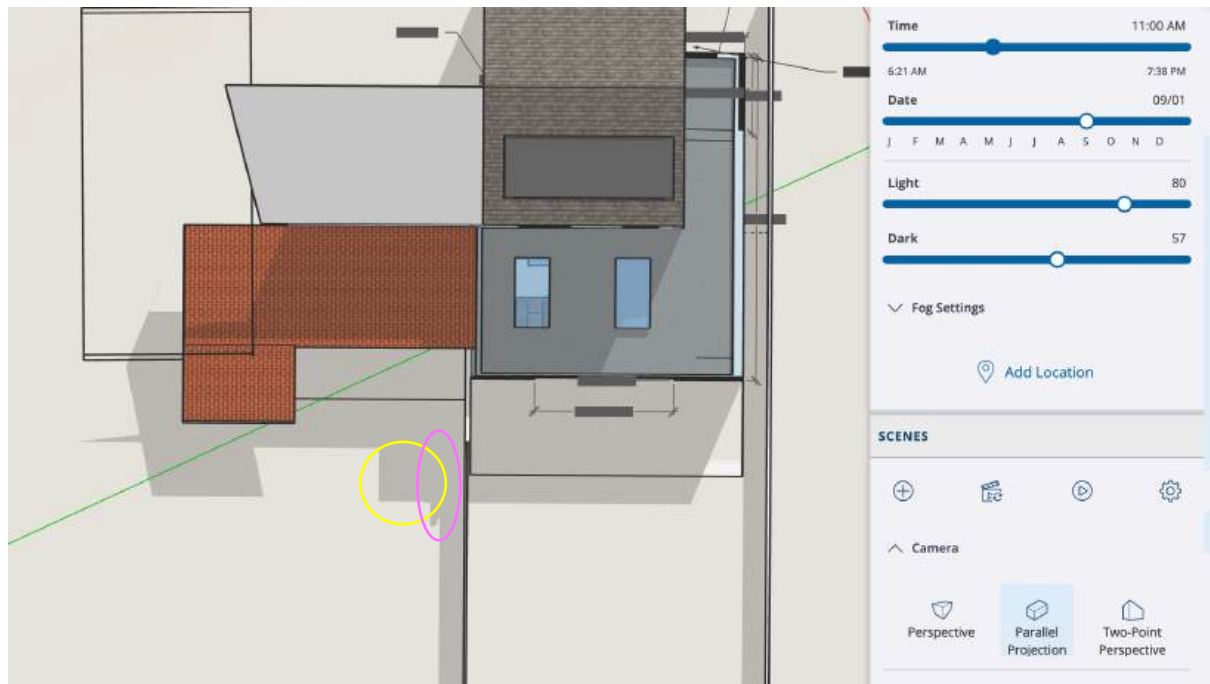


Figure 9 - 1st Sept - 11am

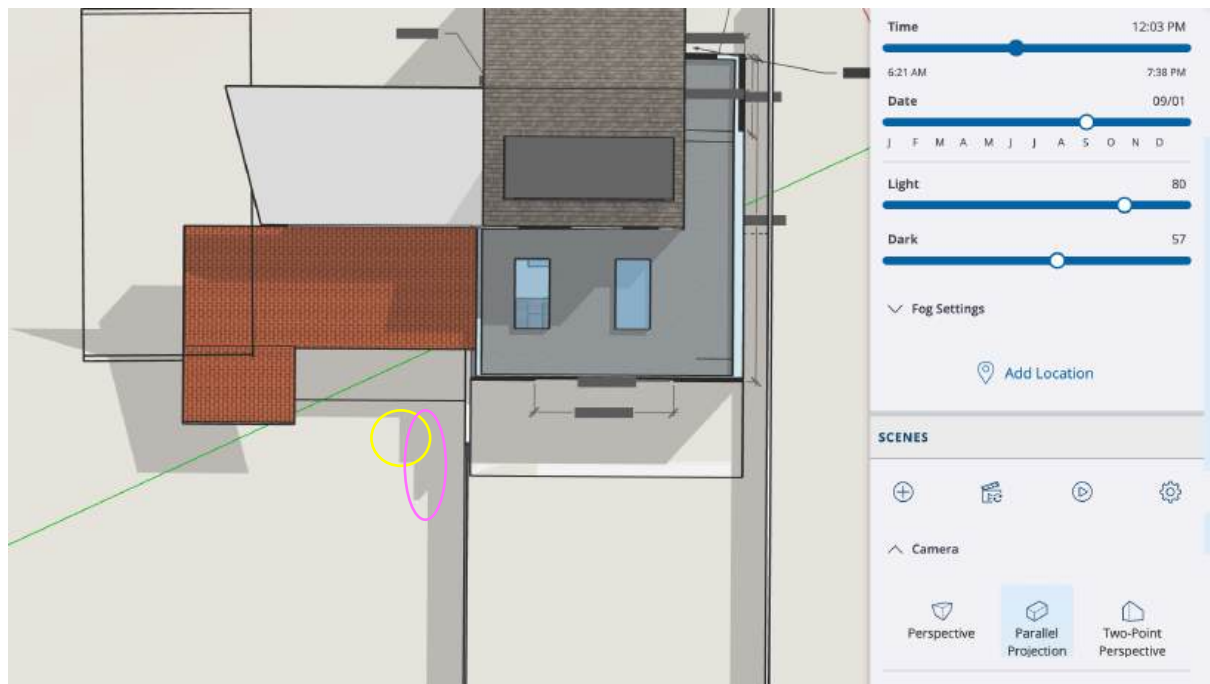


Figure 10 - 1st Sept - 12:03pm

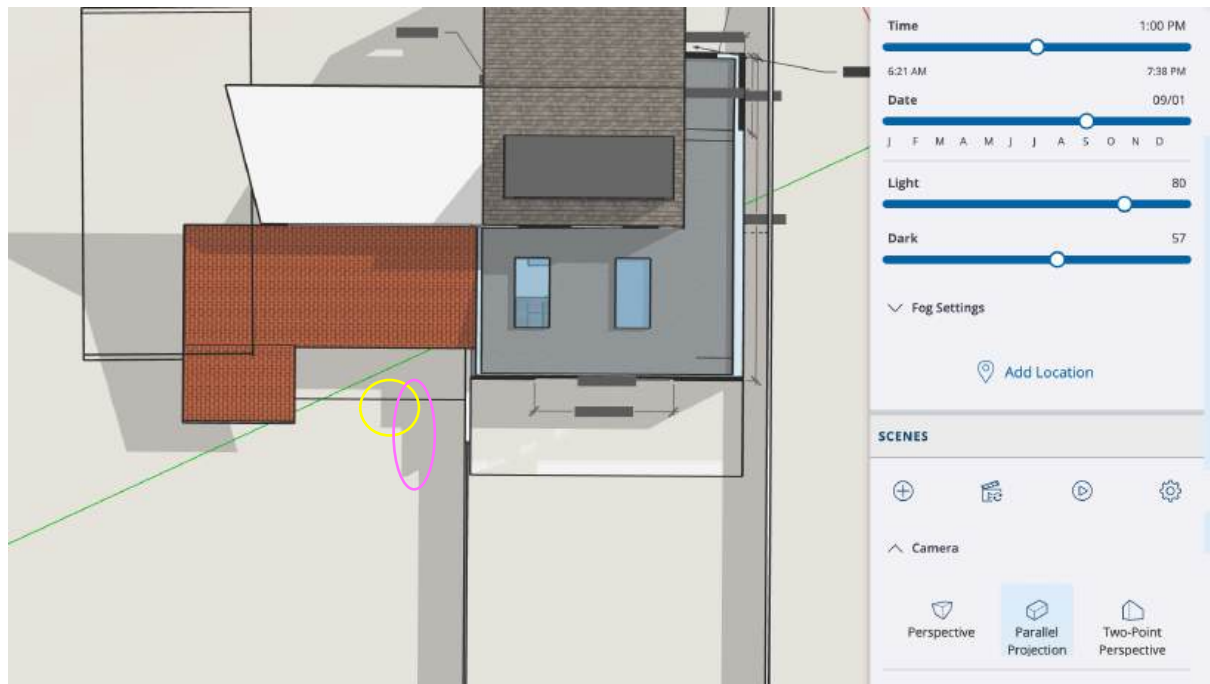


Figure 11 - 1st Sept - 1:00pm



Figure 12 - 1st Sept 1:59pm

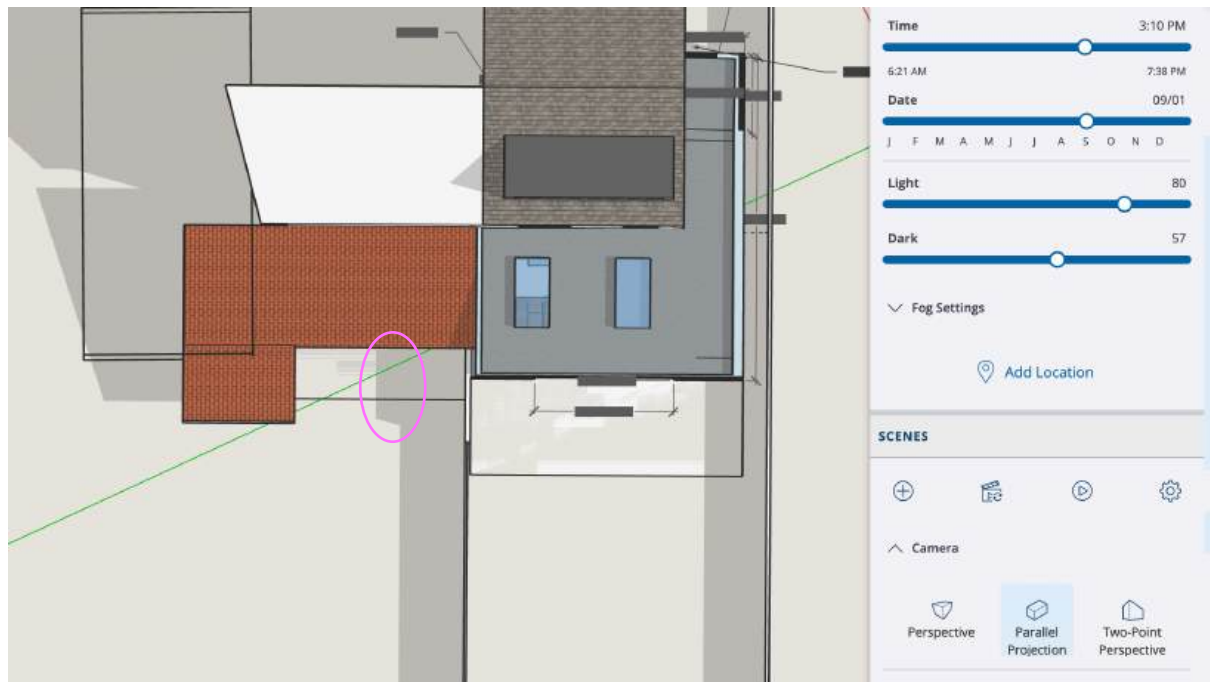


Figure 13 - 1st Sept - 3:10pm

6th July Shadow Analysis



Figure 14 - 6th July - 11:55am

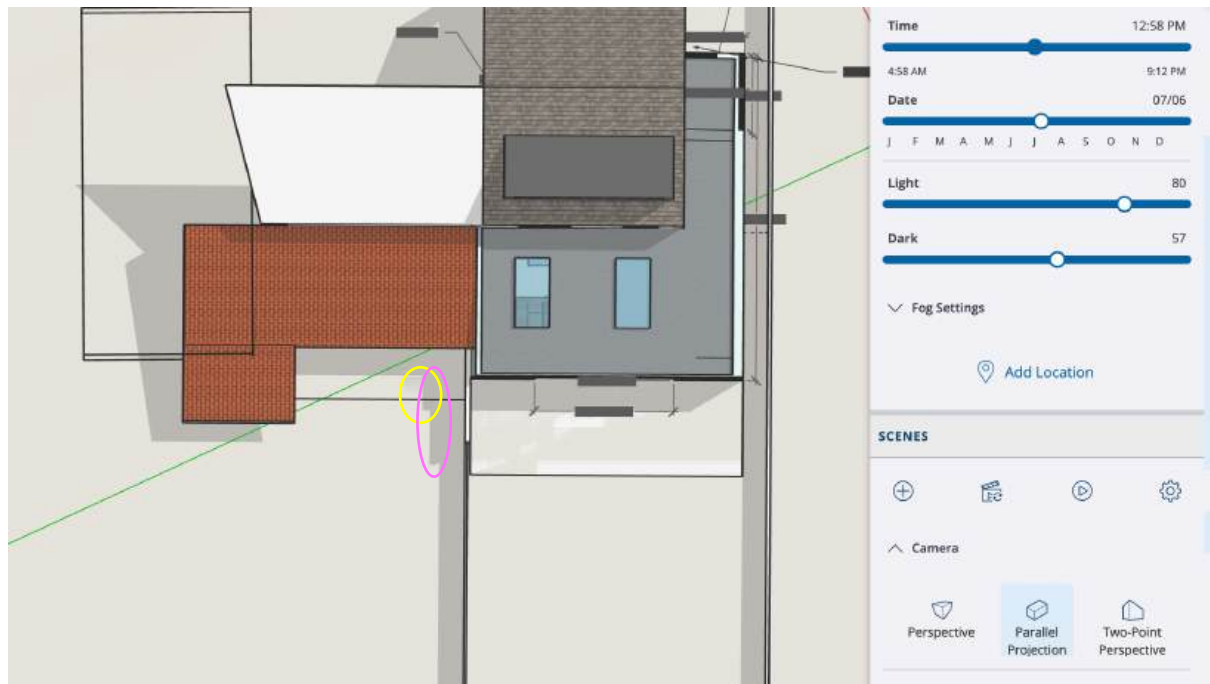


Figure 15 - 6th July - 12:58pm

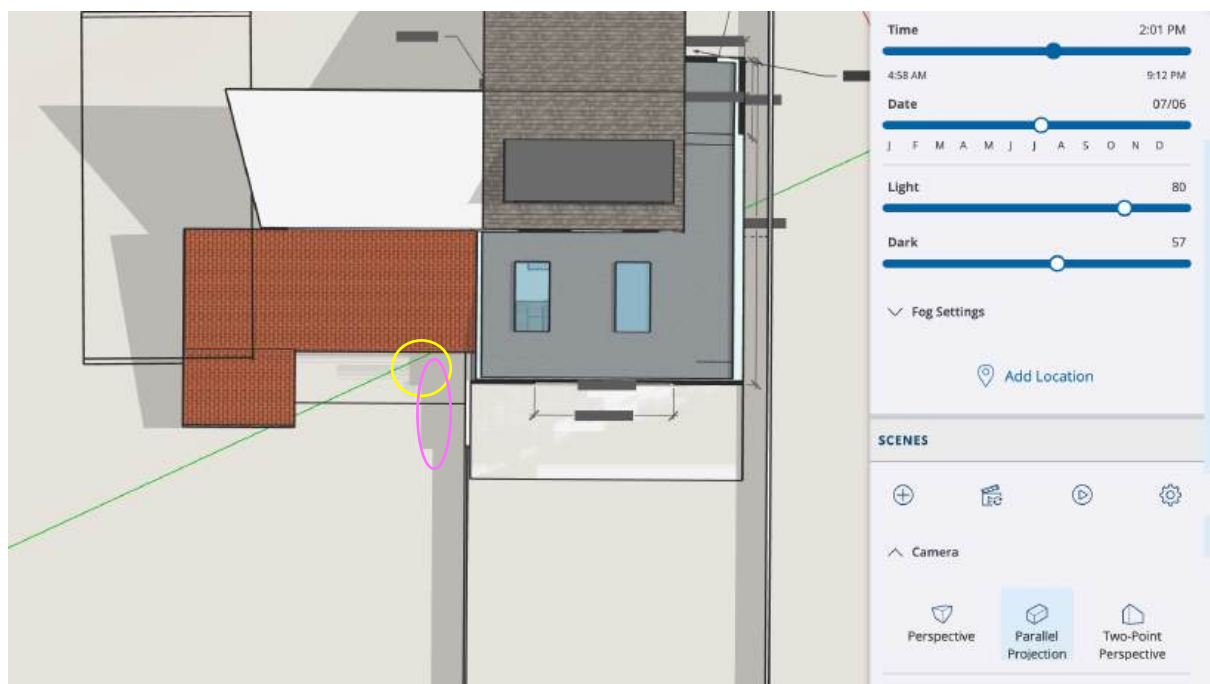


Figure 16 - 6th July - 2:01pm

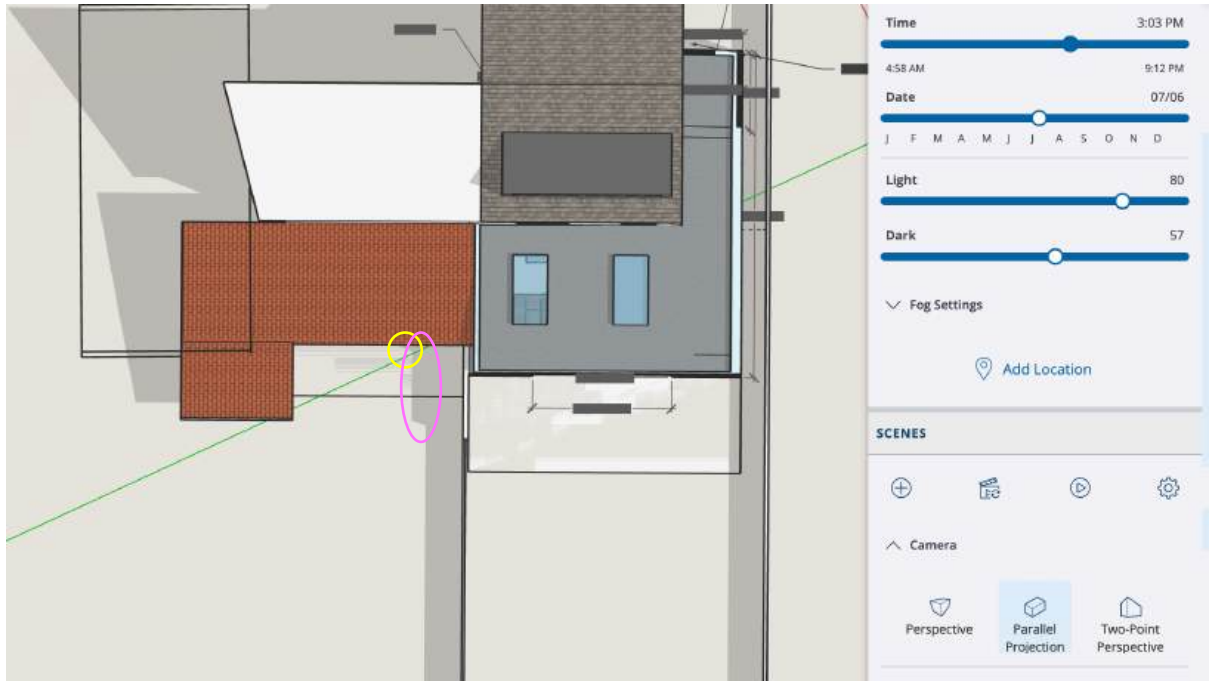


Figure 17 - 6th July - 3:03pm

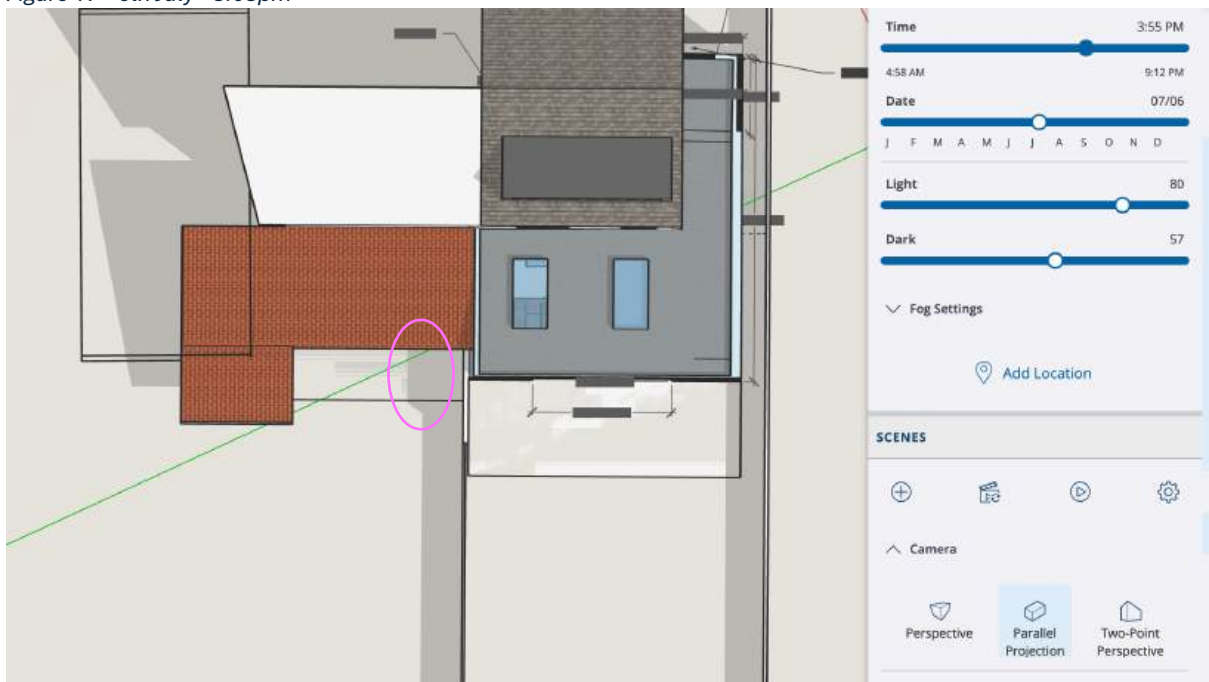


Figure 18 - 6th July - 3:55pm

October Shadow Analysis

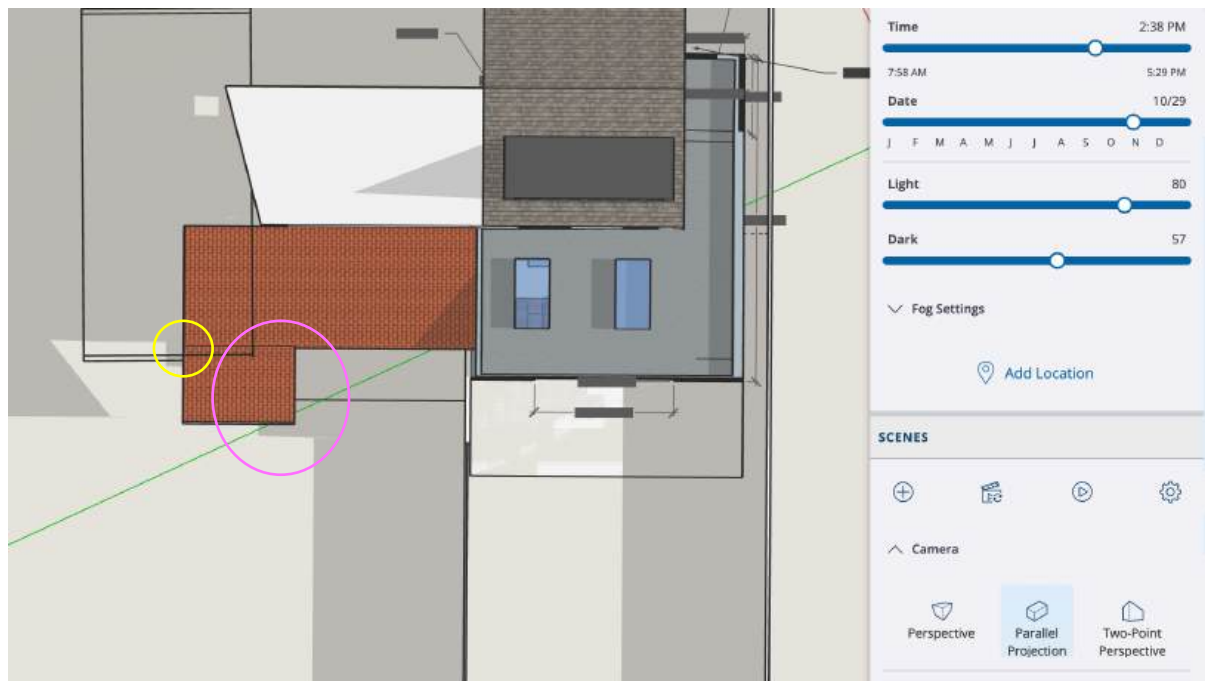


Figure 19 - 29th October - 2:38pm

Shadow analysis has not been carried out from October into the winter months since the neighbour's existing wall influences the greatest impact on the shadows. It blocks all light onto the patio area and into the windows at times when the proposed extension could shadow the area.

6) Summary

This SDS explains the design rationale behind this project and how it is considered to constitute a clear example of positive and sustainable development. The proposal has been considered against the policies of the North Herts Local Plan and are considered to be in accordance with them as is demonstrated throughout.

We have actively bought back the side extension to reduce the impact of the flat roof on the street scene and will mirror the flat roof on our neighbour's property which will sit higher than our properties proposed extension.

Responses to the reasons for refusal of application reference 24/01489/FPH have been detailed and adequately responded to ensure that this application can be considered in accordance with planning policy through the changes in material and removal of the flat roof porch.

We would respectfully request that this revised application be moved forward for approval at your earliest convenience.