

# Mixed Use LRD 'Lands at Kilbride' Arklow Co Wicklow

Daylight and Sunlight Assessment Report  
Applicant: Certain Assets of Dawnhill and Windhill Limited

*"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." - BR 209*

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The following report has been prepared by 3D Design Bureau (3DDB). 3DDB have over 7 years experience in producing daylight and sunlight assessments for large scale planning applications and are recognised as experts in the field. This report has been reviewed and overseen by Nicholas Polley and Richard Dalton. Nicholas is CEO of 3D Design Bureau and is a qualified Building Services Engineer (B.Sc.(Eng) Dip Eng) with over 25 years experience in the industry. Richard is Associate Director of 3DDB and has a bachelor's degree in Building Information Modelling (BIM) with over 20 years experience in the industry.

## 1.0 Executive Summary

### 1.1 Summary of Assessment

3D Design Bureau (3DDB) were commissioned to carry out a daylight and sunlight assessment, along with an accompanying shadow study for the proposed mixed use large scale residential development in Arklow, Co. Wicklow. The proposed development involves demolishing existing structures across the wider site and constructing 666 residential units, including a mix of semi-detached, terraced houses, duplexes, and apartments. The project includes retail units, community/medical units, and crèche forming 'Local centre' area.

The assessed part of the development (apartments and duplexes) is surrounded by undeveloped land with no existing properties in close proximity; therefore, the assessments focus solely on 'Scheme Performance'. Accordingly the standard 'selection criteria' section has not been included in this report.

The assessed buildings are located in the particular local town centre area within the proposed development as indicated in Figure 1.1.

The development is divided into character areas, the assessed part being related to two of these character areas: Character Area 1A and Character Area 1C. Two different project architects provided the information for these:

Character Area 1A (Assessed Duplexes): Conroy Crowe Kelly Architects and Urban Designers (CCK)

Character Area 1C (Assessed Blocks, Crèche and Duplexes) : BKD Architects



Figure 1.1: 3D Model view indicating the assessed buildings (L), and its location within the overall development area (R).

#### Summary of the Scheme Performance

- **Daylight access:** Assessed for the habitable rooms of the proposed development for the **apartment blocks** and **duplexes** through a Spatial Daylight Autonomy (SDA) study. The Crèche rooms have been assessed, however the results are not included in the overall compliance rate.
- **Sunlight access:** Quantified through a Sunlight Exposure (SE) assessment for the same habitable rooms.
- **A Sun On Ground (SOG):** Assessed to indicate the level of sunlight on March 21st in the proposed external amenity spaces such as: public open space, communal open space and crèche play area as indicated in Figure 1.2 on the next page.

The results of these scheme performance assessments, which are in accordance with the BRE Guidelines, can be found in section A.0 on page 24. These results are summarised in section 1.2 and explained in section "5.1 Analysis of Scheme Performance Results" on page 17.

Supplementary scheme performance studies have also been carried out. These include an SDA assessment under the I.S. EN 17037 criterion, and a No Sky Line (NSL) study within proposed habitable rooms. The results of the supplementary scheme performance assessments can be found in section C.0 on page 73.



## Qualitative Assessment

In addition to the quantitative assessments detailed in the “Scheme Performance” section, this report includes a qualitative assessment. This is provided through the false colour plans of the proposed SOG assessment (section A.4 on page 51) and the hourly renderings of the shadow study (section B.0 on page 64).

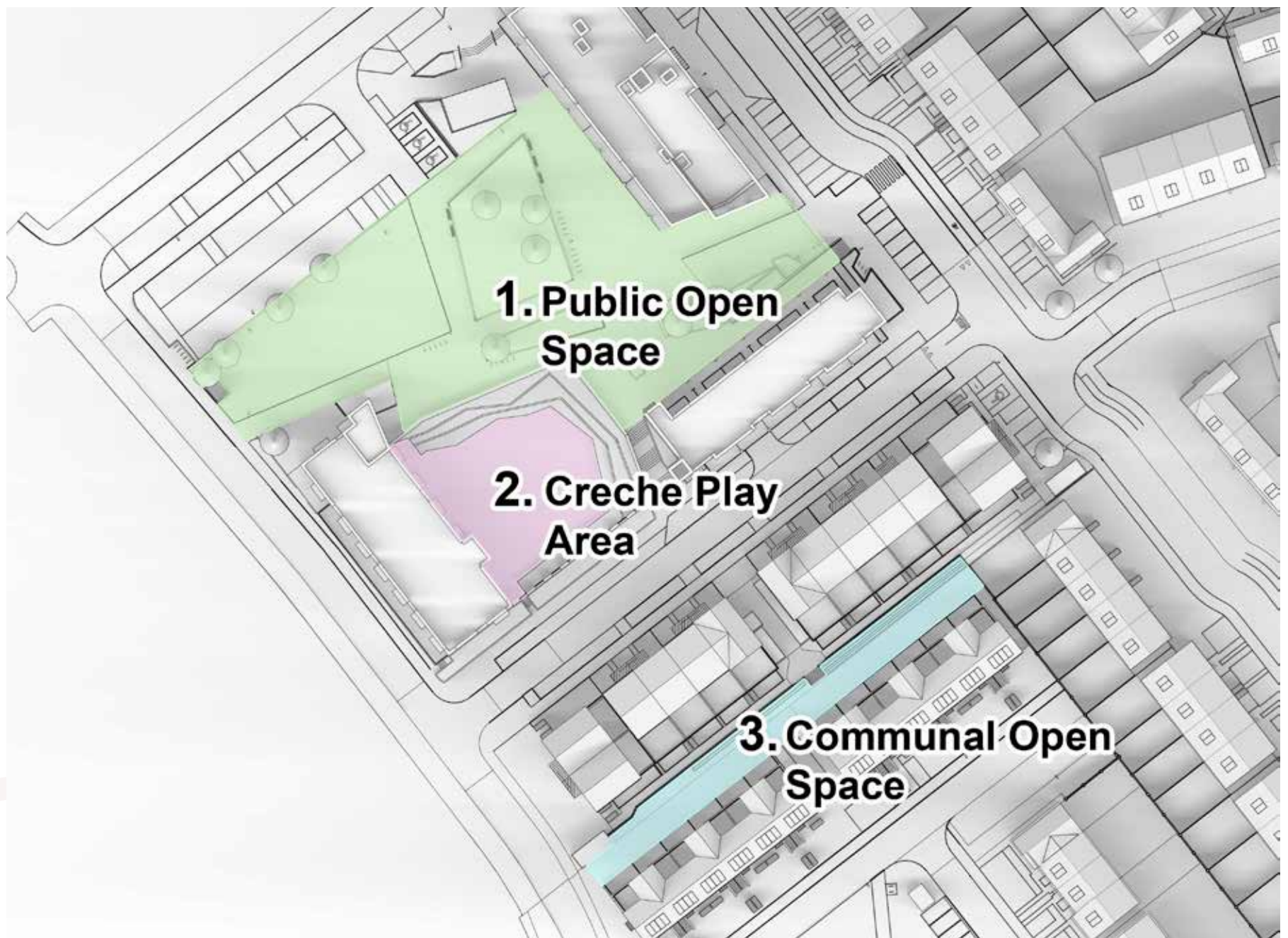


Figure 1.2: The areas assessed for Sun on ground study (SOG).

## 1.2 Scheme Performance Results Overview:

### Spatial Daylight Autonomy (SDA):

| Spatial Daylight Autonomy (SDA) BRE 209 Criteria  |        |
|---|--------|
| Unit Count  | 88     |
| Rooms Assessed  | 266    |
| Without Trees   |        |
| Compliant   | 257    |
| Non-compliant   | 9      |
| Compliance Rate*  | c. 97% |
| With Trees (Proposed and Existing Trees)  |        |
| Compliant   | 256    |
| Non-compliant   | 10     |
| Compliance Rate*  | c. 96% |
| Note: It is the expert opinion of 3DDB that the appropriate criteria for SDA assessments are that of the BRE Guidelines (BRE 209) |        |

\* Compliance rates stated for the SDA analysis are based on the rooms that have been assessed within the residential portion of the proposed development. Units which contain non-compliant rooms will have Compensatory Design Solutions provided by the project architects.

### Sunlight Exposure (SE):

| Sunlight Exposure (SE)          |        |
|---------------------------------|--------|
| Units Assessed                  | 88     |
| SE without deciduous trees      |        |
| Non-Compliant                   | 3      |
| Minimum                         | 12     |
| Medium                          | 13     |
| High                            | 60     |
| Compliance Rate*                | c. 97% |
| SE with trees as opaque objects |        |
| Non-Compliant                   | 3      |
| Minimum                         | 12     |
| Medium                          | 17     |
| High                            | 56     |
| Compliance Rate*                | c. 97% |

\* Compliance rates stated for the SE analysis are based on the units that have been assessed.

### Sun On Ground (SOG) in proposed amenity areas:

| Sun On Ground (SOG) in amenity areas |      |
|--------------------------------------|------|
| Areas Assessed                       | 3    |
| Areas meeting the guidelines         | 3    |
| Areas not meeting the guidelines     | 0    |
| Compliance Rate*                     | 100% |

\* Compliance rates stated for the SOG assessment are based on the public and communal open spaces and Crèche playground.

1.3

# Supplementary Assessment Results Overview

## Spatial Daylight Autonomy (SDA) under I.S. EN 17037 Criterion:

| Spatial Daylight Autonomy (SDA) under I.S. EN 17037 Criterion  |        |
|--|--------|
| Unit Count   | 88     |
| Rooms Assessed   | 266    |
| Without Trees  |        |
| Compliant  | 218    |
| Non-compliant  | 48     |
| Compliance Rate*   | c. 82% |
| With Trees (Proposed and Existing Trees)   |        |
| Compliant  | 208    |
| Non-compliant  | 58     |
| Compliance Rate*   | c. 78% |
| Note: The study under the I.S. EN 17037 criterion should be considered a supplementary assessment. It is the expert opinion of 3DDB that the appropriate criteria are that of the BRE Guidelines (BRE 209) |        |

\* Compliance rates stated for the SDA analysis are based on the rooms that have been assessed.

### No Sky Line (NSL):

| No Sky Line (NSL):   |        |
|--|--------|
| Unit Count   | 88     |
| Rooms Assessed   | 266    |
| Yes  | 237    |
| No   | 29     |
| Compliance Rate*   | c. 89% |
| Note: As the BRE Guidelines do not provide a recommended minimum for NSL in proposed developments, compliance rates for NSL are calculated using a criteria applied by 3DDB. |        |

\* Compliance rates stated for the NSL analysis are based on the rooms that have been assessed.



## 2.0 Guidelines / Standards

Whilst the subject of this report is related to Scheme performance only, this section refers to guidelines and standards for daylight and sunlight assessment for both impact assessment and scheme performance.

### Overview

Neither the British Standard, European Standard, British Annex to the European Standard nor the BRE Guidelines (BR 209) set out rigid standards or limits. They are all considered advisory documents. The BRE Guide is preceded by the following very clear statement as to how the design advice contained therein should be used:

*"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."*

That the recommendations of the BRE Guidelines are not suitable for rigid application to all developments in all contexts, is of particular importance in the context of national and local policies for the consolidation and densification of urban areas or when assessing applications for highly constrained sites (e.g. lands in close proximity or immediately to the south of residential lands). A compromise may have to be made concerning daylight and sunlight compliance to achieve national or local planning objectives.

It is the expert opinion of 3D Design Bureau, that the BRE Guidelines (BR 209) are the most appropriate guiding document for daylight and sunlight assessment. For daylight within proposed developments, a supplementary study has also been carried out under the criteria of *I.S. EN 17037*. The rationale for this opinion is outlined below.

### Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities. (2023)

In July 2023, the Department of Housing, Planning and Local Government published an updated guidance document for new apartments, *Sustainable Urban Housing: Design Standards for New Apartments*. This document makes reference to, *EN 17037:2018: Daylight in Buildings* (the European Standard), *BS EN 17037:2018: Daylight in Buildings* (the UK National Annex to the European Standard) and to the 3rd edition of Building Research Establishment's *Site Layout Planning for Daylight and Sunlight: a Guide to Good Practice* (BR 209 2022).

Paragraph 6.7 of the 2023 apartment guidelines states:

*"Where an applicant cannot fully meet all of the requirements of the daylight provisions above, this must be clearly identified and a rationale for any alternative, compensatory design solutions must be set out, which planning authorities should apply their discretion in accepting taking account of its assessment of specific. This may arise due to a design constraints [sic] associated with the site or location and the balancing of 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."*

As such, this report identifies where daylight and sunlight recommendations have and have not been achieved. Rationale and compensatory design solutions are the remits of the planning consultant and/or the project architect, these will also be included in this report where applicable.

Note: Section 3.2 of the Urban Development and Building Height Guidelines 2020, provides similar guidance as above. However, it should be noted that at the time of publication of the *Urban Development and Building Height Guidelines* (2020), BR 209 was in the 2nd edition, first published in 2011. Since then, a 3rd edition of BR 209 has been published (June 2022) and the 2nd edition has been withdrawn. BR 209 no longer references *BS 8206-2:2008*, which has also been withdrawn. The standard used as reference in BR 209 edition 3 is *BS EN 17037*.

### BR 209 - Site Layout Planning for Daylight and Sunlight: a Guide to Good Practice (2022)

This document will be referred to as the *BRE Guidelines*, the *BRE Guide* or *BR 209* in this report.

At the time of writing this report, the BRE Guidelines are in the third edition (BR 209). The BRE Guidelines set out recommendations for appropriate levels of daylight and sunlight within a proposed development, as well as providing guidance on impacts arising from a proposed development to surrounding properties and amenity areas.

Upon publication of the 3rd Edition of the BR 209 (2022), the 2nd edition (2011) has been withdrawn. Among the updates from the 2nd to the 3rd edition are some changes in the recommended metrics to use for carrying out scheme performance assessments.

Daylight within proposed developments was previously assessed under the 2011 guidelines using an 'Average Daylight Factor' assessment (ADF). This has been replaced with a 'target illuminance assessment', also known as a 'Spatial Daylight Autonomy' assessment (SDA).

Sunlight within proposed developments was previously assessed under the 2011 guidelines using an 'Annual / Winter Probable Sunlight Hours' assessment (APSH/WPSH). This has been replaced with a 'Sunlight Exposure' assessment (SE). However, APSH/WPSH is still recommended for sunlight impact assessments.

As such, no ADF or APSH/WPSH assessment will be included as part of a scheme performance assessment under the updated guidelines.

Details of the criteria for new metrics, and all other relevant metrics, can be found in the methodology section on Page 12 of this report.

It is the expert opinion of 3D Design Bureau that the BRE Guidelines are the most appropriate guiding document for assessing daylight potential within a proposed development. The rationale for this opinion is outlined in the Dublin City Council development plan (2022-2028), which states:

*"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. It is important to note that no amendments were made to this document and unlike BS EN 317037, it does not contain a national annex. It offers only a single target for new buildings (there are no space by space targets – e.g. a kitchen would have the same target as a warehouse or office). It does not offer guidance on how new developments will impact on surrounding existing environments. These limitations make it unsuitable for use in planning policy or during planning applications. BR 209 must still be used for this purpose."*

Whilst BRE Guidelines draws reference from BS EN 17037, there are some subtle differences between BR 209 and BS EN 17037. For the purposes of this report, the BRE Guidelines (BR 209) is considered the appropriate reference document.

### **EN 17037:2018: Daylight in Buildings (2018)**

EN 17037 is a European Standard that provides recommendations for daylight within spaces. (Emphasis added)

EN 17037:2018 recommends that 300 lux should be received across 50% of a hypothetical reference plane of any room for half of the daylight hours of the year, with no less than 100 lux received across 95% of the reference plane. No distinction is made for the function of the room for target lux levels within this standard.

It is the opinion of 3D Design Bureau that these target values are less appropriate for proposed residential developments than the recommendations made in the BRE Guidelines, which apply room-specific target values for appropriate LUX levels.

Recommendations made in EN 17037 regarding Sunlight Exposure for proposed developments have been incorporated into the BRE Guidelines. As such, Sunlight Exposure is deemed the appropriate assessment for sunlight within habitable rooms of the proposed development.

EN 17037 also makes recommendations related to glare and quality of view out. These aspects are not addressed in this report as these assessments have less relevance in a residential context where occupants have the freedom to move about in order to improve level of glare or alter the view out.

### **I.S. EN 17037:2018 Daylight in Buildings (2018)**

I.S. EN 17037 is a direct adoption of the European Standard EN 17037:2018 that provides recommendations for daylight within spaces.

The target values given within I.S. EN 17037 are directly adopted from EN 17037. As such, there are no room-specific recommendations for daylight. Because of these limitations, it is the expert opinion of 3D Design Bureau, that the recommendations made in the BRE Guidelines are more appropriate to use than those within I.S. EN 17037.

Regardless, a supplementary SDA study has been carried out on the proposed development using the criterion of I.S. EN 17037, with compliance rates stated. However, this should be considered a supplementary study.

### **BS EN 17037:2018: Daylight in Buildings (2018)**

BS EN 17037 is the British Annex to the European Standard (see above). The British Annex acknowledges that a rigid application of the European Standard "may not be achievable". It states "... it is the opinion of the UK committee that the recommendations for daylight provision in a space [...] may not be achievable for some buildings, particularly dwellings."

In BS EN 17037, daylight recommendations differ depending on the function of a room. Target lux levels are applied across 50% of the reference plane of a room for half of the daylight hours. The target lux levels are:

- 200 Lux for kitchens • 150 Lux for living rooms • 100 Lux for bedrooms

No minimum is stated to be achieved across 95% of the working plane. If a space has dual purposes it is advised that the higher target value should be applied.

### **Sustainable Residential Development and Compact Settlements Guidelines (2024)**

Often referred to as "The Compact Growth Guidelines" this document advises on compact growth principles as a means to promote sustainable development, efficient land use, and infrastructure while minimizing sprawl and environmental degradation, contributing to sustainable urban growth, enhance liveability and support broader planning objectives.

In regard to daylight, section 5.3.7 states:

*"The provision of acceptable levels of daylight in new residential developments is an important planning consideration, in the interests of ensuring a high quality living environment for future residents. It is also important to safeguard against a detrimental impact on the amenity of other sensitive occupiers of adjacent properties."*

*(a) The potential for poor daylight performance in a proposed development or for a material impact on neighbouring properties will generally arise in cases where the buildings are close together, where higher buildings are involved, or where there are other obstructions to daylight. Planning authorities do not need to undertake a detailed technical assessment in relation to daylight performance in all cases. It should be clear from the assessment of architectural drawings (including sections) in the case of low-rise housing with good separation from existing and proposed buildings that undue impact would not arise, and planning authorities may apply a level of discretion in this regard.*

*(b) 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.*



*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."*

The Compact Growth Guidelines should be applied within statutory development plans and during the consideration of individual planning applications. Flexibility in interpretation allows planning authorities to tailor recommendations to specific local contexts and planning objectives.

Whilst the proposed development lies outside the environs of DCC, the following information has been included in this report for information purposes.

### **Wicklow County Development Plan (2022-2028)**

Regarding daylight and sunlight, Appendix 1 - 'Development and Design Standards' of the Wicklow development plan (2022-2028) states:

*"Layouts shall ensure adequate sunlight and daylight, in accordance with "Site layout planning for daylight and sunlight: a guide to best practice", (BRE 1991)."*

The referenced document has been withdrawn and replaced with an updated edition, 'BR 209 - Site Layout Planning for Daylight and Sunlight: a Guide to Good Practice (2022)'. The updated document will be used as reference as opposed to that which is referenced in the development plan.

### **Summary**

According to the aforementioned guiding documents, the following assessments are typically conducted for a daylight and sunlight study, depending on the specific requirements of the project.

### **Performance of the Proposed Development**

Annual Probable Sunlight Hours (APSH) and Winter Probable Sunlight Hours (WPSH) on all relevant windows: APSH and WPSH are no longer recommended for scheme performance assessments under BR 209. They have been replaced with Sunlight Exposure (SE). When conducting a scheme performance assessment for sunlight in the habitable rooms of the proposed development, Sunlight Exposure is the relevant metric. An APSH/WPSH assessment will not be carried out in the scheme performance assessment of the proposed development.

Sunlight on Ground (SOG) in all amenity spaces: A SOG assessment will be carried out, where appropriate, for the amenity spaces of the proposed development.

Average Daylight Factor (ADF) in all habitable rooms: BR 209 (2022) states that ADF is no longer recommended as a relevant method of assessment. ADF has been replaced with a target illuminance assessment. (See below). As such, no ADF assessment will be carried out on the proposed development.

No Sky Line (NSL) in all habitable rooms: An NSL assessment will be conducted for the habitable rooms of the proposed development as a supplementary study as part of a scheme performance assessment.

Target Illuminance in all habitable rooms: A target illuminance assessment, also known as a Spatial Daylight Autonomy (SDA) assessment, has replaced ADF as the relevant metric for assessing daylight within proposed habitable spaces. The two recommended methodologies for this assessment are detailed in section 4.2.1 on page 14. In a scheme performance assessment, the SDA will be calculated for the habitable rooms of the proposed development.

### **Impact on the Surrounding Properties**

Vertical Sky Component (VSC) on all relevant surrounding windows: A VSC impact assessment will be conducted, where appropriate, on the relevant surrounding windows determined by the BRE decision chart.

Annual Probable Sunlight Hours (APSH) and Winter Probable Sunlight Hours (WPSH) on all relevant surrounding windows: An APSH/WPSH impact assessment will be conducted, where appropriate, on the relevant surrounding windows/rooms that have an orientation within 90° of due south.

Sunlight on Ground (SOG) in all surrounding amenity spaces: A SOG impact assessment will be carried out, where appropriate, on the neighbouring gardens/ amenity spaces located within close proximity and to the north of the subject site.

## 3.0 Glossary

### 3.1 Terms and Definitions

Below is a list of daylight and sunlight terminology that may be used in this report depending on the assessments carried out.

#### **Skylight**

Non directional ambient light cast from the sky and environment.

#### **Sunlight**

Direct parallel rays of light emitted from the sun.

#### **Daylight**

Combined skylight and sunlight.

#### **Overcast sky model**

A completely overcast sky model, used for daylight calculation.

#### **Cloudless sky model**

A completely cloudless sky model, used for sunlight exposure calculation.

#### **Model State**

The model state is a term used to describe the configuration of the digital model used to run analysis. Model states will typically reflect a baseline state and a proposed or cumulative state. For a definition of the model states used in the analysis carried out in this report, please refer to "Preparing the analytical model" on page 12.

#### **Vertical Sky Component (VSC)**

Ratio of that part of illuminance, at a point on a given vertical plane, that is received directly from an overcast sky model, to illuminance on a horizontal plane due to an unobstructed hemisphere of this sky. Usually the 'given vertical plane' is the outside of a window wall. The VSC does not include reflected light, either from the ground or from other buildings.

#### **Annual Probable Sunlight Hours (APSH) / Winter Probable Sunlight Hours (WPSH)**

Annual Probable Sunlight Hours (APSH) and Winter Probable Sunlight Hours (WPSH) are a measure of sunlight that a given window may expect over a year period (1 Jan - 31 Dec), or the winter period (21 Sep - 21 Mar) respectively.

North facing windows may receive sunlight on only a handful of occasions in a year, and windows facing eastwards or westwards will receive sunlight only at certain times of the day. Taking this into account, the BRE Guidelines suggest that windows with an orientation within 90 degrees of due south should be assessed.

#### **Sun On Ground (SOG)**

Assessment of what portion of a garden or amenity space is capable of receiving 2 hours or more of direct sunlight on March 21st.

#### **Sunlight Exposure (SE)**

The number of hours of direct sunlight a room can expect to receive on a given date between February 1st and March 21st at a determined point on the windows.

#### **Spatial Daylight Autonomy (SDA)**

Spatial Daylight Autonomy assesses whether a space receives sufficient daylight on a working plane during standard operating hours on an annual basis. For compliance, the target value is achieved across 50% of the working plane for half of the occupied period.

#### **No Sky Line (NSL)**

The no sky line divides points on the working plane which can and cannot see the sky.

#### **Working plane**

Horizontal, vertical or inclined plane in which a visual task lies. Normally the working plane may be taken to be horizontal, 850 mm above the floor in houses and factories, 700 mm above the floor in offices. The plane is offset 300mm from the room boundaries under BR 209 criteria, and 500mm from the room boundaries under I.S. EN 17037 criteria.

#### **LKD**

Living / Kitchen / Dining room.

#### **BRE Target Value**

When assessing the effect a proposed development would have on a neighbouring property, a target value will be applied. This applied target value is generated as per the criteria set out for each study in the BRE Guidelines.

#### **Alternative Target Value**

It could be appropriate to use alternative target values when conducting assessment of effect on existing properties. If such instances occur the rationale will be clearly explained and the instances where the alternative target values have been applied will be clearly identified.

#### **Level of BRE Compliance**

Each table in the study that has a column identified as "Level of BRE Compliance", identifies how an assessed instance performs in relation to the appropriate target value. If the instance is in compliance with the recommendations as made in the BRE Guidelines the value will be expressed as "BRE Compliant". If the instance does not meet the criteria as set out in the BRE Guidelines a percentage will be expressed to determine the level of compliance with the recommendation. This value determines the definition of effect.

#### **LUX**

Lux is a standardised unit of measurement of light level intensity. A measurement of 1 lux is equal to the illumination of a one metre square surface that is one metre away from a single candle.

## 3.2 Definition of Levels of Sunlight Exposure

For interiors, access to sunlight can be quantified. BR 209 recommends that a space should receive a minimum of 1.5 hours of direct sunlight on a selected date between 1 February and 21 March with cloudless conditions. It is suggested that 21 March (equinox) be used. The medium level of recommendation is three hours and the high level of recommendation four hours. For dwellings, at least one habitable room, preferably a main living room, should meet at least the minimum criterion.

### Level of Sunlight Exposure:

The level of sunlight exposure will be stated for each assessed room in the tables under section “A.3 Sunlight Exposure (SE) in Proposed Units” on page 50. Below is a list of the terms used to categorise the levels of sunlight exposure:

#### Below Minimum

Sunlight exposure will be categorised as ‘below minimum’ if the potential sunlight for the assessed room is less than 1.5 hours on March 21st. Note: the recommendation is that a room within a proposed unit is capable of receiving 1.5 hours of direct sunlight on March 21st. If an individual room does not achieve this recommendation, it does not mean that the unit is non compliant.

#### Minimum

A ‘minimum’ level of sunlight exposure will be stated if the potential sunlight for the assessed room is between 1.5 hours and 3 hours on March 21st.

#### Medium

A ‘medium’ level of sunlight exposure will be stated if the potential sunlight for the assessed room is between 3 hours and 4 hours on March 21st.

#### High

A ‘high’ level of sunlight exposure will be stated if the potential sunlight for the assessed room is greater than 4 hours on March 21st.

### Unit Compliance:

In addition to the level of sunlight exposure expressed for each room, compliance will be stated on a unit-by-unit basis. A proposed unit is considered to be compliant if any habitable room within the unit is capable of receiving at least 1.5 hours of sunlight on the assessment date.

#### Non-Compliant

If no habitable rooms within a proposed unit can receive 1.5 hours of sunlight on the assessment date, the unit will be categorised as ‘Non-Compliant’.

#### Compliant

If at least one habitable room within a proposed unit can receive 1.5 hours or more of sunlight on the assessment date, the unit will be categorised as ‘Compliant’.

Typically unit compliance will be stated for the best performing room per unit only, with lesser performing rooms indicated with a dash (-). However, if more than one room in a given unit is considered to be the best performing room (i.e. they have the same number of SE hours on March 21st), then the unit compliance column will be populated in the first instance only.



## 4.0 Methodology

### 4.1 Preparing the analytical model

#### 4.1.1 Building the Model States

The analytical 3D model was created by 3DDB based on information provided by the respective project architects, as outlined below:

- **Conroy Crowe Kelly Architects and Urban Designers (CCK):** Supplied AutoCAD drawings for duplexes of the character area 1A
- **BKD Architects:** Supplied AutoCAD drawings for Block 1&2, crèche and duplexes of the character area 1C
- **Niall Montgomery + Partners Architects and Landscape Architects:** Provided the landscape drawings.

A site visit has not been conducted. A combination of survey information, aerial photography, available online photography and/or ordnance survey information were used to model the surrounding context where applicable.

**Note:** as the information gathered from online sources is not as accurate as surveyed information, a reasonable tolerance should be allowed to the placement of windows, boundary treatments and the results generated. However, it is to be noted that no impact assessment was required for this daylight & sunlight report due to the non-existence of any surrounding existing properties to the area subject of this report.

#### Baseline model state

No baseline model state was a requirement for this report due to no impact assessments being required.

#### Proposed model state

As illustrated in Figure 4.1, the proposed model state reflects the subject site if the development is built as proposed. This includes proposed landscaping on the subject site and the demolition of existing structures, etc. Proposed buildings have been positioned in their location on the subject site with relevant surrounding context included. The proposed trees have been modelled based on the information provided by the landscape architect.

All of the above information was subsequently used to prepare a digital analytical model in software specifically designed for daylight and sunlight analysis.

Relevant weather and climatic data has been obtained for this report using a localised EnergyPlus Weather File (IRL\_ST\_Carlow-Oak.Park.039610\_TMYx.epw).

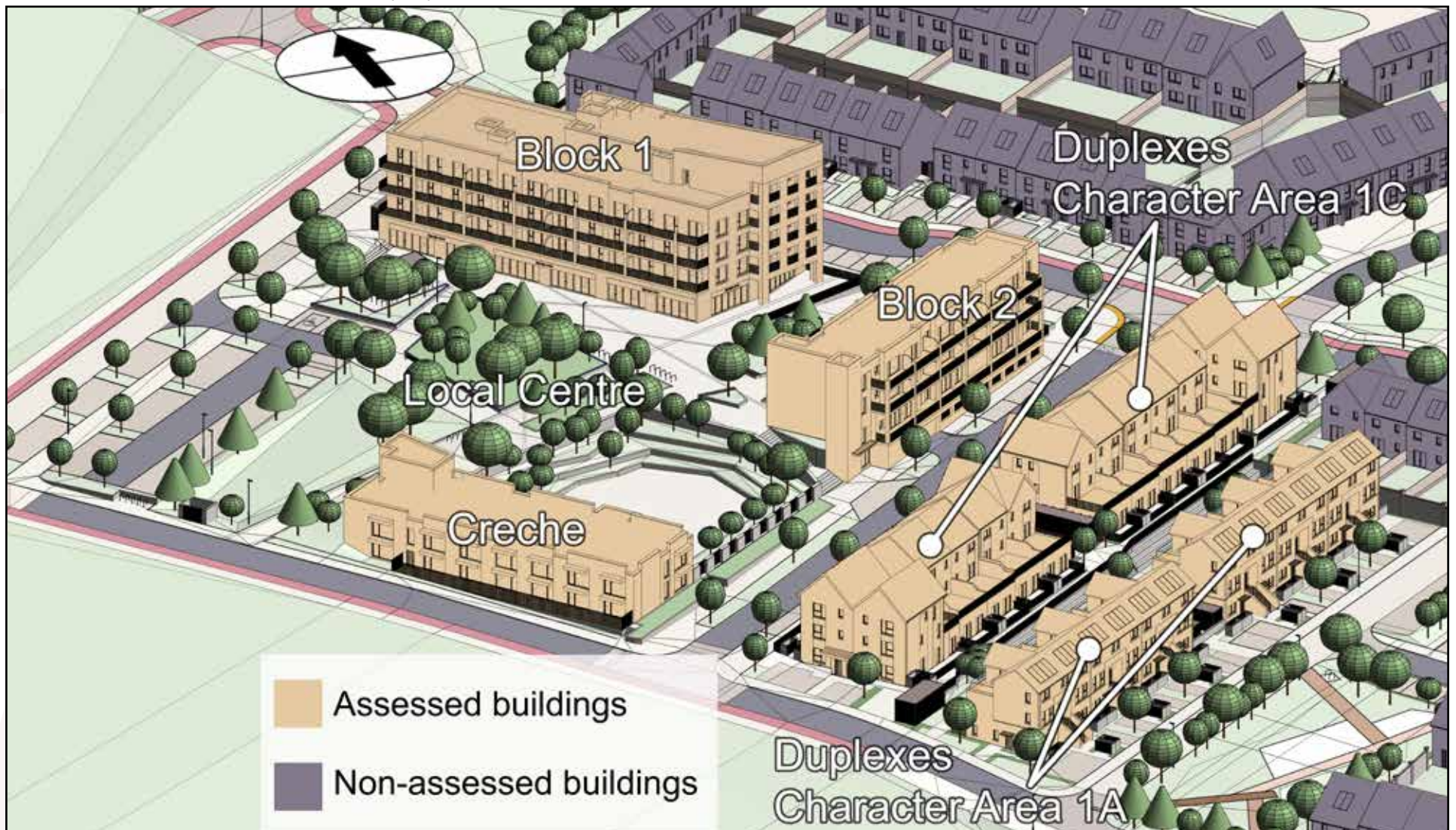


Figure 4.1: Model view of the proposed model state



## 4.1.2 Trees

Despite the fact that this report focuses solely on Scheme Performance, the below information on trees, with regard to impact assessments, has been left in for informative purposes.

As referenced in the BRE Guidelines, the exact shapes of trees are “almost impossible to predict”. When modelling trees for this assessment tree geometry has been simplified. Where tree survey information was not provided, the position and size of existing trees have been estimated using available online photography. The shape of the trees have been simplified and an average transmittance value has been applied using information from table G1 from the BRE Guidelines where applicable.

Simplified models of proposed trees within the development have also been included according to the information provided by the landscape architect.

BR 209 provides guidance on how trees should be treated depending on the study being carried out, as summarised below:

### **Impact to Vertical Sky Component (VSC) and Annual / Winter Probable Sunlight Hours (APSH / WPSH)**

The BRE Guidelines state that when assessing the effect a new development would have on existing buildings, it is usual to ignore the effect of deciduous trees. This is because daylight is at its scarcest and most valuable in winter when most trees will not be in leaf. Evergreen trees should be included, particularly where a dense belt or group of evergreens is specifically planned as a windbreak or for privacy purposes.

### **Sun On Ground (SOG)**

Regarding SOG assessments, the BRE Guidelines states:

*“...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).”*

As such, deciduous trees have not been included in the calculation of SOG, unless there is a dense belt present or a group of trees specifically planned as a windbreak or for privacy purposes. Evergreen trees are included in the SOG assessment.

### **Sunlight Exposure (SE)**

The BRE Guidelines state that as deciduous trees would not be in full leaf on the recommended assessment date (March 21st), sunlight would be expected to penetrate deciduous trees. However, as trees have so many variables, it is impossible to accurately represent how they would affect sunlight at a given time. The suggested methodology (BR 209) to allow for this is to run the sunlight exposure study in two states. Once with trees as opaque objects and secondly without deciduous trees in the assessment model. This gives a range of potential sunlight hours.

### **Spatial Daylight Autonomy (SDA)**

BR 209 recommends when assessing daylight in a proposed building, it is appropriate to run the assessment with trees represented over the course of the whole year. Light transmittance values for the modelled trees are varied to account for summer and winter foliage.

Taking average dates from *BRE Digest 350*, appropriate light transmittance values have been applied to deciduous trees to represent the ‘full leaf’ and ‘bare branch’ states.

Evergreen trees are represented as ‘full leaf’ throughout the year.

The BRE Guidelines also state”

“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. Often trees are irregularly shaped and simple modelling, using height and spread data and assuming a circular tree, will give inaccurate results. A special survey on site is generally required to produce the required data on the tree profile, using a clinometer or other device to measure tree height. Buildings and other solid objects should also be taken into account.”

In the absence of a ‘special survey’ being conducted, as mentioned above, simplified models representing trees have been used. The information for these trees has been taken from photogrammetry information and an arborist report when available. A reasonable tolerance should be applied to the results generated to account for trees not being represented exactly as they appear on site.

Units have also been assessed without trees to give an understanding of how the architecture performs should trees not be factored into the calculation.

I.S. EN 17037 does not give any guidance on how trees should be represented. For the purpose of this report, the SDA calculation under the I.S. EN 17037 criteria has been carried out with trees represented in the same manner as the BR 209 assessment. Units have also been assessed without trees to give an understanding of how the architecture performs should trees not be factored into the calculation.

### **No Sky Line (NSL)**

Because some sky can usually be seen through a tree canopy, deciduous trees have not been included in the No Sky Line assessment model. Evergreen trees may be included in this assessment, particularly if there is a dense belt or group planned for windbreak or for privacy purposes.

### **Shadow Study**

The hourly renderings of the shadow study have been generated with evergreen trees represented as opaque objects, where applicable, and without deciduous trees. This method best represents the methodology used for the impact assessment and allows for a better understanding of potential shadows cast by the proposed development through the tree canopy.

## 4.2 Quantitative Scheme Performance Assessment Overview

### 4.2.1 Spatial Daylight Autonomy in Proposed Habitable Rooms (SDA)

Since the publication of the 3rd edition of the BRE Guidelines (BR 209 - 2022), Spatial Daylight Autonomy (SDA) is the recommended metric for assessing daylight access within a proposed development. Spatial Daylight Autonomy replaces Average Daylight Factor (ADF) in this regard, which was the recommended metric under the 2nd edition of the BRE Guidelines (BR 209 - 2011).

Spatial Daylight Autonomy assesses whether a room receives sufficient daylight on a working plane during standard operating hours on an annual basis. A given target value should be achieved across 50% of the working plane for half of the daylight hours.

There are two methods for calculating SDA:

- **Calculation method using illuminance level:** This requires the use of a detailed daylight calculation method where hourly (or sub-hourly) internal daylight illuminance values for a typical year are computed using hourly (or sub-hourly) sky and sun conditions derived from climate data appropriate to the site. This calculation method determines daylight provision directly from simulated illuminance values on the reference plane. The illuminance value of at least half the required area of the space should equal or exceed the target values.
- **Calculation method using daylight factor:** The daylight factor method assumes a constant ratio between internal and external illuminance. The daylight factors in the space shall be calculated by any reliable method that is based on the ISO 15469:2004 standard overcast sky (TYPE 1 or TYPE 16). Daylight factors are to be predicted across grid of points on a plane 0.85m above the floor of the space. The daylight factor of at least half the required area of the space should equal or exceed the target values.

It is the opinion of 3DDB that the calculation method using illuminance level better represents a real-world scenario as it accounts for the quality of daylight based on orientation. As such, the illuminance methodology has been adopted for all SDA assessments in this report using a localised EnergyPlus Weather File (IRL\_ST\_Carlow-Oak.Park.039610\_TMYx.epw) to apply the relevant climate information.

In terms of housing, BR 209 provides target SDA values to be received across at least 50% of the working plane for at least half the daylight hours. The target values differ based on the function of the room assessed:

- 200 Lux for kitchens • 150 Lux for living rooms • 100 Lux for bedrooms

Where rooms serve more than one function, the higher SDA target value should be taken. In new developments, some internal spaces (e.g. studio apartments, shared communal areas etc.) can possibly be of a nature that do not have a predefined target value in BR 209. In such instances, 3DDB have applied a target value they deem to be appropriate. In the case of the proposed development there is a creche building including classrooms and sleep rooms. 3DDB recommend that an SDA target value of 150 Lux be applied to these spaces. This target was chosen because these rooms are designed for group use, and the value typically assigned to living rooms was deemed appropriate. Although sleep rooms would potentially require less daylight due to their function, the same target of 150 lux has been applied for reference purposes particularly in consideration of potential future changes in room use.

These rooms (classrooms and sleep rooms) have not been included in the calculated compliance rates.

Under I.S. EN 17037 at least 50% of the working plane should receive above 300 lux for at least half the daylight hours, with 95% of the working plane receiving above 100 Lux for all rooms. The target SDA values do not vary depending on the room function under this criteria.

This study has assessed the Spatial Daylight Autonomy (SDA) received in the habitable rooms of the proposed development under the BR 209 criterion. The SDA of the proposed development has been calculated under the I.S. EN 17037 criterion as part of a supplementary assessment.

#### Defining Rooms

Definition of rooms has been taken directly from the architectural drawings supplied by the project architect.

In accordance with the BRE Guidelines circulation spaces, corridors, bathrooms etc. have not been assessed.

Indication of the assessed space in each room is provided in the floor plans that correspond to the SDA results in the appendix section "Proposed Floor Plans" on page 24.

#### Working Plane

The calculation of SDA is carried out on a hypothetical working plane which lies 850 mm from the finished floor level in residential units and 700 mm in academic and office spaces.

In the BR 209 study the working plane is offset 300 mm from the room boundaries. Under the I.S. EN 17037 criteria the working plane is offset 500 mm from the room boundaries. The working plane has a grid density of c. 300 mm.



### Material Palette

Following consultation with the project architect and design team, material values used for SDA calculations are as per the table below:

| Table No. 4.2.1 - Material Palette for SDA Calculations |                |             |                  |                                |                              |
|---|----------------|-------------|------------------|--------------------------------|------------------------------|
| Object  | Material       | Reflectance | Object           | Material                       | Reflectance<br>Transmittance |
| Exterior walls  | Standard Brick | 0.3         | Interior Walls   | Pastel paint                   | 0.7                          |
|   | Light Brick    | 0.4         | Interior Ceiling | White paint                    | 0.8                          |
|   | Dark Brick     | 0.15        | Interior Floor   | Light timber                   | 0.4                          |
|   | Render         | 0.6         | Miscellaneous    | Miscellaneous                  | 0.5                          |
|   | Concrete       | 0.4         | Glass            | Glass transmittance value      | 0.68                         |
| Ground cover  | Paving         | 0.4         |                  | Maintenance factor             | 0.91                         |
|   | Tarmac         | 0.2         |                  | Glass adjusted for maintenance | 0.62                         |
|   | Grass          | 0.2         |                  | Frosted glass                  | 0.5                          |

### Project Assessment

The results for the study on SDA can be found in the appendix results section A.2 on page 38.

Analysis of the results can be found in section 5.1.1 on page 17.

The results of the supplementary SDA study under the I.S. EN 17037 criterion can be found in section C.0 on page 73.

## 4.2.2 Sunlight Exposure in Proposed Habitable Rooms (SE)

Since the publication of the 3rd edition of the BRE Guidelines (BR 209 - 2022), Sunlight Exposure (SE) is the recommended metric for assessing sunlight access within a proposed development. Sunlight Exposure replaces APSH/WPSH in this regard, which was the recommended metric under the 2nd edition of the BRE Guidelines (BR 209 - 2011).

Sunlight exposure (SE) is a measure of sunlight that a given window may expect to receive on a given date between the 1st of February and the 21st of March. The BRE guidelines suggest that March 21st (equinox) is used as the assessment date.

In the presence of trees, SE results have been generated, both with deciduous trees as opaque objects and without the inclusion of deciduous trees, in accordance with the BRE Guidelines. Evergreen trees have been included as opaque objects, where applicable, in both states.

The level of sunlight exposure is categorised as follows:

- 1.5 Hours - Minimum • 3 Hours - Medium • 4 Hours - High

The recommendation for dwellings is that at least one habitable room, preferably a main living room, should receive at least the minimum criterion. Should no room within a given unit meet the recommended minimum level of sunlight exposure, it will be stated as non-compliant.

Sunlight exposure is carried out on habitable rooms within a proposed development. The assessment point for windows is 1.2m above the finished floor level, or 0.3 m above the sill level (which ever is higher). If a room has multiple windows, the amount of sunlight received by each can be added together provided they occur at different times and sunlight hours are not double counted.

The criterion applies to rooms of all orientations, although if a room faces significantly north of due east or west it is unlikely to be met. As such, it is not always possible to achieve full compliance, especially in developments that contain single aspect units.

The sunlight exposure assessment focuses on habitable residential rooms. Unless sunlight access is deemed important for the functionality of a non-residential room in a proposed development, it will not be included in the study, which remains limited to residential rooms. In the case of the proposed development the crèche rooms have been listed in the result tables but not included in the overall compliance rate. Unlike residential buildings, where the results compliance is based on the highest performance in unit, the crèche rooms have been listed as individual spaces.

### Project Assessment

The results for the study on sunlight exposure can be found in the appendix results section A.3 on page 50, with analysis of the results in section 5.1.2 on page 19.

### 4.2.3 Sun On Ground in Proposed Outdoor Amenity Areas (SOG)

The BRE Guidelines recommend that for a garden or amenity area to appear adequately sunlit throughout the year, at least half of it should receive at least two hours of sunlight on March 21st.

March 21st, also known as the spring equinox, is chosen as the assessment date as daytime and night-time are of approximately equal duration on this date.

The analytical model for SOG assessment in proposed amenity areas includes evergreen trees, where applicable, as per the BRE Guidelines. Typically deciduous trees will not be included unless there is a particularly dense belt.

A quantitative SOG assessment has been carried out on the areas as indicated by the project architect. The shadow study and false colour plans allow for a qualitative assessment for all other areas.

The portion of each assessed space capable of receiving 2 hours of direct sunlight on March 21st has been calculated individually. These areas can be combined to give the development average where appropriate.

#### Project Assessment

The levels of sunlighting to proposed amenity areas, as indicated by the architect, have been assessed. However, it should be noted that the numbering of these spaces in the Daylight and Sunlight Assessment Report has been assigned by 3DDB specifically for the purposes of this report. If other consultants are referencing these spaces in their own reports, it is unlikely they will be numbered the same.

The results for the study on sun on ground in the proposed outdoor amenity areas (including a visual representation in the form of 2-hour false colour plans) can be found in the appendix results section A.4 on page 51, with analysis of the results in section 5.1.3 on page 20.

### 4.2.4 No Sky Line in Proposed Habitable Rooms (NSL)

The no sky line divides the areas of the working plane which can receive direct skylight, from those which cannot. It indicates the distribution of direct daylight within a room.

The BRE Guidelines recommend the No Sky Line study as an appropriate metric for an impact assessment to daylight, but only where room layouts are known.

*“The calculation can only be carried out where room layouts are known. Using estimated room layouts is likely to give inaccurate results and is not recommended.”*

All advice regarding NSL in the BRE Guidelines is in relation to impact assessments. NSL is not mentioned in the BRE section regarding daylight in new developments. Nevertheless, an NSL assessment was carried out on the proposed development as a supplementary study as it is requested in the DCC Development Plan 2022-2028 (Section 5.1, Appendix 16). Although the proposed development is not under Dublin City Council’s jurisdiction, the NSL study has been included to provide consistency across 3DDB daylight and sunlight assessments.

As the BRE Guidelines does not give advice on target NSL values for proposed rooms, no compliance rate has been stated. However a no skyline of 80% could be considered an appropriate figure given that the BRE Guidelines state that supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line.

The results of the supplementary NSL study can be found in section C.0 on page 73.

### 4.2.5 Qualitative Assessment - Shadow Study

A shadow study has been carried out to allow a qualitative review of the proposed model state, outlined in section 4.1 on page 12. This visual representation of the shadows cast by the proposed development can be found in the hourly shadow diagrams in the appendix results section B.0 on page 64.

Hourly renderings have been shown from sunrise to sunset on the following dates in 2025:

- Spring equinox:                      March 21st                      Sunrise 6:33 | Sunset 18:31. (GMT)
- Summer solstice:                      June 21st.                      Sunrise 5:07 | Sunset 21:47. (BST)
- Winter solstice:                      December 21st                      Sunrise 8:42 | Sunset 16:03. (GMT)

The shadow study has been generated using the same model state as described in section 4.1.1. In certain cases, assumptions or estimations may have been made when modelling elements of the surrounding context and/or proposed site details when creating the various model states. Therefore, it is advisable for a reasonable tolerance to be applied when interpreting shadows in the qualitative assessment.

The hourly renderings of the shadow study will be generated without deciduous trees and with evergreen trees, where applicable, represented as opaque objects when present in the model states.

**Note:** The spring equinox (March 21st) and autumn equinox (21st September) yield similar shadows, albeit with a one hour difference as daylight saving time (BST) would be in effect. Only the spring equinox was included in the shadow study images in accordance with the BRE Guidelines.

## 5.0 Analysis of Results

### 5.1 Analysis of Scheme Performance Results

#### 5.1.1 Spatial Daylight Autonomy (SDA)

This study has assessed the Spatial Daylight Autonomy (SDA) received in all habitable rooms within Apartment Blocks 1 and 2, and the duplexes of Character Areas 1A and 1C of the proposed development, both with and without trees. This has ensured that a clear understanding has been obtained regarding the daylight performance of the proposed development.

This proposed development consists of 88 no. units, which makes up approximately 266 no. habitable rooms.

Under the criteria as set out in the BR 209 considering trees, the SDA value in 256 no. habitable rooms meets or exceeds the appropriate target values. This gives a circa compliance rate of 96%. For a scheme of this size, this could be considered a very good level of compliance.

The additional SDA assessment that does not include trees has shown a compliance rate of 97%.

The rooms which are non compliant, regardless of the inclusion of trees, are LKDs of the duplexes in Character Area 1C. These rooms are highlighted in blue in Figure 5.1 with a floor plan example shown in Figure 5.2.

There is one further room falling short due to the presence of trees. This particular room (located in Block 1, LKD of unit 1C\_165), presents slightly below the target value of 50%, achieving 46% SDA value. This demonstrates the minimal impact of the trees across the scheme. This additional room is indicated in orange in Figure 5.1

The project architect (BKD) has proposed compensatory design solutions for the rooms mentioned above in response to their under performance. Given the scale of the scheme, the overall level of compliance is considered by 3DDB to be very favourable. The high compliance of the apartment units is particularly noteworthy, as these spaces typically face greater design constraints and limitations compared to duplex units.

I.S. EN 17037 sets out more onerous recommendations for SDA. As such, the number of habitable rooms achieving compliance under this standard is 208 in the assessment that includes trees. This gives a reduced circa compliance rate of c. 78%. The additional SDA assessment, under this standard, that does not include trees has shown a compliance rate of c. 82%.

In cases where rooms comply with the criteria of BR 209 but do not meet the criteria of I.S. EN 17037, it is the recommendation of 3D Design Bureau that these rooms will appear adequately daylight. This recommendation is based on the fact that BR 209 provides room-specific criteria, unlike I.S. EN 17037. BR 209 considers the varying daylight requirements for different room types, which I.S. EN 17037 does not account for.

With regards to internal daylighting, Section 6.7 of the Sustainable Urban Housing: Design Standards for New Apartments July 2023, states the following:

*“Where an applicant cannot fully meet all of the requirements of the daylight provisions above, this must be clearly identified and a rationale for any alternative, compensatory design solutions must be set out, which planning authorities should apply their discretion in accepting taking account of its assessment of specific. This may arise due to a design constraints [sic] associated with the site or location and the balancing of 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.”*

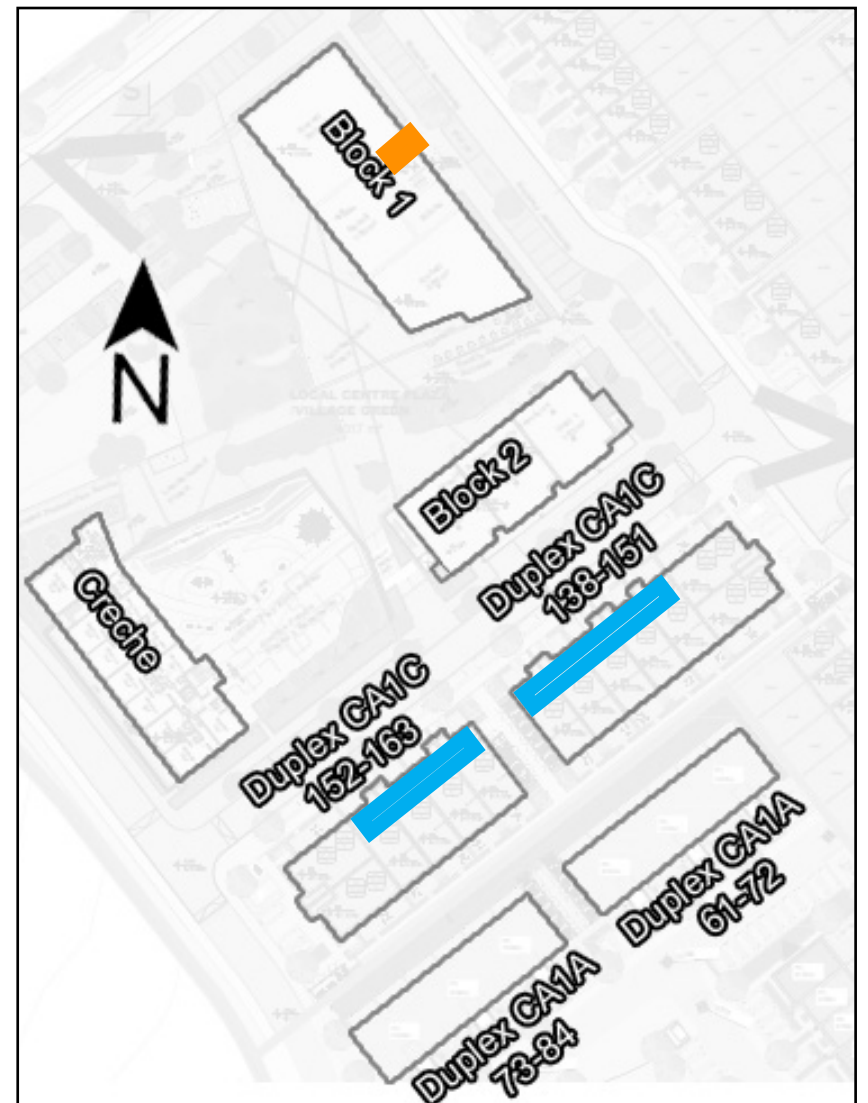


Figure 5.1: The location of non complaint unit within key plan.



Figure 5.2: Example of non compliant LKD of duplexes.



Based on the above statements, compensatory design solutions have been provided by the project architect (BKD) where rooms do not achieve the daylight provision targets as set out in the BRE Guidelines.

The following list indicates all rooms that do not achieve the recommended level of daylight with regards to BR 209 and the compensatory design solutions for their associated unit:

- Duplexes in Character Area 1C: Ground floor LKDs of the units 1C\_142, 1C\_144, 1C\_146, 1C\_148, 1C\_150, 1C\_152, 1C\_154, 1C\_156 and 1C\_159.
- Block 1: First floor LKD of unit 1C\_165 (trees affecting compliance).

All of the non-complaint LKDs of the duplexes are rooms of the same type, making a common compensatory design solution applicable to all.

Note: A contributing factor to non-compliance with the BR 209 criteria is that the underperforming rooms are north-facing and located on the ground floor.

**Compensatory design solutions for non-complaint LKDs of duplexes:**

- *Units are dual aspect*
- *Units oversized by 10.8%*
- *Private open space oversized by 70%*
- *11.5m<sup>2</sup> south facing terrace overlooking communal open space*
- *Large south facing bedroom windows*
- *Generous floor to ceiling height of 2.7m*

**Additional compensatory design solutions for LKD of unit 1C\_165 (Block 1), where trees affecting compliance.**

- *Unit oversized by 4.8%*
- *7.7m wide private balcony*
- *NE facing full height window + NW facing glazed door to LKD*
- *Full height bedroom windows*

In cases where rooms comply with the criteria of BR 209 but do not meet the criteria of I.S. EN 17037, it is the recommendation of 3D Design Bureau that these rooms will appear adequately daylight. This recommendation is based on the fact that BR 209 provides room-specific criteria, unlike I.S. EN 17037. BR 209 considers the varying daylight requirements for different room types, which I.S. EN 17037 does not account for.

The results for the study on SDA can be seen in section A.2 on page 38.

## 5.1.2 Sunlight Exposure (SE)

A sunlight exposure assessment has been carried out on all habitable rooms within Apartment Blocks 1 and 2, and the duplexes of Character Areas 1A and 1C of the proposed development. For these assessments, trees have been included in the analytical model as opaque objects. The assessments have been carried out in two states:

- All trees (evergreen and deciduous) included in assessment model.
- Only evergreen trees included in the assessment model.

This approach is in accordance with the BRE Guidelines.

In total, 88 no. units have been assessed. Using the rationale explained in section 3.2 on page 11, the level of sunlight exposure for the assessed units is as follows:

In the assessment carried out with all trees considered as opaque objects, 56 no. units are considered *high*, 17 no. *medium*, 12 no. have reached the *minimum* recommendation with 3 units below the *minimum* recommendation.

When deciduous trees are not factored into the assessment model, 60 no. units are considered *high*, 13 no. *medium*, 12 no. have reached the *minimum* recommendation with 3 units below the *minimum* recommendation.

The SE assessment has shown that, regardless of the effect of trees, c. 97% of the assessed units meet the Sunlight Exposure, which in the opinion of 3DDB is an excellent compliance rate for SE.

**Note:** For a unit to be compliant under BR 209, only one habitable room within the unit needs to meet the guideline values.

Whilst the criterion applies to rooms of all orientations, it should be noted that if a room faces significantly north of due east or west it is unlikely to be met. As such, it is not always possible to achieve full compliance, particularly in developments that include single-aspect units. In the case of the proposed development, all single-aspect units are compliant, demonstrating reasonable design considerations. The only non-compliant units are the corner units of Block 1 (1C\_164 and 1C\_178) and Duplex 1C\_140, as indicated in Figure 5.3 below. These units have one façade facing north-west, which could potentially receive sunlight. However, in this case, even minor constraints, such as for example canopies, or balconies can contribute to the obstruction of sunlight access affecting compliance.

No recommendation is made regarding the performance of a development as a whole for SE performance within the BRE Guidelines. However, it is the opinion of 3DDB that the proposed development performs very favourably in this regard.

The results for the study on SE in the habitable rooms of the proposed units can be seen in section A.3 on page 50.

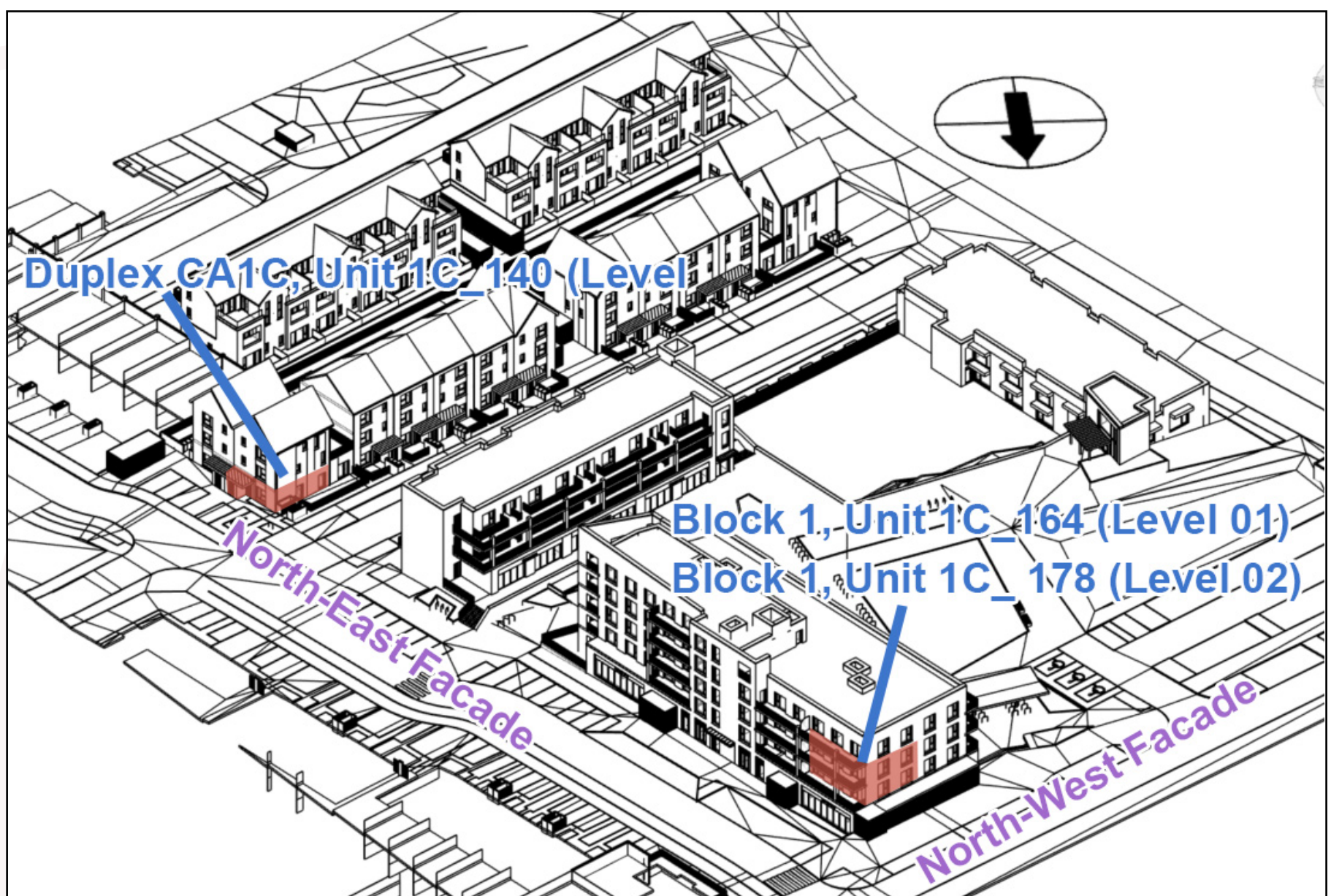


Figure 5.3: Units not compliant for SE study.



### 5.1.3 Sun On Ground in Proposed Outdoor Amenity Areas

This study has assessed the level of sunlight on March 21st within the proposed amenity areas.

In total 3 no. spaces have been assessed, all 3 no. of which would meet the criteria as set out in the BRE Guidelines.

The assessed spaces include: public open space, communal space and crèche play area as indicated in Figure 5.4 below.

All of these spaces benefit from their favourable orientation and unobstructed location, allowing them to receive adequate sunlight. On March 21st, more than approximately 84% of each area receives at least two hours of sunlight, comfortably surpassing the 50% target set by the guidelines

The results for the study on sunlighting in the proposed outdoor amenity spaces can be found in section A.4 on page 51.

A visual representation of these readings can be seen in the false colour plan in section A.4 and in the hourly shadow diagrams for March 21st in section B.1 on page 64 of the appendix section of this report.

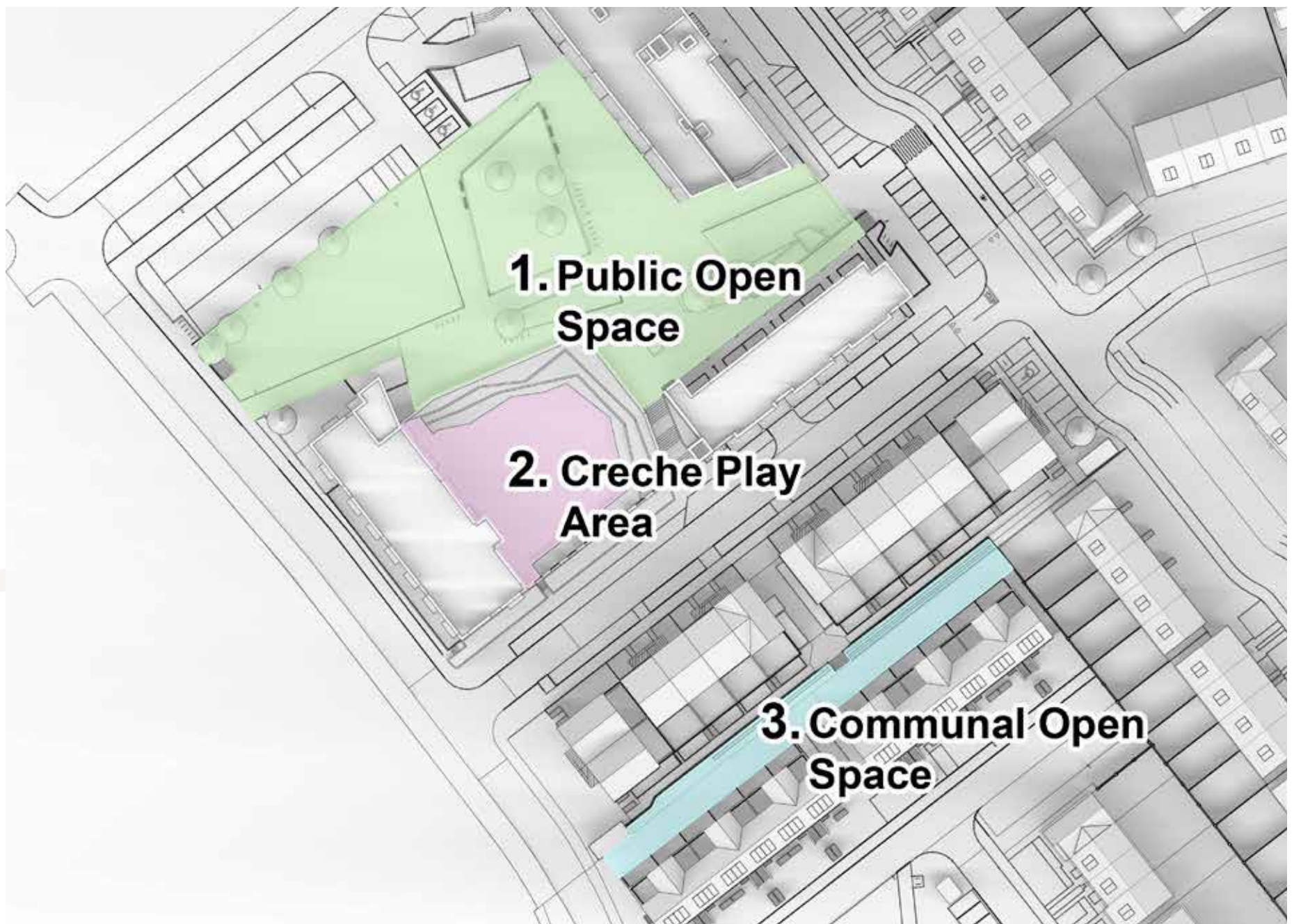


Figure 5.4: The areas assessed for Sun on ground study (SOG).



## 6.0 Conclusion

3D Design Bureau (3DDB) were commissioned to carry out a daylight assessment, sunlight assessment and shadow study for Mixed Use Large Scale Residential Development (LRD) in Arklow, Co. Wicklow.

The report focused on the scheme performance of the apartment buildings forming the 'Local Centre' and duplexes opposite as indicated in Figure 6.1 below.

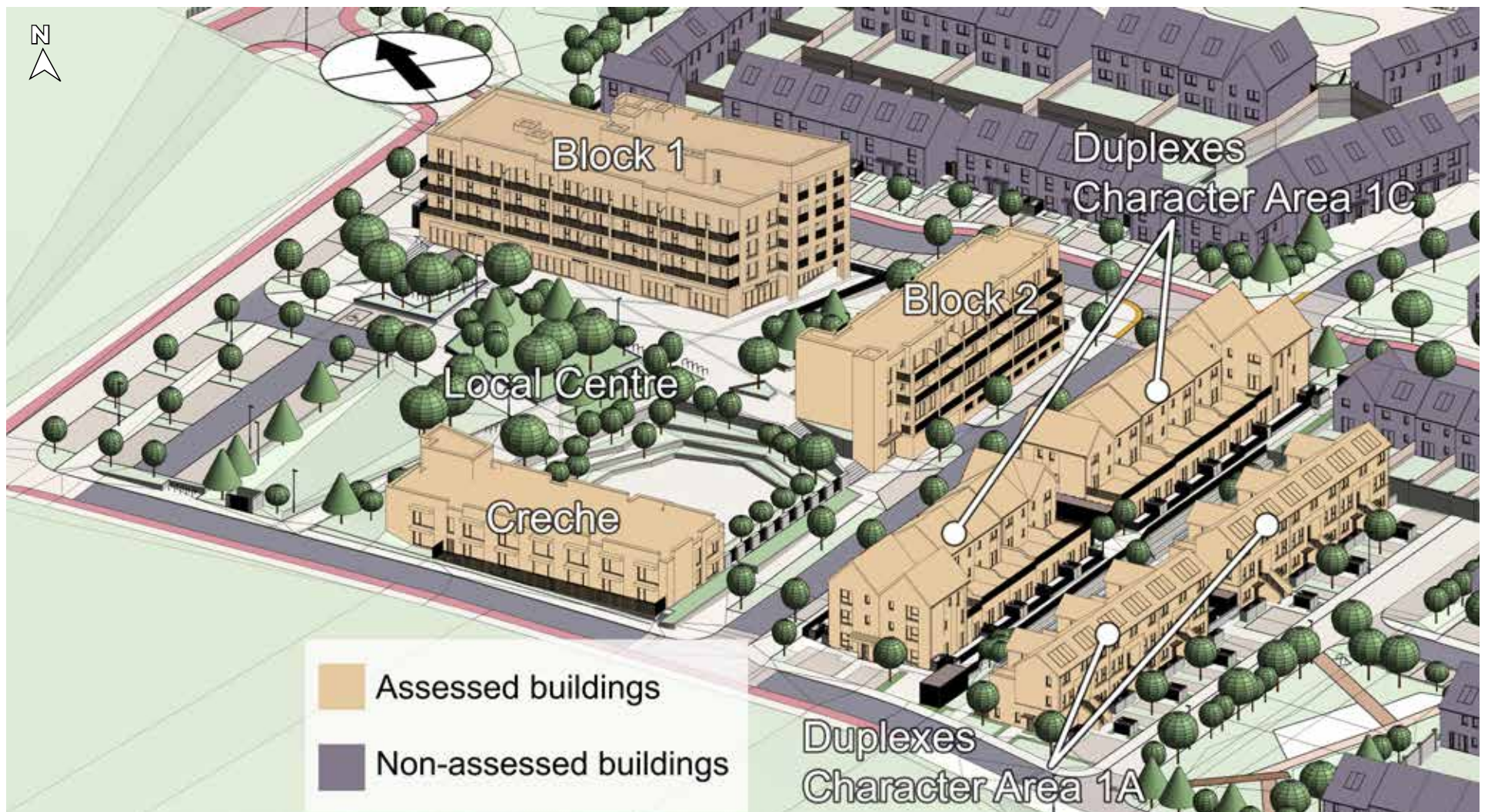


Figure 6.1: Scope of surrounding properties and environment assessed.

The results presented favourable compliance across all metrics. In the Spatial Daylight Autonomy (SDA) assessment, 9 no. room fall below the recommended minimum threshold when trees are not included, resulting in 97% compliance rate, with only one additional not compliant room when trees are included. For rooms remaining below the recommended SDA, the project architect has provided compensatory design solutions.

In terms of Sunlight Exposure (SE), the development achieves 97% compliance rate in both tree states - as opaque objects and when deciduous trees are excluded. In the opinion of 3DDB, this represents a very favourable outcome.

Finally, the SOG study confirms that all assessed external areas, as identified by the project architect, including the communal open space, public open space and crèche play area receive sunlight levels that meet or exceed compliance standards.

3DDB concludes that area of scheme assessed is performing very favourably from a daylight and sunlight perspective.

# Appendix - Results



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Assessment criteria and detailed analysis of results can be found in the accompanying report.



## A.0 Scheme Performance

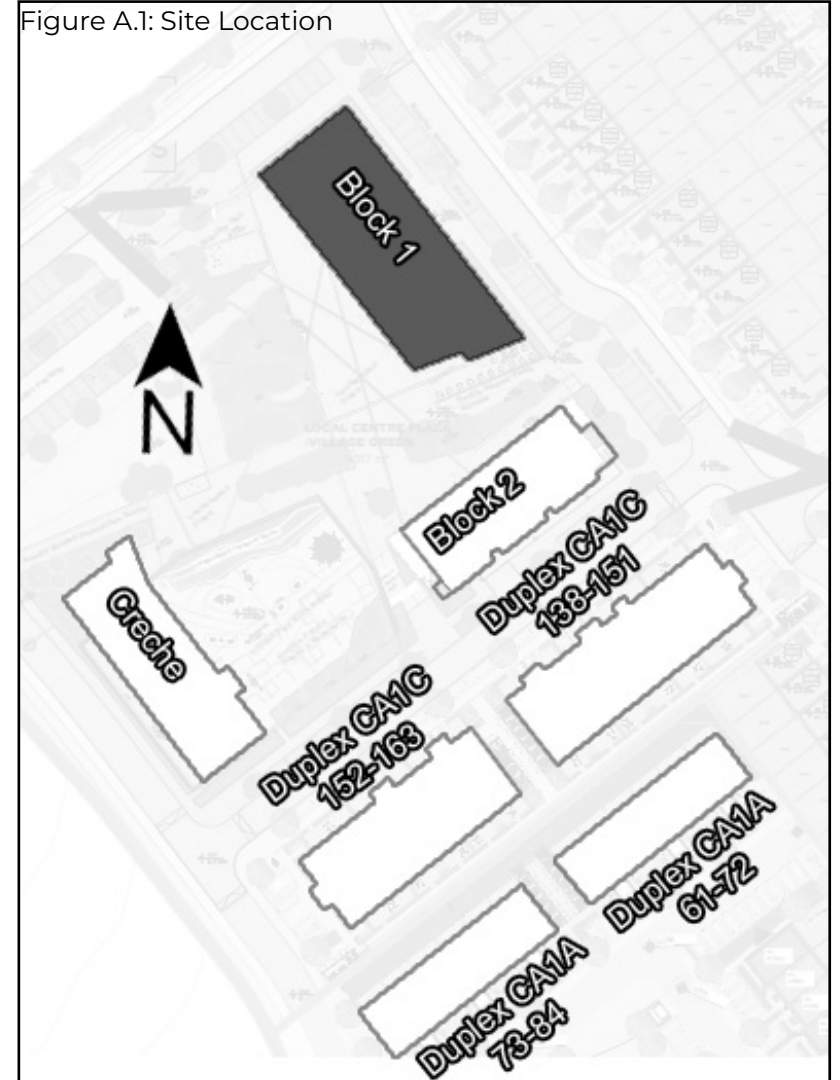
### A.1 Proposed Floor Plans

#### A.1.1 Proposed Floor Plans - Block 1: Level 01

Figure A.2: Level 01



Figure A.1: Site Location

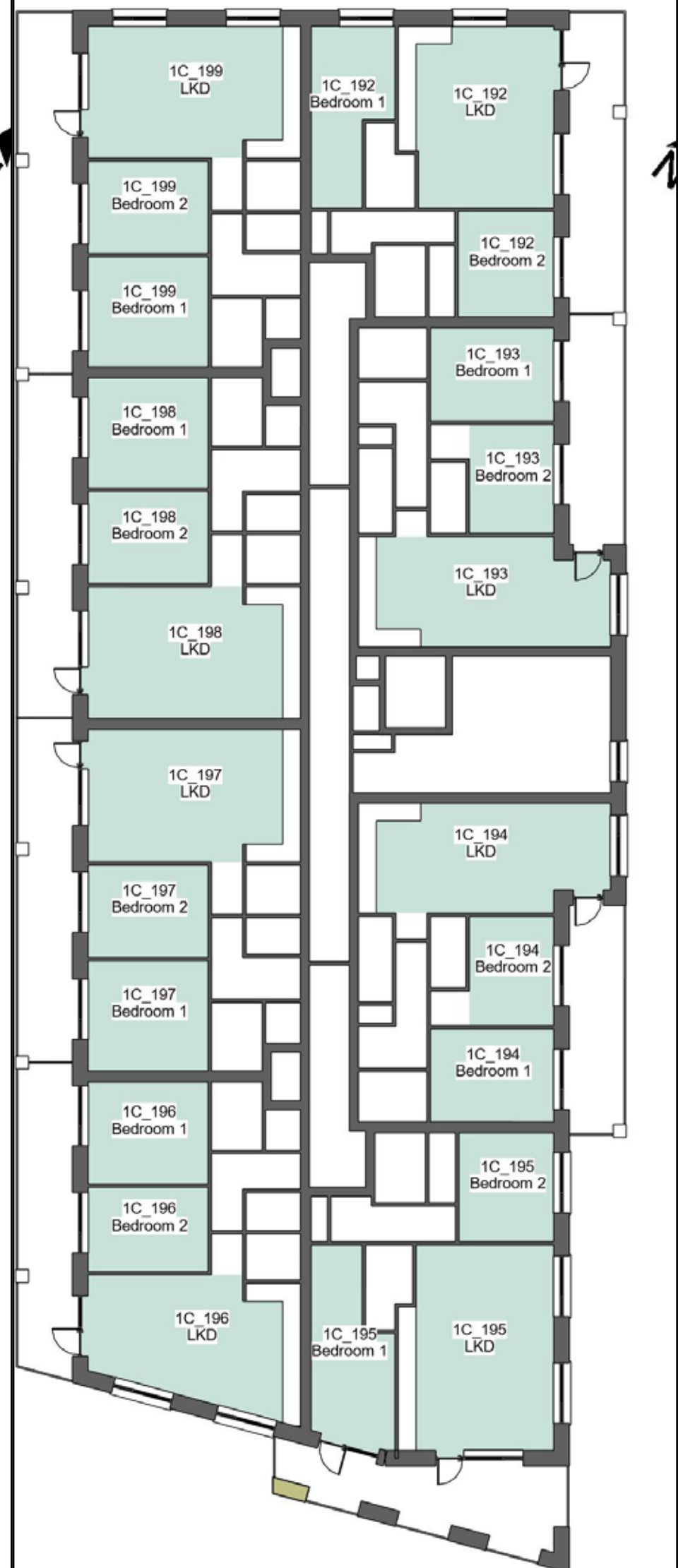


## A.1.2 Proposed Apartment Floor Plans - Block 1: Level 02 & 03

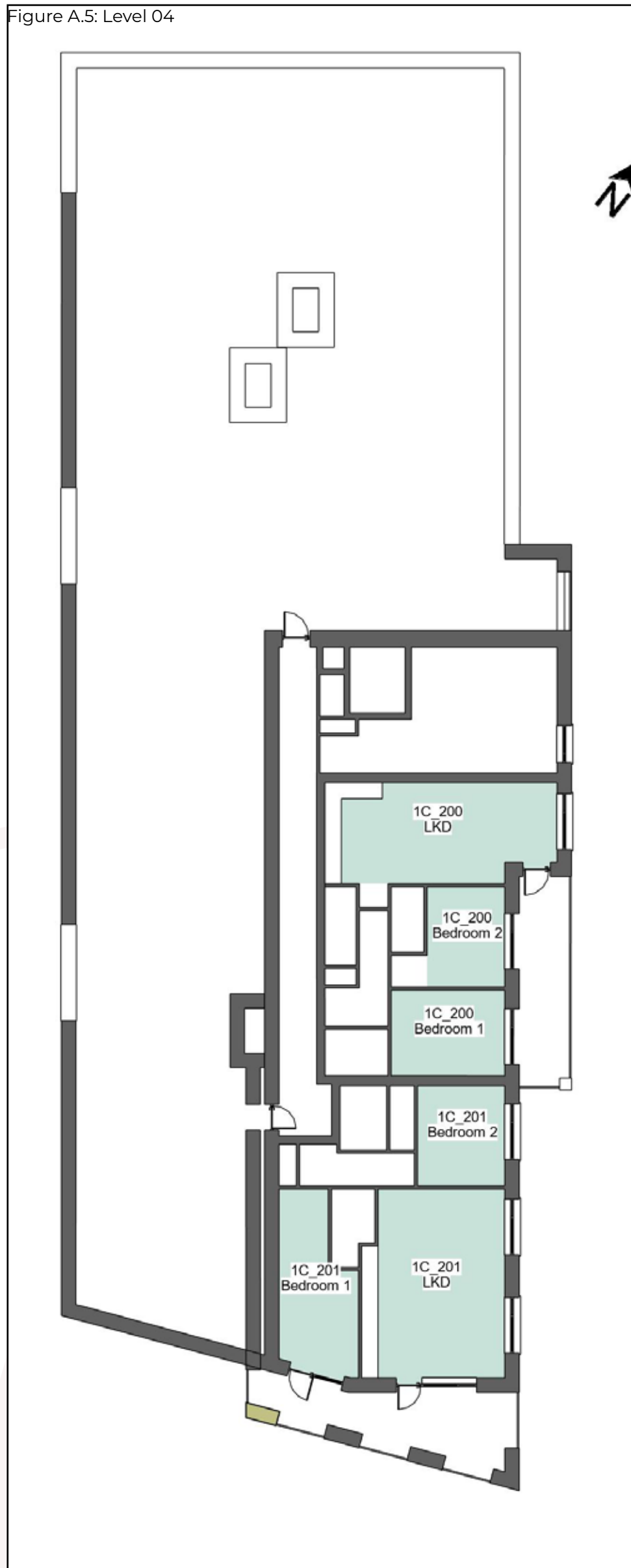
Figure A.3: Level 02



Figure A.4: Level 03



### A.1.3 Proposed Apartment Floor Plans - Block 1: Level 04





## A.1.4 Proposed Floor Plans - Block 2: Level 01 & 02

Figure A.6: Site Location

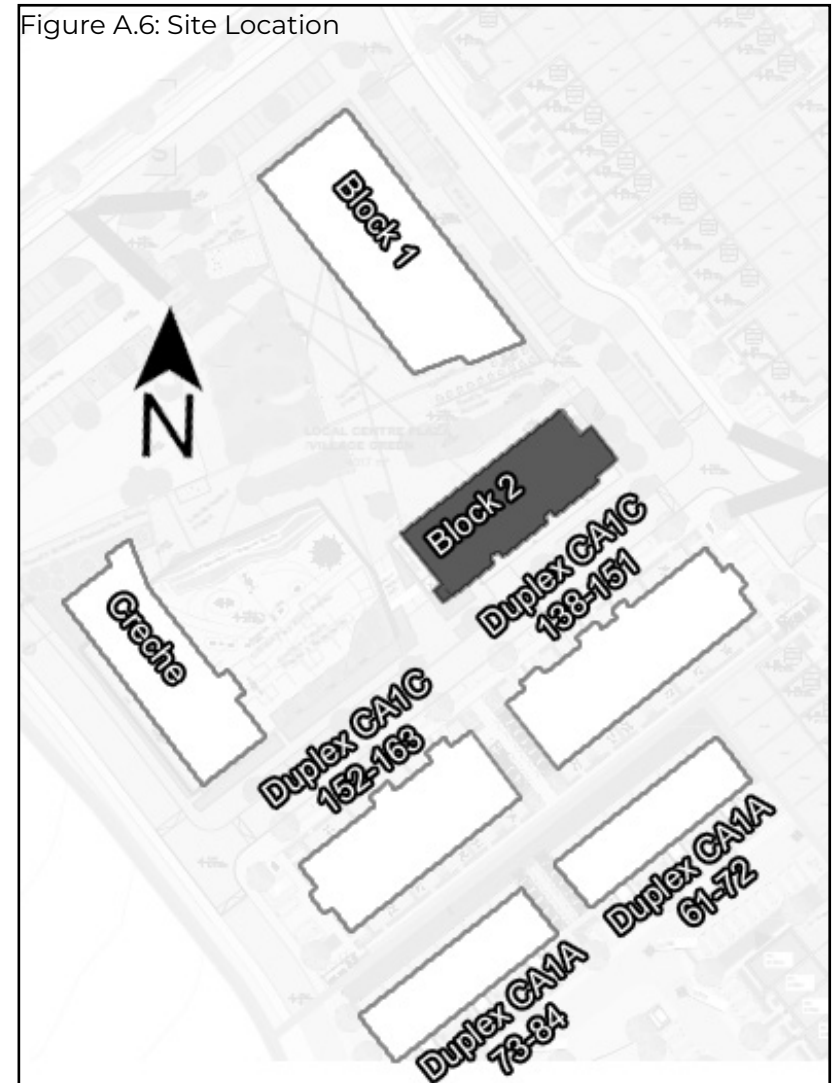


Figure A.7: Level 01

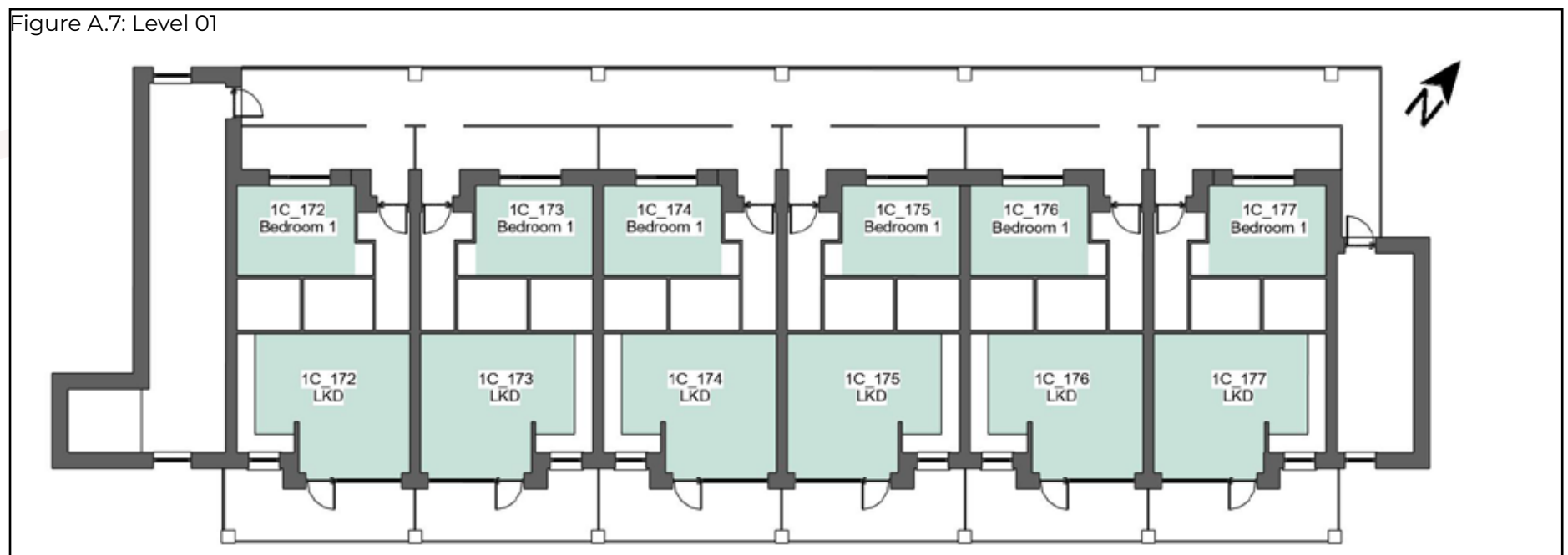
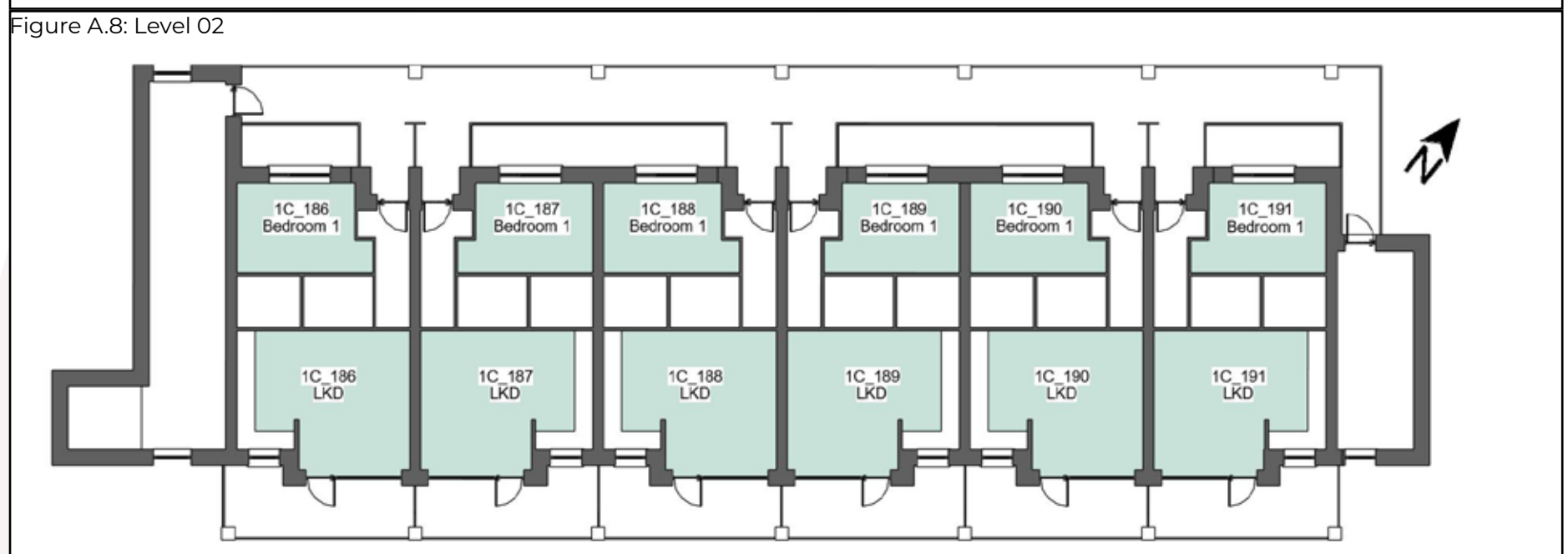


Figure A.8: Level 02



## A.1.5 Proposed Floor Plans - Duplex (North, Character Area 1C): Level 00

Figure A.10: Level 00

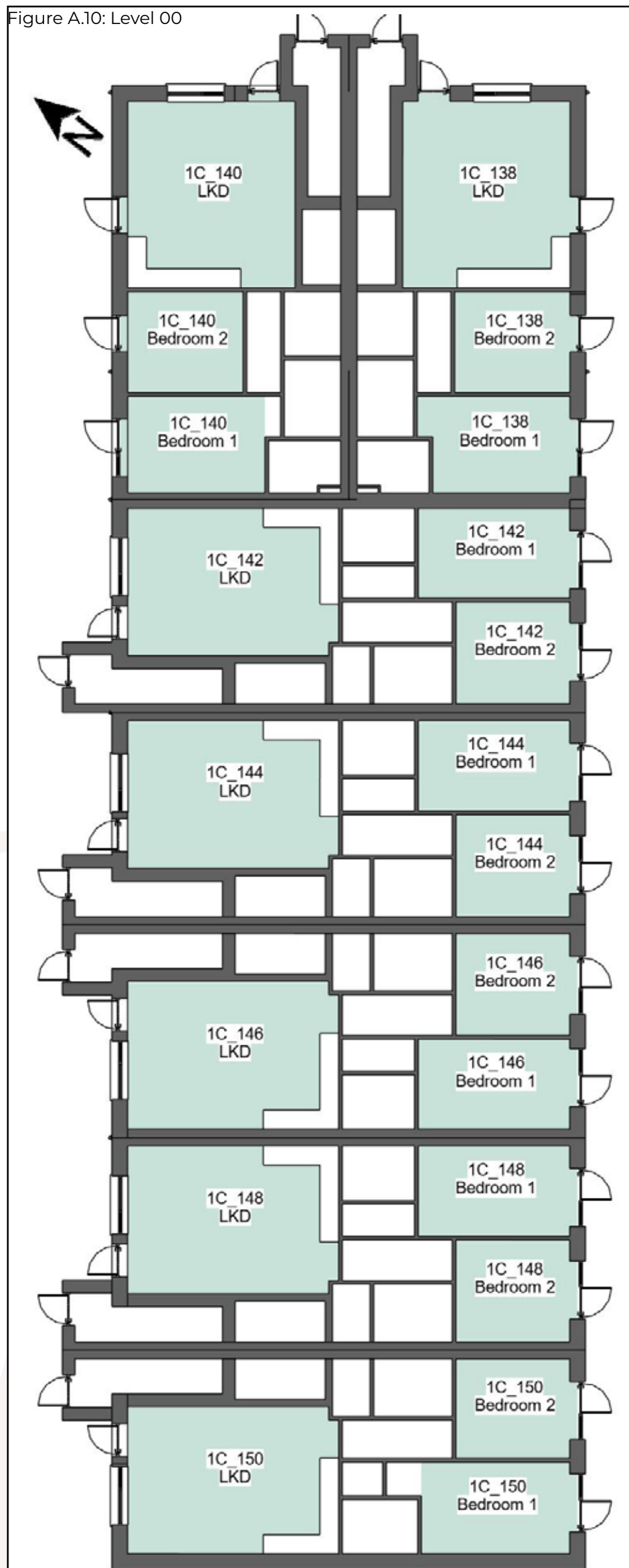
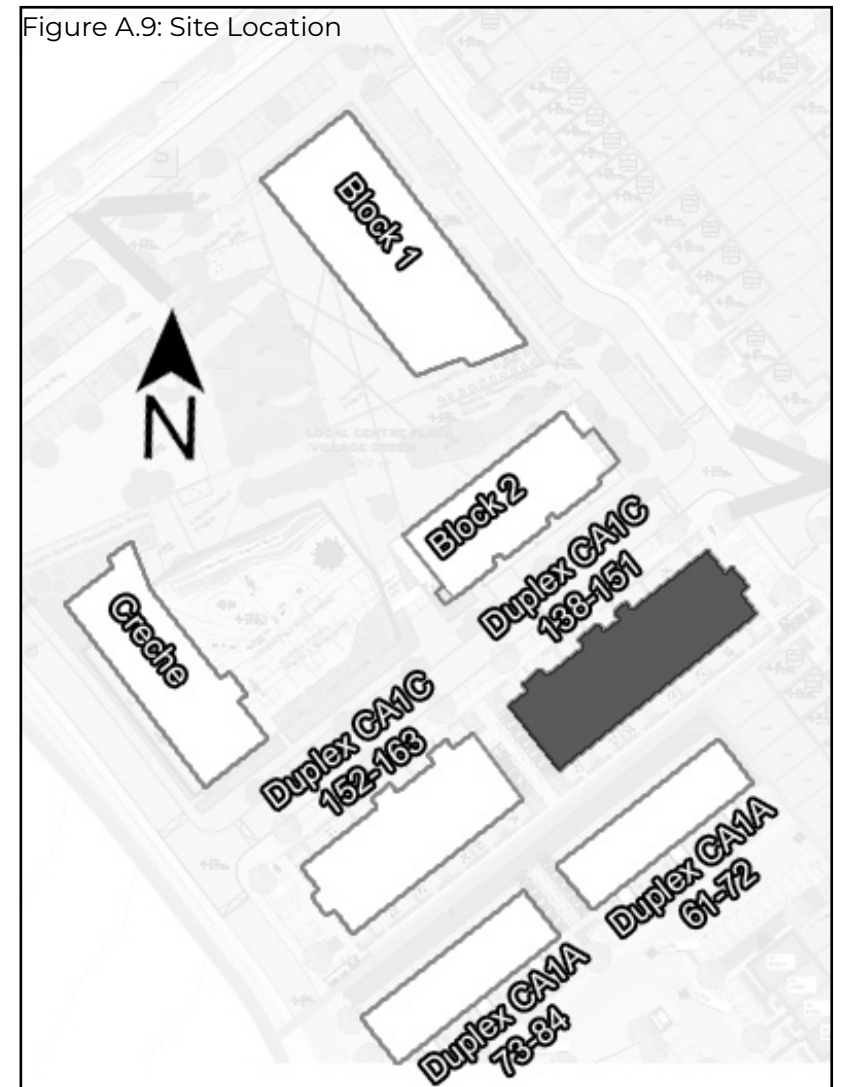


Figure A.9: Site Location



## A.1.6 Proposed Floor Plans - Duplex (North, Character Area 1C): Level 01 & 02

Figure A.11: Level 01

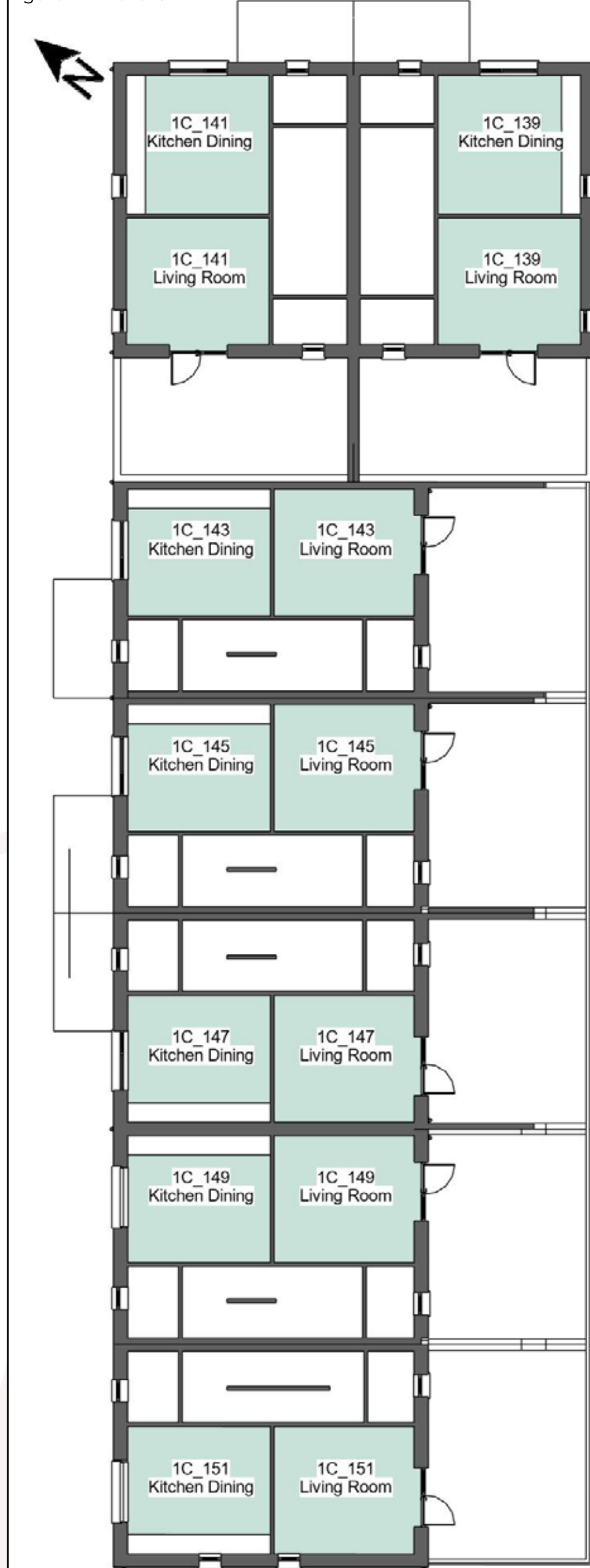


Figure A.12: Level 02





## A.1.7 Proposed Floor Plans - Duplex (South, Character Area 1C): Level 00

Figure A.14: Level 00

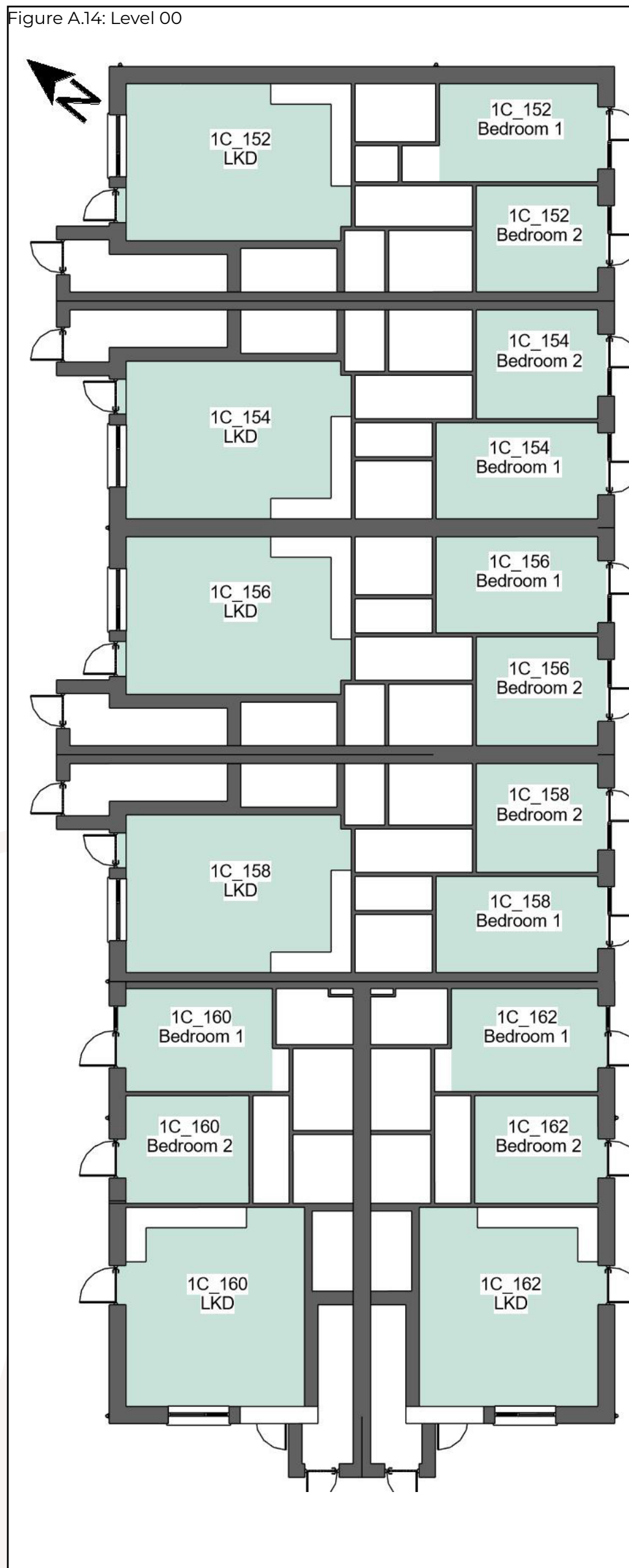
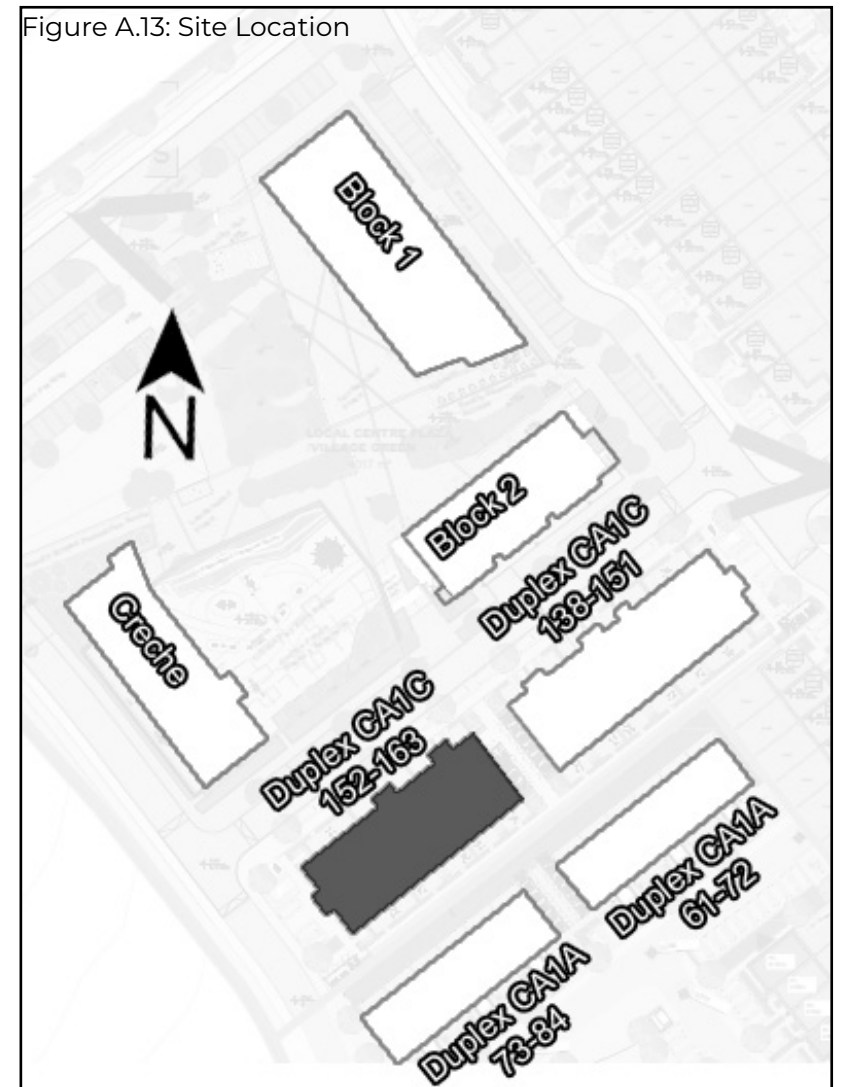


Figure A.13: Site Location



## A.1.8 Proposed Floor Plans - Duplex (South, Character Area 1C): Level 01 & 02

Figure A.15: Level 01

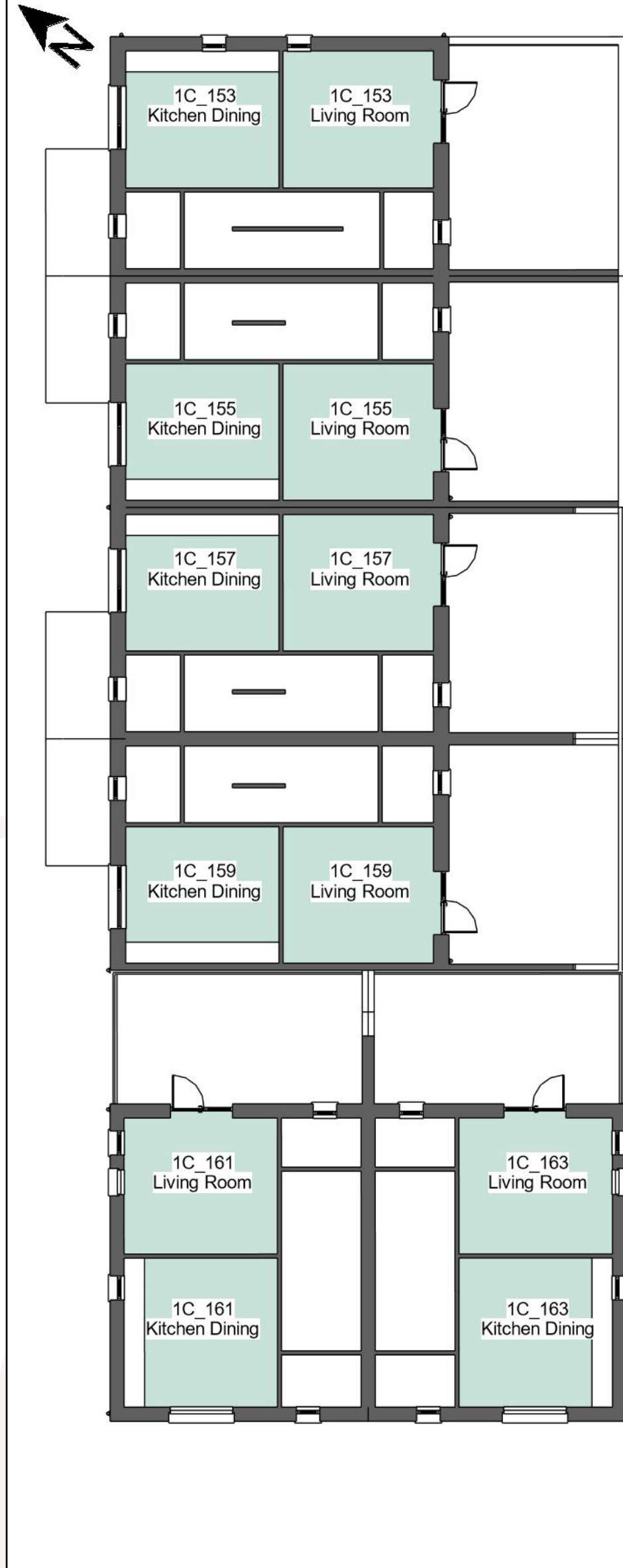
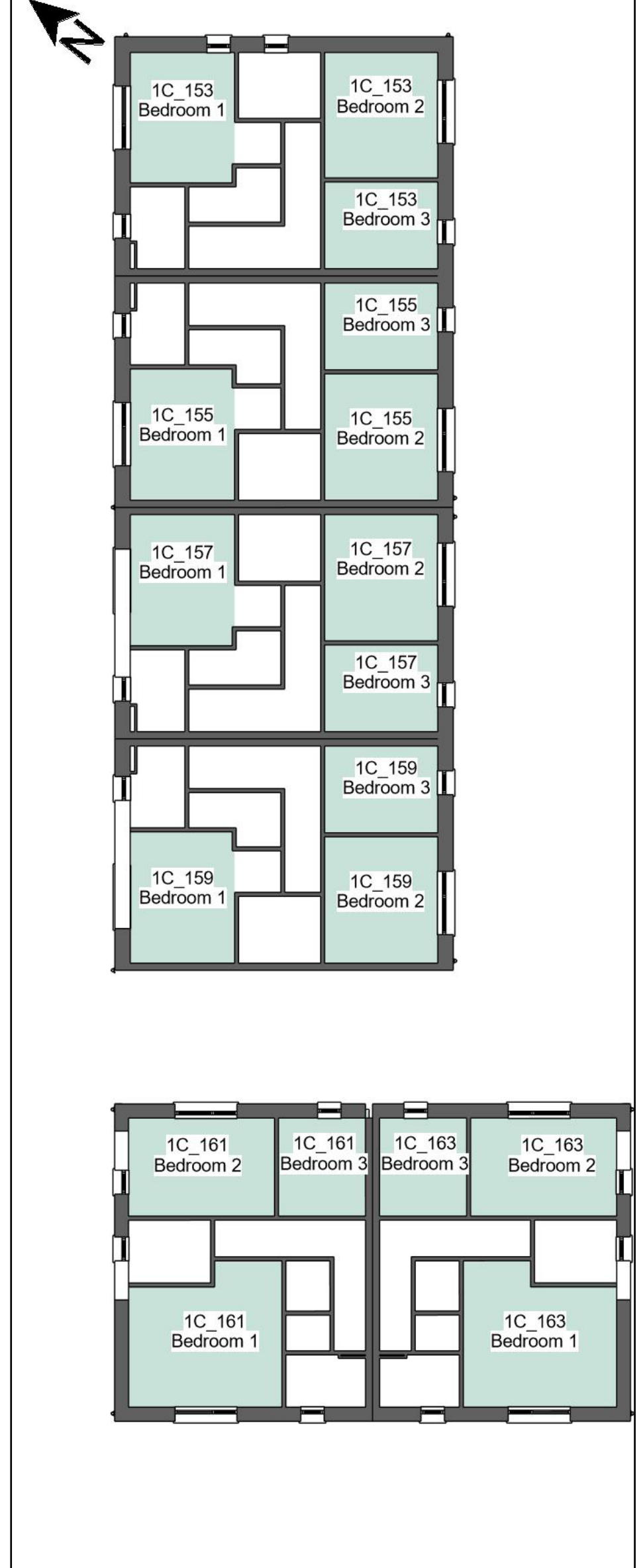


Figure A.16: Level 02





## A.1.9 Proposed Floor Plans - Duplex (North, Character Area 1A): Level 00

Figure A.18: Level 00

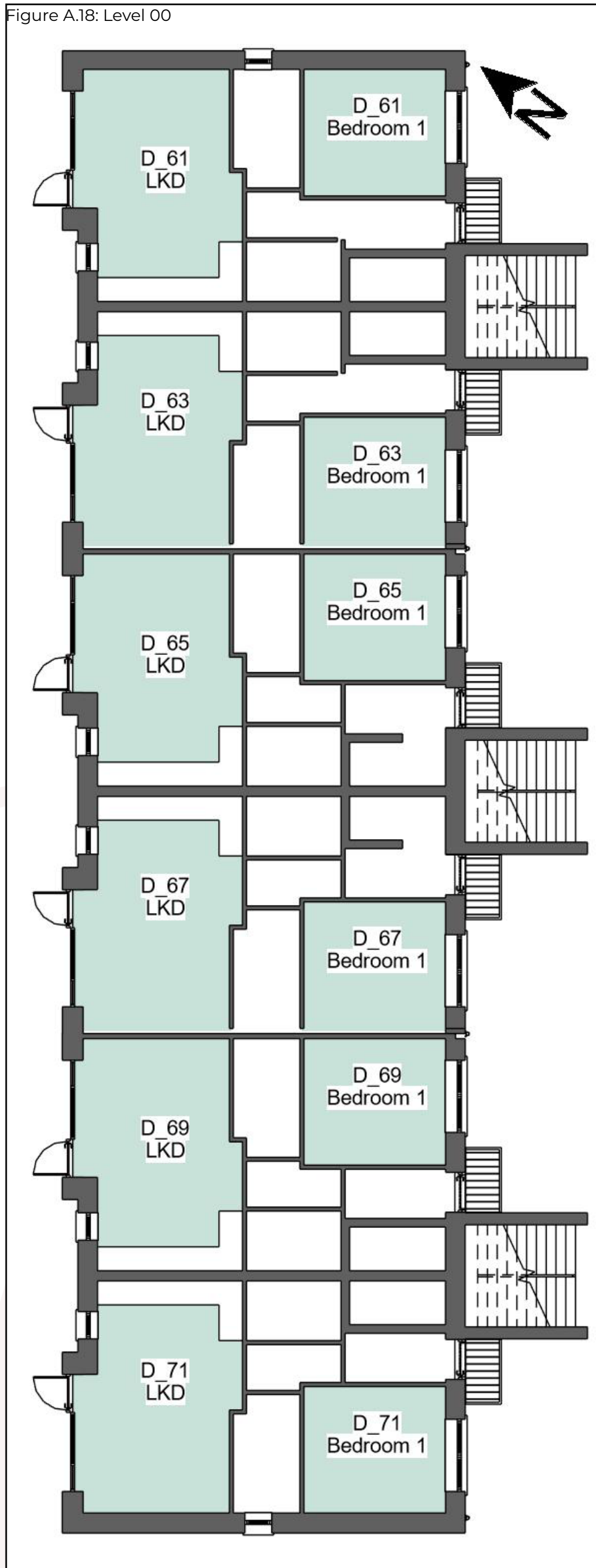
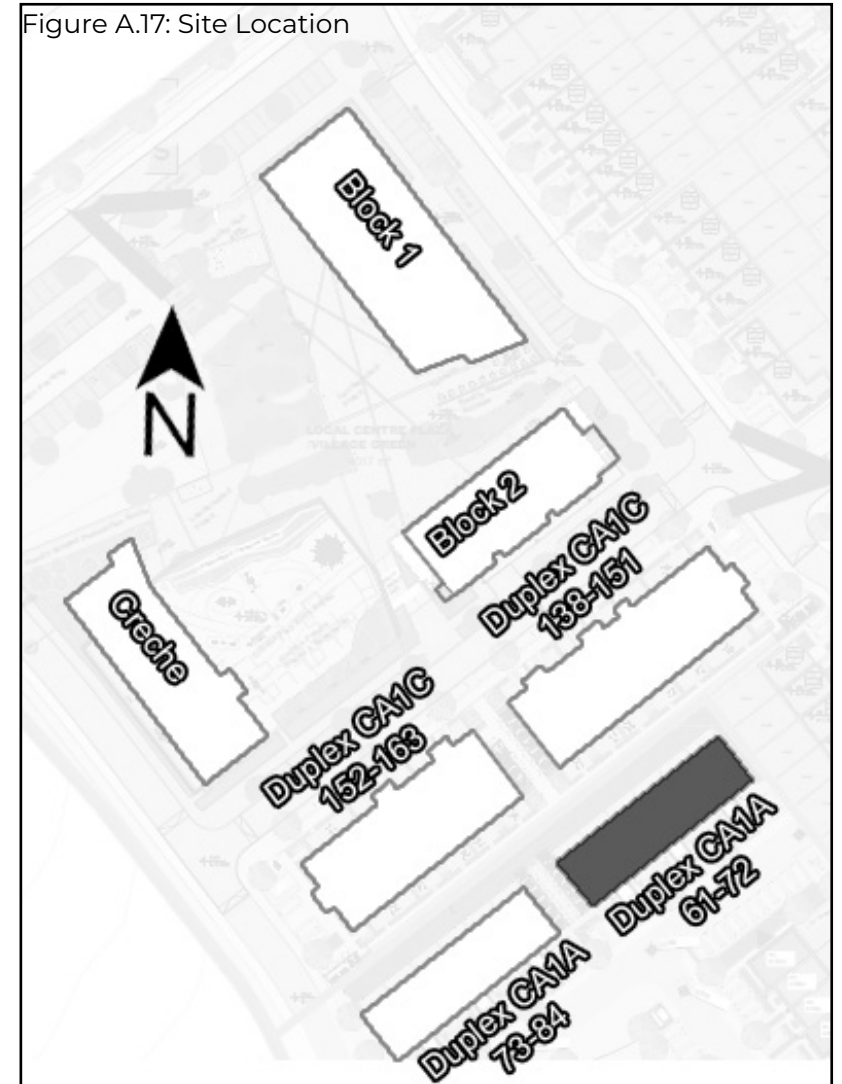


Figure A.17: Site Location



### A.1.10 Proposed Floor Plans - Duplex (North, Character Area 1A): Level 01 & 02

Figure A.19: Level 01

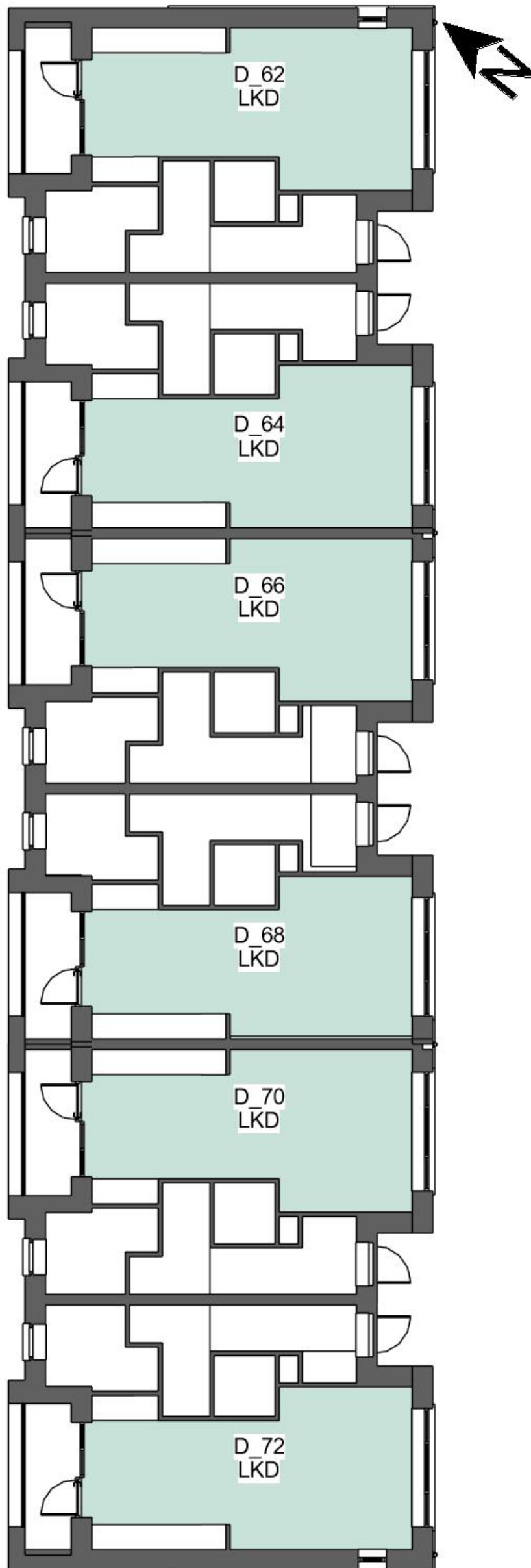
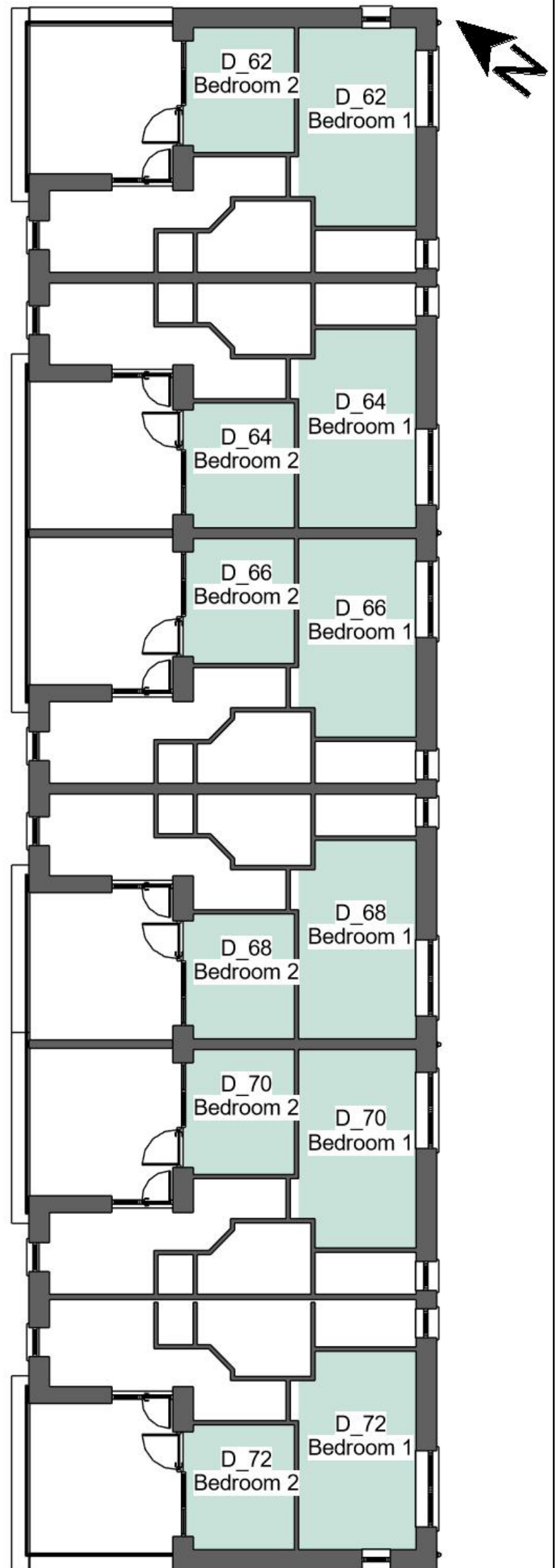


Figure A.20: Level 02



### A.1.11 Proposed Floor Plans - Duplex (South, Character Area 1A): Level 00

Figure A.22: Level 00

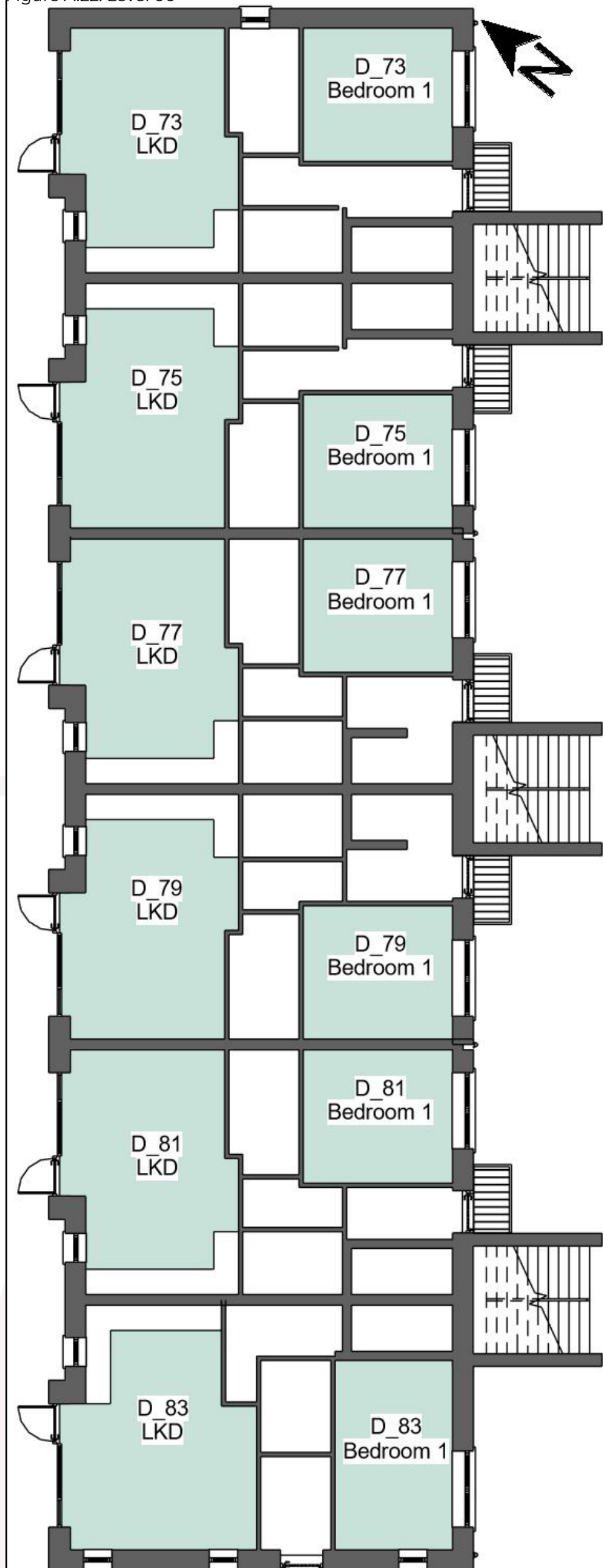
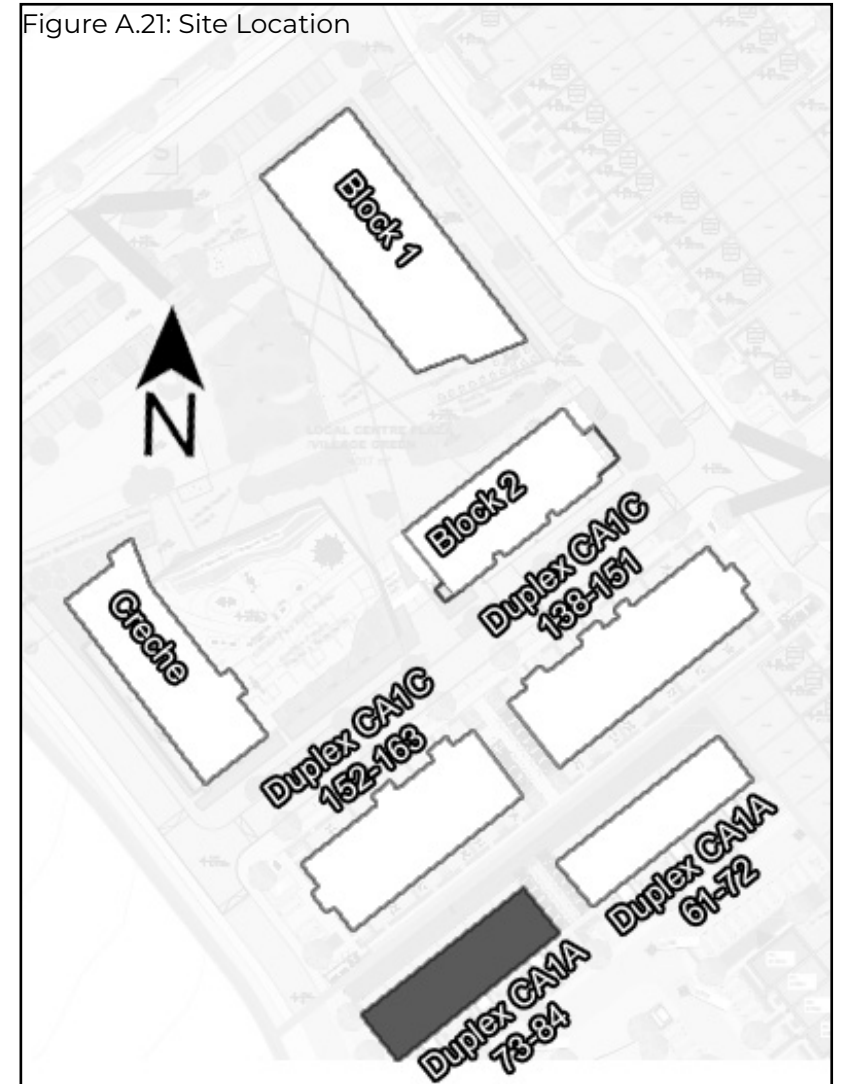


Figure A.21: Site Location





## A.1.12 Proposed Floor Plans - Duplex (South, Character Area 1A): Level 01 & 02

Figure A.23: Level 01

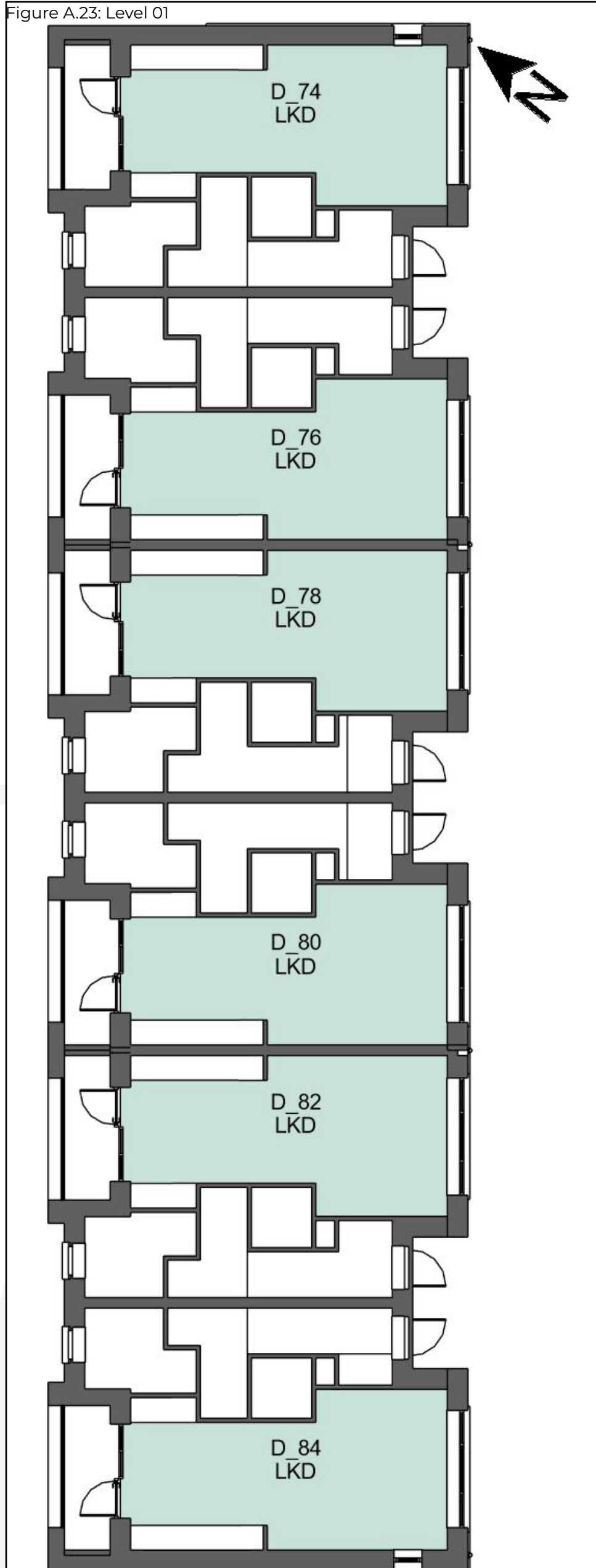
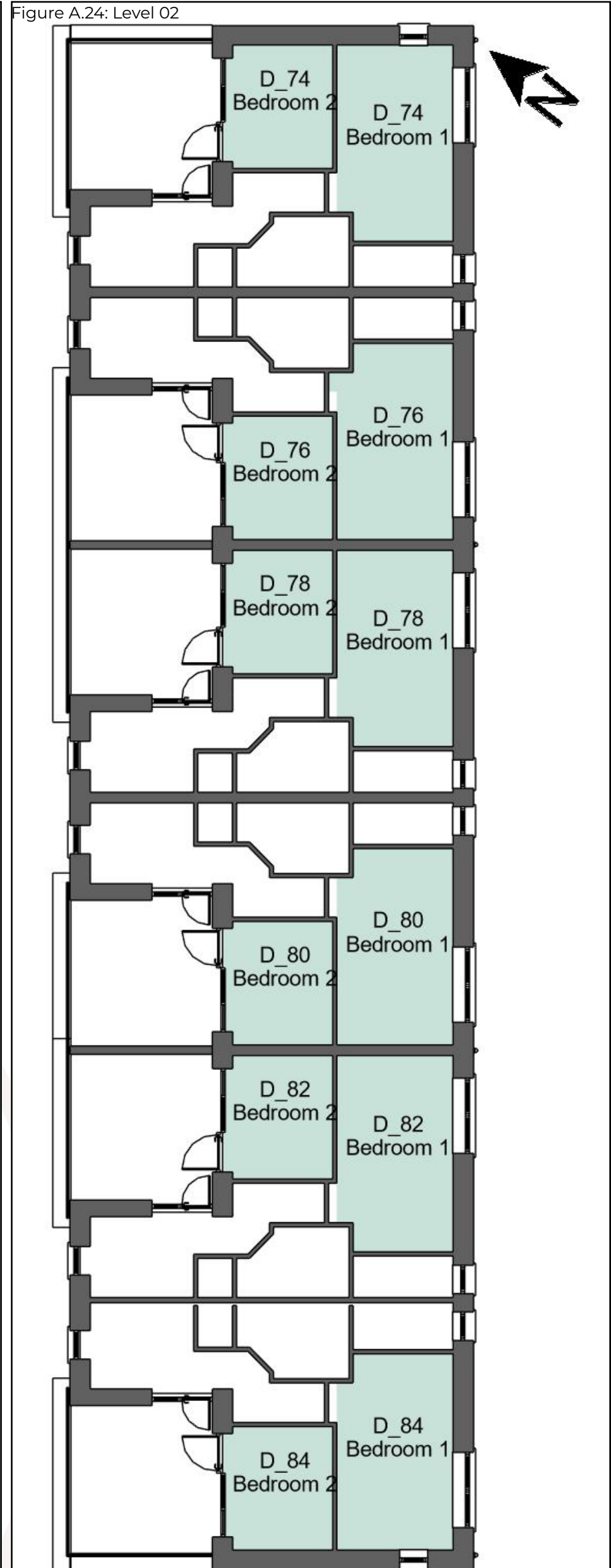


Figure A.24: Level 02

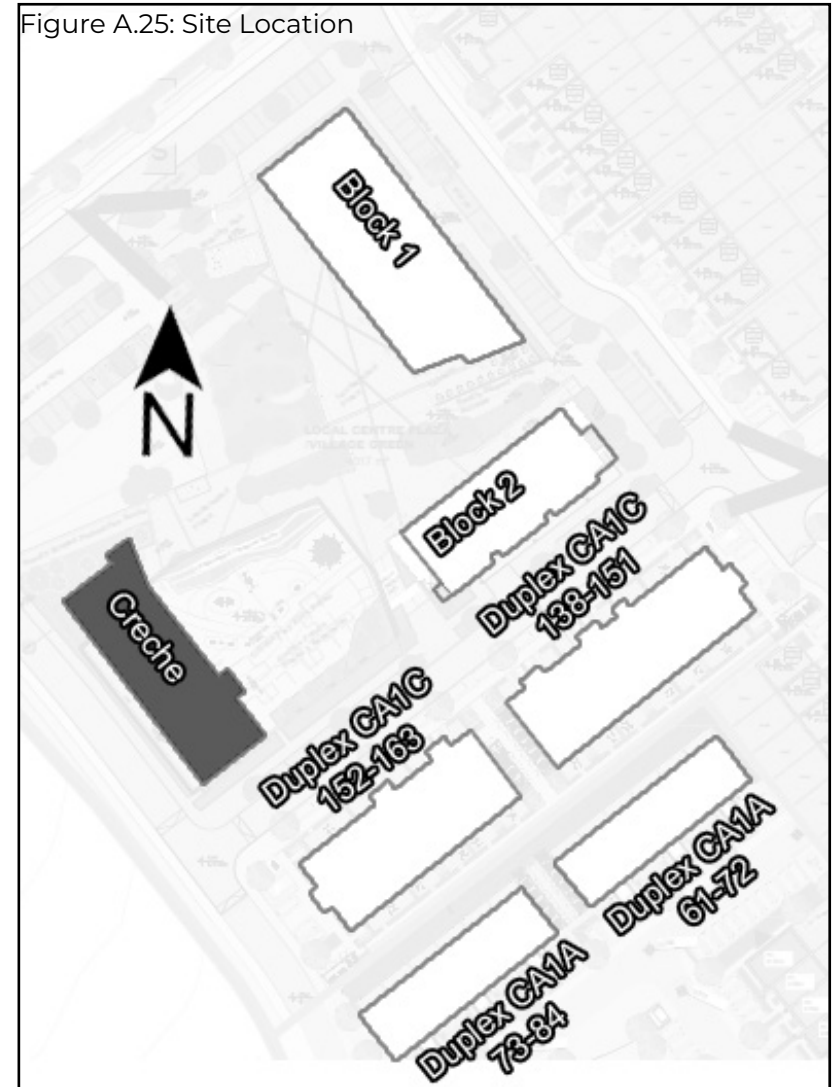


### A.1.13 Proposed Floor Plans - Crèche: Level 00

Figure A.26: Level 00



Figure A.25: Site Location



### A.1.14 Proposed Floor Plans - Crèche: Level 00 (Lower)





## A.2 Spatial Daylight Autonomy (SDA) in Proposed Units

Below is an example of the table used to describe the spatial daylight autonomy results in proposed units.

| Table Example. A.2 - Scheme Performance SDA |                  |             |   |            |                                 |
|---|------------------|-------------|---|------------|---------------------------------|
| Unit Number                                 | Room Description | Target Lux* | % of area above target Lux* (recommendation >50%) |            | Compliance with BR 209 Criteria |
|   |                  |             | Without Trees                                     | With Trees |                                 |
| A   | B                | C           | D   | E          | F                               |

### A: Unit Number

This column identifies the assessed unit. All unit numbers are determined by the architect's drawings, unless otherwise stated.

### B: Room Description

*Room Description* details which room in the unit has been assessed, e.g. bedroom, LKD, etc.

### C: Target Lux

Under BR 209 the appropriate target lux levels to be achieved across 50% of the working plane of a room differ depending on the room type. Kitchens have a target lux of 200, living rooms have a target lux of 150 and bedrooms have a target lux of 100. In a room providing more than one function, such as an LKD, the higher target value should be taken i.e. 200 Lux.

### D: % of area above target Lux (Without Trees)

BR 209 recommends target lux levels to be achieved across at least 50% of the working plane for at least half the daylight hours. The target values differ depending on the room function, 200 lux for Kitchens, 150 lux for Living Rooms or 100 lux for Bedrooms.

This column states percentage of the working plane of the assessed room that is capable of receiving more than the appropriate target lux for at least half the daylight hours with trees excluded from the analytical model. The figures shown in this column should be considered part of a supplementary study that helps identify if trees are having an effect on daylight within the proposed units.

### E: % of area above target Lux (With Trees)

BR 209 recommends target lux levels to be achieved across at least 50% of the working plane for at least half the daylight hours. The target values differ depending on the room function, 200 lux for Kitchens, 150 lux for Living Rooms or 100 lux for Bedrooms.

This column states percentage of the working plane of the assessed room that is capable of receiving more than the appropriate target lux for at least half the daylight hours with the foliage of deciduous trees varied to account for summer and winter conditions, i.e. full leaf and bare branch.

### F: Compliance with BR 209 Criteria

This column states if the assessed room achieves the recommended level of daylight as per BR 209 with consideration to the various tree states.

If the target lux level is achieved across more than 50% of the working plane, for half the daylight hours, both with and without trees, this column will state: *'Compliant'*.

If the target lux level is not achieved across more than 50% of the working plane, for half the daylight hours, both with and without trees, this column will state: *'Non-compliant'*.

If the target lux level is achieved across more than 50% of the working plane, for half the daylight hours, without trees but is not achieved with trees, this column will state: *'Trees affecting compliance'*.

Compliance rates will be stated for SDA, both with and without trees.

It should be noted that the figures displayed in the table of results have been rounded off. A manual calculation of these figures may yield a negligible difference and should not be considered an error.

## A.2.1 SDA Results: Block 1 - Level 01

| Table No. A.2.1 - SDA Results: |                  |             |   |              |                                  |
|--------------------------------|------------------|-------------|---|--------------|----------------------------------|
| Unit Number                    | Room Description | Target Lux* | % of area above target Lux* (recommendation >50%) |              | Compliance with BR 209 Criteria* |
|                                |                  |             | Without Trees***                                  | With Trees** |                                  |
| 1C_164                         | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_164                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_164                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_165                         | LKD              | 200         | 51%   | 46%          | Trees affecting compliance       |
| 1C_165                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_165                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_166                         | LKD              | 200         | 51%   | 50%          | Compliant                        |
| 1C_166                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_166                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_167                         | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_167                         | Bedroom 1        | 100         | 72%   | 72%          | Compliant                        |
| 1C_167                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_168                         | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_168                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_168                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_169                         | LKD              | 200         | 95%   | 79%          | Compliant                        |
| 1C_169                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_169                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_170                         | LKD              | 200         | 96%   | 74%          | Compliant                        |
| 1C_170                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_170                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_171                         | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_171                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_171                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.

\*\* Under the BR 209 study the SDA has been calculated with indicative trees represented accounting for annual foliage.

\*\*\* The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.

The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 17.

For floor plans of the assessed units please refer to section A.1 on page 24.

## A.2.2 SDA Results: Block 1 - Level 02

| Table No. A.2.2 - SDA Results: |                  |             |  |              |                                  |
|--------------------------------|------------------|-------------|--|--------------|----------------------------------|
| Unit Number                    | Room Description | Target Lux* | % of area above target Lux*<br>(recommendation >50%) |              | Compliance with BR 209 Criteria* |
|                                |                  |             | Without Trees***                                     | With Trees** |                                  |
| 1C_178                         | LKD              | 200         | 100%   | 100%         | Compliant                        |
| 1C_178                         | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| 1C_178                         | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| 1C_179                         | LKD              | 200         | 58%  | 55%          | Compliant                        |
| 1C_179                         | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| 1C_179                         | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| 1C_180                         | LKD              | 200         | 59%  | 58%          | Compliant                        |
| 1C_180                         | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| 1C_180                         | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| 1C_181                         | LKD              | 200         | 100%   | 100%         | Compliant                        |
| 1C_181                         | Bedroom 1        | 100         | 80%  | 78%          | Compliant                        |
| 1C_181                         | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| 1C_182                         | LKD              | 200         | 100%   | 100%         | Compliant                        |
| 1C_182                         | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| 1C_182                         | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| 1C_183                         | LKD              | 200         | 96%  | 93%          | Compliant                        |
| 1C_183                         | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| 1C_183                         | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| 1C_184                         | LKD              | 200         | 97%  | 94%          | Compliant                        |
| 1C_184                         | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| 1C_184                         | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| 1C_185                         | LKD              | 200         | 100%   | 100%         | Compliant                        |
| 1C_185                         | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| 1C_185                         | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
 \*\* Under the BR 209 study the SDA has been calculated with indicative trees represented accounting for annual foliage.  
 \*\*\* The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.  
 The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 17.  
 For floor plans of the assessed units please refer to section A.1 on page 24.



### A.2.3 SDA Results: Block 1 - Level 03

| Table No. A.2.3 - SDA Results: |                  |             |   |              |                                  |
|--------------------------------|------------------|-------------|---|--------------|----------------------------------|
| Unit Number                    | Room Description | Target Lux* | % of area above target Lux* (recommendation >50%) |              | Compliance with BR 209 Criteria* |
|                                |                  |             | Without Trees***                                  | With Trees** |                                  |
| 1C_192                         | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_192                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_192                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_193                         | LKD              | 200         | 64%   | 63%          | Compliant                        |
| 1C_193                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_193                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_194                         | LKD              | 200         | 65%   | 64%          | Compliant                        |
| 1C_194                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_194                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_195                         | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_195                         | Bedroom 1        | 100         | 91%   | 89%          | Compliant                        |
| 1C_195                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_196                         | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_196                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_196                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_197                         | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_197                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_197                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_198                         | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_198                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_198                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_199                         | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_199                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_199                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
 \*\* Under the BR 209 study the SDA has been calculated with indicative trees represented accounting for annual foliage.  
 \*\*\* The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.  
 The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 17.  
 For floor plans of the assessed units please refer to section A.1 on page 24.

### A.2.4 SDA Results: Block 1 - Level 04

| Table No. A.2.4 - SDA Results: |                  |             |   |              |                                  |
|--------------------------------|------------------|-------------|---|--------------|----------------------------------|
| Unit Number                    | Room Description | Target Lux* | % of area above target Lux* (recommendation >50%) |              | Compliance with BR 209 Criteria* |
|                                |                  |             | Without Trees***                                  | With Trees** |                                  |
| 1C_200                         | LKD              | 200         | 72%   | 72%          | Compliant                        |
| 1C_200                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_200                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_201                         | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_201                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_201                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
 \*\* Under the BR 209 study the SDA has been calculated with indicative trees represented accounting for annual foliage.  
 \*\*\* The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.  
 The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 17.  
 For floor plans of the assessed units please refer to section A.1 on page 24.

## A.2.5 SDA Results: Block 2 - Level 01

| Table No. A.2.5 - SDA Results:  |                  |             |   |              |                                  |
|---|------------------|-------------|---|--------------|----------------------------------|
| Unit Number   | Room Description | Target Lux* | % of area above target Lux* (recommendation >50%) |              | Compliance with BR 209 Criteria* |
|   |                  |             | Without Trees***                                  | With Trees** |                                  |
| 1C_172  | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_172  | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_173  | LKD              | 200         | 98%   | 98%          | Compliant                        |
| 1C_173  | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_174  | LKD              | 200         | 99%   | 98%          | Compliant                        |
| 1C_174  | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_175  | LKD              | 200         | 98%   | 98%          | Compliant                        |
| 1C_175  | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_176  | LKD              | 200         | 99%   | 99%          | Compliant                        |
| 1C_176  | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_177  | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_177  | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| <p>* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.</p> <p>** Under the BR 209 study the SDA has been calculated with indicative trees represented accounting for annual foliage.</p> <p>*** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.</p> <p>The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 17.</p> <p>For floor plans of the assessed units please refer to section A.1 on page 24.</p> |                  |             |   |              |                                  |

## A.2.6 SDA Results: Block 2 - Level 02

| Table No. A.2.6 - SDA Results:  |                  |             |   |              |                                  |
|---|------------------|-------------|---|--------------|----------------------------------|
| Unit Number   | Room Description | Target Lux* | % of area above target Lux* (recommendation >50%) |              | Compliance with BR 209 Criteria* |
|   |                  |             | Without Trees***                                  | With Trees** |                                  |
| 1C_186  | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_186  | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_187  | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_187  | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_188  | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_188  | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_189  | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_189  | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_190  | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_190  | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_191  | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_191  | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| <p>* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.</p> <p>** Under the BR 209 study the SDA has been calculated with indicative trees represented accounting for annual foliage.</p> <p>*** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.</p> <p>The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 17.</p> <p>For floor plans of the assessed units please refer to section A.1 on page 24.</p> |                  |             |   |              |                                  |

## A.2.7 SDA Results: Duplex (Character Area 1C) Units - 138-147

| Table No. A.2.7 - SDA Results: |                  |             |   |              |                                  |
|--------------------------------|------------------|-------------|---|--------------|----------------------------------|
| Unit Number                    | Room Description | Target Lux* | % of area above target Lux* (recommendation >50%) |              | Compliance with BR 209 Criteria* |
|                                |                  |             | Without Trees***                                  | With Trees** |                                  |
| 1C_138                         | LKD              | 200         | 100%  | 89%          | Compliant                        |
| 1C_138                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_138                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_139                         | Living Room      | 150         | 100%  | 100%         | Compliant                        |
| 1C_139                         | Kitchen Dining   | 200         | 100%  | 100%         | Compliant                        |
| 1C_139                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_139                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_139                         | Bedroom 3        | 100         | 95%   | 95%          | Compliant                        |
| 1C_140                         | LKD              | 200         | 99%   | 86%          | Compliant                        |
| 1C_140                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_140                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_141                         | Living Room      | 150         | 99%   | 98%          | Compliant                        |
| 1C_141                         | Kitchen Dining   | 200         | 100%  | 100%         | Compliant                        |
| 1C_141                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_141                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_141                         | Bedroom 3        | 100         | 69%   | 69%          | Compliant                        |
| 1C_142                         | LKD              | 200         | 15%   | 14%          | Non-compliant                    |
| 1C_142                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_142                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_143                         | Living Room      | 150         | 100%  | 100%         | Compliant                        |
| 1C_143                         | Kitchen Dining   | 200         | 62%   | 56%          | Compliant                        |
| 1C_143                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_143                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_143                         | Bedroom 3        | 100         | 100%  | 100%         | Compliant                        |
| 1C_144                         | LKD              | 200         | 12%   | 12%          | Non-compliant                    |
| 1C_144                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_144                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_145                         | Living Room      | 150         | 100%  | 100%         | Compliant                        |
| 1C_145                         | Kitchen Dining   | 200         | 55%   | 52%          | Compliant                        |
| 1C_145                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_145                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_145                         | Bedroom 3        | 100         | 100%  | 100%         | Compliant                        |
| 1C_146                         | LKD              | 200         | 18%   | 15%          | Non-compliant                    |
| 1C_146                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_146                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_147                         | Living Room      | 150         | 100%  | 100%         | Compliant                        |
| 1C_147                         | Kitchen Dining   | 200         | 59%   | 55%          | Compliant                        |
| 1C_147                         | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_147                         | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_147                         | Bedroom 3        | 100         | 100%  | 100%         | Compliant                        |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.

\*\* Under the BR 209 study the SDA has been calculated with indicative trees represented accounting for annual foliage.

\*\*\* The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.

The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 17.

For floor plans of the assessed units please refer to section A.1 on page 24.



## A.2.8 SDA Results: Duplex (Character Area 1C) Units - 148-151

| Table No. A.2.8 - SDA Results:  |                  |             |  |              |                                  |
|---|------------------|-------------|--|--------------|----------------------------------|
| Unit Number   | Room Description | Target Lux* | % of area above target Lux*<br>(recommendation >50%) |              | Compliance with BR 209 Criteria* |
|   |                  |             | Without Trees***                                     | With Trees** |                                  |
| 1C_148  | LKD              | 200         | 14%  | 12%          | Non-compliant                    |
| 1C_148  | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| 1C_148  | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| 1C_149  | Living Room      | 150         | 100%   | 100%         | Compliant                        |
| 1C_149  | Kitchen Dining   | 200         | 59%  | 55%          | Compliant                        |
| 1C_149  | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| 1C_149  | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| 1C_149  | Bedroom 3        | 100         | 100%   | 100%         | Compliant                        |
| 1C_150  | LKD              | 200         | 28%  | 18%          | Non-compliant                    |
| 1C_150  | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| 1C_150  | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| 1C_151  | Living Room      | 150         | 100%   | 100%         | Compliant                        |
| 1C_151  | Kitchen Dining   | 200         | 100%   | 99%          | Compliant                        |
| 1C_151  | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| 1C_151  | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| 1C_151  | Bedroom 3        | 100         | 100%   | 100%         | Compliant                        |
| <p>* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.</p> <p>** Under the BR 209 study the SDA has been calculated with indicative trees represented accounting for annual foliage.</p> <p>*** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.</p> <p>The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 17.</p> <p>For floor plans of the assessed units please refer to section A.1 on page 24.</p> |                  |             |  |              |                                  |

A.2.9 SDA Results: Duplex (Character Area 1C) Units - 152-155

| Table No. A.2.9 - SDA Results:   |                  |             |  |              |                                  |
|--|------------------|-------------|--|--------------|----------------------------------|
| Unit Number  | Room Description | Target Lux* | % of area above target Lux*<br>(recommendation >50%) |              | Compliance with BR 209 Criteria* |
|  |                  |             | Without Trees***                                     | With Trees** |                                  |
| 1C_152   | LKD              | 200         | 25%  | 17%          | Non-compliant                    |
| 1C_152   | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| 1C_152   | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| 1C_153   | Living Room      | 150         | 100%   | 100%         | Compliant                        |
| 1C_153   | Kitchen Dining   | 200         | 100%   | 100%         | Compliant                        |
| 1C_153   | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| 1C_153   | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| 1C_153   | Bedroom 3        | 100         | 100%   | 100%         | Compliant                        |
| 1C_154   | LKD              | 200         | 31%  | 26%          | Non-compliant                    |
| 1C_154   | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| 1C_154   | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| 1C_155   | Living Room      | 150         | 100%   | 100%         | Compliant                        |
| 1C_155   | Kitchen Dining   | 200         | 100%   | 99%          | Compliant                        |
| 1C_155   | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| 1C_155   | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| 1C_155   | Bedroom 3        | 100         | 100%   | 100%         | Compliant                        |
| * For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.<br>** Under the BR 209 study the SDA has been calculated with indicative trees represented accounting for annual foliage.<br>*** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.<br>The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 17.<br>For floor plans of the assessed units please refer to section A.1 on page 24. |                  |             |  |              |                                  |

## A.2.10 SDA Results: Duplex (Character Area 1C) Units - 156-163

| Table No. A.2.10 - SDA Results: |                  |             |   |              |                                  |
|---------------------------------|------------------|-------------|---|--------------|----------------------------------|
| Unit Number                     | Room Description | Target Lux* | % of area above target Lux* (recommendation >50%) |              | Compliance with BR 209 Criteria* |
|                                 |                  |             | Without Trees***                                  | With Trees** |                                  |
| 1C_156                          | LKD              | 200         | 26%   | 19%          | Non-compliant                    |
| 1C_156                          | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_156                          | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_157                          | Living Room      | 150         | 100%  | 100%         | Compliant                        |
| 1C_157                          | Kitchen Dining   | 200         | 100%  | 98%          | Compliant                        |
| 1C_157                          | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_157                          | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_157                          | Bedroom 3        | 100         | 100%  | 100%         | Compliant                        |
| 1C_158                          | LKD              | 200         | 34%   | 31%          | Non-compliant                    |
| 1C_158                          | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_158                          | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_159                          | Living Room      | 150         | 100%  | 100%         | Compliant                        |
| 1C_159                          | Kitchen Dining   | 200         | 100%  | 100%         | Compliant                        |
| 1C_159                          | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_159                          | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_159                          | Bedroom 3        | 100         | 100%  | 100%         | Compliant                        |
| 1C_160                          | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_160                          | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_160                          | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_161                          | Living Room      | 150         | 100%  | 100%         | Compliant                        |
| 1C_161                          | Kitchen Dining   | 200         | 100%  | 100%         | Compliant                        |
| 1C_161                          | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_161                          | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_161                          | Bedroom 3        | 100         | 69%   | 69%          | Compliant                        |
| 1C_162                          | LKD              | 200         | 100%  | 100%         | Compliant                        |
| 1C_162                          | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_162                          | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_163                          | Living Room      | 150         | 100%  | 100%         | Compliant                        |
| 1C_163                          | Kitchen Dining   | 200         | 100%  | 100%         | Compliant                        |
| 1C_163                          | Bedroom 1        | 100         | 100%  | 100%         | Compliant                        |
| 1C_163                          | Bedroom 2        | 100         | 100%  | 100%         | Compliant                        |
| 1C_163                          | Bedroom 3        | 100         | 76%   | 76%          | Compliant                        |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.

\*\* Under the BR 209 study the SDA has been calculated with indicative trees represented accounting for annual foliage.

\*\*\* The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development. The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 17.

For floor plans of the assessed units please refer to section A.1 on page 24.



## A.2.11 SDA Results: Duplex (Character Area 1A) Units - 61-67

| Table No. A.2.11 - SDA Results: |                  |             |  |              |                                  |
|---------------------------------|------------------|-------------|--|--------------|----------------------------------|
| Unit Number                     | Room Description | Target Lux* | % of area above target Lux*<br>(recommendation >50%) |              | Compliance with BR 209 Criteria* |
|                                 |                  |             | Without Trees***                                     | With Trees** |                                  |
| D_61                            | LKD              | 200         | 87%  | 82%          | Compliant                        |
| D_61                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_62                            | LKD              | 200         | 100%   | 100%         | Compliant                        |
| D_62                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_62                            | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| D_63                            | LKD              | 200         | 83%  | 63%          | Compliant                        |
| D_63                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_64                            | LKD              | 200         | 100%   | 100%         | Compliant                        |
| D_64                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_64                            | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| D_65                            | LKD              | 200         | 88%  | 82%          | Compliant                        |
| D_65                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_66                            | LKD              | 200         | 100%   | 100%         | Compliant                        |
| D_66                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_66                            | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| D_67                            | LKD              | 200         | 84%  | 81%          | Compliant                        |
| D_67                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_68                            | LKD              | 200         | 100%   | 100%         | Compliant                        |
| D_68                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_68                            | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| D_69                            | LKD              | 200         | 92%  | 87%          | Compliant                        |
| D_69                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_70                            | LKD              | 200         | 100%   | 100%         | Compliant                        |
| D_70                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_70                            | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| D_71                            | LKD              | 200         | 83%  | 77%          | Compliant                        |
| D_71                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_72                            | LKD              | 200         | 100%   | 100%         | Compliant                        |
| D_72                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_72                            | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
 \*\* Under the BR 209 study the SDA has been calculated with indicative trees represented accounting for annual foliage.  
 \*\*\* The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.  
 The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 17.  
 For floor plans of the assessed units please refer to section A.1 on page 24.

## A.2.12 SDA Results: Duplex (Character Area 1A) Units - 73-84

| Table No. A.2.12 - SDA Results: |                  |             |  |              |                                  |
|---------------------------------|------------------|-------------|--|--------------|----------------------------------|
| Unit Number                     | Room Description | Target Lux* | % of area above target Lux*<br>(recommendation >50%) |              | Compliance with BR 209 Criteria* |
|                                 |                  |             | Without Trees***                                     | With Trees** |                                  |
| D_73                            | LKD              | 200         | 86%  | 84%          | Compliant                        |
| D_73                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_74                            | LKD              | 200         | 100%   | 100%         | Compliant                        |
| D_74                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_74                            | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| D_75                            | LKD              | 200         | 86%  | 84%          | Compliant                        |
| D_75                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_76                            | LKD              | 200         | 100%   | 100%         | Compliant                        |
| D_76                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_76                            | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| D_77                            | LKD              | 200         | 93%  | 85%          | Compliant                        |
| D_77                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_78                            | LKD              | 200         | 100%   | 100%         | Compliant                        |
| D_78                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_78                            | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| D_79                            | LKD              | 200         | 98%  | 82%          | Compliant                        |
| D_79                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_80                            | LKD              | 200         | 100%   | 100%         | Compliant                        |
| D_80                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_80                            | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| D_81                            | LKD              | 200         | 97%  | 87%          | Compliant                        |
| D_81                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_82                            | LKD              | 200         | 100%   | 100%         | Compliant                        |
| D_82                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_82                            | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |
| D_83                            | LKD              | 200         | 100%   | 100%         | Compliant                        |
| D_83                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_84                            | LKD              | 200         | 100%   | 100%         | Compliant                        |
| D_84                            | Bedroom 1        | 100         | 100%   | 100%         | Compliant                        |
| D_84                            | Bedroom 2        | 100         | 100%   | 100%         | Compliant                        |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
 \*\* Under the BR 209 study the SDA has been calculated with indicative trees represented accounting for annual foliage.  
 \*\*\* The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.  
 The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 17.  
 For floor plans of the assessed units please refer to section A.1 on page 24.

### A.2.13 SDA Results: Crèche

| Table No. A.2.13 - SDA Results:   |                  |             |  |              |                                  |
|---|------------------|-------------|--|--------------|----------------------------------|
| Unit Number   | Room Description | Target Lux* | % of area above target Lux*<br>(recommendation >50%) |              | Compliance with BR 209 Criteria* |
|   |                  |             | Without Trees***                                     | With Trees** |                                  |
| Creche  | Classroom 1      | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Classroom 2      | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Classroom 3      | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Classroom 4      | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Classroom 5      | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Classroom 6      | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Classroom 7      | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Sleep Room 1     | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Sleep Room 2     | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Sleep Room 3     | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Classroom 10     | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Classroom 11     | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Classroom 12     | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Classroom 13     | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Classroom 13     | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Classroom 8      | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Classroom 9      | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Sleep Room 4     | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Sleep Room 5     | 150         | 100%   | 100%         | Compliant                        |
| Creche  | Sleep Room 6     | 150         | 100%   | 100%         | Compliant                        |
| <p>* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.</p> <p>** Under the BR 209 study the SDA has been calculated with indicative trees represented accounting for annual foliage.</p> <p>*** The SDA assessment without trees indicates the level of daylight within the proposed development when trees are not included in the analytical model. This study provides an understanding of how trees affect daylight within the proposed development.</p> <p>The SDA circa compliance rates across the entire scheme can be found in section 5.1.1 on page 17.</p> <p>For floor plans of the assessed units please refer to section A.1 on page 24.</p> |                  |             |  |              |                                  |



## A.3 Sunlight Exposure (SE) in Proposed Units

Below is an example of the table used to describe the SE performance of proposed habitable rooms.

| Table Example. A.3 - Scheme Performance Sunlight Exposure |                  |                                   |                           |  |                         |                           |  |
|---|------------------|-----------------------------------|---------------------------|--|-------------------------|---------------------------|--|
| Unit Number   | Room Description | Deciduous Trees as Opaque Objects |                           |  | Without Deciduous Trees |                           |  |
|   |                  | SE Hours on March 21st            | Level of SE on March 21st | Unit compliance based on highest performing room | SE Hours on March 21st  | Level of SE on March 21st | Unit compliance based on highest performing room |
| A   | B                | C                                 | D                         | E  | F                       | G                         | H  |

### A: Unit Number

This column identifies the assessed unit. All unit numbers are determined by the architect's drawings, unless otherwise stated.

### B: Room Description

*Room Description* details which room of the unit has been assessed, e.g. bedroom, living room, etc.

### C: SE Hours on March 21st (Deciduous Trees as Opaque Objects)

This column will state the number of hours the assessed room can expect to receive on March 21st with the assessment carried out with deciduous trees as opaque objects.

### D: Level of SE on March 21st (Deciduous Trees as Opaque Objects)

BR 209 recommends a minimum sunlight exposure of 1.5 hours for a proposed unit with preference given to main living rooms. BR 209 categorise sunlight exposure as minimum, medium and high, this column will categorise the level of sunlight exposure with deciduous trees as opaque objects based on the following:

- Less than 1.5 hours: *Below minimum*,
- Between 1.5 hours and 3 hours: *Minimum*
- Between 3 hours and 4 hours: *Medium*
- More than 4 hours: *High*

### E: Unit compliance based on highest performing room (Deciduous Trees as Opaque Objects)

A proposed unit is considered to be compliant provided any habitable room within the unit is capable of receiving at least 1.5 hours of sunlight on the assessment date. This column will identify the highest performing room within a unit and state compliance for the associated unit based on that room with the assessment carried out with deciduous trees as opaque objects.

Typically unit compliance will be stated for the best performing room per unit only, with lesser performing rooms indicated with a dash (-).

### F: SE Hours on March 21st (Without Deciduous Trees)

This column will state the number of hours the assessed room can expect to receive on March 21st with the assessment carried out without deciduous trees.

### G: Level of SE on March 21st (Without Deciduous Trees)

BR 209 recommends a minimum sunlight exposure of 1.5 hours for a proposed unit with preference given to main living rooms. BR 209 categorise sunlight exposure as minimum, medium and high, this column will categorise the level of sunlight exposure without deciduous trees using the same criteria as the study with deciduous trees as opaque objects.

### H: Unit compliance based on highest performing room (Without Deciduous Trees)

A proposed unit is considered to be compliant provided any habitable room within the unit is capable of receiving at least 1.5 hours of sunlight on March 21st. This column will identify the highest performing room within a unit and state compliance for the associated unit based on that room with the assessment carried out without deciduous trees. Typically only one room per unit will be populated in this column, with lesser performing rooms indicated with a dash (-).

It should be noted that the figures displayed in the table of results have been rounded off. A manual calculation of these figures may yield a negligible difference and should not be considered an error.

### A.4 Sun On Ground (SOG) in Proposed Outdoor Amenity Areas

Below is an example of the table used to describe SOG in proposed gardens and amenity spaces.

| Table Example. A.4 - Scheme Performance SOG |               |   |                     |   |                       |
|---|---------------|---|---------------------|---|-----------------------|
| Assigned Area Number                        | Assessed Area | Area Capable of Receiving 2 Hours of Sunlight on March 21st | Recommended Minimum | Level of Compliance with BRE Guidelines | Meets BR 209 Criteria |
| A   | B             | C   | D                   | E                                       | F                     |

- A: Assigned Area Number**  
This column indicates the number that 3DDDB have assigned to the assessed areas, which is included for the sole purpose of aiding in the identification of the corresponding space shown in the corresponding figure.
- B: Assessed Area**  
This column identifies the assessed garden/amenity area.
- C: Area Capable of Receiving 2 Hours of Sunlight on March 21st**  
The percentage of the proposed area that can receive more than 2 hours of sunlight on March 21st.
- D: Recommended Minimum**  
The BRE Guidelines state that the percentage of a garden/amenity area that can receive more than 2 hours of sunlight on March 21st should be 50%. The target value for all spaces is set to 50%.
- E: Level of Compliance with BRE Guidelines**  
This column states the compliance of the assessed space with the *BRE Target Value*. If the assessed garden or amenity area complies with the BRE Guidelines this cell will state “*BRE Compliant*”. If the garden or amenity area does not meet the criteria as set out in the BRE Guidelines, a percentage of compliance with the *recommended minimum* will be stated.
- F: Meets BR 209 Criteria**  
This column states if the assessed area achieves the recommended level of sunlight on March 21st as per BR 209.  
It should be noted that the figures displayed in the table of results have been rounded off. A manual calculation of these figures may yield a negligible difference and should not be considered an error.

#### A.4.1 SE Results: Block 1 - Level 01

Table No. A.4.1 - Sunlight Exposure Results:

| Unit Number | Room Description | Deciduous Trees as Opaque Objects* |                              |  | Without Deciduous Trees* |                              |  |
|-------------|------------------|------------------------------------|------------------------------|--|--------------------------|------------------------------|--|
|             |                  | SE Hours on March 21st             | Level of SE on March 21st*** | Unit compliance based on highest performing room** | SE Hours on March 21st   | Level of SE on March 21st*** | Unit compliance based on highest performing room** |
| 1C_164      | LKD              | 1.10                               | Below Minimum                | Non-Compliant                                      | 1.10                     | Below Minimum                | Non-Compliant                                      |
| 1C_164      | Bedroom 1        | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_164      | Bedroom 2        | 0.40                               | Below Minimum                | -  | 0.40                     | Below Minimum                | -  |
| 1C_165      | LKD              | 1.50                               | Minimum                      | Compliant  | 1.50                     | Minimum                      | Compliant  |
| 1C_165      | Bedroom 1        | 0.80                               | Below Minimum                | -  | 0.80                     | Below Minimum                | -  |
| 1C_165      | Bedroom 2        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_166      | LKD              | 1.50                               | Minimum                      | Compliant  | 1.50                     | Minimum                      | Compliant  |
| 1C_166      | Bedroom 1        | 1.50                               | Minimum                      | Compliant  | 1.50                     | Minimum                      | Compliant  |
| 1C_166      | Bedroom 2        | 0.80                               | Below Minimum                | -  | 0.80                     | Below Minimum                | -  |
| 1C_167      | LKD              | 1.50                               | Minimum                      | Compliant  | 1.50                     | Minimum                      | Compliant  |
| 1C_167      | Bedroom 1        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_167      | Bedroom 2        | 1.50                               | Minimum                      | Compliant  | 1.50                     | Minimum                      | Compliant  |
| 1C_168      | LKD              | 9.40                               | High                         | Compliant  | 9.40                     | High                         | Compliant  |
| 1C_168      | Bedroom 1        | 3.20                               | Medium                       | -  | 3.20                     | Medium                       | -  |
| 1C_168      | Bedroom 2        | 3.20                               | Medium                       | -  | 3.20                     | Medium                       | -  |
| 1C_169      | LKD              | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |
| 1C_169      | Bedroom 1        | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |
| 1C_169      | Bedroom 2        | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |
| 1C_170      | LKD              | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |
| 1C_170      | Bedroom 1        | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |
| 1C_170      | Bedroom 2        | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |
| 1C_171      | LKD              | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |
| 1C_171      | Bedroom 1        | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |
| 1C_171      | Bedroom 2        | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |

\* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.  
 \*\* The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 19.  
 \*\*\* For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 11.  
 For floor plans of the assessed units please refer to section A.1 on page 24.



## A.4.2 SE Results: Block 1 - Level 02

Table No. A.4.2 - Sunlight Exposure Results:

| Unit Number | Room Description | Deciduous Trees as Opaque Objects* |                              |  | Without Deciduous Trees* |                              |  |
|-------------|------------------|------------------------------------|------------------------------|--|--------------------------|------------------------------|--|
|             |                  | SE Hours on March 21st             | Level of SE on March 21st*** | Unit compliance based on highest performing room** | SE Hours on March 21st   | Level of SE on March 21st*** | Unit compliance based on highest performing room** |
| 1C_178      | LKD              | 1.10                               | Below Minimum                | Non-Compliant                                      | 1.10                     | Below Minimum                | Non-Compliant                                      |
| 1C_178      | Bedroom 1        | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_178      | Bedroom 2        | 0.40                               | Below Minimum                | -  | 0.40                     | Below Minimum                | -  |
| 1C_179      | LKD              | 1.50                               | Minimum                      | Compliant  | 1.50                     | Minimum                      | Compliant  |
| 1C_179      | Bedroom 1        | 0.80                               | Below Minimum                | -  | 0.80                     | Below Minimum                | -  |
| 1C_179      | Bedroom 2        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_180      | LKD              | 1.50                               | Minimum                      | Compliant  | 1.50                     | Minimum                      | Compliant  |
| 1C_180      | Bedroom 1        | 1.50                               | Minimum                      | Compliant  | 1.50                     | Minimum                      | Compliant  |
| 1C_180      | Bedroom 2        | 0.80                               | Below Minimum                | -  | 0.80                     | Below Minimum                | -  |
| 1C_181      | LKD              | 1.50                               | Minimum                      | Compliant  | 1.50                     | Minimum                      | Compliant  |
| 1C_181      | Bedroom 1        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_181      | Bedroom 2        | 1.50                               | Minimum                      | Compliant  | 1.50                     | Minimum                      | Compliant  |
| 1C_182      | LKD              | 9.40                               | High                         | Compliant  | 9.40                     | High                         | Compliant  |
| 1C_182      | Bedroom 1        | 3.20                               | Medium                       | -  | 3.20                     | Medium                       | -  |
| 1C_182      | Bedroom 2        | 3.20                               | Medium                       | -  | 3.20                     | Medium                       | -  |
| 1C_183      | LKD              | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |
| 1C_183      | Bedroom 1        | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |
| 1C_183      | Bedroom 2        | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |
| 1C_184      | LKD              | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |
| 1C_184      | Bedroom 1        | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |
| 1C_184      | Bedroom 2        | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |
| 1C_185      | LKD              | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |
| 1C_185      | Bedroom 1        | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |
| 1C_185      | Bedroom 2        | 3.20                               | Medium                       | Compliant  | 3.20                     | Medium                       | Compliant  |

\* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.  
 \*\* The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 19.  
 \*\*\* For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 11.  
 For floor plans of the assessed units please refer to section A.1 on page 24.

### A.4.3 SE Results: Block 1 - Level 03

| Table No. A.4.4 - Sunlight Exposure Results: |                  |                                    |                              |  |                          |                              |  |
|--|------------------|------------------------------------|------------------------------|--|--------------------------|------------------------------|--|
| Unit Number                                  | Room Description | Deciduous Trees as Opaque Objects* |                              |  | Without Deciduous Trees* |                              |  |
|  |                  | SE Hours on March 21st             | Level of SE on March 21st*** | Unit compliance based on highest performing room** | SE Hours on March 21st   | Level of SE on March 21st*** | Unit compliance based on highest performing room** |
| 1C_192                                       | LKD              | 1.80                               | Minimum                      | Compliant  | 1.80                     | Minimum                      | Compliant  |
| 1C_192                                       | Bedroom 1        | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_192                                       | Bedroom 2        | 0.80                               | Below Minimum                | -  | 0.80                     | Below Minimum                | -  |
| 1C_193                                       | LKD              | 1.50                               | Minimum                      | Compliant  | 1.50                     | Minimum                      | Compliant  |
| 1C_193                                       | Bedroom 1        | 1.20                               | Below Minimum                | -  | 1.20                     | Below Minimum                | -  |
| 1C_193                                       | Bedroom 2        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_194                                       | LKD              | 1.50                               | Minimum                      | Compliant  | 1.50                     | Minimum                      | Compliant  |
| 1C_194                                       | Bedroom 1        | 1.50                               | Minimum                      | Compliant  | 1.50                     | Minimum                      | Compliant  |
| 1C_194                                       | Bedroom 2        | 0.80                               | Below Minimum                | -  | 0.80                     | Below Minimum                | -  |
| 1C_195                                       | LKD              | 1.50                               | Minimum                      | Compliant  | 1.50                     | Minimum                      | Compliant  |
| 1C_195                                       | Bedroom 1        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_195                                       | Bedroom 2        | 1.50                               | Minimum                      | Compliant  | 1.50                     | Minimum                      | Compliant  |
| 1C_196                                       | LKD              | 9.40                               | High                         | Compliant  | 9.40                     | High                         | Compliant  |
| 1C_196                                       | Bedroom 1        | 5.90                               | High                         | -  | 5.90                     | High                         | -  |
| 1C_196                                       | Bedroom 2        | 5.90                               | High                         | -  | 5.90                     | High                         | -  |
| 1C_197                                       | LKD              | 6.20                               | High                         | Compliant  | 6.20                     | High                         | Compliant  |
| 1C_197                                       | Bedroom 1        | 5.90                               | High                         | -  | 5.90                     | High                         | -  |
| 1C_197                                       | Bedroom 2        | 5.90                               | High                         | -  | 5.90                     | High                         | -  |
| 1C_198                                       | LKD              | 6.20                               | High                         | Compliant  | 6.20                     | High                         | Compliant  |
| 1C_198                                       | Bedroom 1        | 5.90                               | High                         | -  | 5.90                     | High                         | -  |
| 1C_198                                       | Bedroom 2        | 5.90                               | High                         | -  | 5.90                     | High                         | -  |
| 1C_199                                       | LKD              | 6.20                               | High                         | Compliant  | 6.20                     | High                         | Compliant  |
| 1C_199                                       | Bedroom 1        | 5.90                               | High                         | -  | 5.90                     | High                         | -  |
| 1C_199                                       | Bedroom 2        | 5.90                               | High                         | -  | 5.90                     | High                         | -  |

\* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.  
 \*\* The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 19.  
 \*\*\* For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 11.  
 For floor plans of the assessed units please refer to section A.1 on page 24.

### A.4.4 SE Results: Block 1 - Level 04

| Table No. A.4.4 - Sunlight Exposure Results: |                  |                                    |                              |  |                          |                              |  |
|--|------------------|------------------------------------|------------------------------|--|--------------------------|------------------------------|--|
| Unit Number                                  | Room Description | Deciduous Trees as Opaque Objects* |                              |  | Without Deciduous Trees* |                              |  |
|  |                  | SE Hours on March 21st             | Level of SE on March 21st*** | Unit compliance based on highest performing room** | SE Hours on March 21st   | Level of SE on March 21st*** | Unit compliance based on highest performing room** |
| 1C_200                                       | LKD              | 3.00                               | Medium                       | Compliant  | 3.00                     | Medium                       | Compliant  |
| 1C_200                                       | Bedroom 1        | 1.50                               | Minimum                      | -  | 1.50                     | Minimum                      | -  |
| 1C_200                                       | Bedroom 2        | 1.50                               | Minimum                      | -  | 1.50                     | Minimum                      | -  |
| 1C_201                                       | LKD              | 1.50                               | Minimum                      | Compliant  | 1.50                     | Minimum                      | Compliant  |
| 1C_201                                       | Bedroom 1        | 0.80                               | Below Minimum                | -  | 0.80                     | Below Minimum                | -  |
| 1C_201                                       | Bedroom 2        | 1.50                               | Minimum                      | Compliant  | 1.50                     | Minimum                      | Compliant  |

\* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.  
 \*\* The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 19.  
 \*\*\* For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 11.  
 For floor plans of the assessed units please refer to section A.1 on page 24.

#### A.4.5 SE Results: Block 2 - Level 01

| Table No. A.4.6 - Sunlight Exposure Results: |                  |                                    |                              |  |                          |                              |  |
|--|------------------|------------------------------------|------------------------------|--|--------------------------|------------------------------|--|
| Unit Number                                  | Room Description | Deciduous Trees as Opaque Objects* |                              |  | Without Deciduous Trees* |                              |  |
|  |                  | SE Hours on March 21st             | Level of SE on March 21st*** | Unit compliance based on highest performing room** | SE Hours on March 21st   | Level of SE on March 21st*** | Unit compliance based on highest performing room** |
| 1C_172                                       | LKD              | 4.10                               | High                         | Compliant  | 4.10                     | High                         | Compliant  |
| 1C_172                                       | Bedroom 1        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_173                                       | LKD              | 3.80                               | Medium                       | Compliant  | 3.80                     | Medium                       | Compliant  |
| 1C_173                                       | Bedroom 1        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_174                                       | LKD              | 3.80                               | Medium                       | Compliant  | 3.80                     | Medium                       | Compliant  |
| 1C_174                                       | Bedroom 1        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_175                                       | LKD              | 3.80                               | Medium                       | Compliant  | 3.80                     | Medium                       | Compliant  |
| 1C_175                                       | Bedroom 1        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_176                                       | LKD              | 3.80                               | Medium                       | Compliant  | 3.80                     | Medium                       | Compliant  |
| 1C_176                                       | Bedroom 1        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_177                                       | LKD              | 3.80                               | Medium                       | Compliant  | 3.80                     | Medium                       | Compliant  |
| 1C_177                                       | Bedroom 1        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |

\* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.  
 \*\* The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 19.  
 \*\*\* For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 11.  
 For floor plans of the assessed units please refer to section A.1 on page 24.

#### A.4.6 SE Results: Block 2 - Level 02

| Table No. A.4.6 - Sunlight Exposure Results: |                  |                                    |                              |  |                          |                              |  |
|--|------------------|------------------------------------|------------------------------|--|--------------------------|------------------------------|--|
| Unit Number                                  | Room Description | Deciduous Trees as Opaque Objects* |                              |  | Without Deciduous Trees* |                              |  |
|  |                  | SE Hours on March 21st             | Level of SE on March 21st*** | Unit compliance based on highest performing room** | SE Hours on March 21st   | Level of SE on March 21st*** | Unit compliance based on highest performing room** |
| 1C_186                                       | LKD              | 7.00                               | High                         | Compliant  | 7.00                     | High                         | Compliant  |
| 1C_186                                       | Bedroom 1        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_187                                       | LKD              | 7.00                               | High                         | Compliant  | 7.00                     | High                         | Compliant  |
| 1C_187                                       | Bedroom 1        | 0.10                               | Below Minimum                | -  | 0.10                     | Below Minimum                | -  |
| 1C_188                                       | LKD              | 7.00                               | High                         | Compliant  | 7.00                     | High                         | Compliant  |
| 1C_188                                       | Bedroom 1        | 0.50                               | Below Minimum                | -  | 0.50                     | Below Minimum                | -  |
| 1C_189                                       | LKD              | 7.00                               | High                         | Compliant  | 7.00                     | High                         | Compliant  |
| 1C_189                                       | Bedroom 1        | 0.50                               | Below Minimum                | -  | 0.50                     | Below Minimum                | -  |
| 1C_190                                       | LKD              | 7.00                               | High                         | Compliant  | 7.00                     | High                         | Compliant  |
| 1C_190                                       | Bedroom 1        | 0.50                               | Below Minimum                | -  | 0.50                     | Below Minimum                | -  |
| 1C_191                                       | LKD              | 7.00                               | High                         | Compliant  | 7.00                     | High                         | Compliant  |
| 1C_191                                       | Bedroom 1        | 0.50                               | Below Minimum                | -  | 0.50                     | Below Minimum                | -  |

\* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.  
 \*\* The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 19.  
 \*\*\* For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 11.  
 For floor plans of the assessed units please refer to section A.1 on page 24.



#### A.4.7 SE Results: Duplex (Character Area 1C) Units - 138-147

| Table No. A.4.7 - Sunlight Exposure Results: |                  |                                    |                              |  |                          |                              |  |
|--|------------------|------------------------------------|------------------------------|--|--------------------------|------------------------------|--|
| Unit Number                                  | Room Description | Deciduous Trees as Opaque Objects* |                              |  | Without Deciduous Trees* |                              |  |
|  |                  | SE Hours on March 21st             | Level of SE on March 21st*** | Unit compliance based on highest performing room** | SE Hours on March 21st   | Level of SE on March 21st*** | Unit compliance based on highest performing room** |
| 1C_138                                       | LKD              | 4.80                               | High                         | -  | 5.00                     | High                         | -  |
| 1C_138                                       | Bedroom 1        | 6.10                               | High                         | Compliant  | 6.10                     | High                         | Compliant  |
| 1C_138                                       | Bedroom 2        | 4.20                               | High                         | -  | 4.20                     | High                         | -  |
| 1C_139                                       | Living Room      | 8.50                               | High                         | -  | 8.50                     | High                         | -  |
| 1C_139                                       | Kitchen Dining   | 5.20                               | High                         | -  | 5.20                     | High                         | -  |
| 1C_139                                       | Bedroom 1        | 1.30                               | Below Minimum                | -  | 1.30                     | Below Minimum                | -  |
| 1C_139                                       | Bedroom 2        | 9.40                               | High                         | Compliant  | 9.40                     | High                         | Compliant  |
| 1C_139                                       | Bedroom 3        | 3.10                               | Medium                       | -  | 3.10                     | Medium                       | -  |
| 1C_140                                       | LKD              | 0.10                               | Below Minimum                | -  | 0.10                     | Below Minimum                | -  |
| 1C_140                                       | Bedroom 1        | 0.60                               | Below Minimum                | Non-Compliant                                      | 0.60                     | Below Minimum                | Non-Compliant                                      |
| 1C_140                                       | Bedroom 2        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_141                                       | Living Room      | 1.50                               | Minimum                      | -  | 1.50                     | Minimum                      | -  |
| 1C_141                                       | Kitchen Dining   | 1.30                               | Below Minimum                | -  | 1.30                     | Below Minimum                | -  |
| 1C_141                                       | Bedroom 1        | 1.30                               | Below Minimum                | -  | 1.30                     | Below Minimum                | -  |
| 1C_141                                       | Bedroom 2        | 1.70                               | Minimum                      | -  | 1.70                     | Minimum                      | -  |
| 1C_141                                       | Bedroom 3        | 2.00                               | Minimum                      | Compliant  | 2.00                     | Minimum                      | Compliant  |
| 1C_142                                       | LKD              | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_142                                       | Bedroom 1        | 6.90                               | High                         | -  | 6.90                     | High                         | -  |
| 1C_142                                       | Bedroom 2        | 7.10                               | High                         | Compliant  | 7.10                     | High                         | Compliant  |
| 1C_143                                       | Living Room      | 7.10                               | High                         | Compliant  | 7.10                     | High                         | Compliant  |
| 1C_143                                       | Kitchen Dining   | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_143                                       | Bedroom 1        | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_143                                       | Bedroom 2        | 6.50                               | High                         | -  | 6.50                     | High                         | -  |
| 1C_143                                       | Bedroom 3        | 5.20                               | High                         | -  | 5.20                     | High                         | -  |
| 1C_144                                       | LKD              | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_144                                       | Bedroom 1        | 7.10                               | High                         | -  | 7.10                     | High                         | -  |
| 1C_144                                       | Bedroom 2        | 7.20                               | High                         | Compliant  | 7.20                     | High                         | Compliant  |
| 1C_145                                       | Living Room      | 7.10                               | High                         | Compliant  | 7.10                     | High                         | Compliant  |
| 1C_145                                       | Kitchen Dining   | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_145                                       | Bedroom 1        | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_145                                       | Bedroom 2        | 6.50                               | High                         | -  | 6.50                     | High                         | -  |
| 1C_145                                       | Bedroom 3        | 5.20                               | High                         | -  | 5.20                     | High                         | -  |
| 1C_146                                       | LKD              | 0.10                               | Below Minimum                | -  | 0.10                     | Below Minimum                | -  |
| 1C_146                                       | Bedroom 1        | 5.80                               | High                         | -  | 5.80                     | High                         | -  |
| 1C_146                                       | Bedroom 2        | 7.10                               | High                         | Compliant  | 7.10                     | High                         | Compliant  |
| 1C_147                                       | Living Room      | 7.20                               | High                         | Compliant  | 7.20                     | High                         | Compliant  |
| 1C_147                                       | Kitchen Dining   | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_147                                       | Bedroom 1        | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_147                                       | Bedroom 2        | 6.50                               | High                         | -  | 6.50                     | High                         | -  |
| 1C_147                                       | Bedroom 3        | 5.20                               | High                         | -  | 5.20                     | High                         | -  |

\* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.  
 \*\* The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 19.  
 \*\*\* For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 11.  
 For floor plans of the assessed units please refer to section A.1 on page 24.

#### A.4.8 SE Results: Duplex (Character Area 1C) Units - 148-151

| Table No. A.4.8 - Sunlight Exposure Results: |                  |                                    |                              |  |                          |                              |  |
|--|------------------|------------------------------------|------------------------------|--|--------------------------|------------------------------|--|
| Unit Number                                  | Room Description | Deciduous Trees as Opaque Objects* |                              |  | Without Deciduous Trees* |                              |  |
|  |                  | SE Hours on March 21st             | Level of SE on March 21st*** | Unit compliance based on highest performing room** | SE Hours on March 21st   | Level of SE on March 21st*** | Unit compliance based on highest performing room** |
| 1C_148                                       | LKD              | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_148                                       | Bedroom 1        | 6.30                               | High                         | Compliant  | 6.30                     | High                         | Compliant  |
| 1C_148                                       | Bedroom 2        | 6.30                               | High                         | Compliant  | 6.30                     | High                         | Compliant  |
| 1C_149                                       | Living Room      | 7.10                               | High                         | Compliant  | 7.10                     | High                         | Compliant  |
| 1C_149                                       | Kitchen Dining   | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_149                                       | Bedroom 1        | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_149                                       | Bedroom 2        | 6.50                               | High                         | -  | 6.50                     | High                         | -  |
| 1C_149                                       | Bedroom 3        | 5.20                               | High                         | -  | 5.20                     | High                         | -  |
| 1C_150                                       | LKD              | 0.00                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_150                                       | Bedroom 1        | 4.00                               | High                         | -  | 5.90                     | High                         | Compliant  |
| 1C_150                                       | Bedroom 2        | 5.30                               | High                         | Compliant  | 5.50                     | High                         | -  |
| 1C_151                                       | Living Room      | 7.20                               | High                         | Compliant  | 7.20                     | High                         | Compliant  |
| 1C_151                                       | Kitchen Dining   | 2.00                               | Minimum                      | -  | 2.00                     | Minimum                      | -  |
| 1C_151                                       | Bedroom 1        | 3.60                               | Medium                       | -  | 3.60                     | Medium                       | -  |
| 1C_151                                       | Bedroom 2        | 6.50                               | High                         | -  | 6.50                     | High                         | -  |
| 1C_151                                       | Bedroom 3        | 5.20                               | High                         | -  | 5.20                     | High                         | -  |

\* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.

\*\* The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 19.

\*\*\* For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 11.

For floor plans of the assessed units please refer to section A.1 on page 24.

#### A.4.9 SE Results: Duplex (Character Area 1C) Units - 152-155

| Table No. A.4.9 - Sunlight Exposure Results: |                  |                                    |                              |  |                          |                              |  |
|--|------------------|------------------------------------|------------------------------|--|--------------------------|------------------------------|--|
| Unit Number                                  | Room Description | Deciduous Trees as Opaque Objects* |                              |  | Without Deciduous Trees* |                              |  |
|  |                  | SE Hours on March 21st             | Level of SE on March 21st*** | Unit compliance based on highest performing room** | SE Hours on March 21st   | Level of SE on March 21st*** | Unit compliance based on highest performing room** |
| 1C_152                                       | LKD              | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_152                                       | Bedroom 1        | 5.70                               | High                         | -  | 5.70                     | High                         | -  |
| 1C_152                                       | Bedroom 2        | 6.10                               | High                         | Compliant  | 6.10                     | High                         | Compliant  |
| 1C_153                                       | Living Room      | 7.10                               | High                         | Compliant  | 7.10                     | High                         | Compliant  |
| 1C_153                                       | Kitchen Dining   | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_153                                       | Bedroom 1        | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_153                                       | Bedroom 2        | 6.50                               | High                         | -  | 6.50                     | High                         | -  |
| 1C_153                                       | Bedroom 3        | 5.20                               | High                         | -  | 5.20                     | High                         | -  |
| 1C_154                                       | LKD              | 0.10                               | Below Minimum                | -  | 0.10                     | Below Minimum                | -  |
| 1C_154                                       | Bedroom 1        | 6.20                               | High                         | Compliant  | 6.20                     | High                         | Compliant  |
| 1C_154                                       | Bedroom 2        | 6.10                               | High                         | -  | 6.10                     | High                         | -  |
| 1C_155                                       | Living Room      | 7.20                               | High                         | Compliant  | 7.20                     | High                         | Compliant  |
| 1C_155                                       | Kitchen Dining   | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_155                                       | Bedroom 1        | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_155                                       | Bedroom 2        | 6.50                               | High                         | -  | 6.50                     | High                         | -  |
| 1C_155                                       | Bedroom 3        | 5.20                               | High                         | -  | 5.20                     | High                         | -  |

\* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.  
 \*\* The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 19.  
 \*\*\* For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 11.  
 For floor plans of the assessed units please refer to section A.1 on page 24.



#### A.4.10 SE Results: Duplex (Character Area 1C) Units - 156-163

| Table No. A.4.10 - Sunlight Exposure Results: |                  |                                    |                              |  |                          |                              |  |
|---|------------------|------------------------------------|------------------------------|--|--------------------------|------------------------------|--|
| Unit Number                                   | Room Description | Deciduous Trees as Opaque Objects* |                              |  | Without Deciduous Trees* |                              |  |
|   |                  | SE Hours on March 21st             | Level of SE on March 21st*** | Unit compliance based on highest performing room** | SE Hours on March 21st   | Level of SE on March 21st*** | Unit compliance based on highest performing room** |
| 1C_156  | LKD              | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_156  | Bedroom 1        | 6.70                               | High                         | Compliant  | 6.70                     | High                         | Compliant  |
| 1C_156  | Bedroom 2        | 6.60                               | High                         | -  | 6.60                     | High                         | -  |
| 1C_157  | Living Room      | 7.10                               | High                         | Compliant  | 7.10                     | High                         | Compliant  |
| 1C_157  | Kitchen Dining   | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_157  | Bedroom 1        | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_157  | Bedroom 2        | 6.50                               | High                         | -  | 6.50                     | High                         | -  |
| 1C_157  | Bedroom 3        | 5.20                               | High                         | -  | 5.20                     | High                         | -  |
| 1C_158  | LKD              | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_158  | Bedroom 1        | 6.10                               | High                         | Compliant  | 6.10                     | High                         | Compliant  |
| 1C_158  | Bedroom 2        | 5.60                               | High                         | -  | 5.60                     | High                         | -  |
| 1C_159  | Living Room      | 5.60                               | High                         | -  | 5.60                     | High                         | -  |
| 1C_159  | Kitchen Dining   | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_159  | Bedroom 1        | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| 1C_159  | Bedroom 2        | 6.20                               | High                         | Compliant  | 6.20                     | High                         | Compliant  |
| 1C_159  | Bedroom 3        | 5.20                               | High                         | -  | 5.20                     | High                         | -  |
| 1C_160  | LKD              | 3.70                               | Medium                       | Compliant  | 3.70                     | Medium                       | Compliant  |
| 1C_160  | Bedroom 1        | 1.10                               | Below Minimum                | -  | 1.10                     | Below Minimum                | -  |
| 1C_160  | Bedroom 2        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| 1C_161  | Living Room      | 1.60                               | Minimum                      | -  | 1.60                     | Minimum                      | -  |
| 1C_161  | Kitchen Dining   | 5.70                               | High                         | Compliant  | 5.70                     | High                         | Compliant  |
| 1C_161  | Bedroom 1        | 5.70                               | High                         | Compliant  | 5.70                     | High                         | Compliant  |
| 1C_161  | Bedroom 2        | 0.90                               | Below Minimum                | -  | 0.90                     | Below Minimum                | -  |
| 1C_161  | Bedroom 3        | 0.10                               | Below Minimum                | -  | 0.10                     | Below Minimum                | -  |
| 1C_162  | LKD              | 6.60                               | High                         | Compliant  | 8.00                     | High                         | Compliant  |
| 1C_162  | Bedroom 1        | 5.90                               | High                         | -  | 5.90                     | High                         | -  |
| 1C_162  | Bedroom 2        | 4.20                               | High                         | -  | 4.20                     | High                         | -  |
| 1C_163  | Living Room      | 5.20                               | High                         | -  | 5.20                     | High                         | -  |
| 1C_163  | Kitchen Dining   | 9.40                               | High                         | Compliant  | 9.40                     | High                         | Compliant  |
| 1C_163  | Bedroom 1        | 5.70                               | High                         | -  | 5.70                     | High                         | -  |
| 1C_163  | Bedroom 2        | 5.20                               | High                         | -  | 5.20                     | High                         | -  |
| 1C_163  | Bedroom 3        | 0.10                               | Below Minimum                | -  | 0.10                     | Below Minimum                | -  |

\* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.  
 \*\* The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 19.  
 \*\*\* For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 11.  
 For floor plans of the assessed units please refer to section A.1 on page 24.

#### A.4.11 SE Results: Duplex (Character Area 1A) Units - 61-67

| Table No. A.4.11 - Sunlight Exposure Results: |                  |                                    |                              |  |                          |                              |  |
|---|------------------|------------------------------------|------------------------------|--|--------------------------|------------------------------|--|
| Unit Number                                   | Room Description | Deciduous Trees as Opaque Objects* |                              |  | Without Deciduous Trees* |                              |  |
|   |                  | SE Hours on March 21st             | Level of SE on March 21st*** | Unit compliance based on highest performing room** | SE Hours on March 21st   | Level of SE on March 21st*** | Unit compliance based on highest performing room** |
| D_61  | LKD              | 1.10                               | Below Minimum                | -  | 1.10                     | Below Minimum                | -  |
| D_61  | Bedroom 1        | 5.60                               | High                         | Compliant  | 5.60                     | High                         | Compliant  |
| D_62  | LKD              | 7.20                               | High                         | Compliant  | 7.20                     | High                         | Compliant  |
| D_62  | Bedroom 1        | 6.70                               | High                         | -  | 6.70                     | High                         | -  |
| D_62  | Bedroom 2        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| D_63  | LKD              | 1.40                               | Below Minimum                | -  | 1.40                     | Below Minimum                | -  |
| D_63  | Bedroom 1        | 5.60                               | High                         | Compliant  | 6.90                     | High                         | Compliant  |
| D_64  | LKD              | 7.20                               | High                         | Compliant  | 7.20                     | High                         | Compliant  |
| D_64  | Bedroom 1        | 6.50                               | High                         | -  | 6.50                     | High                         | -  |
| D_64  | Bedroom 2        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| D_65  | LKD              | 1.10                               | Below Minimum                | -  | 1.10                     | Below Minimum                | -  |
| D_65  | Bedroom 1        | 3.60                               | Medium                       | Compliant  | 5.80                     | High                         | Compliant  |
| D_66  | LKD              | 7.20                               | High                         | Compliant  | 7.20                     | High                         | Compliant  |
| D_66  | Bedroom 1        | 6.70                               | High                         | -  | 6.70                     | High                         | -  |
| D_66  | Bedroom 2        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| D_67  | LKD              | 1.20                               | Below Minimum                | -  | 1.20                     | Below Minimum                | -  |
| D_67  | Bedroom 1        | 5.60                               | High                         | Compliant  | 6.90                     | High                         | Compliant  |
| D_68  | LKD              | 7.20                               | High                         | Compliant  | 7.20                     | High                         | Compliant  |
| D_68  | Bedroom 1        | 6.50                               | High                         | -  | 6.50                     | High                         | -  |
| D_68  | Bedroom 2        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| D_69  | LKD              | 0.80                               | Below Minimum                | -  | 0.80                     | Below Minimum                | -  |
| D_69  | Bedroom 1        | 3.70                               | Medium                       | Compliant  | 5.80                     | High                         | Compliant  |
| D_70  | LKD              | 7.20                               | High                         | Compliant  | 7.20                     | High                         | Compliant  |
| D_70  | Bedroom 1        | 6.70                               | High                         | -  | 6.70                     | High                         | -  |
| D_70  | Bedroom 2        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| D_71  | LKD              | 0.30                               | Below Minimum                | -  | 0.30                     | Below Minimum                | -  |
| D_71  | Bedroom 1        | 6.90                               | High                         | Compliant  | 6.90                     | High                         | Compliant  |
| D_72  | LKD              | 7.20                               | High                         | -  | 7.20                     | High                         | -  |
| D_72  | Bedroom 1        | 8.30                               | High                         | Compliant  | 8.30                     | High                         | Compliant  |
| D_72  | Bedroom 2        | 1.20                               | Below Minimum                | -  | 1.20                     | Below Minimum                | -  |

\* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.  
 \*\* The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 19.  
 \*\*\* For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 11.  
 For floor plans of the assessed units please refer to section A.1 on page 24.

#### A.4.12 SE Results: Duplex (Character Area 1A) Units - 73-84

| Table No. A.4.12 - Sunlight Exposure Results: |                  |                                    |                              |  |                          |                              |  |
|---|------------------|------------------------------------|------------------------------|--|--------------------------|------------------------------|--|
| Unit Number                                   | Room Description | Deciduous Trees as Opaque Objects* |                              |  | Without Deciduous Trees* |                              |  |
|   |                  | SE Hours on March 21st             | Level of SE on March 21st*** | Unit compliance based on highest performing room** | SE Hours on March 21st   | Level of SE on March 21st*** | Unit compliance based on highest performing room** |
| D_73  | LKD              | 1.10                               | Below Minimum                | -  | 1.10                     | Below Minimum                | -  |
| D_73  | Bedroom 1        | 5.80                               | High                         | Compliant  | 5.80                     | High                         | Compliant  |
| D_74  | LKD              | 7.20                               | High                         | Compliant  | 7.20                     | High                         | Compliant  |
| D_74  | Bedroom 1        | 6.70                               | High                         | -  | 6.70                     | High                         | -  |
| D_74  | Bedroom 2        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| D_75  | LKD              | 1.40                               | Below Minimum                | -  | 1.40                     | Below Minimum                | -  |
| D_75  | Bedroom 1        | 5.50                               | High                         | Compliant  | 6.90                     | High                         | Compliant  |
| D_76  | LKD              | 7.20                               | High                         | Compliant  | 7.20                     | High                         | Compliant  |
| D_76  | Bedroom 1        | 6.50                               | High                         | -  | 6.50                     | High                         | -  |
| D_76  | Bedroom 2        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| D_77  | LKD              | 1.10                               | Below Minimum                | -  | 1.10                     | Below Minimum                | -  |
| D_77  | Bedroom 1        | 3.50                               | Medium                       | Compliant  | 5.80                     | High                         | Compliant  |
| D_78  | LKD              | 7.20                               | High                         | Compliant  | 7.20                     | High                         | Compliant  |
| D_78  | Bedroom 1        | 6.70                               | High                         | -  | 6.70                     | High                         | -  |
| D_78  | Bedroom 2        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| D_79  | LKD              | 1.40                               | Below Minimum                | -  | 1.40                     | Below Minimum                | -  |
| D_79  | Bedroom 1        | 5.30                               | High                         | Compliant  | 6.90                     | High                         | Compliant  |
| D_80  | LKD              | 7.20                               | High                         | Compliant  | 7.20                     | High                         | Compliant  |
| D_80  | Bedroom 1        | 6.50                               | High                         | -  | 6.50                     | High                         | -  |
| D_80  | Bedroom 2        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| D_81  | LKD              | 1.10                               | Below Minimum                | -  | 1.10                     | Below Minimum                | -  |
| D_81  | Bedroom 1        | 3.70                               | Medium                       | Compliant  | 5.80                     | High                         | Compliant  |
| D_82  | LKD              | 7.20                               | High                         | Compliant  | 7.20                     | High                         | Compliant  |
| D_82  | Bedroom 1        | 6.70                               | High                         | -  | 6.70                     | High                         | -  |
| D_82  | Bedroom 2        | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| D_83  | LKD              | 4.50                               | High                         | -  | 4.50                     | High                         | -  |
| D_83  | Bedroom 1        | 8.70                               | High                         | Compliant  | 9.40                     | High                         | Compliant  |
| D_84  | LKD              | 9.40                               | High                         | Compliant  | 9.40                     | High                         | Compliant  |
| D_84  | Bedroom 1        | 9.40                               | High                         | Compliant  | 9.40                     | High                         | Compliant  |
| D_84  | Bedroom 2        | 1.20                               | Below Minimum                | -  | 1.20                     | Below Minimum                | -  |

\* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.  
 \*\* The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 19.  
 \*\*\* For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 11.  
 For floor plans of the assessed units please refer to section A.1 on page 24.



### A.4.13 SE Results: Crèche

| Table No. A.4.13 - Sunlight Exposure Results: |                  |                                    |                              |  |                          |                              |  |
|---|------------------|------------------------------------|------------------------------|--|--------------------------|------------------------------|--|
| Unit Number                                   | Room Description | Deciduous Trees as Opaque Objects* |                              |  | Without Deciduous Trees* |                              |  |
|   |                  | SE Hours on March 21st             | Level of SE on March 21st*** | Unit compliance based on highest performing room** | SE Hours on March 21st   | Level of SE on March 21st*** | Unit compliance based on highest performing room** |
| Creche  | Classroom 1      | 5.90                               | High                         | -  | 5.90                     | High                         | -  |
| Creche  | Classroom 2      | 4.60                               | High                         | -  | 4.60                     | High                         | -  |
| Creche  | Classroom 3      | 4.60                               | High                         | -  | 4.60                     | High                         | -  |
| Creche  | Classroom 4      | 4.50                               | High                         | -  | 4.50                     | High                         | -  |
| Creche  | Classroom 5      | 4.50                               | High                         | -  | 4.50                     | High                         | -  |
| Creche  | Classroom 6      | 4.60                               | High                         | -  | 4.60                     | High                         | -  |
| Creche  | Classroom 7      | 4.60                               | High                         | -  | 4.60                     | High                         | -  |
| Creche  | Sleep Room 1     | 1.90                               | Minimum                      | -  | 1.90                     | Minimum                      | -  |
| Creche  | Sleep Room 2     | 1.90                               | Minimum                      | -  | 1.90                     | Minimum                      | -  |
| Creche  | Sleep Room 3     | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |
| Creche  | Classroom 10     | 5.50                               | High                         | -  | 5.50                     | High                         | -  |
| Creche  | Classroom 11     | 5.30                               | High                         | -  | 5.30                     | High                         | -  |
| Creche  | Classroom 12     | 5.30                               | High                         | -  | 5.30                     | High                         | -  |
| Creche  | Classroom 13     | 5.50                               | High                         | -  | 5.50                     | High                         | -  |
| Creche  | Classroom 13     | 5.50                               | High                         | -  | 5.50                     | High                         | -  |
| Creche  | Classroom 8      | 5.90                               | High                         | -  | 5.90                     | High                         | -  |
| Creche  | Classroom 9      | 5.50                               | High                         | -  | 5.50                     | High                         | -  |
| Creche  | Sleep Room 4     | 1.90                               | Minimum                      | -  | 1.90                     | Minimum                      | -  |
| Creche  | Sleep Room 5     | 1.40                               | Below Minimum                | -  | 1.40                     | Below Minimum                | -  |
| Creche  | Sleep Room 6     | 0.00                               | Below Minimum                | -  | 0.00                     | Below Minimum                | -  |

\* Rooms are tested with deciduous trees as opaque objects and without deciduous trees to account for the range of possible sunlight hours.  
 \*\* The BRE Guidelines recommend that for a unit to be compliant any room within the unit should receive a minimum of 1.5 hours of direct sunlight on March 21st, preferably a main living room. The SE circa compliance rates can be found in section 5.1.2 on page 19.  
 Note: In the case of the crèche, the unit compliance, based on highest performing room, is not relevant because of the building type.  
 \*\*\* For the interpretation of levels of Sunlight Exposure please refer to "3.2 Definition of Levels of Sunlight Exposure" on page 11.  
 For floor plans of the assessed units please refer to section A.1 on page 24.

#### A.4.14 Sun On Ground in Proposed Outdoor Amenity Areas

| Table No. A.4.14 - SOG in Proposed Outdoor Amenity Areas Results: |                     |   |                     |  |                        |
|---|---------------------|---|---------------------|--|------------------------|
| Assigned Area Number  | Assessed Area       | Area Capable of Receiving 2 Hours of Sunlight on March 21st | Recommended minimum | Level of Compliance with BRE Guidelines* | Meets BR 209 Criteria* |
| 1   | Public Open Space   | 97.23%  | 50.00%              | BRE Compliant                            | Yes                    |
| 2   | Creche Play Area    | 96.69%  | 50.00%              | BRE Compliant                            | Yes                    |
| 3   | Communal Open Space | 84.53%  | 50.00%              | BRE Compliant                            | Yes                    |

\* The BRE Guidelines recommend that for a garden or amenity to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of sunlight on March 21st.

\*\* Average values have been calculated by considering all the relevant areas as a singular area and calculating what portion of the spaces as a whole can receive at least two hours of sunlight on March 21st.

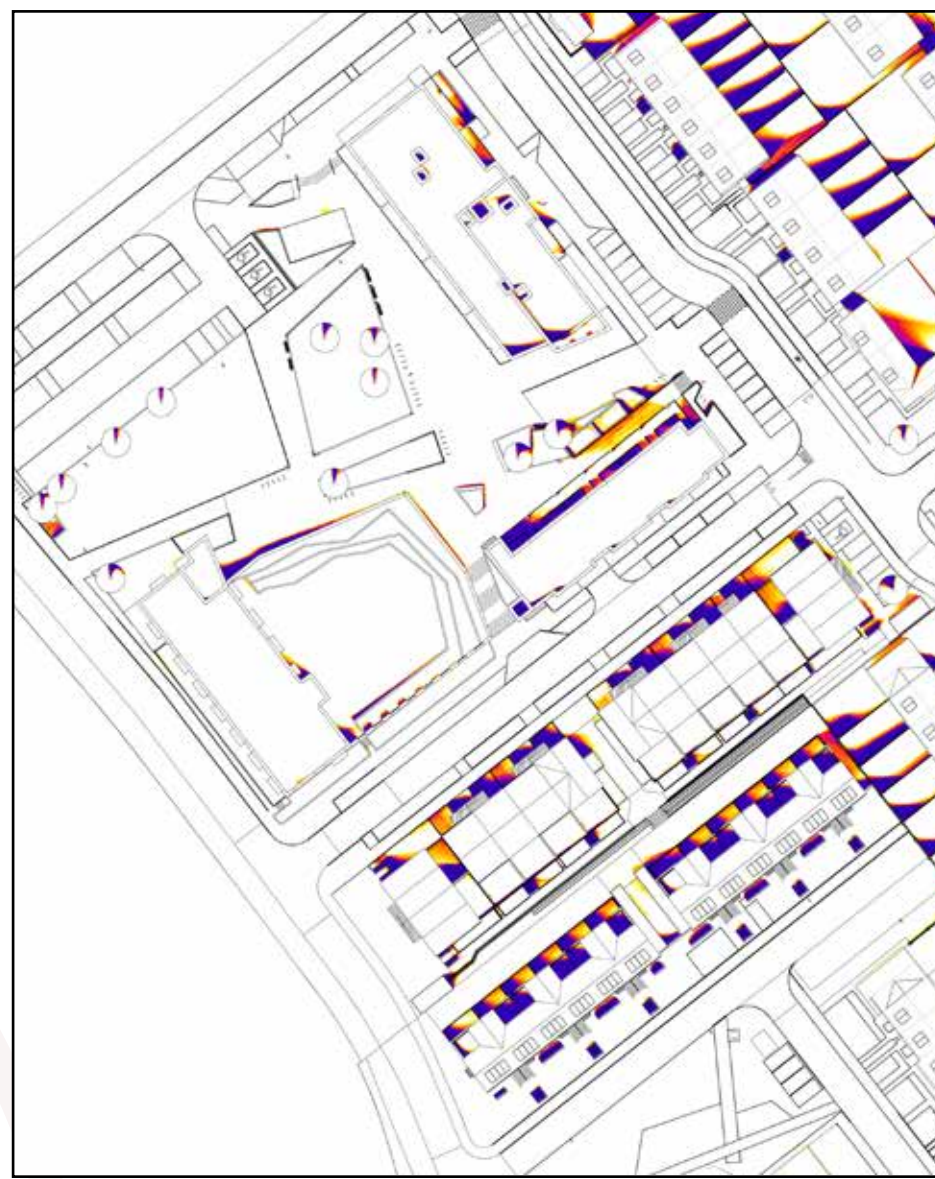
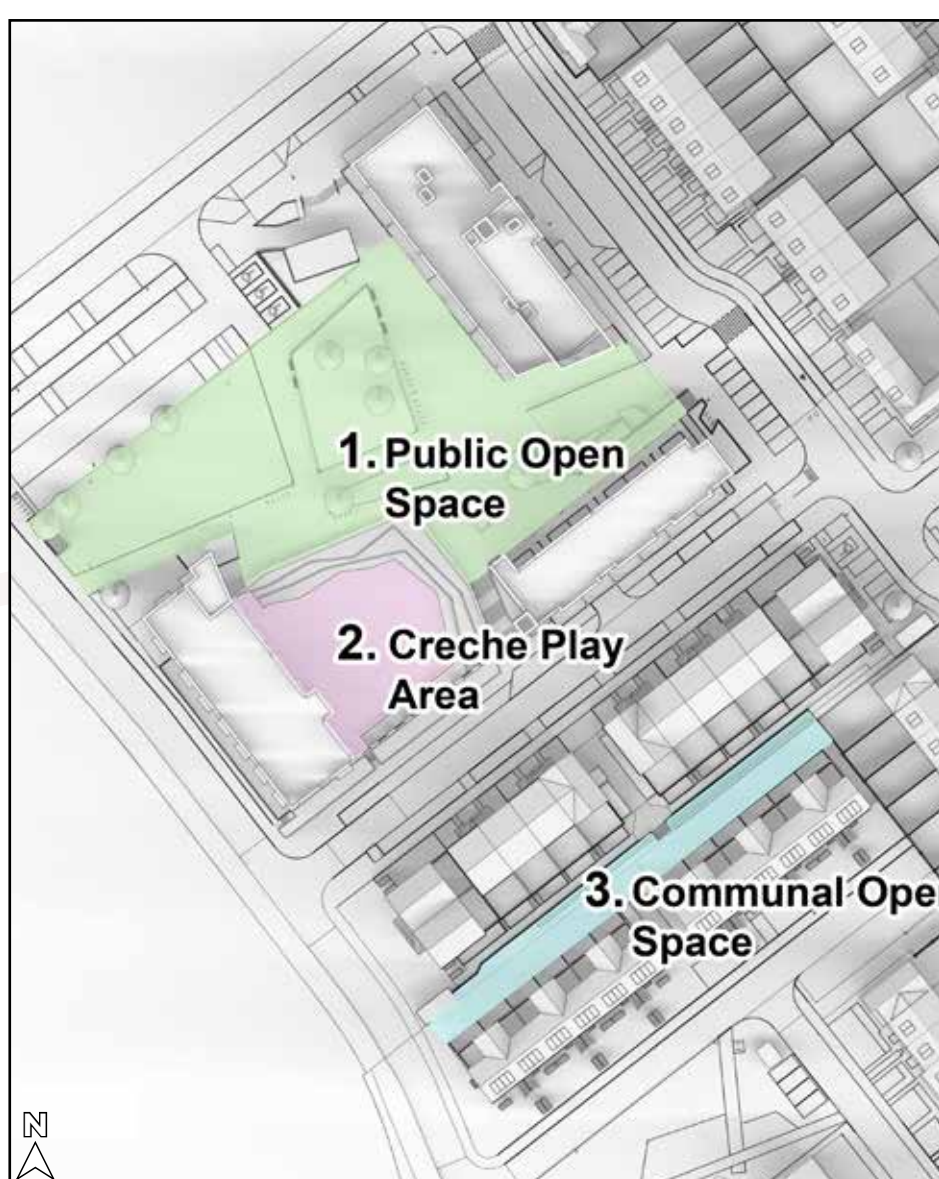


Figure A.28: Indication of the amenity areas that have been analysed (L), Area capable of receiving 2 hours of sunlight on March 21st shown in white (R)





Proposed

March 21st 7:00



March 21st 8:00



March 21st 9:00



March 21st 10:00



B.0  
B.1

Shadow Studies  
Shadow Study 21 March

March 21st  
Sunrise 6:33 | Sunset 18:31

Project: Mixed Use LRD 'Lands at Kilbride' Arklow

Applicant: Certain Assets of Dawnhill and Windhill Limited

Proposed







Proposed

March 21st 11:00



March 21st 12:00



March 21st 13:00



March 21st 14:00



March 21st  
Sunrise 6:33 | Sunset 18:31

Project: Mixed Use LRD ‘Lands at Kilbride’ Arklow

Applicant: Certain Assets of Dawnhill and Windhill Limited

Proposed







Proposed

March 21st 15:00



March 21st 16:00



March 21st 17:00



March 21st 18:00



March 21st  
Sunrise 6:33 | Sunset 18:31

Project: Mixed Use LRD 'Lands at Kilbride' Arklow

Applicant: Certain Assets of Dawnhill and Windhill Limited

Proposed







Proposed

June 21st 6:00



June 21st 7:00



June 21st 8:00



June 21st 9:00



B.2 Shadow Study 21 June

Project: Mixed Use LRD ‘Lands at Kilbride’ Arklow

Proposed

June 21st  
Sunrise 5:07 | Sunset 21:47

Applicant: Certain Assets of Dawnhill and Windhill Limited







Proposed

June 21st 10:00



June 21st 11:00



June 21st 12:00



June 21st 13:00



June 21st  
Sunrise 5:07 | Sunset 21:47

Project: Mixed Use LRD ‘Lands at Kilbride’ Arklow

Applicant: Certain Assets of Dawnhill and Windhill Limited

Proposed







Proposed

June 21st 14:00



June 21st 15:00



June 21st 16:00



June 21st 17:00



June 21st  
Sunrise 5:07 | Sunset 21:47

Project: Mixed Use LRD ‘Lands at Kilbride’ Arklow

Applicant: Certain Assets of Dawnhill and Windhill Limited

Proposed







Proposed

June 21st 18:00



June 21st 19:00



June 21st 20:00



June 21st 21:00



June 21st  
Sunrise 5:07 | Sunset 21:47

Project: Mixed Use LRD ‘Lands at Kilbride’ Arklow

Applicant: Certain Assets of Dawnhill and Windhill Limited

Proposed







Proposed

December 21st 9:00



December 21st 10:00



December 21st 11:00



December 21st 12:00



B.3 Shadow Study 21 December

Project: Mixed Use LRD 'Lands at Kilbride' Arklow

Proposed

December 21st  
Sunrise 8:42 | Sunset 16:03

Applicant: Certain Assets of Dawnhill and Windhill  
Limited







Proposed

December 21st 13:00



December 21st 14:00



December 21st 15:00



December 21st 16:00



Project: Mixed Use LRD ‘Lands at Kilbride’ Arklow

Proposed

December 21st  
Sunrise 8:42 | Sunset 16:03

Applicant: Certain Assets of Dawnhill and Windhill Limited



## C.0 Supplementary Study Results

### C.1 SDA study, under the I.S. EN 17037 criteria

Below is an example of the table used to describe the supplementary study results for proposed units in the assessment of SDA under the I.S. EN 17037 criteria.

| Table Example. C.1 - Supplementary SDA Results (I.S. EN 17037 criteria) |                  |                    |                    |                    |                    |  |
|---|------------------|--------------------|--------------------|--------------------|--------------------|--|
| Unit Number   | Room Description | No Trees           |                    | With Trees         |                    | Compliance with I.S. EN 17037 Criteria |
|   |                  | Area above 300 Lux | Area above 100 Lux | Area above 300 Lux | Area above 100 Lux |  |
| A   | B                | C                  | D                  | E                  | F                  | G                                      |

#### A: Unit Number

This column identifies the assessed unit. All unit numbers are determined by the architect's drawings, unless otherwise stated.

#### B: Room Description

*Room Description* details which room in the unit has been assessed, e.g. bedroom, LKD, etc.

#### C: % of area above 300 Lux (No Trees)

I.S. EN 17037 recommends at least 50% of the working plane receives above 300 lux for at least half the daylight hours.

This column states percentage of the working plane of the assessed room that is capable of receiving more than 300 lux for at least half the daylight hours when the assessment is carried out without trees in the analytical model.

#### D: % of area above 100 Lux (No Trees)

I.S. EN 17037 recommends at least 95% of the working plane receives above 100 lux for at least half the daylight hours.

This column states percentage of the working plane of the assessed room that is capable of receiving more than 100 lux for at least half the daylight hours when the assessment is carried out without trees in the analytical model.

#### E: % of area above 300 Lux (Winter Trees)

I.S. EN 17037 recommends at least 50% of the working plane receives above 300 lux for at least half the daylight hours.

This column states percentage of the working plane of the assessed room that is capable of receiving more than 300 lux for at least half the daylight hours with the foliage of deciduous trees varied to account for summer and winter conditions, i.e. full leaf and bare branch.

#### F: % of area above 100 Lux (Winter Trees)

I.S. EN 17037 recommends at least 95% of the working plane receives above 100 lux for at least half the daylight hours.

This column states percentage of the working plane of the assessed room that is capable of receiving more than 100 lux for at least half the daylight hours with the foliage of deciduous trees varied to account for summer and winter conditions.

#### G: Compliance with I.S. EN 17037 Criteria

This column states if the assessed room achieves the recommended level of daylight as per I.S. EN 17037 with consideration to the various tree states.

If the recommended lux levels are achieved on the working plane, for half the daylight hours, both with and without trees, this column will state: *'Compliant'*.

If the recommended lux levels are not achieved on the working plane, for half the daylight hours, both with and without trees, this column will state: *'Non-compliant'*.

If the recommended lux levels are achieved on the working plane, for half the daylight hours, without trees but are not achieved with trees, this column will state: *'Trees affecting compliance'*.

Compliance rates will be stated for SDA compliance with trees in all of the above states.

It should be noted that the figures displayed in the table of results have been rounded off. A manual calculation of these figures may yield a negligible difference and should not be considered an error.

### C.1.1 Supplementary SDA Results (I.S. EN 17037 criteria): Block 1 - Level 01

| Table No. C.1.1 - Supplementary SDA Results (I.S. EN 17037 criteria): |                  |                     |                     |                     |                     |   |
|---|------------------|---------------------|---------------------|---------------------|---------------------|---|
| Unit Number   | Room Description | No Trees            |                     | With Trees          |                     | Compliance with I.S. EN 17037 Criteria* |
|   |                  | Area above 300 Lux* | Area above 100 Lux* | Area above 300 Lux* | Area above 100 Lux* |   |
| 1C_164  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_164  | Bedroom 1        | 74%                 | 100%                | 71%                 | 100%                | Compliant                               |
| 1C_164  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_165  | LKD              | 29%                 | 100%                | 27%                 | 100%                | Non-compliant                           |
| 1C_165  | Bedroom 1        | 94%                 | 100%                | 86%                 | 100%                | Compliant                               |
| 1C_165  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_166  | LKD              | 30%                 | 100%                | 29%                 | 100%                | Non-compliant                           |
| 1C_166  | Bedroom 1        | 100%                | 100%                | 97%                 | 100%                | Compliant                               |
| 1C_166  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_167  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_167  | Bedroom 1        | 13%                 | 100%                | 13%                 | 100%                | Non-compliant                           |
| 1C_167  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_168  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_168  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_168  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_169  | LKD              | 64%                 | 100%                | 57%                 | 100%                | Compliant                               |
| 1C_169  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_169  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_170  | LKD              | 65%                 | 100%                | 58%                 | 100%                | Compliant                               |
| 1C_170  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_170  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_171  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_171  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_171  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
For floor plans of the assessed units please refer to section A.1 on page 24.



## C.1.2 Supplementary SDA Results (I.S. EN 17037 criteria): Block 1 - Level 02

| Table No. C.1.2 - Supplementary SDA Results (I.S. EN 17037 criteria): |                  |                     |                     |                     |                     |   |
|---|------------------|---------------------|---------------------|---------------------|---------------------|---|
| Unit Number   | Room Description | No Trees            |                     | With Trees          |                     | Compliance with I.S. EN 17037 Criteria* |
|   |                  | Area above 300 Lux* | Area above 100 Lux* | Area above 300 Lux* | Area above 100 Lux* |   |
| 1C_178  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_178  | Bedroom 1        | 76%                 | 100%                | 74%                 | 100%                | Compliant                               |
| 1C_178  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_179  | LKD              | 34%                 | 100%                | 32%                 | 100%                | Non-compliant                           |
| 1C_179  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_179  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_180  | LKD              | 36%                 | 100%                | 35%                 | 100%                | Non-compliant                           |
| 1C_180  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_180  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_181  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_181  | Bedroom 1        | 28%                 | 100%                | 26%                 | 100%                | Non-compliant                           |
| 1C_181  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_182  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_182  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_182  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_183  | LKD              | 64%                 | 100%                | 59%                 | 100%                | Compliant                               |
| 1C_183  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_183  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_184  | LKD              | 64%                 | 100%                | 61%                 | 100%                | Compliant                               |
| 1C_184  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_184  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_185  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_185  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_185  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
For floor plans of the assessed units please refer to section A.1 on page 24.

### C.1.3 Supplementary SDA Results (I.S. EN 17037 criteria): Block 1 - Level 03

| Table No. C.1.4 - Supplementary SDA Results (I.S. EN 17037 criteria): |                  |                     |                     |                     |                     |   |
|---|------------------|---------------------|---------------------|---------------------|---------------------|---|
| Unit Number   | Room Description | No Trees            |                     | With Trees          |                     | Compliance with I.S. EN 17037 Criteria* |
|   |                  | Area above 300 Lux* | Area above 100 Lux* | Area above 300 Lux* | Area above 100 Lux* |   |
| 1C_192  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_192  | Bedroom 1        | 77%                 | 100%                | 76%                 | 100%                | Compliant                               |
| 1C_192  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_193  | LKD              | 39%                 | 100%                | 38%                 | 100%                | Non-compliant                           |
| 1C_193  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_193  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_194  | LKD              | 41%                 | 100%                | 40%                 | 100%                | Non-compliant                           |
| 1C_194  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_194  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_195  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_195  | Bedroom 1        | 36%                 | 100%                | 36%                 | 100%                | Non-compliant                           |
| 1C_195  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_196  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_196  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_196  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_197  | LKD              | 84%                 | 100%                | 83%                 | 100%                | Compliant                               |
| 1C_197  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_197  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_198  | LKD              | 83%                 | 100%                | 82%                 | 100%                | Compliant                               |
| 1C_198  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_198  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_199  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_199  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_199  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
For floor plans of the assessed units please refer to section A.1 on page 24.

### C.1.4 Supplementary SDA Results (I.S. EN 17037 criteria): Block 1 - Level 04

| Table No. C.1.4 - Supplementary SDA Results (I.S. EN 17037 criteria): |                  |                     |                     |                     |                     |   |
|---|------------------|---------------------|---------------------|---------------------|---------------------|---|
| Unit Number   | Room Description | No Trees            |                     | With Trees          |                     | Compliance with I.S. EN 17037 Criteria* |
|   |                  | Area above 300 Lux* | Area above 100 Lux* | Area above 300 Lux* | Area above 100 Lux* |   |
| 1C_200  | LKD              | 46%                 | 100%                | 46%                 | 100%                | Non-compliant                           |
| 1C_200  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_200  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_201  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_201  | Bedroom 1        | 42%                 | 100%                | 42%                 | 100%                | Non-compliant                           |
| 1C_201  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
For floor plans of the assessed units please refer to section A.1 on page 24.

### C.1.5 Supplementary SDA Results (I.S. EN 17037 criteria): Block 2 - Level 01

| Table No. C.1.6 - Supplementary SDA Results (I.S. EN 17037 criteria): |                  |                     |                     |                     |                     |   |
|---|------------------|---------------------|---------------------|---------------------|---------------------|---|
| Unit Number   | Room Description | No Trees            |                     | With Trees          |                     | Compliance with I.S. EN 17037 Criteria* |
|   |                  | Area above 300 Lux* | Area above 100 Lux* | Area above 300 Lux* | Area above 100 Lux* |   |
| 1C_172  | LKD              | 99%                 | 100%                | 99%                 | 100%                | Compliant                               |
| 1C_172  | Bedroom 1        | 26%                 | 100%                | 21%                 | 100%                | Non-compliant                           |
| 1C_173  | LKD              | 96%                 | 100%                | 96%                 | 100%                | Compliant                               |
| 1C_173  | Bedroom 1        | 71%                 | 100%                | 54%                 | 100%                | Compliant                               |
| 1C_174  | LKD              | 98%                 | 100%                | 97%                 | 100%                | Compliant                               |
| 1C_174  | Bedroom 1        | 59%                 | 100%                | 36%                 | 100%                | Trees affecting compliance              |
| 1C_175  | LKD              | 96%                 | 100%                | 95%                 | 100%                | Compliant                               |
| 1C_175  | Bedroom 1        | 51%                 | 100%                | 31%                 | 100%                | Trees affecting compliance              |
| 1C_176  | LKD              | 98%                 | 100%                | 97%                 | 100%                | Compliant                               |
| 1C_176  | Bedroom 1        | 30%                 | 100%                | 29%                 | 100%                | Non-compliant                           |
| 1C_177  | LKD              | 98%                 | 100%                | 98%                 | 100%                | Compliant                               |
| 1C_177  | Bedroom 1        | 33%                 | 100%                | 31%                 | 100%                | Non-compliant                           |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
For floor plans of the assessed units please refer to section A.1 on page 24.

### C.1.6 Supplementary SDA Results (I.S. EN 17037 criteria): Block 2 - Level 02

| Table No. C.1.6 - Supplementary SDA Results (I.S. EN 17037 criteria): |                  |                     |                     |                     |                     |   |
|---|------------------|---------------------|---------------------|---------------------|---------------------|---|
| Unit Number   | Room Description | No Trees            |                     | With Trees          |                     | Compliance with I.S. EN 17037 Criteria* |
|   |                  | Area above 300 Lux* | Area above 100 Lux* | Area above 300 Lux* | Area above 100 Lux* |   |
| 1C_186  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_186  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_187  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_187  | Bedroom 1        | 100%                | 100%                | 99%                 | 100%                | Compliant                               |
| 1C_188  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_188  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_189  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_189  | Bedroom 1        | 97%                 | 100%                | 97%                 | 100%                | Compliant                               |
| 1C_190  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_190  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_191  | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_191  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
For floor plans of the assessed units please refer to section A.1 on page 24.



### C.1.7 Supplementary SDA Results (I.S. EN 17037 criteria): Duplex (CA 1C) Units - 138-147

| Table No. C.1.7 - Supplementary SDA Results (I.S. EN 17037 criteria): |                  |                     |                     |                     |                     |   |
|---|------------------|---------------------|---------------------|---------------------|---------------------|---|
| Unit Number   | Room Description | No Trees            |                     | With Trees          |                     | Compliance with I.S. EN 17037 Criteria* |
|   |                  | Area above 300 Lux* | Area above 100 Lux* | Area above 300 Lux* | Area above 100 Lux* |   |
| 1C_138  | LKD              | 72%                 | 100%                | 54%                 | 100%                | Compliant                               |
| 1C_138  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_138  | Bedroom 2        | 78%                 | 100%                | 76%                 | 100%                | Compliant                               |
| 1C_139  | Living Room      | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_139  | Kitchen Dining   | 100%                | 100%                | 99%                 | 100%                | Compliant                               |
| 1C_139  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_139  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_139  | Bedroom 3        | 17%                 | 100%                | 17%                 | 100%                | Non-compliant                           |
| 1C_140  | LKD              | 54%                 | 100%                | 43%                 | 100%                | Trees affecting compliance              |
| 1C_140  | Bedroom 1        | 39%                 | 100%                | 36%                 | 100%                | Non-compliant                           |
| 1C_140  | Bedroom 2        | 24%                 | 100%                | 17%                 | 100%                | Non-compliant                           |
| 1C_141  | Living Room      | 33%                 | 100%                | 32%                 | 100%                | Non-compliant                           |
| 1C_141  | Kitchen Dining   | 100%                | 100%                | 98%                 | 100%                | Compliant                               |
| 1C_141  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_141  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_141  | Bedroom 3        | 7%                  | 100%                | 7%                  | 100%                | Non-compliant                           |
| 1C_142  | LKD              | 7%                  | 100%                | 6%                  | 100%                | Non-compliant                           |
| 1C_142  | Bedroom 1        | 97%                 | 100%                | 97%                 | 100%                | Compliant                               |
| 1C_142  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_143  | Living Room      | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_143  | Kitchen Dining   | 32%                 | 100%                | 30%                 | 100%                | Non-compliant                           |
| 1C_143  | Bedroom 1        | 98%                 | 100%                | 95%                 | 100%                | Compliant                               |
| 1C_143  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_143  | Bedroom 3        | 25%                 | 100%                | 25%                 | 100%                | Non-compliant                           |
| 1C_144  | LKD              | 5%                  | 100%                | 5%                  | 100%                | Non-compliant                           |
| 1C_144  | Bedroom 1        | 71%                 | 100%                | 71%                 | 100%                | Compliant                               |
| 1C_144  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_145  | Living Room      | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_145  | Kitchen Dining   | 29%                 | 100%                | 29%                 | 100%                | Non-compliant                           |
| 1C_145  | Bedroom 1        | 94%                 | 100%                | 90%                 | 100%                | Compliant                               |
| 1C_145  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_145  | Bedroom 3        | 28%                 | 100%                | 25%                 | 100%                | Non-compliant                           |
| 1C_146  | LKD              | 9%                  | 100%                | 7%                  | 100%                | Non-compliant                           |
| 1C_146  | Bedroom 1        | 63%                 | 100%                | 60%                 | 100%                | Compliant                               |
| 1C_146  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_147  | Living Room      | 99%                 | 100%                | 99%                 | 100%                | Compliant                               |
| 1C_147  | Kitchen Dining   | 33%                 | 100%                | 30%                 | 100%                | Non-compliant                           |
| 1C_147  | Bedroom 1        | 97%                 | 100%                | 95%                 | 100%                | Compliant                               |
| 1C_147  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_147  | Bedroom 3        | 28%                 | 100%                | 28%                 | 100%                | Non-compliant                           |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
For floor plans of the assessed units please refer to section A.1 on page 24.

### C.1.8 Supplementary SDA Results (I.S. EN 17037 criteria): Duplex (CA 1C) Units - 148-151

| Table No. C.1.8 - Supplementary SDA Results (I.S. EN 17037 criteria): |                  |                     |                     |                     |                     |   |
|---|------------------|---------------------|---------------------|---------------------|---------------------|---|
| Unit Number   | Room Description | No Trees            |                     | With Trees          |                     | Compliance with I.S. EN 17037 Criteria* |
|   |                  | Area above 300 Lux* | Area above 100 Lux* | Area above 300 Lux* | Area above 100 Lux* |   |
| 1C_148  | LKD              | 6%                  | 100%                | 5%                  | 100%                | Non-compliant                           |
| 1C_148  | Bedroom 1        | 56%                 | 100%                | 55%                 | 100%                | Compliant                               |
| 1C_148  | Bedroom 2        | 87%                 | 100%                | 84%                 | 100%                | Compliant                               |
| 1C_149  | Living Room      | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_149  | Kitchen Dining   | 33%                 | 100%                | 29%                 | 100%                | Non-compliant                           |
| 1C_149  | Bedroom 1        | 94%                 | 100%                | 92%                 | 100%                | Compliant                               |
| 1C_149  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_149  | Bedroom 3        | 25%                 | 100%                | 25%                 | 100%                | Non-compliant                           |
| 1C_150  | LKD              | 12%                 | 100%                | 9%                  | 100%                | Non-compliant                           |
| 1C_150  | Bedroom 1        | 63%                 | 100%                | 57%                 | 100%                | Compliant                               |
| 1C_150  | Bedroom 2        | 98%                 | 100%                | 90%                 | 100%                | Compliant                               |
| 1C_151  | Living Room      | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_151  | Kitchen Dining   | 79%                 | 100%                | 68%                 | 100%                | Compliant                               |
| 1C_151  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_151  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_151  | Bedroom 3        | 25%                 | 100%                | 25%                 | 100%                | Non-compliant                           |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
For floor plans of the assessed units please refer to section A.1 on page 24.

### C.1.9 Supplementary SDA Results (I.S. EN 17037 criteria): Duplex (CA 1C) Units - 152-155

| Table No. C.1.9 - Supplementary SDA Results (I.S. EN 17037 criteria): |                  |                     |                     |                     |                     |   |
|---|------------------|---------------------|---------------------|---------------------|---------------------|---|
| Unit Number   | Room Description | No Trees            |                     | With Trees          |                     | Compliance with I.S. EN 17037 Criteria* |
|   |                  | Area above 300 Lux* | Area above 100 Lux* | Area above 300 Lux* | Area above 100 Lux* |   |
| 1C_152  | LKD              | 11%                 | 100%                | 7%                  | 100%                | Non-compliant                           |
| 1C_152  | Bedroom 1        | 79%                 | 100%                | 68%                 | 100%                | Compliant                               |
| 1C_152  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_153  | Living Room      | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_153  | Kitchen Dining   | 81%                 | 100%                | 68%                 | 100%                | Compliant                               |
| 1C_153  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_153  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_153  | Bedroom 3        | 23%                 | 100%                | 23%                 | 100%                | Non-compliant                           |
| 1C_154  | LKD              | 13%                 | 100%                | 12%                 | 100%                | Non-compliant                           |
| 1C_154  | Bedroom 1        | 69%                 | 100%                | 67%                 | 100%                | Compliant                               |
| 1C_154  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_155  | Living Room      | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_155  | Kitchen Dining   | 56%                 | 100%                | 52%                 | 100%                | Compliant                               |
| 1C_155  | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_155  | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_155  | Bedroom 3        | 28%                 | 100%                | 23%                 | 100%                | Non-compliant                           |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
For floor plans of the assessed units please refer to section A.1 on page 24.



### C.1.10 Supplementary SDA Results (I.S. EN 17037 criteria): Duplex (CA 1C) Units - 156-163

| Table No. C.1.10 - Supplementary SDA Results (I.S. EN 17037 criteria): |                  |                     |                     |                     |                     |   |
|--|------------------|---------------------|---------------------|---------------------|---------------------|---|
| Unit Number  | Room Description | No Trees            |                     | With Trees          |                     | Compliance with I.S. EN 17037 Criteria* |
|  |                  | Area above 300 Lux* | Area above 100 Lux* | Area above 300 Lux* | Area above 100 Lux* |   |
| 1C_156   | LKD              | 11%                 | 100%                | 9%                  | 100%                | Non-compliant                           |
| 1C_156   | Bedroom 1        | 53%                 | 100%                | 53%                 | 100%                | Compliant                               |
| 1C_156   | Bedroom 2        | 79%                 | 100%                | 79%                 | 100%                | Compliant                               |
| 1C_157   | Living Room      | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_157   | Kitchen Dining   | 53%                 | 100%                | 45%                 | 100%                | Trees affecting compliance              |
| 1C_157   | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_157   | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_157   | Bedroom 3        | 25%                 | 100%                | 25%                 | 100%                | Non-compliant                           |
| 1C_158   | LKD              | 14%                 | 100%                | 13%                 | 100%                | Non-compliant                           |
| 1C_158   | Bedroom 1        | 54%                 | 100%                | 53%                 | 100%                | Compliant                               |
| 1C_158   | Bedroom 2        | 84%                 | 100%                | 83%                 | 100%                | Compliant                               |
| 1C_159   | Living Room      | 84%                 | 100%                | 83%                 | 100%                | Compliant                               |
| 1C_159   | Kitchen Dining   | 61%                 | 100%                | 56%                 | 100%                | Compliant                               |
| 1C_159   | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_159   | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_159   | Bedroom 3        | 23%                 | 100%                | 23%                 | 100%                | Non-compliant                           |
| 1C_160   | LKD              | 100%                | 100%                | 96%                 | 100%                | Compliant                               |
| 1C_160   | Bedroom 1        | 55%                 | 100%                | 52%                 | 100%                | Compliant                               |
| 1C_160   | Bedroom 2        | 29%                 | 100%                | 24%                 | 100%                | Non-compliant                           |
| 1C_161   | Living Room      | 37%                 | 100%                | 33%                 | 100%                | Non-compliant                           |
| 1C_161   | Kitchen Dining   | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_161   | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_161   | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_161   | Bedroom 3        | 7%                  | 100%                | 7%                  | 100%                | Non-compliant                           |
| 1C_162   | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_162   | Bedroom 1        | 60%                 | 100%                | 53%                 | 100%                | Compliant                               |
| 1C_162   | Bedroom 2        | 43%                 | 100%                | 38%                 | 100%                | Non-compliant                           |
| 1C_163   | Living Room      | 74%                 | 100%                | 74%                 | 100%                | Compliant                               |
| 1C_163   | Kitchen Dining   | 100%                | 100%                | 74%                 | 100%                | Compliant                               |
| 1C_163   | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_163   | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| 1C_163   | Bedroom 3        | 10%                 | 100%                | 10%                 | 100%                | Non-compliant                           |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
For floor plans of the assessed units please refer to section A.1 on page 24.

### C.1.11 Supplementary SDA Results (I.S. EN 17037 criteria): Duplex (CA 1A) Units - 61-67

| Table No. C.1.11 - Supplementary SDA Results (I.S. EN 17037 criteria): |                  |                     |                     |                     |                     |   |
|--|------------------|---------------------|---------------------|---------------------|---------------------|---|
| Unit Number  | Room Description | No Trees            |                     | With Trees          |                     | Compliance with I.S. EN 17037 Criteria* |
|  |                  | Area above 300 Lux* | Area above 100 Lux* | Area above 300 Lux* | Area above 100 Lux* |   |
| D_61   | LKD              | 51%                 | 100%                | 46%                 | 100%                | Trees affecting compliance              |
| D_61   | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_62   | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_62   | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_62   | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_63   | LKD              | 49%                 | 100%                | 34%                 | 100%                | Non-compliant                           |
| D_63   | Bedroom 1        | 100%                | 100%                | 67%                 | 100%                | Compliant                               |
| D_64   | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_64   | Bedroom 1        | 94%                 | 100%                | 94%                 | 100%                | Compliant                               |
| D_64   | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_65   | LKD              | 56%                 | 100%                | 46%                 | 100%                | Trees affecting compliance              |
| D_65   | Bedroom 1        | 92%                 | 100%                | 62%                 | 100%                | Compliant                               |
| D_66   | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_66   | Bedroom 1        | 93%                 | 100%                | 86%                 | 100%                | Compliant                               |
| D_66   | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_67   | LKD              | 55%                 | 100%                | 50%                 | 100%                | Compliant                               |
| D_67   | Bedroom 1        | 98%                 | 100%                | 63%                 | 100%                | Compliant                               |
| D_68   | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_68   | Bedroom 1        | 96%                 | 100%                | 93%                 | 100%                | Compliant                               |
| D_68   | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_69   | LKD              | 59%                 | 100%                | 54%                 | 100%                | Compliant                               |
| D_69   | Bedroom 1        | 97%                 | 100%                | 63%                 | 100%                | Compliant                               |
| D_70   | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_70   | Bedroom 1        | 91%                 | 100%                | 89%                 | 100%                | Compliant                               |
| D_70   | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_71   | LKD              | 52%                 | 100%                | 43%                 | 100%                | Trees affecting compliance              |
| D_71   | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_72   | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_72   | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_72   | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
For floor plans of the assessed units please refer to section A.1 on page 24.

### C.1.12 Supplementary SDA Results (I.S. EN 17037 criteria): Duplex (CA 1A) Units - 73-84

| Table No. C.1.12 - Supplementary SDA Results (I.S. EN 17037 criteria): |                  |                     |                     |                     |                     |   |
|--|------------------|---------------------|---------------------|---------------------|---------------------|---|
| Unit Number  | Room Description | No Trees            |                     | With Trees          |                     | Compliance with I.S. EN 17037 Criteria* |
|  |                  | Area above 300 Lux* | Area above 100 Lux* | Area above 300 Lux* | Area above 100 Lux* |   |
| D_73   | LKD              | 49%                 | 100%                | 48%                 | 100%                | Non-compliant                           |
| D_73   | Bedroom 1        | 100%                | 100%                | 78%                 | 100%                | Compliant                               |
| D_74   | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_74   | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_74   | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_75   | LKD              | 51%                 | 100%                | 48%                 | 100%                | Trees affecting compliance              |
| D_75   | Bedroom 1        | 100%                | 100%                | 62%                 | 100%                | Compliant                               |
| D_76   | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_76   | Bedroom 1        | 96%                 | 100%                | 93%                 | 100%                | Compliant                               |
| D_76   | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_77   | LKD              | 56%                 | 100%                | 48%                 | 100%                | Trees affecting compliance              |
| D_77   | Bedroom 1        | 100%                | 100%                | 62%                 | 100%                | Compliant                               |
| D_78   | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_78   | Bedroom 1        | 93%                 | 100%                | 86%                 | 100%                | Compliant                               |
| D_78   | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_79   | LKD              | 69%                 | 100%                | 45%                 | 100%                | Trees affecting compliance              |
| D_79   | Bedroom 1        | 100%                | 100%                | 63%                 | 100%                | Compliant                               |
| D_80   | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_80   | Bedroom 1        | 96%                 | 100%                | 93%                 | 100%                | Compliant                               |
| D_80   | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_81   | LKD              | 71%                 | 100%                | 57%                 | 100%                | Compliant                               |
| D_81   | Bedroom 1        | 100%                | 100%                | 62%                 | 100%                | Compliant                               |
| D_82   | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_82   | Bedroom 1        | 94%                 | 100%                | 87%                 | 100%                | Compliant                               |
| D_82   | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_83   | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_83   | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_84   | LKD              | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_84   | Bedroom 1        | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| D_84   | Bedroom 2        | 100%                | 100%                | 100%                | 100%                | Compliant                               |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
For floor plans of the assessed units please refer to section A.1 on page 24.



### C.1.13 Supplementary SDA Results (I.S. EN 17037 criteria): Crèche

| Table No. C.1.13 - Supplementary SDA Results (I.S. EN 17037 criteria): |                  |                     |                     |                     |                     |   |
|--|------------------|---------------------|---------------------|---------------------|---------------------|---|
| Unit Number  | Room Description | No Trees            |                     | With Trees          |                     | Compliance with I.S. EN 17037 Criteria* |
|  |                  | Area above 300 Lux* | Area above 100 Lux* | Area above 300 Lux* | Area above 100 Lux* |   |
| Creche   | Classroom 1      | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| Creche   | Classroom 2      | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| Creche   | Classroom 3      | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| Creche   | Classroom 4      | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| Creche   | Classroom 5      | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| Creche   | Classroom 6      | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| Creche   | Classroom 7      | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| Creche   | Sleep Room 1     | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| Creche   | Sleep Room 2     | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| Creche   | Sleep Room 3     | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| Creche   | Classroom 10     | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| Creche   | Classroom 11     | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| Creche   | Classroom 12     | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| Creche   | Classroom 13     | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| Creche   | Classroom 13     | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| Creche   | Classroom 8      | 93%                 | 100%                | 86%                 | 100%                | Compliant                               |
| Creche   | Classroom 9      | 100%                | 100%                | 100%                | 100%                | Compliant                               |
| Creche   | Sleep Room 4     | 100%                | 100%                | 99%                 | 100%                | Compliant                               |
| Creche   | Sleep Room 5     | 100%                | 100%                | 99%                 | 100%                | Compliant                               |
| Creche   | Sleep Room 6     | 94%                 | 100%                | 89%                 | 100%                | Compliant                               |

\* For information regarding the criteria under the various guidelines including target Lux please refer to section 4.2.1 on page 14.  
For floor plans of the assessed units please refer to section A.1 on page 24.

## C.2 Supplementary No Sky Line (NSL) assessment in proposed units.

Below is an example of the table used to describe the supplementary assessment results for 'No Sky Line' in proposed units.

| Table Example. C.2 - Supplementary NSL Results: |                  |   |           |
|---|------------------|---|-----------|
| Unit Number                                     | Room Description | No Sky Line (NSL)   |           |
|   |                  | % of room where the sky is visible from the working plane | Above 80% |
| A   | B                | C   | D         |

### A: Unit Number

This column identifies the assessed unit. All unit numbers are determined by the architect's drawings, unless otherwise stated.

### B: Room Description

*Room Description* details which room in the unit has been assessed, e.g. bedroom, LKD, etc.

### C: % of room where the sky is visible from the working plane

This column states the percentage of the room from which there is a direct line of sight to the sky when assessed at the working plane height, which is 850mm above the finished floor level in residential rooms or 700mm above the finished floor level in offices or classrooms.

### D: Above 80%

Whilst the BRE Guidelines only provide recommendations for NSL in the context of an impact analysis, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."

If this column states: 'Yes', it signifies that the sky will be visible from more than 80% of the working plane.

If this column states: 'No', it signifies that the sky will be visible from less than 80% of the working plane and supplementary electric lighting may be required.

## C.2.1 Supplementary NSL Results: Block 1 - Level 01

| Table No. C.2.1 - Supplementary NSL Results: |                  |   |            |
|--|------------------|---|------------|
| Unit Number                                  | Room Description | No Sky Line (NSL)   |            |
|  |                  | % of room where the sky is visible from the working plane | Above 80%* |
| 1C_164                                       | LKD              | 100%  | Yes        |
| 1C_164                                       | Bedroom 1        | 99%   | Yes        |
| 1C_164                                       | Bedroom 2        | 98%   | Yes        |
| 1C_165                                       | LKD              | 99%   | Yes        |
| 1C_165                                       | Bedroom 1        | 99%   | Yes        |
| 1C_165                                       | Bedroom 2        | 97%   | Yes        |
| 1C_166                                       | LKD              | 99%   | Yes        |
| 1C_166                                       | Bedroom 1        | 99%   | Yes        |
| 1C_166                                       | Bedroom 2        | 97%   | Yes        |
| 1C_167                                       | LKD              | 100%  | Yes        |
| 1C_167                                       | Bedroom 1        | 67%   | No         |
| 1C_167                                       | Bedroom 2        | 99%   | Yes        |
| 1C_168                                       | LKD              | 100%  | Yes        |
| 1C_168                                       | Bedroom 1        | 97%   | Yes        |
| 1C_168                                       | Bedroom 2        | 99%   | Yes        |
| 1C_169                                       | LKD              | 98%   | Yes        |
| 1C_169                                       | Bedroom 1        | 98%   | Yes        |
| 1C_169                                       | Bedroom 2        | 99%   | Yes        |
| 1C_170                                       | LKD              | 98%   | Yes        |
| 1C_170                                       | Bedroom 1        | 98%   | Yes        |
| 1C_170                                       | Bedroom 2        | 99%   | Yes        |
| 1C_171                                       | LKD              | 100%  | Yes        |
| 1C_171                                       | Bedroom 1        | 98%   | Yes        |
| 1C_171                                       | Bedroom 2        | 99%   | Yes        |

\* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."  
For floor plans of the assessed units please refer to section A.1 on page 24.



## C.2.2 Supplementary NSL Results: Block 1 - Level 02

| Table No. C.2.2 - Supplementary NSL Results: |                  |   |            |
|--|------------------|---|------------|
| Unit Number                                  | Room Description | No Sky Line (NSL)   |            |
|  |                  | % of room where the sky is visible from the working plane | Above 80%* |
| 1C_178                                       | LKD              | 100%  | Yes        |
| 1C_178                                       | Bedroom 1        | 99%   | Yes        |
| 1C_178                                       | Bedroom 2        | 98%   | Yes        |
| 1C_179                                       | LKD              | 99%   | Yes        |
| 1C_179                                       | Bedroom 1        | 99%   | Yes        |
| 1C_179                                       | Bedroom 2        | 97%   | Yes        |
| 1C_180                                       | LKD              | 99%   | Yes        |
| 1C_180                                       | Bedroom 1        | 99%   | Yes        |
| 1C_180                                       | Bedroom 2        | 98%   | Yes        |
| 1C_181                                       | LKD              | 100%  | Yes        |
| 1C_181                                       | Bedroom 1        | 100%  | Yes        |
| 1C_181                                       | Bedroom 2        | 99%   | Yes        |
| 1C_182                                       | LKD              | 100%  | Yes        |
| 1C_182                                       | Bedroom 1        | 97%   | Yes        |
| 1C_182                                       | Bedroom 2        | 99%   | Yes        |
| 1C_183                                       | LKD              | 98%   | Yes        |
| 1C_183                                       | Bedroom 1        | 98%   | Yes        |
| 1C_183                                       | Bedroom 2        | 99%   | Yes        |
| 1C_184                                       | LKD              | 98%   | Yes        |
| 1C_184                                       | Bedroom 1        | 98%   | Yes        |
| 1C_184                                       | Bedroom 2        | 99%   | Yes        |
| 1C_185                                       | LKD              | 100%  | Yes        |
| 1C_185                                       | Bedroom 1        | 97%   | Yes        |
| 1C_185                                       | Bedroom 2        | 99%   | Yes        |

\* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."

For floor plans of the assessed units please refer to section A.1 on page 24.

### C.2.3 Supplementary NSL Results: Block 1 - Level 03

| Table No. C.2.4 - Supplementary NSL Results: |                  |   |            |
|--|------------------|---|------------|
| Unit Number                                  | Room Description | No Sky Line (NSL)   |            |
|  |                  | % of room where the sky is visible from the working plane | Above 80%* |
| 1C_192                                       | LKD              | 100%  | Yes        |
| 1C_192                                       | Bedroom 1        | 99%   | Yes        |
| 1C_192                                       | Bedroom 2        | 99%   | Yes        |
| 1C_193                                       | LKD              | 99%   | Yes        |
| 1C_193                                       | Bedroom 1        | 100%  | Yes        |
| 1C_193                                       | Bedroom 2        | 98%   | Yes        |
| 1C_194                                       | LKD              | 99%   | Yes        |
| 1C_194                                       | Bedroom 1        | 99%   | Yes        |
| 1C_194                                       | Bedroom 2        | 98%   | Yes        |
| 1C_195                                       | LKD              | 100%  | Yes        |
| 1C_195                                       | Bedroom 1        | 100%  | Yes        |
| 1C_195                                       | Bedroom 2        | 99%   | Yes        |
| 1C_196                                       | LKD              | 100%  | Yes        |
| 1C_196                                       | Bedroom 1        | 99%   | Yes        |
| 1C_196                                       | Bedroom 2        | 100%  | Yes        |
| 1C_197                                       | LKD              | 99%   | Yes        |
| 1C_197                                       | Bedroom 1        | 99%   | Yes        |
| 1C_197                                       | Bedroom 2        | 99%   | Yes        |
| 1C_198                                       | LKD              | 99%   | Yes        |
| 1C_198                                       | Bedroom 1        | 99%   | Yes        |
| 1C_198                                       | Bedroom 2        | 100%  | Yes        |
| 1C_199                                       | LKD              | 100%  | Yes        |
| 1C_199                                       | Bedroom 1        | 99%   | Yes        |
| 1C_199                                       | Bedroom 2        | 100%  | Yes        |

\* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."  
For floor plans of the assessed units please refer to section A.1 on page 24.

### C.2.4 SDA Results: Block 1 - Level 04

| Table No. C.2.4 - Supplementary NSL Results: |                  |   |            |
|--|------------------|---|------------|
| Unit Number                                  | Room Description | No Sky Line (NSL)   |            |
|  |                  | % of room where the sky is visible from the working plane | Above 80%* |
| 1C_200                                       | LKD              | 99%   | Yes        |
| 1C_200                                       | Bedroom 1        | 100%  | Yes        |
| 1C_200                                       | Bedroom 2        | 98%   | Yes        |
| 1C_201                                       | LKD              | 100%  | Yes        |
| 1C_201                                       | Bedroom 1        | 100%  | Yes        |
| 1C_201                                       | Bedroom 2        | 99%   | Yes        |

\* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."  
For floor plans of the assessed units please refer to section A.1 on page 24.

## C.2.5 Supplementary NSL Results: Block 2 - Level 01

| Table No. C.2.6 - Supplementary NSL Results: |                  |   |            |
|--|------------------|---|------------|
| Unit Number                                  | Room Description | No Sky Line (NSL)   |            |
|  |                  | % of room where the sky is visible from the working plane | Above 80%* |
| 1C_172                                       | LKD              | 97%   | Yes        |
| 1C_172                                       | Bedroom 1        | 95%   | Yes        |
| 1C_173                                       | LKD              | 95%   | Yes        |
| 1C_173                                       | Bedroom 1        | 97%   | Yes        |
| 1C_174                                       | LKD              | 95%   | Yes        |
| 1C_174                                       | Bedroom 1        | 91%   | Yes        |
| 1C_175                                       | LKD              | 95%   | Yes        |
| 1C_175                                       | Bedroom 1        | 96%   | Yes        |
| 1C_176                                       | LKD              | 95%   | Yes        |
| 1C_176                                       | Bedroom 1        | 96%   | Yes        |
| 1C_177                                       | LKD              | 97%   | Yes        |
| 1C_177                                       | Bedroom 1        | 98%   | Yes        |

\* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."

For floor plans of the assessed units please refer to section A.1 on page 24.

## C.2.6 Supplementary NSL Results: Block 2 - Level 02

| Table No. C.2.6 - Supplementary NSL Results: |                  |   |            |
|--|------------------|---|------------|
| Unit Number                                  | Room Description | No Sky Line (NSL)   |            |
|  |                  | % of room where the sky is visible from the working plane | Above 80%* |
| 1C_186                                       | LKD              | 99%   | Yes        |
| 1C_186                                       | Bedroom 1        | 95%   | Yes        |
| 1C_187                                       | LKD              | 99%   | Yes        |
| 1C_187                                       | Bedroom 1        | 97%   | Yes        |
| 1C_188                                       | LKD              | 99%   | Yes        |
| 1C_188                                       | Bedroom 1        | 97%   | Yes        |
| 1C_189                                       | LKD              | 99%   | Yes        |
| 1C_189                                       | Bedroom 1        | 97%   | Yes        |
| 1C_190                                       | LKD              | 99%   | Yes        |
| 1C_190                                       | Bedroom 1        | 97%   | Yes        |
| 1C_191                                       | LKD              | 99%   | Yes        |
| 1C_191                                       | Bedroom 1        | 97%   | Yes        |

\* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."

For floor plans of the assessed units please refer to section A.1 on page 24.



## C.2.7 Supplementary NSL Results: Duplex (Character Area 1C) Units - 138-147

| Table No. C.2.7 - Supplementary NSL Results: |                  |   |            |
|--|------------------|---|------------|
| Unit Number                                  | Room Description | No Sky Line (NSL)   |            |
|  |                  | % of room where the sky is visible from the working plane | Above 80%* |
| 1C_138                                       | LKD              | 99%   | Yes        |
| 1C_138                                       | Bedroom 1        | 100%  | Yes        |
| 1C_138                                       | Bedroom 2        | 84%   | Yes        |
| 1C_139                                       | Living Room      | 92%   | Yes        |
| 1C_139                                       | Kitchen Dining   | 99%   | Yes        |
| 1C_139                                       | Bedroom 1        | 98%   | Yes        |
| 1C_139                                       | Bedroom 2        | 98%   | Yes        |
| 1C_139                                       | Bedroom 3        | 75%   | No         |
| 1C_140                                       | LKD              | 98%   | Yes        |
| 1C_140                                       | Bedroom 1        | 59%   | No         |
| 1C_140                                       | Bedroom 2        | 72%   | No         |
| 1C_141                                       | Living Room      | 73%   | No         |
| 1C_141                                       | Kitchen Dining   | 98%   | Yes        |
| 1C_141                                       | Bedroom 1        | 97%   | Yes        |
| 1C_141                                       | Bedroom 2        | 98%   | Yes        |
| 1C_141                                       | Bedroom 3        | 53%   | No         |
| 1C_142                                       | LKD              | 41%   | No         |
| 1C_142                                       | Bedroom 1        | 100%  | Yes        |
| 1C_142                                       | Bedroom 2        | 99%   | Yes        |
| 1C_143                                       | Living Room      | 96%   | Yes        |
| 1C_143                                       | Kitchen Dining   | 60%   | No         |
| 1C_143                                       | Bedroom 1        | 98%   | Yes        |
| 1C_143                                       | Bedroom 2        | 98%   | Yes        |
| 1C_143                                       | Bedroom 3        | 94%   | Yes        |
| 1C_144                                       | LKD              | 30%   | No         |
| 1C_144                                       | Bedroom 1        | 86%   | Yes        |
| 1C_144                                       | Bedroom 2        | 97%   | Yes        |
| 1C_145                                       | Living Room      | 98%   | Yes        |
| 1C_145                                       | Kitchen Dining   | 53%   | No         |
| 1C_145                                       | Bedroom 1        | 98%   | Yes        |
| 1C_145                                       | Bedroom 2        | 95%   | Yes        |
| 1C_145                                       | Bedroom 3        | 94%   | Yes        |
| 1C_146                                       | LKD              | 33%   | No         |
| 1C_146                                       | Bedroom 1        | 74%   | No         |
| 1C_146                                       | Bedroom 2        | 99%   | Yes        |
| 1C_147                                       | Living Room      | 98%   | Yes        |
| 1C_147                                       | Kitchen Dining   | 53%   | No         |
| 1C_147                                       | Bedroom 1        | 98%   | Yes        |
| 1C_147                                       | Bedroom 2        | 98%   | Yes        |
| 1C_147                                       | Bedroom 3        | 94%   | Yes        |

\* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."

For floor plans of the assessed units please refer to section A.1 on page 24.

## C.2.8 Supplementary NSL Results: Duplex (Character Area 1C) Units - 148-151

| Table No. C.2.8 - Supplementary NSL Results: |                  |   |            |
|--|------------------|---|------------|
| Unit Number                                  | Room Description | No Sky Line (NSL)   |            |
|  |                  | % of room where the sky is visible from the working plane | Above 80%* |
| 1C_148                                       | LKD              | 31%   | No         |
| 1C_148                                       | Bedroom 1        | 70%   | No         |
| 1C_148                                       | Bedroom 2        | 93%   | Yes        |
| 1C_149                                       | Living Room      | 98%   | Yes        |
| 1C_149                                       | Kitchen Dining   | 57%   | No         |
| 1C_149                                       | Bedroom 1        | 98%   | Yes        |
| 1C_149                                       | Bedroom 2        | 98%   | Yes        |
| 1C_149                                       | Bedroom 3        | 94%   | Yes        |
| 1C_150                                       | LKD              | 71%   | No         |
| 1C_150                                       | Bedroom 1        | 72%   | No         |
| 1C_150                                       | Bedroom 2        | 95%   | Yes        |
| 1C_151                                       | Living Room      | 99%   | Yes        |
| 1C_151                                       | Kitchen Dining   | 94%   | Yes        |
| 1C_151                                       | Bedroom 1        | 98%   | Yes        |
| 1C_151                                       | Bedroom 2        | 98%   | Yes        |
| 1C_151                                       | Bedroom 3        | 94%   | Yes        |

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For floor plans of the assessed units please refer to section A.1 on page 24.

## C.2.9 Supplementary NSL Results: Duplex (Character Area 1C) Units - 152-155

| Table No. C.2.9 - Supplementary NSL Results: |                  |   |            |
|--|------------------|---|------------|
| Unit Number                                  | Room Description | No Sky Line (NSL)   |            |
|  |                  | % of room where the sky is visible from the working plane | Above 80%* |
| 1C_152                                       | LKD              | 99%   | Yes        |
| 1C_152                                       | Bedroom 1        | 95%   | Yes        |
| 1C_152                                       | Bedroom 2        | 97%   | Yes        |
| 1C_153                                       | Living Room      | 98%   | Yes        |
| 1C_153                                       | Kitchen Dining   | 97%   | Yes        |
| 1C_153                                       | Bedroom 1        | 98%   | Yes        |
| 1C_153                                       | Bedroom 2        | 98%   | Yes        |
| 1C_153                                       | Bedroom 3        | 94%   | Yes        |
| 1C_154                                       | LKD              | 99%   | Yes        |
| 1C_154                                       | Bedroom 1        | 93%   | Yes        |
| 1C_154                                       | Bedroom 2        | 97%   | Yes        |
| 1C_155                                       | Living Room      | 98%   | Yes        |
| 1C_155                                       | Kitchen Dining   | 98%   | Yes        |
| 1C_155                                       | Bedroom 1        | 98%   | Yes        |
| 1C_155                                       | Bedroom 2        | 98%   | Yes        |
| 1C_155                                       | Bedroom 3        | 94%   | Yes        |

\* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."

For floor plans of the assessed units please refer to section A.1 on page 24.



## C.2.10 Supplementary NSL Results: Duplex (Character Area 1C) Units - 156-163

| Table No. C.2.10 - Supplementary NSL Results: |                  |   |            |
|---|------------------|---|------------|
| Unit Number                                   | Room Description | No Sky Line (NSL)   |            |
|   |                  | % of room where the sky is visible from the working plane | Above 80%* |
| 1C_156  | LKD              | 99%   | Yes        |
| 1C_156  | Bedroom 1        | 71%   | No         |
| 1C_156  | Bedroom 2        | 89%   | Yes        |
| 1C_157  | Living Room      | 98%   | Yes        |
| 1C_157  | Kitchen Dining   | 98%   | Yes        |
| 1C_157  | Bedroom 1        | 98%   | Yes        |
| 1C_157  | Bedroom 2        | 98%   | Yes        |
| 1C_157  | Bedroom 3        | 94%   | Yes        |
| 1C_158  | LKD              | 96%   | Yes        |
| 1C_158  | Bedroom 1        | 66%   | No         |
| 1C_158  | Bedroom 2        | 87%   | Yes        |
| 1C_159  | Living Room      | 96%   | Yes        |
| 1C_159  | Kitchen Dining   | 98%   | Yes        |
| 1C_159  | Bedroom 1        | 98%   | Yes        |
| 1C_159  | Bedroom 2        | 98%   | Yes        |
| 1C_159  | Bedroom 3        | 94%   | Yes        |
| 1C_160  | LKD              | 100%  | Yes        |
| 1C_160  | Bedroom 1        | 99%   | Yes        |
| 1C_160  | Bedroom 2        | 97%   | Yes        |
| 1C_161  | Living Room      | 85%   | Yes        |
| 1C_161  | Kitchen Dining   | 99%   | Yes        |
| 1C_161  | Bedroom 1        | 98%   | Yes        |
| 1C_161  | Bedroom 2        | 98%   | Yes        |
| 1C_161  | Bedroom 3        | 40%   | No         |
| 1C_162  | LKD              | 99%   | Yes        |
| 1C_162  | Bedroom 1        | 68%   | No         |
| 1C_162  | Bedroom 2        | 73%   | No         |
| 1C_163  | Living Room      | 88%   | Yes        |
| 1C_163  | Kitchen Dining   | 98%   | Yes        |
| 1C_163  | Bedroom 1        | 97%   | Yes        |
| 1C_163  | Bedroom 2        | 99%   | Yes        |
| 1C_163  | Bedroom 3        | 58%   | No         |

\* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."

For floor plans of the assessed units please refer to section A.1 on page 24.

### C.2.11 Supplementary NSL Results: Duplex (Character Area 1A) Units - 61-67

| Table No. C.2.11 - Supplementary NSL Results:   |                  |   |            |
|---|------------------|---|------------|
| Unit Number   | Room Description | No Sky Line (NSL)   |            |
|   |                  | % of room where the sky is visible from the working plane | Above 80%* |
| D_61  | LKD              | 55%   | No         |
| D_61  | Bedroom 1        | 99%   | Yes        |
| D_62  | LKD              | 98%   | Yes        |
| D_62  | Bedroom 1        | 100%  | Yes        |
| D_62  | Bedroom 2        | 100%  | Yes        |
| D_63  | LKD              | 56%   | No         |
| D_63  | Bedroom 1        | 99%   | Yes        |
| D_64  | LKD              | 98%   | Yes        |
| D_64  | Bedroom 1        | 94%   | Yes        |
| D_64  | Bedroom 2        | 100%  | Yes        |
| D_65  | LKD              | 65%   | No         |
| D_65  | Bedroom 1        | 99%   | Yes        |
| D_66  | LKD              | 99%   | Yes        |
| D_66  | Bedroom 1        | 94%   | Yes        |
| D_66  | Bedroom 2        | 100%  | Yes        |
| D_67  | LKD              | 81%   | Yes        |
| D_67  | Bedroom 1        | 99%   | Yes        |
| D_68  | LKD              | 99%   | Yes        |
| D_68  | Bedroom 1        | 94%   | Yes        |
| D_68  | Bedroom 2        | 100%  | Yes        |
| D_69  | LKD              | 89%   | Yes        |
| D_69  | Bedroom 1        | 99%   | Yes        |
| D_70  | LKD              | 100%  | Yes        |
| D_70  | Bedroom 1        | 94%   | Yes        |
| D_70  | Bedroom 2        | 100%  | Yes        |
| D_71  | LKD              | 90%   | Yes        |
| D_71  | Bedroom 1        | 99%   | Yes        |
| D_72  | LKD              | 100%  | Yes        |
| D_72  | Bedroom 1        | 96%   | Yes        |
| D_72  | Bedroom 2        | 100%  | Yes        |
| <p>* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."</p> <p>For floor plans of the assessed units please refer to section A.1 on page 24.</p> |                  |   |            |

## C.2.12 Supplementary NSL Results: Duplex (Character Area 1A) Units - 73-84

| Table No. C.2.12 - Supplementary NSL Results: |                  |   |            |
|---|------------------|---|------------|
| Unit Number                                   | Room Description | No Sky Line (NSL)   |            |
|   |                  | % of room where the sky is visible from the working plane | Above 80%* |
| D_73  | LKD              | 63%   | No         |
| D_73  | Bedroom 1        | 99%   | Yes        |
| D_74  | LKD              | 99%   | Yes        |
| D_74  | Bedroom 1        | 94%   | Yes        |
| D_74  | Bedroom 2        | 100%  | Yes        |
| D_75  | LKD              | 68%   | No         |
| D_75  | Bedroom 1        | 99%   | Yes        |
| D_76  | LKD              | 99%   | Yes        |
| D_76  | Bedroom 1        | 94%   | Yes        |
| D_76  | Bedroom 2        | 100%  | Yes        |
| D_77  | LKD              | 83%   | Yes        |
| D_77  | Bedroom 1        | 99%   | Yes        |
| D_78  | LKD              | 100%  | Yes        |
| D_78  | Bedroom 1        | 94%   | Yes        |
| D_78  | Bedroom 2        | 100%  | Yes        |
| D_79  | LKD              | 98%   | Yes        |
| D_79  | Bedroom 1        | 99%   | Yes        |
| D_80  | LKD              | 99%   | Yes        |
| D_80  | Bedroom 1        | 94%   | Yes        |
| D_80  | Bedroom 2        | 100%  | Yes        |
| D_81  | LKD              | 90%   | Yes        |
| D_81  | Bedroom 1        | 99%   | Yes        |
| D_82  | LKD              | 100%  | Yes        |
| D_82  | Bedroom 1        | 94%   | Yes        |
| D_82  | Bedroom 2        | 100%  | Yes        |
| D_83  | LKD              | 100%  | Yes        |
| D_83  | Bedroom 1        | 100%  | Yes        |
| D_84  | LKD              | 99%   | Yes        |
| D_84  | Bedroom 1        | 100%  | Yes        |
| D_84  | Bedroom 2        | 100%  | Yes        |

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For floor plans of the assessed units please refer to section A.1 on page 24.



### C.2.13 Supplementary NSL Results: Crèche

| Table No. C.2.13 - Supplementary NSL Results: |                  |   |            |
|---|------------------|---|------------|
| Unit Number                                   | Room Description | No Sky Line (NSL)   |            |
|   |                  | % of room where the sky is visible from the working plane | Above 80%* |
| Creche  | Classroom 1      | 100%  | Yes        |
| Creche  | Classroom 2      | 100%  | Yes        |
| Creche  | Classroom 3      | 100%  | Yes        |
| Creche  | Classroom 4      | 100%  | Yes        |
| Creche  | Classroom 5      | 100%  | Yes        |
| Creche  | Classroom 6      | 100%  | Yes        |
| Creche  | Classroom 7      | 100%  | Yes        |
| Creche  | Sleep Room 1     | 100%  | Yes        |
| Creche  | Sleep Room 2     | 99%   | Yes        |
| Creche  | Sleep Room 3     | 97%   | Yes        |
| Creche  | Classroom 10     | 100%  | Yes        |
| Creche  | Classroom 11     | 100%  | Yes        |
| Creche  | Classroom 12     | 100%  | Yes        |
| Creche  | Classroom 13     | 100%  | Yes        |
| Creche  | Classroom 13     | 100%  | Yes        |
| Creche  | Classroom 8      | 100%  | Yes        |
| Creche  | Classroom 9      | 100%  | Yes        |
| Creche  | Sleep Room 4     | 99%   | Yes        |
| Creche  | Sleep Room 5     | 99%   | Yes        |
| Creche  | Sleep Room 6     | 97%   | Yes        |

\* Whilst the BRE Guidelines do not provide target values for NSL in a proposed development, it states that "Supplementary electric lighting will be needed if a significant part of the working plane (20% of the room or more) lies beyond the no sky line."

For floor plans of the assessed units please refer to section A.1 on page 24.