REC
Resource & Environmental Consultants Ltd

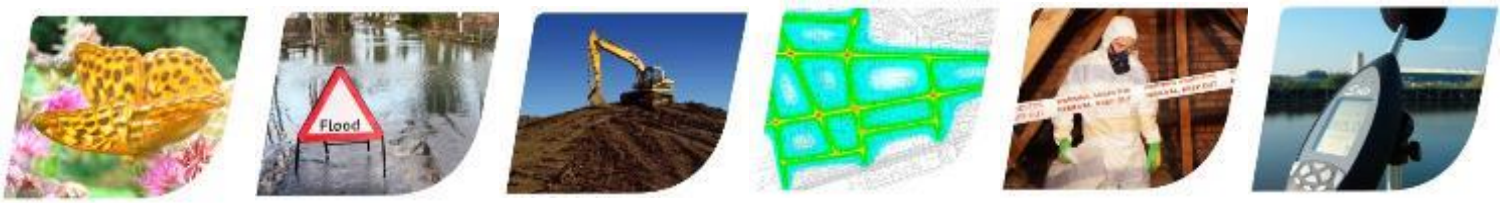
National Consultancy, Locally Delivered

DAYLIGHT, SUNLIGHT AND OVERSHADOWING ASSESSMENT
FINCHLEY BELL, FINCHLEY ROAD, LONDON

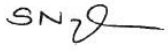
REC REFERENCE: 34008R3

REPORT PREPARED FOR: CALDECOTTE CONSULTANTS

12TH MARCH 2015



REPORT ISSUE

Issue/revision	Issue 1	Revision 2	Revision 3
Remarks	Draft for Comment	Draft for Comment	Additional Receptors
Date	17/07/2014	18/07/2014	12/03/2015
Prepared by	Lauren Haynes	Lauren Haynes	Sarah Clinton
Signature			
Position	Consultant	Consultant	Graduate Air Quality Consultant
Reviewed by	Jethro Redmore	Jethro Redmore	Sarah Naylor
Signature			
Position	Associate Director	Associate Director	Senior Air Quality Consultant
Verified by	Paul Furmston	Paul Furmston	Gabor Antony
Signature			
Position	Director	Director	Senior Air Quality Consultant
Project number	34008	34008	34008

Osprey House, Pacific Quay, Broadway, Manchester, M50 2UE
Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk

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APPENDICES

1.0 INTRODUCTION

1.1 Background

Resource and Environmental Consultants (REC) Ltd was commissioned by Caldecotte Consultants to undertake a Daylight, Sunlight and Overshadowing Assessment in support of the proposed redevelopment of the former Finchley Bell public house for residential and commercial uses.

1.2 Site Location and Context

The site is located on land off Finchley Road, Camden, London, at National Grid Reference (NGR): 526080, 185035. Reference should be made to Figure 1 for a location plan.

The proposals involve the demolition of the existing building on site to provide a commercial unit at ground floor level and 10 flats at first to fifth floor levels.

An assessment has been undertaken to determine if the proposed development may affect existing access to daylight and sunlight. Potential impacts have been assessed in accordance with Building Research Establishment (BRE) Guidance 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice' and BS 8206-2:2008 'Lighting for Buildings, Part 2: Code of Practice for Daylighting'. The methodology and results are detailed in the following report.

1.3 Limitations

This report has been produced in accordance with REC's standard terms of engagement. REC has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from REC; a charge may be levied against such approval.

2.0 POLICY AND GUIDANCE

2.1 Documents Consulted

The following legislation and guidance was used in this assessment:

- Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice, BRE, 2011; and,
- BS 8206-2:2008 - Lighting for Buildings, Part 2: Code of Practice for Daylighting, British Standards Institute 2008.

2.2 National Planning Guidance

There is no current specific National Planning Policy relating to the potential impacts of development on daylight, sunlight and overshadowing of the external environment. However, the BRE report 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice' is the established national guidance to aid the developer in preventing or minimising the impacts of new structures on the availability of daylight and sunlight in the vicinity of a site. It has been developed in conjunction with the interior daylight recommendations in BS 8206-2:2008.

2.3 Local Planning Policy

Camden's Local Development Framework (LDF) consists of a portfolio of documents, of which the Core Strategy[1] and Camden Development Policies[2] are the principal overarching parts. The Camden Core Strategy and Camden Development Policies were formally adopted in 2010 and together set out the spatial vision, objectives, development strategy and a series of key policies that will guide the scale, location and type of development in the borough until 2025. As such, the policies contained within the Core Strategy and Development Policies documents provide the current basis for the determination of planning applications within London Borough of Camden's (LBoC's) area of jurisdiction.

A review of the Camden Development Policies indicated the following policy in relation to daylight, sunlight and overshadowing that is relevant to this assessment:

> "DP26 Managing the impacts of development on occupiers and neighbours
>
> The Council will protect the quality of life of occupiers and neighbours by only granting permission for development that does not harm amenity. The factors we will consider include:
>
> […]
>
> c) sunlight, daylight and artificial light levels;
>
> […]."

[1] Camden Core Strategy, London Borough of Camden, 2010.
[2] Camden Development Policies, London Borough of Camden, 2010.

Reference has been made to this policy during the undertaking of this Daylight, Sunlight and Overshadowing Assessment.

3.0 METHODOLOGY

3.1 Daylight

The BRE Guidance[3] outlines a number of different methods to assess the potential for daylight to enter a room where it is required. These include:

- "25˚ rule"; and,
- Vertical Sky Component (VSC) method.

The 25˚ rule is described by BRE as:

> "No obstruction, measured in a vertical section perpendicular to the main face, from a point 2m above ground level, subtends an angle of more than 25˚ to the horizontal."

BRE state that if the 25˚ rule is satisfied then the VSC will be 27% or more. The VSC is the measure of the amount of daylight falling on a vertical wall or window and is defined by BRE as:

> "The ratio of total daylight flux incident on a reference area to total area of a reference area, expressed as a percentage of outdoor illuminance on a horizontal plane due to an unobstructed hemisphere of sky of assumed or known luminance distribution."

In general, a building will retain the potential for good interior diffuse daylighting provided that on all its main faces:

- No obstruction, measured in a vertical section perpendicular to the main face, from a point 2m above ground level, subtends an angle of more than 25˚ to the horizontal; or,
- If the above is not satisfied, then all points on the main face on a line 2m above ground level are within 4m (measured sideways) of a point which has a VSC of 27% or more, and less than 0.8 times its former value.

The BRE Guidance identifies the following locations as being particularly sensitive to changes in daylight provision:

- Residential properties;
- Schools;
- Hospitals;
- Hotels and hostels;
- Small workshops; and,
- Most offices.

These locations were considered for the purpose of selecting relevant assessment positions.

It should also be noted that the BRE Guidance is based on a sub-urban environment. As a result, the numerical values are only advisory and locational circumstances should be taken

[3] Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice, BRE, 2011.

into account. This is particularly relevant to city centre locations, where a higher density of development is expected and obstruction to natural light is sometimes inevitable.

3.2 Sunlight

If a reference point in the centre of a window can receive more than one quarter of the annual probable sunlight hours, including at least 5% of the annual probable sunlight hours during the winter months, then the room should receive enough sunlight.

The BRE Guidance[4] can be used as a screening tool to determine the potential for a development to impact on sunlight availability. The relevant criteria are likely to be met if:

- The window wall faces within 90˚ of due south and no obstruction, measured in the section perpendicular to the window, subtends an angle of more than 25˚ to the horizontal. Obstruction within 90˚ of due north of the reference point need not count here; or,
- The window wall faces within 20˚ of due south and the reference point has a VSC of 27% or more.

3.3 Overshadowing

BRE recognises that access to sunlight should not just be a consideration inside buildings but has important impacts on the overall appearance of a development. Availability of sunlight should be checked at all open spaces where it will be required. This would normally include:

- Gardens and allotments;
- Parks and playing fields;
- Children's playgrounds;
- Outdoor swimming pools and paddling pools; and,
- Sitting out areas, such as between domestic buildings and public squares.

An analysis of the surrounding area was undertaken and any of the above areas identified.

The BRE report[5] provides the following criteria to assess the availability of sunlight to gardens and amenity areas:

- For an amenity area to appear adequately sunlit throughout the year, no more than 40% and preferably no more than 25% of any garden or amenity area should be prevented by buildings from receiving any sun at all on 21st March. If, as a result of the proposed development, an existing garden or amenity area does not meet these guidelines, and the area which can receive some sun on 21st March is less than 20% of its former value, then the loss of sunlight is likely to be noticeable.

4 Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice, BRE, 2011.
5 Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice, BRE, 2011.

4.0 ASSESSMENT

The following Section details the results of the Daylight, Sunlight and Overshadowing Assessment. This includes a description of the receptor locations and the manner in which these were treated.

A detailed Google Sketchup model of the proposed development was created using drawings provided by the architects for the development, Wythe Holland Limited. Detailed measurements of existing buildings were not available and therefore they were added to the model as simplified cuboids. The Google Sketch-up model used within the assessment is shown in Figure 2.

4.1 Daylight

4.1.1 Receptors

Existing receptors which have the potential to be affected by the development were identified through analysis of the site and surrounding area for the purpose of the Daylight Assessment. This indicated that the land use in the vicinity of the proposals is somewhat mixed, with residential, commercial and retail uses in close proximity to the site boundary. Locations not considered sensitive to daylight provision in accordance with the BRE Guidance[6] included the Allied Irish Bank at 202 to 204 Finchley Road, retail units at ground floor level at 192 to 200 Finchley Road and the Finchley Road and Frognal Tube Station.

Receptors sensitive to changes in access to daylight are shown in Table 1.

Table 1 Receptor Locations

Receptor Group	Location
1	Residential units at first floor level and above at 321 to 335 Finchley Road
2	Residential units at first floor level and above at 192 to 200 Finchley Road
3	Residential unit at 12 Petros Gardens
4	Residential units at 313 to 315 Finchley Road

Reference should be made to Figure 3 for a graphical representation of receptor locations. These receptors have been identified as worst-case locations.

4.1.2 Assessment Results

The VSC method has been used within this assessment to calculate if sufficient daylight will be received at existing receptors following construction of the proposals. In order to calculate the VSC at each receptor, a software package, MBS daylight, has been used. The software package runs as a 'plug-in' within Google Sketch-up and provides accurate results at each receptor. A 'window' is placed at each location requiring assessment. The software then colours each window depending on access to daylight as a result of the proposals

[6] Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice, BRE, 2011.

compared with the existing situation. Each window is coloured as follows:

- Red = Fail;
- Orange = Close to Pass; and,
- Green = Pass.

Receptor Group 1

The residential units at 321 to 335 Finchley Road do not include any windows on the southern façade. There is a lighting well positioned approximately halfway along. However, the perpendicular plane does not intersect with the proposed development at this location, as shown in Figure 4.

As Receptor Group 1 does not rely on daylight from the direction of the proposed site, as indicated above, it is considered the development will not cause any adverse impacts to existing levels at this location.

Receptor Group 2

The VSC was calculated with the proposals in place at a number of first floor windows with Receptor Group 2. The difference between the existing and proposed VSC has also been calculated. The results are shown in Table 2. Figure 5 shows the elevations of the proposals as seen from Receptor Group 2. The software package also produces a Waldram Diagram for each receptor location. Reference should be made to Figure 6 to Figure 10 for the Waldram Diagrams.

Table 2 Receptor Group 2 - Daylight Results

Location		Receptor Colour	VSC (%)	Proportion of Original Value
2.1	First floor window	Green	35.55	1.00
2.2	First floor window	Green	35.34	1.00
2.3	First floor window	Green	35.03	1.00
2.4	First floor window	Green	35.01	1.00
2.5	First floor window	Green	34.80	1.00
2.6	First floor window	Green	34.56	1.00
2.7	First floor window	Green	34.34	1.00
2.8	First floor window	Green	34.16	1.00
2.9	First floor window	Green	34.03	1.00
2.10	First floor window	Green	33.85	1.00
2.11	First floor window	Green	33.60	1.00
2.12	First floor window	Green	33.70	1.00
2.13	First floor window	Green	33.50	1.00

Location		Receptor Colour	VSC (%)	Proportion of Original Value
2.14	First floor window	Green	33.54	1.00
2.15	First floor window	Green	33.45	1.00
2.16	First floor window	Green	33.54	1.00
2.17	First floor window	Green	33.61	1.00
2.18	First floor window	Green	33.65	1.00

As indicated in Table 2, all windows on the first floor of Receptor Group 2 will receive sufficient daylight should the proposals go ahead.

Receptor Group 3

The ground floor of 12 Petros Gardens is residential. However, review of the topographical survey for the site indicated the building is at a height of 65.14m Above Ordnance Datum (AOD), whilst the location on the development which was utilised to measure the structure height is 58.31m AOD. This provides a difference in height of 6.83m, which was added to the receptor height of 2m to provide a total of 8.83m.

The VSC was calculated with the proposals in place at the ground floor window at Receptor Group 3. The difference between the existing and proposed VSC has also been calculated. The results are shown in Table 3. Figure 5 shows the elevations of the proposals as seen from Receptor Group 2. Reference should be made to Figure 11 for the Waldram Diagram.

Table 3 Receptor Group 3 - Daylight Results

Location		Receptor Colour	VSC (%)	Proportion of Original Value
3.1	Ground floor window	Green	38.05	0.99

As indicated in Table 3, the 'window' on the ground floor of Receptor Group 3 will receive sufficient daylight should the proposals go ahead.

Receptor Group 4

The VSC was calculated with the proposals in place at a number of windows within Receptor Group 4. The difference between the existing and proposed VSC has also been calculated. The results are shown in Table 4 .The software package also produces a Waldram Diagram for each receptor location. Reference should be made to Figure 12 to Figure 15 for the Waldram Diagrams.

Table 4 Receptor Group 4 - Daylight Results

Location		Receptor Colour	VSC (%)	Proportion of Original Value
4.1	Ground floor window	Green	3.19	1.00
4.2	Ground floor window	Green	1.67	1.00
4.3	First floor window	Green	5.11	1.00
4.4	First floor window	Green	3.18	1.00
4.5	Second floor window	Green	5.37	1.00
4.6	Second floor window	Green	4.07	1.00
4.7	Second floor window	Green	16.57	0.96
4.8	Second floor window	Green	33.92	0.98
4.9	Second floor window	Green	34.54	0.98
4.10	Third floor window	Green	3.76	1.00
4.11	Third floor window	Green	4.49	1.00
4.12	Third floor window	Green	20.21	0.97
4.13	Third floor window	Green	29.83	0.99
4.14	Third floor window	Green	35.56	0.98

As indicated in Table 4, ten of the windows in Receptor Group 4 are below the BRE criteria of 27% for the VSC. It should be noted however, that the largest reduction in the amount of daylight received at any receptor location is 4%. This is significantly below the 20% limit stated within the guidance[7] as being a "noticeable change" and as such, the overall potential impacts are considered acceptable for a development of this nature.

4.2 Sunlight

Existing receptors which have the potential to be affected by the development were identified through analysis of the site and surrounding area for the purpose of the Sunlight Assessment. This indicated that there were no locations within 90˚ of due north of the proposed structure sensitive to changes in sunlight provision.

4.3 Overshadowing

Existing receptors which have the potential to be affected by the development were identified through analysis of the site and surrounding area for the purpose of the Overshadowing Assessment. The only amenity areas in vicinity of the development are the gardens associated with the residential properties at Petros Gardens. However, the development is located to the north-east of these receptors and therefore would not affect

[7] Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice, BRE, 2011.

access to sunlight on 21st March. Reference should be made to Figure 16 for the sun-path analysis. Figure 16 highlights the areas cast in shadow at 12:00 on 21st March as a result of the development.

As previously stated no amenity area is affected. As such, the proposals are not considered likely to cause overshadowing impacts at any sensitive locations in the vicinity of the site.

5.0 CONCLUSION

REC Ltd was commissioned by Caldecotte Consultants to undertake a Daylight, Sunlight and Overshadowing Assessment in support of the proposed redevelopment of the former Finchley Bell public house for residential and commercial uses.

The proposed development has the potential to affect existing access to daylight and sunlight in the vicinity of the site. Impacts were therefore assessed in accordance with BRE Guidance 'Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice' and BS 8206-2:2008 'Lighting for Buildings, Part 2: Code of Practice for Daylighting'.

Visualisations of the development and surrounding area were created using the Google SketchUp software package to assess potential impacts on existing access to daylight at sensitive locations in the vicinity of the site. Analysis was completed using the MBS daylight plugin.

The Daylight Assessment results indicated that the relevant criteria were achieved at all receptor locations.

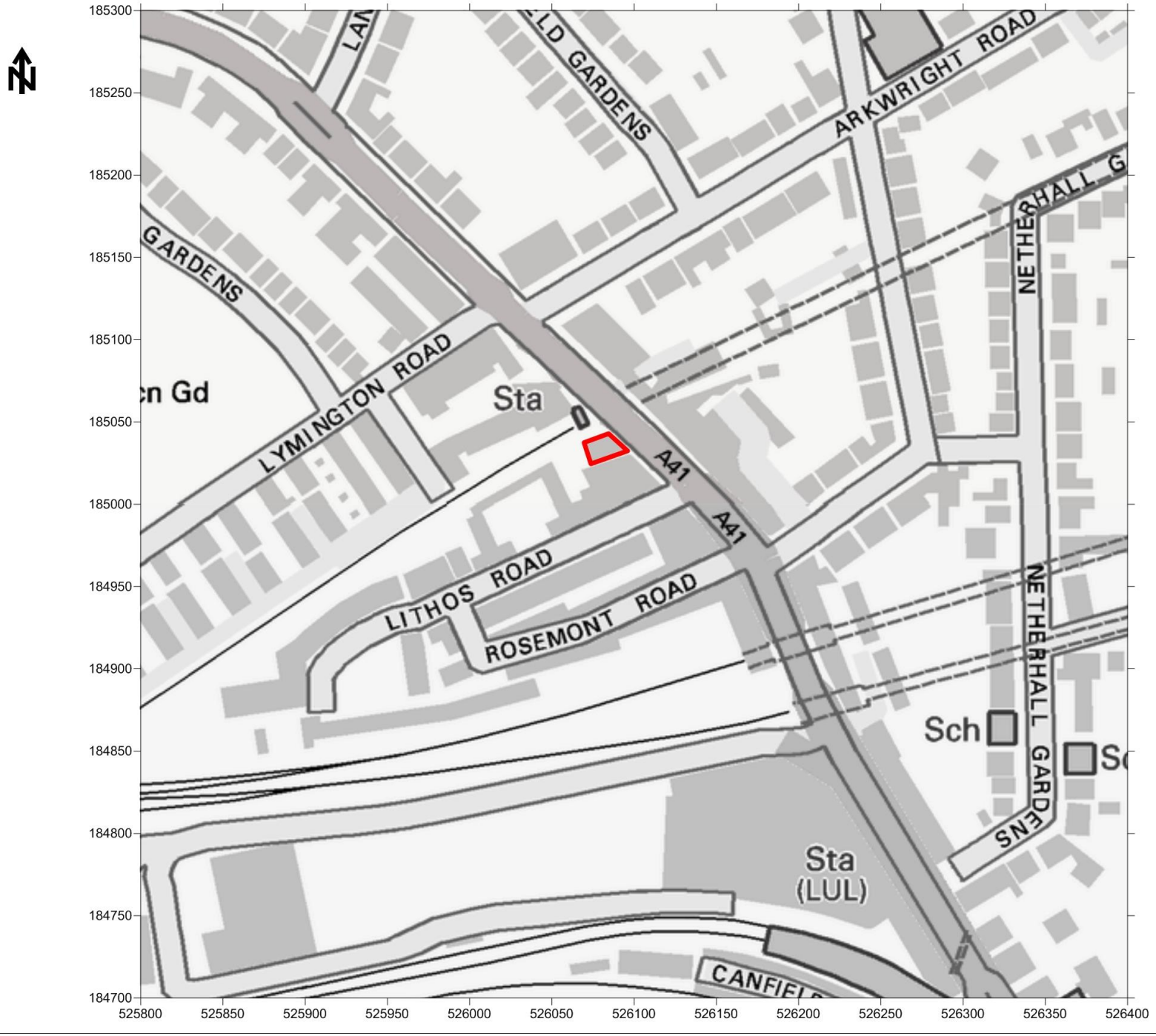
The results of the Sunlight and Overshadowing Assessment indicated that there were no sensitive locations in the vicinity of the site likely to be adversely affected by the proposed development.

Based on the assessment results, it is considered that daylight, sunlight and overshadowing issues should not be viewed as a constraint to planning consent for the proposed development.

6.0 ABBREVIATIONS

AOD	Above Ordnance Datum
BRE	Building Research Establishment
LBoC	London Borough of Camden
LDF	Local Development Framework
NGR	National Grid Reference
REC	Resource and Environmental Consultants
VSC	Vertical Sky Component

APPENDIX I FIGURES



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Site Boundary

Title

Figure 1 - Site Location Plan

Project

Daylight, Sunlight and Overshadowing Assessment
Finchley Bell, Finchley Road, London

Project Number

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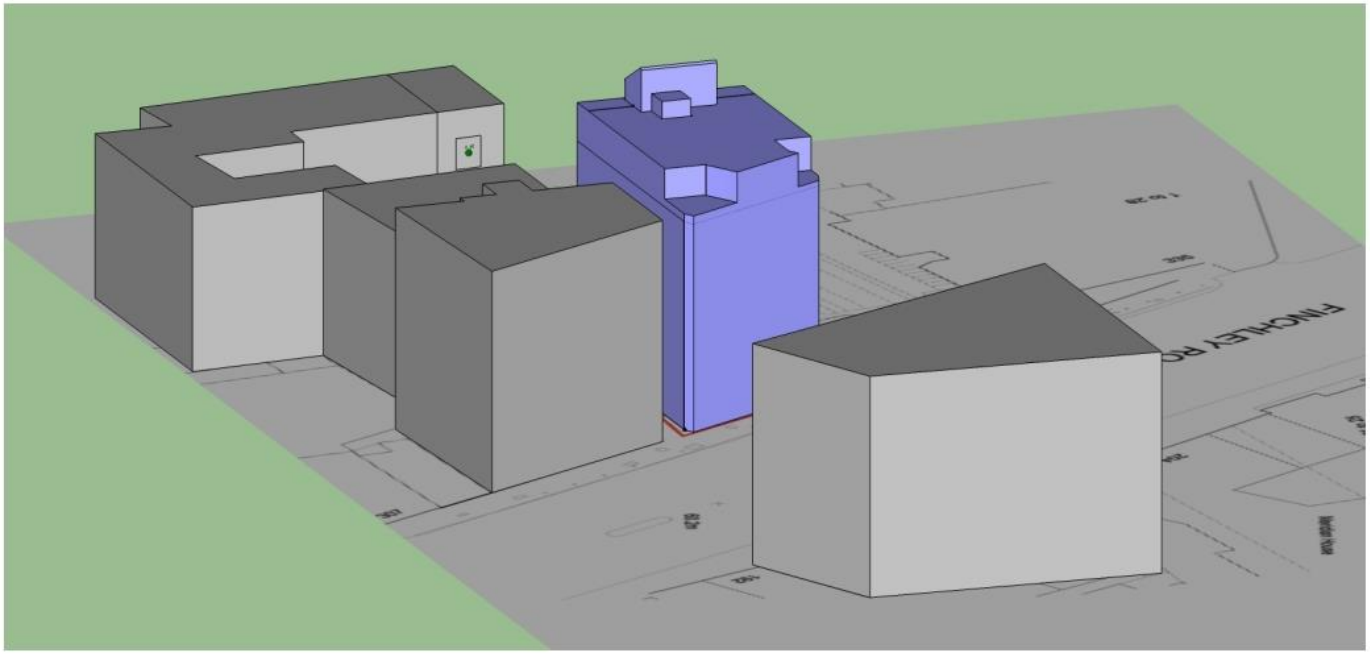
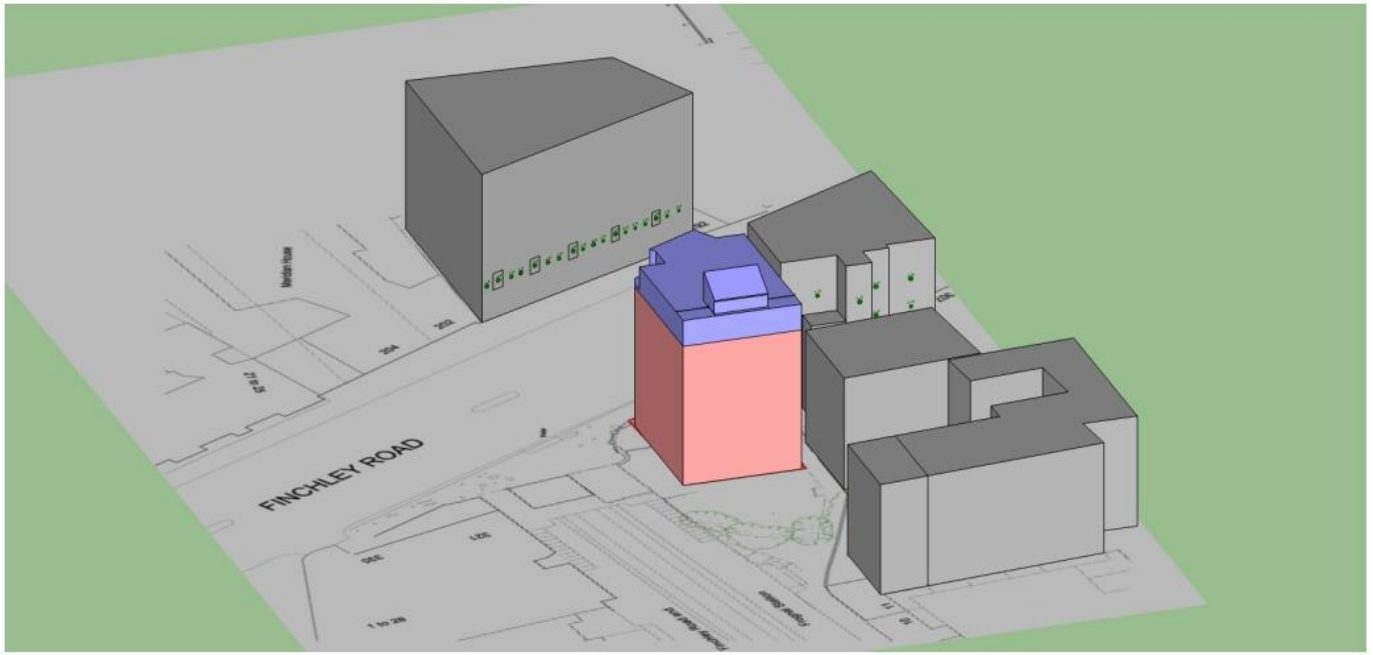
REC Resource & Environmental Consultants Ltd

Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE

Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk

Looking West





Looking East

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Title
Figure 2 - Google Sketch-Up Model

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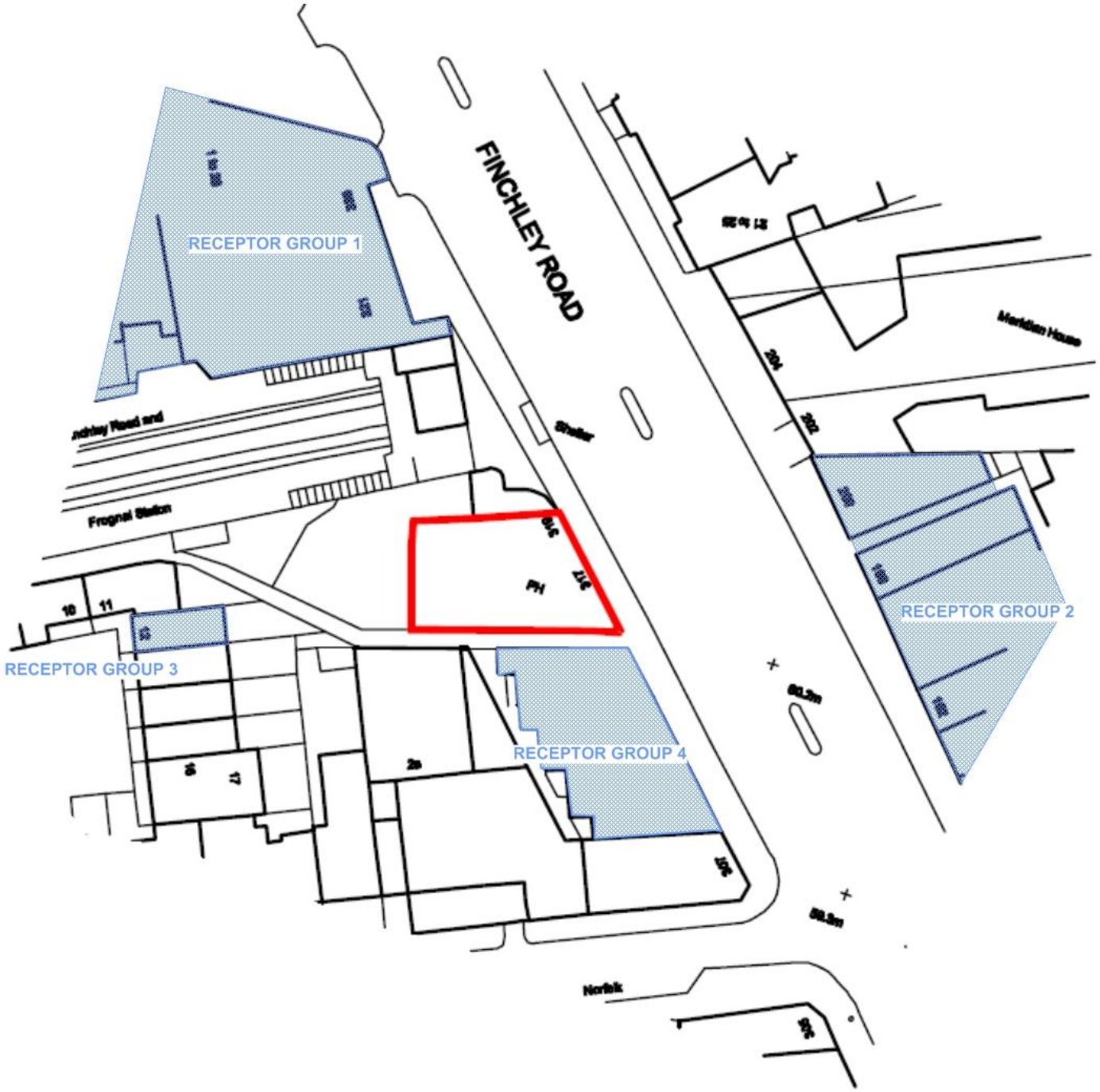

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Site Boundary

Sensitive Receptor Location

Title

Figure 3 - Receptor Locations

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Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE

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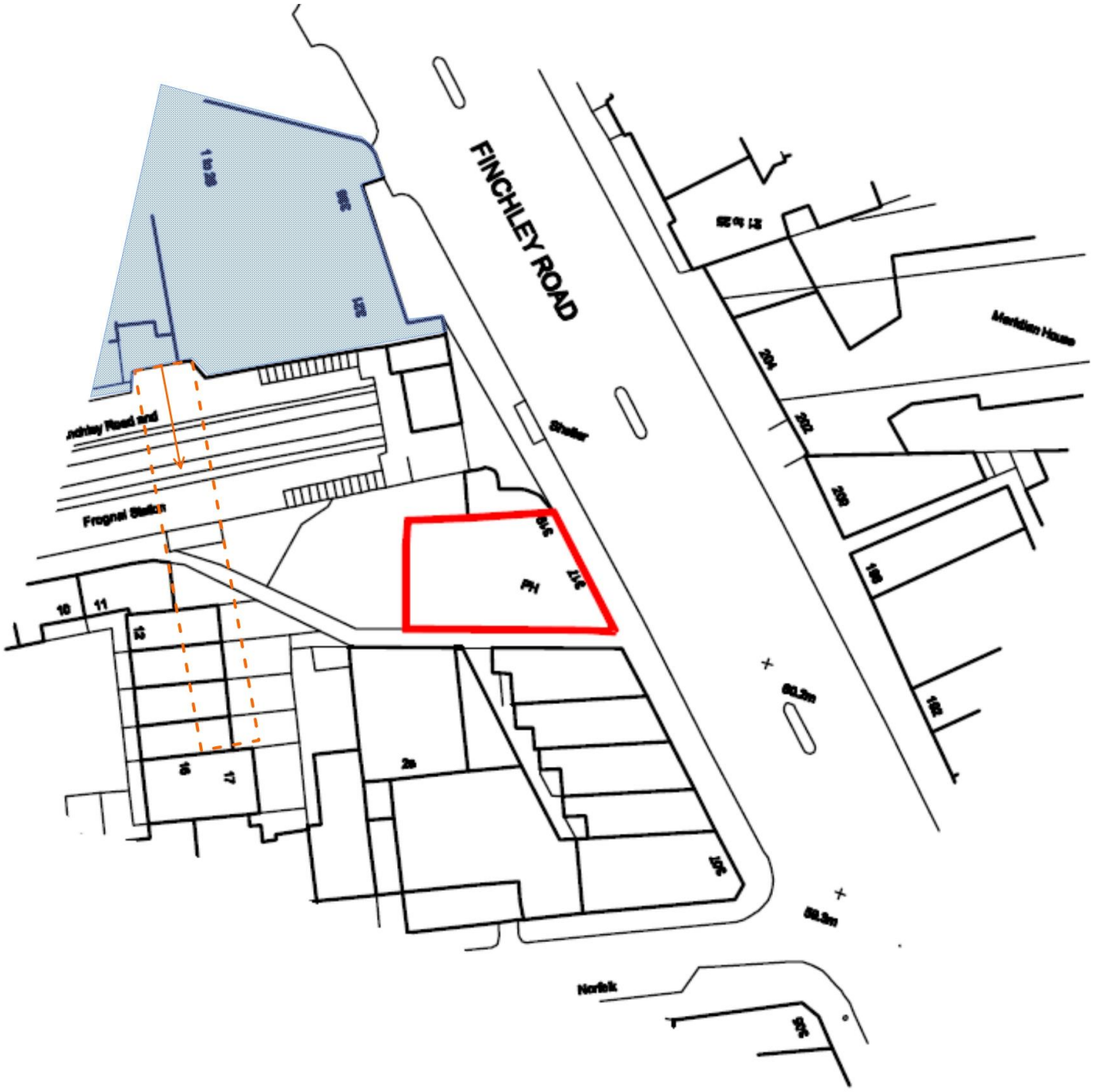

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Site Boundary

Receptor Group 1

Perpendicular Plane

Title

Figure 4 - Perpendicular Plane from Receptor Group 1

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Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE

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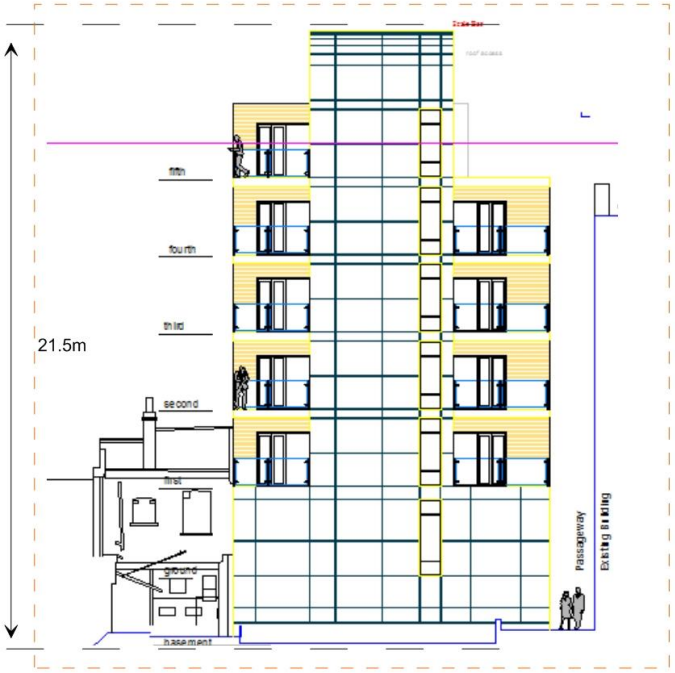
North East Elevation towards Receptor Group 2

South West Elevation towards Receptor Group 3



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Proposed Development

Title

Figure 5 - Proposed Elevations

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REC Resource & Environmental Consultants Ltd
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE

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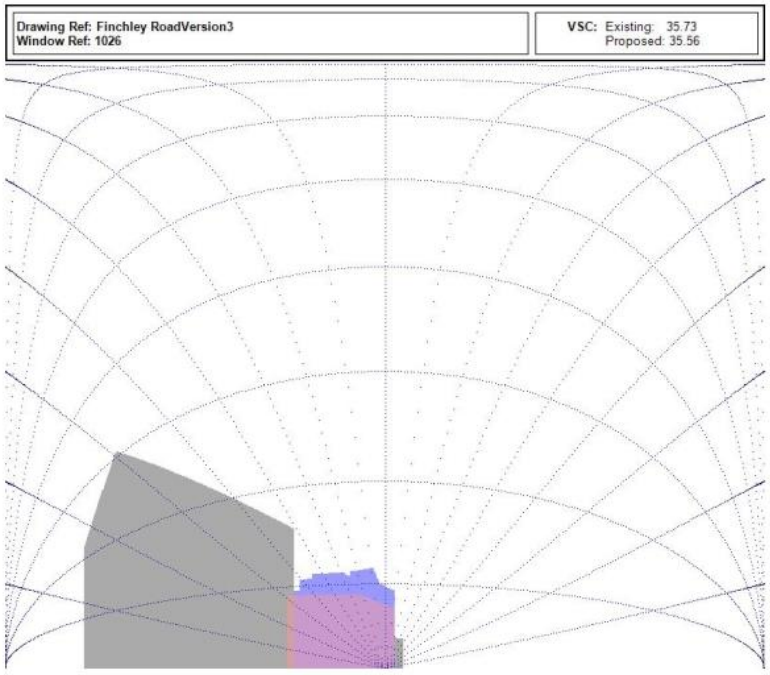

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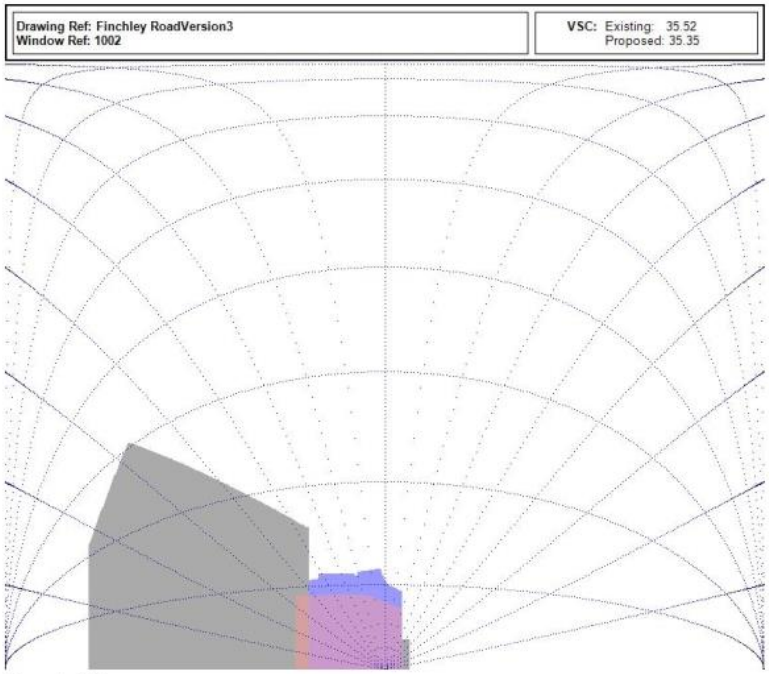

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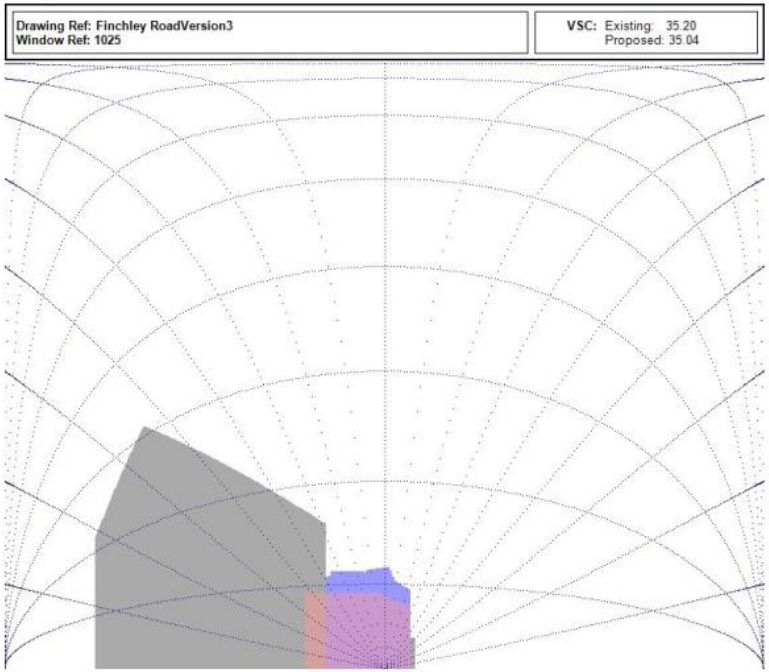

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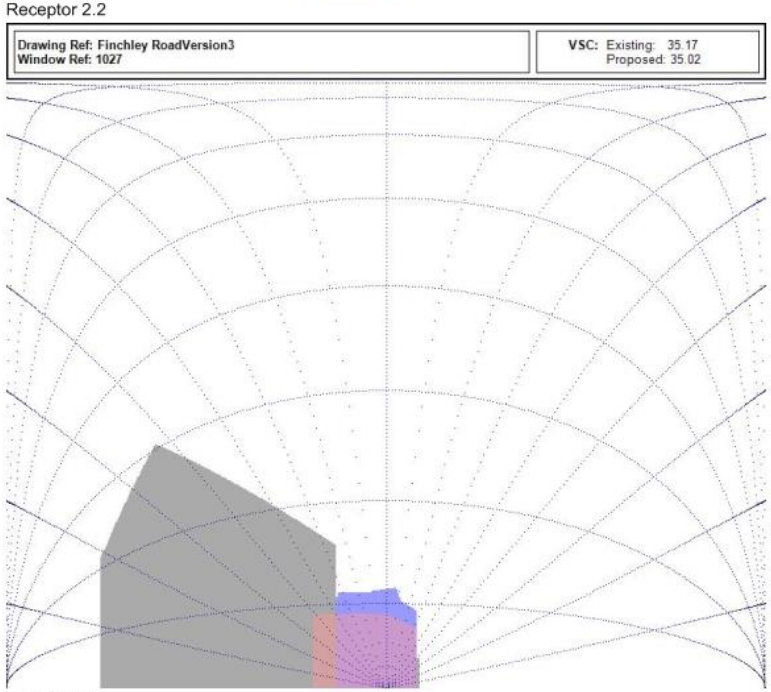

Receptor 2.4

Legend

Title

Figure 6 - Waldram Diagrams
Receptor Group 2

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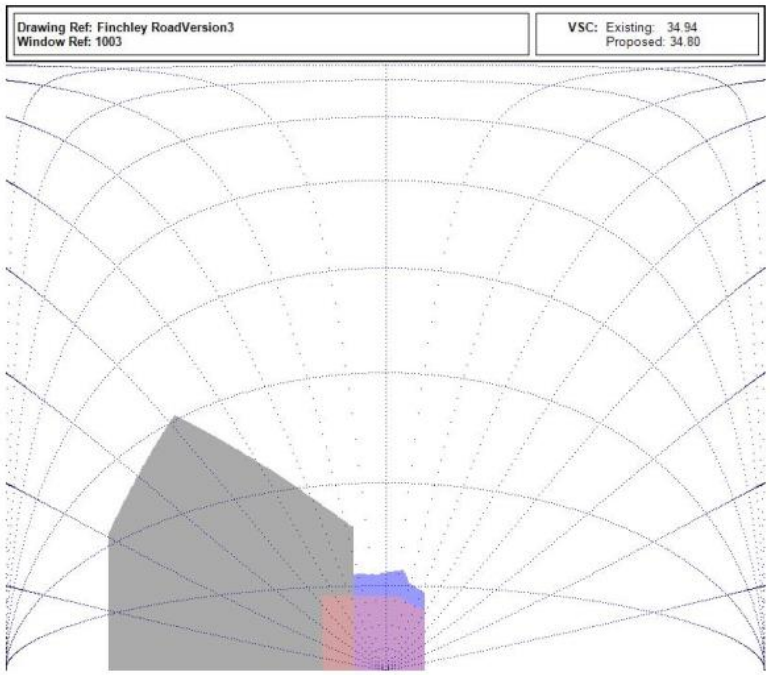

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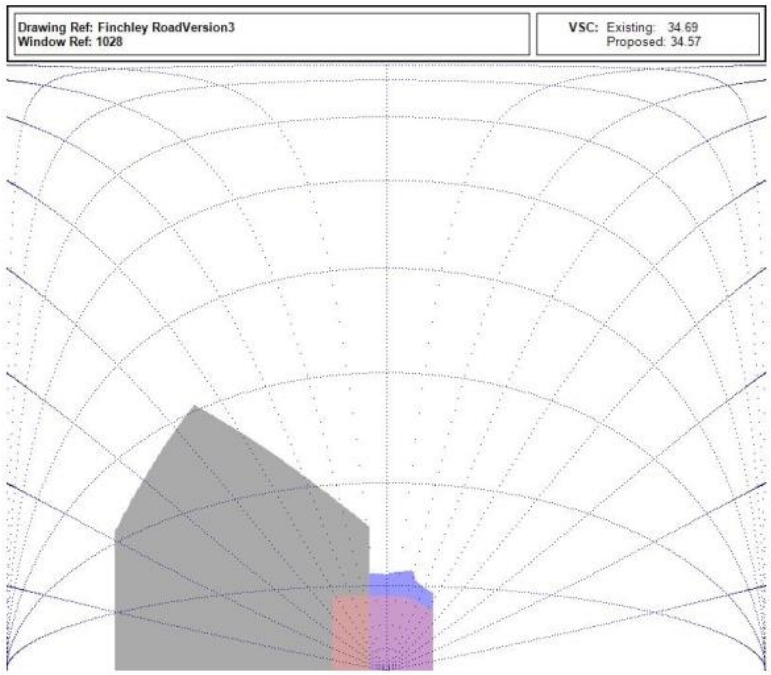

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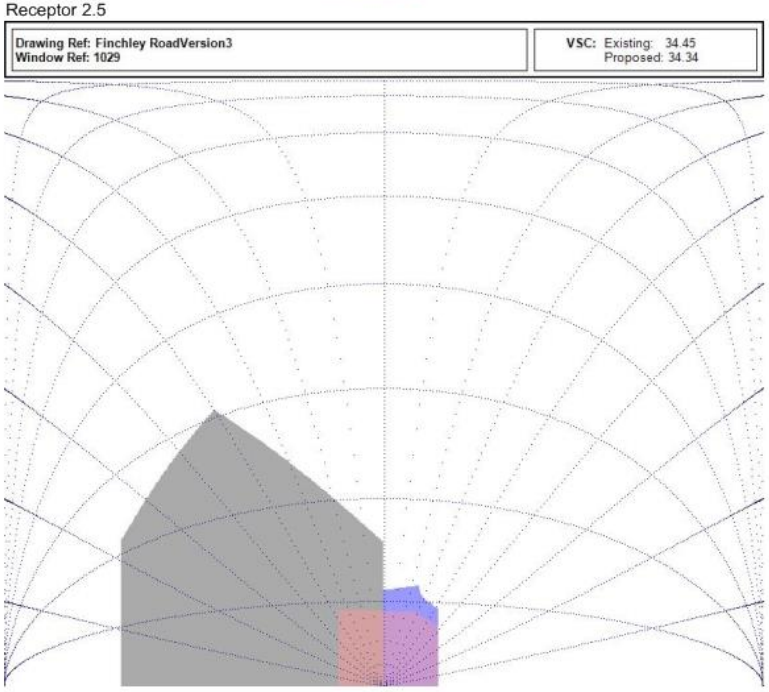

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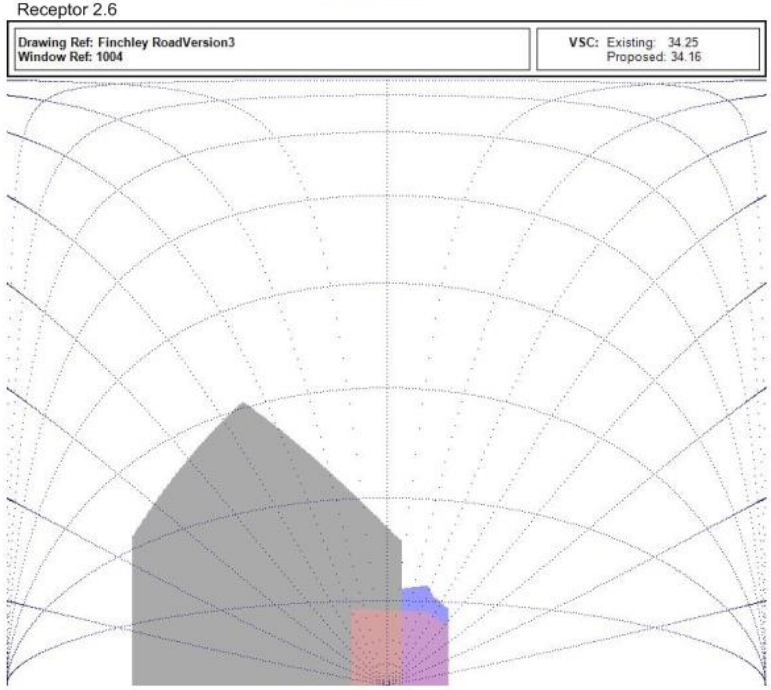

Receptor 2.8

Legend

Title

Figure 7 - Waldram Diagrams
Receptor Group 2

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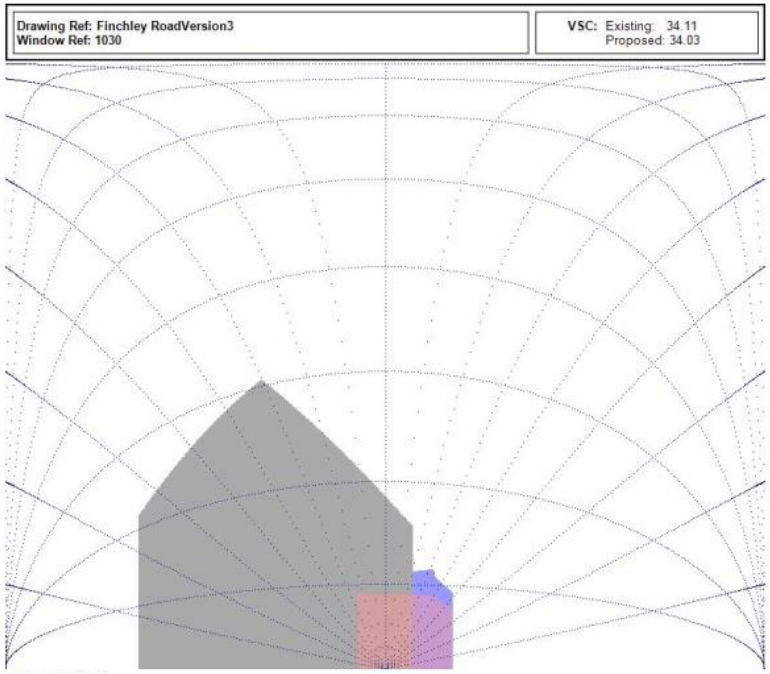

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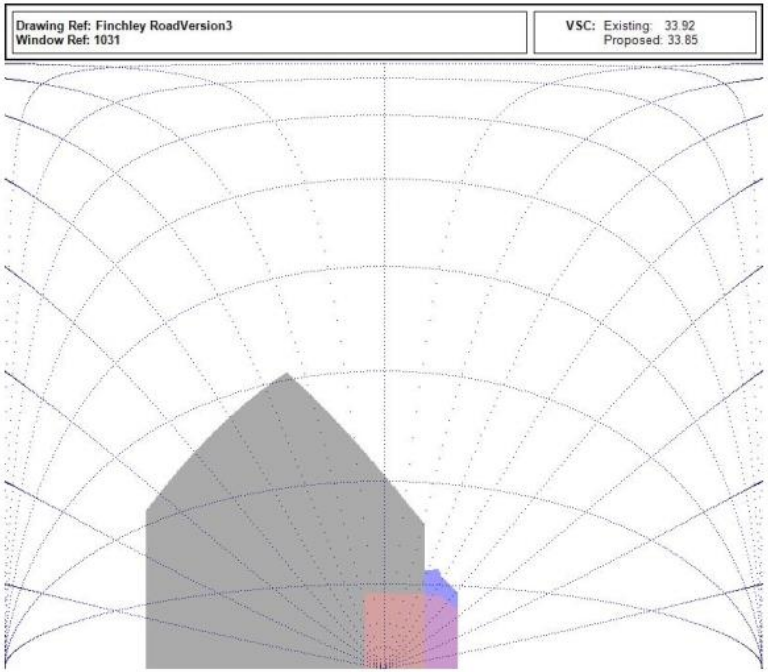

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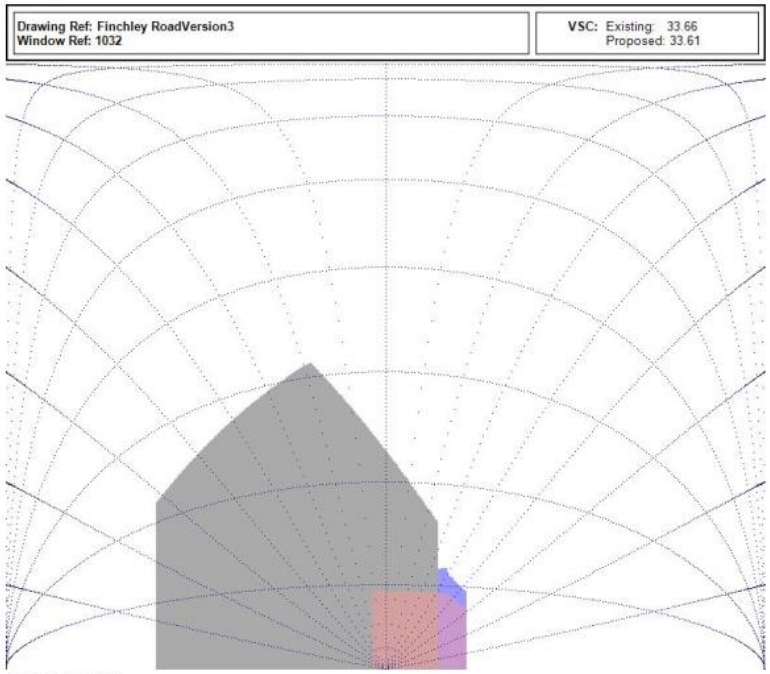

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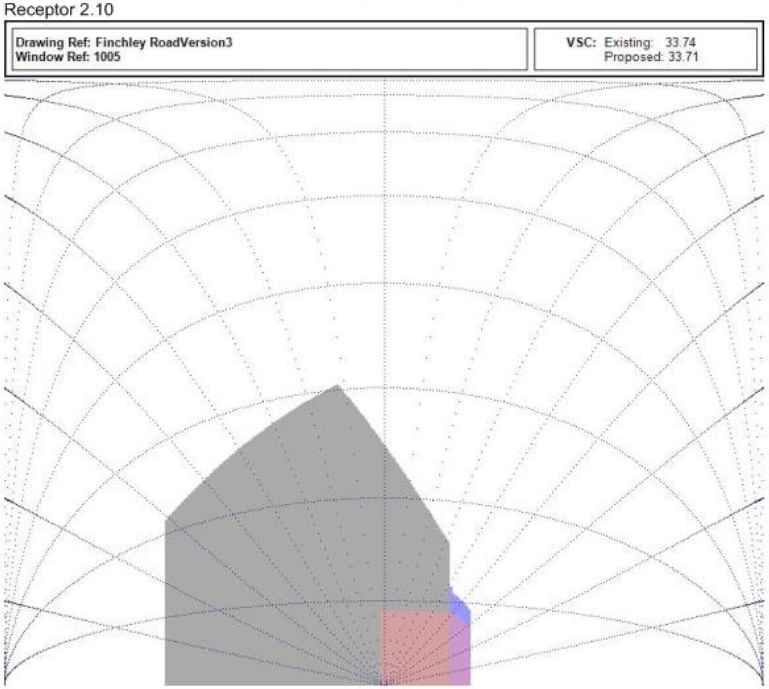


Receptor 2.12

Legend

Title

Figure 8 - Waldram Diagrams
Receptor Group 2

Project

Daylight, Sunlight and Overshadowing Assessment
Finchley Bell, Finchley Road, London

Project Number

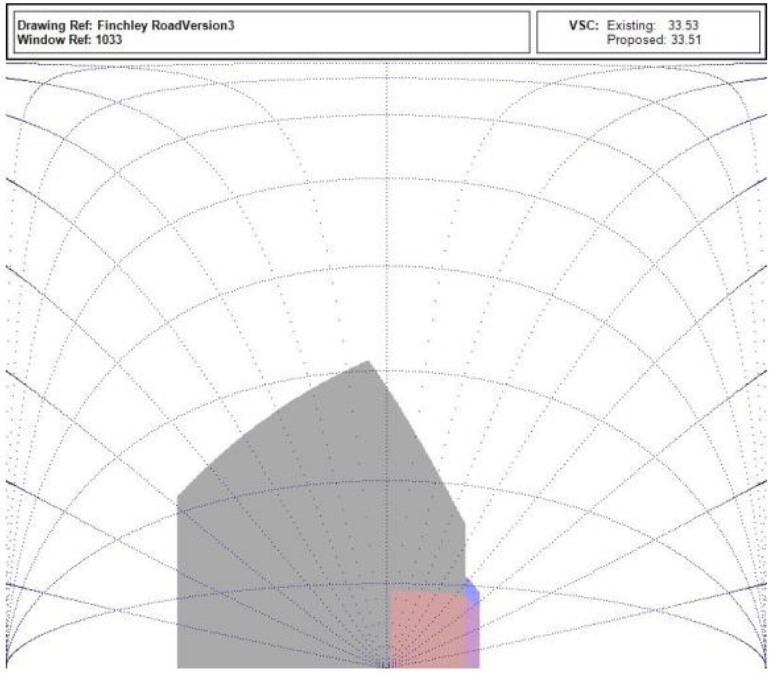
34008

Client

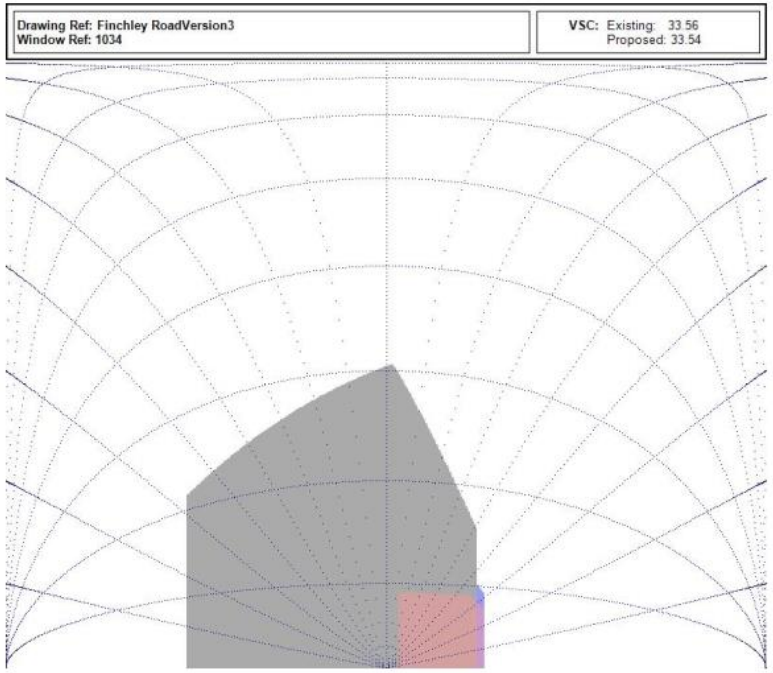
caldecotte CC consultants

REC Resource & Environmental Consultants Ltd
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE

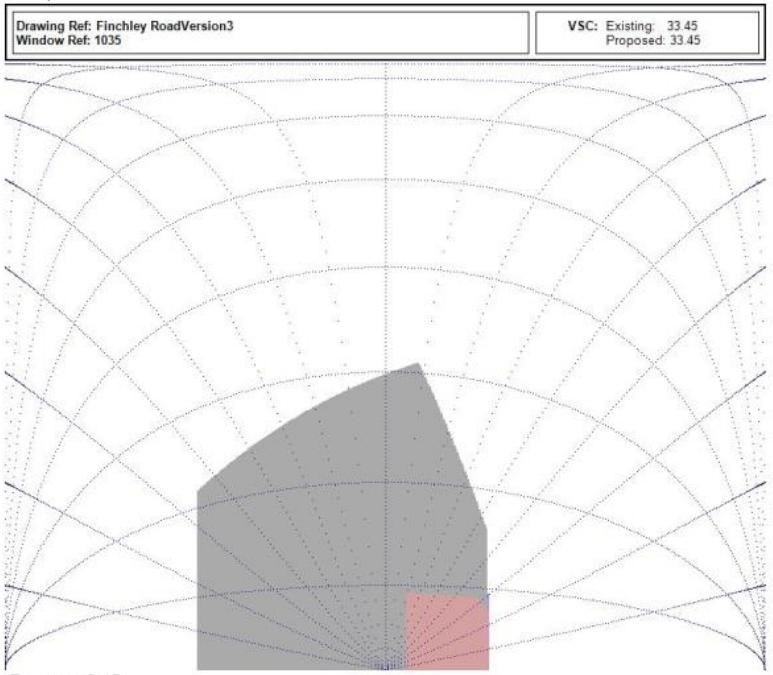
Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk



Receptor 2.13



Receptor 2.14



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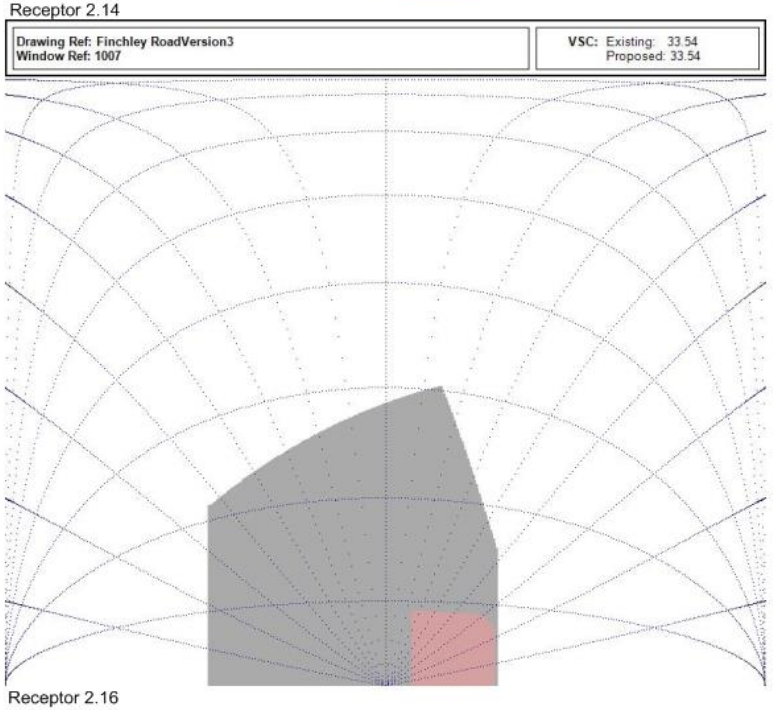

Receptor 2.16

Legend

Title

Figure 9 - Waldram Diagrams
Receptor Group 2

Project

Daylight, Sunlight and Overshadowing Assessment
Finchley Bell, Finchley Road, London

Project Number

34008

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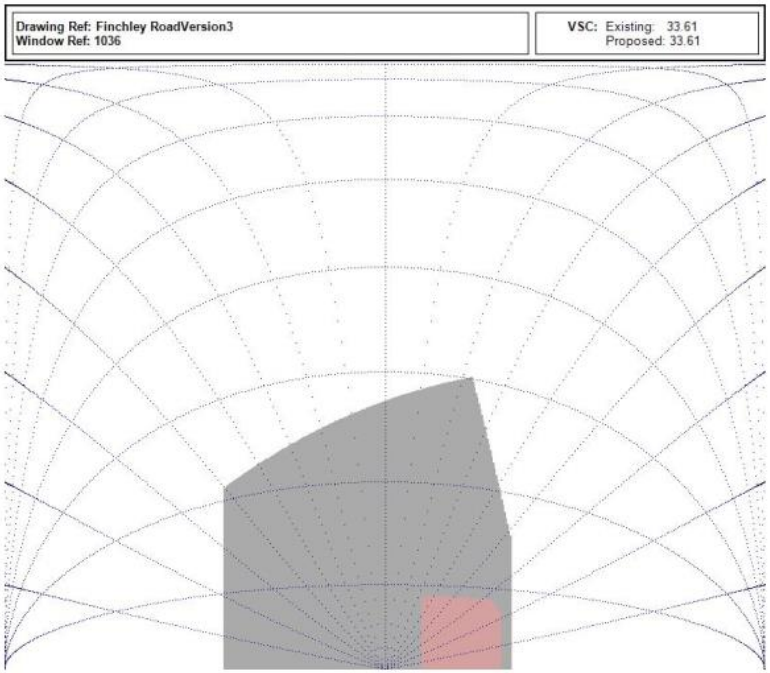
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE

Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk



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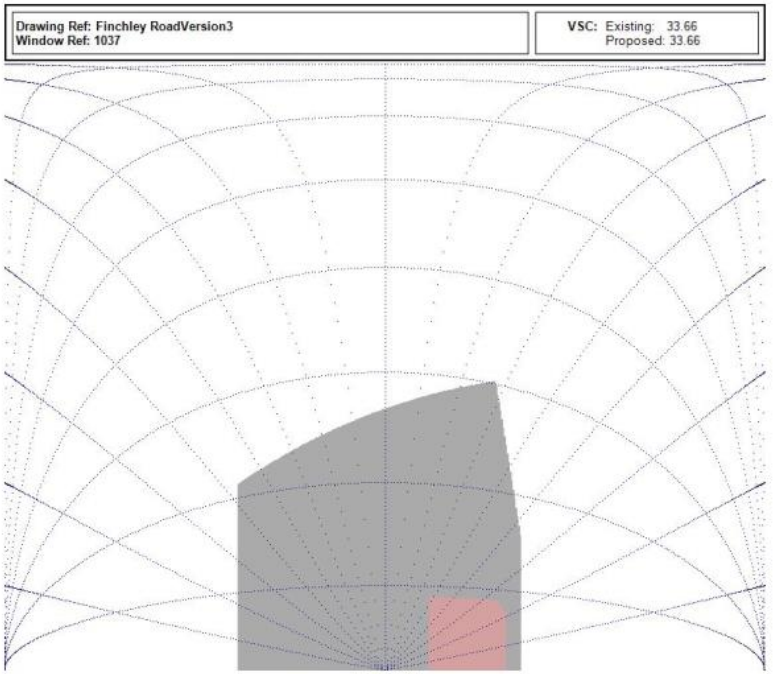

Receptor 2.18

Legend

Title

Figure 10 - Waldram Diagrams
Receptor Group 2

Project

Daylight, Sunlight and Overshadowing Assessment
Finchley Bell, Finchley Road, London

Project Number

34008

Client

caldecotte consultants CC

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Resource & Environmental Consultants Ltd
Resource and Environmental Consultants Ltd
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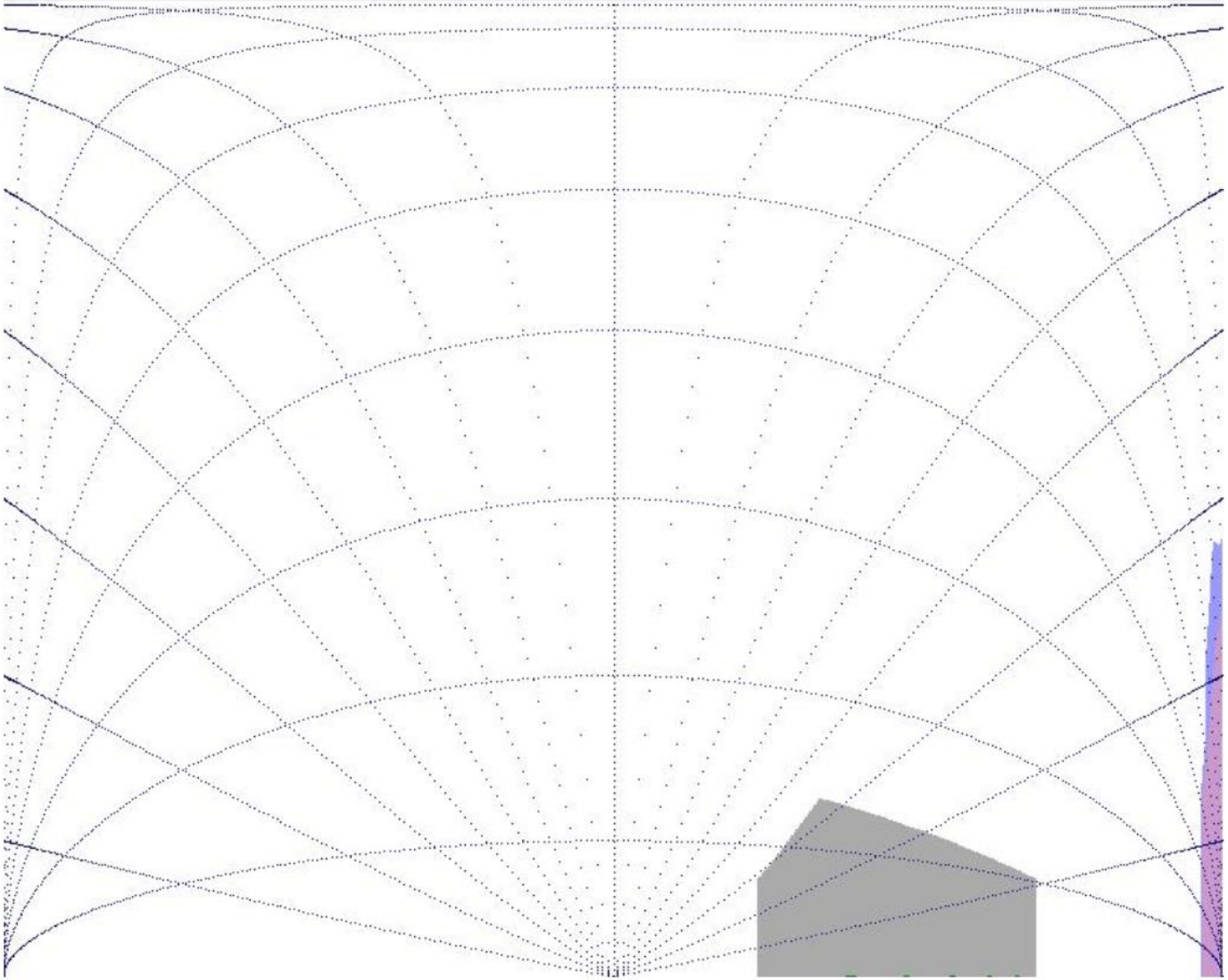
Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk

Drawing Ref: Finchley Road
Window Ref: 1001

VSC: Existing: 38.12
Proposed: 38.05



Legend

Title

Figure 11 - Waldram Diagrams
Receptor Group 3

Project

Daylight, Sunlight and Overshadowing Assessment
Finchley Bell, Finchley Road, London

Project Number

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caldecotte CC consultants

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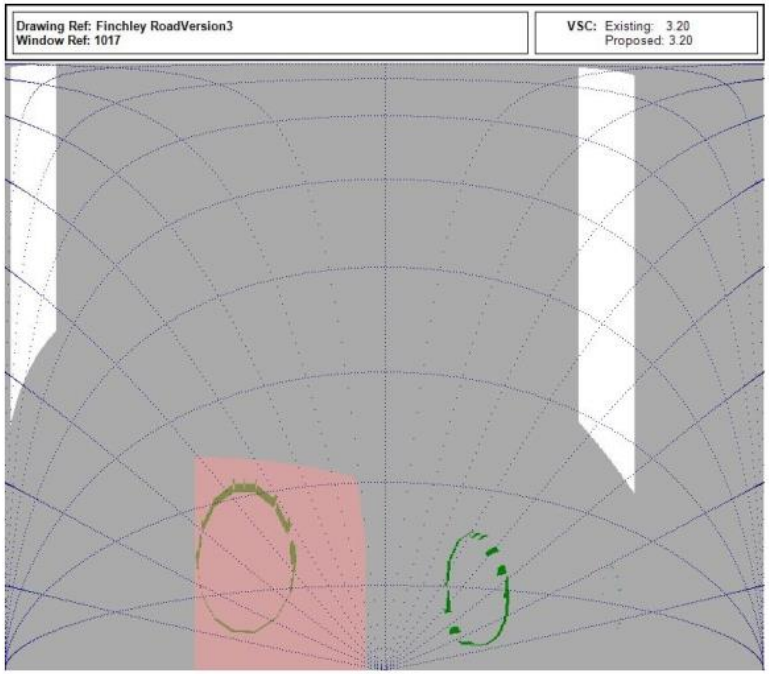
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE

Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk



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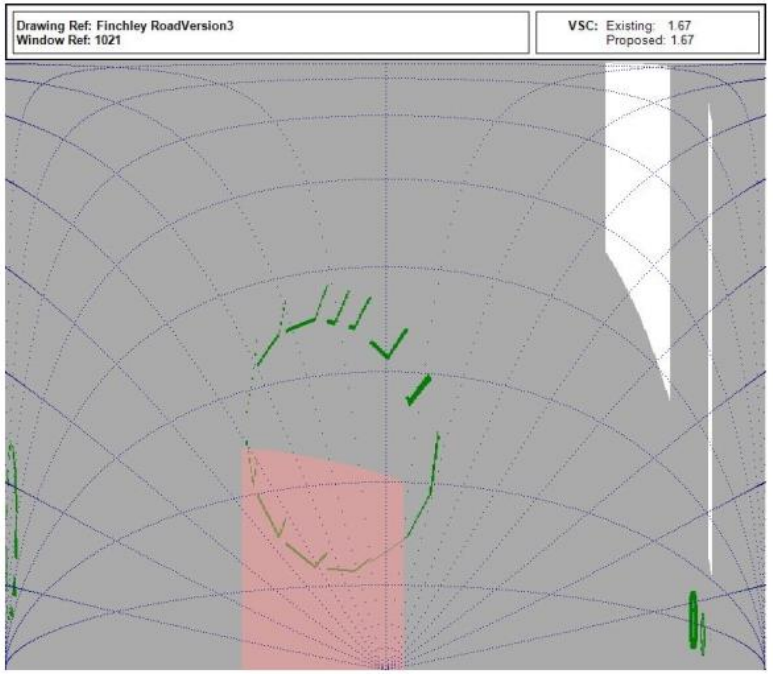

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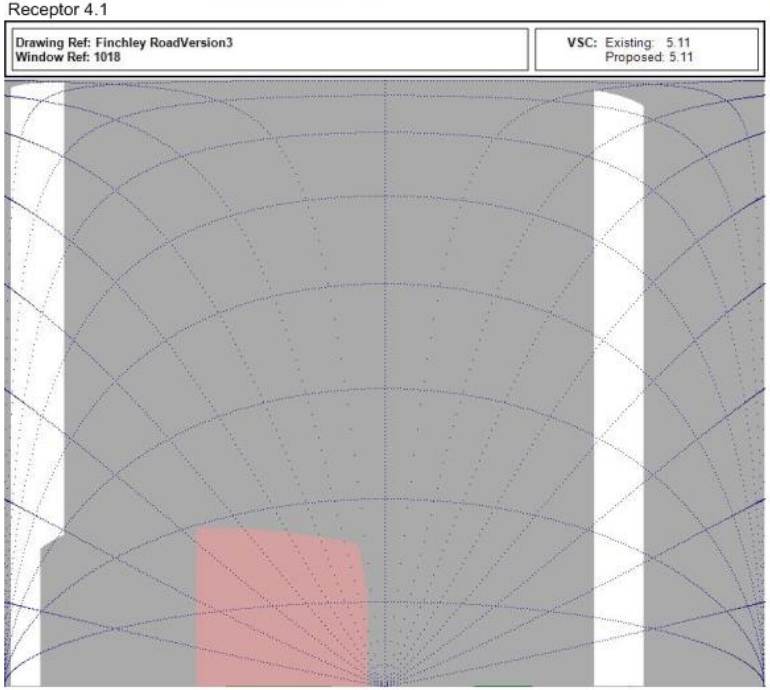

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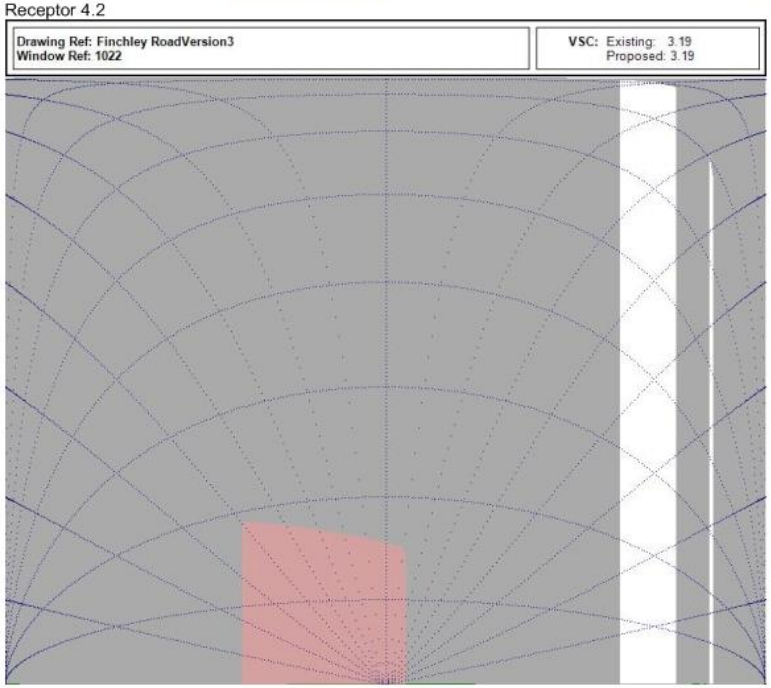

Receptor 4.4

Legend

Title

Figure 12 - Waldram Diagrams
Receptor Group 4

Project

Daylight, Sunlight and Overshadowing Assessment
Finchley Bell, Finchley Road, London

Project Number

34008

Client

caldecotte CC consultants

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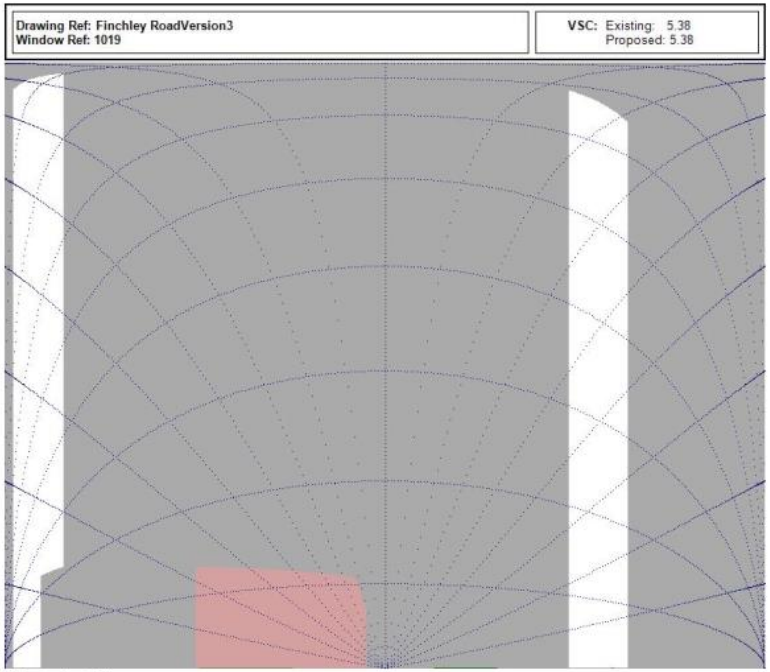
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE

Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk



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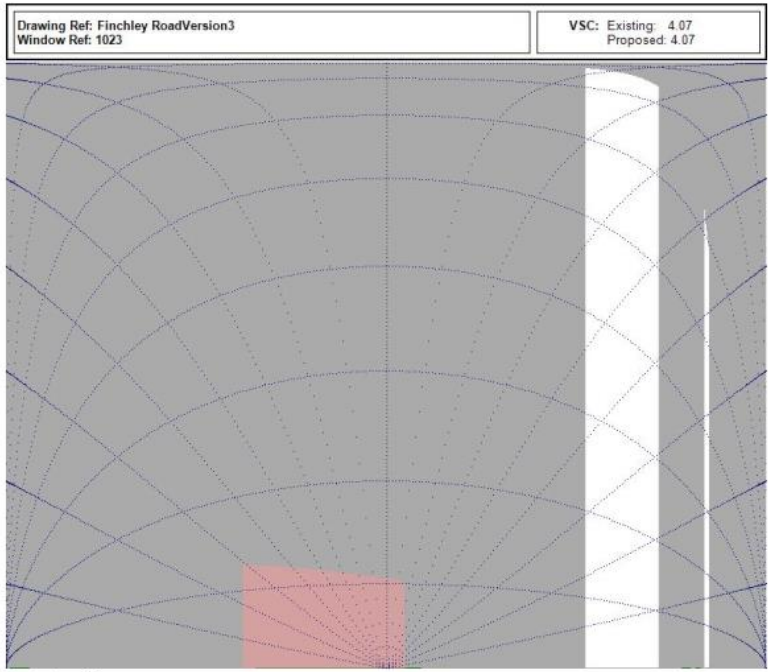

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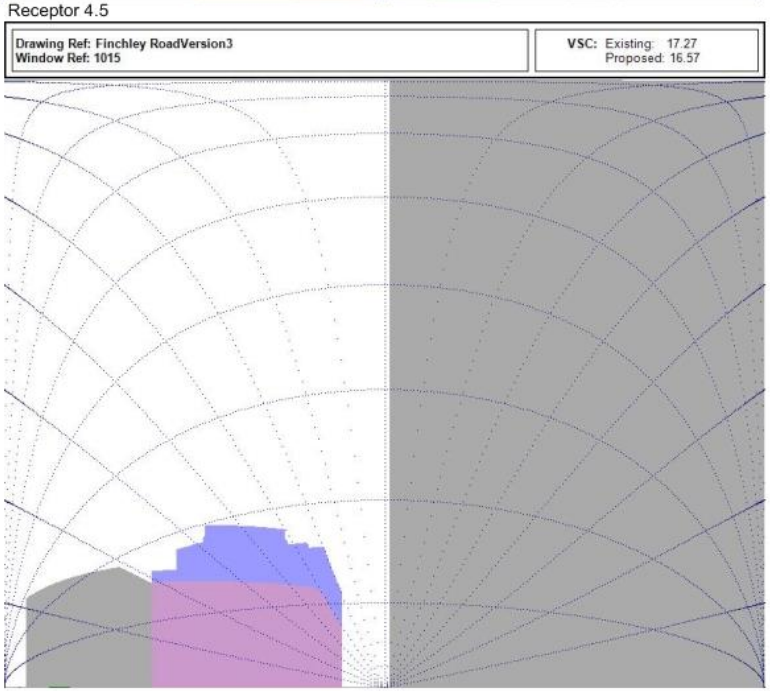

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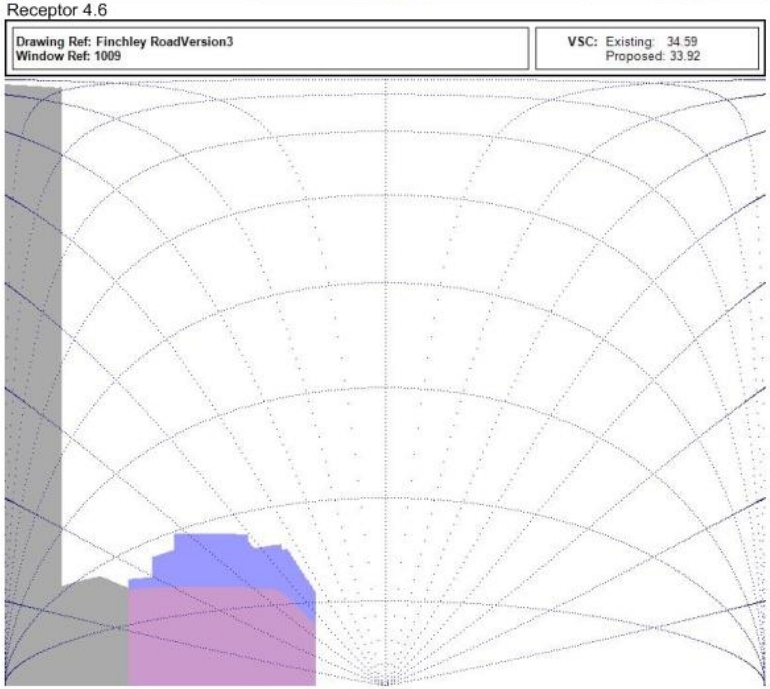

Receptor 4.8

Legend

Title

Figure 13 - Waldram Diagrams
Receptor Group 4

Project

Daylight, Sunlight and Overshadowing Assessment
Finchley Bell, Finchley Road, London

Project Number

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Client

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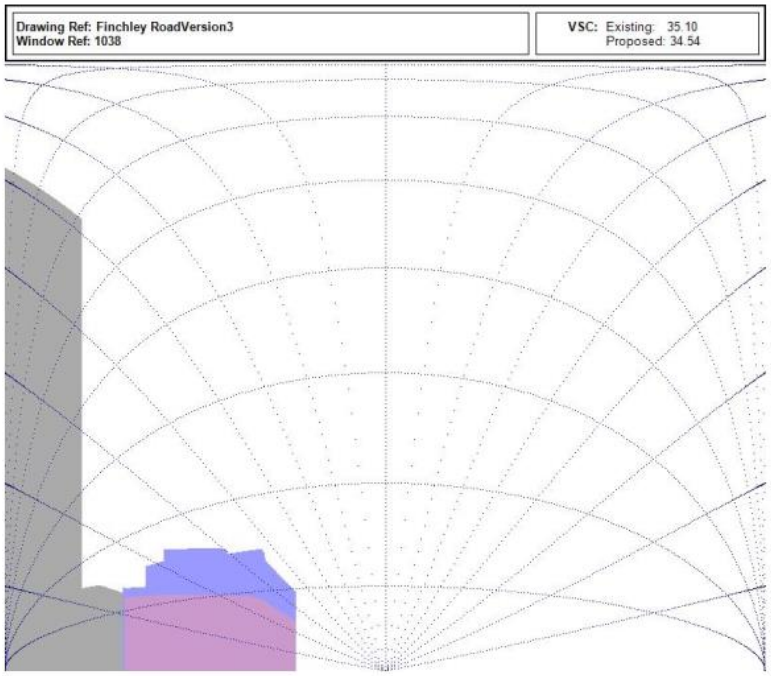
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE

Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk



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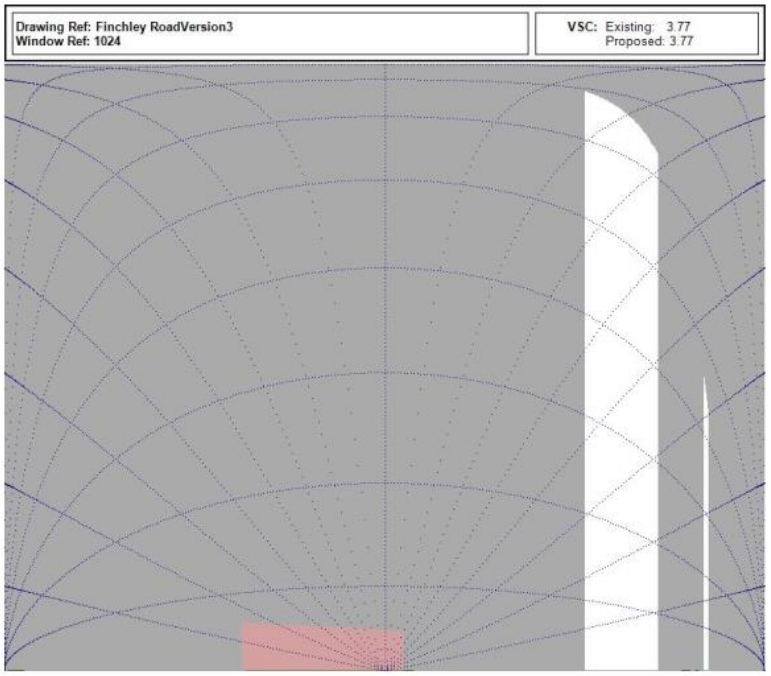

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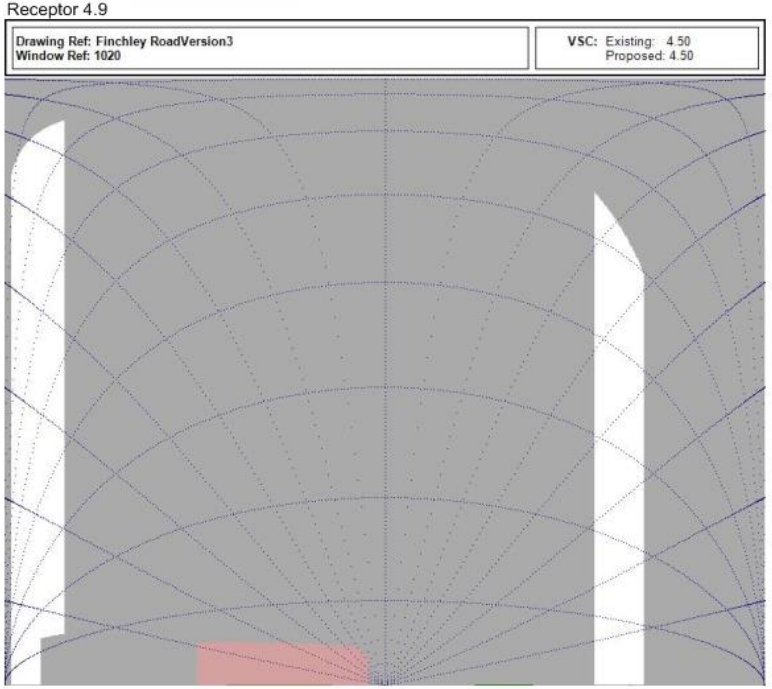

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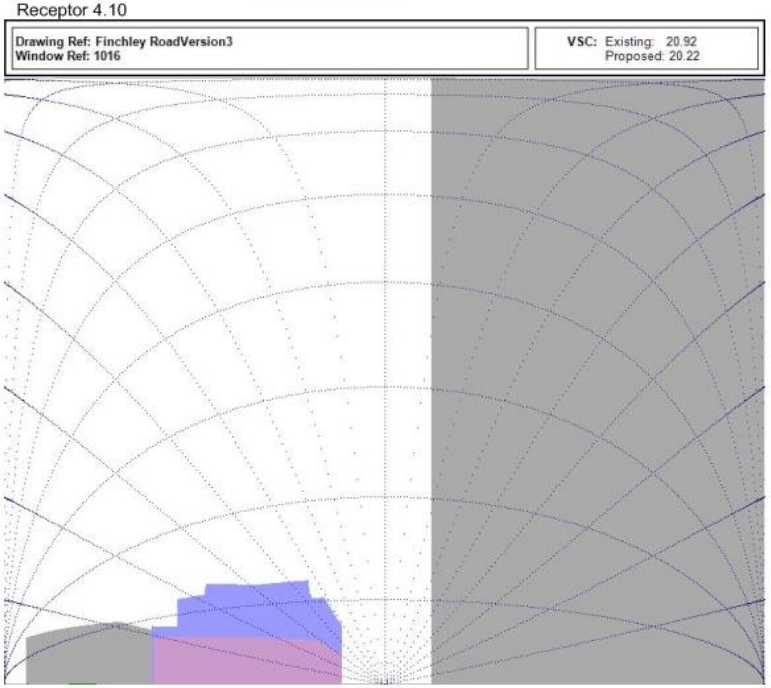

Receptor 4.12

Legend

Title

Figure 14 - Waldram Diagrams
Receptor Group 4

Project

Daylight, Sunlight and Overshadowing Assessment
Finchley Bell, Finchley Road, London

Project Number

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caldecotte consultants CC

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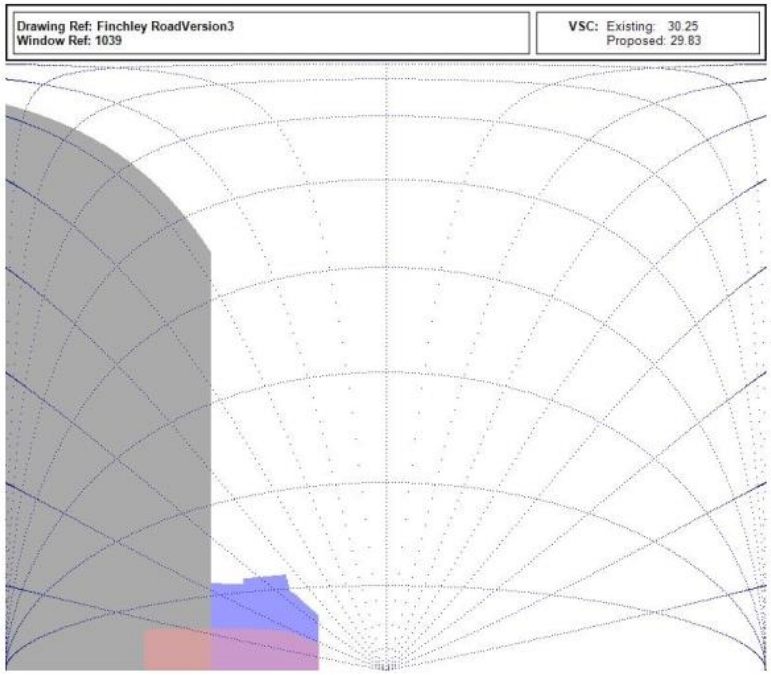

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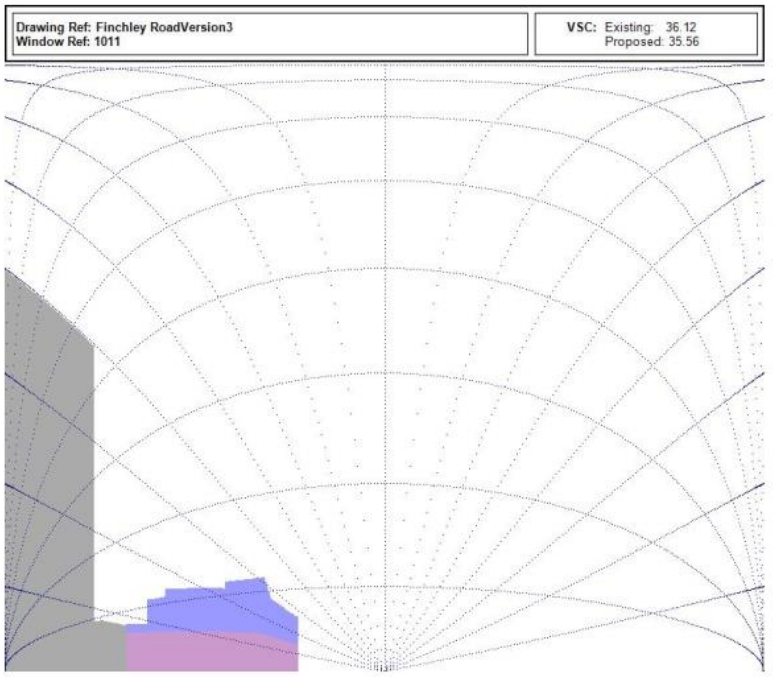

Receptor 4.14

Legend

Title

Figure 15 - Waldram Diagrams
Receptor Group 4

Project

Daylight, Sunlight and Overshadowing Assessment
Finchley Bell, Finchley Road, London

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Client

caldecotte CC consultants

REC Resource & Environmental Consultants Ltd
Resource and Environmental Consultants Ltd
Osprey House, Broadway, Manchester M50 2UE

Tel – 0161 868 1300 Fax – 0161 868 1301
www.recltd.co.uk

Legend

Title

Figure 16 - Shadowing at 12:00 on 21st March

Project

Daylight, Sunlight and Overshadowing Assessment
Finchley Bell, Finchley Road, London

Project Number

34008

Client

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Osprey House, Broadway, Manchester M50 2UE

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www.recltd.co.uk