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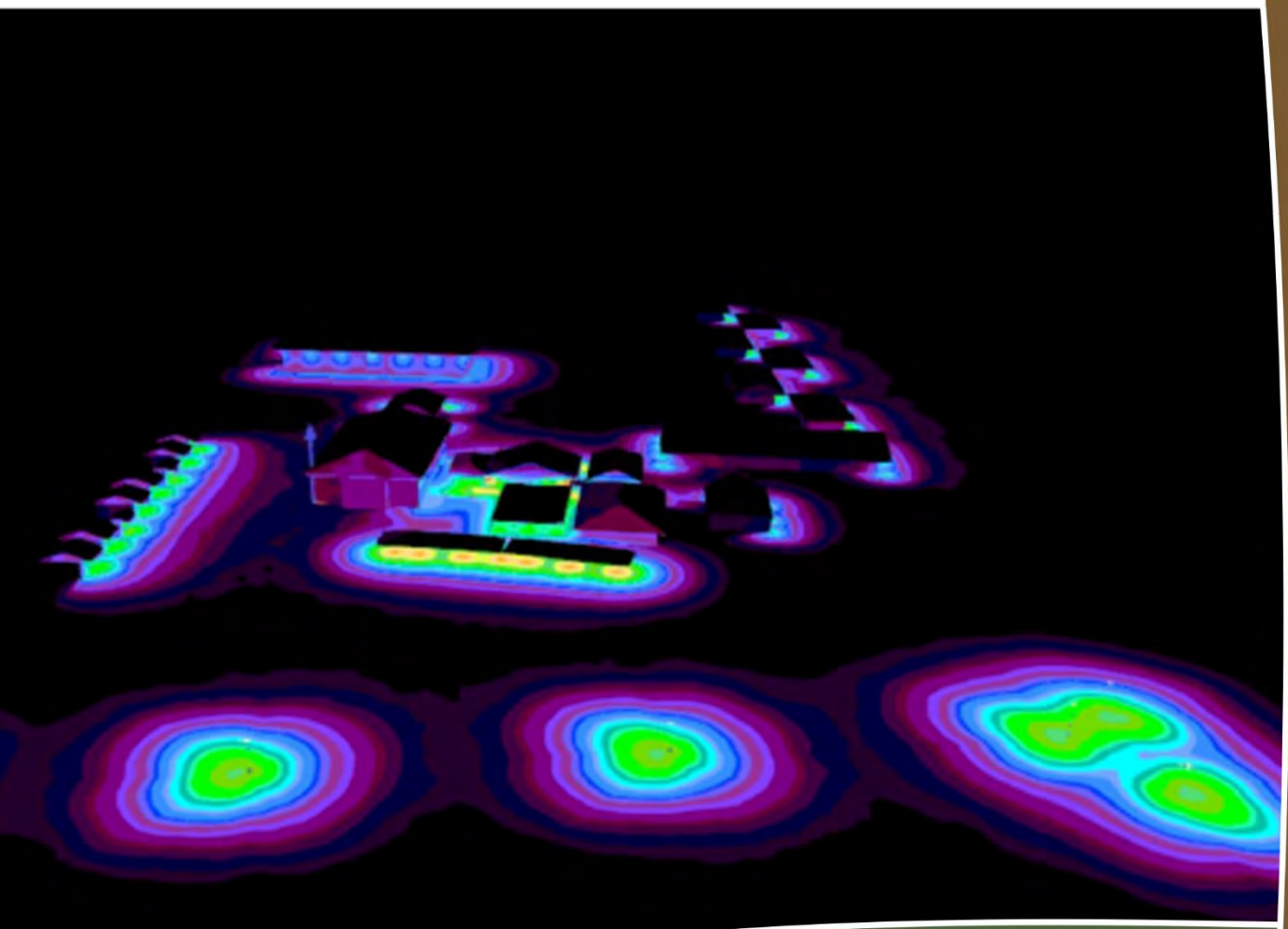

LIGHTING IMPACT ASSESSMENT

Change Application (Other) for Rooming Accommodation

125 Kudo Silverleigh Road, GOOMBUNGEE

Prepared on behalf of Schreik Building Group
For Toowoomba Regional Council

YAR Ref: YEP2025052_R3Fv4

26 August 2025

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YARRAMINE CONSULTING PTY LTD

Nigel Kimball
Managing Director &
Principal Environmental Scientist
26 August 2025

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1 Introduction

Schriek Building Group engaged Yarramine Environmental (Yarramine) to undertake a Lighting Impact Assessment in support of a proposed expansion of rooming accommodation located at 125 Kudo Silverleigh Road, GOOMBUNGEE, formally described as Lot on Plan 2 RP50559 (hereafter to be known as the site).

This assessment is provided as supplementary information for works requested as part of an Information Request issued by Toowoomba Regional Council (TRC) following the submission of the Change Application, with a view to evaluate the potential impacts on existing surrounding sensitive receptors.

Using lighting design modelling software, the assessment performed examines the potential effects of proposed lighting impacts from additional outdoor lighting on the local amenity.

Based upon the predicted lighting impacts, recommendations regarding mitigation measures and management principles for integration into the design and operation of the development were also considered and where relevant recommendations to manage predicted external lighting are put forward.

1.1 Assessment Scope

The scope of the lighting assessment performed is as follows:

- Consideration of applicable obtrusive outdoor lighting criteria in Australian / New Zealand Standard *Control of the Obtrusive Effects of Outdoor Lighting* (AS/NZS 4282-2023) given the hours of operation of the Rooming Accommodation and its location and surrounds.
- Using DIALux Evo 13.1 light design modelling software, investigate and model the potential impact of exterior lighting on neighbouring residents.

For the former it should be noted that AS/NZS 4282:2023 only applies to accommodation activity (i.e., dwellings and similar places whereby use involves a place for overnight sleeping such as motels, caravan parks etc) and not commercial premises.

For the latter it should be noted that the potential for light related nuisance impacts arising from the external lighting will be in relation to the Upward Light Ratio (ULR), also sometimes referred to as the Upward Light Output Ratio (ULOR) or Upward Waste Light Ratio (UWLR). ULR is used in lighting design, particularly for outdoor applications like street lighting or sporting fields and is often referenced in standards as regulation aimed at controlling light pollution.

Vehicle or headlight glare was not reviewed as part of this assessment because of the considerable separation distances involved. In addition, AS/NZS 4282:2023 does not apply to mobile light sources such as vehicles and so is unsuitable to be used to evaluate the potential for light pollution or nuisance to occur as a result of vehicle headlights.

1.2 Relevant Design Guidelines & Standards

This assessment has been conducted with reference to the following design guidelines and standard:

Toowoomba Regional Council

- *Toowoomba Regional Planning Scheme (2012) Version 28* (Commenced 28 November 2022) - notably light nuisance related provisions reproduced in Table 1 below which also cover light nuisance impacts on public spaces, the transportation network (roads and pedestrian pathways), the natural environment and the incoming light sensitive uses (considered here to be accommodation activities despite PO_4 being rather open ended).

Australian Standards

- Australian / New Zealand Standard AS4282:2023 - *Control of the obtrusive effects of outdoor lighting*.

Table 1: Toowoomba Regional Planning Scheme
Environmental Standards Code – Light Nuisance Related Provisions

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
PO_1 Development does not unacceptably reduce the amenity and environmental quality of environs, especially of any nearby residential premises or public spaces as a result of light spill.	$AO_{1.1}$ No outdoor lighting is proposed as part of the development. OR $AO_{1.2}$ Technical parameters, design, installation, operation and maintenance of outdoor lighting comply with the requirements of Australian Standard *'AS4282-1997 control of the obtrusive effects of outdoor lighting'*. $AO_{1.3}$ For sporting fields and sporting courts the technical parameters, design, installation, operation and maintenance comply with the requirements of Australian Standard *AS4282-1997 – Control of the obtrusive Effects of Outdoor Lighting* and a compliance statement by a lighting designer has been provided in accordance with the Australian Standard (Section 4). $AO_{1.4}$ Where light spillage outside of the property boundary is likely to result in levels above those mentioned in $AO_{1.3}$ the applicant has provided a lighting proposal and impact assessment (environmental and amenity) as part of the application which has demonstrated that the lighting will not create nuisance issues for surrounding sensitive receptors. $AO_{1.5}$ For private sporting courts the lighting system: (a) is baffled or shielded to ensure that a light source is not directly visible from a Habitable Room window of an adjoining Dwelling; and (b) the luminaire does not exceed a height of 8m above the court surface. $AO_{1.6}$ The alignment of streets, driveways and servicing areas avoid vehicle headlight impacts on adjacent residential dwellings.
PO_2 Outdoor lighting (excluding street lighting, normal residential lighting and low level security lighting) situated in excess of 4m above ground level does not jeopardise the safety or well-being of any pedestrian, cyclist or motorist. Light emissions do not reduce the ability of transport system users to	$AO_{2.1}$ Outdoor lighting situated in excess of 4m above ground level is provided in accordance with Australian Standard *AS1158.1.1:2005 – Road Lighting – Vehicular Traffic (Category V) Lighting – Performance and Installation Design Requirements*.

	see essential details of the route ahead, including signalling systems and signage.		
PO_3	Outdoor Lighting does not cause unreasonable disturbance or cause detrimental impacts to any significant natural environment.	$AO_{3.1}$	The vertical illumination emanating from the outdoor lighting does not exceed one (1) lx on land within the Environmental Significance Overlay.
PO_4	Proposed sensitive land uses adjoining existing lawful non-residential uses with significant lighting for community purposes, security or safety reasons are designed to proactively address possible obtrusive light nuisance.	$AO_{4.1}$	Proposed sensitive land uses adjoining existing lawful non-residential uses with significant lighting for community purposes, security or safety reasons are designed in a manner to mitigate any light nuisance impacts from the existing lawful use by establishing: (a) shielding or louvers on windows facing the light source; (b) orientating buildings and bedrooms so that external lighting does not impact on residents during night time hours; and (c) utilising earth embankments, landscaping, or other physical measures to shield existing light sources.

2 Site Details & Development Description

2.1 Site & Locality Description

The site comprises a single rectangular lot located at 125 Kudo Silverleigh Road, GOOMBUNGEE, on land formally described as Lot on Plan 2 RP50559.

With an area of approximately 162ha , the site is zoned “Rural (100ha Minimum Precinct)”, under the *Toowoomba Regional Planning Scheme 2012* with approximately 970m fronting Kudo Silverleigh Road along its northern boundary and Gordon Smiths Road along its southern boundary. Access to the site is off Gordon Smiths Road.

The use was first established onsite in 2020 and at present incorporates a variety of buildings located centrally along its eastern boundary including an activity/dining hall, caretakers’ residence, rooming accommodation (6 Rooms) and food and drink outlet.

In a broader context, the site is situated within the locality of Goombungee approximately 4km south west of the township of Goombungee and approximately 30km north west of the Toowoomba Central Business District (CBD).

The site is entirely surrounded by land zoned for rural use. Grazing areas are located to the north, across Kudo Silverleigh Road, and extend eastward and to the northwest. Cropping land is situated to the southwest and continues across Gordon Smiths Road to the south.

The general location of the site and its environs are shown on the Site Location Plan presented in Figure 1 on Page 8. The subject site is shown on the Site Plan presented in Figure 2 on Page 9.

2.2 Development Description

Schreik Building Group is proposing an additional six (6) Accommodation buildings as well as six (6) Activities Rooms and two (2) Toilet Amenities Buildings located in between the activity rooms. These are located to the northeast and southwest of existing buildings, see Figure 3.

The proposed extension will result in six (6) Accommodation buildings, containing four (4) bedrooms each, with each bedroom having its own ensuite. Existing infrastructure will be utilised for the kitchen and dining areas with three (3) of the new accommodation buildings (Building B Design) will also house a laundry/storeroom. There will be 24 new carparks located both near the Activities Rooms and the Accommodation Buildings.

The hours of operation for the approved boarding house facility are assumed to be 24 hours a day due to the potential comings and goings of occupants on an as needed basis.

The overall property site is currently fenced with rural type fencing including barbed wire, there is an aluminium fence which is approximately 1.8m high along the eastern boundary, along the entrance driveway, as well as chain link mesh fence surrounding the internal site - see Plate 1 and Plate 2 below.

Additional outdoor lighting is proposed to be installed to accommodate the addition of the Accommodation Buildings, Activities and Toilet buildings as well as along the driveway entrance from Gordon Smith Drive. A Proposed Lighting Plan has been provided by Schreik Building Group presented in Appendix A.

Plate 1: Aluminium fence currently installed along the eastern boundary of the site

Plate 2: Chain link Mesh fence installed around the internal site.

2.3 Surrounding Sensitive Locations

Given the rural nature of the site, dwellings are often larger distances from each other. Here it is important to consider the dwellings which are located within 2km of the site. There is one (1) residence within this 1km buffer zone with a further seven (7) within 1km and 1.8km from the development site.

It is important to note that none of the residential premises are considered sensitive locations, i.e. habitable residential rooms within close proximity of the development which will be directly impacted by the installation of outdoor lighting at the location. The Australian Standard (AS4285:2023) states *"where an existing building line, or future dwelling is greater than ten (10) meters from a relevant boundary the provision of a 10 m limit protects them from being subject to excessive light beyond the first 10m. For larger lots where existing or future dwellings are significantly distant from the relevant boundaries, the 10 m limit may be increased in agreement with the relevant authority."*. For this assessment a 20m distance from the relevant boundary was assessed.

Considering the rural nature of the site the Upward Light Ratio (ULR) will potentially have a greater impact on the environs. This means that it is not the direct light from the development falling on their residence but the "glow" of the site in the dark surrounding areas.

Particulars of each residential location, within the 2km buffer zone are summarised in Table 2 below. It would be assumed that all of these dwellings would have both habitable and non-habitable rooms facing the site.

Table 2: Summary of nearby sensitive locations

ID #	RECEPTOR NAME	DISTANCE FROM DEVELOPMENT	COMMENT
SR1	118 Kudo Silverleigh Rd	964m	Dwelling - Single Storey Timber & Iron Construction
SR2	721 Kudo Silverleigh Rd	1137m	Dwelling - Single Storey Brick & Iron Construction
SR3	15 Gordon Smiths Rd	1404m	Dwelling - Single Storey Timber & Iron Construction
SR4	224 Gordon Smiths Rd	1192m	Dwelling - Single Storey Brick & Iron Construction
SR5	93 Gordon Smiths Rd	1019m	Dwelling - Single Storey Brick & Iron Construction
SR6	111 Gordon Smiths Rd	1193m	Dwelling - Single Storey Brick & Iron Construction
SR7	186 Norgaards Rd	1706m	Dwelling - Single Storey Brick & Iron Construction
SR8	280 Kudo Silverleigh Rd	1328m	Dwelling - Single Storey Brick & Iron Construction

2.4 Potential Obtrusive Lighting Impacts

Outdoor lighting whilst intended for a specific purpose may have some adverse effect on the environment in which it is installed. For example, whilst the lighting may be required for a specific purpose there will be general diffusion of light within the space resulting from reflection from surfaces and atmospheric scattering. Obtrusive effects from the lighting system may be significantly influenced by the following factors:

- The use of the area abutting or in close proximity to the proposed development;
- The topography of the area surrounding the lighting installation;
- Physical features, such as adjacent buildings, trees, and structures (such as fences and acoustic barriers) that may be effective in restricting light spill beyond the boundaries of a site;
- The existing ambient lighting characteristics relative to the proposed lighting;

- The location of a proposed development relative to:
  - Areas of special significance (areas of cultural, environmental historical or scientific importance)
  - Harbours, airports, waterways, roads, or railway systems where spill light from the development may interfere with the visibility of signalling systems; or
  - Community and scientific optical observatories where light spill light from a proposed development may interfere with astronomical observations.

The following potential light sources associated with the proposed development have been considered in this assessment:

- All existing light sources, including driveway lighting, existing floodlights and existing external building lights; and
- New lighting installations required as part of the proposed new development.

Whilst existing and proposed trees and shrubs could be considered as obstructions during modelling as per AS4282:2023 these were not included in the modelling.

2.5 External Lighting

Outdoor lighting for the development is being considered within this design. Additional lighting is proposed around the existing building, the proposed extension as well as the entrance to the inner site from Gordon Smiths Road. This includes driveway pole lights located along the entrance, flood lighting in and around buildings. Downlights and high bay lighting in one of the parking areas.

It is understood that many of the lighting sources have been selected and details of these have been provided and used in the modelling. Where exact lighting sources are to be altered or cannot be sourced this report will outline the wattage of the lighting, directionality of the lighting as well as any specific design features (e.g. full cutoff) required.

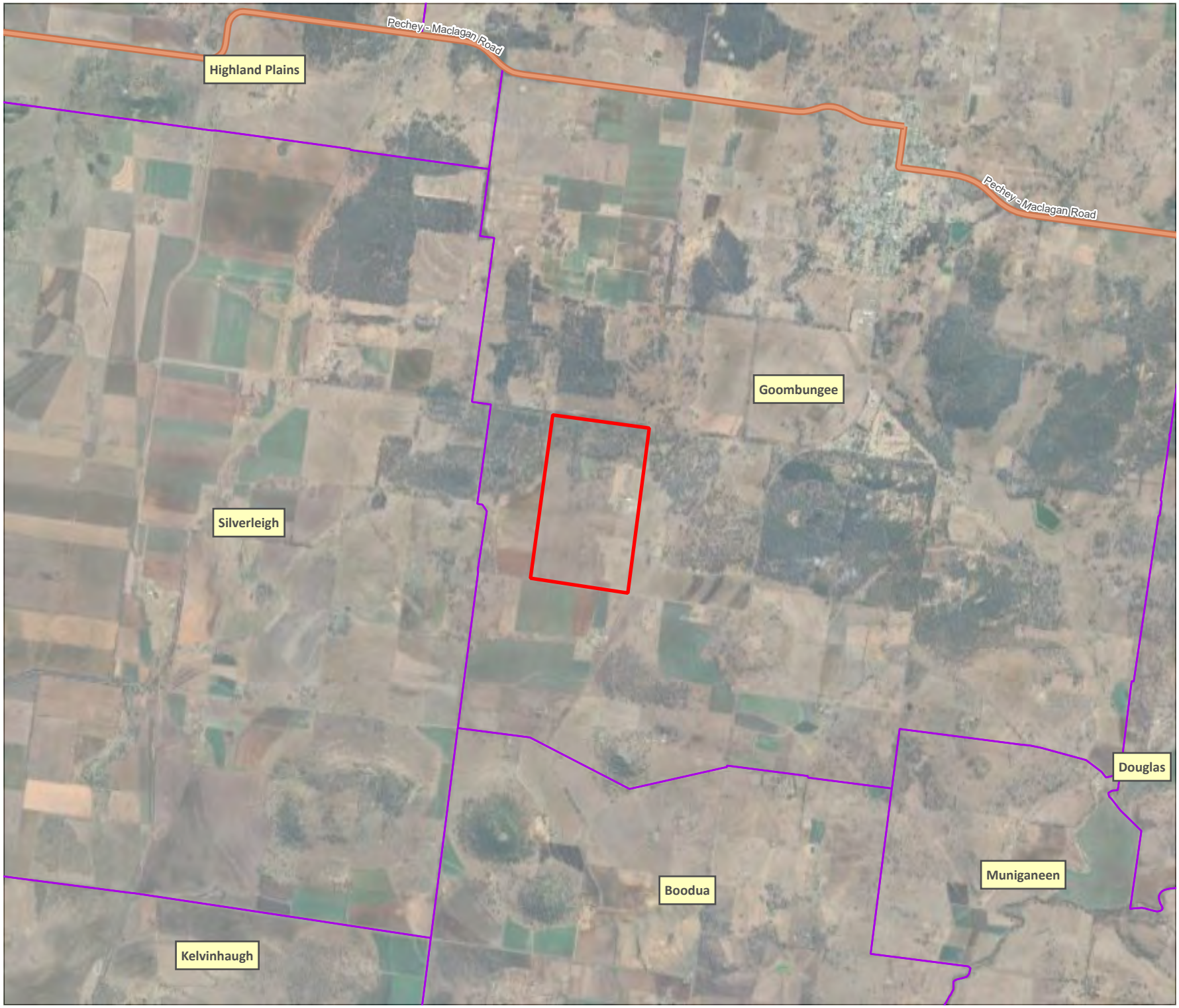
2.6 External Signage

External lit signage for the use has been included, these will be slim wall lights and are utilised to illuminate the signage at the front gate.

Figure 1
Site Locality Plan

Legend

- A Locality Boundary Labels
- A State Contolled Roads Labels
- State Contolled Roads
- Locality Boundary
- Subject Site



Layer Sources: Qld GIS Layers (Qld Gov Information Service 2024)
Aerial - Google Earth 2025

Client:	Shriek Building Group		
Project No:	YEP2025052		
Drawn:	ADH	**Approved:**	NPK
Revision:	A	**Date:**	09/07/2025

N

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2,200 m

1: 50,000 (A4)
GDA2020 MGA Z56

Figure 2
Site Plan

Legend

- Local Government Roads Labels
- Subject Site
- Cadastre

Layer Sources: Qld GIS Layers (Qld Gov Information Service 2024)
Aerial - Google Earth 2025

Client:	Shriek Building Group		
Project No:	YEP2025052		
Drawn:	ADH	**Approved:**	NPK
Revision:	A	**Date:**	04/08/2025

N

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440 m

1: 10,000 (A4)
GDA2020 MGA Z56

Figure 3
Proposed Expansion

Legend

Subject Site

Layer Sources: Qld GIS Layers (Qld Gov Information Service 2024)
Aerial - Google Earth 2025

Client:	Shriek Building Group		
Project No:	YEP2025052		
Drawn:	ADH	**Approved:**	NPK
Revision:	A	**Date:**	04/08/2025

N

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88.0 m

1: 2000 (A4)
GDA2020 MGA Z56

3 Lighting Illuminance Assessment

3.1 Lighting Limits

The maximum permissible nighttime illuminance of lighting installations and luminance of the dynamic signage is determined by existing light conditions which are categorised under AS/NZS 4282:2023 Environmental Zones as shown in Table 3 overleaf. Vertical illuminance criteria are applicable to fixed lighting installations whilst luminance criteria apply to fixed signs with dynamic content (i.e., changeable message signs and billboards). As the development does not include any external changeable messaging signs the latter is not considered any further in this assessment.

Two sets of illuminance limiting values are given based on whether lighting is operating before a curfew (sometimes known as “pre-curfew” or “non-curfew” operation) or operating after a curfew (sometimes known “post curfew” or “curfewed” operation). Pre-curfew spill lighting limits are higher than post-curfew values, on the understanding that spill light is more obtrusive late at night when residents are trying to sleep.

AS/NZS 4282:2023 specifies that *‘unless otherwise specified by the relevant authority, the times for determining which set of limits applies, i.e. curfew period, should be taken as between 11 p.m. and 6 a.m. Where a different curfew period applies for other reasons (e.g. noise control), consideration should be given to the coordination of the curfews, e.g. allowing sufficient time of operation for the lighting after the conclusion of the activity to facilitate crowd dispersion.’*

TRC currently does not specify a curfew period for lighting in its current planning scheme. For this assessment, curfew recommendations in the standard are adopted but also adjusted in line with the standard given potential noise impacts are also considered. The adjusted applied curfew hours are 10:00 PM to 7:00 AM.

Based on an assessment of subject site’s surrounding environment, it is located within Environmental Zone A2 under AS/NZS 4282:2023 and therefore for nearby residents the curfew limit value for vertical illuminance is 1 lux and for the no curfew period 5 lux.

It should be noted that although these limiting values are intended to control obtrusive effects of light, they will not necessarily ensure that a conforming installation will receive no adverse reaction from those affected by light spill. It has also been advised that the majority of the lighting utilised on the site will be sensor lighting, where they will only be activated when movement is present and will turn off after a short period of time. Given this it is still important to model the worst case scenario which would be that all outdoor lighting is activated at a single point in time.

Table 3: Environmental zones & lighting limits from AS/NZS 4282:2023

ENVIRONMENTAL ZONE	DESCRIPTION	VERTICAL ILLUMINANCE (E_v) lx		MAX AVERAGE LUMINANCE (cd/m^2)
		NON CURFEW	CURFEW*	
A0	**Intrinsically Dark** UNESCO Starlight Reserve. IDA Dark Sky Parks Major Optical Observatories. Other accreditations for dark sky places for example astrotourism, heritage value, astronomical importance, wildlife/ecosystem protection Lighting for safe access may be required	See Note 2	0.0	0.1
A1	**Dark** Relatively uninhabited rural areas (including terrestrial, marine, aquatic and coastal areas) Generally roadways without streetlighting through rural areas.	2	0.1	50
A2	**Low District Brightness** Sparsely inhabited rural and semi-rural areas. Generally, roadways without streetlighting through suburban, rural, or semi-rural areas other than intersections	5	1	150
A3	**Medium District Brightness** Suburban areas in towns in cities. Generally, roadways with streetlighting through suburban, rural, or semi-rural areas.	10	2	250
A4	**High District Brightness** Town and city centres, and other commercial areas. Residential areas abutting commercial areas Industrial and Port areas Transport Interchanges	25	5	350
TV	**High District Brightness** Vicinity of major sport and event stadiums during TV broadcasts	N/A	N/A	

Note 1: Zones A0 and A1 would normally have a minimum area of 50 ha. (0.5 km^2). There may be smaller environmentally sensitive areas.

Note 2: For A0, E_v shall be as close to zero as practicable without impacting safety considerations.

* Curfew Period adopted for this assessment 10pm to 7am.

3.2 Obtrusive Lighting Prediction Method

DIALux Evo is a computer software package for the calculation, assessment, and prognosis of lighting propagation, and is a well-recognised competent lighting modelling package. It utilises the inverse square law method for calculating light propagation (as per AS/NZS 4282:2023).

DIALux allows modellers to incorporate factors such as the lateral and vertical location of light sources, source to boundary/neighbouring property distances, terrain reflection, diffractions and reflections off nearby buildings and structures.

Using manufacturer-supplied luminaire input files or in-house developed luminaire input files for those makes/models not available for direct use in DIALux Evo, external lighting specifications was created in the model along with buildings and other structures including existing fencing.

All photometric data used in modelling, either supplied by manufacturers or developed in-house met the relevant vertical and azimuth plane requirements outlined in AS/NZS 4282:2023.

Calculation planes were then developed as per the methodology for planes outlined in AS/NZS 4282:2023. Here setback planes were modelled for the relevant boundaries,

though as noted above a buffer of 20m from the subject site boundary will be utilised due to the rural nature of the site and the absence of sensitive sites within close proximity to the site boundary.

To determine the potential skyglow observed by the nearby houses two Obtrusive Light Calculation Points were modelled to determine the Glare Ratings and Upward Flux Ratio at each of the locations.

One (1) three dimensional (3D) computer model was prepared. This model was prepared without considering the any current fencing around the property as they do not constitute obstructions.

Figure 4 overleaf shows a graphical representation of the calculation planes developed in the model. A further graphical representation of the calculation can be viewed at Figure 7.

After running the model, various graphical representations and tabulated results of predicted light propagation were provided. These illuminance results, along with relevant calculation planes, were compared to the lighting limits to determine if the additional outdoor lighting would meet the requirements of AS/NZS 4282:2023. It is important to note that the model was designed to encompass all proposed lighting being on at the same time. This is considered the worst-case scenario.

Figure 4: Location of calculation planes

3.3 Assessment Results

A summary of the modelling results obtained is presented in Table 4 below for ease of reference.

The model output file is presented in Appendix C, which includes grid points for calculations were made for each calculation plane modelled for both vertical and horizontal illuminance values in lux, along with luminous intensity distribution.

Table 4 below shows the vertical illuminance results for the various calculation planes for the 20m boundary offset. From Table 4, it can be seen that the predicted outdoor lighting at a 20 meter distance from relevant boundaries has an average vertical illumination level of 0.004 lux on the eastern boundary, 0.12 lux on the western relevant boundary, 0.005 lux on the northern boundary and 0.084 lux on the southern relevant boundary, which are well below the curfew limit.

Example graphical illustrations of predicted light propagation from outdoor lighting on the surrounding land is shown in Figure 5, Figure 6 and Figure 7 and Figure 8.

Table 4: Summary of modelled vertical illuminance results at relative boundary distances

CALCULATION PLANE INDEX	CALCULATION PLANE DESCRIPTION	MODEL			
		OUTDOOR LIGHTING			
		$\bar{E}_v$	E_{min}	E_{max}	R_G Glare Rating
Relevant Boundary Offset					
Eastern Relevant Boundary	20 m from Eastern Boundary	0.004 lx	0.00 lx	0.008 lx	53
Western Relevant Boundary	20 m from Western Boundary	0.10 lx	0.00 lx	4.46 lx	58
Northern Relevant Boundary	20 m from Northern Boundary	0.005 lx	0.00 lx	0.083 lx	42
Southern Relevant Boundary	20 m from Southern Boundary	0.086 lx	0.00 lx	13.2 lx	64

Given the distances between the development and the closest sensitive receptors is significant, the premises are more likely to be affected by the Glare directly caused by the luminaires (R_G), Upward Light Ratio (U_{LR} or R_{UL}) which is the ratio of the luminous flux emitted above the horizontal plane to the luminous flux of a luminaire or lighting installation and Luminance which is the "brightness impression" that the human eye has of a surface. Table 5 below presents modelling results for the obtrusive lighting criteria.

Another important calculation is the proportionality factor (k_S), this value helps to evaluate the glare effect of a light source by determining how much brighter the light source may be in relation to the surroundings. This is a unitless figure with smaller numbers representing smaller variations between the light source and surrounding areas and a higher number showing a larger variation.

Calculations performed as part of this assessment shows that the Upward Light Ratio is 0.9 % this means that less than 1% of the light at the site is being lost in an upward direction.

Glare Rating for the Eastern, Western and Southern Relevant Boundaries are all above a target of 50 lux which generally would indicate that there would be unacceptable glare levels. Whilst this is unacceptable at these locations these levels reduce dramatically over distance to the location of the sensitive receptors. This is confirmed by the glare rating at the two Obtrusive Light Points showing levels below 10. It is noted that the Site Obtrusive Light Plane is above 90, however this location is ground level directly below the luminaries.

Table 5: Obtrusive Light Scene Results

CALCULATION PLANE INDEX	CALCULATION PLANE DESCRIPTION	MODEL				
		OUTDOOR LIGHTING				
		R_G Glare Rating	R_{UF} Upward Flux Ratio	R_{UL} Upward Light Ratio	R_{DLO} Ratio of Flux below Horizontal	R_{ULO} Upward Light Output Ratio
Obtrusive Light Scene						
Global Obtrusive Light Results			0.3 %	0.9 %	96.5 %	0.8 %
Obtrusive Light Points		R_G Glare Rating	$\bar{E}_v$	E_{max}	k_s	Luminance
House to NE	Approx. 1.1 km to Northeast of Site	< 10	0.00 lux	0.00 lux	0.009	0.00 cd/m^2
House to S	Approx. 1.2km to South of Site	< 10	0.00 lux	0.001 lux	0.076	0.00 cd/m^2
Site Obtrusive Light Plane	Covering the site to the front entrance	> 90	0.99 lux	667 lux	204	0.12 cd/m^2

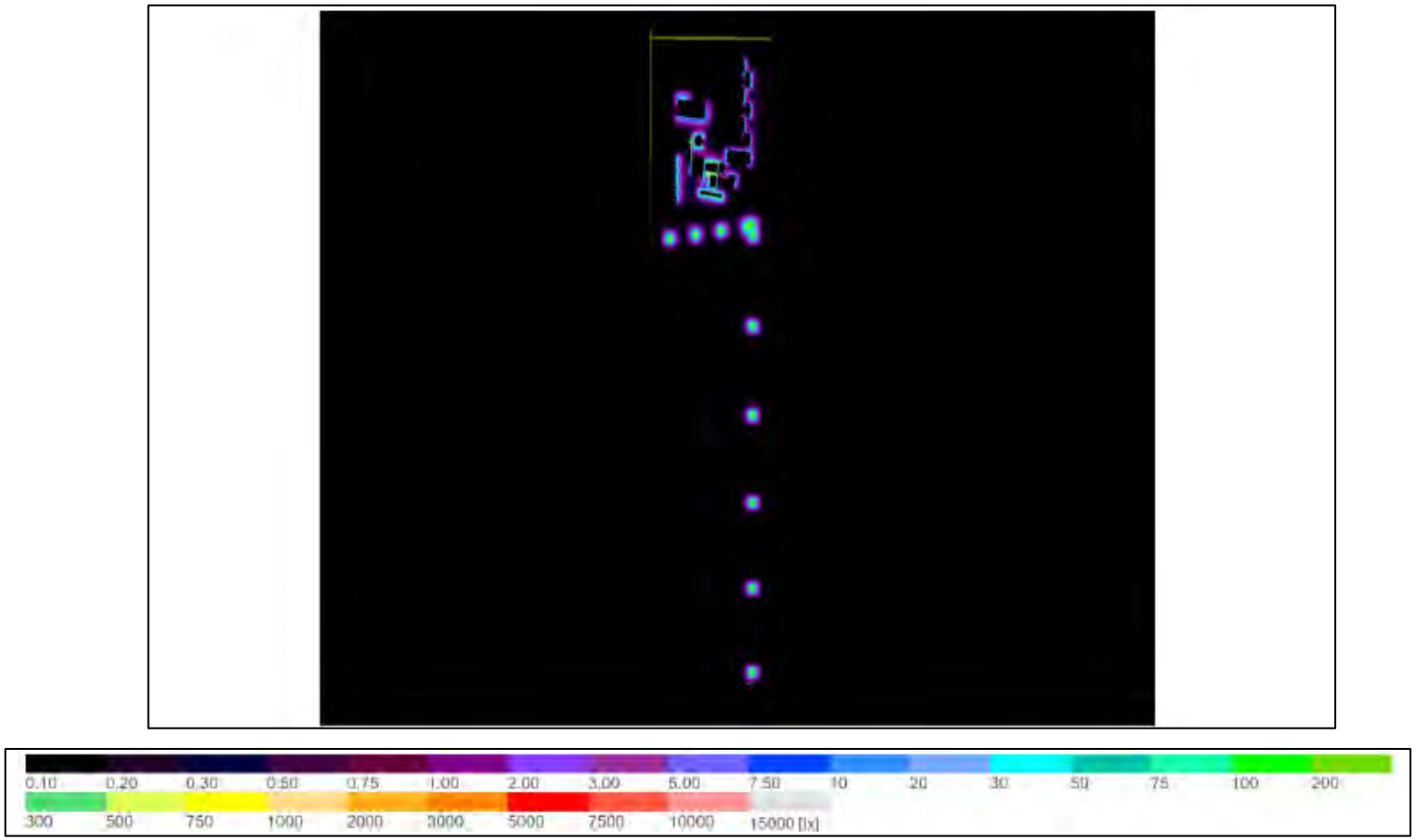


Figure 5: Overview of Site

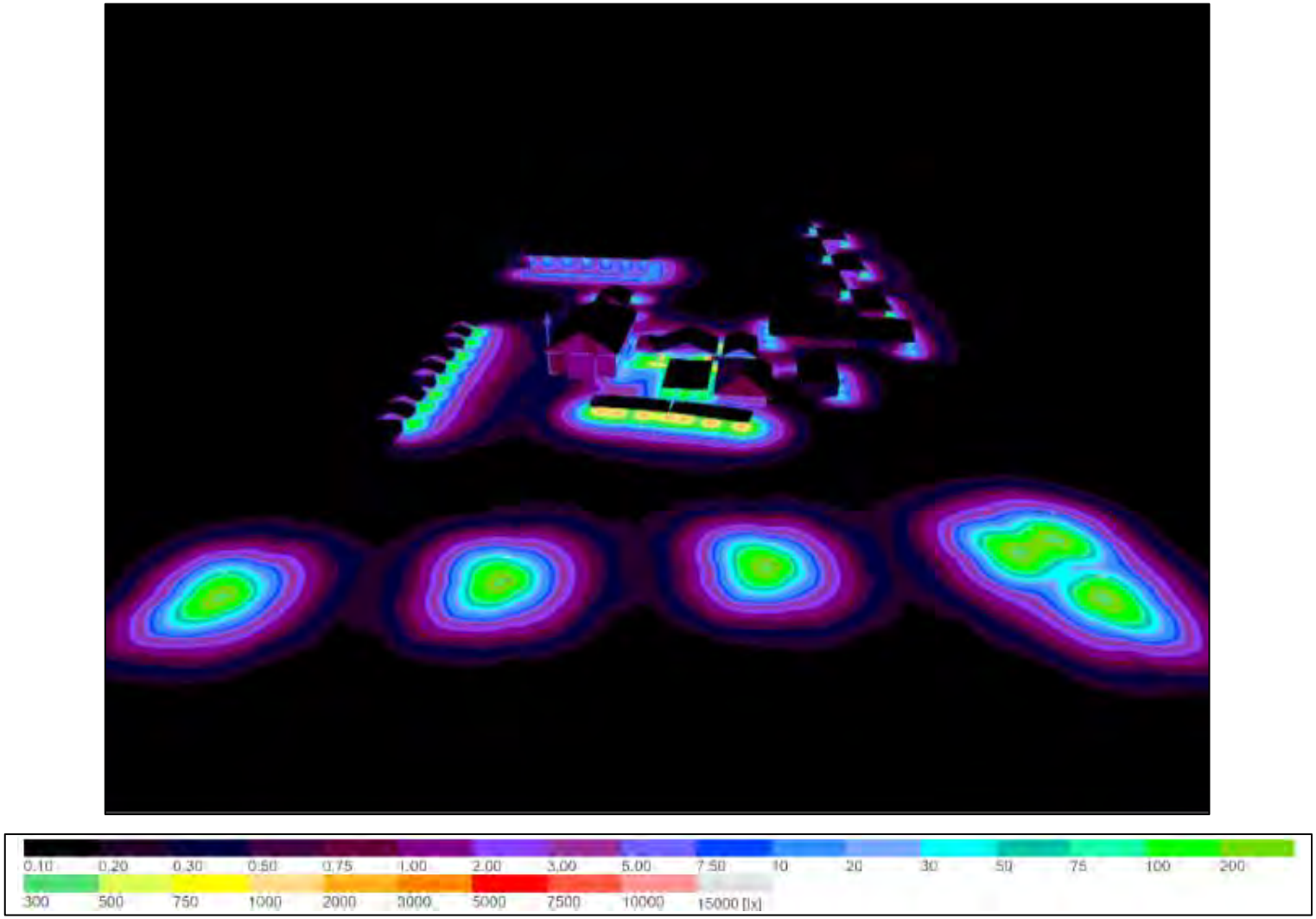


Figure 6: Closer View excluding Main Driveway

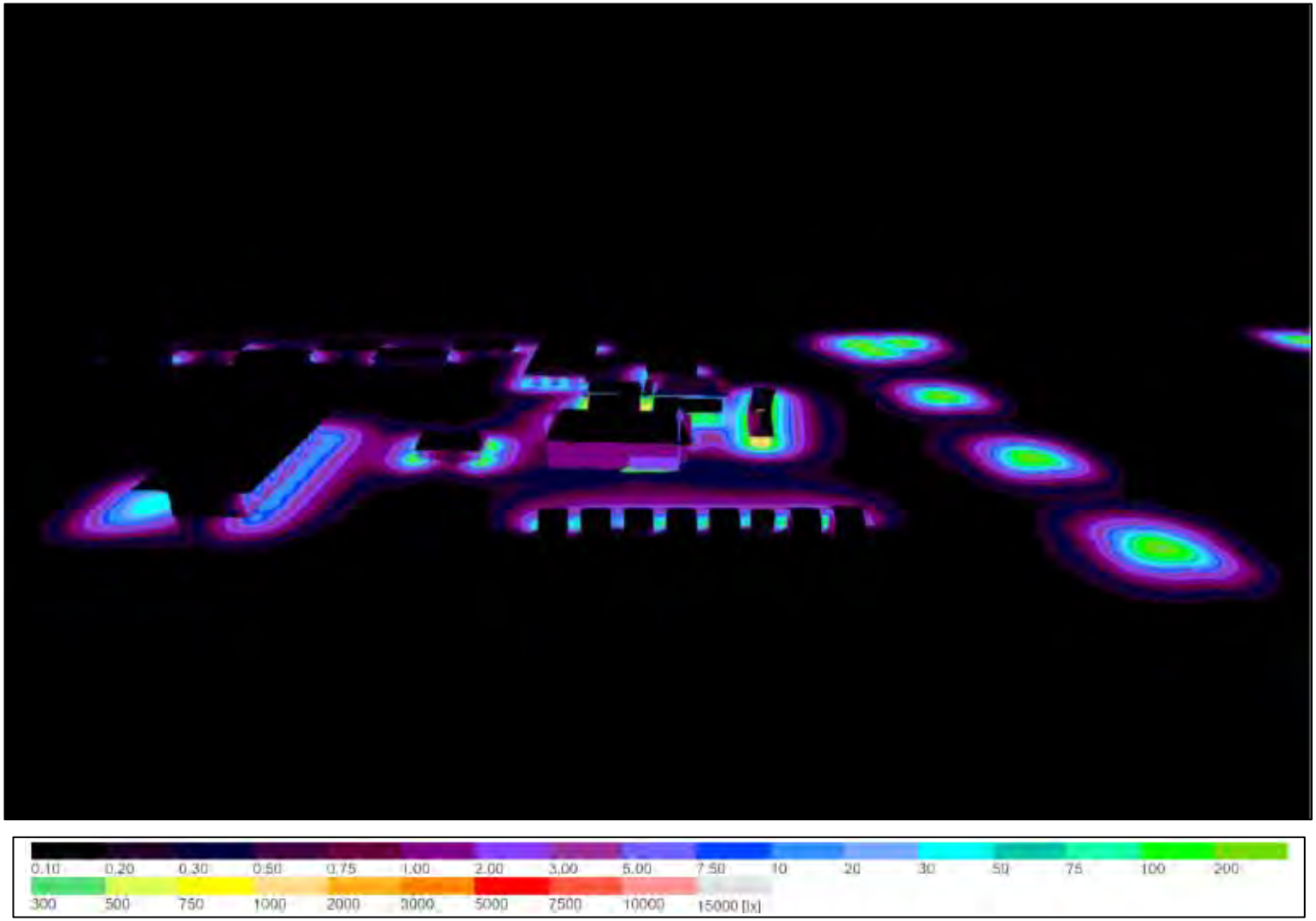


Figure 7: Overall Site Looking East

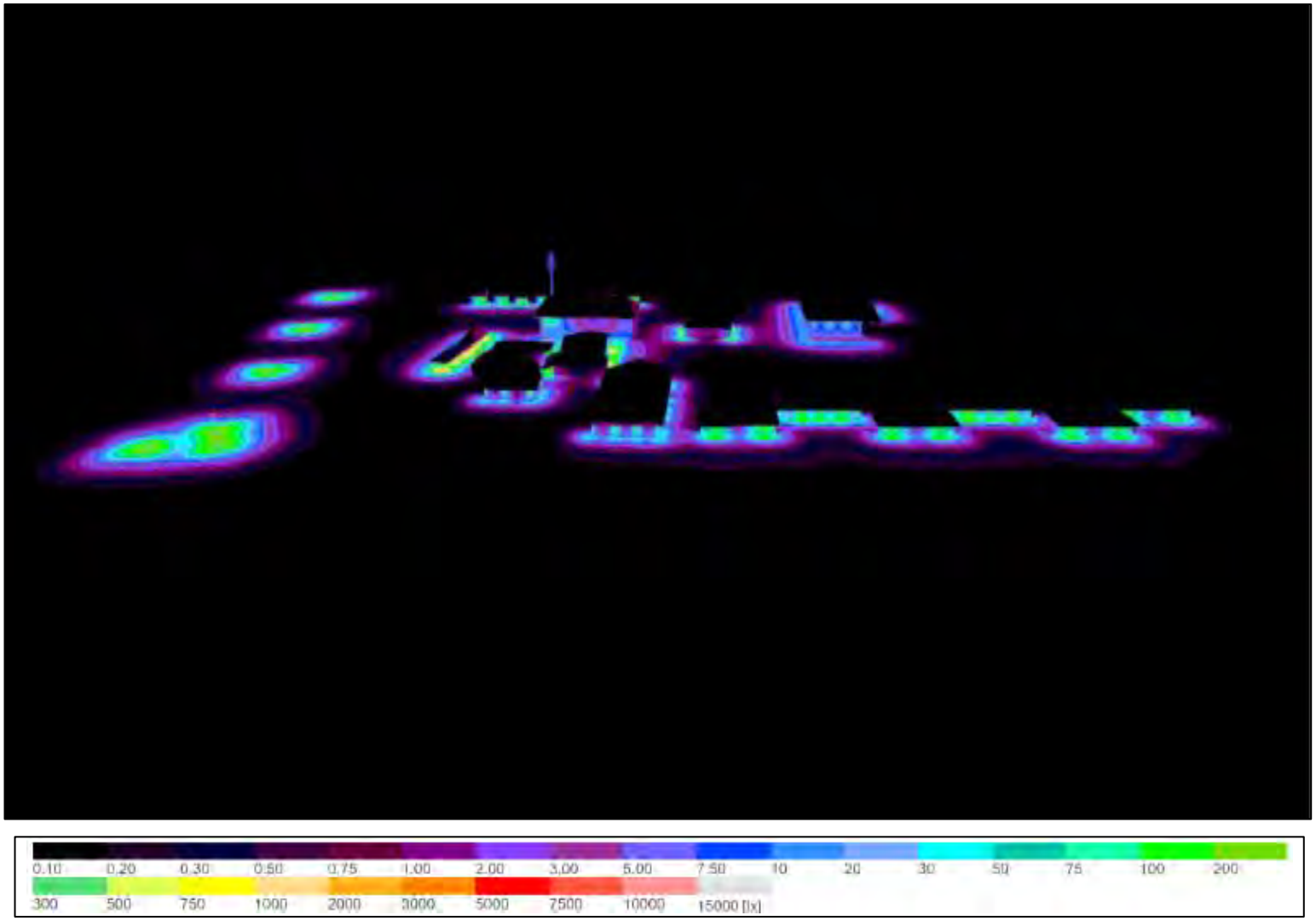


Figure 8: Modelled Illuminance Levels looking West

4 Conclusion

Yarramine was engaged by Schreik Building Group to undertake a Lighting Impact Assessment in support of a proposed expansion of rooming accommodation, located at 125 Kudo Silverleigh Road, GOOMBUNGEE.

This assessment is provided as supplementary information for works requested as part of an Information Request issued by Toowoomba Regional Council (TRC) following the submission of the Change Application, with a view to evaluate the potential impacts on existing surrounding sensitive receptors.

Using lighting design modelling software, the assessment examines the potential effects of proposed outdoor lighting on the surrounding environment.

The predicted light spill from proposed outdoor lighting complies with AS/NZ 4282:2023 and does not reduce the amenity and environmental quality of environs. Consistent with best practices, unnecessary lighting should be turned off when not in use, the angle of luminaires should be directed downwards and towards buildings where possible to limit the possible spill of light and lighting should not be stronger or larger than required for its intent.

Council's favourable consideration of the proposal, subject to reasonable and relevant conditions, is respectfully requested.

Appendix A

PROPOSED LIGHTING PLAN
BY SCHREIK BULDING GROUP

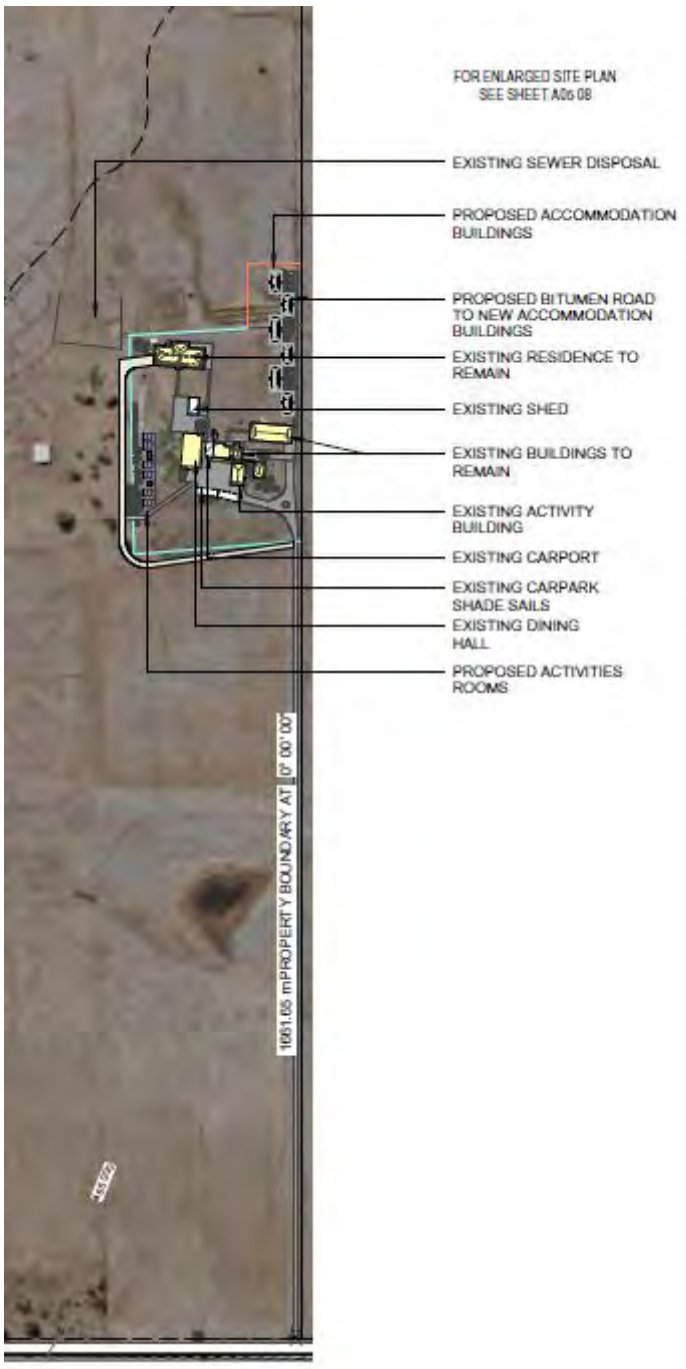
LIGHTING IMPACT ASSESSMENT DETAILS:

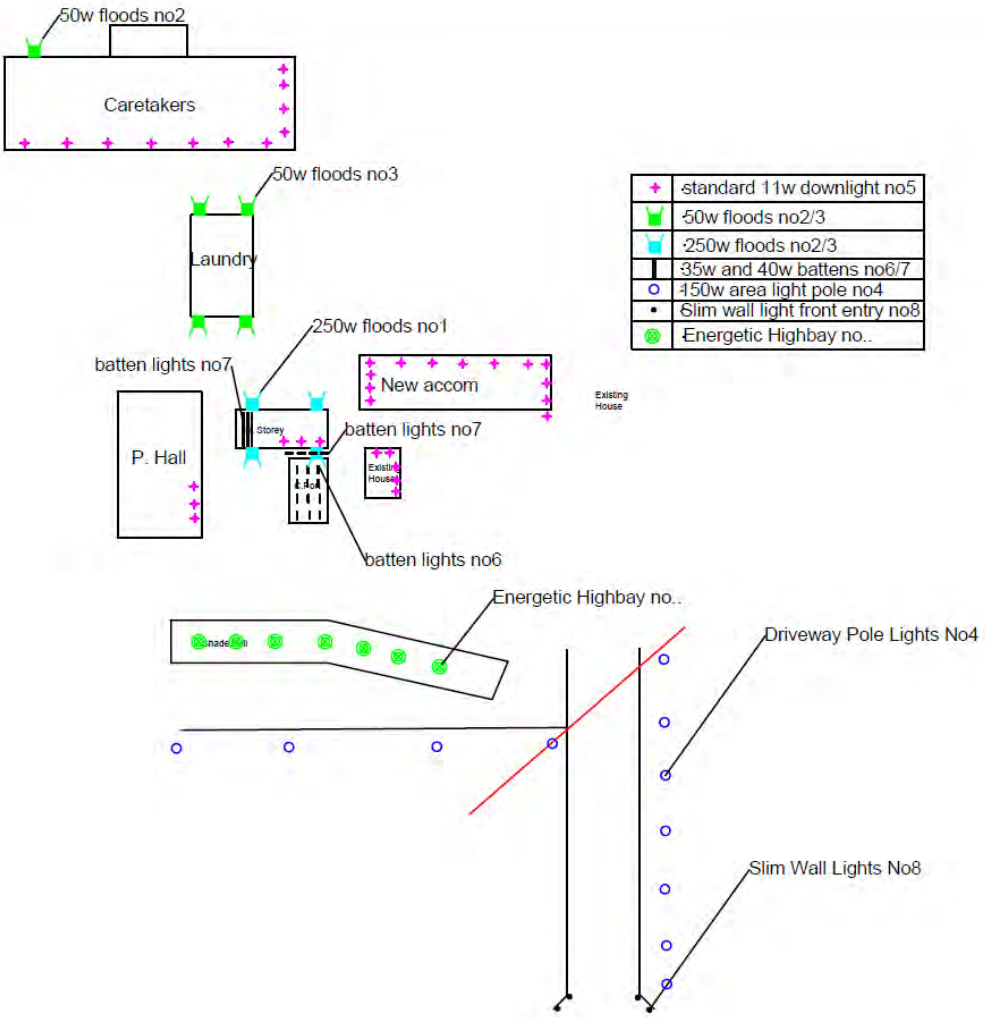
Hi Anita,

In answer to your question below yes, I will need all the outdoor lighting on the existing and proposed buildings as well as any lighting, existing and proposed, around the complex (i.e. bollard lighting on pathways, street lighting, gate lighting, security lighting etc). I will also require the latest plans for the complex and an indication as to how the lighting will be used, for example, all lights are on until 9pm after which only security lighting is permitted, streetlights are only on until a certain time of day, and the like.

If I think of anything else, I will let you know.

Regards, Amanda Kimball
Environmental Engineer




50w floods no2
Caretakers
50w floods no3
Laundry
250w floods no1
batten lights no7
New accom
Existing House
P. Hall
Storey
batten lights no7
Existing House
batten lights no6
standard 11w downlight no5
50w floods no2/3
250w floods no2/3
35w and 40w battens no6/7
150w area light pole no4
Slim wall light front entry no8
Energetic Highbay no..

Energetic Highbay no..
Driveway Pole Lights No4
Slim Wall Lights No8

NO	Model	No.	Description	Location
1	HPI-T 250W Phillips	4	250 W Flood Light	External of front building
2	FLYT22-FC-P 50 W Energetic	4	50 W Flood Light	Laundry Shed, Back living quarters
3	ML-NOX5-V4-W M ELEC	3	50 W Flood light	Entry Security Cam pole, Laundry Shed
4	ELHL-PLA-PD3-150W Energetic	6	150 W Light Poles	Along the driveway
5	171002 Energetic	34	11w Downlight	Soffit ground buildings
6	BN005C LED 40/CW L1200 PSU GM Phillips	16	1200 40w Battern weather proof	Carparks and walkway Soffit
7	BN132C LED SWT/SCET L1200 PSU Phillips	12	1200 35 w Battern	Front Carpark
8	ST363 3A lighting Ultra slim wall Lt	4	Slim Wall Light 7w	Front Gate

 # 8 - FRONT GATE: 6 x off slim wall lights (ST363 3A 7W)

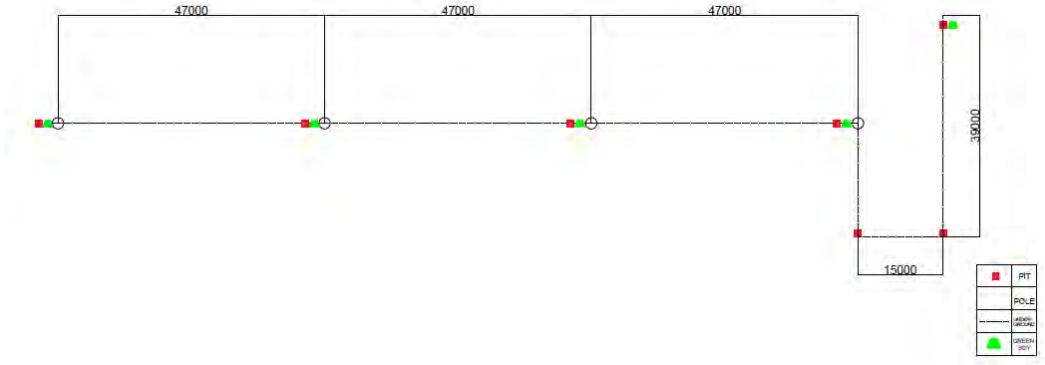
 # 4 - Main Driveway: 6 x off pole lights

6 x 4.5m poles with 150w 5K (ELHL-PLA-PD3 Energetic) = along main driveway

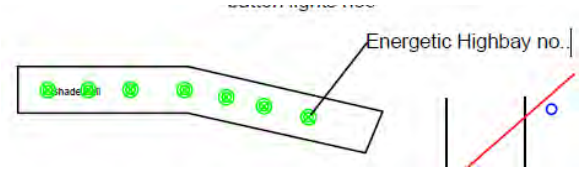
(approximately 750m to internal fence line)

 # 4 - Internal Driveway: 5 x 4.5m poles with 150w 5K x light poles

Driveway to internal fence (E to W) – (outside fence line)



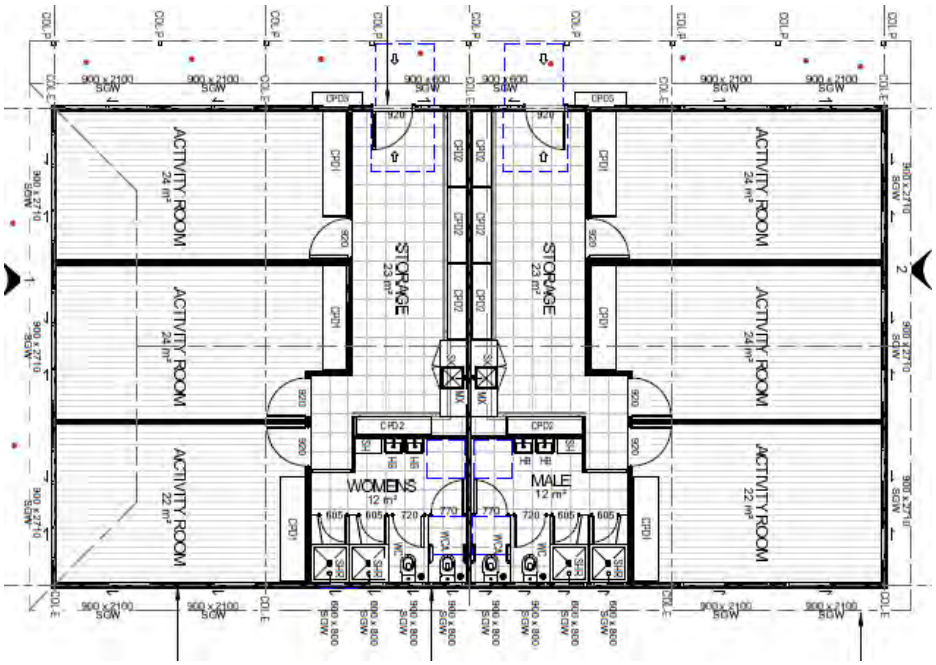
Carpark Shade Structure – nil (did not install)



 # 2 , 3 & 5 # 7 batten lights - Accommodation (existing single) **Residential Double Storey / cottage** **Dining Hall** **Caretakers Residence**

Carport / Activities Room (marked as batten light # 6) – proposed future carport enclosure

. 10 x off downlights to soffit (red)

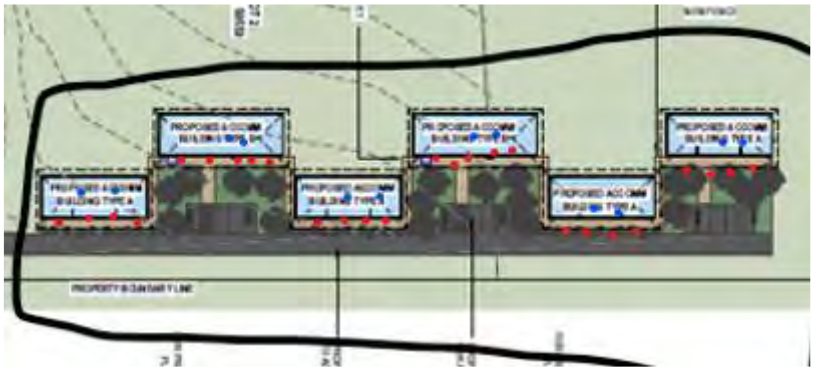


Proposed NEW WORKS – Accommodation & Activities rooms

Accommodation:

. 12 x twin flood lights (blue)

. 26 x downlights to soffit (red)



Activities / toilets :

. 8 x batten lights (blue)

. 8 x twin flood lights (red)

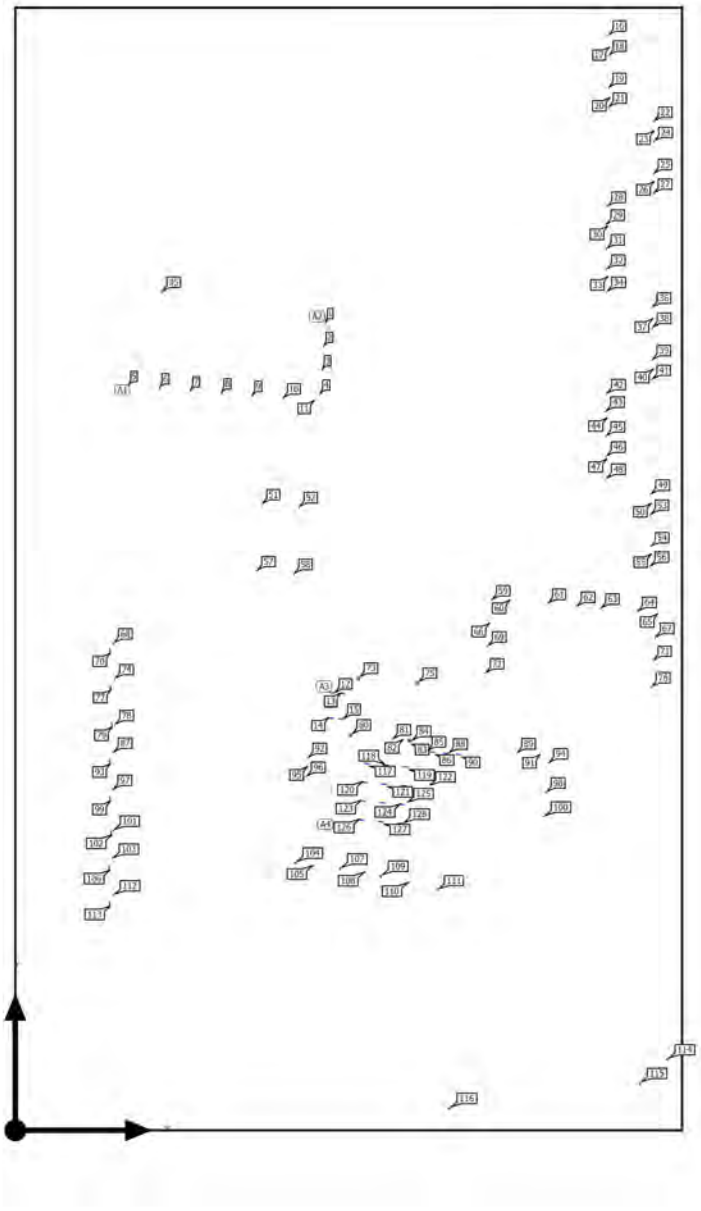

NEW FENCE
LOT 2
EXISTING DINING HALL
NOT FOR CO

Appendix B

PRODUCT DATA SHEETS, LUMINAIRE LAYOUT PLAN & LIST

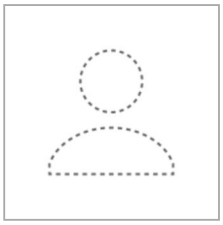
Outdoor space 3

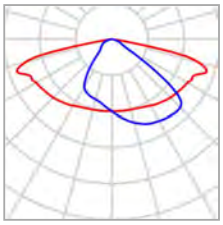
Luminaire layout plan



Outdoor space 3

Luminaire layout plan





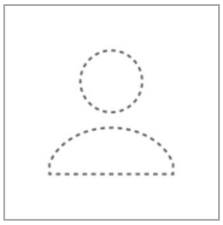
Article name	LEO	P	250.0 W
Fitting	1x	$\Phi_{Luminaire}$	33543 lm

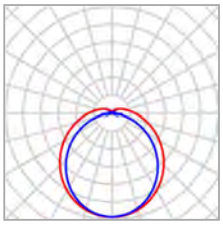
Individual luminaires

X	Y	Mounting height	Luminaire
84.144 m	110.733 m	2.399 m	73
98.593 m	109.582 m	2.399 m	75
82.280 m	96.953 m	2.399 m	80
96.715 m	95.639 m	2.399 m	83

Outdoor space 3

Luminaire layout plan





Article name	LEO	P	18.0 W
Fitting	1x	$\Phi_{Luminaire}$	2500 lm

4 x LEO

Type	Field Arrangement
1st luminaire (X/Y/Z)	77.844 m / 107.221 m / 2.519 m
X-direction	2 pcs., Centre - centre, 2.554 m
Y-direction	2 pcs., Centre - centre, 6.075 m
Arrangement	A3

X	Y	Mounting height	Luminaire
77.844 m	107.221 m	2.519 m	12
80.391 m	107.035 m	2.514 m	13
77.403 m	101.162 m	2.484 m	14
79.950 m	100.977 m	2.479 m	15

12 x LEO

Type	Field Arrangement
1st luminaire (X/Y/Z)	84.885 m / 76.196 m / 2.489 m
X-direction	3 pcs., Centre - centre, Distances not equal
Y-direction	4 pcs., Centre - centre, Distances not equal

X	Y	Mounting height	Luminaire
86.095 m	90.018 m	2.489 m	117
90.926 m	89.595 m	2.489 m	118
95.758 m	89.172 m	2.489 m	119
85.691 m	85.410 m	2.489 m	120
90.523 m	84.988 m	2.489 m	121

Outdoor space 3

Luminaire layout plan

Arrangement	A4

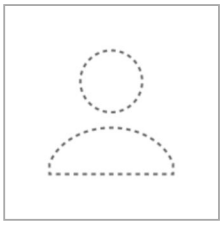
X	Y	Mounting height	Luminaire
95.355 m	84.565 m	2.489 m	122
85.288 m	80.803 m	2.489 m	123
94.951 m	79.958 m	2.489 m	124
90.120 m	80.380 m	2.479 m	125
84.885 m	76.196 m	2.489 m	126
89.717 m	75.773 m	2.489 m	127
94.548 m	75.350 m	2.489 m	128

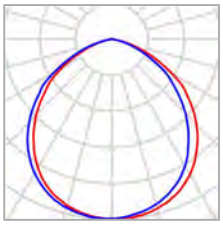
Individual luminaires

X	Y	Mounting height	Luminaire
23.211 m	117.424 m	2.805 m	70
23.347 m	108.409 m	2.805 m	77
23.648 m	99.418 m	2.805 m	79
99.462 m	93.090 m	2.499 m	85
102.366 m	92.827 m	2.499 m	86
105.679 m	92.538 m	2.499 m	88
108.770 m	92.257 m	2.499 m	90
23.165 m	90.400 m	2.805 m	93
23.174 m	81.239 m	2.805 m	99
23.487 m	72.895 m	2.805 m	102
23.012 m	64.255 m	2.805 m	106
23.100 m	55.456 m	2.805 m	113

Outdoor space 3

Luminaire layout plan





Manufacturer	ENERGETIC LIGHTING (YANKON)
Article name	HBB7-TD 200WM 4000K
Fitting	1x

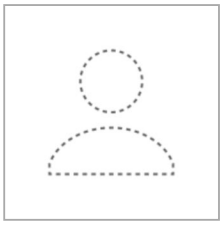
P	200.0 W
$\Phi_{Luminaire}$	36000 lm

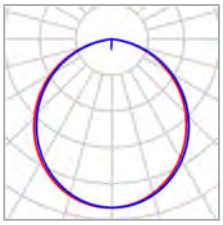
Individual luminaires

X	Y	Mounting height	Luminaire
68.700 m	65.600 m	2.399 m	104
72.866 m	64.947 m	2.399 m	105
79.661 m	64.140 m	2.399 m	107
85.520 m	63.320 m	2.399 m	108
89.692 m	62.380 m	2.399 m	109
96.215 m	60.741 m	2.399 m	110
103.487 m	58.923 m	2.399 m	111

Outdoor space 3

Luminaire layout plan





Manufacturer	Energetic	P	11.3 W
Article name	YKRS3G1B-DC A1-WT 3000K	$\Phi_{Luminaire}$	878 lm
Fitting	1x 171001 3000K		

7 x Energetic YKRS3G1B-DC A1-WT 3000K

Type	Line arrangement
1st luminaire (X/Y/Z)	27.760 m / 182.595 m / 5.999 m
X-direction	7 pcs., Centre - centre, Distances not equal
Arrangement	A1

X	Y	Mounting height	Luminaire
27.760 m	182.595 m	5.999 m	5
35.348 m	181.974 m	5.999 m	6
42.936 m	181.353 m	5.999 m	7
50.524 m	180.732 m	5.999 m	8
58.111 m	180.112 m	5.999 m	9
65.699 m	179.491 m	5.999 m	10
73.287 m	178.870 m	5.999 m	11

4 x Energetic YKRS3G1B-DC A1-WT 3000K

Type	Line arrangement
1st luminaire (X/Y/Z)	74.715 m / 180.541 m / 6.001 m
X-direction	4 pcs., Centre - centre, Distances not equal

X	Y	Mounting height	Luminaire
76.172 m	198.095 m	5.999 m	1
75.686 m	192.244 m	5.999 m	2

Outdoor space 3

Luminaire layout plan

Arrangement	A2

X	Y	Mounting height	Luminaire
75.201 m	186.393 m	5.999 m	3
74.715 m	180.541 m	6.001 m	4

Individual luminaires

X	Y	Mounting height	Luminaire
145.598 m	268.570 m	2.399 m	16
145.641 m	263.628 m	2.399 m	18
145.598 m	255.704 m	2.399 m	19
145.555 m	250.933 m	2.399 m	21
156.593 m	247.450 m	2.399 m	22
156.636 m	242.508 m	2.399 m	24
156.593 m	234.584 m	2.399 m	25
156.551 m	229.813 m	2.399 m	27
145.147 m	226.504 m	2.399 m	28
145.105 m	205.653 m	2.399 m	34
156.226 m	201.771 m	2.399 m	36
156.268 m	196.829 m	2.399 m	38
156.226 m	188.905 m	2.399 m	39
156.183 m	184.133 m	2.399 m	41
144.996 m	180.607 m	2.399 m	42
145.038 m	174.561 m	2.399 m	44
144.996 m	164.528 m	2.399 m	47
144.953 m	159.756 m	2.399 m	48
155.820 m	155.885 m	2.399 m	49

Outdoor space 3

Luminaire layout plan

X	Y	Mounting height	Luminaire
155.862 m	150.944 m	2.399 m	53
155.820 m	143.019 m	2.399 m	54
155.777 m	138.248 m	2.399 m	56
116.849 m	129.954 m	2.399 m	59
121.263 m	129.881 m	2.399 m	60
130.619 m	129.077 m	2.399 m	61
137.635 m	128.346 m	2.399 m	62
143.629 m	127.908 m	2.399 m	63
152.619 m	127.104 m	2.399 m	64
157.561 m	126.519 m	2.399 m	65
116.265 m	124.180 m	2.399 m	66
156.976 m	120.745 m	2.399 m	67
115.826 m	118.625 m	2.399 m	69
156.537 m	115.190 m	2.399 m	71
115.314 m	112.047 m	2.399 m	72
156.026 m	108.612 m	2.399 m	76
92.550 m	95.957 m	2.420 m	81
94.961 m	95.776 m	2.420 m	82
97.260 m	95.595 m	2.420 m	84
122.989 m	92.532 m	2.420 m	89
128.654 m	92.103 m	2.420 m	91
71.745 m	91.400 m	5.999 m	92
130.800 m	90.100 m	2.420 m	94
71.547 m	89.147 m	5.999 m	95

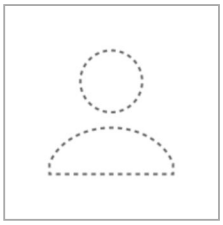
Outdoor space 3

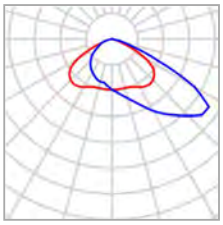
Luminaire layout plan

X	Y	Mounting height	Luminaire
71.358 m	86.780 m	5.999 m	96
130.219 m	82.915 m	2.420 m	98
129.772 m	77.022 m	2.420 m	100

Outdoor space 3

Luminaire layout plan





Manufacturer	Energetic Lighting Australia Pty Ltd
Article No.	150W-135X60D
Article name	Maxi-Flood 150W Asymmetric
Fitting	1x

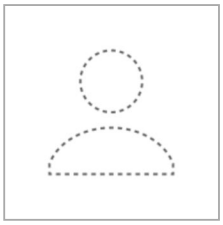
P	150.0 W
$\Phi_{Luminaire}$	24142 lm

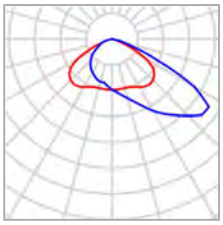
Individual luminaires

X	Y	Mounting height	Luminaire
160.000 m	17.400 m	3.999 m	114
153.300 m	11.500 m	3.999 m	115
106.580 m	5.340 m	3.999 m	116

Outdoor space 3

Luminaire layout plan





Manufacturer	Energetic Lighting Australia Pty Ltd
Article No.	50W-135X60D
Article name	Maxi-Flood 50W Asymmetric
Fitting	1x

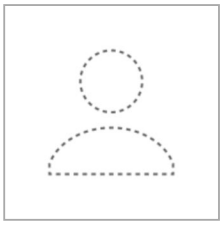
P	50.0 W
$\Phi_{Luminaire}$	8047 lm

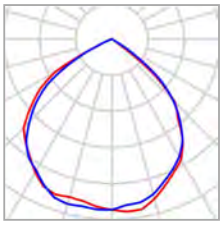
Individual luminaires

X	Y	Mounting height	Luminaire
35.862 m	205.600 m	5.999 m	35

Outdoor space 3

Luminaire layout plan





Manufacturer	M-Elec Pty Ltd	P	23.3 W
Article No.	ML-APEXD-M-BL	$\Phi_{Luminaire}$	2277 lm
Article name	LED Security Spotlight		
Fitting	1x		

Individual luminaires

X	Y	Mounting height	Luminaire
145.764 m	265.620 m	2.799 m	17
145.814 m	253.213 m	2.799 m	20
156.618 m	245.022 m	2.799 m	23
156.668 m	232.615 m	2.799 m	26
144.949 m	222.149 m	2.799 m	29
145.257 m	221.661 m	2.799 m	30
145.016 m	216.102 m	2.799 m	31
145.066 m	211.115 m	2.799 m	32
145.307 m	209.254 m	2.799 m	33
156.300 m	198.938 m	2.799 m	37
156.350 m	186.531 m	2.799 m	40
144.798 m	176.253 m	2.799 m	43
144.865 m	170.205 m	2.799 m	45

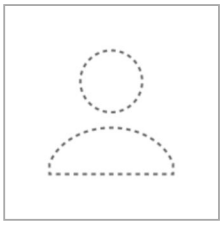
Outdoor space 3

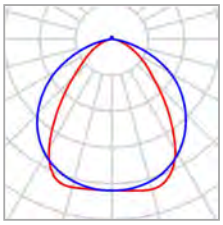
Luminaire layout plan

X	Y	Mounting height	Luminaire
144.915 m	165.218 m	2.799 m	46
155.886 m	153.570 m	2.799 m	50
155.936 m	141.163 m	2.799 m	55
24.050 m	119.350 m	2.799 m	68
24.350 m	110.669 m	2.799 m	74
24.400 m	99.500 m	2.799 m	78
24.000 m	92.700 m	2.799 m	87
23.900 m	83.600 m	2.799 m	97
24.089 m	73.575 m	2.799 m	101
23.800 m	66.700 m	2.799 m	103
24.039 m	57.754 m	2.799 m	112

Outdoor space 3

Luminaire layout plan





Manufacturer	M-Elec Pty Ltd	P	49.1 W
Article No.	ML-NOX5-V4-W	$\Phi_{Luminaire}$	6292 lm
Fitting	1x		

Individual luminaires

X	Y	Mounting height	Luminaire
60.564 m	153.569 m	2.399 m	51
69.636 m	152.800 m	2.399 m	52
59.275 m	137.165 m	2.399 m	57
68.347 m	136.396 m	2.399 m	58

DIALux

Outdoor space 3

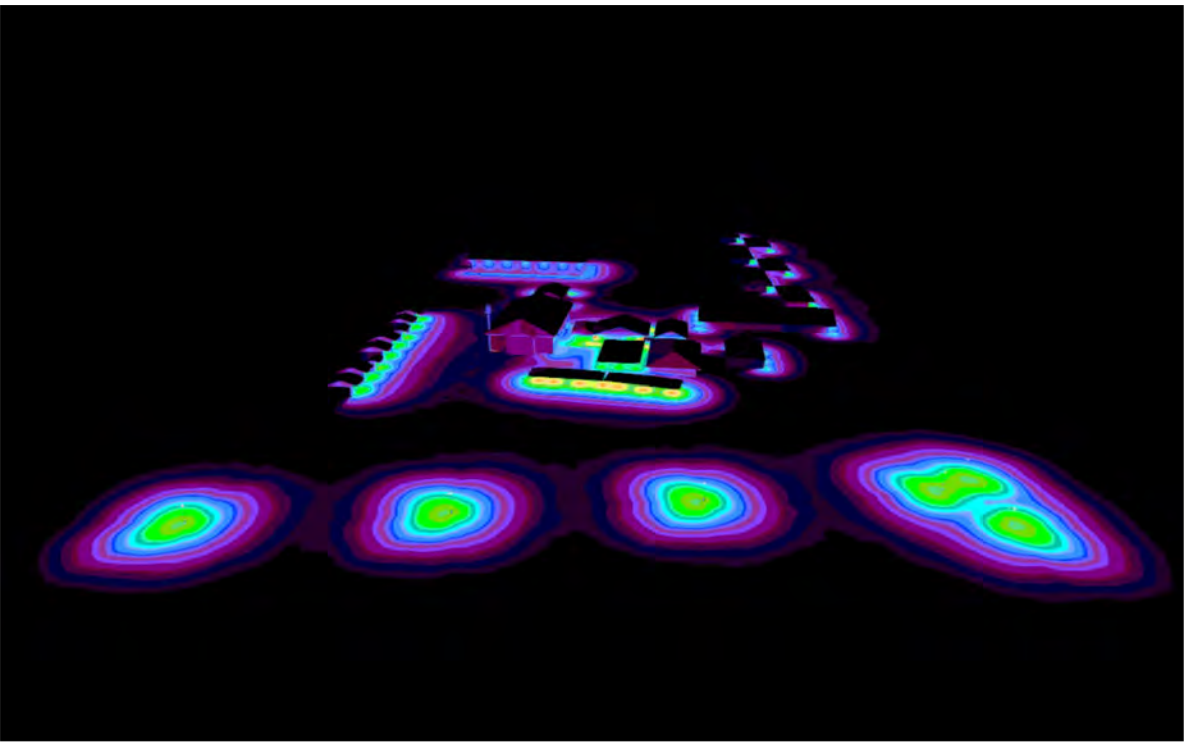
Luminaire list

Φ_{total}	P_{total}	Luminous efficacy
666507 lm	4803.7 W	138.7 lm/W

pcs.	Manufacturer	Article No.	Article name	P	Φ	Luminous efficacy
4			LEO	250.0 W	33543 lm	134.2 lm/W
28			LEO	18.0 W	2500 lm	138.9 lm/W
7	ENERGETIC LIGHTING (YANKON)		HBB7-TD 200WM 4000K	200.0 W	36000 lm	180.0 lm/W
57	Energetic		YKRS3G1B-DC A1-WT 3000K	11.3 W	878 lm	77.5 lm/W
3	Energetic Lighting Australia Pty Ltd	150W-135X60D	Maxi-Flood 150W Asymmetric	150.0 W	24142 lm	160.9 lm/W
1	Energetic Lighting Australia Pty Ltd	50W-135X60D	Maxi-Flood 50W Asymmetric	50.0 W	8047 lm	160.9 lm/W
24	M-Elec Pty Ltd	ML-APEXD-M-BL	LED Security Spotlight	23.3 W	2277 lm	97.6 lm/W
4	M-Elec Pty Ltd	ML-NOX5-V4-W		49.1 W	6292 lm	128.1 lm/W

Appendix C

DIALux Evo MODEL OUTPUT FILE

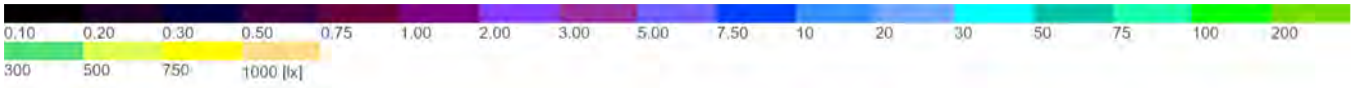


Kudo Silverleigh

Images

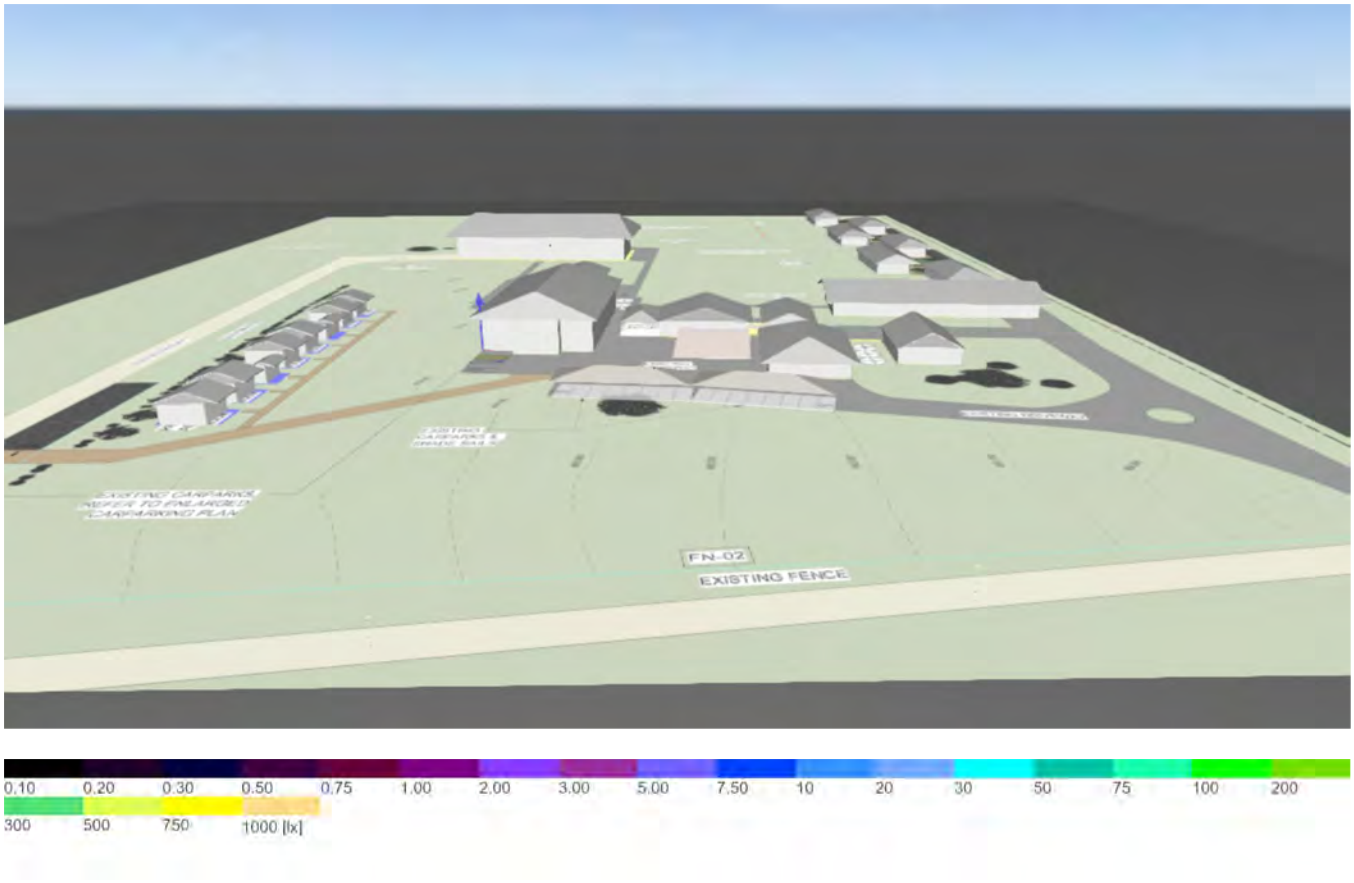
Overall View

Images



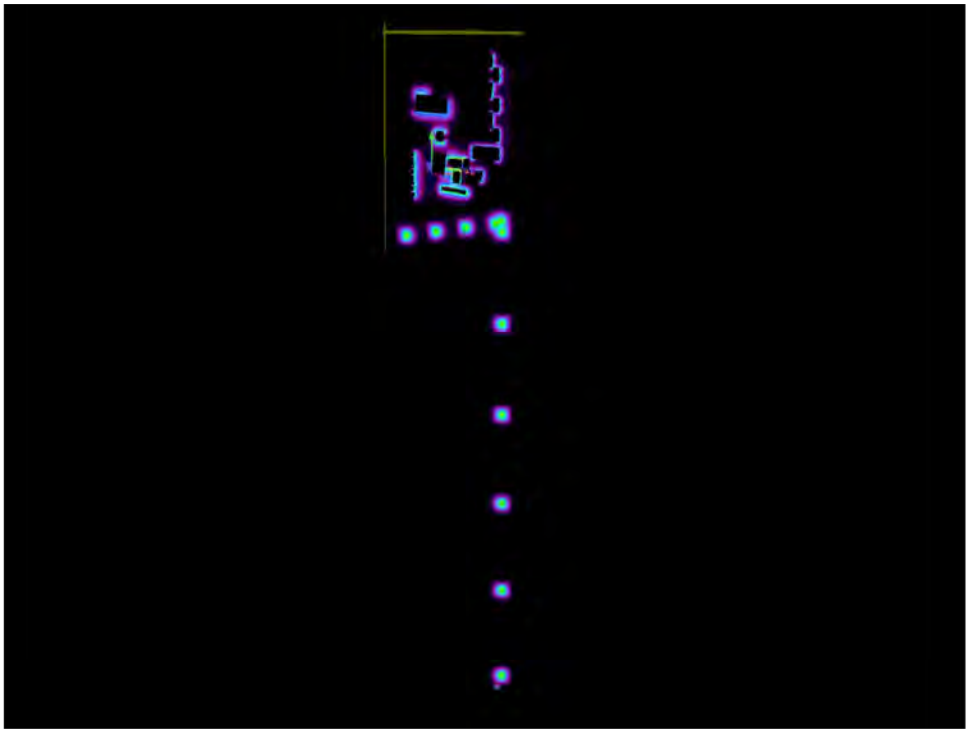
Overall View 3D

Images



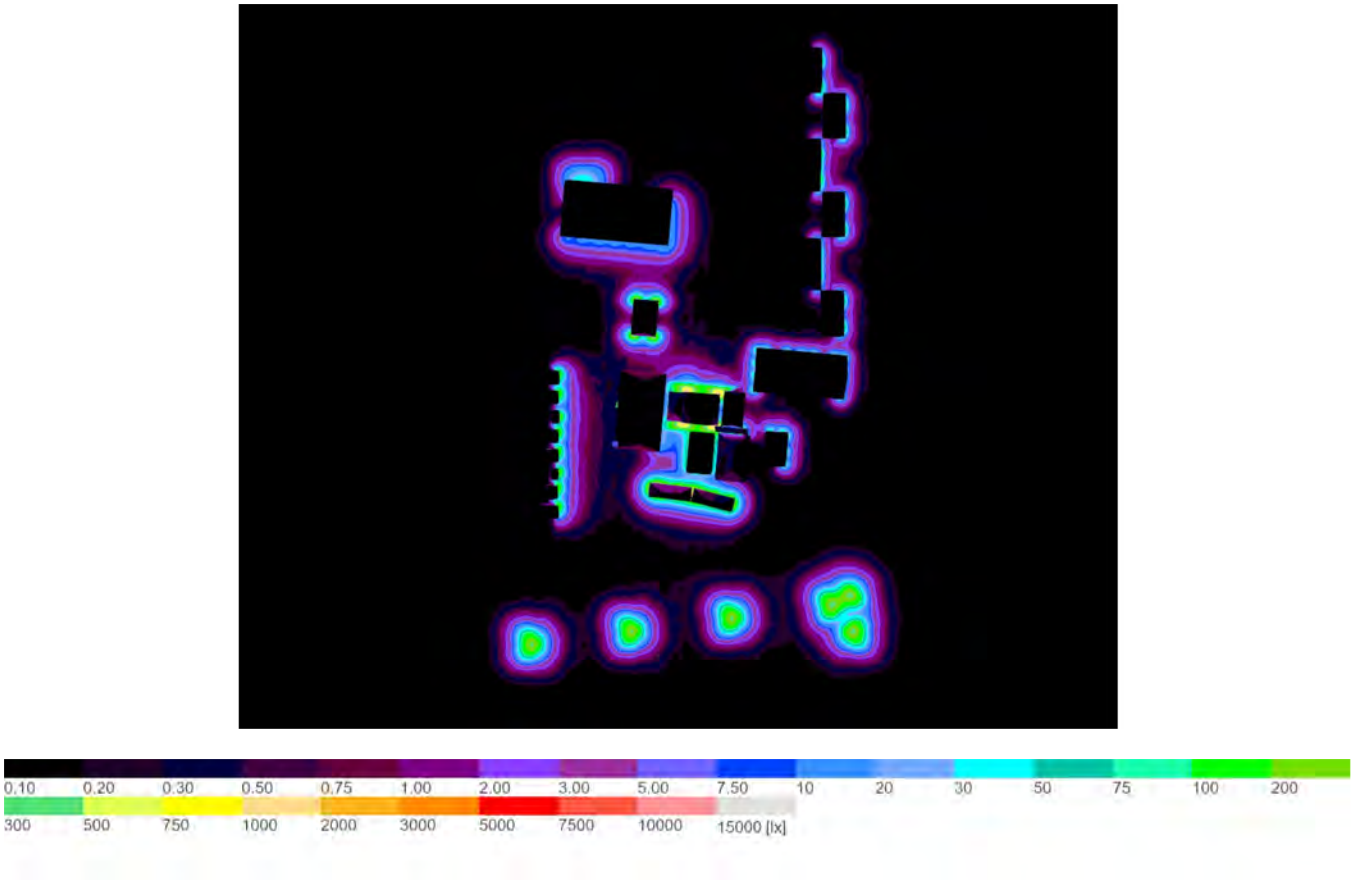
Overall View Front View

Images



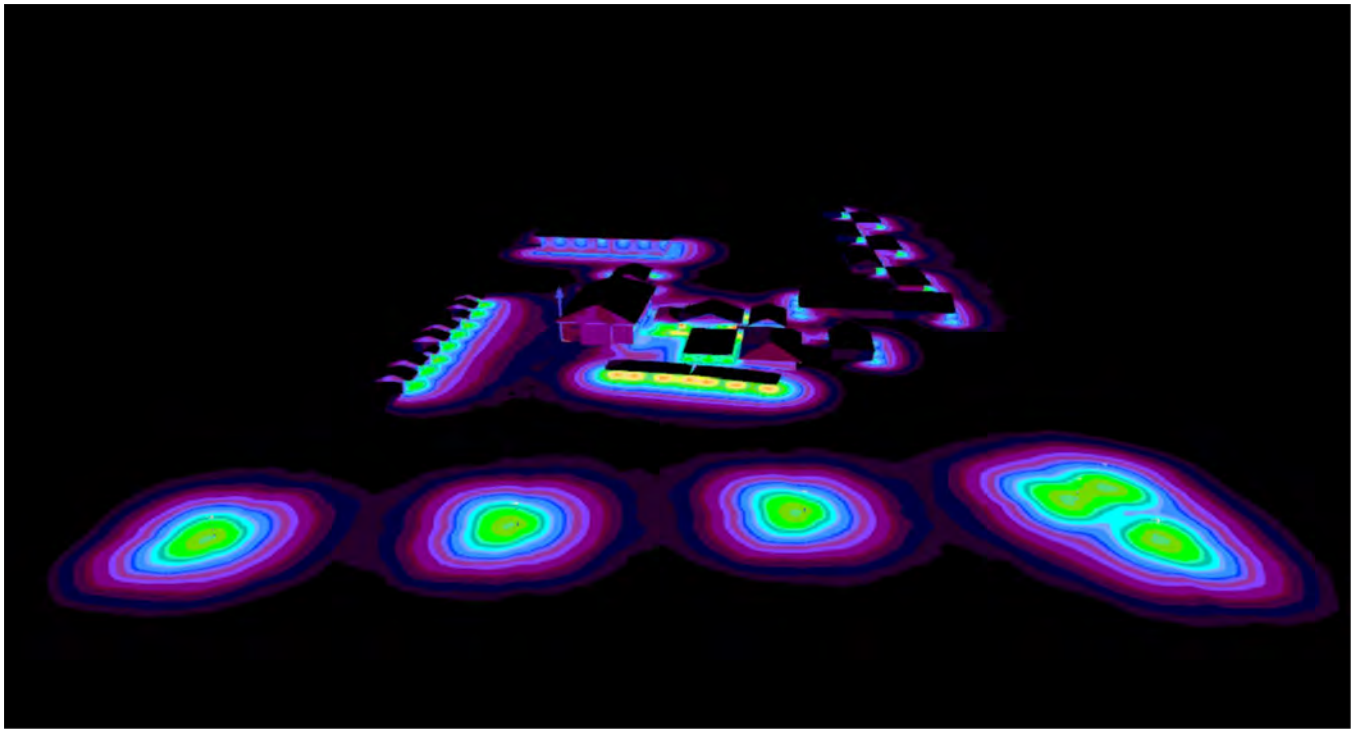
Overall with Lights

Images



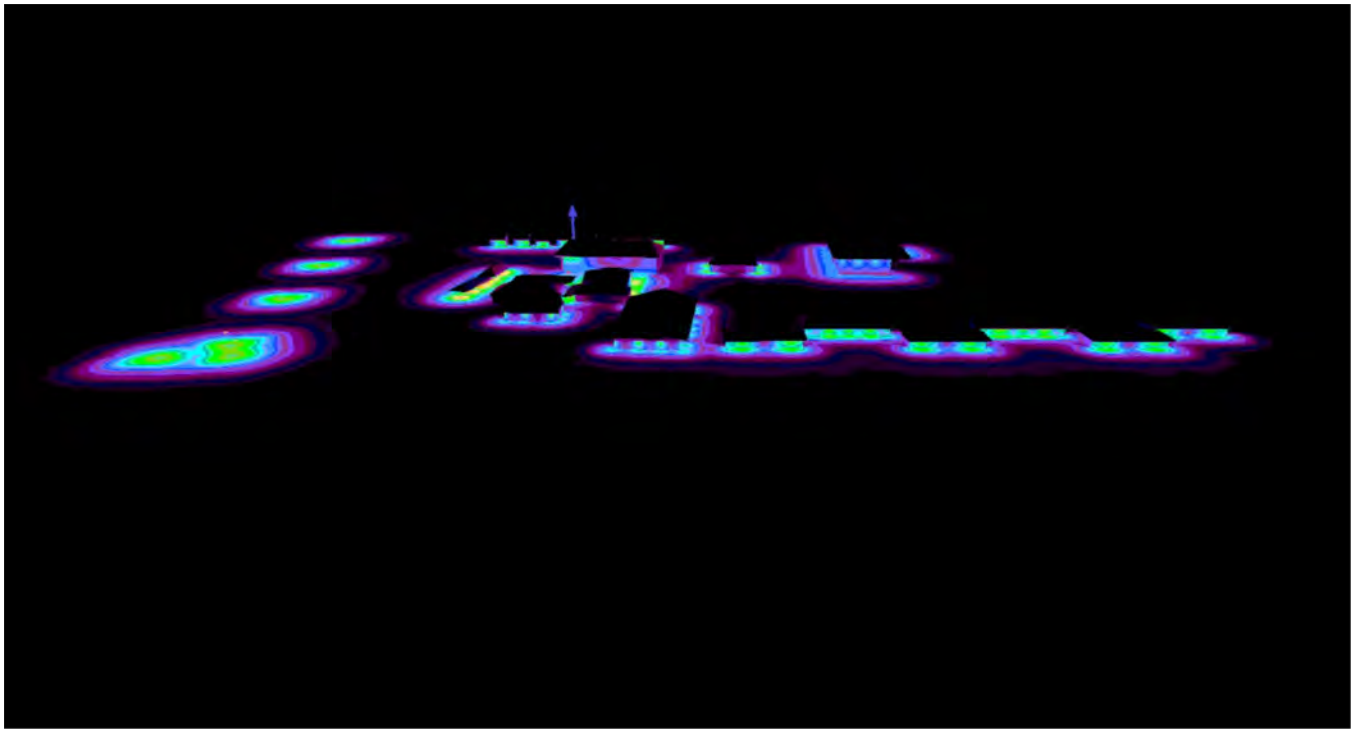
Closeup of Compound with lights

Images



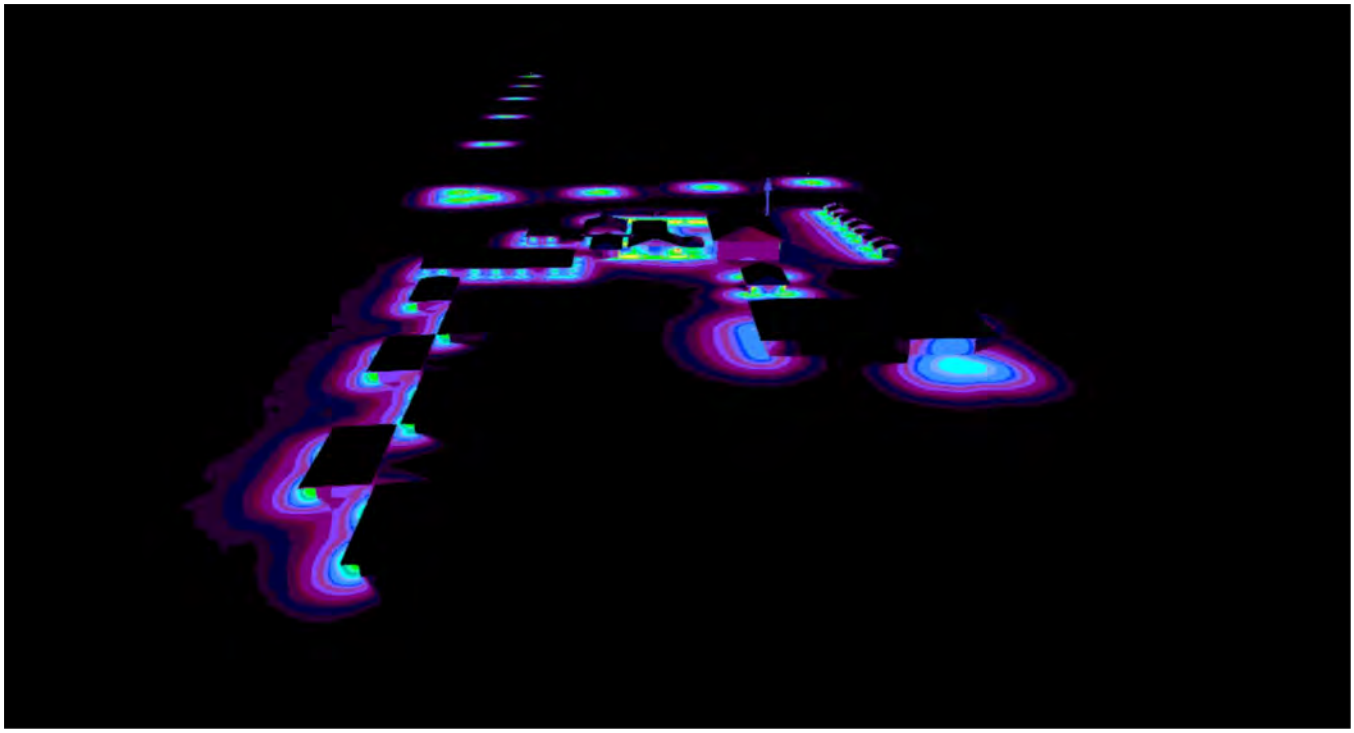
Looking North

Images



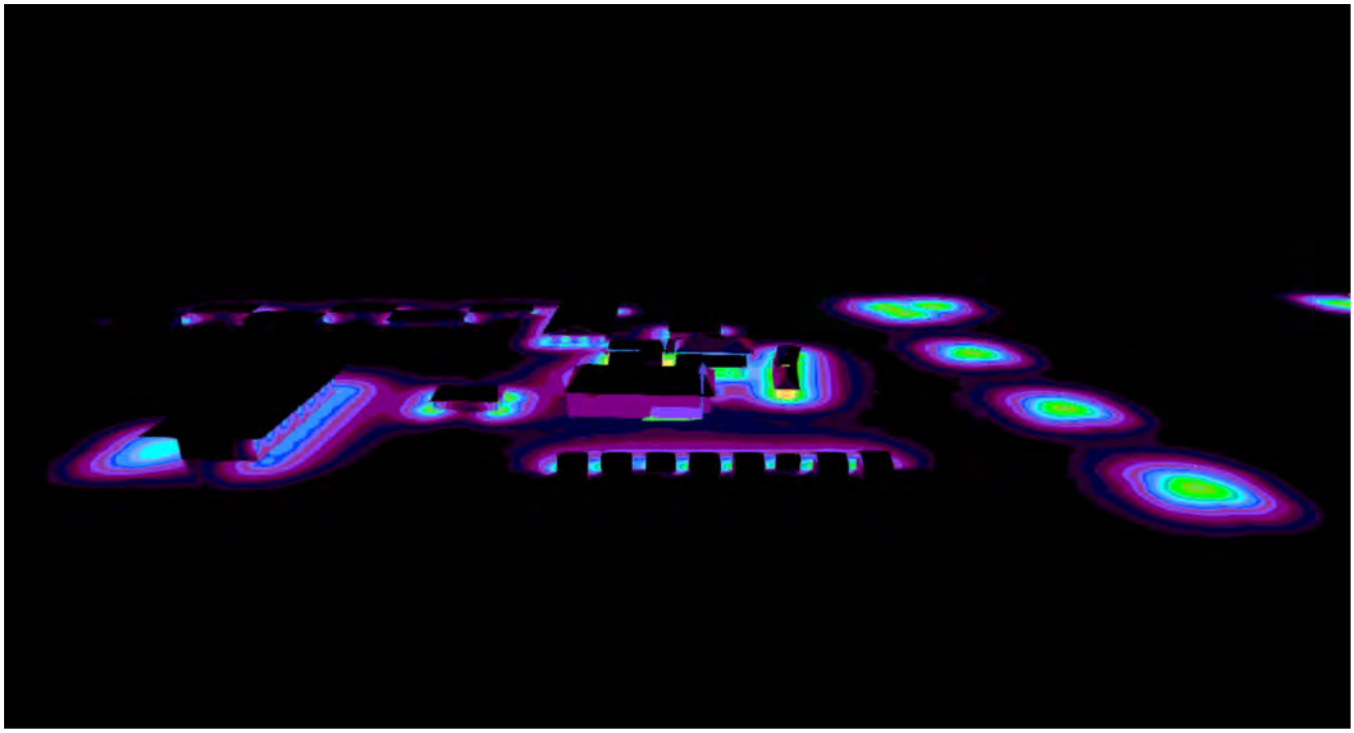
Looking West

Images



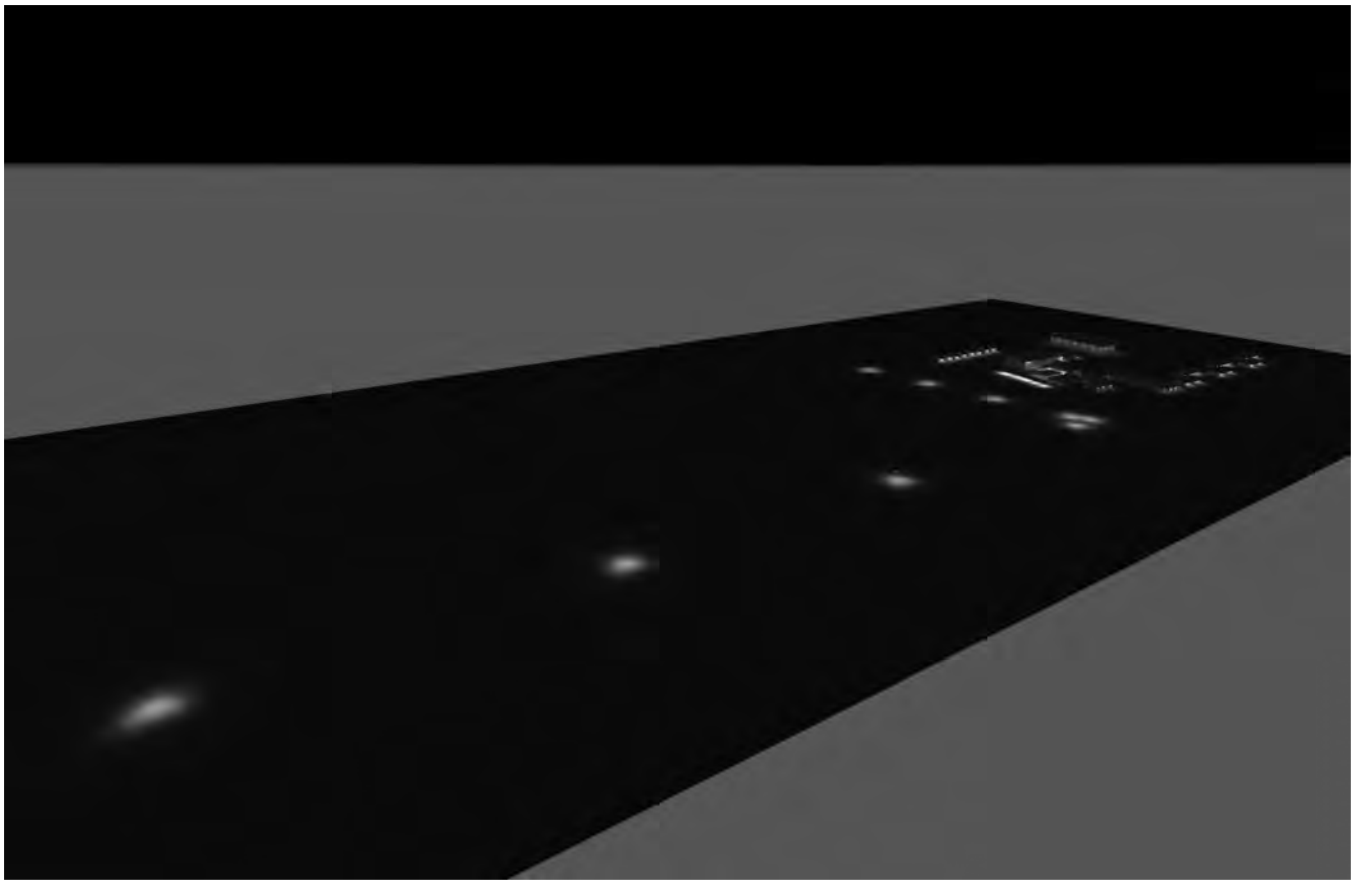
Looking South

Images



Looking East

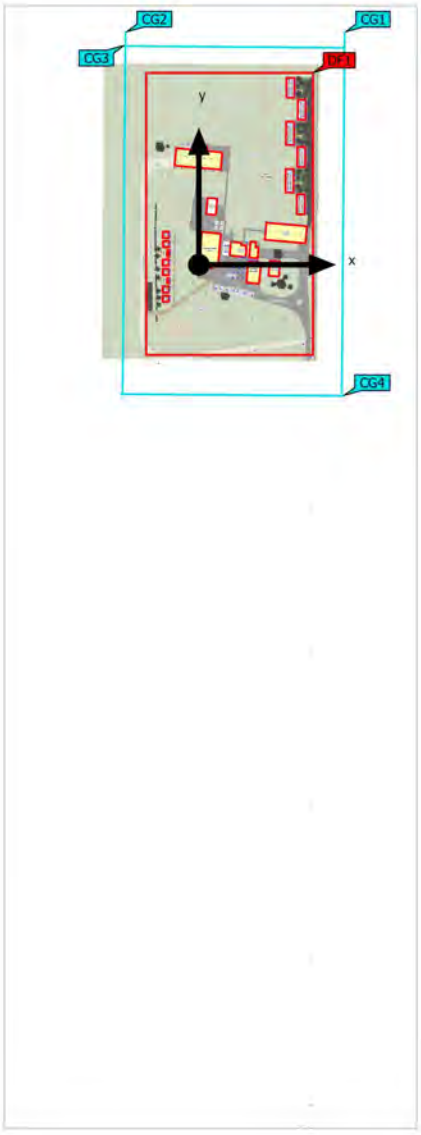
Images



Kudo Silverleigh

Site 1 (Light scene 1)

Calculation objects



Site 1 (Light scene 1)

Calculation objects

Calculation surfaces

Properties	$\bar{E}$	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Eastern Relevant Boundary Horizontal illuminance Height: 6.500 m	0.002 lx	0.00 lx	0.34 lx	-	0.00	CG1
Eastern Relevant Boundary Perpendicular illuminance Height: 6.500 m	0.46 lx	0.006 lx	30.5 lx	0.013	0.000	CG1
Eastern Relevant Boundary Vertical illuminance Rotation: 0.0°, Height: 6.500 m	0.004 lx	0.000 lx	0.008 lx	-	-	CG1
Eastern Relevant Boundary Hemispherical illuminance Height: 6.500 m	0.12 lx	0.002 lx	10.8 lx	0.017	0.000	CG1
Northern Relevant Boundary Horizontal illuminance Height: 6.500 m	0.000 lx	0.00 lx	0.008 lx	-	-	CG3
Northern Relevant Boundary Perpendicular illuminance Height: 6.500 m	0.079 lx	0.001 lx	14.5 lx	0.013	0.000	CG3
Northern Relevant Boundary Vertical illuminance Rotation: 0.0°, Height: 6.500 m	0.005 lx	0.000 lx	0.083 lx	-	0.00	CG3
Northern Relevant Boundary Hemispherical illuminance Height: 6.500 m	0.017 lx	0.000 lx	0.98 lx	0.00	0.00	CG3
Southern Relevant Boundary Horizontal illuminance Height: 6.500 m	0.002 lx	0.00 lx	1.27 lx	-	0.00	CG4
Southern Relevant Boundary Perpendicular illuminance Height: 6.500 m	0.40 lx	0.021 lx	164 lx	0.053	0.000	CG4
Southern Relevant Boundary Vertical illuminance Rotation: 0.0°, Height: 6.500 m	0.086 lx	0.000 lx	13.2 lx	0.00	0.00	CG4

Site 1 (Light scene 1)

Calculation objects

Southern Relevant Boundary Hemispherical illuminance Height: 6.500 m	0.13 lx	0.004 lx	54.9 lx	0.031	0.000	CG4
Western Relevant Boundary Horizontal illuminance Height: 6.500 m	0.001 lx	0.00 lx	0.15 lx	-	0.00	CG2
Western Relevant Boundary Perpendicular illuminance Height: 6.500 m	0.12 lx	0.000 lx	26.9 lx	0.00	0.00	CG2
Western Relevant Boundary Vertical illuminance Rotation: 0.0°, Height: 6.500 m	0.10 lx	0.001 lx	4.46 lx	0.010	0.000	CG2
Western Relevant Boundary Hemispherical illuminance Height: 6.500 m	0.052 lx	0.000 lx	31.0 lx	0.00	0.00	CG2

Site 1 (Light scene 1)

Calculation objects

Eastern Relevant Boundary (RUG)

Strongest glare at	120°
max	> 30
Target	-
Viewing sector	0° - 360°
Step width	15°
Height	6.500 m
Index	CG1

Site 1 (Light scene 1)

Calculation objects

Eastern Relevant Boundary (RUG)

Site 1 (Light scene 1)

Calculation objects

Eastern Relevant Boundary (R_G)

Strongest glare at	150°
max	53
Target	≤ 50
Viewing sector	0° - 360°
Step width	15°
Angle of inclination	-2°
Height	6.500 m
Index	CG1
Method	Simplified calculation according to EN 12464

Site 1 (Light scene 1)

Calculation objects

Eastern Relevant Boundary (R_G)

Site 1 (Light scene 1)

Calculation objects

Western Relevant Boundary (R_G)

Strongest glare at	30°
max	58
Target	≤ 50
Viewing sector	0° - 360°
Step width	15°
Angle of inclination	-2°
Height	6.500 m
Index	CG2
Method	Simplified calculation according to EN 12464

Site 1 (Light scene 1)

Calculation objects

Western Relevant Boundary (R_G)

Site 1 (Light scene 1)

Calculation objects

Western Relevant Boundary (RUG)

Strongest glare at	30°
max	> 30
Target	-
Viewing sector	0° - 360°
Step width	15°
Height	6.500 m
Index	CG2

Site 1 (Light scene 1)

Calculation objects

Western Relevant Boundary (RUG)

Site 1 (Light scene 1)

Calculation objects

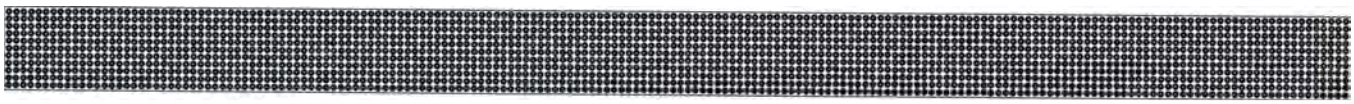
Northern Relevant Boundary (RUG)

Strongest glare at	150°
max	28.2
Target	-
Viewing sector	0° - 360°
Step width	15°
Height	6.500 m
Index	CG3

Site 1 (Light scene 1)

Calculation objects

Northern Relevant Boundary (RUG)



Site 1 (Light scene 1)

Calculation objects

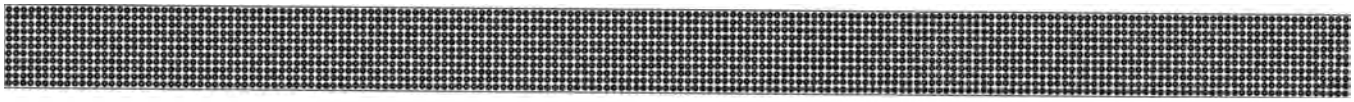
Northern Relevant Boundary (R_G)

Strongest glare at	270°
max	42
Target	≤ 50
Viewing sector	0° - 360°
Step width	15°
Angle of inclination	-2°
Height	6.500 m
Index	CG3
Method	Simplified calculation according to EN 12464

Site 1 (Light scene 1)

Calculation objects

Northern Relevant Boundary (R_G)



Site 1 (Light scene 1)

Calculation objects

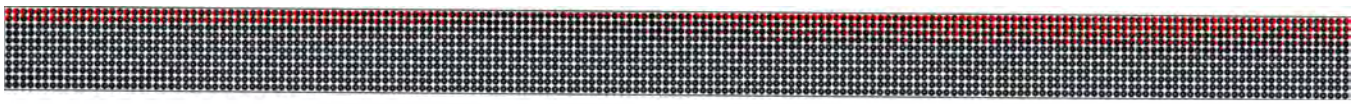
Southern Relevant Boundary (RUG)

Strongest glare at	150°
max	> 30
Target	-
Viewing sector	0° - 360°
Step width	15°
Height	6.500 m
Index	CG4

Site 1 (Light scene 1)

Calculation objects

Southern Relevant Boundary (RUG)



Site 1 (Light scene 1)

Calculation objects

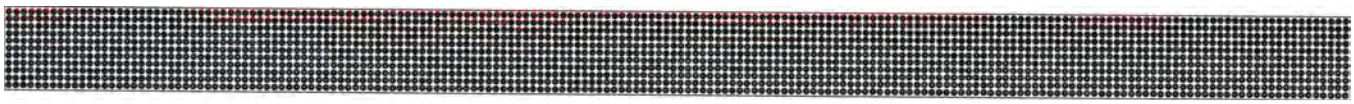
Southern Relevant Boundary (R_G)

Strongest glare at	75°
max	64
Target	≤ 50
Viewing sector	0° - 360°
Step width	15°
Angle of inclination	-2°
Height	6.500 m
Index	CG4
Method	Simplified calculation according to EN 12464

Site 1 (Light scene 1)

Calculation objects

Southern Relevant Boundary (R_G)



Site 1 (Light scene 1)

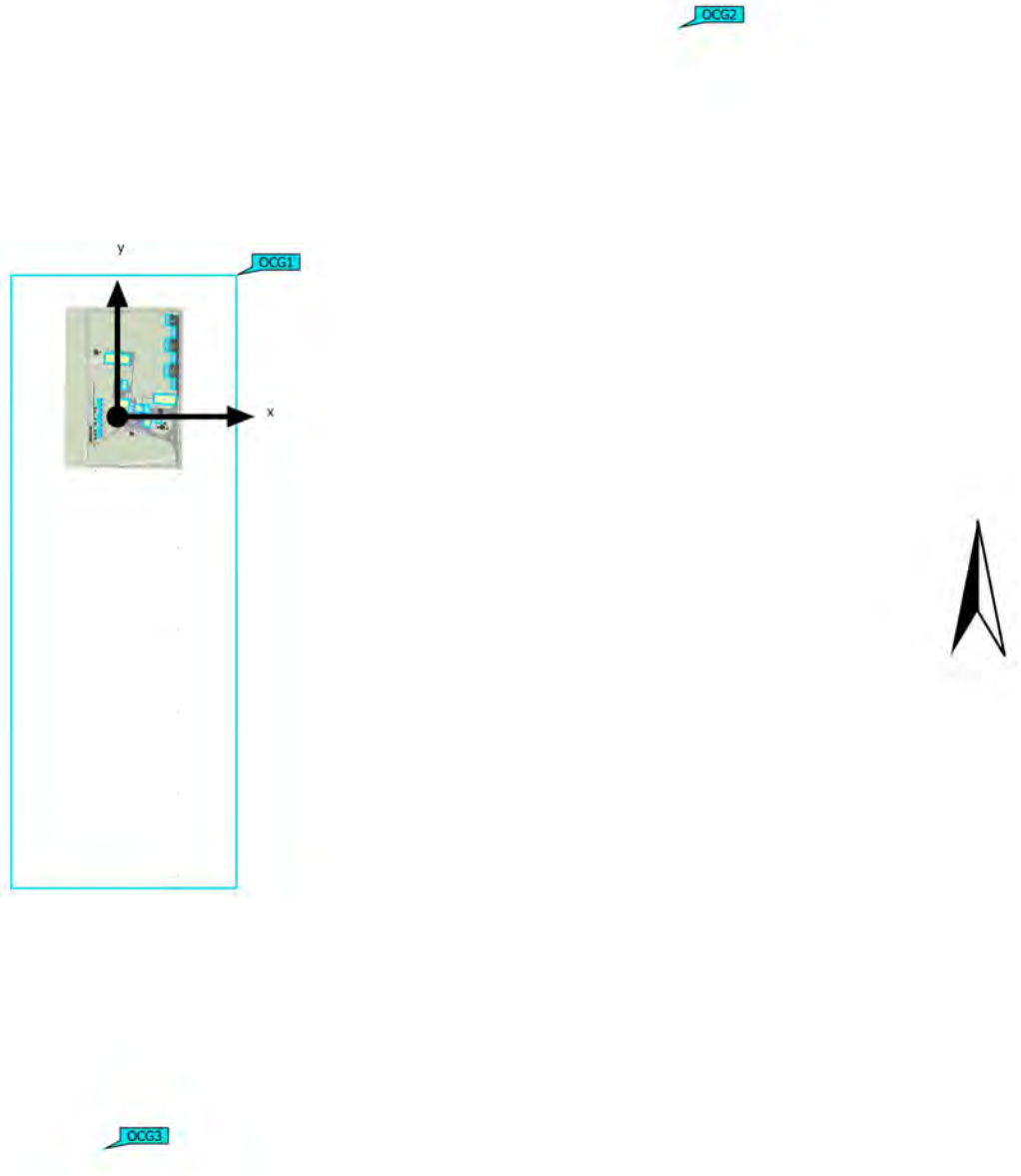
Calculation objects

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
Daylight proportion for Clear sky (Direct sunlight) on 25/07/2025 at 11:00 PM ((UTC+10:00) Brisbane).

Site 1 (Obtrusive light scene)

Calculation objects



Site 1 (Obtrusive light scene)

Calculation objects

Calculation surfaces

Properties	Ø	min	max (Target)	U_o (g_1)	g_2	Index
House to NE Luminance Height: 1.800 m	0.000 cd/m²	0.000 cd/m²	0.000 cd/m² (≤ 5.00 cd/m²) ✓	-	-	OCG2
House to NE Vertical illuminance Rotation: 0.0°, Height: 1.800 m	0.00 lx	0.00 lx	0.00 lx (≤ 1.00 lx) ✓	-	-	OCG2
House to S Luminance Height: 1.800 m	0.000 cd/m²	0.000 cd/m²	0.000 cd/m² (≤ 5.00 cd/m²) ✓	-	-	OCG3
House to S Vertical illuminance Rotation: 0.0°, Height: 1.800 m	0.000 lx	0.000 lx	0.001 lx (≤ 1.00 lx) ✓	-	-	OCG3
Site Obtrusive Light Plane Luminance Height: 0.001 m	0.12 cd/m²	0.000 cd/m²	184 cd/m² (≤ 5.00 cd/m²) ✗	0.00	0.00	OCG1
Site Obtrusive Light Plane Vertical illuminance Rotation: 0.0°, Height: 0.001 m	0.99 lx	0.00 lx	667 lx (≤ 1.00 lx) ✗	0.00	0.00	OCG1

Site 1 (Obtrusive light scene)

Calculation objects

Calculation surfaces

Properties	Luminaire	max	Target	Index
Site Obtrusive Light Plane k_S Ambient luminance: 0.10 cd/m², Height: 0.001 m	LEO	46140		OCG1
	ENERGETIC LIGHTING (YANKON) HBB7-TD 200WM 4000K	38319		
	LEO	38188		
	LEO	36206		
	LEO	32463		
House to NE k_S Ambient luminance: 0.10 cd/m², Height: 3.600 m	Energetic YKRS3G1B-DC A1-WT 3000K	0.009		OCG2
	Energetic YKRS3G1B-DC A1-WT 3000K	0.009		
	Energetic YKRS3G1B-DC A1-WT 3000K	0.009		
	Energetic YKRS3G1B-DC A1-WT 3000K	0.009		
	Energetic YKRS3G1B-DC A1-WT 3000K	0.009		
House to S k_S Ambient luminance: 0.10 cd/m², Height: 1.800 m	Energetic Lighting Australia Pty Ltd Maxi-Flood 150W Asymmetric	0.076		OCG3
	Energetic Lighting Australia Pty Ltd Maxi-Flood 150W Asymmetric	0.076		
	Energetic Lighting Australia Pty Ltd Maxi-Flood 150W Asymmetric	0.076		
	Energetic Lighting Australia Pty Ltd Maxi-Flood 150W Asymmetric	0.076		
	Energetic Lighting Australia Pty Ltd Maxi-Flood 150W Asymmetric	0.076		

Site 1 (Obtrusive light scene)

Calculation objects

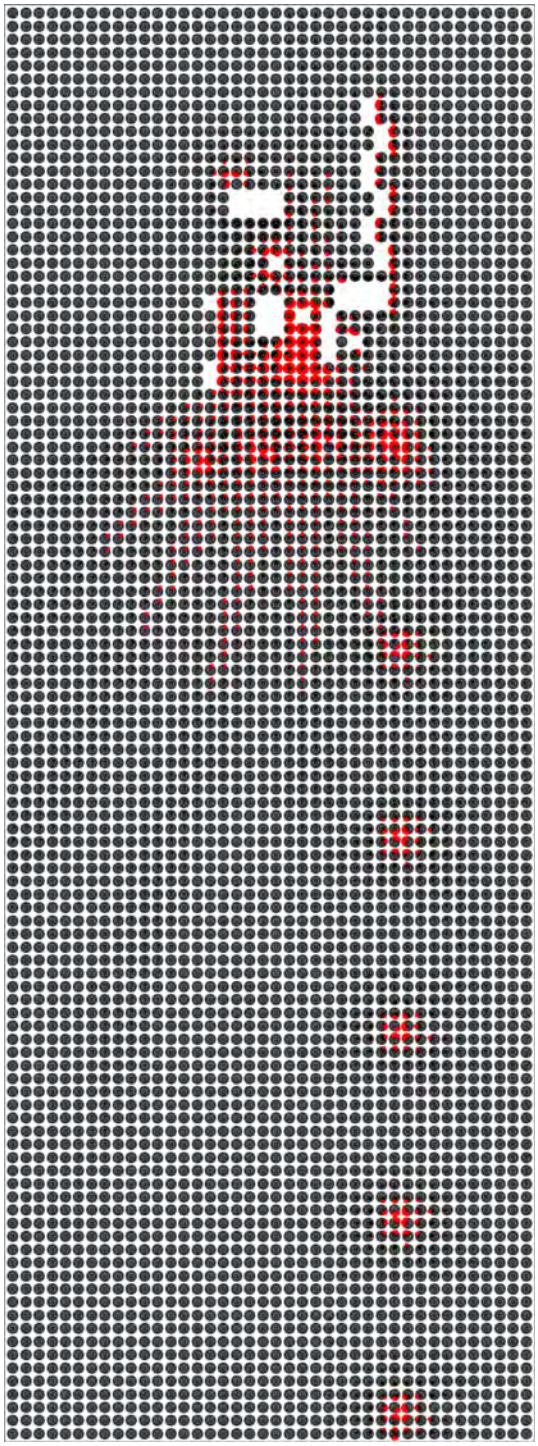
Site Obtrusive Light Plane (R_G)

Strongest glare at	30°
max	> 90
Target	≤ 50
Viewing sector	0° - 360°
Step width	15°
Angle of inclination	-2°
Height	0.001 m
Index	OCG1
Method	Simplified calculation according to EN 12464

Site 1 (Obtrusive light scene)

Calculation objects

Site Obtrusive Light Plane (R_G)

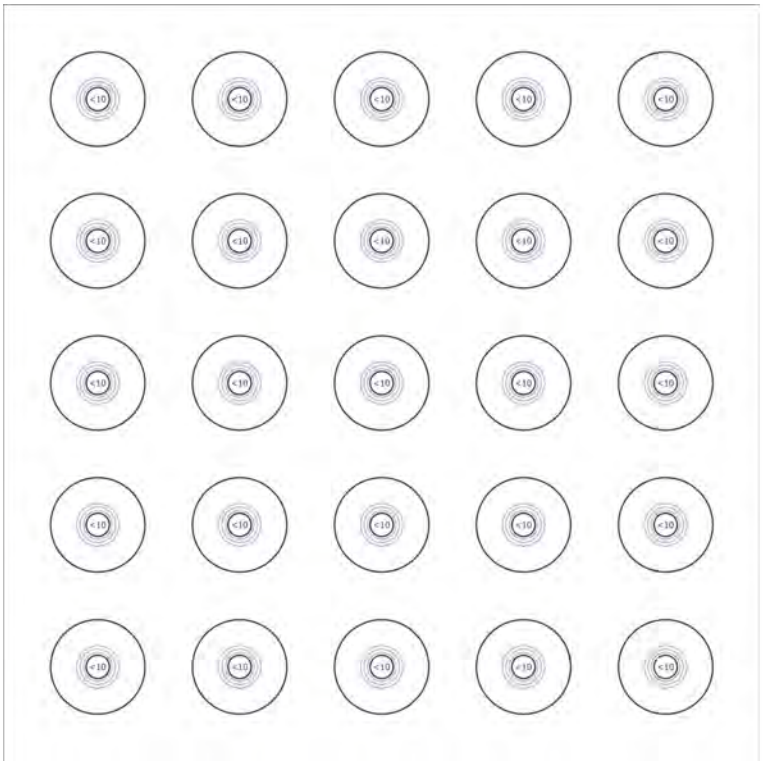


Site 1 (Obtrusive light scene)

Calculation objects

House to NE (R_G)

Strongest glare at	-33°
max	< 10
Target	≤ 50
Viewing sector	0° - 360°
Step width	15°
Angle of inclination	-2°
Height	1.800 m
Index	OCG2
Method	Simplified calculation according to EN 12464

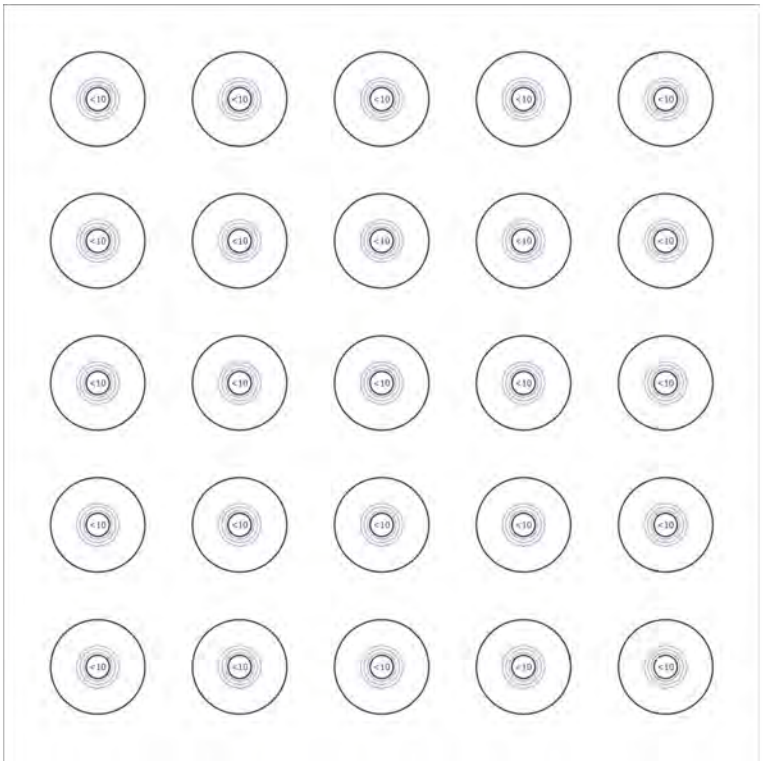


Site 1 (Obtrusive light scene)

Calculation objects

House to S (R_G)

Strongest glare at	-33°
max	< 10
Target	≤ 50
Viewing sector	0° - 360°
Step width	15°
Angle of inclination	-2°
Height	1.800 m
Index	OCG3
Method	Simplified calculation according to EN 12464



Site 1 (Obtrusive light scene)

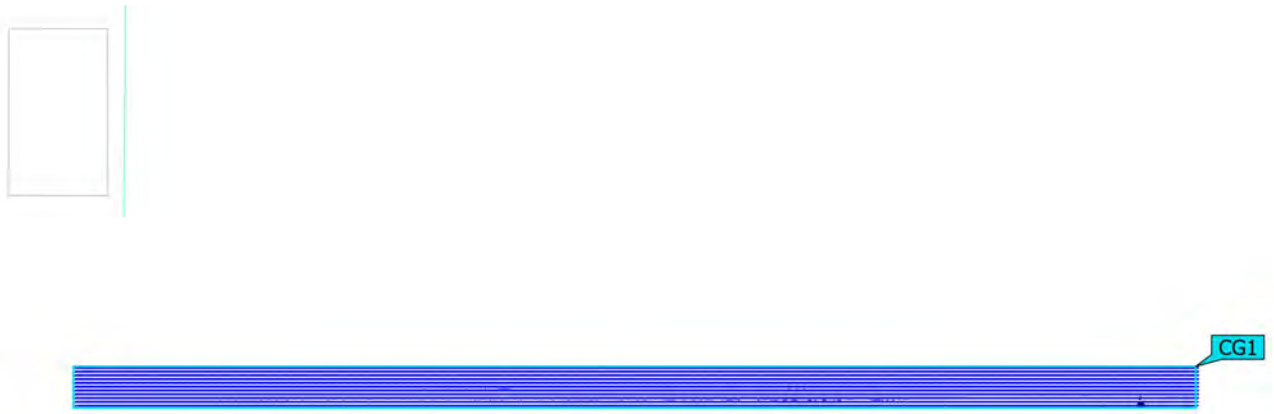
Calculation objects

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
All values take the initial flux (MF = 1) into account. The k_S value was calculated by limiting the spatial angle to 10e-6.

Site 1 (Light scene 1)

Eastern Relevant Boundary



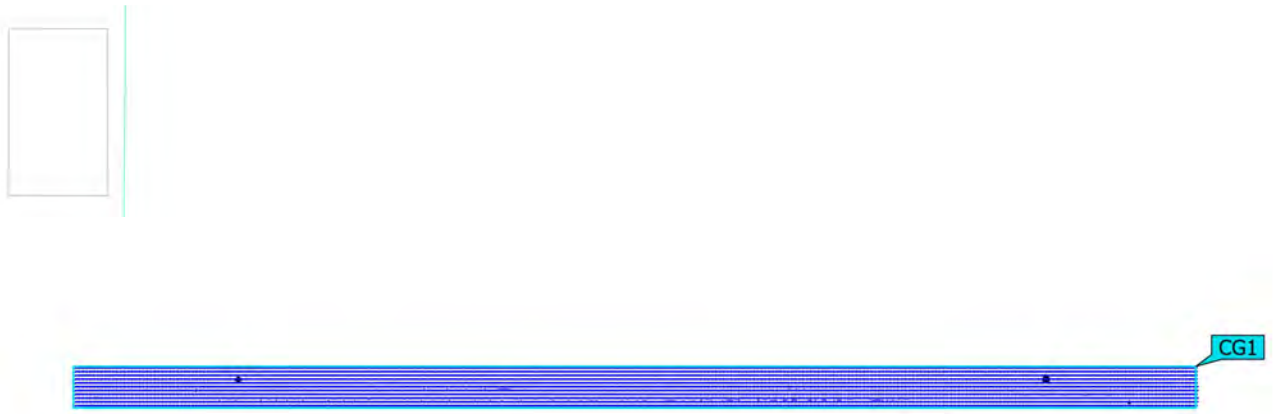
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Eastern Relevant Boundary Horizontal illuminance Height: 6.500 m	0.002 lx	0.00 lx	0.34 lx	-	0.00	CG1

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
Daylight proportion for Clear sky (Direct sunlight) on 25/07/2025 at 11:00 PM ((UTC+10:00) Brisbane).

Site 1 (Light scene 1)

Eastern Relevant Boundary



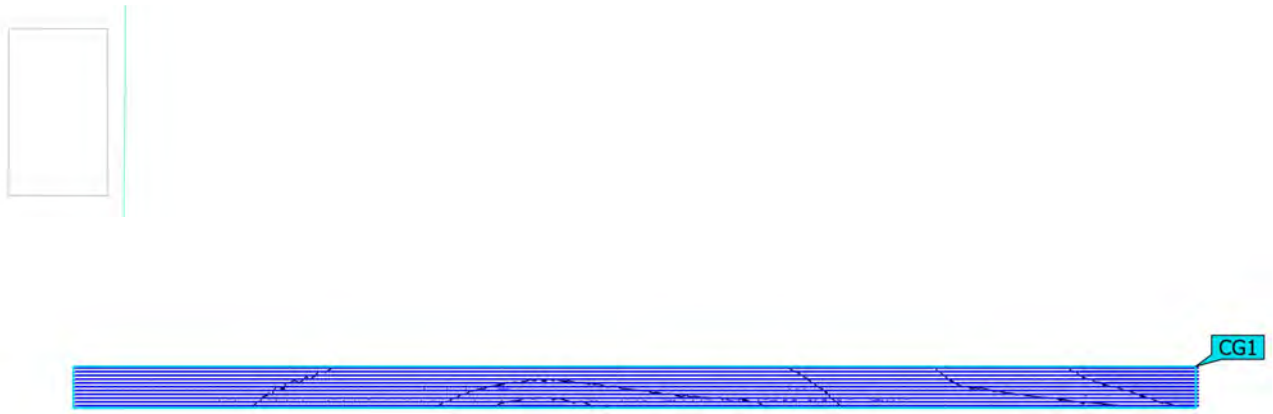
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Eastern Relevant Boundary Perpendicular illuminance Height: 6.500 m	0.46 lx	0.006 lx	30.5 lx	0.013	0.000	CG1

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
Daylight proportion for Clear sky (Direct sunlight) on 25/07/2025 at 11:00 PM ((UTC+10:00) Brisbane).

Site 1 (Light scene 1)

Eastern Relevant Boundary



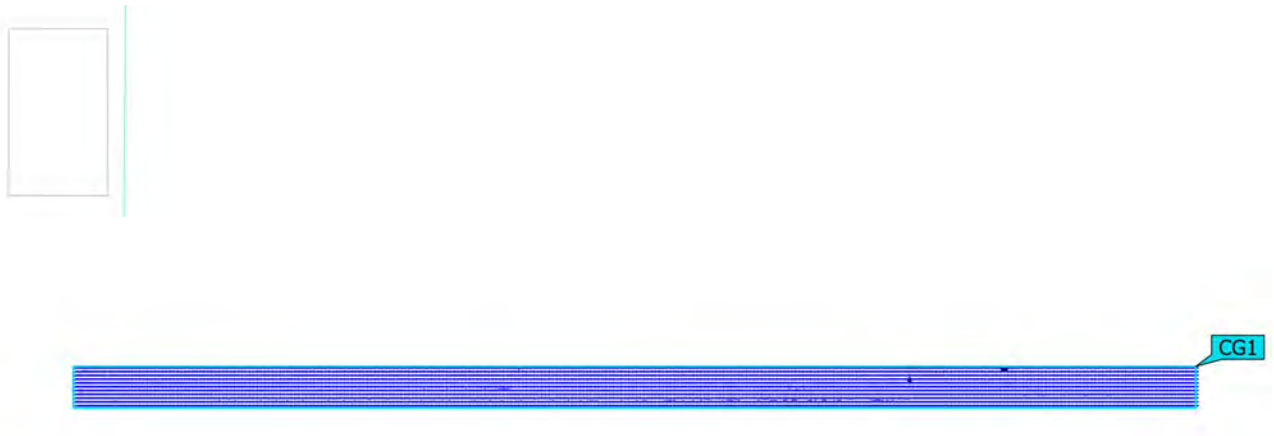
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Eastern Relevant Boundary Vertical illuminance Rotation: 0.0°, Height: 6.500 m	0.004 lx	0.000 lx	0.008 lx	-	-	CG1

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
Daylight proportion for Clear sky (Direct sunlight) on 25/07/2025 at 11:00 PM ((UTC+10:00) Brisbane).

Site 1 (Light scene 1)

Eastern Relevant Boundary



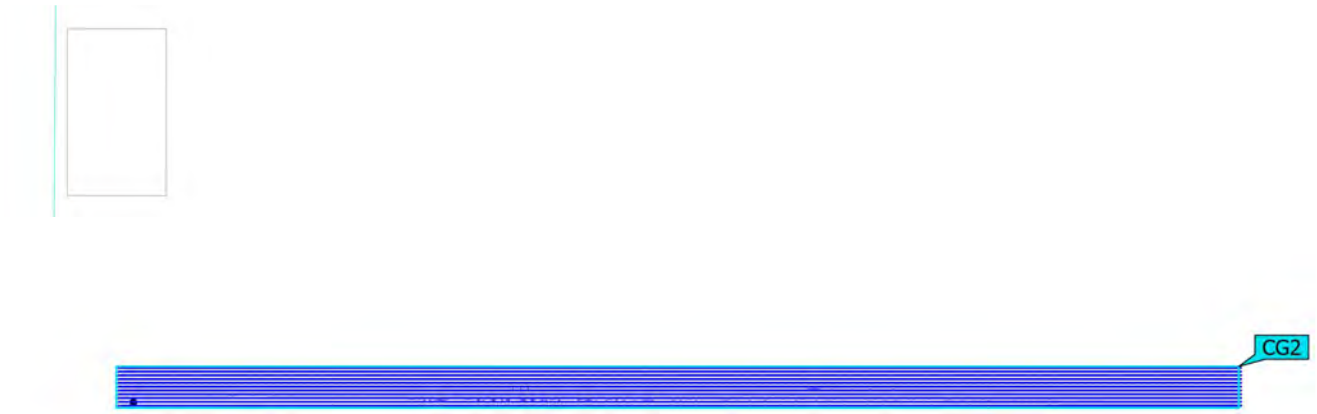
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Eastern Relevant Boundary Hemispherical illuminance Height: 6.500 m	0.12 lx	0.002 lx	10.8 lx	0.017	0.000	CG1

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
Daylight proportion for Clear sky (Direct sunlight) on 25/07/2025 at 11:00 PM ((UTC+10:00) Brisbane).

Site 1 (Light scene 1)

Western Relevant Boundary



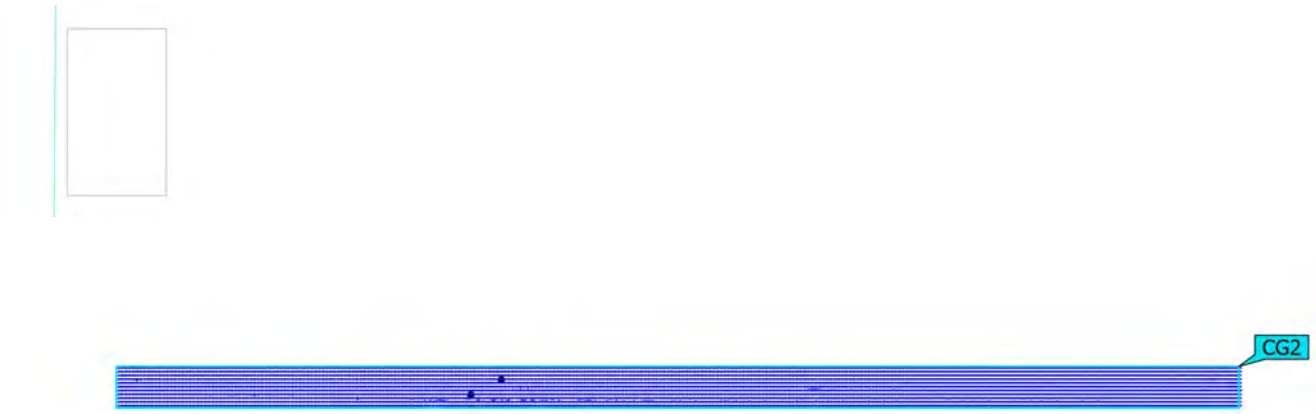
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Western Relevant Boundary Horizontal illuminance Height: 6.500 m	0.001 lx	0.00 lx	0.15 lx	-	0.00	CG2

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
Daylight proportion for Clear sky (Direct sunlight) on 25/07/2025 at 11:00 PM ((UTC+10:00) Brisbane).

Site 1 (Light scene 1)

Western Relevant Boundary



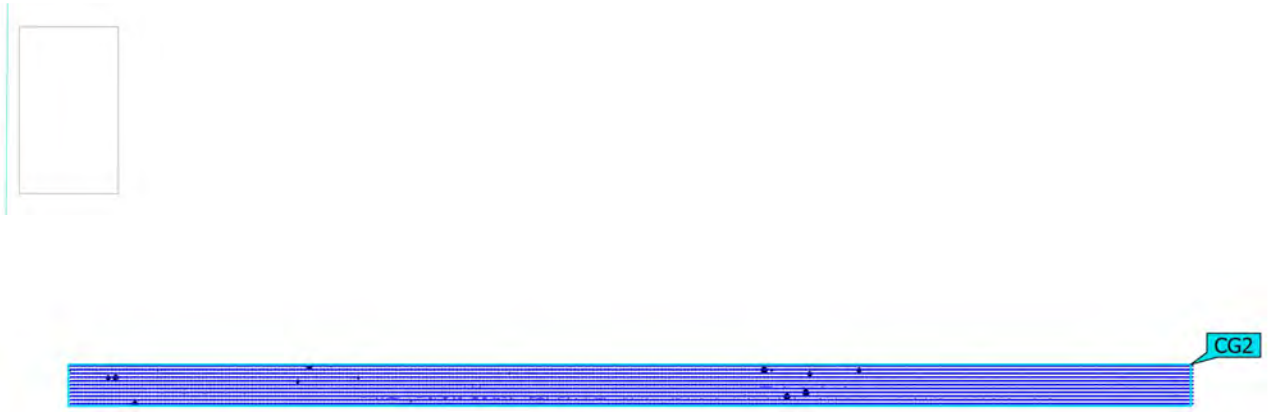
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Western Relevant Boundary Perpendicular illuminance Height: 6.500 m	0.12 lx	0.000 lx	26.9 lx	0.00	0.00	CG2

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
Daylight proportion for Clear sky (Direct sunlight) on 25/07/2025 at 11:00 PM ((UTC+10:00) Brisbane).

Site 1 (Light scene 1)

Western Relevant Boundary



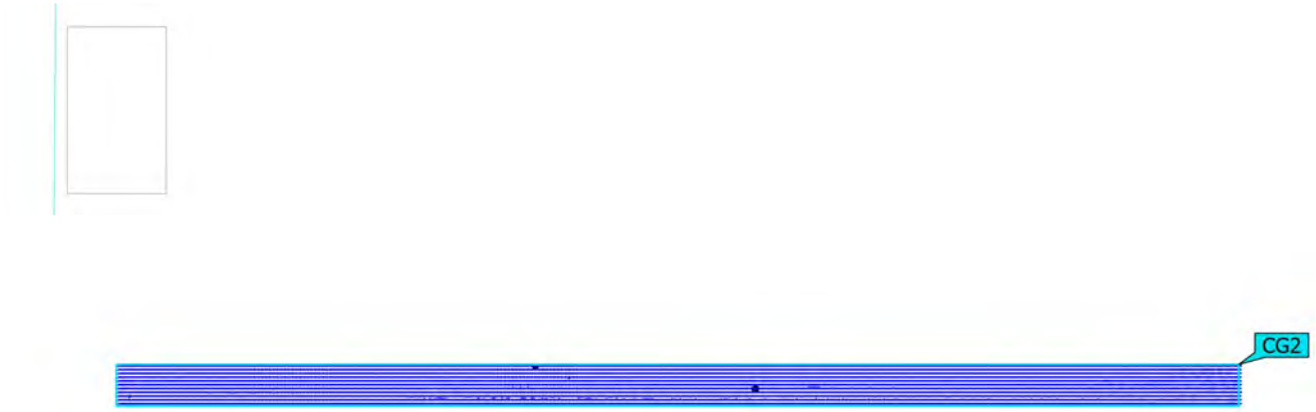
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Western Relevant Boundary Vertical illuminance Rotation: 0.0°, Height: 6.500 m	0.10 lx	0.001 lx	4.46 lx	0.010	0.000	CG2

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
Daylight proportion for Clear sky (Direct sunlight) on 25/07/2025 at 11:00 PM ((UTC+10:00) Brisbane).

Site 1 (Light scene 1)

Western Relevant Boundary



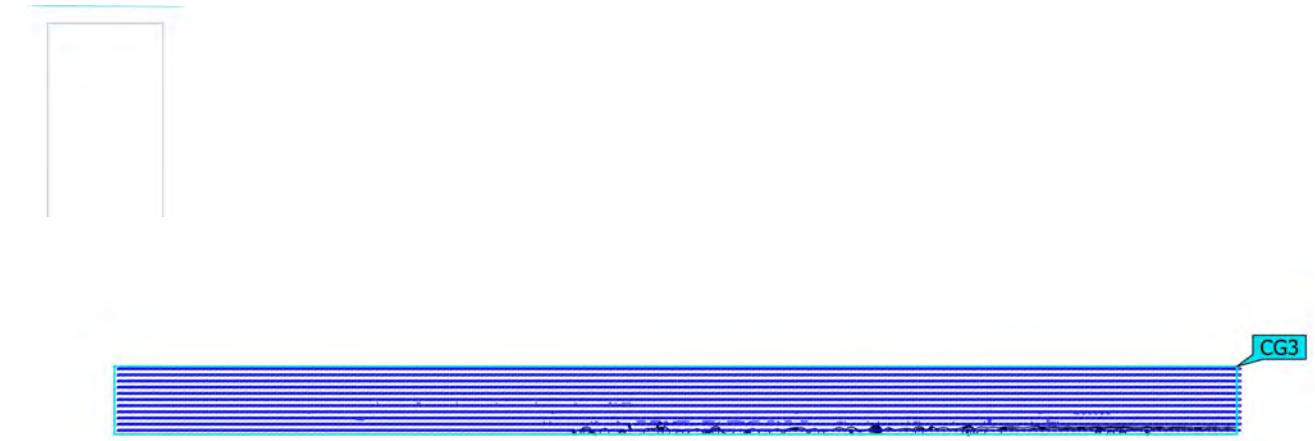
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Western Relevant Boundary Hemispherical illuminance Height: 6.500 m	0.052 lx	0.000 lx	31.0 lx	0.00	0.00	CG2

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
Daylight proportion for Clear sky (Direct sunlight) on 25/07/2025 at 11:00 PM ((UTC+10:00) Brisbane).

Site 1 (Light scene 1)

Northern Relevant Boundary



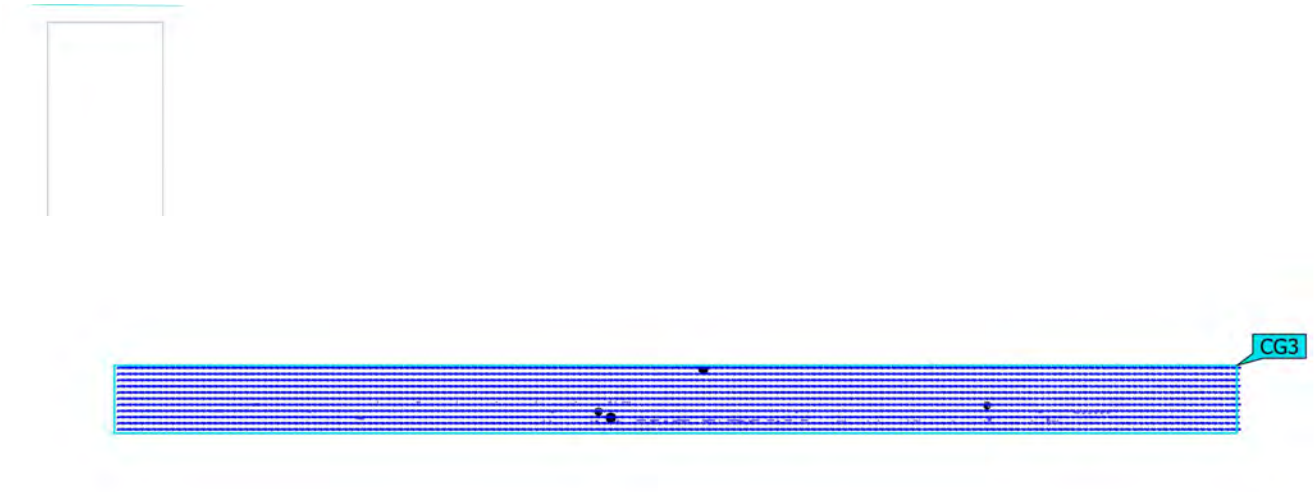
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Northern Relevant Boundary Horizontal illuminance Height: 6.500 m	0.000 lx	0.00 lx	0.008 lx	-	-	CG3

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
Daylight proportion for Clear sky (Direct sunlight) on 25/07/2025 at 11:00 PM ((UTC+10:00) Brisbane).

Site 1 (Light scene 1)

Northern Relevant Boundary



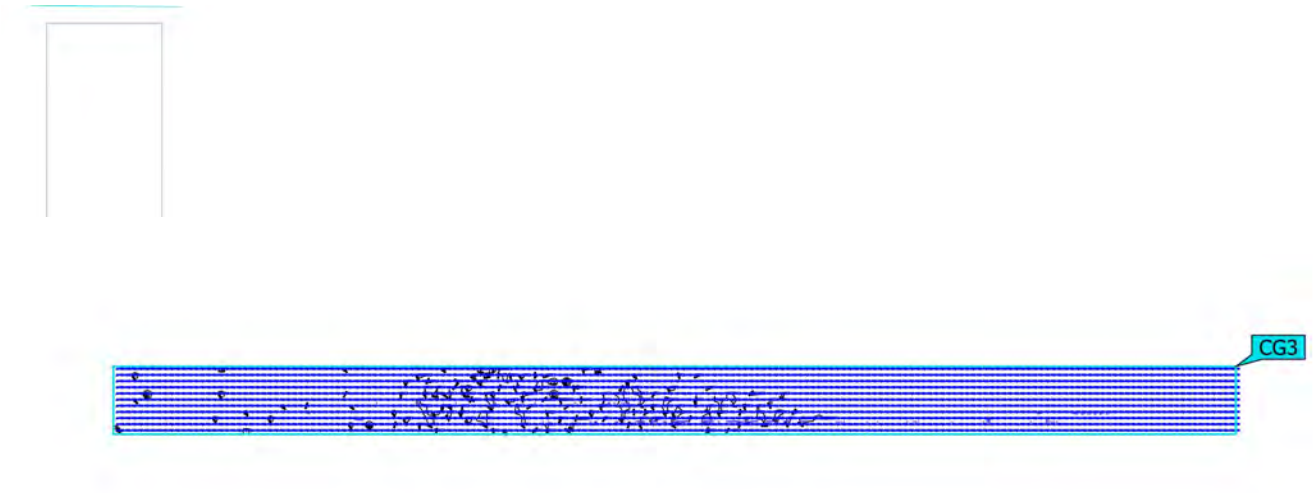
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Northern Relevant Boundary Perpendicular illuminance Height: 6.500 m	0.079 lx	0.001 lx	14.5 lx	0.013	0.000	CG3

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
Daylight proportion for Clear sky (Direct sunlight) on 25/07/2025 at 11:00 PM ((UTC+10:00) Brisbane).

Site 1 (Light scene 1)

Northern Relevant Boundary



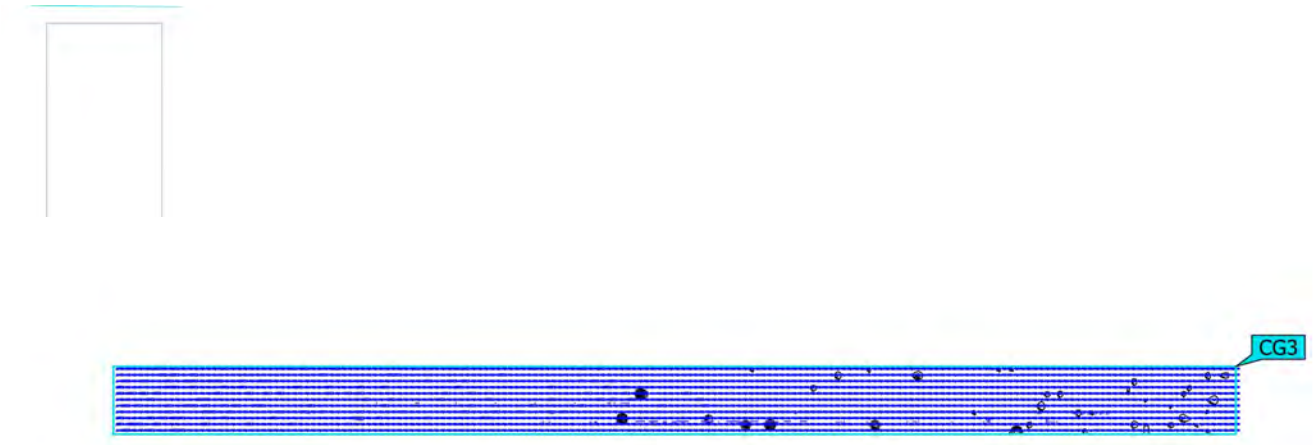
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Northern Relevant Boundary Vertical illuminance Rotation: 0.0°, Height: 6.500 m	0.005 lx	0.000 lx	0.083 lx	-	0.00	CG3

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
Daylight proportion for Clear sky (Direct sunlight) on 25/07/2025 at 11:00 PM ((UTC+10:00) Brisbane).

Site 1 (Light scene 1)

Northern Relevant Boundary



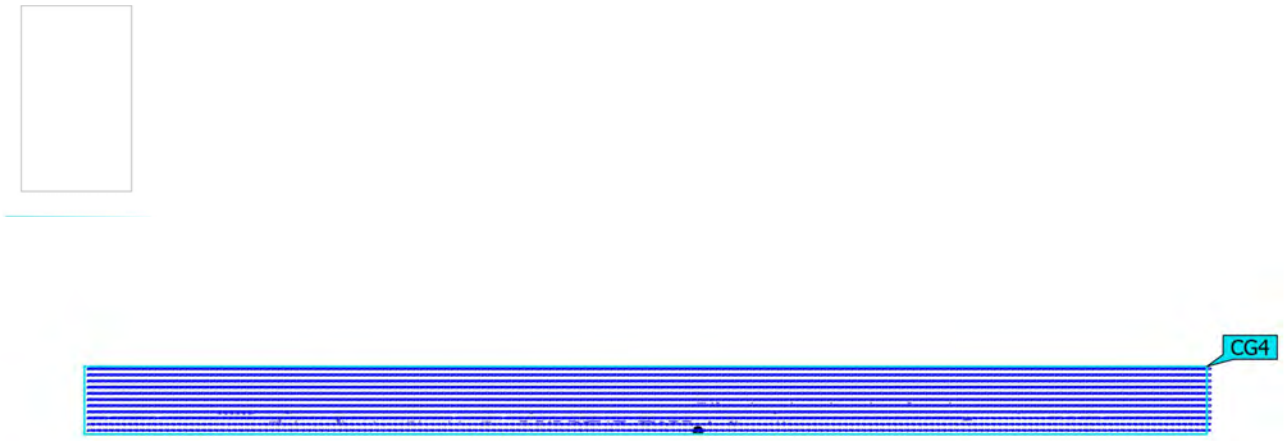
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Northern Relevant Boundary Hemispherical illuminance Height: 6.500 m	0.017 lx	0.000 lx	0.98 lx	0.00	0.00	CG3

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
Daylight proportion for Clear sky (Direct sunlight) on 25/07/2025 at 11:00 PM ((UTC+10:00) Brisbane).

Site 1 (Light scene 1)

Southern Relevant Boundary



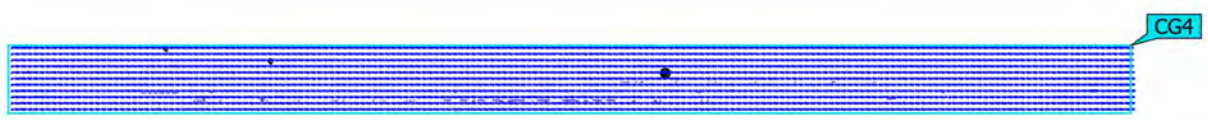
Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Southern Relevant Boundary Horizontal illuminance Height: 6.500 m	0.002 lx	0.00 lx	1.27 lx	-	0.00	CG4

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
Daylight proportion for Clear sky (Direct sunlight) on 25/07/2025 at 11:00 PM ((UTC+10:00) Brisbane).

Site 1 (Light scene 1)

Southern Relevant Boundary



Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Southern Relevant Boundary Perpendicular illuminance Height: 6.500 m	0.40 lx	0.021 lx	164 lx	0.053	0.000	CG4

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
Daylight proportion for Clear sky (Direct sunlight) on 25/07/2025 at 11:00 PM ((UTC+10:00) Brisbane).

Site 1 (Light scene 1)

Southern Relevant Boundary

Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Southern Relevant Boundary Vertical illuminance Rotation: 0.0°, Height: 6.500 m	0.086 lx	0.000 lx	13.2 lx	0.00	0.00	CG4

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
Daylight proportion for Clear sky (Direct sunlight) on 25/07/2025 at 11:00 PM ((UTC+10:00) Brisbane).

Site 1 (Light scene 1)

Southern Relevant Boundary

Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Southern Relevant Boundary Hemispherical illuminance Height: 6.500 m	0.13 lx	0.004 lx	54.9 lx	0.031	0.000	CG4

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Notes on planning:
Daylight proportion for Clear sky (Direct sunlight) on 25/07/2025 at 11:00 PM ((UTC+10:00) Brisbane).

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