



daylight&sunlight

Solar Radiation Report

for the Proposed Development at
53 Hoylake Crescent, Ickenham, Uxbridge UB10 8JF

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1. Introduction

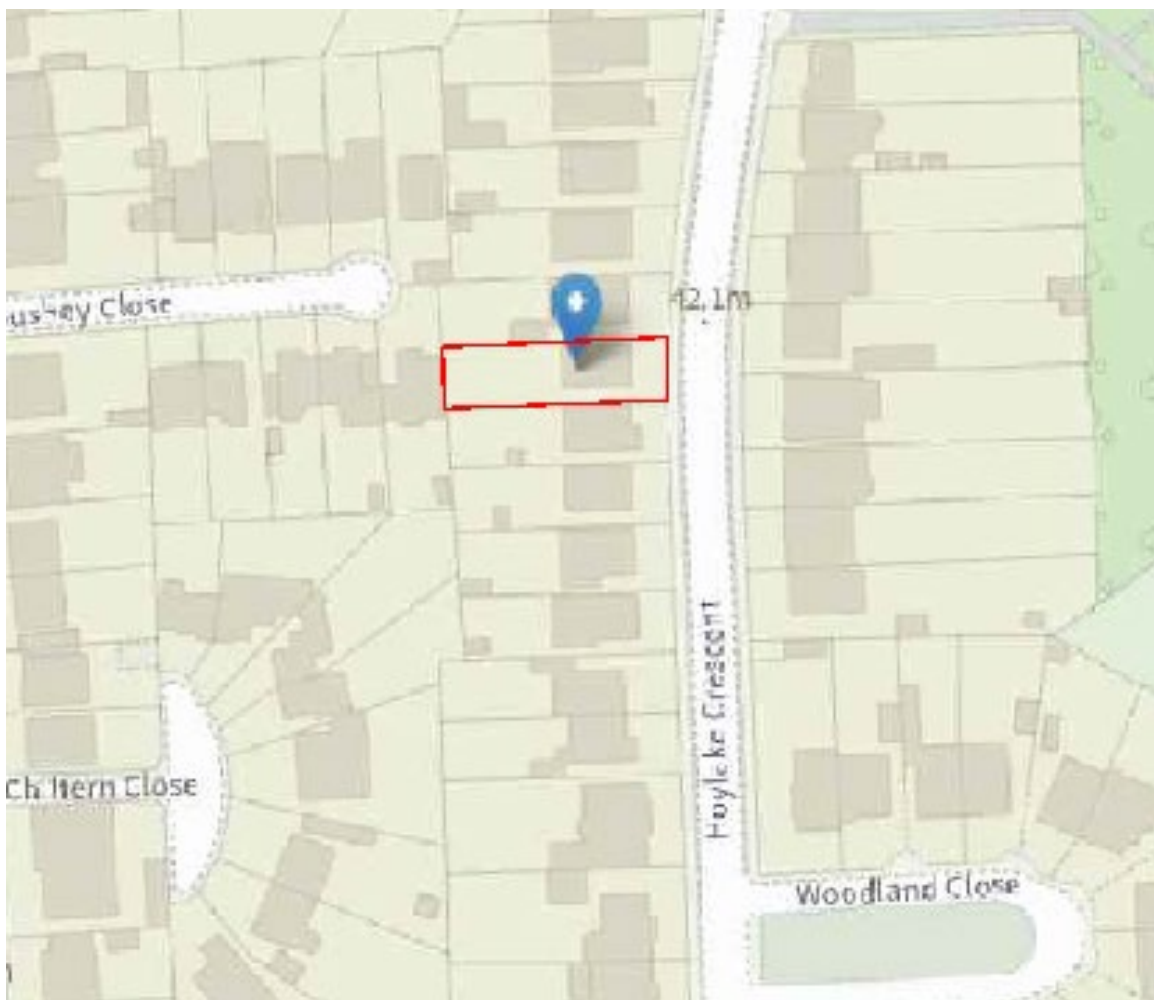
1.1 Scope of Service

- 1.1.1 We have been instructed by Gillet MacLeod Partnership to consider the potential impact upon a neighbouring solar panel, which may arise from the proposed development at 53 Hoylake Crescent, Ickenham, Uxbridge UB10 8JF.

1.2 BRE Assessment Criteria

- 1.2.1 To ensure that this assessment has been appropriately considered, daylight and sunlight assessments have been undertaken in accordance with the Building Research Establishment Report 'Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice' 2022 (the "BRE guide"). It is intended to be used with BS EN 17037, and its UK National Annex, which gives specific minimum recommendations for habitable rooms in dwellings in the United Kingdom.
- 1.2.2 The standards and tests applied within this assessment are briefly described in Appendix A.

Site Location Plan





1.3 Limitations

- 1.3.1 Our assessment is based on the proposed development drawings by Gillett Macleod Partnership.
- 1.3.2 Topographical survey information was not provided for the existing building on site. Where buildings were not surveyed, the locations and heights were derived from site photographs and oblique aerial photography.
- 1.3.3 We refer you to the drawings which accompany this report for a list of the third party information relied upon, which our 3D computer model and resultant analyses are based.

2. Assessment, Results and Consideration

2.1 Existing Site

- 2.1.1 The proposed accommodation comprises a bungalow, situated to the west side of Hoylake Crescent, see accompanying drawing 1945/DSO/01.

2.2 Proposed Accommodation

- 2.2.1 The proposed accommodation will extend the dwelling westwards and increase the height of the roof slightly to incorporate a new floor level within the roof. Dormers will also be introduced to both the north and south sides, see accompanying drawing 1945/DSO/01.

55 Hoylake Crescent

- 2.2.2 Immediately north is 55 Hoylake Crescent. It looks to be a mirror image of the current #53 before itself was extended.
- 2.2.3 To the south sloping roof, there is a large set of 16 solar panels, which is the subject of our report.
- 2.2.4 For our 3D assessment model, we have modelled the existing and proposed massing in detail, along with all the surrounding buildings to ensure that the relevant obstructions to the solar panels are accounted for. This includes dormers, ridgelines, and chimneys where appropriate.
- 2.2.5 For the surrounding obstructions we have used a relatively low value of 0.2 reflectance. It should be noted that there is very little in the way of obstructions here, when compared to much more complicated urban areas.
- 2.2.6 We undertook two main assessments. The first being the Annual Probable Sunlight Hours (APSH) assessment, and the second, a much more detailed climate based Solar Radiation assessment.
- 2.2.7 Turning now to the assessment results: -
- 2.2.8 For APSH, the results showed that there would be no diminution to the available sunlight to the solar panels.



-
- 2.2.9 For the Solar Radiation Assessment, our results show that the solar panels would receive full sun in both the existing and proposed situations, with there being no difference noted.
- 2.2.10 Annual Solar Radiation for the UK usually ranges between 750 kWh/m² and 1100 kWh/m². We have set the highest value in our comparison tables to 1100 kWh/m², which the solar panels will receive in both the existing and the proposed situations.
- 2.2.11 This makes sense because the solar panels face due south, and the proposed ridgeline is not very much higher than the existing ridgeline. So, over the course of an entire year, which is what the climate based assessments are, there would not be an appreciable difference.
- 2.2.12 Accordingly, the proposed development will be BRE compliant.

3. Conclusion

3.1 Solar Radiation

- 3.1.1 We conclude that, following our climate based assessment for Solar Radiation, the solar panels of 55 Hoylake Crescent will not suffer a material diminution.
- 3.1.2 Accordingly, the proposed development will be BRE compliant.

Appendix A

BRE Assessments

BRE Assessments

Assessments to Photovoltaics (PV)

The BRE guidelines states at paragraphs 4.5.2:

“Where a proposed development may result in loss of radiation to existing solar panels (either photovoltaic or solar thermal), an assessment should be carried out.”

It goes on to state at paragraph 4.5.8 that to calculate the loss of solar radiation a more detailed assessment is required.

“The assessment should include both direct solar and diffuse sky radiation; over a whole year, around 60% of the radiation received on a horizontal roof comes from the sky. However, reflected radiation from the ground and obstructions need not be included. The modelling should take account of the effects of cloud in reducing direct solar radiation at different times of year, and include a realistic simulation of the way that incoming solar radiation varies from different parts of the sky.”

Following the modelling and assessment, if the solar radiation received with the new development in place when compared to the existing/current values is less than the following ratios, then the loss of radiation is significant.

The ratios vary upon the slope of the solar panel in degrees to the horizontal.

For a slope of 0 to 30, then the recommended minimum reduction should be 0.90 of the existing value, basically a 10% loss.

For a slope of 30.01 to 59.99, then the recommended minimum reduction should be 0.85 of the existing value, basically a 15% loss.

For a slope of 60 to 90, then the recommended minimum reduction should be 0.80 of the existing value, basically a 20% loss.

It goes on to say that other important issues to consider are whether the solar panels are reasonably sited, at a sensible height and distance from the boundary. A greater loss of solar radiation may be inevitable if panels are mounted close to the road and near to the site boundary.

Appendix B

Context Drawings

Appendix C

Results



Facade Name	Facade Area	Annual Probable Sunlight Hours (APSH) Assessment										
		APSH Existing	APSH Existing %	APSH Proposed	APSH Proposed %	APSH Meets BRE Criteria %	WPSH Existing	WPSH Existing %	WPSH Proposed	WPSH Proposed %	WPSH Meets BRE Criteria	WPSH Meets BRE Criteria %
FACADE 1	21.204382	21.204382	100.00%	21.204382	100.00%	100.00%	21.204382	100.00%	21.204382	100.00%	21.204382	100.00%