

Statement of Environmental Effects
NBC Development Application Planning Report

For the Alterations & Additions to existing Bareena Park Tennis Club - Installation of tennis court lights on Courts #1-3.

Report prepared for Bareena Park Tennis Club;
0 Vista Avenue, Balgowlah Heights NSW 2093

March 2023 [Amended December 2023](#)

1. Introduction

This application seeks approval for the installation of lights on existing Bareena Park Tennis Club [BPTC] tennis courts #1-3 & subsequent extended hours of operation at night.

In preparation of this development application consideration has been given to the following:

- Environmental Planning & Assessment Act, 1979.
- Manly Local Environmental Plan 2013.
- Manly Development Control Plan 2013.

This Statement describes the subject site and the surrounding area, together with the relevant planning controls and policies relating to the site and the type of development proposed. It provides an assessment of the proposed development against the heads of consideration as set out in Section 4.15 of the Environmental Planning and Assessment Act 1979. As a result of that assessment, it is concluded that the development of the site in the manner proposed is considered to be appropriate and is worthy of the support of the Council.

2. Background

Du Plessis + Du Plessis Architects Pty Ltd was engaged by BPTC to lodge a Development Application (DA) on behalf of the club.

The tennis facility is under lease from Manly Council to Bareena Park Tennis Club.

Past applications include DA 68/1999 & DA 60/2008 for old technology floodlights that was refused by the Council back then but with this proposal the courts will have LED lights to better control & target artificial light using adaptive controls to maximise the use of latest lighting technology to prevent light spill and unnecessary light output that could be detrimental to adjoining neighbouring properties.

BPTC is a successful vibrant tennis facility used by the local community. Tennis court lighting is essential at all tennis clubs due to the changing patterns of play and participation. Night tennis, especially on weeknights, is often the only time that working people can participate in tennis and if courts are not lit the participation opportunities are significantly reduced. The upgraded facility with the addition of lights to some of the club courts will be an improvement that would enable BPTC to offer a wide range of tennis services to the local Balgowlah community. Club members and local residents fully support the Bareena Tennis Club's application to install lights on three of it's five courts so that BPTC could offer night tennis to the local community – refer to the petition signed by hundreds of locals [Refer Annexure A].

BPTC have consulted the owners of the neighbouring houses adjoining the tennis club and have made known its intention to lodge this DA in writing by way of letterbox drop at the end of last year.

3. Site Description and Locality

3.1 Site Location

The Bareena Tennis Complex is located on Vista Avenue, Balgowlah Heights and is part of a larger dedicated zoned sporting facility located in Bareena Park (Figure 1 below).



3.2 Site Description

The Bareena BPTC is located over three lots:

Lot 1431 DP 752038, Lot 1432 DP 752038 & Part Lot 7147 DP 1023285 (Figure 2 below).



The tennis courts No.1-3 are located directly adjacent to Vista Avenue and tennis courts No.4-5 are located further away from courts No.1-3 on the other side of the BPTC clubhouse building. The clubhouse is centrally located between courts No.1-3 and courts No.4-5 further up the hill. The club can be accessed from Vista Avenue via existing road/walkway, Curban Street via existing walkway & the Bowling Club via steps/walkway.

The proposed development is for the existing tennis courts No.1-3 only situated on Lot 1431 & Lot 1432 of DP 752038 part of the site (Figure 3 below).



The existing tennis courts No.4-5 are situated on Lot 7147 DP 1023285 part of the site but note no new works proposed to these courts (Figure 4 below).



3.3 Subject property and surrounding area

BPTC is an established facility situated within an already highly urbanised residential neighbourhood area.

The tennis courts #1-3, the subject part of the site, is surrounded by the following development to the:

North = Bareena Public Park off Curban Street - note large trees & dense planting in the park screen the houses on the other side of the road from the tennis courts (Figure 5 below).



East = Vista Avenue - note the courts separated from the houses across the street by the road & sloping grassed road verge (Figure 6 below)



South = Dwelling at No.33 Vista Avenue – note (i) the house in close proximity to the courts but separated by the access road & screen planting and (ii) because of the natural slope of the land the house is elevated above the courts located on a lower level below (Figure 7 below).



West = BPTC clubhouse building and courts No.4-5 beyond – note no adjoining neighbouring houses on this side (Figure 8 below)



3.4 Current Activities at BPTC

The courts main activity sees social and competition tennis played by members throughout the week, adult & kids tennis coaching and the courts are also occasionally hired by locals.

3.5 Transport and Parking near BPTC

Public buses pass by regularly on Curban Street and the Hop Skip & Jump free local service passes the courts every hour between 8am and 6pm.

Ample street parking exists on Vista Avenue directly adjoining the BPTC court No.3.

4. The Development Proposal

The DA as per the Architectural Drawings & other Reports is for the following works at Bareena Park Tennis Club:

1. COURT LIGHTS UPGRADE:

Installation of eight poles (each minimum 7 metres in height) to accommodate 12 LED back shield lights to three of the five courts at BPTC.

2. EXTENDED OPERATION HOURS:

Night lights will increase the proposed BPTC operating hours on the existing courts Nr. 1-3 by approximately 4 hours in mid-winter and approximately 1 hours in mid-summer as follows:

	Existing Court #1-5 Operating Hours Without Lights	Proposed Court #1-3 Operating Hours With Lights	Summary Of Additional Court #1-3 Operating Times
Mid Summer		DA Amended 13.10.2023	
<i>Monday</i>	7.00am to 8.10pm	7.00am to 9.00pm	0.8 hours OR 50 minutes extra
<i>Tuesday</i>	7.00am to 8.10pm	7.00am to 9.00pm	0.8 hours OR 50 minutes extra
<i>Wednesday</i>	7.00am to 8.10pm	7.00am to 9.00pm	0.8 hours OR 50 minutes extra
<i>Thursday</i>	7.00am to 8.10pm	7.00am to 9.00pm	0.8 hours OR 50 minutes extra
<i>Friday</i>	7.00am to 8.10pm	7.00am to 9.00pm	0.8 hours OR 50 minutes extra
<i>Saturday</i>	7.00am to 8.10pm	7.00am to 9.00pm	7.00am to 9.00pm
<i>Sunday</i>	7.00am to 8.10pm	7.00am to 9.00pm	7.00am to 9.00pm
Mid Winter		DA Amended 13.10.2023	
<i>Monday</i>	7.00am to 4.52pm	7.00am to 9.00pm	4.1 hours OR 248 minutes extra
<i>Tuesday</i>	7.00am to 4.52pm	7.00am to 9.00pm	4.1 hours OR 248 minutes extra
<i>Wednesday</i>	7.00am to 4.52pm	7.00am to 9.00pm	4.1 hours OR 248 minutes extra
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<i>Sunday</i>	7.00am to 4.52pm	7.00am to 9.00pm	4.1 hours OR 248 minutes extra

Note:

- Current Barrena Park Tennis Club Lease Agreement for all the Courts only to be used between 7am and sunset on any day [Refer Annexure B].
- Sydney GMT Mid Summer sunset 8.10pm & Mid Winter sunset 4.52pm AEDT daylight savings time [Timezone: Sydney GMT Longitude:151.2069902 & Latitude:33.8674869].
- During Summer the courts are able to operate until after 8pm without lights.
- A 10 minute window will be given at closing times for players using the courts to enable them to pack up and leave before the court lights shuts down.

3. OTHER:

New screen trees (4) on the Vista Avenue road verge, court No.3 side fence screen & signage [a notice board will be placed at the entry to ask players to please consider the neighbouring houses and to leave in a quiet orderly fashion when leaving the courts at closing times].

5. Zoning

The subject site is zoned 'RE1 – Public Recreation 1' under the Manly Local Environmental Plan 2013 (LEP).

Permitted without Consent:

Nil

Permitted with Consent:

Boat launching ramps; Boat sheds; Building identification signs; Business identification signs; Car parks; Charter and tourism boating facilities; Child care centres; Community facilities; Depots; Emergency services facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Information and education facilities; Jetties; Kiosks; Marinas; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Research stations; Respite day care centres; Restaurants or cafes; Roads; Take away food and drink premises; Water recreation structures; Water recycling facilities; Water reticulation systems; Water storage facilities.

Prohibited

Any development not specified in the above

6. Development Controls

The proposed development is identified as development requiring the consent of the Council under the provisions of the Environmental Planning and Assessment Act 1979, as amended.

The following is an assessment of the proposal against the relevant provisions of the Act and all of the relevant planning instruments and policies of Manly Council.

6.1 Manly Local Environmental Plan 2013

Clause 2.3 & 2.8

Objectives of RE1 - Public Recreation 1 Zoning:

- *To enable land to be used for public open space or recreational purposes.*
The proposal is for the recreational use of tennis courts.
- *To provide a range of recreational settings and activities and compatible land uses.*
The proposal is for the upgrade of existing tennis courts, compatible with the existing use.
- *To protect and enhance the natural environment for recreational purposes.*
The proposal will enhance the use of the site.
- *To protect, manage and restore areas visually exposed to the waters of Middle Harbour, North Harbour, Burnt Bridge Creek and the Pacific Ocean.*
Not applicable.
- *To ensure that the height and bulk of any proposed buildings or structures have regard to existing vegetation, topography and surrounding land uses.*
The proposal has considered existing vegetation, topography and surrounding land uses.

It is considered that the proposed development achieves these objectives by:

- Ensuring the proposal compliments the existing streetscape and the existing surrounding properties.
- Retaining the existing amenity to the surrounding residences.
- The proposed development is minor, and the proposed works is for new lights to existing established tennis courts.

Clause 4.3 – Height of Buildings

No new or alterations/additions to existing buildings proposed therefore the principal numerical development standards of Clause 4.4 Height of Buildings not relevant. The proposed development is for tennis court lights and not building structures [Manly DCP 4.1.2(a)]. Refer to the below Manly LEP Heights of Buildings Map and no height control as such but the surrounding residential lots have a maximum building height control of 8.5m. The tennis court light poles will be 8m above the court surface and below the neighbourhood residential 8.5m building height control.



Clause 4.4 – Floor Space Ratio

No new or alterations/additions to existing buildings proposed therefore the principal numerical development standards of Clause 4.4 Floor space Ratio not relevant.

In this regard no development standards in Part 4 of Manly LEP 2013 are applicable to the site or proposed development.

Clause 5.10

The site is not in a heritage conservation area and buildings not heritage listed. There are no relevant miscellaneous provisions under Part 5 of the Manly LEP 2013 to consider as part of the assessment.

Clause 6.1 Acid Sulfate Soils

The subject site is not identified on Council's Acid Sulfate Soil map.
No further information is required in this regard.

Clause 6.2 Earthworks

The proposal does not provide for any significant earthworks and minor disturbance for footings of new light poles.
All works within & onto the existing tennis courts no.1-3.
New light pole footings as per detail provided with the Development Application.

Clause 6.4 Stormwater Management

Not relevant, tennis court drainage & discharge unchanged as is.

Clause 6.5 Terrestrial Biodiversity

Refer to the Terrestrial Biodiversity Statement prepared for the DA.

The proposed development is for the existing tennis courts No.1-3 situated on Lot 1431 & Lot 1432 of DP 752038 part of the site and is not located within or directly adjacent to the area identified on the Manly Biodiversity Map.

Clause 6.9 Foreshore Scenic Protection Area

The subject site is not identified on Council's Foreshore Scenic Protection Area Map

Clause 6.12 Essential Services

Electricity services available at the site to be upgraded if/as required.

6.2 Manly Development Control Plan 2013

The following is an assessment of the proposal's compliance with the standards of the Development Control Plan.

Part 3.1: General Principles of Development

Streetscape

The proposal is consistent with the relevant objectives relating to Streetscape in section 3.1 of the Manly DCP as follows:

Objective 1) To minimise any negative visual impact of walls, fences and carparking on the street frontage.

The proposed development does not involve any new building structures that will have a significant effect on the streetscape.

Objective 2) To ensure development generally viewed from the street complements the identified streetscape.

The potential impacts on the streetscape from new lighting and extended tennis court playing hours in the evening and into the night include noise and light glare.

The potential impacts are mitigated by the LED lighting design compliant with the relevant Australian Standards to limit light spill. Note additional screening, by way of court fence screening & new tree planting, on the Vista Avenue side of the courts directly adjacent to the open residential street.

Objective 3) To encourage soft landscape alternatives when front fences and walls may not be appropriate.
Not applicable.

Below the location of the existing tennis courts no.1-3 relative to the adjoining neighbouring houses (Figure 9 below)



Heritage

Not applicable.

Sunlight Assess and Overshadowing.

Not applicable.

Privacy and Security

The proposal is consistent with the relevant objectives relating to privacy and security in section 3.4 of the Manly DCP as follows:

Objective 1) To minimise loss of privacy to adjacent and nearby development by:

- *appropriate design for privacy (both acoustical and visual) including screening between closely spaced buildings;*
- *mitigating direct viewing between windows and/or outdoor living areas of adjacent buildings.*

The proposed development achieves separation by distance to adjoining properties with the closest house 8m to 74m away. Privacy, and specifically noise, from the courts & parking would not be any more than what is currently the case during the day but extended operational hours will generate minor additional disturbance at night time when it's dark. As such there are no unreasonable privacy issues.

*Objective 2) To increase privacy without compromising access to light and air.
To balance outlook and views from habitable rooms and private open space.*

Not relevant.

Objective 3) To encourage awareness of neighbourhood security.

The proposed development will increase passive surveillance in the street.

Part 4: Development Controls

Numerical development controls Wall Height, Number of Storeys, Boundary Setbacks, etc not relevant to the DA because no buildings are proposed with this development. [Refer above LEP – Height of Buildings]

Part 5: Special Character Areas and Sites

Conservation Area, Foreshore, Threatened Species, Critical Habitat, Flood Controls, Riparian Land, Watercourses & Road Widening not applicable to the development of minor works to an existing development.

No planning agreement has been entered into in relation to the proposed development and the proposed development is considered suitable for the site.

There is no Coastal Zone Management Plan applicable for the Manly area.

6. Other

EP&A Act – Section 4.15

The Provisions of any Environmental Planning Instruments

The proposal is subject to the provisions of the Manly Local Environmental Plan 2013 and the Manly DCP 2013. It is considered that the provisions of these documents have been satisfactorily addressed within this report. There are no other environmental planning instruments applying to the site.

The Likely Impacts of the Development

It is considered that the development will provide for alterations to an existing facility without detrimentally impacting on the character of the area. The proposal does not result in the removal of any significant vegetation and there is no decrease in pervious area. The design of the proposal is such that they do not result in any unreasonable loss of privacy.

The Suitability of the Site for the Development

The subject site is zoned RE1 – Public Recreation and the existing court lights upgrade works are permissible with the consent of Council. The proposal is for new works to an existing facility and does not result in the removal of any significant vegetation. For these reasons it is considered that the site is suitable for the proposed development.

The Public Interest

It is considered that the proposal is in the public interest in that it will provide a better use recreational sporting facility in this locality without unreasonably impacting the amenity of the adjoining properties or the public domain.

Lighting Design

The court Lighting Design Plan by Shine-On includes the project specific Obtrusive Light Compliance Report [Refer Annexure 2].

There will be 8 x light poles and 12 x LED lights to illuminate the three courts to Tennis Australia LUX level standards.

The following details are included in the Lighting Design:

- Certification that the design is compliant with Australian Standards AS2560 and AS4282;
- Back shields are included on all the lights to reduce light spill;
- Light Colour of 4,000K is specified;
- All cabling to be trenched on the outside of the existing court fences;
- BPTC commit to a 10-year warranty for the lights will be obtained;

The proposed smart control LED technology will allow for:

- remotely managed lights (computer controlled system),
- instant on/off switching of lights,
- timers (better managed court time with online booking system),
- control of light colour (emerging technology),
- well defined directivity of light (shielded light).

Additional nonobtrusive garden or pathway solar led lights will be installed in the existing planter bed adjoining Courts #1-3.

Note existing pathway & clubhouse lights exists and remains as is (these light characteristics not known and therefore not included in the Lighting Impact Assessment).

Construction

The light poles and the LED lights will be assembled on site with all work carried out on the existing three tennis courts.

The erection of the individual light poles will require holes to be dug on court to accommodate caged bolts which are then cast in concrete as the base footing mounts for the light poles to be securely fixed to. Note the light pole pile and/or footing on Court No.1 is 2925mm away from the NBC Council underground stormwater pipe as per the updated Survey Plan.

The remainder of the works will involve installing the electrical cables needed to power the lights. Access to the courts via existing vehicle crossing from Vista Avenue and existing wide side fence gate. Toilet facilities available for workers behind the clubhouse.

It is anticipated that the construction works involved to erect the court lights will be relatively quick, weeks not months, with minimum disruption to residents as a majority of the works will be carried out on the existing courts.

Community & Parking Impacts

The proposed lights to the existing courts will not impact the views, solar access, land use and generate any health or safety risks of the adjoining neighbouring properties.

The proposal will have a minor impact when courts are illuminated in the evenings and would be similar to that of the surrounding street lights because the proposed lighting is designed not to create any glare & concealed in directional light fitting with back shields to prevent light spill beyond the court fences. The courts are well concealed by the surrounding trees and would therefore also assist in concealing the lights from most of the properties.

The proposed extension of operating hours to 9pm in the evenings will not have any unacceptable parking implications.

Refer to the Parking & Travel Mode Surveys in response to the Council RFI.

Acoustic Noise Impacts

The noise experienced from on court tennis activities will be extended to 9:00pm every day of the week. Bearing in mind that the courts could potentially be used without lights in summer up until twilight which can be as late as 8.38pm. Noise from players leaving the courts at night will be similar as experienced during the day except that it will be mostly adults using the courts (kids tennis lessons during the afternoon after school). Note at night a maximum of 12 players will be on the three courts if fully booked/used at any given time and will fluctuate during the week depending on court bookings & organized member play times.

- Night court player & traffic noise similar to that generated from the same courts during the day (but for only 3 courts not 5),
- Neighbouring houses across the roads far away from the courts and good separation distance exists,
- The Bareena Park existing mature trees & dense planting provides a sound buffer to houses in Curban Street,
- It is proposed to add additional tree & fence screening on Vista Avenue side to further screen any court noise,
- The existing acoustic environment road traffic noise etc creates an ambient background noise level
- Type of usage of the tennis courts for social tennis games, squad, training, etc don't have the potential to create unacceptable noise levels to neighbours (it's not tournament courts with large spectator crowds),
- No PA system or any type of loud announcement speakers etc to be ever installed/used

Social activities limited to the BPTC clubhouse located centrally on the site further away from neighbouring houses. The noise impact is anticipated to be negligible and acceptable.

Refer to the Noise Impact Assessment prepared by RWDI acoustic engineers in response to the Council RFI.

Upgraded Facility Outcomes

Illuminated outdoor courts provide additional available time for those people working during the day who have limited time available to play tennis. Tennis courts that offer lighting become more vibrant with increased use and the extended hours also provide opportunity for BPTC to run a sustainable facility. The improvements to the KTC would enable the operator to offer all amenities and a wide range of tennis services and social activities to the local Balgowlah community. Increased social activities at night will create more passive surveillance therefore a decrease in vandalism likely.

7. Conclusion

This application seeks approval for the installation of new light poles to three existing courts to further improve the BPTC sporting facility use.

As demonstrated in this report the proposal is consistent with the aims and objectives of the Manly Local Environmental Plan 2013 and the Manly DCP 2013.

The proposal does not have any detrimental impact on the natural and built environments or amenity of the adjoining properties.

Project Architect

Eugene du Plessis

B.Arch Stud (1996) + B.Arch (1997)

AIA Membership #29973

NSW Registered Architect #7453

Nominated Architect: Eugene du Plessis

Annexure 1

Local community support for the development application

BAREENA PARK TENNIS CLUB INC.

35 VISTA AVENUE BALGOWLAH HEIGHTS

The following club members and local residents fully support Bareena Park Tennis Club's application to install tennis court lighting on three of its five courts. Bareena Park would like to be able to offer night tennis to the local community for their enjoyment.

Name

Signature

Email address

DEREK JONES



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Honey Lee



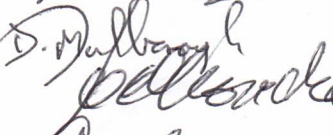
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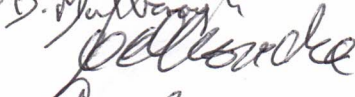
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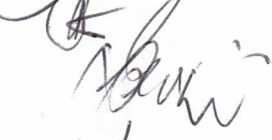
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NEIL LEWIN



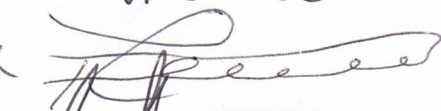
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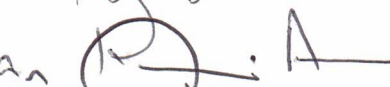
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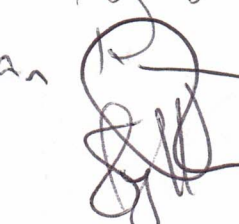
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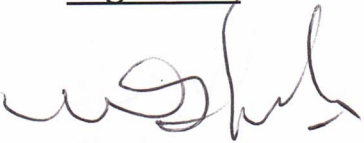
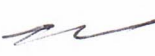


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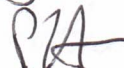
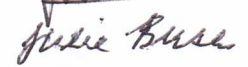
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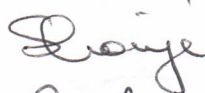
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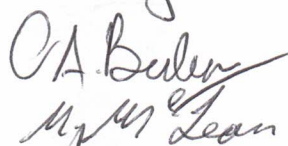
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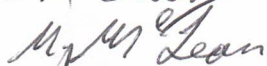
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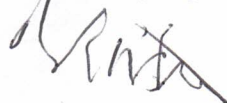
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Nancy McLean



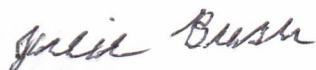
roy.mceast@gmail.com

Roy Easton

Rae Easton

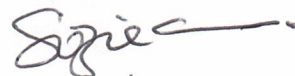
malbush@gmail.com

JULIE BUSH



Suziecummins.is@gmail.com

SUZIE CUMMINS



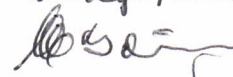
inbcameron@bigpond.com

BRIDGET CAMERON



chr's gotham@icloud.com

CHRIS GOTHAM



George Spink



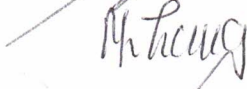
george.spink@bigpond.com

JOHN DOYLE



RADARANDVIC@BIGPOND.COM

Maggie Lang



ozlang@bigpond.net.au

Matthew Lang



matthew.lung1@hotmail.com

Jeff Cameron

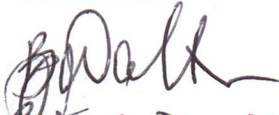


Barron Tennis & Tennis

BAREENA PARK TENNIS CLUB INC.

35 VISTA AVENUE BALGOWLAH HEIGHTS

The following club members and local residents fully support Bareena Park Tennis Club's application to install tennis court lighting on three of its five courts. Bareena Park would like to be able to offer night tennis to the local community for their enjoyment.

<u>Name</u>	<u>Signature</u>	<u>Email address</u>
BRYAN DALTON		bgdalton@HStuncil.com
JEAN DALTON	J E Dalton	mundal@optusnet.com.au
Angela Forg-Clark		afccclark12@gmail.co
Graeme Clark		gd1.clark21@gmail.com
Gillian Mursell		ZSAZSA1996@yahoo.com
Susan Davison		susandavison54@gmail.com
Marianne Moore	Marianne J Moore	genki@bigpond.net.au
HELEN ROBILIARD	H Robiliard	helenrob2@gmail.com
LORRAINE FOWLER	L. Fowler	lorrainefowler@bigpond.com

BAREENA PARK TENNIS CLUB INC.

35 VISTA AVENUE BALGOWLAH HEIGHTS

The following club members and local residents fully support Bareena Park Tennis Club's application to install tennis court lighting on three of its five courts. Bareena Park would like to be able to offer night tennis to the local community for their enjoyment.

<u>Name</u>	<u>Signature</u>	<u>Email address</u>
James Choi		EOS109A400.COM
Kelly Saltman		Kelly-b-saltman@ yahoo.com.au
Derek Hadwen		derekhadwen@gmail. com
Nevina Krups		nevikrups@gmail.com
Gillian Pearce	Gleae	gillian-pearce@bigpond.com

BALGOWLAH HEIGHTS COMMUNITY TENNIS

Coaching, holiday camps and tennis programs at Bareena Park Tennis Club

Bareena Park Tennis Club
35 Vista Avenue, Balgowlah Heights
0421 704 339
info@balgowlahheightscommunitytennis.com.au

2 Apr 2023

Dear Reader,

We support the Bareena Park Tennis Club's application for installing lights. As Head Coach of the programs at Bareena Park this would not only mean more significant employment opportunities for local coaches. It would also make it possible for local children to be coached beyond the current 5 pm sunset times throughout the two winter terms allowing for a consistent year long program.

Additionally, coaching for adults, the many working mums and dads would also become possible. There is a significant demand in the community for adult social tennis in the evenings and this would be a fantastic development for Bareena Park.

Sincerely,

Mark Nissen
Director / Head Coach

 **BALGOWLAH HEIGHTS
COMMUNITY TENNIS**
at Bareena Park Tennis Club



Annexure 2
Shine On Consultant Obtrusive Light Report

Obtrusive Light Assessment

Bareena Park Tennis Club

This obtrusive light assessment is based on the lighting design provided on page 6 and the requirements of Australian/New Zealand Standard 4282-2019 *Control of Obtrusive Effects of Outdoor Lighting*.

Four aspects of potential obtrusive light are considered in AS/NZS 4282-2019:

1. The light falling on surrounding properties. Vertical illuminance (Ev): the illuminance on surfaces, particularly vertical surfaces, is an indicator of this effect.
2. The brightness of luminaires in the field of view of nearby residents. Intensity (I): the luminous intensity of a luminaire, in a nominated direction, is an indicator of this effect.
3. The effects on transport system users. Threshold increment (TI): the measurement of disability glare expressed as the percentage increase in contrast required between an object and its background for it to be seen equally well with a source of glare present.
4. The effects on astronomical observations and the impact on protected dark environments. Upward light ratio (ULR): the ratio of upward flux and total flux from a luminaire/installation.

In addition, the above limiting values are differentiated according to the following criteria:

1. The level of lighting existing in the area. Different limits have been applied based on the ambient light conditions. These ambient conditions are described for each of the environmental zones shown in table below.

Zone	Description	Example
AO	Intrinsically dark	UNESCO Starlight Reserve, IDA Dark Sky Parks, major optical observatories, no road lighting -unless specifically required by the road controlling authority
A1	Dark	Relatively uninhabited rural areas, no road lighting - unless specifically required by the road controlling authority
A2	Low district brightness	Sparsely inhabited rural and semi-rural areas
A3	Medium district brightness	Suburban areas in towns and cities
A4	High district brightness	Town and city centres and other commercial

2. The time when the proposed lighting is to operate. Two sets of limits are specified. One, with higher values, is for application outside the curfew period set by local government and the other, with lower values, is for application during the curfew period. The majority of outdoor sports lighting systems are expected to operate only outside the curfew period (non-curfew).

In this project, assessment is made for Ev, I, TI, and ULR. All calculations are based on initial photometric values of the luminaires (new) and non-curfew period with an environment zone of A3 – Medium district brightness.

Calculation summary

Ev

- Vertical illuminance has been calculated on a grid of points in the relevant vertical planes, spaced at 2 metres horizontally and 2 metre vertically. The height of the calculation grid is from 0 metres to 10 metres above ground level. The location of the calculation plane is determined at the building line of the potentially affected dwellings.
- The maximum Ev calculated is 10 lux on any of the planes.
- AS/NZS 4282-2019 requires a maximum of 10 lux on the building line or at 10 metres inside the relevant property boundary as shown (whichever is closer).
- Please see Illuminance Report on page 6 for calculations for the following residential buildings:
 - 22 Vista Avenue
 - 26 Vista Avenue
 - 27 Vista Avenue
 - 29 Vista Avenue
 - 31 Vista Avenue
 - 34 Dobroyd Road

- Intensity calculation grids are the same as per the grids used for Ev.
- The maximum intensity calculated is 7557cd on any of the planes.

Obtrusive Light Assessment

Bareena Park Tennis Club

- AS/NZS 4282-2019 requires a maximum of 12500 cd.

TI

- Threshold Increment is calculated less than 10 lux in both directions.
- The maximum TI calculated is 1 % using an adaption luminance (Lad) of 0.2 cd/m². Adaption luminance represents the brightness of the transport corridor, lower is darker (0.2 is a conservative assumption).
- AS/NZS 4282-2019 requires a maximum of 20 % using an adaption luminance (Lad) of 1 cd/m².

ULR

- The ULR applies to the whole installation. Therefore, individual luminaires are permitted to exceed the value provided the installation as a whole is less than the limit, as are individual luminaires.
- The ULR calculated is: 0.000
- AS/NZS 4282-2019 requires 0.02 maximum.

Notes

- The location of the property boundaries/building lines have been assumed by using a google earth aerial image.
- Although these limiting values are intended to control the obtrusive effects, they will not necessarily ensure that a conforming installation will receive no adverse reaction from those affected by the spillight, as both physiological and psychological effects are involved to determine the obtrusiveness.
- AS/NZS 4282-2019 does not apply to environment impacts associated with the daytime appearance of outdoor lighting systems, including associated support structures.
- Shine On Caravel Mk2 LED Sports Lights with rear shields have been used for this lighting scheme and analysis. The visors will ensure a superior level of light control with the figure below illustrating the light distribution of the design.
- We will minimise the energy consumption of the site by including a dimming function which will be set at 20% at initial installation.

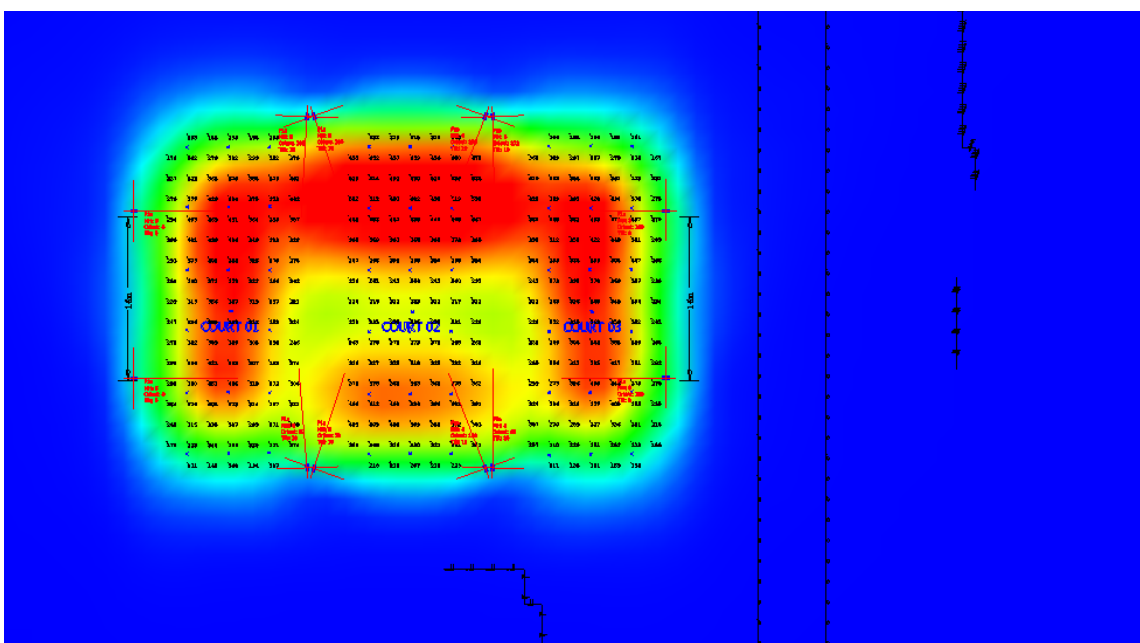


Figure 1. Rendering image in pseudo colour

Obtrusive Light Assessment

Bareena Park Tennis Club



Figure 2. Caravel Mk5 500W LED Sports Light



Figure 3. Caravel with rear shield



Figure 4. Example project installation with Shine On Caravel Mk2 LED

Caravel Mk2 Series

High Mast LED Sports Light

With wide area illumination, the Caravel Series LED Sports Light is perfect for large area lighting applications that require extremely high quality, even light distribution, with very low glare. Using the latest Nichia LED chip technology, the Caravel delivers excellent luminaire efficiency and thermal management with a premium extruded aluminium heat sink. This high efficiency combined with an indirect asymmetric light distribution for reduced glare, make it an ideal solution for sports applications such as tennis courts.



FEATURES AND BENEFITS

- **High ingress protection.** IP66 rated for high durability outdoors.
- **Indirect asymmetric beam angle.** Provides low glare, optimised beam angle spread with enhanced, more efficient lighting distribution and less light spillage.
- **Excellent luminaire efficiency.** Up to 140 lumens per watt.
- **High colour rendering options.** 70 CRI.
- **Great option for retrofitting.** Due to lightweight design and accessory options.
- **Premium Inventronic driver solution.**
- **Exceptional heat dissipation.** Critical to any high wattage LED solution is thermal management, delivered in this product by premium extruded aluminium heat sinks.
- **Tempered glass lens.** Impact and heat resistant with no chance of discolouration over time.
- **Lifetime rating of 100,000 hours.**

SPECIFICATIONS

Model	AHM-M2-400W-40 AHM-M2-400W-50 AHM-M2-400W-57	AHM-M2-500W-40 AHM-M2-500W-50 AHM-M2-500W-57	AHM-M2-700W-40 AHM-M2-700W-50 AHM-M2-700W-57
Power consumption	400W	500W	700W
Output	56,000 lm	70,000 lm	98,000 lm
Efficiency	140 lm/W	140 lm/W	140 lm/W
Dimensions	(L)659 x (W)372 x (H)99mm	(L)749 x (W)372 x (H)99mm	(L)500 x (W)750 x (H)99mm
Weight	11.5kg (remote driver) 12.8kg (whole fixture)	13kg (remote driver) 13.9kg (whole fixture)	16.6kg (remote driver) 18kg (whole fixture)
Windage	0.107m ²	0.123m ²	0.174m ²
Colour temperature	4000K, 5000K, 5700K		
CRI	>70		
Beam angle	Asymmetric		
IP rating	IP66		
IK rating	IK10		
Lifetime rating	100,000 hours*		
Warranty	Five years (can be extended to 10 years)		

* Lifetime rating is based on LM80-15 Calculated L70.

INDUSTRIES



Sport, hospitality, education and industrial.

OLD LIGHT TECHNOLOGIES



Metal halide and mercury vapour (HID) and metal halide type 2.

ACCESSORIES

15KV SPD
voltage protection



180° vertical bracket



180° horizontal brace



Round pole mounting
arm



Back shield



Swivel bracket



Adapter for square to
round pole



90° vertical bracket



Square pole mounting
arm



Proud partners of



To whom it may concern,

Bareena Park Tennis Club - Tennis Court Lighting

Lighting Design Certificate – Verification by calculation – Compliance of the Design

The lighting design calculation document "Bareena Park Tennis Club SO-01" conforms with AS 2560.2.1–2003(2017) "Sports Lighting Part 2.1: Specific Applications – Lighting for Outdoor Tennis", specifically the following criteria:

1. Level of Play – Club Competition & Commercial;
 - a. Maintained average horizontal illuminance $E_h \text{ maint} \geq \text{PPA } 350 \text{ Lux, TPA } 250 \text{ Lux,}$
 - b. Horizontal uniformity PPA $U1 \geq 0.60, \& U2 \geq 0.4$
 - c. Horizontal uniformity TPA $U1 \geq 0.30, \& U2 \geq 0.2$
 - d. Max. Glare rating < 50
 - e. Minimum colour rendering $R_a \text{ min} \geq 65$

Notes:

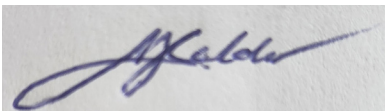
The lighting design calculations are based upon specified parameters supplied by the client, and other design inputs assumed by us, as detailed in the lighting design calculation document.

In practice, there may be variations due to differences in as-installed luminaire positioning, supply voltage, photometric tolerances, etc., and normally accepted uncertainties, refer to Australian Standards AS/NZS 3827.1:1998 and AS/NZS 3827.2:1998 Lighting system performance – accuracies and tolerances.

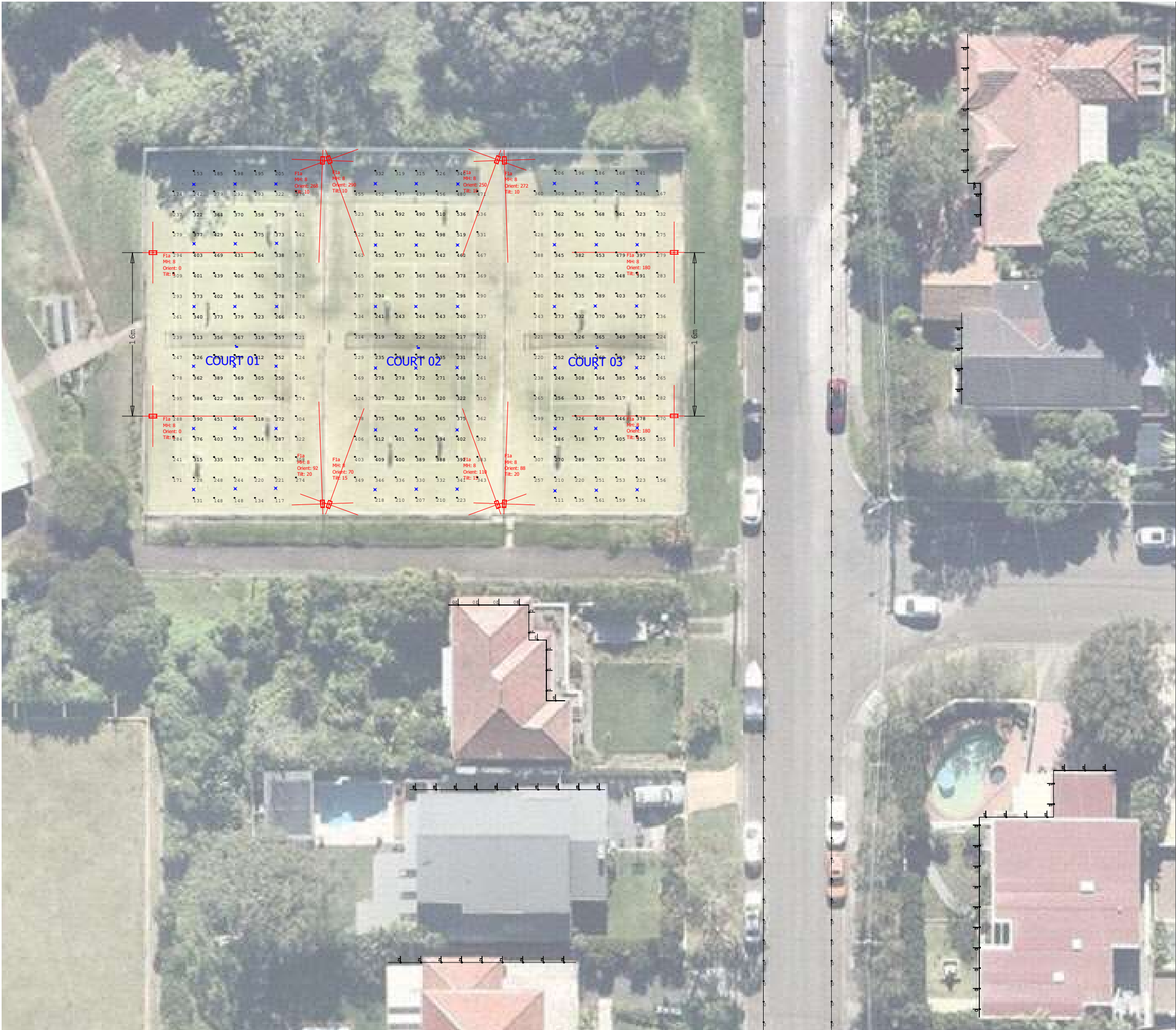
A maintenance regime must be implemented to ensure that the assumed maintenance factors used in the lighting design calculations are realised in practice.

Regards,

Marcosa Calderon MIES



Lighting Designer



PROPOSED LIGHTING PLAN - Tennis Area 1
Scale= 1: 400

Luminaire Schedule							
Tag	Symbol	Fitting Code	Description	Lumens	LLF	Watts	Qty
F1a		AHM-M2-500W WB + Rear Shield	Caravel MK2 LED High Mast Floodlight	64324	0.800	510	12

Obtrusive Light - Compliance Report
AS/NZS 4282:2019, A3 - Medium District Brightness, Non-Curfew L1
Filename: 251023_Bareena Park Tennis Club Lighting Study
25/10/2023 10:56:55 AM

Illuminance
Maximum Allowable Value: 10 Lux

Calculations Tested (16):		
Calculation Label	Test Results	Max. Illum.
ObtrusiveLight_South_III_Seg1	PASS	10
ObtrusiveLight_South_III_Seg2	PASS	2
ObtrusiveLight_South_III_Seg3	PASS	7
ObtrusiveLight_South_III_Seg4	PASS	1
ObtrusiveLight_South_III_Seg5	PASS	5
ObtrusiveLight_31 Vista Avenue_III_Seg1	PASS	4
ObtrusiveLight_29 Vista Avenue_III_Seg1	PASS	2
ObtrusiveLight_27 Vista Avenue_III_Seg1	PASS	1
ObtrusiveLight_34 Dobroyd Rd_III_Seg1	PASS	4
ObtrusiveLight_26 Vista Avenue_III_Seg1	PASS	3
ObtrusiveLight_26 Vista Avenue_III_Seg2	PASS	1
ObtrusiveLight_26 Vista Avenue_III_Seg3	PASS	3
ObtrusiveLight_22 Vista Avenue_III_Seg1	PASS	1
ObtrusiveLight_22 Vista Avenue_III_Seg2	PASS	1
ObtrusiveLight_22 Vista Avenue_III_Seg3	PASS	1
ObtrusiveLight_22 Vista Avenue_III_Seg4	PASS	1

Luminous Intensity (Cd) At Vertical Planes
Maximum Allowable Value: 12500 Cd

Calculations Tested (16):	
Calculation Label	Test Results
ObtrusiveLight_South_Cd_Seg1	PASS
ObtrusiveLight_South_Cd_Seg2	PASS
ObtrusiveLight_South_Cd_Seg3	PASS
ObtrusiveLight_South_Cd_Seg4	PASS
ObtrusiveLight_South_Cd_Seg5	PASS
ObtrusiveLight_31 Vista Avenue_Cd_Seg1	PASS
ObtrusiveLight_29 Vista Avenue_Cd_Seg1	PASS
ObtrusiveLight_27 Vista Avenue_Cd_Seg1	PASS
ObtrusiveLight_34 Dobroyd Rd_Cd_Seg1	PASS
ObtrusiveLight_26 Vista Avenue_Cd_Seg1	PASS
ObtrusiveLight_26 Vista Avenue_Cd_Seg2	PASS
ObtrusiveLight_26 Vista Avenue_Cd_Seg3	PASS
ObtrusiveLight_22 Vista Avenue_Cd_Seg1	PASS
ObtrusiveLight_22 Vista Avenue_Cd_Seg2	PASS
ObtrusiveLight_22 Vista Avenue_Cd_Seg3	PASS
ObtrusiveLight_22 Vista Avenue_Cd_Seg4	PASS

Calculation Summary							
Label	Units	Avg	Max	Min	Min/Avg	Min/Max	Height (m)
Court 01 PPA	Lux	352	469	250	0.71	0.53	1
Court 01 TPA	Lux	310	469	117	0.38	0.25	1
Court 02 PPA	Lux	352	536	217	0.62	0.40	1
Court 02 TPA	Lux	351	536	207	0.59	0.39	1
Court 03 PPA	Lux	353	479	249	0.71	0.52	1
Court 03 TPA	Lux	307	479	111	0.36	0.23	1

CLIENT
LOCATION
PROJECT #
DRAWING #

Bareena NSW

Bareena Park Tennis Club

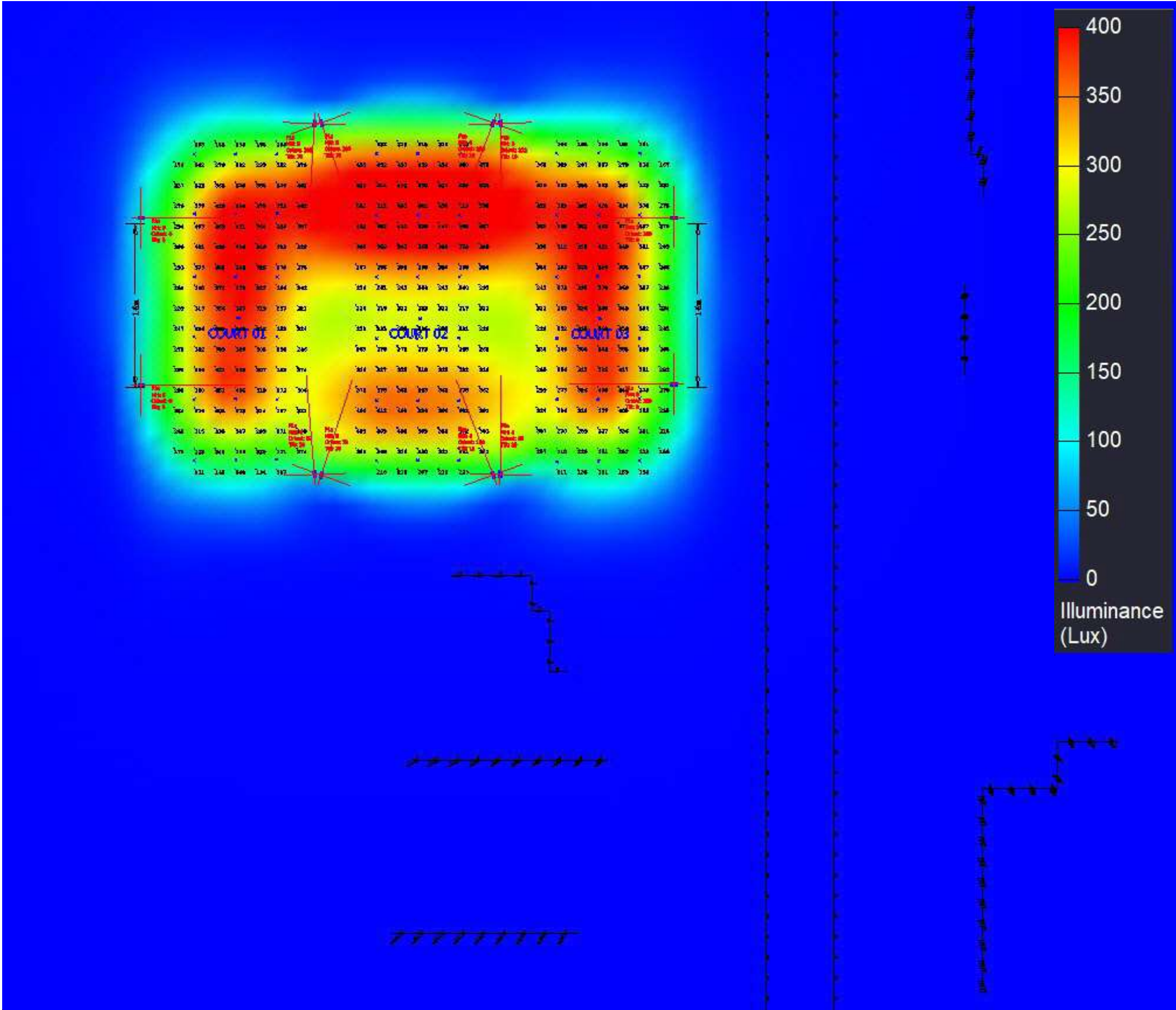
SO-01

SCALE
REVISION #
DRAWN BY
CHECKED BY

AS SHOWN @ A3
B
Marcosa Calderon MIES

shineon

Suite K109
63-85 Turner Street
Port Melbourne, VIC 3207
1300 013 648
shine-on.com.au



Obtrusive Light - Compliance Report
AS/NZS 4282:2019, A3 - Medium District Brightness, Non-Curfew L1
Filename: 251023_Bareena Park Tennis Club Lighting Study
25/10/2023 10:56:55 AM

Illuminance
Maximum Allowable Value: 10 Lux

Calculations Tested (16):		
Calculation Label	Test Results	Max. Illum.
ObtrusiveLight_South_Ill_Seg1	PASS	10
ObtrusiveLight_South_Ill_Seg2	PASS	2
ObtrusiveLight_South_Ill_Seg3	PASS	7
ObtrusiveLight_South_Ill_Seg4	PASS	1
ObtrusiveLight_South_Ill_Seg5	PASS	5
ObtrusiveLight_31 Vista Avenue_Ill_Seg1	PASS	4
ObtrusiveLight_29 Vista Avenue_Ill_Seg1	PASS	2
ObtrusiveLight_27 Vista Avenue_Ill_Seg1	PASS	1
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ObtrusiveLight_26 Vista Avenue_Ill_Seg3	PASS	3
ObtrusiveLight_22 Vista Avenue_Ill_Seg1	PASS	1
ObtrusiveLight_22 Vista Avenue_Ill_Seg2	PASS	1
ObtrusiveLight_22 Vista Avenue_Ill_Seg3	PASS	1
ObtrusiveLight_22 Vista Avenue_Ill_Seg4	PASS	1

Luminous Intensity (Cd) At Vertical Planes
Maximum Allowable Value: 12500 Cd

Calculations Tested (16):	
Calculation Label	Test Results
ObtrusiveLight_South_Cd_Seg1	PASS
ObtrusiveLight_South_Cd_Seg2	PASS
ObtrusiveLight_South_Cd_Seg3	PASS
ObtrusiveLight_South_Cd_Seg4	PASS
ObtrusiveLight_South_Cd_Seg5	PASS
ObtrusiveLight_31 Vista Avenue_Cd_Seg1	PASS
ObtrusiveLight_29 Vista Avenue_Cd_Seg1	PASS
ObtrusiveLight_27 Vista Avenue_Cd_Seg1	PASS
ObtrusiveLight_34 Dobroyd Rd_Cd_Seg1	PASS
ObtrusiveLight_26 Vista Avenue_Cd_Seg1	PASS
ObtrusiveLight_26 Vista Avenue_Cd_Seg2	PASS
ObtrusiveLight_26 Vista Avenue_Cd_Seg3	PASS
ObtrusiveLight_22 Vista Avenue_Cd_Seg1	PASS
ObtrusiveLight_22 Vista Avenue_Cd_Seg2	PASS
ObtrusiveLight_22 Vista Avenue_Cd_Seg3	PASS
ObtrusiveLight_22 Vista Avenue_Cd_Seg4	PASS

Calculation Summary							
Label	Units	Avg	Max	Min	Min/Avg	Min/Max	Height (m)
Court 01 PPA	Lux	352	469	250	0.71	0.53	1
Court 01 TPA	Lux	310	469	117	0.38	0.25	1
Court 02 PPA	Lux	352	536	217	0.62	0.40	1
Court 02 TPA	Lux	351	536	207	0.59	0.39	1
Court 03 PPA	Lux	353	479	249	0.71	0.52	1
Court 03 TPA	Lux	307	479	111	0.36	0.23	1

Luminaire Schedule							
Tag	Symbol	Fitting Code	Description	Lumens	LLF	Watts	Qty
F1a		AHM-M2-500W WB + Rear Shield	Caravel MK2 LED High Mast Floodlight	64324	0.800	510	12

CLIENT
LOCATION
PROJECT #
DRAWING #

Bareena NSW
Bareena Park Tennis Club
SO-01

SCALE
REVISION #
DRAWN BY
CHECKED BY

AS SHOWN @ A3
B
Marcosa Calderon MIES

Suite K109
63-85 Turner Street
Port Melbourne, VIC 3207
1300 013 648
shine-on.com.au

Outline of lighting work

The following pages outline our recommended lighting solution by area. All additional costs to upgrade the fitting(s) have been included in the unit and total price columns. Please refer to the legend for any additional items. Other additional costs such as access equipment can be found towards the end of this section.

Legend - additional lighting costs

	After hours		Conduit
	Canopy freezer		Spotter
	Highbay relocation		Sensor
	Pole floodlights		

tennis courts										Annual hours: 2000
Current lighting	Quantity of fittings	Globes per fitting	Proposed lighting	Proposed quantity	Unit price	Price after subsidy	Total price	Annual energy saving	Energy reduction	Additional Cost/Items
0.000W	0	1	Caravel Mk2 500W Floodlight 4000K (Product Only)	12	\$788.00	\$788.00	\$9,456.00	(\$3,403.01)	0%	
0.000W	0	1	Caravel Mk2 Rear Shield	12	\$108.00	\$108.00	\$1,296.00	\$0.00	0%	
0.000W	0	1	Extended Warranty (total 10yrs) - Caravel Mk2 500W Floodlight (Product Only)	12	\$266.00	\$266.00	\$3,192.00	\$0.00	0%	
Total:							\$13,944.00	(\$3,403.01)		

Additional items

Item	Quantity	Unit price	Total price
New/Replacement Poles (SL) — Quote reference - GPA N10056 (8 poles)	1	\$16,875.00	\$16,875.00
Labour - Lighting Control Device — Halytech Lighting Control - Supply, Installation and commissioning	1	\$14,293.50	\$14,293.50
Footing & Installation (SL) — Installation of footing per pole	8	\$2,325.00	\$18,600.00
Structural Engineering (SL) — Per pole charge for Geotech as per previous quotes	8	\$1,800.00	\$14,400.00
Civil Works (SL) — Trenching, Conduits, Cabling Installation, electrical pits and spoil removal.	1	\$62,242.50	\$62,242.50
Electrical Works (SL) — Assemble, stand, orient, level, bolt down and grout eight 8m fixed floodlight poles, including unloading.	1	\$22,492.50	\$22,492.50
Structural Engineering (SL) — Service Location	1	\$2,700.00	\$2,700.00
Electrical Installation (SL) — Night-time Aiming and commissioning	12	\$750.00	\$9,000.00
Boom Lift Weekly Hire (per week) — 2 week hire allowance for boom lift	2	\$1,648.50	\$3,297.00
Track Mats (SL) — Site establishment, maintenance and clean up + 10 days track matting hire (12 x matts)	1	\$5,242.50	\$5,242.50
Lighting Design & Control (SL) — As built drawings	1	\$975.00	\$975.00
Labour - Additional Wiring — Disconnection/Reconnection of existing incoming supply to new switchboard - inc. 3 phase upgrade.Upgrade existing switchboard.	1	\$4,023.50	\$4,023.50
Sports Lighting Installation — Installation of LED flood lights	12	\$750.00	\$9,000.00

Please initial _____

Annexure 3

NBC Letter:

Request for Owners Consent to lodge Development Application for floodlighting at Bareena Park Tennis Club

Friday, 2 December 2022

Mr Jeff Carroll
Bareena Park Tennis Club
bareenatennis@gmail.com

Our Ref: 2022/766933

Dear Mr Carroll,

RE: Request for Owners Consent to lodge Development Application for floodlighting at Bareena Park Tennis Club

Thank you for your request to gain support for the lodgement of a Development Application for proposed works on Council property.

Council supports your request to lodge a Development Application for the proposed works at Bareena Park Tennis Club on the condition that the following details are included in the submission:

- A 10-year warranty for the lights is obtained;
- Certification that the design is compliant with Australian Standards AS2560 and AS4282;
- Back shields are included on all lights to further reduce light spill;
- Light Colour of 4,000K is specified;
- Demonstrated consideration of the National Light Pollution Guidelines for Wildlife;
- All cabling to be trenched on the outside of the court fences;
- Required footing bearing pressure is detailed in the plans.

Please note this is not consent or approval to carry out any works.

Yours faithfully



Jeremy Smith
Manager Park Assets - Planning Design & Delivery

Enquiries: *Charles Sawley (02) 8495 5223*

Annexure 4
Site Photographs













