This document is referred to in Exceptional Development Permit EDP18/0007 issued on 18/10/2018

MINISTER FOR INFRASTRUCTURE, PLANNING AND LOGISTICS

Alice Springs TOWN COUNCIL

Albrecht Oval Lighting

Albrecht Oval, 8 Albrecht Street, Larapinta (Lot 6774 Town of Alice Springs)

Exceptional Development Permit EDP18/0007

Operation Environmental Management Plan

Prepared for Alice Springs Town Council

September, 2019

Prepared By:
Low Ecological Services P/L
PO Box 3130, Alice Springs, NT 0871
Ph: (08) 89 555 222 Fax: (08) 89 555 722
Email: lowecol@lowecol.com.au
Web: www.lowecol.com.au

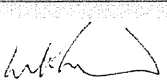
DISCLAIMER

This document has been prepared by Low Ecological Services (LES) for Alice Springs Town Council (ASTC) in collaboration and in accordance with an agreement with ASTC. This document has been prepared using the skill and care expected from professional scientists to provide factual and technical information and reasonable solutions to identified risks. It does not constitute legal advice.

All information on proposed construction contained in this document has been supplied by Alice Springs Town Council.

DOCUMENT CONTROL

Name of Document:	Albrecht Oval Lighting Construction Environmental Management Plan (EMP)
Authors:	Bill Low, Hayley Michener, Jess Cuneo, Jeremy Snowdon-James Low Ecological Services P/L
Client:	Alice Springs Town Council

Approvals	Name	Signature	Date
Originator:	Low Ecological Services P/L		
Reviewer:	ASTC	Stephen Baloban, Opat Innuan, Scott Allen	
Reviewer	NTEPA, Michael Browne	Paul Purdon, EP Section DENR	
Administrator:	ASTC		
Approver:	DCA	x	
Custodian:	ASTC	x	

REVISION DETAILS

Date	Revision	Details	Name	Company
19/12/18	Preliminary Draft	Preliminary Draft for comment	Hayley Mitchener Bill Low	Low Ecological Services P/L
19/12/2018	Preliminary Draft	Additional materials	Opat Innuan	ASTC
8/1/19	Draft_ v1	1st Revision	Bill Low, Hayley Mitchener	Low Ecological Services P/L
8/1/18	Draft V1	Internal review	Jeremy Snowdon-James	Low Ecological Services P/L
9-10/1/19	Draft_ v1	Revision Draft for council	Stephen Baloban, Opat Innuan	ASTC
13/1/19	Final Draft v2	2nd Revision	Bill Low	Low Ecological Services P/L
18/3/19	Draft V3		Bill Low	Low Ecological Services P/L
13/5/19	Draft V3		Bill Low	Low Ecological Services P/L
05/09/19	V 1 OEMPl	Follow EPA review; divide CEMP and OEMP	Jeremy Snowdon James, Bill Low,	Low Ecological Services P/L

GLOSSARY	
AAPA	Aboriginal Areas Protection Authority
ALARP	As Low As Reasonably Practicable
ASC	Australian Soils Classification
ASTC	Alice Springs Town Council
DCA	Development Consent Authority
DENR	NT Department of Environment and Natural Resources
DIPL	NT Dept of Infrastructure, Planning and Logistics
EcSD	Ecologically Sustainable Development
EMP	Environmental Management Plan
EPA	NT Environmental Protection Agency
HS&E	Health, Safety and the Environment
IECA	International Erosion Control Association
LES	Low Ecological Services P/L
m	Meters
NSR	noise sensitive receptor
NT	Northern Territory
OEMP	Operation Environmental Management Plan

Contents

Executive Summary

The operation of the Albrecht Oval light towers will have a low risk of environmental impact if all measures in this operation environmental management plan are followed. This operational EMP will apply after completion of construction of the lighting system which is managed under a Construction Environmental Management Plan (Low Ecological 2019). Potential issues will be limited to obtrusive light emission, crowd and traffic noise and increased traffic hours. The operational hours are designed and managed to mitigate against significant impacts to surrounding sensitive receptors and will be compared with a base line model and overseen by an Albrecht Oval Management Committee. Complaints about issues during operation can be registered in the ASTC complaints system on the web site or at ASTC office and will be acted on in a timely manner by the supervisory staff and contractors.

Project Overview

Proponent Contacts

Company Name	Alice Springs Town Council
ACN/ABN	ABN: 95 081 592 734
Street Address	93 Todd St, Alice Springs
Postal Address	PO Box 1071, Alice Springs, NT, 0871
Telephone	(08) 8950 0500
Key Contact	Opat Innuan, Stephen Baloban
Email	astc@astc.nt.gov.au
Website	http://www.alicesprings.nt.gov.au/contact
Registration of Complaints	ASTC web site, email or ASTC office on Todd St.

Project Description

- ASTC plans to operate four x 34.5 m high lighting towers at Albrecht Oval (Project); a recreation and sports facility owned by the ASTC. The resulting luminance is expected to measure at an average of 750 lux in the infield and an average of 500 lux in the outfield. The level of lighting will be less than the 1500 lux lighting currently used at TIO stadium, Traeger Park, which is suitable for commercial TV filming.
- The purpose of the Project is to improve the usability of the Council's infrastructure for the existing users.
- A draft Environmental Management Plan (EMP) combining descriptive, construction and operational environmental management aspects was reviewed by public consultation in April 2019 and a number of issues raised by the public have been further addressed in this recommended final version of this Operation EMP (OEMP). Further modifications of the presentation of the EMP follows recommendations from a review of the initial EMP by the Environmental Division of the DENR acting on behalf of the NTEPA to provide separate CEMP and OEMP.

Location

- Albrecht Sports Oval Alice Springs, NT.

- The oval is adjacent to Larapinta Drive, Alice Springs, and is accessed via Jamieson Place off Albrecht Drive.
- The land use and zoning classification as Open Space Recreational identify the site for open space and recreation purposes.

Key Activities

As per the conditions of Exceptional Development Permit EDP18/0007 the lighting towers will be used a maximum of four nights per week for practice and competition in the AFL and cricket seasons. AFL season is from the beginning of April to the end of September. Cricket season is from the beginning of October to the end of March every year.

In winter, the oval will be illuminated from between 5:30 pm until 10:00 pm. In summer, the oval will be illuminated from between 6:30 pm to 10:00 pm. Generally, the lighting will be turned off by 8:00 pm to 8:30 pm for practice and 10:00 pm for competitions.

Timing

- The OEMP is required as a condition of the development permit issued under the Planning Act; it must be approved by the Development Consent Authority (DCA) before construction and operation can commence.
- Construction works will begin as soon as the EMPs are approved and are expect to take 6-8 weeks from commencement of onsite works.
- The OEMP will come into effect on completion of construction.

Infrastructure, Key Equipment and Processes

- Four x 34.5m light towers around the periphery of Albrecht Oval as shown in Appendix 1.
- Traffic – increased access hours

Applicable Legislative

Commonwealth	*Aboriginal Land Rights (Northern Territory) Act 1967* *Australian Heritage Council Act 2003* *Environmental Protection and biodiversity Conservation Act 1999*
Northern Territory	*Aboriginal Land Act 2013* *Northern Territory Aboriginal Sacred Sites Act 2013* *Bushfires Act 2014* *Control of Roads Act 2015* *Dangerous Goods (Road and Rail Transport Act) 2012* *Environmental Assessment Act 2013* *Environmental Offences and Penalties Act 2011* *Fire and Emergency Act 2014* *Heritage Act 2016* *Public and Environmental Health Act 2016* *Public and Environmental Health Regulations 2014* *Soil Conservation and Land Utilisation Act 2016* *Territory Parks and Wildlife Act 2014* *Waste Management and Pollution Control Act 2016* *Water Act 2016* *Weeds Management Act 2013*

Environmental Management Framework

- This OEMP is consistent and integrated with ASTC environmental management systems and framework.
- An Albrecht Oval Management Group will oversee operation of the oval and will be comprised of three members of the public, a member of ASTC Council, the Director of Tech Services, an executive person from Tech Services, a representative from each of the Cricket Association and Football Association. They will continuously monitor issues relating to the operational management of the lights at the oval and report directly to the ASTC. They will oversee implementation of the standards of this OEMP and integrate with the existing Environmental Policy as a minimum.
- ASTC environmental policy and framework are provided in the tender document *PROTECTION OF THE ENVIRONMENT* included in Appendix 2

Key Roles and Responsibilities

Roles of key ASTC staff and contractors in the construction phase of the Project.

Opat Innuan; Project Coordinator:

- Engage and liaise with engineering consultant during design, approvals and construction phase.

Liaise with relevant local authorities such as ASTC, Power and Water and Department of Infrastructure Planning and Logistics (DIPL) and EPA/DENR during design, approvals and construction phase.

Matt Raymond; Senior project officer:

- Advertise tender for construction
- Oversee construction phase

Liaise with relevant local authorities such as ASTC, Power and Water and DIPL during design phase.

Stephan Baloban; Manager of infrastructure:

- Oversee both design and construction phases

Existing Environment

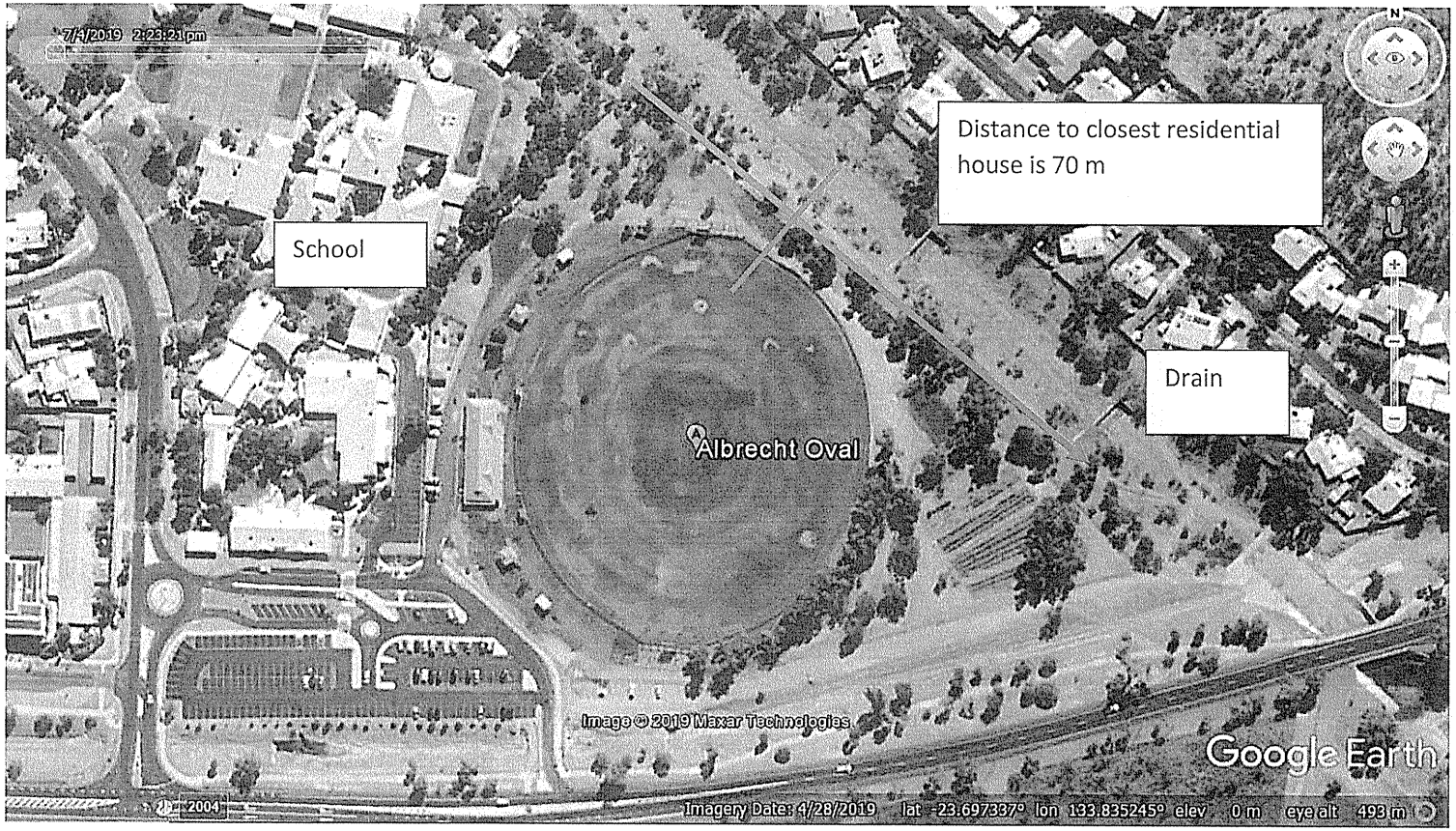
Albrecht Oval is within the Alice Spring town boundaries and has been extensively disturbed and developed for use as a sporting facility.

All works will occur within currently disturbed and modified environment. It will be in close proximity to neighboring community households. The area is zoned for open space and recreation purposes

There is expected to be minor potential disturbance to surrounding users from lighting or noise activities during operation. The oval lighting will be restricted to maximum of four days per week and no later than 10:00 pm but mostly only until 8:00 pm.

Conceptual Site Model

- Potential for noise to impact surrounding sensitive receptors
- Potential for lighting to impact surrounding sensitive receptors



Environmental Risk Assessment

This section outlines all identified potential environmental risks associated with the Project which are assessed against the risk matrix in Appendix 3. A risk evaluation system developed by ASTC (2016) has been used to calculate the logistical risks associated with the Project.

The results are shown in the Table 1 and risk rating is assessed when appropriate mitigation measures are used.

Risks (environmental and OH&S) identified during operation:

1. **Traffic**: Increased hours of vehicles moving in and out of the construction site could cause impact to local traffic and might cause accidents.
2. **Noise**: Potential for noise nuisance related to light operations will be of short duration from operational activities limited to four nights per week. Predominately till 8:00 pm and occasionally 10:00 pm. Although the lighting will allow for extended hours of use, noise experienced from the oval has been calculated to not have a significant increase above existing levels (ASTC, 2019). The level of noise emitted by crowds has been calculated by engineering staff at ASTC and is not expected to unduly affect surrounding residents and will be within permissible noise levels for sensitive noise receptors in residential areas.
3. **Lighting**: Potential for obtrusive light on surrounding sensitive receptors. An obtrusive lighting analysis was conducted on the roads and residential areas surrounding Albrecht Oval to comply with AS4282.
4. **Antisocial behaviour**: There is no reason to expect any increase in antisocial behaviour in the surrounding area and increased lighting may in fact decrease the incidence of antisocial behaviour.

Table 1 Environmental Risk Assessment and Mitigation Measures

Hazard	Objective	Comment	Risk rating; Consequence and Likelihood (Risk matrix Appendix 3)	Monitoring methods	Management Actions
Noise	No noise complaints from surrounding properties.	Potential noise production from extended use hours of the sporting oval	Low 0.1 schedule impact	Complaints received through the complaints register operated by ASTC or Albrecht Oval Management Group.	The oval lighting will be restricted to maximum of four days per week and no later than 10:00 pm but mostly only until 8:00 pm and the noise generated during this time will have minimal impact on residents due to attenuation of sound by distance and trees along the drain way. Infill planting of trees will take place to minimize open space in the tree density along the drain. If known noisy operation is planned, it may be appropriate to door knock nearby residents to advise. An Albrecht Oval Management Group will monitor noise and report to ASTC. Collect data on background noise levels and baseline noise levels for sporting events. If complaint occurs, assess noise at property and compare to Noise Management Framework
Lighting spill	Minimise lighting spill to adjacent area and roadway	Minimal lighting spill to adjacent area and roadway	Low 0.1 schedule impact	Assessed by ASTC supervisors and the Albrecht Oval Management Group. Complaints from nearby residential stakeholders through the complaints register operated by ASTC	The oval lighting will be restricted to maximum of four days per week and no later than 10:00 pm but mostly only until 8:00 pm. Aim new lighting as per engineering documentation; LED lights have sharp delineation of area covered. The Albrecht Oval Management Group will monitor light issues and report to ASTC.

Hazard	Objective	Comment	Risk rating: Consequence and Likelihood (Risk matrix Appendix 3)	Monitoring methods	Management Actions
Weeds	No declared weeds, Weeds of National Significance or environmental weeds introduced to the site during construction.	Lawned oval situation which is monitored by gardeners.	Very Low 0.05	Visual inspection by weed knowledgeable person or the Albrecht Oval Management Group	An Albrecht Oval Management Group will monitor weed presence and report to ASTC.
Community concerns	Activities do not impact on community members. No adverse community reactions. Community enquiries are managed satisfactorily.	Community concern has been expressed about the lighting program at Albrecht Oval and all care should be taken to reduce concerns.	Low to Moderate 0.10 - may impact programs	Complaints from nearby residential stakeholders through the complaints register operated by ASTC	Community is kept well-informed before major events through notices to surrounding residents, and use of Council social media and website. Control of intrusive lighting through use of LED lights with sharp demarcation of light edge kept on sports oval. High-ball lights will be kept above the horizon, particularly in direction of sensitive housing. Traffic management is put in place to ensure surrounding schools, businesses and residents are not affected. Antisocial behaviour should be minimized by extended use of the oval. Police records will be monitored should complaints arise. The Albrecht Oval Management Group will monitor issues and report to ASTC.

Hazard	Objective	Comment	Risk rating; Consequence and Likelihood (Risk matrix Appendix 3)	Monitoring methods	Management Actions
Fire	No fires	May be a concern during hot weather	Very Low 0.05	The Albrecht Oval Management Group and ASTC supervisors to monitor conditions. particularly monitored during heat waves.	Fire extinguishers and local firefighting hoses on site and operational. Operators and supervisors to monitor BOM forecasts to assess conditions as appropriate to ensure operations can be safely carried out to avoid risk of fire.
Traffic	No serious injury to person or disruption to local traffic	Low traffic area	Low to Moderate 0.10 - may impact schedule	Traffic management operator and the Albrecht Oval Management Group to monitor impacts	Traffic management plan developed and traffic management contractors used during large events. An Albrecht Oval Management Group will monitor traffic issues and report to ASTC.

Environmental Management Strategies

All management actions to identified risk are as detailed in the Table 1. Management of the three identified highest environmental risks noise, dust and erosion are provided in more detail below.

Noise

Noise related to evening activity will be managed through restriction of operation hours of the lights to four days per week and no later than 10:00 pm but mostly only until 8:00 pm to avoid noise sensitive receptor (NSR) impact. The effectiveness of trees in reducing noise between the oval and the residences is significant with calculated noise levels being reduced from over 100 dB(A) to below 40 dB(A), an acceptable noise level for a quiet living room. Noise intrusion will be further abated by additional planting of trees between the oval and potential sensitive receptors. Noise levels will be monitored and compared with current baseline data to verify noise levels should complaints about noise be raised with ASTC.

Low Ecological Services are collecting background and current activity noise level to develop a baseline to assess against any future noise complaints from NSR.

If a noise complaint is made by a NSR then the process as described in Section 3.1.4 of the NT Noise Management Framework Guidelines issued under the *Waste Management and Pollution Control Act* (1998) will be followed to determine if it is an offensive or intrusive noise level. It states that if measured noise at an affected residence exceeds the background noise by 5 dB(A) as measured over a 15-minute period then it will be determined as intrusive and a regulatory response may be triggered. This process will involve establishing the difference between the background noise level and the noise under investigation.

Obtrusive Light

An obtrusive lighting analysis was conducted on the roads and residential areas surrounding Albrecht Oval to comply with AS4282. The obtrusive lighting on residential areas was calculated from 1 (one) metre height to the 4 (four) metre high fence line in increments of a meter, on the vertical plane. The calculations were conducted based off class-I cricket mode of operation, 750 lux, as this presents the highest exit lumens, thus being the worst case.

The calculations have been reviewed by BCA Engineers and agree with the design indications. The calculations are for pre-curfew operation times, this is before 10:00 pm. The indicative time of operation of the lights is between 6:00 pm to 9:00 pm; generally stopping at 8:00 pm. The key design parameters required to comply with AS 4282 are as below:

Key Target Criteria	Max value Allowable as per AS 4282	Max Value Calculated (Initial)	Comments
Light Intensity (Cd)	7500	7302	The maximum light intensity calculation is below the allowable maximum.
Obtrusive light level (Lux)	10	8.4	The maximum obtrusive light is below the allowable limit and seen from Bokhara street

Obtrusive Light - Compliance Report

AS 4282-1997, Pre-Curfew, Residential - Dark Surrounds
Filename: Albrecht 4 Initial RevE
9/03/2018 1:14:49 PM

Illuminance

Maximum Allowable Value: 10 Lux

Calculations Tested (9):

Calculation Label	Test Results	Max. Illum.
ObtrusiveLight Boundary Albrecht_Ill_Seg1	PASS	2.1
ObtrusiveLight Boundary Albrecht_Ill_Seg2	PASS	1.8
ObtrusiveLight Boundary Albrecht_Ill_Seg3	PASS	1.1
ObtrusiveLight Heidenreich_Ill_Seg1	PASS	1.3
ObtrusiveLight Heidenreich_Ill_Seg2	PASS	0.6
ObtrusiveLight Heidenreich_Ill_Seg3	PASS	0.2
ObtrusiveLight Front Bokhara +5m_Ill_Seg1	PASS	0.0
ObtrusiveLight Front Bokhara +5m_Ill_Seg2	PASS	0.0
ObtrLight Rear Fence Bokhar_Ill_Seg1	PASS	8.4

Threshold Increment (TI)

Maximum Allowable Value: 20 %

Calculations Tested (4):

Calculation Label	Adaptation Luminance	Test Results
ObtrusiveLight_TI Larapinta East	0.1	PASS
ObtrusiveLight_TI Larapinta West	0.1	PASS
ObtrusiveLight_TI Albrecht South	0.1	PASS
ObtrusiveLight_TI Albrecht North	0.1	PASS

Monitoring

Monitoring of risk factors and mitigation is presented in Table 1. Monitoring of responses to complaints and mitigation will be undertaken by an Albrecht Oval Management Group that will report to ASTC.

Monitoring of the operation and impact of the use of the lights and extended use of the oval will be ongoing and will be reviewed by the Albrecht Oval Management Group. The Albrecht Oval Management Group will initially meet after three months to determine if changes need to be made to the operating schedule. The Albrecht Oval Management Group will meet four times in the first year with timing of meetings to allow feed back to the sports associations before their seasons begin. Change of frequency of subsequent meetings and reports will be provided to ASTC who will decide on any alteration or course of action for the operation of the lights and use of the oval.

Auditing

Auditing of the progress and environmental compliance of the Project will be conducted by the Albrecht Oval Management Group three months after operation; and then four times during the first year. Auditing will be against management actions outlined in Table 1.

Future frequency of the audits will be decided by ASTC or based on a complaint or community concern raised.

Reporting and Review

Reporting will be retained by the Albrecht Oval Management Group prior to filing with ASTC. Incidents and near misses will be recorded for review and future application. All complaints received by ASTC office or the Albrecht Oval Management Group are to be investigated and rectified as appropriate and response made to complainant in a timely manner.

Training and Communications

Training and communication of all contractors, staff, ASTC employees and Albrecht Oval Management Group members in the application and concerns of this OEMP and ASTC environmental policies will be a requirement of the OEMP and will be achieved through:

- Site inductions
- Site HSE meetings
- Shift handovers

A list of attendees and visitors will be kept by the Albrecht Oval Management Group or ASTC supervisor.

Stakeholder Engagement

Stakeholders are shown in the following table.

Table 2 List of stakeholders in the project

Stakeholder	Role, involvement	Activities/ contributions
ASTC	Proponent	construction planning, management and funding; oversight of project and communication with ASTC community; receive complaints during development
Albrecht Oval Management Group	Supervisors	Monitor and manage ongoing operation of the site and any environmental concerns.
Minister for Infrastructure, Planning and Logistics	Development permit issuer	Assessment of development, community impact and justifiability
Contractors	Follow contract requirements	follow instructions of ASTC supervisors
Nearby Schools	Potential impact from construction or use of the oval when school sessions are on	Larapinta Primary and Living Waters Lutheran Schools occupied during school periods.
Nearby residents	Community potentially within noise, sight or traffic impact area	Surveyed by ASTC, response to questionnaire; Community meeting to discuss Environmental Management Plan reviewed by public and a public meeting held; ongoing impact will be monitored by the Albrecht Oval Management Group
Sporting bodies	Use of the oval	Use of playing surface and facilities by Cricket Club, AFL clubs by arrangement with ASTC as coordinated through the Albrecht Oval Management Group

References

Alice Springs Town Council 2016. Proposed Widening of Ilparpa Road Alice Springs Risk Management Plan. Version 1.1, 29-1-2016;

Alice Springs Town Council 2019. Albrecht Oval Gransdstand Noise Management Plan 8-03-2019. ASTC Tech Services.

Alice Springs Town Council 2019. Albrecht Oval Construction Environmental Management Plan. Low Ecological Services for ASTC Tech Services.

http://noisetools.net/noisecalculator2?source=[4.6]&receiver=[1.5,167.7]&barrier=[1,7.9,151.7]

NT DIPL 2018. Proposed Exceptional Development Permit, Lot 6774, Alice Springs. May 11, 2018

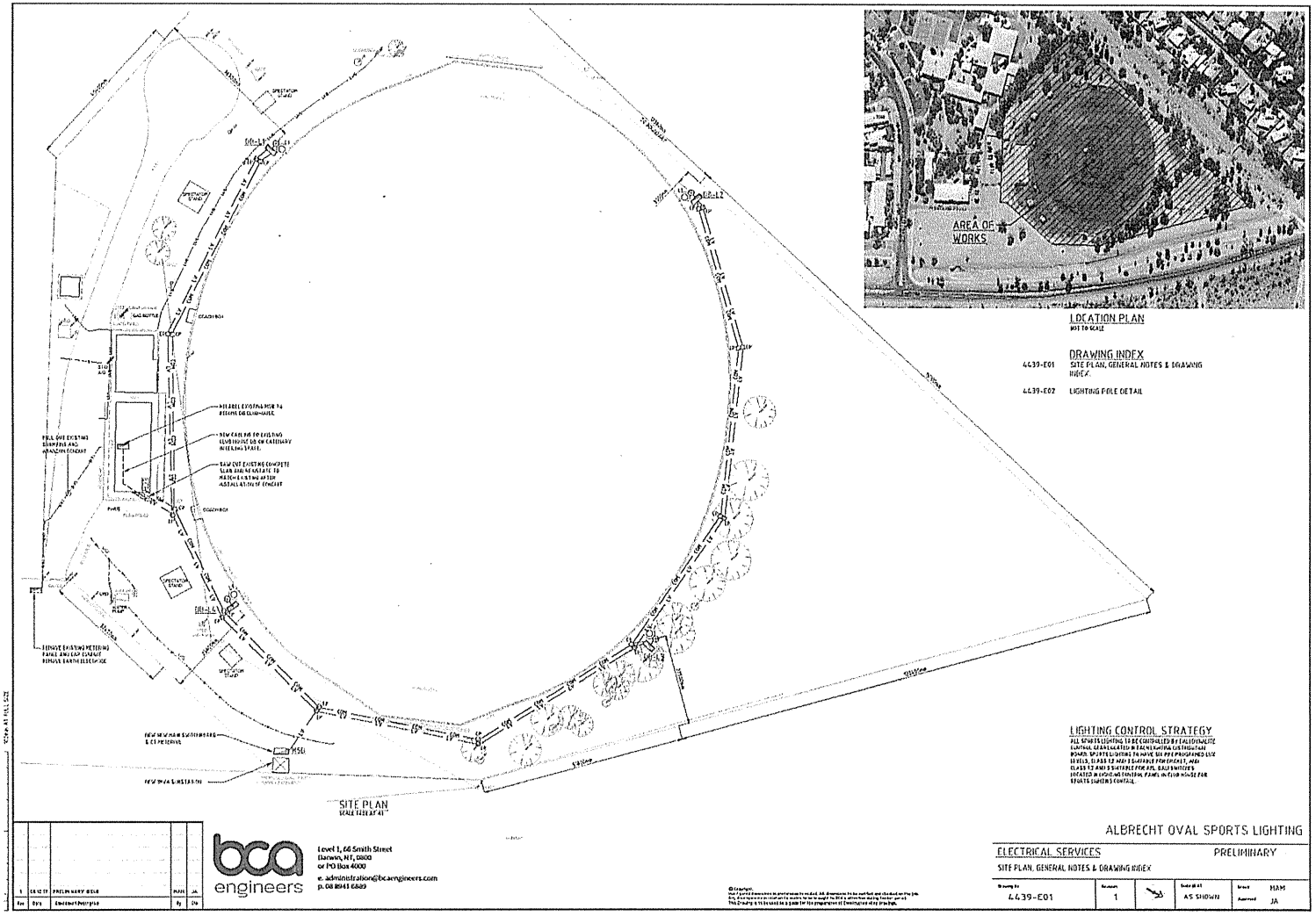
NT EPA 2019 Guidelines for the preparation of an Environmental Management Plan – Draft

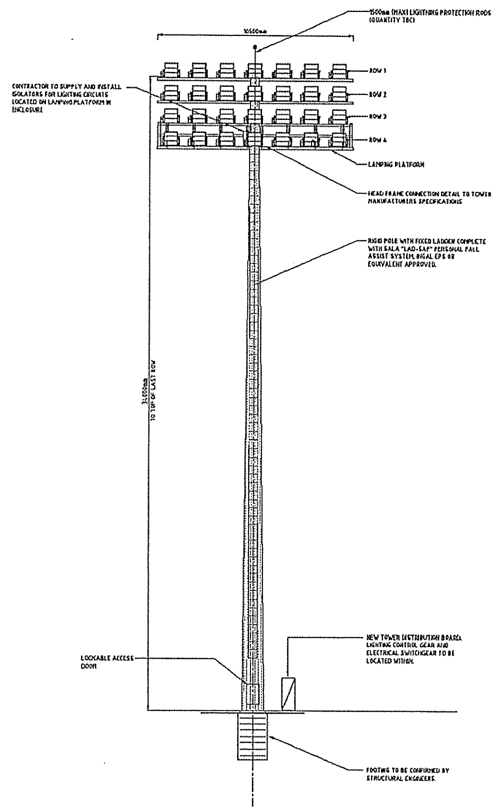
NT EPA 2015 Guidelines for the preparation of an Environmental Management Plan

Alice Springs Town Council Contractor Induction - Induction ppt. ASTC.

NRETAS Noise Guidelines for Development sites

Appendix 1 Proposed Light Tower, Electric Cable and Trenching Layout





LIGHT TOWER FRONT ELEVATION (TYPICAL)

SCALE 1:40 AT A1

NOTE: THIS ELEVATION IS INDICATIVE OF THE INTENT, FINAL POLE AND LAMP PLATFORM DESIGN TO BE CARRIED OUT BY SPECIALIST SPORTS CONSULTANT AND FORMALLY SUBMITTED FOR ENGINEERS APPROVAL.

GENERAL NOTES:

GENERAL

1. THESE ELECTRICAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS, DETAILS AND THE SPECIFICATION.
2. ALL WORKS AND EQUIPMENT SHALL COMPLY WITH ALL RELEVANT CODES AND STATUTORY REQUIREMENTS IN PARTICULAR AS 3000, AS 3008, AS 2293, AS 1670, AS 3201, AS 3080, AS 1136 AND AS 1931.
3. LABEL ALL EQUIPMENT AND ACCESSORIES (SWITCHES, POWER OUTLETS, COMMUNICATIONS OUTLETS ETC) WITH DISTRIBUTION BOARD NUMBER AND CIRCUIT NUMBER.
4. LOCATIONS OF ELECTRICAL EQUIPMENT SHOWN ARE INDICATIVE ONLY. CO-ORDINATE FINAL ELECTRICAL EQUIPMENT LOCATIONS WITH ALL OTHER SERVICES DETAILS AND TRADE DISCIPLINES ON SITE.
5. LOCATE ALL CONTROLS IN ACCESSIBLE POSITIONS. DISTRIBUTION BOARD LOCATION SHOWN IS RECOMMENDED, UNLESS OTHERWISE NOTED.
6. ALL DIMENSIONS ARE IN MILLIMETRES.
7. TENDERER SHALL BECOME FAMILIAR WITH THE SITE AND EXISTING EQUIPMENT AND INSTALLATION CONDITIONS. NO VARIATION WILL BE ENTERTAINED FOR UNKNOWN SITE CONDITIONS.
8. ALLOW TO SEAL ALL PENETRATIONS THROUGH FULL HEIGHT WALLS AND FIRE SEAL ALL PENETRATIONS THROUGH FIRE/SMOKE BARRIER WALLS AND FLOORS (TO MATCH THE DESIGNED FIRE RATING OF THE BUILDING STRUCTURE AND "BCA" AND FIRE REGULATIONS APPLICABLE REQUIREMENTS).

CABLE

1. ALL CABLES SHALL BE THERMOPLASTIC INSULATED AND SHEATHED MULTI - STRANDED COPPER CONDUCTORS, UNLESS OTHERWISE NOTED.
2. FINAL SUB-CIRCUIT CABLING SHALL BE MINIMUM 2.5mm² STRANDED FOR LIGHTING, (TBC) AND ALL FINAL SUB-CIRCUITS SHALL BE SIZED FOR MAXIMUM VOLTAGE DROP OF 2.5% (TBC) FROM THE RESPECTIVE DISTRIBUTION BOARD.

CABLE WAYS

1. SEPARATE COMMUNICATIONS CABLING FROM POWER CABLING BY MINIMUM OF 600mm UNLESS OTHERWISE NOTED, EXCEPT WHERE ENCLOSED IN METAL DUCT OR METAL CONDUIT. CABLES MAY CROSS EACH OTHER WITH A 50mm SEPARATION IN COMPLIANCE WITH AS/NZS 3000 REQUIREMENTS.

LIGHTING

1. MOUNT ALL LIGHT SWITCHES AT 1000mm AFL TO CENTRE UNLESS OTHERWISE NOTED.
2. MULTIPLE LIGHT SWITCHES TO BE ALIGNED WITH 25mm SPACING FROM EACH OTHER.
3. INSTALL COMBINED RCD/CIRCUIT BREAKER FOR ALL LIGHTING SUBCIRCUITS, UNLESS OTHERWISE NOTED.

LEGEND OF SYMBOLS

DB	ELECTRICAL DISTRIBUTION BOARD.
— LV —	ROUTE OF LOW VOLTAGE CABLING IN UNDERGROUND ORANGE HD uPVC CONDUIT.
— COM —	ROUTE OF COMMUNICATIONS CABLING IN UNDERGROUND WHITE HD uPVC CONDUIT.
EP	ELECTRICAL CABLE PIT, CLASS B WITH DRAINAGE. CONTRACTOR TO SIZE PIT DIMENSION.
CP	COMMUNICATIONS CABLE PIT.
LCP	LIGHTING CONTROL PANEL, ALL SPORTS LIGHTING TO BE CONTROLLED BY DALI DYNALITE USER INTERFACE LOCATED IN LIGHTING CONTROL PANEL WITH SIX PREPROGRAMED LIGHT SETTINGS, CLASS 1,2 AND 3 SUITABLE FOR CRICKET, AND CLASS 1,2 AND 3 SUITABLE FOR AFL. CLIENT TO CONFIRM MONITORING REQUIREMENT FOR LIGHTING USAGE.
L1	1KTW, 5700K, LED, PHILLIPS "OPTIVISION LED GEN 2 FLOODLIGHT" MOUNTED ON 34000mm RIGID POLE WITH CLIMBING LADDER AND LAMPING PLATFORM FIXED. 21-OFF ASYMETRICAL NARROW BEAM FITTINGS. 4-OFF ASYMETRICAL WIDE BEAM FITTINGS. 3-OFF SYMETRICAL BEAM FITTINGS.

Rev	Date	Amendment Description	By	Chk
1	13.11.17	PRELIMINARY ISSUE	MAH	JA

bca engineers

Level 1, 66 Smith Street
Darwin, NT, 0800
or PO Box 4000
e. administration@bcaengineers.com
p. 08 8041 6889

ALBRECHT OVAL SPORTS LIGHTING

ELECTRICAL SERVICES — PRELIMINARY

LIGHTING POLE DETAIL, GENERAL NOTES & LEGEND OF SYMBOLS

Drawing No.	Revision	Scale @ A1	Drawn	Approved
4439-E02	1	AS SHOWN	MAH	JA

Appendix 2 ASTC Environmental Policy Protection of the Environment

The Contractor shall:

(a) Comply with all statutory requirements and accepted current practices for Environmental management.

(b) Comply in every respect with the Erosion and Sedimentation Plan pertaining to this contract.

(c) Ensure that each of its subcontractors and Consultants comply in like manner.

The contractor shall certify on the form provided that all work shall be carried out in such a manner as to avoid nuisance and/or damage to the environment. The Contractor shall comply with the requirements of the conditions of approval imposed by the Local Government Act, Environmental Offences and Penalties Act and the Water Act. No variation in costs or extensions of time will be considered due to these requirements.

The Contractor shall plan and carry out the Works to avoid erosion, contamination and sedimentation of the site and its surroundings.

Herbicides and other toxic chemicals shall not be used on the site without the prior written approval of the Principle.

No noise or smoke or other nuisance, which in the opinion of the Principle is unnecessary or excessive shall be permitted by the Contractor in the performance of the works under this Contract. Should work outside customary working hours be approved, the Contractor shall not use, during such period, any plant, machinery or equipment which in the opinion of the Principle is causing or is likely to cause a nuisance to the public. No noisy works and/or works likely to disturb nearby residents shall be undertaken during the hours precluding such activity as specified by Council in accordance with the requirements for development consent and building approval made under the Local Government Act appropriate Noise Legislation.

The Contractor shall ensure that fugitive dust from disturbed areas is minimized by a method approved by the Principle.

Appendix 3 ASTC Risk Assessment Matrix

Risk Probability Definitions

Probability Category	Probability	Description
Very High	65%-100%	Risk event expected to occur
Medium	35%-65%	Risk event may or may not occur
Low	0%- 35%	Risk event not expected to occur

Risk Impact Definitions.

Project Objective	Very Low 0.05	Low 0.10	Moderate 0.20	High 0.40	Very High 0.80
Cost	Insignificant cost impact	< 10% cost impact	10-20% cost impact	20-40% cost impact	> 40% cost impact
Schedule	Insignificant schedule impact	< 5% schedule impact	5-10% schedule impact	10-20% schedule impact	> 20% schedule impact
Scope	Barely noticeable	Minor areas impacted	Major areas impacted	Changes unacceptable to sponsor	Product becomes effectively useless
Quality	Barely noticeable	Only very demanding applications impacted	Sponsor must approve quality reduction	Quality reduction unacceptable to sponsor	Product becomes effectively useless

Risk Probability and Impact Matrix

Probability/Impact	Very low	Low	Moderate	High	Very high
High	0.05	0.09	0.18	0.36	0.72
Medium	0.03	0.05	0.1	0.2	0.4
Low	0.01	0.01	0.02	0.04	0.08

Addendum to EMP – Exceptional development Permit EDP18/0007

1. The light towers are to be designed, constructed and operated in accordance with AS4282 – Control of the obtrusive effects of outdoor lighting and guidance from the International Commission on Illumination (namely the Guide on the Limitation of the Effects of Obtrusive Light from outdoor Lighting Instillations, 2nd Edition).

2. The design and operation of the light towers will not cause obtrusive light, including glare beyond the boundary of the premises and light intrusion at residential properties, and:

    a. ensure when operating the lights:
        i. There will be no direct upward or backward light from the light towers;
        ii. The lights will not cause any intrusive light into residential premises; and
        iii. The intensity of light spill from the lit facility, the amount of upward reflected light from the lit area, and glare from the lights will be reduced to the maximum possible extent.
    b. ensure light intensity of any of the light sources are set at a level that does not cause excessive light spill beyond the boundary of the premises and to avoid glare and obtrusive light; and
    c. establish procedures for responding to and managing complaints about obtrusive light and light pollution (environmental nuisance).

This document is referred to in Exceptional Development Permit EDP18/0007 issued on 18/10/2018

MINISTER FOR INFRASTRUCTURE, PLANNING AND LOGISTICS

Alice Springs TOWN COUNCIL

Albrecht Oval Lighting

Albrecht Oval, 8 Albrecht Street, Larapinta (Lot 6774 Town of Alice Springs)

Exceptional Development Permit EDP18/0007

Construction Environmental Management Plan

Prepared for Alice Springs Town Council

August, 2019

Prepared By:
Low Ecological Services P/L
PO Box 3130, Alice Springs, NT 0871
Ph: (08) 89 555 222 Fax: (08) 89 555 722
Email: lowecol@lowecol.com.au
Web: www.lowecol.com.au

DISCLAIMER

This document has been prepared by Low Ecological Services (LES) for Alice Springs Town Council (ASTC) in collaboration and in accordance with an agreement with ASTC. This document has been prepared using the skill and care expected from professional scientists to provide factual and technical information and reasonable solutions to identified risks. It does not constitute legal advice.

All information on proposed construction contained in this document has been supplied by Alice Springs Town Council.

DOCUMENT CONTROL

Name of Document:	Albrecht Oval Lighting Construction Environmental Management Plan (EMP)
Authors:	Bill Low, Hayley Michener, Jess Cuneo, Jeremy Snowdon-James Low Ecological Services P/L
Client:	Alice Springs Town Council

Approvals	Name	Signature	Date
Originator:	Low Ecological Services P/L		30/08/19
Reviewer:	ASTC	Stephen Baloban, Opat Innuan, Scott Allen	30/08/19
Reviewer	NTEPA, Michael Browne	Paul Purdon, EP Section DENR	August 2019
Administrator:	ASTC		
Approver:	DCA	x	
Custodian:	ASTC	x	

REVISION DETAILS

Date	Revision	Details	Name	Company
19/12/18	Preliminary Draft	Preliminary Draft for comment	Hayley Mitchener Bill Low	Low Ecological Services P/L
19/12/2018	Preliminary Draft	Additional materials	Opat Innuan	ASTC
8/1/19	Draft_ v1	1st Revision	Bill Low, Hayley Mitchener	Low Ecological Services P/L
8/1/18	Draft V1	Internal review	Jeremy Snowdon-James	Low Ecological Services P/L
9-10/1/19	Draft_ v1	Revision Draft for council	Stephen Baloban, Opat Innuan	ASTC
13/1/19	Final Draft v2	2nd Revision	Bill Low	Low Ecological Services P/L
18/3/19	Draft V3		Bill Low	Low Ecological Services P/L
13/5/19	Draft V3		Bill Low	Low Ecological Services P/L
25/8/19	V 4 final	Follow EPA review; divide CEMP and OEMP	Bill Low, Jeremy Snowdon James	Low Ecological Services P/L
22/10/19	V4 final amended	Minor correction	Bill Low	Low Ecological Services P/L

GLOSSARY	
AAPA	Aboriginal Areas Protection Authority
ALARP	As Low As Reasonably Practicable
ASC	Australian Soils Classification
ASTC	Alice Springs Town Council
CEMP	Construction Environmental Management Plan
DCA	Development Consent Authority
DENR	NT Department of Environment and Natural Resources
DIPL	NT Dept of Infrastructure, Planning and Logistics
EcSD	Ecologically Sustainable Development
EMP	Environmental Management Plan
EPA	NT Environmental Protection Agency
HS&E	Health, Safety and the Environment
IECA	International Erosion Control Association
LES	Low Ecological Services P/L
m	Meters
NSR	noise sensitive receptor
NT	Northern Territory

Contents

Executive Summary

The construction of the Albrecht Oval light towers and installation of the underground power lines will have a low risk of environmental impact if all measures in this construction environmental management plan are followed. Potential issues will be restricted to dust, noise, and traffic and these are managed to mitigate against significant impacts. Complaints about issues during construction will be registered in the ASTC complaints system on the web site or at ASTC office and will be acted on in a timely manner by the supervisory staff and contractors.

Project Overview

Proponent Contacts

Company Name	Alice Springs Town Council
ACN/ABN	ABN: 95 081 592 734
Street Address	93 Todd St, Alice Springs
Postal Address	PO Box 1071, Alice Springs, NT, 0871
Telephone	(08) 8950 0500
Key Contact	Opat Innuan, Stephen Baloban
Email	astc@astc.nt.gov.au
Website	http://www.alicesprings.nt.gov.au/contact
Registration of Complaints	ASTC web site, email or ASTC office on Todd St.

Project Description

- The purpose of the Project is to improve the usability of the Council's sporting infrastructure for the existing and future users.
- ASTC plans to construct 4 x 34.5 m high lighting towers and installation of the underground power lines at Albrecht Oval (Project); a recreation and sports facility owned by the ASTC. The resulting luminance is expected to measure at an average of 750 lux in the infield and an average of 500 lux in the outfield. The level of lighting will be less than the 1500 lux lighting currently used at TIO stadium, Traeger Park, which is suitable for commercial TV filming.
- The purpose of the Project is to improve the usability of the Council's infrastructure for the existing users. The level of lighting will be less than the lighting currently used at TIO stadium, Traeger Park, which is suitable for TV filming.
- A draft Environmental Management Plan (EMP) including descriptive and operational environmental management aspects was reviewed by public consultation in April 2019 and a number of issues raised by the public have been further addressed in this recommended final version of the Construction EMP (CEMP). Further modifications of the presentation of the report follow recommendations from a review of the EMP by the Environmental Division of the DENR acting on behalf of the NTEPA. The Operational Management Plan (OEMP) will be presented separately from the CEMP.
- This EMP represents the construction; hence is referred to as the CEMP.

Location

- Albrecht Sports Oval Alice Springs, NT.

- The oval is adjacent to Larapinta Drive, Alice Springs, and is accessed via Jamieson Place off Albrecht Drive.
- The land use and zoning classification as Open Space Recreational identify the site for open space and recreation purposes.

Key Activities

- Excavation of footings
- Concrete footings
- Removal of excess spoil
- Trenching for electrical cabling
- Transport of light towers to site
- Installation of light towers
- Underground electrical connection

Timing

- The CEMP is required as a condition of the development permit issued under the Planning Act; it must be approved by the Development Consent Authority (DCA) before construction can commence.
- Works will be completed in succession and is expect to take 6-8 weeks from commencement of onsite works.

Infrastructure, Key Equipment and Processes

- Underground electrical wiring and trenching,
- Erection of 4 x 34.5m light towers around the periphery of Albrecht Oval as shown in Appendix 2.
- Concrete footings and excavation
- Traffic
- Temporary site office and fencing off the whole work site area.
- Contractor will provide a schedule of the final construction plan. A preliminary construction schedule for planning purposes is provided at Appendix 1.
- Power and Water Corporation (Power and Water) will be responsible for the installation of transformer substation and connecting power to the light towers

Applicable Legislative

Commonwealth	*Aboriginal Land Rights (Northern Territory) Act 1967*
	Australian Heritage Council Act 2003
	Environmental Protection and biodiversity Conservation Act 1999
Northern Territory	*Aboriginal Land Act 2013*
	Northern Territory Aboriginal Sacred Sites Act 2013
	Bushfires Act 2014
	Control of Roads Act 2015
	Dangerous Goods (Road and Rail Transport Act) 2012
	Environmental Assessment Act 2013
	Environmental Offences and Penalties Act 2011
	Fire and Emergency Act 2014

Heritage Act 2016
Public and Environmental Health Act 2016
Public and Environmental Health Regulations 2014
Soil Conservation and Land Utilisation Act 2016
Territory Parks and Wildlife Act 2014
Waste Management and Pollution Control Act 2016
Water Act 2016
Weeds Management Act 2013

Environmental Management Framework

- This CEMP is consistent and integrated with ASTC environmental management systems and framework. The contractor undertaking this work will implement the standards of this CEMP and integrate with their existing Environmental Policy as a minimum.
- ASTC environmental policy and framework are provided in the tender document *PROTECTION OF THE ENVIRONMENT* included in Appendix 3
- Contractor will provide their own CEMP based on this CEMP and be acceptable to ASTC.

Key Roles and Responsibilities

Roles of key ASTC staff and contractors in the construction phase of the Project.

Opat Innuan; Project Coordinator:

- Engage and liaise with engineering consultant during design, approvals and construction phase.
- Liaise with relevant local authorities such as ASTC, Power and Water and Department of Infrastructure Planning and Logistics (DIPL) and EPA/DENR during design, approvals and construction phase.

Matt Raymond; Senior project officer:

- Advertise tender for construction
- Oversee construction phase
- Liaise with relevant local authorities such as ASTC, Power and Water and DIPL during design phase.

Stephan Baloban; Manager of infrastructure:

- Oversee both design and construction phases

Existing Environment

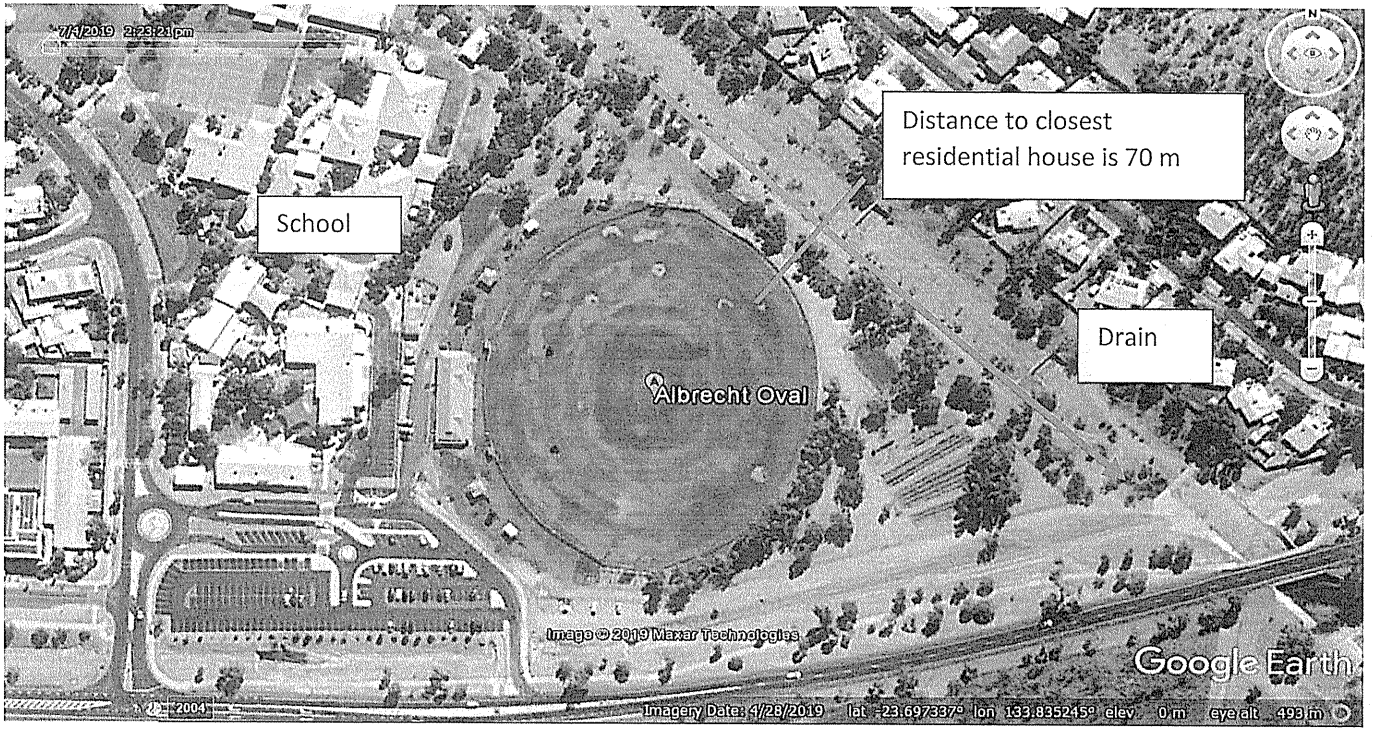
Albrecht Oval is within the Alice Spring town boundaries and has been extensively disturbed and developed for use as a sporting facility.

All works will occur within currently disturbed and modified environment. It will be in close proximity to neighboring community households. The area is zoned for open space and recreation purposes

There is expected to be minor potential disturbance to surrounding users from noise activities during construction. This will be short lived due to length of construction.

Conceptual Site Model

- Potential for sediment to enter drain along north eastern edge
- Noise and dust potential to impact surrounding users
- Transport of infrastructure and equipment access to site potential to impact traffic



Environmental Risk Assessment

This section outlines all identified potential environmental risks associated with the Project which are assessed against the risk matrix in Appendix 4. A risk evaluation system developed by ASTC (2016) has been used to calculate the logistical risks associated with the Project.

The results are shown in the Table 1 and risk rating is assessed when appropriate mitigation measures are used.

Risks (environmental and OH&S) identified during construction:

1. **Traffic**: Work vehicles moving in and out of the construction site could cause impact to local traffic and might causes accident.
2. **Infrastructure New**: Risk of damage to lighting and tower infrastructure during transport, handling on site and installation.
3. **Infrastructure Existing**: Damage existing underground services during excavating trenches for new electrical line and communication line. Also risk of damage to existing services during excavating for tower footings.
4. **Noise**: Potential for noise nuisance will be of short duration from construction activities particularly during school hours. However, it is expected to be longer than 3 weeks duration.
5. **Dust**: From construction site.
6. **Erosion**: Potential risk if rain occurs. Likely to be short-term problem if rain occurs during trenching and tower footing construction.
7. **Weather**: If a) high rainfall, b) extreme winds, or c) extreme heat wave and dry conditions occur during construction they may cause work to stop due to accessibility issues, dust movement, fire risk or health risk.

Table 1 Environmental Risk Assessment and Mitigation Measures

Hazard	Objective	Comment	Risk rating; Consequence and Likelihood (Risk matrix Appendix 4)	Monitoring methods	Management Actions
Trenching and tower footing construction	No enduring environmental impacts: erosion, dust, fauna items below or safety impact	Short duration, trenches less than 1 m in depth	Very Low; 0.05 if mitigation measures in place. Potentially moderate to high if tower foundation pit is unattended while open.	Visual by contractors and supervisors	If trench/hole left open overnight, access prevention fencing or flagging required as appropriate. Specific management of materials and open trenches or holes as in sections on erosion, dust and fauna below.
Erosion	Minimise or prevent erosion	Little potential for erosion Site is a flat lawned sports oval situation	Very low to insignificant 0.05	visual by contractors and supervisors	If required by DENR develop an Erosion and Sediment Control plan in accordance with the International Erosion and Sediment Control (IECA) guidelines. Install sediment fences downstream of any soil stockpiles. Ensure final surface is matching with existing surrounding topography.
Dust	Prevent or minimise production of dust	Site is in a lawned sports oval situation with low potential for dust production; Dust may occur during the electrical trenching and footing establishment and work vehicle traffic.	Low 0.1 operational impact	visual by contractors and supervisors	Monitor BOM wind forecast and dust situation and spray with water if necessary. Respond to complaints, in a timely manner.

Hazard	Objective	Comment	Risk rating; Consequence and Likelihood (Risk matrix Appendix 4)	Monitoring methods	Management Actions
Noise	No noise complaints from surrounding properties.	Potential noise production from machinery including back hoe, crane, cherry picker	Low 0.1 schedule impact	Complaints received by ASTC or on ground contractors or supervisors.	Construction to be undertaken only between the hours off 7 and 7, Monday to Saturday and 9 to 6 on Sunday Follow Noise Management Plan Appendix 10.3 developed for Swimming Pool Solar Array construction. Restrict loud noise operations to outside school hours if applicable. If known noisy operation is planned, door knock nearby residents to advise.
Weeds	No declared weeds, Weeds of National Significance or environmental weeds introduced to the site during construction.	Lawned oval situation which is monitored by gardeners.	Very Low 0.05	Visual inspection by weed knowledgeable person	Ensure any sand or soils brought onto site are declared weed-free. Restrict source of bedding sand to exclude sands from riverine sources where Mexican Poppy is present. Presence of weeds to be monitored by Contractor during construction and by ASTC ground staff following construction during operational phase.
Community concerns	Construction does not impact on community members. No adverse community reactions.	Community concern has been expressed about the lighting program at Albrecht Oval and all care should be	Low to Moderate 0.10 - may impact schedule	Complaints from nearby residential stakeholders	Community is kept well-informed before and during the construction phase through notices to surrounding residents and use of Council social media and website.

Hazard	Objective	Comment	Risk rating; Consequence and Likelihood (Risk matrix Appendix 4)	Monitoring methods	Management Actions
	Community enquiries are managed satisfactorily.	taken to reduce concerns.			Traffic management is put in place to ensure surrounding schools, businesses and residents are not affected.
Lighting spill	Minimise lighting spill to adjacent area and roadway	Minimal lighting spill to adjacent area and roadway	Low 0.1 schedule impact	Assessed by ASTC supervisors and contractors. Complaints from nearby residential stakeholders	Aim new lighting as per engineering documentation; LED lights have sharp delineation of area covered.
Cultural Heritage	Work is in the developed sports oval and this factor was considered when the oval was developed.	The community consultation program considered this aspect.	Very low to insignificant 0.05	Assessed in preliminary approvals for project	There is no likelihood of cultural heritage issues developing as AAPA and CLC clearances have been obtained. If an artefact is discovered during earthworks, work shall stop and the Supervisor notified who may consult with the NT Heritage Officer.
Fire	No fires	May be a concern during hot weather	Very Low 0.05	Contractors and ASTC supervisors to monitor conditions. particularly monitored during heat waves.	Fire extinguishers and local firefighting hoses on site and operational. Contractors and supervisors to monitor BOM forecasts to assess conditions as appropriate to ensure construction operations, such as welding, are managed to minimize risk.
Chemicals and toxic materials	No spills or leaks	Little likelihood if refuelling is done off site.	Very low 0.05	Visual and contractor	Any toxic materials required on site are to be appropriately housed and

Hazard	Objective	Comment	Risk rating; Consequence and Likelihood (Risk matrix Appendix 4)	Monitoring methods	Management Actions
				management by supervisors MSDS data available if chemicals are on site.	controlled and no refuelling is to be done on site.
Traffic	No serious injury to person or disruption to local traffic	Low traffic area	Low to Moderate 0.10 - may impact schedule	Traffic management operator to monitor impacts	Traffic management plan developed and traffic management contractors used during construction

Environmental Management Strategies

All management actions to identified risk are as detailed in the Table 1. Management of the three identified highest environmental risks noise, dust and erosion are provided in more detail below.

Noise

Noise will be managed through restriction of work hours to avoid noise sensitive receptor (NSR) impact. The Noise Management Plan (NMP) developed for the ASTC aquatic centre solar array construction by LES has been used as a guideline with the table of noise emission potential from machinery being useful in assessing potential noise emissions for the Albrecht Oval site. The effectiveness of trees between the residences and the oval is significant with calculated noise levels being reduced from over 100 dB(A) to below 40 dB(A), an acceptable noise level for a quiet living room.

The following excerpt from the NT Noise Management Framework Guidelines issued under the *Waste Management and Pollution Control Act* (1998) indicate the activity periods and noise levels to be followed. If there is a need to exceed these values, the nearby NSR should be advised of the time, duration and relative level of noise exceedance.

Construction Times and Noise Levels

Construction activities should be restricted to:

a. between the hours of 7am and 7pm Monday to Saturday; and

b. between the hours of 9am and 6pm on a Sunday or public holiday.

Construction noise levels should not exceed:

a.	in residential use areas	ambient noise plus 5 dB(A)
b.	in mixed commercial/residential use areas	60 dB(A) total
c.	in commercial use areas	65 dB(A) total
d.	in industrial use areas	70 dB(A) total

within 15 metres of a Noise Sensitive Receptor (NSR) or at or on the boundary of the NSR (including when adjusted +5 dB each for tonality or modulation, and +10 dB for impulsiveness) during acceptable construction times.

The above measurements are measured as L_{Aeq} which is the equivalent continuous (energy average) level (A-weighted).

Those responsible for development sites and construction activities are advised of their obligations under Part 3 of the Act, which stipulates their responsibility to notify of an incident, where there is reason to believe that the incident has caused or is threatening to cause pollution.

Erosion and Sediment Control

Duration of potential impact period will be short while underground wire trenches and foundation pit for the four towers are open with spoil stockpiles. Avoid this activity during expected periods of high wind and rainfall. The contractor should develop an Erosion and Sediment Control Plan if it is advised by the DENR and follow IECA best practice guidelines. An ESCP may not be required, but if it is, it must be developed by the contractor to meet DENR and IECA requirements and standards at a minimum.

Dust

Potential during whole life of construction particularly during tower footing excavations and underground electrical cable trenching if weather conditions are hot and windy. Frequent vehicle traffic around the edge of the oval may also develop bare soils which may be dust prone. Dust management will be controlled by spraying with a water cart or truck as required.

Monitoring

Monitoring of risk factors and mitigation is presented in Table 1. Monitoring of responses to complaints and mitigation will be undertaken by ASTC supervisors as well as contractor management staff and documented in reports to the supervisor.

Auditing

Auditing of the progress and environmental compliance of the Project will be conducted by ASTC staff. Auditing will be against management actions outlined in Table 1.

Frequency of the audits will be once during construction and then at completion; unless a complaint or community concern is raised.

Reporting and Review

Reporting will be retained by the Project officer prior to filing with ASTC. Incidents and near misses will be recorded for review and future application. All complaints received by ASTC office or on-site supervisors are to be investigated and rectified as appropriate and response made to complainant in a timely manner.

Training and Communications

Training and communication of all contractors in the application and concerns of this CEMP and ASTC environmental policies will be a requirement of the project CEMP and will be achieved through:

- Site inductions
- Tool box meetings
- Site HSE meetings
- Shift handovers

A list of attendees and visitors will be kept by the contractor or ASTC supervisor.

Stakeholder Engagement

Stakeholders are shown in the following table.

Table 2 List of stakeholders in the project

Stakeholder	Role, involvement	Activities/ contributions
ASTC	Proponent	construction planning, management and funding; oversight of project and communication with ASTC community; receive complaints during development
Minister for Infrastructure, Planning and Logistics	Development permit issuer	Assessment of development, community impact and justifiability
Contractors	Follow contract requirements	follow instructions of ASTC supervisors
Nearby Schools	Potential impact from construction or use of the oval when school sessions are on	Larapinta Primary and Living Waters Lutheran Schools occupied during school periods.
Nearby residents	Community potentially within noise, sight or traffic impact area	Surveyed by ASTC, response to questionnaire; ongoing impact will be monitored by a Management Group
Sporting bodies	Use of the oval	Use of playing surface and facilities by Cricket Club, AFL clubs by arrangement with ASTC as coordinated through a Management Group

References

Alice Springs Town Council 2016. Proposed Widening of Ilparpa Road Alice Springs Risk Management Plan. Version 1.1, 29-1-2016;

Alice Springs Town Council 2019. Albrecht Oval Gransdstand Noise Management Plan 8-03-2019. ASTC Tech Services.

http://noisetools.net/noisecalculator2?source=[4.6]&receiver=[1.5,167.7]&barrier=[1,7.9,151.7]

NT DIPL 2018. Proposed Exceptional Development Permit, Lot 6774, Alice Springs. May 11, 2018

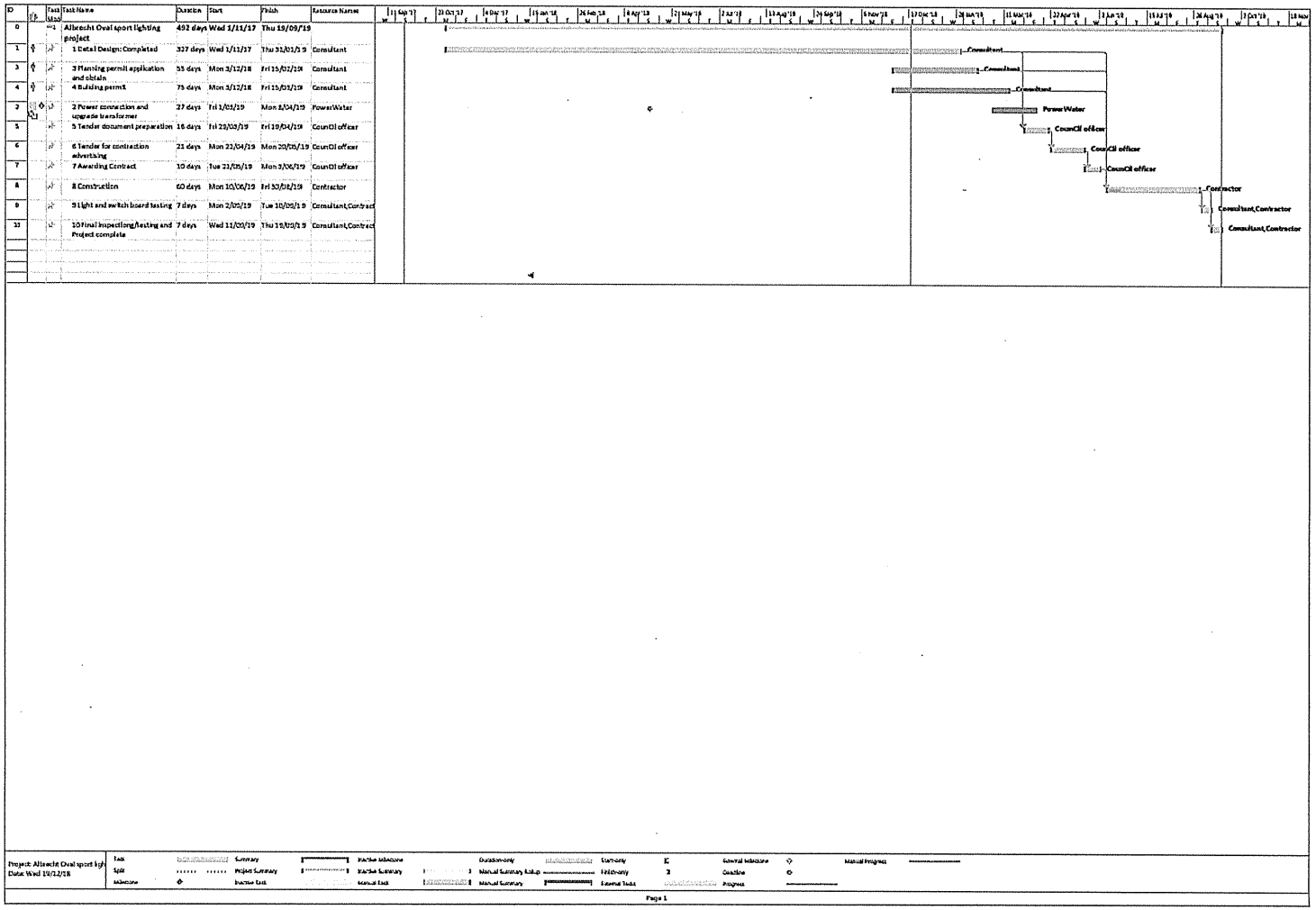
NT EPA 2019 Guidelines for the preparation of an Environmental Management Plan – Draft

NT EPA 2015 Guidelines for the preparation of an Environmental Management Plan

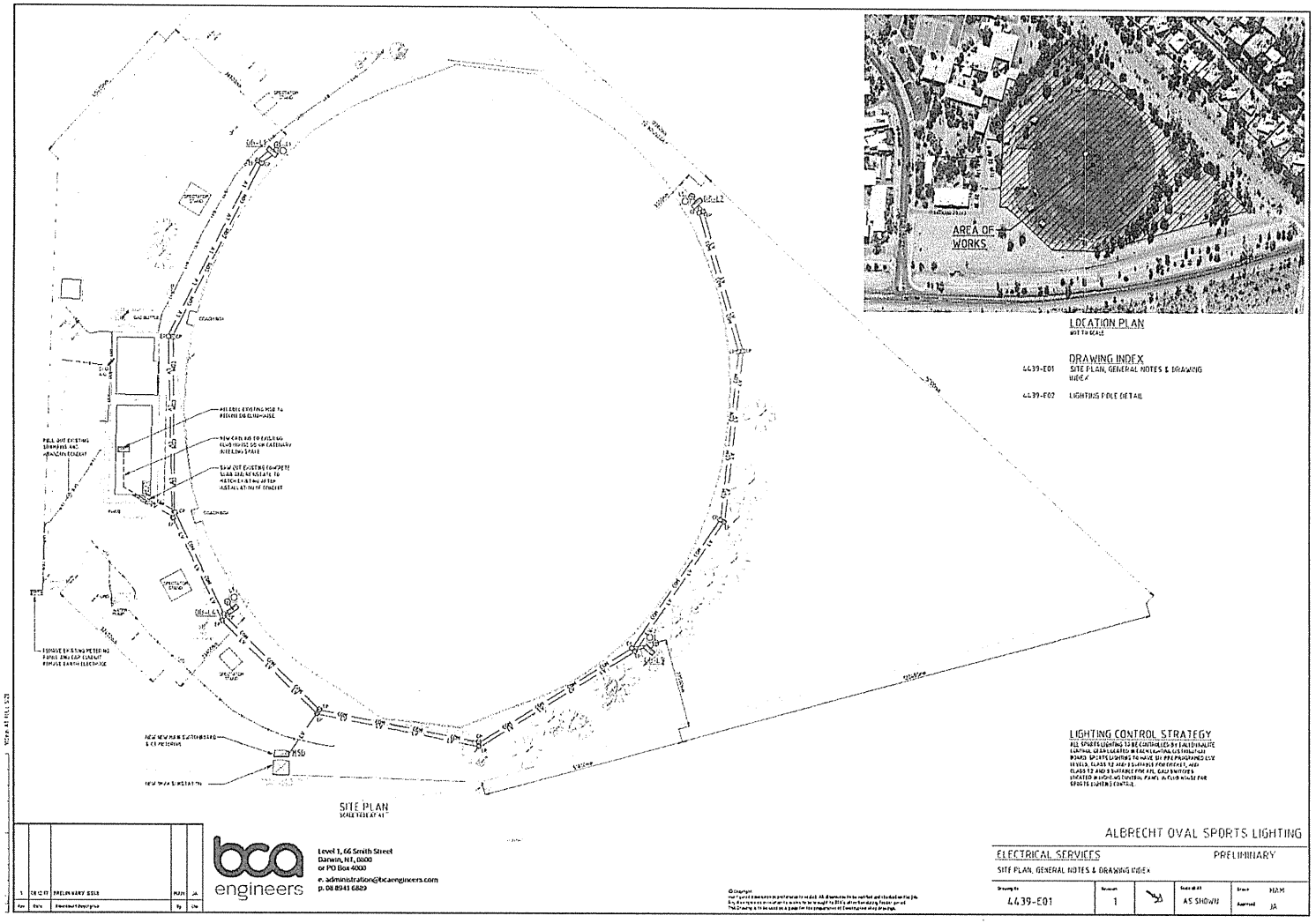
Alice Springs Town Council Contractor Induction - Induction ppt. ASTC.

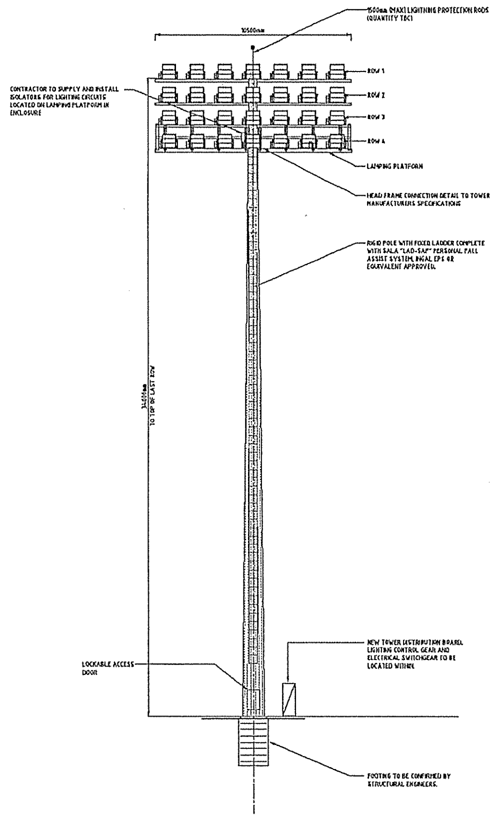
NRETAS Noise Guidelines for Development sites

Appendix 1 Proposed Construction Schedule



Appendix 2 Proposed Light Tower, Electric Cable and Trenching Layout





LIGHT TOWER FRONT ELEVATION (TYPICAL)

SCALE 1:48 AT A1

NOTE: THIS ELEVATION IS INDICATIVE OF THE INTENT, FINAL POLE AND LAMP PLATFORM DESIGN TO BE CARRIED OUT BY SPECIALIST SPORTS CONSULTANT AND FORMALLY SUBMITTED FOR ENGINEERS APPROVAL.

GENERAL NOTES:

GENERAL

1. THESE ELECTRICAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS, DETAILS AND THE SPECIFICATION.
2. ALL WORKS AND EQUIPMENT SHALL COMPLY WITH ALL RELEVANT CODES AND STATUTORY REQUIREMENTS IN PARTICULAR AS 3000, AS 3008, AS 2293, AS 1670, AS 2201, AS 3013, AS 1136 AND AS 1935.
3. LABEL ALL EQUIPMENT AND ACCESSORIES (SWITCHES, POWER OUTLETS, COMMUNICATIONS OUTLETS ETC) WITH DISTRIBUTION BOARD NUMBER AND CIRCUIT NUMBER.
4. LOCATIONS OF ELECTRICAL EQUIPMENT SHOWN ARE INDICATIVE ONLY. CO-ORDINATE FINAL ELECTRICAL EQUIPMENT LOCATIONS WITH ALL OTHER SERVICES DETAILS AND TRADE DISCIPLINES ON SITE.
5. LOCATE ALL CONTROLS IN ACCESSIBLE POSITIONS. DISTRIBUTION BOARD LOCATION SHOWN IS RECOMMENDED, UNLESS OTHERWISE NOTED.
6. ALL DIMENSIONS ARE IN MILLIMETRES.
7. TENDERER SHALL BECOME FAMILIAR WITH THE SITE AND EXISTING EQUIPMENT AND INSTALLATION CONDITIONS. NO VARIATION WILL BE ENTERTAINED FOR UNKNOWN SITE CONDITIONS.
8. ALLOW TO SEAL ALL PENETRATIONS THROUGH FULL HEIGHT WALLS AND FIRE SEAL ALL PENETRATIONS THROUGH FIRE/SMOKE BARRIER WALLS AND FLOORS (TO MATCH THE DESIGNED FIRE RATING OF THE BUILDING STRUCTURE AND 'BCA' AND FIRE REGULATIONS APPLICABLE REQUIREMENTS).

CABLE

1. ALL CABLES SHALL BE THERMOPLASTIC INSULATED AND SHEATHED MULTI - STRANDED COPPER CONDUCTORS, UNLESS OTHERWISE NOTED.
2. FINAL SUB-CIRCUIT CABLING SHALL BE MINIMUM 2.5mm² STRANDED FOR LIGHTING, (TBC) AND ALL FINAL SUB-CIRCUITS SHALL BE SIZED FOR MAXIMUM VOLTAGE DROP OF 2.5% (TBC) FROM THE RESPECTIVE DISTRIBUTION BOARD.

CABLE WAYS

1. SEPARATE COMMUNICATIONS CABLING FROM POWER CABLING BY MINIMUM OF 600mm UNLESS OTHERWISE NOTED, EXCEPT WHERE ENCLOSED IN METAL DUCT OR METAL CONDUIT. CABLES MAY CROSS EACH OTHER WITH A 50mm SEPARATION (IN COMPLIANCE WITH AS/NZS 3000 REQUIREMENTS).

LIGHTING

1. MOUNT ALL LIGHT SWITCHES AT 1000mm AFL TO CENTRE UNLESS OTHERWISE NOTED.
2. MULTIPLE LIGHT SWITCHES TO BE ALIGNED WITH 25mm SPACING FROM EACH OTHER.
3. INSTALL COMBINED RCD/CIRCUIT BREAKER FOR ALL LIGHTING SUBCIRCUITS, UNLESS OTHERWISE NOTED.

LEGEND OF SYMBOLS

Symbol	Description
DB	ELECTRICAL DISTRIBUTION BOARD.
— LV —	ROUTE OF LOW VOLTAGE CABLING IN UNDERGROUND ORANGE HD uPVC CONDUIT.
— COM —	ROUTE OF COMMUNICATIONS CABLING IN UNDERGROUND WHITE HD uPVC CONDUIT.
EP	ELECTRICAL CABLE PIT, CLASS B WITH DRAINAGE. CONTRACTOR TO SIZE PIT DIMENSION.
CP	COMMUNICATIONS CABLE PIT.
LCP	LIGHTING CONTROL PANEL. ALL SPORTS LIGHTING TO BE CONTROLLED BY DALI DYNALITE USER INTERFACE LOCATED IN LIGHTING CONTROL PANEL WITH SIX PREPROGRAMED LIGHT SETTINGS, CLASS 1,2 AND 3 SUITABLE FOR CRICKET, AND CLASS 1,2 AND 3 SUITABLE FOR AFL. CLIENT TO CONFIRM MONITORING REQUIREMENT FOR LIGHTING USAGE.
L1	1571W, 5700K, LED, PHILLIPS "OPTIVISION LED GEN 2 FLOODLIGHT" MOUNTED ON 36000mm RIGID POLE WITH CLIMBING LADDER AND LAMPING PLATFORM FIXED. 21-OFF ASYMETRICAL NARROW BEAM FITTINGS. 4-OFF ASYMETRICAL WIDE BEAM FITTINGS. 3-OFF SYMETRICAL BEAM FITTINGS.

Rev	Date	Amendment Description	By	Chk
1	13.11.17	PRELIMINARY ISSUE	MAH	JA

bca engineers
Level 1, 66 Smith Street
Darwin, NT, 0800
or PO Box 4000
e. administration@bcaengineers.com
p. 08 8941 6809

ALBRECHT OVAL SPORTS LIGHTING

ELECTRICAL SERVICES — PRELIMINARY

LIGHTING POLE DETAIL, GENERAL NOTES & LEGEND OF SYMBOLS

Drawing No.	Revision	Scale @ A1	Drawn	Approved
4439-E02	1	AS SHOWN	MAH	JA

Appendix 3 ASTC Environmental Policy Protection of the Environment

The Contractor shall:

(a) Comply with all statutory requirements and accepted current practices for Environmental management.

(b) Comply in every respect with the Erosion and Sedimentation Plan pertaining to this contract.

(c) Ensure that each of its subcontractors and Consultants comply in like manner.

The contractor shall certify on the form provided that all work shall be carried out in such a manner as to avoid nuisance and/or damage to the environment. The Contractor shall comply with the requirements of the conditions of approval imposed by the Local Government Act, Environmental Offences and Penalties Act and the Water Act. No variation in costs or extensions of time will be considered due to these requirements.

The Contractor shall plan and carry out the Works to avoid erosion, contamination and sedimentation of the site and its surroundings.

Herbicides and other toxic chemicals shall not be used on the site without the prior written approval of the Principle.

No noise or smoke or other nuisance, which in the opinion of the Principle is unnecessary or excessive shall be permitted by the Contractor in the performance of the works under this Contract. Should work outside customary working hours be approved, the Contractor shall not use, during such period, any plant, machinery or equipment which in the opinion of the Principle is causing or is likely to cause a nuisance to the public. No noisy works and/or works likely to disturb nearby residents shall be undertaken during the hours precluding such activity as specified by Council in accordance with the requirements for development consent and building approval made under the Local Government Act appropriate Noise Legislation.

The Contractor shall ensure that fugitive dust from disturbed areas is minimized by a method approved by the Principle.

Appendix 4 ASTC Risk Assessment Matrix

Risk Probability Definitions

Probability Category	Probability	Description
Very High	65%-100%	Risk event expected to occur
Medium	35%-65%	Risk event may or may not occur
Low	0%- 35%	Risk event not expected to occur

Risk Impact Definitions.

Project Objective	Very Low 0.05	Low 0.10	Moderate 0.20	High 0.40	Very High 0.80
Cost	Insignificant cost impact	< 10% cost impact	10-20% cost impact	20-40% cost impact	> 40% cost impact
Schedule	Insignificant schedule impact	< 5% schedule impact	5-10% schedule impact	10-20% schedule impact	> 20% schedule impact
Scope	Barely noticeable	Minor areas impacted	Major areas impacted	Changes unacceptable to sponsor	Product becomes effectively useless
Quality	Barely noticeable	Only very demanding applications impacted	Sponsor must approve quality reduction	Quality reduction unacceptable to sponsor	Product becomes effectively useless

Risk Probability and Impact Matrix

Probability/Impact	Very low	Low	Moderate	High	Very high
High	0.05	0.09	0.18	0.36	0.72
Medium	0.03	0.05	0.1	0.2	0.4
Low	0.01	0.01	0.02	0.04	0.08

Addendum to EMP – Exceptional development Permit EDP18/0007

1. The light towers are to be designed, constructed and operated in accordance with AS4282 – Control of the obtrusive effects of outdoor lighting and guidance from the International Commission on Illumination (namely the Guide on the Limitation of the Effects of Obtrusive Light from outdoor Lighting Instillations, 2nd Edition).

2. The design and operation of the light towers will not cause obtrusive light, including glare beyond the boundary of the premises and light intrusion at residential properties, and:

    a. ensure when operating the lights:
        i. There will be no direct upward or backward light from the light towers;
        ii. The lights will not cause any intrusive light into residential premises; and
        iii. The intensity of light spill from the lit facility, the amount of upward reflected light from the lit area, and glare from the lights will be reduced to the maximum possible extent.
    b. ensure light intensity of any of the light sources are set at a level that does not cause excessive light spill beyond the boundary of the premises and to avoid glare and obtrusive light; and
    c. establish procedures for responding to and managing complaints about obtrusive light and light pollution (environmental nuisance).

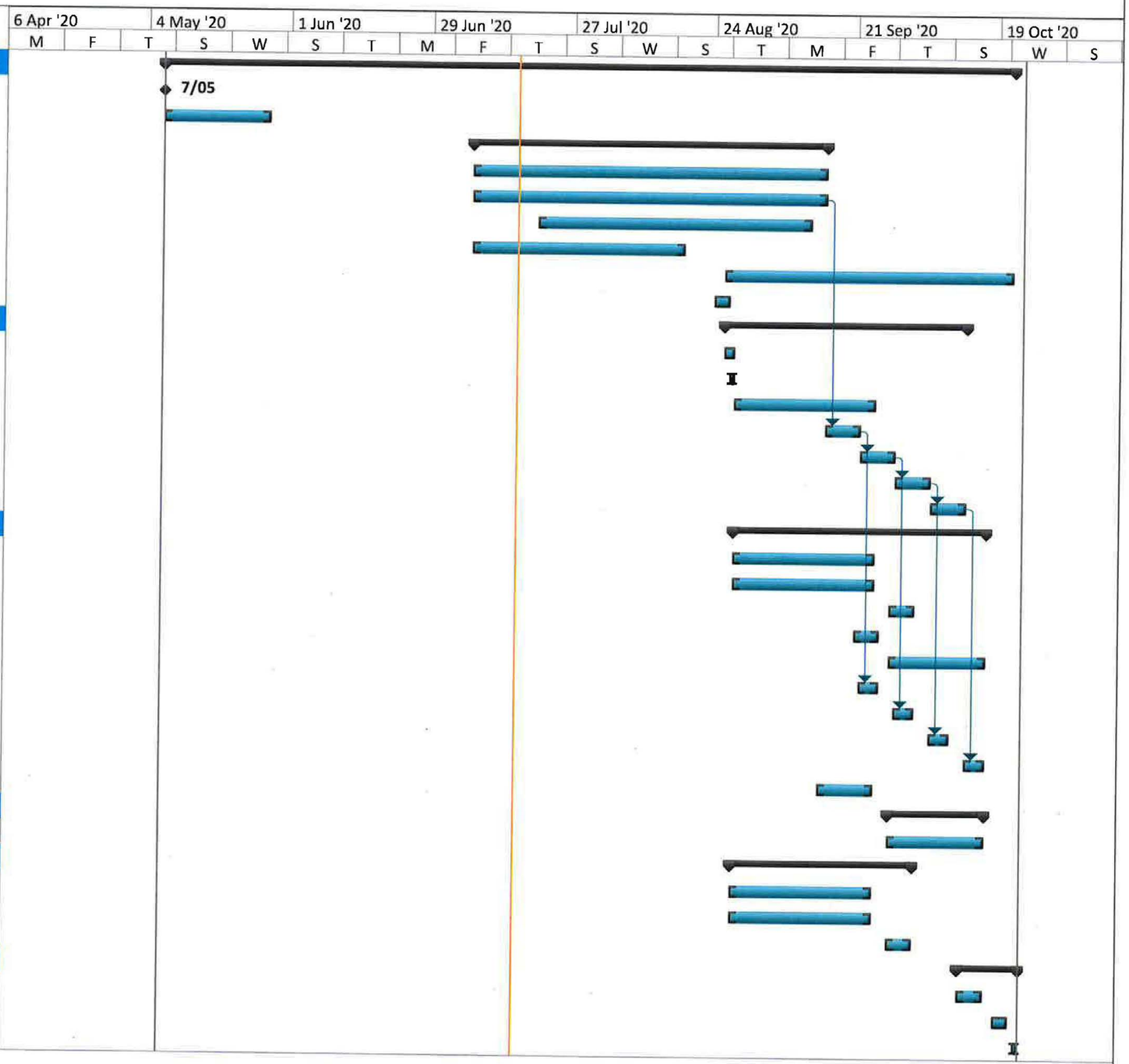
NT ELECTRICAL GROUP

The Top Ends Electrical Solution!

ALBRECHT OVAL SPORTS LIGHTING

*Indicative timing only, some tasks may be impacted by COVID19 measures

ID	Task Name	Duration	Start	Finish
1	**Contract Administration**	**120 days**	**Thu 7/05/20**	**Wed 21/10/20**
2	Purchase Order Received	0 days	Thu 7/05/20	Thu 7/05/20
3	Product Approval	15 days	Thu 7/05/20	Wed 27/05/20
4	**Procurement - Long leadtime items**	**50 days**	**Tue 7/07/20**	**Mon 14/09/20**
5	Lights	50 days	Tue 7/07/20	Mon 14/09/20
6	Poles	50 days	Tue 7/07/20	Mon 14/09/20
7	Switchboards	40 days	Mon 20/07/20	Fri 11/09/20
8	Cables	30 days	Tue 7/07/20	Mon 17/08/20
9	Site Possesion	41 days	Wed 26/08/20	Wed 21/10/20
10	Mobilisation to site	3 days	Mon 24/08/20	Wed 26/08/20
11	**Civil Works**	**34 days**	**Wed 26/08/20**	**Mon 12/10/20**
12	Site setout and mark out	2 days	Wed 26/08/20	Thu 27/08/20
13	Geotech Report	1 day	Thu 27/08/20	Thu 27/08/20
14	Trenching	20 days	Fri 28/08/20	Thu 24/09/20
15	Pole Foundation 1	5 days	Tue 15/09/20	Mon 21/09/20
16	Pole Foundation 2	5 days	Tue 22/09/20	Mon 28/09/20
17	Pole foundation 3	5 days	Tue 29/09/20	Mon 5/10/20
18	Pole Foundation 4	5 days	Tue 6/10/20	Mon 12/10/20
19	**Electrical Works**	**36 days**	**Fri 28/08/20**	**Fri 16/10/20**
20	Conduit laying	20 days	Fri 28/08/20	Thu 24/09/20
21	Position of electrical pits	20 days	Fri 28/08/20	Thu 24/09/20
22	Cabling works	5 days	Mon 28/09/20	Fri 2/10/20
23	Concrete Plinth	5 days	Mon 21/09/20	Fri 25/09/20
24	Installation of Switchboards	15 days	Mon 28/09/20	Fri 16/10/20
25	Dressing & erection of Pole 1	4 days	Tue 22/09/20	Fri 25/09/20
26	Dressing & erection of Pole 2	4 days	Tue 29/09/20	Fri 2/10/20
27	Dressing & erection of Pole 3	4 days	Tue 6/10/20	Fri 9/10/20
28	Dressing & erection of Pole 4	4 days	Tue 13/10/20	Fri 16/10/20
29	Lightning Protection System	9 days	Mon 14/09/20	Thu 24/09/20
30	**Works at Clubhouse Area**	**15 days**	**Mon 28/09/20**	**Fri 16/10/20**
31	Electrical works at clubhouse	15 days	Mon 28/09/20	Fri 16/10/20
32	**Communications Control works**	**26 days**	**Fri 28/08/20**	**Fri 2/10/20**
33	Conduit laying	20 days	Fri 28/08/20	Thu 24/09/20
34	Position of comms pits	20 days	Fri 28/08/20	Thu 24/09/20
35	Comms cabling works	5 days	Mon 28/09/20	Fri 2/10/20
36	**Testing & Commissioning & Demobilisation**	**10 days**	**Mon 12/10/20**	**Fri 23/10/20**
37	Aiming of lights	5 days	Mon 12/10/20	Fri 16/10/20
38	Testing & Commissioning	3 days	Mon 19/10/20	Wed 21/10/20
39	Demobilisation	1 day	Fri 23/10/20	Fri 23/10/20



Project: Albrecht Oval Lighting Pro
Date: Thu 16/07/20

Task	Project Summary	Inactive Milestone	Manual Summary Rollup	Deadline
Split	External Tasks	Inactive Summary	Manual Summary	Progress
Milestone	External Milestone	Manual Task	Start-only	
Summary	Inactive Task	Duration-only	Finish-only	