

**39 PARKFIELD ROAD, ICKENHAM,
UXBRIDGE, UB10 8LW**

ANALYSIS OF SITE LAYOUT

**for
DAYLIGHT AND SUNLIGHT**

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By

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39 Parkfield Road, Ickenham, UB10 8LW

Analysis of Site Layout with Regard to Daylight and Sunlight

1. Introduction

An application has been made for the redevelopment of a house at 39 Parkfield Road.

This daylight and sunlight assessment has been prepared to support the planning application for the proposed development.

The report assesses the proposal in regards to its effects on daylight and sunlight to the neighbouring windows. The report concludes that the proposal is acceptable and in accordance with the planning policy requirements in relation to daylight and sunlight for the assessed windows.

There is no existing specific National Planning Policy relating to the prospective impacts of developments on daylight and sunlight to their surrounding environment. However, the Building Research Establishment publication 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice' is the established National guidance to aid the developer to prevent or minimise the impact of a new development on the existing buildings and on the availability of daylight within the new proposals. The BRE guide has been revised and published a third edition in June 2022. It has been developed in conjunction with daylight and sunlight recommendations in the BS EN 17037:2018.

The 2022 document is referred to as the 'BRE Guide' in this report.

2. Description of Proposed Development.

The house is situated at 39 Parkfield Road in the area of Ickenham and is located within the administrative boundaries of the London Borough of Hillingdon.

The existing is a three-bedroom house. The proposal is to redevelop an existing residential house into a spacious five-bedroom home.

The proposal is shown on the following floor plans by KDA Designs Ltd.

Existing Plans & Elevations 39PR/P300

Proposed Elevations & Sections 39PR/P200

Proposed Plans & Street Scene 39PR/P100

3. Daylight and Sunlight Requirements

Regional Planning Policy

The Mayor of London Supplementary Planning Guidance Housing (2016) makes recommendations that the BRE Guide should be applied sensitively to higher density development in London, particularly in central and urban areas.

1.3.45 Policy 7.6Bd requires new development to avoid causing 'unacceptable harm' to the amenity of surrounding land and buildings, particularly in relation to privacy and overshadowing and where tall buildings are proposed. An appropriate degree of flexibility needs to be applied when using BRE guidelines to assess the daylight and sunlight impacts of new development on surrounding properties, as well as within new developments themselves. Guidelines should be applied sensitively to higher density development, especially in opportunity areas, town centres, large sites and accessible locations, where BRE advice suggests considering the use of alternative targets. This should take into account local circumstances; the need to optimise housing capacity; and scope for the character and form of an area to change over time.

1.3.46 The degree of harm on adjacent properties and the daylight targets within a proposed scheme should be assessed drawing on broadly comparable residential typologies within the area and of a similar nature across London. Decision makers should recognise that fully optimising housing potential on large sites may necessitate standards which depart from those presently experienced, but which still achieve satisfactory levels of residential amenity and avoid unacceptable.

The SPG includes Standard 32 regarding direct sunlight

Standard 32 - All homes should provide for direct sunlight to enter at least one habitable room for part of the day. Living areas and kitchen dining spaces should preferably receive direct sunlight

2.3.45 Daylight enhances residents' enjoyment of an interior and reduces the energy needed to provide light for everyday activities, while controlled sunlight can help to meet part of the winter heating requirement. Sunlight is particularly desirable in living areas and kitchen dining spaces. The risk of overheating should be taken into account when designing for sunlight alongside the need to ensure appropriate levels of privacy. In addition to the above standards, BRE good practice guidelines and methodology¹⁴⁶ can be used to assess the levels of daylight and sunlight achieved within new developments, taking into account guidance below and in Section 1.3.

2.3.46 Where direct sunlight cannot be achieved in line with Standard 32, developers should demonstrate how the daylight standards proposed within a scheme and individual units will achieve good amenity for residents. They should also demonstrate how the design has sought to optimise the amount of daylight and amenity available to residents, for example, through the design, colour and landscaping of surrounding buildings and spaces within a development.

2.3.47 BRE guidelines on assessing daylight and sunlight should be applied sensitively to higher density development in London, particularly in central and urban settings, recognising the London Plan's strategic approach to optimise housing output (Policy 3.4) and the need to accommodate additional housing supply in locations with good accessibility suitable for higher density development (Policy 3.3). Quantitative standards on daylight and sunlight should not be applied rigidly, without carefully considering the location and context and standards experienced in broadly comparable housing typologies in London.

4. General

Effects of New Development on Light to Surrounding Buildings

Figure 1 of this report there is a site plan showing the development and its nearby buildings.

The proposed development lies to the south side of Parkfield Road. The neighbours to both sides number 37 and 41 Parkfield Road have windows facing the proposed development all their windows are analysed in this report.

5. Criteria for Assessment of Daylight and Sunlight to Neighbouring Windows & Gardens

5.1. Daylight Assessment

The impacts of a development on daylight and sunlight to nearby buildings is considered using the Building Research Establishment (BRE) criteria. The principal measure of the impacts on daylight is the Vertical Sky Component (VSC) test.

The BRE Guide recommends that a room with 27% VSC or at least 80% of the former value will be adequately lit. In cases where rooms are lit by more than one window the average of their VSC should be taken. The guide specifies that only windows serving habitable rooms require analysis, while windows serving bathrooms, toilets, and storage rooms do not.

2.2.2 The guidelines given here are intended for use for rooms in adjoining dwellings where daylight is required, including living rooms, kitchens, and bedrooms. Windows to bathrooms, toilets, storerooms, circulation areas, and garages need not be analysed. The guidelines may also be applied to any existing non-domestic building where the occupants have a reasonable expectation of daylight; this would normally include schools, hospitals, hotels and hostels, small workshops, and some offices.

“2.2.6 Any reduction in the total amount of skylight can be calculated by finding the VSC at the centre of each main window. In the case of a floor-to-ceiling window such as a patio door, a point 1.6 m above ground 15 (or balcony level for an upper storey) on the centre line of the window may be used. For a bay window, the centre window facing directly outwards can be taken as the main window. If a room has two or more windows of equal size, the mean of their VSCs may be taken. The reference point is in the external plane of the window wall. Windows to bathrooms, toilets, storerooms, circulation areas, and garages need not be analysed. The VSC can be found by using the skylight indicator (Figure A1 in Appendix A) or Waldram Diagram (Figure B1 in Appendix B), or appropriate computer software.

2.2.7 If this VSC is greater than 27% then enough skylight should still be reaching the window of the existing building. This value of VSC typically supplies enough daylight to a standard room when combined with a window of normal dimensions, with glass area around 10% or more of the floor area. Any reduction below this level should be kept to a minimum. If the VSC, with the new development in place, is both less than 27% and less than 0.80 times its former value, occupants of the existing building will notice the reduction in the amount of skylight. The area lit by the window is likely to appear gloomier, and electric lighting will be needed more of the

time. In presenting results, ratios of VSC should be given to at least two decimal places (for example 0.79 or 0.81) or as the equivalent percentage loss (for example 21% or 19%).

2.2.8 If there would be a significant loss of light to the main window but the room also has one or more smaller windows, an overall VSC may be derived by weighting each VSC element in accordance with the proportion of the total glazing area represented by its window. For example, a room has a main window of area 2 m² whose VSC would drop from 24% to 18%, 0.75 times the value before. However, it also has a smaller window, area 1 m², for which the VSC would be unchanged at 30%. The area weighted VSC 'before' would be $(24 \times 2 + 30)/3 = 26\%$. 'After' it would be $(18 \times 2 + 30)/3 = 22\%$, 0.85 times the value 'before'. Thus, loss of VSC to the room as a whole would meet the guideline. This method would only be appropriate in situations where the windows light the same areas of the room. It should not be used in situations such as a through lounge more than 5m from window to window, where, for example, a loss of light to the front windows and front portion of the room may not be mitigated by daylight from the rear windows."

5.2. Sunlight Assessment

The acceptable level of sunlight to adjoining properties is evaluated using BRE Guide Annual Probable Sunlight Hours (APSH) test. The acceptability criteria are greater than 25% for the whole year or more than 5% between 21st September and 21st March. Where a development causes reduction below these values, the reduction should not be greater than 20% of former value.

"3.2.6 If a room can receive more than one quarter of annual probable sunlight hours (APSH), including at least 5% of APSH in the winter months between 21 September and 21 March, then it should still receive enough sunlight. Also, if the overall annual loss of APSH is 4% or less, the loss of sunlight is small. The sunlight availability indicators (Figures A2, A3 and A4) in Appendix A can be used to check this.

3.2.7 Any reduction in sunlight access below these levels should be kept to a minimum. If the available sunlight hours are both less than the amount above and less than 0.80 times their former value, either over the whole year or just in the winter months (21 September to 21 March), and the overall annual loss is greater than 4% of APSH, then the occupants of the existing building will notice the loss of sunlight; the room may appear colder and less cheerful and pleasant. In presenting results, ratios of sunlight hours should be given to at least two decimal places (for example 0.79 or 0.81) or as the equivalent percentage loss (for example 21% or 19%).

3.2.8 Care needs to be taken in applying this guideline to rooms with multiple windows. Except where the windows are in opposite walls, the annual probable sunlight hours cannot simply be added together. If the calculation method used does not avoid double counting of sunlight through multiple windows, the annual probable sunlight hours for the best sunlit window should be taken."

5.3. Sunlight to Gardens

The BRE Guide recommends for a garden to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on 21 March. If as a result of

new development an existing garden or amenity area does not meet the above, and the area that can receive two hours of sun on 21 March is less than 0.80 times its former value, then the loss of sunlight is likely to be noticeable.

"3.3.7 As a check, it is recommended that at least half of the amenity areas listed above should receive at least two hours of sunlight on 21 March. It is instructive to draw the 'two hours sun contour' that marks this area on plan, because the use of specific parts of a site can be planned with sunlight in mind. This could include reserving the sunniest parts of the site for gardens and sitting out, while using the shadier areas for car parking (in summer, shade is often valued in car parks). (Figure 30). If a detailed calculation cannot be carried out, and the area is a simple shape, it is suggested that the centre of the area should receive at least two hours of sunlight on 21 March."

3.3.8 Locations that can and cannot receive two or more hours of sunlight on 21 March may be found using specialist software. The space is divided into a grid of points with a recommended spacing of 0.3 m or less, and the proportion of these points that can receive two hours of sunlight on March 21 is computed. It is possible to carry out a check for the centre of an area by using the sun path indicator, which has a line for 21 March (see Appendix A). Sunlight at an altitude of 10° or less does not count, because it is likely to be blocked by low-level planting anyway. In working out the total area to be considered, driveways and hard standing for cars should be left out. Around housing, front gardens that are relatively small and visible from public footpaths should be omitted; only the main back garden should be analysed. Each individual garden for each dwelling in a block should be considered separately.

3.3.11 The above guidance applies both to new gardens and amenity areas and to existing ones that are affected by new developments. If an existing garden or outdoor space is already heavily obstructed then any further loss of sunlight should be kept to a minimum. In this poorly sunlit case, if as a result of new development the area that can receive two hours of direct sunlight on 21 March is reduced to less than 0.80 times its former size, then this further loss of sunlight is significant. The garden or amenity area will tend to look more heavily overshadowed."

6. Analysis of Daylight and Sunlight to Neighbouring Windows

Figures 1-2 are a view of the neighbouring windows to number 37 Parkfield Road that face the proposed development. There are four windows on this elevation, the windows are numbered for reference.

Figures 3-4 are a view of number 41 Parkfield Road. On the side elevation, there are three windows, which have been numbered for reference purposes. It has been confirmed by the neighbour that W2 serves the front bedroom. As this room is served by another window, W1, the BRE recommends that the mean of their VSC should be taken. W3 serves the hall area therefore there is no expectation of daylight, and there is no need to analyse as stated in the BRE. W4 is assumed to be serving a habitable room and is analysed in this report.

The BRE Guide recommends that daylight is satisfactory provided the sky component is greater than 27% or 80% of its former value.

For sunlight, the Guide recommends using the Annual Probable Sunlight Hours (APSH). The acceptability criteria are greater than 25% for the whole year and more than 5% between 21st September and 21st March. Where a development causes a reduction below these values, the reduction should not be greater than 20% of its former value. The BRE Guide recommends that north-facing windows be analysed for daylight only.

The vertical sky component (VSC) for windows is evaluated using the method described in Appendix B of the BRE Guide using the Waldrum Sky availability indicator diagram.

Below are two tables demonstrating the existing, proposed daylight and sunlight values as well as the percentage of their former values.

Daylight

Building Name	Floor Name	Window Name	Window Id	Vsc Existing	Vsc Proposed	Pr/Ex	Meets BRE Criteria	Window Orientation
37 Parkfield Road	Ground	W1	1	25.51	20.64	81%	YES	323°N
37 Parkfield Road	Ground	W2	2	23.08	19.31	84%	YES	323°N
37 Parkfield Road	Ground	W3	3	21.79	19.29	89%	YES	323°N
37 Parkfield Road	Ground	W4	4	23.76	21.04	89%	YES	323°N
41 Parkfield Road	Ground	W4	5	24.38	20.43	84%	YES	143°

Building Name	Window Name	Area sqm	VSC Ex	Area x VSC	VSC Pr	Area x VSC	Pr/Ex	Meets BRE Criteria
41 Parkfield Road	W1	2.6	38.1	99.1	36.7	95.42		YES
41 Parkfield Road	W2	0.75	22.05	16.54	10.61	7.96		
Total		3.35		115.64		102.38		
Area weighted average				34.52		30.56	82%	

Sunlight

Building Name	Window Name	Window Orientation	Annual Ex	Annual Pr	Pr/Ex	Meets BRE Criteria	Winter Ex	Winter Pr	Pr/Ex	Meets BRE Criteria
37 Parkfield Road	W1	323°N	10	10	North	YES	2	2	North	YES
37 Parkfield Road	W2	323°N	10	10	North	YES	2	2	North	YES
37 Parkfield Road	W3	323°N	14	10	North	YES	2	2	North	YES
37 Parkfield Road	W4	323°N	16	13	North	YES	2	2	North	YES

41 Parkfield Road	W1	53°N	29	22	North	YES	3	0	North	YES
41 Parkfield Road	W2	143°	65	26	46%	YES	17	5	29%	YES
41 Parkfield Road	W3	143°	59	45	76%	YES	22	21	95%	YES

As shown in the tables above, the reduction in daylight and sunlight to all neighbouring windows is better than the recommendations of the BRE Guide. They all remain above 80% of their former value or above the minimum requirement. The Waldrum diagrams can be found in Appendix B of this report.

7. Conclusion

The proposal for the redevelopment to 39 Parkfield Road result in a minor reduction of daylight and sunlight to the neighbouring windows of number 37 and 41 Parkfield Road.

In all cases, the reduction is not significant and remains better than the minimum recommendations of the BRE Guide.

The analysis of daylight and sunlight in this report shows that the reduction of light to all neighbouring windows will be in compliance with the recommendations of the Building Research Establishment publication 'Site Layout and Planning for Daylight and Sunlight, a Guide to Good Practice' published in 2022 and the standard planning requirements of London Boroughs and the London Plan.

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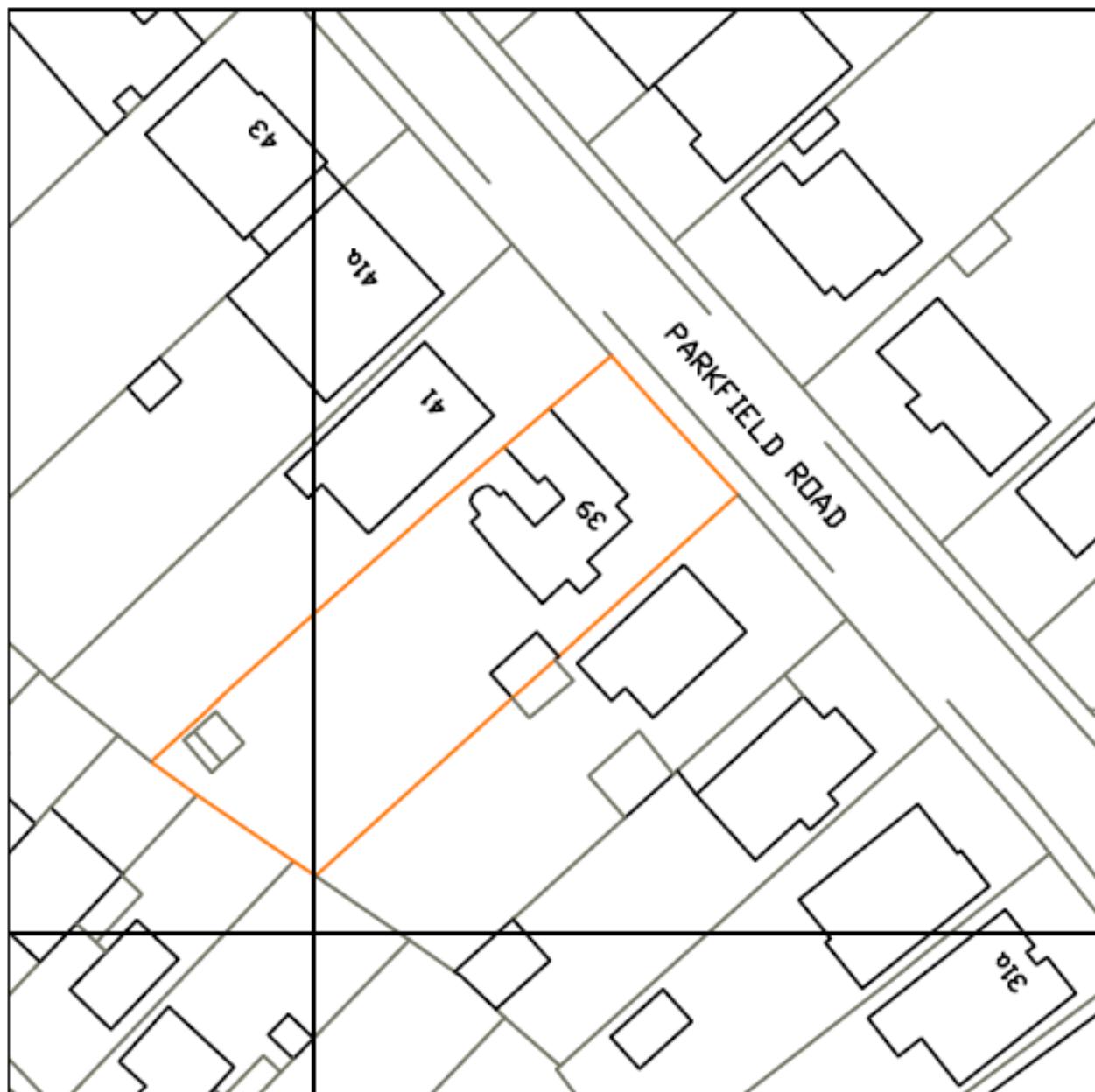
23rd February 2024

References

- i. Building Research Establishment publication 'Site layout and planning for daylight and sunlight, a guide to good practice' published in 2022
- ii. Housing Supplementary Planning Guidance (SPG) 2016

Appendix A

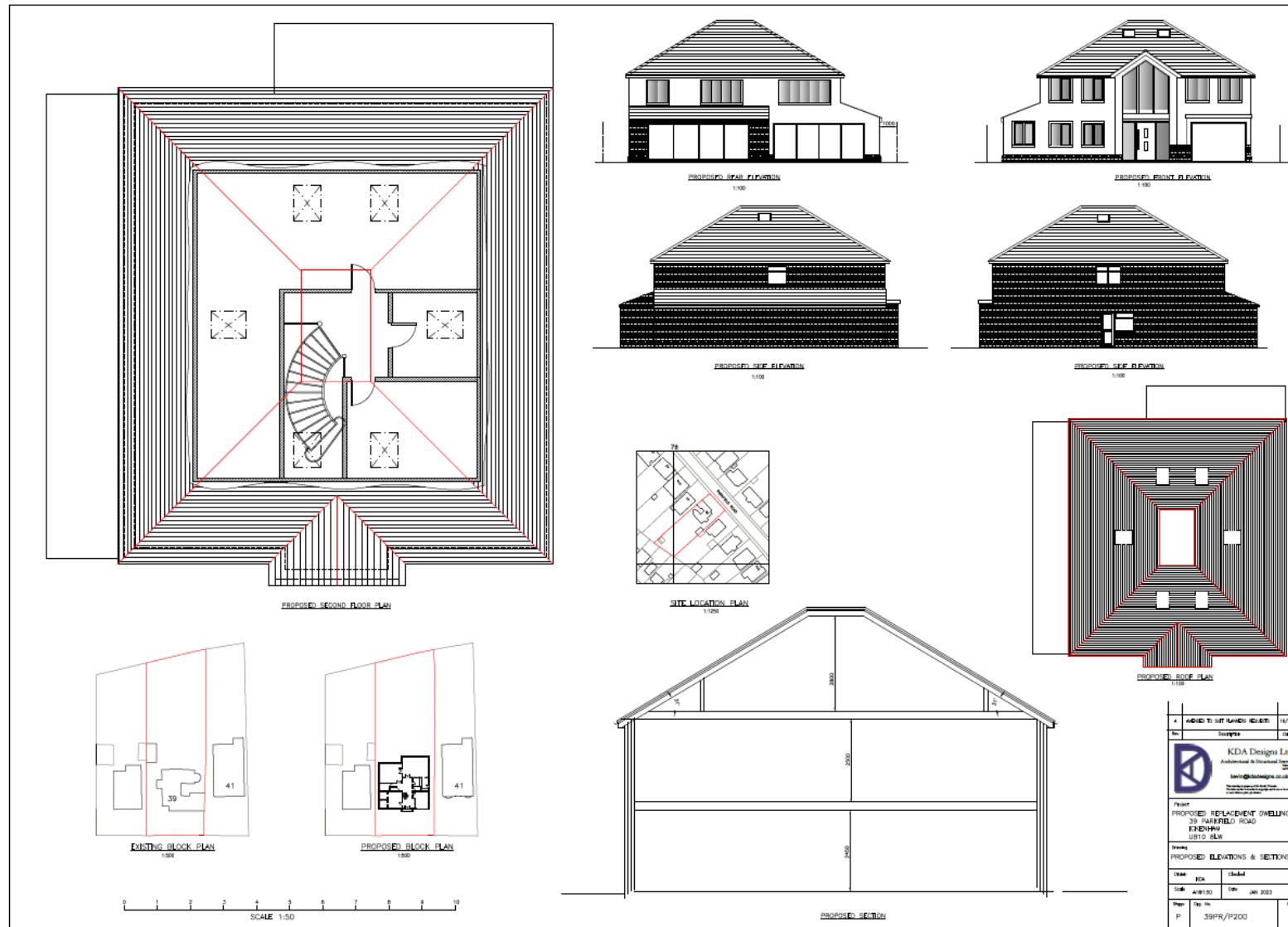
Site Plan



Existing Plans & Elevations



Proposed Elevations & Sections



Proposed Plans & Street Scene

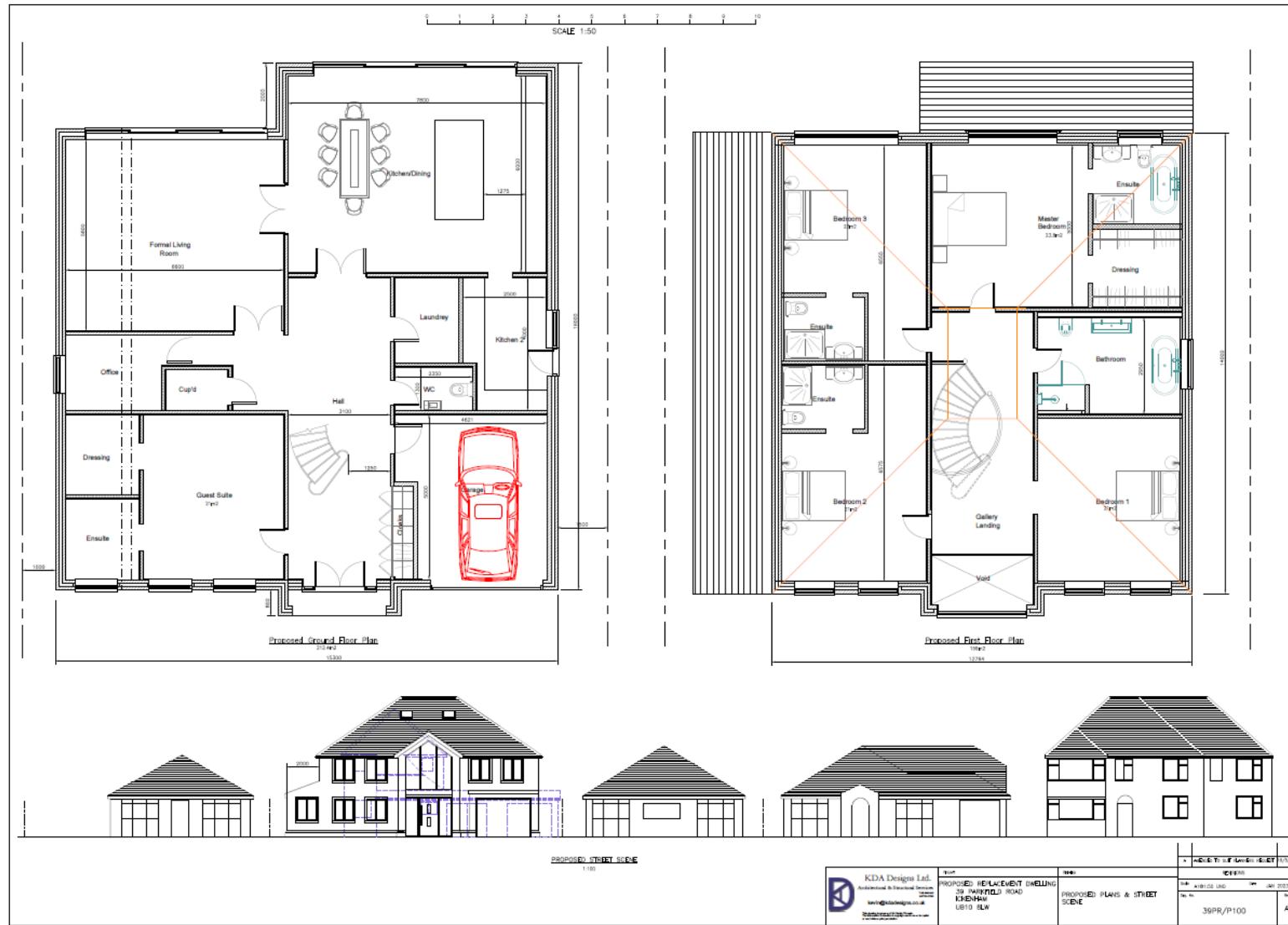


Figure 1: Side Elevation of 37 Parkfield Road



Figure 2: Side Elevation of 37 Parkfield Road



Figure 3: Side Elevation of 41 Parkfield Road



Figure 4: Front Elevation of 41 Parkfield Road



Appendix B

Waldrum Diagrams

Below are the Waldrum diagrams from the neighbouring windows. These diagrams give a 2D view of the 3D outlook. The existing is highlighted in green and proposal in red and as shown, it will have minimal impact.

