Daylight, Sunlight, and Overshadowing Assessment

Mooretown Ph2, Swords.

Prepared by Model Works Ltd

Date 29th May 2026

MODEL WORKS

Executive Summary

Fingal County Council intends to apply for permission for a development at Mooretown, Swords. Model Works was commissioned to carry out a Daylight, Sunlight, and Overshadowing assessment on the proposed development.

The report assesses the performance of the multi-unit dwellings, specifically the apartments and duplex units, with respect to daylight and sunlight provision, and the sunlight to the shared amenity areas and public open spaces within the development. Also assessed is the proposal's potential impact on daylight and sunlight to neighbouring properties. The assessment was carried out in accordance with the BRE Site Layout Planning for Daylight and Sunlight: A guide to good practice, 3rd edition 2022, which incorporates the target values as set out in BS EN 17037 National Annex. The impact on the receiving environment is also assessed separately in the Environmental Impact Assessment, Chapter 16, which accompanies the planning application.

Proposed Development

Daylight Provision

The scheme achieved a high level of compliance with 96% of all rooms meeting the BRE Guide for daylight exposure, when assessed with and without trees. Both the apartments and duplexes delivered a consistent result: the apartments achieving 95% compliance and the duplexes 97%.

Sunlight Provision

The units achieved a high level of compliance for sunlight exposure, with 89% of all units meeting the BRE Guide when assessed both with and without trees.

Sunlight Provision to Amenity Spaces

The proposed development has a generous provision of amenity spaces, consisting of 11 communal open spaces (COS), 11 public open spaces (POS), and a crèche play area. The crèche play area and all 11 POS areas meet the BRE criteria for sunlight with 100% of their areas achieving compliance. Nine of the 11 communal open spaces meet the BRE guide for sunlight in the initial assessment. The two failing COS areas are significantly larger than that required by current policy and when a supplementary assessment was carried out based on the minimum required areas, both achieved compliance with the BRE Guide.

Neighbouring Environment

The proposed development is a predominantly low-rise scheme on a brownfield site in a suburban setting. Its considered massing and the generous separation distances between proposed and existing buildings ensure that the effect on the receiving environment is minimal. All neighbouring buildings and amenity spaces were assessed as experiencing a Negligible impact, demonstrating that the scheme integrates comfortably within its surroundings.

Contents

1.0 Introduction

Fingal County Council intends to apply for permission for a development at Mooretown, Swords.

The proposed development consists of 360 no. residential units; a mix of houses, own-door duplexes, and apartments arranged in urban blocks ranging from 2- to 5-storeys, at a net density of 41 dwellings per hectare. A 2- storey crèche of c. 670 sq.m is proposed at the centre of the site. Supporting infrastructure proposed includes 580 no. car parking spaces (resident and visitor), 1,009 no. cycle parking spaces, public open space, communal amenity space, pedestrian and cycle links, hard and soft landscaping, connections to all utilities, and all associated and enabling site works. Refer to Figure 1.

Model Works was commissioned to undertake the Daylight, Sunlight and Overshadowing assessment for the proposed scheme. The assessment evaluates the performance of the proposed multi-unit dwellings — the apartment blocks, duplexes, and triplex units identified in Figure 2 — in line with the Compact Settlements Guidelines[1], and also covers the proposed amenity spaces and the development's effect on the receiving environment. Impacts on the receiving environment are also addressed in full in Chapter 16 of the accompanying Environmental Impact Assessment Report, which accompanies the planning application. The report has been prepared by Barry Murphy, Managing Director of Model Works, who holds a B.Eng (Hons) in Mechanical Engineering, is a member of Engineers Ireland, and brings 20 years' industry experience to the assessment.

Specialist 3D software (Waldram Tools for Revit, Version 7) was used to analyse the proposal based on the 3D models, survey information and design details provided to Model Works by the project architects and other qualified professionals on the design team.

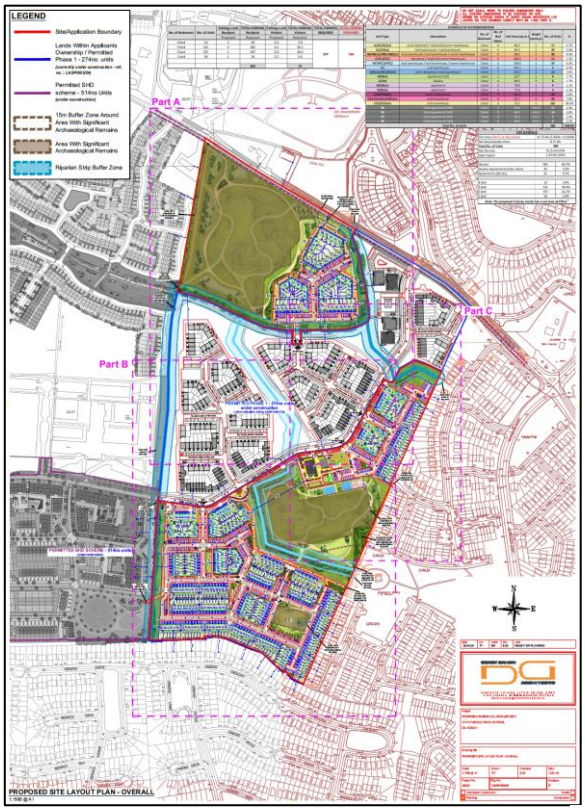


Figure 1 Site Plan

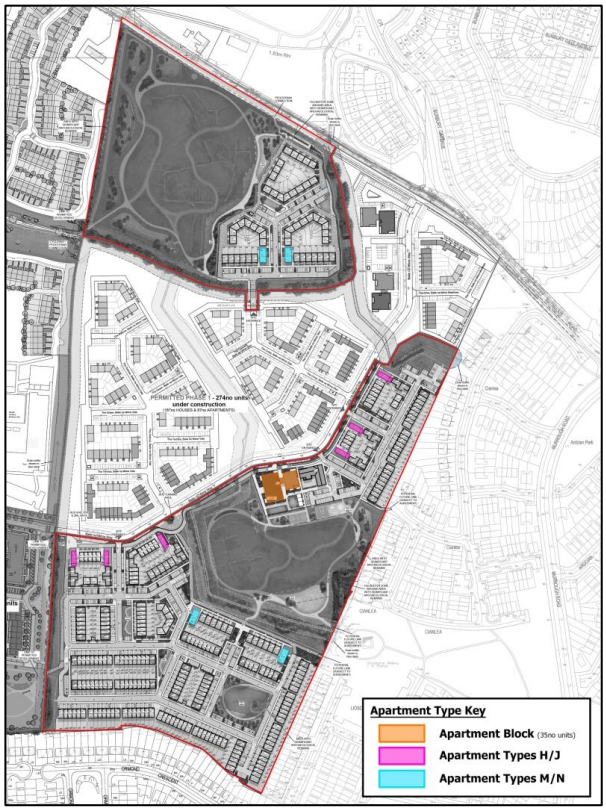


Figure 2 Multi-Unit Blocks Assessed

[1] Compact Settlements Guidelines 5.3.7

2.0 Standards and Guides Used in the Assessment

The following standards and guides are used and referenced throughout the report.

- Building Research Establishment - BRE Site Layout Planning for Daylight and Sunlight: A guide to good practice, 3rd edition 2022 (**BRE Guide**)
- British Standard BS EN 17037:2018 – Daylight in Buildings. (**BS EN 17037**)
- Irish Standard EN 17037:2018 – Daylight in Buildings. (**EN 17037**)
- Planning Design Standards for Apartments - Guidelines for Planning Authorities, (2025). **(Design Standards for Apartment)**
- Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities (2024) **(Sustainable Residential Development)**
- Urban Development and Building Heights: Guidelines for Planning Authorities (2018). These are guidelines issued under section 28 of the 2000 Planning and Development Act 2000. **(Urban Development and Building Heights)**
- Fingal Development Plan 2023-2029, (**Fingal Development Plan**)

2.1. BRE Guide 2022

The BRE (Building Research Establishment) Guide to Daylight and Sunlight was first published in 1991 and has become the primary reference document for local authorities in Ireland and the UK for the assessment of Daylight and Sunlight. The 2022 edition is the third and most recent edition of the guide.

The BRE Guide's summary states:

"This guide gives advice on site layout planning to achieve good sunlighting and daylighting, both within buildings and in the open spaces between them. It is intended to be used in conjunction with the interior daylight recommendations for new buildings in the British Standard Daylight in buildings, BS EN 17037. It contains guidance on site layout to provide good natural lighting within a new development; safeguarding of daylight and sunlight within existing buildings nearby; and the protection of daylighting of adjoining land for future development."[2]

It also notes that it should be interpreted with a degree of flexibility, depending on the specifics of the development being assessed.

"The guide is intended for building designers and their clients, consultants, and planning officials. The advice given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout design. In special circumstances the developer or planning authority may wish to use different target values."[3]

The introduction also states that:
"The guidance here is intended for use in the United Kingdom and in the Republic of Ireland, though recommendations in the Irish Standard IS EN 17037 may vary from those in BS EN 17037."[4]

The BRE Guide will be the primary reference document used in this report.

[2] BRE Guide: Summary
[3] BRE Guide: 1.6
[4] BRE Guide: 1.7

2.2. BS EN 17037:2018+A1:2021 – Daylight in Buildings.

In 2018, a new European wide standard for daylight was introduced, being EN 17037. In the UK, this standard was published as BS EN 17037 and importantly, it contains a national annex. The national annex in BS EN 17037 (2018) attempts to align the guidance and expectations of the new European standard with the now superseded BS 8206-2. It gave daylight illuminance recommendations of 100 lux in bedrooms, 150 lux in living rooms and 200 lux in kitchens, which were to be exceeded over at least 50% of the assessment points in the room for at least half of the daylight hours.

The standard explains its reasoning behind the annex with:
"The UK committee supports the recommendations for daylight in buildings given in BS EN 17037:2018; however, it is the opinion of the UK committee that the recommendations for daylight provision in a space (see Clause A.2) may not be achievable for some buildings, particularly dwellings. The UK committee believes this could be the case for dwellings with basement rooms or those with significant external obstructions (for example, dwellings situated in a dense urban area or with tall trees outside), or for existing buildings being refurbished or converted into dwellings. This National Annex therefore provides the UK committee's guidance on minimum daylight provision in all UK dwellings."[5]

2.3. EN 17037:2018+A1:2021 – Daylight in Buildings.

Prior to 2018, Ireland had no standard for daylight. In 2018, the National Standards Authority of Ireland adopted EN 17037 to directly become IS EN 17037 and importantly it was not amended to include an equivalent to the BS National Annex. The Irish standard sets a target daylight illuminance of 300 lux which should be achieved across at least half of the reference plane in a daylit space for at least half of the daylight hours and an illuminance of 100 lux which should also be achieved across 95% of the reference plane for at least half of the daylight hours. These targets apply to all room types, regardless of use; kitchen, living, bedroom, office, commercial are all assessed to the same standard.

2.4. Planning Design Standards for Apartments - Guidelines for Planning Authorities, (2025).

The guidelines set out policy and guidance in relation to the planning and development of apartments in all housing or mixed-use developments and provides guidance to planners in relation to the built environment including Daylight and Sunlight.

"The amount of sunlight reaching the interior of an apartment, depending on design and layout considerations, can significantly affect the amenities of the occupants. (…) Where single aspect apartments are provided, the number of south facing units should be maximised, with west or east facing single aspect units also being acceptable. Living spaces in apartments should provide for direct sunlight for some part of the day. North facing single aspect apartments may be considered, where overlooking a significant amenity such as a public park, communal space or some other amenity feature."[6]

And

"The provision of acceptable levels of natural light in new apartment developments is an important planning consideration as it contributes to the liveability and amenity enjoyed by apartment residents. It is also important to safeguard against a detrimental impact on the amenity of other sensitive occupiers of adjacent properties. Section 5.3.7 of the SRDCSGs outlines requirements for the provision of acceptable levels of daylight in new residential developments and adjoining properties."[7]

[5] BS EN 17037: NA1

[6] Planning Design Standards for Apartments: 3.4

[7] Planning Design Standards for Apartments: 6.1

2.5. Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities (2024)

These guidelines set national planning policy and guidance in relation to the planning and development of urban and rural settlements, with a focus on sustainable residential development and the creation of compact settlements.

In relation to daylight provision, it states:

"In cases where a technical assessment of daylight performance is considered by the planning authority to be necessary regard should be had to quantitative performance approaches to daylight provision outlined in guides like A New European Standard for Daylighting in Buildings IS EN17037:2018, UK National Annex BS EN17037:2019 and the associated BRE Guide 209 2022 Edition (June 2022), or any relevant future standards or guidance specific to the Irish context."[8]

and

"In drawing conclusions in relation to daylight performance, planning authorities must weigh up the overall quality of the design and layout of the scheme and the measures proposed to maximise daylight provision, against the location of the site and the general presumption in favour of increased scales of urban residential development. Poor performance may arise due to design constraints associated with the site or location and there is a need to balance that assessment against the desirability of achieving wider planning objectives. Such objectives might include securing comprehensive urban regeneration and or an effective urban design and streetscape solution."

2.6. Urban Development and Building Heights: Guidelines for Planning Authorities (2018 version)

This document is intended to set out national planning policy guidelines on building heights in relation to urban areas.

"Appropriate and reasonable regard should be taken of quantitative performance approaches to daylight provision outlined in guides like the Building Research Establishment's 'Site Layout Planning for Daylight and Sunlight' (2nd edition) or BS 8206-2: 2008 – 'Lighting for Buildings – Part 2: Code of Practice for Daylighting'."[9] (Note, this version of the BRE guideline has been superseded by the 2022 edition)

2.7. Fingal Development Plan 2023-2029

The Fingal Development Plan tells the story of where and how Fingal will grow over the duration of the plan. It draws on its historical heritage and uses its skills and expertise to continue sustainable social, environmental, and economic growth well into the future, with a focus on creating vibrant and resilient communities.

In relation to Daylight and Sunlight, it states:

"All applications for residential development must ensure that the layout and design of individual units and accompanying public realms are designed in a manner which maximises daylight and sunlight. A Daylight and Sunlight Assessment may be necessary to assess the impacts of the proposed development on surrounding properties and amenity areas outside the site boundaries of an application and in order to assess the likely daylight and sunlight reaching proposed units and associated private, communal and public open spaces."[10]

[8] Sustainable Residential Development 5.3.7

[9] Urban Development and Building Heights 3.2

[10] Fingal Development Plan, 14.6.6.1

It also states that:

"Development shall be guided by the principles of Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice – (Building Research Establishment Report) 2011 and/or any updated guidance."[11]

As the 2011 guide has now been withdrawn, the current 2022 guide will be used for this report.

2.8. Summary of Standards and Guides

IS EN 17037 and BS EN 17037 provide different criteria for the assessment of daylight provision, however, the Sustainable Residential Development and Compact Settlements Guidelines for Planning Authorities (2024), which in turn is referenced by the Planning Design Standards for Apartments (2025), explicitly states that planning authorities should have regard to the UK National Annex in BS EN 17037. Therefore, having reviewed all the applicable standards and guidelines it is Model Works' professional opinion that the assessment for daylight, sunlight and overshadowing be carried out in accordance with the BRE Guidelines (2022) which incorporate the target values as set out in BS EN 17037 National Annex.

3.0 Lighting in Buildings

Understanding Direct and Diffuse Daylight

Daylight is generally taken to be the totality of visible radiation originating from the sky, and when visible, the sun, during the hours of daytime. The source of all daylight is in fact the sun. Scattering of sunlight in the atmosphere by air, water vapour, dust, and so on gives the sky the appearance of a self-luminous hemispherical source of light. Sunlight is commonly referred to as direct light since it appears to originate from a small source and can be highly luminous, casting sharp shadows. The sky, however, is an extended source of illumination that casts only soft shadows, and so skylight is commonly referred to as diffuse light.

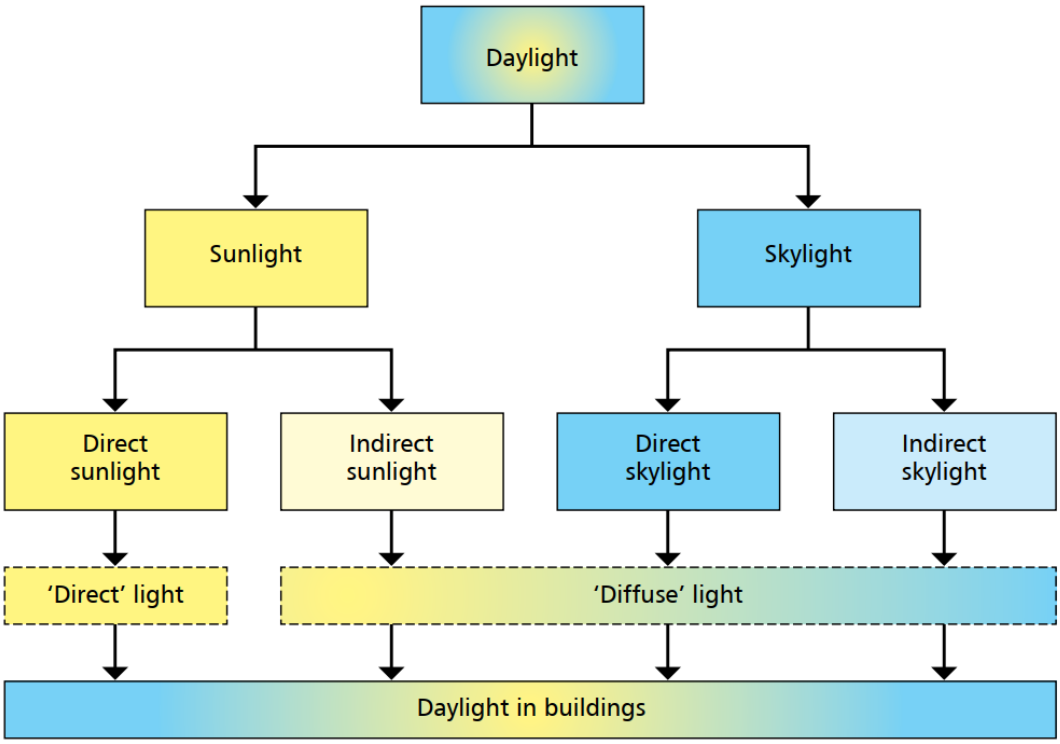


Figure 3 Contributions to Daylight in Buildings

[11] Fingal Development Plan, 14.6.6.1

4.0 Glossary

Term	Definition
Lumen	The lumen (symbol: lm) is the unit for luminous flux. It measures the total amount of light emitted by a light source in all directions. For reference, a standard 100-watt incandescent light bulb produces about 1,500-1,700 lumens.
Lux	The lux (symbol: lx), Latin for light, is a unit of illumination: 1 lux is the illuminance produced by 1 candela on a surface perpendicular to the light rays at a distance of 1 meter from the source.
Candela	Brightness is indicated by the candela (symbol: cd). The light intensity indicates how much light is in each piece of a light beam.
Luminance	The amount of light emitted, passing through or reflected from a surface.
Illuminance	A measure of the amount of light falling on a surface, usually measured in lux.
Target illuminance (ET)	Illuminance from daylight that should be achieved for at least half of annual daylight hours across a specified fraction of the reference plane in a daylit space.
Minimum target illuminance (E_{TM})	Illuminance from daylight that should be achieved for at least half of annual daylight hours across 95% of the reference plane in spaces with vertical and/or inclined daylight apertures
Daylight, natural light	Combined skylight and sunlight.
Climate Based Daylight Modelling (CBDM)	Climate-based daylight modelling (CBDM) is the predicted luminous levels within a space using sun and sky conditions that are derived from standard meteorological datasets. CBDM delivers predictions of absolute quantities (e.g. illuminance) that are dependent both on the building location (i.e. geographically-specific climate data is used) and the building orientation (i.e. the illumination effect of the sun and non-overcast sky conditions are included), in addition to the building's composition and configuration.
Spatial Daylight Autonomy (sDA)	Spatial Daylight Autonomy (sDA) uses CBDM to assesses whether a space receives sufficient daylight on a work plane during standard operating hours on an annual basis. The target is a percentage of floor area that exceeds a specified illuminance level (e.g. 200 lux) for a specified amount of annual hours (e.g. 50% of daylight hours).
CIE standard overcast sky	A completely overcast sky, such that light received by north facing windows is similar to that received by south facing windows. A Commission Internationale d'Eclairage (CIE) standard overcast sky is darkest at the horizon and brightest at the zenith (vertically overhead).
Annual Probable Sunlight Hours (APSH)	The probable sunlight hours' means 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 (based on sunshine probability data).
Winter Probable Sunlight Hours (WPSH)	Winter probable sunlight hours' means the total number of hours between 21 September and 21 March that the sun is expected to shine on unobstructed ground, allowing for average levels of cloudiness for the location in question.
Vertical Sky Component (VSC)	The amount of skylight falling on a vertical wall or window can be quantified as the vertical sky component (VSC). The VSC for existing buildings is the illuminance on the outside of a window, divided by the illuminance falling on an unobstructed horizontal plane, under overcast sky conditions. The standard overcast sky is used, and the ratio is usually expressed as a percentage. The maximum value is almost 40% for a completely unobstructed vertical wall.
No Sky Line	The outline on the working plane of the area from which no sky can be seen.

5.0 Daylight and Sunlight Assessment of the Proposed Development

There are three assessments that must be made to determine the daylight and sunlight that the dwellings and amenity spaces of a new development will enjoy:

1. Daylight provision in new development
2. Sunlight provision in new development
3. Sunlight Provision to amenity spaces in new development

5.1. Daylight Provision in New Development

"Daylight can contribute significantly to the lighting needs of any type of building. This means that daylight openings should have appropriate areas to provide sufficient daylight throughout the year."[12]

5.1.1. Assessment Method

This report will use the Illuminance Method to assess daylight provision. This method uses Climate Based Daylight Modelling (CBDM) with specific climatic data for the location of the site to calculate the illuminance from daylight across a grid on the reference plane at hourly, or sub-hourly, intervals for a typical year. The Perez all-weather sky model for Dublin (IRL_Dublin.039690_IWEC.epw) was used for daylight calculations, Dublin being the location closest to the site for which there was a data set available.

Specialist 3D software is used to carry out a Spatial Daylight Autonomy (sDA) assessment which uses CBDM to assess whether a space receives sufficient daylight on a work plane during standard operating hours on an annual basis. The target is a percentage of the reference plane area that exceeds a specified illuminance level (e.g. 200 lux) for a specified number of annual hours, normally 50% of daylight hours.

"Internal and exterior surfaces and obstructions need to be modelled including appropriate surface reflectances. Fixtures and fittings need not be included. If trees would impact the daylight to the new development, they should be taken into account."[13]

The surface reflectance and glazing transmissibility values used in the calculations are shown in the table below.

Table 1 Reflectance & Transmittance Values

Surface Type	Reflectance
Interior walls	0.7
Ceilings	0.8
Floors	0.3
Exterior walls and obstructions	0.2
Exterior ground	0.2
Glazing	
Transmittance	0.68
Maintenance Factor	0.96

Trees

Trees can have an impact on the daylight received by new developments and must be considered when making the assessment. The BRE Guide states:

[12] EN 17037 : 5.1.1

[13] BRE Guide : C22

"The calculation model should account for the obstruction to daylight caused by the trees. This needs to be done by modelling a representative shape of the trees."[14] and *"The assessment should account for the transparency and reflectance of the trees, which can vary across the seasons."*[15]

The BRE Guide includes transparency and reflectance values, both summer and winter states, for typical tree species found in Ireland and the UK. These values are included in the software's calculation methods, with summer and winter states each assigned to six months of the year.

5.1.2. Assessment Criteria

The assessment will be carried out in line with the guidance in BRE 209 and BS EN17037 National Annex: *"The UK National Annex gives illuminance recommendations of 100 lux in bedrooms, 150 lux in living rooms and 200 lux in kitchens. These are the median illuminances, to be exceeded over at least 50% of the assessment points in the room for at least half of the daylight hours. The recommended levels over 95% of a reference plane need not apply to dwellings in the UK."*[16]

Table 2 Daylight Provision Target Illuminance (BRE/BS EN 17037)

Room Type	Target Illuminance E_T (lx)
Bedroom	100
Living Room	150
Kitchen (or LKD)	200

The reference plane is at a height of 0.85m above the floor and offset from the perimeter of the room by 300mm.[17] This plane is then divided into grid points, at 250mm spacings, at which the lux levels are calculated; the median level is then used for assessment.

- In a room with a corridor, or annex entrance, this space need not be included in the assessment.
- Floor to ceiling cupboards can be excluded from the assessment area, but not kitchen units incorporating worktops.

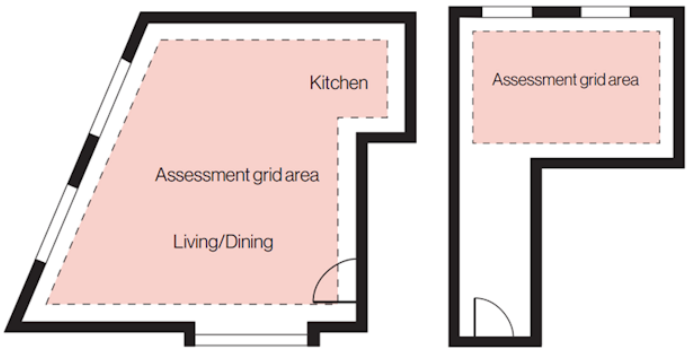


Figure 4 Assessment area examples for various room shapes

5.1.3. Summary of Results

Daylight Provision summary of results based on BRE Guidelines/BS EN 17037: rooms meeting the minimum target of 100 lux for bedrooms, 150 lux for living rooms and 200 lux for kitchens or LKD over 50% of the reference plane for at least half of the daylight hours.

[14] BRE Guide: G2.3
[15] BRE Guide: G2.4
[16] BRE Guide: C16
[17] BRE Guide: C28

The scheme achieved a high level of compliance with 96% of all rooms meeting the BRE Guide for daylight exposure, when assessed with and without trees. Both the apartments and duplexes delivered a consistent result: the apartments achieving 95% compliance and the duplexes 97%.

Table 3 Daylight Provision Results Summary (BRE/BS EN 17037)

Building	No. of Units	No. of Rooms	Meets BRE Criteria - with Trees	Meets BRE Criteria - without Trees
All Dwellings	55	161	96%	96%
Individual Buildings				
Apartments	35	101	95%	95%
Duplex Units	20	60	97%	97%

Refer to Appendix **C** for a full schedule of results.

5.2. Sunlight Exposure in the Proposed Development

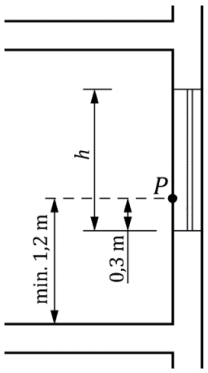
The BRE Guide states:

"In general a dwelling, or non-domestic building that has a particular requirement for sunlight, will appear reasonably sunlit provided:

- *at least one main window wall faces within 90° of due south and*
- *a habitable room, preferably a main living room, can receive a total of at least 1.5 hours of sunlight on 21 March. This is assessed at the inside centre of the window(s); sunlight received by different windows can be added provided they occur at different times and sunlight hours are not double counted."*[18]

5.2.1. Assessment Method

The assessment for **Sunlight Exposure** (SE) should be conducted for each opening of a space for a reference point P located on the inner surface of the aperture. Reference point P is located at the centre of the opening width and a minimum of 1.2m above the floor and 0.3m above the sill of the daylight opening. Where there are multiple openings of a space, it is possible to cumulate the time of sunlight availability if not occurring at the same time.



Trees

To assess the sunlight provision for new buildings BS EN 17037 recommends the calculation of sunlight hours be carried out on 21st March. At this time of the year deciduous trees will not be in full leaf and some sunlight would be expected to penetrate. However, it would be impossible to calculate this accurately. The BRE Guide recommends:

"It is therefore recommended that where trees may affect sunlight provision, the calculations should first be carried out with deciduous trees as opaque objects …. The calculations could then be repeated without deciduous trees entirely. This gives the range of potential sunlight hours. Buildings and other solid objects should always be included. Evergreen trees where no light can penetrate all year round should also always be included as solid."[19]

and

"If the minimum recommendation is met with opaque trees then sunlight would be adequate. If the minimum recommendation is not reached with either opaque trees or no trees then sunlight would be considered

[18] BRE Guide: 3.1.15

[19] BRE Guide: G3.2

inadequate. For a room where the recommendation is exceeded without trees, but not with opaque trees, sunlight provision may be adequate, but the trees will have some effect on the sunlight received."[20]

5.2.2. Assessment Criteria

The BRE Guide recommends that a space should receive possible sunlight for a duration of a minimum of 1.5 hours on a selected date between February 1st and March 21st. The normal date used for the assessment is March 21st.

Table 4 Sunlight Exposure Recommendations Values

Level of Recommendation for Exposure to Sunlight	Sunlight Exposure
Minimum	1.5 hrs
Medium	3.0 hrs
High	4.0 hrs

5.2.3. Summary of Results

The scheme achieved an 89% overall BRE compliance rate for sunlight exposure, with 64% of the units meeting the High rating (4+ hours sunlight exposure) when assessed both with and without trees. The duplex units achieve 100% compliance, and 29 of the 35 apartments achieve compliance. The apartment block has eight units per typical floor, refer to Figure 5, and the architects have designed the block so that six of the units per floor are dual aspect. The two single aspect units are facing south and west, ensuring they receive generous levels of sunlight. The failing units are the four dual aspect, predominantly north facing units (one per floor), highlighted in red in Figure 5, and two units in the north-east corner on ground and first floors, as the adjacent crèche has a blocking effect on their sunlight. These units are highlighted in red in Figure 6.

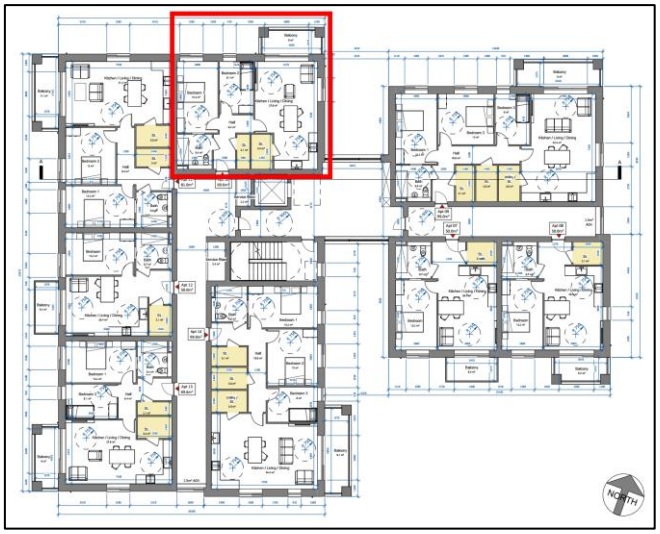


Figure 5 Apt Block Typical Floor

While apartment developments often yield a significant number of north-facing units that struggle to meet the BRE Guide's 1.5-hour sunlight threshold, this proposal utilises a favourable orientation and considered design to minimise non-compliant units.

[20] BRE Guide: G3.4

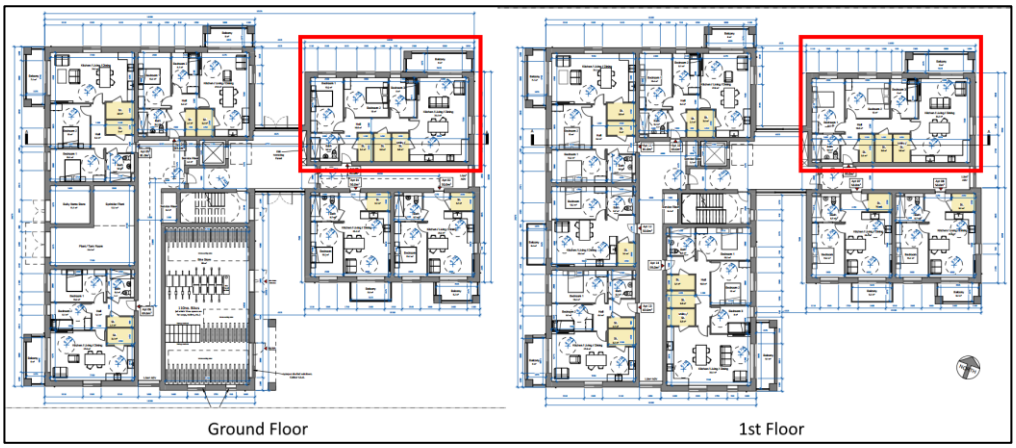


Figure 6 Apt Block – Gnd and 1st Floors

Table 5 Sunlight Exposure Results Summary

Building	No. of Units	No. of Rooms	Meets BRE Criteria - without Trees	Meets BRE Criteria - with Trees
All Dwellings	55	161	89%	89%
Below minimum	6		11%	11%
Minimum	4		8%	8%
Medium	10		18%	18%
High	35		64%	64%
Individual Buildings				
Apartments	35	101	83%	83%
Duplex Units	20	60	100%	100%

Refer to Appendix **D** for a full schedule of results.

5.3. Sunlight Provision to Amenity Spaces in the Proposed Development

5.3.1. Assessment Method

BRE Guidelines recommend that for an external garden or amenity area to appear adequately sunlit throughout the year, at least half of the space should receive at least 2 hours of sunlight on 21st March, the equinox.

Trees

In general, trees do not need to be considered when assessing potential loss of light to gardens and amenity spaces.

*"In assessing the impact of buildings on sunlight in gardens …, **trees and shrubs are not normally included in the calculation** unless a dense belt or group of evergreens is specifically planned as a windbreak or for privacy purposes. This is partly because the dappled shade of a tree is more pleasant than the deep shadow of a building (this applies especially to deciduous trees)."*[21] [Emphasis added.]

[21] BRE Guide 2022 : G4.1

5.3.2. Summary of Results

The proposed development has a generous provision of amenity spaces, consisting of 11 communal open spaces (COS), 11 public open spaces (POS), and a crèche play area. The crèche play area and all 11 POS areas meet the BRE criteria for sunlight with 100% of their areas achieving compliance.

The scheme includes eleven communal open spaces totalling circa 1,070m^2. Nine of the spaces performed very well, achieving a high compliance rate over their individual areas. The initial assessment found that for COS 7 and 8, 40% and 38% of their respective areas achieve the required two hours of sunlight on 21st March. Each of these spaces serves a pair of maisonettes where the minimum required provision for communal open space is 12m^2 as per current guidelines. However, the areas provided are 70m^2 and 62m^2 respectively for COS 7 and 8, significantly exceeding the minimum requirements, see Figure 7. A supplementary study was carried out, refer to Table 7 below, to assess the sunlight received by the required COS provision for each building (12m^2). This found that 100% of the areas receive two hours of sunlight, which complies with the BRE Guide.

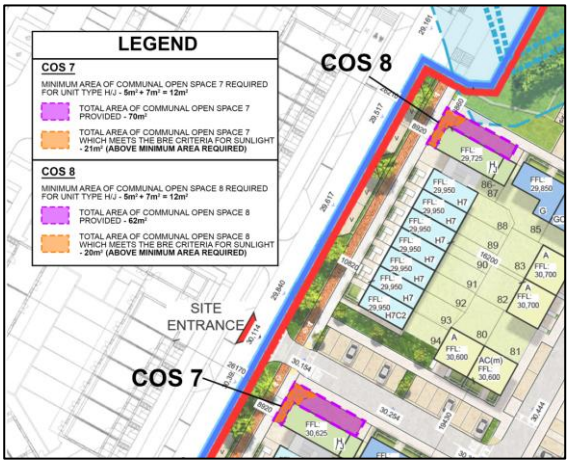


Figure 7 COS 7 & 8

Table 6 Sunlight Provision to Amenity Spaces Results Summary

Amenity Area	Area m²	Area Receiving 2 Hrs of Sunlight - %	Meets BRE Criteria
Apt COS	478	99%	Yes
COS1	55	100%	Yes
COS2	71	100%	Yes
COS3	77	100%	Yes
COS4	40	99%	Yes
COS5	55	100%	Yes
COS6	68	97%	Yes
COS7	70	31%	No
COS8	62	34%	No
COS9	47	100%	Yes
COS10	47	100%	Yes
Crèche	150	99%	Yes
POS1	395	100%	Yes
POS2	340	100%	Yes
POS3	950	100%	Yes
POS4	2360	100%	Yes
POS5	2760	100%	Yes
POS6	3510	100%	Yes
POS7	295	100%	Yes
POS8	250	100%	Yes
POS9	3620	100%	Yes
POS10	28837	100%	Yes
POS11	19890	100%	Yes

Table 7 Sunlight Provision to COS 7 & 8 – Supplementary Assessment

Amenity Area	Area m²	Area Receiving 2 Hrs of Sunlight - Proposed %	Meets BRE Criteria
COS7	12	100%	Yes
COS8	12	100%	Yes

Refer to Appendix **E** for a full schedule of results.

5.4. Compensatory Design Measures

The designers have included the following compensatory design measures for the units which failed to achieve compliance with the BRE Guidelines for daylight provision.

APARTMENT BLOCK

1. The apartment floor area for the 3 bed, 5 person unit (BA-003, BA-014, BA-022 & BA-030) is 99.0sqm, which exceeds the target gross floor area for a 3-bedroom, 5-person apartment, with a minimum 90.0sqm required in the Planning Design Standards for Apartments - Guidelines for Planning Authorities (2025)**.** This unit is oversized by 10.0%.
2. The units in the Apartment Block have access to a generous public open space in the form of an urban plaza to the south of the building.
3. The 3 bed, 5 person unit contains open plan Kitchen/Living/Dining areas that access directly onto generous terrace spaces. The area of the terraces meets and exceed the minimum required area of 9.0sqm for a 3-bedroom, 5-person apartment. These minimum areas are specified in the Planning Design Standards for Apartments - Guidelines for Planning Authorities (2025)**.**
4. The Planning Design Standards for Apartments - Guidelines for Planning Authorities (2025) suggest a 2.4m floor to ceiling height is generally considered good building practice. The 3 bed, 5 person units have an increased floor to ceiling height of 2.5-2.7m in order to provide a more generous sense of living space.

DUPLEX UNITS – UNIT TYPE N

1. The apartment floor area for Unit Type N (D008 & D018) is 79.8sqm, which exceeds the target gross floor area for a 2-bedroom, 4-person apartment, with a minimum 73.0sqm required in the Planning Design Standards for Apartments - Guidelines for Planning Authorities (2025)**.** This unit is oversized by 9.3%.
2. Duplex Unit N has access to large public open spaces in the form of green areas along with a generous communal open space directly in front of each unit.
3. The Duplex Unit N contains open plan Kitchen/Living/Dining areas that access directly onto generous terrace spaces.
4. The Planning Design Standards for Apartments - Guidelines for Planning Authorities (2025) suggest a 2.4m floor to ceiling height is generally considered good building practice. Duplex Unit N has an increased floor to ceiling height of 2.55m in order to provide a more generous sense of living space.

6.0 Daylight and Sunlight Impacts on Existing Buildings

There are three assessments that must be made to determine if a proposal adversely affects the daylight and sunlight to existing buildings.

1. Daylight access to existing buildings
2. Sunlight access to existing buildings
3. Sunlight access to neighbouring amenity areas

In cases where a proposed development has received planning permission, irrespective of whether construction has commenced, it is included in the assessment of the receiving environment and treated as an "existing" scheme.

6.1. Loss of daylight to existing buildings

6.1.1. Assessment Method

The amount of skylight falling on a vertical wall or window can be quantified as the **Vertical Sky Component** (VSC). The VSC for existing buildings is the illuminance on the outside of a window, divided by the illuminance falling on an unobstructed horizontal plane, under overcast sky conditions. The standard Commission Internationale d'Eclairage (CIE) overcast sky is used, and the ratio is usually expressed as a percentage. The maximum value is almost 40% for a completely unobstructed vertical wall.

"Loss of light to existing windows need not be analysed if the distance of each part of the new development from the existing window is three or more times its height above the centre of the existing window. In these cases the loss of light will be small."[22] Refer to **Figure 9** below.

"If the proposed development is taller or closer than this, a modified form of the procedure adopted for new buildings can be used to find out whether an existing building still receives enough skylight. First, draw a section in a plane perpendicular to each affected main window wall of the existing building. Measure the angle to the horizontal subtended by the new development at the level of the centre of the lowest window. If this angle is less than 25° for the whole of the development then it is unlikely to have a substantial effect on the diffuse skylight enjoyed by the existing building. If, for any part of the new development, this angle is more than 25°, a more detailed check is needed to find the loss of skylight to the existing building."[23] Refer to **Figure 10** *below.*

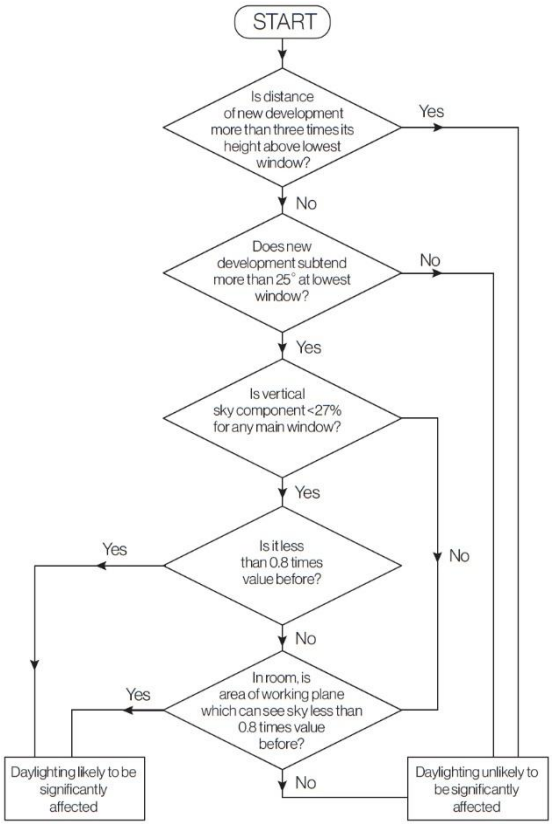


Figure 8 Decision chart: diffuse daylight in existing buildings

[22] BRE Guide, 2.2.4

[23] BRE Guide, 2.2.5

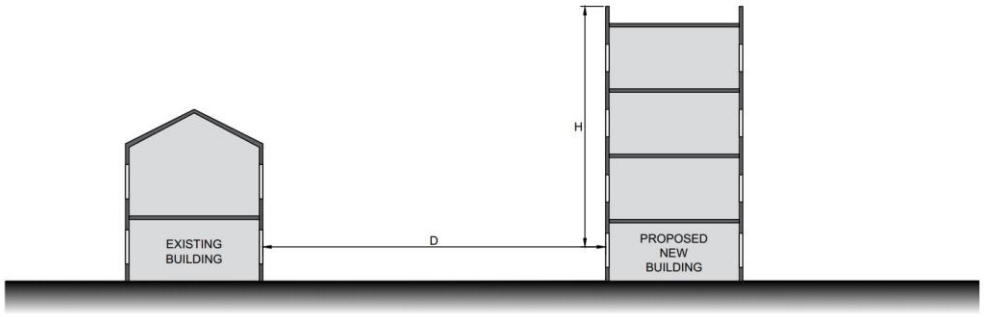


Figure 9 Distance test for Daylight Impact to Existing Buildings (Is D > 3xH)

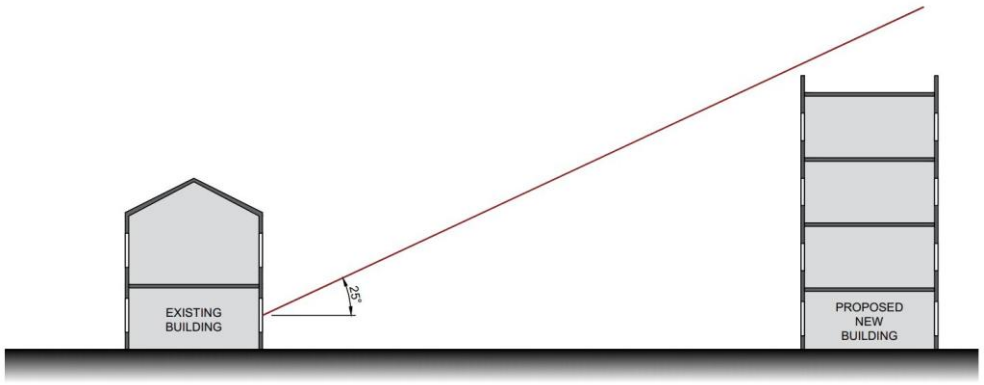


Figure 10 25° Angle test for Daylight Impact to Existing Buildings

Weighted Average VSC

"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 (24x2+30)/3 = 26%. 'After' it would be (18x2+30)/3 = 22%, 0.85 times the value 'before'. Thus, loss of VSC to the room as a whole would meet the guideline."[24]

Trees

While the potential impact of existing trees must be considered when assessing the daylight to proposed dwellings, trees do not need to be considered for existing buildings, unless a dense belt or group of evergreens is specifically planned as a windbreak or for privacy purposes, as stated in the BRE Guide.

"It is generally more difficult to calculate the effects of trees on daylight because of their irregular shapes and because some light will generally penetrate through the tree crown. ***Where the effect of a new building on existing buildings nearby is being analysed, it is usual to ignore the effect of existing trees.*** *This is because daylight is at its scarcest and most valuable in winter when most trees will not be in leaf."*[25] [Emphasis added.]

6.1.2. Assessment Criteria

The daylight to an existing building may be adversely affected if:

[24] BRE Guide, 2.2.8

[25] BRE Guide, G1.2

- the VSC measured at the centre of an existing main window is less than 27%, and less than 0.80 times its former value. The reference point is in the external plane of the window wall.
- the area of the working plane, 0.85m high, in a room which can receive direct skylight is reduced to less than 0.80 times its former value.

The line that divides the points on the working plane which can and cannot see the sky is known as the No Sky Line (NSL). The NSL test can only be carried out when the internal room layout is known, which is seldom the case when assessing existing buildings.

6.1.3. **Summary of Results**

Using the decision chart detailed in Figure 8 above, existing and proposed/under construction dwellings in the vicinity of the proposal site were assessed for potential impact to daylight. The proposed development consists predominantly of two- and three-storey buildings, and a single apartment block of five storeys. The building heights and significant separation distances between them and surrounding dwellings and granted schemes minimise any potential impact they may have. To confirm this, the closest buildings, existing and proposed, were selected for a detailed analysis. Figure 16 in Appendix F identified the neighbouring buildings selected for testing using the 25° angle test, and Figure 17 in Appendix F displays the section lines for each building. These section diagrams confirm that the scheme falls below the 25° line and therefore, as per the BRE Guide, no further testing is required because any impact would be **Negligible**.

6.2. Loss of sunlight to existing buildings

6.2.1. Assessment Method

To determine the possible loss of sunlight to existing buildings the **Annual Probable Sunlight Hours** (APSH) is calculated. *"Here 'probable sunlight hours' means 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 (based on sunshine probability data). The sunlight reaching a window is quantified as a percentage of this unobstructed annual total."*[26]

It is recommended that all living rooms and conservatory windows of existing dwellings be assessed if the new development is positioned within 90° of due south, refer to **Figure 11**. Kitchens and bedrooms are less important, although care should be taken not to block too much sun. Normally loss of sunlight need not be analysed to kitchens and bedrooms, except for bedrooms that also comprise a living space.

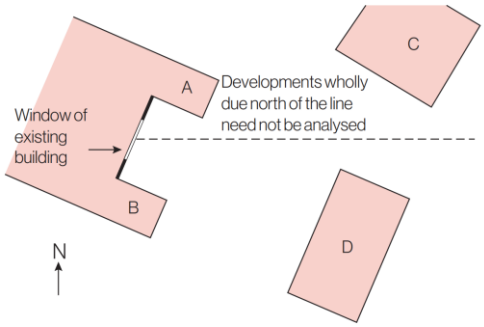


Figure 11 In analysing the sunlighting impact on the existing window, no check need be made for proposed extension A and new building C, as they lie within 90° of due north of the window. Proposed extension B should be checked, as should new building D if it subtends more than 25° to the horizontal, measured in section from the centre of the window.

The reference point is the centre of the window, or 1.6m above the floor for floor to ceiling windows or patio doors, on the plane of the outside surface of the wall.

Only rooms with windows facing within 90° of due south need to be assessed:

"To assess loss of sunlight to an existing building, it is suggested that all main living rooms of dwellings, and conservatories, should be checked if they have a window facing within 90° of due south." [27]

[26] BRE Guide, 3.2.4

[27] BRE Guide, 3.2.3

In cases where a room has more than one window, the combined annual probable sunlight hours can be used. However:

"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."[28]

Trees
Similar to the VSC assessment above, trees are not included, unless a dense belt or group of evergreens is specifically planned as a windbreak or for privacy purposes.

6.2.2. Assessment Criteria

The sun lighting of an existing dwelling may be adversely affected if the centre of the window:

- receives less than 25% of annual probable sunlight hours (APSH) and less than 0.8 times its former annual value; or less than 5% of winter probable sunlight (WPSH) hours between 21 September and 21 March and less than 0.80 times its former value during that period;
- and also has a reduction in sunlight received over the whole year greater than 4% of annual probable sunlight hours.

"It is not always necessary to do a full calculation to check sunlight potential. The guideline above is met provided either of the following is true:

- *If the distance of each part of the new development from the existing window is three or more times its height above the centre of the existing window (note: obstructions within 90° of due north of the existing window need not count here).*
- *The window wall faces within 90° of due south and no obstruction, measured in the section perpendicular to the window wall, subtends an angle of more than 25° to the horizontal. Again, obstructions within 90° of due north of the existing window need not be counted.*
- *The window wall faces within 20° of due south and the reference point has a VSC of 27% or more."*[29]

6.2.3. Summary of Results

Like the daylight impact assessment above in Section 6.1.3, no dwellings fell within the criteria requiring a detailed assessment. Therefore, the impact would be **Negligible**.

6.3. Loss of sunlight to existing gardens and amenity areas

6.3.1. Assessment Method

BRE Guidelines recommend that for an existing garden or amenity area to appear adequately sunlit throughout the year, at least half of the space should receive at least 2 hours of sunlight on 21 March, the equinox.

Trees
In general, trees do not need to be considered when assessing potential loss of light to existing gardens and amenity spaces.

*"In assessing the impact of buildings on sunlight in gardens …, **trees and shrubs are not normally included in the calculation** unless a dense belt or group of evergreens is specifically planned as a windbreak or for privacy*

[28] BRE Guide, 3.2.8
[29] BRE Guide, 3.2.9

purposes. This is partly because the dappled shade of a tree is more pleasant than the deep shadow of a building (this applies especially to deciduous trees).”[30] [Emphasis added.]

6.3.2. Assessment Criteria

“If as a result of a 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. If a detailed calculation cannot be carried out, it is recommended that the centre of the area should receive at least two hours of sunlight on 21 March.”[31]

6.3.3. Summary of Results

The neighbouring environment performs strongly with respect to sunlight to gardens and amenity spaces. The low-rise nature of the proposed development, combined with generous separation distances from neighbouring dwellings, ensures that any impact is inherently limited. To confirm this, the gardens of the buildings closest to the proposal were assessed in detail, with the results presented in Table 8. 100% of all garden areas meet the BRE Guide, confirming a **Negligible** impact on neighbouring amenity.

Table 8 Sunlight to Existing Amenity Spaces Results Summary.

Amenity Area	Area (m^2)	Area Receiving 2 Hrs of Sunlight - Existing	Area Receiving 2 Hrs of Sunlight – Proposed	Reduction in Sunlight	Meets BRE Criteria
18 Ormond Crescent	126	51%	51%	0%	Yes
20 Ormond Crescent	120	53%	53%	0%	Yes
54 Ormond Crescent	120	92%	92%	0%	Yes
56 Ormond Crescent	105	88%	88%	0%	Yes
60 Cianlea	138	97%	97%	0%	Yes
61 Cianlea	348	97%	97%	0%	Yes
74 Cianlea	142	97%	97%	0%	Yes
75 Cianlea	114	100%	100%	0%	Yes
125 Lioscian	75	99%	99%	0%	Yes
127 Lioscian	57	100%	100%	0%	Yes
128 Lioscian	54	100%	100%	0%	Yes
129 Lioscian	69	100%	100%	0%	Yes
143 Lioscian	60	95%	95%	0%	Yes
144 Lioscian	35	100%	100%	0%	Yes
145 Lioscian	34	100%	100%	0%	Yes
146 Lioscian	90	100%	100%	0%	Yes

Refer to Figure 18 in Appendix G for the accompanying sunlight heatmap graphic.

7.0 Conclusion

The scheme performs well against the BRE Guide for both daylight and sunlight, with 96% of all rooms achieving compliance for daylight provision and 89% of units meeting the sunlight provision threshold. All 23 amenity spaces achieve compliance for sunlight, confirming a high overall standard of internal and external amenity across the development.

[30] BRE Guide 2022, G4.1

[31] BRE Guide 2022, 3.3.17

The proposed development is a predominantly low-rise scheme on a brownfield site in a suburban setting. Its considered massing and the generous separation distances between proposed and existing buildings ensure that the effect on the receiving environment is minimal. All neighbouring buildings and amenity spaces were assessed as experiencing a Negligible impact, demonstrating that the scheme integrates comfortably within its surroundings.

The BRE Guide and BS EN 17037:2018 are expressly advisory documents intended to inform professional judgement rather than impose rigid compliance thresholds. These standards explicitly recognise that numerical targets must be interpreted flexibly and acknowledge that minor deviations affecting a limited number of rooms do not undermine the acceptability of a development.

Appendix A – Site Plan

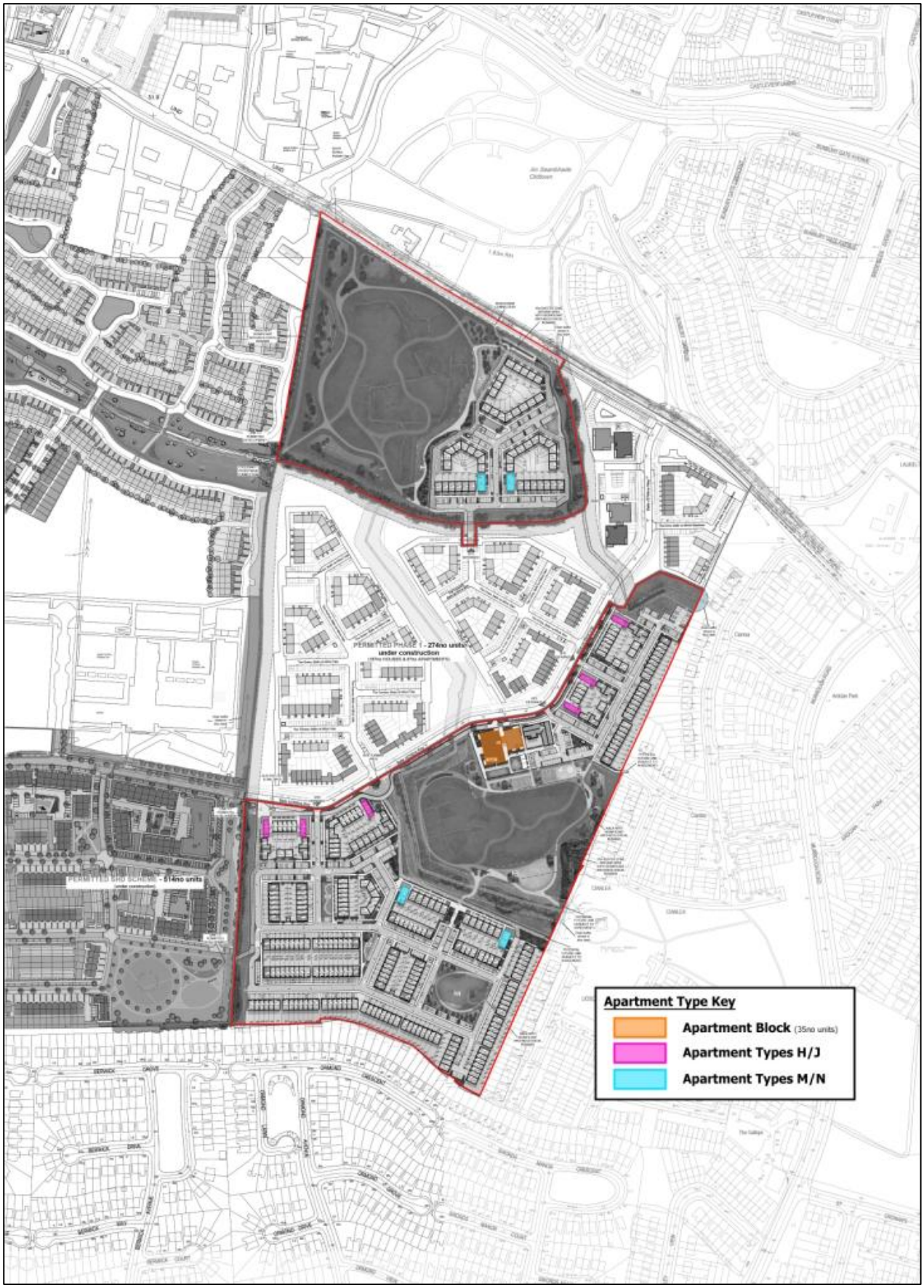
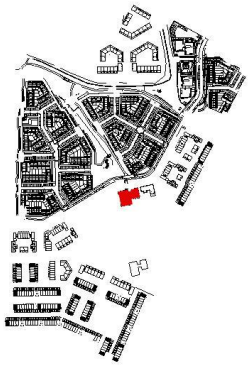


Figure 12 Site Plan Identifying Blocks Assessed

Appendix B – Floor Plans with Room Reference Numbers

Figure 13 – Apartment Block Plans with Daylight Heatmaps

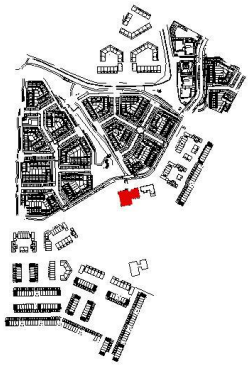


Key Plan

SDA (Spatial Daylight Autonomy)

300 Lux
200 Lux
150 Lux
100 Lux
0 Lux

Building	
Mooretown	
Floor Plan	Sheet N°
Floor 01	002

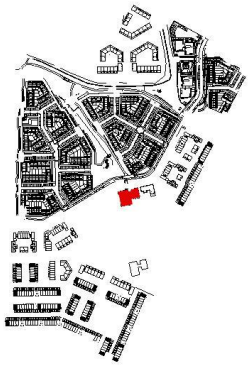


Key Plan

SDA (Spatial Daylight Autonomy)

300 Lux
200 Lux
150 Lux
100 Lux
0 Lux

Building	
Mooretown	
Floor Plan	Sheet N°
Floor 02	003



Key Plan

SDA (Spatial Daylight Autonomy)

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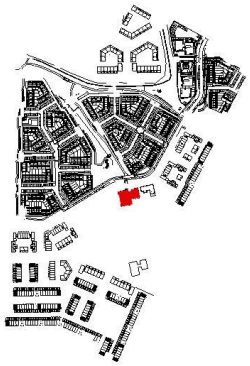
200 Lux
150 Lux
100 Lux
0 Lux

Building	
Mooretown	
Floor Plan	Sheet N°
Floor 03	004



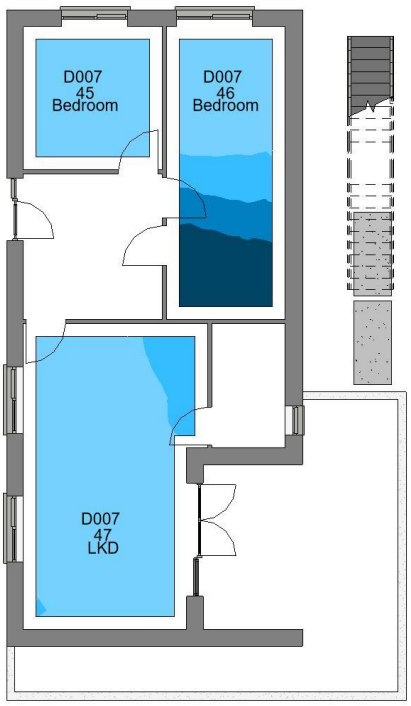
Key Plan

SDA (Spatial Daylight Autonomy)

300 Lux
200 Lux
150 Lux
100 Lux
0 Lux

Building	
Mooretown	
Floor Plan	Sheet N°
Floor 04	005

Figure 14 – Duplex Units Plans with Daylight Heatmaps



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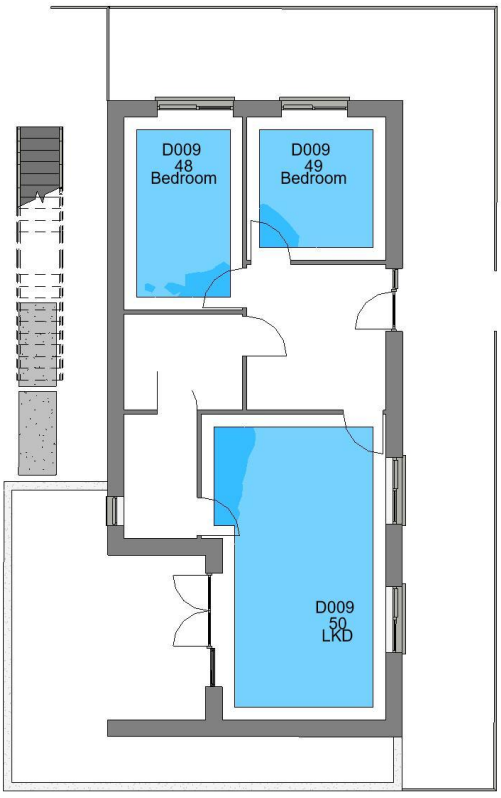

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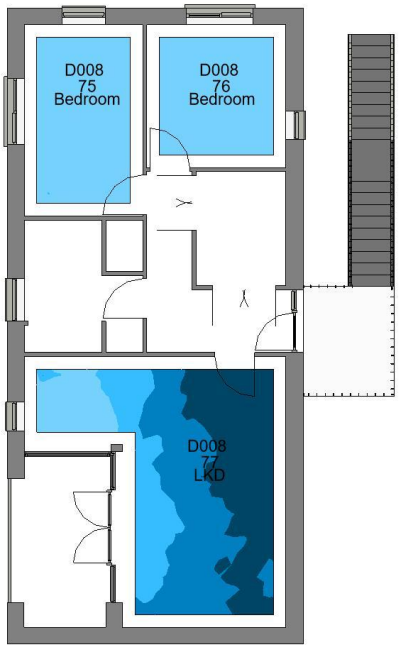

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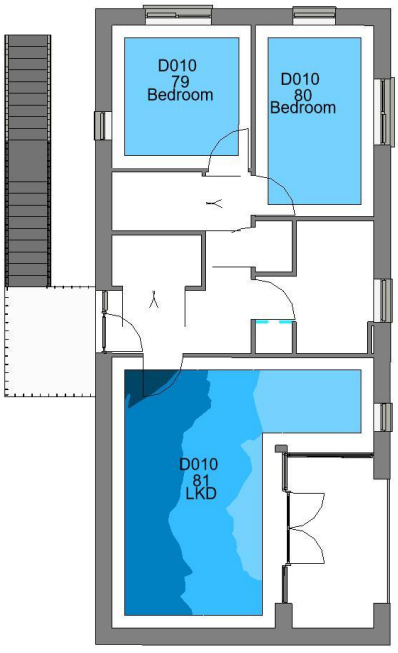

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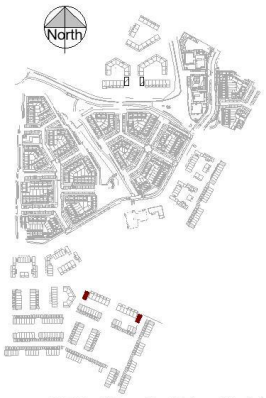
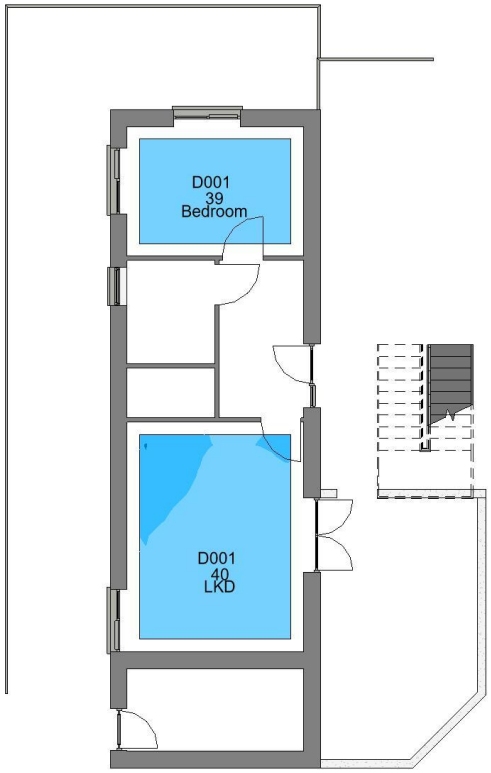


SDA (Spatial Daylight Autonomy)

300 Lux
200 Lux
150 Lux
100 Lux
0 Lux

Building	
Duplex MN	
Floor Plan	Sheet N°
MN 3 + 4	01



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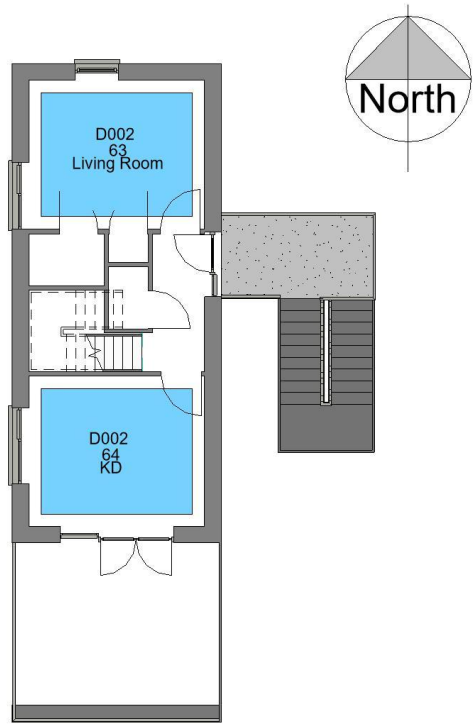

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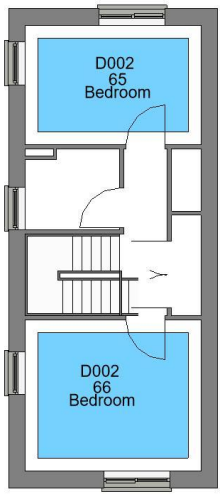

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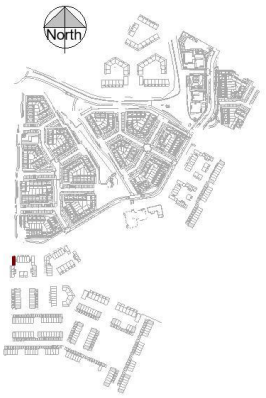
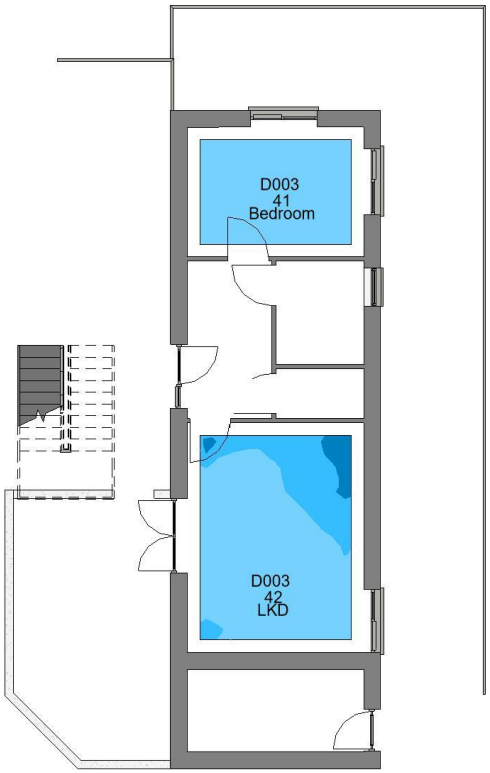


SDA (Spatial Daylight Autonomy)

300 Lux
200 Lux
150 Lux
100 Lux
0 Lux

Building	
Duplex HJ	
Floor Plan	Sheet N°
HJ1	02



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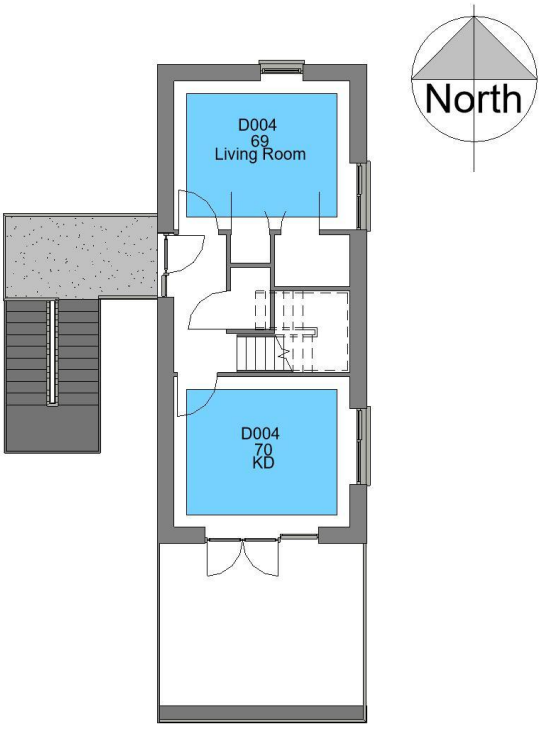

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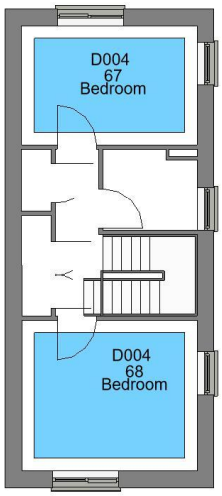

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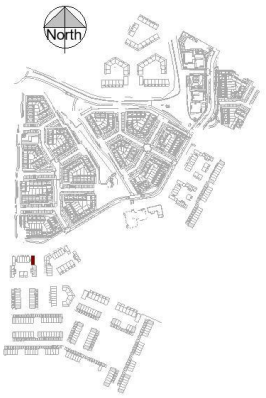
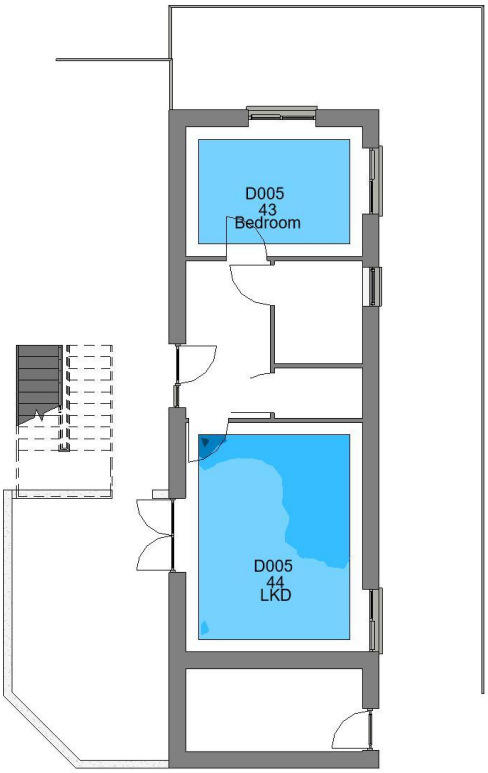


SDA (Spatial Daylight Autonomy)

300 Lux
200 Lux
150 Lux
100 Lux
0 Lux

Building	
Duplex HJ	
Floor Plan	Sheet N°
HJ2	03



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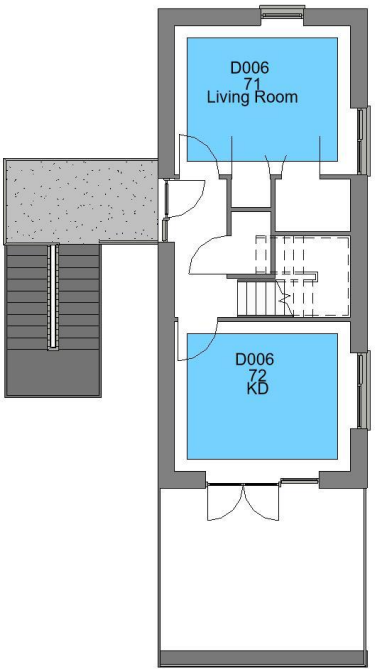

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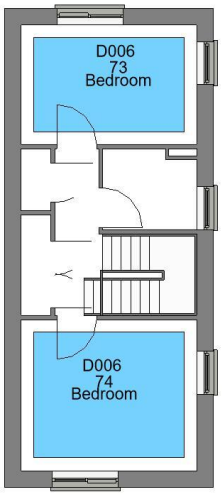
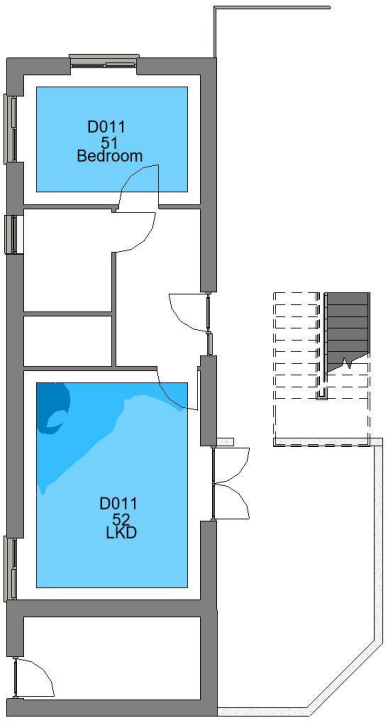


H_MOORETOWN_2_6200_HJ3

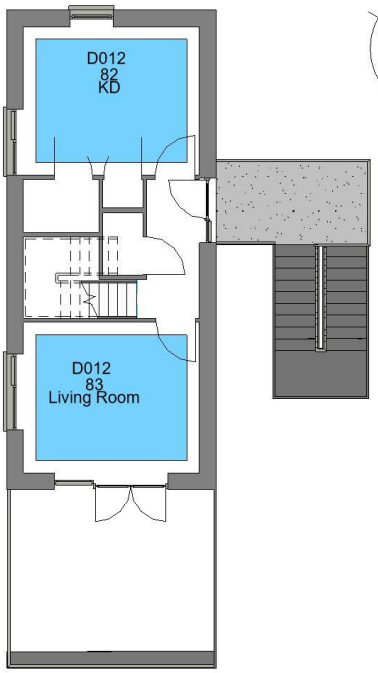
SDA (Spatial Daylight Autonomy)

300 Lux
200 Lux
150 Lux
100 Lux
0 Lux

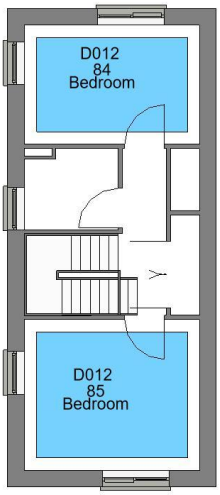
Building	
Duplex HJ	
Floor Plan	Sheet N°
HJ3	04



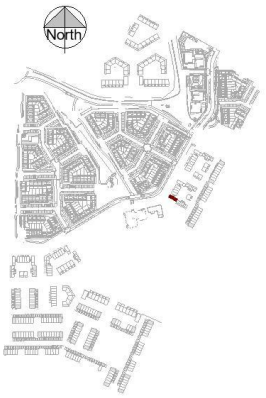
H_MOORETOWN_0_0_HJ4



H_MOORETOWN_1_3300_HJ4



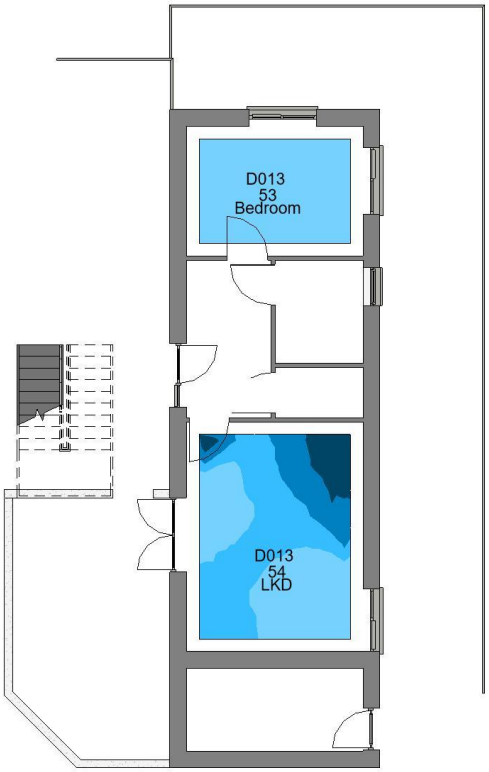
H_MOORETOWN_2_6200_HJ4



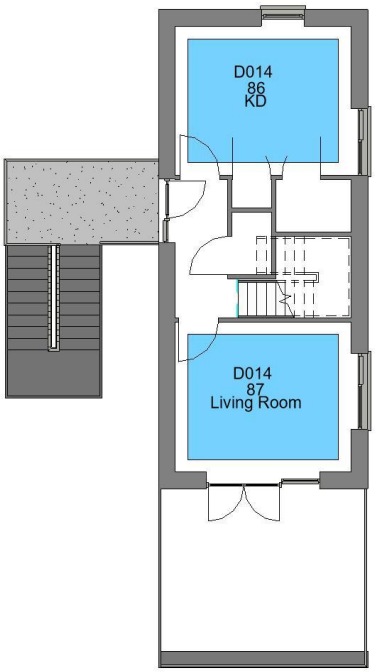
SDA (Spatial Daylight Autonomy)

300 Lux
200 Lux
150 Lux
100 Lux
0 Lux

Building	
Duplex HJ	
Floor Plan	Sheet N°
HJ4	05



H_MOORETOWN_0_0_HJ5



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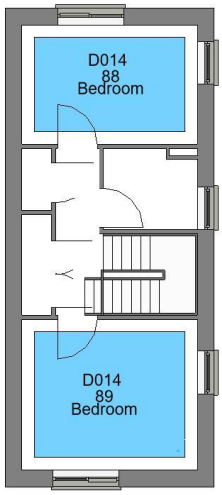
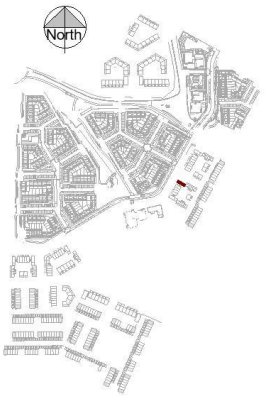


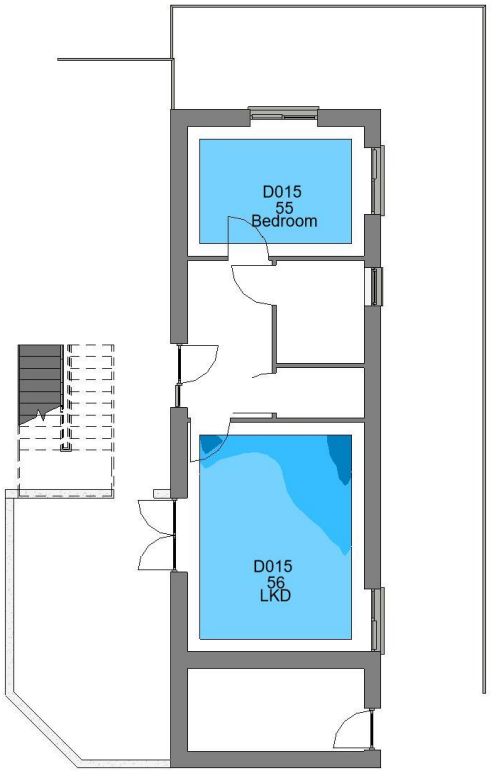
H_MOORETOWN_2_6200_HJ5



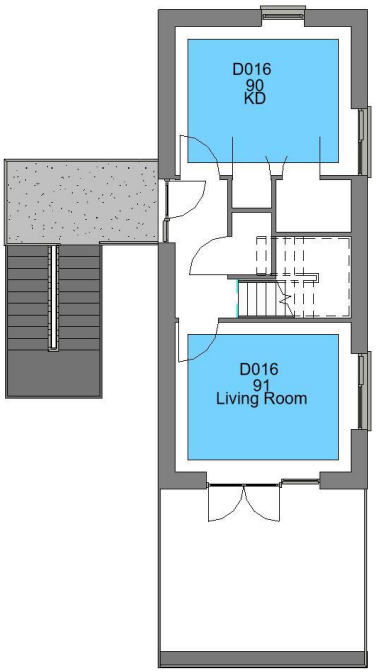
SDA (Spatial Daylight Autonomy)

300 Lux
200 Lux
150 Lux
100 Lux
0 Lux

Building	
Duplex HJ	
Floor Plan	Sheet N°
HJ5	06



H_MOORETOWN_0_0_HJ6



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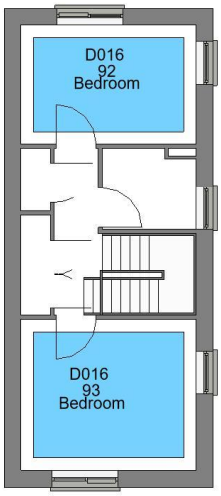
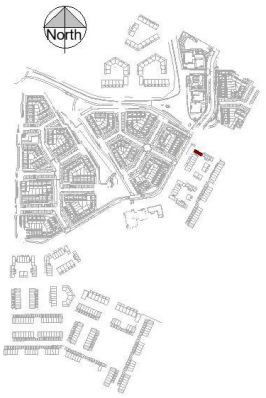


H_MOORETOWN_2_6200_HJ6



SDA (Spatial Daylight Autonomy)

300 Lux
200 Lux
150 Lux
100 Lux
0 Lux

Building	
Duplex HJ	
Floor Plan	Sheet N°
HJ6	07

Appendix C – Daylight Provision in New Development Detailed Results

Table 9 Apartment Block Daylight Provision Results

Unit Ref.	Room No.	Floor	Type Use	Req Lux	Meets BRE Criteria With Trees		Meets BRE Criteria Without Trees	
					% of Area Meeting Req Lux	Meets BRE Criteria	% of Area Meeting Req Lux	Meets BRE Criteria
BA-001	2480	0	LKD	200	66%	Yes	83%	Yes
BA-001	2481	0	Bedroom	100	100%	Yes	100%	Yes
BA-002	2484	0	LKD	200	77%	Yes	85%	Yes
BA-002	2485	0	Bedroom	100	100%	Yes	100%	Yes
BA-003	2487	0	Bedroom	100	98%	Yes	100%	Yes
BA-003	2488	0	Bedroom	100	100%	Yes	100%	Yes
BA-003	2489	0	Bedroom	100	98%	Yes	98%	Yes
BA-003	2490	0	LKD	200	43%	No	49%	No
BA-004	2509	0	Bedroom	100	100%	Yes	100%	Yes
BA-004	2514	0	Bedroom	100	100%	Yes	100%	Yes
BA-004	2515	0	LKD	200	69%	Yes	72%	Yes
BA-005	2495	0	LKD	200	83%	Yes	100%	Yes
BA-005	2496	0	Bedroom	100	100%	Yes	100%	Yes
BA-005	2499	0	Bedroom	100	100%	Yes	100%	Yes
BA-006	2502	0	Bedroom	100	100%	Yes	100%	Yes
BA-006	2507	0	Bedroom	100	100%	Yes	100%	Yes
BA-006	2508	0	LKD	200	100%	Yes	100%	Yes
BA-007	2042	1	LKD	200	66%	Yes	79%	Yes
BA-007	2043	1	Bedroom	100	100%	Yes	100%	Yes
BA-008	2046	1	LKD	200	77%	Yes	83%	Yes
BA-008	2054	1	Bedroom	100	100%	Yes	100%	Yes
BA-009	2056	1	Bedroom	100	100%	Yes	100%	Yes
BA-009	2057	1	Bedroom	100	100%	Yes	100%	Yes
BA-009	2058	1	Bedroom	100	98%	Yes	98%	Yes
BA-009	2059	1	LKD	200	51%	Yes	53%	Yes
BA-010	2078	1	Bedroom	100	100%	Yes	100%	Yes
BA-010	2083	1	Bedroom	100	100%	Yes	100%	Yes
BA-010	2084	1	LKD	200	69%	Yes	70%	Yes
BA-011	2064	1	LKD	200	95%	Yes	99%	Yes
BA-011	2065	1	Bedroom	100	100%	Yes	100%	Yes
BA-011	2068	1	Bedroom	100	100%	Yes	100%	Yes
BA-012	2087	1	LKD	200	66%	Yes	68%	Yes
BA-012	2088	1	Bedroom	100	100%	Yes	100%	Yes
BA-013	2071	1	Bedroom	100	100%	Yes	100%	Yes
BA-013	2076	1	Bedroom	100	100%	Yes	100%	Yes
BA-013	2077	1	LKD	200	100%	Yes	100%	Yes
BA-014	2097	1	Bedroom	100	14%	No	14%	No
BA-014	2098	1	Bedroom	100	96%	Yes	97%	Yes
BA-014	2099	1	Bedroom	100	43%	No	46%	No
BA-014	2100	1	LKD	200	100%	Yes	100%	Yes
BA-015	2323	2	LKD	200	81%	Yes	81%	Yes
BA-015	2324	2	Bedroom	100	100%	Yes	100%	Yes
BA-016	2327	2	LKD	200	84%	Yes	84%	Yes
BA-016	2328	2	Bedroom	100	100%	Yes	100%	Yes
BA-017	2330	2	Bedroom	100	100%	Yes	100%	Yes
BA-017	2331	2	Bedroom	100	100%	Yes	100%	Yes
BA-017	2332	2	Bedroom	100	98%	Yes	98%	Yes
BA-017	2333	2	LKD	200	88%	Yes	88%	Yes
BA-018	2352	2	Bedroom	100	100%	Yes	100%	Yes
BA-018	2357	2	Bedroom	100	100%	Yes	100%	Yes
BA-018	2358	2	LKD	200	72%	Yes	72%	Yes
BA-019	2338	2	LKD	200	100%	Yes	100%	Yes
BA-019	2339	2	Bedroom	100	100%	Yes	100%	Yes
BA-019	2342	2	Bedroom	100	100%	Yes	100%	Yes

Unit Ref.	Room No.	Floor	Type Use	Req Lux	Meets BRE Criteria With Trees		Meets BRE Criteria Without Trees	
					% of Area Meeting Req Lux	Meets BRE Criteria	% of Area Meeting Req Lux	Meets BRE Criteria
BA-020	2362	2	Bedroom	100	100%	Yes	100%	Yes
BA-020	2522	2	LKD	200	77%	Yes	78%	Yes
BA-021	2345	2	Bedroom	100	100%	Yes	100%	Yes
BA-021	2350	2	Bedroom	100	100%	Yes	100%	Yes
BA-021	2351	2	LKD	200	100%	Yes	100%	Yes
BA-022	2364	2	Bedroom	100	16%	No	16%	No
BA-022	2365	2	Bedroom	100	98%	Yes	99%	Yes
BA-022	2366	2	Bedroom	100	59%	Yes	59%	Yes
BA-022	2367	2	LKD	200	100%	Yes	100%	Yes
BA-023	2382	3	LKD	200	85%	Yes	85%	Yes
BA-023	2383	3	Bedroom	100	100%	Yes	100%	Yes
BA-024	2386	3	LKD	200	88%	Yes	88%	Yes
BA-024	2387	3	Bedroom	100	100%	Yes	100%	Yes
BA-025	2389	3	Bedroom	100	100%	Yes	100%	Yes
BA-025	2390	3	Bedroom	100	100%	Yes	100%	Yes
BA-025	2391	3	Bedroom	100	100%	Yes	100%	Yes
BA-025	2392	3	LKD	200	100%	Yes	100%	Yes
BA-026	2411	3	Bedroom	100	100%	Yes	100%	Yes
BA-026	2416	3	Bedroom	100	100%	Yes	100%	Yes
BA-026	2417	3	LKD	200	73%	Yes	73%	Yes
BA-027	2397	3	LKD	200	100%	Yes	100%	Yes
BA-027	2398	3	Bedroom	100	100%	Yes	100%	Yes
BA-027	2401	3	Bedroom	100	100%	Yes	100%	Yes
BA-028	2420	3	LKD	200	80%	Yes	80%	Yes
BA-028	2421	3	Bedroom	100	100%	Yes	100%	Yes
BA-029	2404	3	Bedroom	100	100%	Yes	100%	Yes
BA-029	2409	3	Bedroom	100	100%	Yes	100%	Yes
BA-029	2410	3	LKD	200	100%	Yes	100%	Yes
BA-030	2423	3	Bedroom	100	34%	No	34%	No
BA-030	2424	3	Bedroom	100	100%	Yes	100%	Yes
BA-030	2425	3	Bedroom	100	93%	Yes	93%	Yes
BA-030	2426	3	LKD	200	100%	Yes	100%	Yes
BA-031	2453	4	Bedroom	100	100%	Yes	100%	Yes
BA-031	2458	4	Bedroom	100	100%	Yes	100%	Yes
BA-031	2459	4	LKD	200	99%	Yes	99%	Yes
BA-032	2439	4	LKD	200	100%	Yes	100%	Yes
BA-032	2440	4	Bedroom	100	100%	Yes	100%	Yes
BA-032	2443	4	Bedroom	100	100%	Yes	100%	Yes
BA-033	2462	4	LKD	200	84%	Yes	84%	Yes
BA-033	2463	4	Bedroom	100	100%	Yes	100%	Yes
BA-034	2446	4	Bedroom	100	100%	Yes	100%	Yes
BA-034	2451	4	Bedroom	100	100%	Yes	100%	Yes
BA-034	2452	4	LKD	200	100%	Yes	100%	Yes
BA-035	2465	4	Bedroom	100	85%	Yes	85%	Yes
BA-035	2466	4	Bedroom	100	100%	Yes	100%	Yes
BA-035	2467	4	Bedroom	100	100%	Yes	100%	Yes
BA-035	2468	4	LKD	200	100%	Yes	100%	Yes
Total Meeting Criteria				**Yes**	**96**	**95%**	**96**	**95%**
				No	**5**	**5%**	**5**	**5%**
Total Rooms Analysed					**101**		**101**	

Table 10 Duplex Units Daylight Provision Results

Unit Ref.	Room No.	Floor	Type Use	Req Lux	Meets BRE Criteria With Trees		Meets BRE Criteria Without Trees	
					% of Area Meeting Req Lux	Meets BRE Criteria	% of Area Meeting Req Lux	Meets BRE Criteria
D001	39	0	Bedroom	100	100%	Yes	100%	Yes
D001	40	0	LKD	200	99%	Yes	99%	Yes
D002	63	1	Living Room	150	100%	Yes	100%	Yes
D002	64	1	KD	200	100%	Yes	100%	Yes
D002	65	2	Bedroom	100	100%	Yes	100%	Yes
D002	66	2	Bedroom	100	100%	Yes	100%	Yes
D003	41	0	Bedroom	100	100%	Yes	100%	Yes
D003	42	0	LKD	200	96%	Yes	96%	Yes
D004	69	1	Living Room	150	100%	Yes	100%	Yes
D004	70	1	KD	200	100%	Yes	100%	Yes
D004	67	2	Bedroom	100	100%	Yes	100%	Yes
D004	68	2	Bedroom	100	100%	Yes	100%	Yes
D005	43	0	Bedroom	100	100%	Yes	100%	Yes
D005	44	0	LKD	200	98%	Yes	98%	Yes
D006	71	1	Living Room	150	100%	Yes	100%	Yes
D006	72	1	KD	200	100%	Yes	100%	Yes
D006	73	2	Bedroom	100	100%	Yes	100%	Yes
D006	74	2	Bedroom	100	100%	Yes	100%	Yes
D007	45	0	Bedroom	100	100%	Yes	100%	Yes
D007	46	0	Bedroom	100	100%	Yes	100%	Yes
D007	47	0	LKD	200	100%	Yes	100%	Yes
D008	75	1	Bedroom	100	100%	Yes	100%	Yes
D008	76	1	Bedroom	100	100%	Yes	100%	Yes
D008	77	1	LKD	200	28%	No	28%	No
D009	48	0	Bedroom	100	100%	Yes	100%	Yes
D009	49	0	Bedroom	100	100%	Yes	100%	Yes
D009	50	0	LKD	200	100%	Yes	100%	Yes
D010	79	1	Bedroom	100	100%	Yes	100%	Yes
D010	80	1	Bedroom	100	100%	Yes	100%	Yes
D010	81	1	LKD	200	59%	Yes	59%	Yes
D011	51	0	Bedroom	100	100%	Yes	100%	Yes
D011	52	0	LKD	200	95%	Yes	95%	Yes
D012	82	1	KD	200	100%	Yes	100%	Yes
D012	83	1	Living Room	150	100%	Yes	100%	Yes
D012	84	2	Bedroom	100	100%	Yes	100%	Yes
D012	85	2	Bedroom	100	100%	Yes	100%	Yes
D013	53	0	Bedroom	100	100%	Yes	100%	Yes
D013	54	0	LKD	200	78%	Yes	78%	Yes
D014	86	1	KD	200	100%	Yes	100%	Yes
D014	87	1	Living Room	150	100%	Yes	100%	Yes
D014	88	2	Bedroom	100	100%	Yes	100%	Yes
D014	89	2	Bedroom	100	100%	Yes	100%	Yes
D015	55	0	Bedroom	100	100%	Yes	100%	Yes
D015	56	0	LKD	200	95%	Yes	95%	Yes
D016	90	1	KD	200	100%	Yes	100%	Yes
D016	91	1	Living Room	150	100%	Yes	100%	Yes
D016	92	2	Bedroom	100	100%	Yes	100%	Yes
D016	93	2	Bedroom	100	100%	Yes	100%	Yes
D017	60	0	LKD	200	100%	Yes	100%	Yes
D017	61	0	Bedroom	100	100%	Yes	100%	Yes
D017	62	0	Bedroom	100	100%	Yes	100%	Yes
D018	94	1	LKD	200	44%	No	44%	No
D018	95	1	Bedroom	100	100%	Yes	100%	Yes
D018	96	1	Bedroom	100	100%	Yes	100%	Yes
D019	57	0	LKD	200	100%	Yes	100%	Yes

Unit Ref.	Room No.	Floor	Type Use	Req Lux	Meets BRE Criteria With Trees		Meets BRE Criteria Without Trees	
					% of Area Meeting Req Lux	Meets BRE Criteria	% of Area Meeting Req Lux	Meets BRE Criteria
D019	58	0	Bedroom	100	100%	Yes	100%	Yes
D019	59	0	Bedroom	100	100%	Yes	100%	Yes
D020	97	1	LKD	200	54%	Yes	54%	Yes
D020	98	1	Bedroom	100	100%	Yes	100%	Yes
D020	99	1	Bedroom	100	100%	Yes	100%	Yes
Total Meeting Criteria				**Yes**	**58**	**97%**	**58**	**97%**
				No	**2**	**3%**	**2**	**3%**
Total Rooms Analysed					**60**		**60**	

Appendix D – Sunlight Provision in New Development Detailed Results

Table 11 Block D Sunlight Provision Results

Unit. Ref.	Room No.	Floor	Type Use	Meets BRE Criteria With Trees			Meets BRE Criteria Without Trees		
				Sunlight Exposure (Hours)	SE Rating	Compliance	Sunlight Exposure (Hours)	SE Rating	Compliance
BA-001	2480	0	LKD	6	High	Yes	6	High	Yes
BA-001	2481	0	Bedroom	5	High		5	High	
BA-002	2484	0	LKD	2.9	Minimum	Yes	2.9	Minimum	Yes
BA-002	2485	0	Bedroom	4.5	High		4.5	High	
BA-003	2490	0	LKD	0.2	Below Minimum	No	0.2	Below Minimum	No
BA-003	2487	0	Bedroom	0	Below Minimum		0	Below Minimum	
BA-003	2488	0	Bedroom	0	Below Minimum		0	Below Minimum	
BA-003	2489	0	Bedroom	0	Below Minimum		0	Below Minimum	
BA-004	2515	0	LKD	0	Below Minimum	No	0	Below Minimum	No
BA-004	2509	0	Bedroom	0	Below Minimum		0	Below Minimum	
BA-004	2514	0	Bedroom	0	Below Minimum		0	Below Minimum	
BA-005	2495	0	LKD	1.5	Minimum	Yes	2.3	Minimum	Yes
BA-005	2496	0	Bedroom	3.6	Medium		3.6	Medium	
BA-005	2499	0	Bedroom	2.8	Minimum		3.6	Medium	
BA-006	2508	0	LKD	7.7	High	Yes	9.1	High	Yes
BA-006	2502	0	Bedroom	2.3	Minimum		3.6	Medium	
BA-006	2507	0	Bedroom	1.7	Minimum		2.8	Minimum	
BA-007	2042	1	LKD	5.4	High	Yes	5.4	High	Yes
BA-007	2043	1	Bedroom	5	High		5	High	
BA-008	2046	1	LKD	2.2	Minimum	Yes	2.2	Minimum	Yes
BA-008	2054	1	Bedroom	4.5	High		4.5	High	
BA-009	2059	1	LKD	1	Below Minimum	No	1	Below Minimum	No
BA-009	2056	1	Bedroom	0	Below Minimum		0	Below Minimum	
BA-009	2057	1	Bedroom	0	Below Minimum		0	Below Minimum	
BA-009	2058	1	Bedroom	0	Below Minimum		0	Below Minimum	
BA-010	2084	1	LKD	0	Below Minimum	No	0	Below Minimum	No
BA-010	2078	1	Bedroom	0	Below Minimum		0	Below Minimum	
BA-010	2083	1	Bedroom	0	Below Minimum		0	Below Minimum	
BA-011	2064	1	LKD	2.1	Minimum	Yes	2.1	Minimum	Yes
BA-011	2065	1	Bedroom	3.6	Medium		3.6	Medium	
BA-011	2068	1	Bedroom	3.6	Medium		3.6	Medium	
BA-012	2087	1	LKD	4.2	High	Yes	4.2	High	Yes
BA-012	2088	1	Bedroom	2.7	Minimum		2.7	Minimum	
BA-013	2077	1	LKD	8.8	High	Yes	9.1	High	Yes
BA-013	2071	1	Bedroom	3.6	Medium		3.6	Medium	
BA-013	2076	1	Bedroom	2.5	Minimum		2.8	Minimum	
BA-014	2100	1	LKD	7.3	High	Yes	7.3	High	Yes
BA-014	2097	1	Bedroom	1	Below Minimum		1	Below Minimum	
BA-014	2098	1	Bedroom	2	Minimum		2	Minimum	
BA-014	2099	1	Bedroom	0.2	Below Minimum		0.2	Below Minimum	
BA-015	2323	2	LKD	4.7	High	Yes	4.7	High	Yes
BA-015	2324	2	Bedroom	5.4	High		5.4	High	
BA-016	2327	2	LKD	2	Minimum	Yes	2	Minimum	Yes
BA-016	2328	2	Bedroom	4.5	High		4.5	High	
BA-017	2333	2	LKD	2.1	Minimum	Yes	2.1	Minimum	Yes
BA-017	2330	2	Bedroom	0	Below Minimum		0	Below Minimum	
BA-017	2331	2	Bedroom	0	Below Minimum		0	Below Minimum	
BA-017	2332	2	Bedroom	0	Below Minimum		0	Below Minimum	
BA-018	2358	2	LKD	0	Below Minimum	No	0	Below Minimum	No
BA-018	2352	2	Bedroom	0	Below Minimum		0	Below Minimum	
BA-018	2357	2	Bedroom	0	Below Minimum		0	Below Minimum	
BA-019	2338	2	LKD	2	Minimum	Yes	2	Minimum	Yes
BA-019	2339	2	Bedroom	3.6	Medium		3.6	Medium	
BA-019	2342	2	Bedroom	3.6	Medium		3.6	Medium	

Unit. Ref.	Room No.	Floor	Type Use	Meets BRE Criteria With Trees			Meets BRE Criteria Without Trees		
				Sunlight Exposure (Hours)	SE Rating	Compliance	Sunlight Exposure (Hours)	SE Rating	Compliance
BA-020	2522	2	LKD	4	Medium	Yes	4	Medium	Yes
BA-020	2362	2	Bedroom	2.6	Minimum		2.6	Minimum	
BA-021	2351	2	LKD	8.9	High	Yes	8.9	High	Yes
BA-021	2345	2	Bedroom	3.6	Medium		3.6	Medium	
BA-021	2350	2	Bedroom	2.8	Minimum		2.8	Minimum	
BA-022	2367	2	LKD	7.3	High	Yes	7.3	High	Yes
BA-022	2364	2	Bedroom	1	Below Minimum		1	Below Minimum	
BA-022	2365	2	Bedroom	2	Minimum		2	Minimum	
BA-022	2366	2	Bedroom	0.2	Below Minimum		0.2	Below Minimum	
BA-023	2382	3	LKD	7.4	High	Yes	7.4	High	Yes
BA-023	2383	3	Bedroom	6	High		6	High	
BA-024	2386	3	LKD	7.9	High	Yes	7.9	High	Yes
BA-024	2387	3	Bedroom	6.9	High		6.9	High	
BA-025	2392	3	LKD	2.1	Minimum	Yes	2.1	Minimum	Yes
BA-025	2389	3	Bedroom	0	Below Minimum		0	Below Minimum	
BA-025	2390	3	Bedroom	0	Below Minimum		0	Below Minimum	
BA-025	2391	3	Bedroom	0	Below Minimum		0	Below Minimum	
BA-026	2417	3	LKD	0.4	Below Minimum	No	0.4	Below Minimum	No
BA-026	2411	3	Bedroom	0	Below Minimum		0	Below Minimum	
BA-026	2416	3	Bedroom	0	Below Minimum		0	Below Minimum	
BA-027	2397	3	LKD	1.8	Minimum	Yes	1.8	Minimum	Yes
BA-027	2398	3	Bedroom	3.6	Medium		3.6	Medium	
BA-027	2401	3	Bedroom	3.6	Medium		3.6	Medium	
BA-028	2420	3	LKD	3.2	Medium	Yes	3.2	Medium	Yes
BA-028	2421	3	Bedroom	2.6	Minimum		2.6	Minimum	
BA-029	2410	3	LKD	8.8	High	Yes	8.8	High	Yes
BA-029	2404	3	Bedroom	3.6	Medium		3.6	Medium	
BA-029	2409	3	Bedroom	2.8	Minimum		2.8	Minimum	
BA-030	2426	3	LKD	7.3	High	Yes	7.3	High	Yes
BA-030	2423	3	Bedroom	1	Below Minimum		1	Below Minimum	
BA-030	2424	3	Bedroom	2	Minimum		2	Minimum	
BA-030	2425	3	Bedroom	0.2	Below Minimum		0.2	Below Minimum	
BA-031	2459	4	LKD	2.1	Minimum	Yes	2.1	Minimum	Yes
BA-031	2453	4	Bedroom	0	Below Minimum		0	Below Minimum	
BA-031	2458	4	Bedroom	0	Below Minimum		0	Below Minimum	
BA-032	2439	4	LKD	4.4	High	Yes	4.4	High	Yes
BA-032	2440	4	Bedroom	3.6	Medium		3.6	Medium	
BA-032	2443	4	Bedroom	3.6	Medium		3.6	Medium	
BA-033	2462	4	LKD	4.2	High	Yes	4.2	High	Yes
BA-033	2463	4	Bedroom	3.6	Medium		3.6	Medium	
BA-034	2452	4	LKD	9.1	High	Yes	9.1	High	Yes
BA-034	2446	4	Bedroom	3.6	Medium		3.6	Medium	
BA-034	2451	4	Bedroom	2.8	Minimum		2.8	Minimum	
BA-035	2468	4	LKD	7.3	High	Yes	7.3	High	Yes
BA-035	2465	4	Bedroom	1.1	Below Minimum		1.1	Below Minimum	
BA-035	2466	4	Bedroom	2.1	Minimum		2.1	Minimum	
BA-035	2467	4	Bedroom	1.1	Below Minimum		1.1	Below Minimum	
					Total Units Assessed	35		Total Units Assessed	35
					Units Compliant w/ Trees	29		Units Compliant w/o Trees	29
					Units Compliant (%) w/ Trees	83%		Units Compliant (%) w/o Trees	83%

Table 12 Duplex Sunlight Provision Results

Unit. Ref.	Room No.	Floor	Type Use	Meets BRE Criteria With Trees			Meets BRE Criteria Without Trees		
				Sunlight Exposure (Hours)	SE Rating	Compliance	Sunlight Exposure (Hours)	SE Rating	Compliance
D001	40	0	LKD	7.3	High	Yes	7.3	High	Yes
D001	39	0	Bedroom	3.3	Medium		3.3	Medium	
D002	63	0	Living Room	3.3	Medium	Yes	3.3	Medium	Yes
D002	64	0	KD	7.7	High		7.7	High	
D002	65	0	Bedroom	0	Below Minimum		0	Below Minimum	
D002	66	0	Bedroom	7.7	High		7.7	High	
D003	42	0	LKD	7.2	High	Yes	7.2	High	Yes
D003	41	0	Bedroom	3.2	Medium		3.2	Medium	
D004	69	0	Living Room	3.2	Medium	Yes	3.2	Medium	Yes
D004	70	0	KD	7.9	High		7.9	High	
D004	67	0	Bedroom	0	Below Minimum		0	Below Minimum	
D004	68	0	Bedroom	7.7	High		7.7	High	
D005	44	0	LKD	4.1	High	Yes	4.1	High	Yes
D005	43	0	Bedroom	1.1	Below Minimum		1.1	Below Minimum	
D006	71	0	Living Room	1.3	Below Minimum	Yes	1.3	Below Minimum	Yes
D006	72	0	KD	6.6	High		6.6	High	
D006	73	0	Bedroom	0	Below Minimum		0	Below Minimum	
D006	74	0	Bedroom	6.2	High		6.2	High	
D007	47	0	LKD	3.2	Medium	Yes	3.2	Medium	Yes
D007	45	0	Bedroom	0	Below Minimum		0	Below Minimum	
D007	46	0	Bedroom	0	Below Minimum		0	Below Minimum	
D008	77	0	LKD	0.2	Below Minimum	Yes	0.2	Below Minimum	Yes
D008	75	0	Bedroom	1.8	Minimum		1.8	Minimum	
D008	76	0	Bedroom	0	Below Minimum		0	Below Minimum	
D009	50	0	LKD	3.7	Medium	Yes	3.7	Medium	Yes
D009	48	0	Bedroom	0	Below Minimum		0	Below Minimum	
D009	49	0	Bedroom	3.3	Medium		3.3	Medium	
D010	81	0	LKD	3.3	Medium	Yes	3.3	Medium	Yes
D010	79	0	Bedroom	0	Below Minimum		0	Below Minimum	
D010	80	0	Bedroom	4.6	High		4.6	High	
D011	52	0	LKD	6.9	High	Yes	6.9	High	Yes
D011	51	0	Bedroom	6.6	High		6.6	High	
D012	83	0	Living Room	6.8	High	Yes	6.8	High	Yes
D012	82	0	KD	6.6	High		6.6	High	
D012	84	0	Bedroom	1.4	Below Minimum		1.4	Below Minimum	
D012	85	0	Bedroom	4.2	High		4.2	High	
D013	54	0	LKD	3.4	Medium	Yes	3.4	Medium	Yes
D013	53	0	Bedroom	1.4	Below Minimum		1.4	Below Minimum	
D014	87	0	Living Room	4.5	High	Yes	4.5	High	Yes
D014	86	0	KD	0.6	Below Minimum		0.6	Below Minimum	
D014	88	0	Bedroom	1.4	Below Minimum		1.4	Below Minimum	
D014	89	0	Bedroom	3.5	Medium		3.5	Medium	
D015	56	0	LKD	3.8	Medium	Yes	3.8	Medium	Yes
D015	55	0	Bedroom	1.4	Below Minimum		1.4	Below Minimum	
D016	91	0	Living Room	4.2	High	Yes	4.2	High	Yes
D016	90	0	KD	0.6	Below Minimum		0.6	Below Minimum	
D016	92	0	Bedroom	1.4	Below Minimum		1.4	Below Minimum	
D016	93	0	Bedroom	3.5	Medium		3.5	Medium	
D017	60	0	LKD	2.8	Minimum	Yes	2.8	Minimum	Yes
D017	61	0	Bedroom	8.6	High		8.6	High	
D017	62	0	Bedroom	8.1	High		8.1	High	
D018	94	0	LKD	1.9	Minimum	Yes	1.9	Minimum	Yes
D018	95	0	Bedroom	7.8	High		7.8	High	
D018	96	0	Bedroom	7.7	High		7.7	High	

Unit. Ref.	Room No.	Floor	Type Use	Meets BRE Criteria With Trees			Meets BRE Criteria Without Trees		
				Sunlight Exposure (Hours)	SE Rating	Compliance	Sunlight Exposure (Hours)	SE Rating	Compliance
D019	57	0	LKD	2.7	Minimum	Yes	2.7	Minimum	Yes
D019	58	0	Bedroom	8.1	High		8.1	High	
D019	59	0	Bedroom	8.5	High		8.5	High	
D020	97	0	LKD	1.8	Minimum	Yes	1.8	Minimum	Yes
D020	98	0	Bedroom	7.7	High		7.7	High	
D020	99	0	Bedroom	7.7	High		7.7	High	
					Total Units Assessed	20		Total Units Assessed	20
					Units Compliant w/ Trees	20		Units Compliant w/o Trees	20
					Units Compliant (%) w/ Trees	100%		Units Compliant (%) w/o Trees	100%

Appendix E – Sunlight to Amenity Spaces within New Development

Table 13: Sunlight to Proposed Amenity Spaces

Amenity Area	Area m²	Area Receiving 2 Hrs of Sunlight - %	Meets BRE Criteria
Apt COS	478	99%	Yes
COS1	55	100%	Yes
COS2	71	100%	Yes
COS3	77	100%	Yes
COS4	40	99%	Yes
COS5	55	100%	Yes
COS6	68	97%	Yes
COS7	70	31%	No
COS8	62	34%	No
COS9	47	100%	Yes
COS10	47	100%	Yes
Crèche	150	99%	Yes
POS1	395	100%	Yes
POS2	340	100%	Yes
POS3	950	100%	Yes
POS4	2360	100%	Yes
POS5	2760	100%	Yes
POS6	3510	100%	Yes
POS7	295	100%	Yes
POS8	250	100%	Yes
POS9	3620	100%	Yes
POS10	28837	100%	Yes
POS11	19890	100%	Yes

Table 14: Sunlight to Amenity Spaces – Supplementary Assessment

Amenity Area	Area m²	Area Receiving 2 Hrs of Sunlight - %	Meets BRE Criteria
COS7	12	100%	Yes
COS8	12	100%	Yes

Note: Assessment of minimum required COS area provision

Figure 15 Proposed Amenity Spaces

Appendix F – Daylight Access to Existing Buildings Results

Figure 16 Neighbouring buildings tested for potential impact using the 25° Angle test

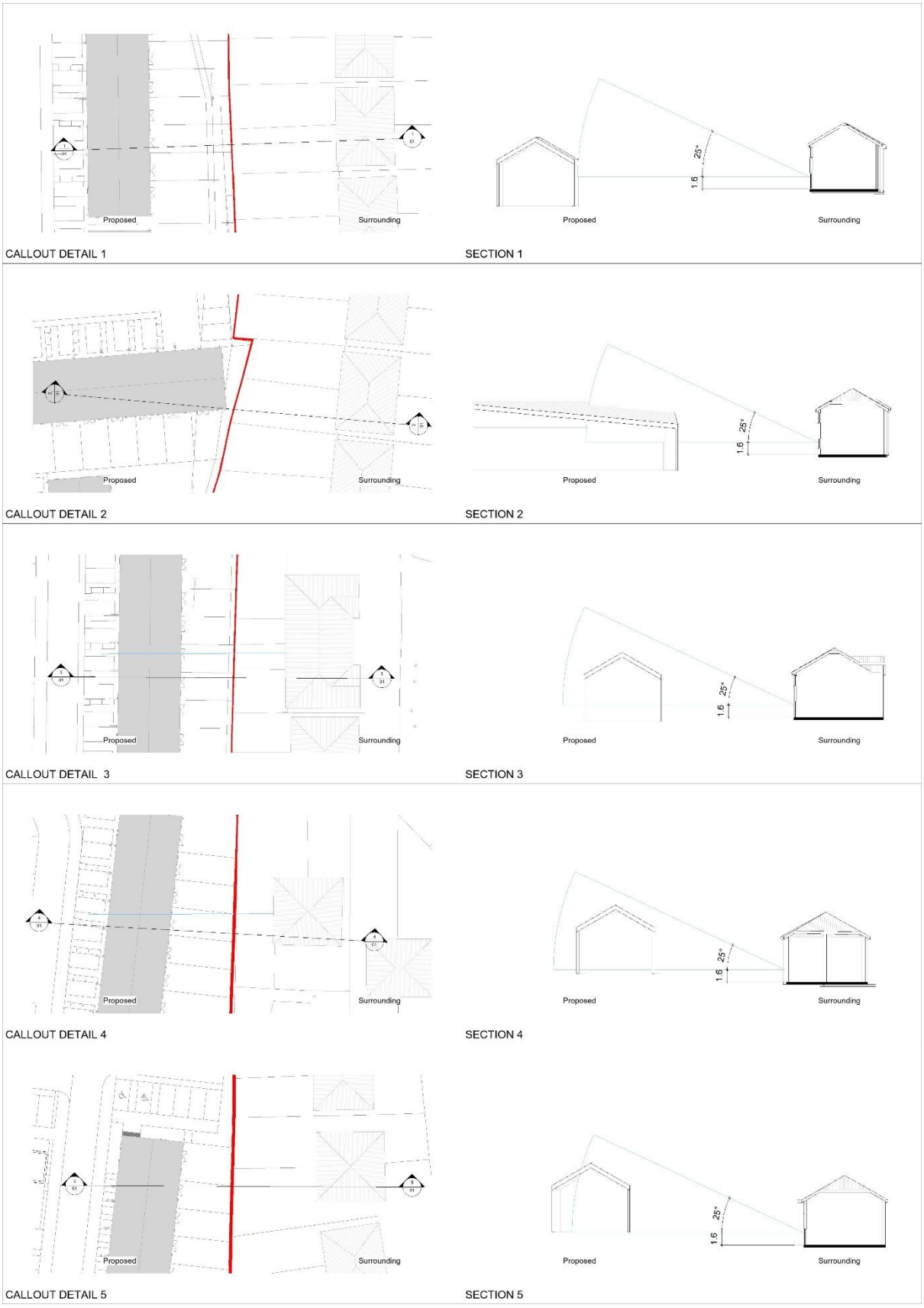


Figure 17 25° Angle test results for selected neighbouring buildings

Appendix G – Sunlight to Neighbouring Amenity Spaces

Figure 18 Sunlight to Neighbouring Gardens

Appendix H – Site Shadow Diagrams

A shadow study was conducted to indicate the shadows cast by the proposal throughout the year. The analysis was run at hourly intervals during daylight hours on:

- 21st March – Spring Equinox
- 21st June – Summer Solstice
- 21st December – Winter Solstice

The BRE Guide recommends:

"If a space is used all year round, the equinox (21 March) is the best date for which to prepare shadow plots as it gives an average level of shadowing. Lengths of shadows at the autumn equinox (21 September) will be the same as those for 21 March, so a separate set of plots for September is not required."[32]

And

"As an optional addition, plots for summertime (for example 21 June) may be helpful as they will show the reduced shadowing then, although it should be borne in mind that 21 June represents the best case of minimum shadow, and that shadows for the rest of the year will be longer. Conversely if winter shadows (e.g. 21 December) are plotted, even low buildings will cast long shadows. In a built-up area, it is common for large areas of the ground to be in shadow in December."[33]

See Next Page.

[32] BRE Guide: 3.3.14

[33] BRE Guide: 3.3.15

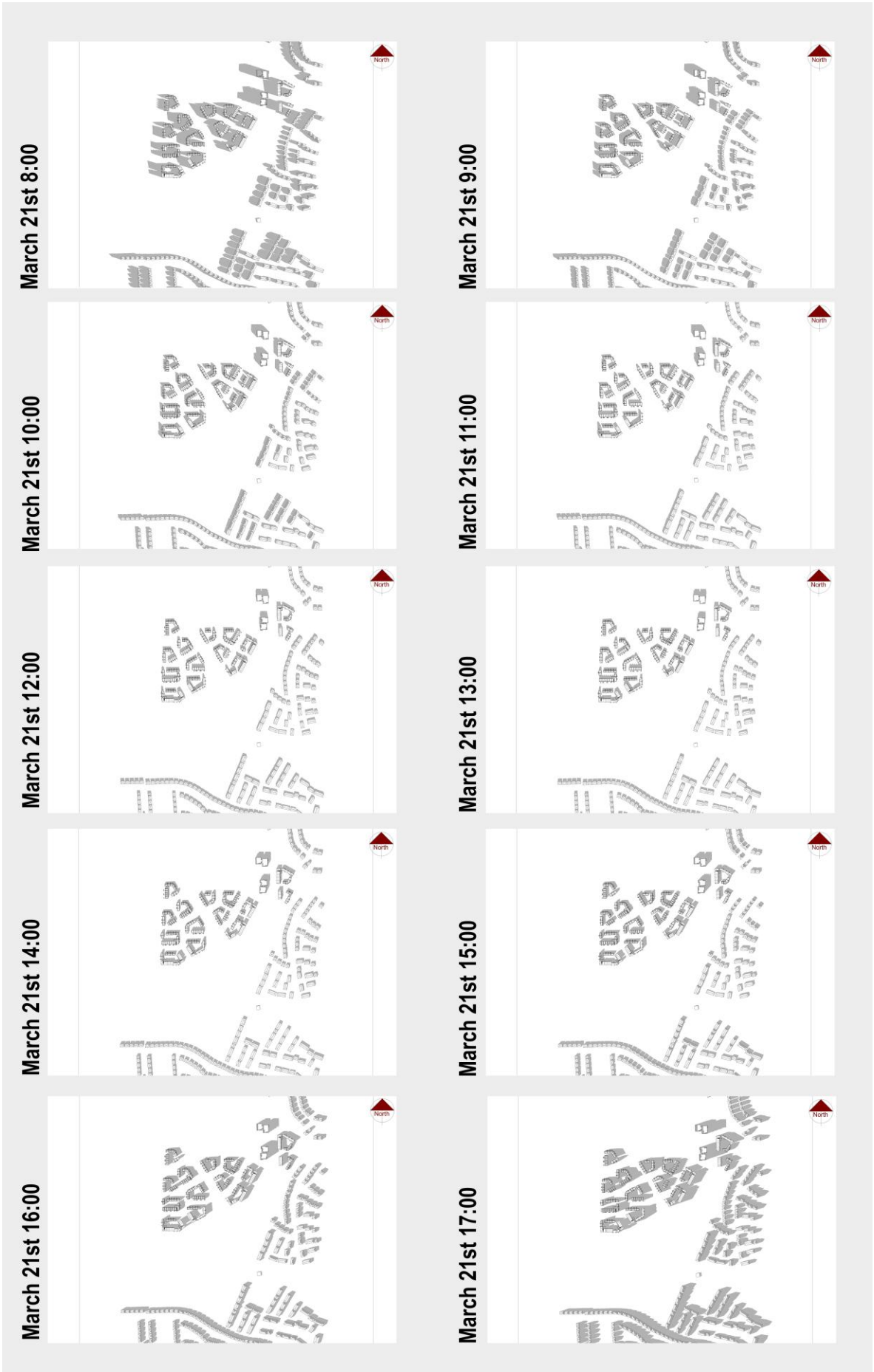


Figure 19 Shadow Diagrams - Existing- March 21st Spring Equinox

Figure 20 Shadow Diagrams – Proposed - March 21st Spring Equinox

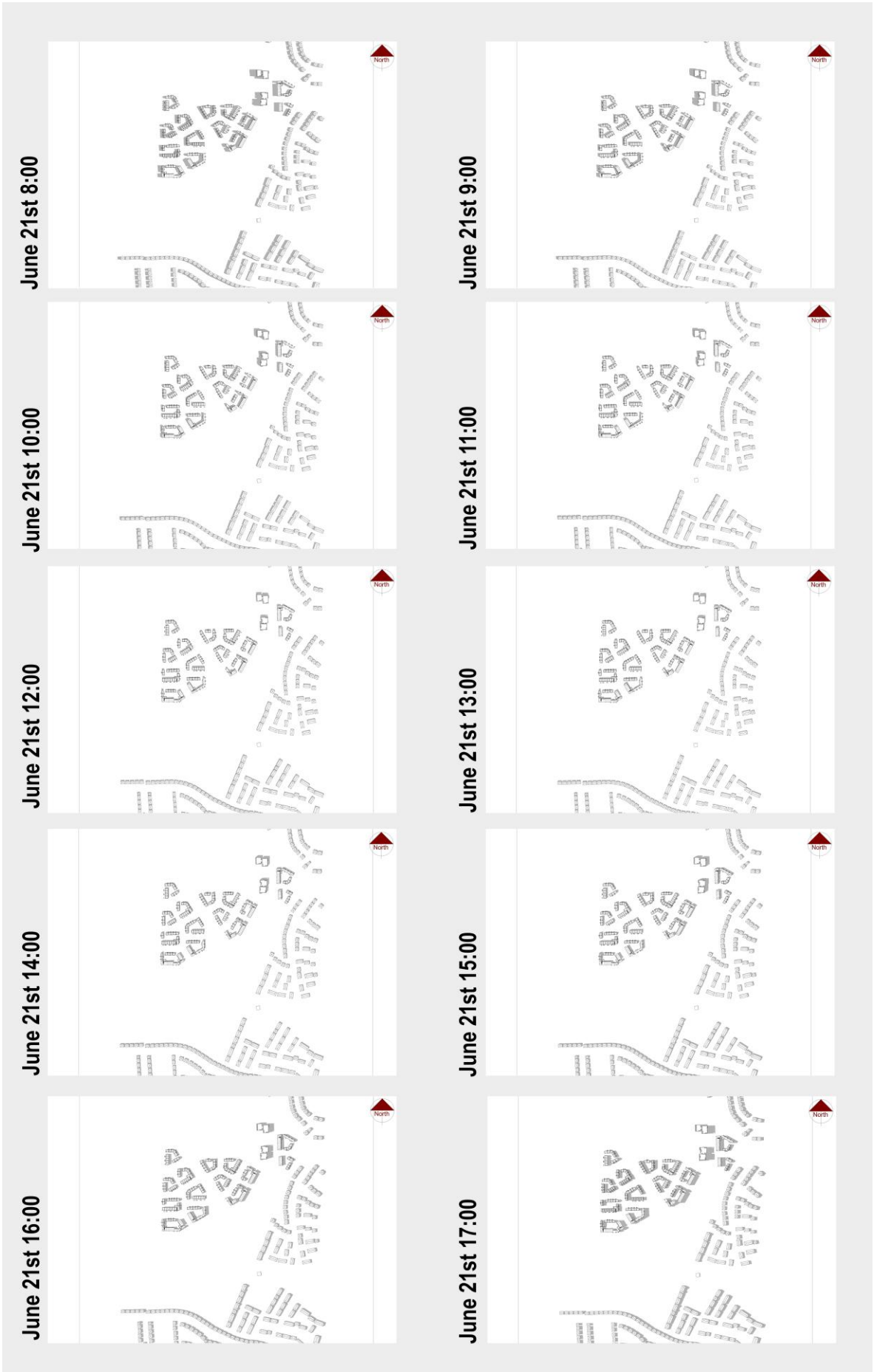


Figure 21 Shadow Diagrams - Existing - June 21st Summer Solstice

Figure 22 Shadow Diagrams - Proposed - June 21st Summer Solstice

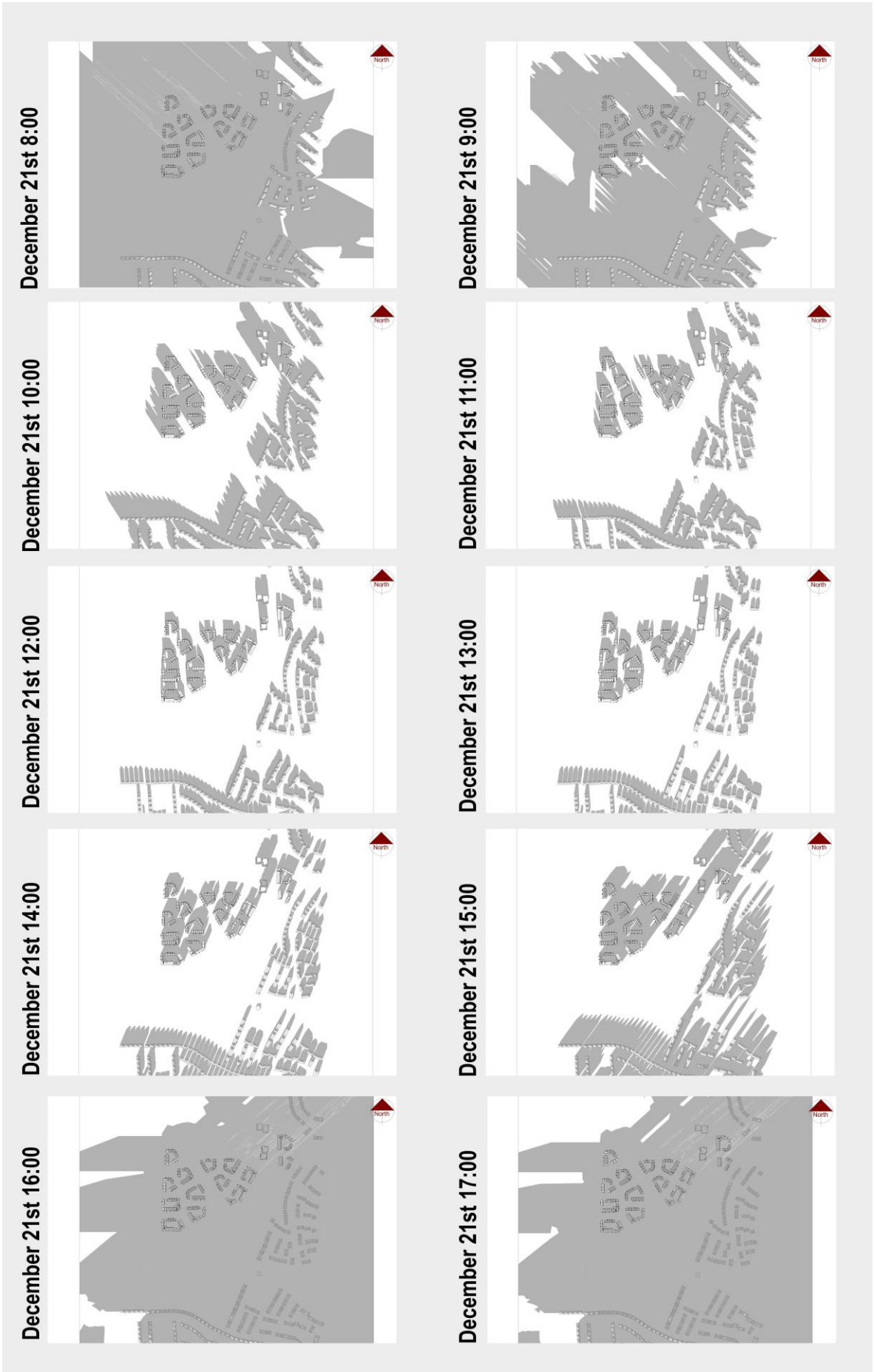


Figure 23 Shadow Diagrams - Existing – December 21st Winter Solstice

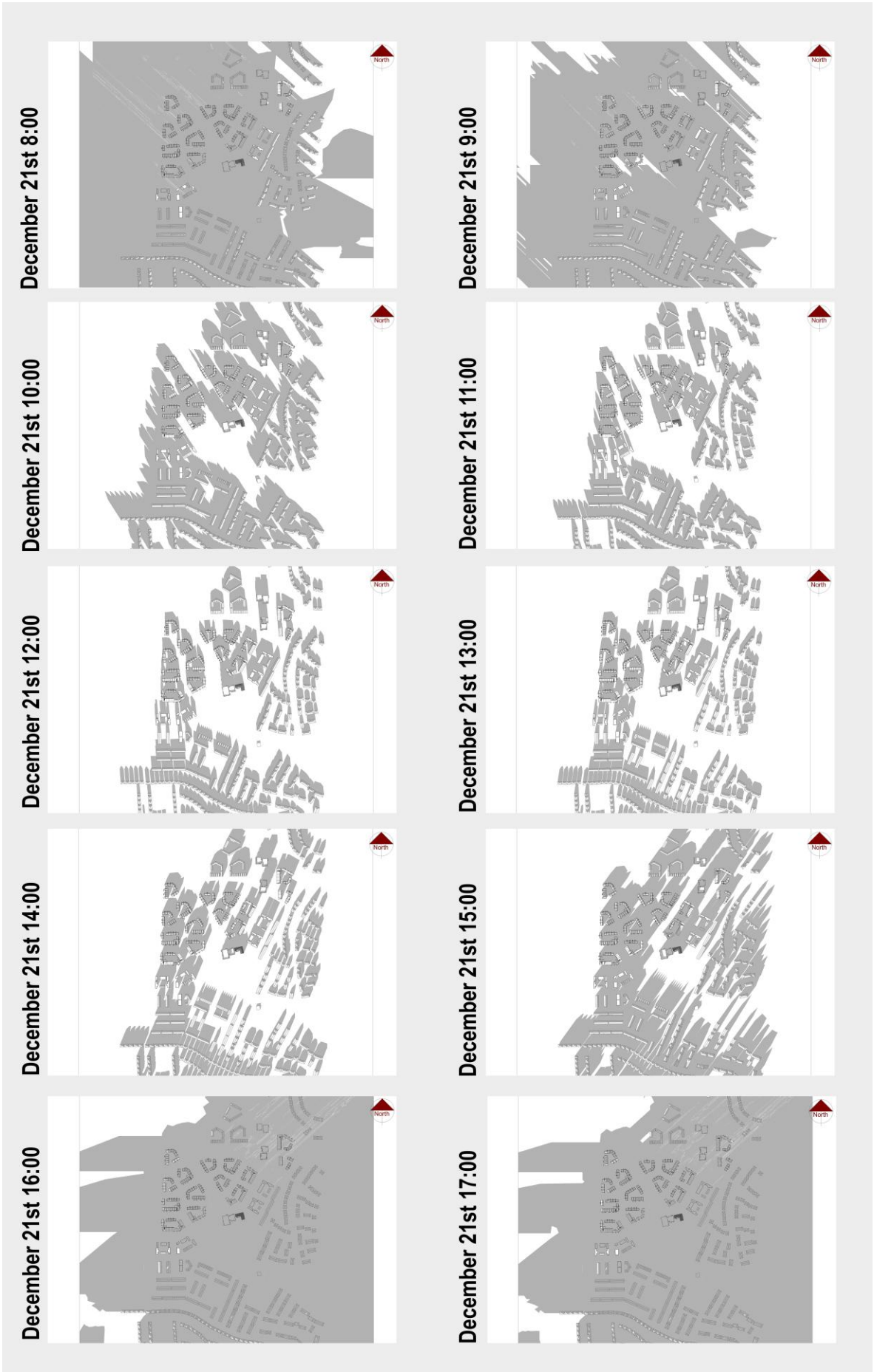


Figure 24 Shadow Diagrams - Proposed – December 21st Winter Solstice

End of Report