CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN – CIVIL CONSTRUCTION

'2CRU' Subdivision
Lot 4873, Town of Nightcliff

20 September 2024

Prepared for:
Defence Housing Australia

Prepared by:
Stantec Australia Pty Ltd

Project Number:
304701672

CITY OF DARWIN
PERMISSION TO USE FOR CONSTRUCTION PURPOSES
Approved Construction Enviromrntal Management Plan 29/11/2024

Please note that this approval is valid for two (2) years of the date of this approval.
Please note that a Works Permit is required for all works being conducted on City of Darwin land

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1	15/02/2022	Internal review	DMB	
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4	13/06/2022	Amend allowable working hours	DMB	AGO
5	28/06/2023	Update Contractor's contact details and Section 7	DMB	AGO
6	26/04/2024	Update contact details in Table 4-3	DMB	AGO
7	10/05/2024	Updates to Section 4.6, Section 13	DMB	AGO
8	20/09/2024	Various updates to align with the overall project CMP and current project status	DMB	AGO

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1 Introduction

In February 2016, Stantec Australia Pty Ltd (Stantec, formerly Cardno (NT) Pty Ltd) was engaged by Defence Housing Australia (DHA) to carry out the detailed engineering design and documentation of the 2CRU subdivision and associated external works at Lee Point in Darwin, Northern Territory.

This document serves as the Construction Environmental Management Plan (CEMP) for the civil construction works for the subdivision. This CEMP relates to the current stage(s) of the 2CRU subdivision, which forms part of the overall Lee Point Development. The CEMP will be updated during the life of the project to reflect any changes in scope, stage-specific considerations, legislative requirements and site contact details.

1.1 Background

The 2CRU project is situated on an 81-hectare parcel of land located approximately 17km by road north-east of the Darwin CBD. The site is bordered to the west and north by Casuarina Coastal Reserve, to the south by Lyons and Royal Darwin Hospital and to the east by Lee Point Road.

The site is a former Department of Defence (Defence) radar installation that was operated by the 2 Control and Reporting Unit (2CRU). It is partly vegetated, with areas of historical clearing and several unformed tracks. A 22-hectare conservation parcel will be preserved on the western side of the development and dedicated to the Casuarina Coastal Reserve. A further 11.3 hectares will be set aside for parks and public open space.

A military heritage site (the 'Bunkers') is located within Lot 4873 parcel near the northern boundary. The heritage site has been identified on the master plan.

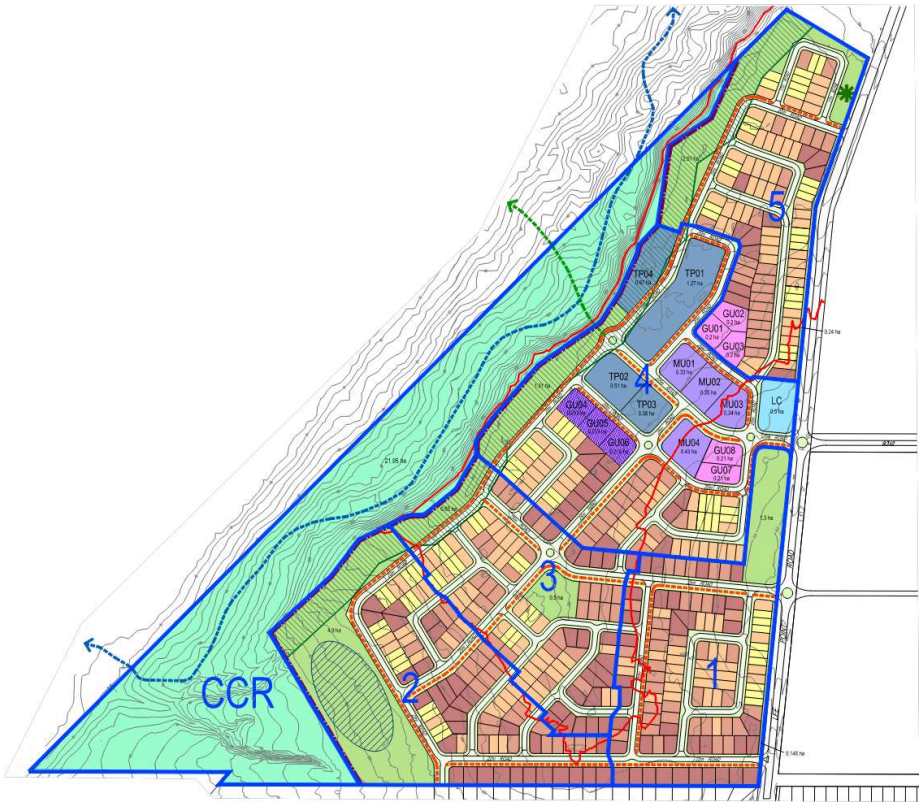
The project was referred and assessed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* and by the Northern Territory Environment Protection Authority (NTEPA) and the preparation of an Environmental Impact Statement (EIS) was requested on 18 January 2016. A draft EIS was prepared in response to Australian Government and NTEPA Terms of Reference, and underwent a 12-week public exhibition period between 18 November 2017 and 1 February 2018. A Supplement to the draft EIS was requested on 8 February 2018 and submitted on 3 August 2018. Updated maps were provided to the NT EPA on 16 October 2018. The EIS assessment was concluded with issue of Assessment Report 88 by NTEPA on 30 October 2018. Development Permit DP18/0409 was issued on 30 November 2018.

The development consists of 5 stages with an expected total yield of up to 513 lots. Currently, 488 standard urban lots, 8 Medium Density lots, 4 Mixed Use lots, 4 Tourism lots and commercial lots are planned.

The site location and proposed staging plan are depicted in Figures 1-1 and 1-2 below.

Figure 1-1 Location plan

Figure 1-2 Proposed staging



1.2 Contractual Obligations

This CEMP addresses the requirements for the environmental management of civil construction activities from the commencement of works on site until final completion. During this phase, the civil contractor is responsible for ensuring that the provisions and requirements of this CEMP are met.

The CEMP will be updated during the course of the project to reflect any changes in scope, stage-specific considerations, legislative requirements and site contact details.

Condition Precedent 3 of the Development Permit DP18/0409 requires the preparation of this CEMP to include provision for environmental controls for construction works. The CEMP is to be adopted and its recommendations are to be implemented prior to and during the civil construction works to the satisfaction of the Development Consent Authority.

The CEMP includes details of requirements for waste management, traffic management, haulage routes, stormwater drainage, erosion and sediment control, management of dust, noise and vibration impacts, communication and complaints protocols. This is in line with and to meet the requirements of the Development Permit condition.

2 Legislative Requirements, Standards and Guidelines

2.1 Standards, Guidelines and Policies

Standards, guidelines, and policies relevant to the project include:

- Noise Guidelines for Development Sites in the Northern Territory, NTEPA (2014);
- Noise Management Framework Guideline, NTEPA (2018);
- Erosion and Sediment Control Guidelines, DEPWS;
- Best Practice Erosion and Sediment Control, IECA;
- Lee Point Master-planned Urban Development – Water Quality Monitoring Plan, Ecology & Heritage Partners (2017);
- Workplace Exposure Standards for Airborne Contaminants, Safe Work Australia;
- Subdivision and Development Guidelines, Darwin City Council, including any departures from the guidelines agreed with City of Darwin;
- Waste Management and Pollution Control Act (1998);
- Heritage Act (2011);
- Bushfires Management Act (2016);
- Weeds Management Act (2001), and the Northern Territory Weed Management Handbook (2018);
- Workplace Health and Safety Regulations; and
- Northern Territory Planning Scheme.

2.2 Legislative Requirements

Table 2-1 Environmental Legislation Relevant to the Project

Legislation	Legislation Requirement	Project Relevance
Commonwealth Act: Aboriginal and Torres Strait Islander Heritage Protection Act 1984	The purpose of this Act is the preservation and protection from injury or desecration of areas and objects in Australia and in Australian waters, being areas and objects that are of particular significance to Aboriginals in accordance with Aboriginal tradition.	A Person who discovers anything that he or she has reasonable grounds to suspect to be Aboriginal remains shall report his or her discovery to the Minister, giving particulars of the remains and of their location (Section 20). Any discovery of Aboriginal and Torres Strait Islander remains must be reported immediately to AAPA.
Commonwealth: Environmental Protection and Biodiversity Act 1999 (EPBC)	The EPBC Act requires that proposed actions to be taken which are likely to have significant impact on matters of national environmental significance (NES) shall be referred to the Minister for a decision if it will be subject to a rigorous assessment and approval process. The EPBC Act also applies to actions that are likely to have a significant impact on the environment of Commonwealth Land and to actions taken by the Commonwealth that will have a significant impact on the environment anywhere.	Environmental Impact Statement (EIS) submitted in response to terms of reference provided by NTEPA, including mitigation of impacts to water quality, air quality, noise, biodiversity and heritage
NT Act: Soil Conservation and Land Utilization Act 1969	Makes provisions for the prevention of soil erosion and for the conservation and reclamation of soil.	Erosion and sedimentation measures will be required during construction of the development.

NT Act: Dangerous Goods Act 1998	This act provides definition and regulatory requirement for handling, transporting and storage of dangerous goods as defined by the Act.	A license may be required for the storage, transport and handling of fuels, chemicals or other dangerous goods during construction.
NT Act: Water Act 1992	An Act to provide for the investigation, allocation, use, control, protection, management and administration of water resources, and for related purposes.	Erosion and sediment control and water quality treatment infrastructure will be required to treat the stormwater discharge prior to release to the waterways.
NT Act: Planning Act 1999	The objectives of this Act are to plan for, and provide a framework of controls for, the orderly use and development of land in the NT.	Development Permit DP18/0409 issued by Development Consent Authority on 30November 2018 to use and develop the land for the purpose of a subdivision to create 513 lots.
NT Act: Waste Management and Pollution Control Act 1998	The objectives of this Act are to protect the environment by preventing, reducing or avoiding pollution; effective waste management and encouraging sustainable development.	Construction works must ensure that waste is safely and effectively managed without detrimental impact to the environment. Pollution levels arising from the development must be managed to prevent nuisance or harm to the surrounding community or environment.
NT Act: Territory Parks and Wildlife Conservation Act 1976	The act makes provision for conservation, management and relocation of wildlife in the NT. A permit is required to take or interfere with Wildlife.	A permit is required to take or interfere with Wildlife.
NT Act: Northern Territory Aboriginal Sacred Sites Act 1989	Aims to build enhanced relations between Aboriginal and other citizens with regard to effective land use within a regime of sacred site protection, for the benefit of all Territorians. All Aboriginal sacred sites are protected under the Act.	Compliance with Aboriginal Areas Protection Authority (AAPA) Authority Certificates C2018/060. Clearing and disturbing culturally significant trees within nominated areas of cultural significance shall be avoided. Immediately stop work in the event that items of possible significance are identified

Any changes to the legislation, standards, policies and guidelines during the staged development will need to be reviewed and its impact on the development shall be distributed to the project team.

3 Project Scope and Risk Assessment

3.1 Construction Activities

The proposed development of 2CRU will include the following construction activities:

- Land clearing progressively for staged construction. No land clearing shall extend beyond the limits of the clearing plan for the respective stage it relates to;
- Cut and fill earthworks;
- Road pavement construction;
- Road surfacing;
- Concrete works including driveways, footpaths and kerb and gutters;
- Construction of open drains;
- Construction of detention basins and outfall drain;
- Construction of stormwater pits and pipes;
- Construction of protection works including gabions, grouted stone pitching and rock weirs;
- Services trenching;
- Construction of water reticulation and service connections;
- Construction of sewer reticulation and service connections;
- Construction of electrical reticulation and service connections;
- Construction of street lighting;
- Construction of telecommunication (NBN) reticulation and service connections;
- Landscaping works including topsoiling and grassing; and
- Implementation of Erosion and Sediment Control measures pre, during and post-construction.

3.2 Risk Assessment

A risk assessment was undertaken to assess potential health, safety and environmental risks that may arise during the construction process. Refer to Tables 3-1 to 3-5 below.

Table 3-1 Risk Matrix

CONSEQUENCE SEVERITY					
LIKELIHOOD OR FREQUENCY	1 INSIGNIFICANT	2 MINOR	3 MODERATE	4 MAJOR	5 CATASTROPHIC
A – ALMOST CERTAIN	MODERATE 11	HIGH 16	EXTREME 20	EXTREME 23	EXTREME 25
B – LIKELY	MODERATE 7	HIGH 13	HIGH 17	EXTREME 21	EXTREME 24
C – POSSIBLE	MODERATE 5	MODERATE 8	HIGH 14	HIGH 18	EXTREME 22
D – UNLIKELY	LOW 2	LOW 4	MODERATE 9	HIGH 15	HIGH 19
E - RARE	LOW 1	LOW 3	MODERATE 6	MODERATE 10	MODERATE 12

Table 3-2 Risk Category Table

Risk Category	
E = EXTREME RISK	Immediate action required to implement better controls. Activity must not start. If started, activity must immediately be stopped. Superintendent's approval is required for work to commence or recommence.
H = HIGH RISK	Seek manager approval for work to commence or continue. More suitable controls to be investigated.
M = MODERATE RISK	Work to proceed once risk is reduced as low as reasonably practicable and controls are implemented
L = LOW RISK	Work to proceed while monitoring and managing risk

Table 3-3 Qualitative Measures of Impact – Consequence

Level	Impact	Example of Consequence
1	INSIGNIFICANT	No injuries; No environmental impact
2	MINOR	First aid; Environmental release immediately contained
3	MODERATE	Medical treatment; Environmental release not immediately contained with no detrimental effects
4	MAJOR	Lost time injury/illness; Environmental release not immediately contained with toxic effects
5	CATASTROPHIC	Fatality; Release to the environment with long term/permanent toxic effects

Table 3-4 Qualitative Measures of Likelihood

Level	Measure	Description	Guide
A	ALMOST CERTAIN	The event is expected to occur in most circumstances	Once or several times a day
B	LIKELY	Will probably occur in most circumstances	Once per week
C	POSSIBLE	Might occur at some time	Once per month
D	UNLIKELY	Could occur at some time	Once per year
E	RARE	May occur only in exceptional circumstances	May occur once per ten years

Table 3-5 Health Safety & Environment Risk Assessment Summary

Item	Job Step	Hazard	Consequences	Risk Rating	Control Method	Residual Risk Rating
1	Construction	Other Vehicles, Speed, Animals	Vehicle Crash	High 14	> Follow site traffic rules at all times > Only drive roadworthy and registered vehicles > Only licensed drivers to drive vehicles for which they are approved > Drive to conditions > Wear a seatbelt > Do not drive while fatigued > Be aware that wildlife may be on the road especially at dusk and dawn	Low 4
2	Construction	Workers/ Pedestrian	Persons hit by vehicle	High 19	> Drive at the recommended site speed and slow down around workers > Continuously scan the road/surroundings for pedestrian movements > Use appropriate communications	Moderate 12
3	Construction	Endangered Flora and Fauna	Loss of endangered Flora and Fauna	High 17	> Consult with Superintendent and DEPWS where applicable	Moderate 12
4	Construction	Noise	Hearing Loss, impact on community amenity	Extreme 21	> Ensure noise level generated during construction is within safe acceptable level > Adhere to 'Noise Guidelines for Development Sites in The Northern Territory'	High 17
5	Construction	Uneven / Unstable / Loose Surfaces	Vehicle rollover, vehicle bogged, vehicle crash	Moderate 10	> Do not drive in unfamiliar terrain, unless site condition is known > Maintain appropriate safe distance from batter edges and water > Use spotter when reversing in inspection site or if near mobile/fixed plant > If undertaking inspection in water, ensure depth is checked and monitored	Low 3
6	Construction	Weather conditions (limited visibility)	Vehicle Crash Hitting a person or object.	High 15	> Delay inspection if weather conditions do not allow for safe driving (fog, rainy) > Drive to conditions and slow down or stop if visibility is poor.	Moderate 10
7	Construction	Drugs and Alcohol	Vehicle Crash Hitting a person or object.	Extreme 23	> Do not drive or attend site under the influence of Drugs or Alcohol.	Moderate 10
8	Construction	Reversing	Hitting a person or object.	High 18	> Keep reversing to a minimum. > Use mirrors and perform head checks > If you cannot see, get out and look.	Moderate 10
9	Construction	Parking	Hitting a person or object	High 18	> Vehicle must be parked in designated areas. > Do not stop or park in an area that will obstruct clearways, walkways, pedestrian crossings, etc.	Moderate 10

Item	Job Step	Hazard	Consequences	Risk Rating	Control Method	Residual Risk Rating
10	Construction	Using handheld devices (Mobile Phones, GPS)	Hit by mobile plant Hit by falling object	High 19	> Driver is not to use any handheld devices (e.g. mobile phone, cameras), while driving.	Moderate 10
11	Construction	Waterways	Pollution to waterways	Extreme 24	> Implement erosion and sediment control measures > Test water quality periodically > Ensure stormwater treatment train is functioning efficiently > Inspect and maintain sediment basin regularly	Moderate 10
12	Construction	Uneven, unstable and slippery surfaces:	Slips, trips and falls causing abrasions, strains and lacerations.	High 18	> Visually inspect surroundings and identify hazards, report and ensure these are removed or controlled. > Extreme care should be taken when walking along embankments adjacent to water, steep batters and other slippery/unstable surfaces. > Maintain a 2m distance from steep drops, rock walls or pit walls.	Moderate 10
13	Construction	New electrical installations	Electrocution	Extreme 22	> Be aware of any new electrical installations and always treat electrical wiring as live and do not touch until cleared as safe to work on. > Report any exposed wiring that is not capped or taped.	Moderate 12
14	Construction	Confined Spaces	Lack of oxygen / atmospheric contaminants Flammable atmosphere Engulfment Entrapment	High 19	> Undertake Confined Spaces Awareness training. > Do not enter a confined space without consultation with your supervisor or without qualified training and accreditation.	Low 1 (no entry) Moderate 12 (entry)
15	Construction	Mobile Plant (Excavating machinery, light vehicles, cranes, drill rigs)	Person being hit by mobile plant	High 19	> Wear high visibility vests or shirts > Do not walk along carriageway unless it is safe to do so > Where appropriate, use someone as spotter to scan surroundings for any moving vehicles > Where available use pedestrian crossing > Obtain permission from the operator to enter a plant designated area > Always approach plant from the front, always gain eye contact with the driver before moving into the hazard zone > Inspection must not be carried out within 3 meters of mobile plant/plants, or within 5m of suspended loads. Be aware of reversing mobile plant, listen for reversing alarm > Walk in designated “safe zones”	Moderate 12

Item	Job Step	Hazard	Consequences	Risk Rating	Control Method	Residual Risk Rating
					> Persons working on public roads are to be trained in accordance with AS1742. > Maintain appropriate communications and use spotters where required.	
16	Construction	Situational awareness	Getting lost and not maintaining concentration leading to an incident and personal injury.	Extreme 22	> Do not proceed onto a site unless you are either inducted onto that site by a suitably trained person, OR, you are escorted at all times by an authorised person.	Moderate 12
17	Construction	Overhead / Under-ground Power Lines	Electrocution	High 19	> Check for any low overhead power lines at site and check with site foreman. > Do not work near overhead power lines if they are sagging and it is windy and/or rainy. > Ensure appropriate clearance from overhead power lines (suggested 8 metre distance from high voltage) > Do not excavate until area has been cleared of existing services.	Moderate 12
18	Construction	Falling objects	Person being hit by falling objects	High 19	> Be aware of surroundings and always scan above and around for hazards. > PPE – Hardhat. > Maintain safe distance from suspended loads.	Moderate 12
19	Construction	Dust/fumes	Inhalation, respiratory affects, eye affects, loss of community amenity	Moderate 9	> Avoid prolonged exposure to dust/fumes by keeping reasonable distance from sources of fumes if possible > Wear protective respiratory mask and safety glasses where appropriate > Ensure appropriate dust control measures are implemented.	Moderate 6
20	Construction	Uncapped or exposed reinforce-ment bars or untidy workplace	Cuts, Abrasions, Impaling	High 18	> All exposed reinforcement bars to be capped > Workplace to be kept clear of debris and trip hazards.	Moderate 5
21	Construction	Using handheld devices	Person being hit by mobile plant	High 19	> Do not use mobile phone or camera in the vicinity of moving vehicles. > Make phone calls in your vehicle if it is nearby, behind a barrier or in a designated safe zone.	Moderate 12

4 Implementation and Communications

4.1 Project Team Resources

The following personnel will be required to implement the CEMP:

- Construction Project Manager
- Construction HSE Manager
- Construction Site Foreman
- Construction Labourers; and
- Subcontractors.

4.2 Communication Processes

Communication processes for the project will be organised in accordance with Table 4-1 below.

Table 4-1 Communication Process

Subject	Responsibility	Action	Frequency
CEMP approval	Project Manager	Submit to approval agency	Minimum 7 days prior to works commencing. Live document updated as required
CEMP distribution	Project Manager	Distribute for implementation	Prior to commencement of site inductions
Liaison with City of Darwin, DEPWS	Project Manager	Notify CoD and DEPWS of project start date, contact details	Prior to start of work
Notify local residences of project start, contact details and any anticipated possible nuisance or service disturbances	HSE/Project Manager	Deliver information pamphlet	Minimum 7 days prior to works commencing and as required during construction.
Community Complaints	Project Manager	Record complaints and actions taken to resolve. Notify DHA, CoD and DEPWS within 24 hours where applicable	As required
Injured Wildlife	HSE Officer	Record in wildlife register	As required
Discovery of protected or threatened flora and fauna	HSE Officer	Advise DEPWS	As required
Environmental observations	HSE Officer	Record in environmental register	Weekly and after major storm event
Pollution	HSE Officer / Project Manager	Record in environmental register and report incident to the relevant agency	As soon as practicable after incident
After hours works	Project Manager	Deliver information pamphlet	After approval given by CoD and at least 5 days prior to work commencing
Archaeological, heritage and Aboriginal remains	Project Manager	Inform AAPA or DEPWS as appropriate	Same day
Audit	Environmental Auditor	Provide report	Every 12 months
Management Review	Project Manager and Environmental Officer	Provide minute of meetings	Every 12 months

4.3 Complaints Management

The following steps will be taken during construction to address complaints:

- List the project contact details for complaints on DHA's project website and the Contractor's website;
- Install sign boards at the site access point or on the fence bordering the community, containing contact person position, phone number and email address; and
- Contractor to maintain a register of any complaints made. Actions taken to resolve the complaint should be made available to DHA, City of Darwin and DEPWS (as appropriate) as soon as practicable after a complaint has been made.

4.4 Contractor's Site Management Plan

An Integrated Project Management Plan (IPMP) shall be developed by the Contractor to incorporate the requirements of this CEMP with the Contractor's proposed construction methodology. The IPMP shall also address any additional requirements contained within the approvals to undertake the works, obtained by the Principal.

Where required, traffic management for the site access and construction activities shall be addressed within a Traffic Management Plan (TMP) and submitted to the authority for approval.

The Contractor should address the following details in their IPMP:

- Work Hours
- Plant and Equipment
- Timing and Scheduling
- Site Facilities
- Storage, handling and transporting dangerous goods
- Environmental training
- Waste Management
- Incident Management
- Site Induction
- Staff training
- Pre-start toolbox session
- Training Records; and
- Environmental risk control measures.

4.5 Work Hours

Construction activities including delivery of materials and supplies are restricted to the times set out in Table 4-2 below or as stated in the Contract. The working hours in Table 4-2 in accordance with NTEPA's Noise Management Framework Guideline.

Table 4-2 Work Hours

Day	Time	Restriction
Monday to Saturday	7AM to 7PM	Allowed
Sunday and Public Holidays	9AM to 6PM	Allowed
After Hours		Permit required

4.6 Project Contacts

The following personnel and organisations can be contacted regarding the management of the site during construction. The Project Contracts list will be updated during the life of the project as required.

Table 4-3 Project Contacts

Organisation	Position	Name	Number
DHA	Senior Development Manager	Chris Grimm	(03) 9947 8111
Stantec	Principal Civil Engineer	David Bramley	(08) 8942 8200
City of Darwin	Customer Service	Customer Service	(08) 8930 0300
City of Darwin	Customer Service	Emergency After Hours	1800 099 557
Stantec	Superintendent's Representative	David Bramley	(08) 8942 8200
Stantec	Civil Engineer	Chris Kessaris	(08) 8942 8200
Civil Contractor (TBA)[1]	Project Manager	TBA[1]	TBA[1]
Civil Contractor (TBA)[1]	Environmental Officer	TBA[1]	TBA[1]
Civil Contractor (TBA)[1]	Site Foreman	TBA[1]	TBA[1]
Ambulance/Fire/ Police	Emergency		000
Police	NT Police (Darwin)		131 444
Hospital	Royal Darwin Hospital		(08) 8922 8888
Poison	Poisons Information		131 126
Cyclone	Tropical Cyclone Information		1300 659 211
Wildcare NT	Injured Animal Organisation		(08) 8988 6121 0408 885 341
Aboriginal Areas Protection Authority	AAPA	General Enquiries	(08) 8999 4365
Department of Environment, Parks and Water Security	Bushfires, Environment, Flora & Fauna, Weed Management, Water Resources, Rangelands	General Enquiries	(08) 8999 5511

[1] Contact details to be updated upon award of civil construction contract

5 Site Control and Waste Management

5.1 Policy

To maintain construction compounds and the site in a neat and tidy state without build-up of litter and waste, and to provide a safe facility for the storage of construction equipment and materials.

5.2 Performance Objectives

To maintain construction compounds in a neat and tidy state without build-up of litter and waste, and to provide a safe facility for the storage of construction equipment and materials. The site shall be maintained in a safe and tidy condition. Waste materials generated on site shall be stored in safe temporary storage prior to final disposal. All relevant NTEPA guidelines and Council by-laws shall be complied with.

5.3 Control Measures

As part of the IPMP, the Contractor shall establish a Litter and Waste Control Plan to manage the collection, storage and removal of all litter and waste on the site.

Litter and waste, including pre-existing materials, construction waste, human waste, used oils and any other surplus materials, shall not be disposed of on site. Material shall not be burnt or buried on site. All such materials shall be collected as they are accumulated, using appropriate methods to enable their future removal from the site. All such materials shall be stored on site in approved secure, confined area(s).

Specific areas shall be set aside for the storage of construction materials. If required on site, a safe storage location for fuels and oils shall be provided in accordance with AS 1940 “The Storage and Handling of Combustible Liquids”. This area shall be bunded in compliance with the standard.

5.4 Monitoring

The Contractor shall construct, maintain and record details of work areas, fencing, storage locations and access roads. Weekly inspections of the site by the Contractor are required to verify locations and storage of litter and waste on the site.

5.5 Reporting

Records of removal of oils, litter and waste shall be maintained by the Contractor.

5.6 Corrective Action

Non-conformance with the Litter and Waste Control Plan shall be recorded by the Contractor and a corrective action request (CAR) issued. All CAR’s shall be included in the Non-Conformance Register maintained by the contractor.

The Contractor shall implement the corrective action, as required, within the agreed time frame noted in the CAR.

The Contractor shall advise the Superintendent upon completion of the corrective action.

6 Community Amenity

6.1 Policy

Appropriate measures are to be taken to control the impact of construction activities on the local community.

6.2 Performance Objectives

Disruption to the residential amenity of the local area shall be minimised where practicable. If a complaint is received, the cause of the complaint shall be investigated. In so far as it is practicable and the responsibility of the contractor to do so, the cause of the complaint shall be mitigated.

6.3 Control Measures

As part of the IPMP, the Contractor shall establish an induction program, to the satisfaction of the Superintendent, to inform all site workers prior to their commencement on the site of the environmental protection requirements and practices to be adhered to while working on site.

6.4 Monitoring

The Contractor shall maintain records of induction training, and all communications with residents.

6.5 Reporting

The Contractor shall submit quarterly reports to the Superintendent. These reports shall include records of communications with local residents and full details of any issues and actions taken.

6.6 Community Complaints

Complaints shall be managed in accordance with the procedures outlined in Section 4.3 of this document.

6.7 Corrective Action

Non-conformance shall be documented, by the Contractor, and a corrective action request (CAR) issued. All CAR's shall be included in the Non-Conformance Register maintained by the Contractor. The Contractor shall implement the corrective action, as required within the agreed time frame noted in the CAR. The Contractor shall advise the Superintendent upon completion of the corrective action.

7 Heritage

The Developer has obtained an AAPA Authority Certificate (C2018/060) under the Northern Territory Aboriginal Sacred Sites Act. All works shall comply with the AAPA Authority Certificate and accompanying letter.

Lot 4873 contains a site of military historical significance. The Developer acknowledges the military history of the site and has committed to preserving important heritage items where possible. The explosives store referred to as 'the Bunkers' will be retained and incorporated into the development within a park or open space. 'The Bunkers' are located near Lee Point Road, opposite Club Tropical Resort.

The Contractor shall take appropriate measures to protect 'the Bunkers' from disturbance or damage, such as the erection of temporary fencing.

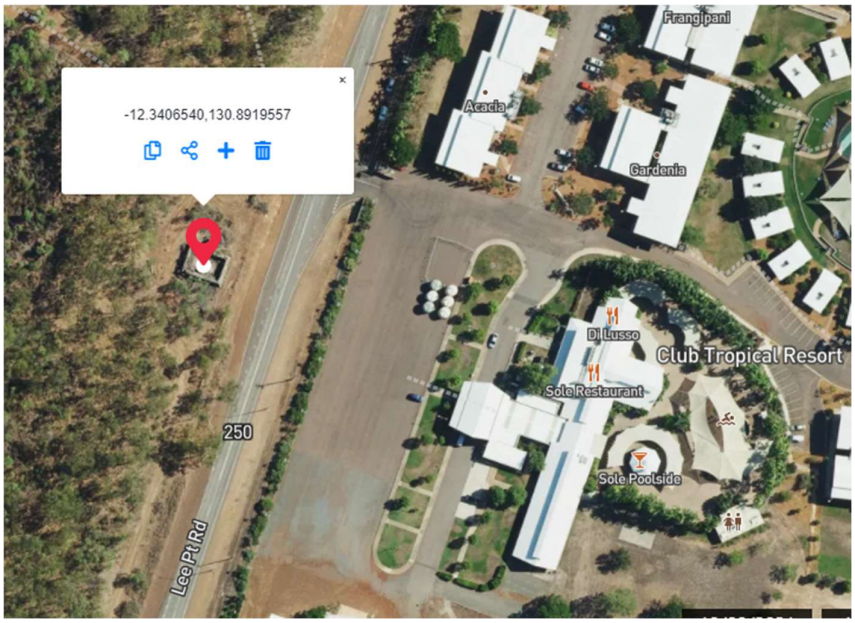
In the event of a discovery of a heritage item (including an object or place) within the project area, the Contractor must:

a) cease work within 20 metres of the discovery and fence the area from further disturbance;

b) seek advice from the relevant authority administering the *NT Heritage Act* and/or *Aboriginal Sacred Sites Act*; and

c) document, salvage, and store the discovery consistent with advice received in accordance with condition (b).

Figure 7-1 'The Bunkers' location plan



Source: Metromap

Figure 7-2 ‘The Bunkers’

8 Traffic Management and Haulage Routes

8.1 Traffic Management Plan

The Contractor shall prepare a project-specific Traffic Management Plan (TMP), and site-specific Traffic Guidance Schemes (TGSs) of a complex and noncomplex nature per activity if necessary for the scheduled works.

The TMP shall be designed by a Northern Territory accredited Traffic Management Plan Designer.

The Contractor shall submit the Traffic Management Plan (TMP), with the Traffic Guidance Schemes to the road authority.

The Contractor shall implement the TMP using personnel with the required accreditations and in accordance with the specification.

The Traffic Management for this contract may be subject to audit.

8.2 Haulage Routes

Fill materials won from within the site will be transported via site temporary access roads. These will be subject to internal controls by the Contractor and in locations approved by the Superintendent prior to use.

Materials brought to site will be subject to NT Government road rules with regards to load limits and speed controls. Routes for the transportation of materials shall be confined to permitted arterial routes and shall only access the site via nominated site access roads for transportation, namely Stuart Highway, Vanderlin Drive, McMillans Road, Bagot Road and Lee Point Road.

The Contractor shall comply with all road authority requirements for the transportation and securing of plant and materials.

9 Air Quality and Dust Control

9.1 Policy

The Contractor shall implement management measures to minimise the impact of construction activity on air quality.

9.2 Performance Objectives

The effective implementation of management measures to minimise the impact of construction activity on air quality. If an air quality complaint is received, the Contractor shall investigate the complaint. Where required, action shall be taken to mitigate the impact on air quality, including but not limited to ongoing action that will be required to manage dust emissions from the site.

Table 9-1 Management Actions

Objective	Management Actions	Monitoring	Performance Indicators
Maintain the respiratory health of workers and adjoining residents, and no adverse impacts on vegetation	• Notify adjoining residents prior to works commencing • Vegetation cleared in accordance with the approved land clearing plan • Watering of haul roads, and exposed areas • Vehicles to obey speed limits and stick to formed road • Trafficable areas clearly marked • Stabilise exposed areas • Rehabilitate as soon as possible	Complaints by adjoining residents	No decline in respiratory health of staff/adjoining residents, or decline in vegetation health, that can be attributed to the project

9.3 Control Measures

9.3.1 General

To manage air quality control on the site, the Contractor shall establish as part of the IPMP an Air Quality Management Plan to the satisfaction of the Superintendent and prior to commencing work. The following specific issues shall be addressed.

9.3.2 Fumes

All equipment shall be efficient, operated in accordance with established operating procedures and maintained to minimise exhaust emissions. Engines shall not be left idling needlessly.

All vehicles and plant shall be properly maintained, to ensure that emission levels are less than the limits defined by relevant guidelines produced by the Department of Infrastructure, Transport, Regional Development and Communications, Office of Road Safety, and the Australian Design Rules:

- ADR30 Diesel Engine Exhaust Smoke Emissions
- ADR36 Exhaust Emission Control for Heavy Duty Vehicles
- ADR37 Emission Control for Light Vehicles
- ADR70 Exhaust Emission Control for Diesel Engine Vehicles.

9.3.3 Odours

All materials (e.g. paints) which generate fumes or odours shall be properly stored and used with efficient equipment and in accordance with established procedures.

9.3.4 Earthworks

Earthworks shall be managed to minimise dust generation. Specific control measures include:

- Completion of vegetation clearing in accordance with the approved land clearing plan for the current stage;
- Implementation of control measures for disturbed ground in accordance with the Erosion and Sediment Control Plan;
- Early stabilisation of cut or filled areas and slope works; and
- Watering of all exposed areas, including haul routes.

9.3.5 Dust

Dust control measures shall be implemented for all processes that generate dust. Oil must not be used for the suppression of dust.

Haul roads and exposed earthworks shall be watered regularly to mitigate dust generation and checked throughout the works.

9.3.6 Deliveries

Deliveries shall be managed to control dust. Specific control measures include:

- Covering of loads entering and leaving the site;
- Cleaning of vehicles and plant; and
- Removal of soil from wheels of vehicles leaving the site. This includes the requirement for installation of a vibration grid, if required by the Erosion and Sediment Control Plan.

9.3.7 Stockpiles

Stockpiles shall be managed to control dust. Specific control measures include:

- Minimisation and stabilisation of stockpile areas. Stabilisation shall be undertaken by ensuring that angles of repose are not exceeded and, if necessary, by the placement of supporting structures to retain the stockpile within a designated area. If required, the surface of the stockpile shall be covered with either mulched vegetative matter, or an artificial cover, suitably weighted to prevent movement;
- Maintenance of stockpiles within designated areas and prevention of spread of stockpile material into adjacent areas;
- Creation of the minimum necessary stockpiles and removal of all stockpiles upon completion of works on site; and
- Provision of measures required by the Erosion and Sediment Control Plan.

9.4 Monitoring

Daily inspection of the types, locations, and details of control measures in place within the site is to be undertaken by the Contractor. Monthly recording by the Contractor of the effectiveness of the control measures is required.

The Contractor shall maintain daily records of meteorological conditions including rainfall, wind speed and direction. The Contractor shall record all air quality complaints received and details of all control measures implemented.

9.5 Reporting

The Contractor shall submit monthly reports to the Superintendent on the observation activities, control measures and corrective actions undertaken.

9.6 Corrective Action

Non-conformance shall be documented, by the Contractor, and a corrective action request (CAR) issued. All CAR’s shall be included in the Non-Conformance Register maintained by the Contractor. The Contractor

shall implement the corrective action, as required within the agreed time frame noted in the CAR. The Contractor shall advise the Superintendent upon completion of the corrective action.

10 Noise and Vibration Impacts

10.1 Policy

To control noise generated by construction activities and to minimise the impact of construction noise on the amenity of the local community; and to protect workers from occupational noise-induced hearing loss.

10.2 Performance Objectives

To comply with the Northern Territory Waste Management and Pollution Control Act, Council By-Laws, and Northern Territory Environmental Protection Authority documents “Noise Guidelines for Development Sites in the Northern Territory” and “Noise Management Framework Guideline.”

10.3 Noise Management Framework Guideline

https://ntepa.nt.gov.au/__data/assets/pdf_file/0004/566356/noise_management_framework_guideline.pdf

The Noise Management Framework Guideline (NMFG) provides the recommended assigned construction noise levels at residences and other effected land uses at normal working times and outside normal working times (for working times refer to Section 4.5 of this CEMP).

The recommended assigned construction noise level at residences $L_{Aeq\ (15\ min)}$ provided in the NMFQ are noise levels relative to the Rating Background Level (RBL). The RBL is the underlying background noise level.

The recommended level $L_{Aeq\ (15\ min)}$ for residences is:

- RBL +10 dB during normal working times; and
- RBL +5 dB outside normal working times.

The Contractor shall implement all feasible and reasonable work practices to meet the noise affected level.

The Contractor shall inform all potentially impacted residents of the nature of works to be carried out and expected duration, as well as contact details in accordance with the NMFG.

10.4 Control Measures

As part of the IPMP, the Contractor shall develop and submit to NTEPA a Noise Management Plan (NMP) for minimising construction noise levels within adjacent residential areas from noise-generating mobile and stationary plant, equipment, and processes. The NMP shall be in accordance with the NMFG.

The NMFG provides guidance on operational practices to minimise noise impacts.

Control measures may include:

- The fitting of effective exhaust silencers to all mobile plant;
- The fitting of engine acoustic shielding;
- Using exhaust silencers on compressed air exhausts; and
- Review of times of operation of plant.

Lighting devices shall be used instead of whistles, bells, and buzzers to control site operations. Audible alarms shall only be used for safety warnings.

All vehicles entering, leaving, or used within the site shall be operated and maintained in a manner which ensures that the resulting noise levels are within the prescribed limits.

In the event that the adjusted noise level for a single source or activity exceeds the maximum permitted noise level by more than 10 dB(A), consideration shall be given to restricting the times during which the activity can occur.

The Contractor shall also comply with:

- National Standard for Occupational Noise [NOHSC: 1007(2000)] to prevent occupational noise induced hearing loss.

- ANZECC guidelines – Technical basis for Building to Minimize Annoyance due to Blasting, Over Pressure and Ground Vibration (1990).

10.5 Monitoring

The Contractor shall perform weekly observations of all noise producing sources (including inspection of new items of plant before they commence work on the site).

If complaints about noise are received, the Contractor shall investigate the complaint and implement appropriate mitigation measures if required. In the event of a dispute, an independent party such as the Superintendent may undertake an assessment of noise levels on site.

The Contractor shall keep a written record of all complaints, the investigations undertaken and mitigation measures implemented.

10.6 Reporting

The Contractor shall provide monthly reports to the Superintendent on noise and vibration impacts, control measures and corrective actions taken.

10.7 Corrective Action

Non-conformance shall be documented by the Contractor and a corrective action request (CAR) issued. All CAR's shall be included in the Non-Conformance Register maintained by the Contractor. The Contractor shall implement the corrective action as required within the agreed time frame noted in the CAR. The Contractor shall advise the Superintendent upon completion of the corrective action.

11 Vegetation and Weed Management

11.1 Policy

To ensure that completed work areas are stabilised in a manner which minimises future adverse environmental impacts and to manage weed species within the project area.

11.2 Performance Objectives

To create conditions and implement measures which ensure the prompt establishment of vegetation or mulching within all areas disturbed during the works.

11.3 Control Measures

The clearing perimeter shall be fenced prior to vegetation removal in accordance with the approved land clearing plan for the current stage.

No clearing shall be undertaken without the approval of the Superintendent.

No clearing shall be undertaken within the identified conservation area.

All cleared vegetation shall be disposed of by mulching on site.

Establish controls as shown in the Erosion and Sediment Control Plan (ESCP).

Stockpiled, weed infested vegetation shall not be mulched for re-use on site, nor disposed of at a green waste recycling facility, as these practices facilitate the re-establishment and spread of weed species.

Fertiliser application rates shall be closely monitored to ensure that excess fertiliser is not washed off by stormwater runoff and discharged to downstream water bodies. Controlled-release fertilisers shall be used wherever possible.

11.4 Monitoring

Observations of landscaping works shall be undertaken by the Contractor at regular intervals to assess the health and vigour of plantings. Any unhealthy plantings shall be treated or replaced. These observations shall also note the establishment of any weed species.

The frequency of observations may be progressively reduced as the plantings become established.

11.5 Reporting

Monthly reporting is to be provided by the Contractor to the Superintendent covering observation activities and control measures implemented.

11.6 Corrective Action

Non-conformance shall be documented by the Contractor and a corrective action request (CAR) issued. All CAR's shall be included in the Non-Conformance Register maintained by the Contractor. Copies of CARs shall be provided to the Superintendent upon request. The Contractor shall implement the corrective action as required within the agreed time frame noted on the CAR. The Contractor shall advise the Superintendent upon completion of the corrective action.

12 Stormwater Management and Water Quality

12.1 Policy

To minimise the impact of construction activity on the water quality of downstream water bodies external to the site.

12.2 Performance Objectives

To avoid detrimental impact on the water quality and the aquatic environment of downstream water bodies as a result of the discharge of contaminated stormwater runoff from the site.

12.3 Control Measures

12.3.1 Stormwater Quality Management Plan

The contractor's IPMP shall address the implementation of the erosion and sediment control plan and measures to mitigate impacts to water quality.

12.3.2 Storage of Construction Materials

Construction materials stored on site shall be placed in suitably prepared locations to limit the potential for suspended solids to be transported from the site. Existing runoff paths shall be diverted around these storage locations and bunds shall be provided to retain material.

If storage is required on site, a safe storage location for fuels and oils shall be provided in accordance with AS 1940 "The Storage and Handling of Combustible Liquids". This storage area shall be bunded in compliance with the standard. Any fuel and oil spills shall be attended to immediately to limit the potential for off-site impacts.

12.3.3 Temporary Control Measures

The Contractor shall provide temporary control measures, as required, during the course of the work to prevent soil erosion, scour, sediment transport and deposition.

During the construction period, all reasonable and practicable measures must be implemented to control flow velocities in such a manner that mitigates soil erosion along drainage paths and at the entrance and exit of all drains and drainage pipes during all storms up to the relevant design storm discharge.

To the maximum degree reasonable and practicable, all water discharged during the construction phase must discharge onto stable land, in a non-erosive manner, and at a legal point of discharge.

The measures detailed in the Erosion and Sediment Control Plan (ESCP) shall be implemented and maintained. Refer to Section 13 of this CEMP and the ESCP drawings.

12.3.4 Permanent Control Measures

Permanent control measures shall be provided as soon as possible after completion of work in each construction area. Permanent measures to be adopted for this project include the adoption of Water Sensitive Urban Design (WSUD) principles where feasible and accepted by City of Darwin and stabilisation of disturbed areas.

Permanent stormwater treatment features include:

- Stormwater Quality Improvement Devices, such as Gross Pollutant Traps (GPTs); and
- Grassed lined grains, to assist with velocity reduction and encourage pollutant settlement and retention.

12.3.5 Outlet Structures

Outlet structures are provided at the end of stormwater outlets to dissipate energy from discharged run off and to limit scour potential of flows. Construct as detailed on the drawings. Where detailed, rock shall be hard angular rock placed over geofabric. For temporary rock protection works, proposed depth and diameter of rock is to be advised and based on the velocity of the drainage outlet discharge.

12.4 Monitoring

The Contractor shall monitor the aforementioned measures to ensure that the construction activities are not resulting in any worsening of the pre-development quality of stormwater being discharged from the site.

12.5 Reporting

Monthly reports shall be provided by Contractor to the Superintendent on the observations made and control measures implemented during construction, including all corrective action taken to maintain the control measures. All relevant reports and records shall be retained by the Contractor.

12.6 Corrective Action

Non-conformance shall be documented by the Contractor and a corrective action request (CAR) issued. All CAR's shall be included in the Non-Conformance Register maintained by the Contractor. The Contractor shall implement the corrective action as required within the agreed time frame noted in the CAR. The Contractor shall advise the Superintendent upon completion of the corrective action.

13 Erosion and Sediment Control

13.1 Policy

The Contractor is to implement controls to minimise the impact of soil erosion, dust, and transport of sediment within or from the construction site.

13.2 Performance Objectives

Soil erosion, dust, and the transport of sediment within or from the construction site shall be mitigated by the implementation, monitoring and maintenance of controls in accordance with the approved Erosion and Sediment Control Plan.

13.3 General

Erosion and Sediment Control Plans (ESCP) have been prepared as part of the design and construction drawings and approved by a Certified Professional in Erosion and Sediment Control (CPESC), in accordance with the conditions of Development Permit DP18/0409 and International Erosion Control Association (IECA) best practice.

13.4 Erosion and Sediment Control Plan (ESCP)

13.4.1 Implementation and Monitoring

The approved ESCP details the methods that shall be used to control dust and erosion on the site, and to prevent discharge of sediment-contaminated runoff to receiving waters.

The Contractor shall adopt the ESCP program for the implementation, monitoring, and maintenance of the approved ESCP measures and the process for amending control measures, if necessary. Any proposed amendments to the approved ESCP shall be submitted by the Contractor to the CPESC and Superintendent for approval prior to implementation. Additional and/or alternative ESC measures must be implemented if site inspections, site observations and maintenance program, or the regulatory authority, identifies that unacceptable off-site sedimentation is occurring as a result of the work activities.

All erosion and sediment control measures must conform to the standards and specifications contained in:

- Development Permit DP18/0409
- The approved ESCP drawings
- The latest version of IECA Best Practice Erosion and Sediment Control guidelines, where standards and specifications are not detailed in the drawings.

13.4.2 Approved ESCP

An ESCP will be prepared and approved for each stage of construction. The contractor shall implement and monitor the control measures detailed in the ESCP. Refer to the approved ESCP for further information.

13.4.3 International Erosion Control Association

The International Erosion Control Association – Best Practice Erosion and Sediment Control guidelines provide additional technical support, standard drawings, specification information and management methods.

13.5 Reporting

Monthly reports shall be submitted by the Contractor to the Superintendent outlining all maintenance activities and corrective actions. All environmentally relevant incidents must be reported as soon as practicable.

13.6 Corrective Action

Non-conformance shall be documented by the Contractor and a corrective action request (CAR) issued. All CAR's shall be included in the Non-Conformance Register maintained by the Contractor. The Contractor shall implement the corrective action as required within the agreed timeframe noted in the CAR. The Contractor shall advise the Superintendent upon completion of the corrective action.

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