



Liverpool Plains Shire Council

**Request for Tender (RFT) Documents
for**

**Contract name: Longfield Oval Lighting Upgrade
Contract No.: RFT 071/2023**

June 2023

LIVERPOOL PLAINS SHIRE COUNCIL

60 Station Street, Quirindi. NSW 2343.

Mini-Minor Works - Tender Schedules

Tender Summary

Tender No.:	RFT 071/2023
Project Title:	Longfield Oval Lighting Upgrades
Issue Date:	Monday 5 th June 2023
Closing Date and Time:	Monday 17 th July 2023 at 1pm.
Tender Lodgement:	Tenders are to be submitted by one of the two following methods 1. By upload via the electronic Tender Box at https://portal.tenderlink.com/lpsc/
Tender Certification and Requests for Information:	All enquiries relating to the proposed contract must be submitted in writing to the nominated contact person, who will ensure that all tenderers receive the same information during the tender communications.
Nominated Contact Person:	Name: Kathleen McGreal – Liverpool Plains Shire Council, Project Manager. Mobile: 0408 929 447 Kathleen.mcgreal@liverpoolplains.nsw.gov.au Liverpool Plains Shire Council, 60 Station Street, Quirindi. NSW 2343. Electronic: Via Tender link Forum at https://portal.tenderlink.com/lpsc/

Signed for the Tenderer by: Date:.....
Name (in block letters):(Authorised Officer)
In the Office Bearer capacity of:

Mini-Minor Works - Tender Schedules

- T1. Proposed Contract means the agreement and any other terms and conditions contained in or referred to in this Request for Tender.
- T2. By submitting a response to this procurement process, the tenderer acknowledges and agrees that it constitutes an offer by the tenderer to Liverpool Plains Shire Council and/ or its authorised representative to provide the Works and/or Goods and/or Services required under, and otherwise to satisfy the requirements of the Scope of Works and/or Specification on the terms and conditions of the Proposed Contract.
- T3. Liverpool Plains Shire Council Code of Conduct, and Procurement Policy Framework apply to this tender. By submitting a tender, the tenderer warrants it is not precluded from entering a contract and accepting the work under the contract (if successful) and agrees that it will be taken to have read and understood, and that it will comply with, the Liverpool Plains Shire Council Code and Guidelines.
- T4. These Conditions of Tendering do not form part of any contract awarded because of this tender process.
- T5. Refer requests for information concerning this Request for Tenders to the Authorised Person nominated in the General Conditions of Contract - Contract Information.
- T6. Liverpool Plains Shire Council contracts only with recognised, acceptable legal entities and does not contract with firms under any form of external administration. Any tender submitted by an unincorporated business such as a sole trader, trust, partnership, or business name must identify the legal entity that proposes to enter the Contract. Tenderers must be registered for GST.
- T7. Complete and lodge, by the date, time and method stated in the tender advertisement and/or invitation, the following documents and information:
- Tender Form
 - Schedule of Rates
 - Schedule of WHS and Environmental Management Information
- T8. Alternative Tenders will only be considered if submitted in conjunction with a Conforming Tender. An Alternative Tender must be clearly marked "Alternative Tender".
- T9. Tenders are to be submitted by one of the two following methods:
- By upload via the electronic Tender Box at <https://portal.tenderlink.com/lpsc/>
- T10. Liverpool Plains Shire Council may change the RFT by issuing an Addendum in writing to all tenderers. The Addendum becomes part of the RFT documents. Addenda issued by Liverpool Plains Shire Council are the only recognised explanations of, or amendments to, the RFT documents.
- T11. Liverpool Plains Shire Council policies apply to the evaluation of tenders, including late tenders and negotiations with tenderers. In evaluating tenders, Liverpool Plains Shire Council may take into consideration factors including, but not limited to price; delivery time; quality offered; previous performance; experience; capability; safety performance; environmental performance; conformity; and the assessed value of qualifications and departures.
- T12. Submit additional information requested by Liverpool Plains Shire Council within the time stated in the request.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

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Mini-Minor Works - Tender Schedules

- T13. Liverpool Plains Shire Council may treat any detail required by the RFT documents which is omitted, illegible or unintelligible as failing to fulfil the relevant requirements.
- T14. Liverpool Plains Shire Council is not bound to accept the lowest, or any tender. Tenders which do not comply with any requirement of the RFT documents, or which contain conditions or qualifications, may be passed over. Liverpool Plains Shire Council may accept tenders that do not conform strictly with all the requirements of the RFT documents.
- T15. No tender is accepted unless Liverpool Plains Shire Council gives an acceptance or formal agreement in writing.
- T16. Details of this tender and the outcome of the tender process will be disclosed in accordance with the *Government Information (Public Access) Act 2009* (NSW).

Scope

Liverpool Plains Shire Council (Council) conducted a high-level feasibility study for the purpose of supporting a grant application to upgrade the sports field lighting of Longfield Oval on Henry Street in Quirindi, NSW. The intention of the proposed upgrades is to further enable higher level competition and practice to be played on the fields at night.

Longfield Oval is comprised of two ovals; the first is a designated cricket field named Oval No. 1 and the second oval named Oval No. 2 containing a cricket pitch and two football fields. Currently each oval is illuminated by 4 poles with 5 metal halide (MH) luminaires installed on each pole. This lighting layout does allow some practices to be conducted on the fields at night. However, the current field lighting is not sufficient for match and semi-competitive play as per AS 2560.2:2021 *Sports Lighting – Specific Applications*.

As part of the works, Council is proposing to upgrade the lighting of Oval No .1 to be compliant with Class V cricket field lighting as per AS 2560.2:2021. Upgrading Oval, No. 1 to this level has the added benefit of achieving the lighting necessary for semi-professional competition level football.

Oval No. 2 is proposed to be upgraded Class VI to be compliant with football for amateur level competition and semi-professional practice as per AS 2560.2:2021.

Note - No detailed design has been undertaken for the lighting modelling, lighting pole, lighting control or power infrastructure. The existing power supply is assumed to be sufficient for the new works. An application for connection or enquiry has not been submitted to Essential Energy.

There must be evidence of lighting design calculations that demonstrate the design achieves the required light technical performance parameters. Additionally, the lighting arrangement must be able to be safely installed and maintained within the site constraints.

All luminaire types i.e., LEDs, HPS and metal halide lose brightness over time due to the gradual reduction in lamp efficiency and the accumulation of dirt and dust on fittings. A 'light loss factor' needs to be incorporated into the design to compensate for this depreciation in lumen output that is dependent on the maintenance schedule and environmental factors. Note - Luminaires constructed with an Ingress Protection rating of 'IP6x' results in improved maintenance benefits and helps reduce costs through the ability to apply higher 'light loss factor' allowance.

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The proposed lighting installation is a potential source of obtrusive light for the surrounding properties and for the nearby roads and footpaths. The types of properties adjacent to the site boundaries will dictate the obtrusive lighting limits stipulated within the AS/NZS 4282 standard. As a part of the lighting design for the site, spill lighting has been assessed at the site boundary as neighbouring properties are within close proximity to the existing field. Nominating typical “shoe box” luminaires which have minimal upward light component, having small angles of tilt and locating luminaires such that they face away from the boundary and nearby roads where possible will assist in reducing the amount of obtrusive light.

Utilising the existing poles limits the lighting performance that can be practically achieved. Generally, to illuminate the two ovals to full compliance of the higher sporting technical parameters would require a flood lighting approach utilising additional and taller poles or masts with higher wattage luminaires and specific distributions based on the location.

All works is to comply with the relevant Standards and Codes, and Australian Regulations, Reference documents include, (but are not limited to) AS 2560.2:2021 *Sports lighting – Specific applications*, and AS/NZS 4282:2019 *Control of the obtrusive effects of outdoor lighting*.

Scope of works

Liverpool Plains Shire Council would like to invite your company to tender for the upgrade of Sporting Field Lighting at Longfield Ovals No. 1 and No. 2, located at Henry Street in Quirindi NSW 2343. The scope of works includes the detailed electrical design and verification.

With the design considerations it is proposed a design option for Liverpool Plains Shire sporting groups to achieve a desired lighting level that the proposed luminaires consist of the following:

Oval No. 1: Design and construct lighting to achieve Class V performance as per Cricket Guidelines.

Oval 1. Outdoor Cricket Training and Competitions

AVERAGE HORIZONTAL MAINTAINED ILLUMINANCE					
AS 2560.2:2021	Level Of Competition	Square	Infield	Outfield	Practice Field
V	<ul style="list-style-type: none"> • Premier Senior All other (F) • Community Senior (M) • National Youth Championships (U/17 M) • Premier Junior (M&F) • Junior Cricket Stage 3 (M) 	300	250	200	150

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Oval No. 2: Design and Construct to achieve Class VI performance as per Cricket Guidelines.

AVERAGE HORIZONTAL MAINTAINED ILLUMINANCE					
AS 2560.2:2021	Level Of Competition	Square	Infield	Outfield	Practice Field
VI	<ul style="list-style-type: none"> • Community Senior (F) • National Youth Championships (U/16 F) • Junior Cricket Stages 2 & 3 (F) • Junior Cricket Stages 1 & 2 (M) 	200	200	200	100

Detailed modelling has not been completed on the proposed arrangement, however based on similar installations of ovals of this size, the resultant levels of lighting will result in an average illuminance of approximately 125 lux for oval no 2, sufficient to achieve the required parameters.

An electronic software-based lighting control system is required for the oval lighting upgrades, with the following capabilities:

- a) Ability to program set times for the lights to be switched on and off, such as local curfew times.
- b) Log usage data, including the ability to set a retail energy cost to help determine operating costs. This data can also be visualised on the system's application dashboard.
- c) Add new site and club managers to the system that have differing authority levels of functionality, such as the ability to switch the lights on and off for each oval.
- d) Capacity to switch lights on and off remotely utilising a web-based service or mobile app.

The site power supply is not expected to need upgrading as the net increase in power consumption by the proposed lighting upgrades will only be approximately 10 kW, once the older and less efficient MH luminaires have been removed. There have been no identified power failures at the site.

The circuit breakers servicing Oval No. 2 are expected to require upgrading due to the increased number of luminaires per pole. This upgrade will also require new electrical reticulation to supply the poles and the cables between the main isolator and Oval No. 2 breakers may need upgrading. Exact breaker and cable sizes would be determined in the electrical detailed design.

The following pole locations and general site layout has been included in Appendix A.

Both Oval:

- a) Design Lighting Scheme.
- b) Identify, consider, and incorporate lighting loss factor, obtrusive lighting, and glare into design.
- c) Carry out Dial before you dig investigations and confirm location of existing services in the works area, clearly identify and mark out locations.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

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Oval No. 1:

- a) Design Lighting Scheme for AS 2560.2:2021 and Class 5 outdoor cricket pitch lighting.
- b) Disconnect existing Power and remove existing light poles, and lights.
- c) Earthworks and footings prepared for lighting system to be installed.
- d) Installation of new LED luminaires on each of the poles.
- e) Investigate if the oval can utilise the existing electrical reticulation to supply the 4 light poles, and upgrade as required.
- f) Rehabilitate grassed areas (on the playing field) disturbed by the works to the original condition.
- g) Remove waste from site.
- h) Commission lighting and confirm lighting control functionality.
- i) Provide design and reporting, and safety in design documents.

Oval No. 2:

- a) Design Lighting Scheme for AS 2560.2:2021 and Class 6 outdoor cricket pitch lighting.
- b) Disconnect existing Power and remove existing light poles.
- c) Electrical Design and installation, circuit breakers servicing Oval No. 2 contained in the switchboard will require upgrading to handle the increase in luminaires for the oval.
- d) Excavation Works to install new cabling and poles.
- e) Dig footings and install concrete foundations and foundation plates for light poles.
- f) Relocation of Speakers on existing pole to new light pole, remove and dispose of the old pole.
- g) Remove all construction waste from site.
- h) Rehabilitate grassed areas (on the playing field) disturbed by the works to the original condition.
- i) Commission lighting and confirm lighting control functionality.

The proposed layout for the site is within the obtrusive lighting limitation requirements of AS/NZS 4282 based on Environmental Zone A3. The threshold increment (A measure of disability glare of the driver's line of sight expressed as the percentage increase in contrast required between an object and its background for the object to be seen equally well with a source of glare present) along the adjacent road is within the limits of the Australian Standard.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

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1 Tender Form

Tender Closing Office

Name: Liverpool Plains Shire Council
Postal Address: PO Box 152 Quirindi, NSW 2343
Physical Address 60 Station Street, Quirindi NSW 2343

Tenderer's details

Name:

Address:

Telephone number:

e-mail address:

hereby tender(s) to perform the work for:

Tender Details

Contract Name: Longfield Oval Lighting Upgrade

Contract Number: RFT 071/2023

in accordance with the following documents:

Conditions of Tendering

Tender Schedules

General Conditions of Contract

Works Description

Contract Schedules

Appendices

Drawings

and Addendum Numbers

Tenderer's Offer

For the Contract Price, being the lump sum of:

(\$ _____) including GST.

At the (GST inclusive) rates and lump sums in the Schedule of Rates.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

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2 Schedule of Rates

Complete this Schedule by inserting rates and amounts, where appropriate. Where a rate is tendered, insert under **Amount** the amount arrived at by multiplying the tendered rate by the stated quantity.

The correct extended Amounts and Total will be used to evaluate tenders.

All rates and lump sums must include GST.

Item Number	Description	Quantity	Unit	Rate	Amount
1	All work and obligations under the Contract NOT INCLUDED ELSEWHERE in this Schedule. Refer to addendum 1 plans for scope of works.			Lump Sum	
2	Supply and install - Site Lighting Control System. Electronic software-based lighting control system that allows full switching control of the lights. In addition, ability to schedule curfew hours, and capacity to switch lights on and off remotely utilising a web-based service or app.			Lump Sum	\$
3	Design Lighting Scheme for both ovals. Identify, consider, and incorporate lighting loss factor, obtrusive lighting, and glare into design.			Lump Sum	\$
4	Carry out Dial before you dig investigations and confirm location of existing services in the works area, clearly identify and mark out locations.			Lump Sum	\$
5	Provide design and reporting documents to client.				
6	Install connection to lighting control system and Commission new lighting. Test and verify functionality. and supply as constructed drawing documentation to the client for both ovals.			Lump Sum	\$
OVAL 1					
1	Design Lighting Scheme for AS 2560.2:2021 Class 5 outdoor cricket pitch lighting.			Lump Sum	\$
2	Disconnect existing Power and remove existing light poles, and lights.			Lump Sum	\$
3	Installation of the required number of LED luminaires on each of the new poles to achieve the desired lighting for class V.			Lump Sum	\$
4	Earthworks and footings prepared for lighting system to be installed.			Lump Sum	\$

Signed for the Tenderer by: Date:.....

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Item Number	Description	Quantity	Unit	Rate	Amount
5	Rehabilitate grassed areas (and on the playing field) disturbed by the works to the original condition. Remove waste from site.			Lump Sum	\$
6	Commission lighting and confirm lighting control functionality.			Lump Sum	\$

OVAL 2					
Item Number	Description	Quantity	Unit	Rate	Amount
1	Design Lighting Scheme for AS 2560.2:2021 Class 6 outdoor cricket pitch lighting.			Lump Sum	\$
2	Electrical Design and installation, circuit breakers servicing Oval No. 2 upgrading to handle the increase in luminaires for the oval. Note - Due to the net increase in KVA upgrades to the main switchboard, increasing the main isolator or cables supplying the MSB may not be required. However, circuit breaker sizes and cable sizes need to be determined in the electrical detailed design.			Lump Sum	\$
3	Disconnect existing Power and remove existing timber poles.			Lump Sum	\$
4	Excavation Works to install new cabling and poles. Backfilling and compaction of soil upon completion.			Lump Sum	\$
5	Dig footings and install concrete foundations and foundation plates for metallic light poles.			Lump Sum	\$
6	Installation of lighting			Lump Sum	\$
7	Relocation of Speakers from existing pole to new metallic light pole. Remove old timber pole and dispose of at the approved waste disposal depot.			Lump Sum	\$
8	Waste removal and disposal of site.			Lump Sum	
9	Rehabilitation or grassed areas (on the playing field) disturbed by the works to original condition.			Lump Sum	\$
				TOTAL	

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Mini-Minor Works - Tender Schedules

3 Schedule of WHS and Environmental Management Information

Submit when requested the information specified below.

Evidence of satisfactory WHS Management performance

Submit a WHS Management Plan, or three Safe Work Method Statements, that have been implemented by the tenderer on a contract in the last twelve months.

Evidence of satisfactory Environmental Management performance

Submit an Environmental Management Plan, or an environmental management procedure/checklist, that has been implemented by the tenderer on a contract in the last twelve months.

Recent WHS or environmental prosecutions and/or fines

Has the tenderer incurred a prosecution or fine for a breach of any Australian WHS and/or environmental legislation during the past two (2) years?

- Yes, or
 No.

If 'Yes', list details below:

Description of prosecution or fine	Action taken by tenderer in response

Signed for the Tenderer by: Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

MMW Contract Schedule – Supporting Statement and Subcontractor’s Statement

1. Definitions

Authorised Person	The person stated in the Contract Information, who is appointed by Liverpool Plains Shire Council to act with its full authority in all matters relating to the Contract.
Business Day	Any day other than a Saturday, Sunday, or public holidays in NSW
Completion	Completion is achieved when the Works is capable of use for the purposes required by the Contract, has passed all required tests and is free from any known defects, and the Contractor has provided all the required documents and made good the Site and surroundings.
Contract	The agreement between the parties for the performance of the Works as set out in the Contract Documents.
Contract Documents	The following documents: <ul style="list-style-type: none">(a) the documents prepared by Liverpool Plains Shire Council for the Contract and provided to the Contractor.(b) the tender submitted by the Contractor, as accepted by Liverpool Plains Shire Council; and(c) any amendments to the documents in (a) and (b) agreed to by the Parties or made under the Contract.
Contract Price	Where Liverpool Plains Shire Council accepted only a lump sum, the lump sum; or Where Liverpool Plains Shire Council accepted rates, the sum of the products of the quantity and the relevant rate for each item in the Schedule of Rates, plus any lump sums in the Schedule of Rates, as adjusted in accordance with the Contract.
Defect	Any aspect of the Works that does not conform with the Contract.
Parties	Liverpool Plains Shire Council and the Contractor.
Post Completion Period	The period stated in the Contract Information.
Principal	The entity stated in the Contract Information.
Site	The lands and other places made available to the Contractor by Liverpool Plains Shire Council for the purposes of the Contract.
Variation	Any change to the character, form, quality, and extent of the Works instructed or accepted in writing by Liverpool Plains Shire Council. A Variation shall not invalidate the Contract.
Works	The whole of the work and services to be carried out and materials to be provided by the Contractor under the Contract.

2. General

- .1 The Liverpool Plains Shire Council’s Supplier Code of Conduct (NSW Code), the NSW Industrial Relations Guidelines: Building and Construction Procurement (NSW Guidelines) and the Liverpool Plains Shire Council Procurement Policy Framework apply to the Contract. By undertaking to perform the works, the Contractor warrants it is not precluded from entering the contract and accepting the work under the Contract and agrees that it will be taken to have read and understood, and that it will comply with, the NSW Code and NSW Guidelines.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

MMW Contract Schedule – Supporting Statement and Subcontractor’s Statement

The Contractor agrees to support skills development in the construction of the Works.

- .2 The Parties are to do all they reasonably can to co-operate in all matters relating to the Contract.
- .3 Unless otherwise instructed or agreed, the Contractor is to comply, within 3 Business Days, with any instruction given by Liverpool Plains Shire Council.
- .4 The Parties consent for notices and communications to be by electronic communication in accordance with the *Electronic Transactions Act 2000* (NSW).
- .5 The Contractor is to set reasonable standards of conduct and ensure they are met by persons engaged in carrying out the Works. Liverpool Plains Shire Council may instruct the Contractor to remove a person from the Site for failing to meet reasonable standards of conduct.
- .6 The Contractor is responsible for determining the location and type of all existing services and public utilities, both above and below ground. Where an existing service is damaged by the Contractor for any reason whatsoever, the Contractor must bear all costs and any delays for repairing the service (where it is to be continued) or disconnecting it (where it is to be abandoned).
- .7 The Parties may change the terms and conditions of this Contract by written agreement.

3. Site and Access

- .1 Within 5 Business Days after the date of award of contract, Liverpool Plains Shire Council is to give the Contractor access to sufficient of the Site to allow the Contractor to start work but is not required to give the Contractor sole or uninterrupted possession of or access to the Site.
- .2 The Contractor is to start work on the Site as soon as practicable after being given access in accordance with clause 3.1, but not before satisfying all the necessary requirements.
- .3 The Contractor is to give anyone authorised by Liverpool Plains Shire Council reasonable access to the Site for any purpose.

4. Care of People, Property, and the Environment

- .1 From the time access to any part of the Site is given to the Contractor until Completion, the Contractor is responsible for the care of, and is to make good at the Contractor’s expense, any loss or damage which occurs to:
 - (a) the Works or the Site.
 - (b) construction plant; or
 - (c) things entrusted to the Contractor by Liverpool Plains Shire Council for the purpose of carrying out the Works.
- .2 In carrying out the Works, the Contractor is to minimise inconvenience to others.
- .3 The Contractor is liable for any loss or damage caused by the Contractor whilst making good Defects.
- .4 The Contractor indemnifies Liverpool Plains Shire Council against any:
 - (a) legal liability for injury or death.
 - (b) breach of intellectual property rights in relation to material provided by or for the Contractor; and

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**MMW Contract Schedule – Supporting Statement and
Subcontractor’s Statement**

(c) loss of, or damage to, property of Liverpool Plains Shire Council or others, or harm to the environment,
arising out of the carrying out of the Works.

.5 If:

(a) action is required to avoid injury, death, harm to the environment or loss of, or damage to, property, and the Contractor does not take the necessary action when Liverpool Plains Shire Council instructs it; or

(b) urgent action is required,

then Liverpool Plains Shire Council may take the action without relieving the Contractor of its obligations or liabilities and the cost of the action is payable by the Contractor to Liverpool Plains Shire Council.

5. Work Health & Safety Management

.1 The Contractor is responsible for the work under the Contract at all times until Completion and is engaged as principal contractor for the work, in accordance with clause 293 of the *WHS Regulation 2017 (NSW)* and authorised to exercise such control of the workplace as is necessary to discharge the duties of principal contractor under that *Regulation*.

.2 No later than 5 Business Days before starting work on the Site, the Contractor is to submit a Work Health and Safety (WHS) Management Plan for the Works that complies with the current NSW Government *Work Health and Safety management guidelines (for Construction Procurement) 6th Edition*.

.3 The WHS Management Plan is to address all the relevant issues in the Contract Schedule – WHS Management Plan and Safe Work Method Statements, together with any other risks and hazards, and is to be implemented on the Site.

.4 Work is not to start without a complying WHS Management Plan.

.5 All safety incidents, including near misses, and all visits by SafeWork NSW are to be reported immediately to the Authorised Person.

.6 If instructed by the Authorised Person, investigate, and submit a written report as soon as practicable after an incident occurs.

6. Long Service Levy

.1 If the Contract Price is \$25,000 or more (unless all the work under the Contract is routine maintenance, repairs, or demolition) then before starting work, the Contractor must pay to the Building and Construction Industry Long Service Corporation or the Corporation’s agent the amount of the long service levy payable under the *Building and Construction Industry Long Service Payments Act 1986*. Documentary evidence of payment of the levy must be provided to Liverpool Plains Shire Council before starting work.

7. Environmental Management

.1 No later than 3 Business Days before starting work on the Site, the Contractor is to submit an Environmental Management Plan for the Works that complies with the NSW Government *Environmental management guidelines 4th Edition*.

.2 The Environmental Management Plan is to address all the relevant issues in the Contract Schedule – Environmental Management Plan, together with any other risks and hazards, and is to be implemented on the Site.

.3 Work is not to start until a complying Environmental Management Plan has been submitted.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

MMW Contract Schedule – Supporting Statement and Subcontractor’s Statement

- .4 Submit a progress report and a summary report before Completion in accordance with tables 1 to 5 of the NSW EPA ‘Construction and demolition waste’ toolkit as referenced in the Contract Schedule - Environmental Management Plan.
- .5 All environmental incidents, including near misses, and visits by environmental regulators, are to be reported immediately to the Authorised Person.

8. Insurance

- .1 Before starting work in connection with the Contract, the Contractor is to hold or take out an insurance policy covering workers compensation and ensure every subcontractor holds equivalent insurance, where applicable. If the Contractor is a sole trader or pays less than \$7,500 in annual wages and therefore cannot obtain workers compensation insurance, then the person(s) carrying out the work must have personal accident insurance.
- .2 If the Contract Information states that the Contractor is to arrange public liability insurance and insurance of the Works then, before starting work on the Site, the Contractor is to hold or take out policies of insurance covering the Contractor, Principal, and subcontractors as insured entities for:
 - (a) public liability for an amount not less than \$10,000,000 for any single occurrence; and
 - (b) loss of, or damage to, the Works, any temporary works and all materials, equipment, plant, and other things that are brought onto the Site by or on behalf of the Contractor or are entrusted to the Contractor by Liverpool Plains Shire Council. The amount insured for any single occurrence is to be not less than the Contract Price at the date of award of Contract by Liverpool Plains Shire Council.
- .3 The policies required under clause 8.2 are to:
 - (a) include cross liability and waiver of subrogation clauses under which the insurer, in respect of liability, agrees that the term 'insured' applies to each of the entities covered as if a separate insurance policy had been issued to each of them, and agrees to waive all rights of subrogation or action against any of the entities covered; and
 - (b) be with insurers and in terms approved by Liverpool Plains Shire Council.
- .4 If the Contract Information states that Liverpool Plains Shire Council has arranged, or is to arrange, insurance of the Works and public liability, then a policy of insurance for the Works and public liability covering the Contractor, Principal and subcontractors will come into effect on award of contract. Liverpool Plains Shire Council is to pay the insurance premium.
- .5 For any insurance the Contractor is required to arrange under the Contract, the Contractor is to pay all premiums, maintain the policies until Completion of the Works, and provide evidence of currency of the policies to Liverpool Plains Shire Council before starting the relevant work.
- .6 The Contractor is responsible for making and managing any insurance claims and meeting the cost of any deductibles, even if Liverpool Plains Shire Council arranged the insurance.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

MMW Contract Schedule – Supporting Statement and Subcontractor’s Statement

9. Materials and Work

- .1 The Contractor is to supply materials which are new (unless otherwise specified in the design), free from Defects and fit for the purposes required by the Contract.
- .2 The Contractor is to use standards of workmanship and work methods which conform with the Contract, relevant Australian Standards, codes of practice and the lawful requirements of any authority.
- .3 The Contractor is responsible for any design required to complete the Works.
- .4 The Contractor is to make good any Defect when it becomes apparent.
- .5 Liverpool Plains Shire Council may, in its absolute discretion, propose to accept the Works with any specified Defect not made good, on specified terms. If the Contractor does not accept Liverpool Plains Shire Council’s terms within 5 Business Days, the Contractor is to make good the Defect.

10. Variations

- .1 The Contractor is not to change the Works without an instruction or written acceptance from Liverpool Plains Shire Council.
- .2 The Contractor may request a Variation where a site condition that could not reasonably have been expected or an unexpected change in statutory requirements requires a change to the Works.
- .3 The Contractor is to take all reasonable steps to carry out Variations concurrently with other work.
- .4 The Contractor is to submit a proposal for a Variation within 5 Business Days after receiving a request from Liverpool Plains Shire Council to do so. The Contractor’s proposal is to include a margin of up to 15% on net direct costs to cover supervision, overheads, disruption, profit and attendance and any associated costs that may result if additional time is required to complete the Variation.
- .5 Within 10 Business Days after receiving the Contractor’s proposal for a Variation, Liverpool Plains Shire Council is to notify the Contractor in writing whether or not the proposal is accepted.
- .6 If Liverpool Plains Shire Council does not accept the proposal, Liverpool Plains Shire Council will assess the price based on reasonable direct costs plus 15% and that will be the price payable to the Contractor for the Variation.

11. Time for Completion

- .1 The time for Completion is as stated in the Contract Information.
- .2 The Contractor is to notify Liverpool Plains Shire Council if it expects to be delayed in reaching Completion.
- .3 The Contractor may seek an extension of time if it will be delayed in reaching Completion. Liverpool Plains Shire Council may extend the time for Completion for any reason.
- .4 The Contractor has no entitlement to costs for any delay or disruption, other than the margin included in any agreed or assessed Variation.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

**MMW Contract Schedule – Supporting Statement and
Subcontractor’s Statement**

**12. Post Completion
Period**

- .1 At any time during the Post Completion Period stated in the Contract Information, Liverpool Plains Shire Council may direct the Contractor to make good a Defect within a specified time and at a time convenient to Liverpool Plains Shire Council.
- .2 If the Contractor does not make good the Defect within the time specified, then Liverpool Plains Shire Council may have the Defect made good by others and all associated costs are payable by the Contractor to Liverpool Plains Shire Council.

13. Payment

- .1 The Contractor may submit payment claims for completed work monthly on and from the first business day of each calendar month and for amounts calculated as follows:
 - (a) for work for which Liverpool Plains Shire Council accepted rates, an amount calculated by applying the rates to the quantities of work carried out.
 - (b) for work for which Liverpool Plains Shire Council accepted a lump sum, an instalment of that lump sum which reflects the value of the work carried out; and
 - (c) for any other entitlements claimed for which Liverpool Plains Shire Council has agreed or assessed an amount in writing, or for which an amount has been finally determined by an expert under Clause 14 *Disputes*, the proportion of the amount which reflects the value of the entitlement,at the date of the payment claim, less amounts previously paid, amounts payable by the Contractor to Liverpool Plains Shire Council, and any amounts Liverpool Plains Shire Council is entitled to deduct.
- .2 Payment Claims are to be submitted to the Authorised Person at the address shown in Contract Information item 1.
- .3 Quantities of work set out in any Schedule of Rates are estimates only. The Contractor is responsible for providing evidence of the quantities carried out.
- .4 With each payment claim, the Contractor is to give to Liverpool Plains Shire Council:
 - (a) the conformance records and other information required under the Contract; and
 - (b) a completed and true Supporting Statement and a completed and true Subcontractor’s Statement in the form of the attached Contract Schedule, executed on the date of the payment claim.
- .5 Within 10 Business Days after receipt of the Contractor’s payment claim, Liverpool Plains Shire Council is to provide to the Contractor a payment schedule identifying the payment claim to which it relates and stating the payment, if any, that Liverpool Plains Shire Council will be making. If the payment is to be less than the amount claimed by the Contractor, the payment schedule is to indicate why it is less.
- .6 Payment will be made by Liverpool Plains Shire Council within 15 Business Days after the Contractor submits an invoice for payment.
- .7 With reference to the relevant legislation identified in the Subcontractor’s Statement, Liverpool Plains Shire Council may reduce the progress payment

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

MMW Contract Schedule – Supporting Statement and Subcontractor’s Statement

due to the Contractor to account for its increased liability if a completed Subcontractor Statement is not provided.

- .8 Unless otherwise stated, all payments are to be made by electronic funds transfer to a bank, building society or credit union account nominated by the Contractor. To avoid delay, the Contractor is to provide details of its nominated account within 10 Business Days after the Date of Contract. Liverpool Plains Shire Council requires a minimum of 5 Business Days written notice of any changes to the nominated account to avoid payments being made into a previously nominated account.
- .9 Payment is not evidence of the value of work, or that the work is satisfactory, or an admission of liability, but is payment on account only.
- .10 If the Contract Information states that an amount is to be retained for the duration of a Post Completion Period, then this amount is to be deducted from payments due at Completion and held by Liverpool Plains Shire Council until the expiration of the Post Completion Period.
- .11 Within 30 Business Days after Completion (where there is no Post Completion Period), or at the end of any Post Completion Period, Liverpool Plains Shire Council is to issue a final payment summary accounting for the amount due less any amounts payable by the Contractor to Liverpool Plains Shire Council and, where there is a Post Completion Period, the release of the retention amount.
- .12 If a final payment is due to the Contractor, the Contractor must submit a payment claim complying with clauses 13.1 and 13.4 for the amount stated in the final payment summary and, if requested by Liverpool Plains Shire Council, a valid tax invoice for that amount.
- .13 If no payment claim is served within 20 Business Days after the date of issue of the final payment summary, Liverpool Plains Shire Council is to pay the Contractor the amount due in accordance with the final payment schedule, subject to clause 13.7.

14. Disputes

1. If a Party is dissatisfied with an act or omission of the other Party in connection with the Contract then, within 20 Business Days after the act or omission, the dissatisfied Party is to notify the other Party in writing of a dispute. The notification is to include the legal and factual basis of the dispute.
2. The Parties are to confer to try to resolve the dispute. If the dispute is not resolved within 20 Business Days, then the Parties are to attempt to agree upon an independent expert to resolve the dispute and the terms for the expert’s engagement. If the Parties cannot agree on an expert within a further 15 Business Days, then either may request the Chief Executive Officer, Australian Disputes Centre (<https://www.disputescentre.com.au/>) to nominate an expert.
3. The Parties are to share equally the expert’s fees and out-of-pocket expenses, including any security required for the expert’s fees. Each party is to otherwise bear its own costs and share equally any other costs of the process.
4. Within 15 Business Days after the appointment of the expert, the notifying Party is to make its submission on the dispute to the expert.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

**MMW Contract Schedule – Supporting Statement and
Subcontractor’s Statement**

5. Within 15 Business Days after receiving a copy of that submission, the other Party is to make its submission in response, if any.
6. The expert may request further information from either Party. The Party must respond within 15 Business Days after receiving the request.
7. The Parties are to treat each determination of the expert as final and binding and give effect to it.

15. Suspension

1. Liverpool Plains Shire Council may instruct the Contractor to suspend carrying out all or part of the Works and the conditions on which work is to recommence.

**16. Termination by
Liverpool Plains
Shire Council**

1. Without prejudice to any other rights which Liverpool Plains Shire Council has, if the Contractor commits a substantial breach of the Contract, including:
 - (a) failing to carry out an instruction of Liverpool Plains Shire Council within the time specified.
 - (b) not progressing the Works at a reasonable rate.
 - (c) failing to effect or maintain any insurance required by the Contract.

or if a receiver, manager or receiver and manager is appointed or the Contractor commits an act of insolvency, Liverpool Plains Shire Council may, in writing, specify the breach and ask the Contractor to give reasons why Liverpool Plains Shire Council should not take further action.

2. If the Contractor either fails to give a written response within 5 Business Days after receiving Liverpool Plains Shire Council’s notice, or fails to give reasons satisfactory to Liverpool Plains Shire Council, then:
 - (a) Liverpool Plains Shire Council may immediately terminate the Contract by notice in writing to the Contractor, in which case the respective rights and liabilities of the Parties shall be the same as they would be at common law if the Contractor had wrongfully repudiated the Contract; or
 - (b) Liverpool Plains Shire Council may immediately take over the incomplete Works by notice in writing, suspend payments due or which would become due under Clause 13, and have others complete the Works.

Liverpool Plains Shire Council is to calculate the difference between the costs of having the Works completed by others and the number of suspended payments held. If the calculation shows a shortfall to Liverpool Plains Shire Council, the Contractor is to pay the amount of the shortfall to Liverpool Plains Shire Council within 10 Business Days of a written demand for payment. If the calculation shows an excess to Liverpool Plains Shire Council, Liverpool Plains Shire Council is to pay the amount of the excess to the Contractor.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

MMW Contract Schedule – Supporting Statement and Subcontractor’s Statement

17. Termination for Liverpool Plains Shire Council’s Convenience

1. Liverpool Plains Shire Council may terminate the Contract for its convenience and without giving reasons by giving written notice to the Contractor, with effect from the date stated in the notice. The Contractor is to leave the Site by the date stated and comply with any other instructions in the notice.
2. If the Contract is terminated for Liverpool Plains Shire Council’s convenience, then, as full compensation for termination under this clause, the Contractor’s total entitlement in respect of the Contract is the sum of the following and the Contractor has no claim for damages or other entitlement whether under the Contract or otherwise:
 - (a) the value of all work carried out up to the date stated in the notice; plus
 - (b) subject to at least 25% of the value of Work being completed, 2% of the difference between the Contract Price and the total of all amounts paid and payable to the Contractor under clause 17.2(a).

1. Authorised Person

Mentioned in Clause - Definitions

The Authorised Person is:

Kathleen McGreal

Title:

Project Manager

Office address:
(for delivery by hand)

60 Station Street
Quirindi
NSW 2343

Postal address:
(for delivery by post)

PO Box 152
Quirindi
NSW 2343

Telephone number:

0408 929 447

email address:

Kathleen.mcgreal@liverpoolplains.nsw.gov.au

If no name is stated, then Liverpool Plains Shire Council is to name the person in writing within 5 Business Days after award of contract. Liverpool Plains Shire Council may for any reason and at any time change the Authorised Person by giving notice in writing.

2. Principal

Mentioned in Clause - Definitions

The principal is:

Liverpool Plains Shire Council

All correspondence to Liverpool Plains Shire Council and the serving of payment claims are to go to the address of the Authorised Person.

3. Insurance of the Works and Public Liability Insurance

Mentioned in Clause - Insurance

Insurance of the Works and public liability insurance are to be arranged by:

the Contractor.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

MMW Contract Schedule – Supporting Statement and Subcontractor’s Statement

The Terms and Conditions of the insurance policy shall be appropriate to the nature of the project.

4. Time for Completion

Mentioned in Clause – Time for Completion

The Time for Completion is:

20 weeks from the date of award of contract.

If no time is stated, then a reasonable time is to apply.

5. Post Completion Period and Retention Amount

Mentioned in Clauses - Post Completion Period and Payment

The Post Completion Period, which commences at Completion of the Works, is:

52 weeks

If no time is stated, then no Post Completion Period applies.

W1 Site name and address

.1 Longfield Oval

.2 Henry Street Quirindi NSW 2343 Oval Number 1 and 2

.3 Subject to the requirements of the Contract and any restrictions on working hours imposed by law, the Site will be available to the Contractor to carry out the Works between the hours of 7am and 5pm, Mondays to Fridays inclusive, on the Business Days defined in the General Conditions of Contract. Work outside these times may only be undertaken if approved in writing by Liverpool Plains Shire Council and will be subject to any conditions Liverpool Plains Shire Council may require.

W2 Site Requirements

.4 Before starting construction work:

.1 establish the precise locations of all underground and other services at and around the Site. Utilize *Dial Before You Dig*, service owner information, service locators, pot-holing and other non-destructive techniques; and

.2 comply with the NSW Government *Code of Practice Construction Work*. Isolate services where necessary to prevent unplanned contact with live services.

W3 Existing Services

.5 Safely mark the locations of all services prominently on the Site, document them on a site plan and provide a copy of the site plan to Liverpool Plains Shire Council and to each subcontractor before the subcontractor starts construction work.

.6 Before undertaking any concrete cutting or other work penetrating the building fabric (floor, walls, or ceiling):

.1 ensure the services are isolated in the relevant work area.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

**MMW Contract Schedule – Supporting Statement and
Subcontractor’s Statement**

**W4 Asbestos
Removal**

- .2 for school buildings, obtain prior approval from Liverpool Plains Shire Council, schedule such work outside normal school hours and isolate electrical and gas services for the whole building; and
- .3 before restoring services, check all penetrations for live or damaged wiring or gas pipes.
- .7 Where asbestos removal work is carried out, comply with the relevant statutory requirements, standards, codes, and guidelines.
- .8 Not less than 5 Business Days before starting any asbestos removal work, notify Liverpool Plains Shire Council and, if required under WHS legislation, the SafeWork NSW, of the intention to carry out that work.
- .9 Where the regulations require a licence for asbestos removal work, before the work starts, submit to Liverpool Plains Shire Council a copy of the current licence held by the entity that will undertake the work and a copy of any SafeWork NSW permit required for the work.
- .10 Provide air monitoring by an independent testing authority on each day during asbestos removal and on completion of each area where removal has been undertaken.
- .11 Submit to Liverpool Plains Shire Council a clearance certificate from an independent testing authority at the completion of the asbestos removal work.
- .12 If any unexpected hazardous substance not identified in the Contract Documents is discovered on the Site, suspend all work which may result in exposure to such hazardous substance and notify Liverpool Plains Shire Council immediately of the type of substance and its location.
- .13 If above clause W5.12 applies, then as soon as possible, submit to Liverpool Plains Shire Council details including:

**W5 Unexpected
Discovery of
Hazardous
Substances**

- .1 the additional work and resources the Contractor estimates are necessary to deal with the substance so that work and subsequent use of the Works may proceed safely and without risk to health.
- .2 the Contractor’s estimate of the cost of the measures necessary to deal with the substance; and
- .3 other details reasonably required by Liverpool Plains Shire Council.
- .14 If instructed by Liverpool Plains Shire Council to carry out work to deal with the hazardous substance:
 - .1 carry out the work concurrently with other work wherever possible; and
 - .2 otherwise minimise effects of the work on the time required to reach Completion.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

MMW Contract Schedule – Supporting Statement and Subcontractor’s Statement

W6 Works description

CONTRACT SCHEDULES

Oval No. 1:

- a) Design and construct lighting to achieve Class V performance as per Cricket Australia Guidelines.

Oval No. 2:

- a) Design and construct lighting to achieve Class VI performance as per Cricket Australia Guidelines.

The circuit breakers servicing Oval No. 2 contained in the switchboard will require upgrading to handle the increase in luminaires for the oval. It is assumed due to the net increase in KVA upgrades to the main switchboard, such as increasing the main isolator or cables supplying the MSB will not be required. However, this assumption, circuit breaker sizes and cable sizes would be determined in the electrical detailed design.

The proposed layout for the site is within the obtrusive lighting limitation requirements of AS/NZS 4282 based on Environmental Zone A3. The threshold increment (A measure of disability glare of the driver's line of sight expressed as the percentage increase in contrast required between an object and its background for the object to be seen equally well with a source of glare present) along the adjacent road is within the limits of the Australian Standard.

The upgrade will also require new electrical reticulation to supply the poles and the cables between the main isolator and Oval No. 2 breakers may need upgrading. Exact breaker and cable sizes would be determined in the electrical detailed design.

Reuse of existing poles if fit for new lighting design.

W7 Contract Schedules

1. The following Schedules apply to the Contract:
2. WHS Management Plan and Safe Work Method Statements.
3. Supporting Statement and Subcontractor’s Statement; and Environmental Management Plan

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

MMW Contract Schedule – Supporting Statement and Subcontractor’s Statement

A WHS Management Plan (WHSMP) sets out the arrangements to manage work health and safety on a construction project. In accordance with General Conditions of Contract Clause 5 *Work Health and Safety Management*, the Contractor is to document and implement a WHSMP that addresses all health and safety hazards and manages the risks associated with carrying out the Works.

The Contractor's WHS Management Plan must:

- be signed and dated by a senior manager under the Contractor’s letterhead authorising the Plan for use.
- identify the Contract, work activities, work sites and person who prepared the Plan.
- be implemented, maintained, and kept up to date during the work on the Site

and must include:

- Statement of responsibilities** – names, positions and contact details of people who will be responsible for WHS management on the Site, including the work activities and a description of those responsibilities.
- Risk management** – identification of the hazards associated with each work activity and assessment of the associated risks, with documented actions proposed to eliminate or minimise the risks and methods for managing and monitoring these risk controls (include any WHS risks identified by Liverpool Plains Shire Council).
- WHS training and communication**– arrangements for WHS training, including industry and site induction training and toolbox meetings as well as the consultation, cooperation, and coordination of activities.
- Incident and emergency management** – arrangements for managing accidents, incidents and near misses, with the name(s) of responsible persons and their contact details, including after-hours contact(s).
- Site Safety Rules** – a copy of the rules must be displayed on the Site, covering as a minimum:
 - industry/site induction, toolbox meetings and other safety training.
 - safety helmets, safety footwear and safety vests
 - personal protective equipment, injury management and first aid arrangements.
 - site access, vehicle movements and security.
 - accident/incident and emergency procedures.
 - protection of all workers and the public.
 - working at heights and in deep excavations.
 - electrical work and equipment, including leads, power tools and overhead wiring.
 - locating and preventing unplanned contact with underground, hidden and overhead services.
 - demolition, excavation, mobile plant, formwork, and other temporary structural frames.
 - recording, handling, storage and disposal of hazardous materials and dangerous goods; and
 - safe working, including SWMS, fire prevention, alcohol and drug prohibition and general housekeeping/ access to suitable amenities.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

MMW Contract Schedule – Supporting Statement and Subcontractor’s Statement

- ❑ **Safe Work Method Statements** for high-risk construction work, which must:
 - ❑ be on the letterhead of the organisation carrying out the work, showing the name and registered office address of the organisation; and
 - ❑ be signed and dated as authorised for use by a senior manager of the organisation, and describe:
 - ❑ the address where the high-risk construction work will be carried out.
 - ❑ the high-risk construction work activities to be undertaken.
 - ❑ potential health and safety hazards and risks associated with the high-risk construction work.
 - ❑ risk management controls that will be in place to eliminate the risk or, if not reasonably practicable to eliminate the risk, minimise the hazards and significant risks.
 - ❑ all work health and safety instructions to be given to persons involved with the work.
 - ❑ names and qualifications of those who will supervise the work and inspect and approve for use work areas, work methods, protective measures, plant, and equipment (including power tools).
 - ❑ what training is required and will be or has been given to each of the people involved in the work.
 - ❑ names of all those involved in the work, and those who will be or have been trained in the work activities described in the SWMS, and the names and qualifications of those responsible for training them.
 - ❑ plant and equipment that will most likely be used on the work site (e.g., ladders, scaffolds, grinders, electrical leads, welding machines, fire extinguishers and the like).
 - ❑ any SafeWork NSW permits required to complete the work.
 - ❑ inspection and maintenance checks that will be or have been carried out prior to use of the plant and equipment listed; and
 - ❑ A review date to allow feedback and improvements to be made.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

MMW Contract Schedule – Supporting Statement and Subcontractor’s Statement

Refer to clause 13.4 of the Mini Minor Works General Conditions of Contract.

The Contractor is required to complete these two statements and submit both statements with each payment claim. Do not alter the forms.

Relevant legislation includes Workers Compensation Act 1987 (NSW), s175B; Payroll Tax Act 2007 (NSW), Schedule 2 Part 5; Industrial Relations Act 1996 (NSW), s127 and Building and Construction Industry Security of Payment Act 1999 (NSW), ss13(7) and 13(9).

Supporting Statement

The Contractor is the “head contractor” in terms of the Building and Construction Industry Security of Payment Act 1999 (NSW) and makes relevant statements below accordingly. The Contractor, as the “head contractor”, carries out the construction work for the Principal under the Contract.

The Supporting Statement must be signed by the Contractor, a director of the Contractor or a person authorised by the Contractor.

Subcontractor’s Statement

The Contractor is a “subcontractor” in terms of the Workers Compensation Act 1987 (NSW), Payroll Tax Act 2007 (NSW) and Industrial Relations Act 1996 (NSW) and makes relevant statements below accordingly. The Contractor as the “subcontractor” carries out the construction work for the Principal under the Contract. The principal is called the “principal contractor” in these Acts.

For clarity the Subcontractor’s Statement refers to the ‘Contractor’ and ‘Principal’ under the Contract rather than the “subcontractor” and “principal contractor” under the above Acts.

The Subcontractor’s Statement must be signed by the Contractor (or by a person who is authorised, or held out as being authorised, by the Contractor to sign the statement).

Information, including Notes, Statement Retention and Offences under various Acts, is included in the notes at the end of the Subcontractor’s Statement.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

**MMW Contract Schedule – Supporting Statement and
Subcontractor’s Statement**

Supporting Statement

Construction Contracts

Pursuant to section 13(7) of the *Building and Construction Industry Security of Payment Act 1999 (NSW)* (the Act) a supporting statement must accompany any payment claim served on a principal to a construction contract by a head contractor.

This form should be used by a head contractor who has a construction contract that is not an owneroccupier construction contract. If the contract is an owner occupier construction contract the ‘Supporting Statement – Owner Occupier Construction Contracts’ form should be used instead.

For the purposes of this statement, the terms “principal”, “head contractor”, “subcontractor”, “construction contract” and “owner occupier construction contract” have the meanings given in section 4 of the Act.

Head contractor (Business name of head contractor):			
<input type="checkbox"/> 1. has entered into a contract with: (business name of subcontractor)			
ABN of subcontractor			
Contract number/identifier	RFT 071/2023		
or			
<input type="checkbox"/> 2. has entered into a contract with the subcontractors listed in Schedule 1			
This statement applies to work between (start date)		and (End date)	
or			
This statement applies to work completed in Stage (number) of the construction contract			
Subject of the payment claim dated (date)			

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

**MMW Contract Schedule – Supporting Statement and
Subcontractor’s Statement**

Declaration for Supporting Statement

I, (full name)

being the head contractor, a director of the head contractor or a person authorised by the head contractor on whose behalf this declaration is made, hereby declare that to the best of my knowledge and belief all subcontractors, if any, have been paid all amounts that have become due and payable in relation to the construction work that is the subject of this payment claim.

These subcontractors and the amounts paid to them are identified in Schedule 1 on page 3 of this Supporting Statement.

It is an offence under section 13(7) of the Act for a head contractor to serve a payment claim on the principal, if it is not accompanied by a supporting statement that indicates that it relates to that payment claim. The maximum penalty is \$110,000 for corporations, and \$22,000 for an individual.

It is also an offence under the Act for a head contractor to serve a payment claim accompanied by a supporting statement knowing that the statement is false or misleading in a material particular in particular circumstances. The maximum penalty is \$110,000 for corporations, and \$22,000- or 3-months imprisonment (or both) for individuals.

Full Name of Individual	
Position/Title	
Signature	
Date	

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

**MMW Contract Schedule – Supporting Statement and
Subcontractor’s Statement**

Subcontractor’s Statement

Main Contract

Contractor: _____ ABN: _____ **(Note 2)**
(Business name of the Contractor)

of _____
(Address of the Contractor)

has entered into a contract with _____ ABN: _____
(Business name of the principal)

Contract number/identifier: RFT 071/2023 **(Note 3)**

Subcontracts

The Contractor has entered a contract with the subcontractors listed in the attachment to this Statement.

Period **(Note 4)**

This Statement applies for work _____ and _____ inclusive,
between: _____
subject of the payment claim _____
dated: _____ **(Note 5)**

I, a director or a person authorised by the Contractor on whose behalf this declaration is made, hereby declare that I am in a position to know the truth of the matters that are contained in this statement and declare that, to the best of my knowledge and belief:

(a) The abovementioned Contractor has either employed or engaged workers or subcontractors during the above period of this Contract. **(Note 6)**

Tick if true and comply with **(b)** to **(g)** below, as applicable.

If it is not the case that workers or subcontractors are involved, or you are an exempt employer for workers compensation purposes tick and only complete **(e)** to **(g)** below. You must mark one box.

(b) All workers compensation insurance premiums payable by the Contractor in respect of the work done under the Contract have been paid. **(Note 7)**

The Certificate of Currency for that insurance is attached and is dated.....

(c) All remuneration payable to relevant employees for work under the contract for the above period has been paid. **(Note 8)**

(d) Where the Contractor is required to be registered as an employer under the *Payroll Tax Act 2007*, the Contractor has paid all payroll tax due in respect of employees who performed work under the Contract, as required at the date of this statement. **(Note 9)**

(e) Where the Contractor is also a principal contractor to subcontracts in connection with the work, the Contractor has in its capacity of principal contractor been given a written Subcontractor’s Statement by its subcontractor(s) in connection with that work for the period stated above. **(Note 10)**

(f) Signature Full name

1. This form is prepared for the purpose of section 175B of the *Workers Compensation Act 1987*, Schedule 2 Part 5 of the *Payroll Tax Act 2007*, section 127 of the *Industrial Relations Act 1996* and sections 13(7) and 13(9) of the *Building and Construction Industry Security of Payment Act 1999*. If this form is completed in accordance with these provisions, a principal contractor is relieved of liability for workers compensation premiums, payroll tax and remuneration payable by the subcontractor.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

MMW Contract Schedule – Supporting Statement and Subcontractor’s Statement

A principal contractor can be generally defined to include any person who has entered into a contract for the carrying out of work by another person (or other legal entity called *the subcontractor*) and where employees of the subcontractor are engaged in carrying out the work which is in connection with the principal contractor’s business.

2. For the purpose of this Subcontractor’s Statement, a principal contractor is a person (or other legal entity), who has entered into a contract with another person (or other legal entity) referred to as the subcontractor, and employees/workers of that subcontractor will perform the work under contract. The work must be connected to the business undertaking of the principal contractor.
3. Provide the unique contract number, title, or other information that identifies the Contract.
4. In order to meet the requirements of s127 of the *Industrial Relations Act 1996*, a statement in relation to remuneration must state the period to which the statement relates. For sequential Statements ensure that the dates provide continuous coverage.

Section 127(6) of the *Industrial Relations Act 1996* defines remuneration ‘as remuneration or other amounts payable to relevant employees by legislation, or under an industrial instrument, in connection with work done by the employees.’

Section 127(11) of the *Industrial Relations Act 1996* states ‘to avoid doubt, this section extends to a principal contractor who is the owner or occupier of a building for the carrying out of work in connection with the building so long as the building is owned or occupied by the principal contractor in connection with a business undertaking of the principal contractor.’

5. Provide the date of the most recent payment claim.
6. For Workers Compensation purposes an exempt employer is an employer who pays less than \$7500 annually, who does not employ an apprentice or trainee and is not a member of a group.
7. In completing the Subcontractor’s Statement, a subcontractor declares that workers compensation insurance premiums payable up to and including the date(s) on the Statement have been paid, and all premiums owing during the term of the contract will be paid.
8. In completing the Subcontractor’s Statement, a subcontractor declares that all remuneration payable to relevant employees for work under the contract has been paid.
9. In completing the Subcontractor’s Statement, a subcontractor declares that all payroll tax payable relating to the work undertaken has been paid.
10. It is important to note that a business could be both a subcontractor and a principal contractor if a business ‘in turn’ engages subcontractors to carry out the work. If your business engages a subcontractor, you are to also obtain Subcontractor’s Statements from your subcontractors.

The principal contractor receiving a Subcontractor’s Statement must keep a copy of the Statement for the periods stated in the respective legislation. This is currently up to seven years.

In terms of s127(8) of the *Industrial Relations Act 1996*, a person who gives the principal contractor a written statement knowing it to be false is guilty of an offence if:

- (a) the person is the subcontractor.
- (b) the person is authorised by the subcontractor to give the statement on behalf of the subcontractor; or
- (c) the person holds out or represents that the person is authorised by the subcontractor to give the statement on behalf of the subcontractor.

In terms of s175B of the *Workers Compensation Act 1987* and clause 18 of Schedule 2 of the *Payroll Tax Act 2007* a person who gives the principal contractor a written statement knowing it to be false is guilty of an offence.

For more information visit SafeWork website <https://www.safework.nsw.gov.au/>, iCare (for Workers Compensation queries) via the [iCare website](http://www.icare.nsw.gov.au/) or NSW Industrial Relations website, <http://www.industrialrelations.nsw.gov.au> Copies of relevant legislation can be found at www.legislation.nsw.gov.au.

Signed for the Tenderer by:Date:.....

Name (in block letters):(Authorised Officer)

In the Office Bearer capacity of:

MMW Contract Schedule - Environmental Management Plan

Refer to General Conditions of Contract Clause – *Environmental Management*. Complete the Plan by inserting contract specific requirements, or ‘NA’ where a particular item is not applicable.

ENVIRONMENTAL OBJECTIVES	Longfield Oval Lighting Upgrade RFT 071/2023 ACTION TO BE TAKEN	When action will be taken	Person responsible	Action completed
1. CONSERVATION OF PLANTS & WILDLIFE				
1.2 Control movement of pedestrians, materials, vehicles, and plant to minimise damage to the environment	Use only designated routes for access to the Site			
	Use designated site roads and access routes for all movements on and adjacent to the Site			
	Locate compounds, and park all vehicles and plant, in designated areas on the Site			
2. CONSERVATION OF RESOURCES				
2.1 Design for energy efficiency	Adopt energy efficiency, environmental enhancement, and waste minimisation as design criteria			
2.2 Select materials to minimise: <ul style="list-style-type: none"> • resource use and waste • ozone depleting effects • detrimental effects on air, water, and land quality 	Use low energy usage construction, fittings, and appliances (including heating/cooling and lighting)			
	Incorporate conservation of resources obligations into subcontracts			
	Maximise use of materials that are recyclable or from a sustainable source			
	Use timber from sustainable managed sources only			
	Implement a strategy to reduce the quantity of waste, including minimising and recycling packaging			
	Use low water demand fittings & appliances (dual flush toilets, water conserving shower roses & taps)			
Minimise the use of solvents, glues, paints, and other materials which release odours or vapour				

Signed for the Tenderer by: Date:.....
Name (in block letters): (Authorised Officer)
In the Office Bearer capacity of:,,,,,,

MMW Contract Schedule - Environmental Management Plan

ENVIRONMENTAL OBJECTIVES	Longfield Oval Lighting Upgrade RFT 071/2023 ACTION TO BE TAKEN	When action will be taken	Person responsible	Action completed
2. CONSERVATION OF RESOURCES (continued)				
2.3 Conserve heritage items and other physical attributes of the Site	Comply with statutory requirements for conservation of heritage items			
	Manage the conservation of physical attributes of the Site, including (<i>List applicable attributes</i>) •			
3. POLLUTION CONTROL				
3.1 Control discharges and emissions from vehicles and plant to minimise damage to the environment	Do not use vehicles, plant or equipment that produce excessive emissions			
	Monitor emissions from vehicles and plant			
	Do not bring vehicles or plant and equipment with hydraulic fluid, fuel, or oil leaks to the Site			
	Wash down vehicles, plant, and equipment only in controlled areas acceptable to Liverpool Plains Shire Council			
	Prevent and clean up any spills from transport vehicles			
3.2 Prevent pollution of stormwater and adverse effects on land and vegetation by control of cleaning activities and discharges	Use only water based, non-toxic paints and use only water to clean paint brushes and rollers			
	Control all run-off from cleaning activities			
	Discharge only non-toxic cleaning products generally			
3.3 Control soil erosion	Identify the existing drainage paths on the Site and protect them against siltation			
	Protect vulnerable and exposed surfaces and stockpiles against scouring			
3.4 Prevent release of soil contamination to the environment	Establish, before starting work on the Site, in consultation with Liverpool Plains Shire Council, if contaminated soil is present at the Site			
	If contaminated soil is present, manage the work to prevent release to the environment			

Signed for the Tenderer by: Date:.....
Name (in block letters): (Authorised Officer)
In the Office Bearer capacity of:,,,,,,

MMW Contract Schedule - Environmental Management Plan

ENVIRONMENTAL OBJECTIVES	Longfield Oval Lighting Upgrade RFT 071/2023 ACTION TO BE TAKEN	When action will be taken	Person responsible	Action completed
3. POLLUTION CONTROL (continued)				
3.5 Manage refrigerants and other dangerous goods to meet statutory requirements	Ensure the procedures used for the charging and disposal of refrigerants and use of dangerous goods meet statutory obligations			
	Use appropriately trained employees			
	Obtain the licences required			
	Document dangerous goods identification, disposal, and management, and retain the documentation			
3.6 Minimise noise and vibration impact on neighbours, occupants, and users of any facility	Comply with noise limits and conditions prescribed by the EPA, Office of Environment and Heritage and Council (as applicable)			
	Use equipment in good repair and condition			
	Use noise suppression equipment (e.g., silencers on compressors) and acoustic barriers as required			
	Do not expose workers, neighbours, or visitors to excessive noise, and cooperate and coordinate with operators of any neighbouring facility			
	Do not expose people or property to excessive vibrations			
3.8 Minimise air pollution from dust and emissions	Minimise areas of exposed earth and stockpiles			
	Cover and secure materials in open transport			
	Use water sprays and/or other means to control dust			
	Keep emissions within statutory or other required limits			
	Minimise fire risks, and prevent and control fires			

Signed for the Tenderer by: Date:.....
Name (in block letters): (Authorised Officer)
In the Office Bearer capacity of:,,,,,,

MMW Contract Schedule - Environmental Management Plan

ENVIRONMENTAL OBJECTIVES	Longfield Oval Lighting Upgrade RFT 071/2023 ACTION TO BE TAKEN	When action will be taken	Person responsible	Action completed
3. POLLUTION CONTROL (continued)				
3.9 Dispose of waste in accordance with statutory requirements	Implement appropriate disposal procedures for all waste items, including using lawful places for disposal, recording and reporting on the method and location of disposal and any non-conformances			
	EITHER Provide valid disposal certificates for each applicable item OR Provide company certification of appropriate disposal of the following (<i>List the items</i>): <ul style="list-style-type: none"> • Packaging materials • Replaced or redundant materials • Chemicals • Oils and greases from machinery, cooking and other processes • Paints and solvents, including those used to clean equipment, tools, and brushes • Cleaning materials and rags • Materials unsuitable for re-use, including hazardous materials such as asbestos 			
3.10 Minimise damage to the environment from emergencies	Document emergency procedures to manage all reasonably foreseeable harm, including spills and other environmental emergencies			
	Ensure emergency procedures are followed			
	Obtain the agreement of Liverpool Plains Shire Council to procedures for handling oil, chemicals, and other dangerous goods before placing them on the Site, including secure storage arrangements			
	Reinstate and clean damaged areas and features, including work areas			
	Reinstate damaged eco-systems and features to their previous condition			
	Identify key contacts: (<i>List names & roles</i>)			

Signed for the Tenderer by: Date:.....

Name (in block letters): (Authorised Officer)

In the Office Bearer capacity of:,,,,,,

MMW Contract Schedule - Environmental Management Plan

ENVIRONMENTAL OBJECTIVES	Longfield Oval Lighting Upgrade RFT 071/2023 ACTION TO BE TAKEN	When action will be taken	Person responsible	Action completed
3.11 Comply with environmental requirements and rectify breaches	Inspect the Site daily to ensure appropriate environmental controls are in place and operating effectively, and that all environmental management requirements are being met			
	Cooperate with environmental audits by others			
	Rectify any environmental breaches identified within the time specified in an audit or by Liverpool Plains Shire Council			
4. RECORDS AND REPORTING				
4.1 Provide sufficient documentation to demonstrate appropriate environmental management	Prepare, submit, and update the Environmental Management Plan			
	Maintain and submit records of environmental training			
	Report on implementation of the Environmental Management Plan			
	Submit to Liverpool Plains Shire Council copies of correspondence with regulators, including incident reports and notification of non-compliances or fines			
	Submit documentation evidencing that the causes of non-compliances have been corrected			
	Keep records for inspection securely filed using an effective document retrieval system			
	Monitor and record the volumes of waste and the methods and locations of disposal. Submit a progress report and a summary report before Completion in accordance with tables 1 to 5 of the NSW EPA 'Construction and demolition waste' toolkit available at https://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/construction-demolition			
4.2 Report environmental incidents	Immediately report all environmental incidents to Liverpool Plains Shire Council			
	Immediately report environmental incidents as otherwise required			

Signed for the Tenderer by: Date:.....
Name (in block letters): (Authorised Officer)
In the Office Bearer capacity of:,,,,,,

Appendix A

Site Plan

Signed for the Tenderer by: Date:.....
Name (in block letters): (Authorised Officer)
In the Office Bearer capacity of:,,,,,,

MMW Contract Schedule – Appendices



Appendix B

Reference Design for Longfield Oval Number 1 and 2 Oval, (Class VI)



Longfield Oval Lighting Upgrade



Feasibility Study for Grant Application

Liverpool Plains Shire Council

19 September 2022

→ The Power of Commitment



Project name		LPSC – Quirindi Sports Field Lighting Upgrade					
Document title		Longfield Oval Lighting Upgrade Feasibility Study for Grant Application					
Project number		12548011					
File name		12548011-REP-Grant Application for Longfield Oval Lighting Upgrade.docx					
Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S4	0	S Haynes-Cooke	J McPherson		J McPherson		19/09/2022

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Appendix C	Approximate project budget
Appendix D	Philips BVP528 technical data sheet
Appendix E	eSwitch Sports Lighting Control System User Manual

1. Introduction

Liverpool Plains Shire Council (Council) have requested a high-level feasibility study be undertaken for the purpose of supporting a grant application to upgrade the sports field lighting of Longfield Oval on Henry Street in Quirindi, NSW. The intention of the proposed upgrades is to further enable higher level competition and practice to be played on the fields at night. Longfield Oval is comprised of two ovals; the first is a designated cricket field named Oval No 1 and the second oval named Oval No 2 containing a cricket pitch and two football fields.

Currently each oval is illuminated by 4 poles with 5 metal halide (MH) luminaires installed on each pole (Oval 1) and 2 MH Luminaires per pole (Oval 2). This lighting layout does allow some practices to be conducted on the fields at night. However, the current field lighting is not sufficient for match and semi-competitive play as per AS2560.2:2021 Sports Lighting – Specific Applications.

As part of the works, Council is proposing to upgrade the lighting of Oval No 1 to be as close to compliant with Class VI cricket field lighting as per AS2560.2:2021 – 2.4.1 Outdoor Cricket (given the limitation of utilising the existing poles). Upgrading Oval No 1 to this level has the added benefit of achieving the lighting necessary for semi-professional competition level football. Oval No 2 is proposed to be upgraded to be compliant with football for amateur level competition and semi-professional practice as per AS2560.2:2021 – 2.6.1 Outdoor Football.

1.1 Purpose of this report

The following report outlines a high-level feasibility study for the purpose to support the submission of a grant application to upgrade the existing lighting Longfield Oval, Quirindi No 1 and No 2 ovals. This report will provide discussion and recommendations with a proposed layout and a high-level budget for the works.

This report is subsequent to and should be read in conjunction with GHD's previously submitted Longfield Oval Concept Lighting Assessment Report that can be found in Appendix A.

1.2 Scope and limitations

This report: has been prepared by GHD for Liverpool Plains Shire Council and may only be used and relied on by Liverpool Plains Shire Council for the purpose agreed between GHD and Liverpool Plains Shire Council as set out in Section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than Liverpool Plains Shire Council arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer Section 1.3 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared the preliminary cost estimates set out in section Appendix C of this report ("Cost Estimate") using information reasonably available to the GHD employee(s) who prepared this report; and based on assumptions and judgments made by GHD key assumptions are noted in the notes section of Appendix C.

The Cost Estimate has been prepared for the purpose of an approximate project budget and must not be used for any other purpose.

The Cost Estimate is a preliminary estimate only. Actual prices, costs and other variables may be different to those used to prepare the Cost Estimate and may change. Unless as otherwise specified in this report, no detailed quotation has been obtained for actions identified in this report. GHD does not represent, warrant or guarantee that the works can or will be undertaken at a cost which is the same or less than the Cost Estimate.

Where estimates of potential costs are provided with an indicated level of confidence, notwithstanding the conservatism of the level of confidence selected as the planning level, there remains a chance that the cost will be greater than the planning estimate, and any funding would not be adequate. The confidence level considered to be most appropriate for planning purposes will vary depending on the conservatism of the user and the nature of the project. The user should therefore select appropriate confidence levels to suit their particular risk profile.

GHD has prepared this report on the basis of information provided by Liverpool Plains Shire Council and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

1.3 Assumptions

This report is based on the following assumptions:

- The proposed site usage and sports performed as determined by Council are as listed in Section 3.3.
- Site information (such as existing pole heights) have been provided by Council via email correspondence.
- Assessment of the fixed lighting system to achieve appropriate lighting levels at each oval is based on the lighting system achieving the lighting design criteria nominated in Section 3.3.
- The modelling will provide sufficient information to assess possible lighting standards achieved however, will not be sufficiently detailed for final installation.
- No detailed design has been undertaken for the lighting modelling, lighting pole, lighting control or power infrastructure. This can be confirmed once the preferred outcome is known and approved by Council.
- The structural capacity for the poles to support the options nominated above did not form part of the works and a structural analysis will be required prior to any works being completed.
- The existing power supply is assumed to be sufficient for the new works. An application for connection or enquiry has not been submitted to Essential Energy as part of this report nor allowance to upgrade the power supply included in the budget estimate.

2. References

2.1 Applicable standards

Table 2.1 Australian and industry standards list

Standard	
AS 2560.2:2021	Sports lighting – Specific applications
AS/NZS 4282:2019	Control of the obtrusive effects of outdoor lighting

2.2 Reference documents and drawings

Table 2.2 Reference documents and drawings

Document name	Description
Longfield Oval Concept Lighting Assessment Report	GHD's previously submitted lighting concept report
Longfield Oval Detailed Survey Drawing	Aerial overlay plan of the site - Bath Stewart Associates

3. Design approach and methodology

3.1 General

For a sports lighting installation to be considered compliant and suitable for the application, there must be evidence of lighting design calculations that demonstrate the design achieves the required light technical performance parameters of the specified sport. Additionally, the lighting arrangement must be able to be safely installed and maintained within the site constraints.

Due to the nature of the site, there are limitations i.e., utilising existing poles or where new poles can be placed. These limitations may impact the lighting performance that can be practically achieved.

3.2 Luminaire selection

All luminaire types i.e., LEDs, HPS and metal halide lose brightness over time due to the gradual reduction in lamp efficiency and the accumulation of dirt and dust on fittings. A 'light loss factor' is incorporated into designs to compensate for this depreciation in lumen output that is dependent on the maintenance schedule and environmental factors.

Luminaires constructed with an Ingress Protection rating of 'IP6x' results in improved maintenance benefits and helps reduce costs through the ability to apply higher 'light loss factor' allowance.

It is important that factors such as cost and potential lamp availability are carefully weighed up against other claimed benefits of the lamps. It is best that a consistent make and model of lamp is chosen for ease of maintenance and re-aiming when required. Refer to Section 3.6 for the final luminaire selection used in this assessment.

Table 3.1 Comparison table of the main lighting technologies used for exterior lighting applications

Parameter	Characteristics			
Lamp Type	Luminous Efficacy (lm/W)	Lamp Life Hours	Colour Temperature (K)	Re-strike Time
Metal Halide	50 - 100	6,000 -20,000	2700 - 4000	5-15 minutes
LED	90 - 150	30,000 - 100,000	2700 - 4000	Prompt

3.3 Lighting design criteria

The required light technical parameters to provide suitable lighting for the desired sport and level of play on the fields are defined in AS 2560.2:2021. Due to the strict lighting requirements the desired level of play may impact the feasibility of providing a compliant lighting installation.

For competitions on ovals, the illuminance requirements are more important in the central square and the infield area where faster activity occurs. Refer to Table 3.2 below for the level of play guidance for cricket and Table 3.3 over for football.

Table 3.2 "LTPs for Outdoor Cricket"

LTPS for Outdoor Cricket		Average Horizontal Maintained Illuminance (lux) Eh					Minimum Horizontal Uniformity		Maximum Uniformity Gradient		Max Glare Rating	Minimum Colour Rendering
Class	Level of Competition	SQUARE	INFIELD	OUTFIELD	PRACTICE* (ON-FIELD)	PHYSICAL EXERCISE	U1	U2	G	UG	GR	Ra
V	PREMIER SENIOR – (F) COMMUNITY SENIOR – (M) NATIONAL YOUTH CHMP – (U17/M) PREMIER JUNIOR – (M&F) JUNIOR CRICKET STAGE 3 – (M)	300	250	200	150	50	S – 0.7 I – 0.6 O – 0.5	S – 0.6 I – 0.4 O – 0.3	10% 25% 40%	1.11 1.33 1.67	50	65
VI	COMMUNITY SENIOR (F) NATIONAL YOUTH CHMP (U/16 F) JUNIOR CRICKET STAGES 2 & 3 (F) JUNIOR CRICKET STAGES 1 & 2 (M)	200	200	200	100	50	0.6	0.4	40%	1.67	50	65
VII	JUNIOR CRICKET STAGE 1 (F) MASTER BLASTERS (M&F) JUNIOR BLASTERS (M&F) SCHOOL PROGRAMS (M&F)	100	100	100	75	50	0.5	0.3	40%	1.67	50	65

Table 3.3 "LTPs for Outdoor football"

LTPS for Outdoor Football	Average Horizontal Maintained Illuminance (lux)	Minimum Horizontal Uniformity		Maximum Uniformity Gradient		Max Glare Rating	Minimum Colour Rendering
Level of Competition		U1	U2	G	UG	GR	Ra
Semi-professional Level							
BALL AND PHYSICAL TRAINING	50	0.3	N/A	N/A	N/A	N/A	65
MATCH PRACTICE	100	0.5	0.3	50%	2	50	65
SEMI-PRO COMPETITION	200	0.6	0.4	40%	1.67	50	65

3.4 Obtrusive lighting

The proposed lighting installation is a potential source of obtrusive light for the surrounding properties and for the nearby roads and footpaths. The types of properties adjacent to the site boundaries will dictate the obtrusive lighting limits stipulated within the AS/NZS 4282 standard. As a part of the lighting design for the site, spill lighting has been assessed at the site boundary as neighbouring properties are within close proximity to the existing field.

Nominating typical “shoe box” luminaires which have minimal upward light component, having small angles of tilt and locating luminaires such that they face away from the boundary and nearby roads where possible will assist in reducing the amount of obtrusive light.

3.5 Glare

Glare from any type of luminaire is unavoidable and may cause a certain amount of discomfort and in extreme cases disability glare that is undesirable.

The degree to which a lighting installation causes glare depends on a number of items:

- The luminous intensity distribution.
- The aiming of the luminaires.
- Required number of luminaires per pole.
- The proposed lighting arrangement.
- Luminaire mounting heights.
- The brightness of the illuminated area.

The degree of glare should always be restricted to a level where vision is not seriously affected. There are several methods on how this can be achieved:

- The exclusion of luminaires from certain critical positions.
- The mounting of luminaires at or above a specified height. Refer to Section 3.3.
- Selection of the appropriate luminaire and photometric distribution.
- A specification of a maximum glare rating specified within AS/NZS 2560.2.

3.6 Selected luminaire

With the design considerations detailed within Section 3.3, GHD propose a design option for Council to achieve desired lighting level. The proposed luminaires consist of the following:

- Oval 1: 6 x luminaires per pole - Philips Optivision BVP528 OUT T30 50K A35-WB+LO LED Floodlight. With 4 poles 24 x luminaires in total.
- Oval 2: 5 x luminaires per pole - Philips Optivision BVP528 OUT T30 50K A35-WB+LO LED Floodlight. With 4 poles 20 x luminaires in total.

A similar technical specification sheet can be found in Appendix D.

3.7 Proposed lighting upgrade configuration

3.7.1 Oval 1: Proposed Class VI Cricket

Oval No 1 is intended to have new LED luminaires fitted on existing poles that are supplied by existing electrical reticulation.

The following lighting calculation summary in Table 3.4 was extracted from the previously submitted concept report that can be found in Appendix A. The calculation for Oval No 1 utilised existing light pole locations with 6 LED luminaires on each pole.

NOTE – Green highlight indicates a pass, and an orange highlight indicates a failure in a requirement for a technical parameter.

Table 3.4 "Calculation Summary of Oval 1 for Cricket Class VI LTPs"

AS 2560.2 - CLASS VI		AS 2560.2 LTPS	
		6 LUMINAIRES PER POLE	
SQUARE	Eh	200	222
	G	40%	1%
	U1	0.6	0.99
	U2	0.4	0.98
INFIELD	Eh	200	216
	G	40%	11%
	U1	0.6	0.86
	U2	0.4	0.67
OUTFIELD	Eh	200	189
	G	40%	26%
	U1	0.6	0.34
	U2	0.4	0.18
FIELD	Gr	<50	51.9

It can be seen that upgrading from 5 MH luminaires per pole to 6 LED luminaires per pole goes close to achieving the required light technical parameters. The need to tilt the luminaires creates higher levels of glare and due to pole placement and capacity the average illuminance and horizontal uniformity levels in the outfield do not reach the values required.

To achieve an improved conformance with the light technical parameters, two additional poles would need to be installed which did not form part of these works.

3.7.2 Oval 2: Proposed Match Practice Football

Oval 2 is intended to be primarily used for football codes to the level of Match Practice.

The following lighting calculation summary in Table 3.5 was extracted from the previously submitted concept report that can be found in Appendix A. The calculation for Oval No 2 utilised existing light pole locations with 2 and 3 LED luminaires on each pole.

NOTE – Green highlight indicates a pass, and an orange highlight indicates a failure in a requirement for a technical parameter.

Table 3.5 "Calculation Summary of Oval 2 Options for Football LTPs"

AS2560.2 - FOOTBALL		AS2560.2 LTPS	OPTION 1	OPTION 2
			3 LUMINAIRES PER POLE	2 LUMINAIRES PER POLE
BALL AND PHYSICAL TRAINING	Eh	50	89.7	59.8
	G	N/A	N/A	N/A
	U1	0.3	0.38	0.39
	U2	N/A	N/A	N/A
MATCH PRACTICE	Eh	100	89.7	59.8
	G	50%	23%	23%
	U1	0.6	0.38	0.39
	U2	0.4	0.13	0.14
SEMI-PRO COMPETITION	Eh	200	89.7	59.8
	G	40%	23%	23%
	U1	0.6	0.38	0.39
	U2	0.4	0.13	0.14
GLARE	Gr	<50	50.6	50.3

Based on the above assessment, the required light technical parameters cannot be achieved utilising the existing poles in the current locations or configurations. On this basis, it will be necessary to replace the existing lighting installation with a new installation consisting of the following:

- 4 poles (25 m in height).
- 5 luminaires per pole.

Detailed modelling has not been completed on the proposed arrangement, however based on similar installations of ovals of this size, the resultant levels of lighting will result in an average illuminance of approximately 125 lux which will achieve the required parameters. An indicative lighting arrangement has been included in Appendix B.

3.7.3 Site lighting control system

An electronic software-based lighting control system is proposed for the oval lighting upgrades, this has become the industry standard with council sport field lighting projects. A possible lighting control system is included in Appendix E, this is the user manual for the unit. Utilising a system with software functionality and mobile connection like this has the following features:

- Ability to program set times the lights are switched on and off such as local curfew times.
- Log usage data, including the ability to set a retail energy cost to help determine operating costs. This data can also be visualised on the system's application dashboard.
- Add new site and club managers that have differing authority levels of functionality such as the ability to switch the lights on and off their respected oval.

3.7.4 Site Power supply

The site power supply is not expected to need upgrading as the net increase in power consumption by the proposed lighting upgrades will only be approximately 10 kW once the older, less efficient MH luminaires have been removed. There have been no identified power failures at the site noted by Council.

The circuit breakers servicing Oval No 2 are expected to require upgrading due to the increased number of luminaires per pole. This upgrade will also require new electrical reticulation to supply the poles and the cables between the main isolator and Oval No 2 breakers may need upgrading. Exact breaker and cable sizes would be determined in the electrical detailed design.

4. Summary

In summary, to achieve Councils desired lighting levels for Longfield Oval (Ovals 1 and 2), the following has been proposed. The following proposed pole locations and general site layout has been included in Appendix B. An approximate project budget has been prepared and has been included in Appendix C.

- Oval No 1:
 - Utilise the four existing poles and install 6 new LED luminaires per pole. As described in Section 3.7.1, this will achieve close to cricket Class VI level of play with the outfield falling short of technical requirements and some exceedances in noticeable glare.
 - Achieving this level of lighting has the added benefit of meeting the lighting requirements for semi-professional competition level football.
 - As described in Section 3.7.1, it is assumed that this oval can utilise the existing electrical reticulation to supply the 4 light poles.
- Oval No 2:
 - Install four new 25 m poles with 5 new LED luminaires per pole to achieve approximately 125 lux average. This combination of infrastructure has been utilised in similar field lighting projects and has met desired lighting compliance.
 - Due to the limited electrical infrastructure currently at this oval and an increase in the luminaires the proposed works will require new electrical reticulation to supply the new light poles.
- The circuit breakers servicing Oval No 2 contained in the switchboard will require upgrading to handle the increase in luminaires for the oval. It is assumed due to the net increase in KVA as described in Section 3.7.4 upgrades to the main switchboard such as increasing the main isolator or cables supplying the MSB will not be required. However, this assumption, circuit breaker sizes and cable sizes would be determined in the electrical detailed design.
- For both ovals it is recommended that a sports lighting control system is installed at the main switchboard. This has become common practice with council sport field lighting systems and allows full switching control of the lights. In addition, there is the ability to schedule curfew hours or even switch off the lights by mobile phone. Appendix E presents an E-Switch sports lighting control system that could be used.
- All luminaires proposed have been designed with the appropriate tilt angles to reduce sky glow with a maximum allowed of 10 degrees.
- The proposed layout for the site is within the obtrusive lighting limitation requirements of the Australian Standards AS/NZS 4282 based on the Environmental Zone of A3. The threshold increment (A measure of disability glare of the driver's line of sight expressed as the percentage increase in contrast required between an object and its background for the object to be seen equally well with a source of glare present) along the adjacent road is within the limits of the Australian Standard.
- The approximated total cost of the works as described in Appendix C is \$663,600 this value is only approximate and has been developed from previous experience and industry advice with a 5% contingency included (as requested by Council). No detailed design was conducted to produce the findings in this report.

Appendices

Appendix A

**Longfield Oval Concept Lighting
Assessment Report**

Our ref: 12548011

22 June 2022

Barry Strichen
Liverpool Plains Shire Council
60 Station Street
Quirindi NSW 2343

LPSC - Longfield Oval Concept Lighting Assessment (No 1 and 2 Ovals)

Dear Barry

1. Introduction

1.1 Purpose of this report

GHD have undertaken a concept lighting design to assess the approximate levels of compliance for lighting upgrade for the Longfield Oval, Quirindi No 1 and No 2 ovals reusing the existing pole and electrical infrastructure.

This initial stage will include assessing the outcomes achievable based on reusing the existing poles (20 metre and 15 metre mounting heights) based on the following options:

- Oval 1 - 5 x 1.5kW LED per pole (4 off) and 6 x 1.5kW LED per pole (4 off).
- Oval 2 - 2 x 1.5kW LED per pole (4 off) and 3 x 1.5kW LED per pole (4 off).

This report is subject to, and must be read in conjunction with, the limitations set out in Section 1.2 and the assumptions and qualifications contained throughout the Report.

1.2 Scope and limitations

This report: has been prepared by GHD for LPSC and may only be used and relied on by LPSC for the purpose agreed between GHD and LPSC as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than LPSC arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 1.3 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

1.3 Assumptions

The desktop review of the proposed lighting scheme at the Longfield Oval is based on the following:

- Proposed site usage and sports performed are as listed in Section 3.3.
- Site information (pole heights) provided by LPSC via email correspondence.
- Assessment of the fixed lighting system to achieve appropriate lighting levels at each oval is based on the lighting system achieving the lighting design criteria nominated in Section 3.3.
- The modelling will provide sufficient information to assess possible lighting standards achieved however, will not be sufficiently detailed for final installation.
- No detailed design has been undertaken for the lighting pole, lighting control or power infrastructure. This can be confirmed once the preferred outcome is known and approved by Council.
- The structural capacity for the poles to support the options nominated above did not form part of the works and a structural analysis will be required prior to any works being completed.

2. Applicable Standards

The applicable standards provide recommended values of lighting technical parameters for sports:

These standards include:

- AS 2560.2:2021 Sports Lighting Specific Applications.
- AS/NZS 4282:2019.
- Cricket Lighting Guidance Note – September 2021.

3. Design Approach and Methodology

3.1 General

In assessing the compliance and feasibility of the sports lighting installations, the issues in this section have been considered. For a sports lighting installation to be considered compliant and suitable for the application, there must be evidence of lighting design calculations that demonstrate the design achieves the required light technical performance parameters. Additionally, the lighting arrangement must be able to be safely installed and maintained within the site constraints.

Due to the nature of the site, there are limitations i.e., utilising existing poles. These limitations will impact the lighting performance that can be practically achieved.

3.2 Luminaire Selection

All luminaire types i.e., LEDs, HPS and metal halide lose brightness over time due to the gradual reduction in lamp efficiency and the accumulation of dirt and dust on fittings. A 'light loss factor' is incorporated into designs to compensate for this depreciation in lumen output that is dependent on the maintenance schedule and environmental factors.

Luminaires constructed with an Ingress Protection rating of 'IP6x' results in improved maintenance benefits and helps reduce costs through the ability to apply higher 'light loss factor' allowance.

It is important that factors such as cost and potential lamp availability are carefully weighed up against other claimed benefits of the lamps. It is best that a consistent make and model of lamp is chosen for ease of maintenance and re-aiming when required. Refer to Section 3.6 for the final luminaire selection used in this assessment.

Table 1 Comparison table of the main lighting technologies used for exterior lighting applications

Parameter	Characteristics			
Lamp Type	Luminous Efficacy (lm/W)	Lamp Life Hours	Colour Temperature (K)	Re-strike Time
Metal Halide	50 - 100	6,000 -20,000	2700 - 4000	5-15 minutes
LED	90 - 150	30,000 - 100,000	2700 - 4000	Prompt

3.3 Lighting Design Criteria – Cricket and Football

The required light technical parameters to be achieved to provide suitable lighting for the level of play of the ovals and this may impact the feasibility of providing a lighting installation. Onerous lighting design criteria (i.e. technical parameters higher than what is required for the activities to be undertaken) may not be achievable within the site constraints.

For competitions on ovals, the illuminance requirements are more important in the central square and the infield area where faster activity occurs. Refer to Table 2 below for the level of play guidance for cricket and Table 3 over for football.

Table 2 "LTPs for Outdoor Cricket"

LTPs for Outdoor Cricket		Average Horizontal Maintained Illuminance (lux) Eh					Minimum Horizontal Uniformity		Maximum Uniformity Gradient		Max Glare Rating	Minimum Colour Rendering
Class	Level of Competition	SQUARE	INFIELD	OUTFIELD	PRACTICE* (ON-FIELD)	PHYSICAL EXERCISE	U1	U2	G	UG	GR	Ra
V	PREMIER SENIOR – (F) COMMUNITY SENIOR – (M) NATIONAL YOUTH CHMP – (U17/M) PREMIER JUNIOR (M&F) JUNIOR CRICKET STAGE 3 (M)	300	250	200	150	50	S – 0.7 I – 0.6 O – 0.5	S – 0.6 I – 0.4 O – 0.3	10% 25% 40%	1.11 1.33 1.67	50	65
VI	COMMUNITY SENIOR (F) NATIONAL YOUTH CHMP (U/16 F) JUNIOR CRICKET STAGES 2 & 3 (F) JUNIOR CRICKET STAGES 1 & 2 (M)	200	200	200	100	50	0.6	0.4	40%	1.67	50	65
VII	JUNIOR CRICKET STAGE 1 (F) MASTER BLASTERS (M&F) JUNIOR BLASTERS (M&F) SCHOOL PROGRAMS (M&F)	100	100	100	75	50	0.5	0.3	40%	1.67	50	65

Table 3 "LTPs for Outdoor football"

LTPs for Outdoor Cricket	Average Horizontal Maintained Illuminance (lux)	Minimum Horizontal Uniformity		Maximum Uniformity Gradient		Max Glare Rating	Minimum Colour Rendering
		U1	U2	G	UG		
Level of Competition							
Semi-professional Level							
BALL AND PHYSICAL TRAINING	50	0.3	N/A	N/A	N/A	N/A	65
MATCH PRACTICE	100	0.5	0.3	50%	2	50	65
SEMI-PRO COMPETITION	200	0.6	0.4	40%	1.67	50	65

3.4 Obtrusive Lighting

The proposed lighting installation is a potential source of obtrusive light for the surrounding properties and for the nearby roads and footpaths. The types of properties adjacent to the site boundaries will dictate the obtrusive lighting limits stipulated within the AS/NZS 4282 standard. As a part of the lighting design for the site, spill lighting has been assessed at the site boundary as neighbouring properties are within close proximity to the existing field.

Nominating typical "shoe box" luminaires which have minimal upward light component, having small angles of tilt and locating luminaires such that they face away from the boundary and nearby roads where possible will assist in reducing the amount of obtrusive light.

3.5 Glare

Glare from any type of luminaire is unavoidable and may cause a certain amount of discomfort and in extreme cases disability glare that is undesirable.

The degree to which a lighting installation causes glare depends on a number of items:

- The luminous intensity distribution
- The aiming of the luminaires.
- Required number of luminaires per pole.
- The proposed lighting arrangement.
- Luminaire mounting heights.
- The brightness of the illuminated area.

The degree of glare should always be restricted to a level where vision is not seriously affected. There are several methods on how this can be achieved:

- The exclusion of luminaires from certain critical positions.
- The mounting of luminaires at or above a specified height. Refer to Table 4.
- Selection of the appropriate luminaire and photometric distribution.
- A specification of a maximum glare rating specified within AS/NZS 2560.

Table 4 Minimum Mounting Heights to Limit Excessive Glare

Minimum Height (m)	Max Watts (HID)
4	150
5	250
8	400
10	750
12	1000
15	2000

3.6 Selected Luminaires

With the design considerations detailed within Section 2, GHD propose a design option for LPSC for consideration. The proposed luminaires consist of the following:

Option 1:

- Oval 1: 6 x luminaires per pole - Philips Optivision BVP528 OUT T30 50K A35-WB+LO LED Floodlight.
- Oval 2: 3 x luminaires per pole - Philips Optivision BVP528 OUT T30 50K A35-WB+LO LED Floodlight.

Option 2:

- Oval 1: 5 x luminaires per pole - Philips Optivision BVP528 OUT T30 50K A35-WB+LO LED Floodlight.
- Oval 2: 2 x luminaires per pole - Philips Optivision BVP528 OUT T30 50K A35-WB+LO LED Floodlight.

3.7 Lighting Calculation Summary

Table 5, Table 6, Table 7, Table 8 and Table 9 below and over provides a tabulated summary of compliance of the proposed LED sporting arrangements utilising existing locations against the lighting criteria stipulated within Section 3.3.

NOTE – Green highlight indicates a pass and an orange highlight indicates a failure in a requirement for a technical parameter.

Table 5 "Calculation Summary of Oval 1 Options for Cricket Class V LTPs"

AS 2560.2 - CLASS V		AS 2560.2 LTPS	OPTION 1 6 LUMINAIRES PER POLE	OPTION 2 5 LUMINAIRES PER POLE
SQUARE	Eh	300	222	186
	G	10%	1%	1%
	U1	0.7	0.99	0.99
	U2	0.6	0.98	0.98
INFIELD	Eh	250	216	180
	G	25%	11%	11%
	U1	0.6	0.86	0.84
	U2	0.4	0.67	0.68
OUTFIELD	Eh	200	189	157
	G	40%	26%	25%
	U1	0.5	0.34	0.34
	U2	0.3	0.18	0.19
FIELD	Gr	<50	51.9	51.6

Table 6 "Calculation Summary of Oval 1 Options for Cricket Class VI LTPs"

AS 2560.2 - CLASS VI		AS 2560.2 LTPS	OPTION 1	OPTION 2
			6 LUMINAIRES PER POLE	5 LUMINAIRES PER POLE
SQUARE	Eh	200	222	186
	G	40%	1%	1%
	U1	0.6	0.99	0.99
	U2	0.4	0.98	0.98
INFIELD	Eh	200	216	180
	G	40%	11%	11%
	U1	0.6	0.86	0.84
	U2	0.4	0.67	0.68
OUTFIELD	Eh	200	189	157
	G	40%	26%	25%
	U1	0.6	0.34	0.34
	U2	0.4	0.18	0.19
FIELD	Gr	<50	51.9	51.6

Table 7 "Calculation Summary of Oval 1 Options for Cricket Class VII LTPs"

AS 2560.2 - CLASS VII		AS 2560.2 LTPS	OPTION 1	OPTION 2
			6 LUMINAIRES PER POLE	5 LUMINAIRES PER POLE
SQUARE	Eh	100	222	186
	G	40%	1%	1%
	U1	0.5	0.99	0.99
	U2	0.3	0.98	0.98
INFIELD	Eh	100	216	180
	G	40%	11%	11%
	U1	0.5	0.86	0.84
	U2	0.3	0.67	0.68
OUTFIELD	Eh	100	189	157
	G	40%	26%	25%
	U1	0.5	0.34	0.34
	U2	0.3	0.18	0.19
FIELD	Gr	<50	51.9	51.6

Table 8 "Calculation Summary of Oval 1 Options for Football LTPs"

AS2560.2 - FOOTBALL		AS2560.2 LTPS	OPTION 1 6 LUMINAIRES PER POLE	OPTION 2 5 LUMINAIRES PER POLE
BALL AND PHYSICAL TRAINING	Eh	50	201	168
	G	N/A	N/A	N/A
	U1	0.3	0.67	0.67
	U2	N/A	N/A	N/A
MATCH PRACTICE	Eh	100	216	168
	G	50%	23%	23%
	U1	0.6	0.67	0.67
	U2	0.4	0.5	0.5
SEMI-PRO COMPETITION	Eh	200	216	168
	G	40%	23%	23%
	U1	0.6	0.67	0.67
	U2	0.4	0.5	0.5
GLARE	Gr	<50	50	50.3

Table 9 "Calculation Summary of Oval 2 Options for Football LTPs"

AS2560.2 - FOOTBALL		AS2560.2 LTPS	OPTION 1 3 LUMINAIRES PER POLE	OPTION 2 2 LUMINAIRES PER POLE
BALL AND PHYSICAL TRAINING	Eh	50	89.7	59.8
	G	N/A	N/A	N/A
	U1	0.3	0.38	0.39
	U2	N/A	N/A	N/A
MATCH PRACTICE	Eh	100	89.7	59.8
	G	50%	23%	23%
	U1	0.6	0.38	0.39
	U2	0.4	0.13	0.14
SEMI-PRO COMPETITION	Eh	200	89.7	59.8
	G	40%	23%	23%
	U1	0.6	0.38	0.39
	U2	0.4	0.13	0.14
GLARE	Gr	<50	50.6	50.3

4. Summary

4.1 Proposed Lighting Arrangement

Utilising the existing poles limits the lighting performance that can be practically achieved. Generally, to illuminate the two ovals to full compliance of the higher sporting technical parameters would require a flood lighting approach utilising additional and taller poles or masts with higher wattage luminaires and specific distributions based on the location. However, there some limitations have been identified as a result of utilising the existing poles.

In summary:

- In each option scenario, to achieve compliance with the Australian Standards we have utilised the existing four (4) pole locations to illuminate the respective ovals.
- For Oval 1:
 - Utilising a 6-luminaire per pole solution can achieve close to a Class VI level of play (refer Table 2 and Table 6) with the outfield falling short of the required technical parameters.
 - Utilising a 5-luminaire pole solution can achieve close to a Class VII level of play (refer Table 2 and Table 7) with the outfield falling short of the required technical parameters.
- For Oval 2:
 - Utilising a 3-luminaire pole solution can achieve a Semi-profession level of play Ball and Physical Training (refer to Table 3 and Table 9) with the glare at the upper limit required.
 - Utilising a 2-luminaire pole solution can achieve a Semi-profession level of play Ball and Physical Training (refer to Table 3 and Table 9) with reduced average illuminance with the glare at the upper limit required.
- As a result of the placement and limited height of the poles, the luminaires are required to be tilted higher than normal creating greater level of calculated glare which would be noticeable for players and for spectators and may result in complaints.
- All luminaires proposed have designed with the appropriate tilt angles to reduce sky glow with a maximum allowed of 10 degrees.
- The options presented for the site are within the obtrusive lighting limitation requirements of the Australian Standards AS/NZS 4282 based on the Environmental Zone of A3. The threshold increment (A measure of disability glare of the driver's line of sight expressed as the percentage increase in contrast required between an object and its background for the object to be seen equally well with a source of glare present) along the adjacent road is within the limits of the Australian Standard.

Regards

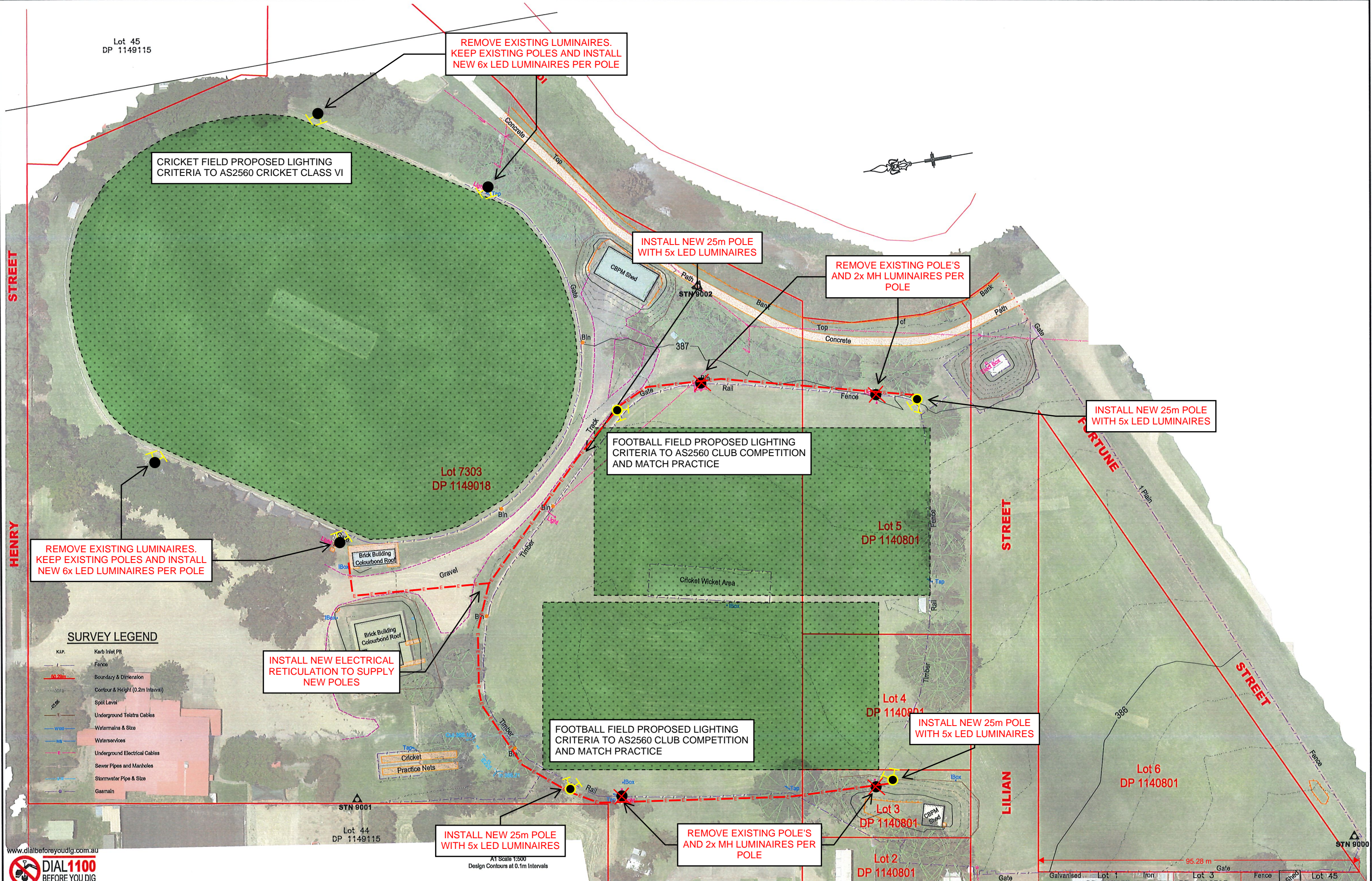


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Appendix B

Proposed site layout



CRICKET FIELD PROPOSED LIGHTING CRITERIA TO AS2560 CRICKET CLASS VI

REMOVE EXISTING LUMINAIRES. KEEP EXISTING POLES AND INSTALL NEW 6x LED LUMINAIRES PER POLE

INSTALL NEW 25m POLE WITH 5x LED LUMINAIRES

REMOVE EXISTING POLE'S AND 2x MH LUMINAIRES PER POLE

INSTALL NEW 25m POLE WITH 5x LED LUMINAIRES

FOOTBALL FIELD PROPOSED LIGHTING CRITERIA TO AS2560 CLUB COMPETITION AND MATCH PRACTICE

REMOVE EXISTING LUMINAIRES. KEEP EXISTING POLES AND INSTALL NEW 6x LED LUMINAIRES PER POLE

INSTALL NEW ELECTRICAL RETICULATION TO SUPPLY NEW POLES

FOOTBALL FIELD PROPOSED LIGHTING CRITERIA TO AS2560 CLUB COMPETITION AND MATCH PRACTICE

INSTALL NEW 25m POLE WITH 5x LED LUMINAIRES

INSTALL NEW 25m POLE WITH 5x LED LUMINAIRES

REMOVE EXISTING POLE'S AND 2x MH LUMINAIRES PER POLE

SURVEY LEGEND

- K.I.P. Kerb Inlet Pit
- Fence
- Boundary & Dimension
- Contour & Height (0.2m Interval)
- Spot Level
- Underground Telstra Cables
- Watermains & Size
- Waterservices
- Underground Electrical Cables
- Sewer Pipes and Manholes
- Stormwater Pipe & Size
- Gasmain



LEGEND (EXISTING - LIGHT PROPOSED - DARKER)	Rev.	DESCRIPTION	APPROVED	DATE
CENTRE LINE				
KERB AND GUTTER				
TOP OF BATTER				
SURFACE DRAINAGE				
EDGE OF BITUMEN SEAL				
FENCELINE				
SEWERMAIN				
WATERMAIN (& SIZE)				
STORMWATER DRAINAGE				
OVERHEAD POWER				
UNDERGROUND ELECTRICAL				

Rev.	DESCRIPTION	APPROVED	DATE
A	Issued for client's information	M.Beath	03.02.21

Cad:	20379
Civilcad:	20379V04
Survey:	L.S. & L.B.
Drawn:	M.Beath
Designed:	Not Applicable
Checked:	M.Beath

Original A1 Drawing Scale Bar:
Not to Scale
Datum Description:
PM 12741 RL 389.235 GDA 2020
Located on the south eastern corner of Fitzroy Street and Blairmont Street

BATH STEWART ASSOCIATES
DEVELOPMENT CONSULTANTS
SURVEYORS - ENGINEERS - PLANNERS - PROJECT MANAGERS
239 Marius Street TAMWORTH NSW 2340
Telephone (02) 6766 5966 A.C.N. 002 745 020
office@bathstewart.com.au

LIVERPOOL PLAINS SHIRE COUNCIL
50 HENRY STREET QUIRINDI
Lot 7303 DP 1149018 & Lots 3 to 6 DP 1140801
AERIAL OVERLAY PLAN

Ref. No:	20379
Sheet No:	02 of 02
Revision:	A

Appendix D

Philips BVP528 technical data sheet



OptiVision LED gen3.5

BVP528 2200/757 BV A35-WB D9 T25 50K

OPTIVISION LED GEN3.5 LARGE - LED module 220000 lm - LED - Power supply unit with DALI interface - Asymmetrical axis angle 32° wide beam - Polycarbonate bowl/cover clear - 5°13° x 120° - DALI - Mounting bracket adjustable

The Philips OptiVision LED gen3.5 floodlighting system provides a complete lighting solution for the simplest through to the most complex area and recreational sports lighting applications. The high-efficiency floodlight comes with a single piece die cast housing, hosting 2 and 3 LED engines respectively, which also function with an external driver box – separate for use at a distance from the floodlight (BV), or pre-fixed onto the mounting bracket of the floodlight (HGB) for ease of installation and lower initial cost. It meets the highest performance standards, provides outstanding light, quality, uniformity and ensures safety and visual comfort.

Product data

General information		Flammability mark	
Lamp family code	LED2200 [LED module 220000 lm]		For mounting on normally flammable surfaces
Light source color	757 cool white	CE mark	CE mark
Light source replaceable	Yes	ENEC mark	ENEC mark
Number of gear units	1 unit	Warranty period	3 years
Driver/power unit/transformer	Power supply unit with DALI interface	Optic type outdoor	Asymmetrical axis angle 32° wide beam
Driver included	Yes	Constant light output	No
Optical cover/lens type	Polycarbonate bowl/cover clear	Number of products on MCB of 16 A type B	-
Luminaire light beam spread	5° - 13° x 120°	EU RoHS compliant	Yes
Control interface	DALI	Light source engine type	LED
Connection	Connection unit 5-pole	Service tag	Yes
Cable	-	Product family code	BVP528 [OPTIVISION LED GEN3.5 LARGE]
Protection class IEC	Safety class I		

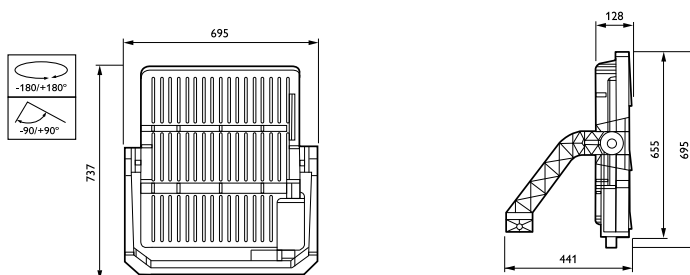
OptiVision LED gen3.5

Light technical	
Upward light output ratio	0
Standard tilt angle posttop	0°
Standard tilt angle side entry	-
Operating and electrical	
Input Voltage	220-400 V
Input Frequency	50 to 60 Hz
Inrush current	20 A
Inrush time	0.160 ms
Power Factor (Min)	0.9
Controls and dimming	
Dimmable	Yes
Mechanical and housing	
Housing Material	Aluminum
Reflector material	-
Optic material	Polycarbonate
Optical cover/lens material	Polycarbonate
Fixation material	Aluminum
Mounting device	Mounting bracket adjustable
Optical cover/lens shape	Flat
Optical cover/lens finish	Clear
Overall length	441 mm
Overall width	695 mm
Overall height	737 mm
Effective projected area	0.512 m ²
Color	Aluminum
Dimensions (Height x Width x Depth)	737 x 695 x 441 mm (29 x 27.4 x 17.4 in)
Approval and application	
Ingress protection code	IP66 [Dust penetration-protected, jet-proof]
Mech. impact protection code	IK08 [5 J vandal-protected]
Surge Protection (Common/Differential)	Surge protection level until 10 kV differential mode

Sustainability rating	-
Initial performance (IEC compliant)	
Initial luminous flux (system flux)	194714 lm
Luminous flux tolerance	+/-7%
Initial LED luminaire efficacy	130 lm/W
Init. Corr. Color Temperature	5700 K
Init. Color Rendering Index	>70
Initial chromaticity	(0.329, 0.342) SDCM <5
Initial input power	1500 W
Power consumption tolerance	+/-10%
Init. Color Rendering Index Tolerance	+/-2
Over time performance (IEC compliant)	
Control gear failure rate at median useful life 50000 h	0.5 %
Lumen maintenance at median useful life* 50000 h	L80
Application conditions	
Ambient temperature range	-40 to +55 °C
Performance ambient temperature Tq	25 °C
Maximum dim level	10%
Product data	
Full product code	871951420088300
Order product name	BVP528 2200/757 BV A35-WB D9 T25 50K
EAN/UPC - Product	8719514200883
Order code	912300024646
Numerator - Quantity Per Pack	1
Numerator - Packs per outer box	1
Material Nr. (12NC)	912300024646
Net Weight (Piece)	33.000 kg



Dimensional drawing



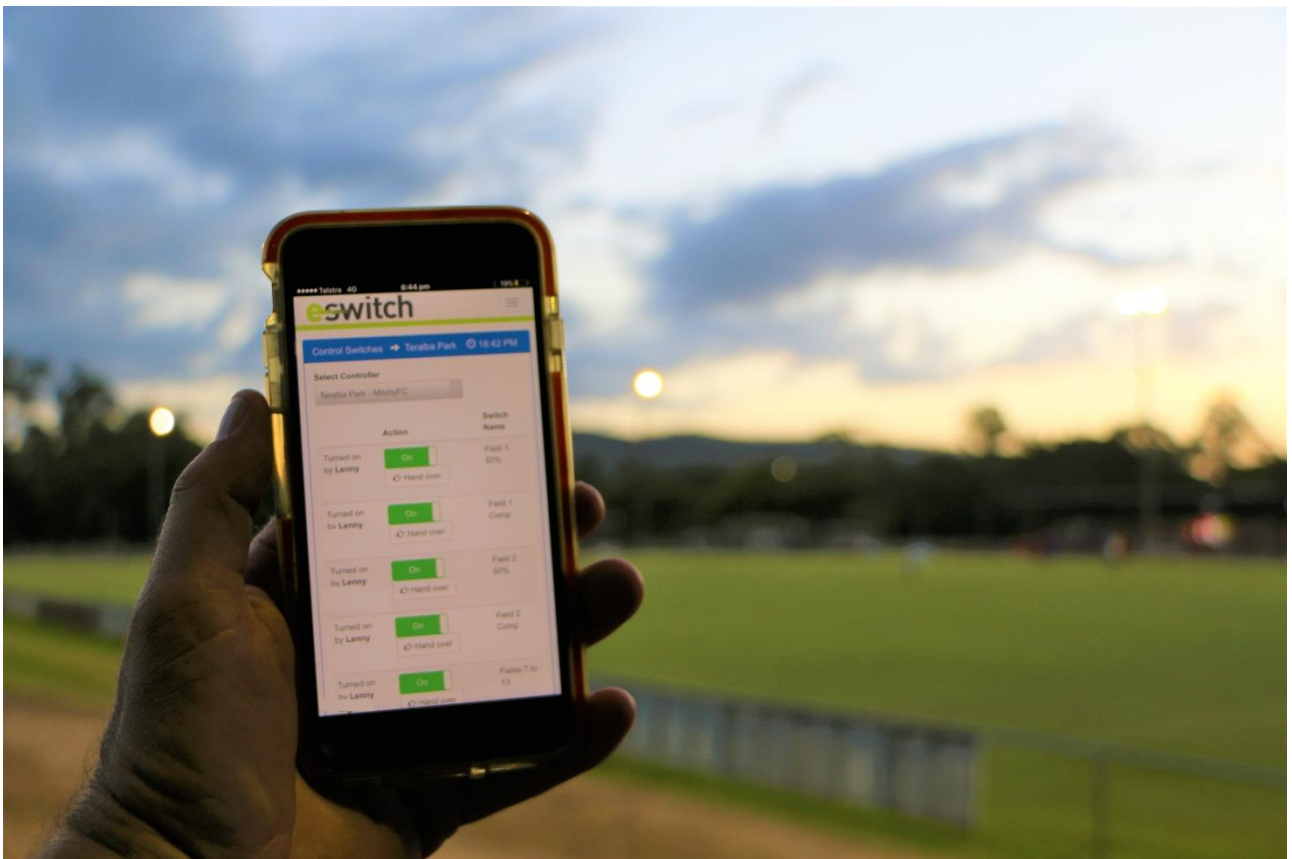
BVP528 2200/757 BV A35-WB D9 T25 50K

Appendix E

**eSwitch Sports Lighting Control System
User Manual**



eSwitch Sports Lighting Control System User Manual



www.eswitch.com.au | info@eswitch.com.au

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1.0 Introduction/Important Notes

Thank you for choosing eSwitch to help manage the operation of your sports lights. This Operation Manual will provide an overview of the eSwitch lighting control system, including helpful information on performing tasks, running reports, and making changes to suit your specific needs.

Please note the following important information.

- The eSwitch lighting control system operates by using SMS messaging across the mobile network. At times when network traffic is high, the messages can be delayed for a short time. Please be patient and note that multiple users trying to switch on the lights at the same time can overload the system and necessitate a reset.
- While technology is great, it isn't perfect! Please be aware that on rare occasions the mobile network is down, the lights will need to be operated via the manual switches inside the eSwitch control box. Please ensure that the keys to unlock the box and the master override key switch are always accessible.
- The cost estimates displayed in the eSwitch system are calculated using the kilowatt rating of the lamp, which is not a pattern approved metering method. As such, the cost estimates should never be used for billing or the onselling of electricity.

2.0 Hardware

2.1 THE ESWITCH CONTROL BOX

Inside the door of the controller there are numerous switches. The switch on the top left-hand side is the master override switch. This must be in the ON position (turned clockwise) to enable any of the switches (one to eight) to operate as a vandal-proofing measure. The eight override switches will correspond to the switches listed in the 'Control Switches' page in the software.



Please Note - The software switching system and the manual switching system are separate. Accordingly, if the lights are turned on with the software (i.e. via your smartphone or computer) then they must also be turned off with the software. Vice versa, if they are turned on with the manual switches then they must be turned off with the manual switches.

If, however, the lights cannot be turned off using your smartphone due to mobile network issues or otherwise, then the **RED SYSTEM RESET** button must be pressed for **at least 10 seconds**, or until the lights go off.

3.0 eSwitch Software

3.1 INITIAL SETUP

eSwitch Support will complete the initial setup of your software by populating the system with the particular details of your venue. The switches to control the lighting on each field will have been created and the key person at your venue (Site Manager) will have received an introduction email with a link to log in to the system.

If the Site Manager has not received the introduction email, please contact eSwitch Support at support@eswitch.com.au

Please note that the Site Manager should log in to the system using a tablet or PC to perform any changes. The smartphone format is designed only for operating the lights.

3.2 ACCESS LEVELS

Site Manager

A Site Manager is typically the person in charge of the lighting system at the venue(s) and could be the President or a Committee Member. This level of access allows for full functionality of the system including switching the lights, changing parameters such as curfews, creating new clubs and users, and running reports on usage. There can be more than one Site Manager.

Club Manager

If there is a need to account for different user groups at the venue then Clubs will be created. Each Club will have a key person known as a Club Manager, who will be able to operate the switches set by the Site Manager. They can also create and remove users under their Club name. Any operation by the user will be logged in the database for their particular Club.

User

A User will always be a member of a Club even, if there is only one Club operating at the venue. A User can be created by a Site Manager or a Club Manager. A User can only operate the light switches that have been set by the Site Manager. They can also edit their own personal information, such as changing their password.

3.3 DASHBOARD

If you are logging into the system via a tablet or PC, you will be taken to the Dashboard page. Here you can select different operations for the system including operating the light switches. A smartphone login will automatically take you to the Switches page.

While it is possible to access the Dashboard and further pages via your smartphone, these pages are designed to be viewed on a larger device.



Switching the light controls are normally accessed via a smartphone but can also be accessed via the Dashboard on a computer. Each of the switches (up to 8) will be labelled to correspond with a particular field or space at the venue. To operate a switch or number of switches, simply click on the desired Switches.

Each Switch will then light up green and say 'Turn On' and a new green button labelled 'Action' will appear at the bottom of the page. Once the appropriate switches have been set, press the 'Action' button to send the command to site and the corresponding lights will operate.

In the same way, pressing the Switches again will make them light up red and say 'Turn Off' and the green 'Action' button will again appear. Pressing this will send the switching changes to site and the appropriate lights will turn off.

Please note: Only the User who turned the lights on, or the Site Manager, is able to turn them off. This is to prevent nuisance switching by other Users and is necessary for accountability within the database.

Handover Feature - Once the lights have been turned on you will notice that a 'Handover' button appears. If one User has finished with the lights but another User requires them, then the Handover button can be used to log the end of your usage without turning the lights off. The system will update the database and then wait to see who turns the lights off, or hits the handover again, and updates the database again accordingly.

Scheduling Switches - The eSwitch system is able to be simply programmed so lights will switch on and off automatically at set times.

From the control switches page click the blue 'Schedule Switches' button.

The screenshot shows the eSwitch web interface. At the top, there is a navigation bar with the eSwitch logo and menu items: Dashboard, Control Switches, Manage, Reporting, Financial, System, Account, and Logout. Below the navigation bar, there are two main sections for scheduling:

- 1. Select Switches to include in the Booking Schedule:** This section contains a table of switches. The first switch, 'Rugby Field 100 Lux', is selected, indicated by a green 'Selected' button. The other switches are 'Rugby Field 200 Lux', 'Rugby Field 500 Lux', 'Rugby/Track/Jump Area 100 Lux', 'Rugby/Track/Jump Area 200 Lux', and 'Rugby/Track/Jump Area 500 Lux', each with a 'Click to select' button.
- 2. Create the booking Schedule:** This section contains a form with the following fields:
 - Recurring:** A dropdown menu set to 'Once Only'.
 - Date:** A date input field set to '09/08/2018'.
 - Time:** Two time input fields set to '12:00 AM' and '12:00 AM'.
 - Buttons:** An orange '< Back' button and a green 'Check Availability' button with a checkmark icon.





From here, select the switches you want to include in the schedule. Then select if you want the schedule to be 'Once Only' or to reoccur on the 'Same Day Each Week'. Then select the date for a Once Only schedule or the date range for a Same Day Each Week schedule. Following this, select the 'On Time' and 'Off Time' you would like for your schedule. Then hit the 'Check Availability' button. This checks to make sure no one else has set a schedule for the selected times.

If the time(s) is free, the Result column will show as 'Available' and the green 'Create Schedule' button can be clicked to set the schedule.

Schedules can be managed or modified via the 'Manage Schedules' feature accessed via the 'Manage' button on the top task bar of the Dashboard page.



The **Site** is typically the name of the sports venue and all information pertaining to the site can be entered or modified here by clicking the 'Sites' button.

Site Name	Active	Controllers	Clubs	Site Managers	Address	
Darwin Motorsport	True				41 some place Over There, QLD 1111	

Edit – Click the dark blue edit button located on the far right of the page. This allows for settings to be entered or adjusted for details such as the venue address, curfew and lockout times, time zone, and cost per kilowatt hour.

Controllers – Controllers contain information about the hardware on site. Sites can have one or more controllers. Click the light blue 'Controllers' button, then click the light blue edit button located on the far right of the page.

Here, the controller name can be entered or changed along with the SMS number, however this shouldn't need to be changed as eSwitch maintains the SIM card on your behalf. The lights can also be temporarily taken offline by clicking the 'Active Status' button, then saving controller.

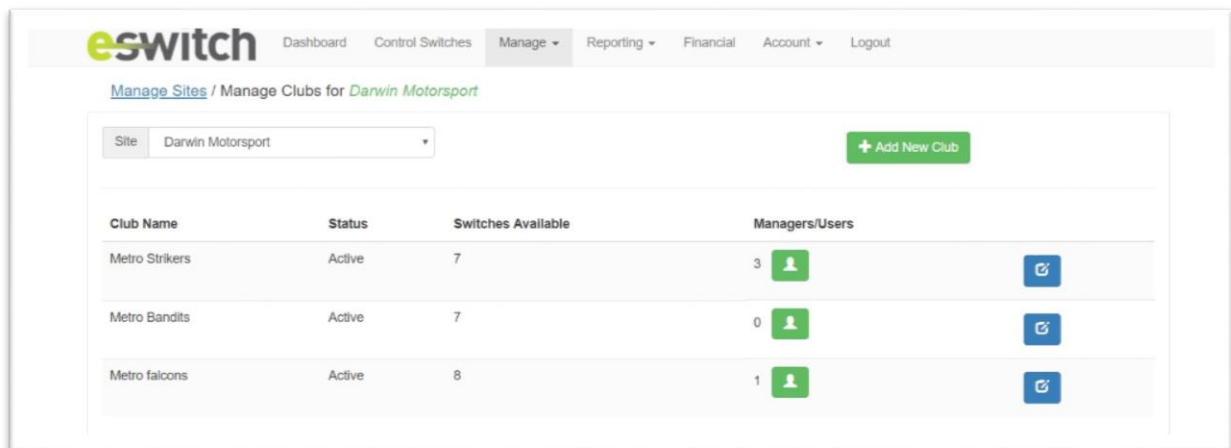
Switches - A site can have up to 8 switches depending on the installation. Information about the Switches can be entered or changed here. Click the light blue 'Switches' button. Each switch is then listed and can be viewed and edited by clicking the corresponding light blue edit button located on the far right of the page.

Clubs – Can be accessed from the Sites page, however it also has its own link icon on the Dashboard. Please see the next section on Clubs.

Site Managers – There can be more than one Site Manager if desired. Clicking the blue 'Site Managers' button will lead to a page where the Site Manager accounts can be created or edited.



The **Clubs** feature is created to differentiate user groups and is helpful when accountability is necessary for allocating field hire and energy consumption costs. Information pertaining to Clubs can be entered or changed within this page.



A new club can be created with the '+Add New Club' at the top of the page.

Existing Club info can be changed by clicking the light blue edit button that corresponds to the desired Club. Here, a Club name can be changed, their access can be blocked by changing the status to inactive, and restrictions around what switches they are permitted to operate can be implemented by selecting or deselecting the desired switches.



Users are anyone who has access to the eSwitch system for your sporting site and will always be a member of a Club. This page is where all actions regarding users are performed.

A new User can be created by clicking the green '+Add Club User' button, or an existing User can be deleted by clicking the red delete button for the desired User.

By clicking the blue 'Edit' button that corresponds to the User, the Site Manager can lock the User out, or promote/demote their level of access.

4.0 Reports

4.1 RUN A SWITCH EVENTS REPORT



A **Switch Events Report** will show you all switching activity between two dates, based on the selected refinements you have chosen on the Switch Events Report page, accessed by clicking the 'Switch Events' button on the Dashboard.

The report can be shown on the screen or can be exported in CSV format. Simply select the parameters for your report and click the desired 'Run Report' button.

4.2 RUN A COSTINGS REPORT



A **Costings Report** is a little different to an **Events Report** in that it conveys more information. From the Dashboard page click the 'Switch Costs' Button. As with an Events Report, different selections can be made to refine the report. There are three format choices in the 'Output As' menu and these are explained below.

- **To Page** - Each component of usage by a User is shown as a separate line. If the total kilowatts for the switch have been entered, then the report line will show the kilowatt hours consumed for each User component. In addition, if the cents per kilowatt hour amount has been entered in the site, the information this report will also show an estimated power cost for each line.
- **CSV File** - The same report can be exported in CSV format and viewed/edited in Excel.
- **Chart** - A pie chart can be generated to show the portion of power used by each Club within the Site, or each User within a Club, but only if the total kilowatts have been nominated for each switch and the cents per kilowatt hour entered in the site information. This is ideal for apportioning power costs.

Please Note - all costings reports are estimates based on the total kilowatts you have entered for each switch and the cents per kilowatt hour entered.

4.3 APPORTIONING POWER COSTS

Typically, Venue Managers need to account for energy consumption used by a certain User, or group of Users, operating the sports lights at any given time. Viewing percentage information for power cost allocation is done through a **Switch Costings Report**.

Apportioning Costs By User

If you would like to apportion costs between members of one Club, click the 'Switch Costs' button on the dashboard. Select your Site, then select the Club you would like to view.

Leave the Switch and User fields as 'All' then select the date range you would like to view (typically the date range corresponding with your Power Bill).

In the 'Output As' field, select 'Chart', then in the 'Group Chart By' field, select 'Club>User'. You can then click the blue 'Run Report' button to view the pie chart at the bottom of the page.

Apportioning Costs By Club

If you would like to apportion costs between different Clubs at your site, click the 'Reporting' button on the top task bar of the Dashboard, then click 'Switch Costings' from the dropdown.

Select your Site. Leave the Club, Switch and User fields as 'All' then select the date range you would like to view (typically the date range corresponding with your Power Bill). In the 'Output As' field, select 'Chart', then in the 'Group Chart By' field, select 'Site>Club'. You can then click the blue 'Run Report' Button to view the pie chart at the bottom of the page.

The percentages allocated to each Club in the pie chart can then be used to apportion the corresponding percentage portion of the Power Bill.

Setting up your Report in Excel

- First, select the Club you wish to report on and, if applicable, the particular User.
- Select the Switch (field) you wish to report on and then set the date range for the report.
- Set the 'Output As' to CSV File then click the blue 'Run Report' button. The report can then be opened in Excel.
- Widen each column so the information can be viewed.
- Highlight column H, right click on it, and select 'Insert'. This will create a new column 'H'.
- In position H10 label the column 'Hours'.
- Select position H11 and insert the formula =G11-F11.
- Copy H11 to H12, H13, H14 and so on for all the listings and this will show the hours and minutes for each listing.
- In Column H, below the listings, enter a formula to add all the values of column H together.
- **Important!** Highlight the cell showing the total value of column H then go to the 'Number' section in the top task bar. In the box where it says 'Custom' click the down arrow on the right. At the bottom of this menu, click on 'More Number Formats'. Ensure 'Custom' is selected for the category then, under 'Type:' enter the number format [HH]:MM. IF THIS NUMBER FORMAT IS NOT SET, THE VALUE WILL BE INCORRECT IF THE TOTAL EXCEEDS 24 HOURS.

5.0 Quick Tips

5.1 ADD A NEW USER

From the Dashboard page click the 'Users' tab, then click the green 'Add Club User' button at the top right of the screen.

Select the Club the new User belongs to, then select 'User Type' (Remember Club Users can only activate the switches. Club Managers can also assign other users). Enter the new User's email address, then click the green 'Create New User Account' Button.

They will then be sent an automatic email with their login details.

5.2 DELETE/RESET A USER

From the Dashboard page click on the 'Users' tab. The list of Users is displayed. Choose the User you would like to delete and click the red 'Delete' tab that corresponds with their name. It will pop up a box that warns the User will be permanently deleted from the system, click 'OK'.

To reset a User, click the green 'Add Club User' button, select the club they belong to, the User level and then enter the email address for the new User. Click the green 'Create User Account' button.

They will then be sent an automated email with the new login details.

5.3 ADD A NEW CLUB

Create a new Club through the 'Manage Clubs' button on the Dashboard, then click the blue 'Add New Club' button. Enter the new Club name and click the Switches you would like them to have access to (i.e. If the new Club is only likely to play on a certain field, then you can restrict them to only operate the switches for that field).

5.4 SET A CURFEW

Curfews can be set so the lights switch off automatically if they have been left on.

To set or adjust this parameter, click the 'Manage Site' button on the Dashboard, then click the dark blue 'Edit' button located on the far right of the page. The new Curfew time can then be selected, followed by the 'Save Changes' button.

5.5 SET LOCKOUT TIMES

Lockout times can be set so the light switches are not able to be operated outside of a designated time frame set by the Site Manager. To set or adjust this parameter, click the 'Manage Site' button on the Dashboard then click the dark blue 'Edit' button on the far right. The new switching start and end times can then be selected, followed by the 'Save Changes' button.

5.6 ENTER RETAIL ENERGY COST

The system can calculate estimated costs using the amount your electricity account is charged per kilowatt hour. To enter this amount, find it on your latest power bill then click the 'Manage Site' button on the Dashboard. Once open, click the dark blue 'Edit' button on the far right of the page. The amount can then be added in the 'Cost Per Kilowatt Hour' field, followed by clicking the 'Save Changes' button.

5.7 EDIT SWITCHES

If you would like to edit the switches by renaming them or changing the total kilowatts, you can do so through the 'Manage Sites' button on the Dashboard. Click the blue 'Controllers' button, then click the blue 'Switches' button. You can then click the blue 'Edit' button corresponding to the switch you would like to edit.

5.8 LIMIT SWITCHES FOR A CLUB

A Club can be limited to only access certain switches/field lights. To do this, click the 'Manage Clubs' button on the Dashboard. Then click the light blue 'Edit' button next to the relevant Club. The list of switches will appear and each can be ticked or unticked to restrict access. Follow this by clicking the 'Update Club' button. The Club will only be able to see, and access, the switches you have selected.

5.9 LOCK OUT A SWITCH

Switches can be locked out to every User so the lights on the switch cannot be operated. This is common practice when a field needs to rest and rejuvenate. To do this, click the 'Manage Site' button on the Dashboard, then click the light blue 'Controllers' button, followed by the light blue 'Switches' button. Select the light blue 'Edit' button next to the desired switch and change the status to 'Inactive', followed by clicking the 'Save Switch' button.

5.10 LOCKOUT ALL SWITCHES

The lights to the entire sports venue can be locked out to prevent use.

To do this click the 'Manage Site' button on the Dashboard, then click the light blue 'Controllers' button, followed by the light blue 'Edit' button located on the far right of the page. The status of the Controllers can then be changed to 'Inactive' followed by the 'Save Controller' button.

6.0 BrightSport

6.1 MANAGE BRIGHTSPORT



All venues operated by eSwitch lighting control systems have the capability to make fields available for casual evening hire through BrightSport. Only the Site Manager can activate and operate this functionality via the 'Manage BrightSport' button on the Dashboard.

Using the remote switching capability of eSwitch, the BrightSport function allows venues to:

- make certain fields available for hire when they are vacant via www.brightsport.com.au;
- create a secondary income stream to raise funds; and
- relieve the burden of managing ad hoc field hire requests.

More information on BrightSport is provided in the User and Venue Manager fact sheets provided at the end of this manual.



Search | Book | Play

BrightSport is an innovation developed in partnership with the Queensland Government to connect community sports with floodlit fields and green spaces.

BrightSport allows venues to:

- Make fields available for hire when they are vacant
- Create a secondary income stream to raise funds
- Give to the local community
- Relieve the burden of managing ad hoc field hire requests.

Importantly, Venue Managers remain in complete control.

HOW DOES IT WORK?

It's easy.

At the sports ground level, the existing switch box is upgraded to an [eSwitch](#) lighting control unit, which enables switching commands to be sent remotely, and securely, via SMS.

The Venue Manager is in control of access at all times.

Third parties are then able to hire vacant fields when they are nominated by Venue Managers on the BrightSport website at www.brightsport.com.au

Venue Managers determine how much they charge for field hire and payments are made securely via PayPal.

The lights will switch on automatically at the time specified in the online booking, and will turn off at the specified time.



FREQUENTLY ASKED QUESTIONS

How will this impact our club's normal operations?

It doesn't. The fields can only be hired if you have nominated them as available.

How do we make sure people use our fields responsibly?

There is no need for volunteers or staff to be available as all switching operations occur automatically. Hirers must agree to strict legally binding terms and conditions before they can make a booking.

How much does it cost to operate?

There are no upfront charges or hidden costs. BrightSport simply retains a 5% booking fee.

eSwitch installation costs vary from venue to venue. Please contact us on the details below for more information.



Search | Book | Play

BrightSport is an innovation developed in partnership with the Queensland Government to connect community sports with floodlit fields and green spaces.

The online application allows individuals, families, sports teams, personal trainers, and a host of emerging sports and community groups to search for and hire vacant floodlit fields and green spaces for evening activity.

HOW DOES IT WORK?

Search

Go to www.brightsport.com.au and create your account. This should take less than a minute and only requires you to enter your name and mobile phone number.

To find available floodlit fields and facilities, click "Search for Lit Venues".

You can search by postcode or venue type (i.e. soccer field, multipurpose field).

Book

All bookings are made securely via PayPal. Please note, hourly rates will differ from venue to venue.

Users are able to make immediate, future, and recurring bookings. Click on "My Schedule" to view your booking/s.

Play

The lights will switch on automatically at the time specified in the online booking, and will turn off at the specified time.

WHO CAN USE BRIGHTSPORT?

It's easy – anyone can use BrightSport, as long as the activity is in keeping with local by-laws.

BrightSport is designed to make floodlit green spaces available to:

- Established sporting clubs requiring additional training space.
- Emerging and specialty sports looking for somewhere to operate i.e. Ultimate Frisbee, Archery, NFL.
- Groups of friends for social sporting activities.
- Dog obedience classes.
- Personal Training, Cross Fit, and small group fitness classes.
- Individuals and families undertaking training.





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CRICKET LIGHTING GUIDANCE NOTE

Reference: AS 2560.2 Sports Lighting
Part 2 – Specific Applications

Last Updated: September 2021



CRICKET
AUSTRALIA

Note: Every effort has been made to ensure the accuracy of the information contained in this Guidance Note. However, Cricket Australia and the State and Territory Cricket Associations (collectively, Australian Cricket) make no warranty that the material contained in the Guidance Note will be free from error. Australian Cricket makes this Guidance Note available on the understanding that you will exercise your own skill, care and judgment with respect to its use and you will carefully evaluate the accuracy, currency, completeness and relevance of the material for your purposes.

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The User acknowledges that the information outlined in this document is effective from 27th August 2021 and that Cricket Australia reserve the right to amend, update or delete sections of this Guidance Note at any time as it deems necessary.

BACKGROUND

The way cricket is being played and consumed continues to evolve. The rise of short-form cricket (in particular T20 competitions) and the emergence of new modified programs and activities means cricket is now being played by more participants, more frequently, at more venues (including indoors) and by a wider, more diverse playing group than ever before.

Whilst it is important that we don't lose sight of the game's traditional format and related infrastructure requirements, the provision of facilities that accommodate cricket's expanding suite of competition, training and program offerings is crucial if the sport is to continue to grow, and more importantly, capitalise on a societal trend towards more flexible sport/leisure opportunities and associated scheduling.

The term '**Lighting up Cricket**' features heavily in several recently developed state infrastructure strategies, particularly those states located in the country's north, where no daylight savings and/or climatic conditions mean playing and training in the evening under lights is often the more preferable, or in some instances, the only opportunity for cricket to be played. Inland-locked municipalities, where access to unoccupied open green space is challenging, facility owners and managers are looking for innovative ways to increase the carrying capacity of their existing venues. Floodlighting of sports fields and supporting training facilities provides one solution to increase programming beyond standard daylight hours.

Access to more live venues will undoubtedly enable greater programming flexibility for cricket. However, of equal importance is that both the lighting design and level of lighting (lux) provided ensure a safe and suitable environment for players, coaches, officials and spectators alike. An increase in power hitting (during both training and competition activities) is a significant shift in how the game is being played, both indoor and outdoors. For example, a faster, more dynamic game is taking place within the infield, while high balls into the outfield are becoming more frequent as batters seek to score more quickly as a result of limited overs. For this reason, the provision of safe and suitable lighting is critical.

AUSTRALIAN STANDARD FDR CRICKET LIGHTING AS25&D.2

In August 2021, Standards Australia released AS 2560.2 ('standard').

The standard forms part of the AS 2560 series, with AS 2560.1 (released in 2018) addressing the general lighting principles and recommendations for where sports are played. AS 2560.2 includes a collection of requirements, recommendations, and calculation methods for the lighting of specific sporting venues.

It also contains detailed technical design, performance requirements and recommendations for the lighting of specific outdoor and indoor areas for 10 individual sports, including cricket. Spectator areas and safety lighting are also addressed in the standard.

From a cricket perspective, AS 2560.2 provides lighting guidance for:

- Outdoor Cricket (competition and fielding/balls skills)
- Cricket Training - Outdoors (outdoor practice pitches/nets)
- Cricket Training - Indoors (indoor practice pitches/nets)
- Indoor Cricket - Competition and Training

AS 2560.2 is a non-mandatory, best practice and industry adopted standard. It does not include the special lighting requirements for television broadcasting and is intended to be read in conjunction with AS 2560.1 and this Guidance Note.

CRICKET AUSTRALIA'S SPORTS LIGHTING TESTING PROGRAM

To ensure lighting levels contained within AS 2560.2 reflect Cricket's needs across all levels of the player pathway, incorporating competition and training both indoor and outdoor, Cricket Australia undertook a lighting suitability testing program in early 2021.

The testing program included female and male players, together with umpires from entry level programming through to high performance.

Participants were tested under match simulation and training situations, including various bowling types and speeds and fielding drills, using different ball colours (white, pink, red for outdoor cricket, and yellow - indoor cricket) and condition (e.g. new vs old balls) at varying lighting levels to ascertain a 'safe' and 'suitable' (e.g. able to execute skills satisfactorily) lighting level.

Outcomes of the testing program were provided to Standards Australia and have helped guide recommended lighting levels contained within the standard.



WHAT DOES AS 2560.2 MEAN FOR CRICKET?

Fit and proper lighting is important for cricket as it provides more opportunities to train and play and assists to maximise the use of venues and facilities.

Despite the pivotal role lighting has and will continue to play in the game's progression and growth over the coming years, there has not been, until now, an Australian standard specific to non-broadcast outdoor and indoor cricket lighting.

Cricket has historically followed Australian standards developed for similar fast-moving small ball sports such as baseball and softball to guide cricket field floodlighting developments. Indoor cricket lighting specifications have been based on multi-purpose indoor sports centres and were not applicable to the lighting of areas dedicated to a specific sport.

In the absence of an Australian standard, cricket lighting projects have to date been guided by Cricket Australia's *Community Cricket Facility Guidelines (2015)*. These Guidelines reference existing international standards related to lighting design and provision.

In addressing this situation, the new standard contains design and performance requirements and recommendations for the lighting of specific outdoor and indoor cricket playing and training areas. Importantly, it provides necessary information to assist in the planning and development of lighting for cricket environments while providing a safer 'under lights' environment for players, umpires, coaches and spectators.

Recommended lighting levels in AS 2560.2 do not guarantee player/umpire/coach/spectator safety during cricket competition and training activities. Moreover, it is not a mandatory requirement that cricket lighting projects completed prior to the standard's introduction meet AS 2560.2 provided they aligned with the recommended level of lighting at the time of installation. However, the testing undertaken by Cricket Australia has informed what is considered to be both a safe and suitable level of lighting, and it is strongly recommended providers seek to increase their lighting levels to meet the recommended minimum standards prescribed in the standard.

HOW TO *USE* THIS GUIDANCE NOTE

It is recommended this Guidance Note be used during the initial scoping phase of a cricket lighting project to ensure:

- Appropriate lighting levels are provided, relevant to the level of competition/training
- Consideration has been given to recommended lighting design and construction tips

This Guidance Note should be read in conjunction with AS 2560.1 and AS 2560.2

RECOMMENDED LIGHTING LEVELS

The tables on the following pages outline the recommended minimum lighting levels for cricket training and competition (outdoor and indoor).

For examples of cricket competitions (including training) for each lighting class, please [click here](#).



DUTDDDR CRICKET

AVERAGE HORIZONTAL MAINTAINED ILLUMINANCE

AS25&D.2 CLASS	LEVEL OF COMPETITION	SQUARE	INFIELD	OUTFIELD	PRACTICE* fDN-FIELDJ	PHYSICAL EXERCISE**
I	<ul style="list-style-type: none"> International (M) Domestic (M) 	1500	1500	1000	750	50
II	<ul style="list-style-type: none"> Match Simulation - National/State (M) 	1000	850	700	500	
III	<ul style="list-style-type: none"> International (F) Domestic (F) Premier Senior - 1st & 2nd XI (M) National Youth Championships (U/19 M) 	750	600	500	400	
IV	<ul style="list-style-type: none"> Premier Senior - 1st XI (F) Premier Senior - All other (M) National Youth Championships (U/19 F) 	500	400	300	300	
V	<ul style="list-style-type: none"> Premier Senior - All other (F) Community Senior (M) National Youth Championships (U/17 M) Premier Junior (M&F) Junior Cricket Stage 3 (M) 	300	250	200	150	
VI	<ul style="list-style-type: none"> Community Senior (F) National Youth Championships (U/16 F) Junior Cricket Stages 2 & 3 (F) Junior Cricket Stages 1 & 2 (M) 	200	200	200	100	
VII	<ul style="list-style-type: none"> Junior Cricket Stage 1(F) Master Blasters (M&F) Junior Blasters (M&F) Schools Programs (M&F) 	100	100	100	75	

*Non-competitive throwing and fielding (catching, ground balls)

**Non-ball activities

(M) =Male

(F) =Female

Notes: *Lighting levels relate to non-broadcast outdoor cricket competition
Lighting levels provided are based on use of a standard white ball, however are also considered appropriate for a pink ball
The use of sight screens that contrast with the ball colour is important to enable quick and clear visual identification*

CRICKET TRAINING DUTDDRS

AS25&D.2 CLASS	LEVEL DF CDMPETITIDN	AVERAGE HDRIZDNTAL MAINTAINED ILLUMINANCE
I	<ul style="list-style-type: none"> • International (M) • Domestic (M) 	1000
II	<ul style="list-style-type: none"> • International (F) • Domestic (F) • Premier Senior - 1st & 2nd XI (M) • National Youth Championships (U/19 M) 	750
III	<ul style="list-style-type: none"> • Premier Senior - 1st XI (F) • Premier Senior - All other (M) • National Youth Championships (U/19 F) 	500
IV	<ul style="list-style-type: none"> • Premier Senior - All other (F) • Community Senior (M) • National Youth Championships (U/17 M) • Premier Junior (M&F) • Junior Cricket Stage 3 (M) 	300
V	<ul style="list-style-type: none"> • Community Senior (F) • National Youth Championships (U/16 F) • Junior Cricket Stages 2 & 3 (F) • Junior Cricket Stages 1 & 2 (M) 	200
VI	<ul style="list-style-type: none"> • Junior Cricket Stage 1 (F) • Master Blasters (M&F) • Junior Blasters (M&F) • Schools Programs (M&F) 	100

(M) =Male
(F) =Female

Note: *Lighting levels provided are based on use of a standard white ball, however are a/so considered appropriate for a pink ball*

CRICKET TRAINING INDOORS

AS25&D.2 CLASS	LEVEL OF COMPETITION	AVERAGE HORIZONTAL MAINTAINED ILLUMINANCE
I	<ul style="list-style-type: none"> International (M) Domestic (M) 	1500
II	<ul style="list-style-type: none"> International (F) Domestic (F) 	1000
III	<ul style="list-style-type: none"> Premier Senior - 1st & 2nd XI (M) National Youth Championships (U/19 M) 	750
IV	<ul style="list-style-type: none"> Premier Senior (F) Premier Senior - All other (M) National Youth Championships (U/19 F) National Youth Championships (U/17 M) National Youth Championships (U/16 F) Community Senior (M) Premier Junior (M&F) Junior Cricket Stage 3 (M) 	500
V	<ul style="list-style-type: none"> Community Senior (F) Junior Cricket Stages 1, 2 & 3 (F) Junior Cricket Stages 1 & 2 (M) Master Blasters (M&F) Junior Blasters (M&F) Schools Programs (M&F) 	300

(M) =Male
(F) =Female

Note: Lighting levels provided are based on use of a standard white ball, however are also considered appropriate for a pink ball

TIPS

(should also be considered for indoor cricket)

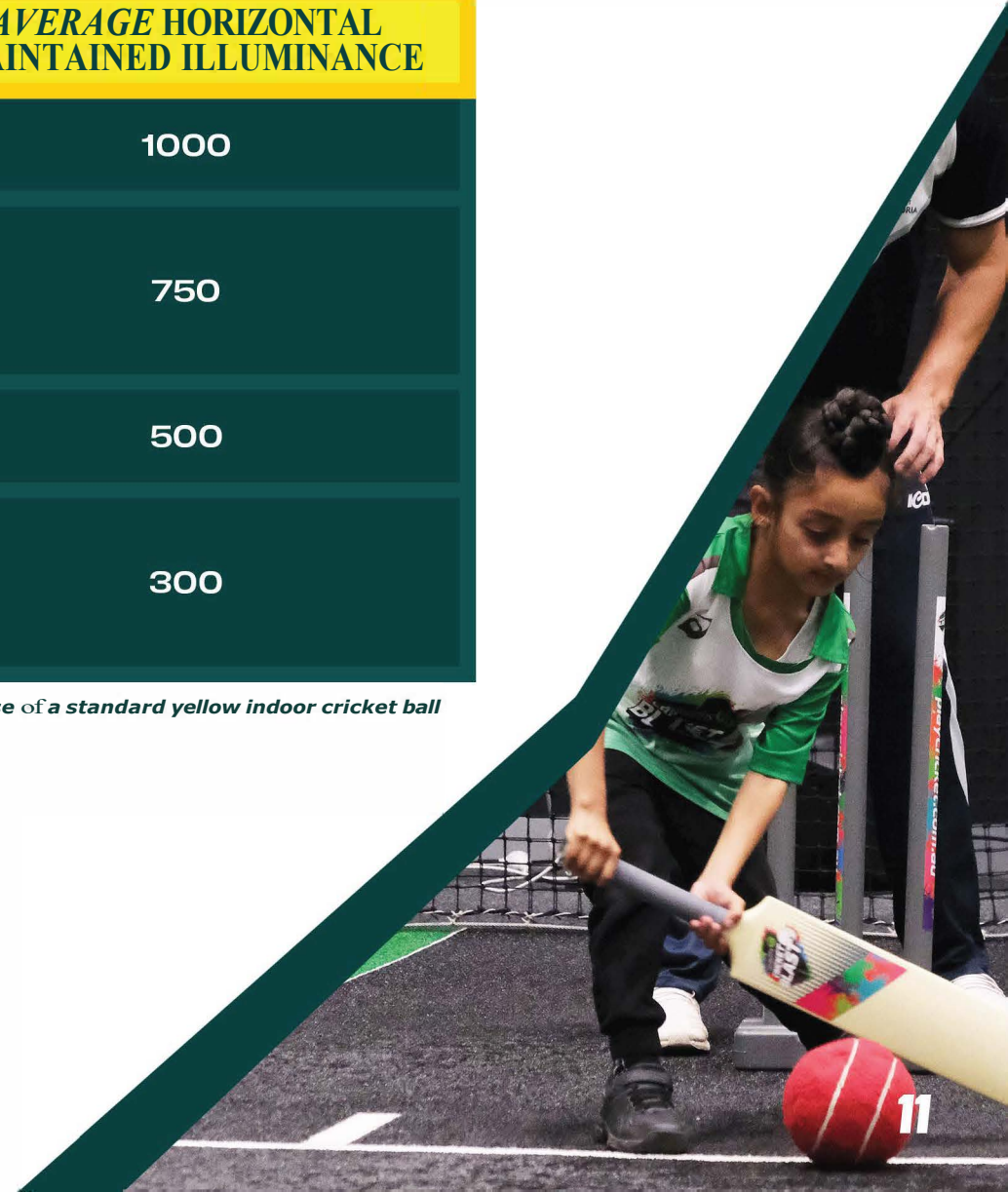
- Where training facilities are being used for warming up for a game held at a ground with higher illuminance levels, e.g. for TV broadcast, then a higher level should be considered to acclimatise the batter.
- Where the practice pitch is used for high performance training and high-speed video is employed, higher illuminances may be appropriate together with additional vertical illuminance analysis. A qualified lighting designer should be consulted.
- Light loss from nets can be expected; actual losses will depend on the net transmittance factor. When measuring, values can be expected to be lower due to the attenuation of net.
- It is important to utilise a suitable visual background/wall against which the player and the ball are contrasted to enable quick and clear visual identification.
- When installing lighting indoors, it is recommended a minimum 400-500mm distance be maintained between the lights and the roof of the netting.

INDDDR CRICKET

AS25&D.2 CLASS	LEVEL OF COMPETITION	AVERAGE HORIZONTAL MAINTAINED ILLUMINANCE
I	<ul style="list-style-type: none"> • International Series (M) • National Championships (M) 	1000
II	<ul style="list-style-type: none"> • International Series (F) • National Championships (F) • National Indoor Cricket League (M&F) • Premier – Inter Centre Competition (M&F) 	750
III	<ul style="list-style-type: none"> • National Junior Championships (M&F) • In Centre Competiton (M) 	500
IV	<ul style="list-style-type: none"> • In Centre Competiton (F) • Junior Competition (M&F) • School Sports (M&F) • Entry Level Programming (M&F) 	300

(M) =Male
(F) =Female

Note: Lighting levels are based on use of a standard yellow indoor cricket ball



PLANNING & DESIGN

TIPS & CONSIDERATIONS

NEW INSTALLATION LIGHTING DESIGN

Design Process

- All cricket lighting should be designed by a qualified lighting and electrical engineer.
- Some detailed information is required before the engineer can proceed with their design works. They will generally require the following for a new outdoor installation:
 - A feature survey and/or civil detailed design drawings to overlay the lighting design on. This will ensure you achieve the most accurate design outcomes.
 - Information regarding the existing site including the power installation.
- Consider and consult with likely co-tenant sporting codes (football, all codes) with a view to reducing/sharing infrastructure costs, mutual lighting compliance and other shared efficiencies.

Average Horizontal Maintained Illuminance

- The illuminance values in the tables are what is termed **average horizontal maintained illuminance**, being the value below at which the average illuminance level on the field of play is not allowed to fall.
- For new projects, the average illuminance will need to be higher than the maintained value considering light loss over time due to the environment and scheduled maintenance periods.
- It is recommended the lighting design use and justify a depreciation factor, known as 'Light Loss Factor', accounting for luminaire lumen depreciation and luminaire dirt depreciation applicable to the site.

It is recommended lighting testing be conducted at the beginning of each season to ensure the average horizontal maintained illuminance remains in line with recommended lighting levels.

Being exposed to the elements, it is common for lamps or luminaires on floodlights to accumulate dirt/dust or be subject to movement as a result of high winds.

Uncleaned and/or misdirected lighting can significantly impact on average horizontal maintained illuminance levels.

TIP

For indoor lighting projects, be mindful of specific local factors. Ceiling types, fire walls and distance from switchboards will impact on the design. In a retrofit, the ability to access ceiling space and the condition of the existing electrical wiring and switchboard will need to be considered.

Pole Configuration and Heights

- In an outdoor situation, the lighting towers should ideally be located so that they do not line up with the cricket pitch.
- The height of the poles is determined by the size of the ground. Under the standard, Class I and II Venues require poles with a minimum height of 40 metres, while poles at Class III-V Venues should be 30 metres in height.

Player Glare

- Glare can occur when the placement of the lamp is in the line of sight of the ball in player's main view directions. The positioning and height of the light towers will affect the amount of glare present.
- A maximum glare rating $GR_{max} = 50$ is permitted.

Obtrusive Light

- All external lighting designs are required to meet the requirements of AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting.
- Conformance to this standard shall be demonstrated by the results of calculations and analysis of design methods with respect to the standard. This should be provided with the lighting design and is normally a requirement for the granting of a development or building permit.
- The standard sets illuminance and intensity limits in environmentally relevant vertical planes depending on ambient lighting conditions. It also sets limits for limiting glare to transport systems/road users and upward waste light directed into the night sky.
- The design should conform to the environmental zone which varies as to the usage and location of the space. For example: suburban areas in towns and cities are rated as category A3 with equates to 10 lux vertical illuminance and maximum luminous intensity per luminaire of 12500 cd at windows.

Civil and Structural Works

- The foundation design of the same pole and floodlight system will differ between sites due to differing soil conditions.
- The number and type of light fittings per tower (wind sail area and weight), the site's wind rating and the site's soil type and wind rating can affect the depth and outside diameter of the concrete footing required.
- The Geotech report should be taken at the pole positions and be at a depth of 6m.

Building Permit

- Pending the height of new lighting poles or structures, it is recommended you consult with your relevant Building Authority to confirm if a building permit is required.

Lighting in the vicinity of an Airport

- If your venue is within a 6 km radius of an airport, the relevant authority should be contacted to determine whether any particular restrictions apply.

TIP

Whether it be a new installation, or an upgrade to existing lighting, obtaining a hand over manual at the end of the works that outlines the practical completion date, relevant contractor/lighting consultant contact details, warranty period, maintenance history and ongoing servicing requirements is strongly encouraged.

TRANSITIONING EXISTING LIGHTING INSTALLATIONS TO LED

Many lighting installations are presently being upgraded to LED.

Replacing an installation with LED luminaires is desired due to the advantages of:

- Instant operation
- Energy savings, in the order of 50%
- Low maintenance: regular lamp replacement not required (note that if the LED(s) fail, replacement of the whole luminaire may be required)
- Ability to provide improved lighting control allowing excellent lighting uniformity and less spill to neighbouring properties
- Option to dim (note: not all luminaires can be dimmed. This will depend on the driver technology choice)

Indoor installations, whether metal halide or fluorescent installations can be replaced with LED alternatives usually in the same position taking advantage of the existing wiring.

There are many LED luminaires available with different qualities, durability and lighting distributions. A good design will ensure that an appropriate solution is chosen, while a poor choice will result in high levels of player glare, poor uniformity and shortened lifespan.

A one for one replacement of pole mounted metal halide luminaires can provide higher levels of illuminance with lower energy use. It is important to choose luminaires with low windage so as to not overload the pole. If there is building permit information of the installation the designer will be able to calculate the maximum number of floodlights of a certain type that can be installed.

An upgrade to an existing installation should meet all the factors of a new installation.

TIPS

If upgrading an existing lighting installation, being able to provide a copy of the 'as-built' drawings to your electrical lighting engineer will assist with the design process.

If you are looking to retain existing light poles as part of a metal halide to LED lighting transition, consult with an electrical engineer first to certify pole suitability.





For more information, please head to the [Facilities and Infrastructure website](#)



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