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Muckaty Solar Precinct

Referral under the *Environment Protection Act 2019*

18 September 2025

Document revision history

1.1.1 Document Preparation

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02	18/09/2025	Final for lodgement	Jessica Miller	Beth Salt

Acknowledgement of Country

SunCable acknowledges the Traditional Owners of Country across the land we call Australia. We pay our respects to their elders past and present. We also extend our respect to the Traditional Owners of land right across the Asia Pacific Region.

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Publication Statement

This Referral Report has been prepared by SMEC Australia Pty Ltd (SMEC) and EcOz Pty Ltd (EcOz) on behalf of the Proponent, SunCable (AAPowerLink Australia Assets Pty Ltd ABN: 99 653 396 948).

A list of the key consultants involved in preparing this document, their qualifications and experience in the environmental field are provided in the table below.

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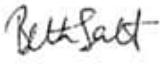
Approvers signature **Date**	Beth Salt 18/09/2025 

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Acronyms and Glossary

Acronym/Term	Definition
AAPA	Aboriginal Areas Protection Authority
AAPowerLink	AAPowerLink Australia Assets Pty Ltd ABN: 99 653 396 948
AAPowerLink Project	The Australia-Asia PowerLink Project (NT EPA Reference: EP2020/002-001 and EPBC Reference: 2020/8818)
AOO	Area of Occupancy
Aboriginal Land	Defined under Section 3 of the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth) to mean: *a) land held by a Land Trust for an estate in fee simple; or* *(b) land the subject of a deed of grant held in escrow by a Land Council*
ALRA	*Aboriginal Land Rights (Northern Territory) Act 1976* (Cth)
ALT	Aboriginal Land Trust
BPESC Guidelines	*Best Practice Erosion and Sediment Control Guidelines* (International Erosion Control Association, 2008)
BESS	Battery Energy Storage System
BoM	Bureau of Meteorology
CHMP	Cultural Heritage Management Plan
CPC	Consolidated Pastoral Company Pty Ltd
CR	Critically Endangered
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Cth)
DIDO	Drive-In-Drive-Out
DRP	Decommissioning and Rehabilitation Plan
EIS	Environmental Impact Statement
EIA	Environmental impact assessment
EMF	Electromagnetic field
EN	Endangered
EP Act	*Environment Protection Act 2019* (NT)

Acronym/Term	Definition
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EcOz	EcOz Pty Ltd ABN: 81 143 989 039
ER	Extinct Regionally
ESCP	Erosion and Sediment Control Plan
ESG	Environment Social Governance
FIFO	Fly-In-Fly-Out
FID	Final investment decision
FPIC	Free Prior and Informed Consent
GDE	Groundwater Dependent Ecosystem(s)
GW	Gigawatt
GHG	Greenhouse gas
ha	Hectare(s)
ILUA	Indigenous Land Use Agreement
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IUCN	International Union for Conservation of Nature
km	Kilometre(s)
LEH	Lake Effect Hypothesis
LGA	Local Government Area
m	Metre(s)
MIG	Migratory Species
MNES	Matter(s) of National Environmental Significance under the EPBC Act
NLC	Northern Land Council
NPI	Non-Process Infrastructure (NPI) in this Referral Report refers to the ancillary infrastructure required to support construction and operation of the Proposal.
NT	Northern Territory
NT	Near Threatened
NT EPA	Northern Territory Environment Protection Authority
NTD	Native Title Determination
NTG	Northern Territory Government

Acronym/Term	Definition
OHTL	Overhead transmission line
Paris Agreement	*Paris Agreement*, opened for signature on 16 February 2016, 3156 United Nations Treaty Series 79 (entered into force 4 November 2016)
PASS	Potential acid sulfate soil
PMST	Protected Matters Search Tool
the Proposal	The proposed Muckaty Solar Precinct, which will generate, store, and transport renewable solar energy, and which would integrate with the neighbouring AAPowerLink Project.
the Proponent	AAPowerLink Australia Assets Pty Ltd ABN 99 653 396 948 is the nominated SunCable business entity for the proposed action.
PV	Photo-voltaic
Ramsar Convention	*Convention on Wetlands of International Importance Especially as Waterfowl Habitat*, opened for signature 2 February 1972, 996 UNTS 245 (entered into force 21 December 1975)
RET	Renewable Energy Target
RWA	Restricted Work Area
SIA	Social Impact Assessment
SIMP	Social Impact Management Plan
Sacred Site	Defined in Section 3 of the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth) to mean: *a site that is sacred to Aboriginals or is otherwise of significance according to Aboriginal tradition, and includes any land that, under a law of the Northern Territory, is declared to be sacred to Aboriginals or of significance according to Aboriginal tradition.*
SEIFA	Socio-Economic Indexes for Areas
Significant Impact Guidelines	*Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* (Australian Government, 2013)
SMEC	SMEC Australia Pty Limited ABN: 47 065 475 149
TPWC Act	*Territory Parks and Wildlife Conservation Act 1976* (NT)
VU	Vulnerable
WAP	Water Allocation Plan

Acronym/Term	Definition
WEL	Water Extraction Licence
WMP	Waste Management Plan
WMPC Act	*Waste Management and Pollution Control Act 1988* (NT)

Executive Summary

This Referral Report provides details of SunCable's proposal to develop a large-scale solar generation and Battery Energy Storage System precinct on Muckaty Aboriginal Land Trust (NT Portion 5173). The 'Muckaty Solar Precinct' (i.e. the 'Proposal') is situated in the Barkly Regional Local Government Area of the Northern Territory, approximately 870 kilometres south of Darwin and 125 kilometres north of Tennant Creek by road. The Proposal will add to the generation capacity of the Australia-Asia PowerLink Project (AAPowerLink Project), which currently has a single solar generation precinct already approved in the Barkly region, on the nearby Powell Creek Station.

The Muckaty Solar Precinct aims to generate renewable solar energy for dispatch through the already approved AAPowerLink Project's transmission system. The Proposal incorporates infrastructure to support construction and operation of the solar precinct, and a transmission corridor connecting north to the already-approved AAPowerLink Project infrastructure on Powell Creek Station (NT EPA Reference: EP2020/002-001, and EPBC Reference: 2020/8818)[1]. Once complete, the Muckaty Solar Precinct will have an operating life of 70+ years.

Summary of Potential Impacts

The pre-referral screening assessment determined the five environmental factors are relevant to the Proposal. The table below summarises the environmental factors that may be significantly impacted and provides a brief description of potential impacts.

Summary of the Potentially Significant Impacts to the NT EPA Environmental Factors

Environmental Factor	Site-Specific Values	Potential impacts
Terrestrial environmental quality	• Land and soil quality and integrity.	• Land and soil degradation via large scale native vegetation clearing. • Contamination of soil from improper storage, handling and removal of e-waste. • Soil contamination via chemical/hydrocarbon spills, septic systems or waste disposal in landfills.
Terrestrial ecosystems	• Significant vegetation including riparian vegetation and ephemeral swamps of varying sizes which are scattered throughout. • Large, hollow-bearing trees, which are likely restricted to Burke Creek. • Habitat for threatened species including Greater Bilby (*Macrotis*	• Loss of native vegetation and habitat features. • Degradation of native vegetation and habitat features. • Loss of significant vegetation. • Degradation of significant vegetation. • Species' habitat fragmentation. • Injury or direct mortality.

Environmental Factor	Site-Specific Values	Potential impacts
	lagotis), Grey Falcon (*Falco hypoleucos*), and Yellow-spotted Monitor (*Varanus panoptes*).	• Impacts to migratory species from the 'lake effect.'
Hydrological Processes	• Surface water regime. There are two major creek lines within the Project Area that flow during the wet season. • Ground water regime. The Project Area is underlain by a regional scale groundwater aquifer located within the Daly Roper Beetaloo Water Control District.	• Altered surface water drainage. • Sedimentation of downstream receiving waters. • Altered flood depths and flow velocities. • Groundwater drawdown impacting availability for other users.
Community and economy	• Local community. • Workforce. • Regional services and infrastructure. • Amenity.	• The Proposal has the potential to impact community, including Aboriginal people, and the economy, both positively and negatively. • Potential impacts identified under the categories of: – Strong voice (governance). – Economies and jobs. – People and communities. – Infrastructure and services. – Living environment. – Healthy country. – Cultural identity.
Culture and heritage	• Aboriginal Sacred Sites. • Culturally significant areas. • Archaeological sites.	• Direct impacts to Aboriginal Sacred Sites and/or Aboriginal archaeological places or objects associated with land clearing and development. • Indirect impacts to Aboriginal Sacred Sites and/or Aboriginal archaeological places or objects associated with erosion, dust, alteration of surface water drainage, groundwater extraction, unauthorised access by workers etc. • Direct and indirect impact to contemporary land use by Aboriginal people (e.g. for cultural uses, hunting, gathering) due to restrictions on access.

Consideration of Environmental Protection Principles

Throughout the early planning and feasibility phases of the Proposal, SunCable has integrated the principles of environment protection and management (Part 2 of the *Environment Protection Act 2019* (NT)) and the general duty of proponents (Section 43 of the Act) into its decision-making. Sections 2.5 and 2.6 of this Referral Report provide details of how SunCable has considered and applied these principles. Key measures implemented by SunCable to align with these principles include:

- Ongoing engagement with the Traditional Owners of Muckaty Aboriginal Land Trust and other stakeholders.
- Investing in gathering the best available scientific and traditional knowledge to inform site selection and design.
- Delineation of Avoidance Areas for sensitive ecological and cultural heritage values.
- Identifying management options to mitigate adverse impacts on the environment to the greatest extent practicable.
- A waste management strategy that follows the waste management hierarchy by reducing and reusing wastes, including e-wastes.
- Staging of land clearing and development, stormwater management, erosion and sediment control, dust and noise control, and sustainable water extraction.
- A Social Impact Management Plan that provides measures to protect social and cultural values, minimise impacts to regional communities, and enhance beneficial social and economic outcomes.

Residual Impact Statement

The assessment did not identify any impacts with a high residual impact rating. There is potential for a **Moderate residual impact** on Terrestrial ecosystems, with the primary risk stemming from large-scale land clearing and ground disturbance. These activities could reduce an area of critical habitat for the Greater Bilby (a threatened species) and have potential to have a significant impact on that species. SunCable is committed to refining the footprint for each solar generation site to avoid direct impacts to occupied Greater Bilby habitats (i.e. areas where in use burrows were recorded during field surveys). This commitment is expected to ensure that impacts to the Greater Bilby are avoided and mitigated to the maximum extent reasonably practicable.

There is potential for a **Moderate residual impact** on the Community and economy factor, due to the complex ways in which the Proposal will interact with the local and regional workforce, residents, economic activities, and Aboriginal land uses, as well as the potential for cumulative impacts with the neighbouring AAPowerLink Project (e.g. by extending the construction-stage community impacts already identified for that project). At the same time, the Proposal is expected to generate **Beneficial** positive impacts for the Community and economy factor.

There is potential for a **Moderate residual impact** on the Culture and heritage factor due to the potential for indirect impacts as a result of the Proposal's impact on the surrounding amenity and

the resulting potential effects on the cultural values of Country, as well as through impacts (likely temporary) to ongoing Aboriginal land uses of Country (for example, where activities may have to be paused to enable construction works).

Residual impacts for the remaining two environmental factors were assessed as **Minor**: Terrestrial environmental quality; and Hydrological processes. For those two factors, the proposed avoidance and mitigation measures reduce the likelihood of significant impacts occurring.

Key Conclusions

The Muckaty Solar Precinct is proposed to provide additional sources of renewable solar energy for dispatch within the NT and the south-east Asia region. The Proposal will generate long-term benefits to the NT associated with transitioning to renewable energy and attracting investment into future facing 'green' industries. The Proposal has potential to provide significant benefits to the Muckaty Traditional Owners and to the Barkly region community more broadly through land agreements, employment, and other community development opportunities.

To ensure benefits can be realised without unacceptable environmental impacts, environmental studies have been undertaken to inform decision-making, onsite selection, and design. SunCable continues to engage with the Traditional Owners and stakeholders to ensure they are informed and consulted with in relation to key aspects of the Proposal.

The Proposal's potential impacts on the NT EPA's factors have been considered in accordance with the *Environment Protection Act 2019* (NT) and *Environment Protection and Biodiversity Conservation Act 1999* (Cth). Initial pre-screening determined that the Proposal has the potential to significantly impact five of the NT EPA's 14 environmental factors. As this Referral Report has demonstrated, with suitable mitigation strategies in place, two of those factors are identified as having a **Minor** potential for significant impacts to occur (i.e. the Terrestrial environmental quality, and Hydrological processes factors). For the remaining three factors (i.e. the Terrestrial ecosystems, Community and economy, and Culture and heritage), there is a **Moderate** potential for significant impacts to occur with suitable mitigation strategies in place.

The environmental protection and management measures presented in this Referral Report are routinely implemented on large infrastructure projects, and are expected to be effective in reducing residual impacts. This also is expected to ensure that the NT EPA's objectives can be met for each relevant factor.

1 Introduction

This Referral Report has been prepared by SunCable (AAPowerLink Australia Assets Pty Ltd) to notify the Northern Territory (NT) Environment Protection Authority (NT EPA) of the **Muckaty Solar Precinct** Proposal under the *Environment Protection Act 2019* (NT) (EP Act). The Proposal will also be referred to the Commonwealth Environment Minister under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

SunCable is a renewable energy developer founded in 2018. The company's flagship project, Australia Asia Power Link (AAPowerLink Project), will supply renewable power sourced from the Barkly region in the NT to industrial customers in Darwin and Singapore. SunCable secured NT and Commonwealth environmental approvals for the foundation components of the AAPowerLink Project, in July/August 2024 encompassing a solar generation site at Powell Creek Station in the Barkly region, overhead transmission line (OHTL) to the Darwin region, and the section of subsea cable system which traverses through Australian waters (refer NT Environment Approval EP2020/002-001 and EPBC Approval 2020/8818).

To further underpin investment in the AAPowerLink Project, SunCable is exploring additional large-scale generation sites in the Barkly region that will position the company to respond to forecast and emerging growth in renewable energy demand. Market growth has always been anticipated, with the already-approved AAPowerLink Project's transmission infrastructure designed to accommodate up to 6 gigawatts (GW) of power. More recently, SunCable has also identified Data Centres as a highly prospective market and is exploring the potential for Data Centre customers to locate near a large-scale renewable energy supply. SunCable is seeking to develop a long-term pipeline of approved generation sites in the Barkly region that can be delivered in stages as customer offtake is secured.

Additional generation capacity is proposed to be developed on Muckaty Aboriginal Land Trust (ALT), which has a proven world-class solar resource and promising wind resources with potential to support future stages of mixed renewable energy generation. Under a Section 19 Licence granted by the Traditional Owners of Muckaty ALT pursuant to the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth) (ALRA), SunCable is conducting studies to assess the potential for developing solar and wind generation projects. Solar generation is the initial focus of development, with the potential for wind projects to proceed separately in the future, subject to the outcomes of resource monitoring and commercial assessments. SunCable has progressed site selection and concept design for the Muckaty Solar Precinct informed by various technical studies, as well as environment and heritage assessments.

2 Proposal Description

2.1 Location and Regional Context

2.1.1 Project Area

The Muckaty Solar Precinct is located on Muckaty ALT land, which is accessed off the Stuart Highway approximately 870 kilometres (km) south of Darwin and 125 km north of Tennant Creek by road. The Project Area comprises 105,000 hectares (ha) of land under assessment for solar development potential. It is situated within the Barkly Regional Local Government Area (LGA), as shown in Figure 2-1.

The Project Area is 27 km west of the Stuart Highway and is divided by the Adelaide-Darwin railway line running through the centre from north to south. These are both major logistics corridors which can be used to transport materials and equipment required to construct and operate the solar precinct.

Muckaty ALT was selected for its solar resource development potential and proximity to SunCable's already-approved long-distance transmission line from Powell Creek to Darwin (the AAPowerLink Project OHTL). The Project Area encompasses extensive areas of Desert Sandplains which are flat and sparsely vegetated. These are proven suitable target lands for solar development, based on the extensive work already undertaken by SunCable to design the neighbouring Powell Creek Solar Precinct.

The process which was used for selecting alternative site locations is summarised in Section 2.4.

2.1.2 Land Tenure

The Project Area is located on Aboriginal Land (Freehold) under the ALRA, and within part of NT Portion 5173. This land parcel is owned by the Muckaty ALT.

2.1.3 Nearest Communities and Residences

The nearest towns to the Project Area are Elliott (Kulumindini), located approximately 81 km north, and Tennant Creek, located approximately 121 km south (as the crow flies). Elliott has a population of around 287 people, 85 percent who identify as Aboriginal (ABS, 2021b). Tennant Creek has a population of around 2,949 people, 55 percent who identify as Aboriginal (ABS, 2021c).

The locations of populated places, areas of interest, and other sensitive receptors within proximity to the Project Area are summarised in Table 2-1. Figure 2-2 also shows the communities and places of residence surrounding the Project Area.

Table 2-1: Nearby Sensitive Receptors

Receptors	Approximate distance from nearest part of Project Area
Adelaide to Darwin Railway	0 km (within Project Area)
Renner Springs Roadhouse	24 km east
Namerinni Outstation	8 km east
Elliott	81 km north
Tennant Creek	121 km south
Muckaty Outstation	26 km east
Muckaty Station Homestead	24 km east
Kumunu Outstation	8 km south
Banka Banka West Station and Tourist Park	37 km southeast

2.1.4 Land Use History

Muckaty was originally inhabited by Aboriginal people. It became a cattle station under a pastoral lease in the late 19th century (Sinclair, 2014). The land was then returned to Muckaty Aboriginal Corporation in 1991, which then focused on regenerating the landscape, which at the time had been degraded due to overstocking (Northern Land Council, 1999). In 2007, the nation's first radioactive waste storage facility was proposed by the Australian Government on a small section of land within Muckaty. However, this proposal was dismissed and will not be executed due to landowner discontent (Sinclair, 2014).

The current primary land use is for traditional Indigenous uses, including conservation and managed resource protection (DLPE, 2024b), and for low intensity cattle grazing activities under lease agreement with the Traditional Owners. There are two outstations (Muckaty and Namerinni), where Aboriginal families have lived in recent times, although it is understood they are not currently permanently occupied. Grazing activities are concentrated in the central portions of the property, where infrastructure supporting the pastoral land use includes access tracks, fences, watering points, and holding yards. The land areas to the west of the railway are undeveloped and have very limited access.

There are no known sources of soil, surface water, or groundwater contamination within or in proximity to Muckaty. The nature of existing and past land uses poses a low risk of contamination.

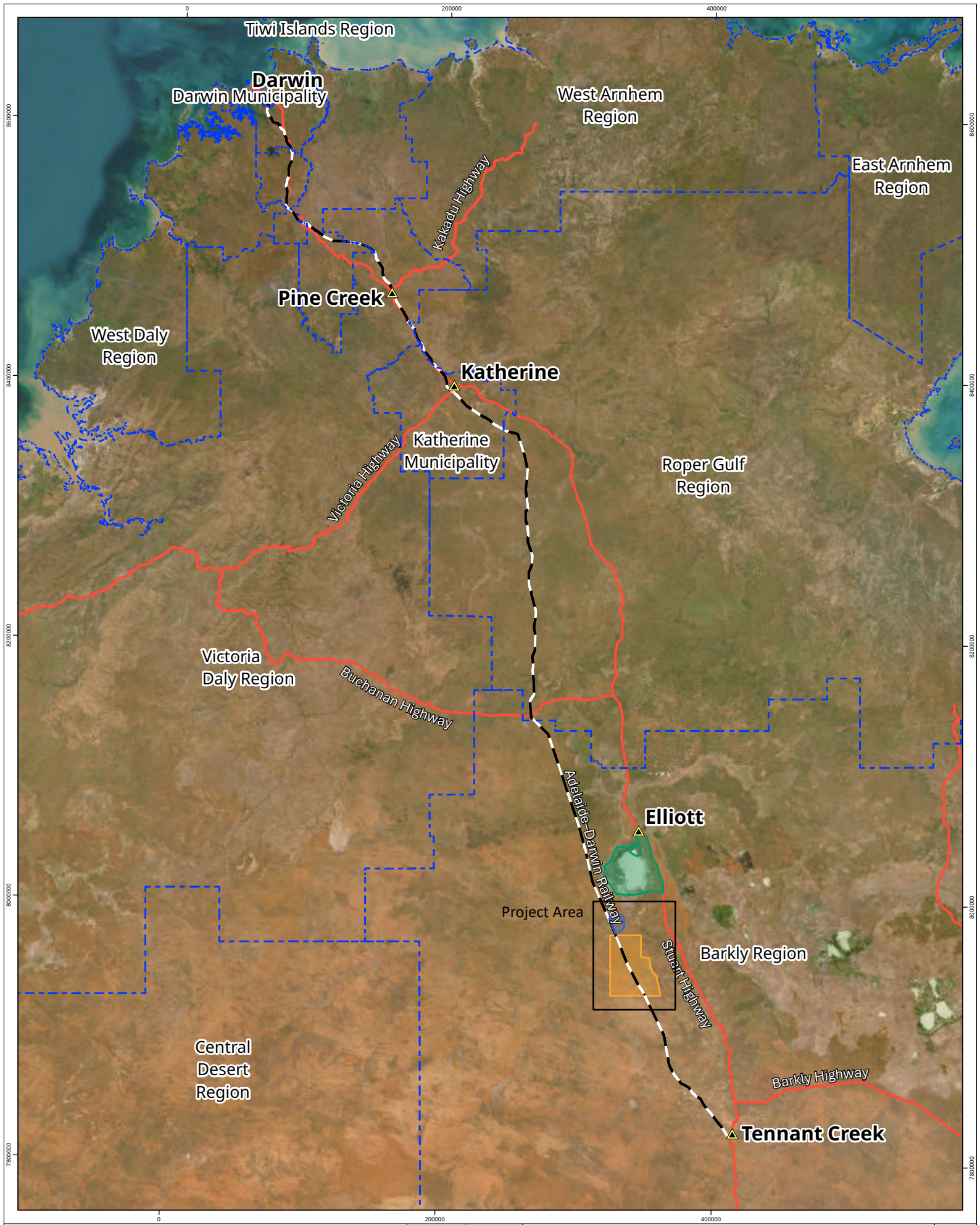
2.1.5 Neighbouring Land Uses

Surrounding land uses are predominantly cattle grazing on pastoral leases and other Aboriginal Land. The Bootu Creek Manganese Mine site is located on Banka Banka West Pastoral Lease, which adjoins the eastern boundary of Muckaty ALT. The mine is currently in care and maintenance. The mine haul route runs along the southern boundary of the Project Area from the mine to the Adelaide-Darwin Railway, where there is a siding to load ore for transport to Darwin.

The neighbouring Powell Creek Station to the north is an operational cattle property owned by Consolidated Pastoral Company (CPC). Native Title exists and is held by the Bamayu (Wurwanawanji–Yarrayarra), Bamayu (Titirlku), Marlinja, Ngapa Jangirulu, Walanypirri and Wilyuku Groups.

2.1.6 Related Development

As previously mentioned, the Project Area is related to SunCable's already-approved AAPowerLink Project (NT EPA Reference EP2020/002-001, and EPBC Reference: 2020/8818). The Proposal will capitalise on the nearby AAPowerLink Project infrastructure, using the long-distance OHTL for transmitting energy to customers in the Darwin region, and further afield to Singapore.



LEGEND

- Powell Creek Approved Solar Generation Site: AAPowerLink Project NT EPA EP2020/002
- Muckaty Solar Project Area
- Lake Woods Conservation Covenant
- Local Government Areas
- Major Locations
- Highways
- Railways

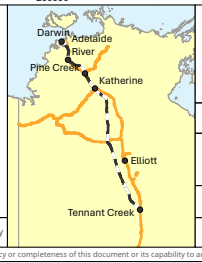


Figure 2-1: Project Area Location

Project: Australia-Asia PowerLink

0 20 40 60 80 100 Kilometres

Scale: 1:3,600,000 | Datum: GDA2020

Coordinate System: MGA Zone 53 | A4

Reference #: AAPL_BRP_REF_MAP_2-1

Date: 9/09/2025 | Figure: 2-1 | Revision: H

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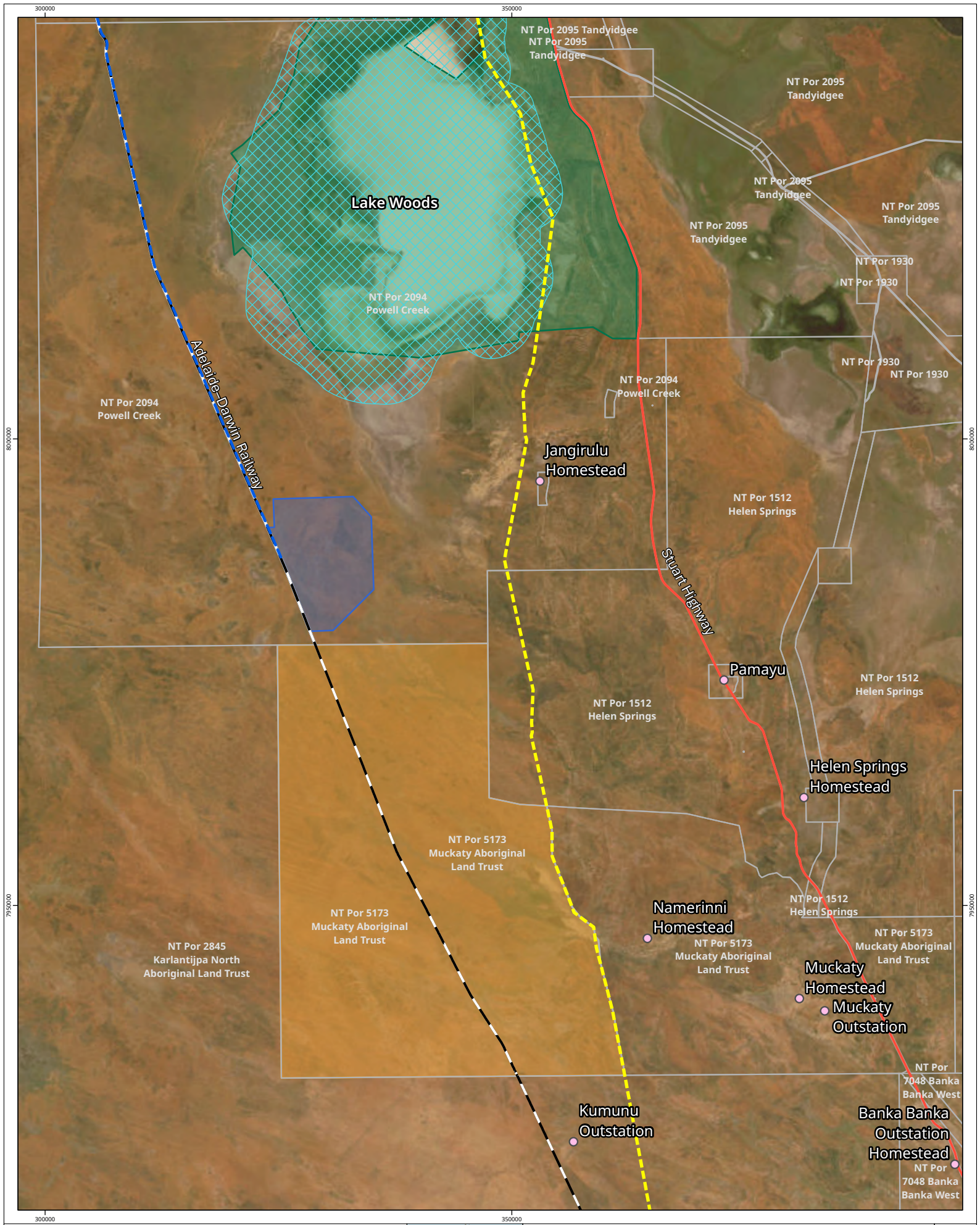
Source: Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



LEGEND

- Sensitive receptors
- Powell Creek Approved Solar Generation Site: AAPowerLink Project NT EPA EP2020/002
- Powell Creek Approved OHTL
- Muckaty Solar Project Area
- Lake Woods Conservation Covenant
- Lake Woods Sites of Conservation Significance
- Highways
- Railways
- Cadastre
- Existing Gas Pipeline

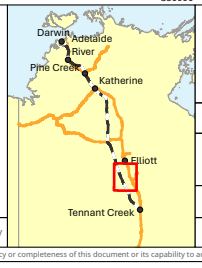


Figure 2-2: Site Context

Project: Australia-Asia PowerLink

N

0 5 10 Kilometres

Scale: 1:500,000 | Datum: GDA2020 | Coordinate System: MGA Zone 53 | A4

Reference #: AAPL_BRP_REF_MAP_2-2

Date: 9/09/2025 | Figure: 2-2 | Revision: G

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2.2 Key Components

Table 2-2 provides a summary of the key components of the Proposal. These key components are further detailed in Sections 2.2.1 to 2.2.7 below.

Table 2-2: Key Components of the Proposal

Component	Estimated Size/Duration*
Key Proposal Infrastructure	
• Solar generation sites (including solar panels, local collector network, inverters, batteries, substations). • Transmission infrastructure (including switching station, and OHTL). • Non-Process Infrastructure (NPI) (including access roads, airfield, rail siding accommodation, borrow pits, laydowns, borefield etc.).	49,300ha Note the solar precinct is proposed to accommodate several solar generation sites, each of which will have associated transmission and access infrastructure. The footprint required for each component of the proposed infrastructure will be refined as design progresses.
Key Proposal Features	
Project Area	105,000 ha
Preliminary Disturbance Footprint	49,300 ha
Avoidance Areas	23,230 ha
Accessed/Services Corridor	4,885 ha
Timing (life of construction and operation)	Five+ years for construction of each solar generation site. 70+ year operation period from the date of commissioning of each solar generation site.
Repowering	At around 40 years for solar panels. At around 15 years for batteries.
Workforce	Around 3,500 FTE of construction workforce. Around 100 FTE operational workforce.
Decommissioning and site rehabilitation	Temporary NPI decommissioned progressively when no longer needed. Solar generation sites decommissioned and rehabilitated progressively at the end of operational life.

*Estimated size/duration metrics are approximate at this time.

2.2.1 Disturbance Footprints

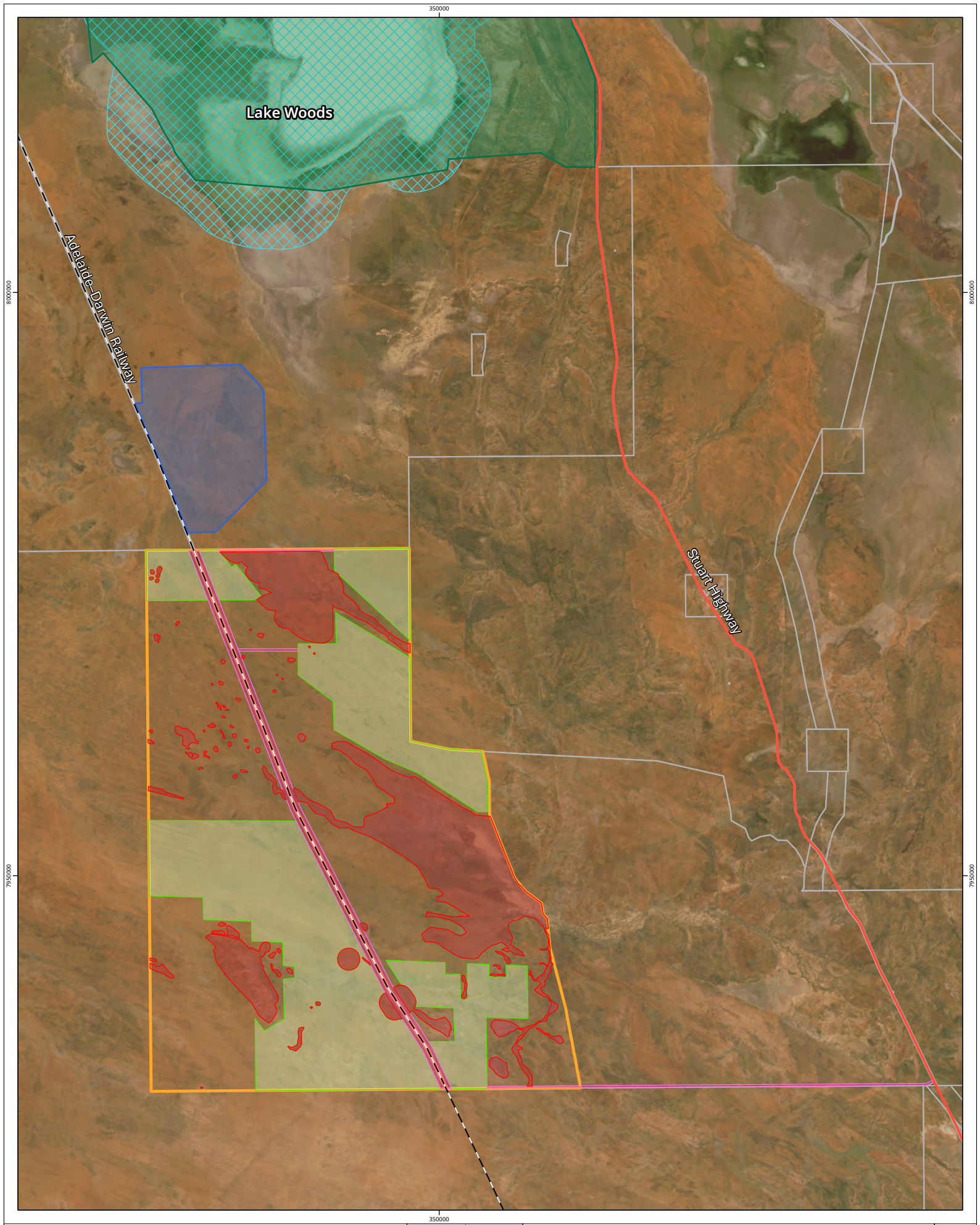
Within the Project Area, a Preliminary Disturbance Footprint has been delineated covering approximately 50,000 ha of land that is potentially suitable for development of solar generation sites, transmission infrastructure, and access corridors (refer to Figure 2-3). The size of the footprint was defined based on concept design land requirements. The footprint avoids areas with significant flooding risk, and the Avoidance Areas discussed in Section 2.2.2 below.

The Disturbance Footprint for each generation site will be more accurately defined and refined as engineering design progresses. Additional footprints may be required (outside of the Preliminary Disturbance Footprint) to accommodate NPI to support construction and operation of the precinct (refer Section 2.2.5).

2.2.2 Avoidance Areas

Within the Project Area, preliminary Avoidance Areas have been identified to protect known environment and heritage values (refer to Figure 2-3). The Avoidance Areas cover significant vegetation, important habitats, some areas of threatened species habitat (Greater Bilby), and known Aboriginal Sacred Sites, and include buffers to protect these values. The Avoidance Area mapping is preliminary as not all areas have been subject to ground-truthing. Details of the analysis undertaken to delineate Avoidance Areas and other development constraints, and how that influenced the Proposal's design, are provided in Section 2.4.2 below.

It is anticipated that further Avoidance Areas will be identified through consultation with Traditional Owners, undertaking further assessments of Greater Bilby habitats, undertaking cultural heritage studies to identify heritage features protected under the *Heritage Act 2011* (NT), and applying for an Authority Certificate under the *Northern Territory Aboriginal Sacred Sites Act 1989* (NT). Avoidance Areas will be refined and updated over time as new information becomes available and will be the key measure used to avoid and minimise impacts.



LEGEND

- Highways
- Railways
- Powell Creek Approved Solar Generation Site: AAPowerLink Project NT EPA EP2020/002
- Preliminary Disturbance Footprint
- Proposed Access/Services Corridor
- Avoidance Area
- Muckaty Solar Project Area
- Cadastre
- Lake Woods Conservation Covenant
- Lake Woods Sites of Conservation Significance

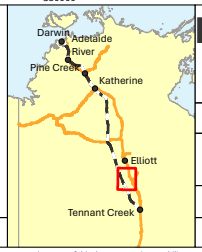


Figure 2-3: Preliminary Disturbance Footprint and Avoidance Areas

Project: Australia-Asia PowerLink

0 5 10 Kilometres

Scale: 1:400,000 | Datum: GDA2020 | Coordinate System: MGA Zone 53 | A4

Reference #: AAPL_BRP_REF_MAP_2-3

Date: 9/09/2025 | Figure: 2-3

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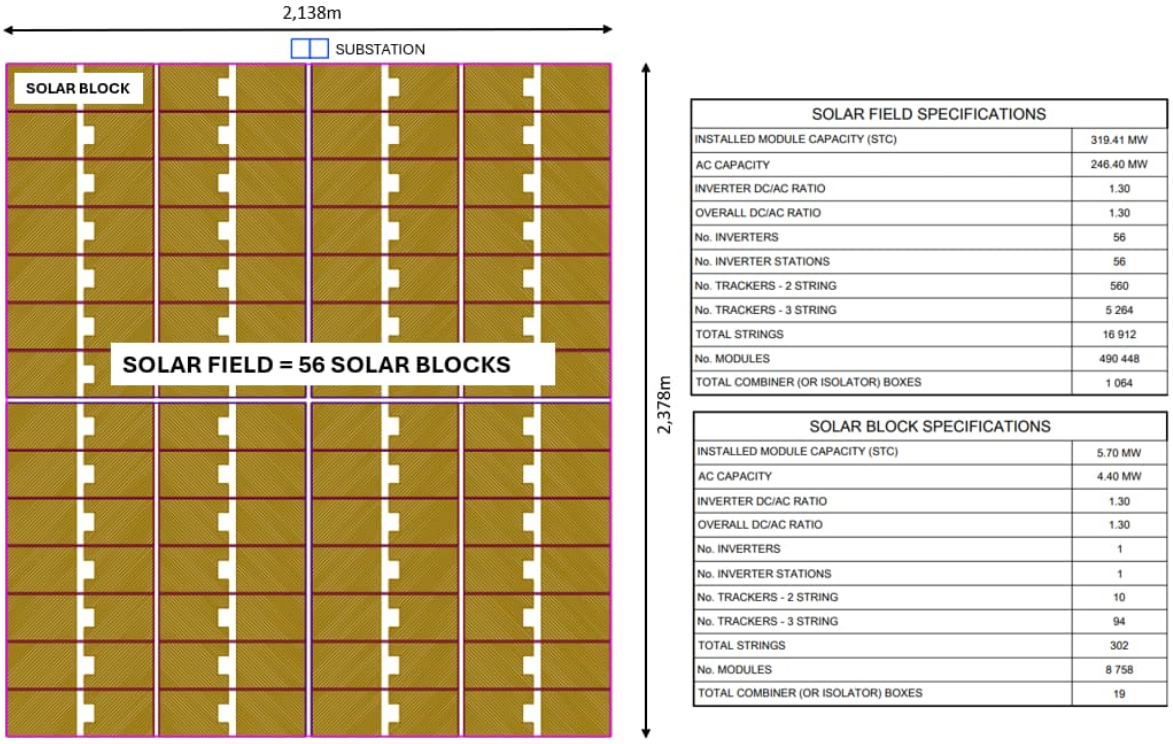
2.2.3 Solar Generation Sites

Concept-level assessment has identified significant areas of land in the Project Area that are potentially suitable for solar fields and Battery Energy Storage System (BESS) components. The design process described in Section 2.4.2 below considered a range of technical, environment, and heritage constraints. The location and extent of the potential solar generation sites are part of the Preliminary Disturbance Footprint shown on Figure 2-3.

Concept design has progressed for a single axis tracker solar precinct, comprised of modularised 325-megawatt peak capacity solar fields. The solar fields are the building blocks of the precinct, with the number of fields delivered in each stage dictated by customer offtake agreements. The concept solar field layout and specifications are shown in Figure 2-4 to illustrate the key components and scale, noting these may change as site-specific design is progressed.



SOLAR FIELD SPECIFICATIONS	
INSTALLED MODULE CAPACITY (STC)	319.41 MW
AC CAPACITY	246.40 MW
INVERTER DC/AC RATIO	1.30
OVERALL DC/AC RATIO	1.30
No. INVERTERS	56
No. INVERTER STATIONS	56
No. TRACKERS - 2 STRING	560
No. TRACKERS - 3 STRING	5 264
TOTAL STRINGS	16 912
No. MODULES	490 448
TOTAL COMBINER (OR ISOLATOR) BOXES	1 064

SOLAR BLOCK SPECIFICATIONS	
INSTALLED MODULE CAPACITY (STC)	5.70 MW
AC CAPACITY	4.40 MW
INVERTER DC/AC RATIO	1.30
OVERALL DC/AC RATIO	1.30
No. INVERTERS	1
No. INVERTER STATIONS	1
No. TRACKERS - 2 STRING	10
No. TRACKERS - 3 STRING	94
TOTAL STRINGS	302
No. MODULES	8 758
TOTAL COMBINER (OR ISOLATOR) BOXES	19

Figure 2-4: Concept Solar Field Layout and Specifications (taken from SMEC, 2025)

SunCable is seeking environmental approval over multiple potential solar generation sites on Muckaty that can be developed in stages over an extended period as customer offtake agreements are secured. Initial assessments indicate that the Preliminary Disturbance Footprint can accommodate enough solar fields for approximately 20 GW of peak electrical output[1]. Studies and consultation with Traditional Owners will be undertaken to refine the footprints, ensuring avoidance of environment and heritage values and alignment with the aspirations that Traditional Owners have for the scale of development on their land.

[1] Approximately 5 GW of firmed power production at 95 percent capacity factor and 21.7 GW/hr of BESS.

The environmental approvals and a Section 19 ALRA Agreement (if secured) will set the scale and location of development permitted on Muckaty into the future, so that cumulative impacts are considered from the outset. The actual area of land developed, and the staging and timing of development, will then be driven by customer offtake agreements.

2.2.4 Transmission Infrastructure

Power generated at the solar generation sites will be marshalled into a central switching station using a local collector network, which could include a combination of overhead and/or underground transmission lines. The Preliminary Disturbance Footprint includes allowance for transmission infrastructure, with the final footprint size and preferred locations to be determined as design progresses for each stage.

An OHTL will be constructed to transfer power from the Muckaty Switching Station north to the already-approved Powell Creek Switching Station. The Muckaty to Powell Creek OHTL will require a 65 m wide corridor. The Preliminary Disturbance Footprint incorporates a 500 m wide corridor either side of the railway corridor within which a preferred corridor, approximately 200 m wide, will be selected for the OHTL (and access roads).

From Powell Creek, the already approved AAPowerLink Project's OHTL will be used for transmission over long distances to end-use customers in Darwin and Singapore. The additional power generated at Muckaty will underpin the business case for investment in building out the full 6 GW AAPowerLink Project OHTL. Building the full 6 GW capacity up front has significant commercial, environmental, and social benefits over the alternative of building multiple lower capacity transmission routes over time.

2.2.5 Non-Process Infrastructure

NPI refers to the ancillary infrastructure required to support construction and operation of each solar generation site. Some NPI will be temporary, required during the construction phase/s and any repowering stages only, and will be remediated when no longer needed. Other NPI will be permanent, including facilities to support ongoing operations, and enabling infrastructure such as roads and airfields, which may also be public or common use infrastructure.

Environmental approvals already secured for the AAPowerLink Project cover a range of NPI on the neighbouring Powell Creek Station. Where suitable, it is proposed to use this approved NPI to support construction and operation of the Muckaty Solar Precinct. However, concept design has also been prepared for a complete set of NPI assets at Muckaty to provide flexibility for concurrent or independent construction and operation of assets at both sites.

NPI which may be required at Muckaty Solar Precinct includes:

- Sealed and unsealed site access roads, including potential road crossing(s) and/or intersection(s) with Stuart Highway, and heavy vehicle marshalling and security areas.
- Rail siding.
- Airfield.
- Construction laydown areas.
- Borrow pits.

- Concrete batching plants.
- Water supply (groundwater bores, pipelines and storage tanks).
- Worker accommodation camp/s.

The Preliminary Disturbance Footprint incorporates a 200 m wide access corridor along the southern boundary of Muckaty ALT from the Stuart Highway to the rail corridor, and another 200 m wide access corridor from the rail corridor to the northern solar sites. Preferred locations for access roads will be selected avoiding and minimising impacts to technical, environmental, and heritage constraints. Other NPI may be co-located in the access/transmission corridors including laydown areas, borrow pits, and worker accommodation camps.

The locations of access/transmission corridors are preliminary. Additional and/or alternate areas may be identified pending the outcome of further studies.

2.2.6 Transport and Logistics

Darwin Port will be the primary port of entry for all materials and equipment imported for the Proposal. Materials and equipment will be sourced from Australia and overseas. These will be delivered to the Project Area via both road and rail transport.

It is anticipated that most of the rail freight will originate from Darwin utilising a combination of dedicated trains and available space on the daily freight service operating between Darwin and Adelaide. Some rail freight will also originate from Adelaide, as required. To facilitate the efficient receipt, delivery, and handling of materials and equipment, a rail intermodal and logistics facility may be constructed within a suitable location at Muckaty.

There will also be a requirement during construction to move materials and equipment via road, utilising the Stuart Highway and regional roads. Most of the road freight will be via the Stuart Highway utilising Double and Triple Road Trains.

Detailed surveys, analysis, and capacity modelling will be undertaken of key logistics infrastructure including Darwin port, the rail network, and roads to understand the constraints, potential bottlenecks, and risks. Solutions to reduce the impact of the proposed freight on the existing infrastructure network will be developed in consultation with the Darwin port and railway asset owners, as well as the Northern Territory Government (NTG).

2.2.7 Water and Energy Requirements

Water demand for the Muckaty Solar Precinct will be greatest during construction of each proposal stage with the key sources of demand being dust suppression, concrete batching, and construction camps. Once operational, the precinct will use significantly less water, with key ongoing operational water demand being for cleaning, landscaping, and a workers' camp. There will be periodic increases to water demand during repowering activities when compared to ongoing generation operations.

The water demand profiles developed for the Powell Creek Solar Precinct indicate the quantum of water that will be required for each solar generation site constructed at Muckaty. For the 12,000 ha Powell Creek Solar Precinct, construction water demand was estimated at 1,860 ML/yr

and operational water demand was estimated to be 11.4 ML/yr[2]. A demand profile for the Muckaty Solar Precinct will be developed and presented as design progresses.

An onsite water supply system will be established to provide potable water supply for the workforce and non-potable water for construction and maintenance activities. Water supply is planned to be sourced from groundwater bores, subject to the findings of groundwater studies. The results of groundwater studies will be used to determine sustainable volumes and rates of extraction and bore permits. A Water Extraction Licence (WEL) for groundwater will be sought under the *Water Act 1992* (NT) to facilitate this water use.

Power for temporary construction accommodation and facilities, such as warehouses and maintenance areas, will be supplied by mobile solar and/or small diesel-powered generators. Power for the main worker accommodation camp during operations will be from an onsite solar generation facility and BESS power station, with diesel back-up for safety given the remote location.

2.3 Proposal Delivery

2.3.1 Schedule

SunCable is targeting a final investment decision (FID) on the already-approved AAPowerLink Project towards the end of 2027. Initial stages of that project's delivery will likely commence with construction of the Powell Creek Solar Precinct, and the transmission system from Powell Creek to Darwin. Power delivery to customers in Darwin from the AAPowerLink Project is scheduled from 2032 onwards. Delivery of the Muckaty Solar Precinct generation sites (the subject of this Referral Report) would be driven by the timing and scale of offtake agreements.

SunCable is seeking to have the Muckaty Solar Precinct environmental approvals secured ahead of FID in late 2027. Advancing the environmental approvals will also ensure SunCable is able to provide Traditional Owners comprehensive information about environmental impacts to inform their decision-making about future land use agreements.

2.3.2 Construction

The Muckaty Solar Precinct will be constructed in stages, with the size of each stage determined by customer offtake agreements. While SunCable is seeking an overarching environmental approval for multiple solar generation sites at Muckaty, land clearing permits under the *Planning Act 1999* (NT) for each stage will be progressed only once detailed design is available to delineate the land area required. This staged approach will ensure that no land is cleared ahead of there being a firm commitment to proceed.

The construction phase associated with each stage will span a number of years. If all solar generation sites at Muckaty are progressed, this would most likely involve multiple construction phases over several decades. Each construction phase will create peaks of activity and associated environmental and social impacts associated with increased traffic, noise, dust, water extraction, and workforce requirements. These impacts will be managed using a framework of Construction

[2] As documented in Chapter 2 of the AAPowerLink Supplementary EIS

Environment Management Plans and Procedures, and a Social Impact Management Plan (SIMP), that will need to be reviewed and updated prior to delivery of each stage.

2.3.3 Operation

The already-approved AAPowerLink Project is designed to operate for 70 years. The Muckaty Solar Precinct will remain operational for the duration required to supply the AAPowerLink Project and/or other customer offtake agreements. During operations, the key activities that will occur onsite are:

- Monitoring and maintenance of electrical equipment to maintain system performance.
- Cleaning of solar panels to maintain output.
- Vegetation and weed management to minimise shading and manage bushfire risk.
- Maintenance of fences, site drainage, erosion and sediment controls.
- Road maintenance.

Operational activities will increase over time as the size of the operational precinct grows with each new stage. Once operational, the solar precinct is expected to have a low level of ongoing environmental and social impact as there are no major sources of emissions of contamination associated with the activities, and onsite accommodation will be provided for the operational workforce from outside the region. The operational impacts will be managed using a framework of Operational Environmental Management Plans and Procedures, and a SIMP, which will need to be reviewed and updated as each new precinct stage is commissioned.

2.3.4 Repowering

Repowering is the process of replacing aging solar panels, inverter systems, and batteries with newer, more efficient technologies. The repowering process enhances performance, increases energy output, and will extend the operational lifespan of the solar generation sites.

The solar panels have an optimal design life of approximately 40 years and the batteries 15 years. Repowering activities are likely to be required at the Muckaty Solar Precinct to meet the overall forecasted design life of the neighbouring AAPowerLink Project's transmission infrastructure.

Repowering campaigns will produce significant volumes of waste, including electronic waste (e-waste) that requires special management due to the presence of hazardous materials and valuable resources that should be reused or recycled. These impacts will be managed in accordance with a Waste Management Plan (WMP) as further described in Section 2.3.5 below.

Repowering campaigns will also temporarily increase onsite activities and associated environmental and social impacts associated with increased traffic, noise, dust, water extraction, and workforce requirements. These impacts will be similar to the initial construction phase, although of shorter duration and lower intensity, and will be managed using the construction environmental management framework.

2.3.5 Waste Management

Significant volumes of waste will be produced during the construction phase for each proposal stage, and significant volumes of demolition and e-waste will be produced during repowering

and decommissioning activities. Relatively small volumes of waste will be produced during routine operations, mainly from maintenances activities and operation of the worker accommodation camp. SunCable has acknowledged that the scale of waste that will be produced by the neighbouring AAPowerLink Project is substantial and is committed to working with partners in business and industry, research and development, government and the community, to develop feasible, practicable, and acceptable waste management solutions.

Waste produced at the Muckaty Solar Precinct will be similarly managed in accordance with a WMP. The WMP will be used to identify waste management strategies and targets including recycling, reuse, and remanufacturing targets for all phases. In line with what SunCable is already committed to under Condition 12 of the NT AAPowerLink Environment Approval EP2020/002-001, the Muckaty WMP will:

- Include an inventory of all waste streams that will be generated throughout the life of the Proposal (based on Schedule 2 of the *Waste Management and Pollution Control (Administration) Regulations 1998* (NT) and the NSW Waste classification guidelines.
- Include estimates of annual and total volumes of each waste stream for the life of the Proposal.
- Identify onsite and offsite waste treatment and management for each waste stream, including reuse, recycling, and remanufacturing targets.
- Demonstrate continued application of the waste management hierarchy.
- Include the framework for annual reporting on annual waste streams and volumes generated, and comparison against waste generation estimates and reuse, recycling, and remanufacturing targets.
- Be revised by SunCable prior to repowering and/or decommissioning activities to account for new conditions, technologies, regulations, or knowledge that could be relevant to waste management.

As a primary principle, SunCable is committed to ensuring no e-waste in part or whole is disposed to landfill. Further, SunCable is committed to playing a role in developing Australia's capability to effectively and efficiently manage wastes from the renewable energy industry, and realise opportunities for recycling, reuse, and remanufacturing.

2.3.6 Decommissioning and Rehabilitation

Infrastructure will be decommissioned progressively as soon as practicable after it is no longer required. Ahead of repowering and decommissioning activities, which will occur decades into the future, SunCable will prepare a Decommissioning and Rehabilitation Plan (DRP) for submission to the environmental regulator. During the long lifespan of the Proposal, industrial recycling technologies and industries, as well as reuse opportunities, are also expected to advance significantly, which could increase the market demand for the decommissioned components.

The DRP will reflect the post-closure land use aspirations of the Traditional Owners of Muckaty ALT and will consider reasonable and feasible alternative reuse, recycling, and disposal methods based on the industry standards at the time. In line with what SunCable is already committed to under Condition 13 of the NT AAPowerLink Environment Approval EP2020/002-001 the DRP will:

- Define closure objectives and criteria which have been developed in consultation with Traditional Owners and relevant government agencies.
- Describe the methodology and staging for dismantling and removal of infrastructure, rehabilitation and remediation.
- Be consistent with the waste management strategies and targets including recycling, reuse, and remanufacturing targets identified in a WMP.
- Include the approach for post-decommissioning monitoring and remediation.
- Be reviewed by an independent qualified person.
- Be revised by SunCable every five years to account for new conditions, technologies, regulations, or knowledge that could be relevant to decommissioning.

2.3.7 Workforce Requirements

Workforce requirements will be substantial in a regional, national and global context. Personnel numbers will peak during the construction phase for each new solar generation site, when workers will be required onsite. During operations, personnel numbers will be in the hundreds and will increase over time as new sites are commissioned.

The workforce forecasts prepared for the AAPowerLink Project provide an indication of the quantum of personnel required, with estimates of 3,500 full-time equivalent construction jobs and 200 full-time equivalent operational jobs, most of which are associated with constructing the Powell Creek Solar Precinct. The specific workforce requirements for the Muckaty Solar Precinct (subject to this Referral Report) will further be assessed as planning progresses for each stage.

The workforce will be predominantly a Fly-In-Fly-Out (FIFO) augmented by Drive-In-Drive-Out (DIDO) for jobs that can be filled by local staff and contractors. The Muckaty NPI concept design provides for a 3,000-person worker accommodation camp at a suitable location onsite.

Personnel will fly into a designated airfield, either constructed as part of the AAPowerLink Project (at Powell Creek or Muckaty), or utilising existing regional airfields, such as Tennant Creek. Buses and coaches will be used to transport workers to the onsite worker accommodation camp, and to their work sites each day.

Workforce development and management strategies will be prepared as SunCable procures delivery partners. SunCable is committed to maximising jobs and business opportunities for local people in the Barkly region and NT more broadly. This commitment is expressed in the draft AAPowerLink Project Territory Benefits Plan, which will be reviewed and updated over that project's life cycle. Further, the Indigenous Land Use Agreement (ILUA) already secured for the Powell Creek Solar Precinct ensures a commitment to employ Traditional Owners and local Aboriginal people. Similar requirements will be part of any future agreement negotiated with the Muckaty Traditional Owners in support of the Muckaty Solar Precinct.

2.4 Alternatives

2.4.1 Site Alternatives

SunCable identified Muckaty ALT as a preferred location over other surrounding land. The primary objective of the site selection process was to identify land, close to the already-approved AAPowerLink Project's OHTL, with potential for both solar and wind resource development. Consideration was given to securing additional land on Powell Creek Station, and other adjoining or nearby pastoral leases. However, each of these properties have limitations on scalability due to the existing leaseholder's requirements. Muckaty ALT is largely undeveloped, and across its east to west extent covers elevated land with a potential wind resource, and desert sand plains which are also favourable for solar development.

The key features of Muckaty ALT that make it suitable for a large-scale renewable energy development are:

- **Solar resource:** Proven world-class solar resource as demonstrated by the extensive resource monitoring and development work already completed by SunCable for the Powell Creek Solar Precinct immediately to the north.
- **Wind resource:** High wind compatibility identified in the *Northern Territory Wind Resource Assessment and Wind Measuring Strategy* (Jacobs, 2024). The elevated land in the east of Muckaty ALT has an indicated wind resource that warrants further assessment.
- **Land tenure and ownership:** Muckaty is Aboriginal Freehold Land that is currently largely undeveloped. Large-scale renewable energy development presents an opportunity for significant economic and social benefits for the Muckaty Traditional Owners and Aboriginal people in the Barkly region more broadly.
- **Asset co-location:** Proximity to the neighbouring AAPowerLink Project whereby the existing OHTL infrastructure can be used to send solar energy to Darwin and Singapore. This also allows for SunCable to create streamlined management of project construction workforce, site transport logistics, and ongoing operational maintenance.

Traditional Owners and the Northern Land Council (NLC) were consulted during the initial site selection process culminating in a meeting between land trust members, NLC, and SunCable in Tennant Creek in November 2024. Subsequently, the Muckaty ALT agreed to issue SunCable a Section 19 Licence under the ALRA to conduct studies to assess the potential for developing solar and wind generation projects.

2.4.2 Design Alternatives

The concept design for the Muckaty Solar Precinct has accounted for the principles of environment protection and management (per Part 2 of the EP Act) when defining the Preliminary Disturbance Footprint for the solar generation sites and NPI. Iterative analysis was undertaken over the six-month concept design phase to identify technical, environment, and heritage constraints using information gathered from field and desktop studies.

SunCable invested in undertaking property-wide studies and assessments to support robust analysis of design constraints and alternatives at the concept design phase. The key datasets captured and used in the analysis are summarised in Table 2-3.

Table 2-3: Datasets used to Inform Analysis of Design Constraints and Alternatives

Technical Datasets	Environmental Datasets	Heritage Datasets
High-resolution aerial imagery and contour mapping used to identify flat land areas that are suitable for solar. Hydrology/flood modelling study used to identify overland flow paths, watercourses and land subject to flooding.	Desktop and field ecological assessment – refer report at Appendix B – used to identify significant vegetation, important habitats and threatened species habitats (Greater Bilby).	Abstract of Records obtained from the Aboriginal Areas Protection Authority (AAPA) used to identify known Aboriginal Sacred Sites.

Analysis of flooding, ecological constraints, and the location of known Aboriginal Sacred Sites, informed the design of the solar generation site locations and footprints as follows:

- **Hydrology/fooding constraints:** Where practicable, the footprints avoid areas that regularly flood to depths greater than 30 cm. This limits the amount of flood mitigation earthworks required in the design and reduces erosion risk and hydrological impacts.
- **Ecological constraints:** Avoidance Areas were delineated to protect ecological values:
    - **Significant vegetation and important habitats:** Areas mapped by EcOz (2024) are avoided as per the *Land Clearing Guidelines: Northern Territory Planning Scheme* (NTG, 2024b).
    - **Greater Bilby:** Concentrations of burrows recorded in the south-west corner of the Project Area have been avoided by removing footprints from that area. It is noted that the Preliminary Disturbance Footprints do still contain recorded Greater Bilby burrows and further work will be undertaken to refine the footprints to avoid and mitigate impacts to this species to the maximum extent practicable.
- **Heritage constraints:** Avoidance Areas were delineated to protect known Aboriginal Sacred Sites. The Abstract of Records obtained for Muckaty identifies several recorded and registered Sacred Sites, and Restricted Work Areas (RWAs). These were buffered by 1 km.

The resulting Preliminary Disturbance Footprint and Avoidance Areas were presented earlier in Section 2.2.1 and 2.2.2.

The NPI concept design also considers the Avoidance Areas, as well as other technical and constructability constraints. The design report identifies several potential access routes, various site options for a worker accommodation camp, intermodal rail siding, and potential borrow pit locations. As the design is in very early stages, the NPI requirements are subject to change and therefore have not been presented in this Referral Report. Allowance for NPI footprints has been

made in the Preliminary Disturbance Footprint, which will be refined as design progresses for each stage.

2.5 Principles of Environment Protection and Management

In accordance with the requirements of Part 2 of the EP Act, SunCable has considered the principles of environmental protection and management in the design of the Muckaty Solar Precinct Proposal. Table 2-4, Table 2-5 and Table 2-6 below provide a brief statement on how each principle has been applied.

Table 2-4: Principles of Ecologically Sustainable Development

Principles of Ecologically Sustainable Development	
Decision-making principle	**Section 18 of the EP Act states:** • **Decision-making processes should effectively integrate both long term and short term environmental and equitable considerations.** The Muckaty Solar Precinct will generate long-term environmental benefits associated with transitioning to renewable energy. To ensure these benefits can be realised without unacceptable environmental impacts, desktop and field ecological studies have been undertaken to inform decision-making onsite selection and design. Avoidance Areas have been delineated to protect the environment in the long-term. Environmental and equitable considerations will also be a key aspect of agreement making under the ALRA. The Section 19 Agreement process gives traditional Aboriginal owners an opportunity to consider, develop terms and conditions and the right to consent to or reject the Muckaty Solar Precinct. Traditional Owners and the NLC have been, and continue to be, consulted with regarding the Proposal. SunCable currently holds a Section 19 Licence which authorises renewables research on Muckaty ALT. SunCable will be guided by the NLC to develop the future Section 19 Agreement to authorise construction and operation of the Proposal. • **Decision-making processes should provide for community involvement in relation to decisions and actions that affect the community.** SunCable is assessing the Muckaty Solar Precinct Proposal opportunity with the consent of the Traditional Owners of Muckaty ALT. SunCable consults on all activities per the requirements of the current Section 19 Licence under the ALRA, which authorises SunCable to undertake renewables research in the Project Area. Wider community involvement in decision-making is provided for through SunCable's Stakeholder Engagement Plan. Section 3 of this Referral Report details engagement undertaken prior to inform initial design. • **Decision-making processes should ensure that decisions or actions directed at minimising harm or a risk of harm or impact to the environment are proportionate to the harm or risk of harm or impact that is being addressed.** SunCable's approach to minimising environmental impacts has been guided by the impact assessment framework presented in Section 5.4. The overarching objective of the impact assessment process is to reduce the residual impact rating to as low as reasonably practicable, by applying

Principles of Ecologically Sustainable Development	
	avoidance and mitigation measures. This approach ensures that more effort and resources are directed at higher rated impacts. An example of this in the concept design phase relates to Avoidance Areas identified to protect known Aboriginal Sacred Sites and the threatened Greater Bilby, which are required to avoid unacceptable impacts to these values.
Precautionary principle	**Section 19 of the EP Act states:** • **If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.** • **Decision-making should be guided by:** – **Careful evaluation to avoid serious or irreversible damage to the environment wherever practicable; and** – **An assessment of the risk-weighted consequences of various options.** The impact assessment framework documented in Section 5.4 of this Referral Report considers uncertainty when assigning residual impact ratings. Where there is a lack of full scientific certainty, additional studies are included as mitigation measures, and a conservative (higher) residual impact rating is applied. Once those studies are complete, the residual impact ratings will be reviewed. As demonstrated in this Referral Report, decision-making on the Muckaty Solar Precinct concept design has been informed by ecological studies and available information on the location of Sacred Sites. This information was carefully evaluated and used to define Avoidance Areas that will be implemented to avoid serious or reversible damage to threatened species, important habitats, significant vegetation types, and cultural heritage.
Principle of evidence-based decision-making	**Section 20 EP Act states:** • **Decisions should be based on the best available evidence in the circumstances that is relevant and reliable.** The assessment contained in this Referral Report is based on both existing information, and studies undertaken specifically for the Project Area by suitably qualified professionals. Where information is unknown or of sufficient detail to properly assess, additional studies will be undertaken, by suitably qualified professionals, to address information gaps as part of the Environmental Impact Assessment (EIA) process.
Principle of intra-generational and inter-generational equity	**Section 21 of the EP Act states:** • **The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of present and future generations.** The Proposal will generate significant economic and social benefits for present and future generations of people in the Barkly region. More broadly, the NT community will benefit through the sustainable development opportunities created by having access to large-scale renewable energy. The proposed activities will not generate pollution or contamination that could significantly impact health, diversity or productivity of the environment. The Proposal will not limit the use of surrounding land for other purposes. At the end of operations, the land will be rehabilitated so that it may support any range of land uses into the future.

Principles of Ecologically Sustainable Development	
Principle of sustainable use	**Section 22 of the EP Act states:** • **Natural resources should be used in a manner that is sustainable, prudent, rational, wise and appropriate.** The use of the land resources in the Project Area to generate large volumes of renewable energy is a sustainable use of the land. The Proposal will make a significant contribution to decarbonisation in the Asia-Pacific region. To ensure appropriate use of the land resources, Traditional Owners will be consulted, and their knowledge and views will inform project planning and design. Water resources will be used in a manner that does not disrupt the use of water to local landowners, or lead to impacts on water availability for the receiving environment.
Principle of conservation of biological diversity and ecological integrity	**Section 23 of the EP Act states:** • **Biological diversity and ecological integrity should be conserved and maintained.** SunCable has invested in undertaking early ecological studies across the Project Area to inform site selection and design. Avoidance Areas have been identified to protect sensitive/significant vegetation types, important habitats, and threatened species habitats. These habitats support higher biodiversity values, and are important to maintaining ecosystem function and integrity. Biological diversity and ecological integrity will be further conserved by implementing mitigation measures to reduce indirect impacts during construction and operation. Mitigation measures identified in this Referral Report include staging land clearing and development, stormwater management, erosion and sediment control, dust and noise control, and sustainable water extraction.
Principle of improved valuation, pricing and incentive mechanisms	**Section 26 of the EP Act states:** • ***Environmental factors should be included in the valuation of assets and services.*** • ***Persons who generate pollution and waste should bear the cost of containment, avoidance and abatement.*** • ***Users of goods and services should pay prices based on the full life cycle costs of providing the goods and services, including costs relating to the use of natural resources and the ultimate disposal of wastes.*** • ***Established environmental goals should be pursued in the most cost-effective ways by establishing incentive structure, including market mechanisms, which enable persons best placed to maximise benefits or minimise costs to develop solutions and responses to environmental problems.*** SunCable will ensure that material environmental risks and impacts are appropriately identified and accounted for using Environment Social Governance (ESG) frameworks that align with investor, regulator, and stakeholder expectations. The key long-term environmental liability associated with the Muckaty Solar Precinct Proposal is management of e-waste during repowering and at the end of project life. SunCable is already committed to preparing a WMP for the neighbouring AAPowerLink Project to demonstrate application of the

Principles of Ecologically Sustainable Development	
	waste management hierarchy, as well as a DRP. SunCable will fund the development and implementation of these plans. Under the AAPowerLink Environmental Approval, SunCable is required to provide an Environmental Protection Bond that will ensure SunCable bears the cost of waste removal, recycling and disposal.

Table 2-5: Environmental Decision-making Hierarchy

Environmental Decision-making Hierarchy
Section 26 of the EP Act states: • ***In making decisions in relation to actions that affect the environment, decision-makers, proponents and approval holders must apply the following hierarchy of approaches in order of priority:*** – ***Ensure that actions are designed to avoid adverse impacts on the environment.*** – ***Identify management options to mitigate adverse impacts on the environment to the greatest extent practicable.*** – ***If appropriate, provide for environmental offsets in accordance with this Act for residual adverse impacts on the environment that cannot be avoided or mitigated.*** • ***In making decisions in relation to actions that affect the environment, decision-makers, proponents and approval holders must ensure that the potential for actions to enhance or restore environmental quality is identified and provided for to the extent practicable.*** This Referral Report documents a range of avoidance and mitigation measures that SunCable is committed to implementing to protect environmental values associated with each of the factors assessed in this Referral Report. Avoidance Areas have been delineated and incorporated into the Proposal's design as presented in Section 2.2.2. Mitigation measures have been identified with reference to existing regulatory requirements and guidelines that are widely adopted and proven effective at managing impacts from large-scale infrastructure projects. The residual impact ratings assigned for each of the impacts assessed in this Referral Report range from Minor to Moderate, which demonstrates impacts are being mitigated to the greatest extent practicable. Actions to enhance or restore environmental quality are to be identified in a DRP, that will aim to ensure that the Project Area can sustain future land uses once the Proposal ceases to operate. While the existing environment is largely intact, the Proposal will address minor weed infestations, or occurrences of erosion, where they are identified in the Disturbance Footprints. These restoration actions will be identified in project implementation plans, which will include a Biosecurity Management Procedure and Erosion and Sediment Control Plans (ESCPs).

Table 2-6: Waste Management Hierarchy

Waste Management Hierarchy
Section 26 of the EP Act states: • **In designing, implementing and managing an action, all reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.** • **For subsection (1), waste should be managed in accordance with the following hierarchy of approaches in order of priority:** – **Avoidance of the production of waste.** – **Minimisation of the production of waste.** – **Re-use of waste.**

- **Recycling of waste.**
- **Recovery of energy and other resources from waste.**
- **Treatment of waste to reduce potentially adverse impacts.**
- **Disposal of waste in an environmentally sound manner.**

This Referral Report sets out how SunCable is committed to managing wastes generated by the Proposal in accordance with this waste hierarchy. SunCable is committed to implementing recycling processes in line with the available methodologies at the time of repowering and decommissioning activities.

This will be done in accordance with what has already been committed to as part of the NT Environment Approval EP2020/002-001 for the AAPowerLink Project, including:

- WMP preparation and inventory following the *Waste Management and Pollution Control (Administration) Regulations 1998* (NT) and the NSW Waste classification guidelines
- Annual reporting against relevant waste management targets.

SunCable is also committed to diverting all e-wastes generated by the Proposal away from NT landfills. Refer to Section 2.3.5 for further information.

2.6 General Duty of Proponents

SunCable has addressed each of the general duties of proponents prescribed in Section 43 of the EP Act. Table 2-7 below provide a brief statement on how each of the duties has been met.

Table 2-7: General Duty of Proponents

Duty 1: Provide communities with information and opportunities for consultation to assist understanding of the proposed action and its potential impacts and benefit.
Ahead of submitting this Referral Report, SunCable has informed and consulted the Traditional Owners of Muckaty ALT, as well as key stakeholders in Tennant Creek which is the nearest service center to the Project Area. A program of ongoing engagement will be implemented. These engagements will ensure stakeholders are informed and are consulted in relation to key aspects of the Proposal which may affect them. Refer to Section 3 for more details on consultation undertaken to date, and SunCable's commitment to ongoing engagement.
Duty 2: Consult with affected communities, including Aboriginal communities, in a culturally appropriate manner.
SunCable is committed to working with the Traditional Owners of Muckaty ALT to assess the opportunity for renewable energy development on their land. Culturally appropriate consultation is guided by the NLC, which has a team of staff allocated to facilitating consultations with their constituents on SunCable's proposed activities. Further, SunCable staff leading consultation activities have many years of experience consulting with Aboriginal people in the NT on major resource industries and infrastructure projects. Ahead of submitting this referral, SunCable has engaged with the Muckaty Traditional Owners on two separate occasions, with a meeting held in Tennant Creek, and on-country engagement at Muckaty to select sites for resourcing monitoring equipment. Refer to Section 3 for more detail on these consultations.
Duty 3: Seek and document community knowledge and understanding (including scientific and traditional knowledge and understanding) of the natural and cultural values of areas that may be impacted by the proposed action.

Community knowledge of natural and cultural values will be sought through a program of ongoing engagement, and through a participatory Cultural Heritage Assessment and Social Impact Assessment (SIA) process. In developing preliminary designs, SunCable has made use of the scientific and traditional knowledge gathered as part of the approvals process for the neighbouring AAPowerLink Project. SunCable will continue to work with the Traditional Owners of the Project Area to ensure that natural and cultural values that may potentially be impacted by the Proposal's activities are avoided or managed appropriately.

Duty 4: Address Aboriginal values and the rights and interests of Aboriginal communities in relation to areas that may be impacted by the proposed action.

Muckaty is Aboriginal Freehold Land. Accordingly, the members of Muckaty ALT have to provide their consent for a renewable energy development project on their land, and will determine the type, scale, and locations of development that can occur.

Acknowledging the high identification among the population of Aboriginal people in the Barkly region, SunCable is working with the NLC to co-design Terms of Reference for SIA. On Aboriginal-owned land, SIA is a culturally responsive process which evaluates how a proposal may affect the rights, values, cultural heritage, governance, and wellbeing of Indigenous people and communities—recognising their spiritual and ancestral connection to land, and their authority to define what constitutes a social impact.

SunCable currently holds a Section 19 Licence which authorises renewables research on Muckaty ALT.

SunCable proposes to enter a future Section 19 Agreement with the Traditional Owners to formalise the ALRA process for developing and operating the Proposal. SunCable will also apply for and comply with AAPA Certificate conditions under the *Northern Territory Aboriginal Sacred Sites Act 1989* (NT).

These Section 19 Agreement and AAPA processes will also form part of the overall co-design partnership with the Traditional Owners which will guide the Proposal's design and implementation.

3 Consultation and Engagement

Between the reporting period of January 2024 and June 2025, SunCable continued to execute a Stakeholder Engagement Strategy to guide regular engagement with key stakeholders. SunCable's Engagement Report at Appendix D documents all of SunCable's engagement activities during the reporting period. Activities undertaken prior to the reporting period are extensively documented within the stakeholder consultation reports submitted with the AAPowerLink Project Environmental Impact Statement (EIS) [AAPowerLink Project EIS].

3.1 Key Stakeholders

Engagement has focussed on informing and consulting key stakeholders that are directly affected by the SunCable's activities and/or that play an important role in project facilitation.

Table 3-1 below summarises the objectives that have guided stakeholder engagement and the key stakeholder groups that have been engaged.

Table 3-1: Proposal Objectives and Stakeholder Engagement

Objective	Key Stakeholders
Secure land agreements over the Powell Creek solar generation site.	Host landowner Aboriginal stakeholders, including Native Title Holders NLC
Secure access rights to undertake studies to assess potential new generation sites at Muckaty ALT.	Muckaty ALT members NLC
Secure land agreements over the OHTL route from Powell Creek to Darwin.	Host landowners and leaseholders
Secure capital and progress planning and approvals for the next phase of development. Develop frameworks and strategies to deliver good social and environmental performance outcomes.	NTG Commonwealth Government Business and industry Community Investors NLC

3.2 Summary of Engagements

SunCable recorded 383 engagement interactions during the reporting period across the following five key stakeholder groups:

- Government.
- Business and industry.

- Community.
- Aboriginal stakeholders.
- Host landowners and leaseholders.

A mix of engagement activities were used to seek feedback from stakeholders including:

- Recurring project meetings.
- Community information sessions.
- Industry presentations.
- Emails.
- Phone calls.
- Project update briefings.
- Impromptu conversations, project updates and meetings.

3.3 Key Topics and Issues

Engagements and key feedback provided by all stakeholders during the reporting period are available in SunCable's Engagement Report at Appendix D and are also summarised below.

3.3.1 Government and Business/Industry

The following key feedback themes emerged as the primary focus for government and business/industry stakeholders:

- Workforce and business development, training and employment.
- Proposal development, operations, and approvals.
- Community and social benefits.

Broadly, stakeholders felt that SunCable could offer significant workforce, business development, and training opportunities to the NT. There was particular interest in opportunities for young people and residents to benefit from jobs and skills development as part of the Proposal.

Many industry stakeholders noted that workforce requirements could present a challenge with respect to recruitment and retention, and emphasised the need for early investment in education and training to ensure workforce readiness within the NT.

Overall, stakeholders expressed a positive sentiment towards the Proposal and its potential to support local communities through employment, economic stimulus, infrastructure upgrades, and the broader development of renewable energy technologies and industry in the Territory.

Engagement with Territory and Commonwealth government departments and agencies focused on logistical delivery, funding, and approvals. Engagement was generally positive and constructive, particularly in relation to collaboration with other major projects to streamline infrastructure delivery, project funding, regulatory requirements, and approvals.

Stakeholders held mixed views regarding the Proposal's involvement in the NTG's proposed Middle Arm development. While NTG stakeholders were supportive of the Proposal's connection,

other political representatives and some Aboriginal stakeholders believed the company should investigate alternative project sites and offtake opportunities.

3.3.2 Community

SunCable's engagement with community stakeholders focused on speaking with communities in the Barkly region about the Muckaty Solar Precinct Proposal (subject of this Referral Report).

Stakeholders acknowledged the neighbouring AAPowerLink Project's potential to deliver positive economic, employment, infrastructure and social benefits to NT communities, regardless of their overall sentiment towards that project. However, some impacted community stakeholders were sceptical whether that project will proceed, and also expressed concerns that benefits may not reach their communities, as this has been some peoples' experience with other major projects.

The key feedback received is summarised into themes below:

- **Workforce and Training:** The community sees the AAPowerLink Project as a chance for local job creation and youth training, especially in STEM and solar technologies. There is a strong preference for employing local workers over FIFO staff.
- **Community Benefits:** Stakeholders want tangible, long-term benefits like improved energy security, infrastructure, and support for local groups. Some appreciated SunCable's community grants, while others felt they were insufficient compared to other projects.
- **Local Challenges:** Issues like antisocial behaviour, housing shortages, and unreliable energy supply were raised. Communities hold an expectation that SunCable will help to address local energy supply issues before exporting energy offtake to other areas.

3.3.3 Aboriginal Stakeholders

Meetings between Aboriginal stakeholders and SunCable were held to continue engagement and negotiations for the Powell Creek ILUA and to begin engagement for SunCable's Muckaty Solar Precinct Proposal.

The key feedback received is summarised into themes below:

- **Workforce Development:** There is strong interest in job opportunities, Aboriginal business involvement, and training for Traditional Owners. Stakeholders are optimistic about long-term community benefits, especially for future generations.
- **Engagement and Consultation:** Some stakeholders expressed concerns over past limited consultation efforts in the region, and consultation fatigue. Stakeholders suggested forming a local advisory committee with community decision-makers to improve engagement. SunCable continues to use the NLC to facilitate this role.
- **Proposal Components:** Stakeholders were interested in technical aspects of the AAPowerlink Project such as transmission routes, water management, and renewable energy options including wind. They want that project to progress quickly with minimal environmental impact.

- **Energy Security:** Energy security was raised as a key issue for local communities, many of which are off-grid and rely on diesel power generators. Some stakeholders expressed concerns that the power generated by SunCable will not be supplied locally.

3.3.4 Host Landowners and Leaseholders

SunCable continues to engage with host landowners along the proposed AAPowerLink Project's transmission route from Powell Creek to Darwin, to negotiate agreements for land access and project development. Thirty-five private landowners have been contacted via email, phone, and in person.

Engagements with host landowners are subject to confidentiality agreements and therefore details cannot be publicly reported. Broadly, stakeholders provided feedback on route alignment preferences, minimising impacts to existing land uses, and compensation expectations. Stakeholders also asked questions about the proposed infrastructure and activities that would occur during construction and operations. Some stakeholders raised concerns to be resolved through the agreement making process. However, most continue to engage constructively with the SunCable.

3.4 Commitment to Ongoing Engagement

Over the next 12 months, SunCable will continue to actively engage with identified stakeholder groups as guided by the company's Communication and Engagement Plan 2025.

3.5 Community Investment

To support relationship building with communities, SunCable has developed and implemented a Community Sponsorship Policy and Program. The Proposal is in the development phase and has allocated funding to the Sponsorship program to support this stage of the Proposal.

During the reporting period, SunCable supported community organisations and groups in the Barkly, Big Rivers, and Katherine regions, as well as in Darwin, Mataranka, Beswick, Acacia Hills, Tennant Creek, Elliot and Alice Springs.

During the reporting period, SunCable also provided $93,000 in sponsorship across 26 sponsorships recipients and one major partnership. All sponsorship funds supported organisations and groups that champion community-led activities to bring people together, keep art and culture strong, protect Country, promote renewable energy access and education, and strengthen health and wellbeing.

The Program is available all year round and open to all community groups.

4 Strategic and Statutory Context

4.1 Northern Territory Legislation

The Proposal will trigger a range of assessment and approval requirements under NT legislation. These are summarised in Table 4-1.

Table 4-1: Summary of Relevant NT Legislation

Legislation	Relevance
Electricity Reform Act 2000	Permits are ordinarily required under the *Electricity Reform Act 2000* (NT) to generate power for wholesale. This will be considered as the Proposal progresses.
EP Act	SunCable has prepared this Referral Report under the EP Act, on the assumption that the Proposal will trigger the need for an Environmental Approval to be granted under the Act.
Planning Act 1999	The *Planning Act 1999* (NT) provides an approval mechanism for clearance of native vegetation in excess of 1 ha in aggregate on zoned and unzoned land, which will be triggered for the Proposal. Any subdivision which is required to facilitate the Proposal may also trigger approval under the *Planning Act 1999* (NT).
Building Act 1993	All buildings constructed in the NT must comply with the standards and codes prescribed under the *Building Act 1993* (NT). Works within declared building control areas also require building permits and occupancy certificates. As the Project Area is not currently within a declared building control area, these permits are not required. However, all works associated with the Proposal must comply with relevant building standards and codes.
Heritage Act 2011	This Act provides for the conservation of the NT's cultural and natural heritage. The Act protects all Aboriginal archaeological heritage places and objects, and other declared heritage places and objects. SunCable will undertake Aboriginal heritage surveys and will seek to avoid and protect identified places and objects. Where works on a heritage place or object are unavoidable, works approvals will be sought pursuant to Part 3.2 of the Act. Notifications must also be made to the AAPA where Aboriginal burial sites or skeletal remains are uncovered.
Northern Territory Aboriginal Sacred Sites Act 1989	This Act is largely concerned with the protection of Sacred Sites. A person who proposes to use or carry out work on land may apply to the AAPA for Authority Certificate/s in accordance with Division 1A of the Act. SunCable will apply for Authority Certificates over all proposed development areas to ensure that Sacred Sites are identified and protected.

Legislation	Relevance
	To protect Aboriginal Sacred Sites, the Proponent will comply with conditions set out within Authority Certificates issued under the *Northern Territory Aboriginal Sacred Sites Act 1989* (NT).
Territory Parks and Wildlife Conservation Act 1976	The *Territory Parks and Wildlife Conservation Act 1976* (NT) (TPWC Act) makes a provision for and in relation to the establishment of Territory Parks and other Parks and Reserves and the study, protection, conservation of wildlife in the NT. Wildlife management includes the classification of threatened species, general protection of wildlife and essential habitat areas, the management of feral animals and protection of biological biodiversity. Detailed assessment is required to confirm whether threatened flora and fauna species listed under TPWC Act are likely to be impacted by the Proposal. A permit may be required under Section 55 of the Act, to take or interfere with protected wildlife.
Aboriginal Land Act 1978	Permits are required under the *Aboriginal Land Act 1978* (NT) to access Aboriginal Land as defined under Section 3 of the ALRA. SunCable will work through the NLC to negotiate land use agreements to secure rights allowing ongoing access to Aboriginal Land to construct and operate the Proposal, and to uphold the rights of Traditional Owners (refer to Table 4-2).
Bushfires Management Act 2016	This Act provides for the protection of life, property, and the environment through the mitigation, management, and suppression of bushfires, and for related purposes. The controls on fire activities provided in Part 4 of the Act will apply to the Proposal, including the requirement to establish fire breaks, controls on high-risk activities during fire danger periods, and compliance with fire bans.
Control of Roads Act 1953	Should any work be required to occur within a road reserve for a road under the care and control of the NTG or a Local Council, a permit may be required under the *Control of Roads Act 1953* (NT). If the work involves creating a new access, modification of an existing access, discharging stormwater or installation of new infrastructure within the NTG road network a Road Agency Approval may be required.
Dangerous Goods Act 1998	Prescribed dangerous goods transported, used, stored, and disposed of to support the Proposal's construction and ongoing operational maintenance may require licences to be held under the *Dangerous Goods Act 1998* (NT).
Solar Project (Australia-Asia Power Link) (Special Provisions) Act 2022	The Proponent will continue to consult with the NTG over the application of the *Solar Project (Australia-Asia Power Link) (Special Provisions) Act 2022* (NT), especially in regard to its activities which are located alongside/within the rail corridor.
Mineral Titles Act 2010	The *Mineral Titles Act 2010* (NT) provides the administrative mechanisms for management of the exploration, mining, and extractive industry within NT. Extraction of extractive minerals (soil, sand gravel, rock or peat) can require a type of Mineral Title to be issued under the Act. There

Legislation	Relevance
	is one Extractive Mineral Exploration License Application (EL32788) within the Project Area. Proposal construction may require the establishment of temporary borrow pits to source construction materials. This may trigger the need to obtain an Extractive Mineral Permit, depending on the nature and extent of the extraction.
Mining Management Act 2001	The purpose of the *Mining Management Act 2001* (NT) is to provide authorisation for and management of mining activities, protection of the environment, and ensure provision of economic and social benefits. Should it be determined a Mineral Title is required for any proposed rock quarry and gravel pits required to support construction of the Proposal, the provisions of this Act will be given further consideration to determine whether they apply.
Pastoral Lands Act 1992	As the Project Area is not located on pastoral land, the provisions of the *Pastoral Land Act 1992* (NT) do not apply.
Water Act 1992	The *Water Act 1992* (NT) requires a user of surface water or groundwater to obtain a licence to access water. The rules governing the grant of water licences are outlined in the Water Allocation Plan (WAP) for the specific water control district. The Project Area is located within the Daly Roper Beetaloo Water Control District. However, there is currently no WAP applicable to the Project Area. There are several relevant permits under this Act which may be triggered by the Proposal including a WEL for extraction of groundwater required for construction and operations, a permit to interfere with a waterway where roads and access tracks are constructed, and a bore work permit to install groundwater extraction bores.
Waste Management and Pollution Control Act 1998	The Proposal is unlikely to trigger the requirement for an Environment Protection Licence, as it would not involve any of the activities listed in Schedule 2 of the *Waste Management and Pollution Control Act 1998* (NT) (WMPC Act).
Weeds Management Act 2001	This Act protects the Territory's economy, community, industry, and environment from the adverse impacts of weeds. To comply with the Act, SunCable is required to manage its activities to ensure that declared weeds and potential weeds are not introduced or spread.
Work Health and Safety (National Uniform Legislation) Act 2011	The Proposal may require licences to be issued under the *Work Health and Safety (National Uniform Legislation) Act 2011* (NT) to support safe construction methods. Depending on the methods of construction used, this could include high risk works licences, and electrical licences.

4.2 Commonwealth Legislation

The Proposal will trigger consideration of the Commonwealth regulatory matters set out within Table 4-2 below.

Table 4-2: Summary of Relevant Commonwealth Legislation

Legislation	Relevance
EPBC Act 1999	The Proponent has prepared a corresponding referral for the Proposal to be lodged with Department of Climate Change, Energy, the Environment and Water (DCCEEW) under the EPBC Act. The Proponent considers that the Proposal has the potential to be classified as a Controlled Action under the EPBC Act on the basis of potential impacts to the following Matters of National Environmental Significance (MNES): • Listed threatened species, populations, and communities (Sections 18 and 18A of the EPBC Act). If the Proposal is determined to be a Controlled Action, the Proposal will proceed to be assessed following the *Bilateral Agreement Made under Section 45 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) Relating to Environmental Assessment* (Commonwealth of Australia, 25 October 2021).
Aboriginal Land Rights Act 1976	SunCable currently holds a Section 19 Licence which authorises renewables research on Muckaty ALT. A further Section 19 Agreement will be required to support the Proponent's interests in constructing and operating the Proposal on Aboriginal Freehold Land, whilst also protecting the interests of the Traditional Owners. Consultation will continue with the NLC on this matter.
Native Title Act 1993	The nearby Powell Creek Station is subject to Native Title: Tribunal Number: DCD2020/007. Federal Court Number: Native Title Determination - NTD6038/2001, and NTD1/2018. However, the Project Area subject to this Referral Report is not subject to any registered claims or determinations under the *Native Title Act 1993* (Cth). Rather, the Project Area is located within scheduled ALRA land (see above). Consultation will continue with the NLC regarding the Proposal's relationship with Traditional Owners.
Air Services Act 1995	Under the *Air Services Act 1995* (Cth), Air Services is responsible for airspace management, aeronautical information, aviation communications, navigation aids and technology, flight path changes, and Aviation Rescue Fire Fighting Services. Should the Proposal require any additional airfield infrastructure beyond what has already been approved as part of the neighbouring AAPowerLink Project, SunCable will consult with Air Services and obtain any required permits/follow any required processes under the *Air Services Act 1995* (Cth).
Defence Act 1903	Defence undertakes airspace operations in this region. Should the Proposal require any additional airfield infrastructure beyond what has already been approved as part of the neighbouring AAPowerLink Project, SunCable would consult with the Department of

Legislation	Relevance
	Defence regarding any potential changes the Proposal might pose for regional aircraft activity.
Radio Communications Act 1992	Part 4.1 of the *Radio Communications Act 1992* (Cth) establishes a regulatory framework for equipment that uses or is affected by radio emissions. It is considered unlikely that the Proposal would cause significant interference with telecommunications signals.

4.3 Northern Territory Strategic Planning

The Proposal will contribute towards several strategic planning outcomes which the NTG has highlighted as being essential for the NT to reach its target of zero emissions by 2050. These details are outlined further in this Section 4.3.

4.3.1 Northern Territory Climate Change Response: Towards 2050

The *Northern Territory Climate Change Response: Towards 2050* (DENR, 2020) is built around four key objectives:

- Net zero emissions by 2050.
- A resilient Territory.
- Opportunities from a low carbon future.
- Inform and involve all Territorians.

The Proposal will directly contribute towards the NTG achieving these four key objectives, as it will increase overall generation capacity of NT renewables.

4.4 Commonwealth Strategic Planning

The Proposal will contribute towards several strategic planning outcomes which the Commonwealth has highlighted as being essential for Australia to meet its international obligations towards reducing greenhouse gas (GHG) emissions. These details are outlined further in this Section 4.4.

4.4.1 The Commonwealth's Renewable Energy Target

The Renewable Energy Target (RET) scheme encourages renewable electricity generation. It aims to reduce GHG emissions from the electricity sector (DCCEEW, 2024). The RET comprises two schemes, including the Large-scale Renewable Target for projects such as solar and wind generation, and the Small-scale Renewable Target for smaller activities such as residential rooftop solar (DCCEEW, 2024).

The RET scheme encourages renewable electricity generation. It aims to reduce GHG emissions from the electricity sector (DCCEEW, 2024). The RET comprises two schemes, including the Large-scale Renewable Target for projects such as solar and wind generation, and the Small-scale Renewable Target for smaller activities such as residential rooftop solar (DCCEEW, 2024). Solar farms can create large-scale generation certificates for the eligible electricity that they produce. The Large-scale RET aims to deliver 33,000 GW hours of extra renewable electricity each year (DCCEEW, 2024). The Proposal could contribute towards this Large-scale RET.

4.4.2 The Paris Agreement

The (Paris Agreement, opened for signature on 16 February 2016, 3156 United Nations Treaty Series 79 (entered into force 4 November 2016) (Paris Agreement) is a legally binding international treaty on climate change.

The Paris Agreement strengthens global response to the threat of climate change by:

- Holding the increase in global average temperature to well below 2°C above pre-industrial levels.
- Pursuing efforts to limit temperature increase to 1.5°C.

Under the Agreement, Australia must submit emissions reduction commitments. The Proposal will contribute towards Australia's overall move towards reducing its GHG emissions as a whole.

5 Environmental Factors and Objectives

5.1 Introduction to the Environmental Factors

The *NT EPA Environmental Factors and Objectives Guideline* utilises a standard framework that categorises 14 environmental factors and objectives under the themes of Land, Water, Sea, Air, and People (NT EPA, 2025a).

Referring a proposal to the NT EPA (NT EPA, 2025b) requires proponents to consider potential proposal impacts (including all impact sources and pathways) relative to each environmental factor to determine whether a proposal may significantly impact on the environment (as per the definitions provided in Chapters 6 and 11 of the EP Act) (NT EPA, 2025b).

In accordance with *Referring a proposal to the NT EPA* (NT EPA, 2025b), a pre-screening process was undertaken to consider the potential for the 14 environmental factors to be significantly impacted on by the Proposal, and to confirm which of the factors require further, detailed discussion within this Referral Report. The results of this pre-screening assessment are summarised below in Section 5.2.

5.2 Results of Pre-Screening

The results of this pre-screening process have determined the following five environmental factors are relevant to the Proposal, and therefore require further consideration in this Referral Report:

- Terrestrial environmental quality.
- Terrestrial ecosystems.
- Hydrological processes.
- Community and economy.
- Culture and heritage.

Given the location of the Project Area, none of the three factors under the Sea theme are considered relevant and were therefore also not carried forward for further assessment. Section 5.3 provides further details on why the pre-screening process did not identify six of the remaining 11 factors (Landforms, Inland water environmental quality, Aquatic ecosystems, Air quality, Atmospheric processes, and Human health factors) as being carried forward for further assessment.

5.3 Factors not Carried Forward for Assessment

5.3.1 Landforms

Through desktop assessment and use of NR Maps (NTG, 2025b), it is identified that the land systems are quite typical of the region, with Desert Sandplains as the dominant class (refer to Figure 6-1), some isolated areas of Sandstone Hills and Desert Dunefields in the west, and Alluvial Floodplains, Sandstone Hills, and Lateritic Plains and Rises to the east.

There are no distinctive natural physical landforms of cultural, ecological, or social importance within the Project Area which would be significantly impacted. An important habitat area associated with the Sandstone Hills landform in the southeast section of the Project Area has been identified as an Avoidance Area where no development will occur (refer to Section 2.2.2). Consultation with Traditional Owners and the Abstract of Records obtained from the AAPA indicate that most Sacred Sites occur in the lowland areas that are not distinctive landforms.

As the land systems in the Project Area are typical and abundant in the surrounding areas, any specific ecological, cultural, or social values would be assessed under other factors. Therefore, it was determined that the Landforms factor does not require further assessment in this Referral Report.

5.3.2 Inland Water Environmental Quality

Groundwater quality within the region is generally good, influenced by rainfall, evapotranspiration, and geological factors like carbonate dissolution (De Caritat, et al., 2019).

Surface watercourses in the region are intermittent only flowing after major rains, which results in naturally high levels of turbidity. Due to the ephemeral nature of waterways within the Project Area and the types of activities proposed, significant impacts to Inland water environmental quality are inherently unlikely.

Mitigation measures implemented for the Terrestrial environmental quality factor (refer to Section 6.4) are expected to adequately mitigate potential impacts to these waterways. Stormwater management systems will be designed to minimise erosion, which will limit the potential for increased turbidity and sedimentation in watercourses during the wet season. The Proposal does not involve onsite storage and handling of large volumes of hazardous materials that would pose a significant contamination risk. Hazardous materials will be stored and handled in accordance with Australian Standards which will minimise the risk of surface water or groundwater contamination.

5.3.3 Aquatic Ecosystems

The absence of permanent water bodies within the Project Area reduces the potential for the establishment or presence of Aquatic ecosystems. Therefore, it is unlikely that the Proposal will significantly impact Aquatic ecosystems. Further, for the reasons stated above, the Proposal is unlikely to affect the quality of surface water or groundwater that would support Aquatic ecosystems if they were present.

5.3.4 Air Quality

Air emissions from the Proposal will be limited to vehicle exhaust and dust emissions, which will peak during construction activities and be at low levels during operations. During construction, dust mitigation measures will be implemented in accordance with standard construction work site practice to minimise impacts on workers and the surrounding environment. As there are no proximate sensitive residential receptors or public access to the Project Area, it is considered that the Proposal will not generate significant Air quality impacts that require further assessment.

Potential amenity impacts related to Air quality during construction, operational maintenance, and decommissioning stages, are considered within the Community and economy factor.

5.3.5 Atmospheric Processes

The GHG emissions resulting from land clearing across the Project Area will be offset within the first few years of operation by the large volume of renewable energy produced. The Proposal is expected to have a positive impact on GHG emissions in the NT and the broader Asia-Pacific region by supporting decarbonisation of existing industries and underpinning development of emerging green industries such as hydrogen, e-fuels, green minerals, data centres, and other processing and manufacturing opportunities.

5.3.6 Human Health

There are no residences within the Project Area, however there are several in the surrounding area, as listed in Section 2.1.3. Both noise and dust emissions were modelled at the neighbouring Powell Creek Solar Precinct as part of the AAPowerLink Project EIS, with results presented in the Supplementary EIS Chapter 10 Amenity (SunCable, 2022). The modelling indicates dust levels will be elevated above guideline levels within approximately 1 km from active construction work fronts and noise emissions would be elevated up to approximately 3 km from the operational facilities. Noise and dust emissions from construction works are not expected to have a significant impact on Human health due to the large distances between the sensitive receptors and the Project Area. Any potential impacts to people as a result of noise, dust, and odour will not be in the category of harmful (significant) impacts, and as such, have been considered under the Community and economy factor in Section 9 as potential nuisance/amenity impacts.

Electromagnetic field (EMF) exposure will be confined to the OHTL corridor and research to date shows there are no detrimental health effect from exposure to low-level EMFs (WHO, 2016). EMF modelling prepared for the neighbouring AAPowerLink Project OHTL concept design indicates that the area of influence from EMF is limited to within 15 m of the transmission lines and will meet the recommended exposure limit for the public set by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) (ICNIRP, 2010). The proposed OHTL corridor from Muckaty to Powell Creek follows the rail corridor and will not traverse areas in proximity to sensitive receptors, thus EMF is not expected to pose a risk to Human health.

Furthermore, in terms of potential human exposure to EMF, SunCable is committed to the following outcomes, in line with what has already been committed to as part of the NT Environment Approval EP2020/002-001 for the AAPowerLink Project:

- Prior to commencement of the OHTL construction, SunCable will model predicted EMF of the final design and ensure that the recommended exposure limit for the public (ICNIRP, 2010) will be met at the boundary of the approved extent.
- SunCable will complete pre- and post-energisation monitoring of EMF at the maximum power loading achievable; to ensure that (ICNIRP, 2010) limits are not exceeded at the boundary of the approved extent.

5.4 Impact Significance Rating: Methodology

An EIA was undertaken for the five key environmental factors. The impact significance rating approach and methodology are set out in Table 5-1 and Table 5-2. This methodology is based on the methodology applied in the previous AAPowerLink Project's EIA process (SunCable, 2022).

Table 5-1: Scale, Magnitude, and Duration Impact Ratings and Criteria

Scale: The spatial extent of the impact, considering both the impact footprint (direct disturbance) and/or area of influence, including (indirect disturbance).			
Widespread Impact that affects more than 1,000 ha or extends beyond the property boundary.	**Regional** Impact affects up to 1,000 ha or areas outside the Project Area.	**Localised** Impact affects limited areas (up to 100 ha) or is limited to within <1 km from activities.	**Limited** Impact affects a small area (less than 10 ha) in the immediate proximity of activities.
Magnitude: The degree or amount of change from natural conditions.			
Major Relevant thresholds or criteria for environmental protection are exceeded to the point that environmental values are impaired, and the ecological function and/or extent of sensitive receptors are affected.	**Moderate** Relevant thresholds or criteria for environmental protection are reached or slightly exceeded, but environmental values, ecological integrity and function, including and sensitive receptors are not affected.	**Minor** Impact is measurable but relevant thresholds or criteria for environmental protection are met.	**Negligible** No discernible impact on existing environmental conditions.
Duration: The frequency of the impact and the time over which the impact persists.			
Permanent /irreversible Impact is enduring; values are unlikely to recover.	**Long-term** Impact occurs over an extended period covering the construction and operational phases, values eventually recover.	**Medium-term** Impact occurs intermittently and/or only during the construction phases, after which values recover.	**Short-term** Impact occurs sporadically and/or lasts for a few days to weeks, after which values recover.

Table 5-2: Significant Impact Ratings and Criteria

Minor: A minor impact is unlikely to be significant.	**Moderate: A moderate residual impact has potential to be significant. The significance depends on the acceptability of the impacts and the effectiveness of mitigation measures.**	**Major: A major residual impact is likely to be significant. The level of acceptability will depend on offsets or benefits compensating for the impact.**
A minor impact generally has two or more of the following characteristics: **Scale:** Limited/Localised **Magnitude**: Negligible/Minor **Duration**: Short-term/Medium-term/Reversable	A moderate impact generally has two or more of the following characteristics: **Scale:** Localised/Regional **Magnitude:** Moderate **Duration:** Medium-term/Long-term	A major impact generally has two or more of the following characteristics: **Scale:** Regional/Widespread **Magnitude:** Moderate/Major **Duration:** Long-term/Permanent

5.5 Social Impact Assessment Methodology and Rating

This Referral Report presents a preliminary assessment of potential Community and economy impacts associated with the Proposal, with reference to the SIA prepared for the AAPowerLink Project. As the Muckaty Solar Precinct Proposal is similar to the Powell Creek Solar Precinct and located in the same region, the social impacts that were identified and assessed in the previous SIA are all expected to be relevant.

The impact assessment ratings apportioned to the social impacts identified in Section 9 Community and Economy, used the assessment criteria established for the AAPowerLink Project.

Likelihood descriptors (based on the *Technical Supplement: Social Impact Assessment Guideline for State Significant Projects* (NSW Department of Industry and Environment, 2023)) used to assess the Community and economy factor are as follows:

- Almost certain: definite or almost definitely expected (e.g., has happened on similar projects).
- Likely: high probability.
- Possible: medium probability.
- Unlikely: low probability.
- Rare: improbable or remote probability.

The following criteria (Munday, J., 2020) were used to determine consequences that the community is forecasted to experience:

- Extent: how many people will experience the impacts.
- Duration: how long the impacts will last.

- Severity: the scale of change from the current conditions.
- Sensitivity: based on the level of controversy, disturbance to values, people's resilience, and capacity to absorb change.

Table 5-3 and Table 5-4 show the descriptors used for positive and negative social impact ratings applied to the Community and economy factor within this Referral Report.

Table 5-3: Descriptors for Potentially Negative Social Impact Ratings

Negative Rating (-)	Descriptor
Catastrophic	Intolerable social, cultural, and economic impacts that are unlikely to be amenable to management.
High	Intolerable impacts that might be accepted if managed to as low as reasonably practicable, taking account of community perceptions, values, and resilience.
Medium	Tolerable (depending on the level of community acceptance) if managed effectively but requires close monitoring.
Low	Tolerable, barely perceived negative impacts but adaptive management approaches should be implemented to ensure the threat level does not increase.

Table 5-4: Descriptors for Potentially Positive Social Impact Ratings

Positive Rating (+)	Descriptor
Transformational	Transformational and socially, culturally, and economically sustainable opportunities that build enduring capacity that lasts for generations.
Beneficial	Beneficial impacts that may be of a smaller scale or incremental, but which deliver sustainable social, cultural, and economic outcomes.
Noticeable	Benefits are noticeable but may be quickly absorbed.
Barely	Little change in the way of life, livelihoods, and lifestyles of the region.

6 Terrestrial Environmental Quality

6.1 Factor and Objective Context

The NT EPA's environmental objective for Terrestrial environmental quality is to:

"*Protect the quality and integrity of land and soils so that environmental values are supported and maintained.*"

6.2 Existing Environment

6.2.1 Land and Soil Integrity

Land uses supported and maintained by land and soils in the Project Area are the Adelaide-Darwin railway, Amadeus-Darwin gas pipeline, public roads, pastoral uses and Indigenous land uses including hunting, bushfood collection, and other cultural practices. The land and soils are largely undisturbed and play a role in supporting and maintaining native vegetation, and watercourse health acting as a natural filter, preventing erosion, and regulating water flow.

Land system classes have been mapped by the NTG at scales between 1:250,000 and 1:1,000,000 (that is, at smaller scale than a bioregion) across the Project Area (refer to Figure 6-1). The area is primarily dominated by Desert Sandplains, specifically the Redsan (around 100,000 ha) and Atlas_B32 (around 4,800 ha) land systems with level to undulating sandplains and dunes composed of red sands. Two smaller sections in the southern and eastern parts of the generation site consists of Sandstone Hills with shallow, stony soils, classified as the Atlas_BV1 (around 6,000 ha), and Ashburton (around 6,500 ha) land systems.

The topography of the Project Area is relatively flat within the Redsan land system, characterised by undulating plains. There is a rocky outcrop in the south of the Project Area associated with the Atlas_BV1 land system where there are some steeper slopes (refer to Figure 6-2).

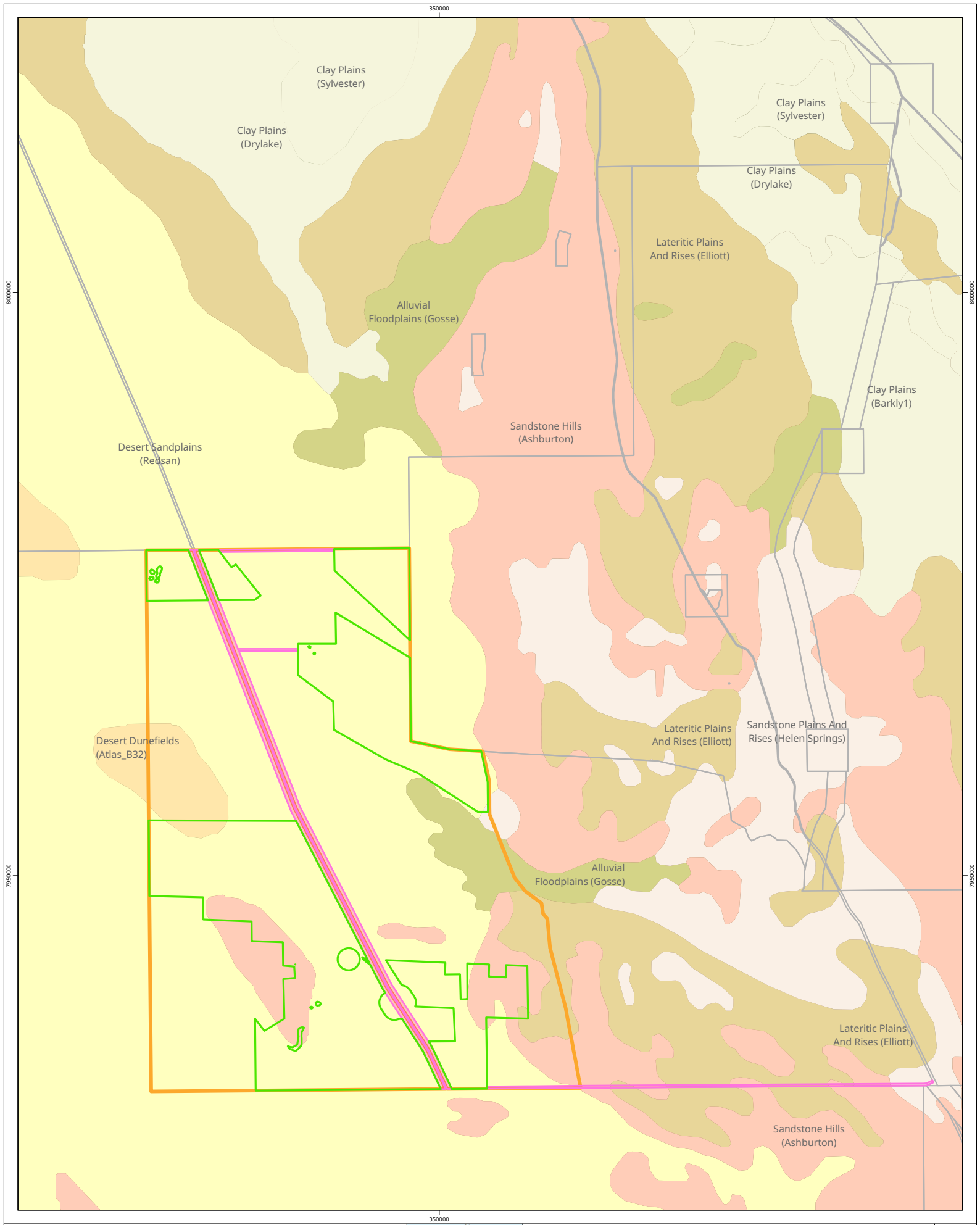
There are two major drainage lines, Burke Creek and Tomkinson Creek, and a few minor drainage lines within the Project Area (refer to Figure 6-2). Surface water drains by overland flow into local drainage lines and drainage depressions. Based on the topography and flood modelling, surface water within the Project Area is expected to flow into Tomkinson Creek, and to central areas of the Project Area where the land is flatter (refer to Appendix C).

There are isolated areas of erosion along existing pastoral access tracks and the existing gas pipeline corridor. However, erosion is generally limited because the land is largely undisturbed and undeveloped. An erosion hazard assessment was undertaken on a site directly north of the Project Area (in the Redsan land system) for the AAPowerLink Project (EcOz, 2021). This assessment determined the soil loss class (risk rating) for soils within that Project Area as being very low per hectare. However, the potential for loss of large volumes of soil was still considered high due to the extent and size of the proposed land clearing footprint. It is expected that the erosion risk for the Project Area will be similar to that assessed for the neighbouring AAPowerLink Project because they are largely within the same land system (i.e. Redsan).

6.2.2 Land and Soil Quality

The Project Area is generally greenfield and undisturbed with limited potential for large areas of contaminated soils. Low intensity pastoral activities may have resulted in some limited areas of soil contamination. However, any contamination would be minor and isolated due to the nature of the activities. There are no notices or audits relating to contaminated land within the Project Area (NTG, 2025b) and the Project Area is not a registered contaminated site under the WMPC Act.

Potential acid sulfate soils (PASS) mapping created for CSIRO (Fitzpatrick, Powell, & Marvanek, 2011) indicates that there is a very low probability of PASS occurring within majority of the Project Area. However, there is one small area (around 8 ha) in the northern section of the Project Area that has a high probability of PASS occurring (refer to Figure 6-3), although this is outside of the Preliminary Disturbance Footprint.



LEGEND

Type
- Preliminary Disturbance Footprint
- Proposed Access/Services Corridor
- Muckaty Solar Project Area
- Cadastre

NT Land Systems - Landscape Classes
- Desert dunefields
- Desert sandplains
- Alluvial floodplains
- Clay plains
- Lateritic plains and rises
- Sandstone plains and rises
- Sandstone hills

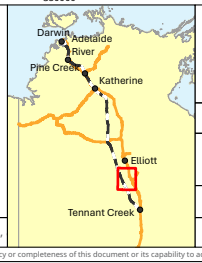


Figure 6-1: Land Systems within the Project Area

Project: Australia-Asia PowerLink

0 5 10 Kilometres

Reference #: AAPL_BRP_REF_MAP_6-1

Date: 9/09/2025 | Figure: 6-1 | Revision: E

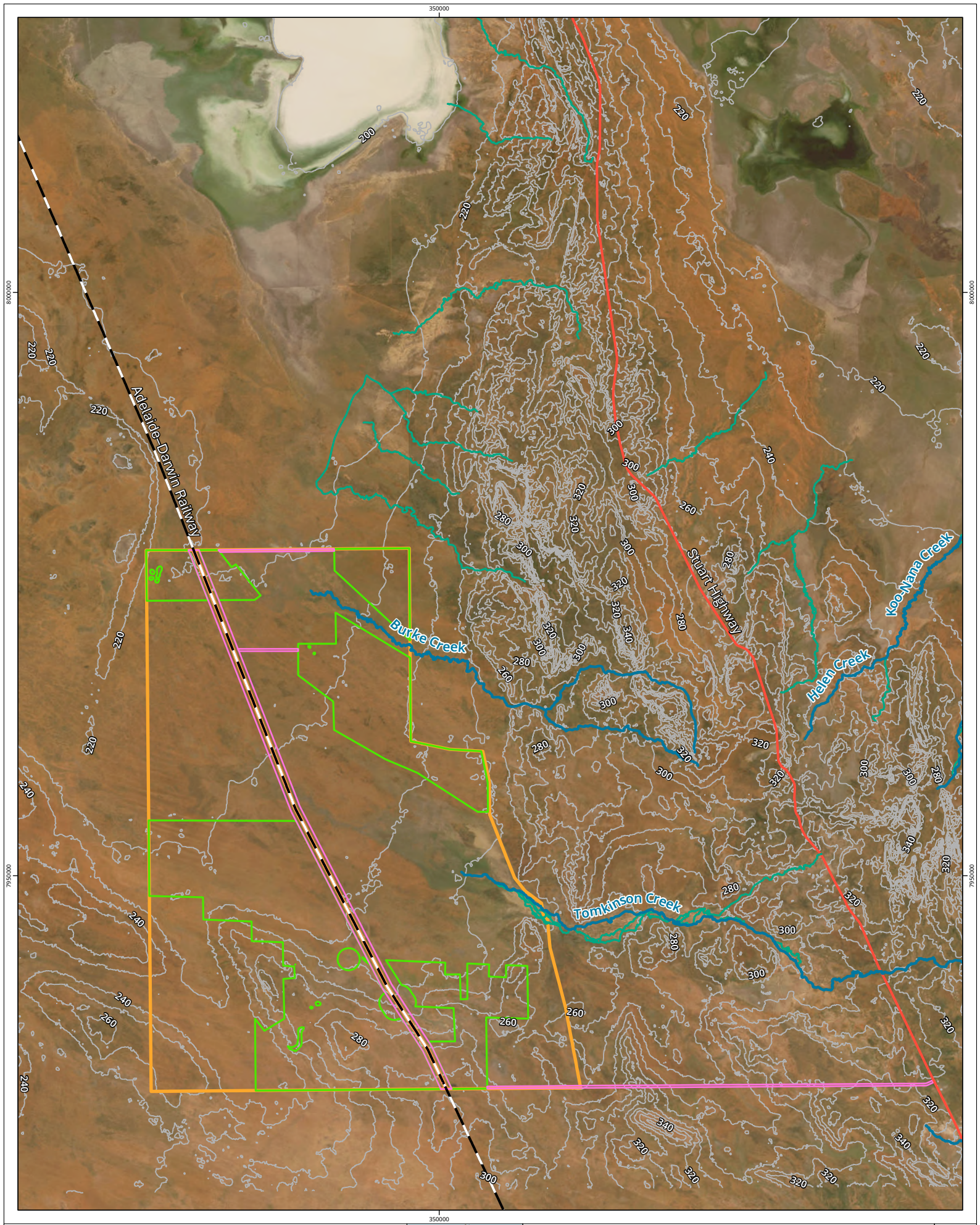
Scale: 1:400,000 | Datum: GDA2020

Coordinate System: MGA Zone 53 | A4

N

suncable

Source: Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors,



LEGEND

Northern Territory Mapped Streams
- Major Drainage
- Minor Drainage
- Highways
- Railways

- Muckaty Solar Project Area
- Preliminary Disturbance Footprint
- Proposed Access/Services Corridor
- Contour (10m)

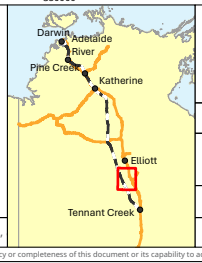


Figure 6-2: Topography Within the Project Area

Project: Australia-Asia PowerLink

N

0 5 10 Kilometres

Reference #: AAPL_BRP_REF_MAP_6-2

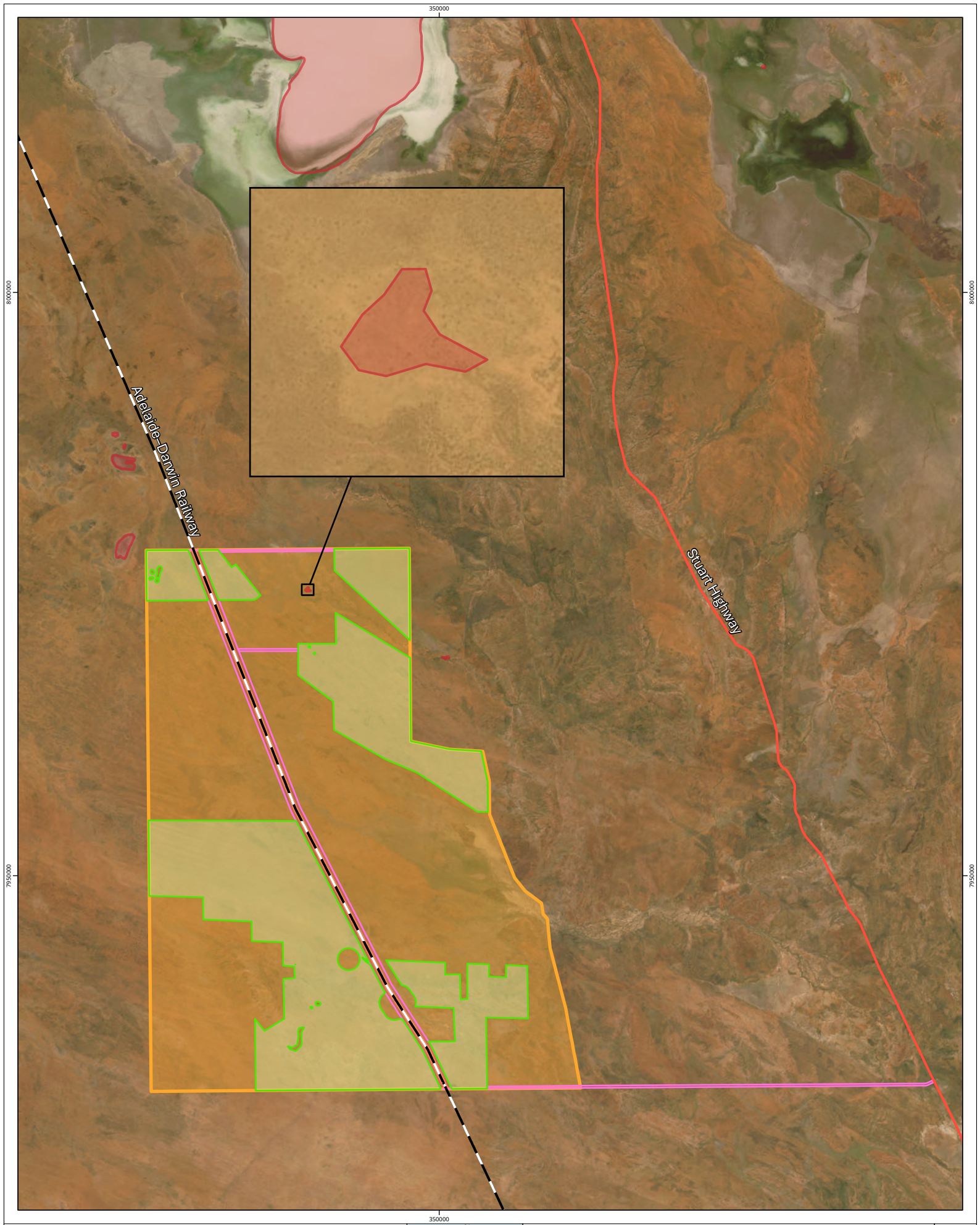
Date: 9/09/2025 | Figure: 6-2 | Revision: E

Scale: 1:400,000 | Datum: GDA2020

Coordinate System: MGA Zone 53 | A4

suncable

Source: Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors,



LEGEND

- Highways
- Railways
- High Probability of Occurrence of Acid Sulfate Soils (ASS)
- Muckaty Solar Project Area
- Preliminary Disturbance Footprint
- Proposed Access/Services Corridor

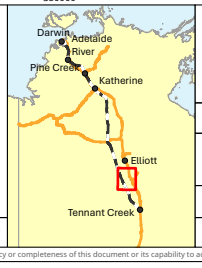


Figure 6-3: Probability of PASS within the Project Area

Project: Australia-Asia PowerLink

N

0 5 10 Kilometres

Reference #: AAPL_BRP_REF_MAP_6-3

Date: 9/09/2025 | Figure: 6-3 | Revision: E

Scale: 1:400,000 | Datum: GDA2020

Coordinate System: MGA Zone 53 | A4

suncable

6.3 Potential Impacts

Two potential impacts to values of the Terrestrial environmental quality factor have been identified and assigned a residual impact significance rating of Minor, as presented in Table 6-1. These impacts are outlined below.

6.3.1 Land and Soil Degradation

Vegetation clearing, earthworks, and construction activities associated with the Proposal will expose large areas (approximately 50,000 ha) of desert sandplains and undulating plains to potential erosion by wind and rainfall. Land clearing, combined with the placement of project infrastructure and access roads, increases the risk of topsoil migration and soil erosion, which may result in land degradation and reduced capacity to reintroduce and maintain environmental values when the infrastructure is decommissioned and rehabilitated in the future. Additionally, erosion and soil loss could lead to increased localised alteration of surface water flows and sedimentation of downgradient/adjacent areas.

6.3.2 Contamination of Soil

Some fuels and hazardous chemicals will be used and stored within the Project Area during construction and operation that may result in minor, isolated contamination if spills/leaks occur. Additionally, the solar Photo-voltaic (PV) systems produce e-waste, notably solar panels, inverters, and batteries, which have the potential to contaminate land and soils (and consequently water sources) if improperly stored or disposed of due to the leaching of hazardous materials.

There are no known areas of significant existing contamination within the Project Area that would be disturbed/distributed through land clearing activities. There is one small area of high probability PASS within Project Area that will be avoided through design therefore soils will not be contaminated through the disturbance of PASS.

6.4 Proposed Environment Protection and Management

Table 6-1 outlines the potential impacts to Terrestrial environmental quality values along with the proposed avoidance and mitigation measures to manage these impacts.

Table 6-1: Terrestrial Environmental Quality – Proposed Mitigation Measures and Summary of EIA

Potentially Significant Impact	Proposed Avoidance and Mitigation Measures	Regulatory and Policy Guidance	Residual Impact Significance Rating
Land and soil degradation via large scale native vegetation clearing.	Vegetation clearing will occur in stages as new solar generation capacity is required to supply offtake agreements. This will limit the amount of exposed cleared land at any given time. Land clearing permits will be obtained prior to constructing each stage, ensuring the most current accepted avoidance and mitigation measures are adopted. Implementation of erosion and sediment control practices and procedures will align with the *Best Practice Erosion and Sediment Control Guidelines* (International Erosion Control Association, 2008) (BPESC Guidelines). Stormwater drainage design will conform to the criteria set out in *Australian Rainfall and Runoff Guidelines 2019*. A DRP will be developed prior to commencement of the Proposal. The DRP will: • Set defined closure objectives and agreed criteria developed in consultation with NLC and Traditional Owners and relevant government agencies. • Demonstrate that the Proposal will be progressively rehabilitated, non-polluting, consistent with best practice. • Demonstrate transition to the agreed end land use. • Account for unplanned and planned decommissioning or dormancy of operation.	• Land Clearing Permits under the *Planning Act 1999* (NT). • BPESC Guidelines. • *Australian Rainfall and Runoff Guidelines 2019*.	**Minor**

Potentially Significant Impact	Proposed Avoidance and Mitigation Measures	Regulatory and Policy Guidance	Residual Impact Significance Rating
Contamination of soil from improper storage, handling and removal of e-waste.	No PV system e-waste components are to be disposed to landfill (including burial) in the NT. All transport and handling of solar panel and e-waste will be managed in accordance with the WMPC Act. A WMP will be developed and implemented, including identification of waste treatment and management for each waste stream and a framework for annual reporting. All e-waste will be removed from the Project Area as soon as practicable following decommissioning of infrastructure.	• WMPC Act.	**Minor**
Soil contamination via chemical/hydrocarbon spills, septic systems or waste disposal in landfills.	Hazardous chemicals and hydrocarbons will be stored and handled in accordance with Australian Standards and WHS legislation. Waste management will be in accordance with the WMPC Act. Wastes will be securely stored at designated facilities in the Project Area, with wastes segregated for management in accordance with the WMP. No waste will be stored within 200 m of a watercourse. Any onsite landfill will comply with the *Guidelines for the Siting, Design and Management of Solid Waste Disposal Sites in the Northern Territory* (NT EPA, 2013b). All listed waste will be disposed offsite at a licensed waste management facility.	• *Work Health and Safety (National Uniform Legislation) Act 2011* (NT). • WMPC Act. • *Guidelines for the Siting, Design and Management of Solid Waste Disposal Sites in the Northern Territory* (NT EPA, 2013b). • *Code of Practice for Wastewater Management* (NTG, 2020).	**Minor**

Potentially Significant Impact	Proposed Avoidance and Mitigation Measures	Regulatory and Policy Guidance	Residual Impact Significance Rating
	Septic systems to comply with technical requirements of the *Code of Practice for Wastewater Management* (NTG, 2020).		

6.5 Residual Impact

The Proposal is expected to have a **Minor** residual impact to Terrestrial environmental quality by way of impacts to land and soils.

The greatest potential for impact is from erosion associated with large-scale land clearing and ground disturbance. This impact will be minimised by staging land clearing, implementing best-practice erosion and sediment control and designing stormwater drainage systems in accordance with criteria set out in *Australian Rainfall and Runoff Guidelines* (Ball, et al., 2019). Further, management of potential erosion will be regulated through the requirement to obtain Land Clearing Permits under the *Planning Act 1999* (NT).

Soil contamination may impact localised areas where spills/leaks of hazardous chemicals or hydrocarbons occur but is unlikely to cause any significant long-term impact. This impact will be minimised by storing and handling all hazardous chemicals, hydrocarbons and wastes in accordance with Australian Standards, WHS legislation, and the WMPC Act.

All the proposed mitigation measures are widely adopted on large-scale infrastructure projects and are proven effective at managing impacts to land and soils. By implementing these measures, the NT EPA's objective for Terrestrial environmental quality is likely to be met.

6.6 Cumulative Impact

The Proposal is not expected to contribute to cumulative impacts on land and soils because the residual impacts of the Proposal have been assessed as minor and can be managed through standard measures that are proven effective.

7 Terrestrial Ecosystems

7.1 Factor and Objective Context

The NT EPA's environmental objective for Terrestrial ecosystems is to:

"*Protect terrestrial habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.*"

Biodiversity refers to the variety of animal and plant life within a region. Areas with a range of habitats that organisms can occupy support higher biodiversity.

Ecological integrity refers to the quality of ecosystems (such as extent, condition and connectivity of habitats), and their capacity to adapt to change.

Ecological functioning is defined here as the role that ecology has in maintaining other environmental values in the region. For instance, the presence of intact vegetation stabilises the soil and thereby reduces erosion, which could cause reduced soil and surface water quality. Noting that some ecological functions, such as sediment control, can be replaced with technological ones.

7.2 Existing Environment

The environmental values identified for assessment under the Terrestrial ecosystems factor are:

- **Native vegetation:** Which provides habitat for native wildlife and forms and protects soils and other important functions relevant to ecosystem services that sustain human life
- **Significant vegetation:** Which is valued due to unique and/or inherently high biodiversity, and which is considered significant under *the Land Clearing Guidelines: Northern Territory Planning Scheme* (NTG, 2024b).
- **Threatened species:** Which are vulnerable to extinction in the near future and are important due to the role they play in a healthy and functioning ecosystem, as well as having high social value. Species in the NT can be listed as threatened under the TPWC Act, the EPBC Act, or both, and are afforded legislative protection under these Acts.
- **Migratory species:** Which are important due to the role they play in a healthy and functioning ecosystem, as well as having high social value. Australia is a signatory to bilateral migratory bird agreements with Japan, China and the Republic of Korea. The species that are listed on the annexures to these agreements are MNES under the EPBC Act.

The following sections describe the existing environment within the Project Area, focussing on the Preliminary Disturbance Footprint, with regards to values of Terrestrial ecosystems. This has been informed by desktop and field surveys presented in the Ecology Report prepared by EcOz Environmental Consultants (EcOz, 2025) that is provided at Appendix B.

7.2.1 Native Vegetation and Habitat Features

The Project Area occurs on the eastern edge of the Tanami bioregion. This bioregion is characterised by red sandplains and low dune fields with underlying rock strata occasionally exposed as hills and ranges. The sandplains are vegetated with mixed shrubland of Acacia, Eucalyptus, or Hakea over spinifex hummock grasslands. Alluvial and lacustrine calcareous deposits occur throughout, generally associated with palaeo-drainage systems, which often hold high ecological significance. The bioregion is divided into three sub-regions: Tanami Desert; Wycliffe; and Sandover. Muckaty ALT is located within the Wycliffe sub-region.

Preliminary land type mapping has been prepared for areas of interest within the Project Area (refer to Appendix B), with the results presented in Figure 7-1 and Table 7-1.

Spinifex sandplains is the most common land type. This land type has flat to gentle slopes and orange sandy to sandy loam soils. Hummock (spinifex) grassland consistently occurs within this land type. However, there are several floristic variations within the mid and upper layers, with no or sparse shrubs and trees in some areas, and other areas supporting a shrubland with scattered to open trees. Floristic variations are likely influenced by soil type, fire history, and proximity to rocky hills and drainage/alluvial areas.

Loamy plains comprise the next most common land type. These tend to occur in outflow areas of waterways present to the east (Burke Creek and Tomkinson Creek). Terrain is generally flat to gentle slopes. There are several floristic variations within the loamy plains, ranging from tussock grasslands to open shrublands and open low woodlands. Cattle tracks and grazing was commonly observed in this land type due to a higher abundance of palatable grasses and proximity to water sources.

Lateritic plains were observed in the south-eastern corner of the Project Area, associated with the foot slopes of the Ashburton Range situated to the east. Terrain is generally flat to undulating in between several rocky rises and low hills (described as separate land types). Soil surface is a mix of lateritic sand and gravel. Vegetation comprises relatively open low trees and shrubs with a mix of hummock grass and tussock grass understory. Most trees have been subject to repeat fires and are therefore stunted and/or have mallee-like formations.

Laterite rises have a scattered occurrence in the southern part of the Project Area, whilst only a small representation within the Disturbance Footprint. They have a gravelly surface and gentle slopes. No outcropping has been observed. Vegetation mainly comprises a low shrubland to low open shrubland of Acacia over hummock grass.

Low rocky hills are uncommon within the Project Area and only extend a small way into the Disturbance Footprint, in the south-east. Where present, these areas have steeper terrain and often have areas of exposed surface outcrop. Vegetation mainly comprises of open to sparse woodland of *Eucalyptus leucophloia* or *Corymbia dichromophloia* over hummock grass. Shrubs are generally sparse.

There is one moderate drainage located in the north of Project Area. This drainage (known as Burke Creek) has well-formed banks (up to 2 m) and has coarse river sands in its channel (channel width varies between 5 and 10 m, approximately). River Red Gum (*Eucalyptus*

camaldulensis) trees line the creek line, with patches of Acacia shrubs and tussock grasses also present. There were several waterholes present within the drainage at the time of survey.

Minor drainages are uncommon within the Project Area – associated with rocky and undulating terrain – and do not occur within the Disturbance Footprint. These drainages typically do not have well-formed banks or coarse river sand. They are only expected to have short-lived episodic flow. Although these areas may support denser shrubby vegetation than the surrounds, this does not constitute riparian vegetation.

Alluvial plains and depressions dominate the centre (unmapped) section of the Project Area (i.e. within the Avoidance Area) and are otherwise scattered through the Project Area and Disturbance Footprint. They are predominantly associated with the floodplain areas of the large drainage systems (Burke Creek and Tomkinson Creek), but also several smaller drainage lines and minor run-on areas. It is expected that these areas are periodically inundated, and flora species established indicate a 'wetter' environment (such as presence of *Eucalyptus victrix* and *Corymbia flavescens*, and tussock grass-dominated understory).

Ephemeral swamps are scattered through the Project Area but are uncommon in the Disturbance Footprint due to avoidance measures applied during site selection. They range from small swamps in run-on areas within the broad sandplains, to large swampy plains associated with drainage systems from the Ashburton Range in the east. They support a distinct vegetation community that typically supports an open woodland of *Eucalyptus victrix* with an understory of water-tolerant tussock grasses and sedges. It is expected that the swamps will become seasonally inundated. However, only a few contained water at the time of survey (June 2025).

7.2.2 Significant Vegetation

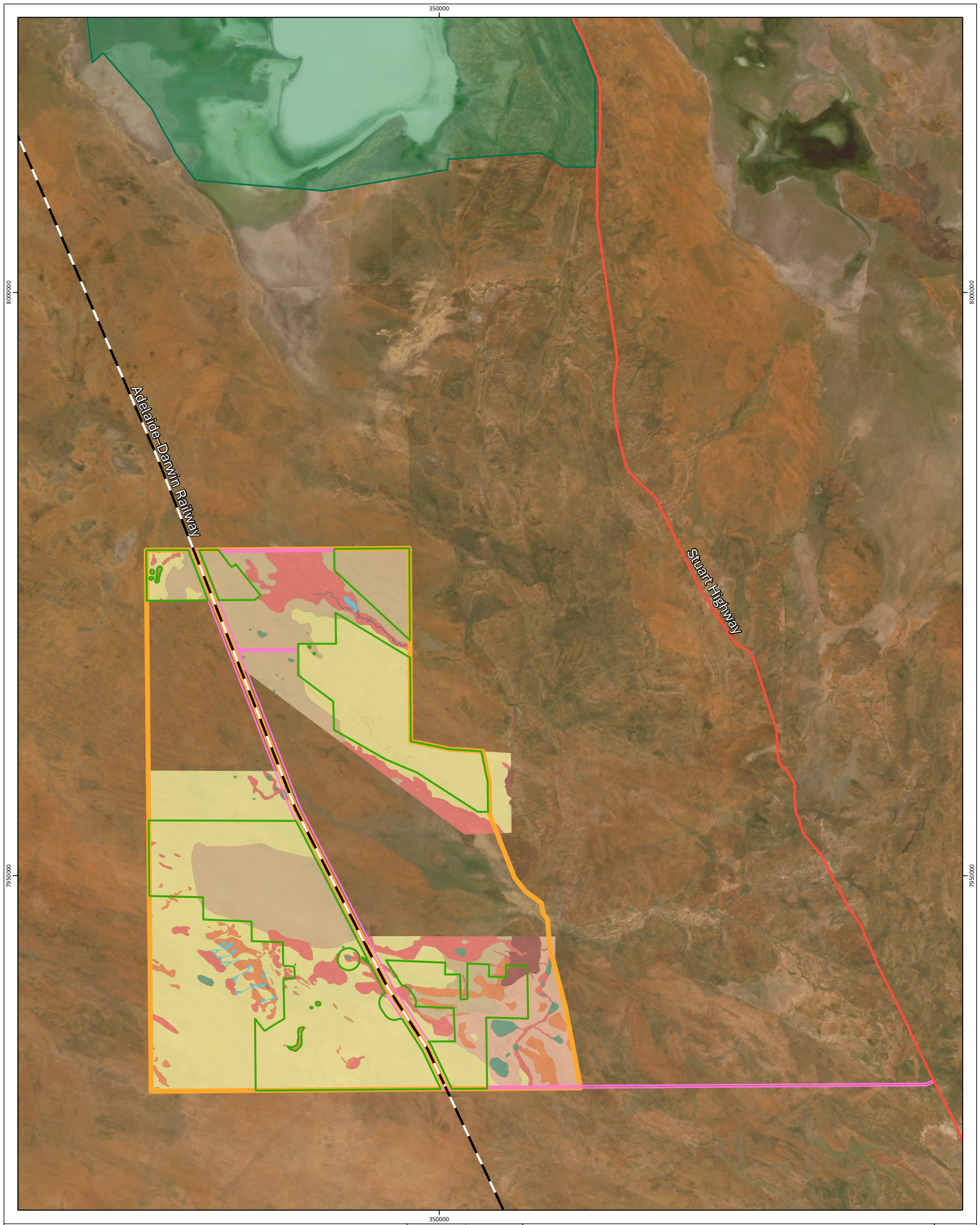
The field survey indicated that the following significant vegetation types occur within the Project Area: riparian vegetation along Burke Creek; ephemeral swamps of varying sizes which are scattered throughout; drainage depressions; and large, hollow-bearing trees, which are likely restricted to Burke Creek. These are mapped in Figure 7-2. The Disturbance Footprint has been designed to avoid these vegetation types.

Table 7-1: Summary Descriptions of Land Types Relevant to the Proposal

Land Type	Landform and Soil	Dominant Floristic Groups	Proportion of Disturbance Footprint
Spinifex sandplain	Flat to gentle slopes. Red sands to sandy red/brown earths. Often very thin layer of red/orange aeolian sandy layer on the surface.	• Shrubland (including patches) to open shrubland (*Acacia lysiphloia* +/- *Acacia stipuligera*) over hummock grass +/- scattered trees. • Shrubland (*Acacia stipuligera*) over spinifex. • Shrubland to open shrubland (*Acacia torulosa* +/- *Acacia stipuligera*) over hummock grass +/- scattered low trees (*Corymbia setosa*). • Hummock grassland with sparse shrubs (mixed species, many dead/burnt) and sparse trees.	60.1 percent
Loamy plain	Flat to gentle slopes. Brown to pale red/orange loams. Some patches of sandy loam.	• Tussock grassland with scattered to sparse shrubs +/- trees. • Patchy shrubland (*Acacia spp.*) with scattered low trees and mallee. • Open low woodland with sparse shrubs over tussock grass +/- hummock grass. • Mixed grassland (hummock and tussocks) with scattered shrubs.	30.3 percent
Laterite rise	Low relief rises of gravel or stones. Lateritic gravelly soils.	• Low shrubland to low open shrubland (*Acacia hilliana* +/- *Acacia lysiphloia*, *Acacia monticola*, *Senna notabilis* typically on the edges). • Shrubland to open shrubland (*Acacia monticola*). • Sparse shrubs and hummock grass (potentially result of fire).	2.4 percent
Lateritic plain	Flat to gently undulating. Lateritic soils, some areas of gravel.	• Sparse to patchy shrubland (Acacia monticola and other Acacias) over hummock grass +/- patches of *Senna notabilis*. • Low open woodland to sparse low woodland over hummock grassland (regenerating).	2.9 percent
Low rocky hill	Moderate relief.	• Low open woodland (*Eucalyptus leucophloia*) with patchy shrubs over hummock grass.	0.5 percent

Land Type	Landform and Soil	Dominant Floristic Groups	Proportion of Disturbance Footprint
	Skeletal soils; patchy shallow soils, when present brown clay, silt sand.	• Low open woodland (*Corymbia dichromophloia*) with patchy shrubs over hummock grass. • Low open shrubland (*Acacia spondylophylla*, *Acacia adoxa*) over hummock grass.	
Alluvial plain or depression	Flat to gentle slopes. Brown clayey loams. Potentially subject to seasonal sheet flow.	• Low open woodland (*Eucalyptus pruinosa* and *Corymbia opaca +/- Corymbia flavescens*) over tussock grass. • Low open woodland (*Eucalyptus victrix*) over tussock grass. • Open woodland (*Corymbia flavescens*) over tussock grass. • Sparse to open shrubland *(Melaleuca spp. +/- Grevillea refracta*) over tussock grass. • Open shrubland (*Grevillea refracta*) over tussock grass.	3.7 percent
Ephemeral swamp	Flat, distinct run-on areas. Clayey top loamy clays. Expected to become seasonally inundated.	• Low open woodland (*Eucalyptus victrix +/- Corymbia flavescens*, *Melaleuca spp.*) over tussock grass and sedges. • Low open woodland (*Corymbia flavescens*) over tussock grass. • Sedgeland with tussock grass.	0.1 percent
Minor drainage	Gentle to low slopes. Clay loam soils. Does not have well-formed channel or creek banks (although some are gullies).	• Open shrubland (*Melaleuca spp.*) over tussock grass +/- scattered trees. • Open shrubland (*Acacia spp. +/- Melaleuca spp.*) over tussock grass +/- scattered trees.	<0.1 percent
Moderate drainage (Burke Creek)	Gentle slopes. Well-formed banks.	• Woodland to open woodland (*Eucalyptus camaldulensis*) with scattered to patchy Acacia shrubs over sparse tussock grass.	<0.1 percent

Land Type	Landform and Soil	Dominant Floristic Groups	Proportion of Disturbance Footprint
	Distinct channel with coarse river sand. Episodic flow only. Several waterholes / pools are present within creek channel, some of which contained water at time of survey. Banks have brown clay loam soils.		



LEGEND

- Highways
- Railways
- Muckaty Solar Project Area
- Preliminary Disturbance Footprint
- Proposed Access/Services Corridor
- Lake Woods Conservation Covenant

Landform

- Alluvial plain or depression
- Moderate Drainage (Burke Creek)
- Ephemeral swamp
- Laterite rise
- Lateritic plain
- Loamy plain
- Low rocky hill
- Minor drainage
- Spinifex Sandplain

(Landform mapped in north-west (west of railway) not within survey area of this report)

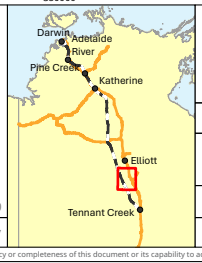


Figure 7-1: Land Type Mapping within the Disturbance Footprint

Project: Australia-Asia PowerLink

N

0 5 10 Kilometres

Reference #: AAPL_BRP_REF_MAP_7-1

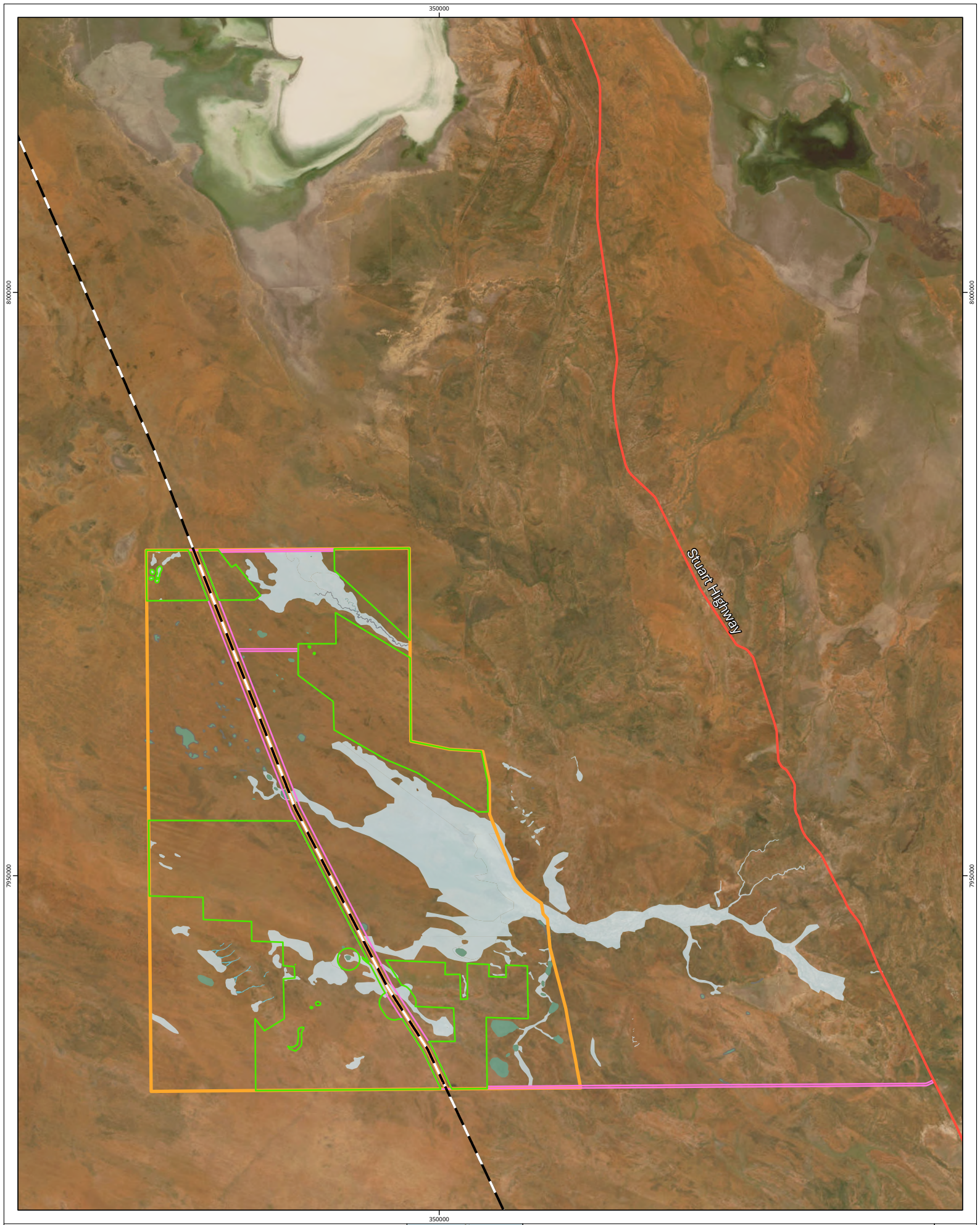
Date: 12/09/2025 | Figure: 7-1 | Revision: A

Scale: 1:400,000 | Datum: GDA2020

Coordinate System: MGA Zone 53 | A4

suncable

Source: Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



LEGEND

- Muckaty Solar Project Area
- Preliminary Disturbance Footprint
- Proposed Access/Services Corridor
- Highways
- Railways

Landform

- Moderate drainage (Burke Creek)
- Minor drainage
- Alluvial plain or depression
- Ephemeral swamp

(Landform mapped in north-west (west of railway) not within survey area of this report)

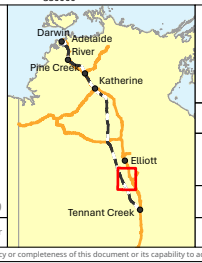


Figure 7-2: Significant Vegetation Within the Project Area

Project: Australia-Asia PowerLink

0 5 10 Kilometres

Reference #: AAPL_BRP_REF_MAP_7-5

Date: 12/09/2025 | Figure: 7-5 | Revision: A

Scale: 1:400,000 | Datum: GDA2020

Coordinate System: MGA Zone 53 | A4

N

suncable

Source: Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Maxar

7.2.3 Threatening Processes

There are several threatening processes to biodiversity as a consequence of human presence in the region:

- The survey recorded localised occurrences of four **weed** species – two of which are declared weeds in the NT (Rubber Bush and Buffel Grass) under the *Weeds Management Act 2001* (NT).
- There is evidence of **introduced fauna** species occurring within the Project Area. As well as extensive cattle tracks to the east of the railway line, camel tracks were sparsely scattered throughout the Project Area, and numerous feral cats were sighted. The latter are a Key Threatening Process under the EPBC Act. The Project Area is beyond the limit of Cane Toad distribution.
- Apart from along Burke Creek, there is a low prevalence of **erosion** across the Project Area.
- The Project Area has experienced a moderate **fire frequency** between 2000 and 2024, with most of the Project Area burnt five to seven times. Much of Muckaty ALT, and thus the Project Area, was burnt in 2023 or 2024, leaving smaller disconnected patches that have remained unburnt for three or more years.

7.2.4 Threatened Species

A desktop 'likelihood of occurrence' assessment was undertaken to identify which threatened species are likely to occur within the Project Area. Details of the methodology can be found in Chapter 2 of the Ecology Report (EcOz, 2025) (refer to Appendix B). A total of 31 threatened species were assessed. A summary of the assessment results is provided in Table 7-2.

Three species are considered to have a moderate or high likelihood of occurring within the Project Area due to the presence of suitable habitat: Greater Bilby; Grey Falcon; and Yellow-spotted Monitor. Details on the ecology and distribution of these species – and their potential occurrences within the Disturbance Footprints – are provided in Section 7.5.

The remaining species were assessed as having no/a low likelihood of occurrence within the Project Area. The assessment assumes that habitat which supports threatened migratory shorebirds only occurs within Project Area on rare occasions (i.e. during extraordinary rainfall events), and hence the likelihood of those species being present is low.

Table 7-2: Threatened Species Likelihood of Occurrence Summary

Likelihood	Group	Species	Status	
			EPBC Act	TPWC Act
High	Mammal	Greater Bilby (*Macrotis lagotis)*	VU	VU
Moderate	Bird	Grey Falcon (*Falco hypoleucos)*	VU	VU
	Reptile	Yellow-spotted Monitor (*Varanus panoptes)*	-	VU
Low	Bird	Red Goshawk *(Erythrotriorchis radiatus)*	EN	VU
		Painted Honeyeater (*Grantiella picta)*	VU	VU
		Night Parrot (*Pezoporus occidentalis)*	EN	EN
		Princess Parrot (*Polytelis alexandrae)*	VU	VU
		Sharp-tailed Sandpiper *(Calidris acuminata)*	VU	LC
		Black-tailed Godwit *(Limosa limosa)*	EN*	NT
		Common Greenshank *(Tringa nebularia)*	EN*	LC
		Curlew Sandpiper *(Calidris ferruginea)*	CR*	CR
		Greater Sand Plover *(Charadrius leschenaultia)*	VU*	VU
		Australian Painted Snipe *(Rostratula australis)*	EN	EN
	Reptile	Northern Blue-tongued Skink (*Tiliqua scincoides intermedia)*	CR	DD
	Plant	Tassel Sedge *(Carex fascicularis)*	-	VU
None	Mammal	Bare-rumped Sheath-tailed Bat (*Saccolaimus saccolaimus nudicluniatus*)	VU	NT
		Northern Quoll (*Dasyurus hallucatus)*	EN	CR
		Golden-backed Tree-rat *(Mesembriomys macrurus)*	-	CR
		Central Australian Rock-wallaby (*Petrogale lateralis centralis*)	VU	NT
		Northern Brush-tailed Phascogale *(Phascogale pirata)*	VU	EN
		Pale Field-rat *(Rattus tunneyi)*	-	VU

Likelihood	Group	Species	Status	
			EPBC Act	TPWC Act
		Northern Brushtail Possum *(Trichosurus vulpecula arnhemensis)*	VU	NT
		Common Brushtail Possum (Central) *(Trichosurus vulpecula vulpecula)*	-	EN
		Ghost Bat *(Macroderma gigas)*	VU	NT
		† Golden Bandicoot (*Isoodon auratus*)	EN	VU
	Bird	Gouldian Finch (*Erythrura gouldiae*)	EN	VU
		Crested Shrike-tit (northern subspecies) (*Falcunculus frontatus whitei)*	VU	NT
		Partridge Pigeon (eastern subspecies) *(Geophaps smithii smithii)*	VU	VU
		Purple-crowned Fairywren (western) (*Malurus coronatus coronatus)*	EN	VU
		Masked Owl (northern subspecies) *(Tyto novaehollandiae Kimberli)*	VU	VU
	Reptile	Plains Death Adder *(Acanthophis hawkei)*	VU	VU

Status: CR – Critically Endangered; EN – Endangered; VU – Vulnerable; ER – Extinct Regionally; NT – Near Threatened; MIG – migratory species; † *Extinct in the bioregion* (Baker, 2005).

7.2.5 Migratory Species

There are 37 species of migratory shorebirds that visit Australia on a regular and predictable basis (Department of the Environment, 2021). Satellite and geo-tracker telemetry data from species which have been studied using such technology demonstrate that most of these species pass through (or over) central Australian regions enroute to their breeding grounds in the northern hemisphere. However, there is a paucity of records of migratory shorebirds 'on the ground' in central Australia. Most records of migratory shorebirds relevant to the Project Area are based in, and around, Lake Woods (approximately 35 km to the north of Muckaty ALT), although there are several others from floodplain wetlands east of the Project Area.

There are 19 listed migratory shorebird species identified in the Ecology Report (refer to Appendix B) that are either known, or are likely, to occur at Lake Woods (and therefore potentially within the Project Area). A likelihood of occurrence assessment was undertaken in the Ecology Report (refer to Appendix B) using the same process as presented in the threatened species section above, and based on the assumption that habitat which supports migratory shorebirds only occurs within Project Area on rare occasions (i.e. during extraordinary rainfall events). The outcome was that there are no listed migratory birds that are considered likely to occur within the Project Area – and particularly not within the Disturbance Footprint, because it lacks suitable habitat.

7.3 Potential Impacts

Potential impacts to the valued components of the Terrestrial ecosystems factor were identified and assigned an initial impact significance rating, see Table 7-3. Preliminary significant impact assessments in accordance with the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* (Significant Impact Guidelines) (Australian Government, 2013) are then presented for threatened and migratory species in Section 7.5.

7.3.1 Loss of Native Vegetation and Habitat

Land clearing during construction is expected to result in loss of habitat for threatened species if these areas cannot be avoided through design. This is particularly relevant for the Greater Bilby because large proportions of the Disturbance Footprint have been identified as suitable habitat for that species.

Clearing in the Project Area will consist of a large area of native vegetation (approximately 50,000 ha) to accommodate the solar precinct infrastructure. Access tracks will be required to cross some waterways. Clearing of this native vegetation will impact vegetation and habitats, ecosystem function, and threatened species habitat. Disturbance to migratory species habitat and significant vegetation is expected to be negligible. Exact locations and areas of clearing will be confirmed at detailed design.

7.3.2 Degradation of Habitat

Some vegetation and habitat that is not directly lost through land clearing may be degraded in various ways. This would mostly occur in the short-term and in the areas proximate to the clearing footprint and project activities, such as if noise and dust is generated during construction activities. Some impacts may extend into the medium-long term, such as introduction and spread of weeds and pest species. There is also potential for long term impacts or permanent degradation to significant vegetation and habitat quality, notably with regards to the utilisation of the Terrestrial ecosystems present in proximity to the Proposal's activities.

7.3.3 Fragmentation

Habitat fragmentation occurs when a continuous area of habitat, suitable for a species, is divided into smaller patches that can isolate portions of that species' population. It can lead to significant biodiversity loss due to the restriction of genetic diversity, disrupted migration routes, increased competition and predation, and possibly even altered ecosystem dynamics and availability causing a decline suitable habitat. Fragmentation can occur at both a local and a regional scale, and depends on the requirements of the species within that habitat. Different species have varying habitat needs.

Some may require large territories or specific conditions that can be compromised by fragmentation, while others may be more adaptable to smaller patches or may exist in highly variable ecosystems. Large areas of land clearing could result in habitat fragmentation that could prevent species from being able to utilise that area to travel between suitable habitats. These risks can be greatly lowered by including wildlife corridors within the Proposal's design, to reduce restrictions on the movement of threatened species like the Greater Bilby and Yellow-spotted Monitor.

7.3.4 Injury or Direct Mortality

Threatened ground-dwelling fauna may be injured through clearing activities for construction or vehicle strikes. However, these impacts are expected to be largely avoided and mitigated through project commitments such as speed limits (construction/operation) and pre-clearance surveys (construction).

7.3.5 Lake Effect

The 'Lake Effect Hypothesis' (LEH) proposes that PV panel arrays appear as a large body of water and attract wetland-dependent or associated bird species (Kagan, 2014).

Based on the location of the Proposal – in a largely arid environment – there is unlikely to be suitable wetland habitat present on a routine and predictable basis. Instead, habitat conditions, particularly at nearby Lake Woods, are likely to be suitable only in response to rainfall and subsequent flooding. Under such conditions, it is expected that there is widespread ephemeral wetland habitat availability in the region and resultative waterbird distributions will also be widespread.

With widespread standing water across the landscape, the LEH and collision risk with PV panels is expected to be reduced. However, it is the opposite conditions which are likely to be more of a concern given the geographic context, surrounding habitat types, and wetland habitat availability. While there may be a substantial increase in waterbird and shorebird abundances in the landscape during wet periods, the availability of habitat means that there should be less attraction to the Proposal due to the LEH, when compared to dry years in which the Proposal will stand out and appear more attractive to migratory birds passing overhead during peak migration periods.

Based on available literature and a distinct lack of collision mortality research associated with solar energy facilities in Australia, especially for projects of this scale, there remains a large degree of uncertainty regarding the prevalence and frequency of avian impacts due to interference such as collisions. For this Proposal, an adaptive management approach will be applied, which allows for mitigation measures to be implemented commensurate to the realised risks as they arise. A migratory and waterbird management plan will be developed to manage impacts associated with the LEH, by monitoring bird utilisation and facilities across the Project Area and identifying adaptive management actions to respond to any emerging issues. Because of the uncertainty associated with this impact, the precautionary principle has been applied, and the residual impact has been rated as moderate. However, it is expected with implementation of this adaptive management plan, residual impacts would ultimately be minor.

7.4 Proposed Environment Protection and Management

Table 7-3 outlines the potential impacts to Terrestrial ecosystems values along with the proposed avoidance and mitigation measures to manage these impacts. Measures specific to avoiding or reducing impacts to threatened species (which are assessed under different criteria) are presented in Section 7.5.

Table 7-3: Terrestrial Ecosystems – Proposed Mitigation Measures and Summary of EIA

Potentially Significant Impact	Proposed Avoidance and Mitigation Measures	Regulatory and Policy Guidance	Residual Impact Significance Rating
Loss of native vegetation and habitat features.	Major drainages have been avoided and buffered as per the *Land Clearing Guidelines: Northern Territory Planning Scheme* (NTG, 2024b). High-quality native vegetation and important habitat features will be avoided by design and buffered from development to the maximum extent reasonably practicable. Core habitat features of the Yellow-spotted Monitor and Grey Falcon have been avoided. No clearing will occur without an approved Land Clearing Permit. The Proposal will adhere to any conditions of the approved Land Clearing Permit, including clearing only within the approved boundaries. Rehabilitation of cleared areas post-operations as soon as reasonably practicable, and at a maximum within one year, following any vegetation clearing in the absence of permanent infrastructure.	• *Land Clearing Guidelines: Northern Territory Planning Scheme* (NTG, 2024b). • Land Clearing Permits under the *Planning Act 1999* (NT) and/or the *Pastoral Land Act 1992* (NT). • *Bushfires Management Act 2016* (NT). • *Weeds Management Act 2001* (NT).	**Moderate**
Degradation of native vegetation and habitat features.	Implement all Terrestrial environmental quality and Hydrological processes avoidance measures. Develop and implement a Biosecurity Management Procedure, that aligns with the requirements of the *Weeds Management Act 2001* (NT) and includes the following measures: • Undertake annual monitoring of areas of reinstated vegetation and conduct remediation where required as soon as reasonably practicable. Develop and implement a Bushfire Management Plan, including first response capability. The Proposal will adhere to any conditions of relevant land clearing permits.		**Moderate**

Potentially Significant Impact	Proposed Avoidance and Mitigation Measures	Regulatory and Policy Guidance	Residual Impact Significance Rating
Loss of significant vegetation.	Significant vegetation types have been avoided. Clearing of large trees with hollows suitable for fauna will be avoided to the maximum extent reasonably practicable. noting that in the semi-arid environment, large trees typically do not occur outside of riparian zones.The Proposal will adhere to the *Land Clearing Guidelines: Northern Territory Planning Scheme* (NTG, 2024b) and any conditions of relevant land clearing permits.		**Minor**
Degradation of significant vegetation.	Implement all Terrestrial environmental quality and Hydrological processes avoidance measures. The Proposal will adhere to the *Land Clearing Guidelines: Northern Territory Planning Scheme* (NTG, 2024b) and any conditions of relevant land clearing permits. Develop and implement a Biosecurity Management Procedure, that aligns with the requirements of the *Weeds Management Act 2001* (NT) and includes measures including: • Undertake annual monitoring of areas of reinstated vegetation and conduct remediation where required as soon as reasonably practicable.		**Minor**
Fragmentation.	Implementation of wildlife corridors within the solar precinct as per the *Land Clearing Guidelines: Northern Territory Planning Scheme* (NTG, 2024b).	• *Land Clearing Guidelines: Northern Territory Planning Scheme* (NTG, 2024b). • Land Clearing Permits under the *Planning Act 1999* (NT) and/or the	**Minor**

Potentially Significant Impact	Proposed Avoidance and Mitigation Measures	Regulatory and Policy Guidance	Residual Impact Significance Rating
		Pastoral Land Act 1992 (NT).	
Injury or direct mortality.	Prohibit driving between sunset and sunrise unless: • It is on a formed road with a cleared verge for good visibility, and • Speed does not exceed 25 km/h. Develop and implement a Pre-clearing Procedure that includes surveys by suitably qualified ecologists to identify burrows in use by the Greater Bilby or Yellow-spotted Monitor, and accepted measures for ensuring animals are not present in the footprints when clearing commences. The procedure will be developed in consultation with NT and Commonwealth government threatened species experts and will address the requirements of the TPWCA and EPBC Act. Develop and implement a Biosecurity Management Procedure that includes measures for managing Cane Toads, including biosecurity and breeding habitat prevention measures to minimise the change that the range of Cane Toads is increased to the south. Conduct a Grey Falcon nest survey where: • Works will be conducted in the late dry season (July to September); and • Trees greater than 20 m tall occur within 1 k of a river; and • Trees greater than 20 m tall are within 300 m of proposed disturbance. Grey Falcon nests in use will be avoided by adopting: • A 100 m buffer between a nest in use and construction activities; and • A 300 m buffer between a nest in use and activities involving use of helicopters or sudden noise sources.	• Permit to Take or Interfere with wildlife under the TPWC Act.	**Minor**

Potentially Significant Impact	Proposed Avoidance and Mitigation Measures	Regulatory and Policy Guidance	Residual Impact Significance Rating
Lake Effect.	Develop, implement, and comply with a migratory and waterbird management plan that: • Includes a program for monitoring bird utilisation and fatalities across the solar precinct, commencing at the start of solar panel installation. • Identifies adaptive management actions to respond to any emerging issues (including any impacts of solar panels on bird behaviour and/or mortality). • Requires annual reporting of monitoring effort, monitoring outcomes and any management actions implemented. If bird mortalities are recorded at SunCable's nearby Powell Creek Solar Precinct, ensure any adaptive management actions are incorporated into the design of Muckaty Solar Precinct before it is constructed.	• *EPBC Act Policy Statement 3.21 - Industry Guidelines for Avoiding, Assessing and Mitigating Impacts on EPBC Act Listed Migratory Shorebird Species* (Department of the Environment, 2021).	**Moderate**

7.5 Significant Impact Assessments

The potential for significant impacts on threatened and migratory species has been assessed in accordance with the Significant Impact Guidelines (Australian Government, 2013). Because the NT does not have an independent process for determining significance of impacts on threatened species, the NT EPA's *Guidelines for Assessment of Impacts on Terrestrial Biodiversity* (NT EPA, 2013a) requires that impacts to threatened species listed under the TPWC Act are assessed using the same criteria as for EPBC-listed species, namely the Significant Impact Guidelines.

7.5.1 Threatened Species

The following tables (refer to Table 7-4, Table 7-5, and Table 7-6) provide a preliminary significant impact assessment in accordance with the Significant Impact Guidelines (Australian Government, 2013) for each of the three threatened species with a moderate or high likelihood of occurrence in the Project Area (refer to Section 757.2.4).

The mitigation measures relevant to mitigating potential impacts to threatened species are presented in Table 7-3.

Greater Bilby

Background

The Greater Bilby (*Macrotis lagotis*) is listed as Vulnerable under both the EPBC Act and TPWC Act, and also has cultural significance in the NT (Walsh, F. and Custodians of the Bilby, 2016). Since the late 1800s, Greater Bilbies have disappeared from at least 80 percent of their former range (Southgate R. , 1990). The species is currently confined to arid WA, the Tanami Desert in the NT, and south-western Queensland, with an estimated population size of fewer than 10,000 individuals (Woinarski, Burbidge, & Harrison, 2014).

In the NT, typical habitat for the Greater Bilby consists of sandy soils dominated by spinifex hummock grasslands (Pavey, 2006). Surveys in the Tanami Desert indicate that spinifex-dominated laterite rises, and drainage lines are occupied more frequently than sand plains and dune fields (Southgate, Paltridge, Masters, & Nano, 2005; Southgate, Dziminski, Paltridge, Schubert, & Gaikhorst, 2018). A mosaic of different post-fire ages is preferred (Southgate & Carthew, 2007). Greater Bilby move over a wide area according to available food and vegetation cover conditions (associated with seasons and fires) (Southgate & Carthew, 2007), and the long-term seasonal home range may be hundreds of square kilometres (Southgate R. , 1987).

The main threat to the Greater Bilby is predation by Red Foxes and feral cats, followed by inappropriate fire regimes, and land degradation and resource depletion by livestock and feral herbivores (Woinarski, Burbidge, & Harrison, 2014). Land clearing can lead to loss of habitat, degradation of surrounding habitat, increased predation, and fragmentation effects (Bradley, et al., 2015).

The Project Area occurs on the edge of the Tanami Desert – a stronghold for the Greater Bilby – and, like much of the Tanami Desert, contains large areas of suitable habitat for the Greater Bilby. There are historic records to the south of Muckaty ALT, as well as adjacent to the railway line within Project Area – see Figure 7-3 and Figure 7-4. A targeted survey of a large portion of the Project Area (including 92 percent of the Disturbance Footprint) was undertaken in mid-2025, as detailed in Appendix C. Evidence of Greater Bilby presence was unambiguously recorded at 33

sites, with an additional 20 sites containing evidence that the Greater Bilby is likely to be present. These locations are mapped in Figure 7-4.

The majority of Greater Bilby sites were recorded within the south of the Project Area (49 of the 53 sites). Of these, the evidence of Greater Bilby presence in 27 sites was likely less than a week old at the time of survey, indicating current occupation of Greater Bilby in the area. Many of these sites also had older evidence, indicating that Greater Bilbies have had ongoing use of these areas (that is, revisited these locations across at least two seasons). The north of the Project Area only had four sites with evidence of Greater Bilby, all of it old (estimated to be months to years), meaning that the Greater Bilby have previously inhabited this area. However, there was no evidence in this survey that they currently persist in the area.

Within the Project Area, Greater Bilby are considered to have potential to occur within sandplains, laterite rises, and lateritic plains, and to a lesser extent, loamy plains. Although these land types are considered as generally suitable habitat for Greater Bilby, there are 'hotspot areas' within those land types that are more favourable and more likely to support Greater Bilby (primarily due to the presence of root-dwelling larvae shrub species – a key food resource for the Greater Bilby). The field survey recorded that there are numerous root-dwelling larvae shrub patches, but also large areas where these shrubs are absent or uncommon. It is considered unlikely that Greater Bilby will burrow or forage in these locations where there is a distinct absence or low abundance of root-dwelling larvae shrubs. Consequently, Greater Bilby are considered unlikely to occur in low rocky hills, alluvial plains and depressions, drainage lines (creeks and minor drainages), or ephemeral swamps due to soil type (that is, poor burrowing suitability), impacts from cattle grazing, distinct lack of suitable food resources, and lack of confirmed records.

It can be seen in Figure 7-3 that a large area of the Tanami Desert west of the Project Area that supports suitable habitat (Redsan land system) for the Greater Bilby – and has a similar fire history – does not appear to have been surveyed for the species. It is likely that the species is present in that habitat (that is, the species is not confined to the Project Area and has suitable habitat in the surrounding area).

The potential impacts from the Proposal on the Greater Bilby are through loss of habitat, and direct mortality through vehicle strikes and construction activities that impact active burrows. The Disturbance Footprint contains recent records of, and a large area of suitable habitat for, the Greater Bilby. Table 7-4 assesses whether project activities are likely to have a significant impact on the Greater Bilby, using the criteria contained within the Significant Impact Guidelines. It concludes that if the entire Disturbance Footprint (as currently presented) is disturbed, there is potential for a significant impact on the Greater Bilby due to a loss of critical habitat. SunCable is committed to avoiding and minimising impacts where reasonably practicable and, to this end, will prioritise refining the Disturbance Footprint during the EIA process and as part of detailed design.

Table 7-4: Significant Impact Table for the Greater Bilby

Is there a real chance or possibility that the action will...[3]	Assessment
Lead to a long-term decrease in the size of an important population of a species?[4]	**NO** There is not a real chance or possibility the Proposal would lead to a long-term decrease in the size of an important population of Greater Bilby. The presence of Greater Bilby within the Project Area qualifies it as an 'important population' by virtue of being near the eastern limit of the species' range. In addition, as noted in the *Recovery Plan for the Greater Bilby* (DCCEEW, 2023), the species largely now occurs as small groups which are fragments of the former, near-continuous distribution. Each of these groups is important and under pressure. Greater Bilbies utilise numerous burrows across their home range. The most plausible potential cause for a long-term decrease in the size of the Greater Bilby population would be if burrows within the Project Area are occupied during construction, and the occupants are killed as a result of construction activities.[5] Another possible cause of direct mortality would be if bilbies that are removed or exit burrows to avoid project activities are subject to predation as a result of not being able to seek shelter. The burrows of the Greater Bilby are conspicuous. A Pre-clearing Procedure will be prepared and implemented that includes surveys by suitably qualified ecologists to identify burrows in use, and accepted measures for ensuring animals are not present in the footprints when clearing commences. The procedure will be developed in consultation with NT and Commonwealth government threatened species experts, will address the requirements of the TPWCA and

[3] It is important to note that these criteria were derived from those used by the International Union for Conservation of Nature's (IUCN) to compile the Red List of Threatened Species. Because the ecologies and populations of, and threats to, all the Earth's species are incredibly varied, the criteria have been designed to collectively ensure that the threatened status of all the species is adequately considered. Consequently, the relevance of each criterion varies between different species, and so for each species some consideration of the applicability and relative weighting of a particular criterion is warranted.

[4] This is the only criterion which refers to population size, and hence the focus is on the potential for mortality of individuals, and the consequence of that on the population of the species.

[5] The NT EPA Assessment report 107 for the AAPowerLink Project EIS noted that "disruption of an active Greater Bilby burrow system would comprise a significant impact."

Is there a real chance or possibility that the action will...[3]	Assessment
	EPBC Act, and draw on lessons learnt from such work done elsewhere, such as in the Pilbara (see, e.g., (WA Department of Biodiversity, Conservation and Attractions, 2018)). Direct fauna mortality due to interactions with vehicles ('fauna strike') or construction equipment is a potential impact most relevant to construction, but also could occur during operation to a lesser extent. Proposal activities will involve increased movement of vehicles, equipment and plant along highways, and existing/new access tracks. To mitigate this impact, driving will be prohibited between sunset and sunrise unless: • It is on a formed road with a cleared verge for good visibility, and • Speed does not exceed 25 km/h. When the above mitigation measures are in place, the risk of mortality of Greater Bilby is low, and therefore it is unlikely that there will be a long-term decrease in the size of an important population of Greater Bilby. Other ways in which the Proposal could potentially lead to that outcome – e.g. through disruption of breeding, loss of habitat – are assessed under the relevant criteria below.
Reduce the Area of Occupancy (AOO)[6] of an important population?	**YES** The Proposal is likely to reduce the AOO of an important population of the Greater Bilby. The AOO of a species is a scaled metric that represents the area of suitable habitat occupied by a species as defomed by the International Union for Conservation of Nature (IUCN) (IUCN, 2024). The AOO is determined using a two x 2 km grid that is applied on all the known, inferred, or projected sites of present occurrences (IUCN, 2018). The simplest way to estimate the AOO is using records of the species – considering each record to present a known site. A published estimate for the AOO of the Greater Bilby is 2,150 km^2 (215,000 ha) (Woinarski, Burbidge, & Harrison, 2014). However, this is considered likely to be a significant underestimate because a large proportion of suitable

[6] According to IUCN (2024), the AOO is a scaled metric that represents the area of suitable habitat currently occupied by the taxon. It is used to assess IUCN Criterion 2 for determining threatened status. AOO is particularly relevant to species with small populations and/or that occur within a few small patches, and hence are exposed to elevated extinction risks because there is a greater chance that a threat/s will affect all or most of the distribution within a given time frame.

Is there a real chance or possibility that the action will...[3]	Assessment
	habitat within the species' current distribution – including, as noted above, in the Tanami Desert – has not been surveyed (Woinarski, Burbidge, & Harrison, 2014). Additionally, the records from the Greater Bilby survey undertaken for this Proposal increased the known AOO of the species by approximately 5.8 percent (based on an estimated 31 AOO grid cells). The Disturbance Footprint intersects approximately 10 AOO grid cells. Consequently, if the entire Disturbance Footprint (as currently presented) is disturbed, then Proposal activities will reduce the AOO[7] for this species by approximately 1.75 percent. However, the reduction is likely to be much less given the published AOO is likely to be a significant underestimate. As noted in the footnote 8, the likelihood of such a small reduction in AOO having a significant impact on a widespread species such as the Greater Bilby is inherently low.
Fragment an existing important population into two or more populations?	**NO** There is not a real chance or possibility the Proposal will fragment an existing population of the Greater Bilby into two or more populations. While the Greater Bilby is mobile – the male home range is up to approximately 5 km^2 (McRae, 2004) – a large-scale development could reasonably be expected to present an obstacle to movement, and limit dispersal and breeding between populations within the Project Area. To allow for movement throughout the solar precinct, the larger Disturbance Footprints will be designed to be intersected by wildlife corridors (as per the NT Land Clearing Guidelines).
Adversely affect habitat critical to the survival of a species?	**YES**

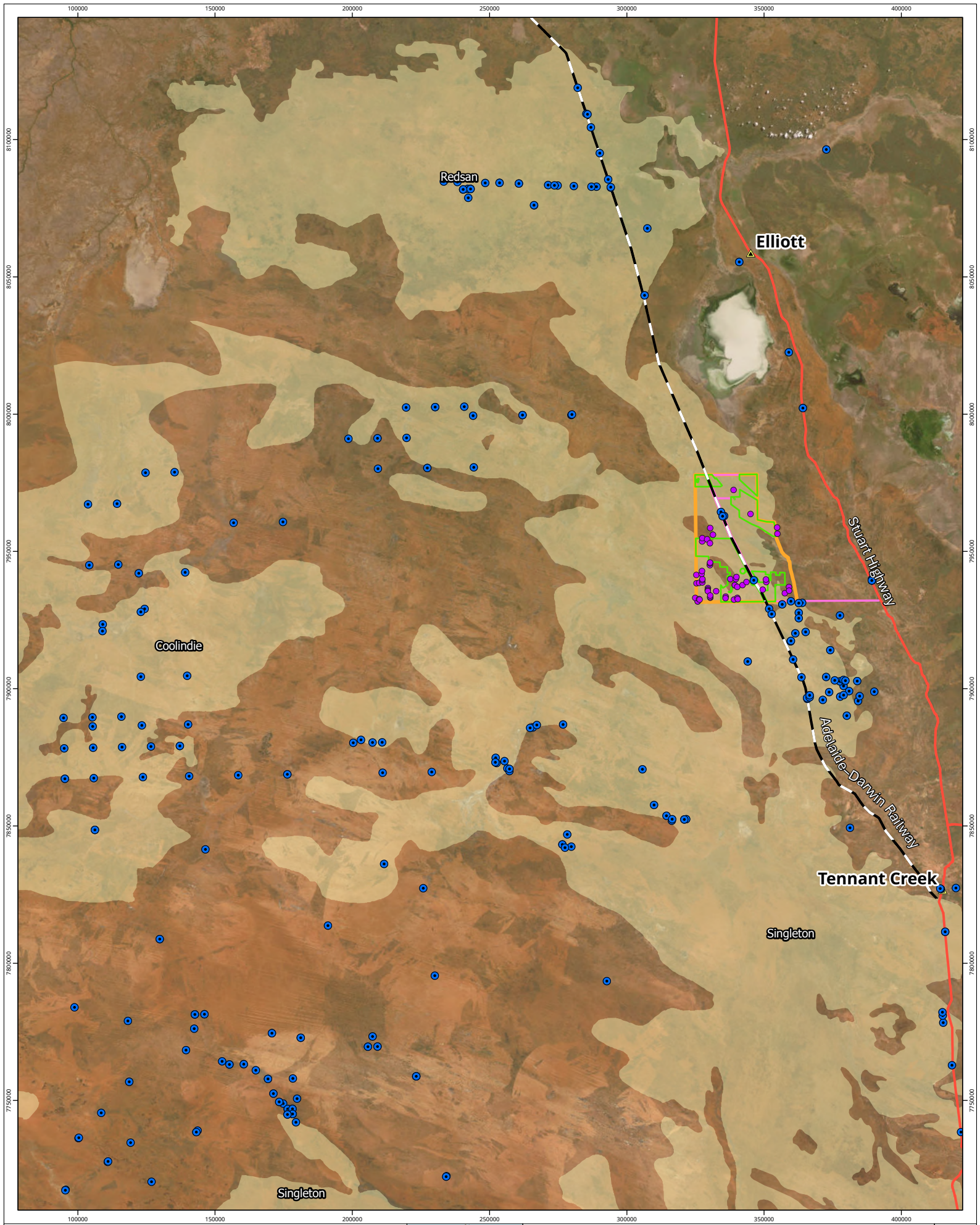
[7] The published AOO estimate plus the increase in AOO from this survey

Is there a real chance or possibility that the action will...[3]	Assessment
	The Proposal will likely adversely affect habitat critical to the survival of the Greater Bilby. The *Recovery Plan for the Greater Bilby* (DCCEEW, 2023) defines 'critical habitat' for the Greater Bilby very broadly as: • Any area where the species is known or likely to occur as shown on the Distribution Map of the Greater Bilby. • Any location outside the above area where bilbies are found to occur. • Any area, between the areas noted above, that may be periodically occupied by bilbies. • Any area which bilbies may naturally colonise or may feasibly be re-introduced. The Project Area is outside of the Distribution Map of the Greater Bilby. However, given the presence of the suitable habitat and records within the Disturbance Footprint – the other three abovementioned definitions of critical habitat are met. The area of critical habitat within the Disturbance Footprint (as currently presented) is just over 36,000 ha. This calculation is based on presence of root-dwelling larvae plants identified from the targeted survey for Greater Bilby and considerations of connectivity between known records and suitable habitat. Loss of habitat within the area currently presented as the Disturbance Footprint would adversely affect habitat critical to the survival of the species. However, the Recovery Plan's definition of 'critical habitat' is very broad and general, and it should be noted that – as defined – the presence of critical habitat is extensive and widespread in the bioregion (i.e. it comprises most of the bioregion).
Disrupt the breeding cycle of an important population?	**NO** It is unlikely the Proposal will disrupt the breeding cycle of an important population of the Greater Bilby. Timing of the Greater Bilby breeding season depends on seasonal conditions and food availability (TSSC, 2016). Infant bilbies spend ~75 to 80 days in their mother's pouch, and then another two weeks in a burrow (Woinarski, Burbidge, & Harrison, 2014). To mitigate the potential impacts to the Greater Bilby during clearing, a suitably qualified ecologist will undertake pre-clearance surveys prior to any clearing within suitable habitat, in accordance with the Pre-clearing Procedure described in Table 7-3.

Is there a real chance or possibility that the action will...[3]	Assessment
	Therefore, while the Proposal may result in the temporary disruption of some individuals' breeding cycles, this is not considered to constitute an impact to the breeding cycle of the Greater Bilby important population.
Modify, destroy, remove, or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?	**NO** There is approximately 36,000 ha of Greater Bilby habitat – some of which contains recent records – within the Disturbance Footprint. The majority of recent Greater Bilby records within the Project Area are in the south and south-east, much of which is outside of the Disturbance Footprint. Moreover, as noted above, it is likely that the species occurs in the large areas of suitable habitat to the west of the Project Area; however, there are no recent surveys that can verify this assumption. The main threats to the Greater Bilby manifest at a landscape level – predation by feral carnivores and habitat degradation by livestock. There is very little existing land clearing in the bioregion (as detailed in Section 7.7), and the proportion of Greater Bilby habitat that will be lost due to development if the Disturbance Footprint is almost negligible compared with that available in the bioregion. Considered together, whilst clearance within the Disturbance Footprint will be to the detriment of the Greater Bilby, it is not reasonable to conclude that the loss of habitat will likely cause a decline in the Greater Bilby because the impact will be localised and proportionally negligible compared to that available in the bioregion.
Result in invasive species that are harmful to a Vulnerable species becoming established in the Vulnerable species' habitat?	**NO** The Proposal is unlikely to result in invasive species that are harmful to a Vulnerable species becoming established in Greater Bilby habitat. Predation by feral cats and Red Foxes is the most serious threat to the Greater Bilby (Woinarski, Burbidge, & Harrison, 2014). Both already occur in the region, noting that the Project Area is at the northernmost extent of the Red Fox's range and so the species is less likely to be present. Neither Red Foxes nor feral cats are likely to be introduced by the Proposal.

Is there a real chance or possibility that the action will...[3]	Assessment
	Altered fire regimes are another threatening process. This could occur if the environmental weed Buffel Grass (*Cenchrus ciliaris*) is introduced into area by construction or operations activities. SunCable will develop and implement a Biosecurity Management Procedure, that aligns with the requirements of the *Weeds Management Act 2001* (NT) to mitigate and manage this potential impact.
Introduce disease that may cause the species to decline?	**NO** Disease is not listed as a threatening process for the Greater Bilby. The author is not aware of any literature on diseases that could be introduced by the Proposal and that would detrimentally affect this species.
Interfere substantially with the recovery of the species?	**NO** The Proposal is unlikely to interfere substantially with the recovery of the Greater Bilby. The Recovery Plan for the Greater Bilby (DCCEEW, 2023) lists the following four recovery objectives: • The size of the Greater Bilby population has grown. • The extent of occurrence and AOO of the Greater Bilby has been maintained or increased. • The genetic diversity of the Greater Bilby has been maintained and retains the potential for evolutionary change through adaptation and selection. • Indigenous organisations, communities, and individuals have a greater role in bilby conservation. For the same reasons presented above under the 'Modify, destroy, remove, or isolate...' criterion, whilst nominally clearing the entire Disturbance Footprint will result in a loss of Greater Bilby habitat, it is not reasonable to conclude that will interfere substantially with the recovery of the Greater Bilby because the habitat loss is localised and proportionally negligible compared to that available in the bioregion. This habitat loss may cause a minor decrease in the Greater Bilby population (relevant to Objective 1) and a decrease in a few AOO cells (relevant to Objective 2), but these impacts are not likely to be substantive because a huge area of suitable habitat (and likely AOO) will remain to

Is there a real chance or possibility that the action will...[3]	Assessment
	the west. Moreover, the extent of occurrence is not likely to be reduced because intact suitable habitat where the Greater Bilby is likely to occur will still exist both within, and surrounding, the Project Area. Genetic diversity (Objective 3) is unlikely to be affected by the Proposal's activities. The Greater Bilby, although patchily distributed across its range, is considered to be a single population. The mobility of the species, the extensive areas of extant suitable habitat in the region, and the use of wildlife corridors to minimise fragmentation, mean that genetic flow between local populations will not be affected. SunCable has committed to working in collaboration with local indigenous communities, particularly as the Project Area lies on Aboriginal Land. These stakeholders will be consulted during all stages of the Proposal, and will be actively involved in targeted surveys and ground disturbance planning.



LEGEND

- Greater Bilby Presence Sign
- Greater Bilby NT Atlas Records
- Muckaty Solar Project Area
- Preliminary Disturbance Footprint
- Proposed Access/Services Corridor

Land System Class

- Desert Sandplains
- Highways
- Railways
- Major Locations

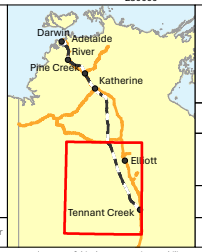


Figure 7-3: Map of Greater Bilby Records within the Bioregion

Project: Australia-Asia PowerLink

N

0 5 10 Kilometres

Reference #: AAPL_BRP_REF_MAP_7-3

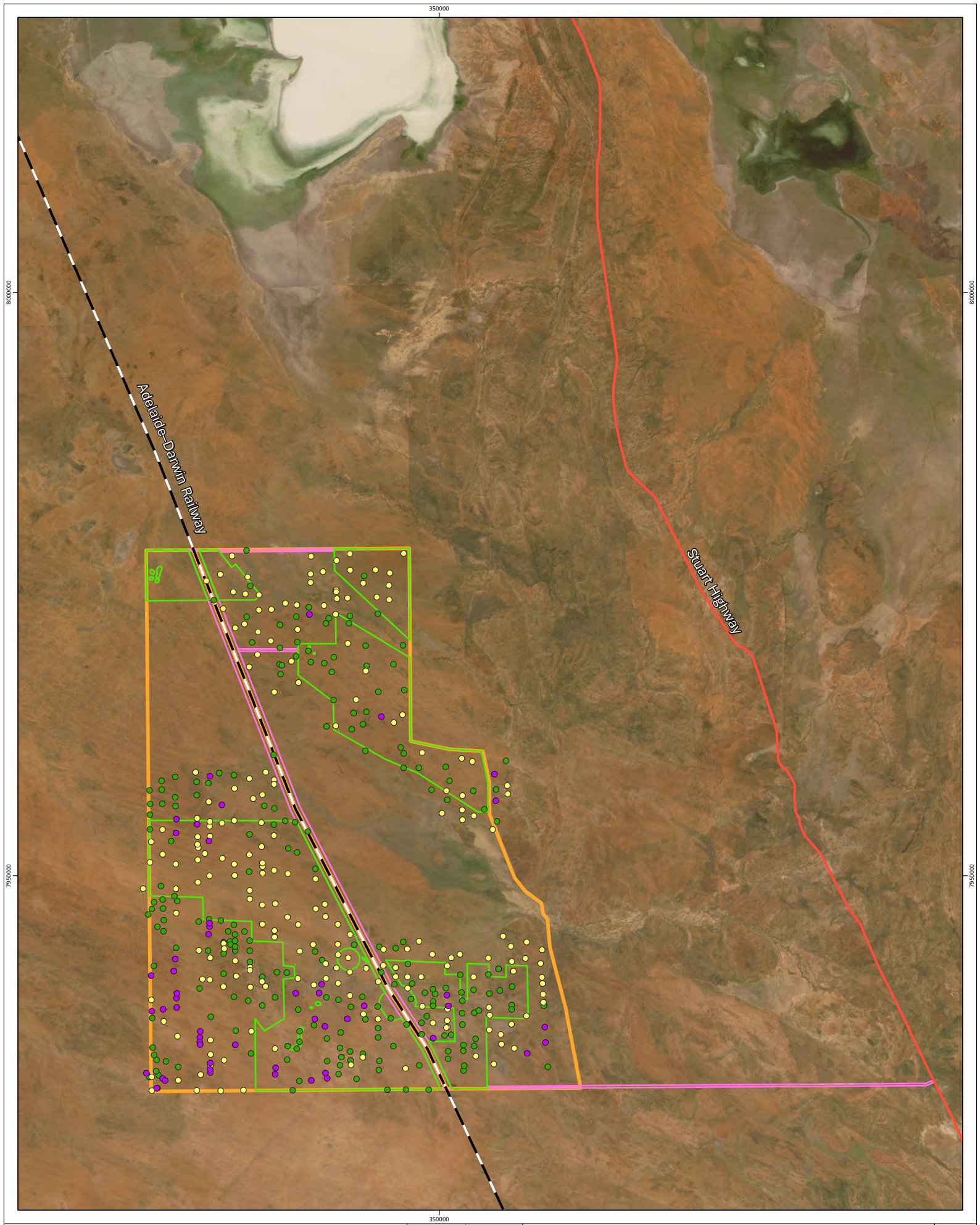
Date: 12/09/2025 | Figure: 7-6 | Revision: F

Scale: 1:1,700,000 | Datum: GDA2020

Coordinate System: MGA Zone 53 | A4

suncable

Source: Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Maxar



LEGEND

- Greater Bilby Presence Sign
- RDL Shrub Presence
  - Potential
  - Unlikely
- Muckaty Solar Project Area
- Preliminary Disturbance Footprint
- Proposed Access/Services Corridor
- Highways
- Railways

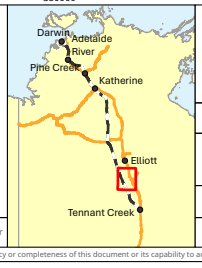


Figure 7-4: Greater Bilby Potential Habitat Within the Project Area

Project: Australia-Asia PowerLink

N

0 5 10 Kilometres

Reference #: AAPL_BRP_REF_MAP_7-2

Date: 18/09/2025 | Figure: 7-2 | Revision: F

Scale: 1:400,000 | Datum: GDA2020

Coordinate System: MGA Zone 53 | A4

suncable

Yellow-spotted Monitor

The Yellow-spotted Monitor (also known as the Floodplain Monitor) is a large terrestrial monitor ('goanna') that is listed as Vulnerable under the TPWC Act. It is a robust ground-dwelling monitor occupying a variety of habitats, including coastal beaches, floodplains, grasslands, and woodlands. It feeds primarily on small terrestrial vertebrates and insects, and lays a clutch of eggs in a burrow, usually in the wet season (Ward, Woinarski, Griffiths, & McKay, 2012). The species once occupied a variety of habitats across the extent of northern Australia. However, its propensity to eat Cane Toads and die from the ingested toxins has caused a significant decline in the population (Ward, Woinarski, Griffiths, & McKay, 2012).

This species is known to occur in the region (including several records in the vicinity of Lake Woods, as well as further south along the Stuart Highway towards Tennant Creek). However, there are no historic records within the Project Area (refer to Figure 7-5Figure 7-5). In the Project Area, the species is considered to have a moderate likelihood of occurrence where alluvial depressions, alluvial plains and black soils are present, and in the desert sandplains that fringe the alluvial landforms.

During the targeted Greater Bilby survey, nine large 'goanna' burrows were incidentally observed in the Project Area and are assumed to be Yellow-spotted Monitor (because other varanid species in the region are not expected to construct burrows of those dimensions). These potential records also align well with the expected habitat requirements of this species – alluvial areas, proximate to Burke Creek, and in fringing sandplains. However, these records should be treated as indicative only, with additional targeted surveying (such as camera trapping) required to confirm identification. Additional Yellow-spotted Monitor records are expected to occur throughout the Project Area.

Consequently, Yellow-spotted Monitors are likely to be present within the Project Area in alluvial land types (such as, drainage lines, alluvial plains, ephemeral swamps) and fringing habitats (refer to Figure 7-5). The species is not expected to occur in the sandplains, rocky or gravelly land types. Within the Disturbance Footprint, there are 2,069 ha of alluvial plains, almost all of which are in the centre of the southern Disturbance Footprint (refer to Figure 7-5). There are no swamps or drainage lines within the Disturbance Footprint.

The Proposal has the potential to impact the Yellow-spotted Monitor through direct clearing of habitat, direct mortality during construction, and from vehicle interactions, fragmentation, disruption of breeding, and introduction of Cane Toads.

Table 7-5 assesses whether project activities are likely to have a significant impact upon the Yellow-spotted Monitor using the criteria contained within the Significant Impact Guidelines. The conclusion is that because the Yellow-spotted Monitor is a habitat-generalist that occurs across a huge range, clearance of small areas of preferred habitat within the Disturbance Footprint is unlikely to have a significant impact on the species, especially with proposed pre-clearance mitigation measures.

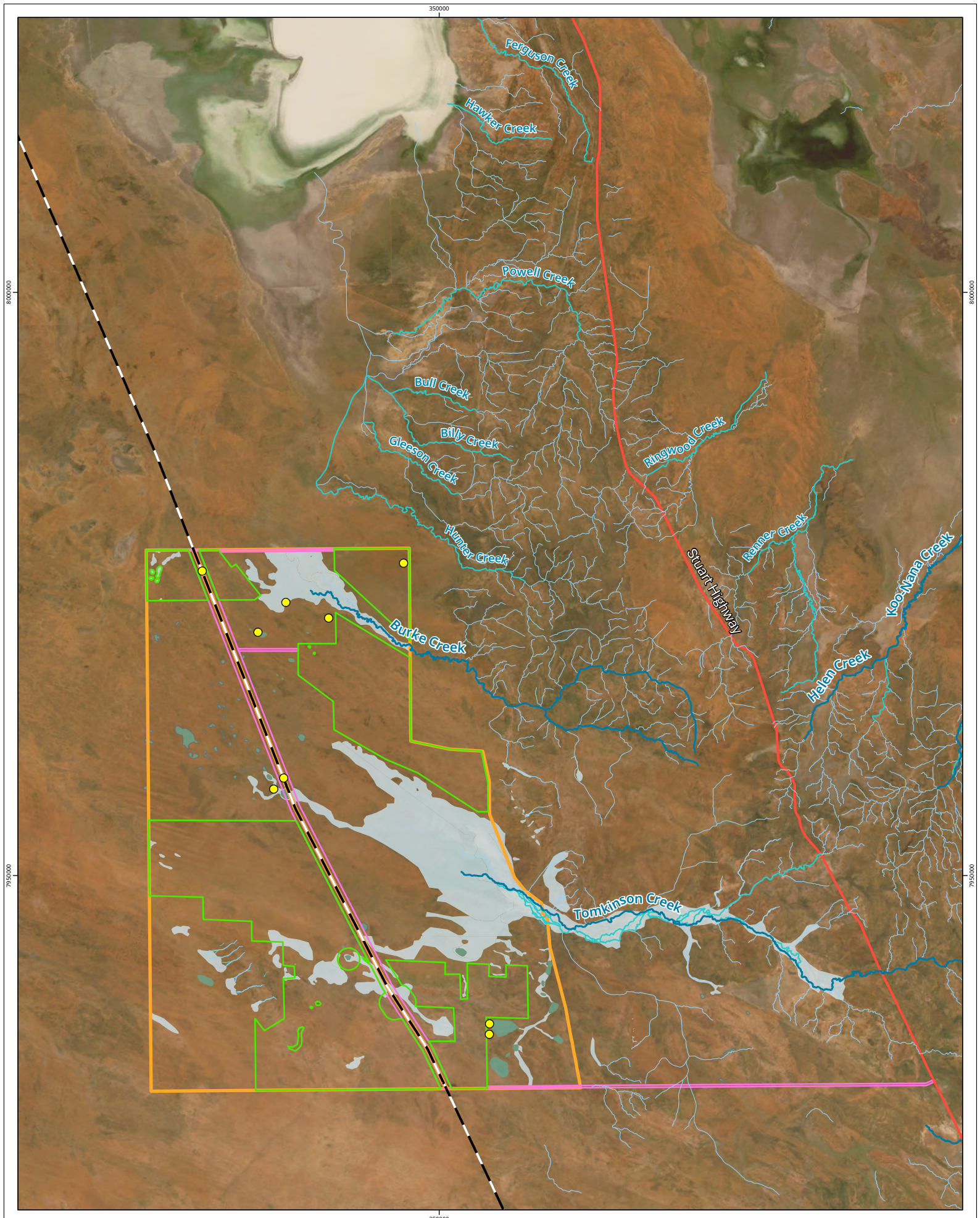
Table 7-5: Significant Impact Assessment Table for the Yellow-spotted Monitor

Is there a real chance or possibility that the action will...	Assessment
Lead to a long-term decrease in the size of an important population?	**NO** The Proposal will not lead to a long-term decrease in the size of an important population of the Yellow-spotted Monitor. Because the Yellow-spotted Monitor is a habitat-generalist that occurs across northern Australia, it is reasonable to assume it occurs as a single population. Nevertheless, occurrences in the south of its distribution (that is less affected by Cane Toads) constitute an 'important population' as per the Significant Impact Guidelines (Australian Government, 2013) by merit of being at the limit of the species' range, and arguably a key source population – in the absence of Cane Toads – for breeding or dispersal. Therefore, assuming presence of the Yellow-spotted Monitor within the Project Area, this occurrence is considered an important population. There is potential for the Proposal to result in direct mortality of the species due to interactions with vehicles ('fauna strike') or construction equipment. Proposal activities will involve increased movement of vehicles, equipment and plant along highways and existing/new access tracks. Traffic management controls will be implemented to limit driving speeds in areas with high collision risk and at times when fauna are likely to be most active. The Yellow-spotted Monitor uses burrows for shelter and breeding. There is the potential that if burrows within the Disturbance Area are occupied during construction, the occupants could be killed as a result of construction activities. The burrows of the Yellow-spotted Monitor are conspicuous. During construction, a Pre-clearing Procedure as described in Table 7-3 will be implemented to ensure animals are not present in the footprints when clearing commences. These mitigation measures will significantly reduce the likelihood of direct mortality of a Yellow-spotted Monitors, and certainly to the extent that there will not be a long-term decrease in the size of an important population of the species. Other ways in which the Proposal could potentially lead to a long-term decrease in the size of the Yellow-spotted Monitor population – e.g. loss of habitat, introduction of Cane Toads – are discussed (and dismissed) under other criteria below.

Is there a real chance or possibility that the action will...	Assessment
Reduce the AOO of an important population?	**NO** The Proposal will not reduce the AOO of the Yellow-spotted Monitor. The AOO for the Yellow-spotted Monitor has not been determined. However, it would likely be very large because of the species' broad distribution across three states – even if restricted to areas that have low Cane Toad densities. In the absence of any confirmed, Yellow-spotted Monitor records within the Project Area, the assumption is that the species may be present within preferred habitat types: i.e., alluvial plains, drainage lines and swamps. By design, these habitat types are scarce within the Disturbance Footprint. Alluvial plains, riparian areas. and ephemeral swamps were identified as important habitats/sensitive vegetation types in desktop ecological assessments and have been nominated as Avoidance Areas. Further, the Proposal will likely avoid most of these habitats because they have construction constraints associated with inundation/drainage. Even if small areas of preferred habitat are cleared within the Disturbance Footprint, such habitat will likely still remain within the relevant grid cell. Consequently, the AOO will not be reduced.
Fragment an existing important population into two or more populations?	**NO** The Proposal will not fragment an existing population of the Yellow-spotted Monitor into two or more populations. This Disturbance Footprint is a large area which could reduce some connectivity between occurrences of Yellow-spotted Monitor. To allow for movement throughout the solar precinct, the larger Disturbance Footprints will be designed to be intersected by wildlife corridors (as per the *Land Clearing Guidelines: Northern Territory Planning Scheme* (NTG, 2024b)).
Disrupt the breeding cycle of an important population?	**NO** The Proposal will not disrupt the breeding cycle of the important population of Yellow-spotted Monitor. It is not documented when Yellow-spotted Monitors breed in the more arid parts of their distribution, although many fauna species in the arid zone time breed to align with seasonal conditions and food availability. Disruption to breeding Yellow-spotted Monitors could occur if there are active burrows within the Project Area. Undertaking pre-clearance

Is there a real chance or possibility that the action will...	Assessment
	surveys and avoiding any active burrows would mitigate the risk that active burrows are disturbed during construction of project infrastructure.
Adversely affect habitat critical to the survival of the species? **Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent the species is likely to decline?**	**NO** The Proposal will not adversely affect habitat critical to the survival of the Yellow-spotted Monitor. Critical habitat has not been defined for the Yellow-spotted Monitor and is generally not relevant given the species is a habitat-generalist with a broad distribution. Conservatively, one could consider that the region of the Yellow-spotted Monitor's distribution which has low densities (or absence) of Cane Toads is critical habitat. Even so, that is a very large, of which only a tiny proportion is being cleared. Development of the Proposal will not have a substantive adverse effect on habitat critical to the survival of the Yellow-spotted Monitor. Moreover, because it is a habitat-generalist, the proportion of preferred Yellow-spotted Monitor habitat present within the Disturbance Footprint compared within the surrounding area is negligible. For the reasons given in this table, it is unlikely that the loss, or decrease in quality, of suitable habitat because of project activities will cause a decline in the species.
Result in invasive species that are harmful to a Vulnerable species becoming established in the Vulnerable species' habitat?	**NO** The Proposal will not result in invasive species, that are harmful to the species, becoming established in the Yellow-spotted Monitor habitat. Cane Toads are the key threat to the Yellow-spotted Monitor. The Project Area is at the southernmost limit of this species, presumably due to conditions becoming too dry for the species to breed. A Biosecurity Management Procedure will be developed and implemented, that includes measures for managing Cane Toads, including biosecurity and breeding habitat prevention measures to minimise the change that the range of Cane Toads is increased to the south. Provided those measures are implemented, the development of the Proposal is unlikely to result in an invasive species that is harmful to the Yellow-spotted Monitor becoming established in that species' habitat.

Is there a real chance or possibility that the action will...	Assessment
Introduce disease that may cause the species to decline?	**NO** Disease is not known to be a threat to the Yellow-spotted Monitor. The author is not aware of any literature on diseases that could be introduced by the Proposal and that would detrimentally affect this species.
Interfere substantially with the recovery of the species?	**NO** The Proposal will not interfere substantially with the recovery of the Yellow-spotted Monitor. There is no recovery plan or actions for this species. If there were, it would almost certainly focus on actions addressing the threat posed by Cane Toads. As mentioned above, assuming implementation of strict biosecurity and habitat management measures, development of the Proposal would not interfere with such actions.



LEGEND

- Potential Yellow Spotted Monitor Sign Recorded in the Project Area
- Muckaty Solar Project Area
- Preliminary Disturbance Footprint
- Proposed Access/Services Corridor
- Highways
- Railways
- Major Drainage
- Minor Drainage
- Streams

Landform

(Landform mapped in north-west (west of railway) not within survey area of this report)

- Moderate drainage (Burke Creek)
- Minor drainage
- Alluvial plain or depression
- Ephemeral swamp

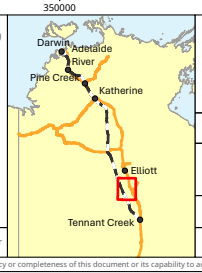


Figure 7-5: Yellow-spotted Monitor Potential Habitat Within the Project Area

Project: Australia-Asia PowerLink

0 5 10 Kilometres

Reference #: AAPL_BRP_REF_MAP_7-5

Date: 12/09/2025 | Figure: 7-3 | Revision: D

Scale: 1:400,000 | Datum: GDA2020

Coordinate System: MGA Zone 53 | A4

N

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Source: Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Maxar

Grey Falcon

The Grey Falcon is listed as Vulnerable under both the EPBC Act and TPWC Act. The species is always found in low densities in areas of lightly-timbered lowland plains, typically on inland drainage systems, where the average annual rainfall is less than 500 mm (Garnett, Szabo, & Dunston, 2011; DEPWS, 2021b). The species occupies nests (often built by other bird species) in the tallest trees along watercourses, particularly River Red Gum (*Eucalyptus camaldulensis*), Coolabah (*Eucalyptus coolabah*), and telecommunication towers (Faulkenberg, 2011; Garnett, Szabo, & Dunston, 2011). Nesting is normally between June to November (DEPWS, 2021b). The Grey Falcon is generally a solitary bird, sometimes found in pairs or family groups (Debus & Czechura, 1988).

The most severe threats to the Grey Falcon are predation by feral cats, grazing by exotic herbivores, small population size, nest shortages, and increased temperatures in arid and semi-arid Australia (TSSC, 2020).

The main findings of the field survey undertaken for this Proposal are described below:

- No Grey Falcons were detected within the Project Area. However, there are historic records for the region.
- Foraging habitat is widespread throughout the region, and the Project Area may be used for foraging / hunting (as an individual or pair).
- Potentially suitable nesting habitat is present within a moderate drainage line (Burke Creek) in the north of the Project Area (refer to Figure 7-6). River Red Gum trees along this creek line could provide potential nesting locations for Grey Falcon. However, no suspected nest sites were observed during the survey.
- Other land types are not considered to provide suitable nesting habitat for Grey Falcon because the majority of trees present were less than 10 m in height and generally present as sparse or open woodlands, which lowers their suitability for being selected as a nest site.

Given that the Grey Falcon is naturally rare, occurs at a low density, and there are few records in the region, the species is considered to have a moderate likelihood of occurrence within the Project Area.

Potential impacts to the Grey Falcon from the Proposal are from direct loss of foraging habitat due to clearing and reduced habitat quality due to fragmentation. Because the Proponent has committed to adhering to the recommendations in the *Land Clearing Guidelines: Northern Territory Planning Scheme* (NTG, 2024b), any impacts to nesting habitat are not considered to be significant (some creek crossings have the potential to impact riparian vegetation – discussed further below).

Table 7-6 presents an assessment of whether Proposal activities are likely to have a significant impact on the Grey Falcon, using the criteria contained within the Significant Impact Guidelines (Australian Government, 2013). The conclusion is that whilst the Proposal will reduce the AOO of an important population of Grey Falcon, the reduction is of only 0.03 percent of the total AOO which – because this species is not restricted range – is unlikely to result in a significant impact. There are no other criteria by which the Proposal is likely to have a significant impact on the Grey Falcon.

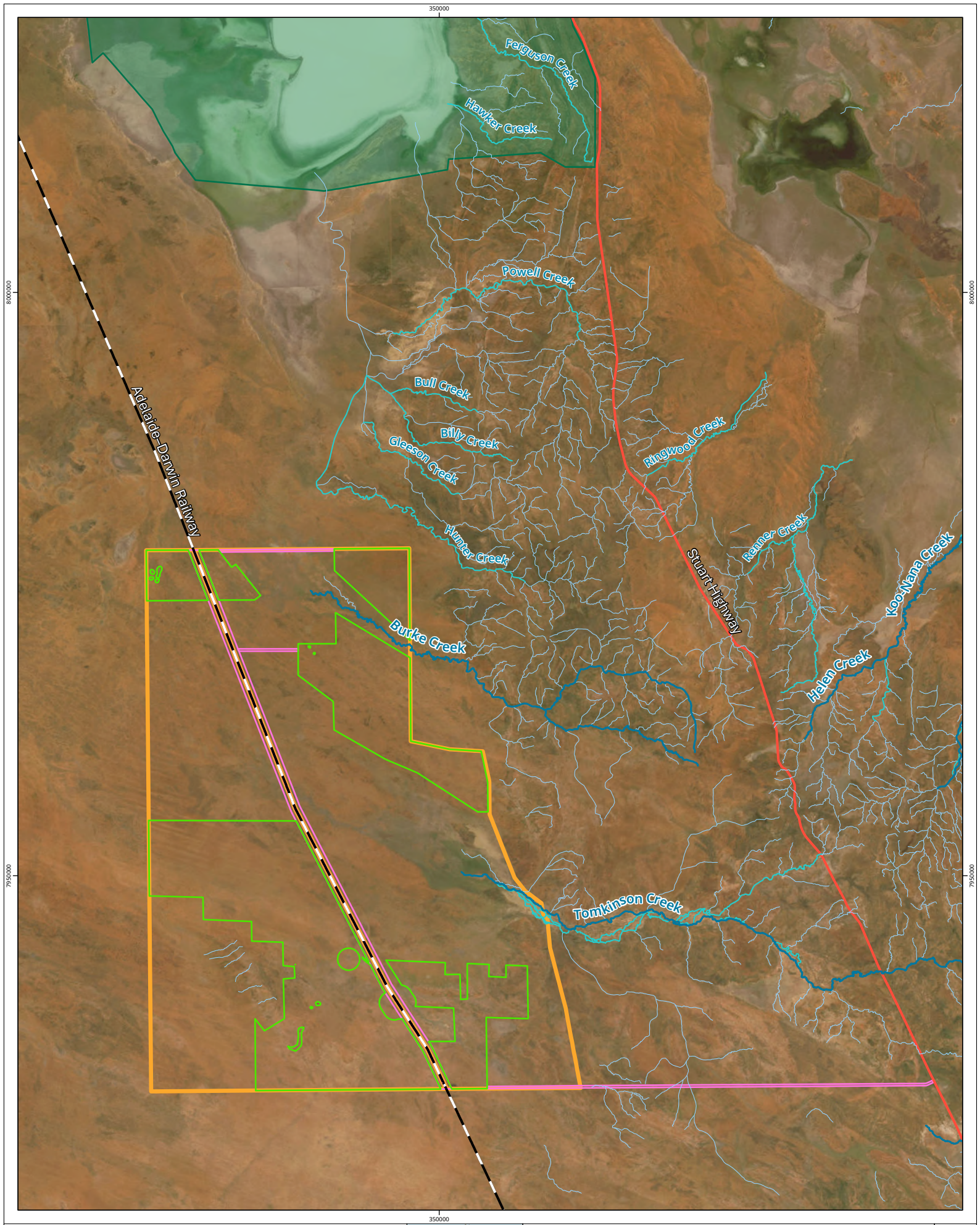
Table 7-6: Significant Impact Assessment Table for the Grey Falcon

Is there a real chance or possibility that the action will…	Assessment
Lead to a long-term decrease in the size of an important population of a species?	**NO** The Proposal will not lead to a long-term decrease in the size of an important population of the Grey Falcon. General occurrence of a Vulnerable species in a region is not, in itself, sufficient to meet the definition of an 'important' population. The Conservation Advice for Grey Falcon (TSSC, 2020) states that the species consists of a single population with a total population size of less than <1,000 mature individuals. Such a restricted population means that, in a sense, every individual of this species is an important population. Given the mobile nature of the species, there is unlikely to be any direct mortality of individual Grey Falcons because of interactions with construction machinery. Regardless, the following avoidance and mitigation measures will be implemented: • Clearing of large and very large trees will be avoided to the maximum extent reasonably practicable. • Grey Falcon nest surveys will be conducted where: – Works will be conducted in the late dry season (July to September); and – Trees greater than 20 m tall occur within 1 k of a river; and – Trees greater than 20 m tall are within 300 m of proposed disturbance. • Grey Falcon nests in use will be avoided by adopting: – A 100 m buffer between a nest in use and construction activities; and – A 300 m buffer between a nest in use and activities involving use of helicopters or sudden noise sources. The only other way in which the Proposal could potentially lead to a long-term decrease in the size of the Grey Falcon population is through substantial loss of critical habitat. This is discussed and discounted below.
Reduce the AOO of an important population?	**NO** Whilst the Proposal will reduce the AOO of an important population of Grey Falcon, the impact of that reduction is not significant.

Is there a real chance or possibility that the action will...	Assessment
	Runge et al. (2015) estimate the AOO of the Grey Falcon to be 1,690,000 km^2. Although there are no confirmed Grey Falcon records within the Project Area, because there is suitable habitat, records from the region, and the Project Area is within the known distribution of the species, the assumption is that the species may use the entire Project Area (and Disturbance Footprint) for foraging. There is no nesting habitat within the Disturbance Footprint. Consequentially, the entire Disturbance Footprint of approximately 50,000 ha is within the AOO. It is therefore possible that multiple grid cells (two x 2 km or 400 ha) containing suitable foraging – but not nesting – habitat (and therefore projected sites of present occurrences) for this species will be cleared as part of the Proposal. This will result in a reduction of the AOO. However, it will only be an 0.03 percent reduction in total AOO which – because this species is not restricted range – is unlikely to result in a significant impact.
Fragment an existing important population into two or more populations?	**NO** The Proposal is unlikely to fragment an existing important Grey Falcon population into two or more populations. The Grey Falcon is a mobile animal with a large territory. The development of the Proposal will not represent a barrier for dispersal of this species.
Adversely affect habitat critical to the survival of a species?	**NO** The Proposal will not adversely affect habitat critical to the survival of the Grey Falcon. Critical habitat has not been formally defined for the Grey Falcon, but arguably constitutes tall trees and telecommunications towers used for nesting within the core of its distribution. There is no nesting habitat within the Disturbance Footprint, and impacts to any adjacent nesting habitat will be avoided by adhering to the *Land Clearing Guidelines: Northern Territory Planning Scheme* (NTG, 2024b) buffers around significant and sensitive vegetation. Some access tracks will be constructed that will intersect waterways, and potentially impact nesting habitat through habitat loss or introduction of weeds. While the location and number of waterway crossing is unknown at this stage, their placement is flexible and will be subject to designs based on areas that have a low environmental impact.

Is there a real chance or possibility that the action will…	Assessment
	Additionally, the measures to avoid impacts to nesting trees described above will be implemented if/where required. In the highly unlikely event that a nest is present, the access road route could be altered.
Disrupt the breeding cycle of an important population?	**NO** It is unlikely the Proposal will disrupt the breeding cycle of an important population of the Grey Falcon. The Grey Falcon typically occupies nests (often built by other bird species) in the tallest trees along watercourses, as well as on telecommunications towers. Such habitat will be avoided because the Proponent is committed to adhering to the *Land Clearing Guidelines: Northern Territory Planning Scheme* (NTG, 2024b) with regard to sensitive and significant vegetation. As discussed in the criterion above, there is a minor risk of loss of nesting habitat due to waterway crossings. However, this can be adequately mitigated through the pre-clearance surveys described above, and avoidance of active nesting trees (if identified). These avoidance and mitigation measures will further minimise the inherently low risk of disruption to the species' breeding cycle.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?	**NO** Given the absence of breeding habitat within the Disturbance Footprint, and the large area of foraging habitat in the region, the clearing of a small proportion of foraging habitat for will not result in a loss, or decrease in quality, of habitat to the extent that it will cause a decline in the species.
Result in invasive species that are harmful to a Vulnerable species becoming established in the Vulnerable species' habitat?	**NO** The Proposal is unlikely to result in invasive species that are harmful to the Grey Falcon becoming established in the species' habitat

Is there a real chance or possibility that the action will...	Assessment
	The Conservation Advice (TSSC, 2020) identifies predation by feral cats and grazing by exotic herbivores such as feral camels as two of the three highest threats to the Grey Falcon. Both species are already established in the Project Area, and project activities will not exacerbate their current numbers or impacts
Introduce disease that may cause the species to decline?	**NO** Disease is not listed as a threatening process for the Grey Falcon. The author is not aware of any literature on diseases that could be introduced by the Proposal and that would detrimentally affect this species.
Interfere substantially with the recovery of the species?	**NO** The Proposal will not interfere substantially with the recovery of the Grey Falcon. Whilst there is no recovery plan for the Grey Falcon, the Conservation Advice (TSSC, 2020) provides sufficient direction to implement priority actions, mitigate against key threats, and enable recovery. The priorities therein are to improve habitat management (reducing grazing, and fire pressures), protect known nesting trees, and to undertake feral cat and feral camel control. None of these will be interfered with by project activities.



LEGEND

- Muckaty Solar Project Area
- Preliminary Disturbance Footprint
- Proposed Access/Services Corridor
- Highways
- Railways
- Lake Woods Conservation Covenant
- Major Drainage
- Minor Drainage
- Streams

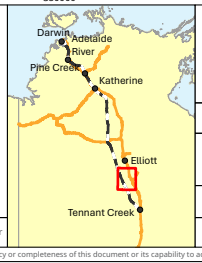


Figure 7-6: Grey Falcon Potential Breeding Habitat Within the Project Area

Project: Australia-Asia PowerLink

0 5 10 Kilometres

Scale: 1:400,000 | Datum: GDA2020 | Coordinate System: MGA Zone 53 | A4

Reference #: AAPL_BRP_REF_MAP_7-6

Date: 9/09/2025 | Figure: 7-4 | Revision: A

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7.5.2 Migratory Species

As discussed in Section 7.2, roosting and foraging habitat for migratory birds is likely to only be present within the Project Area during extraordinary rainfall events, and hence the likelihood of those species being present is low. Moreover, by design this potentially suitable habitat is within the Avoidance Areas (that is, it has been avoided and buffered from development) because it is significant vegetation as per the *Land Clearing Guidelines: Northern Territory Planning Scheme* (NTG, 2024b).

For a project to have a significant impact upon migratory birds, there needs to first be 'important habitat' or an 'ecologically-significant proportion' of the migratory species within the project footprint. These criteria are defined in the Significant Impact Guidelines (Australian Government, 2013). Given the lack of suitable habitat for these species in the Disturbance Footprint, it seems unlikely that either of those criteria apply.

As described in Section 7.3.5, migratory species flying over the solar precinct could be subject to LEH, where large solar PV arrays may appear as large bodies of water and attract birds flying overhead. Based on the limited available literature and a lack of collision mortality research in Australia, there remains a large degree of uncertainty regarding the prevalence and frequency of avian impacts due to interference such as collisions. As noted in Section 7.3.5 and Table 7-3, a migratory and waterbird management plan will be developed to manage impacts associated with the LEH, by monitoring bird utilisation and facilities across the Project Area and identifying adaptive management actions to respond to any emerging issues. While the precautionary principle has been applied to the residual impact rating in Table 7-3 due to the lack of research and data, appropriate adaptive management (if issues arise) is expected to effectively manage this impact, and contribute to the understanding of this hypothesis more broadly.

Therefore, the Proposal is unlikely to have a significant impact on migratory bird species.

7.6 Residual Impacts

Overall, the Proposal is expected to have a **Moderate** residual impact on Terrestrial ecosystems. However, there is potential for **significant** residual impact to threatened species if all the Preliminary Disturbance Footprints were ultimately cleared. Adopting the precautionary principle, until more detailed design has been completed for the solar sites, it is concluded there is potential for significant impact.

The greatest potential for impact is from large-scale land clearing and ground disturbance that will reduce the area of critical habitat for the Greater Bilby and has the potential to negatively impact the population. The Disturbance Footprint will be refined during the EIA and detailed design processes progress. In doing this work, SunCable will aim to avoid and mitigate impacts to the Greater Bilby to the maximum extent reasonably practicable.

The potential residual impact of the introduction and spread of weeds has been assessed as a moderate. Notwithstanding the implementation of a Biosecurity Management Procedure as a mitigation measure, there is varied effectiveness of the available mitigations where weeds are already present, hence a residual impact is considered possible.

There is minor residual impact for the habitat fragmentation and injury or direct mortality of ground-dwelling fauna due to the available mitigations in place.

All the proposed mitigation measures are widely adopted on large-scale infrastructure projects and are proven effective at managing impacts to vegetation and habitats.

7.7 Cumulative Impacts

Such a large-scale project as this has the potential to contribute to the cumulative impacts to Terrestrial ecosystems values, particularly biodiversity and threatened species. There are other projects proposed for the region. Approval has been acquired for the ~12,000 ha Powell Creek Solar Precinct immediately to north of the Muckaty Solar Project (NT EPA Reference EP2020/002-001, and EPBC Reference: 2020/8818).

Other recent, large-scale *Pastoral Land Act 1992* (NT) land-clearing permits were issued in 2025 for the following:

- Clearing of 4,977.42 ha within NT Portion 1512 (PLC25/08), at Helen Springs.
- Clearing of 4,186.99 ha within NT Portion 2094 (PLC25/15), in the Barkly Pastoral District.

There is therefore the potential for cumulative land clearing impacts to be generated for this region of the NT.

7.7.1 Biodiversity

This Project Area is located almost entirely within the Tanami bioregion. In that bioregion, there has been negligible land-clearing, with the main human activity being pastoralism. Of the abovementioned proposed developments, only the Powell Creek Solar Precinct is within the Tanami bioregion. In the Wycliffe subregion of the Tanami Desert bioregion, less than 0.1 percent is currently cleared (for tracks, bores and building footprints). Proposed clearing for the Powell Creek Solar Precinct will increase total clearing in that sub-bioregion to approximately 0.85 percent. Adding around 50,000 ha of clearing for development of the Muckaty Solar Project equates to an additional 3.3 percent to the total proportion of the sub-bioregion that is cleared. Given there is almost no clearing elsewhere in the bioregion, this is considered unlikely to result in a decline in regional biodiversity. This assertion is strengthened by the fact that the habitats within which the Disturbance Footprints are located are quite homogenous - supporting low biodiversity - compared with those such as swamps, rocky hills and drainage lines that are within the Avoidance Areas.

7.7.2 Threatened Species

A consideration of the potential for cumulative impacts for three threatened species which are likely to be present within the Project Area – Greater Bilby, Yellow-spotted Monitor, and Grey Falcon – is warranted.

As noted above, while the Yellow-spotted Monitor has a broad distribution across the northern half of the NT, most it overlaps with the current distribution of its primary threat – Cane Toads. The exception is a band of records running east-west across the NT roughly between Tennant Creek and Lake Woods (refer to Figure 7-5). All the proposed projects within the region that are mentioned in Section 7.7 above are located in the middle of that band of toad-free, Yellow-

spotted Monitor habitat. Cumulatively, they could result in the southward extension of breeding habitat for Cane Toads and/or the fragmentation of toad-free habitat, which could have a significant impact on the Yellow-spotted Monitor. The paucity of preferred habitat for this species within the Muckaty Solar Precinct Disturbance Footprint means that the contribution of the Proposal to any potential cumulative impact to Yellow-spotted Monitor is negligible.

The Tanami Desert is a stronghold for the Greater Bilby. Surveys undertaken at the proposed Powell Creek Solar Precinct footprint for the AAPowerLink EIS (NT EPA Reference EP2020/002-001, and EPBC Reference: 2020/8818) did not detect the Greater Bilby within that footprint. The proposed developments mentioned above that potentially contain suitable Greater Bilby habitat are on the eastern boundary of the desert. Those developments are all within habitat critical to the survival of the Greater Bilby, as defined in The *Recovery Plan for the Greater Bilby* (DCCEEW, 2023).

As discussed in Table 7-4 within Section 7.5.1, apart from the loss of critical habitat for the Greater Bilby which will occur if the entire Disturbance Footprint (as currently presented) is disturbed, no other significant impact criteria are triggered for that species. This is largely based on Sun Cable's intention to further minimise impacts to the Greater Bilby through revised footprint design, and the assumption that within the bioregion there is a large area of suitable, utilised habitat for Greater Bilby. The latter assumption could be undermined if other projects proposed for the region intend to clear large areas of suitable, utilised habitat. However, it is almost certain that those projects will be required to maximise avoidance of impacts to the Greater Bilby, and the total proportion of Greater bilby habitat that will end up being lost will likely be negligible compared with that still available in the bioregion.

8 Hydrological Processes

8.1 Factor and Objective Context

The NT EPA's environmental objective for Hydrological processes is to:

"Protect the hydrological regimes of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained."

8.2 Existing Environment

8.2.1 Surface Water

The Project Area is located at the southern-most extent of the large Lake Woods inland sub-basin. Lake Woods is a terminating freshwater lake, with water losses from evaporation and infiltration only. The Project Area is approximately 30 km south of Lake Woods.

There are two major creek lines (stream order 3-4) in the Project Area: Burke Creek in the north; Tomkinson Creek in the west; and several minor streams (stream order 1-2) in the southern area. Northern parts of Project Area are drained by Burke Creek upstream of its confluence with Tomkinson Creek which then drains into Lake Woods (refer to Figure 8-1) (Williams, 2025). There are also several minor drainage lines within the Project Area (refer to Figure 8-1).

The Barkly Region is an area that experiences a semi-arid climate, with low average annual rainfall of approximately 613.5 mm/year as per Bureau of Meteorology (BOM) data for Station number 015131 (BoM, 2025). The wet season occurs between January and March, during which the area receives monthly rainfall in the order of 50-125 mm. There are no historical records of measured rainfall or water level data recorded within the vicinity of the catchment available for the Project Area.

Watercourses within the region are intermittent and only flow after major rains. Some waterholes in the region retain water for extended periods but few are permanent (Tickell, 2003). Significant rainfall events can produce high velocity flows in watercourses and drainage structures, and extended periods of rainfall can cause widespread flooding.

There has been some modification to the natural drainage characteristics within the Project Area, such as from the construction of the Adelaide-Darwin rail-line, Amadeus Basin to Darwin gas pipeline, and the Stuart Highway. There are two main hydraulic structures across the Project Area, specifically:

- A network of 38 corrugated steel pipe culverts along the Adelaide to Darwin railway.
- Stuart Highway forms a hydraulic boundary to the east of the Project Area.

Muckaty Flood Study

The flood modelling undertaken by Civil IQ (Civil IQ, 2025), indicates that minor flood events will lead to significant inundation and ponding in the flatter areas within the Project Area, particularly around marshland claypan regions (refer to Appendix C). Flows in western parts of the Project Area are confined to mapped major flow paths.

The modelling shows major flood events may cause major breakouts from Tomkinson Creek, resulting in deeper and more widespread flooding across the Project Area, including the railway and surrounding flat sections. During these larger events, the site is also expected to see higher velocity flows across many of the major flow paths.

The flood modelling has informed concept design, with the most flood impacted areas avoided to minimise flood mitigation requirements.

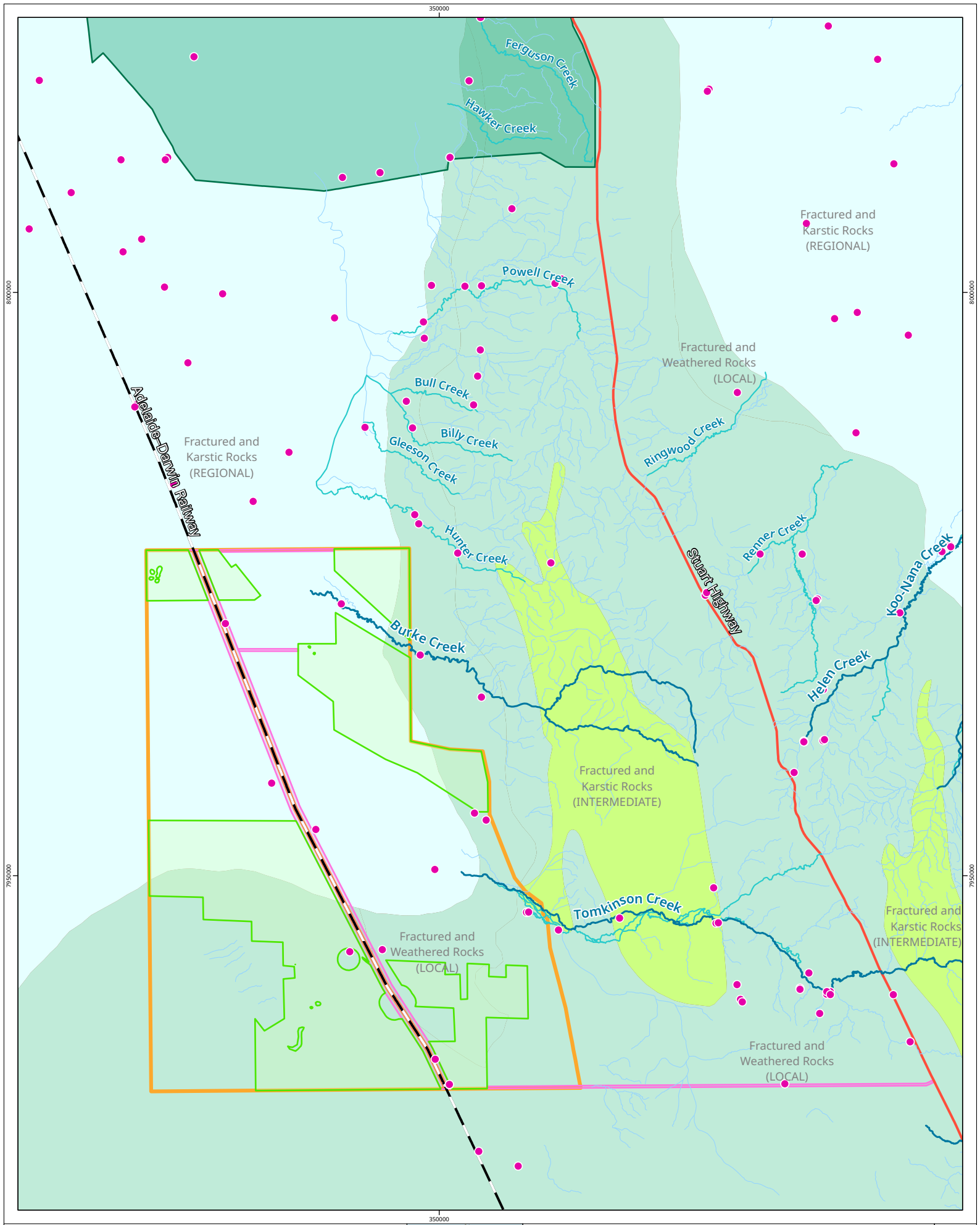
8.2.2 Groundwater

The Project Area is located within the Daly Roper Beetaloo Water Control District, which features the Cambrian limestone aquifer divided into the Daly Basin, Georgina Basin and Wiso Basin (NTG, 2022). There is currently no WAP applicable to the Project Area.

The Project Area overlies three geological regions with different aquifer types (NTG, 2025b):

- Wiso Basin: Regional scale aquifer of fractured and Karstic Rocks of dolostone, sandstone, siltstone.
- Tennant Creek Block: Local scale aquifer of fractured and Weathered Rocks of sandstone, conglomerate, minor volcanics.
- Kalkarindji Province: Local scale aquifer of fractured and Weathered Rocks of basalt.

There are thirteen existing bores with a Current Status (NTG, 2025b) located within the Project Area (refer to Figure 8-1). Fractured rock has minor porosity therefore, bores in these aquifers are likely to give low to moderate yields between 0.5 – 10.0 L/s (NTG, 2025b).



LEGEND

- Existing Bores
- Major Drainage
- Minor Drainage
- Streams
- Highways
- Railways
- Muckaty Solar Project Area
- Preliminary Disturbance Footprint
- Proposed Access/Services Corridor
- Lake Woods Conservation Covenant

Major Aquifer Types

- Fractured and weathered rocks (Local)
- Fractured and karstic rocks (Local to Intermediate)
- Fractured and karstic rocks (Regional)

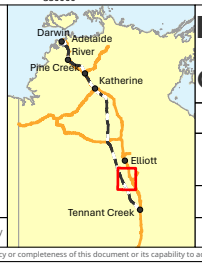


Figure 8-1: Surface Water Features and Existing Groundwater Bores within the Project Area

Project: Australia-Asia PowerLink

0 5 10 Kilometres

Scale: 1:400,000 | Datum: GDA2020 | Coordinate System: MGA Zone 53 | A4

Reference #: AAPL_BRP_REF_MAP_8-1

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8.3 Potential Impacts

Potential impacts to the existing values of the Hydrological processes factor have been identified and assigned an impact significance rating, as presented in Table 8-1. These impacts are outlined below.

8.3.1 Altered Surface Water Drainage and Sedimentation

Clearing of native vegetation for installation of solar panels, ancillary infrastructure, and access roads will alter existing surface water flow paths within the Project Area. Land clearing will not directly impact surface water flows in drainage lines as disturbance buffers will be applied in accordance with the *Land Clearing Guidelines: Northern Territory Planning Scheme* (NTG, 2024b).

Indirect impacts to surface water flows in drainage lines could occur through localised changes to overland flows and increased surface water runoff due to reduced infiltration caused by the removal of vegetation. Additionally, surface water run-off and overland flows from the solar precinct could result in turbid waters and sedimentation impacting the downstream environment, without appropriate erosion and sediment controls.

8.3.2 Altered Flooding Regime of the Project Area

The extent of flooding across the Project Area is highly variable from year to year. Localised alteration of surface water drainage caused by the Proposal may increase or decrease flood depths and flow velocities in some areas. Impacts are likely to be confined to localised areas surrounding the disturbance footprints and would be minor temporary impacts associated with flood events.

Climate change predictions indicate that there is a high likelihood of a future increase in rainfall intensity due to the impacts of global warming. In central NT, annual rainfall change projections could see up to an eight percent wetter wet season (CSIRO, 2020). Whilst there is a significant amount of uncertainty in climate change estimates, there is the potential for increase rainfall intensities for large flood events in the future.

The flood modelling study undertaken to inform the Muckaty Solar Precinct concept design included a climate change sensitivity assessment. The study provides an understanding of the potential impacts of increased rainfall intensities for large flood events, which is useful for planning purposes (refer to Appendix C). Climate change impacts will be refined, using the most current predictions available, as the engineering design progresses for each project stage.

8.3.3 Changes to Groundwater Levels Caused by Drawdown

Groundwater extraction proposed for water supply at the solar precinct could have a minor localised impact on groundwater levels around extraction bores. Broader impacts to the groundwater system or other bores users are unlikely to occur because SunCable's bore locations and sustainable yield will be determined through undertaking groundwater studies required to comply with the water licencing requirements under the *Water Act 1992* (NT).

More than 50 percent of the Project Area is underlain by what is indicated to be a regional scale aquifer associated with the Wiso Basin. Studies undertaken in the Wiso Basin WAP area, immediately north of Muckaty, indicate good groundwater availability. The groundwater studies

and water licencing process will verify there is sufficient groundwater availability to supply the Proposal's water demands, without impacting existing or future land uses.

Existing water users at Muckaty include several bores used for pastoral activities, and for water supply at two Aboriginal family outstations and the homestead. However, the Proposal's extraction bores will be located away from these bores. These bores servicing existing water users will therefore not be affected by the localised drawdown that is likely to occur during peak periods of the Proposal's extraction (i.e. during construction). Therefore, these current water users will not be impacted on by the Proposal's water usage.

Further, as indicated in the Terrestrial ecosystems section (refer to Section 7), there are no Groundwater Dependent Ecosystems (GDEs) present that would be sensitive to minor changes in groundwater levels.

8.4 Proposed Environment Protection and Management

Table 8-1 outlines the potential impacts to Hydrological processes values along with the proposed avoidance and mitigation measures to manage these impacts.

Table 8-1: Hydrological Processes – Proposed Mitigation Measures and Summary of EIA

Potentially Significant Impact	Proposed Avoidance and Mitigation Measures	Regulatory and Policy Guidance	Residual Impact Significance Rating
Altered surface water drainage.	Implement disturbance buffers around watercourses accordance with the NT Land Clearing Guidelines. Install watercourse crossings during the dry season when flow is absent. Design culverts or floodways to ensure wet season flow is maintained. Stormwater drainage design will conform to criteria set out in *Australian Rainfall and Runoff Guidelines 2019* (Ball, et al., 2019). Road design will reference the *Guide to Road Design Part 5: Drainage-General and Hydrology Considerations Edition 4.1* (Austroads, 30 July 2025).	• *Land Clearing Guidelines: Northern Territory Planning Scheme* (NTG, 2024b). • *Water Act 1992* (NT). • *Australian Rainfall and Runoff Guidelines 2019* (Ball, et al., 2019). • *Guide to Road Design Part 5: Drainage-General and Hydrology Considerations Edition 4.1* (Austroads, 30 July 2025).	**Minor**
Sedimentation of downstream receiving waters.	Implement erosion and sediment control practices and procedures aligned with the BPESC Guidelines. Stormwater drainage design to incorporate scour protection at outlets and sedimentation basins designed in accordance with the BPESC Guidelines.	• BPESC Guidelines.	**Minor**
Altered flood depths and flow velocities.	Earthworks, bunding, or other engineering options will be utilised where needed to ensure flood resilience of the infrastructure under existing and climate change scenarios. Stormwater drainage will be designed to cater for both minor and major storm events, such that the incidence of flooding downstream is not made worse.	• *Australian Rainfall and Runoff Guidelines 2019* (Ball, et al., 2019).	**Minor**

Potentially Significant Impact	Proposed Avoidance and Mitigation Measures	Regulatory and Policy Guidance	Residual Impact Significance Rating
	Flood modelling to inform site layout and engineering design.		
Groundwater drawdown impacting availability for other users.	Undertake groundwater studies to determine bore locations and sustainable yield to support these permit applications. Obtain bore work permits and WELs, comply with all attached conditions.	• *Water Act 1992* (NT) (e.g. bore work permit and WEL).	**Minor**

8.5 Residual Impacts

The Proposal is expected to have an overall **Minor** impact on Hydrological processes.

The scale of these potential impacts is limited, affecting only areas immediately around the Disturbance Footprints. Due to the ephemeral nature of the watercourses within the Project Area and the implementation of avoidance and mitigation measures detailed in Table 8-1, the magnitude of the potential impacts to altered surface water drainage is expected to be negligible. Additionally, the magnitude of potential impacts of sedimentation and altered flood depths from the Proposal is expected to be minor in the context of the highly variable turbidity and flooding that characterises the existing hydrological conditions.

Impacts, such as altered flows and sedimentation downstream, will be mitigated by implementing watercourse buffers, following best practice management for erosion and sediment control, and by installing measures for wet weather in the dry season. All the proposed mitigation measures are widely adopted on large-scale infrastructure projects and are proven effective at managing impacts on water. By implementing these measures, the NT EPA's objective for Hydrological processes is likely to be met.

8.6 Cumulative Impacts

Cumulative impacts to groundwater resources are not expected from the combined extraction required at the Powell Creek and Muckaty Solar Precincts because the extraction bores will be located many kilometress apart and the volumes of water required are not of an order of magnitude that would impact a regional scale aquifer. Cumulative impacts to groundwater are also not expected from the combined extraction of the Proposal and other uses of groundwater at Muckaty (pastoral and domestic use) as studies will be undertaken to identify sustainable bore locations and yields for production bores within the Project Area.

There is the potential for cumulative surface water impacts as a result of the existing rail corridor and the Muckaty Solar Precinct. The rail corridor has a large number of drainage culverts along its length through the Project Area, which direct overland flows from each to west under the railway. The extent to which this existing development has altered flows from natural conditions is not known.

The Muckaty Flood Modelling Study has considered the culvert location and will be used to inform the drainage location and will be used to inform the drainage design for the solar precinct proximate to the railway. Across the remainder of the Project Area cumulative impacts to surface water flows are unlikely to occur as the catchment as there are no other developments existing or proposed.

Proposed measures are expected to effectively avoid any significant contribution to cumulative impacts to surface water and groundwater resources from the combined impacts of the Proposal and other uses.

9 Community and Economy

9.1 Factor and Objective Context

The NT EPA's objective for the Community and economy factor is to:

"Enhance communities and the economy for the welfare, amenity, and benefit of current and future generations of Territorians."

9.2 Existing Environment

Social performance across all SunCable activities will be governed by a SIMP, the first version of which was prepared by SunCable to support the AAPowerLink Project's environmental approval process. This SIMP was originally prepared in March 2022 following completion of an SIA for the AAPowerLink Project. The SIMP was subsequently updated in November 2022 to support the AAPowerLink Supplement to the EIS: [AAPowerLink Project SIMP]

The AAPowerLink Project's SIA, prepared by TrueNorth (TrueNorth, 2022), can also be found at this link: [AAPowerLink Project SIA].

The SIA and the latest version of the SIMP (available at the links above), address impacts associated with the of the Powell Creek Solar Precinct, which is immediately north of the Muckaty Solar Precinct. The Muckaty Solar Precinct Project subject of this Referral Report is expected to have a similar social area of influence and similar types of social impacts as were identified in that SIA and SIMP, given its location in the same LGA.

Information from the existing SIA and SIMP has therefore been used to provide an initial assessment of the characteristics of the potential social impacts associated with the Muckaty Solar Precinct. SunCable will renew the SIA and SIMP to consider additional or cumulative impacts associated with the Muckaty Solar Precinct proposal.

In preparation for this work to commence, SunCable has been consulting with the NLC in relation to assessing social impacts and opportunities for Aboriginal people. A specialist SIA consultant has been engaged by the NLC to provide an Aboriginal-focussed Terms of Reference that will be incorporated into a broader-SIA scope of work which will address impacts to all stakeholders across the Proposal's social area of influence.

The social area of influence covers the Muckaty ALT and extends to the broader Barkly region. Muckaty is Aboriginal Land that is held by Traditional Owners, many who live in communities in the Barkly region, and some who reside outside the region. The Muckaty ALT membership have spiritual affiliations to dreaming which are related to sites on Muckaty and a powerful and continuing traditional connection with the land (Gray, 1997). Under the ALRA, the Traditional Owners have the right to make an informed decision about development on their land in accordance with their traditional decision-making processes and may impose conditions to protect their cultural and social values, and economic interests.

The Project Area is located within the Barkly Regional LGA, which is the second largest LGA in Australia by geographical extent. Table 9-1 presents a community profile for the Barkly Region LGA.

Table 9-1: Community Profile - Barkly Regional Council

Profile	Data
Coverage	The Barkly Regional LGA comprises 325,514 km ^{2} and includes Elliott and Tennant Creek.
Demographic profile	The latest census register revealed that the total population of the Barkly was 6,316 (Australian Bureau of Statistics) (ABS, 2021a). Out of the total population, 3,182 people were male and 3,131 were female (ABS, 2021a). Identify as Aboriginal people: 4,051. Communities: Ali Curung; Alpurrurulam; Ampilatwatja; Arlparra; Elliott; Tennant Creek; and Wutunugurra.
Employment and income	There were 2,519 people who reported being in the labour force in the week before Census night in the Barkly. Of these, 54.1 percent were employed full time, 15.5 percent were employed part-time and 24.9 percent were unemployed (ABS, 2021a). In the Barkly, 22 percent of households had a weekly household income of less than $650 and 9.5 percent of households had a weekly income of more than $3,000 (ABS, 2021a).
Socio-Economic Indexes for Areas (SEIFA Index)	The Barkly has a low SEIFA score at 679.0 compared to the Australian average of 1,000 (2016 Index).
Education	People attending an educational institution (ABS, 2021a): • Preschool: 121. • Primary: 725. • Secondary: 321. • Tertiary: 170. • Other: 28.
Social infrastructure	**Health Services** Tennant Creek Hospital and three Aboriginal Community Controlled Health Services (Anyinginyi Health Aboriginal Corporation, Ampilatwatja Health Centre Corporation, and Urapuntja Health Service) which provide primary care services in their communities. NT Health also provides remote, nurse-led clinics in the communities of Elliott, Canteen Creek, Alpurrurulam, Tara, Epenarra, and Ali Curung. These clinics are regularly supported by visiting medical and public health services (NTG, n.d). **Police station** Elliott Police Station, Tennant Creek Police Station, Ali Curung Police Station, Avon Downs Police Station. **Schools**

Profile	Data
	A complete list of schools in urban and remote areas can be accessed in the NT Education Directory (NTG, 2024). **Tertiary institutions** Batchelor Institute of Indigenous Tertiary Education. **Fire Services** NT Fire and Rescue Service (Fire station), Bushfires NT. **Library and Community Centre** The Tennant Creek Public Library is a free service provided by the Barkly Regional Council.

Table 9-2 sets out the distance between the Project Area and major regional centres which are likely to be drawn upon to support construction and operation of the precinct.

Table 9-2: Key Regional Centres and Distances from the Project Area

Key Regional Centres	Approximate Distance by road from Project Area
Elliott (Kulumindini) - closest town to the Project Area	130 km
Tennant Creek – likely source of workers, services, and supplies	125 km
Katherine – likely source of services, supplies and possibly workers	555 km
Alice Springs – likely source of workers, services, and supplies	630 km
Darwin – NT's main population and business centre	870 km

Table 9-3 sets out the distance between the Project Area and local communities within the Barkly LGA. Muckaty ALT and its nearest town, Elliott, are within the northern portion of this LGA. The communities listed in Table 9-3 below are located further south within this LGA.

Table 9-3: Local Communities of the Barkly Region and Distances from the Project Area

Local Communities	Approximate Distance from Project Area as the crow flies
Ali Curung	268 km
Alpurrurulam	510 km
Ampilatwatja	368 km
Arlparra	394 km
Wutunugurra	260 km

9.3 Potential Impacts

A preliminary list of potential social impacts and benefits has been derived by reviewing the SIA prepared as part of the AAPowerLink Draft EIS process (TrueNorth, 2022) (available at the link in Section 9.2 above). This desktop process was used to identify those impacts that are also likely to be relevant to the Muckaty Solar Precinct. The list of impacts and significance ratings assigned in the 2022 assessment (TrueNorth, 2022) were reviewed considering the outcomes of stakeholder engagement and the potential for cumulative impacts from all stages of the neighbouring AAPowerLink Project. Where it was considered that impacts could be greater than originally predicted, the assigned ratings were increased.

Potential impacts and assigned significance ratings are presented in Table 9-4 and Table 9-5 below, categorised according to the dimensions of social impact presented in Munday (Munday, J., 2020) and illustrated in Figure 9-1.

Figure 9-1: Dimensions of Social Impacts Adapted for a North Australia Context (Munday, J., 2020)

Table 9-4: Summary of Potential Social Impacts Relevant to the Muckaty Solar Precinct Proposal

Potential Impacts	Residual Significance Rating
Strong Voice	
Traditional Owners and other community groups feel disempowered, or that they have not been afforded an influential voice in decision-making and/or Proposal participation.	Medium
Economies and Jobs	
Reduced capabilities and productivity of other economic sectors because of loss of workers to the SunCable activities.	Medium
Inflationary effects on other businesses and economic sectors.	Medium
Failure to deliver on expectations of local jobs and business opportunities, due to skills shortages and work readiness constraints.	Medium
People and Communities	
Changed patterns of social cohesion and lifestyle due to the influx of a large construction workforce (including FIFO) in the local area and increased economic activity.	Medium
Infrastructure and Services	
Reduced affordability/availability of public and private accommodation in Tennant Creek due to increased demand from the indirect workforce (i.e. workers employed by local businesses to fulfill contracts).	High
Pressure on air and road transport routes used to move workers, materials and equipment to/from the site.	Medium
Increased pressure on emergency and other essential services.	Medium
Living Environment	
Exposure to noise, dust and increased traffic during construction, causing temporary amenity impacts for local residents.	Low
Reduced sense of place through industrialisation of the landscape and changed land use.	Medium
Visual amenity impacts generated from project infrastructure.	Low
Electro-magnetic interference impacts to local residents, business, service operators, and emergency workers due to operation of OHTL infrastructure.	Low

Potential Impacts	Residual Significance Rating
Healthy Country	
Impacts to the health of country through clearing large areas of intact native vegetation and increased potential for introducing and spreading weeds.	Medium
Cultural Identity	
Potential impacts to cultural heritage and values (also addressed further in Section 10).	Medium
Potential impacts to Traditional Owners' patterns of engagement with the land, especially during restricted construction access periods.	Medium

Table 9-5: Summary of Potential Social Benefits Relevant to the Muckaty Solar Precinct Proposal

Potential Impacts	Significance Rating
Economies	
Enhancing employment opportunities for local communities.	Beneficial
Stronger NT (Barkly) economy, through local contracts, increased wages, income and economic diversification opportunities and revenues (e.g., manufacturing industry).	Beneficial
Local businesses benefit from securing or contracted work and enhanced capabilities, including Aboriginal businesses and pastoralists.	Beneficial
Provision of training, capacity building, and employment for local and Aboriginal groups.	Beneficial
People and Communities	
Strengthen community groups in areas such as land management, ranger groups and commercial services.	Beneficial

9.4 Proposed Environment Protection and Management

SunCable will renew the SIA and the latest version of the SIMP (both available at the link in Section 9.2 above), to update social and economic baseline data and account for any new, additional, or cumulative impacts associated with the Muckaty Solar Precinct Proposal, so that there is an overarching SIA and SIMP which considers the individual and cumulative social

impacts and benefits of both the Muckaty Solar Precinct and the AAPowerLink Project. The updated SIMP will include commitments to:

- Continue consultation with Traditional Owners and Aboriginal stakeholders in culturally appropriate manner and obtain Free Prior and Informed Consent (FPIC) for activities through negotiation of land use agreements with Traditional Owners.
- Accommodate the construction workforce within the Project Area or as part of the neighbouring Powell Creek Solar Precinct Project Area, to reduce potential pressures on regional housing stock.
- Develop a Territory Benefits Plan that identifies the strategies to maximise local industry participation, including Aboriginal-owned enterprises.
- Develop Workforce Code of Conduct to foster employees' good behaviour and respect to the local community.
- Implement Cultural Learning Framework for all employees, contractors, subcontractors, and consultants, to establish workforce respect for culture.

Other key avoidance and mitigation measures which have been identified to assist in reaching the residual risk ratings in Table 9-4 and Table 9-5 above are as follows:

- Undertake cultural heritage assessments and obtain AAPA Sacred Site Authority Certificates to cover the Project Area. Ensure a Cultural Heritage Management Plan (CHMP) is developed and implemented.
- Implement appropriate management plans/strategies to reduce impacts to local communities, including:
    - Emergency Response Plan.
    - Traffic Management Plans.
    - Stakeholder Engagement Strategy.
- Protect the environment by implementing the avoidance and mitigation measures identified through the EIA process.

These mitigation measures were developed in consultation with stakeholders, and will be subject to review through the Muckaty Solar Precinct SIA process.

9.5 Residual Impacts

The Proposal is expected to have an overall **Moderate** impact on the community, whilst also generating **Beneficial** positive impacts.

Potential impacts and benefits associated with construction of Muckaty Solar Precinct will be concentrated within the Barkly region. A range of impacts associated with workforce and logistics is likely to be experienced NT-wide. The Proposal has potential to provide significant social and economic benefits, and the availability of large-scale renewable energy could transform the NT economy, attracting a range of new industries. The challenges associated with delivering large-scale projects in the region are acknowledged and a substantial amount of work is required to ensure that local people and regional communities benefit to the greatest extent possible.

The mitigation measures proposed in the current version of the SIMP were developed in consultation with stakeholders. They will be reviewed in consultation with stakeholders, and if required, new or amended measures will be included in the SIMP to address emerging or cumulative impacts. SunCable will continue its stakeholder engagement program to ensure stakeholders are informed and consulted about actions that will affect them, and that their insights and knowledge are used to develop and implement effective mitigation measures.

By implementing these measures, the NT EPA's objective for the Community and economy factor is likely to be met.

9.6 Cumulative Impacts

There is the potential for a moderate-significant level of cumulative Community and economy impacts to occur as a result of the Proposal being constructed, operated, and decommissioned alongside the neighbouring AAPowerLink Project. Potential cumulative impacts could also be generated through the implementation of other major projects in the NT, such as the Beetaloo Sub-Basin Gas project, and the Ammaroo Phosphate Project more generally alongside this Proposal. The cumulative impacts which have the greatest potential to trend towards a moderate-significant level of impact for the Proposal include:

- Both direct and indirect impacts associated with the mobilisation of a relatively large (around 3,500 FTE) construction workforce into a remote area of the NT.
- Logistic pressures on NT roads, rail, air services, business services, health services, and the like.
- Communities and stakeholders becoming reluctant to engage due to consultation fatigue.
- Exacerbation of community divisions between those who are and are not exposed to negative versus positive impacts from these projects.
- Changes to dominant land uses and lifestyles of regional areas, industrial development within relatively remote and intact landscapes.
- Acceleration of social change processes and changed demographics.

Potentially beneficial cumulative impacts could also occur as a result of the Proposal running alongside the neighbouring approved AAPowerLink Project, as well as other major projects in the NT more broadly. These could include:

- Cumulative opportunities to invest benefits and build capacity from multiple projects.
- Cumulative opportunities for development of human capital and business capacity.

As SunCable is also the proponent for the AAPowerLink Project, there will be significant opportunities for collaboration across both projects with regards to mitigating the potential cumulative Community and economy impacts, and to enhance the opportunities for beneficial impacts across both projects. As per Section 3.5 of the existing SIMP (available at the link in Section 9.2 above), the SIMP already allows for a process of understanding and adapting to cumulative impacts as they arise throughout project delivery.

With suitable, collaborative mitigations in place under the updated SIMP (capturing cumulative impacts across both projects), the potentially negative Community and economy impacts are more likely to trend towards a low-moderate level of impact (alleviated from an initial moderate-significant level of potential impact).

10 Culture and Heritage

10.1 Factor and Objective Context

The NT EPA's objective for the Culture and heritage factor is to:

"Protect culture and heritage."

10.2 Existing Environment

10.2.1 Aboriginal Culture and Heritage

The Project Area is a significant cultural landscape, given spiritual connections to the land held by the Traditional Owners (Gray, 1997) and other Aboriginal people who have had a long history with the region. There are many sites of significance and associated dreamings that are acknowledge in the Muckaty Land Claim Report. Aboriginal people continue to access and use the area periodically, and it is understood that in recent times people have resided at the outstations on the property.

Aboriginal Sacred Sites

There are known Aboriginal Sacred Sites and RWAs within Project Area as identified in an AAPA Abstract of Records. SunCable has delineated Avoidance Areas around these known sites, conservatively buffering them by 1 km from the Preliminary Disturbance Footprint (refer to Section 2.2.2). Traditional Owners will be consulted in relation to the proposed site layout and design, as mandated under the ALRA. Further, SunCable will apply for an Authority Certificate under the *Northern Territory Aboriginal Sacred Sites Act 1989* (NT), which will identify specific measures required to protect the currently registered and recorded sites and may also identify additional sites and protection measures.

Aboriginal Archaeological Places and Objects

The NT Heritage Branch has provided the following in relation to the presence of Aboriginal or Macassan archaeological sites protected under the *Heritage Act 2011* (NT)*:*

- There are Aboriginal or Macassan archaeological places within the Project Area.
- Future works or activities may be required to identify and mitigate impact on Aboriginal or Macassan archaeological sites (including potential sites).

10.2.2 Non-Aboriginal Heritage

According to the NT Heritage Register (NT Heritage Council, 2025) and Australian Heritage Database (DCCEEW, 2021) there are no known Heritage sites or values within the Project Area.

The NT Heritage Branch has provided the following in relation to the presence of declared heritage places or objects:

- There are no nominated, provisionally declared or declared heritage places or objects within the subject area.

10.3 Potential Impacts

Potential impacts to the existing values of the Culture and heritage factor have been identified and assigned an impact significance rating, as presented in Table 10-1. These impacts could include:

- Direct impacts to Aboriginal Sacred Sites and/or Aboriginal archaeological places or objects associated with land clearing and development in the Disturbance Footprint.
- Indirect impacts to Aboriginal Sacred Sites and/or Aboriginal archaeological places or objects associated with erosion, dust, alteration of surface water drainage, groundwater extraction, unauthorised access by workers, etc.
- Direct and indirect impact to contemporary land use by Aboriginal people (e.g. for cultural uses, hunting, gathering) due to restrictions on access around construction works and operating infrastructure.

10.4 Proposed Environment Protection and Management

Table 10-1 outlines the potential impacts to Culture and heritage values along with the proposed avoidance and mitigation measures to manage these impacts.

Table 10-1: Culture and Heritage – Proposed Mitigation Measures and Summary of EIA

Potentially Significant Impact	Proposed Avoidance and Mitigation Measures	Regulatory and Policy Guidance	Residual Impact Significance Rating
Direct impacts to Aboriginal Sacred Sites and/or Aboriginal archaeological places or objects associated with land clearing and development.	Continue consultation with Traditional Owners and co-design with Aboriginal stakeholders in culturally appropriate manner. Identify and map important cultural heritage values, including sites and objects protected under the *Heritage Act 2011* (NT) and *Northern Territory Aboriginal Sacred Sites Act 1989* (NT), and other cultural values identified in consultation with Traditional Owners. Negotiate direct agreements with Traditional Owners. Comply with cultural heritage protection requirements that form part of negotiated agreements and legislation. Obtain AAPA Sacred Site Authority Certificates to cover Disturbance Footprints. Development and implement a CHMP which will: • Include a register documenting known cultural and heritage values and heritage sites. • Identify actions that will be implemented to avoid or minimise impacts to known sites. • Include procedures to mitigate impacts to unexpected finds, including a stop work protocol, developed in consultation with the site custodians. • Followed by all authorised personnel. • Ensure ongoing consultation and engagement with stakeholders on cultural heritage values. • Undertake archaeological survey prior to development occurring.	• ALRA Section 19 Agreement process. • AAPA Certificates. • Archaeological places and objects protection – *Heritage Act 2011* (NT). • Sacred Sites protection – *Northern Territory Aboriginal Sacred Sites Act 1989* (NT).	**Low**
Indirect impacts to Aboriginal Sacred Sites and/or Aboriginal archaeological places or objects associated with erosion, dust, alteration of surface water drainage, groundwater extraction, unauthorised access by workers etc.			**Moderate**
Direct and indirect impact to contemporary land use by Aboriginal people (e.g. for cultural uses, hunting, gathering) due to restrictions on access.			**Moderate**

Potentially Significant Impact	Proposed Avoidance and Mitigation Measures	Regulatory and Policy Guidance	Residual Impact Significance Rating
	Implement Cultural Learning Framework for all employees, contractors, subcontractors, and consultants. Include knowledge around reporting obligations to the NT Heritage Branch under the *Heritage Act 2011* (NT) where Aboriginal burial sites or skeletal remains are uncovered.		

10.5 Residual Impacts

The Proposal is expected to have a **Moderate** residual impact to Culture and heritage values, which may reduce to low once studies are undertaken to better understand the occurrence of cultural heritage values and associated protection requirements.

While large-scale land clearing and ground disturbance present the greatest potential for impact, these activities will be confined to the disturbance footprint which will be defined in consultation with Traditional Owners and will be subject to cultural heritage assessments to identify and map values. All activities will be carried out strictly in accordance with the agreed CHMP, AAPA Certificate(s) and any work permits required under the *Heritage Act 2011* (NT).

The proposed avoidance and mitigation measures are widely adopted and proven effective on large-scale infrastructure projects. The implementation of the proposed measures in Table 10-1, including obtaining and complying with AAPA authority certificates, implementation of a CHMP, and ongoing engagement with the Traditional Owners, is likely to meet the NT EPA's Culture and heritage objective.

10.6 Cumulative Impacts

Combined land clearing required to support this Proposal, the neighbouring AAPowerlink Project, and the two recent PLC permits for clearing issued in 2025 under the *Pastoral Land Act 1992* (NT) (refer to Section 7.7) may lead to incremental loss of access to land for Aboriginal people and potential degradation of heritage features throughout the region. However, consultation with the Traditional Owners, NLC, AAPA, and the Heritage Branch, as well as the formal ILUA and AAPA processes, will aim to minimise contribution to cumulative impacts.

Cultural and heritage values in the area and potential impacts will be considered formally through the agreement making process under the ALRA and the Authority Certificate process under the *Aboriginal Sacred Sites Act 1989* (NT).

11 Matters of National Environmental Significance

There are nine MNES protected under the EPBC Act, as follows:

- World Heritage properties.
- National Heritage places.
- Wetlands of international importance (listed under the Ramsar Convention).
- Listed threatened species and ecological communities.
- Migratory species protected under international agreements.
- Commonwealth Marine Areas.
- The Great Barrier Reef Marine Park.
- Nuclear actions (including uranium mines).
- A water resource, in relation to coal seam gas development and large coal mining development.

Under the EPBC Act, an action will require approval from the commonwealth minister if the action has, will have, or is likely to have, a significant impact on a MNES. The MNES relevant to the Proposal include listed threatened species and listed migratory species. The full Protected Matters Search Tool (PMST) results are appended to the Ecology Report (refer to Appendix B). Section 7.5 evaluates the Proposal's impact on threatened and threatened migratory species listed under the EPBC Act.

There is potential for a significant impact on one MNES, the Greater Bilby, as outlined in Table 7-4 of Section 7.5.1.

The Proposal will be referred to the Commonwealth Minister for the Environment to consider whether further assessment is required.

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