



5060

Sunlight Reception Analysis

SUNLIGHT RECEPTION IN AMENITY SPACES WITHIN THE PROPOSED DEVELOPMENT
EFFECTS on SUNLIGHT RECEPTION IN EXISTING NEIGHBOURING AMENITY SPACES AS A RESULT OF THE PROPOSED DEVELOPMENT

ORCHARD GATE SHD

RESIDENTIAL APARTMENT DEVELOPMENT

**KENNELSFORT ROAD UPPER
PALMERSTOWN
CO DUBLIN**

AAI Palmerstown Ltd

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1 Introduction

1.1 Report purpose

This report gives information on the effects of the proposed development on shadow/sunlight in existing neighbouring amenity spaces and also the new amenity spaces within the proposed development.

1.2 Instruction

DKPartnership (DKP) have been commissioned by AAI Palmerstown Ltd to carry out the analysis and report for the proposed Orchard Gate residential development described below.

1.3 Development detail

The development is located at the former warehouse facility at units 54 & 65, Cherry Orchard Industrial Estate. The site presents a gateway location at the western junction of Kennelsfort Road Upper and Cherry Orchard Industrial Estate Road. This location represents the start of the lands zoned 'REGEN' continuing to the east.

The proposal is for 144 no. 'build to sell' apartments and associated facilities with a mix of 72 no. one bedroom apartments and 72 no. 2 bedroom apartments. The development is set out in 4 no. five storey buildings enclosing a raised podium courtyard with the junction corner building having a 9-storey gateway feature element. On-site parking of 65 no. resident spaces is contained within a landscaped podium element with 2 no. on street care share spaces provided.

1.4 Statutory requirement

There are no particular building regulations in relation day light/shadow effect standards other than recommendations outlined or referred to in the CIBSE lighting guide 10, BS EN17037/EN17037 and the BRE document "Site layout planning for daylight and sun light". The aforementioned documents do refer to a "right to a sky view" relating to existing buildings facing a new adjacent development in so far that it compares an existing sky view with the sky view when the new development is constructed. The difference, if any, must be within a certain acceptable threshold.

2 Executive summary

2.1 Analysis conducted

This report details the effects on the following:

- sunlight/shadow status of the new amenity spaces within the proposed development
- sunlight/shadow status of the existing neighbouring amenity spaces assessed on March 21st

2.2 Guidelines and standards applied

For this report we applied the recommendations and guideline of the following:

- The Building Research Establishment (BRE) report, site layout planning for daylight and sunlight – a guide to good practice (referred to as the BRE Report).
- British European Standard BS EN17037/EN17037 Day lighting standards and contains guidance on the minimum recommended levels of interior day lighting.
- CIBSE guide 10 Day light and lighting for buildings.

2.3 Technical analysis

Calculations were conducted in accordance with the BRE guidelines to determine the extent to which the proposed development could affect the shadow/sun light reception in any existing amenity spaces and new amenity spaces proposed with the development. For new amenity spaces, in basic terms, the minimum criteria is that at least 50% of the amenity space should receive at least two hours of sunlight on the 21st March and for “existing” amenity spaces there is also the additional criteria that any loss of sunlight should not be greater than 0.8 times its former size.

2.4 New amenity spaces sunlight/shadow assessment conclusion

Based on the BRE guidelines at least 50% of the amenity space should receive at least two hours of sunlight on the 21st March. From the calculation results we note all of the new amenity spaces received more than the recommended sunlight. Calculation findings are summarised as follows (see image 5.1 for amenity locations):

Amenity area outlined in A (public open amenity space) was calculated to have 4.00 hours at 50% area

Amenity area outlined in B (podium/ semi private amenity space) was calculated to have 4.00 hours at 50% area

We therefore conclude that the new amenity spaces receive sunlight on 50% of the area well in excess of the minimum recommendations of the BRE Report - Site Layout and Planning for Daylight and Sunlight - and therefore deem this to be compliant to this element.

2.5 Existing neighbouring amenity spaces sunlight/shadow assessment conclusion

Based on the BRE guidelines at least 50% of the amenity space should receive at least two hours of sunlight on the 21st March and that and any loss of sunlight should not be greater than 0.8 (20% reduction) times its former size. From the calculation results we note that selected existing amenity spaces all received 2 hours of sunlight or more on at least 50% of the area before and after the introduction of the new development. Results are as follows (see image 6.1 receptor locations):

- Receptor 1 (Palmer's park residential green area): This area resulted in change factor of 0.98 meaning the new proposed development has a small effect on the amenity space shadow/sunlight. This effect happens in the early morning hours of 07.00-08.00. The result is well within BRE guidelines.
- Palmer's Park neighbouring receptors: Receptors 2 to 13 are residential dwellings with front and private back gardens / amenity spaces. These amenity areas resulted in change factors ranging from 0.80-0.99. This impact happens in the early morning hours of 07.00-10.00. The results are well within BRE guidelines with receptor 3 and 4 equal to minimum recommendations.
- Palmer's Cres neighbouring receptors: Receptors 14 to 27 are residential dwellings with front and private back gardens / amenity spaces. These areas resulted in change factors ranging from 0.82-0.99 meaning the new proposed development has a small effect on these amenity spaces shadow/sunlight. This effect happens in the morning hours of 08.00-11.00. The results are all within BRE guidelines.

- Receptor 28 and 29 (Pobalscoil losolde – green areas): receptor 28 resulted in change factor of 1.00 meaning the new proposed has no effect on this amenity space shadow/sunlight. Receptor 29 resulted in change factor of 0.97 meaning the new proposed development has a small effect on the amenity space shadow/sunlight. This impact happens in the late afternoon hours of 16.00-18.00. The results are comfortably within BRE guidelines.

We conclude that the sunlight reception in the existing neighbouring amenity spaces after the introduction of the new development is in excess of the minimum recommendations of the BRE Report or equal to minimum guidelines – “Site Layout and Planning for Daylight and Sunlight and therefore deem this to be compliant to this element.

2.6 Mitigation measures/actions

No mitigation measures anticipated.

3 Geographical overview

3.1 Project overview

Image 3.1, the (google maps) site map below shows the approximate site location



Image 3.1 Approximate proposed development site

4 Approach and methodology

4.1 General approach

This report covers

- the sunlight reception/shadow status of new proposed amenity spaces within the new development.
- the effects of the new development on the sunlight reception/shadow status of existing neighbouring amenity spaces/gardens.

4.2 The nature and effects of day light and sun light

When assessing the effects of proposed building projects on the potential to cause issues relating to light, it is important to recognise the distinction between daylight and sunlight. Daylight is the combination of all direct and indirect sunlight during the daytime, whereas sunlight (for the purposes of this report) comprises only the direct elements of sunlight. For example, on a cloudy or overcast day diffused daylight still shines through windows, even when sunlight is absent. Any development within a built-up area has the potential to alter the amount of daylight and direct sun received by nearby residential properties.

Care should be taken when designing new buildings in built-up areas, especially when the proposed development is relatively tall or situated to the south of existing buildings, because in the northern hemisphere the majority of the sunlight comes from the south. In Ireland (and other northern hemisphere countries) south-facing facades will in general, receive the most sunlight, while the north facing facades will receive sunlight on only a handful of occasions, specifically early mornings and late evenings during the summer months. It is therefore important to ensure that buildings to the south of any development do not cause over shadowing to existing dwellings and therefore reduce their capacity to receive sunlight.

4.3 Assessment criteria

National Policy/building regulations.

The government does not have an adopted policy on daylight, sunlight and the effects of overshadowing, and does not have targets, criteria or relevant planning guidance in the way it has for other environmental impacts such as noise, landscape or air quality. However, there are a number of guidance documents which are relevant when considering daylight, sunlight and overshadowing in dwellings:

- The Building Research Establishment (BRE) report, "Site layout planning for daylight and sunlight – a guide to good practice (referred to as the BRE Report).
Although not Government guidance, this report is commonly referenced as the main guide in Ireland/UK in determining the minimum standards of daylight and sunlight and for determining the impact of a development.
- British European Standard BS EN17037/EN17037 Day Lighting for buildings.
BS EN17037/EN17037 contains guidance on the minimum recommended levels of interior day lighting and introduces some of the calculation procedures used in the BRE Report.
- CIBSE guide 10 Day light and lighting for buildings.
CIBSE lighting guide 10 like BS EN17037/EN17037 contains guidance on the minimum recommended levels of interior day lighting and introduces recommended day light levels for general buildings.

4.4 The BRE Report – "Site Layout and Planning for Daylight and Sunlight – A Guide to Good Practice"

The BRE report contains guidance on how to design developments, whilst minimising the impacts on existing buildings from overshadowing and reduced levels of daylight and sunlight. The advice provided within the guide is not mandatory and should not be seen as an instrument of planning policy, its aim is to help rather than constrain the designer. Although it gives numerical guidance values, these should be interpreted with flexibility since natural lighting is one of many factors in site layout design. The guidance should be applied appropriately to developments to assist in gaining the best development possible without adverse impacts.

As well as advice, the report contains a methodology to assess levels of daylight, sunlight and over shadowing and contains criteria to determine the potential impacts of a new development on surrounding buildings. The table below summarises the criteria used to assess the overshadowing/sunlight reception in amenity spaces.

In this report we have separated the new and existing amenity spaces as they are assessed slightly differently. BRE sunlight/shadow assessment criteria. Table 4.1 Sunlight reception requirements for amenity spaces within the new proposed development.

Type	Criteria	Acceptable parameters
Overshadowing new amenity spaces	Amenity space prevented from receiving any sunlight on March 21 st	At least 50% of the amenity space should receive at least two hours of sunlight

Table 4.1

Table 4.2 Effects on Sunlight reception requirements for existing neighbouring amenity spaces.

Type	Criteria	Acceptable parameters
Overshadowing existing amenity spaces	Amenity space prevented from receiving any sunlight on March 21 st	Any loss of sunlight should not be greater than 0.8 times its former size.

Table 4.2

4.5 Overshadowing effects measured

The minimum sunlight requirement in this report measured in sunlight time 2 hours (120 minutes) multiplied by 50% area m² or the minimum requirement = 120 (min) * 0.5a (m²) = [] min·m².

4.6 Existing amenity spaces

The overshadowing/sun light assessment is the effects the proposed development has on existing open amenity spaces. In basic terms, based on the BRE report states that at least 50% of the amenity space should receive at least two hours of sunlight on the 21st March and any loss of sunlight should not be greater than 0.8 times its former size. The overshadowing/sun light assessment is executed in using a 3D model of the project and adjoining buildings with the results illustrated in tabular format showing the hourly status of the shadow/sunlight fraction in the relevant amenity spaces. The impacts of vegetation: It is important to note that according to the BRE Report, calculations do not normally take into account vegetation. The exception is when evergreen vegetation exists that forms a continuous barrier and would be permanent throughout the seasons.

5 Receptor selection and calculation results - Amenity spaces within the proposed development

5.1 New proposed amenity spaces

Image 5.1 below indicates the three different communal amenity areas that have been selected and analysed on the basis that the shadow casted from the proposed development may effect the amenity areas given its geographical location in relation to the development.



Image 5.1 proposed development amenity spaces

Receptor	Colour	Description	Area m2
A	■	Public open amenity space	1,385
B	■	Podium / semiprivate amenity space	1,303

5.2 Assessment approach

The tables below represent the one hourly sunlight/shadow status of the respective new amenity spaces provided within the new development on March 21st. to compare against the BRE guidelines for compliance. The calculation results have been given the following colour code guide depending on its level of resulting compliance.

Compliance guide

☑	0% Over /equal to
☑	5% Within
!!	10% Within
X	10% In excess of

5.3 New Proposed amenity space calculation results

SUNLIGHT/SHADOW CALCULATION DATA

A Public open space 1,385 m ²						B Podium / semi private space 1,303 m ²					
EXISTING STATUS						NEW STATUS					
March 21st						March 21st					
Time	Shadow	Sunlight	Sun time	Sun area	Sun time.area	Time	Shadow	Sunlight	Sun time	Sun area	Sun time.area
24 Hr	% / %		min	m ²	min*m ²	24 Hr	% / %		min	m ²	min*m ²
6.00	100%	0%	60	0	0	6.00	100%	0%	60	0	0
7.00	84%	16%	60	222	13,296	7.00	84%	16%	60	208	12,509
8.00	74%	26%	60	360	21,606	8.00	67%	33%	60	430	25,799
9.00	69%	31%	60	429	25,761	9.00	49%	51%	60	665	39,872
10.00	68%	32%	60	443	26,592	10.00	44%	56%	60	730	43,781
11.00	75%	25%	60	346	20,775	11.00	48%	52%	60	678	40,654
12.00	70%	30%	60	416	24,930	12.00	48%	52%	60	678	40,654
13.00	66%	34%	60	471	28,254	13.00	53%	47%	60	612	36,745
14.00	42%	58%	60	803	48,198	14.00	64%	36%	60	469	28,145
15.00	13%	87%	60	1205	72,297	15.00	71%	29%	60	378	22,672
16.00	19%	81%	60	1122	67,311	16.00	86%	14%	60	182	10,945
17.00	24%	76%	60	1053	63,156	17.00	91%	9%	60	117	7,036
18.00	74%	26%	60	360	21,606	18.00	95%	5%	60	65	3,909
19.00	100%	0%	60	0	0	19.00	100%	0%	60	0	0
Required sun hours @ 50% area					2	Required sun hours @ 50% area					2
Achieved sun hours on @ 50% area					4.00	Achieved sun hours on @ 50% area					4.00
Achieved total sun time (hrs)					5.22	Achieved total sun time (hrs)					4.00
Achieved daily sun time * area					433782	Achieved daily sun time * area					312720

5.4 New proposed amenity spaces shadow/sunlight assessment conclusion

Based on the BRE guidelines at least 50% of the amenity space should receive at least two hours of sunlight on the 21st March. From the calculation results we note all of the new amenity spaces received more than the recommended sunlight. Calculation findings are summarised as follows (see image 5.1 for amenity locations):

Amenity area outlined in A (public open amenity space) was calculated to have 4.00 hours at 50% area
 Amenity area outlined in B (podium/ semi private space) was calculated to have 4.00 hours at 50% area

We therefore conclude that the new amenity spaces receive sunlight on 50% of the area well in excess of the minimum recommendations of the BRE Report - Site Layout and Planning for Daylight and Sunlight - and therefore deem this to be compliant to this element.



6 Receptor selection and calculation results – Existing neighbouring amenity spaces

6.1 Selected existing amenity spaces

Image 6.1 below indicates the neighbouring amenity areas that have been selected and analysed on the basis that the shadow casted from the new development may effect these amenity areas given its geographical location in relation to the proposed development.

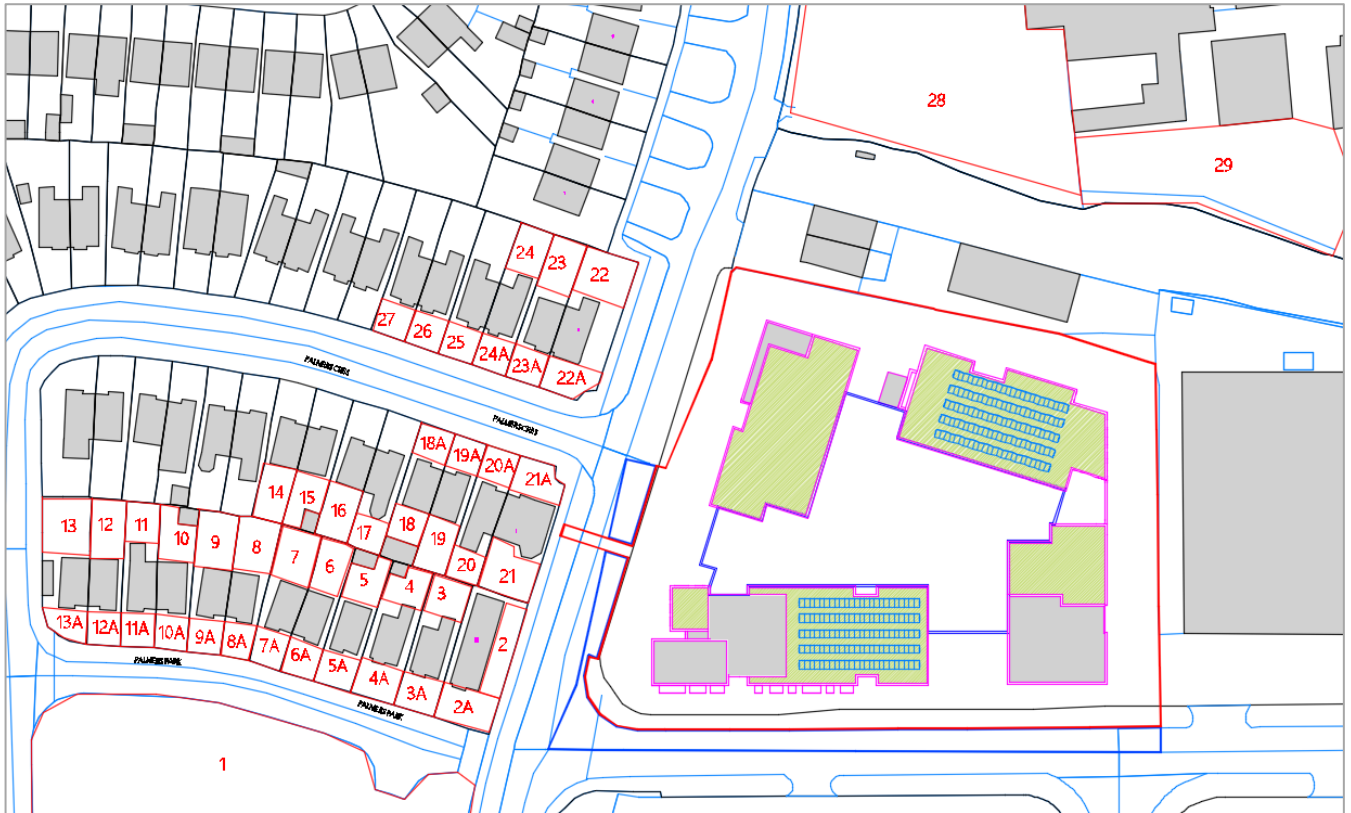


Image 6.1: Neighbouring amenity spaces

Receptor	Address	Receptor	Address
1	Palmers park residential green area	14	15 Palmers cres back amenity area
2	10 Palmers park side amenity area	15	13 Palmers cres back amenity area
2A	10 Palmers park front amenity area	16	11 Palmers cres back amenity area
3	9 Palmers park back amenity area	17	9 Palmers cres back amenity area
3A	9 Palmers park front amenity area	18	7 Palmers cres back amenity area
4	8 Palmers park back amenity area	18A	7 Palmers cres front amenity area
4A	8 Palmers park front amenity area	19	5 Palmers cres back amenity area
5	7 Palmers park back amenity area	19A	5 Palmers cres front amenity area
5A	7 Palmers park front amenity area	20	3 Palmers cres back amenity area
6	6 Palmers park back amenity area	20A	3 Palmers cres front amenity area
6A	6 Palmers park front amenity area	21	1 Palmers cres back amenity area
7	5 Palmers park back amenity area	21A	1 Palmers cres front amenity area
7A	5 Palmers park front amenity area	22	2 Palmers cres back amenity area
8	4 Palmers park back amenity area	22A	2 Palmers cres front amenity area
8A	4 Palmers park front amenity area	23	4 Palmers cres back amenity area
9	3 Palmers park back amenity area	23A	4 Palmers cres front amenity area
9A	3 Palmers park front amenity area	24	6 Palmers cres back amenity area
10	2 Palmers park back amenity area	24A	6 Palmers cres front amenity area
10A	2 Palmers park front amenity area	25	8 Palmers cres front amenity area

11	1 Palmers park back amenity area	26	10 Palmers cres front amenity area
11A	1 Palmers park front amenity area	27	12 Palmers cres front amenity area
12	1B Palmers park back amenity area	28	Pobalscoil losolde – green area
12A	1B Palmers park front amenity area	29	Pobalscoil losolde – dense overgrown green area
13	1A Palmers park back amenity area		
13A	1A Palmers park front amenity area		

6.2 Assessment approach

The left-hand side calculation tables below represent the one hourly sunlight/shadow status of the respective existing amenity space before the introduction of the new development and the right hand side tables below represent the one hourly sunlight/shadow status of the respective existing amenity space after the introduction of the new development. See appendix B for the predicted sunlight/shadow imaging per hour. Note: The calculation results have been given the following colour code guide depending on its level of resulting compliance.

Compliance guide

☑	0% Over /equal to
☑	5% Within
!!	10% Within
x	10% In excess of

6.3 Existing amenity spaces calculation results

As there are a large number of amenity spaces assessed in this report we have only shown the result tables of 2 no. amenity spaces (21&21A) together with an overall summary table covering the main BRE compliance criteria of all the selected amenity spaces. The result tables of remainder amenity spaces can be found in appendix B.

21							95 m2							
EXISTING STATUS							NEW STATUS							
Time	Shadow % / %	Sunlight % / %	Sun time min	Sun area m2	time * area min*m2	March 21st time * area min*m2	Time	Shadow % / %	Sunlight % / %	Sun time min	Sun area m2	time * area min*m2	March 21st time * area min*m2	change min*m2
6.00	100%	0%	60	0	0	0	6.00	100%	0%	60	0	0	0	0
7.00	88%	12%	60	11	684	684	7.00	88%	12%	60	11	684	684	0
8.00	69%	31%	60	29	1,767	1,767	8.00	88%	12%	60	11	684	684	-1,083
9.00	56%	44%	60	42	2,508	2,508	9.00	80%	20%	60	19	1,140	1,140	-1,368
10.00	38%	62%	60	59	3,534	3,534	10.00	77%	23%	60	22	1,311	1,311	-2,223
11.00	18%	82%	60	78	4,674	4,674	11.00	18%	82%	60	78	4,674	4,674	0
12.00	15%	85%	60	81	4,845	4,845	12.00	15%	85%	60	81	4,845	4,845	0
13.00	10%	90%	60	86	5,130	5,130	13.00	10%	90%	60	86	5,130	5,130	0
14.00	0%	100%	60	95	5,700	5,700	14.00	0%	100%	60	95	5,700	5,700	0
15.00	14%	86%	60	82	4,902	4,902	15.00	14%	86%	60	82	4,902	4,902	0
16.00	24%	76%	60	72	4,332	4,332	16.00	24%	76%	60	72	4,332	4,332	0
17.00	74%	26%	60	25	1,482	1,482	17.00	74%	26%	60	25	1,482	1,482	0
18.00	90%	10%	60	10	570	570	18.00	90%	10%	60	10	570	570	0
19.00	100%	0%	60	0	0	0	19.00	100%	0%	60	0	0	0	0

Required sun hours @ 50% area (hr)	2	Required sun hours @ 50% area (hr)	2
Achieved sun hours on (hrs) @ 50% area	7.00	Achieved sun hours on (hrs) @ 50% area	6.00
Achieved total sun time (hrs)	7.04	Achieved total sun time (hrs)	6.22
Achieved daily sun time * area	40128	Achieved daily sun time * area	35454

21A							65 m2							
EXISTING STATUS							NEW STATUS							
Time	Shadow % / %	Sunlight % / %	Sun time min	Sun area m2	time * area min*m2	March 21st time * area min*m2	Time	Shadow % / %	Sunlight % / %	Sun time min	Sun area m2	time * area min*m2	March 21st time * area min*m2	change min*m2
6.00	100%	0%	60	0	0	0	6.00	100%	0%	60	0	0	0	0
7.00	88%	12%	60	8	468	468	7.00	88%	12%	60	8	468	468	0
8.00	66%	34%	60	22	1,326	1,326	8.00	79%	21%	60	14	819	819	-507
9.00	60%	40%	60	26	1,560	1,560	9.00	60%	40%	60	26	1,560	1,560	0
10.00	53%	47%	60	31	1,833	1,833	10.00	80%	20%	60	13	780	780	-1,053
11.00	19%	81%	60	53	3,159	3,159	11.00	72%	28%	60	18	1,092	1,092	-2,067
12.00	23%	77%	60	50	3,003	3,003	12.00	23%	77%	60	50	3,003	3,003	0
13.00	26%	74%	60	48	2,886	2,886	13.00	26%	74%	60	48	2,886	2,886	0
14.00	41%	59%	60	38	2,301	2,301	14.00	41%	59%	60	38	2,301	2,301	0
15.00	65%	35%	60	23	1,365	1,365	15.00	65%	35%	60	23	1,365	1,365	0
16.00	70%	30%	60	20	1,170	1,170	16.00	70%	30%	60	20	1,170	1,170	0
17.00	74%	26%	60	17	1,014	1,014	17.00	74%	26%	60	17	1,014	1,014	0
18.00	85%	15%	60	10	585	585	18.00	85%	15%	60	10	585	585	0
19.00	100%	0%	60	0	0	0	19.00	100%	0%	60	0	0	0	0

Required sun hours @ 50% area (hr)	2	Required sun hours @ 50% area (hr)	2
Achieved sun hours on (hrs) @ 50% area	4.00	Achieved sun hours on (hrs) @ 50% area	3.00
Achieved total sun time (hrs)	5.3	Achieved total sun time (hrs)	4.37
Achieved daily sun time * area	20670	Achieved daily sun time * area	17043



6.4 High level summary table of results

The calculation results of the one hourly sunlight & shadow status of each dwelling before and after the introduction of the new development are all detailed in Appendix B however to limit the listing of the large number of calculation tables in this report, we have summarised the relevant sunlight & shadow calculation data in table 6.2 below.

Column 1: The amenity space ID

Column 2: The amenity space area

Column 3: The existing status sun hours * amenity space area (hr*m2)

Column 4: The existing status total sun hours

Column 5: The existing status sun hours on 50% of the area

Column 6: The new status sun hours * amenity space area (hr*m2)

Column 7: The new status total sun hours

Column 8: The new status sun hours on 50% of the area

Column 9: The change factor (should be NOT less than 0.8)

Column 10: Comment.

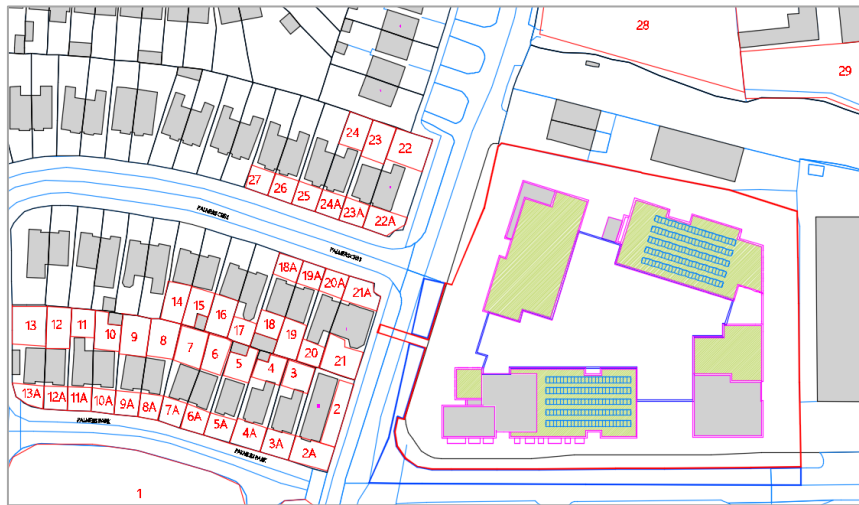
Area ID	m ²	EXISTING STATUS			NEW STATUS			Change	COMMENTS
		Sun Hr*m ²	Sun Hr	SunHr 50%	Sun Hr*m ²	Sun Hr	Sun Hr 50%		
1	8000	5016000	10.45	10	4891200	10.19	10	0.98	change factor well within acceptable guidelines
2	60	17532	4.87	4	17064	4.74	4	0.98	change factor well within acceptable guidelines
2A	80	37056	7.72	8	36288	7.56	8	0.98	change factor well within acceptable guidelines
3	60	19224	5.34	5	15192	4.22	3	0.80	minimum guidelines achieved
3A	60	32796	9.11	10	31464	8.74	9	0.96	change factor well within acceptable guidelines
4	55	17787	5.39	5	14058	4.26	3	0.80	minimum guidelines achieved
4A	60	26352	7.32	7	25668	7.13	7	0.98	change factor well within acceptable guidelines
5	60	19332	5.37	5	15480	4.3	3	0.81	change factor within acceptable guidelines
5A	50	24990	8.33	8	24120	8.04	8	0.97	change factor well within acceptable guidelines
6	65	20787	5.33	4	16653	4.27	2	0.81	change factor within acceptable guidelines
6A	45	22491	8.33	8	22005	8.15	8	0.98	change factor well within acceptable guidelines
7	75	23985	5.33	4	19710	4.38	2	0.83	change factor within acceptable guidelines
7A	50	25290	8.43	8	24720	8.24	8	0.98	change factor well within acceptable guidelines
8	85	27081	5.31	4	25194	4.94	3	0.94	change factor well within acceptable guidelines
8A	40	20232	8.43	8	19728	8.22	8	0.98	change factor well within acceptable guidelines
9	85	26367	5.17	4	25347	4.97	4	0.97	change factor well within acceptable guidelines
9A	45	22896	8.48	9	22356	8.28	9	0.98	change factor well within acceptable guidelines
10	65	19188	4.92	5	18759	4.81	5	0.98	change factor well within acceptable guidelines
10A	45	23976	8.88	9	23220	8.6	9	0.97	change factor well within acceptable guidelines
11	50	14400	4.8	5	14190	4.73	5	0.99	change factor well within acceptable guidelines
11A	45	24246	8.98	10	23193	8.59	9	0.96	change factor well within acceptable guidelines
12	80	23040	4.8	5	22800	4.75	5	0.99	change factor well within acceptable guidelines
12A	45	24246	8.98	10	23166	8.58	9	0.96	change factor well within acceptable guidelines
13	100	28800	4.8	5	28500	4.75	5	0.99	change factor well within acceptable guidelines
13A	45	24246	8.98	10	23193	8.59	9	0.96	change factor well within acceptable guidelines
14	70	33222	7.91	8	32466	7.73	8	0.98	change factor well within acceptable guidelines
15	65	30849	7.91	8	30459	7.81	8	0.99	change factor well within acceptable guidelines
16	70	32886	7.83	8	32004	7.62	7	0.98	change factor well within acceptable guidelines
17	45	21141	7.83	8	19872	7.36	7	0.94	change factor well within acceptable guidelines
18	45	21114	7.82	8	19818	7.34	7	0.94	change factor well within acceptable guidelines
18A	45	13959	5.17	4	12096	4.48	2	0.87	change factor within acceptable guidelines
19	70	33306	7.93	8	29190	6.95	6	0.88	change factor within acceptable guidelines
19A	45	13959	5.17	4	11907	4.41	2	0.86	change factor within acceptable guidelines
20	45	21870	8.1	8	18495	6.85	6	0.85	change factor within acceptable guidelines
20A	45	14202	5.26	4	11610	4.3	2	0.82	change factor within acceptable guidelines
21	95	40128	7.04	7	35454	6.22	6	0.89	change factor well within acceptable guidelines
21A	65	20670	5.3	4	17043	4.37	3	0.83	change factor within acceptable guidelines
22	100	31680	5.28	4	28500	4.75	3	0.90	change factor well within acceptable guidelines
22A	65	30420	7.8	8	27222	6.98	7	0.90	change factor well within acceptable guidelines
23	75	26955	5.99	6	24255	5.39	5	0.90	change factor well within acceptable guidelines
23A	45	22248	8.24	9	20655	7.65	8	0.93	change factor well within acceptable guidelines
24	65	23361	5.99	6	22971	5.89	6	0.99	change factor well within acceptable guidelines
24A	45	22086	8.18	9	21600	8	9	0.98	change factor well within acceptable guidelines
25	45	22059	8.17	9	21600	8	9	0.98	change factor well within acceptable guidelines
26	45	22032	8.16	9	21600	8	9	0.99	change factor well within acceptable guidelines
27	45	22032	8.16	9	21600	8	9	0.99	change factor well within acceptable guidelines
28	1500	874800	9.72	10	874800	9.72	10	1.00	no change in shadow/sunlight
29	800	442560	9.22	10	426720	8.89	9	0.97	change factor well within acceptable guidelines

Table 6.2: Summary table of results



6.5 Existing neighbouring amenity spaces shadow/sunlight assessment conclusion

Based on the BRE guidelines at least 50% of the amenity space should receive at least two hours of sunlight on the 21st March and that any loss of sunlight should not be greater than 0.8 (20% reduction) times its former size. From the calculation results we note that selected existing amenity spaces all received 2 hours of sunlight or more on at least 50% of the area before and after the introduction of the new development. Results are as follows (see image 6.1 receptor locations):



(For reference) Image 6.1: Neighbouring amenity spaces

- Receptor 1 (Palmers park residential green area): This area resulted in change factor of 0.98 meaning the new proposed development has a small effect on the amenity space shadow/sunlight. This effect happens in the early morning hours of 07.00-08.00. The result is well within BRE guidelines.
- Palmers Park neighbouring receptors: Receptors 2 to 13 are residential dwellings with front and private back gardens / amenity spaces. These amenity areas resulted in change factors ranging from 0.80-0.99. This impact happens in the early morning hours of 07.00-10.00. The results are well within BRE guidelines with receptor 3 and 4 equal to minimum recommendations.
- Palmers Cres neighbouring receptors: Receptors 14 to 27 are residential dwellings with front and private back gardens / amenity spaces. These areas resulted in change factors ranging from 0.82-0.99 meaning the new proposed development has a small effect on these amenity spaces shadow/sunlight. This effect happens in the morning hours of 08.00-11.00. The results are all within BRE guidelines.
- Receptor 28 and 29 (Pobalscoil losolde – green areas): receptor 28 resulted in change factor of 1.00 meaning the new proposed has no effect on this amenity space shadow/sunlight. Receptor 29 resulted in change factor of 0.97 meaning the new proposed development has a small effect on the amenity space shadow/sunlight. This impact happens in the late afternoon hours of 16.00-18.00. The results are comfortably within BRE guidelines.

We conclude that the sunlight reception in the existing neighbouring amenity spaces after the introduction of the new development is in excess of the minimum recommendations of the BRE Report or equal to minimum guidelines – “Site Layout and Planning for Daylight and Sunlight and therefore deem this to be compliant to this element.