



The Daylight Lab

DAYLIGHT & SUNLIGHT ASSESSEMENT

JANUARY 2021, REF: 2102/LIGHT

CLIENT:

SITE ADDRESS:

The Grange
23 Norbury
Thornton Heath
CR7 8JP

CONTENTS:

p2 - Introduction & Site Description
p4 - Methodology
p9 - Data
p11 - Conclusion
p13 - Appendices

AUTHOR:

William Pottinger

DRAFT ONLY



Introduction

This report has been commissioned by [redacted] and produced by The Daylight Lab to assess the impact of the proposed conversion and extension of The Grange, 23 Norbury Road, on the levels of daylight and sunlight enjoyed by neighbouring properties.

The approach is based on the BRE's "Site Layout Planning for Daylight and Sunlight, a Guide to Good Practice", Second Edition, PJ Littlefair 2011, which is generally accepted as good practice by Town and Country Planning authorities.

Existing and proposed plans and elevations can be found in Appendix 1.

Site Description

Positioned on the junction of Norbury Road and Mersham Road, the application site comprises a three storey ex public house with large rear garden area. Neighbouring to the North is a recently developed house to flat conversion at No.25 Norbury Road. To the South and East are storey terraced homes and to the West a mixture of residential and commercial properties. The front elevation of the application property faces approximately North East.



Fig 1. Location Plan. North to top. Do not scale.



Fig 2. Front elevation viewed from Mersham Road.



Fig 3. Aerial view of site from South.



Fig 4. Aerial view of site from East.



Fig 5. Aerial view of site from North.



Fig 6. Aerial view of site from West.

Methodology

Existing and proposed 3D models of the site and neighbouring properties were constructed to a level of detail suitable for testing using OS data, dimensions provided by the client and previously approved planning drawings. The following methods of measurement were then applied as appropriate, using specialist analysis software (MBS Daylight).

Daylight - Vertical Sky Component (VSC)

The Vertical Sky Component is the ratio of the direct sky illuminance falling on the vertical wall at a reference point, to the simultaneous horizontal illuminance under an unobstructed sky. To maintain good levels of daylight, the Vertical Sky Component of a window needs to be 27% or greater. If the VSC is less than 27%, then a comparison of “before” and “after” levels of VSC need to be calculated. Good daylighting can still be achieved if levels are within 0.8 of their former value. Living rooms, kitchens and bedrooms need to be analysed but bathrooms, toilets, storerooms, garages and circulation areas do not.

Daylight – No Sky Line

Where room layouts are known, the impact on the daylight distribution in the existing building can be found by plotting the “no sky line” in each of the main rooms. For houses this would include living rooms, dining rooms and kitchens; bedrooms should also be analysed although they are less important. In non-domestic buildings each main room where daylight is expected should be investigated. The no sky line divides points on the working plane which can and cannot

see the sky (in houses the working plane is 0.85m high and offices 0.7m high). Areas beyond the no sky line usually look dark and gloomy compared with the rest of the room. If following construction of a new development the no sky line moves so that the area of existing room which does not receive direct skylight is reduced to less than 0.8 times its former value this will be noticeable to the occupants.

Sunlight - Annual Probable Sunlight Hours (APSH)

A dwelling or any non-domestic building where there is a particular requirement for sunlight will appear reasonably sunlit provided that at least one main window to a living room (or a commercial space which is deemed to have a special requirement for sunlight) faces within 90° of due South and receives at least 25% of the annual probable sunlight hours (APSH), including at least 5% during the winter (WPSH), between the 21st of September and 21st of March. APSH refers to the total number of hours in the year that the sun is expected to shine on unobstructed ground, allowing for average levels of cloudiness for the location in question (in this case the data used was for the Greater London area). If as a result of a proposal a neighbouring window receives less than 25% of APSH or 5% WPSH, either figure is less than 0.8 times of its former value and there is a reduction in APSH greater than 4% then sun lighting will be adversely affected.

Sunlight - Overshadowing of Amenity Space

The availability of sunlight in open spaces such as rear gardens can be checked by analysing the overshadowing that results from a proposal. BRE recommend that *"at least half of the 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 which can receive two hours of sun on 21 March is less than 0.8 times its former value, then the loss of light is likely to be noticeable."*

The following figures 7-12 show the existing and proposed models as tested. Figure 13 then provides window references for those tested at No.25 Norbury Road.

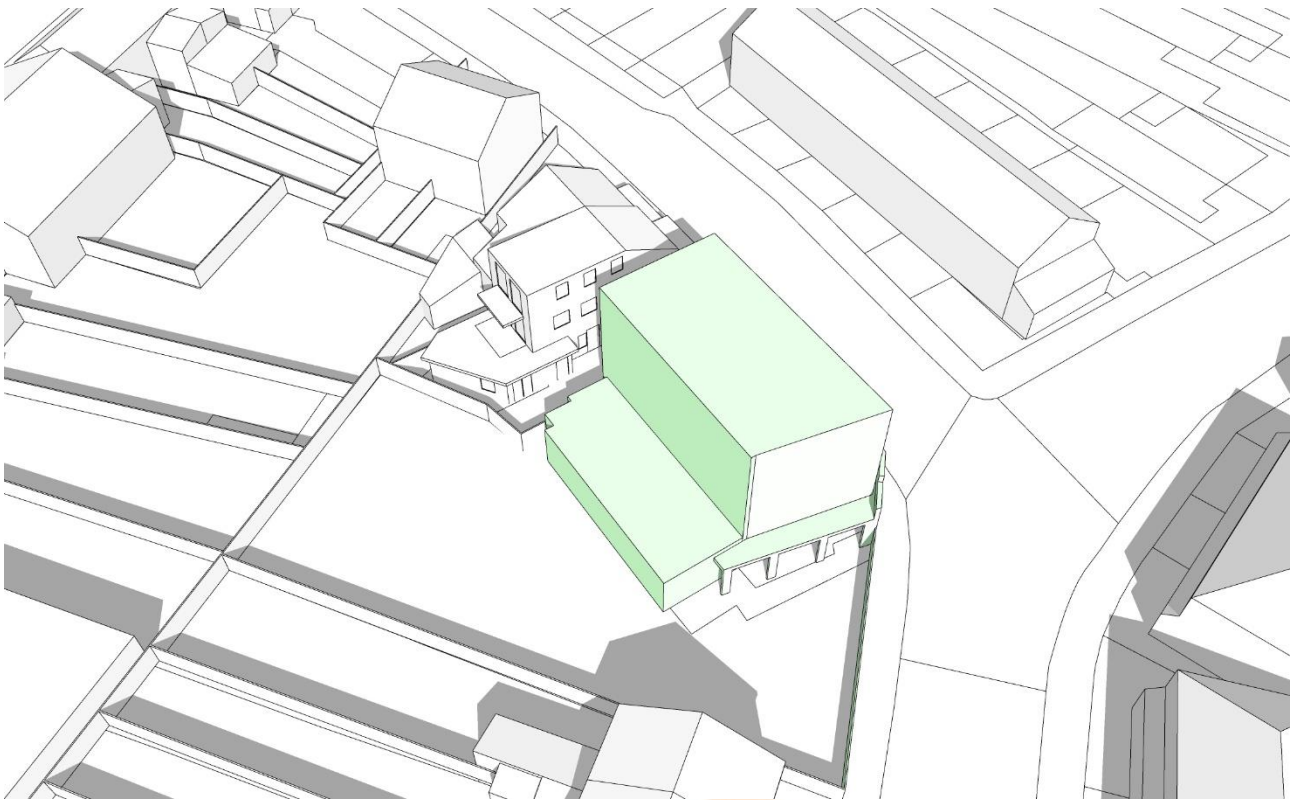


Fig 7. As existing 3D model viewed from South. Shadows set to 12pm, 21st March.

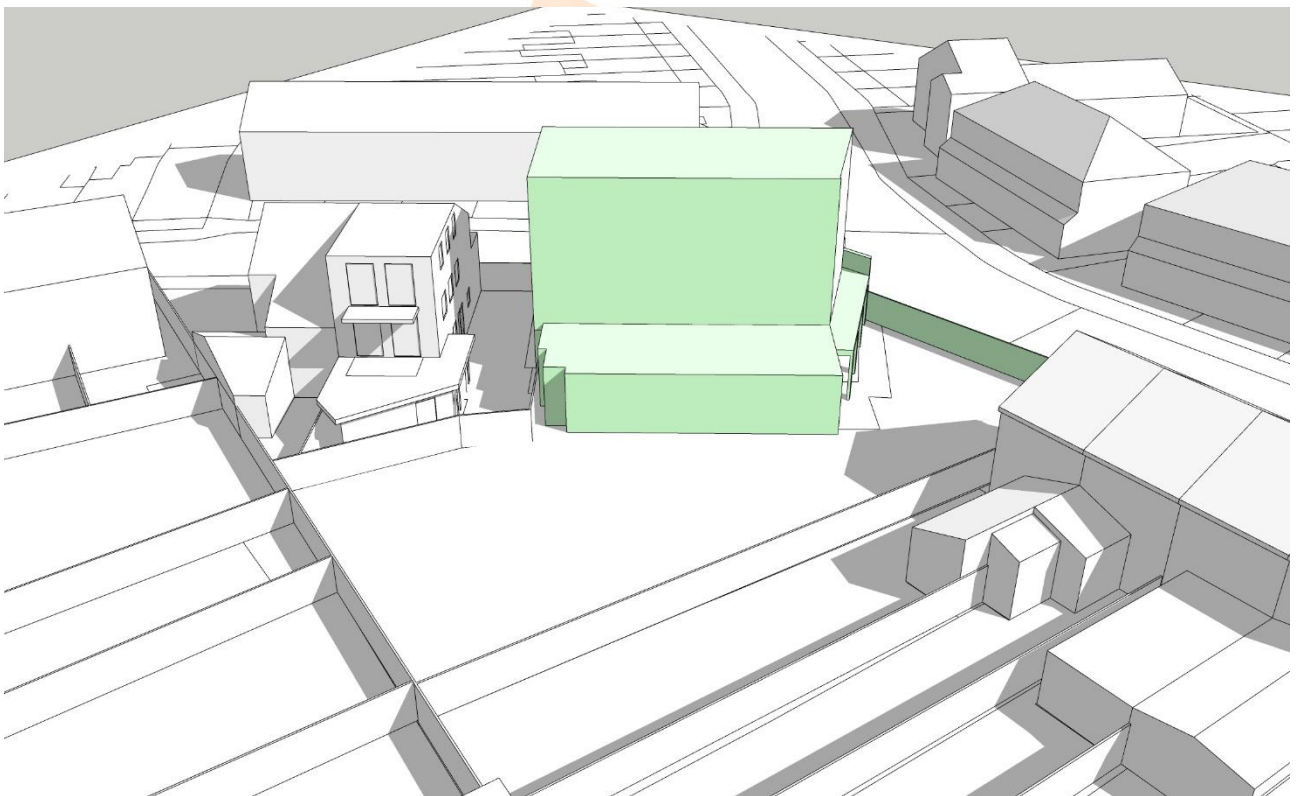


Fig 8. As existing 3D model viewed from South West. Shadows set to 12pm, 21st March.

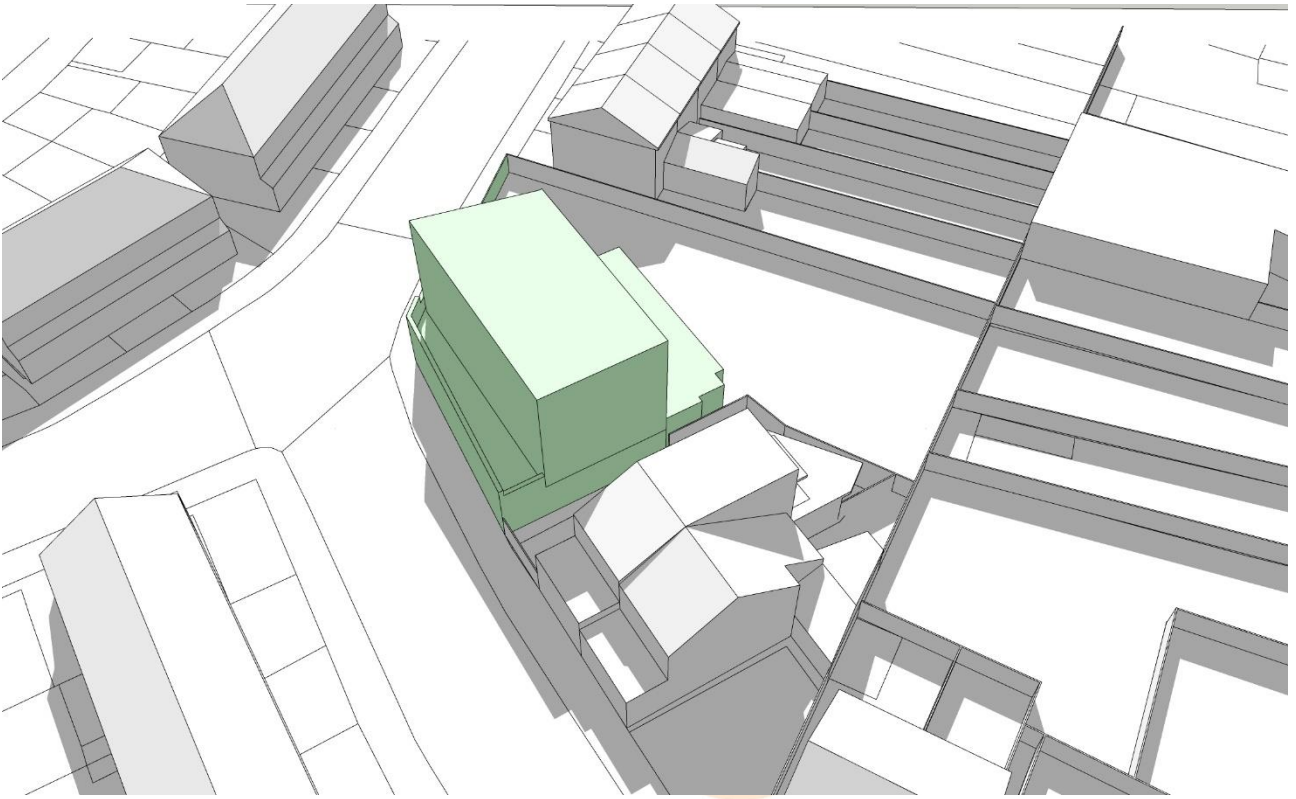


Fig 9. As existing 3D model viewed from North. Shadows set to 12pm, 21st March.

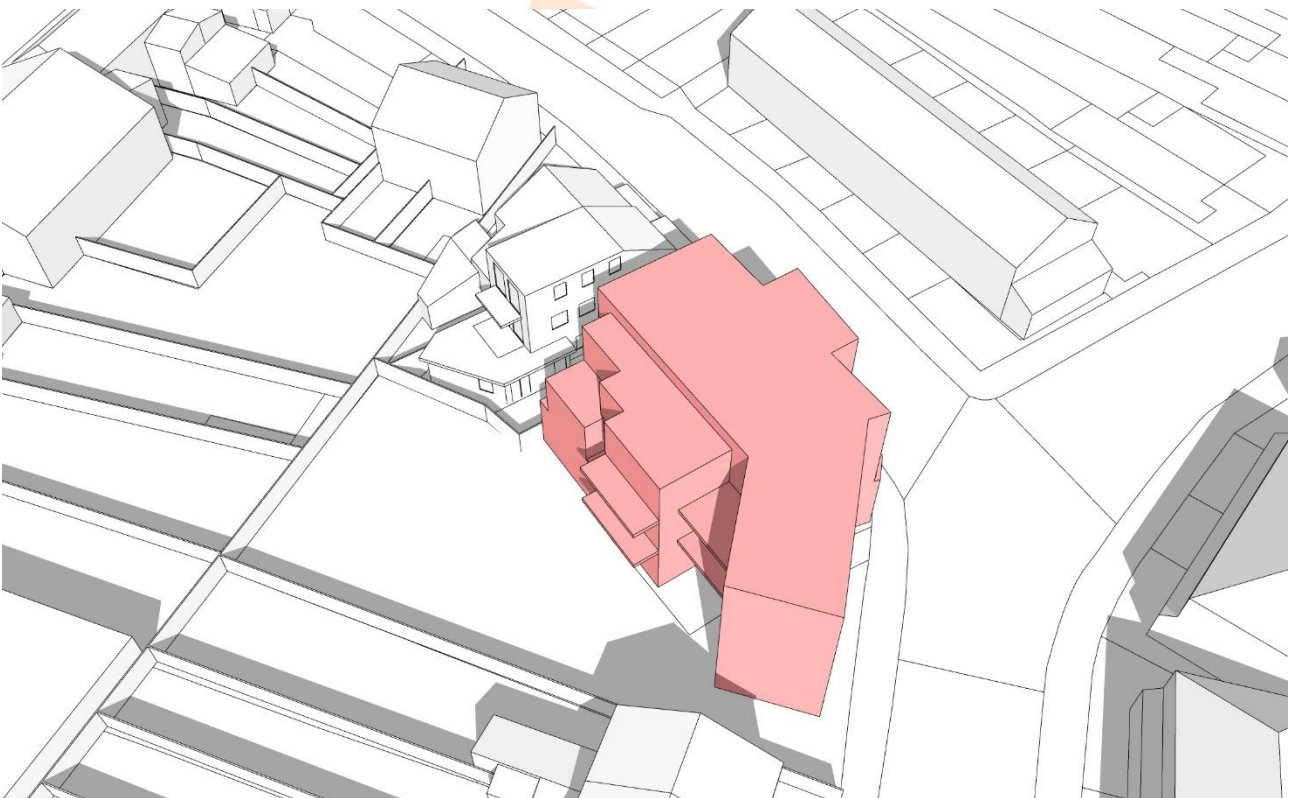


Fig 10. As proposed model viewed from South. Shadows set to 12pm, 21st March.

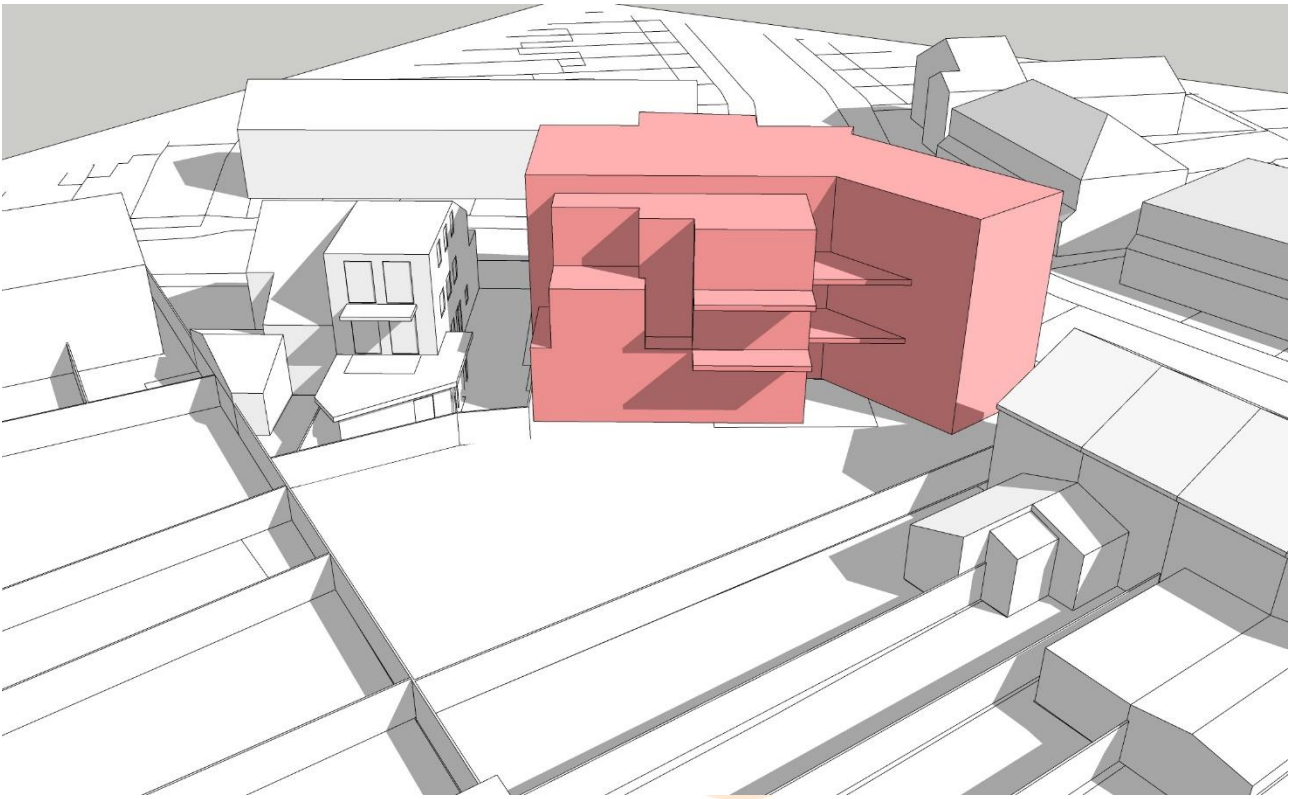


Fig 11. As proposed model viewed from South West. Shadows set to 12pm, 21st March.

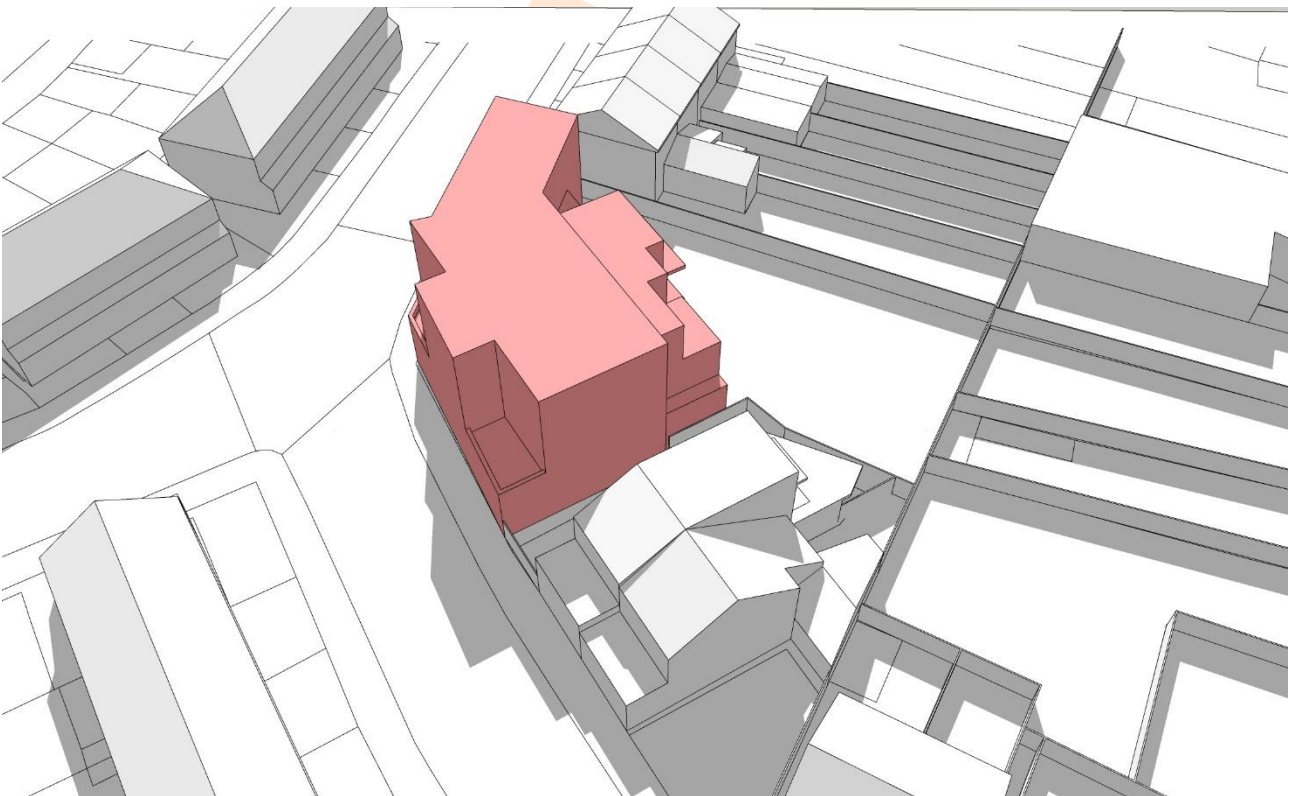


Fig 12. As proposed model viewed from North. Shadows set to 12pm, 21st March.

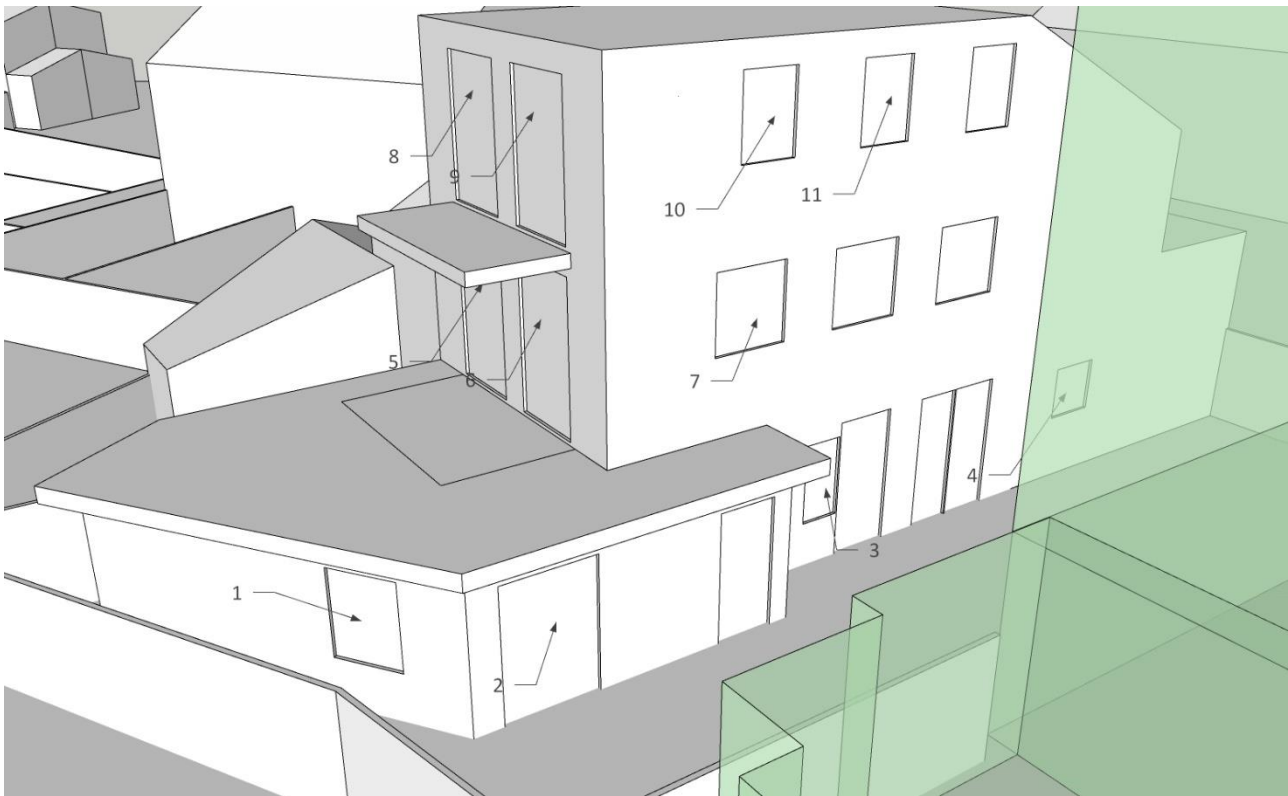


Fig 13. Rear/side elevation of No.25 Norbury Road with window references indicated (habitable rooms only).

Data

Daylight - Vertical Sky Component (VSC)

The following table compares existing and proposed VSC results. Waldrum Diagrams for relevant windows can be found in Appendix 2.

Window Id	Room Type	Vsc Existing	Vsc Proposed	Pr/Ex	Pass?
1	Living	28.27096	27.33974	0.97	YES
2	Living	19.46572	15.57832	0.80	YES
3	Bedroom	12.43325	8.191358	0.66	NO*
4	Living	13.90825	12.94591	0.93	YES
5	Living	18.02756	17.93022	0.99	YES
6	Living	18.09636	17.9084	0.99	YES
7	Living	25.01732	18.97287	0.76	NO*
8	Living	38.91388	38.89663	1	YES
9	Living	38.93323	38.90467	1	YES
10	Living	28.64681	25.77405	0.9	YES
11	Living	23.60485	22.41594	0.95	YES

* See conclusion

Daylight – No Sky Line

The internal layouts of No.25 was unknown so measurements of the No Sky Line could not be taken. Please see conclusion.

Sunlight - Annual Probable Sunlight Hours (APSH/WPSH)

The following table compares existing and proposed APSH/WPSH results.

Window Id	Room Type	Window Orientation	Annual Ex	Annual Pr	Pr/Ex	Pass ?	Winter Ex	Winter Pr	Pr/Ex	Pass ?
1	Living	203°	68	64	0.94	YES	24	21	0.88	YES
2	Living	148°	45	38	0.84	YES	18	18	1	YES
3	Bed-room	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
4	Living	148°	33	30	0.91	YES	6	5	0.83	YES
5	Living	238°	24	23	0.96	YES	13	12	0.92	YES
6	Living	238°	36	34	0.94	YES	22	20	0.91	YES
7	Living	148°	52	45	0.87	YES	22	16	0.73	YES
8	Living	238°	64	64	1	YES	23	23	1	YES
9	Living	238°	64	64	1	YES	23	23	1	YES
10	Living	148°	61	59	0.97	YES	22	20	0.91	YES
11	Living	148°	53	52	0.98	YES	15	14	0.93	YES

Sunlight - Overshadowing of Amenity Space

The following table compares the existing and proposed % area of neighbouring garden that will receive at least two hours of direct sunlight on the 21st of March. Gradient maps indicating the sunlight distribution can be found in Appendix 3.

AMENITY AREA	EXISTING % OF AMENITY AREA THAT RECEIVES 2 HOURS+ OF DIRECT SUNLIGHT ON THE 21 ST OF MARCH	PROPOSED % OF AMENITY AREA THAT RECEIVES 2 HOURS+ OF DIRECT SUNLIGHT ON THE 21 ST OF MARCH	PR/EX	PASS?
No.25 Norbury Road side garden.	61.63%	51.71%	0.84	YES
No.19 Norbury Road rear garden	72.72%	72.72%	1	YES

Conclusion

Daylight - Vertical Sky Component (VSC)

9 out of 11 windows tested at No.25 Norbury Road exceeded minimum acceptable figures for loss of daylight. Windows 3 and 7 fell slightly below BRE guidelines.

Window 3 serves a bedroom that is single aspect and closely faces the existing three storey flank wall of No.23. It is unclear why the conversion of No.25 was approved as such, as the layout offers well below

acceptable standards of design and amenity for new dwellings, and issues have been further compounded by the developer not building to the approved plans. Loss of daylight to such a room is therefore unavoidable if the owner of No.23 is to carry out even a modest extension and the BRE guide is clear to state that: *"Another important issue is whether the existing building is itself a good neighbour, standing a reasonable distance from the boundary and taking no more than its fair share of light."* (Page 7, para 2.2.3). It is therefore clear that this slight shortfall in daylight must not be used to unfairly limit reasonable development at No.23, and is solely the result of the poorly built layout at No.25.

Window 7 serves a living room that also enjoys two large glazed doors that receive high levels of daylight, unimpacted by the proposals at No.23. The minor shortfall in daylight experienced by this side facing window is therefore not deemed to be of any significance and the room will remain well daylight regardless.

Daylight – No Sky Line

Due to the developer of No.25 not building to the approved plans there was no way of knowing the internal dimensions of the property's habitable rooms so tests for daylight distribution could not be carried out. However the positive VSC results and clear views of the sky from the rear facing living room windows indicate that there will be no undue change to daylight distribution experienced throughout the principal living spaces.

Sunlight - Annual Probable Sunlight Hours (APSH/WPSH)

All relevant windows tested met BRE guidelines for loss of sunlight.

Sunlight - Overshadowing of Amenity Space

All neighbouring amenity areas met BRE guidelines for loss of sunlight.

Closing Statement

No undue loss of daylight or sunlight will be experienced by neighbouring properties as a result of the proposed development at No.23 Norbury Road.

It is therefore the opinion of The Daylight Lab that the proposal satisfies BRE requirements for both daylight and sunlight.



William Pottinger, The Daylight Lab, January 2021.

APPENDIX 1

Existing and Proposed Plans and Elevations
(Do not scale)

DRAFT ONLY



DRAFT ONLY



DRAFT ONLY



DRAFT ONLY



DRAFT ONLY



DRAFT ONLY



DRAFT ONLY



DRAFT ONLY



DRAFT ONLY



DRAFT ONLY



DRAFT ONLY



DRAFT ONLY



DRAFT ONLY



DRAFT ONLY



DRAFT ONLY



DRAFT ONLY



APPENDIX 2

VSC Waldrum Diagrams.

DRAFT ONLY



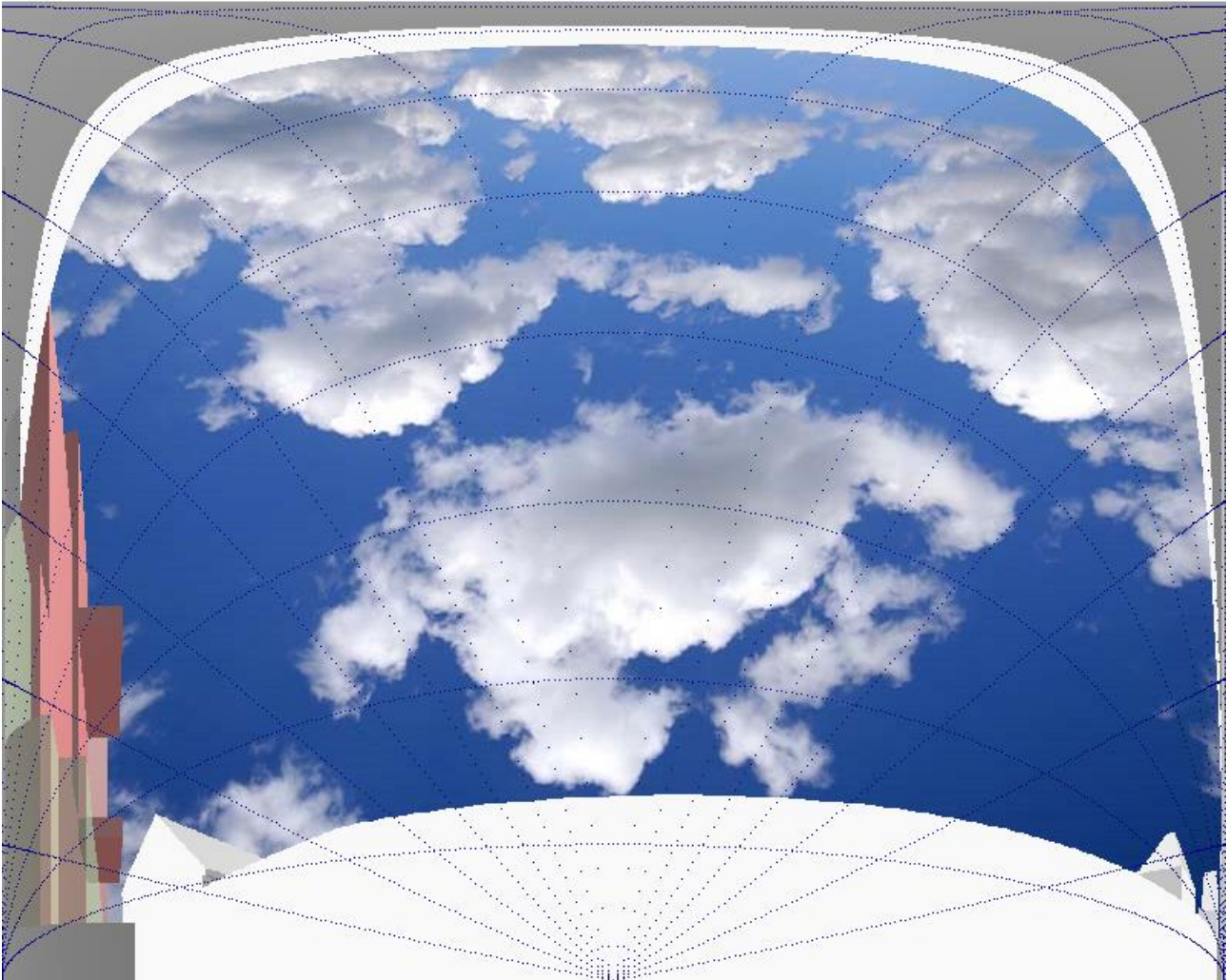


Fig 14. Waldrum Diagram for Window 1.

DRAFT

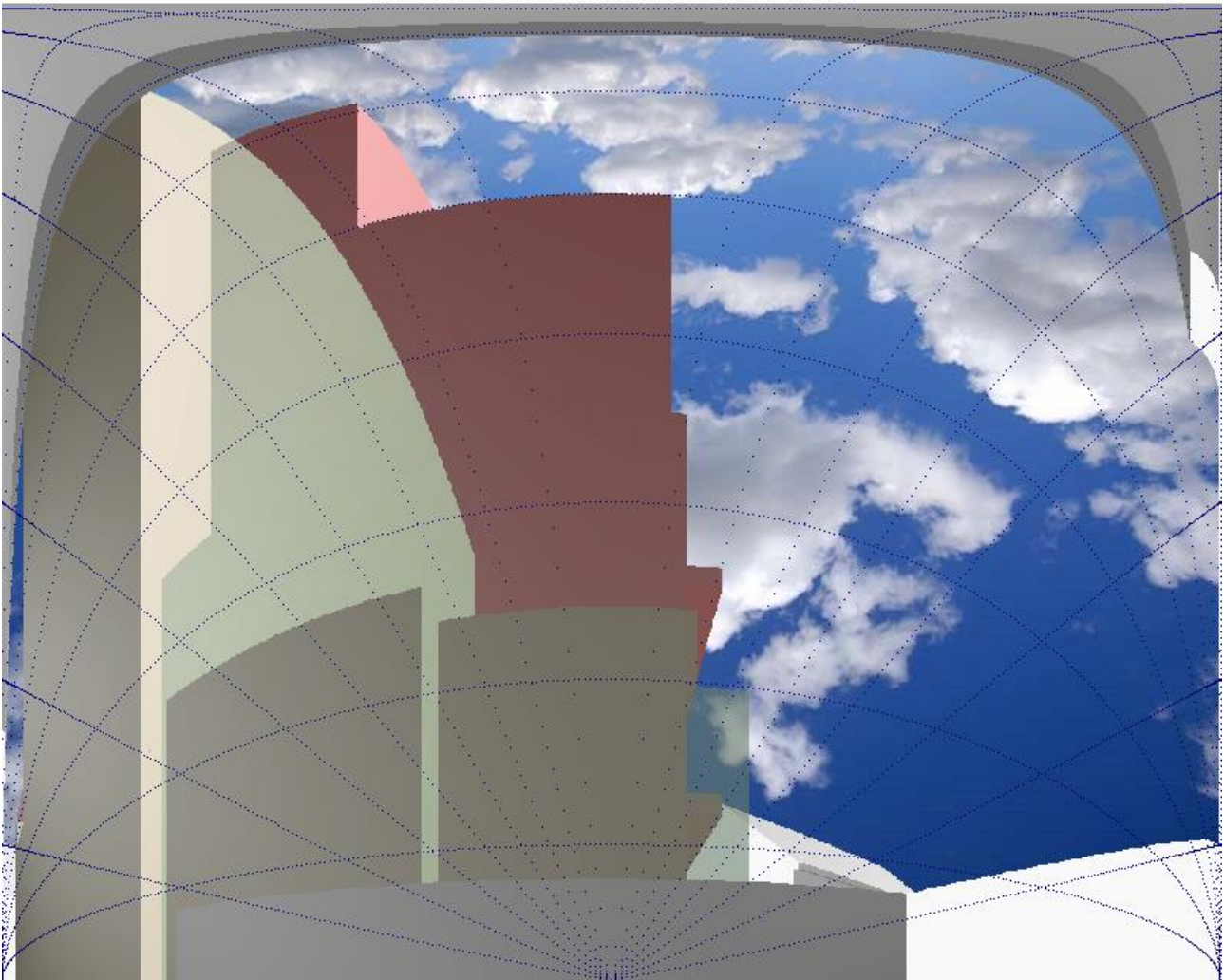


Fig 15. Waldrum Diagram for Window 2.

DRAFT

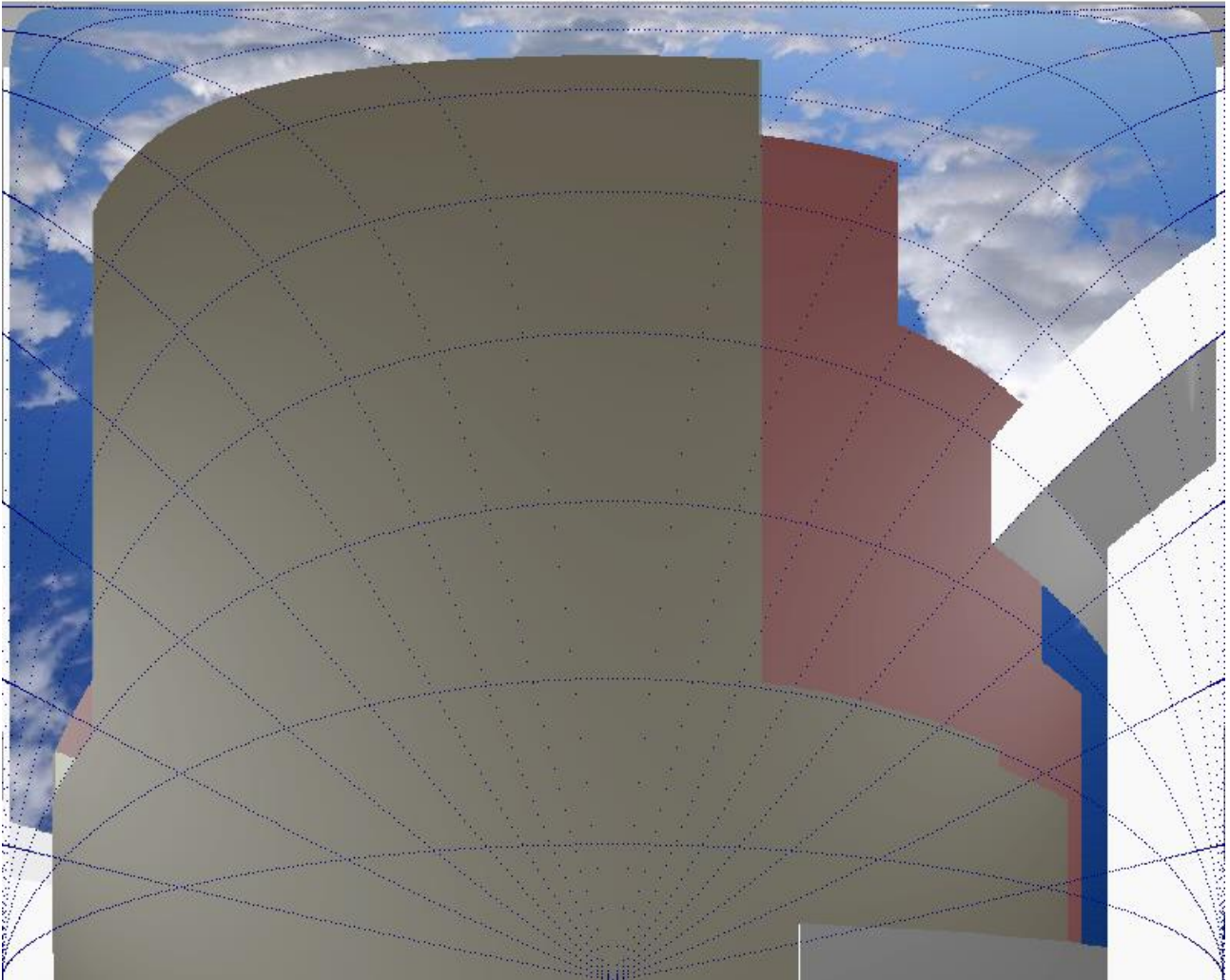


Fig 16. Waldrum Diagram for Window 3.

DRAFT

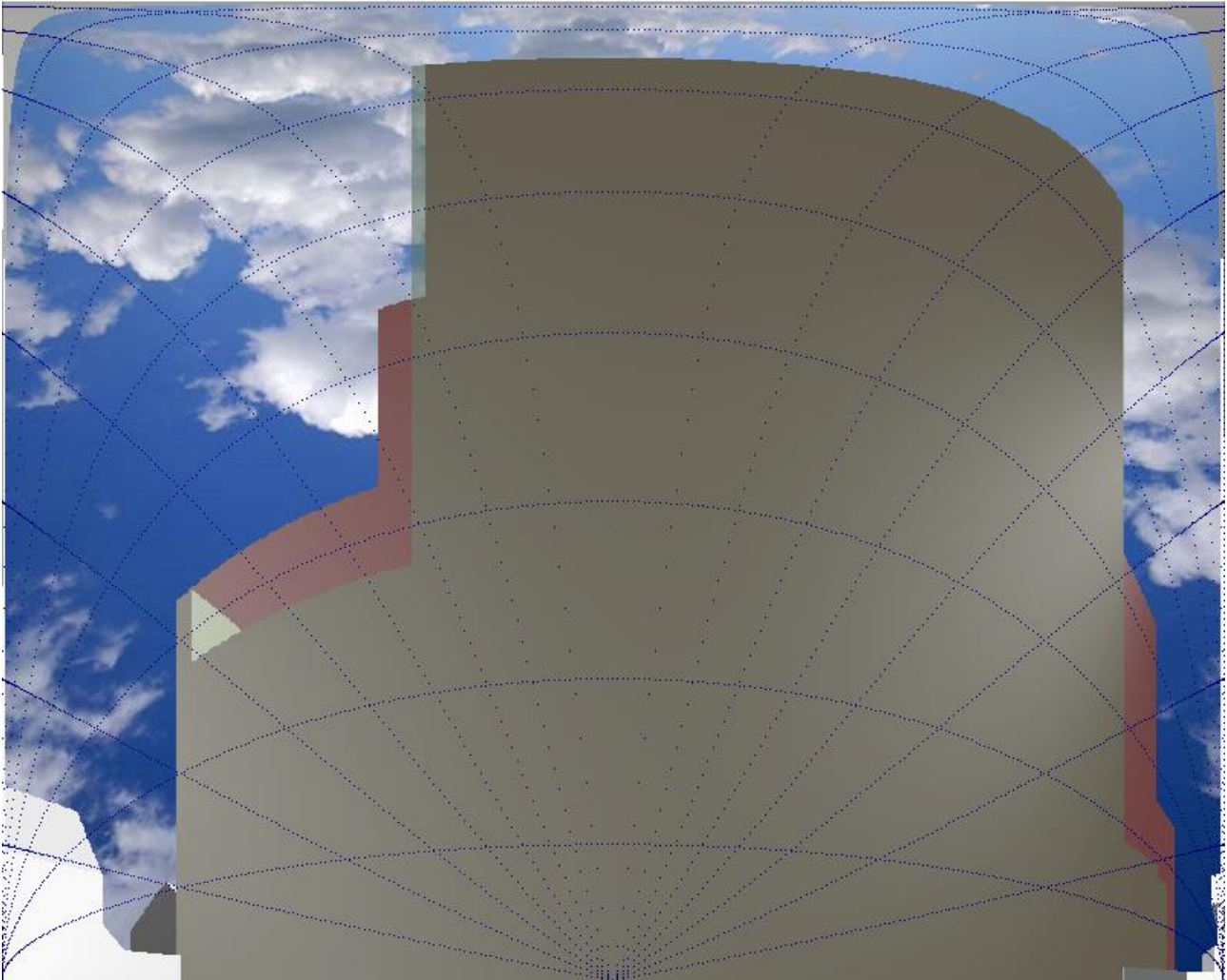


Fig 17. Waldrum Diagram for Window 4.

DRAFT

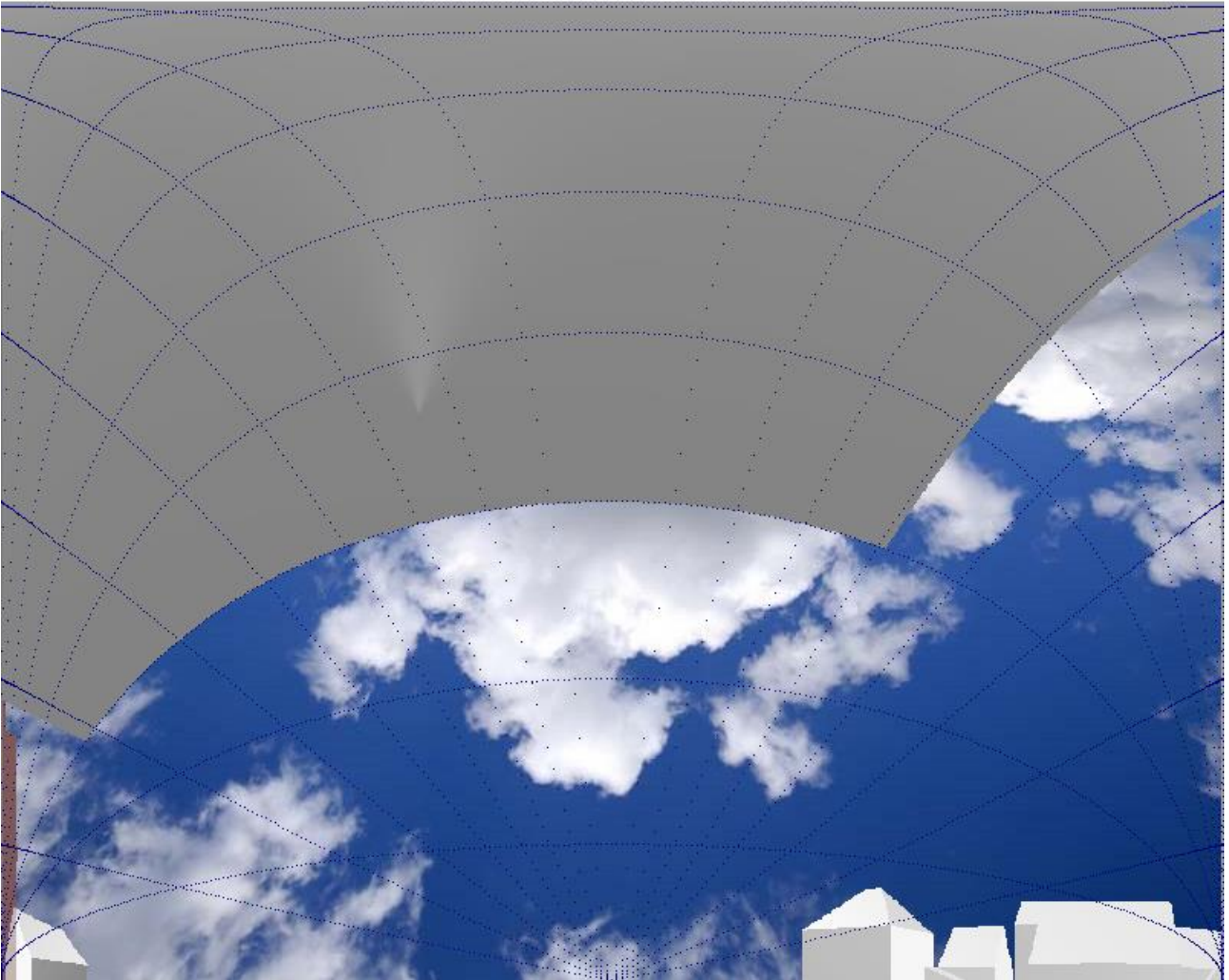


Fig 18. Waldrum Diagram for Window 5.

DRAFT

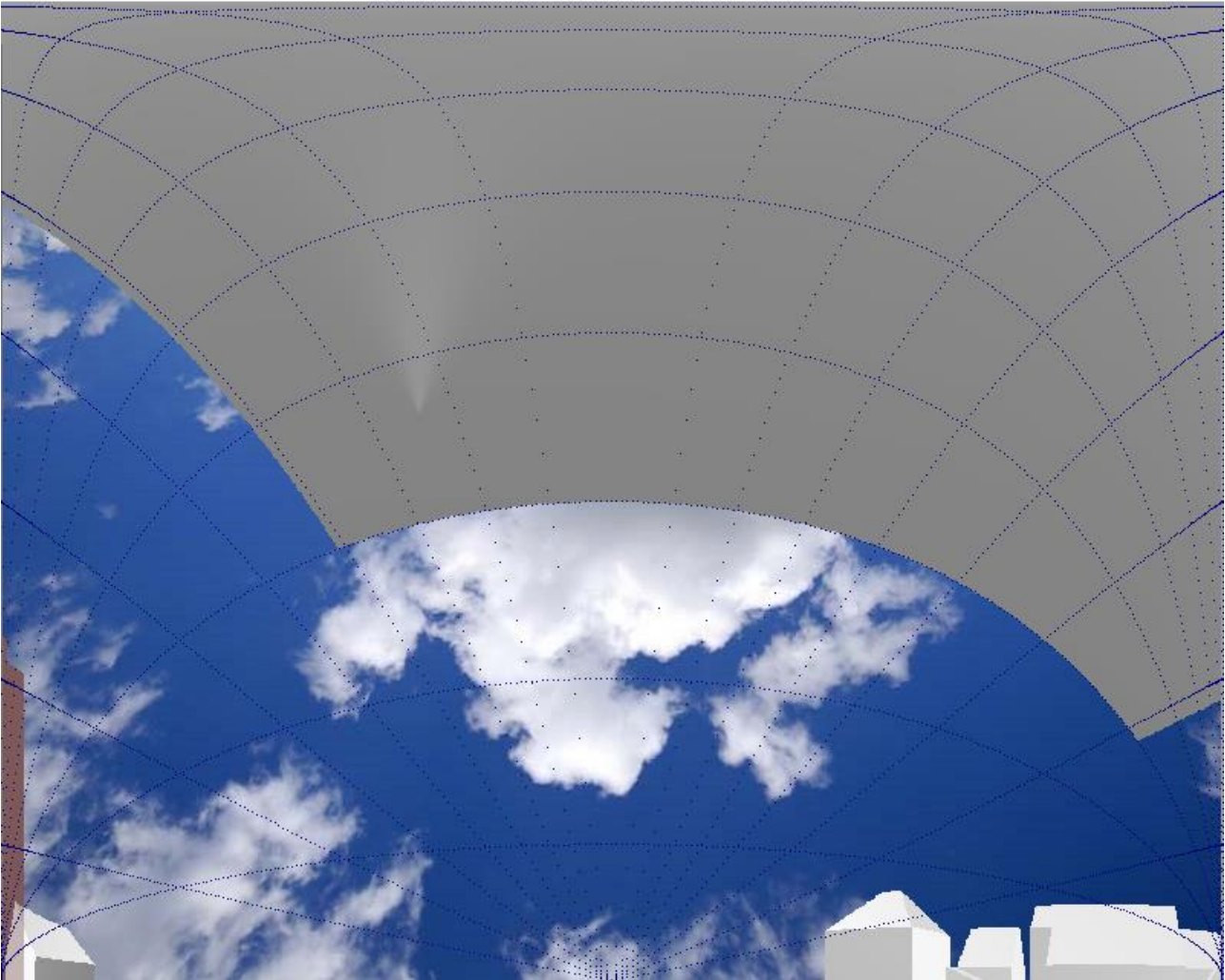


Fig 19. Waldrum Diagram for Window 6.

DRAFT

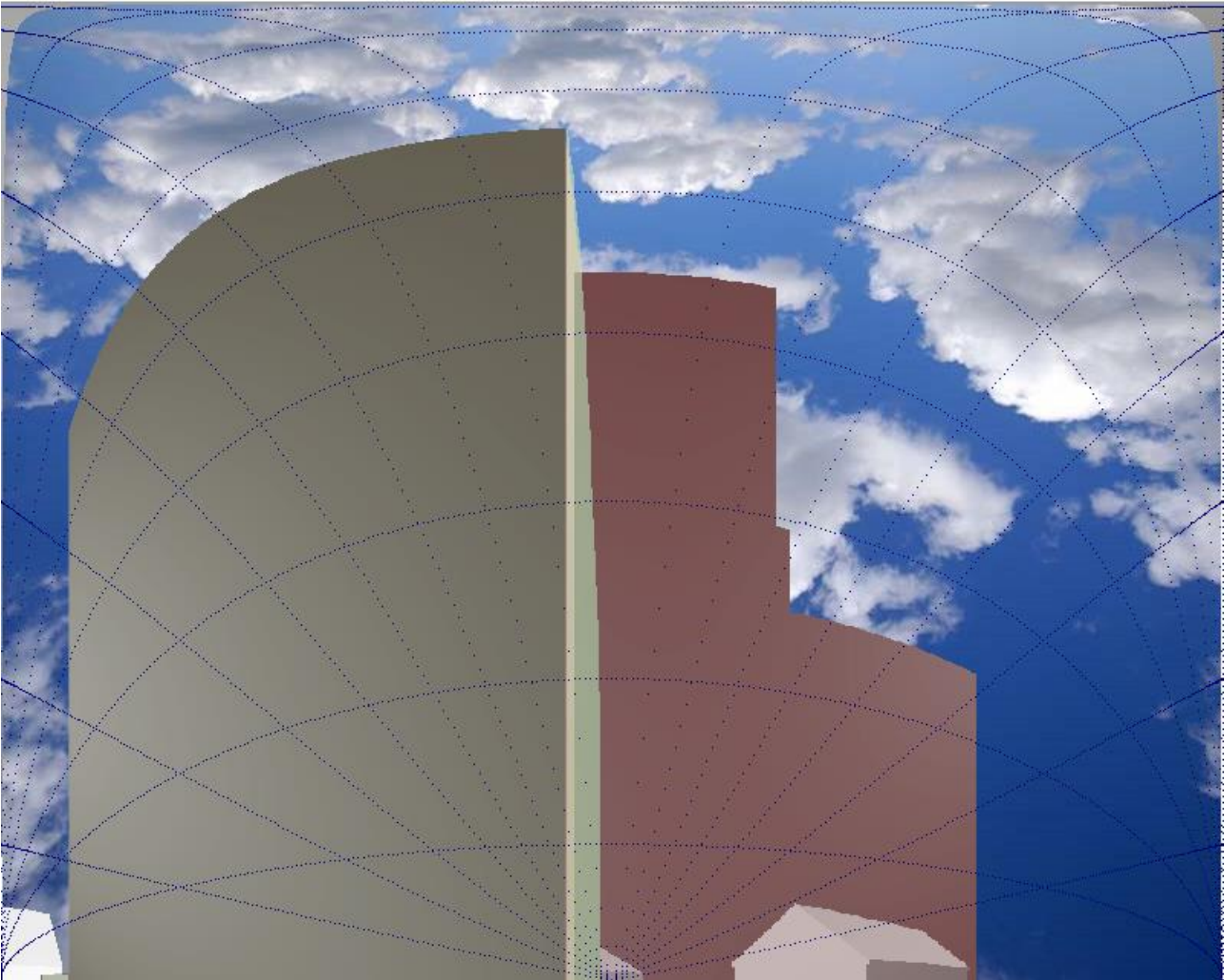


Fig 20. Waldrum Diagram for Window 7.

DRAFT

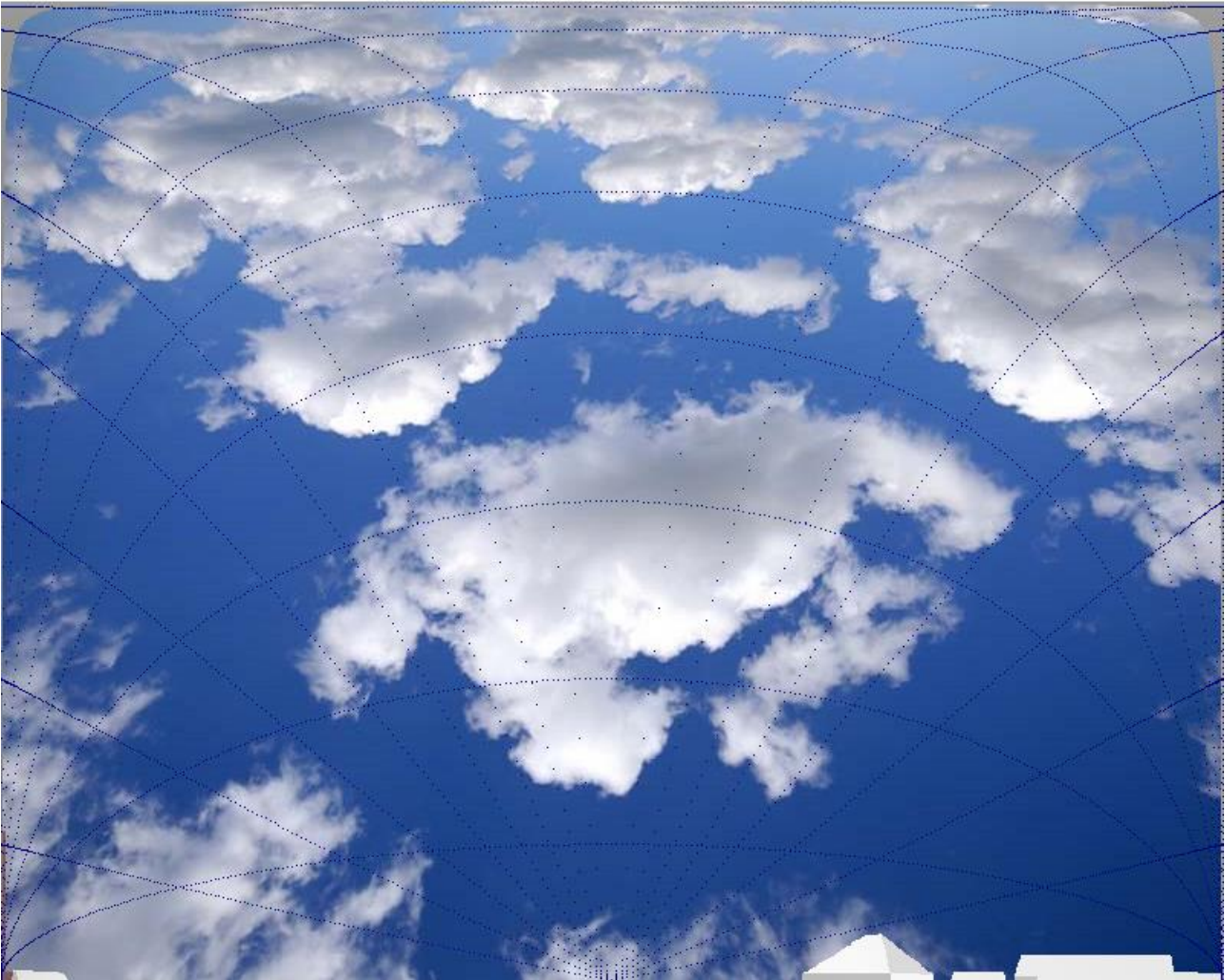


Fig 21. Waldrum Diagram for Window 8.

DRAFT

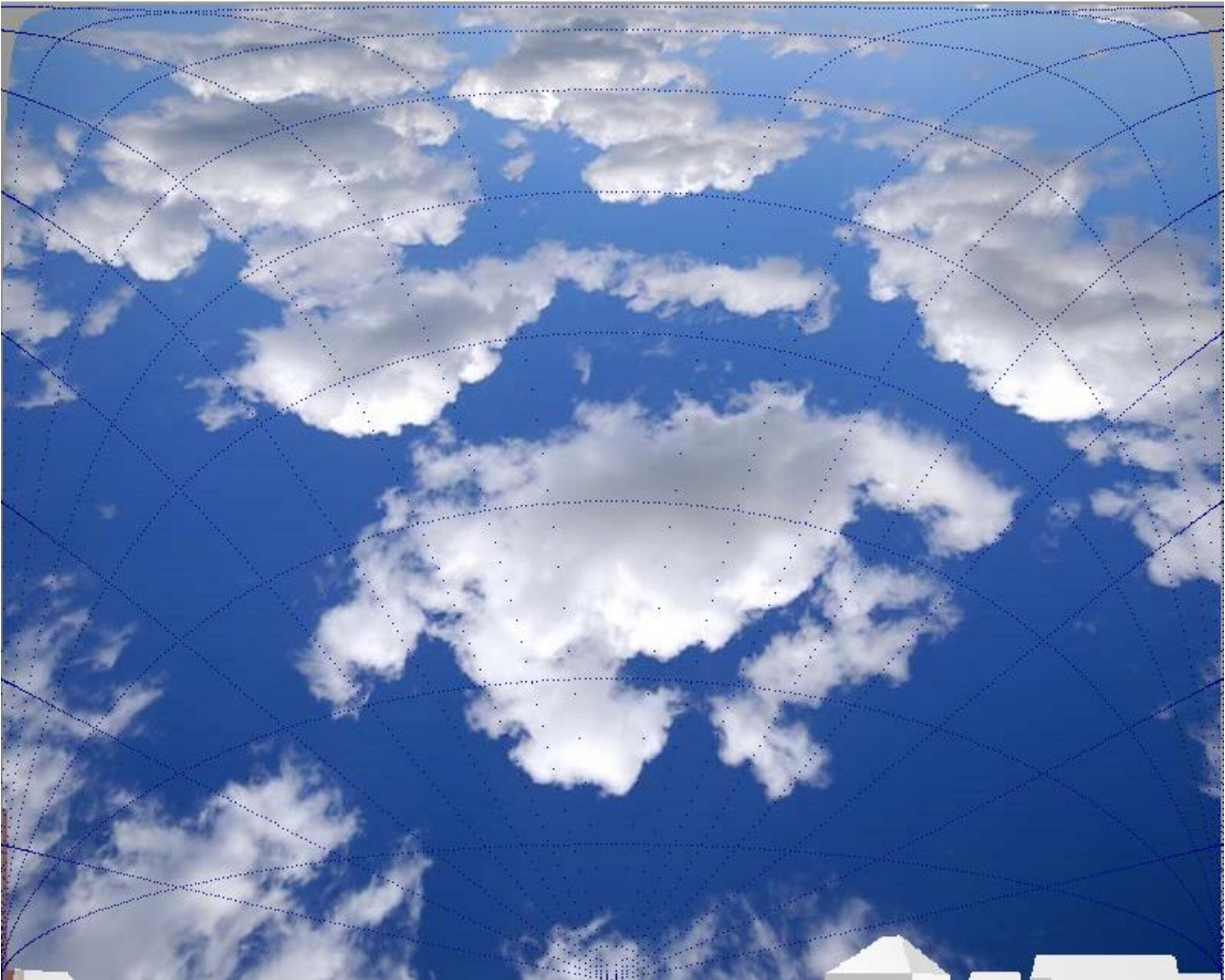


Fig 22. Waldrum Diagram for Window 9.

DRAFT

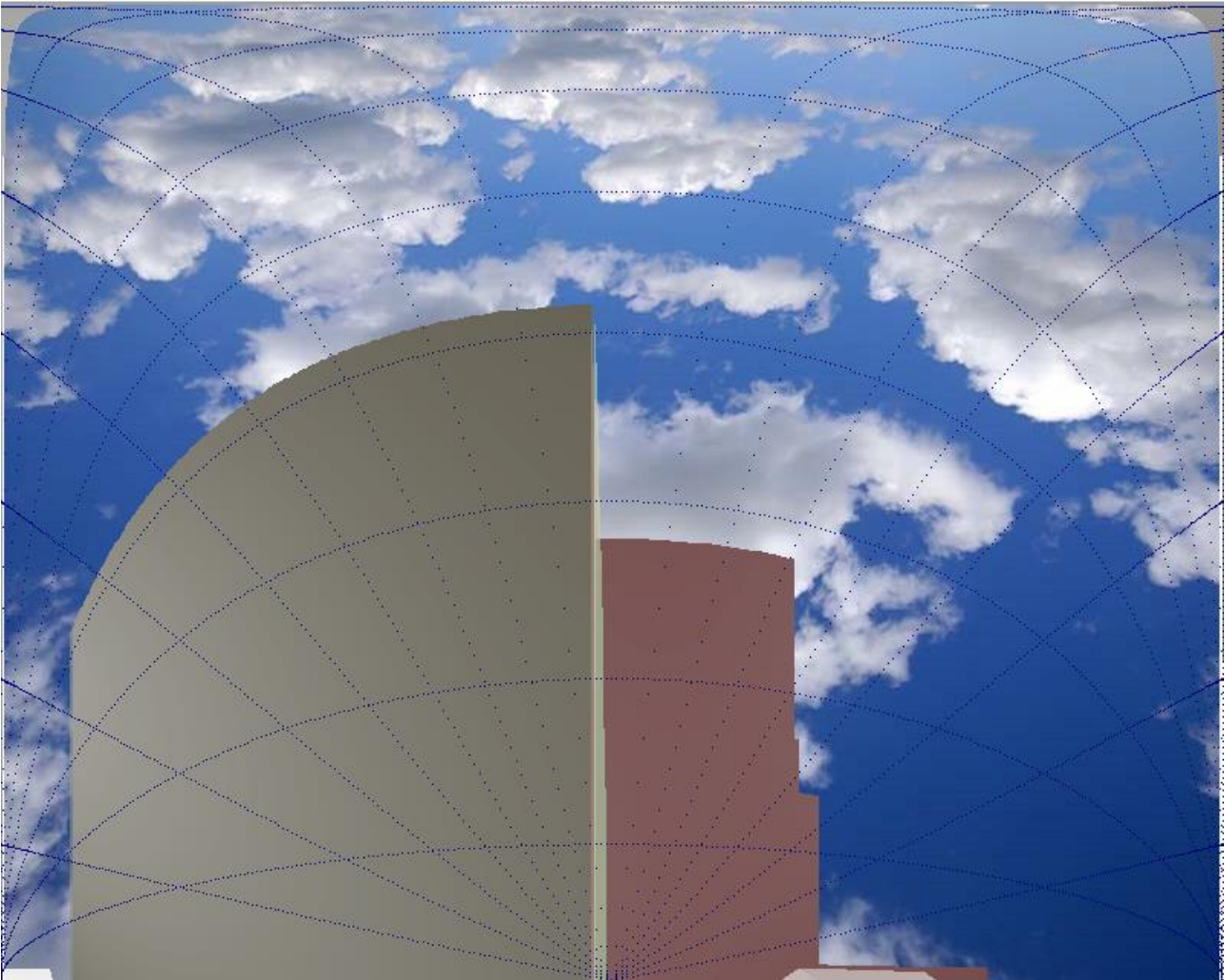


Fig 23. Waldrum Diagram for Window 10.

DRAFT

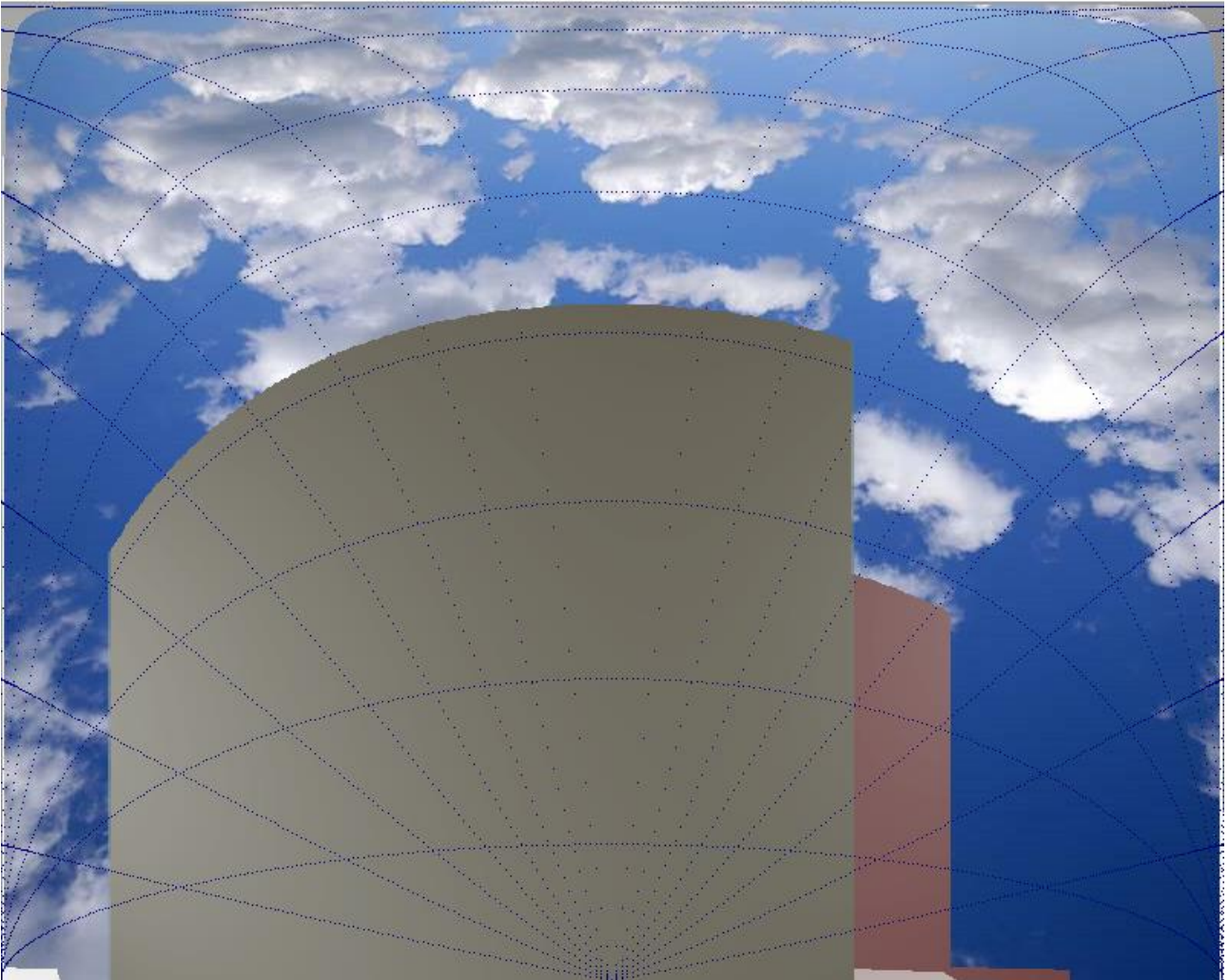


Fig 24. Waldrum Diagram for Window 11.

DRAFT

APPENDIX 3

Neighbouring Amenity Areas - Gradient Maps and Shadows on 21st March 12pm.

DRAFT ONLY



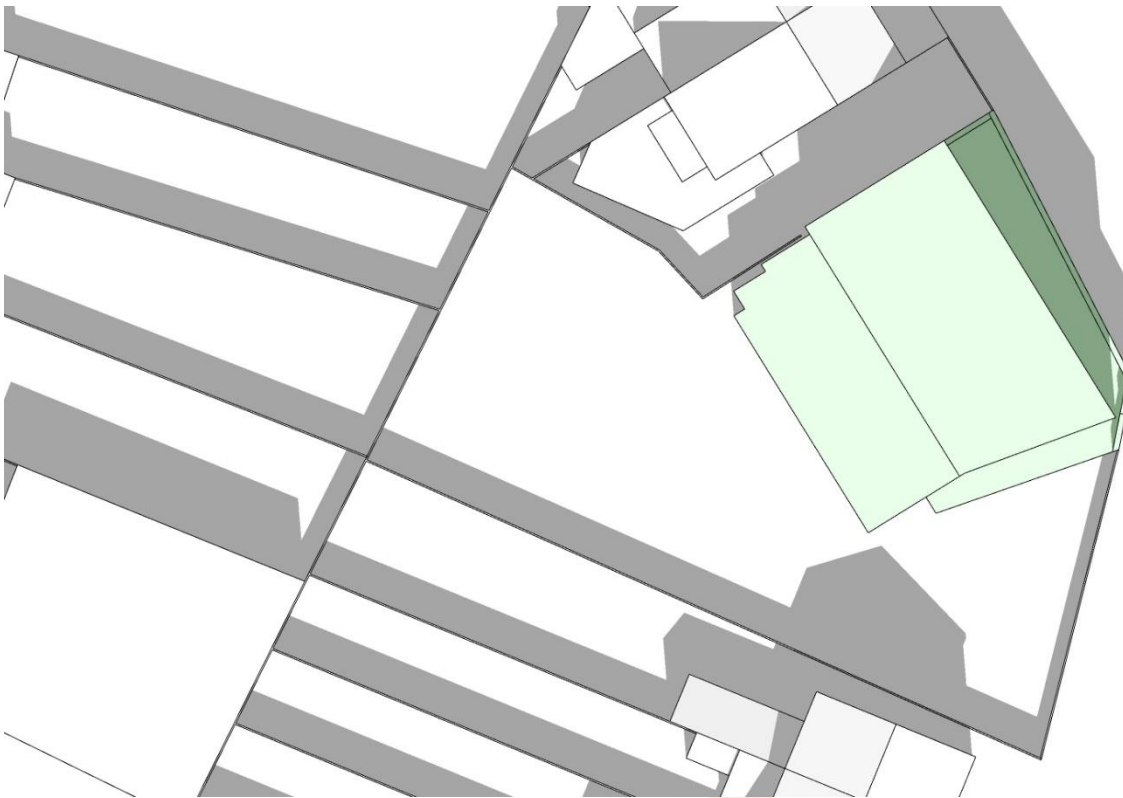


Fig 25. Neighbouring rear gardens, as existing shadows, 21st March 12pm.

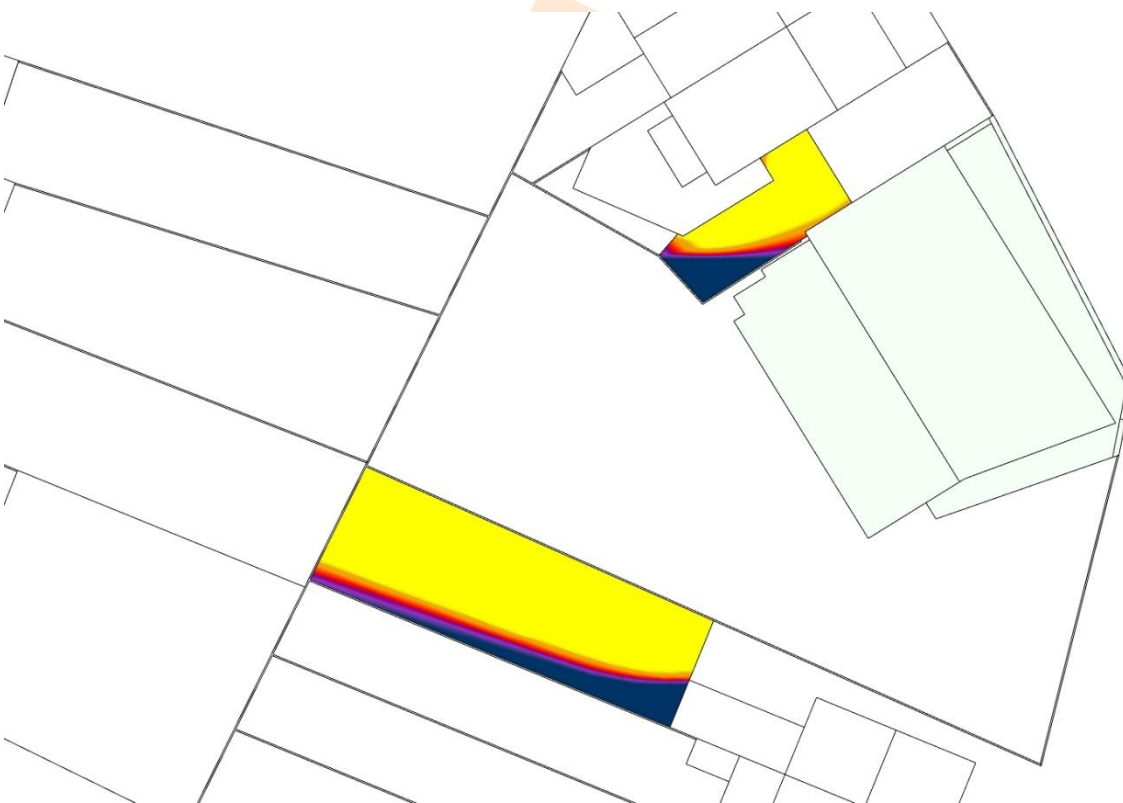


Fig 26. Neighbouring rear gardens, as existing Sunlight Hours, 21st March

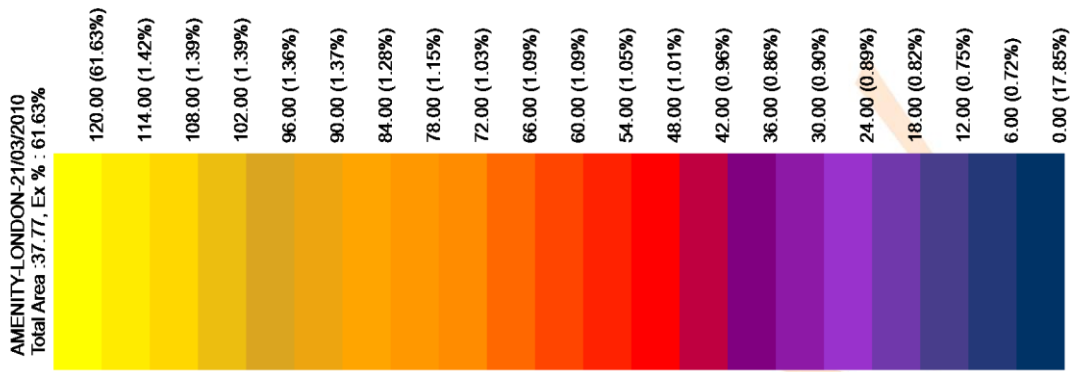


Fig 27. Legend – No.25 Grant Rd

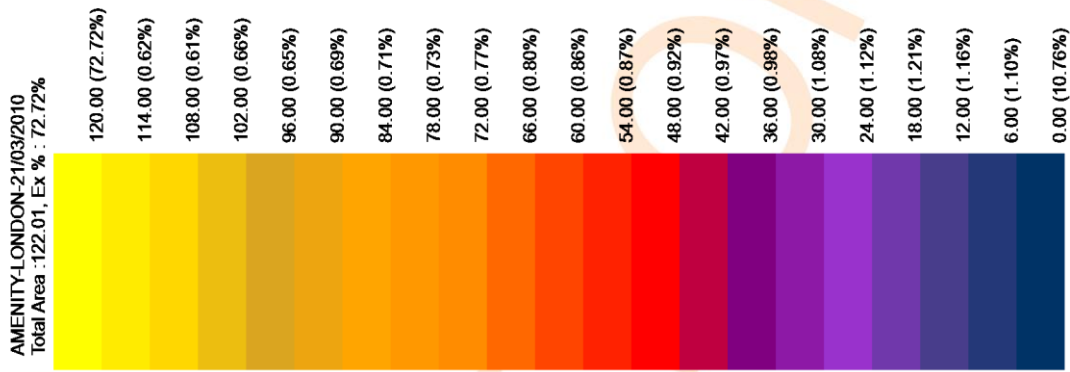


Fig 28. Legend – No.19 Grant Rd

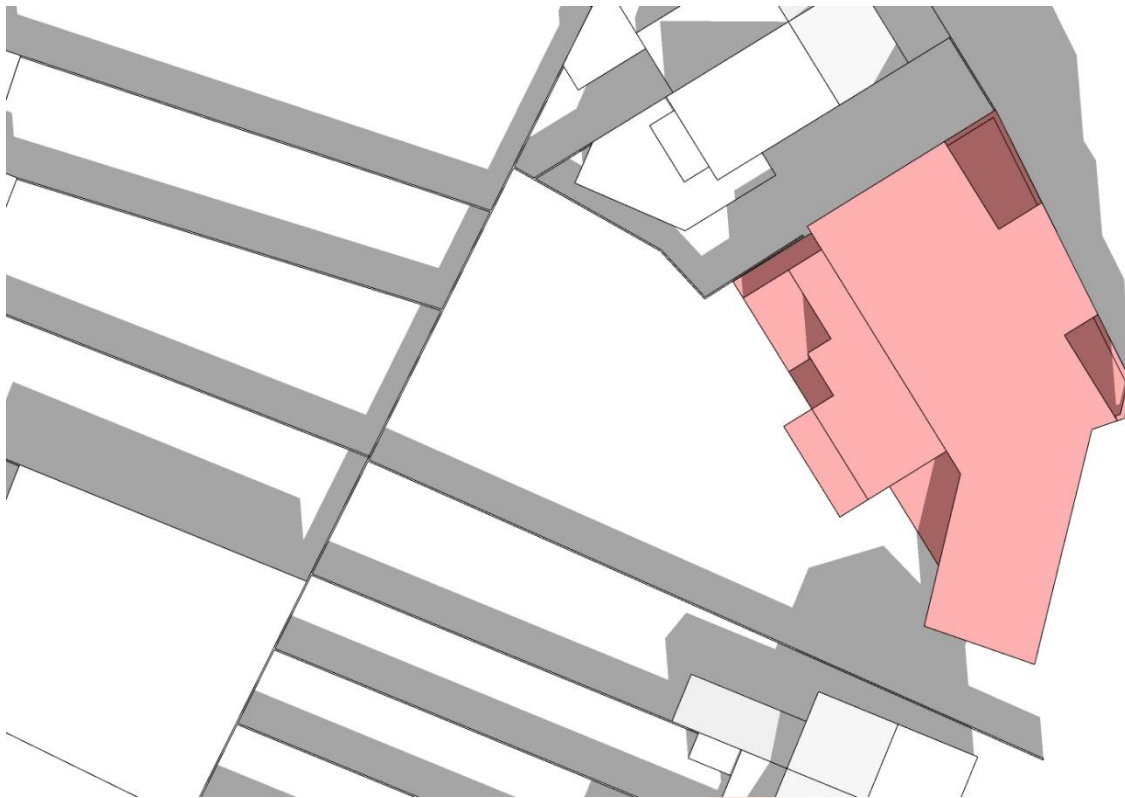


Fig 29. Neighbouring rear gardens, as proposed shadows, 21st March 12pm

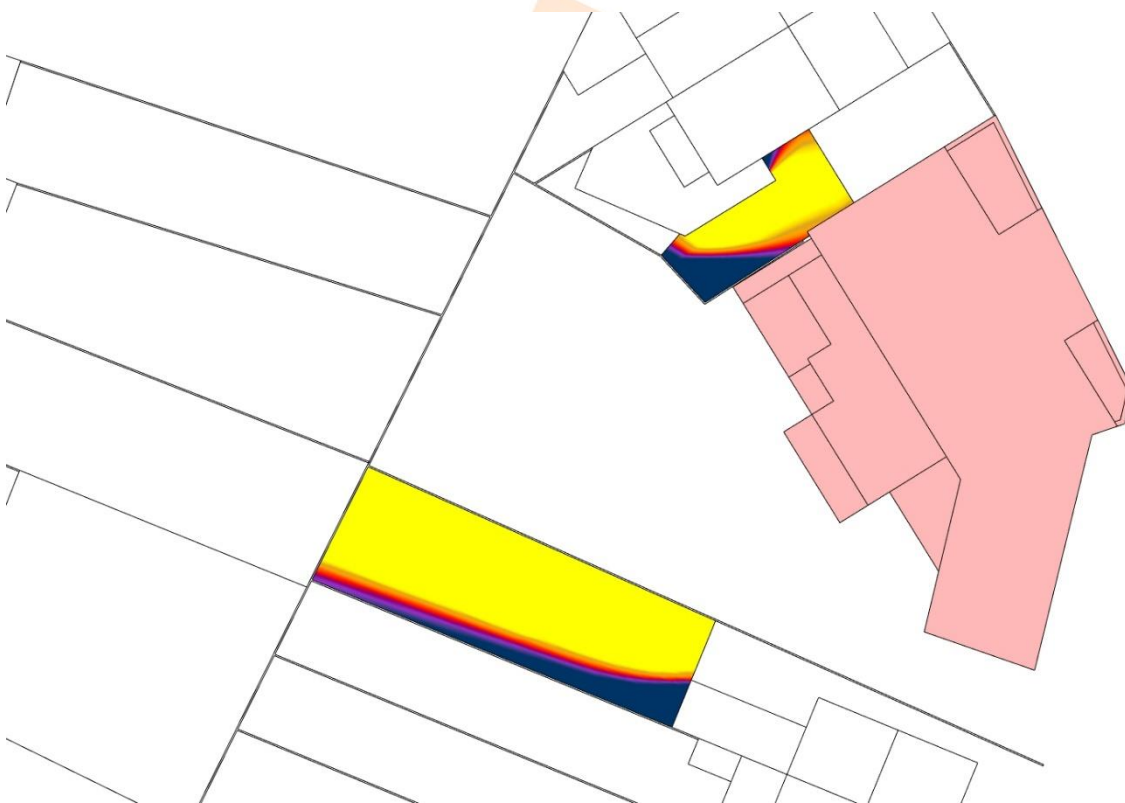


Fig 30. Neighbouring rear gardens, as proposed Sunlight Hours, 21st March

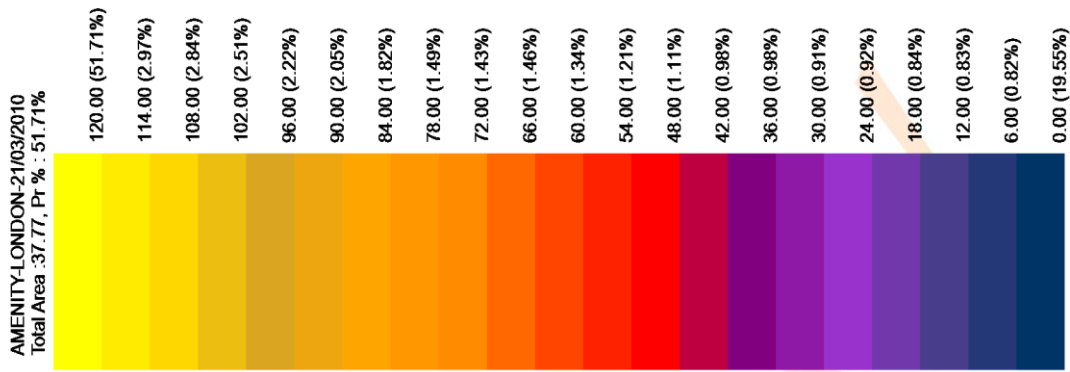


Fig 31. Legend – No.25 Grant Rd

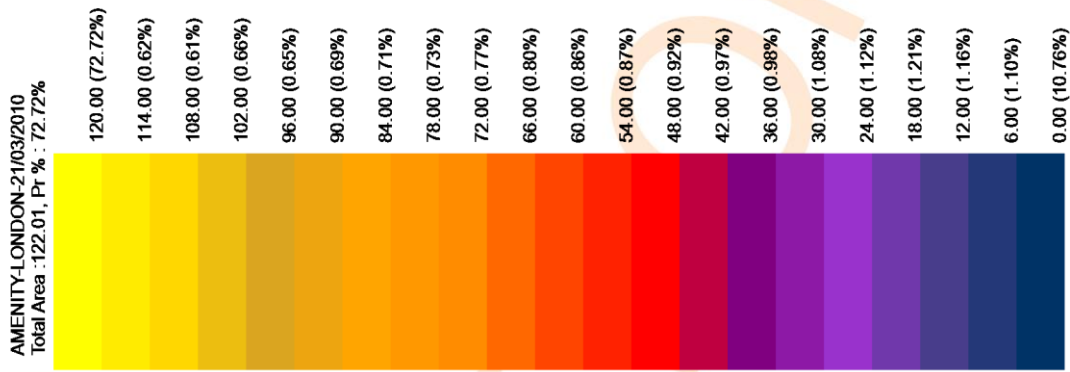


Fig 32. Legend – No.19 Grant Rd