

Biodiversity Development Assessment

Polo Flat Fire Command Centre

Prepared for NSW Public Works

November 2023

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Polo Flat Fire Command Centre

NSW Public Works

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Approved by



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BDAR declaration

Certification under clause 6.15 Biodiversity Conservation Act 2016 and conflict of interest

I, Maya Potapowicz, BAM Assessor Accreditation no: BAAS18157, certify that this report has been prepared based on the requirements of, and information provided under, the Biodiversity Assessment Method and clause 6.15 of the *Biodiversity Conservation Act 2016* (BC Act).

This BDAR has been prepared to meet the requirements of BAM 2020.

Actual, perceived or potential conflict of interest

A potential conflict of interest of the client for this report with another EMM client was identified. This was disclosed to all parties and assurance was sought from these parties that this would not be perceived as a conflict of interest.

Details and experience of author/s and contributors

In this report, an assessment of the biodiversity values and impacts associated with the proposal have been undertaken in accordance with the Biodiversity Assessment Method 2020 (DPIE 2020a). The Biodiversity Development Assessment Report has been prepared by accredited assessor Maya Potapowicz (BAAS18157). A number of staff contributed to fieldwork and data collection as identified in the table below.

Contributors to the BDAR

Personnel	Qualifications	Tasks carried out
Paul Rossington	Associate Ecologist Accredited Assessor (BAAS18065)	Review of BDAR
Maya Potapowicz	Associate Ecologist Accredited Assessor (BAAS18157) B Env Science BAAS18157	• PCT mapping • BAM plot surveys • Candidate species habitat assessment • Targeted threatened flora surveys • BAM calculations • BDAR report preparation
Jamie Barney	Dip Science CertIV Env Science	• Desktop assessment • PCT mapping • BAM plot surveys • Assist in report preparation
Fidelma Gurnett	GIS Specialist	GIS mapping and calculations and map preparation

Executive summary

ES1 Project description

The NSW Rural Fire Service and Snowy Monaro Regional Council plan to build a Fire Command Centre (FCC) on the north-western section of Lot 14 DP 250029. The centre will include a building, storage sheds, a helipad and hanger, a training area, parking areas and a stormwater detention area. The proposed Fire Control Centre at Polo Flat is aimed at supporting the Snowy Monaro LGA through the provision of emergency fire-fighting infrastructure at a district level.

A Biodiversity Assessment Development Report (BDAR) has been commissioned by NSW Public Works to accompany the Development Application (DA) for the project. This report follows the NSW *Biodiversity Conservation Act 2016* and the Biodiversity Assessment Method to document assessment methods, project design initiatives to minimise biodiversity impacts, and additional mitigation and management measures. It also assesses potential impacts on Matters of National Environmental Significance (MNES).

ES2 Landscape features

The site is situated in the South Eastern Highlands IBRA region and the Monaro IBRA subregion, specifically in the Monaro Plains Basalts and Sands NSW Landscape. An unnamed ephemeral creek runs adjacent to the subject land from the south-east to the north-west of the area. The site is in a flat, low-lying grassland habitat. To the south, west, and north-west lies the Polo Flat industrial estate, while the rest of the surrounding area comprises various open grassland habitats that are suitable for connectivity. However, these surrounding areas are significantly disturbed, primarily due to the prevalence of African Lovegrass (*Eragrostis curvula*).

ES3 Native vegetation

The subject land is dominated by PCT 3414 Monaro Snowgrass-Kangaroo Grass Grassland. The PCT is in moderate to poor condition, with significant invasion of exotic plants throughout the subject land. Part of the grassland classifies as the Critically Endangered Ecological Community of Natural Temperate Grasslands under the Federal *Environmental Protection and Biodiversity Conservation Act 1999*.

ES4 Threatened species

Several species identified as potentially occurring on the subject land are threatened under the EPBC Act and BC Act. However, EMM has determined that most of these species have a low or moderate likelihood of occurring on site. In addition, surveys for six threatened species were undertaken in 2019, including Striped legless Lizard (*Delmar impar*), Grassland Earless Dragon (*Tympanocryptis osbornei*), Mauve Burr-daisy (*Calotis glandulosa*), Creeping Hop-bush (*Dodonaea procumbens*), Monaro Golden Daisy (*Rutidosia leirolepis*), and the Silky Swainson-pea (*Swainsona sericea*). Three threatened species, Striped Legless Lizard (*Delma impar*), Little Whip Snake (*Suta flagellum* - ecosystem credit species) and Hoary Sunray (*Leucochrysum albicans* var. *tricolor*), were found during these surveys in another part of the overall Lot but not within the subject land.

No species or communities listed as at risk of Serious and Irreversible impacts are known or likely to occur within the subject land.

ES5 Impact avoidance, minimisation and mitigation

The original design for the FCC included a larger storage facility, another helipad, and a larger training area. The project was scaled back to a smaller area allowing the project's infrastructure to be designed, where possible, to avoid the bulk of the native species dominated native grassland areas as well as to minimise the site footprint and costs.

ES6 Assessment of impacts under other relevant biodiversity legislation

The proposal involves the removal of 0.24 hectares of Natural Temperate Grassland CEEC listed under the EPBC Act. This is considered a significant impact under the EBPC guidelines for assessing impacts on CEECs. A pre-referral meeting with the DCCEEW occurred in May 2023 to discuss the assessments of significance undertaken as part of the BDAR process, which concluded that a significant impact on MNES is considered unlikely.

ES7 Biodiversity impacts and offsets

The proposal will impact on 1.9 ha of PCT 3414 - Monaro Snowgrass-Kangaroo Grass Grassland. A total of 29 ecosystem credits are required to offset the residual impacts of the proposed development.

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Glossary

BAM	Biodiversity Assessment Method
BAMC	Biodiversity Assessment Method Calculator
BC Act	<i>Biodiversity Conservation Act 2016 (NSW)</i>
BDAR	Biodiversity Development Assessment Report
BOS	Biodiversity Offsets Scheme
DA	Development Application
DCCEEW	Australian Government Department of Climate Change, Energy, the Environment and Water
DFSI	Department of Finance, Services and Innovation
DIMZ	Direct Impact Management Zone
DPIE	NSW Department of Planning, Industry and Environment
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>
EPIs	Environmental planning instruments
FCC	Fire Control Centre
FM Act	<i>Fisheries Management Act 1994</i>
GPS	Geographic Positioning System
HTE	High Threat Exotic
IBRA	Interim Biogeographic Regionalisation of Australia
KFH	Key Fish Habitat
KTPs	Key Threatening Processes
LEP	Local Environmental Plan
LGA	Local Government Area
MNES	Matters of National Significance
OEH	Office of Environment and Heritage
PCT	Plant Community Type
PMST	Protected Matters Search Tool
PWA	NSW Public Works Advisory
RFS	Rural Fire Service
RVAs	Rapid Vegetation Assessments
SEPPs	State Environmental Planning Policies
SMRC	Snowy Monaro Regional Council
TBDC	Threatened Biodiversity Data Collection (BioNet)
TEC	Threatened Ecological Community

1 Introduction

The NSW Rural Fire Service (RFS), in collaboration with the Snowy Monaro Regional Council propose to construct a new Fire Command Centre (FCC) within the northern portion of Lot 14 DP 250029. The subject land lies directly behind the existing Rural Fire Brigade on Geebung St. The proposed FCC will be assessed as local development under Part 4 of the EP&A Act. A BDAR is required to be submitted with the development application.

EMM Consulting Pty Ltd (EMM) was commissioned by NSW Public Works Advisory (PWA) to prepare this Biodiversity Assessment Development Report (BDAR) to accompany the Development Application (DA) for the project. Gainsford Environmental Consulting provided a project technical review.

This BDAR has been prepared in accordance with the NSW *Biodiversity Conservation Act 2016* (BC Act) and the Biodiversity Assessment Method (DPIE 2020a) (herein referred to as the 'BAM') to document the biodiversity assessment methods and results, initiatives built into the project design to avoid and minimise biodiversity impacts, and additional mitigation and management measures proposed, including offset requirements, to address any residual impacts not able to be avoided.

This BDAR also provides assessment of the project against the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), for potential impacts on Matters of National Environmental Significance (MNES).

1.1 The project

The FCC and associated infrastructure (herein referred to as 'the project') will occupy an area of approximately 1.9 ha and will be contained within the disturbance footprint shown in Figure 1.2.

The key project infrastructure includes:

- the new FCC building
- a radio control tower
- a helipad
- a helicopter hanger
- a training ground
- a seven bay storage shed
- a stormwater detention area
- parking areas.

The project will require a new site access road from Geebung Street Road which is being assessed separately under Part 5 of the EP&A act by Snowy Monaro Regional Council (SMRC).

Once constructed, the FCC will operate 24 hours a day, 7 days a week in emergency periods. At other times, it will operate from 9:00 am to 5:00 pm on Mondays to Fridays.

1.2 Site description and definitions

The subject land (the area which was surveyed for ecological values) is located in the Snowy Monaro Regional Council (SMRC) Local Government Area (LGA) suburb of Polo Flat in NSW (Figure 1.1). It lies within the Monaro subregion of the South Eastern Highlands IBRA. The subject land is owned by Snowy Hydro but there is an intention for Snowy Monaro Regional Council to purchase a portion of the land for use by the Rural Fire Service. A land acquisition will also be required from an adjacent land holder on Geebung Street to facilitate the construction of a new access road. The land acquisition for the access road is being managed by the Snowy Monaro Regional Council.

The subject land is zoned IN1 General Industrial under the Cooma-Monaro Local Environmental Plan (LEP) 2013 and occurs within the northern section of Lot 14 DP 250029. The subject land is located directly adjacent (east) to the existing RFS (Figure 1.2).

The site forms part of an airfield which was originally established in 1921. It was developed in the late 1950s and 1960s to service the Snowy Scheme. It became the base for the Snowy Mountains Hydro-electric Authority's flying unit and aircraft. By 1976, the fleet was reduced to one aeroplane, but the Polo Flat airstrip was still maintained. The original hangers and terminal buildings are extant on the northern part of Lot 14. The southern portion now includes activities associated with the Snowy Mountains Hydro 2 project, including the Segment Factory constructed in 2021. The properties adjoining the subject land contain a mixture of land uses, including industrial uses to the west where the existing RFS lies, the former airstrip to the south which connects to the Snowy Hydro Segment Factory on the southern end of the Lot, with parklands to the north and degraded native grasslands to the east.

Due to the mixture of land uses in the immediate area, the subject land has connectivity with limited areas of native vegetation in adjoining lands to the east and south. A large area of contiguous grassland vegetation managed for agriculture is located further to the east of the subject land. Substantially higher quality grasslands can be found within Lot 14 DP 250029 further to the south-east, to which the subject land is connected. Another area of substantially higher quality grasslands exists to the west of the subject land in Cooma Commons but is separated from the site by Polo Flat Road and several industrial buildings.

The vegetation within the subject land is a mix of degraded native grasslands and exotic grassland, both of which are mown. High Threat Exotic (HTE) species occur within the subject land including African Lovegrass (*Eragrostis curvula*) and St John's Wort (*Hypericum perforatum*). Further discussion on landscape features and vegetation within the subject land is provided in Sections 3.1 and Chapter 4.

Project elements referred to in this BDAR are described in Table 1.1.

Table 1.1 Project elements referred to in this BDAR

Project elements	Definition
Buffer area	1,500 m buffer of project footprint
Study area	Area which was surveyed for ecological values. For this project, this was identified in Figure 1.1.
Subject land	Area subject to all proposed direct impacts

1.3 Consideration of BOS triggers

This BDAR accompanies a DA for the proposal under Part 4, Division 4.3 of the EP&A Act. Accordingly, an assessment against the thresholds for assessment under the BOS is provided in Table 1.2. The area clearing threshold/biodiversity values map threshold is triggered and, thus, this BDAR has been prepared.

Table 1.2 **Assessment of BOS thresholds**

BOS threshold	Description
Area clearing	The minimum lot size of the land under Cooma Monaro LEP is less than 1 ha. The development will exceed the area clearing threshold of 1 ha.
Biodiversity values map	No lands included on the Biodiversity Values Map occur within the site. An area mapped on the Biodiversity Values Map exists to the north-west but is separated from the subject land by two major roads including the Snowy Mountains Highway. Therefore, this area will not be considered further.

1.4 Purpose of this report

The specific objectives of this assessment are to:

- describe biodiversity values of the subject land
- assess the likelihood that threatened species and communities (threatened biodiversity) listed under relevant the NSW *Biodiversity Conservation Act 2016* (BC Act) and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) could occur in the subject land
- document the strategies implemented to avoid and/or minimise impacts of the project on threatened biodiversity
- assess residual threatened biodiversity impacts, after avoidance and minimisation strategies have been implemented
- provide environmental safeguards to mitigate threatened biodiversity impacts during construction and operation.

1.5 Information sources

1.5.1 Publications and databases

In order to provide context for the project, information about flora and fauna species, populations, communities and habitats from the locality (within 10 km) was obtained from the following databases:

- BioNet Atlas of NSW Wildlife for previous threatened species records
- BioNet Threatened Biodiversity Data Collection (TBDC) for threatened species habitat descriptions and assessment requirements
- Commonwealth Department of Agriculture, Water and the Environment (DAWE) Protected Matters Search Tool (PMST) for Matters of National Environmental Significance (MNES) likely to occur within the subject lands
- the NSW Plant Community Types (PCTs), as held within the BioNet Vegetation Classification database.

1.5.2 Other relevant reports

This biodiversity assessment has been prepared with reference to other technical reports that were prepared as part of another project within the same Lot/DP. The other relevant reports referenced in this biodiversity assessment are listed below:

- *Proposed Segment Factory Biodiversity Assessment Report* (EMM 2019) – appended to the EIS
- *Polo Flat Solar Farm Biodiversity Development Assessment Report* (EMM 2021)
- *A Revised Floristic Value Scoring Method to Assess Grassland Condition* (Rehwinkel 2015).

1.5.3 Spatial data

Spatial data encompassing the subject land, including the disturbance footprint, was obtained from Gainsford Environmental Consulting. Base map data was obtained from Department of Finance, Services and Innovation (DFSI) NSW databases, with cadastral data obtained from DFSI digital cadastral database. Mapping for stream orders was obtained from DPI.

The following spatial datasets were utilised during the development of this report:

- *State Vegetation Type Map: NSW C1.1M1.1* (State Government of NSW and Department of Planning and Environment 2022)
- *Mitchell Landscapes Version V3.1* (OEH 2016b)
- *Interim Biogeographic Regionalisation of Australia (IBRA) Version 7* (DoEE 2017a)
- *Directory of important wetlands* (DoEE 2018)
- *NSW Wetlands* (OEH 2010).

Mapping undertaken during the site assessment was conducted using a hand-held GPS unit, mobile phones running Collector for ArcGIS™ and Survey123 for ArcGIS™, and aerial photo interpretation. Accuracy is subject to accuracy of GPS devices, generally ± 5 m. Mapping has been produced using a Geographic Information System (GIS; ArcGIS 10.5).

Spatial data relevant to this BDAR was provided to the DPIE following lodgement of the BDAR.

\\lemmsvr1\emm2\2023\E230081- Fire Control Centre- Polo Flat\3 GIS\02_Maps\BDAR\G001_Sitelocation_2023\1011_02.aprx 16/10/2023



Source: EMM (2023); ABS (2021); DCS (2023); GA (2009); OEH (2016/2017)

- KEY**
- Project Boundary
 - Subject land buffer (1500 m)
 - Mitchell landscape
 - 988 | Coolangubra- Good Good Plateau
 - 1022 | Monaro Plains Basalts and Sands
 - 1092 | Monaro Plains Granites
 - Existing environment
 - Rail line
 - Major road
 - Minor road
 - Watercourse/drainage line
 - Cadastral boundary
- Note: The entire map extent is within the South Eastern Highlands IBRA region and the Monaro IBRA subregion.

Location map

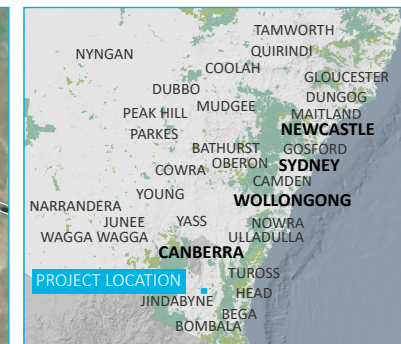
Fire Control Centre
Biodiversity Development assessment report
Figure 1



\\emmsvr1\emm2\2023\E230081- Fire Control Centre- Polo Flat\3 GIS\02_Maps\BDAR\G002_SiteMap_20231011_02.aprx 11/10/2023



Source: EMM (2023); ABS (2021); DCSSS (2023); GA (2009); MetroMap (2023)



- KEY**
- Project Boundary
 - Subject land buffer (1500 m)
 - Native vegetation
- Strahler stream order**
- 1st order
 - 2nd order
 - 3rd order
- Riparian buffer**
- 10 m
 - 20 m
 - 30 m
- Existing environment**
- Rail line
 - Major road
 - Minor road
 - Cadastral boundary
- INSET KEY**
- NPWS reserve
 - State forest

Site map

2 Legislative context

This chapter provides a brief outline of the key biodiversity legislation and government policy considered in this assessment.

2.1 Commonwealth

2.1.1 *Environmental Protection and Biodiversity Conservation Act 1999*

The *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities, heritage places and water resources which are defined as Matters of National Environmental Significance (MNES) under the EPBC Act. These are:

- world heritage properties
- places listed on the National Heritage Register
- Ramsar wetlands of international significance
- threatened flora and fauna species and ecological communities
- migratory species
- Commonwealth marine areas
- the Great Barrier Reef Marine Park
- nuclear actions (including uranium mining)
- water resources, in relation to coal seam gas or large coal mining development.

Under the EPBC Act, an action that may have a significant impact on a MNES is deemed to be a ‘controlled action’ and can only proceed with the approval of the Commonwealth Minister for the Environment. An action that may potentially have a significant impact on a MNES is to be referred to DCCEEW for determination as to whether or not it is a controlled action. If deemed a controlled action, the project is assessed under the EPBC Act, and a decision made as to whether or not to grant approval.

A pre-referral meeting with the DCCEEW occurred to discuss the assessments of significance undertaken as part of the BDAR process, which concluded that a significant impact on MNES is considered unlikely.

An assessment of the project against the EPBC Act is provided in Section 7.1.

2.2 State

2.2.1 *Environmental Planning and Assessment Act 1979*

The NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) was enacted to encourage the consideration and management of impacts of proposed development or land-use changes on the environment and the community. The EP&A Act is administered by the NSW Department of Planning, Industry and Environment (DPIE).

The EP&A Act provides the overarching structure for planning in NSW; however, it is supported by other statutory environmental planning instruments (EPIs) including State Environmental Planning Policies (SEPPs). EPIs relevant to the natural environment are outlined further below.

i *State Environmental Planning Policy (Biodiversity and Conservation) 2021*

State Environmental Planning Policy (Biodiversity and Conservation) 2021 (hereafter referred to as the Biodiversity and Conservation SEPP) aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for Koalas to ensure a permanent free-living population over their present range and reverse the current trend of Koala population decline. The Biodiversity and Conservation SEPP adopts two Chapters of relevance to Koala management, with Chapter 3 - *Koala habitat protection 2020*, and Chapter 4 - *Koala habitat protection 2021*.

In nine metropolitan Sydney local government areas (Blue Mountains, Campbelltown, Hawkesbury, Ku-Ring-Gai, Liverpool, Northern Beaches, Hornsby, Wollondilly) and the Central Coast LGA, Chapter 4 of the Biodiversity and Conservation SEPP applies to all land use zones. Outside of these areas Chapter 3 continues to apply to all land zoned RU1, RU2, and RU3.

In the context of this proposal, Chapter 3 of the Biodiversity and Conservation SEPP does not apply because it is zone IN1 within the Snowy Monaro local government area.

Koala SEPP 2021 applies to development applications on land which is >1 ha on its own, or together with adjoining land in the same ownership, whether or not the development application applies to only part of the land, and which is within council areas listed in Schedule 1 of Koala SEPP 2021.

If a Koala Plan of Management is present for the land, then the controls and assessment requirements within that document are to be applied. Should a Koala Plan of Management not be in force, then Council must assess whether the development is likely to have any impact on koalas or koala habitat before granting consent. Council may grant consent if it can be shown that the development will have no to low impact on Koalas or Koala habitat, and in this regard, information may be provided to Council which shows that the land subject of the development application:

- a) does not include any trees with a diameter at breast height over bark of more than 10 centimetres, or includes only horticultural or agricultural plantations, or
- b) information provided by a suitably qualified and experienced person (as defined in Koala SEPP 2021):
 - i) does not include any koala use tree species (as listed under Koala SEPP 2021), or
 - ii) is not core Koala habitat.

If the Council is satisfied that the development is likely to have a higher level of impact on koalas or koala habitat, a Koala assessment report, prepared by a suitably qualified and experienced person about the likely and potential impacts of the development on koalas or koala habitat and the proposed management of those impacts, should be provided for the proposed Development Application.

The site contains no trees and, consequently, no Koala feed tree species. It is unlikely to be Koala habitat. Therefore, the Koala is not considered further in this assessment.

2.3 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act) is the legislation responsible for the conservation of biodiversity in NSW through the protection of threatened flora and fauna species, populations, and ecological communities. The BC Act, together with the Biodiversity Conservation Regulation 2017 (BC Regulation), established the Biodiversity Offsets Scheme (BOS).

The BOS includes establishment of the Biodiversity Assessment Method (the BAM, DPIE 2020) for use by accredited persons in biodiversity assessment under the scheme. The purpose of the BAM is to assess the impact of actions on threatened species and threatened ecological communities, and their habitats, and determine offset requirements. For major projects, use of the BAM is mandatory, unless a BDAR waiver is granted.

The BAM sets out the requirements for a repeatable and transparent assessment of terrestrial biodiversity values on land in order to:

- identify the biodiversity values on land subject to proposed development area
- determine the impacts of a proposed development, following all measures to avoid, minimise and mitigate impacts
- quantify and describe the biodiversity credits required to offset the residual impacts of proposed development on biodiversity values.

This biodiversity assessment has been undertaken in accordance with the requirements of the BAM.

2.4 Fisheries Management Act 1994

The *Fisheries Management Act 1994* (FM Act) contains provisions for the conservation of fish stocks, key fish habitat, biodiversity, threatened species, populations, and ecological communities. It regulates the conservation of fish, vegetation and some aquatic macroinvertebrates and the development and sharing of the fishery resources of NSW for present and future generations. The FM Act lists threatened species, populations and ecological communities, key threatening processes (KTPs) and declared critical habitat. Assessment guidelines to determine whether a significant impact is expected are detailed in section 220ZZ and 220ZZA of the FM Act.

Another objective of the FM Act is to conserve key fish habitat (KFH). These are defined as aquatic habitats that are important to the sustainability of recreational and commercial fishing industries, the maintenance of fish populations generally and the survival and recovery of threatened aquatic species. KFH is defined in Section 3.2.1 and 3.2.2 of the *Policy and Guidelines for Fish Conservation and Management* (DPI 2013).

No key fish habitat exists within the subject land.

2.5 Biosecurity Act 2015

The NSW *Biosecurity Act 2015* has superseded the *Noxious Weeds Act 1993*, which has now been repealed.

The primary objective of the Biosecurity Act is to provide a framework for the prevention, elimination and minimisation of biosecurity risks posed by biosecurity matter, dealing with biosecurity matter, carriers and potential carriers, and other activities that involve biosecurity matter, carriers, or potential carriers.

The Biosecurity Act stipulates management arrangements for weed biosecurity risks in NSW, with the aim to prevent, eliminate and minimise risks. Management arrangements include:

- any land managers and users of land have a responsibility for managing weed biosecurity risks that they know about or could reasonably be expected to know about
- applies to all land within NSW and all waters within the limits of the State
- local strategic weed management plans will provide guidance on the outcomes expected to discharge duty for the weeds in that plan.

The Snowy Monaro Regional Local Weed Management Plan is the relevant plan for the subject land. The plan outlines priority weeds for the region and their corresponding control requirements. The following are the priority weeds listed in the plan:

- Serrated Tussock (*Nassella trichotoma*)
- African Lovegrass (*Eragrostis curvula*)
- St John Wart (*Hypericum perforatum*)
- Gorse (*Ulex Europaeus*)
- Chilean needle grass (*Nassella neesiana*)
- Fireweed (*Senecio madagascariensis*)
- Cape Broom (*Genista monspessulana*)
- Scotch broom (*Cytisus scoparius*)
- Sweet Briar (*Rosa rubiginosa*)
- Nodding Thistle (*Carduus nutans*)
- Coolatai Grass (*Hyparrhenia hirta*)
- Blackberry (*Rubus fruticosus agg.*)

2.6 Water Management Act 2000

Division 6 of the *Water Management Act 2000* (WM Act) requires consideration of controlled activities (i.e. activities within 40 m of riparian land) and aquifer interference activities. The NSW Aquifer Interference Policy (NOW 2012) requires an assessment of potential impacts on groundwater users, including groundwater dependent ecosystems. Impacts on riparian land are considered in Section 3.1.2 of this report.

Part A

Biodiversity assessment

3 Landscape features

3.1 Landscape features

The landscape features described in the following sections are shown on Figure 1.1 and Figure 1.2.

3.1.1 Bioregions and landscapes

The subject land is located within the South Eastern Highlands Interim Biogeographic Regionalisation for Australia (IBRA) Region and the Monaro IBRA Sub Region (Figure 1.1).

The subject land is located within the Monaro Plains Basalts and Sands (Mitchell) Landscape which is adjacent to the Coolangubra – Good Good Plateau (Mitchell) Landscape

3.1.2 Rivers, streams, estuaries and wetlands

The subject land is within the Murrumbidgee Catchment. The Murrumbidgee Catchment covers an area of 84,000 square kilometres (km²) with elevations of 2,200 m in the east, falling to less than 50 m in the west (NSW DPE 2018).

No rivers or streams exist within the assessment area. An unnamed natural watercourse runs along the eastern side of Polo Flat Road but is separated from the subject land by industrial buildings.

The buffer area does not contain any nationally important wetlands, local wetlands or important wetlands listed on the NSW Wetlands layer (State Government of NSW and Department of Planning and Environment 2022).

3.1.3 Connectivity

The subject land is located directly adjacent (east) to the existing Monaro Rural Fire Service (RFS). The subject land has connectivity with vegetation in adjoining lands to the east and south. Vegetation to the south ends at the Snowy Hydro Segment Factory but does include some higher quality grassland patches identified in the EIS for the Segment Factory.

To the east of the subject land, and within Lot 14 DP250029, the vegetation connects to grasslands of similar quality which connect to grasslands managed for agriculture. There is minimal connectivity to the higher quality grasslands to the west in Old Cooma Common Grassland Reserve as the subject land is separated from this area by a road, several industrial buildings and an area of mown parklands.

3.1.4 Areas of geological significance

There are no areas of geological significance or soil hazard features identified within the subject land or its buffer.

3.1.5 Areas of outstanding biodiversity value

There are no Areas of Outstanding Biodiversity Value (AOBV), as declared by the NSW Minister for Energy and Environment, within the subject land or assessment area.

3.2 Assessment of site context

Vegetation mapping across the subject land and locality (State Government of NSW and Department of Planning and Environment 2022) identifies two PCTs. To calculate the native vegetation cover and patch size, a 1,500 m buffer area was applied, consistent with the requirements of the BAM (OEH 2017). The area of native vegetation within the buffer and the percent native vegetation was then calculated based on the State Vegetation Type mapping.

Vegetation proximal to the subject land is fragmented but relatively well connected considering the location within an industrial area, bordering a town. Within the 1,500 m buffer, which totals 795.66 hectares, 351.85 hectares of native vegetation is mapped and is classified as a patch. Therefore, vegetation cover is calculated as 44%.

4 Native vegetation

4.1 Background review

Biodiversity surveys were conducted by EMM in 2019 to identify biodiversity to be considered during project planning (EMM 2019). Surveys included the subject land as well as the remainder of study area.

Vegetation mapping was undertaken by EMM in March 2019. Vegetation mapping included delineation of plant community types (PCTs) and stratification of PCTs into vegetation zones. Plot surveys were also undertaken using the methods outlined in the BAM (OEH 2020). PCT 320 (Kangaroo Grass - Redleg Grass forb-rich temperate tussock grassland of the northern Monaro, ACT and upper Lachlan River regions of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion) was identified as being the only PCT present. The distribution of the PCT was assessed by traversing the property on foot and observing the plant species present.

Table 4.1 Preliminary vegetation zones in the subject land (EMM 2019)

PCT ID	PCT name	Vegetation zone ³
320	Kangaroo Grass – Redleg Grass forb-rich temperate tussock grassland of the northern Monaro, ACT and upper Lachlan River regions of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion	High
320	Kangaroo Grass – Redleg Grass forb-rich temperate tussock grassland of the northern Monaro, ACT and upper Lachlan River regions of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion	Poor

Preliminary surveys identified one PCT across the subject land (Table 4.1). Vegetation zones were delineated by the condition of derived grasslands in terms of percent native vegetation cover.

Revised PCTs for NSW became available in early 2023 and are included in the NSW State Vegetation Type Map. PCT 320 was archived as part of this revision and split into three new PCTs.

4.2 Methods

4.2.1 Detailed vegetation mapping and habitat assessment

An initial assessment of the subject land was undertaken on 28 March 2023. This initial assessment included detailed vegetation mapping and habitat assessments.

The subject land was traversed on foot, with vegetation mapped and aligned with NSW PCTs. PCTs were stratified into vegetation zones, based on broad condition state using the definitions in Table 4.2.

Table 4.2 Definitions used in delineation of vegetation zones

Condition class	Description
High	Largely intact with all strata present and minimal disturbance.
Medium	Some elements or strata missing or immature, but minimal disturbance.
Regenerating	Regeneration is occurring due to previous human impacts, such as clearing or fire, but minimal to moderate disturbance to other strata.
Derived native grassland (DNG)	Tree stratum and shrub stratum missing. Native vegetation restricted to groundcover.
Poor	Tree stratum present, but understorey vegetation degraded due to weeds or other major disturbance.
Exotic	Exotic vegetation contributes over 50% of the foliage cover.

Vegetation was mapped in the field using GPS-enabled mobile phones using Collector for ArcGIS™.

4.2.2 Vegetation integrity assessment

Following the stratification of vegetation zones within the subject land, native vegetation integrity was assessed using data obtained via a series of plots, as per the methodology outlined in Section 4.2.1, 4.3.3 and 4.3.4 of the BAM (DPIE 2020). Plot data was collected from the subject land on 28 March 2023. At each plot location, the following was undertaken:

- one 20 x 20 m plot, for assessment of composition and structure
- one 20 x 50 m plot, for assessment of function, including a series of five 1 x 1 m plots to assess average leaf litter cover.

The assessment of composition and structure, based on a 20 x 20 m plot, recorded species name, stratum, growth form, cover and abundance rating for each species present within the plot. Cover (foliage cover) was estimated for all species rooted in or overhanging the plot, and recorded using decimals (if less than 1%, rounded to whole number (1–5%) or estimated to the nearest 5% (5–100%)). Abundance was counted (up to 20) and estimated above 20, and recorded using the following intervals: 1, 2, 3, 4, 5, 10, 20, 50, 100, 500, 1,000, 1,500, 2,000 et cetera.

The assessment of function recorded the number of large trees, the presence of tree stem size class, tree regeneration, number of trees with hollows and length of fallen logs, as well as leaf litter cover within the 20 x 50 m plot and five 1 x 1 m subplots. The minimum number of plots and transects per vegetation zone was determined using Table 3 of the BAM (DPIE 2020). A total of 2 plots were undertaken within the subject land. Datasheets are provided in Appendix A.

Surveys for flora and vegetation communities were completed under the authority of Scientific License (SL100409). A list of flora species was compiled for each plot and PCT. Records of all flora species will be submitted to BCS for incorporation into the Atlas of NSW Wildlife.

4.3 Results

4.3.1 Vegetation description

Remnant native grassland exists throughout the subject land. This vegetation has been heavily impacted by past land use, particularly grazing with remaining areas showing low diversity and high levels of weeds. Vegetation within the site is historically part of the Cooma – Polo Flat Airport that was established in 1921 and was used in the 1950s and 60s to service the Snowy Mountain Scheme. In 2001, the facilities were updated for private use. Outside of the runway and associated airport infrastructure, the land within the site has previously been used for cattle grazing.

In the Monaro region, African Lovegrass, which is present in varying densities throughout the subject land, is identified as a priority weed due to significant infestations of the species occurring, reducing and eliminating native species. The site was mown at the time of the site visit which is likely to have reduced the ability to identify all species on site and hence, impact upon the VI scores.

A total of 38 species (14 native and 23 exotic) were recorded across the 2 recent EMM plots. This data was used to define which revised PCT the vegetation classifies as.

4.3.2 Plant community types

Table 4.3 Plant community types mapping within the subject land

Plant community type	Vegetation formation	Vegetation class	Percentage cleared	Direct impacts (ha)
PCT 3414 - Monaro Snowgrass-Kangaroo Grass Grassland	Grasslands	Temperate Montane Grasslands	77.58%	1.90

4.3.3 Vegetation zones

To identify PCTs within the subject land, data collected during the initial site visit to map vegetation was assessed. Floristic data collected during plot surveys were used to confirm the vegetation mapping. One PCT was identified within the subject land, as described in the following sections. Further stratification into differing vegetation zones was also required to meet the requirements of the BAM (DPIE 2020) and better define the distribution of Threatened Ecological Communities (TECs). Two vegetation zones were identified in the subject land. Vegetation zones were delineated by the percentage cover of exotic vegetation. Depending on the percentage cover of exotic vegetation, they were allocated to a condition class of native or exotic.

The subject land is dominated by open grasslands of generally poor condition and quality. These areas have been heavily impacted by mowing and historical pastoral activities, particularly grazing, and are dominated or co-dominated by exotic plant species.

A list of vegetation zones in the disturbance footprint, including the area of direct impact, is provided in Table 4.4.

Table 4.4 Vegetation zones and direct impacts

PCT ID	PCT name	Condition	Vegetation zone	Extent in direct impact area (ha)
3414	Monaro Snowgrass-Kangaroo Grass Grassland	Native species co-dominant	Poor	0.24
3414	Monaro Snowgrass-Kangaroo Grass Grassland	Exotic species dominant	Exotic	1.66

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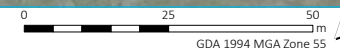
- KEY
- Project Boundary
 - BAM plot
 - Plant type community (PCT ID | PCT Name)
 - 3414 | Monaro Snowgrass-Kangaroo Grass Grassland-Native
 - 3414 | Monaro Snowgrass-Kangaroo Grass Grassland- Weed infested
 - Threatened ecological community
 - Natural Temperate Grassland of the South Eastern Highlands (Critically Endangered, EPBC Act)

Plant community types and vegetation zones

Fire Control Centre
Biodiversity Development Assessment Report
Figure 3



Source: EMM (2023); DCSSS (2023); ESRI (2023)



Poor condition PCT 3414 is best described as grassland which has been mown and historically grazed across the subject land. Areas of moderate to poor quality are distinguished largely by the species composition. Table 4.5 and Table 4.6 provide a description of the vegetation zones attributed to this PCT.

Table 4.5 Vegetation zones 1 description (PCT 3414 Native)

Monaro Snowgrass-Kangaroo Grass Grassland	
PCT ID	3414
PCT name	Monaro Snowgrass-Kangaroo Grass Grassland
Vegetation Formation	Grasslands
Vegetation Class	Temperate Montane Grasslands
Vegetation zone	Vegetation zone 1 - Poor
Extent within subject land	0.24 ha
Number of plots	1 plot
Vegetation integrity score	61.6
Description	Vegetation zone 1 Native covered some of the northern section running in a line to the centre of the subject land. While it was not highly diverse, native groundcover species contributed at least 50% of the foliage cover. Native grasses were dominated by Couch (<i>Cynodon dactylon</i>) and Snowgrass (<i>Poa sieberiana</i>) with Speargrasses (<i>Austrostipa</i> spp.). Native forbs were sparse but included an Acaena (<i>Acaena</i> sp.), Swamp Dock (<i>Rumex brownii</i>) and Common Everlasting (<i>Chrysocephalum apiculatum</i>). The non-manageable High Threat Weeds (HTW) African Lovegrass (<i>Eragrostis curvula</i>) and St John's Wort (<i>Hypericum perforatum</i>) were common throughout the zone. Serrated Tussock (<i>Nassella trichotoma</i>), another non-manageable HTW was noted as rare within the zone.
Diagnostic tools and justification used to assign PCT 3414	All possible PCTs were initially filtered by vegetation formation (Grassland – no trees were present, no evidence of trees having been present in the past was observed and no trees were noted in the vicinity of the subject land at a similar elevation), elevation (819 m), LGA, IBRA region, and sub-region. Next, the species plot data was compared with species characteristics of the remaining PCTs. The results from the comparison returned an equally high match of 10 species for both PCTs 3414 and 3413. PCT 3413, Monaro Kangaroo Grass Woodland-Grassland Complex, was ruled out as it is characterised by a tall grassy ground layer that almost always includes a high cover of Kangaroo Grass (<i>Themeda triandra</i>), which was not observed within the subject land. PCT 3414 was determined to be the best fit as the NSW VIS Classification states that it occurs on undulating terrain on the eastern Monaro Tableland around Cooma and is dominated by Snow Grass (<i>Poa sieberiana</i>) groundcover. This was consistent with the plot data, as Snow Grass had a high cover and abundance. The location of the site is also consistent with PCT 3414.
Characteristic species used for identification of PCT	According to the NSW VIS Classification, PCT 3414 is the only grassland PCT which almost always includes Snowgrass (<i>Poa sieberiana</i>). Aligning grass species included Couch (<i>Cynodon dactylon</i>), Spear Grass (<i>Austrostipa</i> sp.) and Red Leg Grass (<i>Bothriochloa macra</i>). Aligning forbs included Common Everlasting (<i>Chrysocephalum apiculatum</i>), <i>Plantago varia</i> and Swamp Dock (<i>Rumex brownii</i>).

Table 4.5 Vegetation zones 1 description (PCT 3414 Native)

Monaro Snowgrass-Kangaroo Grass Grassland	
TEC Status	Natural Temperate Grasslands of the South Eastern Highlands is listed as critically endangered under the EPBC Act. It is not listed in the BC Act. It is considered that vegetation zone 1 within the subject land conforms to the EPBC listing 'Moderate to High' category due to the following: • the percentage cover of native vascular plants is greater than the percentage cover of perennial exotic species • the presence of at least four non-grass native species (at non-favourable sampling times – 5 forbs were present) • the presence of at least one indicator species (at non-favourable sampling times – Common Everlasting) (Department of Climate Change, Energy, The Environment and Water 2016).
Estimate of percent cleared value of PCT across its distribution	77.58%
Patch size	101
Hollow-bearing trees	Not present
Photo: vegetation zone 1 PCT 3414 Poor	

Table 4.6 Vegetation zones 1 description (PCT 3414 Exotic)

Monaro Snowgrass-Kangaroo Grass Grassland	
PCT ID	3414
PCT name	Monaro Snowgrass-Kangaroo Grass Grassland
Vegetation Formation	Grasslands
Vegetation Class	Temperate Montane Grasslands
Condition class	Vegetation zone 2 - Exotic
Extent within subject land	1.66 ha
Number of plots	1 plot
Vegetation integrity score	26.6
Description	Vegetation zone 2 Exotic covered the majority of the subject land. Exotic vegetation contributed more than 50% of the foliage cover. Grasses were dominated by the exotic Prairie Grass (<i>Bromus catharticus</i>) with the native Couch (<i>Cynodon dactylon</i>). The exotic species Bearded Oats (<i>Avena barbata</i>) and Phalaris (<i>Phalaris</i> sp.) were also present. Native forbs were sparse but included a Blue Storksbill, (<i>Erodium crinitum</i>), Swamp Dock (<i>Rumex brownii</i>) and Small Crumbweed (<i>Dysphania pumilio</i>). The non-manageable High Threat Weeds (HTW) Serrated Tussock (<i>Nassella trichotoma</i>), African Lovegrass (<i>Eragrostis curvula</i>) and St John's Wort (<i>Hypericum perforatum</i>) were present.
Diagnostic tools and justification used to assign PCT 3414	All possible PCTs were initially filtered by vegetation formation (Grassland – no trees were present, no evidence of trees having been present in the past was observed and no trees were noted in the vicinity of the subject land at a similar elevation), elevation (819 m), LGA, IBRA region, and sub-region. Next, the species plot data was compared with species characteristics of the remaining PCTs. The results from the comparison returned an equally high match of 10 species for both PCTs 3414 and 3413. PCT 3413, Monaro Kangaroo Grass Woodland-Grassland Complex, was ruled out as it is characterized by a tall grassy ground layer that almost always includes a high cover of Kangaroo Grass, which was not observed within the subject land. PCT 3414 was determined to be the best fit as the NSW VIS Classification states that it occurs on undulating terrain on the eastern Monaro Tableland around Cooma and is dominated by Snow Grass (<i>Poa sieberiana</i>) groundcover. This was consistent with the plot data, as Snow Grass had a high cover and abundance and location of the subject land.
Characteristic species used for identification of PCT	According to the NSW VIS Classification, PCT 3414 is the only grassland PCT which almost always includes Snowgrass (<i>Poa sieberiana</i>). Aligning grass species included Couch (<i>Cynodon dactylon</i>) and Yanganbil (<i>Austrostipa bigeniculata</i>). Aligning forbs were restricted to Swamp Dock (<i>Rumex brownii</i>).
TEC Status	Natural Temperate Grasslands of the South Eastern Highlands is listed as critically endangered under the EPBC Act. It is not listed in the BC Act. It is considered that vegetation zone 2 within the subject land does not conform to the EPBC listing category due to the following: - the percentage cover of native vascular plants is not greater than the percentage cover of perennial exotic species - the absence of at least four non-grass native species (at non-favourable sampling times – 3 forbs were present) - the absence of at least one indicator species (at non-favourable sampling times) (Department of Climate Change, Energy, The Environment and Water 2016).

Table 4.6 **Vegetation zones 1 description (PCT 3414 Exotic)**

Monaro Snowgrass-Kangaroo Grass Grassland	
Estimate of percent cleared value of PCT across its distribution	77.58%
Patch size	101
Hollow-bearing trees	Not present
Photo: vegetation zone 1 PCT 3414 Exotic	

4.3.4 Vegetation integrity scores

One PCT and two vegetation zones occur in the subject land and were entered into the credit calculator to determine vegetation integrity scores. A summary of the vegetation integrity score for each vegetation zone is provided in Table 4.7. The vegetation integrity score is based on the plot data which is compared with benchmark values for each vegetation type.

Table 4.7 **Vegetation zone summary**

PCT ID	PCT name	Condition	Ancillary	Extent in disturbance footprint (ha)	Vegetation integrity score
3414	Monaro Snowgrass-Kangaroo Grass Grassland	Mod-Good	Poor	0.24	61.6
3414	Monaro Snowgrass-Kangaroo Grass Grassland	Poor	Exotic	1.66	26.6

The vegetation integrity scores were considered surprisingly high for this site due to the low number of native species recorded, combined with the high cover of exotic species.

4.3.5 Threatened ecological communities

Based on the information outlined in Table 4.7 above, one threatened ecological community has been recorded within the impact area. A summary is provided in Table 4.8.

Table 4.8 **Threatened ecological communities recorded in the impact area**

Threatened Ecological Community	EPBC Act	BC Act	Associated PCTs and vegetation zones	Area (direct impact)
Natural Temperate Grassland of the South Eastern Highlands	CE		PCT 3414 Poor	0.24

5 Threatened species

5.1 Threatened species habitat description

The subject land has an extensive history of use for a variety of purposes, including grazing. As a result, the subject land provides limited refuge or habitat for fauna. The groundcover consists of a sparse to moderate cover of native grasses, including tussock grasses, and forbs. No fallen timber or hollow logs were present, but some leaf litter was observed due to the site having been mown. No rocks are present within the subject land to provide habitat for ground-dwelling reptiles dependent on such features.

No mid-storey or canopy was present to provide hollows or other arboreal fauna habitat. No waterways, farm dams, or riparian vegetation are present.

5.2 Ecosystem credit species

Ecosystem credits species are threatened species that can be reliably predicted to use an area of land based on habitat surrogates. For the purposes of the BAM (DPIE 2020), ecosystem credit species are deemed to be offset through the habitat surrogates (PCTs) in which they occur.

A list of ecosystem credit species predicted to occur within the subject land, based on the PCTs present and generated by the calculator associated within the BAM (DPIE 2020) is provided in Table 5.1. The potential for these species to occur within the disturbance footprint was assessed in accordance with Section 5.2.2 of the BAM (DPIE 2020), based on a field assessment of habitat constraints and microhabitat presence and condition.

Table 5.1 Assessment of ecosystem credit species within the disturbance footprint

Scientific name	Common name	Vegetation zones	Habitat or geographic constraints	Sensitivity to loss class	Justification for exclusion
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	3414	-	Moderate	Excluded. Habitat (forests and woodlands) not present within or adjacent to the subject land.
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	3414	-	Moderate	Excluded. No habitat or foraging trees found within or adjacent to the subject land.
<i>Calyptorhynchus lathamii</i>	Glossy Black-Cockatoo	3414	Presence of Allocasuarina and Casuarina species.	Moderate	Excluded. No suitable foraging trees present in or adjacent to the subject land.
<i>Chthonicola sagittata</i>	Speckled Warbler	3414	-	Moderate	Excluded. Habitat (eucalypt dominated communities with grass understory) not present within or adjacent to the subject land. Undisturbed environments important for species presence. Grassland habitat present on the subject land is highly degraded.
<i>Circus assimilis</i>	Spotted Harrier	3414	-	Moderate	Not excluded. Occurs in grasslands.
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	3414	-	Moderate	Included. Habitat (Eucalypt woodlands) not present within or adjacent to the subject land but species may use grasslands as foraging habitat.

Table 5.1 **Assessment of ecosystem credit species within the disturbance footprint**

Scientific name	Common name	Vegetation zones	Habitat or geographic constraints	Sensitivity to loss class	Justification for exclusion
<i>Daphoenositta chrysoptera</i>	Varied Sittella	3414	-	Moderate	Excluded. Habitat (eucalyptus forests or woodlands) not present within or adjacent to the subject land.
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	3414	-	High	Excluded. It is unlikely for the species to occur on the subject land since it is degraded open grassland and the species is dependent on forests or degraded areas with paddock trees.
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	3414	-	High	Excluded. No Permanent water bodies present in or adjacent to the subject land.
<i>Epthianura albifrons</i>	White-fronted Chat	3414	-	Moderate	Excluded. Present in grassy regions in wetland areas. No wetlands present in or adjacent to the subject land.
<i>Falco subniger</i>	Black Falcon	3414	-	Moderate	Excluded. Habitat (woodlands and tree lined water courses) not present within or adjacent to the subject land.
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	3414	-	Moderate	Excluded. Habitat (woodlands) not present within or adjacent to the subject land.
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	3414	Within 1 km of rivers, lakes, large dams or creeks, wetlands and coastlines.	Moderate	Excluded. No large areas of open water in or around the subject land which is the species primary habitat.
<i>Hieraaetus morphnoides</i>	Little Eagle	3414	-	Moderate	Not excluded. While this species' preferred habitat (open eucalyptus forest, woodland, or open woodland) is not present within or adjacent to the subject land, it is known to forage over grasslands while hunting.
<i>Hirundapus caudacutus</i>	White-throated Needletail	3414	-	Moderate	Excluded. Unlikely as the species shows a preference for wooded areas.
<i>Lophoictinia isura</i>	Square-tailed Kite	3414	-	Moderate	Excluded. Habitat (timbered environments) not present within or adjacent to the subject land.
<i>Melanodryas cucullata cucullata</i>	Hooded Robin (south-eastern form)	3414	-	Moderate	Included. While this species requires structurally diverse habitat with eucalypt trees which is not present within or adjacent to the subject land, the area may be used as foraging habitat.
<i>Petroica boodang</i>	Scarlet Robin	3414	-	Moderate	Included. While this species inhabits dry eucalyptus forest and woodlands, it may utilise the subject land as foraging habitat.

Table 5.1 **Assessment of ecosystem credit species within the disturbance footprint**

Scientific name	Common name	Vegetation zones	Habitat or geographic constraints	Sensitivity to loss class	Justification for exclusion
<i>Petroica phoenicea</i>	Flame Robin	3414	-	Moderate	Included. While this species inhabits dry eucalyptus forest and woodlands, it may utilise the subject land as foraging habitat.
<i>Stagonopleura guttata</i>	Diamond Firetail	3414	-	Moderate	Included. Can occur in grasslands with scattered trees. No scattered trees present within the subject land but are on adjacent landholdings.
<i>Suta flagellum</i>	Little Whip Snake	3414	-	Moderate	Excluded. No scattered or loose rocks which the species is associated with. Species was not present during targeted species surveys for other reptiles. Grassland habitat present on the subject land is highly degraded.
<i>Varanus rosenbergi</i>	Rosenberg's Goanna	3414	-	Moderate	Excluded. Habitat (open forest woodland or heath) not present in or adjacent to the subject land. Shelter features: burrows, hollow logs or rock crevices are absent from the subject land. Grassland habitat present on the subject land is highly degraded.

5.3 Species credit species

5.3.1 Candidate species assessment

In accordance with Step 3 (Section 5.2.3 of BAM (DPIE 2020)), a field assessment of habitat constraints and microhabitats was undertaken in the field to determine the suitability of habitat within the subject land for candidate species (species credit species associated with specific geographic and landscape feature constraints) and any other any other species credit species considered have potential to occur in the subject land.

Candidate species predicted by the BAMC are shown in Table 5.2. As part of the BDAR for the Snowy Hydro Segment Factory, EMM undertook threatened species survey in 2019. Species surveyed for included Mauve Burr-daisy (*Calotis glanulosa*), Creeping Hop-bush (*Dodonaea procumbens*), Hoary Sunray (*Leucochrysum albicans* var. *tricolor*), Silky Swainson-pea (*Swainsona sericea*), Little Whip Snake (*Suta flagellum*), Striped Legless Lizard (*Delma impar*) and the Grassland Earless Dragon (*Timpanocryptis pinguicolla*). During these surveys, three species were observed, Hoary Sunray (*Leucochrysum albicans* var. *tricolor*), Little Whip Snake (*Suta flagellum*) and Striped Legless Lizard (*Delma impar*) outside of the current subject land. These findings are discussed further in 5.3.4. No additional species were considered to have potential to occur in the subject land.

An assessment of the geographic and landscape constraints has been provided for each species, with a justification provided where species have been excluded, in accordance with Steps 1 to 3 (Section 5.2.1 to 5.2.3) of the BAM.

Table 5.2 Candidate threatened species assessment

Step 1 – Identify threatened species for assessment		Step 2 – Assessment of habitat and geographic constraints and vagrant species		Step 3 – Identify candidate species not excluded under Step 2 for further assessment based on microhabitat assessment or expert report	
Scientific name	Common name	Habitat/geographic constraints	Constraint present in subject land?	Vagrant species?	Candidate species (yes/no) and rationale
Flora					
<i>Calotis glandulosa</i>	Mauve Burr-daisy	South of Michelago	Yes	No	Yes – habitat highly degraded and historically grazed. The species has been recorded adjacent to the site, including to the north-east and west but is unable to persist in heavily grazed sites. The subject land was surveyed for threatened flora by EMM in 2019 and no Mauve Burr-daisy was located.
<i>Commersonia prostrata</i>	Dwarf Kerrawang	N/A	N/A	No	No – habitat highly degraded and this species is known from woodland habitats. Subject land was surveyed for threatened flora by EMM in 2019 and no Dwarf Kerrawang was located.
<i>Dillwynia glaucula</i>	Michelago Parrot-pea	N/A	N/A	No	No – habitat highly degraded. Furthermore, while this species has been recorded in woodlands adjacent to natural temperate grasslands, it is a woodland species.
<i>Discaria nitida</i>	Leafy Anchor Plant	Riparian areas of within 50 m of riparian area	No	No	No – this species grows in riparian corridors which are not found within the site.
<i>Dodonea procumbens</i>	Trailing Hop-bush	South of Michelago	Yes	No	Yes – habitat highly degraded. While this species does grow in natural temperate grassland and has been recorded near Carlaminda Road to the east of the site, it is most commonly observed on bare patches where there is little competition from other species. It does not persist in heavily grazed sites, and the site was historically heavily grazed. Very few bare patches exist in this weedy grassland and the species was not found during threatened flora surveys completed by EMM in 2019.
<i>Eucalyptus aggregata</i>	Black Gum	East of a line that runs north to south about 5 km west of Bungendore	No	No	No – outside of geographic constraint and habitat not present - this species grows on alluvial soils, on cold, poorly-drained flats and hollows adjacent to creeks and small rivers. No trees are present in the subject land.
<i>Eucalyptus parvula</i>	Small-leaved Gum	N/A	N/A	No	No – habitat not present – this species grows at and above 1,100 m on cold wet grassy flats. The subject land’s elevation is below 800 m. No trees are present in the subject land.
<i>Eucalyptus pulverulenta</i>	Silver-leafed Gum	N/A	N/A	No	No – habitat not present – this species grows in forest habitat. No trees are present in the subject land.
<i>Leucochrysum albicans</i> subsp. <i>tricolor</i>	Hoary Sunray, Grassland Paper-daisy	N/A	N/A	No	No – while this species was recorded during the 2019 threatened flora surveys of the lot concerned, it was not recorded within the subject land. The location of the plant recorded was further south-east of the subject land in substantially higher condition grasslands.
<i>Pelargonium</i> sp. <i>Striatellum</i>	Omeo Storksbill	N/A	N/A	No	No – habitat not present – this species grows on the edges of ephemeral swamps. This species was not recorded within the subject land during threatened flora surveys of the site in 2019.
<i>Prasophyllum sandrae</i>	Majors Creek Leek Orchid	N/A	N/A	No	No – habitat not present – species grows in woodlands. Known from one site only (was last seen 1991 in cemetery). There is doubt about its description and whether it is a distinct species.
<i>Rutidosis leiolepis</i>	Monaro Golden Daisy	N/A	N/A	No	No – this species is highly susceptible to grazing, and the site was historically heavily grazed. The species was not found during threatened flora surveys completed by EMM in 2019 although it is known to occur adjacent to the lot.
<i>Rutidosis leptorrhynchoides</i>	Button Wrinklewort	N/A	N/A	No	No – this species grows in Box Gum woodlands and grasslands derived from the clearing of these woodlands rather than the natural grasslands occurring within the subject land. Furthermore, the species was not found during threatened flora surveys completed by EMM in 2019.
<i>Swainsona sericea</i>	Silky Swainson-pea	N/A	N/A	No	No – this species was not recorded within the subject land during threatened flora surveys of the site in 2019, despite being known from Kuma Nature Reserve, south of the lot.
<i>Thesium australe</i>	Austral Toadflax, Toadflax	N/A	N/A	No	No – habitat highly degraded. Furthermore, this species is parasitic on the roots of Kangaroo Grass (<i>Themeda triandra</i>), which was not present in abundance at the subject land. Nor was the species recorded during threatened flora surveys of the site conducted by EMM in 2019.

Table 5.2 Candidate threatened species assessment

Step 1 – Identify threatened species for assessment		Step 2 – Assessment of habitat and geographic constraints and vagrant species		Step 3 – Identify candidate species not excluded under Step 2 for further assessment based on microhabitat assessment or expert report	
Scientific name	Common name	Habitat/geographic constraints	Constraint present in subject land?	Vagrant species?	Candidate species (yes/no) and rationale
Reptiles					
<i>Aprasia parapulchella</i>	Pink-tailed Legless Lizard	Rocky areas or within 50 m of rocky areas	No	No	No – habitat of rocky areas is not present in the subject land or within 50 m of the subject land.
<i>Delma impar</i>	Striped Legless Lizard	N/A	N/A	No	No – although this species was recorded during the 2019 threatened species surveys of the overall lot by EMM, it was not recorded within the subject land. Mowing of the site has significantly degraded the grassland habitat for this species. Furthermore, the subject land is lacking in the necessary microhabitats of scattered loose rocks that this species requires.
<i>Suta flagellum</i>	Little Whip Snake				No – although this species was recorded during the 2019 threatened species surveys of the overall lot by EMM, it was not recorded within the subject land. Mowing of the site has significantly degraded the grassland habitat for this species. Furthermore, the subject land is lacking in the necessary microhabitats of scattered loose rocks that this species requires.
<i>Tympanocryptis lineata</i>	Canberra Grassland Earless Dragon	N/A	N/A	No	No – habitat highly degraded due to weed invasion and mowing. This species requires the microhabitat of partially embedded surface rocks which provide shelter and important refuges for this species during extreme temperature events. Surveys for this species were conducted by EMM in 2019 which did not reveal the presence of this species.
<i>Tympanocryptis osbornei</i>	Monaro Grassland Earless Dragon	N/A	N/A	No	No – habitat highly degraded due to weed invasion and mowing. This species requires the microhabitat of partially embedded surface rocks which provide shelter and important refuges for this species during extreme temperature events.
Birds					
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo Breeding	Hollow bearing trees	No	No	No – timbered habitat not present.
<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo Breeding	Hollow bearing trees	No	No	No – timbered habitat not present.
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Living or dead mature trees within suitable vegetation within 1 km of a rivers, lakes, large dams or creeks, wetlands and coastlines	No	Yes	No living or dead mature trees are present in or adjacent to the subject land.
<i>Hieraaetus morphnoides</i>	Little Eagle	Nest trees - live (occasionally dead) large old trees within vegetation)	No	No	No large old trees are present in or adjacent to the subject land.
<i>Lophoictinia isura</i>	Square-tailed Kite	Nest Trees	No	No	No trees are present in or adjacent to the subject land.
Amphibians					
<i>Litoria aurea</i>	Green and Golden Bell Frog	Within 1 km of swamp or waterbody	No	No	No – no swamps or suitable waterbodies within 1 km of the subject land exist.
<i>Litoria raniformis</i>	Southern Bell Frog	N/A	N/A	No	No – habitat not present - found in swamps or billabongs along rivers or in rice crops.

5.3.2 Candidate species credit species requiring further assessment

Candidate species for further assessment were identified in accordance with Step 1 to 2 (Section 5.2.1 to 5.2.2) of BAM (DPIE 2020). No candidate species require further assessment.

5.3.3 Targeted survey methods

i Fauna Habitat Assessment

Concurrent with the vegetation mapping, a habitat assessment was undertaken seeking to identify the following fauna habitat features within the site:

- quantity of ground litter and logs
- rocky habitats suitable to support reptile species
- suitable ground cover habitat such as native tussocky grass that provide microhabitats for reptiles
- searches for indirect evidence.

The habitat assessment identified that the site was subjected to a high level of disturbance from previous and current land uses and exotic species outcompeting native species. The grassland habitat has been mown for hazard reduction purposes.

ii Targeted flora surveys

No targeted flora surveys were undertaken as part of this assessment as they have been completed previously. Targeted flora surveys were undertaken by EMM in 2019 as part of the assessment of the Snowy Hydro 2.0 Solar Farm. These targeted flora surveys were undertaken during November 2019 in accordance with DPIE (2020b) and DoE (2013a) guidelines and include transects spaced at intervals of 10 m across the site. Figure 5.1 illustrates the tracks walked for the flora survey.

i Targeted fauna surveys

No targeted fauna surveys were undertaken as part of this assessment. Targeted fauna surveys were undertaken by EMM in 2019 as part of the assessment of the Snowy Hydro 2.0 Solar Farm. Stratification units, as well as survey methods and effort are outlined below. These surveys focused on areas of suitable habitat, none of which were located within the current subject land. Fauna survey locations are illustrated in Figure 5.1. Targeted fauna surveys were conducted within the site between May and December 2019 for reptiles.

Reptile surveys were undertaken to target two reptile species listed under the BC Act and EPBC Act:

- Striped Legless Lizard
- Grassland Earless Dragon.

Stratification units and area of each survey unit in the Polo Flat site are shown in Table 5.3.

Table 5.3 **Stratification units and survey area – reptiles**

Vegetation class/site	Area (ha)
Western Slopes Grassland	22.13
Non-native vegetation	62.00
Total	84.13

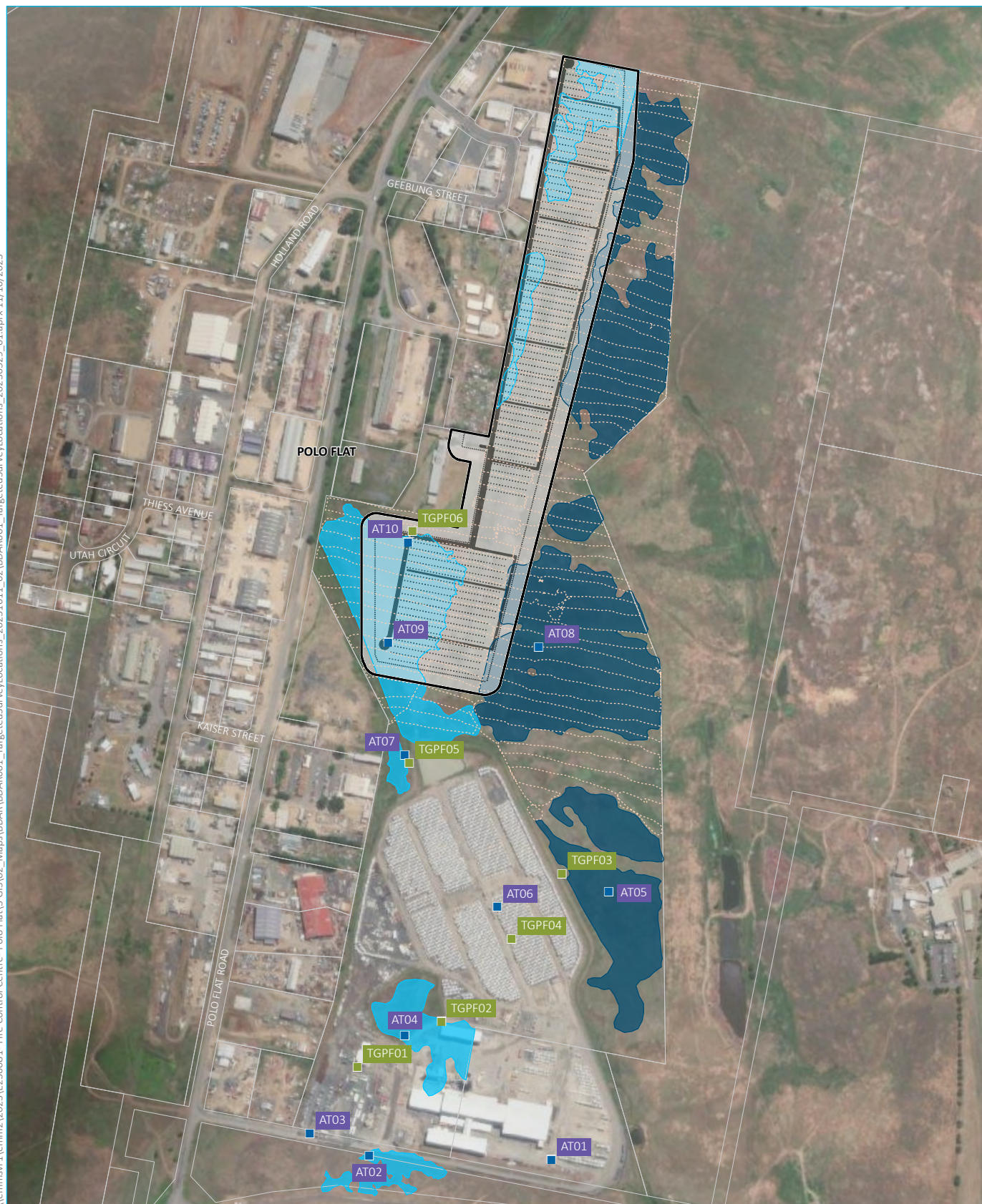
Survey methods have been undertaken as per guidance from *Survey Guidelines for Australia's Threatened Reptiles* (DSEWPaC 2011a). Traps were set outside the required survey period, and survey effort was extended to the recommended survey timing for each species as per guidance in DSEWPaC 2011a and 2011b and in the BAM (DPIE 2020a).

Methods and survey effort are outlined in Table 5.4.

Table 5.4 **Methods and survey effort – reptiles**

Method	Survey description	Survey effort
Tile grids (for all species)	Each tile grid was set out as follows: • Tile grid, consisting of 50 tiles spaced at 5 m spacing between tiles in a 5 x 10 grid. • The corner of each grid is marked with a star picket, and each tile labelled A1 to E10. • Tile grids have been checked at least twice a month, when temperatures are below 28°C. • If the species is detected at a tile grid the grid will be collected and moved to an alternate location to increase survey coverage. DSEWPaC (2011a) recommends tile grids are installed at least three months prior to the initial survey/checks (by June).	Minimum survey requirements for the Striped Legless Lizard recommends that 10 tile grids are deployed for sites greater than 30 ha in size. Six tile grids were established across the site. Three grids were within mapped areas of PCT 320, with three placed in non-native vegetation. Surveys were undertaken between May to December 2019. Survey sites were established in May, and checked weekly between May and June, followed by monthly checks between July and September. Weekly checks recommenced in October until end of November.
Arthropod traps (Grassland Earless Dragon)	Arthropod traps, constructed of PVC tubing, are used in accordance with the following method: • Prior to placing the traps, ground cover vegetation within a 1 m radius is slashed short to improve visibility of the artificial burrows to the dragon. • PVC tube is inserted vertically into the substrate, with the opening level with the surface. • An inner tube is placed into this to allow removal of trapped animals or debris. • A metal roof is placed over each trap to shelter animals from sun and rain, and to assist in locating tubes. • Inspection of tubes is carried out by torch, with traps checked once every two to three days over a five-week period.	No minimum survey effort is specified in DSEWPaC (2011a). Ten arthropod traps were established across the site. Seven trap lines were within mapped areas of PCT 320, with three placed in non-native vegetation. Survey sites were established in September 2019 and checked weekly within October and November 2019.

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Source: EMM (2020); Jacobs (2020); SHL (2020); DFSI (2017); ESRI (2020); GA (2011)

KEY

- Study area
- Arthropod burrow
- Tile grid
- Targeted flora transect
- Existing environment
- Cadastral boundary

PCT 320 | Kangaroo Grass- Redleg Grass forb-rich temperate tussock grassland of the northern Monaro, ACT and upper Lachlan River regions of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion

High

Poor

Targeted survey locations

Polo Flat Solar Project
Biodiversity Development Assessment Report
Figure 5.1

5.3.4 Targeted survey results

i Targeted flora surveys

No threatened flora was observed within the subject land, however Hoary Sunray (*Leucochrysum albicans* var. *tricolor*) was identified upslope of the subject land in another section of the property in high condition grassland (EMM recorded as being in high condition in 2019). The species is located more than 30 m from the project boundary; and this species will not be impacted. Therefore, no species credits will be required.

ii Targeted fauna surveys

No targeted fauna surveys were undertaken as part of this assessment. Targeted fauna surveys were undertaken by EMM in 2019 as part of the assessment of the Snowy Hydro 2.0 Solar Farm to search for threatened reptiles. Two threatened fauna species listed under the BC Act were recorded within the southern section of the site (Figure 5.1). These include:

- Striped Legless Lizard
- Little Whip Snake (ecosystem credit species).

The Grassland Earless Dragon is considered a low likelihood of occurring within subject land. The Grassland Earless Dragon requires micro-habitat elements such as rocks and arthropod holes within the grassland habitat. Given the failure to record this species during the previous targeted surveys, it is considered unlikely to occur.

a Striped Legless Lizard

The Striped Legless Lizard (Photograph 5.1) was recorded at a single tile grid location on five separate occasions (Figure 5.1). This tile grid is located in an area of exotic grassland dominated by African Lovegrass to the south of the subject land. The Striped Legless Lizard is found in areas of native grassland, nearby grassy woodland and exotic pasture. The species is known to occur in the threatened ecological community (TEC) Natural Temperate Grassland of the South Eastern Highlands; however, it is also known to occur in grasslands with a high exotic component (TSSC 2016a). Favoured habitat includes grassland dominated by perennial, tussock-forming grasses. The Striped Legless Lizard shelters in grass tussocks, thick ground cover, soil cracks, under rocks, spider burrows, and underground debris such as timber (DoAWE 2020).

In 2019, sites for reptile survey were chosen based on the availability of habitat features within the overall lot. No sites for reptile survey were selected within the subject land as no shelter habitat in the form of scattered surface rocks, logs, cracking soils or cow pats were located. The RFS considered the subject land, which lies directly to the east of their current building, a fire hazard and as such reduced their risk of bushfire by mowing the area. This practice of mowing commenced in 2022 and has been ongoing since further reducing the viability of the habitat for this species which requires grass tussocks and thick ground cover. The dominant grass within the subject land is now Couch (*Cynodon dactylon*), which does not form tussocks. Given the significantly degraded nature of the grasslands, reduction of tussock forming grasses and ongoing modification of the grassland structure through mowing, it is considered unlikely that this species would persist within the subject land. Photographs located in Table 4.5 and Table 4.6 illustrate the lack of structural diversity maintained within the mown grasslands of the subject land. Photograph 5.2 shows the habitat in the area where Striped Legless Lizard were located in 2019 to illustrate the difference between habitat and the current state of the subject land.



Photograph 5.1 Stripped Legless Lizard (image courtesy of Amy Rowles)



Photograph 5.2 Stripped Legless Lizard habitat south of the subject land near where Striped Legless Lizard were located in 2019.

Part B

Impact assessment

6 Impact assessment

This chapter identifies the potential impacts of the project on the biodiversity values. Measures taken to date to avoid and minimise impacts are summarised and recommendations to assist in the design a development that further avoids, minimises, and mitigates impacts are provided.

6.1 Potential direct, indirect, and prescribed impacts

The proposed development would result in the following direct impacts on biodiversity:

- loss of native vegetation, some of which comprises a critically endangered ecological community
- loss of an area of non-native vegetation.

Without any measures to avoid, minimise, or mitigate impacts, the proposed development would result in the following impacts on biodiversity:

- further degradation of native grassland habitats
- weed introduction and spread.

Wherever possible, impacts have been avoided and/or minimised through the design of the disturbance footprints. Any residual impacts would be compensated through implementation of the biodiversity offset scheme.

6.1.1 Direct impacts

i Loss of native vegetation

The proposed development would result in the loss of 1.9 ha of native vegetation. 0.24 ha of this vegetation meets the criteria for Natural Temperate Grassland Critically Endangered Ecological Community under the EPBC Act (see Section 4.3.5).

6.2 Prescribed impacts

An assessment of prescribed impacts is provided in Table 6.1.

Table 6.1 Prescribed impact assessment

Feature	Present	Description and location	Potential impact	Threatened species or community dependent on feature
Karst, caves, crevices, cliffs, rocks or other geological features of significance	No	No karst, caves, crevices, cliffs or other geological features of significance are located within the subject land.	N/A	N/A
Human-made structures	No	No human-made structures are located within the subject land.	N/A	N/A

Table 6.1 Prescribed impact assessment

Feature	Present	Description and location	Potential impact	Threatened species or community dependent on feature
Non-native vegetation	Yes	Exotic grasslands	Loss of exotic grassland.	The removal of exotic grasslands will result in a very minor loss of marginal foraging habitat the Little Eagle which is known to hunt prey such as rabbits in exotic grasslands. Striped Legless Lizard may also use exotic grasslands but requires rocky habitat which is not present.
Habitat connectivity	Yes	Native grasslands connect to adjacent areas of native grassland	Further restriction of extent of native grassland.	Native grassland comprises the TEC Natural Temperate Grasslands
Waterbodies, water quality and hydrological processes	No	No waterbodies are located within or directly adjacent to the subject land.	N/A	N/A
Wind farm development	No	N/A	No wind farm proposed on the subject land	N/A
Vehicle strikes	No	N/A	No new roads required for proposed development	N/A

6.3 Avoidance, minimisation and management

6.3.1 Avoidance and minimisation strategy

The project involves the construction of a new Fire Command Centre and associated infrastructure. The original design for the FCC included a larger storage facility, another helipad and a larger training area. The project was scaled back to a smaller area allowing the project's infrastructure to be designed, where possible, to avoid the bulk of the native grassland areas as well as to minimise the project footprint and costs.

The key avoidance measure that has been implemented include placing the reduced sized infrastructure to the southern side of the site where the exotic grassland dominates and retaining the native grasslands in areas which would be used for overflow parking on an as needs basis in large-scale emergency situations. To compensate for unavoidable disturbance, biodiversity offsets will be provided.

The final project footprint, following the implementation of avoidance and minimisation measures, is shown in Figure 1.2.

6.4 Serious and Irreversible Impacts

Based on information from the Threatened Biodiversity Data Collection (TBDC), no candidate SAIL entities were related to this project.

6.5 Impacts not requiring offsets

In accordance with Section 9.2.1 of BAM (DPIE 2020), impacts on vegetation zones which are not habitat for species credit species do not require offsets where:

- a vegetation zone representative of a critically endangered or endangered ecological community has a vegetation integrity score less than 15, and/or
- a vegetation zone representative of a vulnerable ecological community and/or threatened (ecosystem credit) species habitat has a vegetation integrity score less than 17, and/or
- a vegetation zone that is not listed as a threatened ecological community and is not habitat for any threatened species has a vegetation integrity score less than 20.

No such vegetation was recorded within the subject land.

6.6 Impacts requiring offset

This section provides an assessment of the impacts requiring offsetting in accordance with Section 9.2 of BAM (DPIE 2020).

i Impacts on native vegetation

Impacts to native vegetation requiring offsets include:

- direct impacts on 1.9 ha of PCT 3414 - Monaro Snowgrass-Kangaroo Grass Grassland.

A summary of the ecosystem credits required for all vegetation zones, including changes in vegetation integrity score, are provided in Table 6.2. A total of 29 ecosystem credits are required to offset the residual impacts of the proposed development. A credit report is provided in Appendix C.

Table 6.2 Summary of ecosystem credits required for all vegetation zones

Vegetation zone number	PCT	Vegetation zone name	Area	Vegetation integrity score	Future vegetation integrity score	Change in vegetation integrity score	Credits required
1	3414 - Monaro Snowgrass-Kangaroo Grass Grassland	PCT 3414 Poor	0.24	61.6	0.0	-61.6	7
2	3414 - Monaro Snowgrass-Kangaroo Grass Grassland	PCT 3414 Exotic	1.66	26.6	0.0	-26.6	22

ii Impacts on threatened species

The Striped Legless Lizard (*Delma impar*) is known to occur within the broader lot. This species inhabits natural temperate grasslands but has also been found in modified grasslands with a high exotic component. It requires significant amounts of surface rocks which are used for shelter but sometimes will use dried cowpats for shelter. In winter, the species goes below ground under rocks or logs (Australian Government Department of Climate Change, Energy, the Environment and Water 2003). While the species has been recorded nearby, the site was not considered suitable habitat for this species as there is no shelter habitat within the significantly modified habitat.

The practice of mowing the site combined with the fact that no shelter in the form of surface rocks, fallen timber or even cow pats is present, indicates that the site is not likely to support a population of this lizard.

Therefore, no candidate (species credit) species are likely to be impacted by the project. Potential impacts on predicted (ecosystem credit) species are offset through the ecosystem credit requirement listed in Table 6.2.

Offsets will be provided through implementation of the biodiversity offset scheme.

7 Assessment of other relevant biodiversity legislation

7.1 Environment Protection and Biodiversity Conservation Act 1999

This chapter provides an assessment of the project's impacts specific to species and communities listed under the EPBC Act. A likelihood of occurrence assessment for protected matters is presented in Section 7.1.1.

7.1.1 Likelihood of occurrence assessment

i Threatened ecological communities

Four PCTs were predicted to occur within the subject land by the Protected Matters Search Tool (PMST):

- Alpine Sphagnum Bogs and Associated Fens
- Natural Temperate Grassland of the South Eastern Highlands
- Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion)
- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland.

Table 7.1 assesses the likelihood of these TECs occurring in the subject land. Natural Temperate Grassland CEEC (which is listed under the EPBC Act) was recorded in the subject land. Impacts to this TEC are discussed further in Section 7.1.2. The PCT recorded on the subject land is not consistent with the other TECs predicted to occur, and these TECs are not considered further.

Table 7.1 **Likelihood of occurrence for listed ecological communities**

Ecological community	EPBC Act Status	Habitat requirements	Likelihood of occurrence
Alpine Sphagnum Bogs and Associated Fens	E	Characterised by the presence of <i>Sphagnum</i> spp. on a peat substratum. This community is found in small pockets across alpine, subalpine and montane areas always on a peat substratum (Department of Climate Change, Energy, The Environment and Water 2008).	Negligible. Does not occur – this community is not consistent with the PCT nor hydrological environment identified during the field surveys.
Natural Temperate Grassland of the South Eastern Highlands	CE	Characterised by a dominance of native perennial tussock grasses, the tallest stratum of which is typically up to 1.0 m in height, when present. There is usually a second, lower stratum of shorter perennial and annual grasses and forbs growing between the taller tussocks. The major dominant or co-dominant grass species are: Kangaroo grass, Snowgrass, River Tussock Grass, Knead Speargrass (<i>Austrostipa bigeniculata</i>), Corkscrew Speargrass, Red grass, various Wallaby grass species (<i>Rytidosperma</i> spp.), Blowngrass (<i>Lachnagrostis filiformis</i>) and Wild Sorghum (<i>Sorghum leiocladium</i>).	Recorded. Up to 0.24 ha directly impacted. As this CEEC is listed under the EBPC Act, a pre-referral meeting with the DCCEEW has been undertaken. Due to the small area of poor condition grassland involved, the proposal is not considered likely to have a significant impact on this CEEC.
Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion)	E	This community occurs in high altitude depressions that are not connected to rivers or streams but consist of near-permanent, intermittent or ephemeral wetlands (Department of Climate Change, Energy, the Environment and Water 2008).	Negligible. Does not occur – this community is not consistent with the PCT nor hydrological environment identified during the field surveys.
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland	CE	Box – Gum Grassy Woodlands and Derived Grasslands are characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, and the dominance, or prior dominance, of White Box, Yellow Box or Blakely's Red Gum trees with Kangaroo Grass and Snow Grass dominating the ground layer (Beeton 2006).	Negligible. Does not occur – this community is not consistent with the PCT identified during the field surveys. Furthermore, no evidence of trees once being present within or adjacent to the subject land was observed during the site visit and the floristic composition is a better match to natural temperate grasslands.

The PMST, BioNET records within a 10 km buffer of the land, species associated with PCT 3414 and/or BAMC predicted that 60 species listed under the EPBC Act could occur within the subject land. The likelihood of occurrence for these species is assessed in Table 7.2.

Table 7.2Likelihood of occurrence for threatened species

Scientific Name	Common Name	EPBC Status	Source	Likelihood of occurrence
Birds				
<i>Numenius madagascariensis</i>	Eastern Curlew, Far Eastern Curlew	CE	PMST	Low. Unlikely to occur as suitable foraging habitat (sandflats and mudflats) are absent from the subject land.
<i>Lathamus discolor</i>	Swift Parrot	CE	PMST	Low. Unlikely to occur as suitable foraging trees are absent from the subject land.
<i>Calidris ferruginea</i>	Curlew Sandpiper	CE	PMST	Negligible. Unlikely to occur as suitable foraging habitat (intertidal mudflats, swamps, lakes, lagoons) are absent.
<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	PMST	Low. Unlikely to occur as suitable foraging trees are absent from subject land.
<i>Rostratula australis</i>	Australian Painted Snipe	E	PMST	Low. Unlikely to occur as suitable habitat (lakes, swamps, claypans, waterlogged grassland / saltmarsh, dams, rice crops, sewage farms and bore drains) are absent in the subject land.
<i>Collocephalon fimbriatum</i>	Gang-gang Cockatoo	E	PMST, PCT Association	Low. Unlikely to occur as suitable foraging and hollow bearing trees are absent from the subject land.
<i>Melanodryas cucullata cucullata</i>	South-eastern Hooded Robin, Hooded Robin (south-eastern)	E	PMST, PCT Association	Low. Unlikely to occur as suitable habitat (dry eucalypt and acacia woodlands and shrublands with) and essential foraging features (rocks and fallen timber) are absent from the subject land.
<i>Calyptorhynchus lathami lathami</i>	South-eastern Glossy Black-Cockatoo	V	PMST	Low. Unlikely to occur as suitable foraging and hollow bearing trees are absent from the subject land.
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (south-eastern)	V	PMST, PCT Association, BioNet	Low. Unlikely as suitable habitat (woodland with open understory) is absent from the subject land.
<i>Polytelis swainsonii</i>	Superb Parrot	V	PMST	Low. Unlikely to occur as suitable foraging and hollow bearing trees are absent from the subject land.
<i>Aphelecephala leucopsis</i>	Southern Whiteface	V	PMST	Low. Unlikely to occur as suitable habitat (open woodlands and shrublands) are absent in the subject land.
<i>Hirundapus caudacutus</i>	White-throated Needletail	V	PMST, PCT Association, BioNet	Low. Unlikely as the species shows a preference for wooded areas.
<i>Neophema chrysostoma</i>	Blue-winged Parrot	V	PMST	Low. Not common for the area, one record 19 km away from 1999. Suitable habitat as the species favours grasslands and grassy woodlands and has been recorded in altered environments such as airfields.
<i>Stagonopleura guttata</i>	Diamond Firetail	V	PMST, PCT Association, BioNet	Moderate. Potential to occur given recent and nearby records, however the species shows a preference for lightly timbered environments with high grass cover.
<i>Grantiella picta</i>	Painted Honeyeater	V	PMST, PCT Association	Low. Unlikely to occur as suitable habitat (mature trees with mistletoe) are absent in the subject land.
<i>Collocephalon fimbriatum</i>	Gang-gang Cockatoo	E	BioNet, BAMC	Low. Unlikely to occur as suitable habitat (mature trees with suitable hollows or foraging trees) are absent in the subject land.
<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V	BAMC	Low. Unlikely to occur as suitable habitat (mature trees with suitable hollows or foraging trees) are absent in the subject land.
Fish				
<i>Bidyanus bidyanus</i>	Silver Perch, Bidyan	CE	PMST	Negligible. No permanent water features within the subject land.
<i>Maccullochella macquariensis</i>	Trout Cod	E	PMST	Negligible. No permanent water features within the subject land.
<i>Macquaria australasica</i>	Macquarie Perch	E	PMST	Negligible. No permanent water features within the subject land.
<i>Prototroctes maraena</i>	Australian Grayling	V	PMST	Negligible. No permanent water features within the subject land.
<i>Maccullochella peelii</i>	Murray Cod	V	PMST	Negligible. No permanent water features within the subject land.

Table 7.2 Likelihood of occurrence for threatened species

Scientific Name	Common Name	EPBC Status	Source	Likelihood of occurrence
Frogs				
<i>Litoria castanea</i>	Yellow-spotted Tree Frog, Yellow-spotted Bell Frog	CE	PMST	Low. No permanent water features within the subject land.
<i>Litoria verreauxii alpina</i>	Alpine Tree Frog, Verreaux's Alpine Tree Frog	V	PMST	Low. No permanent water features within the subject land.
<i>Litoria aurea</i>	Green and Golden Bell Frog	V	PCT Association, BioNet, BAMC	Low. No permanent water features within the subject land.
<i>Litoria raniformis</i>	Southern Bell Frog	V	PCT Association, BAMC	Low. No permanent water features within the subject land.
Insects				
<i>Keyacris scurra</i>	Key's Matchstick Grasshopper	E	PMST	Low. The species is sensitive to irregular disturbance and erratic management. The subject land has undergone mowing and grazing at irregular times.
<i>Synemon plana</i>	Golden Sun Moth	V	PMST	Low. Unlikely due to the lack of larval food plants on the subject land.
Mammals				
<i>Dasyurus maculatus maculatus</i> (SE mainland population)	Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population)	E	PMST	Low. It is unlikely for the species to occur on the subject land since it is open grassland, the species is dependent on forest
<i>Phascolarctos cinereus</i> (combined populations of Qld, NSW and the ACT)	Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)	E	PMST	Low. No suitable habitat (Eucalyptus forests and woodlands) within the subject land.
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	PMST, BioNet	Low. No suitable habitat within the subject land.
<i>Petaurus australis australis</i>	Yellow-bellied Glider (south-eastern)	V	PMST	Negligible. No suitable habitat (Eucalypt-dominated woodlands and forests) within the subject land.
Reptiles				
<i>Tympanocryptis pinguicolla</i>	Victorian Grassland Earless Dragon	E	PMST	Low. The species was not recorded during targeted surveys.
<i>Aprasia parapulchella</i>	Pink-tailed Worm-lizard, Pink-tailed Legless Lizard	V	PMST, PCT Association, BioNet, BAMC	Low. Unlikely to occur due to the lack of habitat features (rocky outcrops) and the high level of site disturbance, including grazing, mowing, and invasive plant species.
<i>Delma impar</i>	Striped Legless Lizard, Striped Snake-lizard	V	PMST, PCT Association, BioNet, BAMC	Low – while this species was recorded in the overall lot during threatened species surveys in 2019, it was not recorded within the subject land. It is considered unlikely to occur within the subject land due to the lack of microhabitats present in the form of scattered loose surface rocks and the significant disturbances resulting from the mowing of the subject land.
<i>Tympanocryptis lineata</i>	Canberra Grassland Earless Dragon	E	PCT Association, BAMC	Low. The Grassland Earless Dragon requires micro-habitat elements such as rocks and arthropod holes within the grassland habitat. Given the failure to record this species during targeted surveys in 2019, it is considered unlikely to occur.
<i>Tympanocryptis osbornei</i>	Cooma Grassland Earless Dragon		BioNet, BAMC	Low. The Grassland Earless Dragon requires micro-habitat elements such as rocks and arthropod holes within the grassland habitat. Given the failure to record this species during targeted surveys in 2019, it is considered unlikely to occur.
Plants				
<i>Leucochrysum albicans subsp. tricolor</i>	Hoary Sunray, Grassland Paper-daisy	E	PMST, PCT Association, BioNet, BAMC	Low. While this species was observed in the lot, it was not located within the subject land and hence will not be impacted by this proposal.
<i>Rutidosis leptorhynchoides</i>	Button Wrinklewort	E	PMST	Low. Unlikely to occur due to regular disturbance (mowing and grazing) of the subject land which have created unfavourable conditions for the species. Not found during site walk overs or floristic surveys.
<i>Lepidium hyssopifolium</i>	Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed	E	PMST	Low. The subject land is not within known distribution. Not found during site walk overs or floristic surveys.
<i>Prasophyllum petilum</i>	Tarengo Leek Orchid	E	PMST	Low. The subject land is not within known distribution. Unlikely to occur due to regular disturbance (mowing and grazing) which the species is susceptible to. Not found during site walk overs or floristic surveys.

Table 7.2 Likelihood of occurrence for threatened species

Scientific Name	Common Name	EPBC Status	Source	Likelihood of occurrence
<i>Monotoca rotundifolia</i>	Trailing Monotoca	E	PMST	Low. The subject land is not within known distribution. Species usually occurs in shrubland of Snow Gum woodland. Not found during site walk overs or floristic surveys.
<i>Rutidosis leiolepis</i>	Monaro Golden Daisy	V	PMST, PCT Association, BioNet, BAMC	Low. Unlikely to occur due to regular disturbance (mowing and grazing) of the subject land which have created unfavourable conditions for the species. The species is highly susceptible to grazing. Not found during site walk overs or floristic surveys.
<i>Calotis glandulosa</i>	Mauve Burr-daisy	V	PMST, PCT Association, BioNet, BAMC	Low. Unlikely to occur due to regular disturbance (mowing and grazing) of the subject land which have created unfavourable conditions for the species. Not found during site walk overs or floristic surveys.
<i>Pomaderris pallida</i>	Pale Pomaderris	V	PMST	Low. The species usually occurs in shrub communities surrounded by brittle gum. Not found during site walk overs or floristic surveys.
<i>Senecio macrocarpus</i>	Large-fruit Fireweed, Large-fruit Groundsel	V	PMST	Low. Unlikely to occur due to regular disturbance (mowing and grazing) of the subject land which have created unfavourable conditions for the species. Lack of Kangaroo Grass (<i>Themeda triandra</i>) present on site which the species associates with. Not found during site walk overs or floristic surveys.
<i>Thesium australe</i>	Austral Toadflax, Toadflax	V	PMST, PCT Association, BAMC	Low. Unlikely to occur due to regular disturbance (mowing and grazing) of the subject land which have created unfavourable conditions for the species. Not found during site walk overs or floristic surveys.
<i>Lepidium aschersonii</i>	Spiny Peppercross	V	PMST, BioNet	Low. Unlikely to occur due to regular disturbance (mowing and grazing) of the subject land which have created unfavourable conditions for the species. Not found during site walk overs or floristic surveys.
<i>Eucalyptus aggregata</i>	Black Gum	V	PMST, PCT Association, BioNet, BAMC	Low. Unlikely to occur due to regular disturbance (mowing and grazing) of the subject land which have created unfavourable conditions for the species. Not found during site walk overs or floristic surveys.
<i>Eucalyptus pulverulenta</i>	Silver-leaved Mountain Gum, Silver-leaved Gum	V	PMST, PCT Association, BAMC	Low. Unlikely to occur due to regular disturbance (mowing and grazing) of the subject land which have created unfavourable conditions for the species. Not found during site walk overs or floristic surveys.
<i>Dodonaea procumbens</i>	Trailing Hop-bush	V	PMST, PCT Association, BioNet, BAMC	Low. Unlikely to occur due to regular disturbance (mowing and grazing) of the subject land which have created unfavourable conditions for the species. Not found during site walk overs or floristic surveys.
<i>Commersonia prostrata</i>	Dwarf Kerrawang	E	PCT Association, BAMC	Low. Unlikely to occur due to regular disturbance (mowing and grazing) of the subject land which have created unfavourable conditions for the species. Not found during site walk overs or floristic surveys.
<i>Pelargonium</i> sp. <i>Striatellum</i>	Omeo Storksbill	E	PCT Association, BAMC	Low. This species grows in the edge of ephemeral wetlands on different soil types. Not found during site walk overs or floristic surveys.
<i>Rutidosis leptorrhynchoides</i>	Button Wrinklewort	E	PCT Association, BAMC	Low. Unlikely to occur due to regular disturbance (mowing and grazing) of the subject land which have created unfavourable conditions for the species. Not found during site walk overs or floristic surveys.

No threatened species have been recorded within the subject land, although three threatened species have been recorded adjacent to the subject land. The subject land does, however, contain potential foraging habitat for the Diamond Firetail (*Stagonopleura guttata*). While this species breeds in nests in shrubs or trees, it is known to feed exclusively on the ground, on ripe and partly-ripe grass and herb seeds and green leaves, and on insects (NSW Office of Environment and Heritage 2017).

iii Migratory species

Three species listed as migratory under the EPBC Act were predicted to occur in the subject land based on database searches undertaken. Table 7.3 provides an assessment of the likelihood of these species utilising habitat within the subject land. These species are discussed further below.

Table 7.3 Likelihood of occurrence for migratory species

Scientific name	EPBC Status	Source	Potential presence
Eastern Curlew (<i>Numenius madagascariensis</i>)	Mi	PMST	Low. Unlikely to occur given the absence of preferred foraging habitats including sandflats and mudflats.
Curlew Sandpiper (<i>Calidris ferruginea</i>)	Mi	PMST	Low. Unlikely to occur given the absence of preferred foraging habitats including intertidal mudflats, swamps, lakes, lagoons.
White-throated Needletail (<i>Hirundapus caudacutus</i>)	Mi	PMST, BAMC	Low. Unlikely to occur given the absence of forested areas within the subject land, the species preferred habitat.

7.1.2 Significant impact assessments

Natural Temperate Grassland CEEC was recorded within the subject land, while the Diamond Firetail was considered a moderate likelihood of occurrence.

Impacts to this TEC and threatened bird are assessed below.

a Natural Temperate Grassland of the South Eastern Highlands

The Commonwealth Listing Advice for the critically endangered Natural Temperate Grasslands of the South Eastern Highlands provides a general description of the community and describes its current status. Natural Temperate Grassland occurs at altitudes of up to approximately 1,200 m in and around the South Eastern Highlands in a wide range of topographic positions on soils derived from a variety of substrates including granites, basalts and sediments (Department of Climate Change, Energy, The Environment and Water 2016).

Grasslands are amongst the most extensively cleared vegetation groups in Australia due to their suitability for agriculture and associated developments (Keith, 2004).

The approved Conservation Advice for this ecological community lists clearing for agricultural intensification, urban development, impacts associated with fragmentation, inappropriate management including disturbance regimes, invasive flora and fauna and climate change as the main threats to this ecological community (Australian Department of Climate Change, Energy, the Environment and Water 2016).

A series of questions to assist in determining if patches are included in the listed community are included in the approved Conservation Advice for Natural Temperate Grasslands (Australian Department of Climate Change, Energy, the Environment and Water 2016) as follows.

Moderate to High Condition Threshold Section B for non-favourable sampling times states that a 20 x 20 m sampling plot must contain:

- at least four non-grass native species, or
- at least one indicator species (Indicator species are listed in the Floristic Values Score by Rehwinkel 2015), or
- a floristic values score (FVS by Rehwinkel, 2015) of at least 3.

Grasslands in the Poor category within which the BAM plot was undertaken in the native vegetation on the subject land included five non-grass native species and an indicator species. The floristic values score tool was not run as the site complies with two of the assessment criteria for the critically endangered ecological community (Australian Department of Climate Change, Energy, the Environment and Water 2016). The remaining 1.66 hectares of vegetation does not meet the criteria for the Natural Temperate Grassland CEEC listing as the percent cover of perennial exotic species was recorded as greater than the percent cover of native vascular plants (Australian Department of Climate Change, Energy, the Environment and Water 2016).

Approximately 0.24 ha of the EPBC Act listed community will be impacted by the proposed development. Table 7.4 provides an assessment of significance for the removal of 0.24 ha of Natural Temperate Grassland for the project, in accordance with the assessment criteria for critically endangered ecological communities (Australian Government Department of the Environment 2013).

Table 7.4 Assessment of significance for Natural Temperate Grassland in the subject land

Criteria	Discussion
Conservation status	Critically endangered
1. Reduce the extent of an ecological community	Approximately 0.24 ha of the listed community will be removed as a result of the project. The listed community has also been mapped within the immediate vicinity of the subject land during previous surveys of the greater lot (EMM Consulting 2016). Within a 1,500 m buffer of the subject land, approximately 351.86 ha of Natural Temperate Grassland is mapped. This comprises 298.61 ha of PCT 3414 (including areas mapped on site) and 53.24 ha of PCT 3413 (Monaro Kangaroo Grass Woodland-Grassland Complex). Note that this does not account for the condition of vegetation mapped, and areas of these PCTs in poor condition may not meet the criteria for the EPBC Act listed community. PCT 3414 has been identified as representing Natural Temperate Grassland in the subject land. Accordingly, the project would result in a reduction of 0.06% in extent of the CEEC within a 1,500 m radius of the project (based on all areas of the PCTs above meeting the EPBC Act condition requirement, excluding areas ground-truthed on site as being in poor or other condition). The Commonwealth listing advice (TSSC 2006) estimates that less than 50,000 ha of the community remains throughout its geographic extent. Accordingly, the project will result in a reduction of 0.00048% in the community's extent.
2. Fragment or increase fragmentation	The listed community is somewhat fragmented surrounding the subject land as lands to the north, south, and west are fragmented by urban and industrial development, while lands to the east consist of grasslands which are managed for agriculture to varying degrees of intensity. The proposal will decrease the extent of the community but will not increase the degree of fragmentation.

Table 7.4 **Assessment of significance for Natural Temperate Grassland in the subject land**

Criteria	Discussion
3. Adversely affect critical habitat	A national recovery plan has not been developed but Conservation Advice for this community was approved in March 2016 (Australian Department of Climate Change, Energy, the Environment and Water 2016). The conservation advice states that an action is likely to have a significant impact if it will adversely affect habitat critical to the survival of an ecological community or result in a reduction in the extent of an ecological community. Approximately 0.24 ha of vegetation in the subject land meets the above criteria. According to the PCT mapping (OEH 2018), there is approximately 351.86 ha of PCTs that represent the listed community within a 1,500 m radius of the project. The Conservation advice does not identify any critical habitat for this CEEC but states that less than 50,000 hectares of this CEEC remains. As the proposal represents a potential reduction of 0.24 hectares of poor quality vegetation in a community of 50,000 hectares, it equates to approximately a reduction of 0.0000048% of the remaining CEEC.
4. Modify or destroy abiotic factors necessary for survival	Abiotic factors including soil and surface hydrology will be modified in the subject land, and this, therefore, represents a permanent impact.
5. Cause a substantial change in species composition	The project will remove 0.24 ha of habitat for the listed community within the subject land. The extent of the Natural Temperate Grassland within the subject land has contracted in the last five years largely due to weed encroachment. The current practice of mowing the site is known to encourage the spread of African Lovegrass (<i>Eragrostis curvula</i>) (Pope & Linda 2010) and may have contributed to the contraction of native vegetation. It is proposed that Snowy Monaro Council intend to purchase the site from Snowy Hydro. If this were to occur, weed management within the site is likely to prevent further degradations in species composition through weed invasion.
6. Cause a substantial reduction in quality or integrity	Areas within and outside of the subject land have been subjected to the indirect impacts of the practice of mowing. This does appear to have led to a contraction in the extent and condition of the CEEC over the last five years. Weed management measures will be developed and implemented in retained areas of the community outside the FCC development footprint, but within the subject land.
7. Interfere with recovery	While a national recovery plan has not been developed (Department of Climate Change, Energy, the Environment and Water 2013), the Conservation Advice sets out priority conservation actions for this CEEC, with the objective to mitigate the risk of extinction and maintain the community's biodiversity and function. This is to be achieved by: • protecting remnants of the ecological community and avoiding further clearance or fragmentation • identifying and formally protecting key sites for conservation management • avoiding disturbances which alter the hydrology or nutrient status of a patch • creating or protecting buffer zones of at least 30 m from the outer edge of a patch • supporting research to develop effective management of the major invasive weeds and fauna impacting the community • avoiding disturbances such as mowing or burning during peak flowering and fruiting times for the community • identifying and promoting appropriate fire and grazing regimes. The clearance of up to 0.24 ha of the CEEC will directly contravene these actions, by reducing the extent of the listed community. Current management of the site is not consistent with these actions as the site is regularly slashed with no weed control undertaken. Continuation of the current land management practices is likely to encourage the further decline of the remnant patch within the subject land. Section 6.3.1 details avoidance measures incorporated into the project design to minimise impacts on this community. Placement of the FCC and its associated facilities within the subject land aims to reduce the impact on the patch of remnant grassland.
Conclusion	A pre-referral meeting with the DCCEEW was undertaken on 18 May 2023 to discuss the impacts on this community. The project is considered unlikely to result in a significant impact on the listed community as 0.24 ha of poor quality habitat is to be removed from a community that is estimated to be less than 50 000 ha. This amounts to a reduction of approximately 0.0000048% of the remaining CEEC.

7.2 Biosecurity Act 2015

Four priority weeds of the Snowy Monaro Regional Local Weed Management Plan were recorded in the subject land, namely Serrated Tussock, African Lovegrass, St John's Wort and Sweet Briar. The following are the priority weeds and their control requirements:

- Serrated Tussock (*Nassella trichotoma*): Landowners/occupiers are required prevent and eliminate new infestations of the weed. Established infestations must be contained and reduced. A staged council approved plan may be used to manage infestations.
- African Lovegrass (*Eragrostis curvula*): Landowners/occupiers are required to prevent establishment and seeding of new infestations. Medium to dense infestations are to be contained and effort made to minimise seeding. A staged council approved plan may be used to manage infestations.
- St John Wort (*Hypericum perforatum*): Landowners/occupiers are required prevent and eliminate new infestations of the weed. Established infestations are to be contained and reduced. A staged council approved plan may be used to manage infestations.
- Sweet Briar (*Rosa rubiginosa*): Landowners/occupiers are required prevent and eliminate new infestations of the weed. Established infestations are to be contained and reduced. A staged council approved plan may be used to manage infestations.

8 Conclusion

This BDAR has been prepared in accordance with BAM (DPIE 2020). The FCC proposal involves the clearing of 1.9 hectares of PCT 3414, Monaro Snowgrass – Kangaroo Grass Grassland. The grassland was separated into two condition classes based on the cover of native species. Areas which contained more than 50% cover of native vegetation were classed as native while the remainder was classed as exotic. The proposal includes the removal of 0.24 hectares of native grassland and 1.66 hectares of exotic co-dominated grassland.

The proposal requires 29 ecosystem credits to compensate for impacts on native PCTs and ecosystem credit species. No species credits are required.

The BDAR has also considered impacts on species and ecological communities listed under the EPBC Act. The area of grassland which had a cover of over 50% native vegetation classified as Natural Temperate Grassland CEEC. A pre-referral meeting occurred with the DCCEEW to discuss the impacts on Natural Temperate Grassland CEEC on 18 May 2023. The reduction in the area of this vegetation is not considered a significant impact on Natural Temperate Grassland CEEC as it represents a loss of approximately 0.0000048% of the community.

8.1 Impact summary and recommendations

Vegetation within the subject land is historically part of an airfield which was used to service the Snowy Scheme. Following this time, the area was grazed and is now degraded as a result of historical land clearing, grazing and weed infestation. More recently, the site has been mown and the area of native vegetation that classifies as Natural Temperate Grassland CEEC has reduced in size from vegetation mapping conducted in 2019. Habitat for threatened species is highly degraded and several high threat weed (HTW) species were present.

Two vegetation zones were mapped within the subject land, one where native species dominated and the other which was dominated by exotic grasses. The areas of native dominance classified as PCT 3414 and as Natural Temperate Grassland Critically Endangered Ecological Community (CEEC) under the EPBC Act. The proposal will result in the loss of 0.24 hectares of Natural Temperate Grassland CEEC and has been referred to the Federal Minister for Environment.

A total of 29 ecosystem credits are required to offset these impacts.

In summary, the site of the proposed FCC has been selected to avoid the most significant areas of grassland within the lot but cannot avoid all areas. Areas to be impacted are highly degraded and do not form important habitat for threatened flora or fauna.

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Appendix A

Vegetation integrity plot data

BAM Site – Field Survey Form

Plot ID:	PF01	Date:	29/03/23	Project number:	E230081	Plot dimensions:	20x50	
Datum:	GDA94	Easting:	693,350	Recorders:	JB MP			
Zone:	55	Northing:	5,989,061	IBRA region:	South Eastern Highlands IBRA (Monaro)	Midline bearing:	261	
Plant Community Type:	3414: Monaro Snowgrass-Kangaroo Grass Grassland				Condition class:	Native	PCT confidence:	low
Vegetation Class:	Temperate Montane Grasslands				EEC:	no	EEC confidence:	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	4
	Forbs:	6
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	40.2
	Forbs:	0.6
	Ferns:	0
	Other:	0
High Threat Weed cover:		0.8

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	90	70	80	80	40
Average litter cover (%):	72				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features
Note new PCT is 3414. Possible EEC however site is very weedy.

Plot Disturbance
Grazing, mowing, abundant weeds

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
 Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
 Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Project name:	E230081				
Recorders:	JB MP	Plot ID:	PF01	Date:	29/03/23

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
Grass & grasslike (GG)	<i>Poa sieberiana</i> (Snowgrass)	20	1000		N
	<i>Echium vulgare</i> (Viper's Bugloss)	0.2	100		E
	<i>Eragrostis curvula</i> (African Lovegrass)	0.5	100		HTE
	<i>Bromus catharticus</i> (Praire Grass)	20	4000		E
	<i>Hypericum perforatum</i> (St. Johns Wort)	0.3	200		HTE
	<i>Plantago lanceolata</i> (Lamb's Tongues)	0.1	100		E
Grass & grasslike (GG)	<i>Austrostipa</i> spp. (A Speargrass)	0.1	100		N
Grass & grasslike (GG)	<i>Cynodon dactylon</i> (Common Couch)	20	2000		N
Forb (FG)	<i>Vittadinia cuneata</i> (A Fuzzweed)	0.1	10		N
Grass & grasslike (GG)	<i>Bothriochloa macra</i> (Red Grass)	0.1	20		N
	<i>Avena</i> spp. (Oats)	1	200		E
	<i>Salvia verbenaca</i> (Vervain)	0.2	100		E
	<i>Conyza bonariensis</i> (Flaxleaf Fleabane)	0.1	50		E
Forb (FG)	<i>Acaena</i> spp. (Sheep's Burr)	0.1	80		N
Forb (FG)	<i>Rumex brownii</i> (Swamp Dock)	0.1	30		N
Forb (FG)	<i>Chrysocephalum apiculatum</i> (Common Everlasting)	0.1	100		N
	<i>Tragopogon</i> spp.	0.1	10		E
Forb (FG)	<i>Asperula conferta</i> (Common Woodruff)	0.1	100		N
	<i>Petrorhagia nanteuillii</i> (Proliferous Pink)	0.1	10		E
	<i>Hirschfeldia incana</i> (Buchan Weed)	0.1	10		E
Forb (FG)	<i>Plantago varia</i>	0.1	10		N

BAM Site – Field Survey Form

Plot ID:	PF02	Date:	04/04/23	Project number:	E230081	Plot dimensions:	20x50	
Datum:	GDA94	Easting:	693,262	Recorders:	JB MP			
Zone:	55	Northing:	5,988,918	IBRA region:	South Eastern Highlands IBRA (Monaro)	Midline bearing:	298	
Plant Community Type:	3414: Monaro Snowgrass-Kangaroo Grass Grassland				Condition class:	Exotic	PCT confidence:	high
Vegetation Class:	Temperate Montane Grasslands				EEC:	no	EEC confidence:	high

Record easting and northing at 0 m on midline. Dimensions (Shape) of 0.04 ha base plot.

BAM Attribute (400 m2 plot)		Sum values
Count of Native Richness	Trees:	0
	Shrubs:	0
	Grasses etc.:	2
	Forbs:	4
	Ferns:	0
	Other:	0
Sum of Cover of native vascular plants by growth form group	Trees:	0
	Shrubs:	0
	Grasses etc.:	25.5
	Forbs:	0.4
	Ferns:	0
	Other:	0
High Threat Weed cover:		0.3

BAM Attribute (1000 m2 plot) DBH			
DBH	Tree stem count	Length of logs (m) (≥10 cm diameter, >50 cm in length)	0
80 + cm:	0		
50 – 79 cm:	0		
30 – 49 cm:	0		
20 – 29 cm:	0	Tree hollow count	0
10 – 19 cm:	0		
5 – 9 cm:	0		
< 5 cm:	0		

Counts apply when no. of tree stems within a size class is ≤ 10. Estimates can be used when > 10 (eg. 10, 20, 30..., 100, 200, 300...). For multi-stemmed tree, only largest living stem is included in the count. Tree stems must be living.
For hollows, count only the presence of a stem containing hollows. For a multi-stemmed tree, only the largest stem is included in the count/estimate. Stems may be dead and may be shrubs.

BAM Attribute (1 x 1 m plots)	Litter cover (%)				
Subplot:	1	2	3	4	5
Subplot score (%):	70	75	65	85	75
Average litter cover (%):	74				

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography and site features
New PCT is 3414.

Plot Disturbance
Very weedy, gazing, mowing.

GF Code: see Growth Form definitions in Appendix 1; N: native, E: exotic, HTE: high threat exotic; GF – circle code if 'top 3'; Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover)
 Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m
 Abundance: 1, 2, 3, ..., 10, 20, 30, ..., 100, 200, ..., 1000, ...

Project name:	E230081				
Recorders:	JB MP	Plot ID:	PF02	Date:	04/04/23

GF Code	Scientific name	Cover	Abundance	Voucher	N, E or HTE
	<i>Bromus catharticus</i> (Praire Grass)	30	4000		E
Grass & grasslike (GG)	<i>Cynodon dactylon</i> (Common Couch)	25	4000		N
	<i>Trifolium</i> spp. (A Clover)	0.1	50		E
	<i>Tragopogon porrifolius</i> subsp. <i>porrifolius</i> (Salsify)	0.1	2		E
	<i>Hirschfeldia incana</i> (Buchan Weed)	0.1	10		E
	<i>Avena barbata</i> (Bearded Oats)	1	100		E
Forb (FG)	<i>Malva</i> spp. (Mallow)	0.1	4		N
Grass & grasslike (GG)	<i>Austrostipa bigeniculata</i> (Yanganbil)	0.5	100		N
	<i>Plantago lanceolata</i> (Lamb's Tongues)	0.1	50		E
	<i>Phalaris</i> spp.	0.5	20		E
Forb (FG)	<i>Erodium</i> spp. (Crowfoot)	0.1	50		N
	<i>Sonchus oleraceus</i> (Common Sowthistle)	0.1	10		E
	<i>Onopordum</i> spp.	0.1	20		E
	<i>Lactuca serriola</i> (Prickly Lettuce)	0.1	20		E
	<i>Echium vulgare</i> (Viper's Bugloss)	0.1	40		E
Forb (FG)	<i>Rumex brownii</i> (Swamp Dock)	0.1	10		N
	<i>Potentilla recta</i>	0.1	4		E
	<i>Medicago</i> spp. (A Medic)	0.1	100		E
	<i>Salvia verbenaca</i> (Vervain)	0.1	20		E
	<i>Nassella trichotoma</i> (Serrated Tussock)	0.1	4		HTE
	<i>Cirsium vulgare</i> (Spear Thistle)	0.1	4		E
Forb (FG)	<i>Dysphania pumilio</i> (Small Crumbweed)	0.1	4		N
	<i>Lepidium africanum</i> (Common Peppergrass)	0.1	20		E
	<i>Hypericum perforatum</i> (St. Johns Wort)	0.1	4		HTE
	<i>Eragrostis curvula</i> (African Lovegrass)	0.1	10		HTE

Appendix B

Protected Matters search results

BAM Predicted Species Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00039976/BAAS18157/23/00039977	E230081 FCC Polo Flat	14/04/2023
Assessor Name	Report Created	BAM Data version *
Maya Potapowicz	18/04/2023	58
Assessor Number	Assessment Type	BAM Case Status
BAAS18157	Part 4 Developments (General)	Open
Assessment Revision	BOS entry trigger	Date Finalised
0	BOS Threshold: Area clearing threshold	To be finalised

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Black Falcon	Falco subniger	3414-Monaro Snowgrass-Kangaroo Grass Grassland
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	3414-Monaro Snowgrass-Kangaroo Grass Grassland
Diamond Firetail	Stagonopleura guttata	3414-Monaro Snowgrass-Kangaroo Grass Grassland
Dusky Woodswallow	Artamus cyanopterus cyanopterus	3414-Monaro Snowgrass-Kangaroo Grass Grassland
Eastern False Pipistrelle	Falsistrellus tasmaniensis	3414-Monaro Snowgrass-Kangaroo Grass Grassland
Flame Robin	Petroica phoenicea	3414-Monaro Snowgrass-Kangaroo Grass Grassland
Gang-gang Cockatoo	Callocephalon fimbriatum	3414-Monaro Snowgrass-Kangaroo Grass Grassland
Hooded Robin (south-eastern form)	Melanodryas cucullata cucullata	3414-Monaro Snowgrass-Kangaroo Grass Grassland
Little Eagle	Hieraaetus morphnoides	3414-Monaro Snowgrass-Kangaroo Grass Grassland
Little Whip Snake	Suta flagellum	3414-Monaro Snowgrass-Kangaroo Grass Grassland
Rosenberg's Goanna	Varanus rosenbergi	3414-Monaro Snowgrass-Kangaroo Grass Grassland

BAM Predicted Species Report

Scarlet Robin	<i>Petroica boodang</i>	3414-Monaro Snowgrass-Kangaroo Grass Grassland
Speckled Warbler	<i>Chthonicola sagittata</i>	3414-Monaro Snowgrass-Kangaroo Grass Grassland
Spotted Harrier	<i>Circus assimilis</i>	3414-Monaro Snowgrass-Kangaroo Grass Grassland
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	3414-Monaro Snowgrass-Kangaroo Grass Grassland
Square-tailed Kite	<i>Lophoictinia isura</i>	3414-Monaro Snowgrass-Kangaroo Grass Grassland
Varied Sittella	<i>Daphoenositta chrysoptera</i>	3414-Monaro Snowgrass-Kangaroo Grass Grassland
White-fronted Chat	<i>Epthianura albifrons</i>	3414-Monaro Snowgrass-Kangaroo Grass Grassland
White-throated Needle-tail	<i>Hirundapus caudacutus</i>	3414-Monaro Snowgrass-Kangaroo Grass Grassland

Threatened species Manually Added

None added

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Common Name	Scientific Name	Plant Community Type(s)
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>	3414-Monaro Snowgrass-Kangaroo Grass Grassland
Glossy Black-Cockatoo	<i>Calyptorhynchus lathami</i>	3414-Monaro Snowgrass-Kangaroo Grass Grassland
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	3414-Monaro Snowgrass-Kangaroo Grass Grassland

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>	Habitat constraints
Glossy Black-Cockatoo	<i>Calyptorhynchus lathami</i>	Habitat constraints
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	Habitat constraints

Appendix C

Biodiversity credit report

BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id

00039976/BAAS18157/23/00039977

Assessor Name

Maya Potapowicz

Proponent Name(s)

Assessment Revision

1

BOS entry trigger

BOS Threshold: Area clearing threshold

Proposal Name

E230081 FCC Polo Flat

Assessor Number

BAAS18157

Report Created

02/02/2024

Assessment Type

Part 4 Developments (General)

BAM data last updated *

22/06/2023

BAM Data version *

61

BAM Case Status

Finalised

Date Finalised

29/11/2023

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Nil		
Species		
Nil		

Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

BAM Biodiversity Credit Report (Variations)

PCT

No Changes

Predicted Threatened Species Not On Site

Name
Calyptorhynchus lathami / Glossy Black-Cockatoo
Dasyurus maculatus / Spotted-tailed Quoll
Ephippiorhynchus asiaticus / Black-necked Stork
Falsistrellus tasmaniensis / Eastern False Pipistrelle
Lophoictinia isura / Square-tailed Kite
Callocephalon fimbriatum / Gang-gang Cockatoo
Daphoenositta chrysoptera / Varied Sittella
Epthianura albifrons / White-fronted Chat
Falco subniger / Black Falcon
Artamus cyanopterus cyanopterus / Dusky Woodswallow
Haliaeetus leucogaster / White-bellied Sea-Eagle
Chthonicola sagittata / Speckled Warbler
Suta flagellum / Little Whip Snake
Varanus rosenbergi / Rosenberg's Goanna
Hirundapus caudacutus / White-throated Needletail

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
3414-Monaro Snowgrass-Kangaroo Grass Grassland	Not a TEC	1.9	0	29	29.00

BAM Biodiversity Credit Report (Variations)

3414-Monaro Snowgrass-Kangaroo Grass Grassland

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
Temperate Montane Grasslands This includes PCT's: 586, 894, 895, 896, 1110, 1288, 3378, 3413, 3414, 3415, 3416	Temperate Montane Grasslands $\geq 70\%$ and $< 90\%$	3414_Native	No	7	Monaro, Bungonia, Crookwell, Kybayan-Gourock, Monaro, Murrumbateman, Snowy Mountains and South East Coastal Ranges. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
Temperate Montane Grasslands This includes PCT's: 586, 894, 895, 896, 1110, 1288, 3378, 3413, 3414, 3415, 3416	Temperate Montane Grasslands $\geq 70\%$ and $< 90\%$	3414_Exotic	No	22	Monaro, Bungonia, Crookwell, Kybayan-Gourock, Monaro, Murrumbateman, Snowy Mountains and South East Coastal Ranges. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
Grasslands	Tier 2 or higher threat status	3414_Native	No	7	IBRA Region: South Eastern Highlands, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Variations)

	Grasslands	Tier 2 or higher threat status	3414_Exotic	No	22	IBRA Region: South Eastern Highlands, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
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Species Credit Summary

No Species Credit Data

Credit Retirement Options Like-for-like options



BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00039976/BAAS18157/23/00039977	E230081 FCC Polo Flat	22/06/2023
Assessor Name	Assessor Number	BAM Data version *
Maya Potapowicz	BAAS18157	61
Proponent Names	Report Created	BAM Case Status
	02/02/2024	Finalised
Assessment Revision	Assessment Type	Date Finalised
1	Part 4 Developments (General)	29/11/2023
BOS entry trigger	* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.	
BOS Threshold: Area clearing threshold		

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Nil		
Species		
Nil		

Additional Information for Approval

Assessment Id	Proposal Name
00039976/BAAS18157/23/00039977	E230081 FCC Polo Flat



BAM Biodiversity Credit Report (Like for like)

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

BAM Biodiversity Credit Report (Like for like)

Name
Calyptorhynchus lathami / Glossy Black-Cockatoo
Dasyurus maculatus / Spotted-tailed Quoll
Ephippiorhynchus asiaticus / Black-necked Stork
Falsistrellus tasmaniensis / Eastern False Pipistrelle
Lophoictinia isura / Square-tailed Kite
Callocephalon fimbriatum / Gang-gang Cockatoo
Daphoenositta chrysoptera / Varied Sittella
Epthianura albifrons / White-fronted Chat
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Varanus rosenbergi / Rosenberg's Goanna
Hirundapus caudacutus / White-throated Needletail

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
3414-Monaro Snowgrass-Kangaroo Grass Grassland	Not a TEC	1.9	0	29	29

BAM Biodiversity Credit Report (Like for like)

3414-Monaro Snowgrass-Kangaroo Grass Grassland	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Temperate Montane Grasslands This includes PCT's: 586, 894, 895, 896, 1110, 1288, 3378, 3413, 3414, 3415, 3416	Temperate Montane Grasslands >=70% and <90%	3414_Native	No	7	Monaro, Bungonia, Crookwell, Kybayan-Gourock, Monaro, Murrumbateman, Snowy Mountains and South East Coastal Ranges. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	Temperate Montane Grasslands This includes PCT's: 586, 894, 895, 896, 1110, 1288, 3378, 3413, 3414, 3415, 3416	Temperate Montane Grasslands >=70% and <90%	3414_Exotic	No	22	Monaro, Bungonia, Crookwell, Kybayan-Gourock, Monaro, Murrumbateman, Snowy Mountains and South East Coastal Ranges. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

No Species Credit Data

Credit Retirement Options

Like-for-like credit retirement options

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00039976/BAAS18157/23/00039977	E230081 FCC Polo Flat	22/06/2023
Assessor Name	Report Created	BAM Data version *
Maya Potapowicz	02/02/2024	61
Assessor Number	BAM Case Status	Date Finalised
BAAS18157	Finalised	29/11/2023
Assessment Revision	Assessment Type	BOS entry trigger
1	Part 4 Developments (General)	BOS Threshold: Area clearing threshold

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAI	Ecosystem credits
Monaro Snowgrass-Kangaroo Grass Grassland												
1	3414_Native	Not a TEC	61.6	61.6	0.24	PCT Cleared - 78%	High Sensitivity to Gain			2.00		7

BAM Credit Summary Report

2	3414_Exotic	Not a TEC	26.6	26.6	1.7	PCT Cleared - 78%	High Sensitivity to Gain			2.00		22
											Subtotal	29
											Total	29

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAIL	Species credits
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