August 2019

Proposed Shared Living Development at Brady's Public House, Old Navan Road, Dublin 15

Daylight and Sunlight Analysis

Applicant: Bartra Property (Castleknock) Limited

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Proposed development & assessed areas

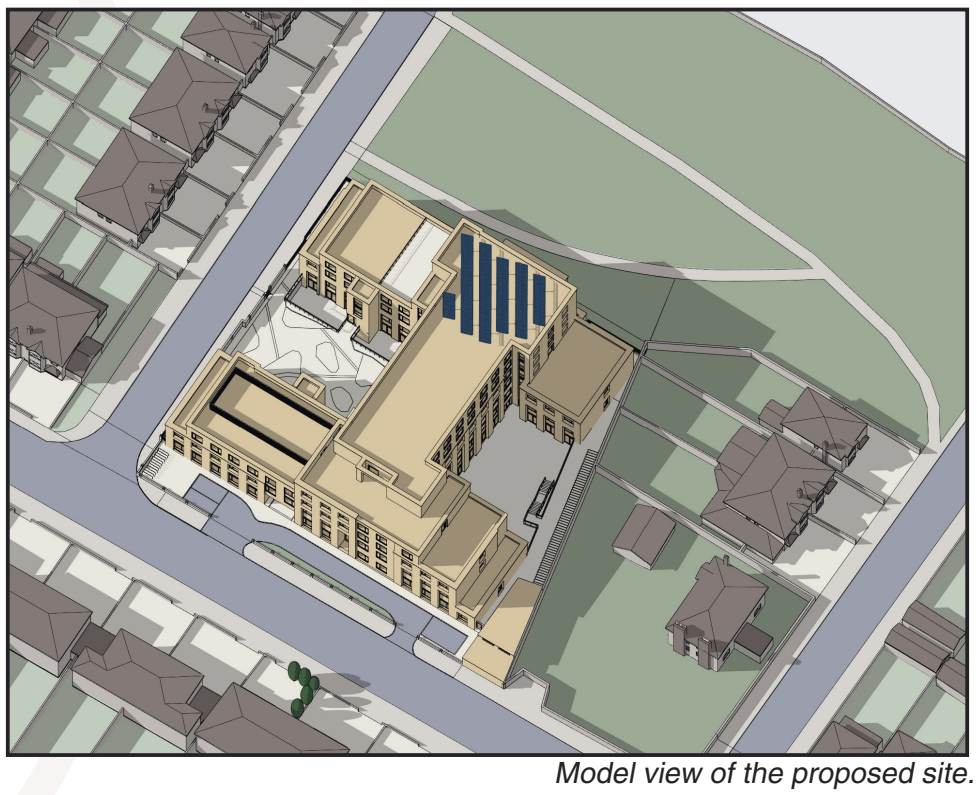
Bartra Property (Castleknock) Limited intend to apply to An Bord Pleanála for permission for a strategic housing development at this 0.3,170 ha site at Brady's Public House, Old Navan Road, Dublin 15, D15 W3FW.

The development will principally consist of: the demolition of the existing part 1 to part 2 No. storey over partial basement public house and restaurant building (1,243 sq m) and the construction of a part 1 to part 5 No. storey over basement Build-to-Rent Shared Living Residential Development (6,549 sq m) comprising 210 No. bedspaces (182 No. single occupancy rooms, 4 No. accessible rooms and 12 No. double occupancy rooms).

The development also consists of the provision of communal living/kitchen/dining rooms at each floor level to serve the residents of each floor; communal resident amenity spaces for all residents including tv/cinema room at basement level, gymnasium and lounge/reception area at ground floor level, a library/study at third floor level and a private dining room at fourth floor level; external roof terrace at third floor level (78 sq m) facing north-east, north-west and south-west; external communal amenity courtyards at basement (170 sq m) and ground floor level (336 sq m); external amenity space at basement level accessed from the communal living/kitchen/dining room (30 sq m); balconies at third floor level facing north-east/north-west (14.35 sq m); resident facilities including launderette, linen store, accessible WC and bin store; 2 No. accesses to the public park along the north-eastern boundary; 2 No. car-share parking spaces; a lay-by and delivery bay; emergency gate access to the courtyard (north-west boundary); bicycle parking; boundary treatments; hard and soft landscaping; plant; PV panels; substation; switch room; generator; lighting; and all other associated site works above and below ground.

Google map view highlighting the site boundary of the proposed development and surrounding properties which have been assessed.

Model view of the baseline site.



Model view of the proposed site.

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Glossary

VSC (Vertical Sky Component)
Ratio of that part of illuminance, at a point on a given vertical plane, that is received directly from a CIE standard overcast sky, 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.

APSH (Annual Probable Sunlight Hours)
Annual probable sunlight hours (APSH) is a measure of sunlight that a given window may expect over a year period.
The BRE guidance recognises that sunlight is less important than daylight in the amenity of a room and is heavily influenced by orientation. North facing windows may receive sunlight on only a handful of occasions in a year, and windows facing eastwards or westwards will only receive sunlight for some of the day. Therefore, BRE guidance states that only windows with an orientation within 90 degrees of due south need be assessed.

ADF (Average daylight factor)
Ratio of total daylight flux incident on the working plane to the area of the working plane, expressed as a percentage of the outdoor illuminance on a horizontal plane due to an unobstructed CIE standard overcast sky.
Thus a 1% ADF would mean that the average indoor illuminance would be one hundredth the outdoor unobstructed illuminance.

Working plane
Horizontal, vertical or inclined plane in which a visual task lies. Normally the working plane may be taken to be horizontal, 0.85 m above the floor in houses and factories, 0.7 m above the floor in offices.

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.

Definition of impacts
The terminology used in this report to determine the definition of impacts has been taken from 2002 publication "Guidelines on the information to be contained in environmental impact statements"
By The Environmental Protection Agency (EPA) these definitions can be seen below.

Imperceptible Impact
An impact capable of measurement but without noticeable consequences.

Slight Impact
An impact which causes noticeable changes in the character of the environment without affecting its sensitivities.

Moderate Impact
An impact that alters the character of the environment in a manner that is consistent with existing and emerging trends.

Significant Impact
An impact which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.

Profound Impact
An impact which obliterates sensitive characteristics.

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Overview

3D Design Bureau (3DDB) were commissioned to carry out a daylight and sunlight analysis and shadow study to assess the impact the proposed shared living development on the site of Brady's Public House, Old Navan Road, Dublin 15 would have on the daylight and sunlight of the adjacent neighbouring properties.

The houses which have been analysed are listed below and indicated on page 3.
- 3 - 11 Old Navan Road
- 7 - 12A Talbot Downs
- 14 - 16 Talbot Court
- Ashgrove (17 Talbot Downs)

In consideration of to the impact the proposed development will have to the properties as listed above, analysis has also been carried out to establish the level of sunlight in the proposed outdoor amenity areas and the level of daylight that can be received in the habitable rooms at basement level and the communal areas across all levels.

For all target values of daylight and sunlight we have followed the 2011 BRE guidelines as set out in "Site layout planning for daylight and sunlight"

Note: The BRE Guidelines should be treated as guidelines as opposed to rules, the document clearly states:

"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"

This analysis has been carried out in 4 parts:

1.) Impact to sunlighting in existing gardens.
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.
If as a result of a new development, an existing garden does not meet the above, and the area which can receive two hours of sun on March 21st is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable.

This study will assess the impact the proposed development would have on the levels of sunlight received in the rear gardens of the neighbouring properties as stated above.
To calculate this, the percentage of garden area which can receive two hours or more of direct sunlight on March 21st has been calculated in both the baseline and proposed states. A comparison between these values will determine the level of impact.

The results for the studies on sunlighting can be found on page 7.
A visual representation of these readings can be seen in the hourly shadow diagrams for March 21st on pages 21 - 23.

2.) VSC (Vertical Sky Component)
Obstructions can limit access to light from the sky. This can be checked by measuring or calculating the Vertical Sky Component (VSC) at the centre of the lowest window where daylight is required.

If VSC is:
- At least 27%, then conventional window design will usually give reasonable results.
- Between 15% and 27%, then special measures (larger windows, changes to room layout) are usually needed to provide adequate daylight.
- Between 5% and 15%, then it is very difficult to provide adequate daylight unless very large windows are used.
- Less than 5%, then it is often impossible to achieve reasonable daylight, even if the whole window wall is glazed.

When measuring the affect a proposed development will have on the VSC of an existing window, if the value drops below the 27% guideline and is less than 0.8 times the existing value, the proposed development could possibly have a noticeable impact on the amount of daylight received.

The VSC of the windows of the assessed houses that face the proposed development has been calculated both in the baseline state and as it would appear should the proposed development be constructed as proposed. A comparison between these values will determine the level of impact.

The results for the study on the impact to VSC caused by the proposed development can be seen on pages 8 - 13.

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Overview cont'd

3.) Sunlighting in proposed outdoor amenity areas:
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.

This study will assess the level of sunlight that can be expected in each of the proposed outdoor amenity areas as highlighted on page 14.

The target values as set out in the BRE guidelines should be used as an aid for design rather that a restriction.
In the document it clearly states that *"It is purely advisory and the numerical target values within it may be varied to meet the needs of the development and its location."*

The results for the studies on sunlighting can be found on page 14.
A visual representation of these readings can be seen in the hourly shadow diagrams on pages 21 - 29.

4.) Average Daylight Factor(ADF)
BS 8206-2 Code of practice for daylighting, recommends an ADF of 5% for a well day lit space and 2% for a partially daylit space. Below 2% the room will look dull and electric lighting is likely to be turned on.
In terms of housing, BS 8206-2 also gives minimum values of ADF: 1.5% for living rooms and 1% for bedrooms.

The ADF has been calculated for all the habitable rooms at basement level. No assessment has been carried out individual habitable rooms on subsequent floors as the levels of daylight naturally increase as the floor level increases and the lowest floor is deemed to be the worst case scenario. All communal rooms on subsequent levels have been analysed to ensure some minor differences in the room layouts do not have a negative impact to the levels of daylight recieved.

The results for the study on ADF can be seen on pages 15 - 20.

Methodology

Building the proposed and existing models.
In order to obtain the results of this analysis 3DDB constructed a digital 3D model of the proposed development and surrounding area, including the existing site which would be demolished should construction go ahead.
The proposed development was modeled from planning drawings issued by TODD Architects.
The existing site, assessed properties and surrounding context model were modeled from a combination of survey information provided by BPM Surveys, ordnance survey information and available on-line photography.
As the information gathered from on-line sources is not as accurate as surveyed information, some tolerance should be allowed to the results generated.

Trees:
Normally trees and shrubs do not need to be included, partially because their shapes are almost impossible to predict, and partially because the dappled shade of a tree is more pleasant than the deep shadow of a building (this applies especially to deciduous trees). Where a dense belt or group of evergreens is specifically planned as a windbreak or for privacy purposes, it is better to include their shadow in the calculation of shaded area.

Defining Areas:
The windows that have been assessed to determine the level of impact to VSC are all the windows of the surrounding properties that face onto the proposed developmet that are assumed to be of habitable rooms.
Assessment points, when measuring VSC of a window, are taken from the centre point of a standard window.
If the window being assessed is a full height window the assessment point is taken at 1600mm above the finished floor level.

No analysis has been carried out on the level of impact to the level of sunlight in the gardens of the properties that lie to the south of the proposed development as it is not possible for these to be impacted.
The proposed amenity areas that have been assessed for sunlight are the areas that were highlighted by TODD as external amenity areas.

Not all rooms that have been assessed for ADF have fixed target values as per the BRE guidelines.
Where no predefined target value is set out in the BRE guidelines we have applied a target value that most closely relates to the function of the space.
For all LKDs we have applied a target value of 1.5 which is the target value for a living space. This is considered an appropriate target value for these rooms as the living space is deemed to be the primary function of the space.

Generating results:
The 3D models as stated above were brought into a specialist software package with purpose built daylight analysis tools.
All target values are obtained from the 2011 BRE guidelines as set out in "Site layout planning for daylight and sunlight" unless otherwise stated.

Shadow Study:
The shadow study renderings were carried in order to give a visual representation to the results set out in the daylight analysis report. Please see pages 21 - 29.

Hourly renderings have been shown from sunrise to sunset on the following dates:
- Spring Equinox: March 21st. Sunrise 6:25 | Sunset 18:40.
- Summer Solstice: June 21st. Sunrise 4:57 | Sunset 21:57.
- Winter Solstice: December 21st. Sunrise 8:38 | Sunset 16:08.
- Note: The Spring and Autumn Equinox yield similar results.

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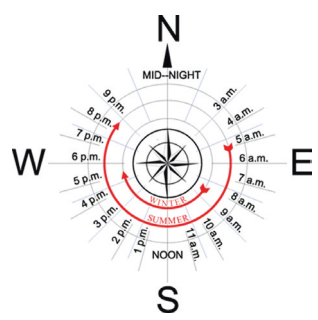
Results

Impact on sunlighting in existing gardens

Address	% of Area to receive above 2 hours sunlight on March 21st (target >50%)		Impact of proposed development on existing garden± (Target <20%)	Meets BRE Guidelines*
	Existing	Proposed		
7 Talbot Downs	70.6%	71.5%	-1%	Yes
8 Talbot Downs	87.7%	88.0%	0%	Yes
9 Talbot Downs	87.4%	86.4%	1%	Yes
10 Talbot Downs	87.3%	87.0%	0%	Yes
11 Talbot Downs	92.0%	92.0%	0%	Yes
12 Talbot Downs	88.9%	88.9%	0%	Yes
12A Talbot Downs	88.1%	88.1%	0%	Yes
14 Talbot Court	65.2%	64.8%	1%	Yes
15 Talbot Court	71.3%	71.3%	0%	Yes
16 Talbot Court	78.7%	78.6%	0%	Yes
Ashgrove	92.5%	92.4%	0%	Yes

* The BRE guidelines state that in order for a proposed development to have a noticeable impact on the amount of sunlight received in an existing garden or amenity area, the value needs to both drop below the stated target value of 50% and be reduced by more than 20% of the existing value.

± Where the impact is stated as a negative number, this indicates an improvement from baseline value.



Aerial photo of assessed neighbouring properties with the rear gardens outlined.

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Results

Impact of VSC on 3 - 5 Old Navan Road

Window number	VSC of Window (Target >27%)		Impact of Proposed development on baseline VSC± (Target <20%)	Meets BRE Guidelines*
	Baseline	Proposed		
3 Old Navan Road				
3 a	37.63%	35.70%	5%	Yes
3 b	33.59%	31.20%	7%	Yes
3 c	37.86%	35.96%	5%	Yes
3 d	37.80%	35.78%	5%	Yes
3 e	37.62%	36.09%	4%	Yes
4 Old Navan Road				
4 a	37.28%	34.41%	8%	Yes
4 b	37.17%	33.83%	9%	Yes
4 c	38.24%	35.68%	7%	Yes
4 d	37.65%	34.85%	7%	Yes
4 e	37.83%	35.29%	7%	Yes
5 Old Navan Road				
5 a	36.48%	31.52%	14%	Yes
5 b	28.81%	24.53%	15%	Yes
5 c	37.72%	34.05%	10%	Yes
5 d	37.82%	33.33%	12%	Yes
5 e	37.70%	34.10%	10%	Yes

* The BRE guidelines state that in order for a proposed development to have a noticeable impact on the VSC of an existing window, the value needs to both drop below the stated target value of 27% and be reduced by more than 20% of the existing value.

Assessed windows 3 - 5 Old Navan Road

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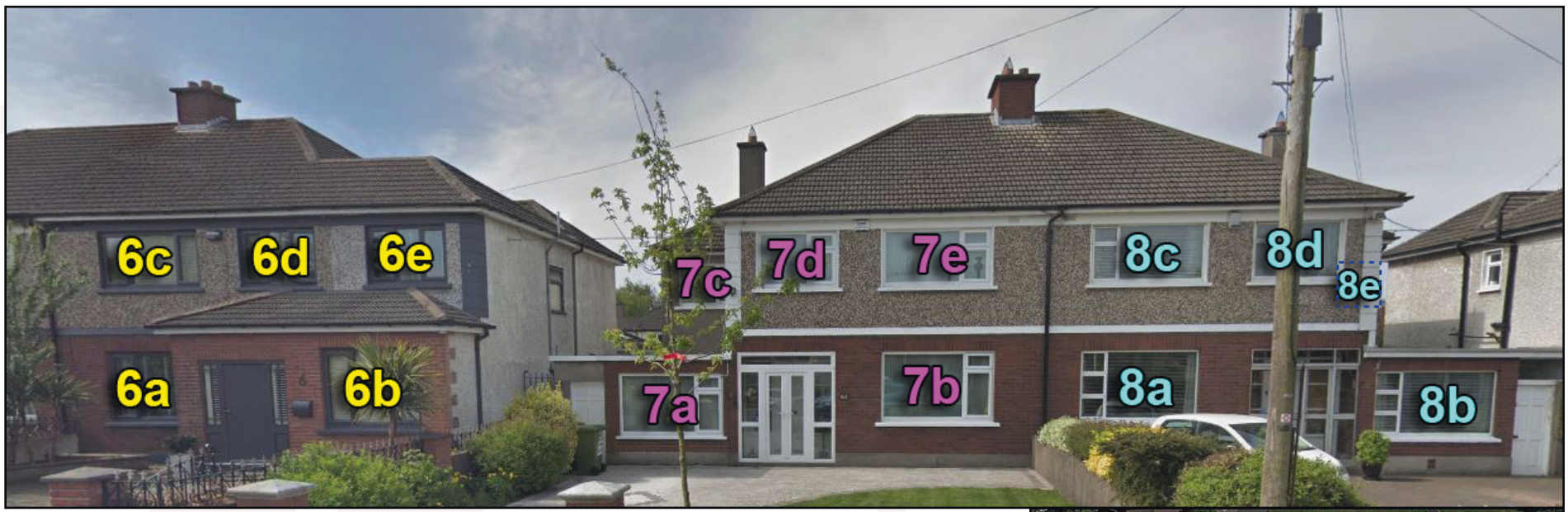
Results

Impact of VSC on 6 - 8 Old Navan Road

Window number	VSC of Window (Target >27%)		Impact of Proposed development on baseline VSC± (Target <20%)	Meets BRE Guidelines*
	Baseline	Proposed		
6 Old Navan Road				
6 a	27.06%	25.37%	6%	Yes
6 b	33.58%	27.17%	19%	Yes
6 c	36.22%	32.65%	10%	Yes
6 d	36.68%	32.60%	11%	Yes
6 e	37.09%	32.21%	13%	Yes
7 Old Navan Road				
7 a	35.60%	29.05%	18%	Yes
7 b	37.04%	31.61%	15%	Yes
7 c	26.10%	22.76%	13%	Yes
7 d	37.08%	33.76%	9%	Yes
7 e	37.76%	33.48%	11%	Yes
8 Old Navan Road				
8 a	37.38%	32.14%	14%	Yes
8 b	37.37%	32.82%	12%	Yes
8 c	37.60%	33.50%	11%	Yes
8 d	37.96%	34.09%	10%	Yes
8 e	25.75%	25.43%	1%	Yes

* The BRE guidelines state that in order for a proposed development to have a noticeable impact on the VSC of an existing window, the value needs to both drop below the stated target value of 27% and be reduced by more than 20% of the existing value.



Assessed windows 6 - 8 Old Navan Road

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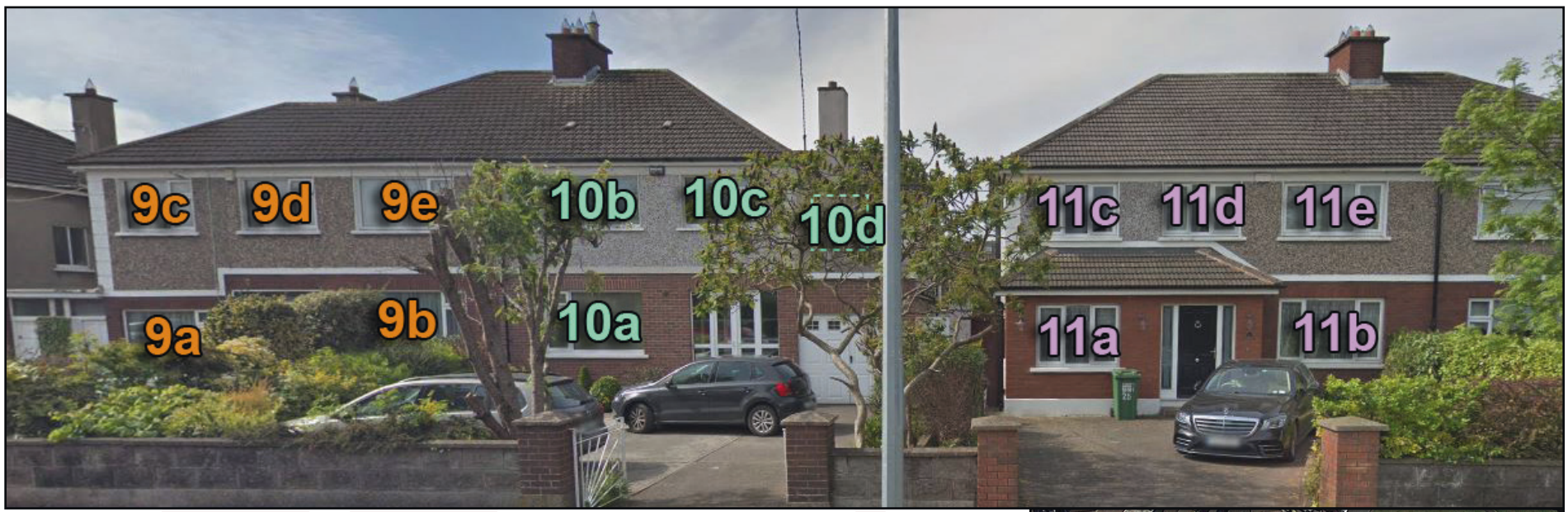
Results

Impact of VSC on 9 - 11 Old Navan Road

Window number	VSC of Window (Target >27%)		Impact of Proposed development on baseline VSC± (Target <20%)	Meets BRE Guidelines*
	Baseline	Proposed		
9 Old Navan Road				
9 a	37.28%	33.53%	10%	Yes
9 b	37.29%	34.48%	8%	Yes
9 c	37.36%	35.18%	6%	Yes
9 d	37.57%	35.09%	7%	Yes
9 e	36.90%	35.44%	4%	Yes
10 Old Navan Road				
10 a	37.14%	34.95%	6%	Yes
10 b	38.27%	35.59%	7%	Yes
10 c	37.63%	35.84%	5%	Yes
10 d	27.46%	26.72%	3%	Yes
11 Old Navan Road				
11 a	36.54%	35.42%	3%	Yes
11 b	35.29%	34.46%	2%	Yes
11 c	37.61%	36.71%	2%	Yes
11 d	37.74%	36.18%	4%	Yes
11 e	37.09%	37.06%	0%	Yes

* The BRE guidelines state that in order for a proposed development to have a noticeable impact on the VSC of an existing window, the value needs to both drop below the stated target value of 27% and be reduced by more than 20% of the existing value.



Assessed windows 9 - 11 Old Navan Road

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Results

Impact of VSC on 7 - 10 Talbot Downs

Window number	VSC of Window (Target >27%)		Impact of Proposed development on baseline VSC± (Target <20%)	Meets BRE Guidelines*
	Baseline	Proposed		
7 Talbot Downs				
7 a	34.69%	31.25%	10%	Yes
7 b	33.73%	29.72%	12%	Yes
7 c	36.83%	33.29%	10%	Yes
8 Talbot Downs				
8 a	34.23%	31.67%	7%	Yes
8 b	36.59%	33.56%	8%	Yes
8 c	33.11%	30.96%	6%	Yes
9 Talbot Downs				
9 a	35.19%	33.54%	5%	Yes
9 b	33.36%	30.81%	8%	Yes
9 c	37.24%	35.07%	6%	Yes
10 Talbot Downs				
10 a	35.86%	34.66%	3%	Yes
10 b	37.32%	35.53%	5%	Yes
10 c	33.75%	31.94%	5%	Yes

* The BRE guidelines state that in order for a proposed development to have a noticeable impact on the VSC of an existing window, the value needs to both drop below the stated target value of 27% and be reduced by more than 20% of the existing value.

Assessed windows 7 - 10 Talbot Downs

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Results

Impact of VSC on 11 - 12A Talbot Downs

Window number	VSC of Window (Target >27%)		Impact of Proposed development on baseline VSC± (Target <20%)	Meets BRE Guidelines*
	Baseline	Proposed		
11 Talbot Downs				
11 a	36.85%	35.59%	3%	Yes
11 b	34.27%	32.67%	5%	Yes
11 c	37.99%	36.26%	5%	Yes
12 Talbot Downs				
12 a	37.30%	36.00%	3%	Yes
12 b	38.06%	36.94%	3%	Yes
12 c	34.99%	33.57%	4%	Yes
12A Talbot Downs				
12A a	37.84%	36.79%	3%	Yes
12A b	35.21%	34.83%	1%	Yes
12A c	38.27%	37.42%	2%	Yes

* The BRE guidelines state that in order for a proposed development to have a noticeable impact on the VSC of an existing window, the value needs to both drop below the stated target value of 27% and be reduced by more than 20% of the existing value.

Assessed windows 11 - 12A Talbot Downs

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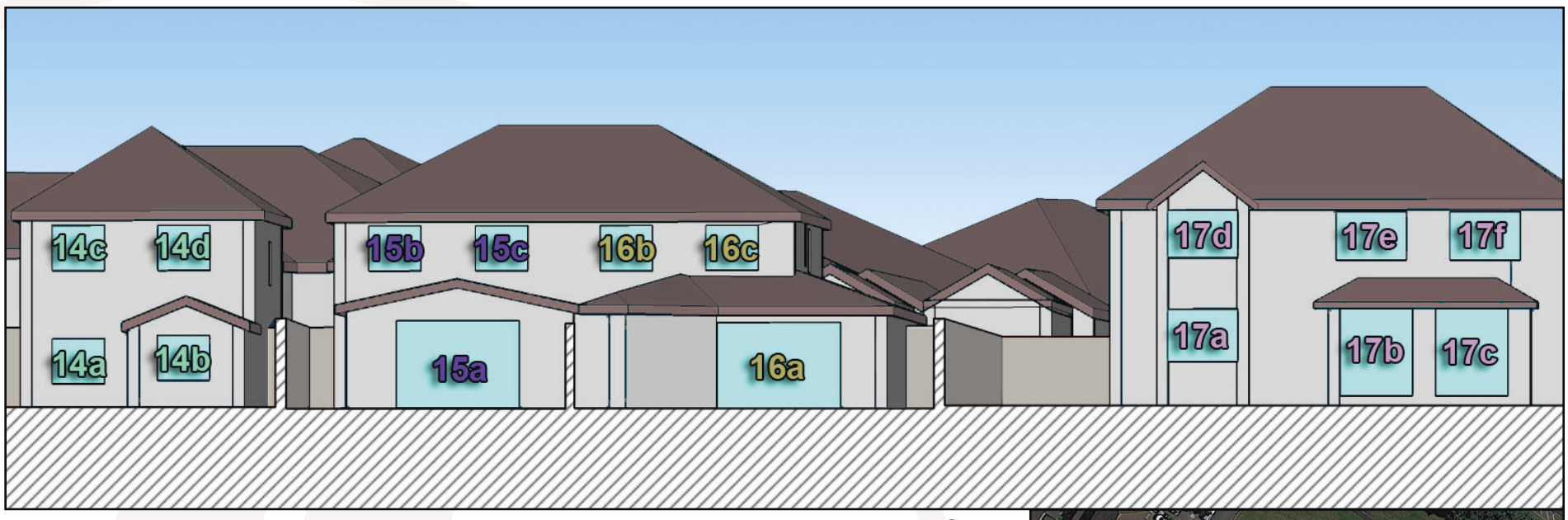
Results

Impact of VSC on Talbot Court

Window number	VSC of Window (Target >27%)		Impact of Proposed development on baseline VSC± (Target <20%)	Meets BRE Guidelines*
	Baseline	Proposed		
14 Talbot Court				
14 a	31.79%	30.18%	5%	Yes
14 b	34.28%	30.74%	10%	Yes
14 c	35.34%	31.99%	9%	Yes
14 d	34.84%	31.65%	9%	Yes
15 Talbot Court				
15 a	33.59%	28.88%	14%	Yes
15 b	34.46%	30.56%	11%	Yes
15 c	34.78%	30.11%	13%	Yes
16 Talbot Court				
16 a	33.03%	26.45%	20%	Yes^
16 b	34.68%	29.65%	15%	Yes
16 c	34.41%	30.07%	13%	Yes
Ashgrove				
17 a	35.76%	30.50%	15%	Yes
17 b	35.47%	29.73%	16%	Yes
17 c	34.67%	30.11%	13%	Yes
17 d	35.23%	30.02%	15%	Yes
17 e	33.60%	28.87%	14%	Yes
17 f	33.31%	28.78%	14%	Yes

* The BRE guidelines state that in order for a proposed development to have a noticeable impact on the VSC of an existing window, the value needs to both drop below the stated target value of 27% and be reduced by more than 20% of the existing value.
^ Impact figures have been rounded off to the nearst whole %. In the case of window 16 a the impact is 19.92% and therefore meets the BRE guidelines.



Assessed windows Talbot Court

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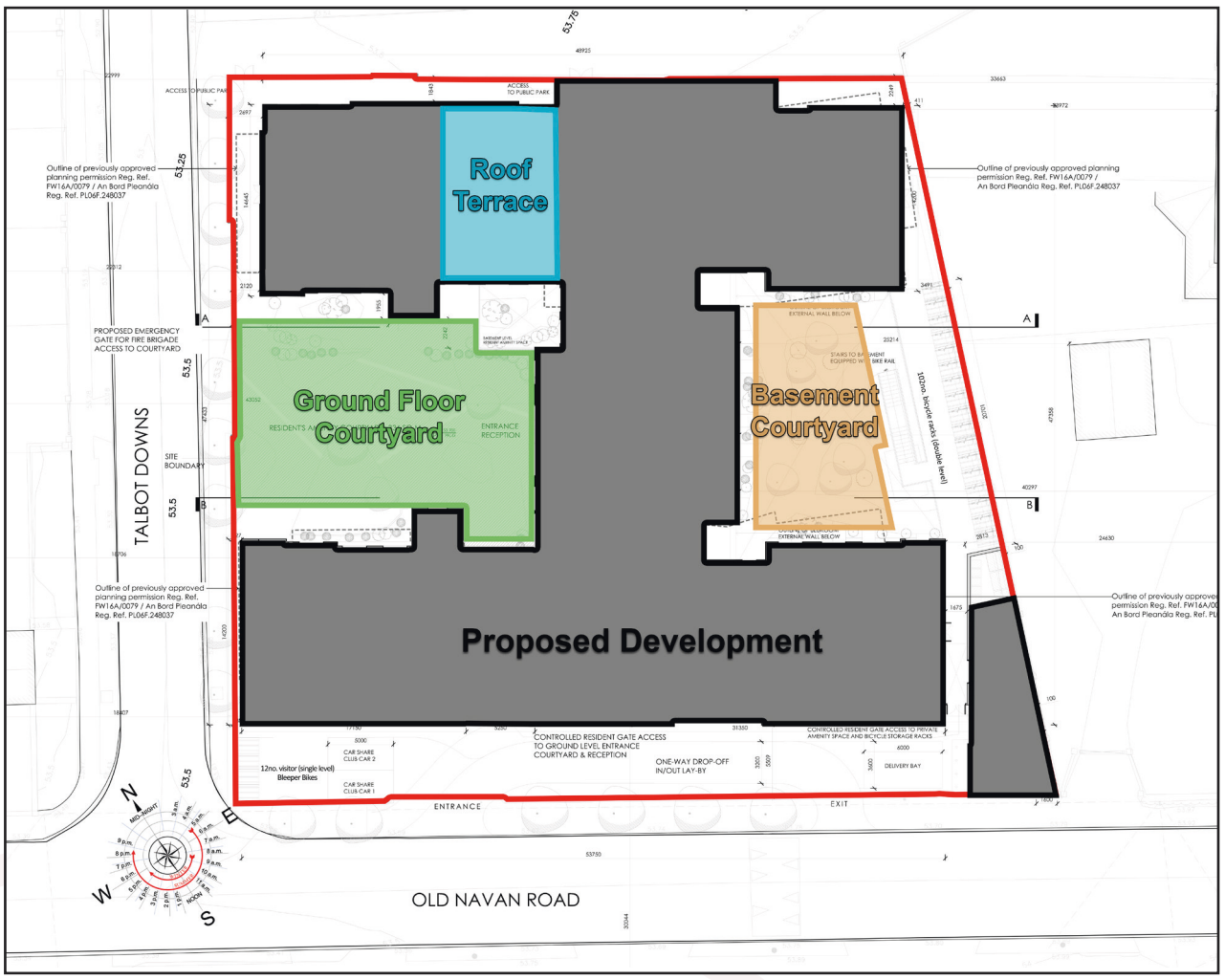
Results

Sunlighting to Proposed amenity areas

% of Area to receive above 2 hours sunlight on March 21st (target >50%)		Meets BRE Guidelines*
Ground Floor Courtyard	11.1%	No
Basement Courtyard	54.1%	Yes
Roof Terrace	81.5%	Yes

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



Site plan indicating the areas that have been assessed

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Results

ADF - Average Daylight Factor
Basement habitible rooms

Room Number	Target	ADF	Meets BRE Guidelines for living space[1]
Room 1	1	2.4	Yes
Room 2	1	2.3	Yes
Room 3	1	2.0	Yes
Room 4	1	2.5	Yes
Room 5	1	3.1	Yes
Room 6	1	3.8	Yes
Room 7	1	4.0	Yes
Room 8	1	3.8	Yes
Room 9	1	3.4	Yes
Room 10	1	2.9	Yes
Room 11	1	2.7	Yes
Room 12	1	3.3	Yes
Room 13	1	3.3	Yes
Room 14	1	3.0	Yes
Living / Kitchen / Dining	1.5	2.4	Yes

[1]BS 8206-2 Code of practice for daylighting, recommends an ADF of 5% for a well day-lit space and 2% for a partially day-lit space. Below 2% the room will look dull and electric lighting is likely to be turned on.
In housing BS 8206-2 also gives minimum values of ADF of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms.

Basement floor plan with the assessed rooms highlighted.

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Results

ADF - Average Daylight Factor
Ground floor communal rooms

Room Number	Target	ADF	Meets BRE Guidelines[1]
LKD 0A	1.5	1.6	Yes
Lounge / Reception	1.5*	1.7	Yes
LKD 0B	1.5	3.2	Yes
Gym	1.5*	2.4	Yes

[1]BS 8206-2 Code of practice for daylighting, recommends an ADF of 5% for a well day-lit space and 2% for a partially day-lit space. Below 2% the room will look dull and electric lighting is likely to be turned on.
In housing BS 8206-2 also gives minimum values of ADF of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms.
*Where no predefined target value is set out in the BRE guidelines we have applied a target value that we deem to appropiate for the function of the space.

Ground floor plan with the assessed rooms highlighted.

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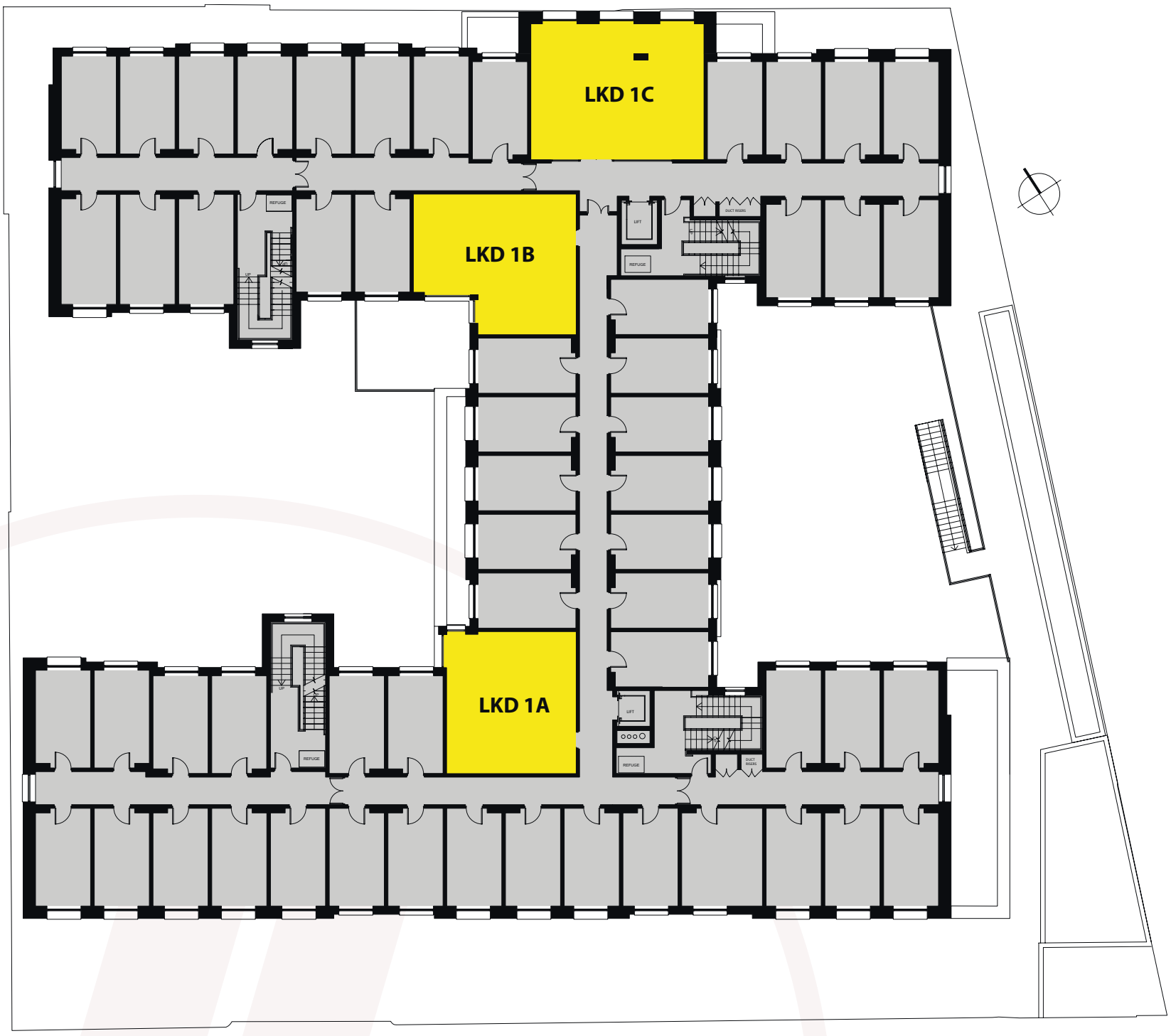
Results

ADF - Average Daylight Factor
1st floor communal rooms

Room Number	Target	ADF	Meets BRE Guidelines for living space[1]
LKD 1A	1.5	1.6	Yes
LKD 1B	1.5	1.5	Yes
LKD 1C	1.5	3.0	Yes

[1]BS 8206-2 Code of practice for daylighting, recommends an ADF of 5% for a well day-lit space and 2% for a partially day-lit space. Below 2% the room will look dull and electric lighting is likely to be turned on.
In housing BS 8206-2 also gives minimum values of ADF of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms.



1st floor plan with the assessed rooms highlighted.

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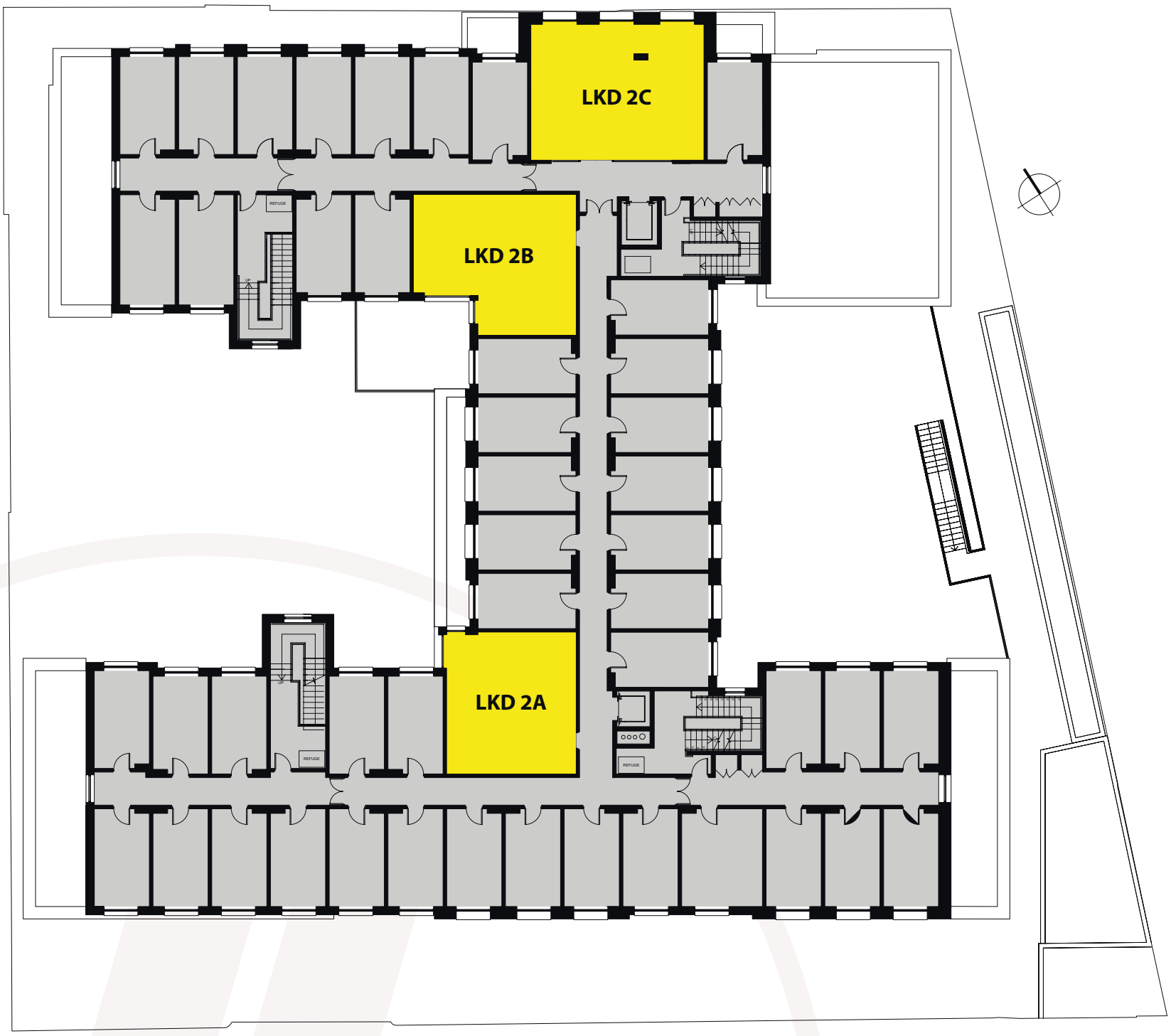
Results

ADF - Average Daylight Factor
2nd floor communal rooms

Room Number	Target	ADF	Meets BRE Guidelines for living space[1]
LKD 2A	1.5	1.7	Yes
LKD 2B	1.5	2.3	Yes
LKD 2C	1.5	3.0	Yes

[1]BS 8206-2 Code of practice for daylighting, recommends an ADF of 5% for a well day-lit space and 2% for a partially day-lit space. Below 2% the room will look dull and electric lighting is likely to be turned on.
In housing BS 8206-2 also gives minimum values of ADF of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms.



2nd floor plan with the assessed rooms highlighted.

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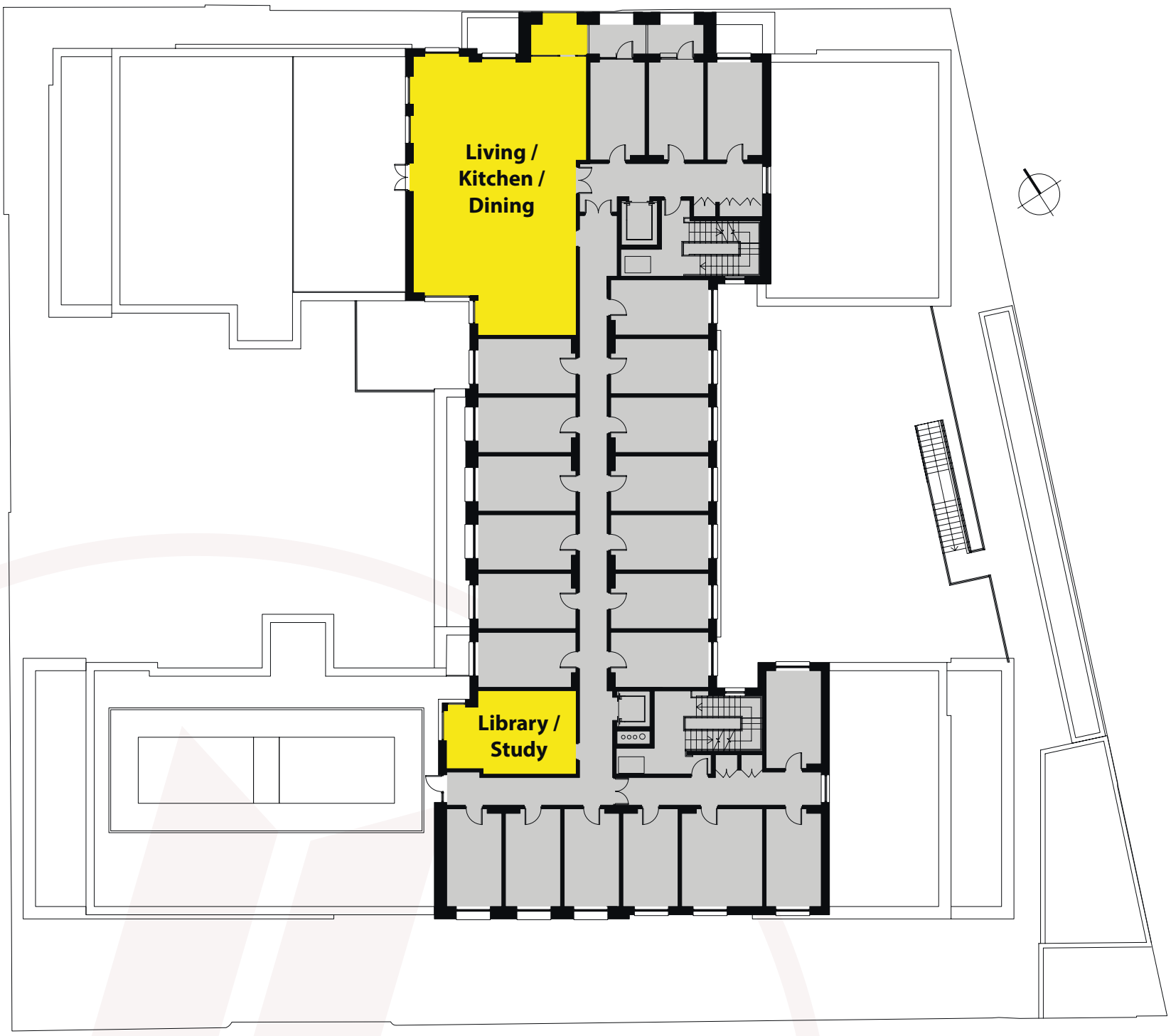
Results

ADF - Average Daylight Factor
3rd floor communal rooms

Room Number	Target	ADF	Meets BRE Guidelines for living space[1]
Library / Study	1.5*	3.4	Yes
3rd Floor LKD	1.5	6.0	Yes

[1]BS 8206-2 Code of practice for daylighting, recommends an ADF of 5% for a well day-lit space and 2% for a partially day-lit space. Below 2% the room will look dull and electric lighting is likely to be turned on.
In housing BS 8206-2 also gives minimum values of ADF of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms.
*Where no predefined target value is set out in the BRE guidelines we have applied a target value that we deem to be appropiate for the function of the space.



3rd floor plan with the assessed rooms highlighted.

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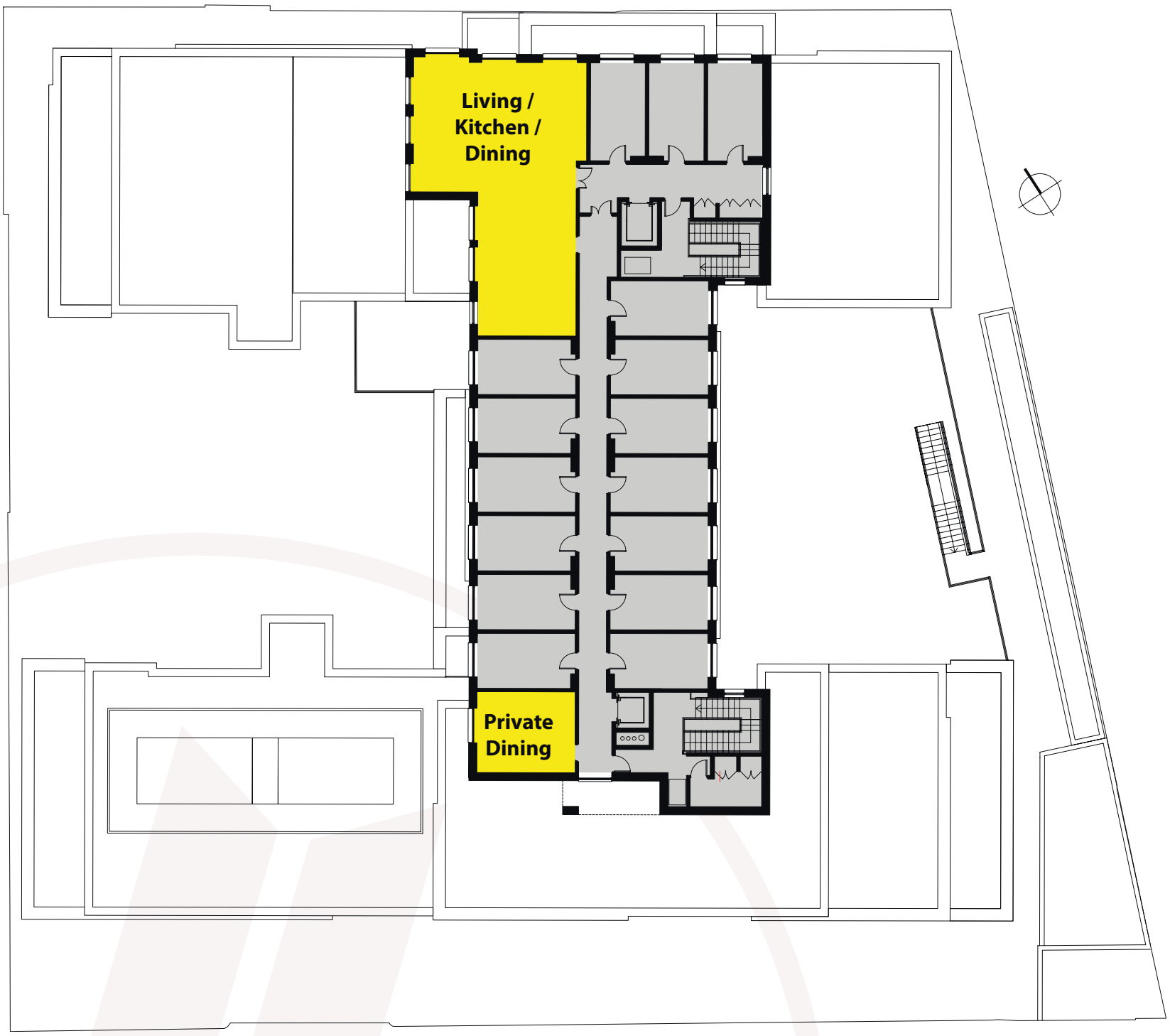
Results

ADF - Average Daylight Factor
4th floor communal rooms

Room Number	Target	ADF	Meets BRE Guidelines for living space[1]
Private Dining	1.5	3.2	Yes
4th Floor LKD	1.5	5.6	Yes

[1]BS 8206-2 Code of practice for daylighting, recommends an ADF of 5% for a well day-lit space and 2% for a partially day-lit space. Below 2% the room will look dull and electric lighting is likely to be turned on.
In housing BS 8206-2 also gives minimum values of ADF of 2% for kitchens, 1.5% for living rooms and 1% for bedrooms.



4th floor plan with the assessed rooms highlighted.

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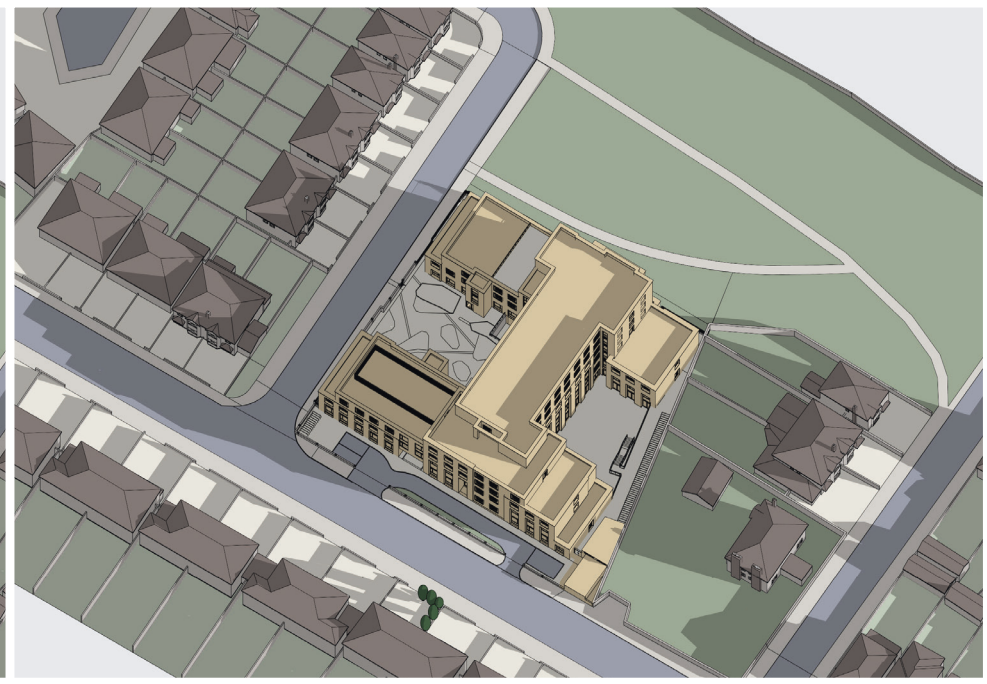
N

	Baseline	Proposed
March 21st 7:00		
March 21st 8:00		
March 21st 9:00		
March 21st 10:00		

Project Title: Proposed Shared Living Development at Brady's Public House, Old Navan Road, Dublin 15

Applicant: Bartra Property (Castleknock) Limited

March 21st
Sunrise 6:25 | Sunset 18:40

Shadow study by 3D DESIGN BUREAU

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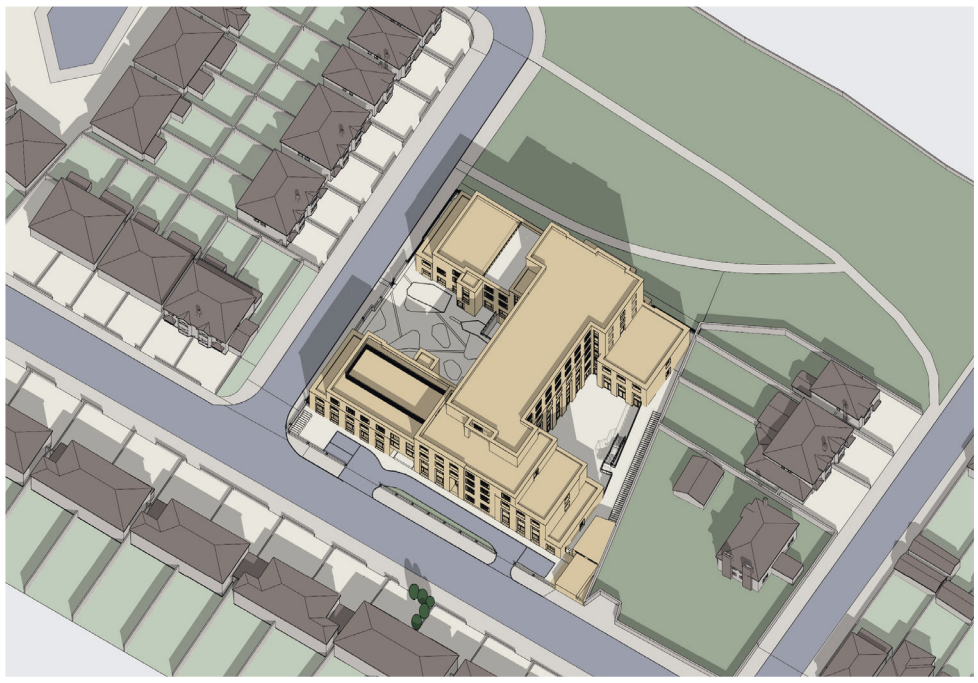
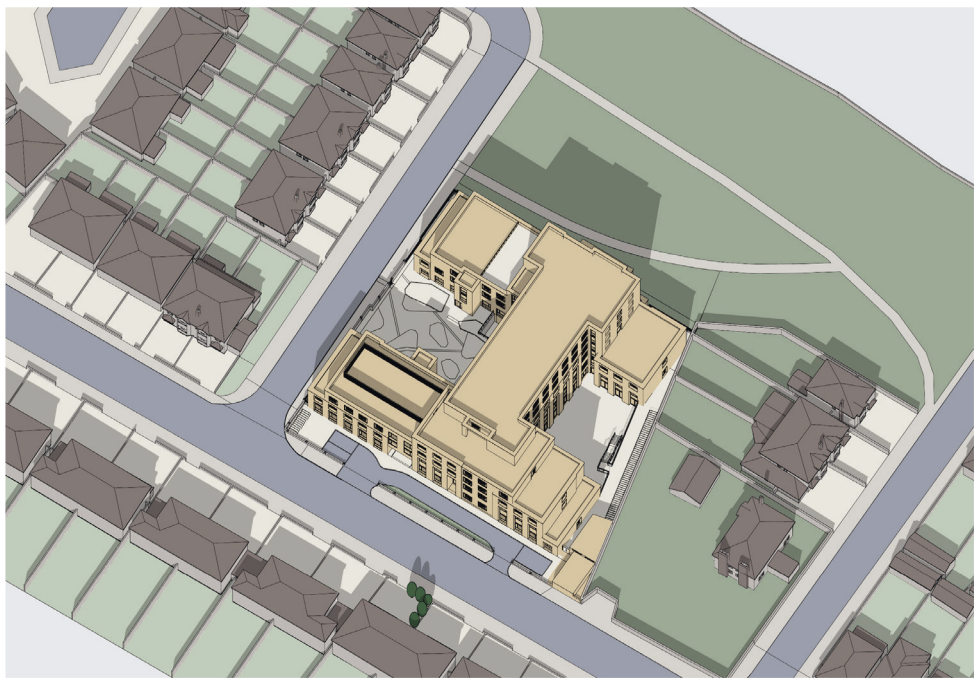
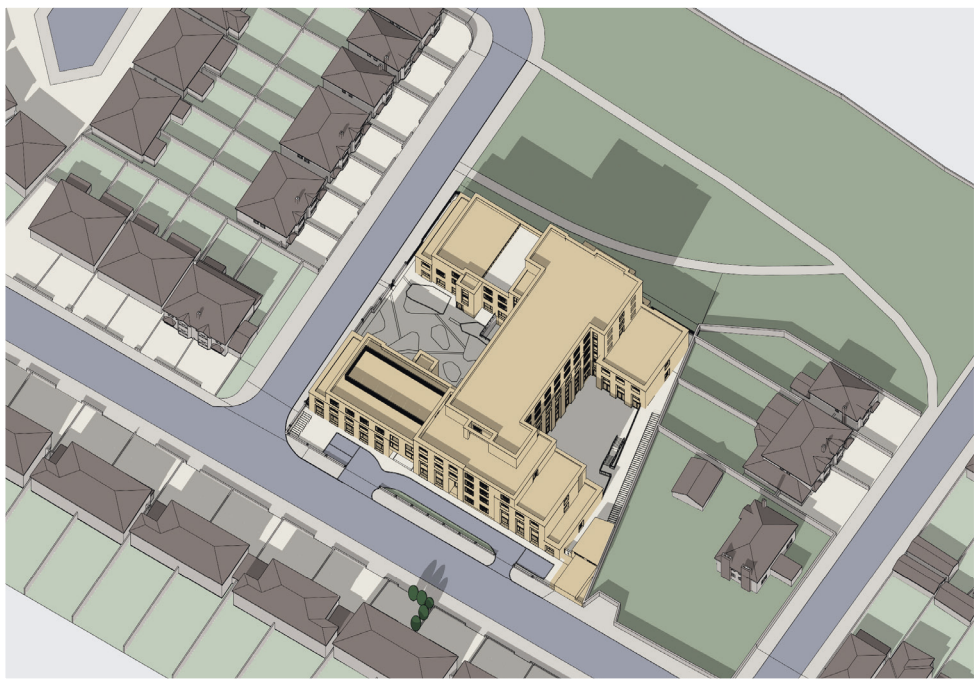
N

	Baseline	Proposed
March 21st 11:00		
March 21st 12:00		
March 21st 13:00		
March 21st 14:00		

Project Title: Proposed Shared Living Development at Brady's Public House, Old Navan Road, Dublin 15

Applicant: Bartra Property (Castleknock) Limited

March 21st
Sunrise 6:25 | Sunset 18:40

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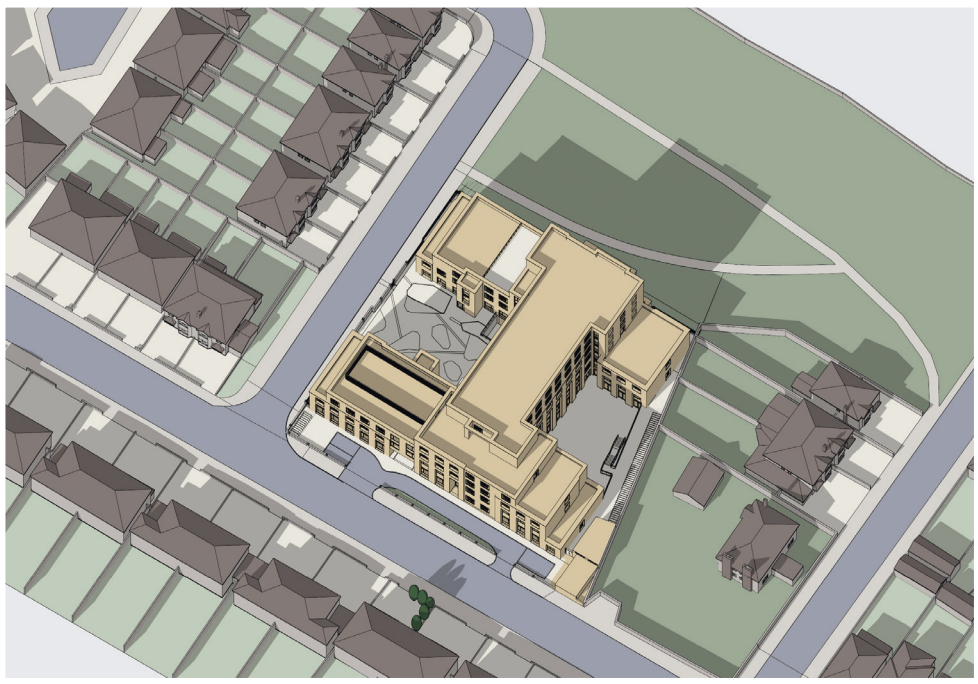
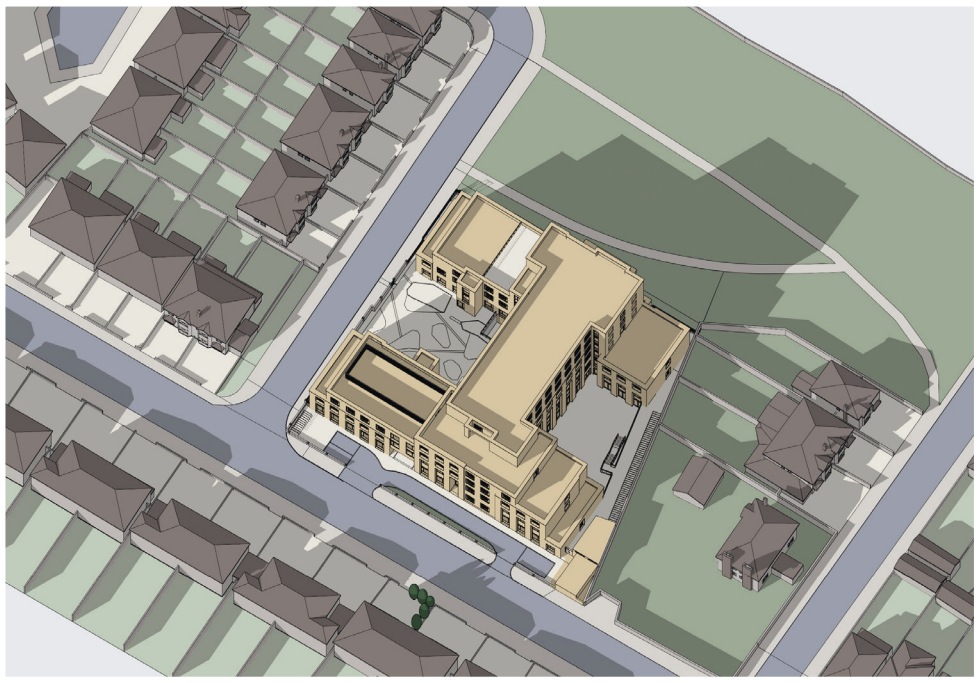
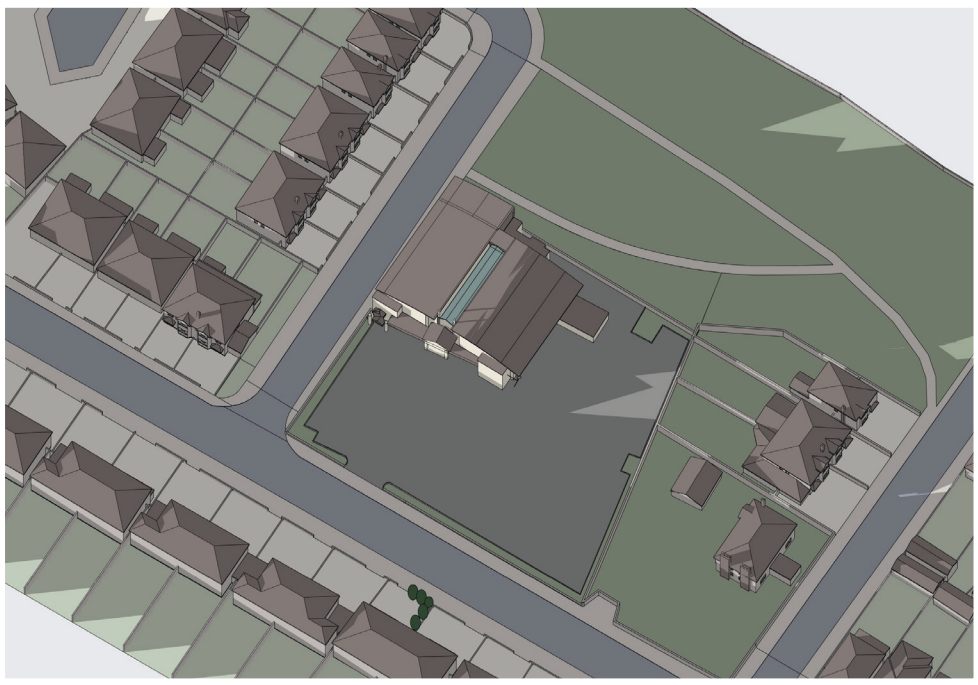
N

	Baseline	Proposed
March 21st 15:00		
March 21st 16:00		
March 21st 17:00		
March 21st 18:00		

Project Title: Proposed Shared Living Development at Brady's Public House, Old Navan Road, Dublin 15

Applicant: Bartra Property (Castleknock) Limited

March 21st
Sunrise 6:25 | Sunset 18:40

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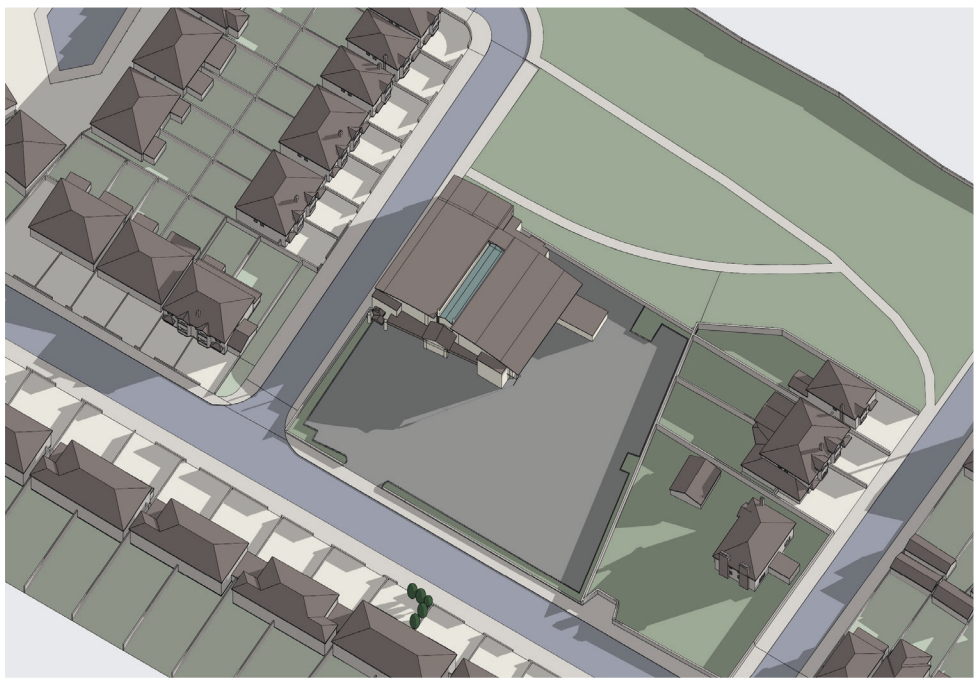
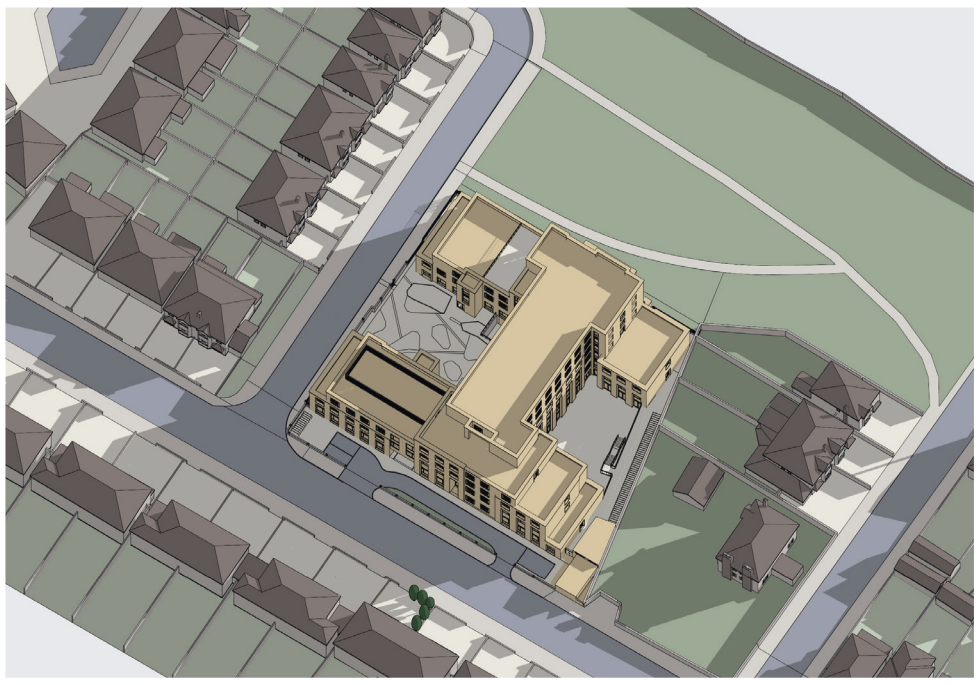
N

	Baseline	Proposed
June 21st 6:00		
June 21st 7:00		
June 21st 8:00		
June 21st 9:00		

Project Title: Proposed Shared Living Development at Brady's Public House, Old Navan Road, Dublin 15

Applicant: Bartra Property (Castleknock) Limited

June 21st
Sunrise 4:57 | Sunset 21:57

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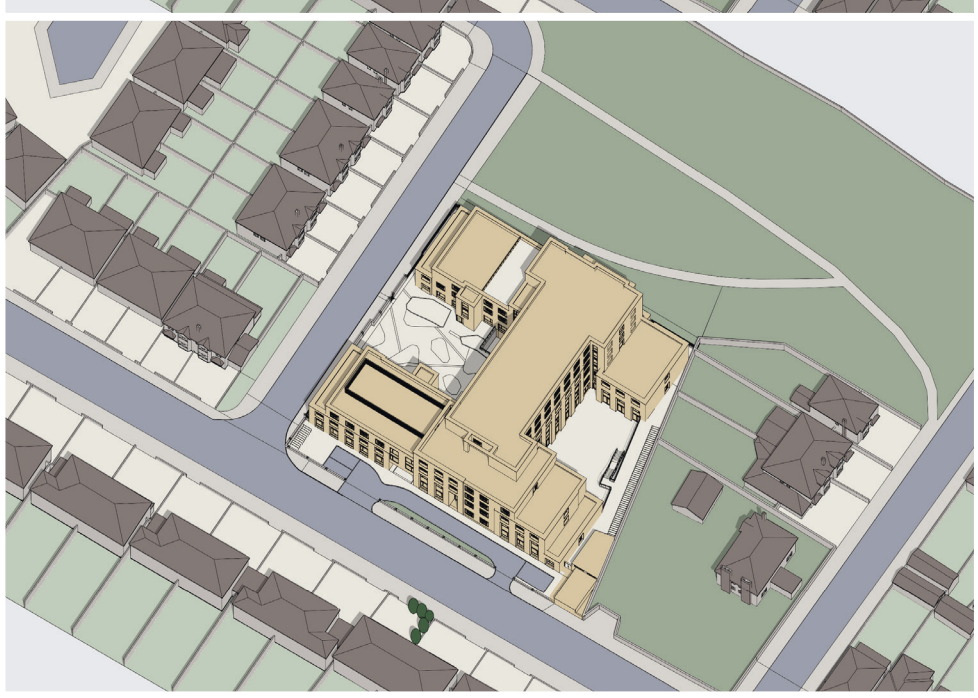
	Baseline	Proposed
June 21st 10:00		
June 21st 11:00		
June 21st 12:00		
June 21st 13:00		

Project Title: Proposed Shared Living Development at Brady's Public House, Old Navan Road, Dublin 15

Applicant: Bartra Property (Castleknock) Limited

June 21st
Sunrise 4:57 | Sunset 21:57

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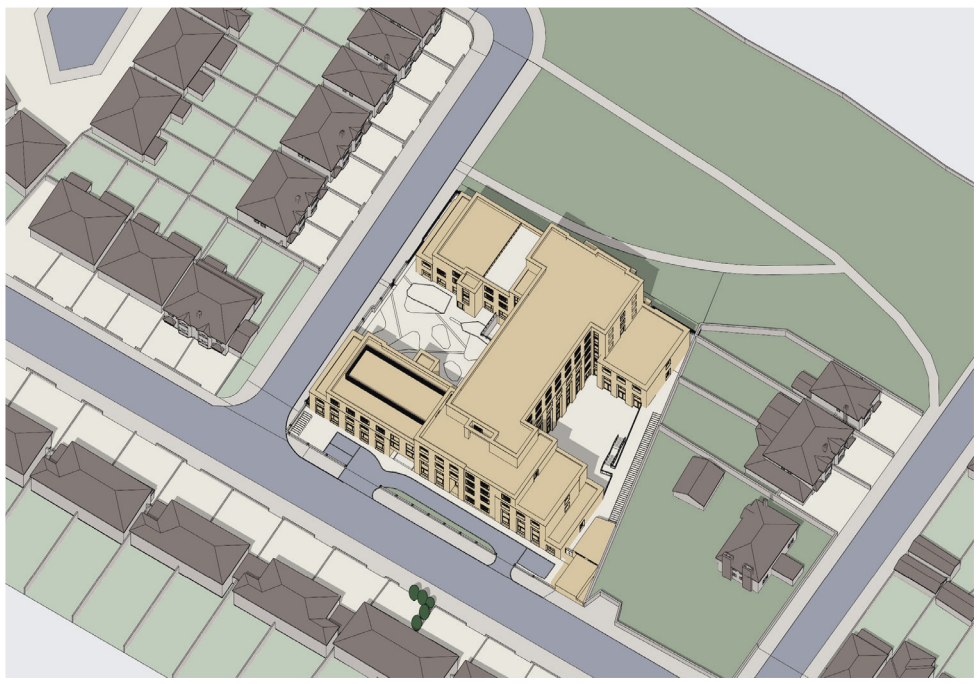
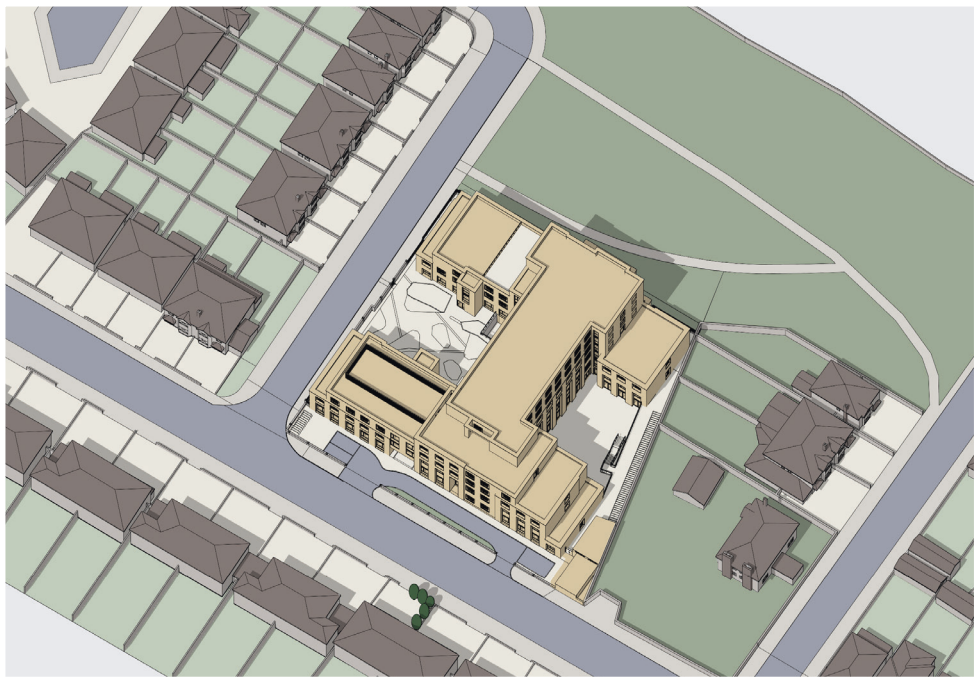
	Baseline	Proposed
June 21st 14:00		
June 21st 15:00		
June 21st 16:00		
June 21st 17:00		

Project Title: Proposed Shared Living Development at Brady's Public House, Old Navan Road, Dublin 15

Applicant: Bartra Property (Castleknock) Limited

June 21st
Sunrise 4:57 | Sunset 21:57

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N

	Baseline	Proposed
June 21st 18:00		
June 21st 19:00		
June 21st 20:00		
June 21st 21:00		

Project Title: Proposed Shared Living Development at Brady's Public House, Old Navan Road, Dublin 15

Applicant: Bartra Property (Castleknock) Limited

June 21st
Sunrise 4:57 | Sunset 21:57

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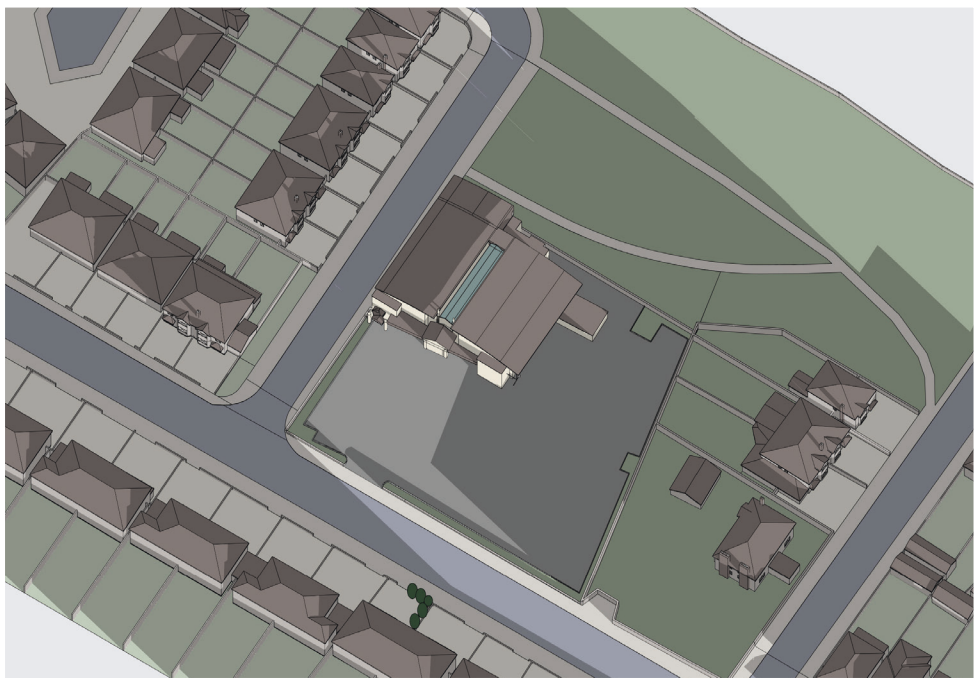
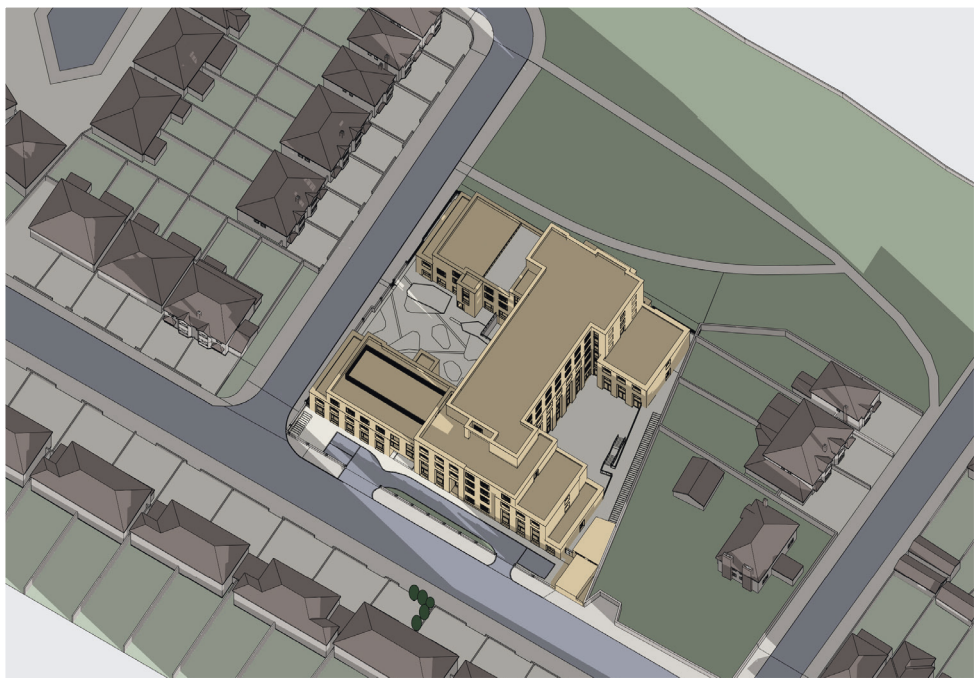
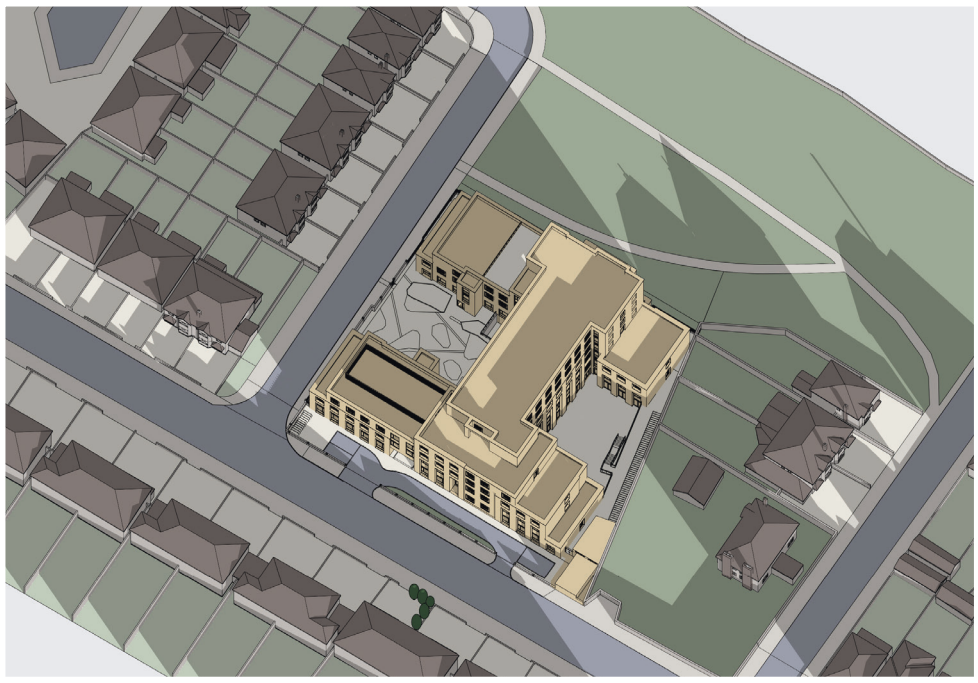
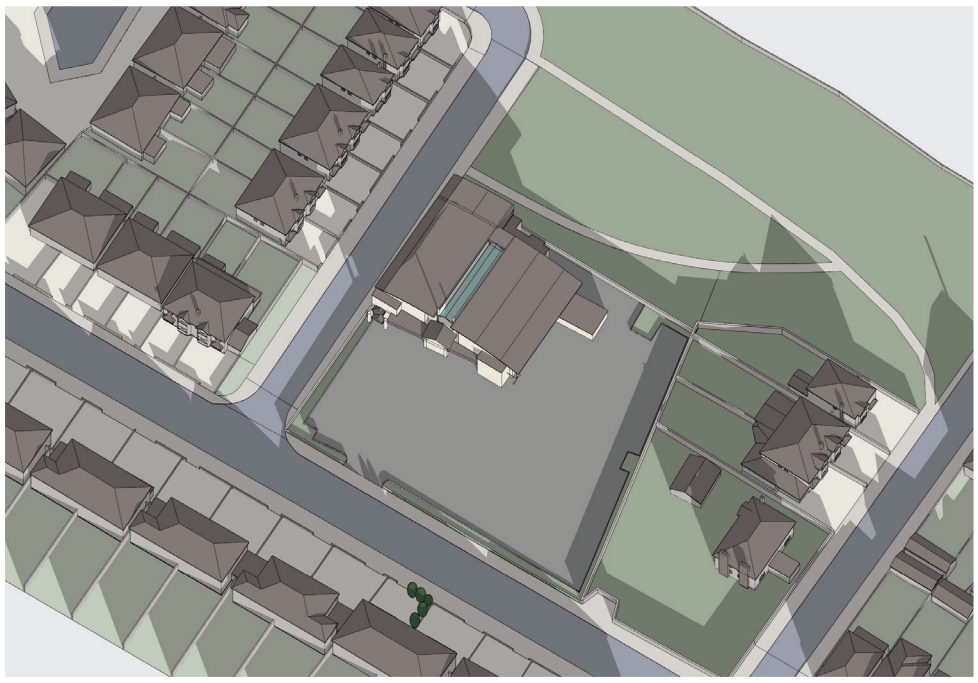
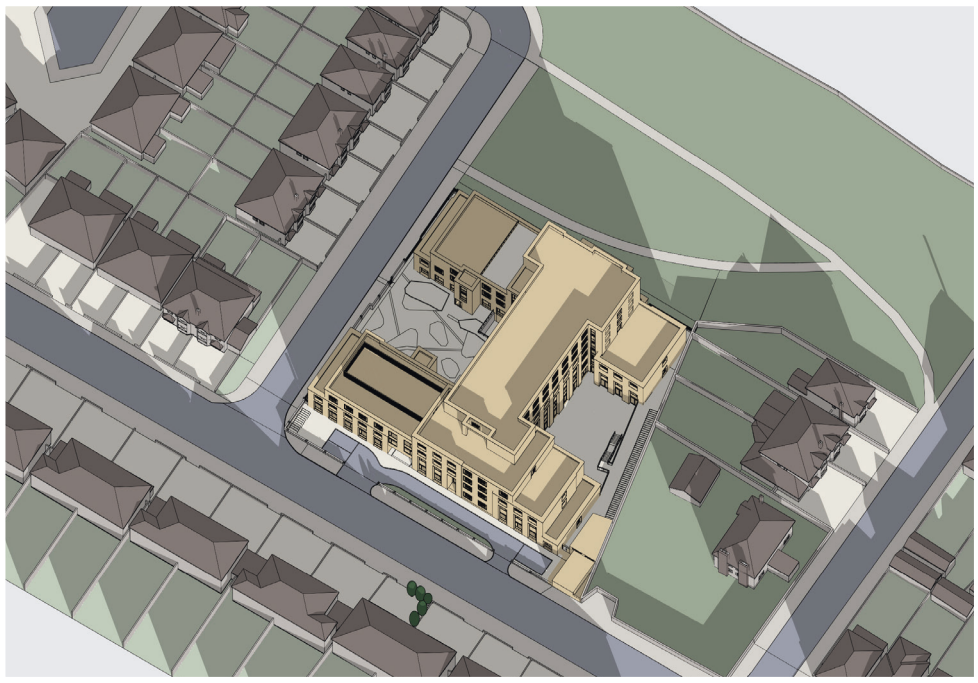
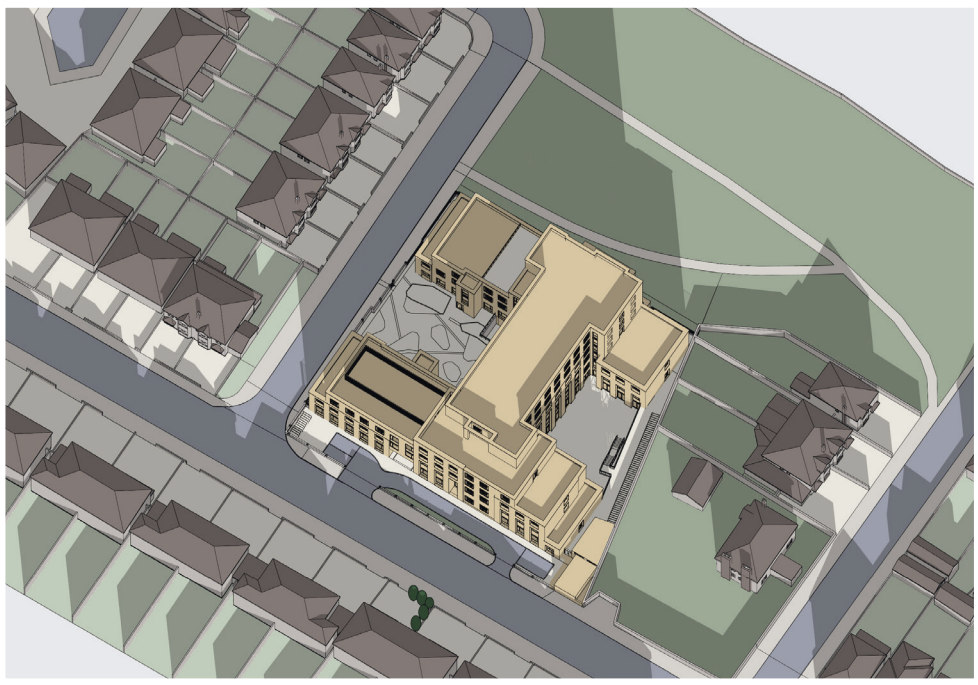
N

	Baseline	Proposed
December 21st 9:00		
December 21st 10:00		
December 21st 11:00		
December 21st 12:00		

Project Title: Proposed Shared Living Development at Brady's Public House, Old Navan Road, Dublin 15

Applicant: Bartra Property (Castleknock) Limited

December 21st
Sunrise 8:38 | Sunset 16:08

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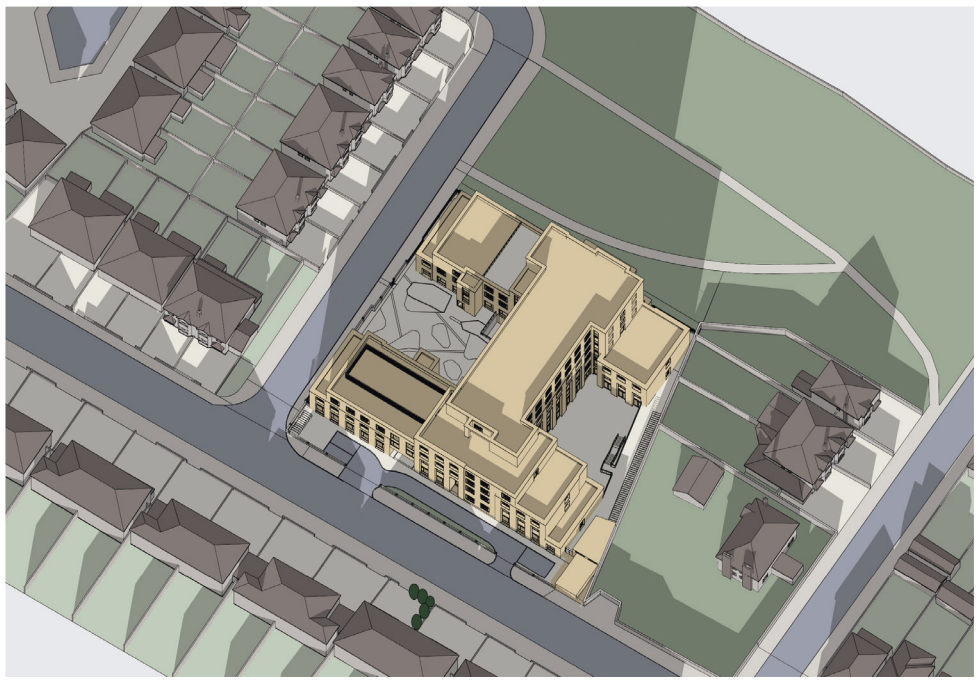
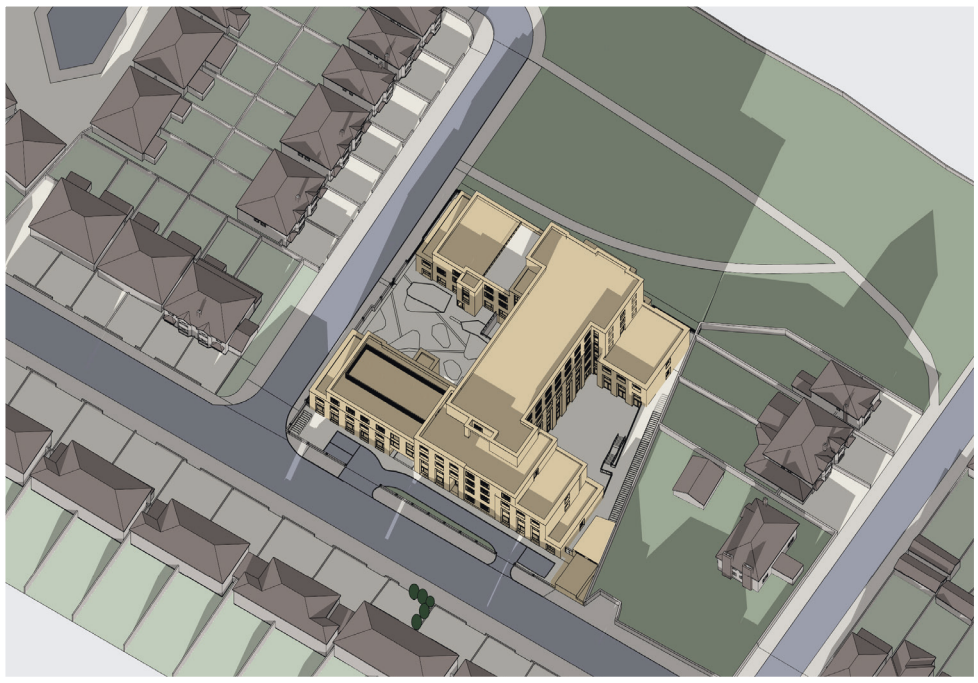
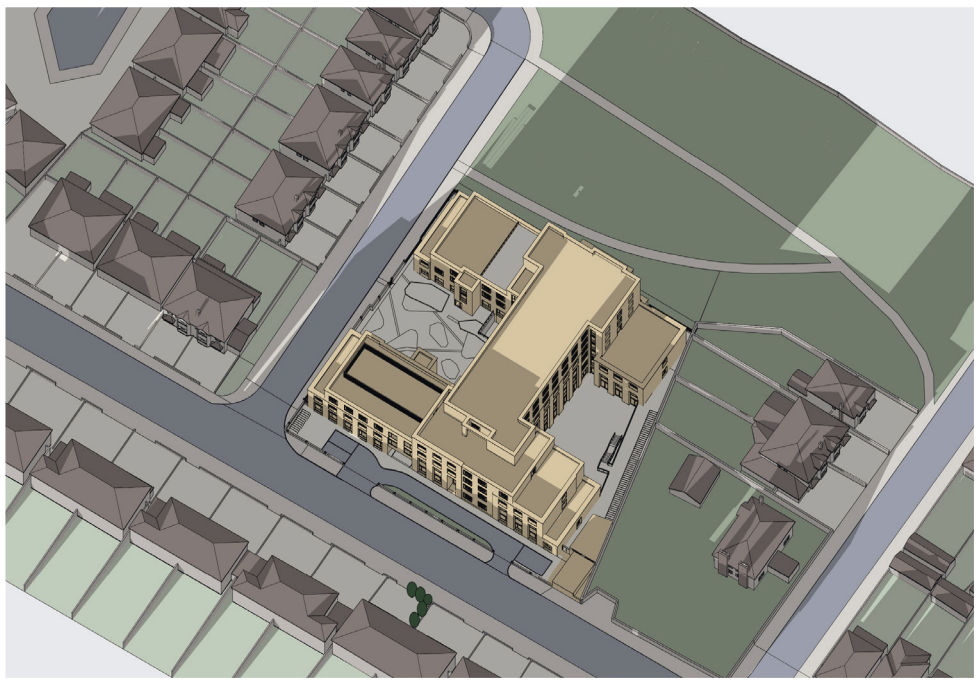
	Baseline	Proposed
December 21st 13:00		
December 21st 14:00		
December 21st 15:00		
December 21st 16:00		

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Applicant: Bartra Property (Castleknock) Limited

December 21st
Sunrise 8:38 | Sunset 16:08

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Summary

3D Design Bureau (3DDB) were commissioned to carry out a daylight and sunlight analysis and shadow study to assess the impact the proposed shared living development on the site of Brady's Public House, Old Navan Road, Dublin 15 would have on the daylight and sunlight of the adjacent neighboring properties.

The houses which have been analysed are listed below and indicated on page 3.
- 3 - 11 Old Navan Road
- 7 - 12A Talbot Downs
- 14 - 16 Talbot Court
- Ashgrove (17 Talbot Downs)

In consideration of to the impact the proposed development will have to the properties as listed above, analysis has also been carried out to establish the level of sunlight in the proposed outdoor amenity areas and the level of daylight that can be received in the habitable rooms at basement level and the communal areas across all levels.

For all target values of daylight and sunlight we have followed the 2011 BRE guidelines as set out in "Site layout planning for daylight and sunlight".

Note: The BRE Guidelines should be treated as guidelines as opposed to rules, the document clearly states:

"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".

This analysis has been carried out in 4 parts:

1.) Impact to sunlighting in existing gardens.
An assessment on the level of sunlight that can be expected to be received, on March 21st, in the gardens of the assessed houses has been carried out with the proposed site in its existing state and as it would appear should the proposed development be constructed as proposed. From the comparison of these results we can determine the level of impact the proposed development will have on the sunlighting received in these existing gardens.

The BRE guidelines recommend that for a garden to appear adequately sunlit throughout the year, at least half of it should receive at least two hours of sunlight on March 21st.
This study has measured the impact the proposed development would have on the percentage of the garden capable of receiving sunlight on March 21st.

The sunlight study has shown that the front garden of 9 Talbot Downs and the rear garden of 14 Talbot Court will experience a negligable level of impact while the front garden of 7 Talbot Downs will enjoy a negligable level of improvement. The improvment that would be experienced in the garen of 7 Talbot Downs would be due to the demolition of the existing structure on the proposed site.
The remainder of the assessed gardens will suffer no reduction to the area of garden capable of receiving 2 hours or more of sunlight on March 21st.

The results of the study on impact to sunlight in the rear gardens can be found on page 7.
A visual representation of these readings can be seen in the hourly shadow diagrams for March 21st as shown on pages 21 - 23.

2.) Impact to Vertical Sky Component. (VSC)
VSC is used to calculate the level of daylight a given window may expect to receive.
The BRE guidelines state that in order for a proposed development to have a noticeable impact on the VSC of an existing window, the value needs to both drop below the stated target value of 27% and be reduced by more than 20% of the existing value.

An assessment has been carried out to calculate the impact to the VSC of the windows which face onto the proposed development. The VSC has been calculated for these properties in the baseline state and in the proposed state.
A comparison of these results will determine the level of impact.

All of the properties that were assessed show a reduction in VSC of less than 20% of the baseline value, which complies with the BRE guidelines.
The impact the proposed development would have on the VSC of the assessed neighbouring properties is deemed to be imperceptible.

The results of the study on VSC can be found on page 8 - 13.

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Summary

2.) Sunlighting in proposed outdoor amenity areas:
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.

This study has assessed the portion of the various amenity areas that are capable of receiving at least 2 hours of sunlight on March 21st. The three areas that have been assessed are the courtyard at basement level, the courtyard at ground level and the roof terrace which is located at 3rd floor level, as highlighted on page 14.

The courtyard at basement level meets the recommended level of sunlight on March 21st as per the BRE guidelines and therefore is considered to acheive appropiate year round levels of sunlight.
Because of the orientation of the proposed site, the expectation of sunlight on March 21st in the ground level courtyard was quite low. This proved to be the case and the portion of this courtyard capable of receiving two hours or more of sunlight on March 21st is quite low. The BRE recommended target value is designed to give an indication of year round levels of sunlight.

While it recognised that the level of sunlight in the ground level courtyard is not going to be favourable throughout the year the proposed scheme has been designed to ensure that this courtyard does receive good levels of sunlight during the summer months. This has been acheived by ensuring the portion of the building directly south of the courtyard is not as high as the portion of the building to the east and the courtyard is completely open to the west. The reduction of mass to the south allows for the sun to cast light over the block in the summer months when the sun is higher in the sky. The opening to the west allows for longer periods of sunlight during summer evenings as the days are longer.
The shadow study for June 21st as illustrataed on Pages 24 - 27 demonstrates that this will be the case.
At the summer solstace, approximately half of the ground level courtyard will be capable of recieving sunlight from just after 10:00am until just after 19.30pm.

Article 6.7 in the planning guidelines on Design Standards for New Apartments as published by the department of Housing, Planning and Local Government in March 2018 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 alternate, compensatory design solutions must be set out, which planning authorities should apply their discretion in accepting taking account of its assessment of specif. This may arise due to a design constraints 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 the sunlight in the proposed ground level courtyard is lower than the recommended levels due to site constraints the inclusion of an accessible roof terrace on the 3rd floor has been included as a compensatory measure. This roof terrace will receive extremely high levels of sunlight throughout the year.

The results for the studies on sunlighting can be found on page 14.
A visual representation of these readings can be seen in the hourly shadow diagrams on pages 21 - 29.

3.) Average Daylight Factor(ADF)
BS 8206-2 Code of practice for daylighting, recommends an ADF of 5% for a well day lit space and 2% for a partially day-lit space. Below 2% the room will look dull and electric lighting is likely to be turned on.
In terms of housing, BS 8206-2 also gives minimum values of ADF: 1.5% for living rooms and 1% for bedrooms.

The ADF has been calculated for all the habitable rooms at basement level. No assessment has been carried out individual habitable rooms on subsequent floors as the levels of daylight naturally increase as the floor level increases and the lowest floor is deemed to be the worst case scenario. All communal rooms on subsequent levels have been analysed.

All of the assessed individual rooms at basement level have comfortably met the BRE guidelines on average daylight factor which is an indication that the similar rooms on subsequent floors will also meet the guidelines.
All of the communal rooms that have been analysed across the entire proposed development have acheived the target values for ADF. The initial analysis of these rooms was generally very positive, but there was a couple of rooms that fell short of the recommended levels of daylight. The client and the architects were very responsive to these results and insisted on the necessary minor adjustments to ensure that the appropiate levels of daylight was acheived in every room.

The results for the study on ADF can be seen on pages 15 - 20.

Conclusion

The proposed development would not result in any significant impact on the level of daylight or sunlight received by windows and gardens of the surrounding properties.

The future occupants will have access to external amenity areas with good level of sunlight throughout the year.

All private habitable rooms and communal multi purposed rooms will recieve adaquate levels of daylight through-out the development.

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