

# Get in the Game

## 2018-2020



### Football Field Lighting Checklist

This Checklist is a companion piece to the SRQ Sports Field Lighting set of documents. It is intended to assist clubs and organisations considering either a new lighting installation as part of a green/brown field development or in improvements to an existing installation. Provision of the information indicated below should be provided to the consultants engaged to undertake the design and development of the project.

#### Pre-consultant engagement and design considerations

#### 1. Scoping of Project

Football Court Games / League in Operation هل الملعب قيد الإستخدام فى المسابقات "بغض النظر عن الإضاءة"	<input type="checkbox"/>
Football Court Lighting System Order ON / OFF أم معطل كلياً هل نظام الإضاءة المتواجد بالملعب شغال ولو جزئياً	<input type="checkbox"/>
Exist Normal Electric Source - Valid or Not هل المصدر الكهربى الدائم متوافر وشغال داخل الخدمة	<input type="checkbox"/>
Emergency Electric Source - Valid or Not هل المصدر الكهربى الطوارئء متوافر وشغال داخل الخدمة	<input type="checkbox"/>
<b>Technology Choices</b>	
Used Lamps MH (M=Metal Halide) or (L) = LED هل اللمبات المستخدمة ميتال هاليد أم ليد	<input type="checkbox"/>
If MH - Needed to change to LED فى حالة اللمبات ميتال هاليد - هل هناك طلب أو قرار بالتغيير الى الإضاءة الليد LED ثنائية الإنبعاث الموفرة للطاقة - أم لا	<input type="checkbox"/>
<b>Is it the intention to relocate or use existing infrastructure?</b>	
Lighting Lumenaires on T= Tower, H=High Mast Or (S) = on Stands - Clarify Height / Validity حوامل تثبيت الكشافات على أبراج هيكلية / صواري / مدرجات مطلوب توضيح لحالة الحوامل ومدى جهازيتها وارتفاعها القائم	<input type="checkbox"/>
Lighting Switch Boards DP - Clarify Comp. / Validity لوحات الإضاءة هل بحالة جيدة ومتماثلة للعمل مطلوب توضيح لحالة اللوحات ومدى جهازيتها ومكوناتها التصميمية	<input type="checkbox"/>
<b>Is the project proposed to be undertaken in multiple stages?</b>	
Yes - prepare details of each stage of development and indicate how each stage meets the International Standards for Sports Field lighting & FIFA Recommendations	<input type="checkbox"/>
No	<input type="checkbox"/>

Will the project be tendered as a Design and Construct (D&C) contract or as a traditionally delivered contract?

D & C - Ensure that the tenderers are provided with a detailed performance specification of what is required.

Traditional delivery - See post consultant engagement and design section below.

#### 2. Site Considerations

?Who is the registered owner of the Project

Public Government - منشأة حكومية عامة .

Private Government - منشأة حكومية خاصة .

All Private - منشأة أفراد / شركات خاصة .

Land tenure arrangements - ask

Do you have a lease or right to occupy the land?

Do you have a copy of the lease and/or right to occupy?

Do you have the landowner's permission to install the proposed lighting at the site?

Do you own the land outright e.g. freehold title?

No - You will need to ensure that you obtain or evidence right to occupy or a copy of the lease and also have the landowner's permission to build.

Are there any site conditions that require special consideration?

Is the development on a former landfill site? This is likely to require additional engineering design.

Is the development on a flood plain? Electrical switch and control gear will need to be installed above the flood level.

Does the development have any other unsuitable soil conditions e.g. rock or high-water table?

Exist / Required light spill? R (Control of the obtrusive effects of outdoor lighting) for further detail

Have you considered the potential impact of aviation? Venues within 6 kilometres of an airport must advise the Airport Operator and comply with Obstacle Limitation Surface requirements.

Has consideration been given to the wind loading for cyclonic conditions and also earthquakes if applicable to the project area?	<input type="checkbox"/>
Has ecological consideration been given to the limitations placed on artificial lighting if your venue exists close to significant habitat areas?	<input type="checkbox"/>
Protected trees – design will need to be adjusted to avoid impacting the trees as trimming will not be permissible.	<input type="checkbox"/>
No adverse conditions.	<input type="checkbox"/>

**3. Is this an upgrade to an existing installation?**

<b>Are the fields currently lit for sport use?</b>	
Yes - Development Approval may not be required but this may depend on increases to lighting intensity (lux levels).	<input type="checkbox"/>
No - Development Approval is likely to be required. Council will advise of requirement through the application process.	<input type="checkbox"/>
<b>Has an audit been undertaken on the existing infrastructure?</b>	
Yes – did the audit cover all items covered below?	<input type="checkbox"/>
No - A lighting audit should be undertaken to establish: <ul style="list-style-type: none"> <li>• current lighting (lux) levels</li> <li>• condition of the existing poles</li> <li>• capacity for poles/cross-arms to carry the additional lights (if any)</li> <li>• ,capacity of the electrical infrastructure (transformer switchboard, distribution boards, cables and conduits) to accommodate new and additional lights</li> </ul>	<input type="checkbox"/>

**4. Conceptual Design considerations**

Refer to the International Standard for sports lighting applicable to the sporting .code	
Have you engaged the services of a professional lighting designer with experience in sports lighting to design the scheme?	<input type="checkbox"/>
Have you engaged the services of an RPEQ registered engineer or reputable pole manufacturer for the design of the pole and associated pole footings?	<input type="checkbox"/>
Will the pole manufacturer also be supplying the footing cages and foundation bolt assembly (rag bolts)?	<input type="checkbox"/>
Do you have a survey drawing of the site showing levels, dimensions and layout? If not see below.	<input type="checkbox"/>
Have you prepared a satellite image view of the applicable fields / courts to be illuminated?	<input type="checkbox"/>
Have you determined the lux level/s of lighting required for your project? <ul style="list-style-type: none"> <li>• recreational level <input type="checkbox"/></li> <li>• amateur level <input type="checkbox"/></li> <li>• semi-professional level <input type="checkbox"/></li> <li>• professional level <input type="checkbox"/></li> </ul>	
<b>Specify the area of the site to be lit on a site layout</b>	
Fields or Courts only	<input type="checkbox"/>
Safety zones and overflow activity spaces	<input type="checkbox"/>
Other non-participation areas (i.e. lighting to assist access and egress)	<input type="checkbox"/>

<b>Is the facility intended to be Multipurpose/Multisport?</b>	
Are there any specific areas that require different levels of lighting to accommodate a different sport or lux level? e.g.: <ul style="list-style-type: none"> <li>• AFL and cricket or softball in the corner of a football field.</li> <li>• In regards to lux levels AFL requires 100 lux match practice while cricket requires a higher level at 200 lux</li> </ul>	<input type="checkbox"/>
Has the area requiring the alternative lighting level or applicable sport footprint been clearly indicated on the site layout?	<input type="checkbox"/>
No	<input type="checkbox"/>
<b>Has consideration been given to using alternative energy sources rather than just mains power?</b>	
Yes - Has a cost benefit analysis (CBA) been undertaken on using solar and battery storage to reduce mains power needs energy? Has it been clearly evidenced that initial capital outlay will be recouped within the systems expected lifetime, say 10 years.	<input type="checkbox"/>
Is it expected that surplus energy will be exported to the grid and if so has this been included in the CBA above?	<input type="checkbox"/>
No	<input type="checkbox"/>

**Post consultant engagement and design**

**5. Design Development**

<b>Does the design have the light poles offset a minimum of 5m ?from the playing field boundary as FIFAF</b>	
Yes - Confirm if any additional distance is required to suit the sport prior to accepting the design.	<input type="checkbox"/>
No - Obtain confirmation in writing from the sport's governing body of the minimum safety distance required from the playing field boundary.	<input type="checkbox"/>
<b>Does the height and configuration of the poles meet the ?requirements of FIFA or the sport's governing body</b>	
Will the installation accommodate desired future lighting level upgrades?	
Yes - Ensure that the designed solution provides for known and likely future upgrades? This needs to include structural capacity of poles, cross arms, switchboards, switch gear, cable infrastructure as well as energy distributor infrastructure such as transformers.	<input type="checkbox"/>
No - Consider an alternative design unless no upgrades are intended.	<input type="checkbox"/>
<b>Will the new or increased lighting have an impact on surrounding residences?</b>	
Yes - A lighting spill plan will be required as part of the lighting design. This will demonstrate compliance with .(FIFA (see attachment 1 to lighting fact sheet	<input type="checkbox"/>
Shields (rear and or side) may be required to be fitted to the lights to cut off or control light spill.	<input type="checkbox"/>
No - A lighting spill plan will still be required to demonstrate compliance with FIFA Effects of Obtrusive .Lighting	<input type="checkbox"/>

Has the effect of vegetation been taken into account?	
Yes - It is not permissible to use trees and other vegetation for the lighting design to conform to FIFA	<input type="checkbox"/>
No - The positioning of the poles must be adjusted to avoid vegetation and also to prevent any possible future 'shading' of the lights.	<input type="checkbox"/>
Has a copy of the proposed lighting design been provided by a certified sports field lighting designer? This is required for each level of lighting and needs to demonstrate compliance with the relevant standards?	
Yes - Copy of the complete design documentation must be provided with the application to Council and also to SRQ to comply with pre-construction funding deed requirements.	<input type="checkbox"/>
No - All above documentation will be required before Council can provide permission for the project and before SRQ will give approval to commence construction.	<input type="checkbox"/>
Are all proposed luminaires appropriately IP and IK rated?	
Yes - Does the luminaire have an IP (Ingress Protection) rating minimum of IP65?	<input type="checkbox"/>
Yes - Is the IK (Impact rating) appropriate for the environment e.g. IK08 or IK10?	<input type="checkbox"/>
No - Alternative luminaire needs to be sought for your installation that meets these minimum levels.	<input type="checkbox"/>

6. Lighting control	
Consider requirements for the lights to be switched to different lux levels. This will reduce unnecessary expense.	
Different areas of field usage (e.g. half field only or AFL vs Cricket).	<input type="checkbox"/>
Different lighting levels to correlate with activities being undertaken (i.e. training v competition).	<input type="checkbox"/>
Consider the best location for:	
Lighting main switchboard - consider the future access needs by club personnel and electricians.	<input type="checkbox"/>
Lighting control box - consider proximity to entry/exit points/car park and accessibility by non-regular user groups as well.	<input type="checkbox"/>
Consider the preferred light switching mechanism?	
Choice of switching methodologies. <ul style="list-style-type: none"> <li>• traditional switches <input type="checkbox"/></li> <li>• electronic control (touch panel) <input type="checkbox"/></li> <li>• mobile phone app <input type="checkbox"/></li> <li>• other <input type="checkbox"/></li> </ul> Suggested that the options be discussed with the lighting designer or SRQ client representative.	
If manual switches, consider the use of timers to automatically switch lights off after pre-set time.	<input type="checkbox"/>

Consider the preferred access to the lighting controls?	
Padlock or keyed access - consider who should have access and the need to provide dedicated keys to other users without the ability to access other facilities.	<input type="checkbox"/>
PIN pad or swipe/touch card entry	<input type="checkbox"/>
Mobile phone app - no special site access necessary	<input type="checkbox"/>
Is there a need to record electricity consumption?	
e.g. different user groups or to separate electricity consumption used on the fields as against the clubhouse.	
Yes - options could include sub-meters, mobile phone app, tokens, PIN, computer programming or other. Discuss options with the lighting designer.	<input type="checkbox"/>
No	<input type="checkbox"/>

7. Other Considerations	
Has soil/geotechnical testing been undertaken at each proposed light pole position?	
Yes - Ensure the results have been used to develop the pole footings design.	<input type="checkbox"/>
No - Sports field lighting contractors will require this information to determine minimum soil bearing capacity. <ul style="list-style-type: none"> <li>• Additional costs in pole footings will be incurred where soil conditions do not meet criteria, such as sandy soil, landfill sites or highly reactive soils.</li> <li>• The location of concrete, rock or asbestos during installation will also increase costs.</li> </ul>	<input type="checkbox"/>
Has a site-specific footing design been obtained prior to seeking quotes for construction and installation?	
Yes - Ensure the design is provided to all companies quoting/tendering on the works.	<input type="checkbox"/>
No - Any adverse soil conditions found during the works are likely to generate a variation to the contract and substantially increase the cost of works. This will need to be funded out of the project contingency. Ensure that the contractor includes a footing design in their scope of works to reduce or eliminate the likely hood of expensive variations in the footing design.	<input type="checkbox"/>
Are there any requirements for external power points at the base of light poles or on switchboards for external use?	
Yes - Ensure that the number and location are provided to the lighting designer including single or 3 phase and any control requirements e.g. timer controlled.	<input type="checkbox"/>
No - Consider carefully as power points at field extremities are invaluable during major events.	<input type="checkbox"/>
Is there a requirement for a new/upgraded power meter e.g. smart or 3 phase meter?	
Yes - Ensure any cost is included in the contractor's quote.	<input type="checkbox"/>
No	<input type="checkbox"/>



Is there a requirement for a new/upgraded supply line or transformer?	
Yes – Ensure that any direct costs are included in the contractor's quote (if applicable). Note that this could also be a direct contract with the energy distributor (Energen or Ergon in QLD) rather than through the contractor.	<input type="checkbox"/>
Yes – Ensure that you allow generous timeframes for the installation/upgrade as this is generally measured in months and not in weeks.	<input type="checkbox"/>
No	<input type="checkbox"/>

8. Financial	
Do you have adequate budget or financial backup resources to complete the project?	
Do you have an estimate of cost to complete the entire project including professional fees for lighting designers, engineers and the project manager?	<input type="checkbox"/>
Have you included an allowance for escalation of costs up to the possible construction start date?	<input type="checkbox"/>
Have you included a contingency allocation to cover issues such as problematic soils or rock, unforeseen issues and eventualities? This should be no less than 10% prior to design completion but can be reduced to no less than 5% after tender is awarded.	<input type="checkbox"/>
Have you obtained estimates of cost for the following items?	
Running costs of the lights (consumption) at each of the lighting levels (EGP per kWh). Include service fees/suppl charges and meter fees if applicable. Also include current .usage at start-up of HID luminaires	<input type="checkbox"/>
Maintenance and cleaning schedules and costs. This will be dependent on the type and technology of luminaire used as well as the environment the facility is in.	<input type="checkbox"/>
Lamp rated life in hours (to determine replacement cycle for HID (Metal Halide)) This is less applicable to an SSL (LED) installation as they have expected lifecycles approaching 30,000 hours or greater.	<input type="checkbox"/>
Periodic replacement of ballasts, starters and contactors in a HID (Metal Halide) installation.	<input type="checkbox"/>
Lamp replacement costs, including labour, equipment and any other associated costs.	<input type="checkbox"/>
Will the proposed lighting installation or upgrade increase the club's electricity consumption above 100 MWh per annum?	
Yes - Consider options to reduce consumption. If you cannot reduce below 100 MWh you will need to change your electricity supply arrangement to a 'large consumer' and will be subject to higher network charges.	<input type="checkbox"/>
No - Retain existing electricity supply arrangements.	<input type="checkbox"/>

9. Project Management	
Ensure that the following are undertaken prior to the commencement of the project:	
Consider engagement of a project manager with experience in managing lighting projects and working with Council approval processes.	<input type="checkbox"/>
The preferred timing of the works (milestones) are identified and relayed to the contractor through a desired program of works. <ul style="list-style-type: none"> <li>• avoid peak usage periods of the facility (out of season is best option).</li> <li>• allow long lead times for:                             <ul style="list-style-type: none"> <li>○ transformer or supply upgrades as this can be more than 6 months</li> <li>○ poles ±12-17 weeks</li> <li>○ luminaires (especially LED)</li> </ul> </li> </ul> Consider that the rectification of damaged playing surfaces can take eight weeks or more until activities can resume.	<input type="checkbox"/>
Meet with the contractor at least two weeks in advance of the proposed construction start date to discuss: <ul style="list-style-type: none"> <li>• suitable access times</li> <li>• desired vehicle paths, entry and exit points</li> <li>• potential for damage to playing surfaces</li> <li>• mechanisms to mitigate field damage</li> <li>• adjustments to irrigation to ensure ground stability</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
It is advisable that photos are taken of the facility in its pre-construction condition, particularly in areas where construction vehicles are likely to access or vegetation has to be moved or trimmed.	<input type="checkbox"/>
Access to the facility, onsite amenities, site security etc. need to be confirmed directly with the contractor. This should include end-of-day procedures and lock-up.	<input type="checkbox"/>
Ensure that the following items are undertaken during and at the conclusion of the project:	
Any keys to locks are returned by the contractor, pin codes changed or electronic access revoked.	<input type="checkbox"/>
Any infrastructure removed by the contractor is replaced - e.g. bollards, goal posts.	<input type="checkbox"/>
Post construction meeting with contractor to assess park surface condition and any required rectification works	<input type="checkbox"/>
All other items required as part of the contract are fulfilled.	<input type="checkbox"/>
Ensure contractor provides a completed Compliance Certificate for Building Design or Specification on completion of the project and before any retention monies .are released	<input type="checkbox"/>

10. Contract Considerations	
Ensure the following as a minimum, are clearly defined and included in the scope of works for contractors to quote/tender on.	
Structural engineering certification of footings and poles.	<input type="checkbox"/>
Electrical engineering design and sign-off.	<input type="checkbox"/>
Pole type/s, heights and locations as per the supplied lighting design.	<input type="checkbox"/>



Soil testing and footing design (if not completed earlier).	<input type="checkbox"/>
All light fittings as per the supplied lighting design.	<input type="checkbox"/>
All required electrical infrastructure including any new or upgraded connections to the site supply point. (e.g. switchboards, cables, sub-meters, etc.).	<input type="checkbox"/>
All switching mechanisms and access to light control systems including installation of smart phone app infrastructure if selected.	<input type="checkbox"/>
All Energex/Ergon fees, including supply upgrades and new meters (if applicable and if cost effective).	<input type="checkbox"/>
If applicable the removal and disposal of existing lighting infrastructure.	<input type="checkbox"/>
Tree trimming and removal of debris.	<input type="checkbox"/>
Rectification of any damage to playing surfaces.	<input type="checkbox"/>
Instructions and diagrammatic "how to" guide to be contained in the switchboard. This will naturally vary depending on the switching methodology chosen.	<input type="checkbox"/>
Final commissioning of the lights, including lux plots across the field/s for all lighting levels (if applicable).	<input type="checkbox"/>
Certification by an independent lighting engineer that the installation meets the required Australian Standards or requirements of the sport's governing body. In this regard it is recommended that consideration be given to a lighting specialist not involved in the design or construction of the lighting system to ensure total independence.	<input type="checkbox"/>
Provision of 'as-constructed' documentation for your records and future maintenance/replacement needs.	<input type="checkbox"/>
Specification of a defects liability period where the contractor will be responsible for replacing faulty components (usually 12 months). Note this does not negate product warranty conditions.	<input type="checkbox"/>
Provision of manufacturers' warranties for poles, luminaires, fixtures and fittings, control systems, switchgear and switchboards.	<input type="checkbox"/>
Try to ensure that warranty conditions match expected life of product e.g. if product has expected life of 15 years and comes with a lifetime warranty then this should also be 15 years. Warranties of at least 5 years should be provided on SSL luminaires.	<input type="checkbox"/>
Ensure warranty covers life cycle of fitting and not just specific components e.g. 5-year warranty on LED fitting with stated lifetime of 30,000 hours should apply to LED chips, drivers and the luminaire housing.	<input type="checkbox"/>
Preferred luminaires should be EG certified or their international equivalents. Ensure copies of certificates are received.	<input type="checkbox"/>

## 11. ASSET AND FINANCIAL MANAGEMENT

Does the club have an asset management plan in place?

Yes - Add the new lighting to the asset register and specify the maintenance activities required, frequency of and approximate costs for all elements of the lighting.

No - Prepare an asset management plan as per 'Yes' and add any other infrastructure controlled by the club.

Is the club making regular deposits into a facility sinking fund?

Yes - Ensure that the contributions are increased to accommodate the maintenance and replacement activity costs identified against this new project.

No - Establish a sinking fund and make regular contributions to cover maintenance and replacement of identified components against the replacement schedule.

Is the organisation seeking external funding to undertake the project?

Yes - Provide sufficient lead time for the design to be completed and an estimate of cost prepared prior to the funding submission.

Yes - Concept documentation completed with final contract documentation to be finalised if funding application is successful.

No

## Acknowledgements, Resources and Reference documents

1. Australian Standard AS 2560 Series including Sports Lighting, General Principals and Sport specific versions
2. FIFA Lighting Recommendations
3. European Standard EN 12193 :2007 Light and Lighting – Sports Lighting
4. Civil Aviation Authority MOS139 – Manual of Operating Standards Part 139 – Aerodromes
5. Moreton Bay Regional Council – Sport and Recreation Club Manual, Sports Field Lighting Checklist



شركة البدرى لإضاءة الملاعب الرياضية  
إحدى شركات مجموعة البدرى للتقنية والاستشارات  
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