

21 September 2023

Attention: Carl Paton
Minerals Resources
20 Walters Drive
OSBOURNE PARK WA 6017

SLR Project No.: 675.030177.00001

RE: Lot 383, Part Lot 710 and Part First Street, Part Simpson Street and Third Avenue Road Reserves, Onslow - Supplementary Biological Assessment

Introduction

Mineral Resources Limited (MinRes) commissioned SLR Consulting Pty Ltd (SLR) to undertake a biological assessment for a sewer line connection and water and power service connections line to the proposed short stay worker accommodation at Lot 300 Back Beach Road, Onslow. The Survey Area is located within the Onslow townsite in the Carnarvon bioregion of Western Australia and covers approximately 2.9ha (part Lot 710 (0.27ha), Lot 383 (1.22 ha), Simpson Street (0.37 ha), First Street (0.08 ha) and Third Avenue (0.23 ha) road reserves (Figure1).

The purpose of the assessment was to identify key biological values within the Survey Area to support the Native Vegetation Clearing Permit (NVCP) referral submission to the Department of Water and Environmental Regulation (DWER). This report presents the background, methods, results, and discussion of the survey undertaken.

Methods

Biological attributes of the Survey Area have been extrapolated from data collected for Lot 300, which covers approximately 25 ha and lies immediately adjacent to the Survey Area (Figure 1). The data for Lot 300 is presented in full in the following reports:

- Lot 300 Back Beach Road, Onslow - Detailed Terrestrial Fauna and Shorebird Survey (360 Environmental, 2022)
- Lot 300 Back Beach Road, Onslow - Flora and Fauna Report (360 Environmental, 2021).

Vegetation, Condition and Fauna Habitat

Vegetation, condition, and fauna habitat mapping was extrapolated from mapping produced for Lot 300 (360 Environmental, 2021), with boundaries delineated over aerial photography (May 2022 Imagery; Landgate, 2022), at a scale of 1:5,000. The data collection methods used for mapping was consistent with the Environmental Protection Authority (EPA) Technical Guidance - Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (2020). Finalised polygons were digitised and produced as electronic mapping data using GIS software.

Database Searches

Database searches were undertaken as part of previous surveys of Lot 300 (360 Environmental, 2021, 2022) to compile a list of potential fauna and identify potential significant fauna within or surrounding the Survey Areas (Table 1). In addition, a Department of Climate Change, Energy, the Environment and Water (DCCEEW), Protected Matters Search (PMST) was undertaken to identify the potential for Matters of National Environmental Significance (MNES) to occur within or surrounding the Survey Area.

Table 1: Database searches

Database Name	Data Received	Search Target	Search Area
DBCA Threatened and Priority Ecological Communities database search (Department of Biodiversity Conservation and Attractions, 2020a)	12 June 2020	TECs and PECs	50 km buffer around the Survey Area
DBCA Threatened and Priority Flora database search (Department of Biodiversity Conservation and Attractions, 2020c)	25 May 2020	Threatened and Priority Flora	50 km buffer around the Survey Area
Western Australian Herbarium flora database search (Department of Biodiversity Conservation and Attractions, 2020d)	27 May 2020	Threatened and Priority Flora	50 km buffer around the Survey Area
DBCA Threatened and Priority Fauna database search (Department of Biodiversity Conservation and Attractions, 2020b)	27 May 2020	Threatened and Priority Fauna	20 km buffer around the Survey Area
NatureMap (Department of Biodiversity Conservation and Attractions, 2021)	13 July 2021	Threatened and Priority Flora and Fauna	20 km buffer around the Survey Area
Protected Matters Search Tool (Department of Agriculture Water and the Environment, 2021) (now DCCEEW)	13 July 2021	Commonwealth listed Threatened Flora and Fauna	20 km buffer around the Survey Area

Likelihood of Occurrence

Conservation significant flora and fauna species identified from the desktop assessment were assessed to determine the likelihood of their occurrence within the Survey Area. Only species recorded within the Survey Area or considered to have a high or medium likelihood of occurrence are discussed in detail. Species classified as having a low likelihood of occurrence based on the above criteria will not be discussed unless a justification for this classification is required.

Additionally, fauna taxa listed as Marine only under the EPBC Act are not discussed as Marine only listed taxa do not constitute MNES under the EPBC Act, Marine only listed taxa identified by the desktop assessment and field survey were common and widespread, and the Survey Area does not contain any marine waters.



Results

Vegetation units

One broad vegetation unit was identified and mapped within the Survey Area. The Coastal Dunes vegetation unit was continuous throughout the Survey Area and covered 0.92 ha of the proposed sewer infrastructure site and covered 0.19ha of the proposed water and power infrastructure site (Figure 2). Of the 2.9ha survey area, approximately 1.8 ha is mapped as cleared.

Coastal Dunes (VT1): *Acacia coriacea* subsp. *coriacea* and *Acacia tetragonophylla* (with *Crotalaria cunninghamii* subsp. *sturtii*) mid to low sparse shrubland over ¹*Cenchrus ciliaris* and *Eulalia aurea* low tussock grassland with *Triodia epactia* low sparse hummock grassland over *Euphorbia myrtilloides* low sparse herbland.

Aerial imagery (May 2022 Imagery; Landgate, 2022) suggests that the Survey Area has been impacted by clearing, weeds, and tracks. It can also be assumed that littering/rubbish dumping has occurred based on the Survey Area's proximity to Simpson Road and evidence found in Lot 300. Coastal Dunes vegetation is likely to be of Good to Poor quality, and any cleared areas are of Highly Degraded quality.

Flora Composition

Overall, the detailed flora and vegetation survey (July 2021) recorded 33 flora taxa from 15 genera in Lot 300 (360 Environmental, 2022). No threatened or priority flora taxa were identified within Lot 300.

Four introduced species were recorded within Lot 300, **Tamarix aphylla* (Declared Pest, listed WoNS), **Cenchrus ciliaris*, **Aerva javanica*, and **Washingtonia filifera*.

Flora Likelihood of occurrence

No significant flora species were identified as having a high or medium likelihood of occurrence within the Survey Area.

Threatened and Priority Ecological Communities

No Threatened Ecological Community (TEC) or Priority Ecological Community (PEC) are mapped within the Survey Area (Department of Biodiversity Conservation and Attractions, 2020a).

Fauna habitat

One broad fauna habitat was identified and mapped within the Survey Area. The Coastal Dunes fauna habitat was continuous throughout the Survey Area and is analogous with the Coastal Dunes vegetation type (Figure 3). The Coastal Dunes fauna habitat covered 1.05 ha of the Survey Area, with cleared areas and infrastructure covering the remaining 0.44 ha.

Coastal Dunes: *Acacia* shrubland over **Cenchrus ciliaris* tussock grassland with *Triodia* hummock grassland and *Euphorbia* herbland. This habitat provides suitable good quality habitat for passerine birds (perching birds and songbirds) and suitable, but low-quality habitat for reptile and small mammal species due to the presence of cats and foxes, and alteration of understory structure by **C. ciliaris* and clearing.

¹ * Means weed species



Aerial imagery (May 2022 Imagery; Landgate, 2022) suggests that the Survey Area has been impacted by clearing, weeds, and tracks. It can also be assumed that littering/rubbish dumping has occurred based on the Survey Area's proximity to Simpson Road and evidence found in Lot 300. Coastal Dunes fauna habitat is likely to be of Good to Disturbed quality.

Fauna Records

Overall, the basic vertebrate fauna survey (July 2021), and the detailed terrestrial fauna and shorebird survey (August 2022) recorded 63 fauna taxa (38 birds, nine mammals, 15 reptiles and one amphibian) in Lot 300 (360 Environmental, 2021, 2022).

A pair of Ospreys (*Pandion haliaetus*; DBCA: MI; EPBC: MI, MA) have an established nest in Onslow and were observed perched on the pole at Lookout Point (~300 m from the Survey Area) and hunting and collecting nesting materials from Lot 300 during the detailed terrestrial fauna survey (360 Environmental, 2022).

Direct sightings of three migratory bird species were recorded in areas immediately surrounding Lot 300, approximately 500 m north and northwest of the Survey Area.

- Caspian Tern (*Hydroprogne caspia*) – MI (DBCA); MI, MA (EPBC)
- Common Sandpiper (*Actitis hypoleucos*) – MI (DBCA); MI, MA (EPBC)
- Greater Crested Tern (*Thalasseus bergii*) – MI (DBCA); MI, MA (EPBC).

No other significant fauna species (Threatened or Priority), or evidence of these species such as tracks, scats, nest, diggings, burrows were recorded within or directly surrounding Lot 300.

Fauna Likelihood of Occurrence

One fauna species, the Osprey (*Pandion haliaetus*; DBCA: MI; EPBC: MI, MA) was identified as having a high likelihood of occurrence within the Survey Area.

One fauna species, the Barn Swallow (*Hirundo rustica*; DBCA: MI; EPBC: MI, MA) was identified as having a medium likelihood of occurrence within the Survey Area.

Discussion

Vegetation Types

The vegetation type mapped over the Survey Area is consistent with the Beard (1976) and Shepherd et al. (2002) broad vegetation systems associations. Vegetation mapping within the Survey Area was representative of existing broad scale vegetation and soil and land system mapping for the locality.

The vegetation of the Coastal Dunes (VT1) is broadly representative of Cape Yannare Coastal Plain 117, described as grass-steppe hummock grassland *Triodia* spp. The vegetation type described in this report is not representative of any listed PEC or TEC.

Significant Flora

No significant flora species were identified as having a high or medium likelihood of occurrence within the Survey Area



Vertebrate Fauna

One broad fauna habitat was mapped over the Survey Area comprising Coastal Dunes. The Coastal Dunes habitat contains limited microhabitat opportunities and is of low value to most significant fauna species and overall fauna assemblages that occur in the broader area.

One significant fauna species, *Lerista planiventralis maryani* (P1), utilises dune habitat in the bioregion and records indicate that it historically occurred within 1 km of the Survey Area. However, the detailed vertebrate fauna survey of Lot 300 did not identify its presence, thus it was deemed to have a low likelihood of occurrence within the Survey Area.

Significant Fauna

Osprey (*Pandion haliaetus*) - MI (BC Act); MI, MA (EPBC Act) - High likelihood

The Eastern Osprey is considered to be moderately common in Australia (Olsen, 1998). The species is most abundant in northern Australia, where high population densities occur in remote areas (Johnstone & Storr, 1998). They require extensive areas of open fresh, brackish, or saline water for foraging (Marchant & Higgins, 1993). They are mostly found in coastal areas but occasionally travel inland along major rivers, particularly in northern Australia (Johnstone & Storr, 1998; Olsen, 1995). They frequent a variety of wetland habitats including inshore waters, reefs, bays, coastal cliffs, beaches, estuaries, mangrove swamps, broad rivers, reservoirs and large lakes and waterholes (Johnstone & Storr, 1998; Olsen, 1995). Nesting consists of a large platform of sticks lined with moss and grasses on stacks along rocky shores, in the form of a large tree and increasingly on man-made structures such as buildings and power poles.

There is limited foraging and roosting habitat within the Survey Area, and better quality and more abundant habitat exists in the surrounding areas. As such Ospreys are unlikely to be reliant on the habitats within the Survey Area.

Barn Swallow (*Hirundo rustica*) - MI (BC Act); MI, MA (EPBC Act) - Medium likelihood

The Barn Swallow is only a casual visitor primarily to coastal areas from the Gascoyne north, although the species may appear as a vagrant in inland areas on an irregular basis (Johnstone & Storr, 1998). After breeding in the temperate and subtropical regions of North America, Europe, northern Africa, and Asia it migrates to the southern hemisphere where it spends the boreal winter (Johnstone & Storr, 1998). It is typically observed in the vicinity of urban water bodies and coastal wetlands.

There is limited foraging and roosting habitat within the Survey Area, and better quality and more abundant habitat exists in the surrounding areas. As such Barn Swallows are unlikely to be reliant on the habitats within the Survey Area.

Closure

- Biological attributes of the Survey Area have been extrapolated from data collected for Lot 300, which covers approximately 25 ha and lies immediately adjacent to the Survey Area.
- One vegetation unit, Coastal Dunes (VT1), was mapped over the Survey Area.
- No TECs or PECs are mapped within the Survey Area.
- No significant flora species were identified as having a high or medium likelihood of occurrence within the Survey Area.



- One fauna habitat, Coastal Dunes, was mapped over the Survey Area.
- One fauna species, the Osprey (*Pandion haliaetus*; DBCA: MI; EPBC: MI, MA) was identified as having a high likelihood of occurrence within the Survey Area, however given there is limited foraging and roosting habitat within the Survey Area, and better quality and more abundant habitat exists in the surrounding areas, Ospreys are unlikely to be reliant on the habitats within the Survey Area.
- One fauna species, the Barn Swallow (*Hirundo rustica*; DBCA: MI; EPBC: MI, MA) was identified as having a medium likelihood of occurrence within the Survey Area, however given there is limited foraging and roosting habitat within the Survey Area, and better quality and more abundant habitat exists in the surrounding areas, Barn Swallows are unlikely to be reliant on the habitats within the Survey Area.
- Based on aerial imagery and biological information pertaining to the adjacent Lot 300, it is unlikely that the Survey Area contains any significant flora and vegetation or provides important habitat for significant fauna.

We trust this meets your requirements at this time. Should you have any questions or require further action please do not hesitate to Genelle Abolis on email, gabolis@slrconsulting.com. We look forward to hearing from you.

Kind Regards,

SLR Consulting Australia



Genelle Abolis

Principal Environmental Consultant
gabolis@slrconsulting.com

Attachments

Figure 1: Survey Area

Figure 2: Vegetation Type

Figure 3 – Fauna Habitat

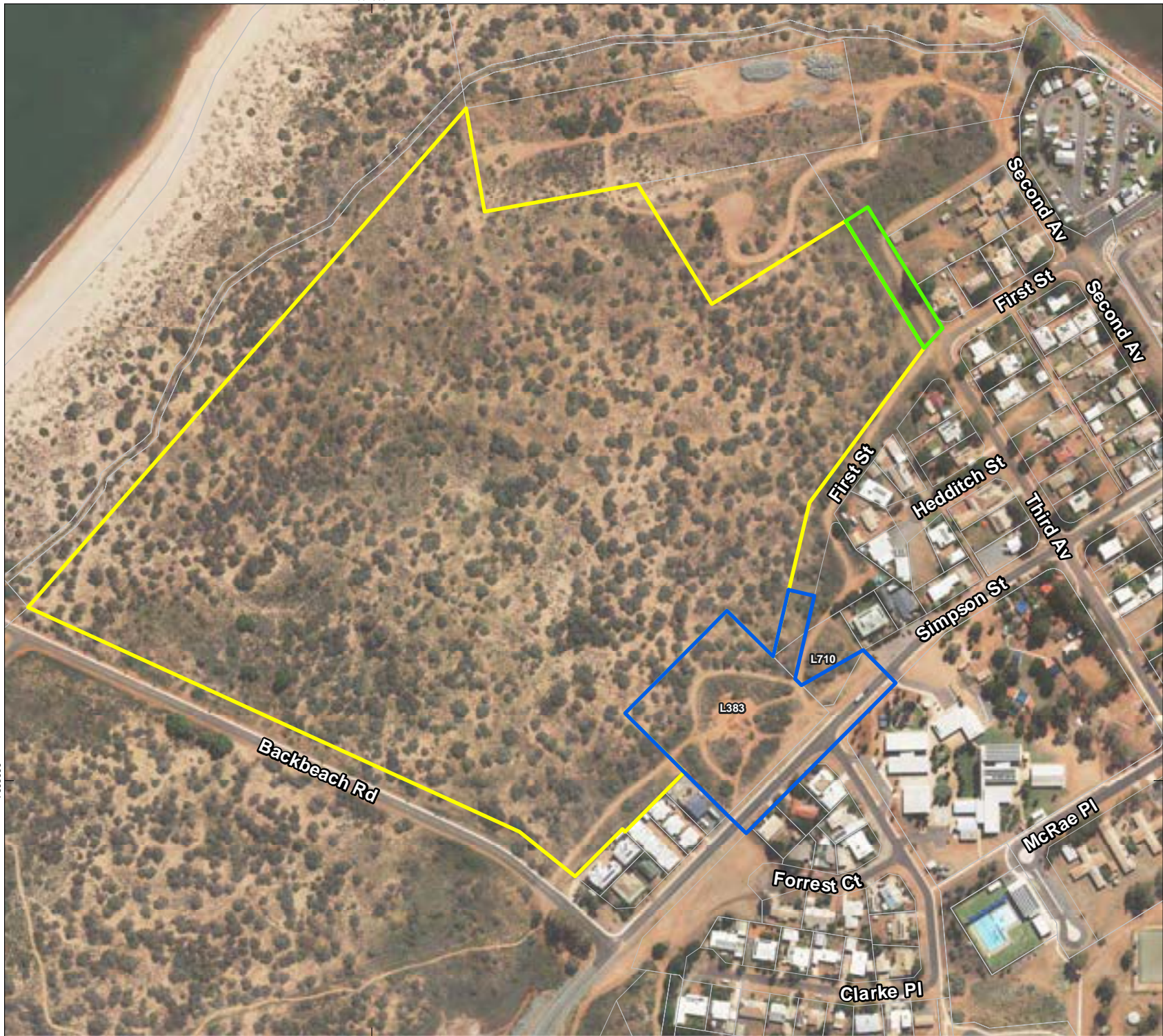


References

- 360 Environmental. (2021). Lot 300 Back Beach Road, Onslow - Flora and Fauna Report.
- 360 Environmental. (2022). Lot 300 Back Beach Road, Onslow - Detailed Terrestrial Fauna, Marine and Shorebird Survey.
- Beard, J. S. (1976). Vegetation survey of Western Australia. Western Australia 1: 1 000 000 vegetation series. Design and cartography by Dept. of Geography, University of W.A.
- Department of Agriculture Water and the Environment. (2021). Protected Matters Search Tool. <http://www.environment.gov.au/webgis-framework/apps/pmst/pmst.jsf>
- Department of Biodiversity Conservation and Attractions. (2020a). Threatened and Priority Ecological Communities database request (custom search).
- Department of Biodiversity Conservation and Attractions. (2020b). Threatened and Priority Fauna database request (custom search).
- Department of Biodiversity Conservation and Attractions. (2020c). Threatened and Priority Flora database (TPFL) request (custom search).
- Department of Biodiversity Conservation and Attractions. (2020d). Western Australia Herbarium Flora Database (custom search).
- Department of Biodiversity Conservation and Attractions. (2021). NatureMap. <https://naturemap.dpaw.wa.gov.au/>
- Johnstone, R. E., & Storr, G. M. (1998). Handbook of Western Australian birds (D. Louise, Ed.). Western Australian Museum.
- Landgate. (2022). WA Now mosaic. <https://map-viewer-plus.app.landgate.wa.gov.au/index.html>
- Marchant, S., & Higgins, P. J. (1993). Handbook of Australian, New Zealand and Antarctic Birds. Volume 2 - Raptors to Lapwings. Victoria: Oxford University Press.
- Olsen. (1998). Australia's raptors: diurnal birds of prey and owls. In: Birds Australia Conservation Statement 2. Supplement to Wingspan. 8(3).
- Olsen, P. (1995). Australian Birds of Prey. Sydney: University of NSW Press.
- Shepherd, D. P., Beeston, G. R., & Hopkins, A. J. M. (2002). Native Vegetation in Western Australia Technical Report 249.



304000



MINERAL RESOURCES LIMITED

SUPPLEMENTARY BIOLOGICAL SURVEY

SURVEY AREA

FIGURE 1

LEGEND

- Lot 300 Survey Area
- Proposed Sewer Infrastructure
- Proposed Water and Power Infrastructure

Data Source:
 - NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS
 - LOCALITY MAP SOURCED LANDGATE 2022
 - OTHER DATA SOURCED LANDGATE 2022
 - AERIAL PHOTOGRAPHY SOURCED LANDGATE 2022



Coordinate System:	GDA2020 MGA Zone 50
Scale:	1:4,000 at A3
Project ID:	4755
Date:	25-Aug-2023
Created by:	EC
Checked by:	VM
Approved by:	GA
Revision:	0



COPYRIGHT: This document is and shall remain the property of 360 Environmental. This document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement for the commission. 360 Environmental does not hold any responsibility for the misuse of this document.

7606000

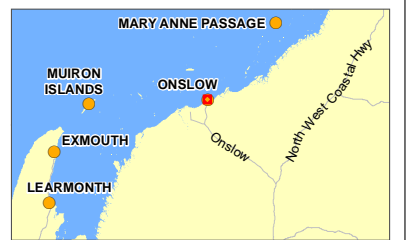


**MINERAL RESOURCES LIMITED
SUPPLEMENTARY BIOLOGICAL SURVEY
VEGETATION TYPES**

FIGURE 2

- LEGEND**
- Site boundary
 - Proposed Water and Power Infrastructure
 - Proposed Sewer Infrastructure
 - Acacia sp1 and Acacia sp2

Data Source:
 - NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS
 - LOCALITY MAP SOURCED LANDGATE 2022
 - OTHER DATA SOURCED LANDGATE 2022
 - AERIAL PHOTOGRAPHY SOURCED LANDGATE 2022



Coordinate System:	GDA2020 MGA Zone 50
Scale:	1:4,000 at A3
Project ID:	4755
Date:	28-Aug-2023
Created by:	EC
Checked by:	VM
Approved by:	GA
Revision:	1



COPYRIGHT: This document is and shall remain the property of 360 Environmental. This document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement for the commission. 360 Environmental does not hold any responsibility for the misuse of this document.



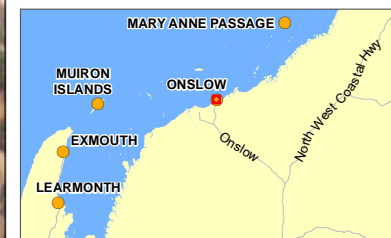
**MINERAL RESOURCES LIMITED
SUPPLEMENTARY BIOLOGICAL SURVEY
FAUNA HABITAT**

FIGURE 3

LEGEND

- Site boundary
- Proposed Water and Power Infrastructure
- Proposed Sewer Infrastructure
- Coastal Dunes

Data Source:
 - NOTE THAT POSITION ERRORS CAN BE >5M IN SOME AREAS
 - LOCALITY MAP SOURCED LANDGATE 2022
 - OTHER DATA SOURCED LANDGATE 2022
 - AERIAL PHOTOGRAPHY SOURCED LANDGATE 2022



Coordinate System:	GDA2020 MGA Zone 50
Scale:	1:4,000 at A3
Project ID:	4755
Date:	28-Aug-2023
Created by:	EC
Checked by:	VM
Approved by:	GA
Revision:	1



COPYRIGHT: This document is and shall remain the property of 360 Environmental. This document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement for the commission. 360 Environmental does not hold any responsibility for the misuse of this document.