Terrestrial Ecology Appendix D

5MW Biomass Power Station

Terrestrial Ecology Assessment

OCTOBER 2009

Prepared for

South East Fibre Exports

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Introduction

South East Fibre Exports Pty Ltd (SEFE) is proposing to construct a 5MW Biomass Power Plant at their existing Munganno Point mill site, located on the southern shore of Twofold Bay, south of Eden, NSW (**Figure 1-1**). The proposal is being assessed under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) as a Major Project.

URS Australia Pty Ltd (URS) was engaged by SEFE to undertake a terrestrial flora and fauna assessment for the proposed development.

The proposed development would be located within the existing mill site. The existing waste burner will be demolished and the Power Plant constructed at this location (**Figure 1-2**).

The majority of the site is cleared of vegetation with some areas of planted vegetation / landscaped garden areas scattered throughout the site. Areas of vegetation impact are shown in **Figure 1-2**. To the south east of the site is Ben Boyd National Park, with East Boyd State Forest to the south of the site.

The site is located within the Bega Valley Shire Council, the Southern Rivers Catchment Management Authority (CMA) and the South East Coastal Plains CMA subregion.

2

Methodology

2.1 Literature Review

A literature review was undertaken by URS ecologists to identify threatened species, populations and ecological communities listed under the NSW *Threatened Species Conservation Act 1995* (TSC Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) that could be expected to occur within the site. The following documentation was reviewed:

- NSW National Parks and Wildlife Service Atlas of NSW Wildlife online database selected for a 10 km buffer around the site (NSW National Parks and Wildlife Service 2009) (**Appendix A**);
- a Geographic Information System (GIS) data request was sent to the Spatial Data Programs at the NSW Department of Environment, Climate Change and Water (DECCW) for all records of threatened species within the Eden 8826 1:100,000 map sheet on 15 June 2009 (**Figure 2-1A** and **2-1B**);
- the Commonwealth EPBC Online Protected Matters Database search tool, selected for a 10 km buffer of the site (Department of Environment, Water, Heritage and the Arts 2009) (**Appendix B**);
- the DECC 'Find by Geographic Region' threatened species, populations and ecological communities online search tool for the Southern Rivers CMA South East Coastal Plains CMA subregion (Department of Environment and Climate Change 2009) (**Appendix C**);
- the NSW DPI Fisheries and Aquaculture threatened fish and marine vegetation online search tool for the Southern Rivers CMA (NSW DPI 2009) (**Appendix D**); and
- the Forest Ecosystem Classification and Mapping for the Eden Comprehensive Regional Assessments (CRA) Region (Keith and Bedward 1998) was accessed and descriptions used as reference points for any potential vegetation communities within the site.

2.2 Field Survey

The field survey consisted of a site visit conducted on 22 and 23 June 2009. A site walkover was undertaken and photographs were taken using a GPS camera. Habitat assessments were completed for the full range of threatened species predicted or known to occur within the area, based on habitats present. The site visit concentrated on the areas of anticipated impact, however much of the site perimeter and existing work areas were also visited.

Flora Survey

Current aerial photographs were studied prior to visiting the site and historical aerial photographs were assessed to determine the approximate age of existing vegetation. Preliminary vegetation studies were conducted near the area of impact during the initial site walkover, with any areas of interest (e.g. with mature vegetation or extensive weed infestations etc) noted. Any areas of particular interest were revisited and habitat assessments were carried out. Any noxious weeds were mapped using a handheld GPS unit accurate to 5 m.

Due to highly disturbed nature of the site, detailed and targeted threatened flora species surveys were not undertaken. Instead, detailed habitat assessments of all threatened species listed within the Director General Requirements (DGRs) and threatened species database searches were completed (**Appendix X**). This technique is important in determining the potential for listed species to use the site rather than relying solely on one-off surveys that are subject to seasonal and weather limitations and provide a snapshot of ecological assemblages present. A list of habitat requirements for threatened species that potentially occur on the site is presented in **Appendix E**.

Fauna Survey

All opportunistic sightings of fauna during the field survey were noted. An assessment of the quality of habitats present for both TSC and EPBC Act listed fauna within the site was made during field survey. Habitat quality was based on the level of breeding, nesting, feeding and roosting resources available. The area of anticipated impact was walked and any significant habitat features, such as significant amounts of fallen timber, including fallen hollow logs, standing hollow bearing trees, stags, or stands of flora species likely to provide foraging or nesting habitat for threatened fauna species was noted.

This technique is important in determining the potential for listed species to use the site rather than relying solely on one-off surveys that are subject to seasonal and weather limitations and provide a snapshot of ecological assemblages present. A list of habitat requirements for threatened fauna species that potentially occur on the site is presented in **Appendix E**.

2.3 Staff Qualifications

Site assessment, field surveys and habitat assessments were undertaken by qualified URS field ecologists with experience as laid out in **Table 2-1**.

Table 2-1 URS Assessment Personnel and Qualifications

Name	Position	Qualifications	Relevant Experience
Lauren Branson	Senior Ecologist	Master of Science (Hons) (Research) Macquarie University Bachelor of Science (Biodiversity and Conservation) Macquarie University	6+ years
Kathryn Tinker	Environmental Scientist	Bachelor of Environmental Science (Hons) University of New South Wales	4+ years
Kathryn Chesnut	Graduate Ecologist	Bachelor of Environmental Science (Hons) Southern Cross University	1+ year

2.4 Survey Limitations

The field survey was conducted over two days in winter 2009. As many species would not be detected in such a short period of time and during this season, a habitat assessment was conducted to ensure that the majority of species that may be impacted by the proposal are assessed. Even so, it is possible that some species that utilise the site on a periodic or seasonal basis were not accounted for. Some fauna species are also mobile and transient in their use of resources. In addition, some threatened flora species are annual, ephemeral or cryptic, such as orchids, and may only be visible every few years. The habitat assessment conducted for the site allows for identification of potential habitat for such species. Further, lack of previous surveys within the Site may result in a lack of target species during field surveys. As such, the full list of species 'known or predicted' to occur within the CMA sub-region was assessed to ensure that as many species as possible were accounted for.

2.5 Conservation Significance

Conservation status of species and communities recorded across the study area were determined with reference to the NSW *Threatened Species Conservation Act 1995* (TSC Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

3

Existing Environment

3.1 Literature Review

3.1.1 Flora

The results of the online DECC Atlas of NSW Wildlife database search show one record of threatened flora species within 10 km of the Site since 1980; the Leafless Tongue Orchid *Cryptostylis hunteriana* (**Appendix A**).

The GIS request to the Spatial Data Programs department of the DECCW returned four previous records of threatened flora within a 10 km radius of the site (without any restriction on length of time since last sighting);

- Leafless Tongue Orchid *Cryptostylis hunteriana*;
- Bodalla Pomaderris *Pomaderris bodalla*;
- Oval-leafed Pseudanthus *Pseudanthus ovalifolius*; and
- Narrow-leafed Wilsonia *Wilsonia backhousei*.

The location of these previous records is shown on **Figure 2-1A**.

The Commonwealth EPBC Online Protected Matters Database search tool indicates that one vulnerable flora species (the Leafless Tongue Orchid *Cryptostylis hunteriana*) may occur or have potential habitat within the site. In addition, one critically endangered ecological community has the potential to occur within the site (Littoral Rainforest and Coastal Vine Thickets of Eastern Australia), listed as “community likely to occur within area” (**Appendix B**).

The DECC ‘Find by Geographic Region’ threatened species, populations and ecological communities online search tool for the Southern Rivers Catchment Management Authority (CMA) South East Coastal Plains CMA subregion indicates that 22 threatened flora species are known or predicted to occur within the subregion, as well as six endangered ecological communities (**Appendix C**).

The NSW DPI online search tool indicated that no marine or aquatic flora species are likely to occur within the Southern Rivers CMA area (**Appendix D**).

3.1.2 Fauna

The results of the online DECC Atlas of NSW Wildlife database search show 22 records of threatened fauna species within 10 km of the site since 1980 (**Appendix A**). Of this number, six are marine species and will not be addressed as part of this Terrestrial Ecology Report.

The GIS request to the Spatial Data Programs department of the DECCW returned the following records of threatened fauna species with the potential to occur within the site (shown on **Figure 2-1B**):

- one reptile (a turtle – to be addressed as part of the Aquatic Ecology Report);
- two amphibians;
- 17 birds; and
- 18 mammals (of which six are marine / aquatic based, i.e. whales, dugongs and seals etc., which will be addressed as part of the Aquatic Ecology Report).

The Commonwealth EPBC Online Protected Matters Database search tool indicated that 39 threatened fauna species or their habitat may occur within 10 km of the site, including one ray-finned fish, 22 birds, three frogs, nine mammals (of which three are marine mammals) and four sharks (the marine mammals and sharks will not be addressed as part of this Terrestrial Biodiversity Report). In addition, up to 31 listed migratory bird species (including migratory terrestrial, wetland and marine species) or their habitat may occur within the site (**Appendix B**).

The DECCW 'Find by Geographic Region' threatened species, populations and ecological communities online search tool for the Southern Rivers Catchment Management Authority (CMA) South East Coastal Plains CMA subregion indicate that 47 threatened fauna species are known or predicted to occur within the subregion (**Appendix C**).

The NSW DPI online search tool indicated that six threatened marine or aquatic fauna species may occur within the Southern Rivers CMA area (**Appendix D**). Of this list of species, four species are restricted to the marine environment, leaving two species as able to occur within the site; the Sydney hawk dragonfly *Austrocordulia leonardi* and the Macquarie perch *Macquaria australasica*.

3.2 Flora and Vegetation

A study of historical aerial photographs of the site taken in the mid 1970s indicates that the site has previously been cleared of all vegetation, with photographs showing the site devoid of vegetation in 1976. This means that all vegetation present is regrowth, none older than approximately 30 years. Although the standard definition of regrowth suggests that any vegetation that has grown since 1990 is regrowth (DECC 2008), the historical disturbance and clearing of the site must be taken into account when assessing the existing vegetation on site.

Existing vegetation within the vicinity of the proposed Power Plant includes some small areas of vegetation, generally very patchy and highly disturbed regrowth, typically alongside roadways, fencelines and access tracks. There are no large continuous patches of vegetation, however there are extensive vegetated areas outside of the site boundary to the south and east. Some of the areas of vegetation within the site, and specifically, within the area of anticipated impact appear to have been planted with native (but not necessarily endemic) vegetation for landscaping and screening purposes. Most areas of vegetation within the site are highly fragmented, with numerous tracks, walkways and roads throughout.

The site has been operational for many years, resulting in the cumulative impacts of continued and long-term disturbance in the form of access tracks, fire control and protection activities, landscaping, and artificial noise, dust and light impacts.

There are several slightly larger areas of bushland to the north east and east of the site, however these are at least 200 and 400m respectively away from the area of anticipated disturbance, and will not undergo any changes as a result of the current proposal.

Many of the vegetated areas of the site comprise a range of Eucalypt and exotic pine species in the canopy, which is generally patchy and disturbed over the entire site, with various Acacia species in the midstorey. Much of the site lacks any understorey vegetation, however some areas do have a disturbed understorey primarily comprised of exotic grass (typically mowed lawns) and annual species such as Fleabane *Conyza bonariensis* and Cobblers Pegs *Bidens pilosa*.

3 Existing Environment

The Forest Ecosystem Classification and Mapping for the Eden CRA Region (Keith and Bedward 1998) was used as a guide to vegetation communities that could be expected to occur within the site, however given the level of previous disturbance and the fragmented and degraded nature of vegetation, it was determined that none of the vegetation communities described within the Eden CRA Region appropriately described the vegetation within the site.

Threatened Species

No threatened species were identified within the site during the field survey. The desktop review indicates that up to 22 threatened flora species have the potential to occur within the site.

The results of the habitat assessment (**Appendix E**) indicate that while there are several records of threatened flora within 10 km of the site, it is highly unlikely that these species do occur within the area of anticipated impact, due to the continued disturbance to, and general low condition of the vegetation within this area. The majority of records of threatened species around the site are within the extensive National Park and State Forest to the east and south.

As such, no further assessment was undertaken for any threatened flora species as part of this report.

Threatened Populations

The desktop literature review indicates that no endangered flora populations listed under Schedule 1 (Part 2) of the TSC Act have previously been recorded within the vicinity of the site.

Threatened Ecological Communities

A total of seven threatened ecological communities were predicted to occur within the vicinity of the site, based on the desktop review:

1) Brogo Wet Vine Forest in the South East Corner Bioregion;
2) Coastal Saltmarsh in the NSW North Coast; Sydney Basin and South East Corner Bioregions;
3) Freshwater wetlands on coastal floodplains of the NSW North Coast; Sydney Basin and South East Corner bioregions;
4) Littoral Rainforest and Coastal Vine Thickets of Eastern Australia;
5) Lowland Grassy Woodland in the South East Corner Bioregion;
6) River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast; Sydney Basin and South East Corner bioregions; and
7) Swamp Oak Floodplain Forest of the NSW North Coast; Sydney Basin and South East Corner bioregions.

The habitat assessment and field survey confirm that none of these communities exist within the site. The high levels of disturbance and previous clearing have resulted in an area now characterised by highly disturbed vegetation, much of which has been planted, pruned, thinned and modified for safety, access, aesthetic and landscaping purposes.

Due to the potential for bushfires within the area, strict hazard reduction procedures are also followed, again reducing the potential for the survival of any residual native seed bank within the site.

As such, no further assessment was undertaken for any threatened communities as part of this report.

3.3 Fauna

Several common fauna species were noted during the field survey, namely Eastern Grey Kangaroos *Macropus giganteus*, Rabbits *Oryctolagus cuniculus*, one species of Martin *Petrochelidon* sp., and one species of Cormorant *Phalacrocorax* sp. Rabbits were identified via the presence of scats. Eastern Grey Kangaroos were not observed inside of the site fence, however several scats were observed, and the species was seen outside of the site boundary. It is thus assumed that there is either some passage of this species into the site or that a small resident population exists in the bush to the south of the administration buildings. Martins were observed via overfly, and the cormorants were observed sitting on the jetty.

Threatened Species

Previous records of TSC Act-listed species within the locality are shown in **Figure 2-1B**. The full list of threatened species, including their habitat requirements, conservation status and potential occurrence in the Site is presented in **Appendix E**.

No threatened fauna species were observed during the field visit. Results of the desktop review indicate that up to 85 threatened fauna species have the potential to occur within the vicinity of the site. Of this number, 17 are migratory marine birds, and are highly unlikely to utilise the site for any purpose, 12 are marine species (including sharks, whales, dugongs, fish and turtles) and will not be assessed as part of this terrestrial ecology report.

Results of the habitat assessment suggest that the majority of the remaining species lack any suitable habitat within the site, particularly within the anticipated area of disturbance. There is potential habitat for up to seven species of threatened birds to occur within the site, as listed below:

- Sanderling *Calidris alba*;
- Lesser Sand-plover *Charadrius mongolus*;
- Sooty Oystercatcher *Haematopus fuliginosus*;
- Pied Oystercatcher Haematopus longirostris;
- Black Bittern Ixobrychus flavicollis;
- Little Tern *Sterna albifrons*; and
- Hooded Plover Thinornis rubricollis.

As such, an assessment of significance (in the form of a 7-part test) has been carried out for these species, to determine what, if any, impacts the proposed action may result in.

Threatened Populations

No endangered populations, as listed under Schedule 1 (Part 2) of the TSC Act, of any fauna species are noted as occurring within the vicinity of the site.

3.3.2 Habitat Resources

The DEC (2004) draft guidelines for threatened species surveys identify ‘special habitats’ (e.g. water bodies, rocky outcrops and cliffs) that are likely to support specific fauna assemblages. These resources may be significant for threatened species.

3 Existing Environment

Habitat assessments were conducted across the site, with a focus on the area of anticipated impact, to evaluate habitat quality and assess the potential for any threatened species to occur. Habitat values recorded include:

- structural and floristic diversity of vegetation layers, particularly presence or absence of midstorey (shrubs and juvenile canopy species) and/or presence of native tussock grasses;
- presence of litter layer and fallen dead timber;
- shelter, breeding, roosting and nesting resources available;
- presence of hollows;
- exfoliated bark, feed trees and shrubs;
- connectivity;
- presence of rocky outcrops or partially buried rocks; and
- the size, location and extent of any remnant areas of vegetation.

Accordingly, habitat resources within the site have been assessed as part of the current survey. Habitat resources, such as tree hollows, fallen logs and debris, and roosting sites were generally present in very low numbers within the site, largely due to the history of disturbance and ongoing site maintenance actions.

Structural and Floristic Diversity

Floristic diversity and structural diversity is limited within the site, particularly within the anticipated area of impact. Vegetation is limited to areas of landscaped road edges with small patches of modified regeneration, with certain species appearing to be encouraged for landscaping purposes. There are good numbers of midstorey species, however the understorey and canopy are quite disturbed, and do not provide good quality habitat resources for most fauna species.

Leaf Litter and Fallen Timber

The site exhibited a good amount of leaf litter within the area of anticipated impact, with a depth of approximately 5cm in places. This was not the norm for the site, with other areas completely devoid of leaf litter.

There was a relatively good diversity of fallen timber within the area of anticipated impact, with a range of sizes of fallen timber, from small sticks to larger logs and branches. Fallen timber can provide an important habitat resource for a range of both common and threatened fauna.

Shelter, Breeding, Roosting and Nesting Resources

Given the disturbed nature of the vegetation within the areas of anticipated impact, there are reduced opportunities for the occurrence of significant habitat features that would allow or encourage a wide variety of species to shelter, breed, roost or nest within the site. Additionally, given the existing levels of disturbance in the form of noise and human and plant movement throughout the site, it is unlikely that many species would opt to use the limited resources within the site for these activities given the nearby presence of an extensive and undisturbed National Park.

There are however some potential resources for these activities in the form of fallen timber and highly patchy midstorey vegetation, however, the lack of continuous vegetation and lack of tree hollows and stag trees greatly reduces the resources available.

Hollows

Tree hollows are of particular significance for native fauna as diurnal or nocturnal shelter sites, for rearing young, for feeding, for thermoregulation, and to facilitate ranging behaviour and dispersal. An estimated 15% of all terrestrial vertebrate fauna in Australia are dependent upon tree hollows and for many of these species the relationship is obligate, i.e. no other habitat resource represents an adequate substitute (Gibbons and Lindenmayer, 2002).

Within the areas of anticipated impact, no tree hollows were observed, and less than 5 trees with a diameter at breast height (DBH) of over 60 cm were found.

It should be noted that ground-based field surveys may underestimate the quantity of suitable tree hollows present. Conversely, hollows visible from the ground may not have the required depth, orientation or other attributes required to constitute suitable shelter (Gibbons and Lindenmayer, 2002). Therefore the above assessment should be considered a tentative estimate of the quality and quantity of tree hollows.

Feed Trees

The area of anticipated impact contains some juvenile species of eucalypt and acacia that have the potential to provide a food source to some fauna species. There are no large, mature eucalypts within the area of anticipated impact and the lack of suitable nesting or roosting resources in areas nearby to any potential feed trees is likely to result in minimal usage of flowering plants by anything other than generalist, potentially aggressive and common fauna species.

Connectivity

Vegetation within the site is comprised of several narrow linear strips of disturbed regrowth, cut off from the extensive areas of National Park and State Forest to the south and east by a tall, electrified cyclone fence topped with barbed wire, designed to maximise security. It is unlikely that a fence such as this would allow much passage into or out of the site for arboreal or ground dwelling mammals, with access likely to be restricted to birds. As such, the site is not considered well connected, despite its close proximity to large and extensive areas of bushland reserves.

Rocky Outcrops

There were occasional rocky outcrops within the area of anticipated impact; however they made up less than 20% of the total area of study. The majority of rock within the site comprises of small sized pieces of loose rock that would provide minimal habitat resource value to most species.

Remnant Vegetation

As discussed previously, there is no remnant vegetation within the area of anticipated impact. The Site was cleared of all vegetation in the 1970s, resulting in the highly disturbed and modified regrowth vegetation now present.

Aquatic habitat

The site is bordered by the marine aquatic environment to the north, which will not be discussed as part of this Terrestrial Biodiversity Report.

Other aquatic habitat is limited to small nearby dams and stormwater drains throughout the site. A leachate collection system and water reticulation system operates across the entire site. Minimal ephemeral water courses exist and there are no natural drainage areas or creeklines within the site.

Koala Habitat

No evidence of koalas was recorded during the field surveys, however several immature potential koala feed trees were observed within the area of anticipated impact.

SEPP 44 defines 'potential koala habitat' as 'an area of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component'. The vegetation is highly degraded and not all species were identified during the field survey, but for the purposes of this assessment, it is assumed that at least 15% of the total canopy was comprised of potential koala habitat.

Core koala habitat, is defined as 'an area of land with a resident breeding population of koalas, evidenced by attributes such as breeding females and recent sightings and historical records of a population'. No evidence of koala activity was recorded during field surveys however there are several records of this species within 10 km of the site. The records outside of the site boundary range in date from 1890 to the mid 1990s, with the most recent sighting being in 1994 (BioNet 2009).

Given the extended period of time since the latest koala sighting, and the lack of a continued presence of the species within a close proximity to the study area (less than 15 recorded sightings within 10kms of the site since 1890), it is very unlikely that the species would utilise the highly degraded vegetation within the study area, and there would be no way for them to cross the electric security fence unharmed.

As such, no further assessment has been carried out for koalas within the site.

3.3.3 Threatening Processes

A 'key threatening process' (KTP) is defined under the TSC Act as 'a threatening process specified in Schedule 3' of the Act. A 'threatening process' is defined as 'a process that threatens, or may have the capability to threaten the survival or evolutionary development of species, populations or ecological communities'.

Evidence of the following KTPs was recorded during the field survey:

- clearing of native vegetation; and
- competition and grazing by the feral european rabbit (*Oryctolagus cuniculus*).

There is clear evidence that the historical use of the site has resulted in clearing of native vegetation in the past, and rabbit scats were observed within the site boundary.

While the proposed actions would involve the removal of a small amount of vegetation (0.09 ha) from within the area of anticipated impact, it is highly unlikely that this action would result in an increase to the key threatening process of clearing native vegetation.

While rabbit scats were observed within the site, it is unlikely that the proposed action would result in any increased grazing pressures. The majority of the area likely to be impacted by the proposed works are unsuitable as a habitat resource for the majority of common and threatened fauna species.

3.3.4 Critical Habitat

The NSW National Parks and Wildlife Service is responsible for the identification of critical habitat within NSW. Critical habitat is an area of land that is crucial to the survival of a particular threatened species, populations or ecological communities.

There are no areas of recommended or declared critical habitat that are relevant to the site or the surrounding locality.

3.3.5 Existing Disturbance

The site is a working site and experiences high levels of disturbance throughout, with artificial and security lighting, noise and dust generated from plant and machinery. In addition the presence of an extensive road and track network throughout the site and security fence mean that the site is effectively isolated from the surrounding bushland, with little or no opportunity to traverse from the adjacent bushland reserves into the site. Further, the site is characterised by high levels of traffic, with various haul roads used heavily by various vehicles, including large trucks.

The site is exposed to regular bushfire maintenance activities that include controlled burns, and much of the landform within the site has been modified. The area of anticipated disturbance is set upon an elevated portion of sandstone that has been built up with waste wood chips and fines from the timber processing.

4

Assessment of Potential Impacts

This Section assesses the potential impacts of the proposal on the flora and fauna within the site.

4.1 Conservation Significance

4.1.1 Threatened Species, Populations and Ecological Communities - 7-Part Tests

No threatened flora species listed under the TSC Act or EPBC Act are considered likely to occur within the area of anticipated impact within the site.

Five fauna species listed as vulnerable and two species listed as endangered under the TSC Act are considered as potentially able to occur within the study area, based on habitats present and / or previous sightings;

- Sanderling *Calidris alba*;
- Lesser Sand-plover *Charadrius mongolus*;
- Sooty Oystercatcher *Haematopus fuliginosus*;
- Pied Oystercatcher Haematopus longirostris;
- Black Bittern Ixobrychus flavicollis;
- Little Tern *Sterna albifrons*; and
- Hooded Plover Thinornis rubricollis.

Accordingly, assessments pursuant to s.5A of the EP&A Act (the so-called '7-part test') for these species were undertaken and are included as **Appendix F**, with a summary included in this report. The outcome is that the proposed development will not have a significant impact on any threatened fauna species.

There are no listed threatened populations that are relevant for the site, nor are any of the endangered ecological communities predicted to occur within the area of impact.

Additionally, s.5A of the EP&A Act has been addressed below for those species of fauna that might occur in the study area on a transient, seasonal or migratory basis:

a) In the case of a threatened species, there is no evidence for, or likelihood of, a 'viable local population' of any mobile threatened fauna species inhabiting the study area on a permanent basis. There are significant areas of potential habitat external to the site, that do not undergo disturbance and provide large areas of varied and connected habitat resources that are likely to provide important habitat for some species. The proposed action will not impact upon any such habitat. Hence, the proposed facilities are not likely to have an adverse effect on the life cycle of any species such that it could be placed at risk of extinction.
b) In the case of an endangered population, there is no evidence that any of the listed endangered populations that are recorded from the CMA sub-region occur on the site. Accordingly, the proposed action is not likely to have an adverse effect on any such population such that it could be placed at risk of extinction.
c) In the case of an endangered ecological community or critically endangered ecological community, none of the communities predicted to occur within the region are present within the site, hence the proposed action will not have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction. In addition the action will not

substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

d) In relation to the habitat of a threatened species:

I. The extent to which habitat is likely to be removed or modified as a result of the action proposed will be minimal. Much of the area of anticipated impact is highly degraded, disturbed and modified, with any further actions highly unlikely to have any impact upon native fauna species.

II. As the area of anticipated impact does not provide suitable habitat for many (if any) native fauna species, no habitat will become fragmented or isolated from other areas of habitat as a result of the proposed action.

III. The importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality is considered to be low. At present it is likely that the only species to possibly use the minimal vegetation within the area of anticipated impact are likely to be generalist common species, capable of relocating easily should they be disrupted by any works. As such, no important habitat will be affected by the proposed action.

e) The proposed facility is not 'likely to have an adverse effect on critical habitat (either directly or indirectly)' as there is no critical habitat currently listed on the register of relevance to the site.

f) The proposed action is not inconsistent with the objectives or actions of a recovery plan for any threatened fauna species as it is not likely to adversely affect any threatened species. Suitable environmental management measures will maintain and improve potential habitat for threatened fauna in the locality and will be consistent with any relevant threat abatement plans.

g) The key threatening process listed under Schedule 3 of the TSC Act of most relevance to the proposed activity is "clearing of native vegetation". The areas where native vegetation will be removed within the footprint of the works are areas which have been previously cleared and are highly disturbed and modified. Given the abundance of more suitable, less modified habitat in the surrounding region the proposal is not likely to constitute a threatening process for any transient threatened fauna.

Factors considered in determining the significance of potential impacts on the threatened species assessed above included the small amount of very low quality potential habitat to be impacted by the proposal, the existing level of degradation within the site including vegetation modification, isolation, fragmentation and high levels of human-induced disturbance (plant, vehicles etc), and the regional context of the site.

Based on the factors summarised above (and described in detail in **Appendix F**), the proposed works are not 'likely' to impose a 'significant effect' on any 'threatened species, populations or ecological communities' listed under the TSC or EPBC Act.

Threatening Processes

The key threatening process (KTP) relevant to the proposal is 'clearing of native vegetation'. The proposal will involve the clearing of 0.09 ha of vegetation. Many areas of the site contain degraded and disturbed vegetation (not all of which is native). The vegetation within the area of anticipated

impact is highly degraded and modified, hence the proposed action would not result in an increase to this KTP.

4.1.2 Construction Impacts

Flora

The proposed works will require clearing of a maximum of 0.09 ha of vegetation, comprised of highly degraded and modified native and exotic species, of no particular discernable vegetation community.

Clearing of native vegetation would be the main impact on flora arising from the proposed works.

No threatened or endangered flora species, populations or communities listed under the TSC Act or EPBC Act are likely to be significantly impacted by the proposed works.

Fauna

Clearing required for the proposed action will result in the loss of approximately 0.09 ha of highly degraded and modified vegetation which has the potential to provide minimal habitat for native fauna. As discussed previously, this area is degraded with low structural complexity and species diversity.

The site contains a number of habitat features including feed trees (flowering eucalypts) and fallen timber. Habitat values of surrounding vegetation outside of the site boundary are likely to be much higher than within the area of anticipated impact and as such the loss of such habitat is unlikely to have a significant impact upon local populations of native fauna.

Clearing of vegetation for the proposed will not result in habitat fragmentation or loss of habitat corridors because the development will not bisect / isolate any substantial areas of native vegetation. The proposed development is unlikely to have an impact upon the movement of native fauna within the region due to existing habitat fragmentation and isolation within the region, and the small amount of clearing required for the proposed action.

The proposed action is unlikely to result in any disturbance (temporary or permanent) to any woodland birds that utilise the site given the existing levels of disturbance and modification within the area of anticipated impact and the minimal habitat available. If present these species are mobile, widespread and common.

A low diversity of native reptiles is likely to occupy the area of anticipated impact. Given the high levels of noise and disturbance and general lack of suitable habitat within the area, it is assumed that most species would not utilise the area in question. As such, the proposed works are highly unlikely to have any impact on native reptile species. Similarly, native amphibian species will not be impacted by the proposed works due to a lack of any suitable habitat within the area of impact.

A very low diversity of common native mammal species is likely to use habitat resources within the site, restricted to Eastern Grey Kangaroos, whose scat was observed during the field surveys. The disturbance associated with the proposed works is unlikely to impact upon these species, as limited suitable habitat exists within the area of impact. Larger, more connected remnants of woodland occur elsewhere within the vicinity, which are likely to provide more suitable habitat for these species.

It is highly unlikely that microbats use the area of impact given the lack of habitat resources and high levels of disturbance and small area of vegetation present. These species are much more likely to

utilise the high quality bushland outside of the site boundary for roosting and foraging activities. As such, the proposed action will not have an impact upon microbats.

Threatened Species

The proposed development is unlikely to have any direct impacts on any threatened flora species. No threatened species were located during the field survey and no potential habitat was observed. Suitable potential habitat for threatened flora species occurs outside of the site boundary and this will not be impacted by the proposed action. No endangered ecological communities will be impacted by the proposed action.

To ensure that appropriate assessments were made for all threatened fauna species, **Appendix E** contains a habitat assessment for all species that have the potential to occur within the area. The outcome is that the proposed action would likely have the following impacts on threatened fauna:

- approximately 0.09 ha of potential habitat (in the form of highly degraded and modified vegetation with very low habitat resource values) will be cleared as part of the proposal;
- the proposal would result in an overall reduction of the amount of vegetation left within the site boundary; and
- there may be an increase in the amount of traffic, movement and noise throughout the area during the construction phase, however given the large amounts of noise and traffic within the site at present, this impact is not likely to be highly noticeable.

The proposal is unlikely to result in a significant impact to the local occurrence or population of any threatened species as:

- the habitat to be impacted by the proposal is not considered to be important for the long term survival of any species in the locality;
- impacts to the lifecycle of the local population of any species are considered unlikely to result from the proposal;
- large amounts of suitable habitat for all species occurs elsewhere within the local area, outside of the site boundary;
- all species are highly mobile and can move throughout the landscape to avoid disturbance; and
- mitigation measures have been suggested that, if adopted, will minimise any negative impacts that may impact on these species as a result of the proposed actions.

4.1.3 Indirect and Operational Impacts

Sediment, Dust and Run-off

Sediment, dust and run-off should be carefully monitored during the construction phase of works. The Construction Environmental Management Plan (CEMP) should include safeguards and mitigation measures to minimise potential impacts from additional runoff and associated erosion and transfer of sediments.

Artificial Lighting

Night-time security or operational lighting can potentially discourage native species from using habitat where diffuse light penetrates into adjoining areas of vegetation. The foraging regimes of some nocturnal native mammals and birds can be disrupted by lighting and make them vulnerable to

predation by cats, dogs and foxes. The eyesight of nocturnal species (such as owls, gliders and possums) is hindered by bright lights, and where they are affected by this, they become more susceptible to predation.

Artificial lighting is already in use within the site. Any additional lighting required for the proposal should be designed as 'down lights' and utilise options such as sensors or timing devices to minimise any indirect impacts.

Roads and Access

Collisions with wildlife (such as macropods and arboreal mammals) within the area of anticipated impact are unlikely, given the lack of wildlife within the site boundary. However collisions along the various access roads and surrounding local roads are possible, particularly during dusk and dawn when macropods are active. Mitigation measures should aim to provide guidance on traffic management to ensure that the potential impact of increased traffic within the area is addressed.

Hydrology

Drainage from the project site will be collected and recirculated through the existing water management system, as currently occurs. As such, it is unlikely that there will be any significant impact as a result of altered hydrology.

Edge Effects and Habitat Fragmentation

Edge effects generally result when vegetation is removed and the amount of 'edge' increases, namely a higher edge compared to the total area of vegetation ratio results. Edge effect can result in a range of impacts, including:

- promotion of invasion of exotic species (weeds) and/or disturbance tolerant native plants;
- an influx of pest species such as foxes or feral cats; and
- increases in use of an area by native species such as owls that use edge environments for hunting.

There are unlikely to be any increased impacts associated with edge effects as vegetation within the site is already highly fragmented and already xperiences very high edge ratios.

Habitat corridors provide essential pathways for the movement of native flora and fauna and ensuring the long term genetic viability of species. The proposed works will not increase fragmentation within the region as vegetation within the study area is already highly fragmented and isolated.

4.1.4 Long Term Impacts

Long term impacts will include the permanent loss of low-quality habitat including:

- some fallen timber;
- some immature feed trees (eucalypts) (Note, trees must reach full sexual maturity to produce large volumes of blossom and fruit);
- some recruitment trees that may develop hollows over time; and
- vegetation that is not structurally diverse.

Long term impacts resulting from the proposed action is unlikely to be detrimental to any species.

Mitigation Measures

5.1.1 Impact Avoidance

Significant impacts on biodiversity have been avoided, through the following means:

- confining the area of impact as far as possible to cleared areas;
- avoiding impacts on native vegetation; and
- where vegetation is impacted, confining impacts to highly modified vegetation and habitats.

5.1.2 Impact Mitigation

The project will have limited impact on terrestrial flora and fauna, therefore very few mitigation measures are required. In addition to the mitigation measures listed below a bushfire assessment plan has been prepared for the site.

The Construction Environmental Management Plan (CEMP) and Operations Environmental Management Plan (OEMP) should include the following measures:

- maintain low vehicle speed limits on site to reduce fauna road fatalities;
- limit vehicular and personnel entry into retained vegetation through exclusion fencing, locating access roads and paths to avoid habitat and use of signage where necessary;
- employ down-lights and motion sensor lighting to reduce light spill and the associated secondary impact on nocturnal fauna species potentially using the adjoining vegetation;
- areas identified for clearing should be clearly marked prior to construction using highly visible flagging tape or spray paint to prevent unnecessary clearing;
- sediment and erosion control measures should be implemented to manage disturbance to the site during construction and operation. Necessary practices may include;
  - mulch or revegetate cleared areas as soon as possible to permanently stabilise the soil;
  - appropriate physical stabilisation techniques including terracing and geotextiles;
  - weed control matting that is fauna-friendly;
  - construct banks and drains in disturbed areas including unsealed access tracks;
  - maintain drains and culverts to minimise the impacts of erosion of unsealed tracks; and
  - limit the removal of ground covering vegetation to that required for construction and operations.
- As per the legal requirements of the Noxious Weeds Act, any declared noxious species should be adequately controlled and / or removed. Weed control measures can include:
  - during construction: maintenance of silt fences and other mitigation measures to isolate runoff, and immediately rehabilitate disturbed vegetation to limit the potential for colonisation by weeds;
  - post-construction: replant any appropriate cleared areas with indigenous native vegetation and spread layers of clean mulch to limit the potential for colonisation by weeds;
  - during operations: monitor and control noxious weed species in line with legislative obligations;
  - implement a weed control strategy to minimise the spread of weeds into ‘good’ bushland adjacent to infested areas; and
  - perform ongoing monitoring of weed infestation on and adjoining the site.
- rehabilitation works in the form of replanting should be carried out if practicable. These works, if undertaken, should aim to use plants found naturally within the area, in an attempt at replicating the surrounding natural bushland. Rehabilitation works should only be undertaken should they not pose any bushfire threat, and provided suitable management can be undertaken in the future.

Biodiversity Maintenance and Improvement

The proposed works will not result in any reduction to the biodiversity of the overall locality. The proposed action will require the removal of a very small amount of vegetation (around 0.09 ha) that is highly degraded and modified, and comprises both native and exotic species. This vegetation contains minimal potential habitat features, with scattered fallen timber and immature feed trees, and has been classed as low-condition, low quality habitat compared to the extensive areas of bushland outside of the site boundary. The vegetation exists in very narrow linear strips, isolated from other bushland by the tall, electrified security fence that surrounds the site, effectively minimising the number of fauna species that can utilise habitat within the site. The findings of the assessment of significance and habitat assessment support the statement that the proposed works will not result in a significant impact on any threatened species, populations or communities within the site itself or within the wider locality.

No offset or compensatory habitat is considered necessary due to the minimal amount of clearing of low quality degraded vegetation.

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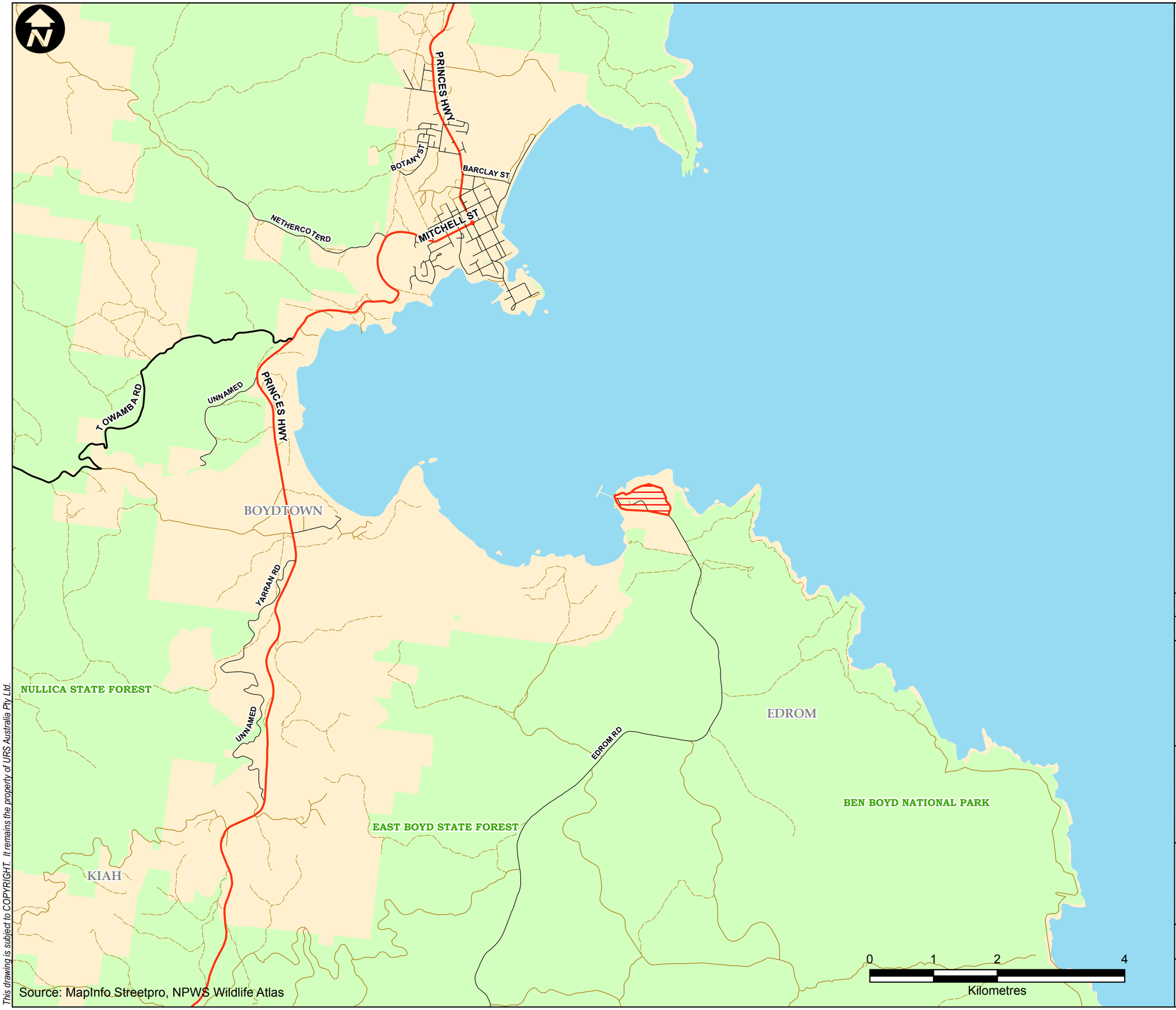
Figures



Source: MapInfo Streetpro, NPWS Wildlife Atlas

Legend

Site Boundary

Drawn: AJW	Approved: KC	Date: 17/06/2009
Job No.: 43177675	File No.: 43177675.009.mxd	

Client

SOUTH EAST FIBRE EXPORTS

Project

SEFE POWER STATION

Title

SITE LOCALITY MAP

Figure: 1-1

Source: Google Earth, Eden CRA

Legend

- Site Boundary
- Areas of Vegetation Impact

Drawn: AJW	Approved: KC	Date: 17/06/2009
Job No.: 43177675	File No.: 43177675.010.mxd	

Client

SOUTH EAST FIBRE EXPORTS

Project

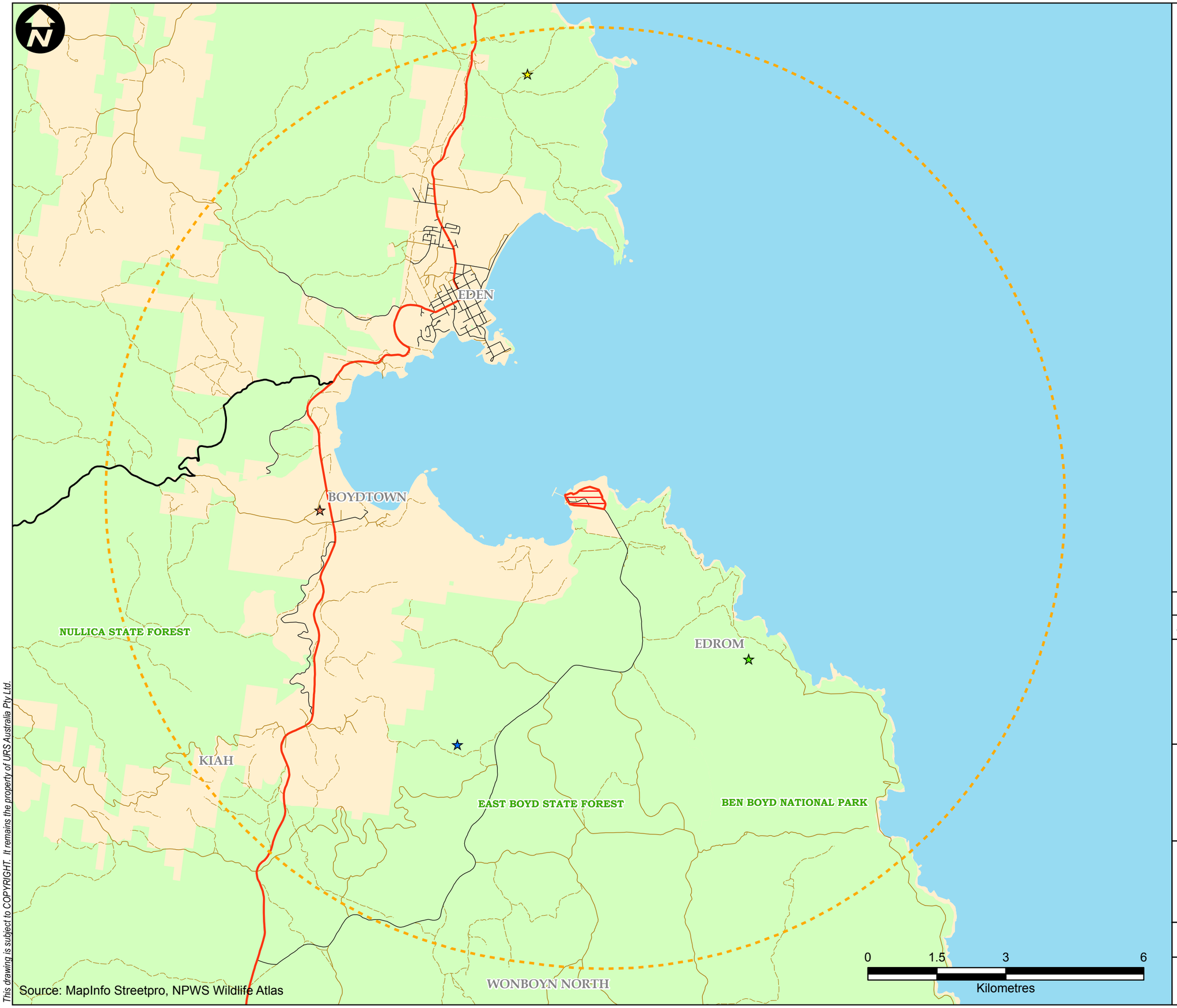
SEFE 5MW BIOMASS POWER PLANT

Title

SITE AND AREAS OF IMPACT

Figure: 1-2

URS



Legend

- Site Boundary
- 10km buffer

Flora

- Cryptostylis hunteriana
- Pomaderris bodalla
- Pseudanthus ovalifolius
- Wilsonia backhousei

Drawn: AJW	Approved: KC	Date: 17/06/2009
Job No.: 43177675	File No.: 43177675.002.mxd	

Client

SOUTH EAST FIBRE EXPORTS

Project

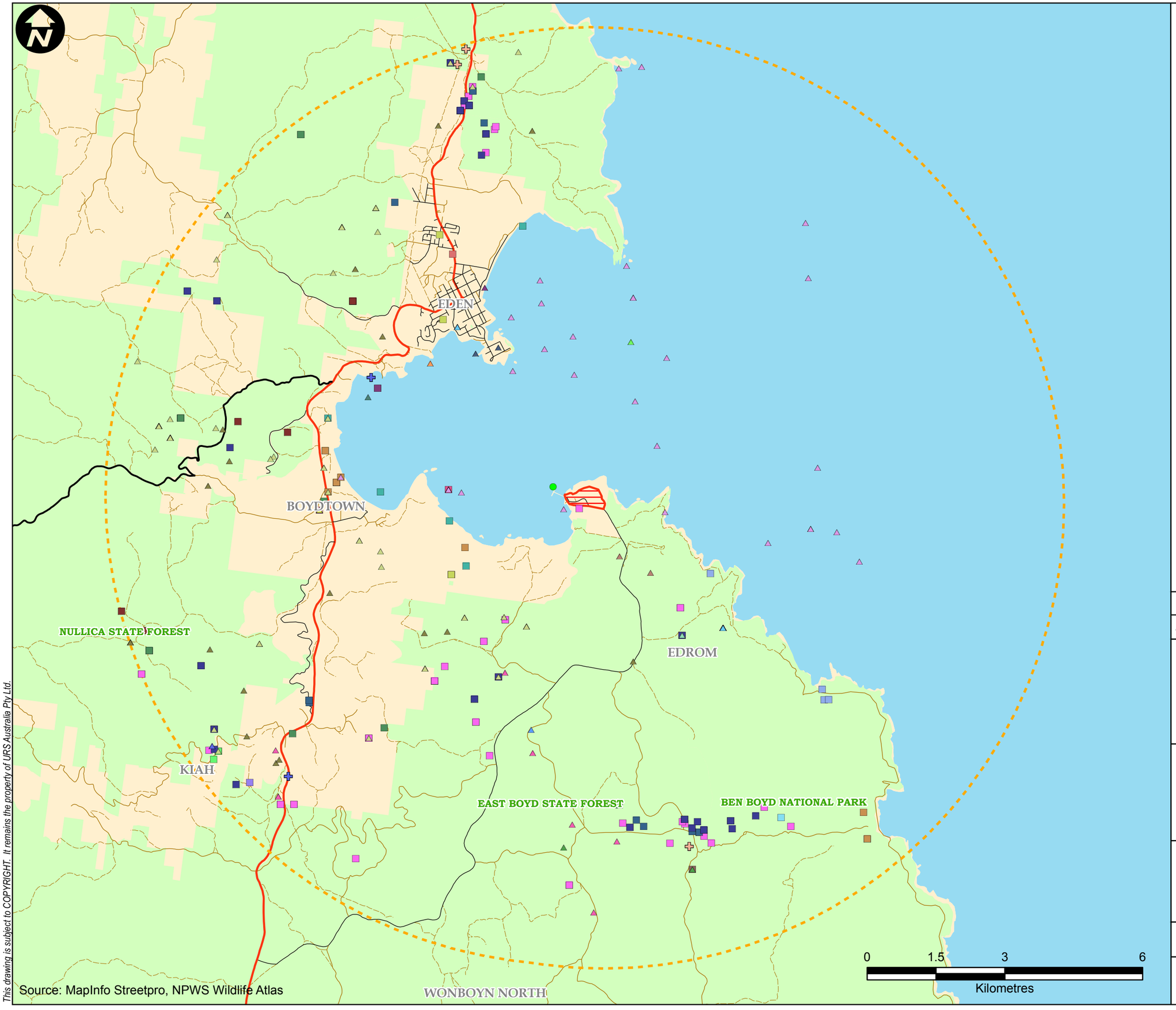
SEFE 5MW BIOMASS POWER PLANT

Title

NPWS FLORA ATLAS RECORDS

Figure: 2-1a

URS



Source: MapInfo Streetpro, NPWS Wildlife Atlas

Legend

- Site Boundary
- 10km buffer

Reptilia
- Green Turtle

Mammalia
- Australian Fur-seal
- Blue Whale
- Dugong
- Eastern Bentwing-bat
- Eastern False Pipistrelle
- Eastern Freetail-bat
- Golden-tipped Bat
- Greater Broad-nosed Bat
- Humpback Whale
- Koala
- Large-footed Myotis
- Long-nosed Potoroo
- New Zealand Fur-seal
- Southern Brown Bandicoot (eastern)
- Southern Right Whale
- Spotted-tailed Quoll
- White-footed Dunnart
- Yellow-bellied Glider

Aves
- Barking Owl
- Black-browed Albatross
- Brown Treecreeper
- Eastern Ground Parrot
- Gang-gang Cockatoo
- Glossy Black-Cockatoo
- Hooded Plover
- Masked Owl
- Osprey
- Pied Oystercatcher
- Powerful Owl
- Providence Petrel
- Shy Albatross
- Sooty Owl
- Sooty Oystercatcher
- Square-tailed Kite
- Swift Parrot

Amphibia
- Giant Burrowing Frog
- Green and Golden Bell Frog

Drawn: AJW	Approved: KC	Date: 17/06/2009
Job No.: 43177675	File No.: 43177675.001.mxd	

Client

SOUTH EAST FIBRE EXPORTS

Project

SEFE 5MW BIOMASS POWER PLANT

Title

NPWS FAUNA ATLAS RECORDS

Figure: 2-1b

URS

A

Appendix A NPWS Atlas of NSW Wildlife Records

DECC home

Search Results

Your selection: Fauna, threatened species, recorded since 1980, Selected Area - 149.88328,-37.15129,149.98328,-37.05129 returned a total of 122 records of 22 species.

Report generated on 16/06/2009 - 12:37 (Data valid to 07/06/2009)

view map | search again | clear selection

Choose up to 3 species to map.

** Exotic (non-native) species*

Aves	Map	Scientific Name	Common Name	Legal Status	Count	Info
Charadriidae						
	☐	Thinornis rubricollis	Hooded Plover	E1	1	
Diomedeidae						
	☐	Thalassarche cauta	Shy Albatross	V	1	
Haematopodidae						
	☐	Haematopus longirostris	Pied Oystercatcher	V	2	
Psittacidae						
	☐	Lathamus discolor	Swift Parrot	E1	1	
	☐	Pezoporus wallicus wallicus	Eastern Ground Parrot	V	1	
Strigidae						
	☐	Ninox strenua	Powerful Owl	V	13	
Tytonidae						
	☐	Tyto tenebricosa	Sooty Owl	V	4	

Mammalia	Map	Scientific Name	Common Name	Legal Status	Count	Info
Balaenopteridae						
	☐	Balaenoptera musculus	Blue Whale	E1	2	
	☐	Megaptera novaeangliae	Humpback Whale	V	19	
Dasyuridae						
	☐	Dasyurus maculatus	Spotted-tailed Quoll	V	2	
	☐	Sminthopsis leucopus	White-footed Dunnart	V	1	
Dugongidae						
	☐	Dugong dugon	Dugong	E1	1	
Molossidae						
	☐	Mormopterus norfolkensis	Eastern Freetail-bat	V	1	

Otariidae					
	Arctocephalus forsteri	New Zealand Fur-seal	V	1	
	Arctocephalus pusillus doriferus	Australian Fur-seal	V	2	
Peramelidae					
	Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	E1	1	
Petauridae					
	Petaurus australis	Yellow-bellied Glider	V	12	
Phascolarctidae					
	Phascolarctos cinereus	Koala	V	1	
Vespertilionidae					
	Falsistrellus tasmaniensis	Eastern False Pipistrelle	V	2	
	Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	V	50	
	Myotis adversus	Large-footed Myotis	V	3	

Reptilia	Map	Scientific Name	Common Name	Legal Status	Count	Info
Cheloniidae						
		Chelonia mydas	Green Turtle	V	1	

** Exotic (non-native) species*

Choose up to 3 species to map.

DISCLAIMER: The Atlas of New South Wales Wildlife contains data from a number of sources including government agencies, non-government organisations and private individuals. These data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Find out more about the Atlas.

DECC home

Search Results

Your selection: Flora, threatened species, recorded since 1980, Selected Area - 149.88328,-37.15129,149.98328,-37.05129 returned a total of 1 records of 1 species.
Report generated on 16/06/2009 - 12:38 (Data valid to 07/06/2009)

view map | search again | clear selection

Choose up to 3 species to map.

** Exotic (non-native) species*

Plants	Map	Scientific Name	Common Name	Legal Status	Count	Info
Orchidaceae						
	☐	Cryptostylis hunteriana	Leafless Tongue Orchid	V	1	

** Exotic (non-native) species*

Choose up to 3 species to map.

OUR ENVIRONMENT it's a living thing

B

Appendix B EPBC Act Matters of NES Search Results

Australian Government
Department of the Environment, Water, Heritage and the Arts

Protected Matters Search Tool

You are here: Environment Home > EPBC Act > Search

15 June 2009 16:53

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

You may wish to print this report for reference before moving to other pages or websites.

The Australian Natural Resources Atlas at http://www.environment.gov.au/atlas may provide further environmental information relevant to your selected area. Information about the EPBC Act including significance guidelines, forms and application process details can be found at http://www.environment.gov.au/epbc/assessmentsapprovals/index.html

Search Type: Point
Buffer: 10 km
Coordinates: -37.102004,149.934602

Report Contents:

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are

proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Significance: (Ramsar Sites)	None
Commonwealth Marine Areas:	Relevant
Threatened Ecological Communities:	1
Threatened Species:	40
Migratory Species:	42

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage/index.html.

Please note that the current dataset on Commonwealth land is not complete. Further information on Commonwealth land would need to be obtained from relevant sources including Commonwealth agencies, local agencies, and land tenure maps.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at http://www.environment.gov.au/epbc/permits/index.html.

Commonwealth Lands:	1
Commonwealth Heritage Places:	None
Places on the RNE:	9
Listed Marine Species:	64
Whales and Other Cetaceans:	12
Critical Habitats:	None
Commonwealth Reserves:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

nominated.

State and Territory Reserves:	3
Other Commonwealth Reserves:	None
Regional Forest Agreements:	1

Details

Matters of National Environmental Significance

Commonwealth Marine Areas [Dataset Information]

Approval may be required for a proposed activity that is likely to have a significant impact on the environment in a Commonwealth Marine Area, when the action is outside the Commonwealth Marine Area, or the environment anywhere when the action is taken within the Commonwealth Marine Area. Generally the Commonwealth Marine Area stretches from three nautical miles to two hundred nautical miles from the coast.

EEZ and Territorial Sea

Threatened Ecological Communities [Dataset Information]	Status	Type of Presence
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	Critically Endangered	Community likely to occur within area
Threatened Species [Dataset Information]	**Status**	**Type of Presence**
Birds		
Anthochaera phrygia Regent Honeyeater	Endangered	Species or species habitat may occur within area
Dasyornis brachypterus Eastern Bristlebird	Endangered	Species or species habitat likely to occur within area
Diomedea epomophora epomophora Southern Royal Albatross	Vulnerable	Species or species habitat may occur within area
Diomedea epomophora sanfordi Northern Royal Albatross	Endangered	Species or species habitat may occur within area
Diomedea exulans (sensu lato) Wandering Albatross	Vulnerable	Species or species habitat may occur within area
Diomedea exulans amsterdamensis Amsterdam Albatross	Endangered	Species or species habitat may occur within area
Diomedea exulans antipodensis Antipodean Albatross	Vulnerable	Species or species habitat may occur within area
Diomedea exulans exulans Tristan Albatross	Endangered	Foraging, feeding or related behaviour may occur within area
Diomedea exulans gibsoni Gibson's Albatross	Vulnerable	Species or species habitat may occur within area
Halobaena caerulea Blue Petrel	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot	Endangered	Species or species habitat likely to occur within area
Macronectes giganteus Southern Giant-Petrel	Endangered	Species or species habitat may occur within area

Macronectes halli Northern Giant-Petrel	Vulnerable	Species or species habitat may occur within area
Neophema chrysogaster Orange-bellied Parrot	Critically Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe	Vulnerable	Species or species habitat may occur within area
Thalassarche bulleri Buller's Albatross	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta cauta Shy Albatross, Tasmanian Shy Albatross	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta salvini Salvin's Albatross	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta steadi White-capped Albatross	Vulnerable	Species or species habitat may occur within area
Thalassarche chrysostoma Grey-headed Albatross	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris impavida Campbell Albatross	Vulnerable	Species or species habitat may occur within area
Frogs		
Heleioporus australiacus Giant Burrowing Frog	Vulnerable	Species or species habitat likely to occur within area
Litoria aurea Green and Golden Bell Frog	Vulnerable	Species or species habitat may occur within area
Litoria littlejohni Littlejohn's Tree Frog, Heath Frog	Vulnerable	Species or species habitat may occur within area
Mammals		
Balaenoptera musculus Blue Whale	Endangered	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population)	Endangered	Species or species habitat may occur within area
Eubalaena australis Southern Right Whale	Endangered	Breeding likely to occur within area
Isoodon obesulus obesulus Southern Brown Bandicoot	Endangered	Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale	Vulnerable	Congregation or aggregation known to occur within area
Potorous longipes Long-footed Potoroo	Endangered	Species or species habitat likely to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE mainland)	Vulnerable	Species or species habitat may occur within area
Pseudomys fumeus Konoom, Smoky Mouse	Endangered	Species or species habitat likely to occur within area
Pteropus poliocephalus	Vulnerable	Species or species habitat likely to

Grey-headed Flying-fox		occur within area
Ray-finned fishes		
Prototroctes maraena Australian Grayling	Vulnerable	Species or species habitat known to occur within area
Sharks		
Carcharias taurus (east coast population) Grey Nurse Shark (east coast population)	Critically Endangered	Species or species habitat may occur within area
Carcharodon carcharias Great White Shark	Vulnerable	Species or species habitat may occur within area
Galeorhinus galeus School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark	Conservation Dependent	Species or species habitat may occur within area
Rhincodon typus Whale Shark	Vulnerable	Species or species habitat may occur within area
Plants		
Cryptostylis hunteriana Leafless Tongue-orchid	Vulnerable	Species or species habitat may occur within area
Migratory Species [Dataset Information]	Status	Type of Presence
Migratory Terrestrial Species		
Birds		
Haliaeetus leucogaster White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail	Migratory	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater	Migratory	Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch	Migratory	Breeding may occur within area
Myiagra cyanoleuca Satin Flycatcher	Migratory	Breeding likely to occur within area
Neophema chrysogaster Orange-bellied Parrot	Migratory	Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail	Migratory	Breeding may occur within area
Xanthomyza phrygia Regent Honeyeater	Migratory	Species or species habitat may occur within area
Migratory Wetland Species		
Birds		
Ardea alba Great Egret, White Egret	Migratory	Species or species habitat may occur within area
Ardea ibis Cattle Egret	Migratory	Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe	Migratory	Species or species habitat may occur within area
Rostratula benghalensis s. lat. Painted Snipe	Migratory	Species or species habitat may occur within area

Migratory Marine Birds

Apus pacificus Fork-tailed Swift	Migratory	Species or species habitat may occur within area
Ardea alba Great Egret, White Egret	Migratory	Species or species habitat may occur within area
Ardea ibis Cattle Egret	Migratory	Species or species habitat may occur within area
Diomedea amsterdamensis Amsterdam Albatross	Migratory	Species or species habitat may occur within area
Diomedea antipodensis Antipodean Albatross	Migratory	Species or species habitat may occur within area
Diomedea dabbenena Tristan Albatross	Migratory	Foraging, feeding or related behaviour may occur within area
Diomedea epomophora (sensu stricto) Southern Royal Albatross	Migratory	Species or species habitat may occur within area
Diomedea exulans (sensu lato) Wandering Albatross	Migratory	Species or species habitat may occur within area
Diomedea gibsoni Gibson's Albatross	Migratory	Species or species habitat may occur within area
Diomedea sanfordi Northern Royal Albatross	Migratory	Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel	Migratory	Species or species habitat may occur within area
Macronectes halli Northern Giant-Petrel	Migratory	Species or species habitat may occur within area
Sterna albifrons Little Tern	Migratory	Species or species habitat may occur within area
Thalassarche bulleri Buller's Albatross	Migratory	Species or species habitat may occur within area
Thalassarche cauta (sensu stricto) Shy Albatross, Tasmanian Shy Albatross	Migratory	Species or species habitat may occur within area
Thalassarche chlororhynchos Yellow-nosed Albatross, Atlantic Yellow-nosed Albatross	Migratory	Species or species habitat may occur within area
Thalassarche chrysostoma Grey-headed Albatross	Migratory	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross	Migratory	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross	Migratory	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross	Migratory	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross	Migratory	Species or species habitat may occur within area

Migratory Marine Species

Mammals

Balaenoptera edeni	Migratory	Species or species habitat may

Bryde's Whale		occur within area
Balaenoptera musculus Blue Whale	Migratory	Species or species habitat likely to occur within area
Caperea marginata Pygmy Right Whale	Migratory	Species or species habitat may occur within area
Eubalaena australis Southern Right Whale	Migratory	Breeding likely to occur within area
Lagenorhynchus obscurus Dusky Dolphin	Migratory	Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale	Migratory	Congregation or aggregation known to occur within area
Orcinus orca Killer Whale, Orca	Migratory	Species or species habitat may occur within area
Sharks		
Carcharodon carcharias Great White Shark	Migratory	Species or species habitat may occur within area
Rhincodon typus Whale Shark	Migratory	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species [Dataset Information]	Status	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift	Listed - overfly marine area	Species or species habitat may occur within area
Ardea alba Great Egret, White Egret	Listed - overfly marine area	Species or species habitat may occur within area
Ardea ibis Cattle Egret	Listed - overfly marine area	Species or species habitat may occur within area
Catharacta skua Great Skua	Listed	Species or species habitat may occur within area
Diomedea amsterdamensis Amsterdam Albatross	Listed	Species or species habitat may occur within area
Diomedea antipodensis Antipodean Albatross	Listed	Species or species habitat may occur within area
Diomedea dabbenena Tristan Albatross	Listed	Foraging, feeding or related behaviour may occur within area
Diomedea epomophora (sensu stricto) Southern Royal Albatross	Listed	Species or species habitat may occur within area
Diomedea exulans (sensu lato) Wandering Albatross	Listed	Species or species habitat may occur within area
Diomedea gibsoni Gibson's Albatross	Listed	Species or species habitat may occur within area
Diomedea sanfordi	Listed	Species or species habitat may occur

Northern Royal Albatross		within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe	Listed - overfly marine area	Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle	Listed	Species or species habitat likely to occur within area
Halobaena caerulea Blue Petrel	Listed	Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail	Listed - overfly marine area	Species or species habitat may occur within area
Lathamus discolor Swift Parrot	Listed - overfly marine area	Species or species habitat likely to occur within area
Limnodromus semipalmatus Asian Dowitcher	Listed - overfly marine area	Foraging, feeding or related behaviour likely to occur within area
Macronectes giganteus Southern Giant-Petrel	Listed	Species or species habitat may occur within area
Macronectes halli Northern Giant-Petrel	Listed	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch	Listed - overfly marine area	Breeding may occur within area
Myiagra cyanoleuca Satin Flycatcher	Listed - overfly marine area	Breeding likely to occur within area
Neophema chrysogaster Orange-bellied Parrot	Listed - overfly marine area	Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail	Listed - overfly marine area	Breeding may occur within area
Rostratula benghalensis s. lat. Painted Snipe	Listed - overfly marine area	Species or species habitat may occur within area
Sterna albifrons Little Tern	Listed	Species or species habitat may occur within area

Thalassarche bulleri Buller's Albatross	Listed	Species or species habitat may occur within area
Thalassarche cauta (sensu stricto) Shy Albatross, Tasmanian Shy Albatross	Listed	Species or species habitat may occur within area
Thalassarche chlororhynchos Yellow-nosed Albatross, Atlantic Yellow-nosed Albatross	Listed	Species or species habitat may occur within area
Thalassarche chrysostoma Grey-headed Albatross	Listed	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross	Listed	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross	Listed	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross	Listed	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross	Listed	Species or species habitat may occur within area
Thinornis rubricollis rubricollis Hooded Plover (eastern)	Listed - overfly marine area	Species or species habitat likely to occur within area
Mammals		
Arctocephalus forsteri New Zealand Fur-seal	Listed	Species or species habitat may occur within area
Arctocephalus pusillus Australian Fur-seal, Australo-African Fur-seal	Listed	Species or species habitat may occur within area
Ray-finned fishes		
Heraldia nocturna Upside-down Pipefish	Listed	Species or species habitat may occur within area
Hippocampus abdominalis Eastern Potbelly Seahorse, New Zealand Potbelly, Seahorse, Bigbelly Seahorse	Listed	Species or species habitat may occur within area
Hippocampus breviceps Short-head Seahorse, Short-snouted Seahorse	Listed	Species or species habitat may occur within area
Hippocampus minotaur Bullneck Seahorse	Listed	Species or species habitat may occur within area
Hippocampus whitei White's Seahorse, Crowned Seahorse, Sydney Seahorse	Listed	Species or species habitat may occur within area
Histiogamphelus briggsii Briggs' Crested Pipefish, Briggs' Pipefish	Listed	Species or species habitat may occur within area
Histiogamphelus cristatus Rhino Pipefish, Macleay's Crested Pipefish	Listed	Species or species habitat may occur within area
Hypselognathus rostratus Knife-snouted Pipefish	Listed	Species or species habitat may occur within area
Kaupus costatus Deep-bodied Pipefish	Listed	Species or species habitat may occur within area
Kimblaeus bassensis	Listed	Species or species habitat may occur

Trawl Pipefish, Kimbla Pipefish		within area
Leptoichthys fistularius Brushtail Pipefish	Listed	Species or species habitat may occur within area
Lissocampus runa Javelin Pipefish	Listed	Species or species habitat may occur within area
Maroubra perserrata Sawtooth Pipefish	Listed	Species or species habitat may occur within area
Mitotichthys semistriatus Half-banded Pipefish	Listed	Species or species habitat may occur within area
Mitotichthys tuckeri Tucker's Pipefish	Listed	Species or species habitat may occur within area
Notiocampus ruber Red Pipefish	Listed	Species or species habitat may occur within area
Phyllopteryx taeniolatus Weedy Seadragon, Common Seadragon	Listed	Species or species habitat may occur within area
Solegnathus robustus Robust Spiny Pipehorse, Robust Pipehorse	Listed	Species or species habitat may occur within area
Solegnathus spinosissimus Spiny Pipehorse, Australian Spiny Pipehorse	Listed	Species or species habitat may occur within area
Stigmatopora argus Spotted Pipefish	Listed	Species or species habitat may occur within area
Stigmatopora nigra Wide-bodied Pipefish, Black Pipefish	Listed	Species or species habitat may occur within area
Stipecampus cristatus Ring-backed Pipefish	Listed	Species or species habitat may occur within area
Syngnathoides biaculeatus Double-ended Pipehorse, Alligator Pipefish	Listed	Species or species habitat may occur within area
Urocampus carinirostris Hairy Pipefish	Listed	Species or species habitat may occur within area
Vanacampus margaritifer Mother-of-pearl Pipefish	Listed	Species or species habitat may occur within area
Vanacampus phillipi Port Phillip Pipefish	Listed	Species or species habitat may occur within area
Vanacampus poecilolaemus Australian Long-snout Pipefish, Long-snouted Pipefish	Listed	Species or species habitat may occur within area
Whales and Other Cetaceans [Dataset Information]	Status	Type of Presence
Balaenoptera acutorostrata Minke Whale	Cetacean	Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale	Cetacean	Species or species habitat may occur within area
Balaenoptera musculus Blue Whale	Cetacean	Species or species habitat likely to occur within area
Caperea marginata Pygmy Right Whale	Cetacean	Species or species habitat may occur within area
Delphinus delphis	Cetacean	Species or species habitat may occur

Common Dophin, Short-beaked Common Dolphin		within area
Eubalaena australis Southern Right Whale	Cetacean	Breeding likely to occur within area
Grampus griseus Risso's Dolphin, Grampus	Cetacean	Species or species habitat may occur within area
Lagenorhynchus obscurus Dusky Dolphin	Cetacean	Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale	Cetacean	Congregation or aggregation known to occur within area
Orcinus orca Killer Whale, Orca	Cetacean	Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin	Cetacean	Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin	Cetacean	Species or species habitat may occur within area

Commonwealth Lands [Dataset Information]

Unknown

Places on the RNE [Dataset Information]
Note that not all Indigenous sites may be listed.

Historic

Boydtown Group NSW

Church Ruins NSW

Eden Courthouse NSW

Edrom Lodge NSW

Sea Horse Inn NSW

Natural

Bell Bird Creek Nature Reserve NSW

Ben Boyd National Park NSW

Boyds Tower Fish Fossils NSW

Eden Geological Site NSW

Extra Information

State and Territory Reserves [Dataset Information]

Bell Bird Creek Nature Reserve, NSW

Ben Boyd National Park, NSW

Eagles Claw Nature Reserve, NSW

Regional Forest Agreements [Dataset Information]
Note that all RFA areas including those still under consideration have been included.

Eden RFA, New South Wales

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the *Environment Protection and Biodiversity Conservation Act 1999*. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under "type of presence". For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the migratory and marine provisions of the Act have been mapped.

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites;
- seals which have only been mapped for breeding sites near the Australian continent.

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Acknowledgments

This database has been compiled from a range of data sources. The Department acknowledges the following custodians who have contributed valuable data and advice:

- New South Wales National Parks and Wildlife Service
- Department of Sustainability and Environment, Victoria
- Department of Primary Industries, Water and Environment, Tasmania
- Department of Environment and Heritage, South Australia Planning SA
- Parks and Wildlife Commission of the Northern Territory
- Environmental Protection Agency, Queensland
- Birds Australia
- Australian Bird and Bat Banding Scheme
- Australian National Wildlife Collection
- Natural history museums of Australia
- Queensland Herbarium
- National Herbarium of NSW
- Royal Botanic Gardens and National Herbarium of Victoria
- Tasmanian Herbarium
- State Herbarium of South Australia
- Northern Territory Herbarium
- Western Australian Herbarium
- Australian National Herbarium, Atherton and Canberra
- University of New England
- Other groups and individuals

ANUCliM Version 1.8, Centre for Resource and Environmental Studies, Australian National University was used extensively for the production of draft maps of species distribution. Environment Australia is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

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C

Appendix C CMA Sub-Region Search Results

New South Wales Threatened Species Website

South East Coastal Plains CMA sub-region

Below is a list of the 75 threatened species found in the South East Coastal Plains sub-region. You can also see a list of:

- threatened algae
- threatened animals
- threatened communities
- threatened fungi
- threatened plants
- see this complete list categorised by vegetation type

Threatened species known or predicted to occur in the South East Coastal Plains CMA sub-region Export this list

Scientific Name	Common Name	Type of species	Level of Threat	Known or Predicted to occur
Acacia constablei	Narrabarba Wattle	Plant > Shrubs	Vulnerable	Known
Acacia georgensis	Bega Wattle	Plant > Trees	Vulnerable	Known
Astrotricha sp. Wallagaraugh	Merimbula Star-hair	Plant > Shrubs	Endangered	Known
Botaurus poiciloptilus	Australasian Bittern	Animal > Birds	Vulnerable	Known
Brogo Wet Vine Forest in the South East Corner Bioregion	Brogo Wet Vine Forest	Community > Threatened Ecological Communities	Endangered Ecological Community	Known
Caladenia tessellata	Tessellated Spider Orchid	Plant > Orchids	Endangered	Predicted
Calamanthus fuliginosus	Striated Fieldwren	Animal > Birds	Vulnerable	Known
Calidris alba	Sanderling	Animal > Birds	Vulnerable	Known
Callocephalon fimbriatum	Gang-gang Cockatoo	Animal > Birds	Vulnerable	Known
Calyptorhynchus lathami	Glossy Black-cockatoo	Animal > Birds	Vulnerable	Known
Cercartetus nanus	Eastern Pygmy-possum	Animal > Marsupials	Vulnerable	Known
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Animal > Birds	Vulnerable	Known
Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner Bioregions	Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner Bioregions	Community > Threatened Ecological Communities	Endangered Ecological Community	Known
Correa baeuerlenii	Chef's Cap	Plant > Shrubs	Vulnerable	Known

	Correa			
Cryptostylis hunteriana	Leafless Tongue Orchid	Plant > Orchids	Vulnerable	Known
Dasyurus maculatus	Spotted-tailed Quoll	Animal > Marsupials	Vulnerable	Known
Distichlis distichophylla	Australian Salt-grass	Plant > Herbs and Forbs	Endangered	Known
Falsistrellus tasmaniensis	Eastern False Pipistrelle	Animal > Bats	Vulnerable	Known
Freshwater wetlands on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions	Freshwater wetlands on coastal floodplains	Community > Threatened Ecological Communities	Endangered Ecological Community	Known
Galium australe	Tangled Bedstraw	Plant > Herbs and Forbs	Endangered	Known
Glossopsitta porphyrocephala	Purple-crowned Lorikeet	Animal > Birds	Vulnerable	Known
Haematopus fuliginosus	Sooty Oystercatcher	Animal > Birds	Vulnerable	Known
Haematopus longirostris	Pied Oystercatcher	Animal > Birds	Vulnerable	Known
Haloragis exalata subsp. exalata	Square Raspwort	Plant > Shrubs	Vulnerable	Known
Heleioporus australiacus	Giant Burrowing Frog	Animal > Amphibians	Vulnerable	Known
Irediparra gallinacea	Comb-crested Jacana	Animal > Birds	Vulnerable	Known
Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	Animal > Marsupials	Endangered	Known
Ixobrychus flavicollis	Black Bittern	Animal > Birds	Vulnerable	Known
Kerivoula papuensis	Golden-tipped Bat	Animal > Bats	Vulnerable	Known
Lathamus discolor	Swift Parrot	Animal > Birds	Endangered	Known
Leionema ralstonii	Ralston's Leionema	Plant > Shrubs	Vulnerable	Known
Limosa limosa	Black-tailed Godwit	Animal > Birds	Vulnerable	Known
Litoria aurea	Green and Golden Bell Frog	Animal > Amphibians	Endangered	Known
Lophoictinia isura	Square-tailed Kite	Animal > Birds	Vulnerable	Known
Lowland Grassy Woodland in the South East Corner Bioregion	Lowland Grassy Woodland in the South East Corner Bioregion	Community > Threatened Ecological Communities	Endangered Ecological Community	Known
Lysimachia vulgaris var.	Yellow Loosestrife	Plant > Herbs and Forbs	Endangered	Known

davurica				
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	Animal > Birds	Vulnerable	Predicted
Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	Animal > Bats	Vulnerable	Known
Mixophyes balbus	Stuttering Barrred Frog	Animal > Amphibians	Endangered	Known
Mormopterus norfolkensis	Eastern Freetail-bat	Animal > Bats	Vulnerable	Known
Myotis macropus (formally Myotis adversus)	Large-footed Myotis	Animal > Bats	Vulnerable	Known
Neophema chrysogaster	Orange-bellied Parrot	Animal > Birds	Critically Endangered	Predicted
Ninox connivens	Barking Owl	Animal > Birds	Vulnerable	Known
Ninox strenua	Powerful Owl	Animal > Birds	Vulnerable	Known
Pachycephala olivacea	Olive Whistler	Animal > Birds	Vulnerable	Known
Pandion haliaetus	Osprey	Animal > Birds	Vulnerable	Known
Persicaria elatior	Tall Knotweed	Plant > Herbs and Forbs	Vulnerable	Known
Petaurus australis	Yellow-bellied Glider	Animal > Marsupials	Vulnerable	Known
Petroica rodinogaster	Pink Robin	Animal > Birds	Vulnerable	Known
Pezoporus wallicus wallicus	Eastern Ground Parrot	Animal > Birds	Vulnerable	Known
Phascogale tapoatafa	Brush-tailed Phascogale	Animal > Marsupials	Vulnerable	Known
Phascolarctos cinereus	Koala	Animal > Marsupials	Vulnerable	Known
Pomaderris bodalla	Bodalla Pomaderris	Plant > Shrubs	Vulnerable	Known
Pomaderris parrisiae	Parris' Pomaderris	Plant > Shrubs	Vulnerable	Known
Potorous tridactylus	Long-nosed Potoroo	Animal > Marsupials	Vulnerable	Known
Pseudanthus ovalifolius	Oval-leafed Pseudanthus	Plant > Shrubs	Endangered	Known
Pteropus poliocephalus	Grey-headed Flying-fox	Animal > Bats	Vulnerable	Known
Ptilinopus superbus	Superb Fruit-dove	Animal > Birds	Vulnerable	Known
Pultenaea pedunculata	Matted Bush-pea	Plant > Shrubs	Endangered	Known
River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and	River-Flat Eucalypt Forest on Coastal Floodplains	Community > Threatened Ecological Communities	Endangered Ecological Community	Known

South East Corner bioregions				
Scoteanax rueppellii	Greater Broad-nosed Bat	Animal > Bats	Vulnerable	Known
Senecio spathulatus	Coast Groundsel	Plant > Herbs and Forbs	Endangered	Predicted
Sminthopsis leucopus	White-footed Dunnart	Animal > Marsupials	Vulnerable	Known
Stagonopleura guttata	Diamond Firetail	Animal > Birds	Vulnerable	Known
Sterna albifrons	Little Tern	Animal > Birds	Endangered	Known
Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions	Swamp oak floodplain forest	Community > Threatened Ecological Communities	Endangered Ecological Community	Known
Thesium australe	Austral Toadflax	Plant > Herbs and Forbs	Vulnerable	Known
Thinornis rubricollis	Hooded Plover	Animal > Birds	Endangered	Known
Tyto novaehollandiae	Masked Owl	Animal > Birds	Vulnerable	Known
Tyto tenebricosa	Sooty Owl	Animal > Birds	Vulnerable	Known
Viola cleistogamoides	Hidden Violet	Plant > Herbs and Forbs	Endangered	Known
Wilsonia backhousei	Narrow-leafed Wilsonia	Plant > Shrubs	Vulnerable	Known
Wilsonia rotundifolia	Round-leafed Wilsonia	Plant > Shrubs	Endangered	Predicted
Xanthomyza phrygia	Regent Honeyeater	Animal > Birds	Endangered	Known
Zieria formosa	Shapely Zieria	Plant > Shrubs	Endangered	Known

D

Appendix D DPI Search Results

Search results for listings by region

The provisions of the *Fisheries Management Act 1994* cover all fish (freshwater, estuarine and marine), aquatic invertebrates and marine plants. The definition of fish includes any marine, estuarine or freshwater fish or other aquatic animal (e.g., oysters, prawns, sharks, rays, starfish, insects and worms), at any stage of their life history. It does not include whales, mammals, birds, reptiles and amphibians.

Listings found in the Southern Rivers CMA

ScientificName	CommonName	Status	Profile
Carcharius taurus	Grey nurse shark	Critically endangered	profile
Pristis zijsron	Green sawfish	Presumed extinct	profile
Austrocordulia leonardi	Sydney hawk dragonfly	Endangered	profile
Carcharadon carcharias	Great white shark	Vulnerable	profile
Epinephelus daemelii	Black cod	Vulnerable	profile
Macquaria australasica	Macquarie perch	Endangered	profile

E

Appendix E Habitat Assessments

Appendix E

Table E-1 Threatened Flora Species Habitat Assessment

Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Flora					
Acacia constablei	Narrabarba Wattle	Vulnerable	Vulnerable	A South Coast endemic known from only two localities. The largest population is found at Narrabarba Hill south of Eden. The other population is found on a rocky ridgetop 1.4 km to the north on the other side of the Wonboyn River. Confined to rhyolite outcrops with very poor soil development. Often dominant or co-dominant in an open shrubland community which also includes Giant Honey-myrtle, Tick Bush, Coastal Zieria and Lance-leaf Platysace; the herbaceous component of the vegetation is dominated by Long-leafed Wallaby Grass (*Notodanthonia longifolia*) and *Lepidosperma urophorum*. Assumed to develop a long-lived soil-stored seed bank but no data exist to confirm this. Apparently an obligate seeder - (i.e. it is killed by fire and regenerates then only from seed).	Only known from two locations, nearest population occurs at least 10 km to the south of the site. Given that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Acacia georgensis	Bega Wattle	Vulnerable	Vulnerable	Only occurs in the far South East of NSW with known sites at Kianinny Bay in Bournda National Park, on Dr George Mountain, Wadbilliga National Park and in Bemboka and Coolangubra Sections (one location on cliffs above the Towamba River) of the South East Forests National Park. Typically occurs on well-drained, shallow soils at sites with considerable exposed rock. The sites where it is found represent a range of different environments with correspondingly varied vegetation; in general, other tree species are uncommon but can include Veined Olive (*Notelaea venosa*), Hickory Wattle (*Acacia implexa*), Forest Red-gum (*Eucalyptus tereticornis*), Woolybutt (*E. longifolia*), Bega Mallee (*E. spectatrix*) and Gully Gum (*E. smithii*). Individuals are evidentially very long-lived, highly drought-tolerant, fire-sensitive trees. Reproduction is exclusively from seed and the plants are not capable of suckering.	Nearest records are more than 30 km to the west and north of the site. Given that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. Minimal rocky outcrops in area of anticipated impact. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

Appendix E

Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Astrotricha sp. *wallagaraugh*	Merimbula Star-hair	Endangered	Not listed	Highly restricted and severely fragmented distribution in NSW. Known from two localities about 50 km apart. One population is along the upper reaches of the Wallagaraugh River about 30 km south-west of Eden (in Yambulla and Timbillica State Forests). The other population is about 50 km to the northeast, a few kilometres north of Merimbula over a three kilometre stretch beside the Tathra road, lying partly along one edge of Bournda National Park. Much of this population is concentrated in disturbed roadside habitat. It also occurs in adjacent and relatively undisturbed bushland but at apparently lower frequency. In VIC, the species is known from occasional records in the catchments of the lower Wallagaraugh River and the upper lake of Mallacoota Inlet, areas which are more or less contiguous with the more southerly of the NSW populations. The southern (Yambulla/Timbillica) population occurs on shallow gravelly granitic soils in fairly dry open forests dominated by rough-barked eucalypts including *Eucalyptus consideniana* and *E. croajingalongensis*, with a rich shrub layer including some or all of *Leptospermum* spp., *Kunzea ambigua*, *Dodonaea Hakea* sp., *Pomaderris* sp., and *Acacia terminalis*. The northern (Bournda) population moccurs on deep grey-white sands in rough-barked eucalypt forest (*Eucalyptus sieberi* and *E. globoidea* dominant) with *Banksia serrata*, *Acacia longifolia* and *Grevillea mucronulata*.	Nearest records are approximately 25 km to the north and south west of the site. Given that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Caladenia tessellata	Tessellated Spider Orchid	Endangered	Vulnerable	Known from the Sydney area (old records), Wyong, Ulladulla and Braidwood in NSW. Populations in Kiama and Queanbeyan are presumed extinct. Recorded in the Huskisson area in the 1930s. Occurs on the coast in VIC from east of Melbourne to almost the NSW border. Generally found in grassy sclerophyll woodland on clay loam or sandy soils, though the population near Braidwood is in low woodland with stony soil.	Nearest record is 200km to the north of the site. Given the distance to nearest records, and that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Correa baeuerlenii	Chef's Cap Correa	Vulnerable	Vulnerable	Recorded between Nelligen (on Nelligen Creek and the Buckenbowra River) and Mimosa Rocks National Park. Occurs in riparian sites within forests of various eucalypts, including Silvertop Ash (*Eucalyptus sieberi*), Yellow Stringybark (*E. muelleriana*), Blue-leafed Stringybark (*E. agglomerata*) and Spotted Gum (*Corymbia maculata*) or she-oak woodland. It may also be found in near-coastal rocky sites.	All previous records are approximately 50 km to the north of the site. Given the distance to the nearest records, and that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Cryptostylis hunteriana	Leafless Tongue Orchid	Vulnerable	Vulnerable	Recorded from as far north as Gibraltar Range National Park south into VIC around the coast as far as Orbost. Known historically from a number of localities on the NSW south coast and observed in recent years at many sites between Batemans Bay and Nowra (although uncommon at all sites). Also recorded at Nelson Bay, Wyee, Washpool National Park, Nowendoc State Forest, Ku-Ring-Gai Chase National Park, and Ben Boyd National Park. Does not appear to have well defined habitat preferences and is known from a range of communities, including swamp-heath and woodland. Larger populations typically occur in woodland dominated by Scribbly Gum (*Eucalyptus sclerophylla*), Silvertop Ash (*E. sieberi*), Red Bloodwood (*Corymbia gummifera*) and Black Sheoak (*Allocasuarina littoralis*); appears to prefer open areas in the understorey of this community and is often found in association with the Large Tongue Orchid (*C. subulata*) and the Tartan Tongue Orchid (*C. erecta*). Reproduces from seed, and is also capable of vegetative reproduction and thus forms colonies which can become more or less permanent at a site.	One record of the species exists from 1986 in Ben Boyd National Park, approximately 5 km to the south of the site. Given that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Distichlis distichophylla	Australian Salt-grass	Endangered	Not listed	This grass is common in VIC and TAS, and extends to SA and WA. In VIC it is found inland as well, but in its limited NSW range it grows only in coastal situations, except for one existing population at Lake Cargellico. Scattered records are from the areas of Jervis Bay, Bermagui, Wonboyn, Narooma, Bodalla and Nadgee Nature Reserve (at Womboyn). A coloniser of damp saline soils; found at the edges of salt marshes and on low dunes.	There is one record of this species from 1999 approximately 15 km to the south of the site. Given that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. Additionally, no suitable habitat present within site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Galium australe	Tangled Bedstraw	Endangered	Not listed	Widespread in VIC and is also found in SA and TAS. Once regarded as presumed extinct in NSW, now known from the Towamba Valley near Bega, Lake Yarrunga near Kangaroo Valley, Cullendulla Creek Nature Reserve near Batemans Bay, Conjola National Park, Swan Lake near Swanhaven, and the Big Hole in Deua National Park. Recorded historically from the Clyde River near Batemans Bay and the Mongarlowe area near Braidwood. Also occurs beside Lake Windemere in the ACT at Jervis Bay. An outlying record to the north from near Byabarra on the north coast exists. In NSW, found in moist gullies of tall forest, *Eucalyptus tereticornis* forest, coastal Banksia shrubland, and *Allocasuarina nana* heathland. In other States the species is found in a range of near-coastal habitats, including sand dunes, sand spits, shrubland and woodland.	One record exists approximately 30 km to the west of the site. Given that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. No potential habitat present within site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Haloragis exalata subsp. exalata	Square Raspwort	Vulnerable	Vulnerable	Square Raspwort occurs in four widely scattered localities in eastern NSW. Disjunct distribution in the central coast, south coast and north-western slopes botanical subdivisions of NSW. Appears to require protected and shaded damp situations in riparian habitats.	Closest records are 60 km to the north of the site. Given the distance to the nearest records, and that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Leionema ralstonii	Ralston's Leionema	Vulnerable	Vulnerable	Endemic to the coastal ranges of south-east NSW between Eden and Pambula. Largely confined to dry, rocky habitats. Most likely to be found in dry shrub communities but can also occur in open forest. Flowers mainly in winter. Can withstand low intensity fires but infrequently burnt areas appear to provide the most suitable habitat.	Records of this species are restricted to an area of more than 15 km to the north west from the site. Given that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. No potential habitat present within site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Lysimachia vulgaris var. *davurica*	Yellow Loosestrife	Endangered	Not listed	Only known from Wingecarribee Swamp, the Boro area near Braidwood and the Bega River Valley. Also found in VIC and it is also found throughout much of Europe and Asia. Some suggestion that it may not be native to Australia; however, the VIC specimens were collected very early. The NSW populations are in disparate habitat: extensive wetland on peaty soils, riparian wetland vegetation and pasture on a dairy farm.	Six records for this species exist approximately 40 km to the north of the site. Given that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. No potential habitat present within site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Persicaria elatior	Tall Knotweed	Vulnerable	Vulnerable	Records in NSW include (Mt Dromedary, Moruya State Forest near Turlinjah, the Upper Avon River catchment north of Robertson, Bermagui, Picton Lakes, Raymond Terrace (near Newcastle) and the Grafton area (Cherry Tree and Gibberagee State Forests). Also occurs in QLD. Normally grows in damp places, especially beside streams and lakes. Occasionally in swamp forest or associated with disturbance.	There are several records approximately 50 km to the north of the site. Given the distance to the nearest records, and that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Pomaderris bodalla	Bodalla Pomaderris	Vulnerable	Not listed	Endemic to NSW and known to occur on the south coast between Bodalla and Merimbula, and in the upper Hunter Valley near Muswellbrook. Ten known populations, and a further two imprecisely described locations from which the species was collected 40 years ago. Majority of populations are small with seven of the populations having estimates of less than a hundred plants each. All populations have locally restricted distributions. Species is in the conservation reserves of Kooraban National Park on the south coast, and Wollemi National Park and Wingen Maid Nature Reserve in the north of its range. Other populations on the south coast are located in State Forests and on private land. On the south coast it occurs in moist open forest along sheltered gullies or along stream banks. In the upper Hunter valley, it occurs in open forest or woodland on open slopes.	There is one record of this species within 10 km of the site from 1996. Given that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. No potential habitat present within site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Pomaderris parrisiae	Parris' Pomaderris	Vulnerable	Vulnerable	Recorded in Egan Peaks Nature Reserve, Wadbilliga National Park (near Wadbilliga Trig.) and South East Forests National Park (Brown Mountain/Cochrane Dam area), with a questionable record in Ben Boyd National Park. Found on skeletal soils in rocky shrubland, tall open forest or rainforest, chiefly on escarpment ranges.	There is one record approximately 20 km south of the site. Given that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Pseudanthus ovalifolius	Oval-leafed Pseudanthus	Endangered	Not listed	Recorded in the Torrington area on the New England Tablelands and in Ben Boyd National Park. No southern records since 1978. Also found in scattered localities from central western VIC to Gippsland and in TAS. In the south the species is found near coastal dry sclerophyll forest growing in sandy soil. In the north, Grows in rocky outcrop areas on granite and flowers during summer.	There is one record of this species approximately 10 km north of the site from 1978. Given that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Pultenaea pedunculata	Matted Bush-pea	Endangered	Not listed	Widespread in VIC, TAS, and south-east SA. In NSW however, it is represented by three disjunct populations, in the Cumberland Plains in Sydney, the coast between Tathra and Bermagui and the Windellama area south of Goulburn (where it is locally abundant). Occurs in a range of habitats. NSW populations are generally among woodland vegetation but plants have also been found on road batters and coastal cliffs. Largely confined to loamy soils in dry gullies in populations in the Windellama area.	There are several records of this species more than 10 km from the site. Given that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Senecio spathulatus	Coast Groundsel	Endangered	Not listed	Occurs in Nadgee Nature Reserve (Cape Howe) and between Kurnell in Sydney and Myall Lakes National Park (with a possible occurrence at Cudmirrah). In VIC there are scattered populations from Wilsons Promontory to the NSW border. Grows on primary dunes.	There is one record of this species approximately 40 km south of the site. Given that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. No potential habitat present within site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Thesium australe	Austral Toadflax	Vulnerable	Vulnerable	Found in very small populations scattered across eastern NSW, along the coast, and from the Northern to Southern Tablelands. Also found in TAS and QLD and in eastern Asia. Occurs in grassland or grassy woodland. Often found in damp sites in association with Kangaroo Grass (*Themeda australis*).	Nearest records are more than 35 km to the north west of the site. Given that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. No potential habitat present within site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Viola cleistogamoides	Hidden Violet	Endangered	Not listed	Locally common in parts of coastal VIC, TAS and SA. In NSW, known from a collection at Wonboyn in 1954 and a recent sighting in Nadgee Nature Reserve. At Nadgee Moor it occurs in heath. Elsewhere it occupies a variety of situations, often in wet sandy coastal heaths. Have also been found inland in heathland, woodland with a heathy understorey and grassy forests. Disturbed sites such as tracks, firebreaks and even lawns have also been colonised.	A record exists approximately 10 km to the south of the site. Given that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Wilsonia backhousei	Narrow-leafed Wilsonia	Vulnerable	Not listed	In NSW, found on the coast between Mimosa Rocks National Park and Wamberal north of Sydney (Nelson's Lake, Potato Point, Sussex Inlet, Wowly Gully, Parramatta River at Ermington, Clovelly, Voyager Point, Wollongong and Royal National Park). It grows in all southern states. This is a species of the margins of salt marshes and lakes, both coastal and inland.	One record exists within 10 km of the site to the west. Given that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. No potential habitat present within site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Wilsonia rotundifolia	Round-leafed Wilsonia	Endangered	Not listed	Known from several sites in the Jervis Bay area, Royal National Park, near Deniliquin and in Lake George and Lake Bathurst. The Lake George population appears to be locally extensive. Also found WA, SA and VIC. Grows in mud in coastal salt marsh and inland saline lakes.	The nearest records are more than 90 km to the north of the site. Given the distance to the nearest records, and that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. No potential habitat present within site. *Thus, this species or its habitat is unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Zieria formosa	Shapely Zieria	Endangered	Endangered	Only a single population is known. Found over 1 hectare in an area south-west of Pambula on the NSW far south coast. The population occurs on the north-east aspect of an upper, moderately steep slope of a 'break-away' area above a small valley. The soil is skeletal, grey sandy loam and there is much exposed surface rock. Associated vegetation includes Black Wattle (*Acacia mearnsii*), Blackfellows' Hemp (*Commersonia fraseri*), Large-leaf Hop-bush (*Dodonea triquetra*), Snowy Mint-bush (*Prostanthera nivea*), Sweet Pittosporum (*Pittosporum undulatum*), White Kunzea (*Kunzea ambigua*), and Yellow Tea-tree (*Leptospermum flavescens*).	The nearest record and only known population is approximately 20 km from the site. Given that the site was cleared of all vegetation to allow original site development, and has been managed as a working site since the 1970s, the potential for this species to occur is highly unlikely. No potential habitat present within site. *Thus, this species or its habitat is unlikely to be affected by the proposed works and no further assessment is required.*
Endangered Ecological Communities					
Brogo Wet Vine Forest in the South East Corner Bioregion	Brogo Wet Vine Forest	Endangered Ecological Community	Not listed	Confined to the Bega Valley area on the far south coast of NSW. Found on the margins of the valley between Myrtle Mountain, Tantawangalo and Brogo, from Brogo to Cobargo and on a few hills within the valley, including the Meringola Peak area. There is also some possibility of occurrence in Eurobodalla Shire, such as around Tilba Tilba, and possibly a few small instances further north. Occurs mostly on steep, north-facing slopes on granites. Large outcrops of granite are common throughout occurrences of the community. A naturally restricted community due to specific requirements for its development. The majority of the remnants are found on private land.	Site lies outside of the range of the EEC. *Thus, this community or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Coastal Saltmarsh in the NSW North Coast; Sydney Basin and South East Corner Bioregions	Coastal Saltmarsh in the NSW North Coast; Sydney Basin and South East Corner Bioregions	Endangered Ecological Community	Not listed	This community occurs in the intertidal zone along the NSW coast. Species composition varies with elevation and latitude, with Saltmarsh in southern NSW being generally more species-rich than further north. The sediment surface may support a diversity of seaweed species. Species restricted to coastal saltmarshes include *Distichlis distichophylla* (endangered), *Halosarcia pergranulata* subsp. *pergranulata*, *Wilsonia backhousei* (vulnerable) and *Wilsonia rotundifolia* (endangered).	No suitable habitat occurs within the vicinity of the site. *Thus, this community or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Freshwater wetlands on coastal floodplains of the NSW North Coast; Sydney Basin and South East Corner bioregions	Freshwater wetlands on coastal floodplains	Endangered Ecological Community	Not listed	Known from along the majority of the NSW coast. Distinct from Sydney Freshwater Wetlands which are associated with sandplains in the Sydney Basin bioregion. Known to occur in Ukerebagh, Tuckean, Tabbimoble Swamp, Hexham Swamp, Pambalong and Pitt Town Nature Reserves and Bungawalbin, Scheyville and Seven Mile Beach National Parks.	No natural wetland present within site boundary. *Thus, this community or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	Endangered Ecological Community	Critically Endangered Ecological Community	Occurs only on the coast. Very rare and occurs in many small stands. Occurs on sand dunes and on soil derived from underlying rocks. Stands on headlands exposed to strong wind-action may take the form of dense, wind-pruned thickets. Stands are generally taller in sheltered sites such as hind dunes, although wind-pruning may still occur on their windward sides. Most stands occur within two kilometres of the sea, though are occasionally found further inland within reach of the maritime influence. A number of species characteristic of Littoral Rainforest in NSW reach their southern limits at various places along the coast; a number of temperate species are restricted to the south coast. The species composition (flora and fauna) of a site will be influenced by its geographic location, the size of the site, its degree of exposure and rainfall, its disturbance history (including fire) and, if previously disturbed, the stage of regeneration.	Not present within site boundary. *Thus, this community or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Lowland Grassy Woodland in the South East Corner Bioregion	Lowland Grassy Woodland in the South East Corner Bioregion	Endangered Ecological Community	Not listed	Currently known to occur within the Bega Valley, Eurobodalla and Palerang LGAs, but may occur elsewhere in the bioregion. Major occurrences are found to the west of Batemans Bay, around Moruya, in the Araluen valley, in the Cobargo - Bega - Candelo area, the Towamba Valley and near Tanja. The community typically occurs in undulating terrain up to 500 m in elevation on granitic substrates (e.g. adamellites, granites, granodiorites, gabbros, etc.) but may also occur on locally steep sites and on acid volcanic, alluvial and fine-grained sedimentary substrates.	Not present within site boundary. *Thus, this community or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast; Sydney Basin and South East Corner bioregions	River-Flat Eucalypt Forest on Coastal Floodplains	Endangered Ecological Community	Not listed	Once occurred on the floodplains of the Hunter, Hawkesbury, Moruya, Bega and Towamba Rivers, although many smaller floodplains and river flats also contain examples of the community. Major occurrences exist in the lower Hunter region the NSW south coast from Sydney to Moruya, and the Eden region. Associated with silts, clay-loams and sandy loams, on periodically inundated alluvial flats, drainage lines and river terraces associated with coastal floodplains. Generally occurs below 50 m elevation, but may occur on localised river flats up to 250 m above sea level. The structure of the community may vary from tall open forests to woodlands, although partial clearing may have reduced the canopy to scattered trees. Typically form mosaics with other floodplain forest communities and treeless wetlands, and often fringe treeless floodplain lagoons or wetlands with semi-permanent standing water.	Not present within site boundary. *Thus, this community or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Swamp Oak Floodplain Forest of the NSW North Coast; Sydney Basin and South East Corner bioregions	Swamp oak floodplain forest	Endangered Ecological Community	Not listed	Major examples once occurred on the floodplains of the Clarence, Macleay, Hastings, Manning, Hunter, Hawkesbury, Shoalhaven and Moruya Rivers. Major occurrences now include: areas in the Tweed lowlands; the lower Clarence floodplain; the lower Macleay floodplain; the lower Hunter - central Hunter region the Sydney - South Coast region; and the Eden region. Small areas of Swamp Oak Floodplain Forest are contained within existing conservation reserves, including Stotts Island, Ukerebagh, Tuckean, Pambalong, Wamberal, Towra Point and Cullendulla Creek Nature Reserves and Bongil Bongil, Myall Lakes and Conjola National Parks. Associated with grey-black clay-loams and sandy loams, where the groundwater is saline or sub-saline, on waterlogged or periodically inundated flats, drainage lines, lake margins and estuarine fringes associated with coastal floodplains. Generally occurs below 20 m (rarely above 10 m) elevation. The structure of the community may vary from open forests to low woodlands, scrubs or reedlands with scattered trees.	Not present within site boundary. *Thus, this community or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

Appendix E

Table E-2 Threatened Flora Species Habitat Assessment

Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Fauna						
Arctocephalus forsteri	New Zealand Fur-seal	Not listed	Vulnerable	Not listed	Occurs in Australia and New Zealand. Reports of non-breeding animals along southern NSW coast particularly on Montague Island, but also at other isolated locations to north of Sydney. Prefers rocky parts of islands with jumbled terrain and boulders. Feeds principally on cephalopods, fish also seabirds and occasionally penguins.	One record approximately 20 km to the north of the site. No suitable habitat present within areas of anticipated impact. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Arctocephalus pusillus doriferus	Australian Fur-seal	Not listed	Vulnerable	Not listed	Reported to have bred at Seal Rocks, near Port Stephens and Montague Island in southern NSW. Haul outs are observed at isolated places along the NSW coast. Prefers rocky parts of islands with flat, open terrain. They occupy flatter areas than do New Zealand Fur-Seals where they occur together.	There is one record within 10 km of the site. No suitable habitat present within areas of anticipated impact. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Austrocordulia leonardi	Sydney hawk dragonfly	Endangered	Not listed	Not listed	Has a very restricted distribution. The known distribution of the species includes three locations in a small area south of Sydney, from Audley to Picton. The species is known from the Hawkesbury-Nepean, Georges River, Port Hacking and Karuah drainages. The species spends most of its life underwater as an aquatic larva, before metamorphosing and emerging from the water as an adult. Adults are thought to only live for a few weeks. Has specific habitat requirements, and has only ever been collected from deep and shady riverine pools with cooler water. Larvae are found under rocks where they co-exist with *Austrocordulia refracta*.	No suitable habitat present within areas of anticipated impact. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Balaenoptera musculus	Blue Whale	Not listed	Endangered	Endangered	Oceanic within Southern Hemisphere between 20 degrees to 70 degrees South including NSW waters. Breeds in warm water at low latitudes, preferring open seas rather than coastal waters. Often feeds during spring and summer on krill close to the ice edge.	There are several records in waters within 20 km of the site. Marine species – will not be impacted by any terrestrial works. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Botaurus poiciloptilus	Australasian Bittern	Not listed	Vulnerable	Not listed	Widespread but uncommon over south-eastern Australia. In NSW, found over most of the state except for the far north-west. Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (*Typha* spp.) and spikerushes (*Eleocharis* spp.). Hides during the day amongst dense reeds or rushes and feed mainly at night on frogs, fish, yabbies, spiders, insects and snails. Feeding platforms may be constructed over deeper water from reeds trampled by the bird. Nests are built in secluded places in densely-vegetated wetlands on a platform of reeds.	The nearest record of this species is approximately 20 km to the north of the site. No suitable habitat present within areas of anticipated impact. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Calamanthus fuliginosus	Striated Fieldwren	Not listed	Vulnerable	Not listed	Found in coastal swamp heaths and tussock fields of south-east NSW, into southern VIC and the south-east of SA and TAS. Occurs in coastal areas. Mainly a bird of ground and understorey vegetation, and can be found in swampy, coastal heathlands, tussocky grasslands, low shrubby vegetation and margins of swamps. Forages through the undergrowth and over the ground, feeding on insects and seeds. Nests are hidden on the ground under tussocks or shrubs.	Nearest record is 10 km to the south within National Park. Species highly unlikely to occur within areas of anticipated impact given history of disturbance and presence of extensive areas of suitable habitat outside of the site boundary. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Calidris alba	Sanderling	Not listed	Vulnerable	Not listed	A regular summer migrant to most of the Australian coastline. Uncommon to locally common. Occurs along the NSW coast, with occasional inland sightings. Often found in coastal areas on low beaches of firm sand, near reefs and inlets, along tidal mudflats and bare open coastal lagoons; individuals are rarely recorded in near-coastal wetlands. Individuals run behind receding waves, darting after insects, larvae and other small invertebrates in the sand, then dart back up the beach as each wave breaks. Also feeds on plants, seeds, worms, crustaceans, spiders, jellyfish and fish, foraging around rotting heaps of kelp, at the edges of shallow pools on sandspits and on nearby mudflats. Roosts on bare sand, behind clumps of beach-cast kelp or in coastal dunes. Breeding occurs in the Northern Hemisphere.	Nearest records are 30 km to the south and 30 km to the north. No suitable habitat present within areas of anticipated impact. **However, to comply with DGRs and to ensure that any potential impact upon local populations of this species have been assessed for potentially significant impact, an Assessment of Significance (7-part test) has been carried out to further consider the potential impact of the proposed works on this species.**
Callocephalon fimbriatum	Gang-gang Cockatoo	Not listed	Vulnerable	Not listed	Distributed from southern VIC through south- and central-east NSW. In NSW, distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes. Occurs regularly in the ACT. Rare at the extremities of its range, with isolated records known from as far north as Coffs Harbour and as far west as Mudgee. In summer, generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In winter, may occur at lower altitudes in drier more open eucalypt forests and woodlands, and often found in urban areas. May also occur in sub-alpine Snow Gum *Eucalyptus pauciflora* woodland and occasionally in temperate rainforests. Moves to lower altitudes in winter, preferring more open eucalypt forests and woodlands, particularly in box-ironbark assemblages, or in dry forest in coastal areas. Favours old growth attributes for nesting and roosting.	Nearest records are approximately 10 km away to the north-west and south-west. No suitable nesting and roosting habitat present within site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Calyptorhynchus lathami	Glossy Black-cockatoo	Not listed	Vulnerable	Endangered	Uncommon although widespread throughout suitable forest and woodland habitats, from the central QLD coast to East Gippsland in VIC, and inland to the southern tablelands and central western plains of NSW, with a small population in the Riverina. Inhabits open forest and woodlands of the coast and the Great Dividing Range up to 1000 m in which stands of she-oak species, particularly Black She-oak (*Allocasuarina littoralis*), Forest She-oak (*A. torulosa*) or Drooping She-oak (*A. verticillata*) occur. In the Riverina area, inhabits open woodlands dominated by Belah (*Casuarina cristata*). Feeds almost exclusively on the seeds of several species of she-oak (Casuarina and Allocasuarina species), shredding the cones with the massive bill. Dependent on large hollow-bearing eucalypts for nest sites.	Nearest records are approximately 6km to the west and south of the site. No suitable nesting and roosting habitat present within site. Species highly unlikely to occur within areas of anticipated impact given history of disturbance and presence of extensive areas of suitable habitat outside of the site boundary. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Carcharias taurus	Grey Nurse Shark	Critically Endangered	Not listed	Critically Endangered	Has a broad inshore distribution, primarily in sub-tropical to cool temperate waters around the main continental landmasses, except in the eastern Pacific Ocean off North and South America. In Australia the distribution of the species is now confined to coastal waters off southern QLD and along the entire NSW coast, and in WA, predominantly the coastal waters of the south west. A migratory species known to migrate north and south along the east coast of Australia. Less common in QLD waters.	Marine species – will not be impacted by any terrestrial works. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Carcharadon carcharias	Great White Shark	Vulnerable	Not listed	Vulnerable	Largely uncommon but there are areas in Australian waters where encounters appear to be more frequent, including waters in and around seal and sea lion colonies. Appear to be largely transient, with a few longer term residents. Individuals are known to return to feeding grounds annually on a seasonal basis. Some populations appear to be small and highly localised, with a high degree of site attachment. Individuals of all sizes occur throughout their Australian range; however there is a tendency for juveniles to occur in different areas to sub-adults and adults. Juveniles are most commonly encountered in inshore areas, often in the vicinity of the open coast beaches. The areas where juveniles are mostly found are likely pupping grounds.	Marine species – will not be impacted by any terrestrial works. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Cercartetus nanus	Eastern Pygmy-possum	Not listed	Vulnerable	Not listed	Found in south-east Australia, from southern QLD to eastern SA and in TAS. In NSW, extends from the coast inland as far as the Pillaga, Dubbo, Parkes and Wagga Wagga on the western slopes. Found in a broad range of habitats from rainforest through sclerophyll forest and woodland to heath, but in most areas woodlands and heath appear to be preferred, except in north-east NSW where they are most frequently encountered in rainforest. Feeds largely on nectar and pollen collected from banksias, eucalypts and bottlebrushes; soft fruits are eaten when flowers are unavailable. Also feeds on insects throughout the year; this feed source may be more important in habitats where flowers are less abundant such as wet forests. Shelters in tree hollows, rotten stumps, holes in the ground, abandoned bird-nests, Ringtail Possum dreys or thickets of vegetation, (e.g. grass-tree skirts); tree hollows are favoured but spherical nests have been found under the bark of eucalypts and in shredded bark in tree forks. Agile climbers, but can be caught on the ground; generally nocturnal.	Nearest records are more than 20 km to the north and south of the site. No suitable nesting and roosting habitat present within site. Species highly unlikely to occur within areas of anticipated impact given history of disturbance and presence of extensive areas of suitable habitat outside of the site boundary. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Charadrius mongolus	Lesser Sand-plover	Not listed	Vulnerable	Listed Marine Listed Migratory	Breeds in central and north eastern Asia, migrating further south for winter. In Australia the species is found around the entire coast but is most common in the Gulf of Carpentaria, and along the east coast of QLD and northern NSW. Individuals are rarely recorded south of the Shoalhaven estuary, and there are few inland records. Almost entirely coastal in NSW, favouring the beaches of sheltered bays, harbours and estuaries with large intertidal sandflats or mudflats; occasionally occurs on sandy beaches, coral reefs and rock platforms. Often seen foraging and roosting with other wader species. Roosts during high tide on sandy beaches, spits and rocky shores; forage individually or in scattered flocks on wet ground at low tide, usually away from the water's edge.	Species is not known to occur within the relevant CMA sub-region, with the nearest record on Bionet (2009) being approximately 40 km to the north of the site. There is no suitable habitat present within areas of anticipated impact, however extensive areas of potential habitat occur elsewhere within the locality. **To comply with DGRs and to ensure that any potential impact upon local populations of this species have been assessed for potentially significant impact, an Assessment of Significance (7-part test) has been carried out to further consider the potential impact of the proposed works on this species.**
Chelonia mydas	Green Turtle	Not listed	Vulnerable	Vulnerable	Widely distributed in tropical and sub-tropical seas. Usually found in tropical waters around Australia but also occurs in coastal waters of NSW, where it is generally seen on the north or central coast, with occasional records from the south coast. Ocean-dwelling species spending most of its life at sea. Eggs laid in holes dug in beaches throughout their range. Scattered nesting records along the NSW coast.	There is one record of this species within waters in close proximity to the site. No suitable nesting habitat present within vicinity of site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	Not listed	Vulnerable		Endemic to eastern Australia. Occurs in eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range. Less commonly found on coastal plains and ranges. The western boundary of the range runs approximately through Wagga Wagga, Temora, Forbes, Dubbo and. The eastern subspecies lives in eastern NSW in eucalypt woodlands through central NSW and in coastal areas with drier open woodlands such as the Snowy River Valley, Cumberland Plains, Hunter Valley and parts of the Richmond and Clarence Valleys. Declines of this species have occurred in remnant vegetation fragments smaller than 300 hectares that have been isolated or fragmented for more than 50 years. Found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species; also found in mallee and River Red Gum (*Eucalyptus camaldulensis*) Forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses; usually not found in woodlands with a dense shrub layer; fallen timber is an important habitat component for foraging; also recorded in similar woodland habitats on the coastal ranges and plains. Forages on trunks and branches of trees and amongst fallen timber. Forage in trees and on the ground, amongst the litter, tussocks and fallen timber, and along trunks and lateral branches. Hollows in standing dead or live trees and tree stumps are essential for nesting.	Nearest records are approximately 90 km to the west of the site. No suitable habitat present within site. Species highly unlikely to occur within areas of anticipated impact given history of disturbance, size of site and presence of extensive areas of suitable habitat outside of the site boundary. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Dasyornis brachypterus	Eastern Bristlebird	Not listed	Endangered	Endangered	Found in three disjunct areas of south-east Australia: southern QLD/northern NSW, the Illawarra Region and in the vicinity of the NSW/VIC border. Habitat is characterised by dense, low vegetation including heath and open woodland with a heathy understorey; in northern NSW occurs in open forest with tussocky grass understorey; all of these vegetation types are fire prone. Fire regime is important to this species; Illawarra and southern populations reach maximum densities in habitat that has not been burnt for at least 15 years; however northern NSW birds are usually found in habitats burnt 5-10 years previously. Nests constructed on or near the ground amongst dense vegetation.	Nearest records are approximately 25 km to the south along the NSW/VIC border. Species highly unlikely to occur within areas of anticipated impact given history of disturbance and presence of extensive areas of potentially suitable habitat outside of the site boundary. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Dasyurus maculatus	Spotted-tailed Quoll	Not listed	Vulnerable	Endangered	Found on the east coast of NSW, TAS, eastern VIC and north-eastern QLD. Considered common in TAS. Range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Use hollow-bearing trees, fallen logs, small caves, rock crevices, boulder fields and rocky-cliff faces as den sites. Use 'latrine sites', often on flat rocks among boulder fields and rocky cliff-faces; these may be visited by a number of individuals. Consumes a variety of prey, including gliders, possums, small wallabies, rats, birds, bandicoots, rabbits and insects; also eats carrion and takes domestic fowl. Females occupy home ranges up to about 750 hectares and males up to 3500 hectares; usually traverse their ranges along densely vegetated creeklines.	There are two records of quolls within close proximity to the site from 1986. There is a record from 2001 of one Quoll approximately 20 km to the west of the site. Species highly unlikely to occur within areas of anticipated impact given history of disturbance and presence of extensive areas of potentially suitable habitat outside of the site boundary. Given highly mobile nature of this species, the fencing of the site and lack of suitable habitat within the site it is highly unlikely that this species uses the site for any purpose. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Diomedea epomophora epomophora	Southern Royal Albatross	Not listed	Not listed	Vulnerable	During the non-breeding season, has a wide and possibly circumpolar distribution, ranging north to about 35°S. Moderately common throughout the year in offshore waters of southern Australia, mostly off south-east NSW, VIC and TAS. Forages in the Southern Ocean primarily between WA and South America, although it can circumnavigate the Southern Hemisphere. Marine and pelagic. It occurs in subantarctic, subtropical and occasionally Antarctic waters. The Southern Royal Albatross breeds on Campbell Island and in the Auckland Islands (NZ) Nests on flat or gently sloping ground on slopes, ridges, gullies and plateaux of large islands, and on the summits of islets. Depressions, gullies, lee slopes and vegetation provide shelter for its nests, but exposed sites are also needed nearby to allow take off and landing. The Southern Royal Albatross feeds primarily on squid and fish, feeds pelagically (in the open ocean).	Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat, the levels of disturbance on site and presence of extensive areas of potentially suitable habitat outside of the site boundary. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Diomedea epomophora sanfordi	Northern Royal Albatross	Not listed	Not listed	Endangered	Range widely over the Southern Ocean from 36° S to at least 52° S, though they are rarely south of 49° S. Individuals disperse to the south west Atlantic off Argentina, the eastern South Pacific near Chile, the southern Indian Ocean and south-east Australia. Occur infrequently in waters off NSW, regularly recorded throughout the year around TAS and SA at the edge of the continental shelf.	Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat, the levels of disturbance on site and presence of extensive areas of potentially suitable habitat outside of the site boundary. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Diomedea exulans (sensolato)	Wandering Albatross	Not listed	Endangered	Vulnerable	Visits Australian waters extending from Fremantle, WA, across the southern water to the Whitsunday Islands in QLD between June and September. Recorded along the length of the NSW coast. At other times birds roam the southern oceans. Spend the majority of their time in flight. Breed on a number of islands just north of the Antarctic Circle. Breeding takes place on exposed ridges and hillocks, amongst open and patchy vegetation. Breed biennially in small, loose colonies among grass tussocks, using a large mud nest. They feed in pelagic, offshore and inshore waters.	Nearest record is nearly 20 km to the south-east of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Diomedea exulans amsterdamensis	Amsterdam Albatross	Not listed	Not listed	Endangered	Nest only on Amsterdam Island in the Indian Ocean. Their pelagic range is poorly known, but most sightings have been of birds in the Indian Ocean. Few records off New Zealand. Potential for the occasional vagrant to enter Australian waters.	Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Diomedea exulans antipodensis	Antipodean Albatross	Not listed	Vulnerable	Vulnerable	Ranges across the southern Pacific Ocean, east to Chile and west to eastern Australia. The majority of birds breed on Antipodes Island, with a small number of pairs breeding on Campbell Island. Breeds biennially in colonies on ridges, slopes and plateaus of isolated subantarctic islands, usually in vegetation such as grass tussocks. Regularly occurs in small numbers off NSW south coast from Green Cape to Newcastle during winter where they feed on cuttlefish. Feeds pelagically on squid, fish and crustaceans.	Nearest record is approximately 120 km to the north of the site. Species highly unlikely to occur within areas of anticipated impact given the large distance from nearest record, the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Diomedea exulans exulans	Tristan Albatross	Not listed		Endangered	The at-sea distribution of this newly distinguished species is yet to be defined. Appear to wander widely from their sub-Antarctic breeding islands within the South Atlantic Ocean to 35° S. They are rarely observed in the Pacific or Indian Oceans. The only Australian record of this species is from a recapture off Wollongong (NSW) in September 1997.	Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Diomedea exulans gibsoni	Gibson's Albatross	Not listed	Vulnerable	Vulnerable	Essentially endemic to the Auckland Islands of New Zealand. The non-breeding range is poorly known however the species probably disperses across the southern Pacific. The species is regularly encountered on trans-Tasman shipping routes and at seas off Sydney, and regularly occurs off the NSW coast usually between Green Cape and Newcastle. Breeds biennially in colonies among grass tussocks on isolated subantarctic islands, using the wind to travel great distances both during and between breeding seasons. This species feeds pelagically on squid, fish and crustaceans.	Nearest record is approximately 20 km to the north of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Dugong dugong	Dugong	Not listed	Endangered	Not listed	Extends south from warmer coastal and island waters of the Indo-West Pacific to northern NSW; known from incidental records only. Major concentrations of Dugongs occur in wide shallow protected bays, wide shallow mangrove channels and in the lee of large inshore islands. Will also occupy deeper waters if their sea grass food is available. Shallow waters such as tidal sandbanks and estuaries have been reported as sites for calving.	One record more than 10 years old within 10 km of the site. Marine species – will not be impacted by any terrestrial works. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Epinephelus daemelii	Black Cod	Vulnerable	Not listed	Not listed	A large, reef-dwelling, carnivorous grouper. Found in warm temperate and subtropical parts of the south-western Pacific, and naturally occur along the entire NSW coast including Lord Howe Island. Adult black cod are usually found in caves, gutters and beneath bomboras on rocky reefs. They are territorial and often occupy a particular cave for life. Small juveniles are often found in coastal rock pools, and larger juveniles around rocky shores in estuaries. Black cod are opportunistic carnivores, eating mainly other fish and crustaceans.	Marine species – will not be impacted by any terrestrial works. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Falsistrellus tasmaniensis	Eastern False Pipistrelle	Not listed	Vulnerable		Found on the south-east coast and ranges of Australia, from southern QLD to VIC and TAS. Prefers moist habitats, with trees taller than 20 m. Generally roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings. Hunts beetles, moths, weevils and other flying insects above or just below the tree canopy. Hibernates in winter.	There are several records of this species within the last 10 years within 10 km of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Galeorhinus galeus	School Shark	Not listed	Not listed	Conservation Dependent	Occurs throughout the temperate coastal waters of southern Australia. Found from Moreton Bay, in southern QLD, to Perth, WA, including offshore waters of Lord Howe Island and TAS. Moves extensively throughout the waters of southern Australia. Mainly found in demersal waters, over the continental and insular shelves, but also over the upper slopes, in depths from near shore to 550 m. Inshore areas are particularly important as birthing and nursery sites. Distributed world-wide in temperate waters. Found in the western and eastern North Atlantic, western South Atlantic, eastern North and South Pacific, and off South Africa, New Zealand, Hawaii and southern Australia. Most abundant in cold to temperate continental seas, from the surfline and very shallow water to well offshore. Often found near the sea bed, in waters between 2–471 m, but may range through the water column and extend into the pelagic zone.	Marine species – will not be impacted by any terrestrial works. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Glossopsitta porphyrocephala	Purple-crowned Lorikeet	Not listed	Vulnerable	Not listed	Occurs across the southern parts of the continent from VIC to south-west WA. Uncommon in NSW, most often seen in Grey Box and White Box woodlands in the Riverina region, and occasionally along the Murray Valley. Occasional sightings of the species in box-ironbark habitats across the south-west slopes of NSW. Nomadic, with the pattern of distribution varying according to flowering conditions. Found in open forests and woodlands, particularly where there are large flowering eucalypts. Also a mallee specialist. Feed primarily on nectar and pollen of flowering Eucalypts. May raid orchards at times to feed on ripe fruit. Breed where there is a good supply of nectar and tree hollows.	The nearest records are approximately 270 km to the north and north-west of the site. Species highly unlikely to occur within areas of anticipated impact given the large distance from nearest record, the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Haematopus fuliginosus	Sooty Oystercatcher	Not listed	Vulnerable	Not listed	Found around the entire Australian coast, including offshore islands, being most common in Bass Strait. Small numbers of the species are evenly distributed along the NSW coast. The availability of suitable nesting sites may limit populations. Favours rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries. Forages on exposed rock or coral at low tide for foods such as limpets and mussels. Breeds almost exclusively on offshore islands, and occasionally on isolated promontories.	One record of the species exists in the waters 5 km to the west of the site. Species highly unlikely to occur within areas of anticipated impact given the existing infrastructure in place, the extensive areas of suitable habitat outside of the site boundary and the levels of disturbance on site. **However, to comply with DGRs and to ensure that any potential impact upon local populations of this species have been assessed for potentially significant impact, an Assessment of Significance (7-part test) has been carried out to further consider the potential impact of the proposed works on this species.**
Haematopus longirostris	Pied Oystercatcher	Not listed	Vulnerable	Not listed	Distributed around the entire Australian coastline, although most common in coastal TAS and parts of VIC, such as Corner Inlet. In NSW, thinly scattered along the entire coast. Favours intertidal flats of inlets and bays, open beaches and sandbanks. Forages on exposed sand, mud and rock at low tide, for molluscs, worms, crabs and small fish. Nests mostly on coastal or estuarine beaches although occasionally in saltmarsh or grassy areas. Nests are shallow scrapes in sand above the high tide mark, often amongst seaweed, shells and small stones.	Several records during the 1990s of the species around the bay to the west of the study area. Species highly unlikely to occur within areas of anticipated impact given the existing infrastructure in place and the lack of suitable habitat. **However, to comply with DGRs and to ensure that any potential impact upon local populations of this species have been assessed for potentially significant impact, an Assessment of Significance (7-part test) has been carried out to further consider the potential impact of the proposed works on this species.**
Halobaena caerulea	Blue Petrel	Not listed	Not listed	Vulnerable	Recorded off the Australian coast between East Gippsland in VIC and Perth In WA, but few records exist in the Great Australian Bight. Recorded regularly in small numbers in VIC and TAS, and occasionally in NSW. Rarely recorded north of 37° south on the east coast of Australia, and has not been recorded north of 32° south in south-west Australia. Breeding now restricted to offshore stacks near Macquarie Island. Has a circumpolar distribution. An uncommon winter and spring visitor to Australia and New Zealand. A marine species of the Subantarctic and Antarctic seas.	Species highly unlikely to occur within areas of anticipated impact given the existing infrastructure in place, lack of previous records, species marine nature and the lack of suitable potential habitat. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Heleioporus australiacus	Giant Burrowing Frog	Not listed	Vulnerable	Vulnerable	Occurs from the NSW Central Coast to eastern VIC, but most common on Sydney sandstone. Has been found from the coast to the Great Dividing Range. Found in heath, woodland and open forest with sandy soils. Generally lives in the heath or forest and will travel several hundred metres to creeks to breed. Burrows into deep litter or loose soil, emerging to feed or breed after rain. Eggs are laid in a white foam-mass under vegetation in creeks or in yabby holes.	Several records exist approximately 8 km to the north and south of the site. Species highly unlikely to occur within areas of anticipated impact given the existing infrastructure in place and the lack of suitable habitat. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Irediparra gallinacea	Comb-crested Jacana	Not listed	Vulnerable	Not listed	Occurs throughout coastal Australia and well inland in the north from the Kimberley to Sydney. Vagrants occasionally appear further south. Inhabits permanent wetlands with a good surface cover of floating vegetation, especially water-lilies. Forage across floating vegetation. Feed primarily on insects and other invertebrates, as well as some seeds and other vegetation. Breeds with a nest of floating vegetation.	Nearest record is 60 km to the north of the site. Species highly unlikely to occur within areas of anticipated impact given the large distance from nearest record, the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	Not listed	Endangered	Endangered	Has a patchy distribution. Found in south-eastern NSW, east of the Great Dividing Range south from the Hawkesbury River, southern coastal VIC and the Grampian Ranges, south-east SA, south-west WA and the northern tip of QLD. Largely crepuscular (active mainly after dusk and/or before dawn). Generally only found in heath or open forest with a heathy understorey on sandy or friable soils. Feed on a variety of ground-dwelling invertebrates and the fruit-bodies of hypogeous (underground-fruiting) fungi. Nests may be located under Grass trees *Xanthorrhoea* sp., blackberry bushes and other shrubs, or in rabbit burrows.	Nearest records are approximately 6 km to the south and south west of the site. Species highly unlikely to occur within areas of anticipated impact given the levels of disturbance on site and the extensive areas of suitable habitat outside of the site boundary. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Ixobrychus flavicollis	Black Bittern	Not listed	Vulnerable	Not listed	Wide distribution, from southern NSW north to Cape York and along the north coast to the Kimberley region and in south-west WA. In NSW, records are scattered along the east coast, with individuals rarely recorded south of Sydney or inland. Inhabits both terrestrial and estuarine wetlands, generally in areas of permanent water and dense vegetation. Where permanent water is present, the species may occur in flooded grassland, forest, woodland, rainforest and mangroves. Roosts in trees or on the ground amongst dense reeds. Nests are located on a branch overhanging water and consist of sticks and reeds on a base of larger sticks.	Nearest record is approximately 35 km to the north of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. **However, to comply with DGRs and to ensure that any potential impact upon local populations of this species have been assessed for potentially significant impact, an Assessment of Significance (7-part test) has been carried out to further consider the potential impact of the proposed works on this species.**
Kerivoula papuensis	Golden-tipped Bat	Not listed	Vulnerable	Not listed	Distributed along the east coast of Australia in scattered locations from Cape York Peninsula in QLD to Bega in southern NSW. Found in rainforest and adjacent sclerophyll forest. Roost in abandoned hanging Yellow-throated Scrubwren and Brown Gerygone nests located in rainforest gullies on small first- and second-order streams. Will fly up to 2 km from roosts to forage in rainforest and sclerophyll forest on upper-slopes. Specialist feeder on small web-building spiders.	Two records exist approximately 10 km to the south west of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Lathamus discolor	Swift Parrot	Not listed	Endangered	Endangered	Breeds in TAS during spring and summer, migrating in the autumn and winter months to south-east Australia from VIC and the eastern parts of SA to south-east QLD. In NSW mostly occurs on the coast and south west slopes. Migrates to the Australian south-east mainland between March and October. On the mainland, occurs in areas where eucalypts are flowering profusely or where there are abundant lerp/psyllid infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany *Eucalyptus robusta*, Spotted Gum *Corymbia maculata*, Red Bloodwood *C. gummifera*, Mugga Ironbark *E. sideroxylon*, and White Box *E. albens*. Commonly used psyllid infested trees include Inland Grey Box *E. microcarpa*, Grey Box *E. moluccana* and Blackbutt *E. pilularis*. Following winter they return to TAS where they breed from September to January, nesting in old trees with hollows and feeding in forests dominated by Tasmanian Blue Gum *E. globulus*.	One record of the species exists approximately 6 km to the north of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of disturbed nature of potential habitat, the immaturity of most tree species on site, the extensive areas of suitable habitat outside of the site boundary and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Limosa limosa	Black-tailed Godwit	Not listed	Vulnerable	Not listed	A migratory wading bird present in Australia between August and March. In NSW, it is most frequently recorded at Kooragang Island (Hunter River estuary), with occasional records elsewhere along the north and south coast, and inland. Records in western NSW indicate that a regular inland passage is used by the species, as it may occur around any of the large lakes in the western areas during summer, when the muddy shores are exposed. Recorded within the Murray-Darling Basin, on the western slopes of the Northern Tablelands and far north-west corner of the state. Primarily a coastal species. Usually found in sheltered bays, estuaries and lagoons with large intertidal mudflats and/or sandflats. Further inland, also found on mudflats and in water less than 10 cm deep, around muddy lakes and swamps. Individuals have been recorded in wet fields and sewerage treatment works. Forages in soft mud or shallow water. Roosts and loafs on low banks of mud, sand and shell bars.	Closest record is more than 70 km to the north of the site. Species highly unlikely to occur within areas of anticipated impact given the large distance from nearest record, the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Litoria aurea	Green and Golden Bell Frog	Not listed	Endangered	Vulnerable	Formerly distributed from the NSW north coast near Brunswick Heads, southwards along the NSW coast to VIC where it extends into east Gippsland. Records from west to Bathurst, Tumut and the ACT region. Since 1990 there have been approximately 50 recorded locations in NSW, most of which are small, coastal, or near coastal populations. These locations occur over the species' former range; however they are widely separated and isolated. Large populations in NSW are located around Sydney, the Shoalhaven and mid north coast (one an island population). One known population on the NSW Southern Tablelands. Inhabits marshes, dams and stream-sides, particularly those containing bullrushes (*Typha* spp.) or spikerushes (*Eleocharis* spp.). Optimum habitat includes water-bodies that are unshaded, free of predatory fish such as Plague Minnow (*Gambusia holbrooki*), have a grassy area nearby and diurnal sheltering sites available. Some sites, particularly in the Greater Sydney region occur in highly disturbed areas.	Several records of this species approximately 10 km from the site; however the most recent record is from 1998, with other records from 1979 and 1987. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Litoria littlejohni	Littlejohn's Tree Frog	Not listed	Vulnerable	Vulnerable	Distribution includes the plateaus and eastern slopes of the Great Dividing Range from Watagan State Forest (90 km north of Sydney) south to Buchan in VIC. Occurs along permanent rocky streams with thick fringing vegetation associated with eucalypt woodlands and heaths among sandstone outcrops. Males call from low vegetation close to slow flowing pools. Eggs are laid attached to small submerged twigs. Eggs and tadpoles are mostly found in slow flowing pools that receive extended exposure to sunlight, but will also use temporary isolated pools.	Several records exist approximately 30 km to the south of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Lophoictinia isura	Square-tailed Kite	Not listed	Vulnerable	Not listed	Ranges along coastal and sub-coastal areas from south-west to northern Australia, QLD, NSW and VIC. In NSW, the species is a regular resident in the north, north-east and along the major west-flowing river systems. A summer breeding migrant to the south-east, including the NSW south coast. Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses. In arid north-western NSW, has been observed in stony country with a ground cover of chenopods and grasses, open acacia scrub and patches of low open eucalypt woodland. Appears to occupy large hunting ranges of more than 100km^2. Nest sites generally located along or near watercourses, in a fork or on large horizontal limbs.	Two records of this species exist approximately 15 km to the south-west and 15 km to the south-east of the site. One record is from 1992, the other from 1977. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Macquaria australasica	Macquarie perch	Endangered	Not listed	Endangered	Found in the Murray-Darling Basin (particularly upstream reaches) of the Lachlan, Murrumbidgee and Murray rivers, and parts of south-eastern coastal NSW, including the Hawkesbury and Shoalhaven catchments. Found in both river and lake habitats, especially the upper reaches of rivers and their tributaries. They are quiet, furtive fish that feed on aquatic insects, crustaceans and molluscs. Macquarie perch spawn in spring or summer in shallow upland streams or flowing parts of rivers. Females produce around 50,000-100,000 eggs which settle among stones and gravel of the stream or river bed.	No suitable habitat occurs within the Site. No suitable waterways or lakes present. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Macronectes giganteus	Southern Giant Petrel	Not listed	Endangered	Endangered	Has a circumpolar pelagic range from Antarctica to approximately 20° S and is a common visitor off the coast of NSW. Nests in small colonies amongst open vegetation on Antarctic and subantarctic islands in summer, including Macquarie and Heard Islands and in Australian Antarctic territory. It is an opportunistic scavenger and predator, and scavenges from fishing vessels and animal carcasses on land. An active predator of cephalopods and euphausiids, as well as smaller birds (particularly penguins) both at land and at sea.	Nearest records are within 30 km of the site but are more than 20 years old. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Macronectes halli	Northern Giant Petrel	Not listed	Vulnerable	Vulnerable	Has a circumpolar pelagic distribution, usually between 40-64ºS in open oceans. Range extends into subtropical waters (to 28ºS) in winter and early spring, and they are a common visitor in NSW waters, predominantly along the south-east coast during winter and autumn. Breeding in Australian territory is limited to Macquarie Island and occurs during spring and summer. Seldom breed in colonies but rather as dispersed pairs, often amidst tussocks in dense vegetation and areas of broken terrain.	One record (15 years old) exists approximately 20 km to the south east of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Megaptera novaeangliae	Humpback Whale	Not listed	Vulnerable	Vulnerable	Oceanic and coastal waters worldwide. The population of Australia's east coast migrates from summer cold-water feeding grounds in Subantarctic waters to warm-water winter breeding grounds in the central Great Barrier Reef. They are regularly observed in NSW waters in June and July, on northward migration and October and November, on southward migration.	Many records exist in waters within 10 km of the site. Marine species – will not be impacted by any terrestrial works. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	Not listed	Vulnerable	Not listed	Common in few places, and rarely found on the coast. A sedentary species, but local seasonal movements are possible. The south-eastern form is found from Brisbane to Adelaide throughout much of inland NSW, with the exception of the north-west. Species is widespread, found across Australia, except for the driest deserts and the wetter coastal areas - northern and eastern coastal QLD and TAS. Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses. Often perches on low dead stumps and fallen timber or on low-hanging branches, using a perch-and-pounce method of hunting insect prey.	One record exists approximately 50 km to the south west of the site. Species highly unlikely to occur within areas of anticipated impact given the large distance from nearest record, the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	Not listed	Vulnerable	Not listed	Occur along the east and north-west coasts of Australia. Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures. Hunt in forested areas, catching moths and other flying insects above the tree tops.	Numerous records for this species exist within a 10 km radius of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Mixophyes balbus	Stuttering Barred Frog	Not listed	Endangered	Vulnerable	Occur along the east coast of Australia from southern QLD to north-east VIC. Found in rainforest and wet, tall open forest in the foothills and escarpment on the eastern side of the Great Dividing Range. Outside the breeding season adults live in deep leaf litter and thick understorey vegetation on the forest floor. Feed on insects and smaller frogs. Breed in streams during summer after heavy rain. Eggs are laid on rock shelves or shallow riffles in small, flowing streams. As the tadpoles grow they move to deep permanent pools.	Two records exist for this species more than 20 km to the south west of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Mormopterus norfolkensis	Eastern Freetail-bat	Not listed	Vulnerable	Not listed	Found along the east coast from south QLD to southern NSW. Occur in dry sclerophyll forest and woodland east of the Great Dividing Range. Roost mainly in tree hollows but will also roost under bark or in man-made structures.	Two records of this species exist within 10 km of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat, the presence of extensive suitable habitat outside of the site boundary and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Myotis macropus (formally *Myotis adversus*)	Large-footed Myotis	Not listed	Vulnerable	Not listed	Found in the coastal band from the north-west of Australia, across the top-end and south to western VIC. It is rarely found more than 100 km inland, except along major rivers. Generally roost in groups close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage. Forage over streams and pools catching insects and small fish by raking their feet across the water surface.	There are several records of this species within a 10 km radius of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Neophema chrysogaster	Orange-bellied Parrot	Not listed	Critically Endangered	Critically Endangered	Breeds in the south-west of TAS and migrates to spend the winter on the mainland coast of south-eastern SA and southern VIC. Occasional reports from NSW, with recent records from Shellharbour and Maroubra in May 2003. Expected that NSW habitats may be being more frequently utilised than observations suggest. Typical winter habitat is saltmarsh and strandline/foredune vegetation communities either on coastlines or coastal lagoons. Spits and islands are favoured but they will occur anywhere within coastal regions. Can be found foraging in weedy areas associated with coastal habitats or in modified landscapes such as pastures, seed crops and golf courses. On the mainland, the species spends winter within 3 km of the coast in sheltered coastal habitats including bays, lagoons, estuaries, coastal dunes and saltmarshes. Also inhabits small islands and peninsulas and occasionally saltworks and golf courses. Birds forage in low samphire herbland or taller coastal shrubland. Diet mainly comprises seeds and fruits of sedges and salt-tolerant coastal and saltmarsh plants.	Nearest record of this species is over 200 km to the west of the site. Species highly unlikely to occur within areas of anticipated impact given the large distance from nearest record, the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Ninox connivens	Barking Owl	Not listed	Vulnerable	Not listed	Found throughout Australia except for the central arid regions and TAS. Quite common in parts of northern Australia, but generally uncommon in southern Australia. Occurs sparsely. Most frequently recorded on the western slopes and plains. Rarely recorded in the far west or in coastal and escarpment forests. Inhabits eucalypt woodland, open forest, swamp woodlands and timbered watercourses. Denser vegetation is used for roosting. Roost along creek lines, usually in tall understorey trees such as acacias and casuarinas, or in clumps of canopy leaves in large eucalypts. Eggs are laid in nests in hollows of large, old eucalypts including River Red Gum (*Eucalyptus camaldulensis*), White Box (*Eucalyptus albens*), Red Box (*Eucalyptus polyanthemos*) and Blakely's Red Gum (*Eucalyptus blakelyi*).	There are several records more than 10 km away from the site for this species. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat, the presence of extensive suitable habitat outside of the site boundary and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Ninox strenua	Powerful Owl	Not listed	Vulnerable	Not listed	Endemic to eastern and south-east Australia, mainly on the coastal side of the Great Dividing Range from Mackay in QLD to south-western VIC. In NSW, widely distributed through the eastern forests from the coast inland to tablelands, with scattered, records on the western slopes and plains. Inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest. Requires large tracts of forest or woodland but can occur in fragmented landscapes as well. Breeds and hunts in open or closed sclerophyll forest or woodlands and occasionally hunts in open habitats. Roosts by day in dense vegetation comprising species such as Turpentine *Syncarpia glomulifera*, Black She-oak *Allocasuarina littoralis*, Blackwood *Acacia melanoxylon*, Rough-barked Apple *Angorphora floribunda*, Cherry Ballart *Exocarpus cupressiformis* and other eucalypt species. The main prey items are medium-sized arboreal marsupials. As most prey species require hollows and a shrub layer, these are important habitat components for the owl. Pairs of Powerful Owls are believed to have high fidelity to a small number of hollow-bearing nest trees and will defend a large home range of 400-1450 ha. Powerful Owls nest in large tree hollows (at least 0.5 m deep), in large eucalypts (diameter at breast height of 80-240 cm) that are at least 150 years old.	There are numerous records of this species within 10 km of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the lack of suitable prey species, the presence of extensive suitable habitat outside of the site boundary and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Pachycephala olivacea	Olive Whistler	Not listed	Vulnerable	Not listed	Inhabits the wet forests on the ranges of the east coast. Has a disjunct distribution in NSW chiefly occupying the beech forests around Barrington Tops and the MacPherson Ranges in the north and wet forests from Illawarra south to VIC. In the south it is found inland to the Snowy Mountains and the Brindabella Range. Mostly inhabit wet forests above 500m. During the winter months they may move to lower altitudes. Forage in trees and shrubs and on the ground, feeding on berries and insects.	There are several records of this species more than 10 km from the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Pandion haliaetus	Osprey	Not listed	Vulnerable	Not listed	Found around the Australian coast line, except for VIC and TAS. Common around the northern coast, especially on rocky shorelines, islands and reefs. Uncommon to rare or absent from closely settled parts of south-east Australia. Favour coastal areas, especially the mouths of large rivers, lagoons and lakes. Feed on fish over clear, open water. Nests are made high up in dead trees or in dead crowns of live trees, usually within 1 km of the sea.	There are two records of this species within 10 km of the site, one record from 2004, another from 1989. Each sighting is more than 6 km from the site. Species highly unlikely to depend upon resources within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site, and the presence of extensive suitable habitat outside of the site boundary. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Petaurus australis	Yellow-bellied Glider	Not listed	Vulnerable	Not listed	Found along the eastern coast to the western slopes of the Great Dividing Range, from southern QLD to VIC. Den in hollows of large trees. Occurs in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Forest type preferences vary with latitude and elevation; mixed coastal forests to dry escarpment forests in the north; moist coastal gullies and creek flats to tall montane forests in the south. Very mobile and occupy large home ranges from 20 to 85 ha to encompass dispersed and seasonally variable food resources.	There are numerous records of this species within 10 km of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Petroica rodinogaster	Pink Robin	Not listed	Vulnerable	Not listed	Found in TAS and the uplands of eastern VIC and far south-east NSW, almost as far north as Bombala. On the mainland, the species disperses north and west and into more open habitats in winter, regularly as far north as the ACT area, and sometimes as far north as the central coast of NSW. Inhabits rainforest and tall, open eucalypt forest, particularly in densely vegetated gullies. Requires dense undergrowth for nesting.	The nearest record is over 30 km to the north of the site.

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Pezoporus wallicus wallicus	Eastern Ground Parrot	Not listed	Vulnerable	Not listed	The eastern subspecies inhabits south-eastern Australia from southern QLD through NSW to western VIC. In NSW populations are restricted to islands of coastal or subcoastal heathland and sedgeland habitats. The species is found in small numbers on the north coast (Broadwater, Bundjalung, Yuraygir NPs) and Myall Lakes on the central coast. The largest populations occur on the NSW south coast, particularly Barren Grounds NR, Budderoo NP, the Jervis Bay area and Nadgee NR. Small numbers are recorded at Morton and Ben Boyd NP and other areas on the south coast. Occurs in high rainfall coastal and near coastal low heathlands and sedgelands, generally below one metre in height and very dense (up to 90% FPC). These habitats provide a high abundance and diversity of food, adequate cover and suitable roosting and nesting opportunities for the species, which spends most of its time on or near the ground. The coastal and subcoastal heathland and sedgeland habitats of the Ground Parrot are particularly fire-prone. Can re-colonise burnt habitat after 1-2 years and reach maximum densities after 15-20 years without fire. Nests are well hidden under overhanging tall, coarse grass, sedge or low, heathy shrubs.	There is one record of this species within 10 km of the site from 1996. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Phascogale tapoatafa	Brush-tailed Phascogale	Not listed	Vulnerable	Not listed	Has a patchy distribution around the coast of Australia. In NSW it is more frequently found in forest on the Great Dividing Range in the north-east and south-east of the State. There are records from central NSW. Prefers dry sclerophyll open forest with sparse groundcover of herbs, grasses, shrubs or leaf litter. Also inhabits heath, swamps, rainforest and wet sclerophyll forest. Agile climber foraging preferentially in rough barked trees of 25 cm DBH or greater. Nest and shelter in tree hollows with entrances 2.5 - 4 cm wide and use many different hollows over a short time span.	There is one record of this species more than 15 km to the north of the site from 1988. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Phascolarctos cinereus	Koala	Not listed	Vulnerable	Not listed	Has a fragmented distribution throughout eastern Australia from north-east QLD to the Eyre Peninsula in SA. In NSW it mainly occurs on the central and north coasts with some populations in the western region. Historically abundant on the south coast of NSW, but now occurs in sparse and possibly disjunct populations. Also known from sites on the southern tablelands. Inhabit eucalypt woodlands and forests. Feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species. Spend most of their time in trees, but will descend and traverse open ground to move between trees.	There are several records of this species within 10 km of the site. Species highly unlikely to occur within areas of anticipated impact given the fencing surrounding the site, the lack of suitable extensive and continuous habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Potorous longipes	Long-footed Potoroo	Not listed	Endangered	Endangered	Very limited distribution and is extremely rare. Two core populations occur in Victoria and a much smaller population has also been found in far south-east NSW, approximately 20 km north of the Victorian border. All known NSW populations now exist entirely within the South East Forests National Park. The species may also occur in adjacent State Forest and private land, but this remains to be determined. Typically inhabits moist forest types from montane wet sclerophyll forests over 1000m altitude to lowland forests at 150m. High soil moisture content throughout the year is an essential habitat component, allowing its primary food source, the fruit-bodies of hypogeous (underground fruiting) fungi, to persist. Shelters in a crude nest under dense understorey vegetation.	Nearest records are more than 30 km to the west and south west of the site. Species highly unlikely to occur within areas of anticipated impact given the fencing of the site, the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Potorous tridactylus	Long-nosed Potoroo	Not listed	Vulnerable	Vulnerable	Found on the south-east coast of Australia, from QLD to eastern VIC and TAS, including some of the Bass Strait islands. There are geographically isolated populations in western VIC. In NSW, generally restricted to coastal heaths and forests east of the Great Dividing Range, with an annual rainfall exceeding 760 mm. Inhabits coastal heaths and dry and wet sclerophyll forests. Dense understorey with occasional open areas is an essential part of habitat, and may consist of grass-trees, sedges, ferns or heath, or of low shrubs of tea-trees or melaleucas. A sandy loam soil is also a common feature. Hide by day in dense vegetation.	There are two records of this species within 10 km of the site. Species highly unlikely to occur within areas of anticipated impact given the fencing of the site, the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Pristis zijsron	Green sawfish	Presumed extinct	Not listed	Vulnerable	Were once widely distributed in the northern Indian Ocean, around South and South-East Asia and around northern Australia. Their numbers have been greatly reduced by fishing and accidental capture in prawn trawl and gill nets. Their large size and saw allow them to easily become entangled in nets and they are difficult to remove, and so rarely survive capture. The natural distribution of green sawfish originally extended from the Queensland border to the NSW south coast (Shoalhaven River). Live on muddy or sandy-mud soft bottom habitats in inshore areas. They also enter estuaries, where they have been found in very shallow water.	Marine and estuarine species, with no suitable habitat present within the Site. Will not be impacted by any terrestrial works. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Prototroctes maraena	Australian Grayling	Not listed	Not listed	Vulnerable	Dark brown to olive-green fish growing to 19 cm. Historically, occurred in coastal streams from the Grose River west of Sydney, southwards through NSW, VIC. and TAS. Has been recorded from rivers flowing east and south of the main dividing ranges. Absent from the inland Murray-Darling system. Reported from Ewens Ponds in south-eastern SA. In VIC, frequently collected in the Tambo, Barwon, Mitchell and Tarwin River systems Occurs widely in TAS and is known from the northern, eastern and southern coastal river drainages with occasional reports from the west coast. Spends only part of its lifecycle in freshwater. Migrates between freshwater streams and the ocean, and as such it is generally accepted to be a diadromous (migratory between fresh and salt waters) species.	Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Pseudomys fumeus	Smoky Mouse	Not listed	Endangered	Endangered	Limited to a small number of sites in western, southern and eastern VIC, south-east NSW and the ACT. In NSW there are three records from Kosciuszko National Park and 2 records adjacent to the park in Bondo and Ingbyra State Forests; the remainder are centred on Mt Poole, Nullica State Forest and the adjoining S. E. Forests National Park. Appears to prefer heath habitat on ridge tops and slopes in sclerophyll forest, heathland and open-forest from the coast (in VIC) to sub-alpine regions of up to 1800 metres, but sometimes occurs in ferny gullies. May occur singly, as pairs or small communal groups based around patches of heath. Nesting burrows have been found in rocky localities among tree roots and under the skirts of Grass Trees *Xanthorrhoea* spp.	Nearest records are over 30 km to the north west and west of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Pteropus poliocephalus	Grey-headed Flying-fox	Not listed	Vulnerable	Vulnerable	Found within 200 km of the east coast of Australia, from Bundaberg in QLD to Melbourne in VIC. Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are usually found in gullies, close to water, in vegetation with a dense canopy. Travel up to 50 km to forage. Feed on the nectar and pollen of native trees, in particular *Eucalyptus*, *Melaleuca* and *Banksia*, and fruits of rainforest trees and vines. Also forage in cultivated gardens and fruit crops and can inflict severe crop damage.	There are several records of this species approximately 15 km to the north of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and foraging resources and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Ptilinopus superbus	Superb Fruit-dove	Not listed	Vulnerable	Not listed	Occurs principally from north-east QLD to north-east NSW. Much less common further south, where it is largely confined to pockets of suitable habitat as far south as Moruya. Records of vagrants as far south as eastern VIC and TAS. Inhabits rainforest and similar closed forests where it forages high in the canopy, eating the fruits of species such as figs and palms. May also forage in eucalypt or acacia woodland where there are fruit-bearing trees. The nest is a structure of fine interlocked forked twigs, giving a stronger structure than its flimsy appearance would suggest, and is usually 5-30 metres up in rainforest and rainforest edge tree and shrub species.	There is one record approximately 50 km to the north of the site. Species highly unlikely to occur within areas of anticipated impact given the large distance from nearest record, the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

Appendix E

Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Rhincodon typus	Whale Shark	Not listed	Not listed	Vulnerable	Have a broad distribution in tropical and warm temperate seas, usually between latitudes 30°N and 35°S. Known to inhabit both deep and shallow coastal waters and the lagoons of coral atolls and reefs. This species is widely distributed in Australian waters. Although most common at Ningaloo Marine Park (NMP) (and to a lesser extent at Christmas Island and in the Coral Sea), sightings have been confirmed further south than Kalbarri (on the mid-west coast of WA) and Eden (on the NSW south coast). This species is thought to prefer surface sea-water temperatures between 21 - 25°C. Sightings at NMP, however, are most common in water temperatures around 27°C.	Marine species – will not be impacted by any terrestrial works. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Rostratula australis	Australian Painted Snipe	Not listed	Endangered	Vulnerable	Found in shallow inland wetlands, freshwater or brackish, either permanently or temporarily filled. Nests on the ground amongst tall reed-like vegetation near water and feeds near the water's edge and on mudflats. Has a scattered distribution throughout many parts of Australia. Some individuals are apparently residents other individuals appear to be nomadic, temporarily occupying areas where suitable habitat exists. The Murray–Darling drainage system appears to have been a key area for this species, as many records of this species come from this region.	Nearest record is approximately 30 km to the south of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Scoteanax rueppellii	Greater Broad-nosed Bat	Not listed	Vulnerable	Not listed	Found mainly in the gullies and river systems that drain the Great Dividing Range, from north-east VIC to the Atherton Tableland. Extends to the coast over much of its range. In NSW, widespread on the New England Tablelands, however does not occur at altitudes above 500 m. Uses a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though most commonly found in tall wet forest. Usually roosts in tree hollows, but has also been found in buildings. Forages after sunset, flying slowly and directly along creek and river corridors at an altitude of 3 - 6 m. Open woodland habitat and dry open forest suits the direct flight of this species as it searches for beetles and other large, slow-flying insects; this species has been known to eat other bat species. Uses hollow bearing trees for roosting and/or breeding locations.	There is one record of this species approximately 6 km to the west of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Sminthopsis leucopus	White-footed Dunnart	Not listed	Vulnerable	Not listed	Occurs in TAS and along the VIC and southern NSW coast. The Shoalhaven area is the species' northern-most limit. Has not been recorded west of the coastal escarpment with the western-most record being from Coolangubra State Forest, approximately 10 km south-east of Bombala. Found in a range of different habitats across its distribution, including coastal dune vegetation, coastal forest, tussock grassland and sedgeland, heathland, woodland and forest. In NSW, seems to favour vegetation communities with an open understorey structure. Patchily distributed across these habitats and, where present, typically occurs at low densities. Shelter in bark nests in hollows under standing or fallen timber, burrows in the ground, piles of logging debris, large grass clumps such as provided by Grass Trees *Xanthorrhoea* sp. and *Macrozamias* and rock crevices.	There are several records within 10 km of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Stagonopleura guttata	Diamond Firetail	Not listed	Vulnerable	Not listed	Widely distributed in NSW, many records from the Northern, Central and Southern Tablelands, the Northern, Cental and South Western Slopes and the North West Plains and Riverina. Not commonly found in coastal districts, although records exist near Sydney, the Hunter Valley and Bega Valley. Has a scattered distribution over the rest of NSW. Also found in the ACT, QLD, VIC and SA. Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum *Eucalyptus pauciflora* Woodlands. Also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland. Feeds exclusively on the ground, on ripe and partly-ripe grass and herb seeds and green leaves, and on insects (especially in the breeding season). Nests are built either in the shrubby understorey, or higher up, especially under hawk's or raven's nests. Roost in dense shrubs or in smaller nests built especially for roosting.	There is one record of this species approximately 20 km to the north of the site. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Sterna albifrons	Little Tern	Not listed	Endangered	Not listed	Migratory species found on the north, east and south-east Australian coasts. Occurs mainly north of Sydney, with smaller numbers south to VIC. Almost exclusively coastal, preferring sheltered environments; however may occur several kilometres from the sea in harbours, inlets and rivers (with occasional offshore islands or coral cay records). Nests in small, scattered colonies in low dunes or on sandy beaches just above high tide mark near estuary mouths or adjacent to coastal lakes and islands. The nest is a scrape in the sand, which may be lined with shell grit, seaweed or small pebbles. Often seen feeding in flocks, foraging for small fish, crustaceans, insects, annelids and molluscs by plunging in the shallow water of channels and estuaries, and in the surf on beaches, or skipping over the water surface with a swallow-like flight.	Nearest records are more than 25 km to the north of the site. Species highly unlikely to occur within areas of anticipated impact given the fencing of the site, the lack of suitable habitat and the levels of disturbance on site. No suitable habitat present within areas of anticipated impact. **However, to comply with DGRs and to ensure that any potential impact upon local populations of this species have been assessed for potentially significant impact, an Assessment of Significance (7-part test) has been carried out to further consider the potential impact of the proposed works on this species.**

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Thalassarche bulleri	Buller's Albatross	Not listed	Not listed	Vulnerable	Species may forage (or potentially forage) within areas under Australian jurisdiction without breeding on Australian territory. Breeds in New Zealand at Snares Island and Solander Island. During the breeding season, the highest concentrations of Buller's Albatrosses occur over the shelf and slope waters off Southern New Zealand. Have been observed in Australian waters south of Coffs Harbour, around Tasmania, and west to the Eyre Peninsula Buller's Albatrosses are most common off south-east Tasmania between January and April. Non-breeding birds perhaps disperse to oceanic subtropical waters of the western South Pacific, or the western South American Coast.	Nearest records of this species are more than 200km to the north of the study area. Species highly unlikely to occur within areas of anticipated impact given the fencing of the site, the lack of suitable habitat, the large distance to the closest record from site and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Thalassarche cauta	Shy Albatross	Not listed	Vulnerable	Vulnerable	This species is circumpolar in distribution, occurring widely in the southern oceans. Islands off Australia and New Zealand provide breeding habitat. In Australian waters, it along the east coast from Stradbroke Island in Queensland along the entire south coast of the continent to Carnarvon in Western Australia. Although uncommon north of Sydney, the species is commonly recorded off southeast NSW, particularly between July and November, and has been recorded in Ben Boyd National Park. A pelagic or ocean-going species that inhabits subantarctic and subtropical marine waters, spending the majority of its time at sea. Occasionally occurs in continental shelf waters, in bays and harbours. Known breeding locations include Albatross Island off Tasmania, Auckland Island, Bounty Island and The Snares, off New Zealand. Nests are located on sheltered sides of islands, and on cliffs and ledges in crevices and slopes.	There are several records of this species within 10 km of the study area, however the most recent sighting is 15 years old. Species highly unlikely to occur within areas of anticipated impact given the fencing of the site, the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Thalassarche cauta salvini	Salvin's Albatross	Not listed	Not listed	Vulnerable	Species may forage (or potentially forage) within areas under Australian jurisdiction without breeding on Australian territory. Occurs on all continental shelf areas around New Zealand. It roams widely in winter, moving eastwards across the South Pacific to the Humboldt Current in the waters off the west coast of South America (Chile and Peru). Here it extends north to about 5° S. Small numbers of non-breeding adults regularly fly across the Tasman Sea to south-east Australian waters. It is scarce in the southern Indian Ocean, though small numbers occur around the Crozet Islands where it has recently been discovered breeding. It is only a rare vagrant to the South Atlantic, though small numbers are present in the shelf waters of South Africa.	The nearest record of this species is more than 200 km to the north of the study area and was made in 1960. Given the nature of this species, the species is considered highly unlikely to occur within areas of anticipated impact given the fencing of the site, the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Thalassarche cauta steadi	White-capped Albatross	Not listed	Not listed	Vulnerable	Species may forage (or potentially forage) within areas under Australian jurisdiction without breeding on Australian territory. The most abundant albatross in all New Zealand shelf waters, except on the Chatham Rise and Bounty Platform (displaced by Salvin's Albatross) and the Campbell Shelf (displaced by Campbell Albatross). The adults are present in New Zealand and south-east Australian waters throughout the year whilst juveniles are rare in New Zealand waters, being more common off south-east Australia and South Africa.	The nearest record of this species is more than 100 km from the site. Species highly unlikely to occur within areas of anticipated impact given the fencing of the site, the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Thalassarche chrysostoma	Grey-headed Albatross	Not listed	Not listed	Vulnerable	A bird of the open oceans, occupying a circumpolar pelagic range. During the nesting period breeding adults will travel hundreds or thousands of kilometres from the colony (generally to the south) in order to obtain food for their offspring. Non-breeding adults and immature birds disperse widely over the Southern Ocean. A regular visitor to Australia and New Zealand, especially in winter. It is seen at sea with some frequency south and west of TAS, occasionally in VIC waters, rarely in SA and WA, and only as a very rare vagrant in NSW. It has only been recorded once in QLD.	The nearest records of this species are more than 200 km to the north of the site. Species highly unlikely to occur within areas of anticipated impact given the fencing of the site, the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Thalassarche melanophris	Black-browed Albatross	Not listed	Vulnerable	Vulnerable	Has a circumpolar range over the southern oceans, and are seen off the southern Australian coast mainly during winter. This species migrates to waters off the continental shelf from approximately May to November and is regularly recorded off the NSW coast during this period. Has also been recorded in Botany Bay National Park. Inhabits Antarctic, sub-Antarctic, subtropical marine and coastal waters over upwellings and boundaries of currents. Spends most of its time at sea, breeding on small isolated islands. This species nests annually on a mound of soil and vegetation, on the cliffs or steep slopes of vegetated Antarctic and subantarctic islands.	There are several records of this species within 10 km of the site, however the species is considered highly unlikely to occur within areas of anticipated impact given the fencing of the site, the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Thalassarche melanophris impavida	Campbell Albatross	Not listed	Not listed	Vulnerable	Occur in Antarctic and sub-Antarctic waters and in the subtropical South Pacific Ocean. They breed only on sub-Antarctic Campbell Island, south of New Zealand. Throughout the breeding season, breeding adults are generally found over the shelf waters surrounding New Zealand, whereas non-breeding birds often forage over the continental slopes around TAS, VIC and NSW. Their post-breeding northern dispersal is restricted to the temperate shelf waters of New Zealand, Australia and the central and western Pacific Islands.	Several records exist within 8 km of the site; however only one of these records is within the last 10 years. The three other records are more than 30 years old. Species highly unlikely to occur within areas of anticipated impact given the fencing of the site, the lack of suitable habitat and the levels of disturbance on site. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Thinornis rubricollis	Hooded Plover	Not listed	Endangered	Not listed	Found mainly along the coast from south of Jervis Bay, NSW, south through VIC and TAS to the western side of the Eyre Peninsula in SA. Presently, the species, other than as vagrants, occurs north to Sussex Inlet. In south-eastern Australia, prefers sandy ocean beaches, especially those that are broad and flat, with a wide wave-wash zone for feeding, much beachcast seaweed, and backed by sparsely vegetated sand-dunes for shelter and nesting. Occasionally the species are found on tidal bays and estuaries, rock platforms and rocky or sand-covered reefs near sandy beaches, and small beaches in lines of cliffs. They regularly use near-coastal saline and freshwater lakes and lagoons, often with saltmarsh. Forage in sand at all levels of the zone of wave wash during low and mid-tide or among seaweed at high-tide, and occasionally in dune blowouts after rain. At night they favour the upper zones of beaches for roosting. When on rocks they forage in crevices in the wave-wash or spray zone, avoiding elevated rocky areas and boulder fields. In coastal lagoons they forage in damp or dry substrates and in shallow water, depending on the season and water levels. Species usually breeds on sandy ocean beaches strewn with beachcast seaweed, in a narrow strip between the high-water mark and the base of the fore-dunes. Typically nest within 6 m of the fore-dune, mostly within 5 m of the high-water mark, but occasionally among or behind dunes. The nest is a scrape in the sand near debris, making it vulnerable to predators and beach disturbance.	Several records of this species exist within 10 km of the site. Given the species preference and requirements for sandy beaches for foraging and nesting. Species highly unlikely to occur within areas of anticipated impact given the lack of suitable habitat and the levels of disturbance on site. **However, to comply with DGRs and to ensure that any potential impact upon local populations of this species have been assessed for potentially significant impact, an Assessment of Significance (7-part test) has been carried out to further consider the potential impact of the proposed works on this species.**

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Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Tyto novaehollandiae	Masked Owl	Not listed	Vulnerable	Not listed	Extends from the coast where it is most abundant to the western plains. Lives in dry eucalypt forests and woodlands from sea level to 1100 m. A forest owl, but often hunts along the edges of forests, including roadsides. The typical diet consists of tree-dwelling and ground mammals, especially rats. Pairs have a large home-range of 500 to 1000 hectares. Roosts and breeds in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting.	Several records of this species exist within 10 km of the site; however there are no records of this species within the immediate vicinity of the site. Given the mobile nature of the species, the lack of suitable nesting locations within the site, and the extensive undisturbed areas to the south of the site, it is highly unlikely that the species would rely upon the site for and significant habitat resources. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*
Tyto tenebricosa	Sooty Owl	Not listed	Vulnerable	Not listed	Occupies the easternmost one-eighth of NSW, occurring on the coast, coastal escarpment and eastern tablelands. Occurs in rainforest, including dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests. Roosts by day in the hollow of a tall forest tree or in heavy vegetation; hunts by night for small ground mammals or tree-dwelling mammals such as the Common Ringtail Possum (*Pseudocheirus peregrinus*) or Sugar Glider (*Petaurus breviceps*). Nests in very large tree-hollows.	Numerous records for this species exist within a 10 km radius of the site. Given the mobile nature of the species, the lack of suitable nesting locations within the site, and the extensive undisturbed areas to the south of the site, it is highly unlikely that the species would rely upon the site for and significant habitat resources. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

Appendix E

Scientific Name	Common Name	FM Act Status	TSC Act Status	EPBC Act Status	Habitat Requirements	Habitat Assessment
Xanthomyza phrygia	Regent Honeyeater	Not listed	Endangered	Endangered	Inhabits temperate woodlands and open forests of the inland slopes of south-east Australia, also found in drier coastal woodlands and forests. Three known key breeding regions remaining: north-east VIC (Chiltern-Albury), and in NSW at Capertee Valley and the Bundarra-Barraba region. In NSW the distribution is very patchy and mainly confined to the two main breeding areas and surrounding fragmented woodlands. In some years non-breeding flocks converge on flowering coastal woodlands and forests. The species inhabits and breeds in dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. Inhabit woodlands that support a significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. A generalist forager, mainly feed on the nectar from a wide range of eucalypts and mistletoes. Key eucalypt species include Mugga Ironbark, Yellow Box, Blakely's Red Gum, White Box and Swamp Mahogany. Also utilises: *E. microcarpa*, *E. punctata*, *E. polyanthemos*, *E. mollucana*, *Corymbia robusta*, *E. crebra*, *E. caleyi*, *C. maculata*, *E.mckieana*, *E. macrorhyncha*, *E. laevopinea*, and *Angophora floribunda*. Nectar and fruit from the mistletoes *A. miquelii*, *A. pendula*, *A. cambagei* are also eaten during the breeding season. When nectar is scarce lerps and honeydew comprise a large proportion of the diet. Insects make up about 15% of the total diet and are important components of the diet of nestlings. A shrubby understorey is an important source of insects and nesting material. Regent Honeyeaters usually nest in horizontal branches or forks in tall mature eucalypts and Sheoaks. Also nest in mistletoe haustoria.	Four records exist approximately 15 km to the north west of the site. Given the mobile nature of the species, the lack of suitable nesting locations within the site, and the extensive undisturbed areas outside of the site boundaries, it is highly unlikely that the species would rely upon the site for and significant habitat resources. *Thus, this species or its habitat is deemed unlikely to be affected by the proposed works and no further assessment is required.*

Appendix F Assessments Of Significance (7-Part Tests)

Appendix F

The assessment of significance is a system of assessment allowing applicants/proponents to analyse the likely impacts of a proposed development, and whether further assessment needs to be undertaken through a species impact statement. All factors must be considered and an overall conclusion must be drawn from all factors in combination. Where there is reasonable doubt regarding the likely impacts, or where detailed information is not available, a species impact statement should be prepared.

An assessment of significance (Section 5A EP&A Act) for potentially affected species is provided below. Information provided in the assessments has been obtained from DECC threatened species profiles and/or environmental impact assessment guidelines unless stated otherwise. Affected species have been assessed as a group of similar species based on taxonomic similarity or habitat specialization (NSW NPWS 1996).

Threatened Shorebirds - Sanderling *Calidris alba*; Lesser Sand-plover *Charadrius mongolus*; Sooty Oystercatcher *Haematopus fuliginosus*; Pied Oystercatcher *Haematopus longirostris*; Black Bittern *Lxobrychus flavicollis*; Little Tern *Sterna albifrons*; and Hooded Plover *Thinornis rubricollis*.

a) In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the lifecycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.

The **Sanderling** is an active, pale wader reaching 20 cm in length. The species migrates to parts of the Australian coast during summer (between September and May) from Northern Hemisphere breeding grounds. The species is generally found in coastal areas on low beaches of firm sand, near reefs and inlets, along tidal mudflats and bare open coastal lagoons. The species roosts on bare sand, behind clumps of beach-cast kelp or in coastal dunes.

The proposed action will not impact upon the lifecycle of this species at any point. The Site does not contain suitable roosting habitat for this species, and breeding occurs in the Northern Hemisphere. As such, the Site is highly unlikely to provide any temporary or permanent habitat resources for this species; rather, it may fly over or nearby the Site when traversing the local area. The nearest records of this species to the Site are 30 km to the north and south (BioNet 2009).

As such, the proposed action will not have an adverse effect on the lifecycle of the species such that a viable local population is placed at risk of extinction.

The **Lesser Sand-plover** is distinguished from the Greater Sand Plover by a smaller body with a more upright stance, more compact appearance and dark grey, rather than greenish legs. The species is generally entirely coastal in NSW, favouring the beaches of sheltered bays, harbours and estuaries with large intertidal sandflats or mudflats. It occasionally occurs on sandy beaches, coral reefs and rock platforms.

This species is not known to occur within the CMA-subregion (DEC 2005), with the nearest records being 40 km to the north of the Site (BioNet 2009). The Site itself does not contain any suitable habitat for the species; however extensive habitat occurs elsewhere within the locality. Given the lack of sightings within the vicinity of the Site, and lack of suitable habitat within the Site, the proposed action will not have an adverse effect on the species such that a viable local population is placed at risk of extinction.

The **Sooty Oystercatcher** is a large wader, reaching 50 cm in length. The Sooty Oystercatcher has a bright orange-red bill, eye-ring and iris, coral pink legs and feet and entirely black plumage. The species is found around the entire Australian coast, including offshore islands, being most common in Bass Strait. The species favours rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries.

There is one record of this species in oceanic waters approximately 5 km from the Site (BioNet 2009). This species may use the rocky headlands surrounding the Site, but is highly unlikely to use any habitat resources within the Site boundary. Significant habitat resources exist along the entire stretch of coastline within the locality, making it highly unlikely that the species would utilise the highly disturbed area encompassed by the Site. As such, the proposed action will not have an adverse effect on the species such that a viable local population is placed at risk of extinction.

The **Pied Oystercatcher** is a large, black and white wader, reaching 50 cm in length. It appears entirely black above, with white underparts. The back, head and breast are black, and the belly, rump and tail are white. The species is found around the entire Australian coastline, although it is most common in coastal Tasmania and parts of Victoria, such as Corner Inlet. In NSW the species is thinly scattered along the entire coast. The species prefers intertidal flats of inlets and bays, open beaches and sandbanks.

There are several records of this species around the shoreline of the bay to the west of the Site, within 10 km of the Site (BioNet 2009). However, it is highly unlikely that the species would utilise any area within the Site due to the lack of suitable habitat, high levels of ongoing disturbance and extensive areas of habitat elsewhere within the locality. The areas in which this species have been recorded in the local area contain stretches of sandy beach, with dune vegetation, unlike the environment present within the Site boundary and area of anticipated impact. As such, the proposed action will not have an adverse effect on the species such that a viable local population is placed at risk of extinction.

The **Black Bittern** is a heron, dark grey to black in colour, with buff streaks on the throat and a characteristic yellow streak on the sides of the head and down the neck. The species is found from southern NSW north to Cape York and along the north coast to the Kimberley region. The species also occurs in the south-west of Western Australia. In NSW, records of the species are scattered along the east coast, with individuals rarely being recorded south of Sydney or inland. It inhabits both terrestrial and estuarine wetlands, generally in areas of permanent water and dense vegetation. Where permanent water is present, the species may occur in flooded grassland, forest, woodland, rainforest and mangroves.

The nearest records of this species are approximately 35 km to the north (with one record from 1984) and 25 km to the south of the Site (four records from 1971) (BioNet 2009). Given the lack of recent sightings (25 years), it is extremely unlikely that a viable population of this species uses the Site for any purpose. As such, the proposed action will not have an adverse effect on the species such that a viable local population is placed at risk of extinction.

The **Little Tern** is a small, slender, migratory or partly migratory seabird, reaching less than 25 cm in length. The species has pale grey upperparts contrasting with a white chest, underbelly and the moderately long, deeply forked tail (80 - 110 mm). It has a black cap and black outer wing-edges. The species migrates from eastern Asia, and in NSW it occurs mainly north of Sydney, with smaller numbers found south to Victoria. It breeds in spring and summer along the entire east coast from

Tasmania to northern Queensland. The species is almost exclusively coastal, preferring sheltered environments; however may occur several kilometres from the sea in harbours, inlets and rivers.

The nearest records of this species are more than 25 km to the north of the Site. Given the high impact, exposed headland environment associated with the Site boundary, and this species preference for sheltered environments, it is highly unlikely that it would use the Site for any purpose due to a lack of suitable habitat and high levels of existing disturbance. Significant areas of potential habitat exist elsewhere within the locality. As such, the proposed action will not have an adverse effect on the species such that a viable local population is placed at risk of extinction.

The **Hooded Plover** is a medium-sized stocky, pale-coloured shorebird with a short bill, large eyes and rounded head, 19 - 23 cm in length with a wing-span of 26 - 44 cm. The species is endemic to southern Australia and is found mainly along the coast from south of Jervis Bay in NSW, south through Victoria and Tasmania to the western side of the Eyre Peninsula in South Australia. In south-eastern Australia Hooded Plovers prefer sandy ocean beaches, especially those that are broad and flat, with a wide wave-wash zone for feeding, much beachcast seaweed, and backed by sparsely vegetated sand-dunes for shelter and nesting.

There are several records of this species within 10 km of the Site. These records are within Twofold Bay in areas that contain the preferred habitat for this species (namely sandy beaches with sand dunes providing shelter and nesting habitat. Give the exposed rocky headland that exists around the perimeter of the Site boundary, it is highly unlikely that this species would utilise the Site for any purpose. As such, the proposed action will not have an adverse effect on the species such that a viable local population is placed at risk of extinction.

b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.

There are currently no endangered populations listed for the Sanderling, Lesser Sand-plover, Sooty Oystercatcher, Pied Oystercatcher, Black Bittern, Little Tern or Hooded Plover of relevance to the current project.

c) In the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

I. Is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

II. Is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

This is only applicable to endangered ecological communities and is hence not relevant.

d) In relation to the habitat of a threatened species, population or ecological community:

I. The extent to which habitat is likely to be removed or modified as a result of the action proposed, and

II. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

III. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.

The proposed action requires the clearing of approximately 0.09 ha of land, comprised of highly disturbed and modified exotic and native vegetation and small amounts of fallen timber, within the boundary of a working site. There are extensive areas of far more suitable habitat for all threatened species outside the Site boundary, in the adjacent National Park and State Forest, as well as elsewhere within Twofold Bay. Given the mobile nature of all of the species addressed in this 7-part test, the minimal likelihood that they utilise the Site for any purpose at present, and their ability to move to other areas if disturbed, it is extremely unlikely that any habitat used by these species would be modified at all by the proposed action.

The habitat within the Site exists in small linear strips within the electrified security fence, directly adjacent to existing haul roads used by heavy vehicles and other traffic. Given the high levels of existing disturbance, and the limited potential habitat available within the Site, the proposed action will not result in further fragmentation or isolation of any areas of habitat.

Given the high levels of disturbance, lack of suitable habitat for the species being assessed and minimal amount of potential habitat within the Site boundary, the importance of the habitat to be removed or modified to the long-term survival of these species is considered to be very low.

e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly)

No critical habitat has been declared for the Sanderling, Lesser Sand-plover, Sooty Oystercatcher, Pied Oystercatcher, Black Bittern, Little Tern or Hooded Plover in NSW.

f) Whether the action proposed is consistent with the objectives of a recovery plan or threat abatement plan

There are currently no recovery or threat abatement plans for the Sanderling, Lesser Sand-plover, Sooty Oystercatcher, Pied Oystercatcher, Black Bittern or Hooded Plover. However, DECCW has identified a number of priority actions to help recover these species in NSW, of which the following are relevant to the proposed works;

Sanderling:

- Conduct searches for the species in suitable habitat in proposed development areas.
- Manage estuaries and the surrounding landscape to maintain the natural hydrological regimes.
- Protect coastal areas from pollution.
- Protect foraging and roosting areas from disturbance or inappropriate development.
- Protect and maintain known or potential habitat; implement protection zones around recent records.

Lesser Sand-plover:

- Manage estuaries and the surrounding landscape to ensure natural hydrological regimes are maintained.

- Protect and maintain known or potential habitats, including the implementation of protection zones around known habitat sites and recent records.

Sooty Oystercatcher:

- Manage estuaries and the surrounding landscape to ensure natural hydrological regimes are maintained.
- Protect and maintain known or potential habitats, including the implementation of protection zones around known habitat sites and recent records.

Pied Oystercatcher:

- Manage estuaries and the surrounding landscape to ensure the natural hydrological regimes are maintained.
- Protect and maintain known or potential habitat, including the implementation of protection zones around known habitat sites and sites of recent records.

Black Bittern:

- Protect and manage habitat, including fencing of riparian vegetation to prevent trampling and grazing by cattle.

Hooded Plover:

- Proposed developments or activities must give adequate consideration to potential impacts on Hooded Plovers and their habitats.
- Minimise disturbance to Hooded Plover breeding habitat from artificial opening of estuaries and coastal lakes.
- Protect and maintain known or potential habitats, including the implementation of protection zones around known habitat sites and sites of recent records.

The current proposal is consistent with these priority actions as likely and/or appropriate habitat for these species will not be impacted by the proposed works, nor will any known habitat will be impacted. The hydrological regime of the area is also unlikely to be altered as a result of the proposed action.

A recovery plan has been developed for the **Little Tern** (NSW NPWS 2003). The overall objective of this plan are increase population numbers within a series of priority management areas along the NSW coast. The recovery plan seeks to continue to increase the number of breeding pairs within NSW. Specific objectives of the recovery plan include:

- Inform land managers of their responsibilities regarding the conservation requirements of Little Tern
  - Inform and consult with land managers
- Site Management
  - Intensive management of nesting, resting and fledgling feeding sites
  - Site Preparation: Control of encroaching vegetation
  - Discourage nesting in unfavourable sites
  - Control human disturbance

  - Predator control
  - Protection from flooding

- To evaluate and provide secure additional nesting, resting and fledgling feeding habitat for Little Terns on estuarine islands at a range of sites along the NSW coast.
  - Investigate the potential for the incidental creation of island nesting sites using dredge spoil
- To investigate the potential for reservation of nesting, resting and fledgling feeding habitat.
  - Acquisition of Little Tern nesting sites by NPWS
- Monitor active nesting sites, breeding success and population trends of Little Terns in NSW in order to guide management actions, identify problems and gauge management success.
  - Monitoring of individual colonies
  - Analysis of monitoring data and preparation of status report
- Conduct and promote research on the Little Tern in NSW in order to increase the biological, ecological and cultural knowledge of the species.
  - Banding studies
  - Promote research opportunities
  - Investigate the cultural and historic significance of the Little Tern
- To provide for the cost-effective and efficient Statewide co-ordination of recovery actions for the Little Tern in NSW during each breeding season
  - Maintain the Little Tern recovery team for the duration of the plan
  - Provide efficient and cost-effective Statewide co-ordination
  - Biennial de-briefing session
- Raise awareness of the conservation status of the Little Tern and involve the community in the Recovery Program for the species
  - Species profile and educational material
  - Targeting community groups
  - Training of site wardens for each priority nesting site
  - Liaison with interest groups
- To develop a field manual to advise on ‘best practice’ field-based methodologies
  - Production of a Little Tern Field Manual

None of these objectives are of high relevance to the current project, due to a lack of local population or nearby nesting site. The recovery plan aims to encourage the development of Little Tern populations at a series of specific sites along the NSW coast, none of which are in close proximity to the Site. As such, the proposed action is not inconsistent with the recovery plan for this species.

Appendix F

Should a Little Tern population become established near the Site in the future, it is recommended that additional assessment would be required.

g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of a key threatening process

Primary threats to these species include:

Sanderling:

- Hydrological changes to estuaries and waterbodies may modify or remove important areas of suitable habitat.
- Disturbance to feeding and roosting sites.
- Pollution of estuaries and coastal areas.
- Tourism or agricultural developments reducing coastal and inland habitat areas.

Lesser Sand-plover:

- Loss and degradation of habitats as a result of residential, agricultural and tourism developments.
- Hydrological changes to estuaries and similar water bodies may modify or remove important areas of suitable habitat.

Sooty Oystercatcher:

- Disturbance to coastal feeding, nesting and roosting areas through beach-combing, fishing, dog-walking, horse-riding and 4WD vehicles.
- Predation of eggs and chicks by foxes, dogs, cats, rats and raptors.
- Habitat destruction as a result of residential, agricultural and tourism developments.
- Hydrological changes to estuaries and similar water bodies causing modification or removal of important areas of suitable habitat.

Pied Oystercatcher:

- Disturbance to coastal feeding, nesting and roosting areas through beach-combing, fishing, dog-walking, horse-riding and 4WD vehicles.
- Predation of eggs and chicks by foxes, dogs, cats, Australian Ravens and raptors.
- Habitat destruction as a result of residential, agricultural and tourism developments.
- Hydrological changes to estuaries and similar water bodies causing modification or removal of important areas of suitable habitat.

Black Bittern:

- Clearing of riparian vegetation.
- Predation by foxes and feral cats on eggs and juveniles.
- Grazing and trampling of riparian vegetation by stock.

Little Tern:

- Nesting at flood-prone locations.
- Predation of eggs and chicks by foxes, dogs, cats, black rats, silver gulls, ravens and raptors.
- Disturbance to coastal feeding, nesting and roosting areas through beach-combing, fishing, dog-walking, horse-riding and 4WD vehicles; parents often leave the nest when approached, resulting in exposure of chicks or eggs.

- Coastal and inland habitat areas are being impacted by land clearing for residential, agricultural and tourism developments, by sand and rutile mining, and by waste disposal dumps.
- Hydrological changes to estuaries and similar waterbodies may modify or remove important areas of suitable habitat, or affect the availability of food.
- Potentially susceptible to pesticides and contamination of estuaries by oil-spills and heavy metals.
- Well-camouflaged eggs are at risk of accidental destruction.

Hooded Plover:

- Disturbance to coastal feeding, nesting and roosting areas through increased human residence. Habitat is now regularly impacted by beach-combing, fishing, dog-walking, horse-riding and 4WD vehicles.
- Predation of eggs and chicks by foxes, dogs, cats, Australian Ravens, Silver Gulls and raptors.
- Artificial opening of estuaries and coastal lake entrances can inundate and destroy summer breeding habitat, particularly on low-lying sand spits.
- King tides can naturally inundate breeding habitat.
- Kelp harvesting can destroy nests, kill eggs and chicks and reduce foraging habitat availability.
- Oil spills.
- Disturbance of breeding habitat by stray cattle.

The proposed action will not result in an increase to any of these threats to the listed species.

Key threatening processes listed under the TSC Act that may threaten these species and are considered relevant to the proposal include:

- Clearing of native vegetation – the proposal would involve clearing of XX ha of vegetation, some of which is native; however this vegetation is highly unlikely to provide any habitat resources for these species.
- Removal of dead wood and dead trees – the proposal will require the removal of some small amounts of fallen and timber from within the development footprint.

Conclusion

The proposal would have the following impacts on shorebird species;

— A maximum of approximately 0.09 ha of low potential habitat for the listed species will be cleared as part of the proposal

The proposal is considered **not likely** to result in a significant impact on local populations of threatened shorebirds because:

— The habitat to be impacted by the proposal is not considered to be important for the long term survival of the species in the locality;
— Impacts to the lifecycle of these species or fragmentation of a population is not considered likely within the study area; and
— The proposal will not have any impact on critical habitat for these species.

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