Natural Area
CONSULTING MANAGEMENT SERVICES

Department of Water and Environmental Regulation

Rural Water Planning

Flora and Vegetation Survey and Targeted Fauna Habitat Assessment

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Acknowledgement of Country

Ngala kaaditj Noongar moort keyen kaadak nidja boodja.
Natural Area acknowledges the Traditional Owners of the lands on which we operate, and recognises their continuing connection to lands, waters and communities.

Disclaimer

System Certifications

Environmental management system registered to ISO 14001:2015
Quality management system registered to ISO 9001:2015
Occupational health and safety management system registered to ISO 45001:2018

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Draft	January 2023	New Document	CK/KG/SNH	KS	Superseded
V1	March 2023	Amendments	SNH	BC	Superseded
V2	October 2023	Targeted Spring Flora Added	KG	BC	Superseded
V3	November 2023	Minor Changes	KG	JW	Released

Executive Summary

Natural Area Consulting Management Services (Natural Area) was commissioned by the Department of Water and Environmental Regulation (DWER) in September 2022 to undertake flora and vegetation surveys, Threatened Ecological Community (TEC) assessments and targeted fauna habitat assessments at various locations throughout the Wheatbelt and Mallee region. In addition, four survey areas (Canna Dams, Gutha, Perenjori Station, and Ballidu) were revisited in October 2023 to resurvey the targeted flora and their population extent and locations. The results from these surveys will be used to support DWER's application for a clearing permit, which is required in order to undertake proposed drainage and catchment maintenance works across ten survey areas within the Avon Wheatbelt and Mallee IBRA regions.

The flora and vegetation survey aimed to determine:

- the extent and boundaries of vegetation types and condition
- flora species (native and introduced) present
- the location and population extent of declared rare or priority flora and or ecological communities.

The TEC assessment aimed to determine the presence of a TEC, its vegetation type, composition, condition, and patch width.

The targeted fauna habitat assessment aimed to determine:

- presence of Black Cockatoos and Black Cockatoo habitat
- the location and condition of any potential Black Cockatoo habitat trees and hollows
- presence of Malleefowl and suitable habitat.

The flora and vegetation surveys confirmed the following:

- Canna Dams (Area 1)
    - a total of 133 flora species from 37 families, including 17 introduced (weeds) and 116 native species
    - no Declared Pests or WoNS
    - two vegetation types; *Acacia acuminata* and *Melaleuca* spp. Open Shrubland and *Eucalyptus loxophleba* subsp. *loxophleba* Open Low Forest
    - vegetation condition was classified as Good
    - one conservation significant flora species; *Stylidium pendulum* (P1)
    - from analysis, Canna Dams is a part of the 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC
- Gutha (Area 2)
    - a total of 89 flora species from 27 families during the field survey, including 15 introduced (weeds) and 74 native species
    - one Declared Pest and WoNS: Paterson's Curse (**Echium plantagineum*)
    - two vegetation types: *Acacia* spp. Mixed Shrubland and *Eucalyptus loxophleba* subsp. *loxophleba* Open Forest
    - vegetation condition ranged from Good to Degraded
    - a total of two conservation significant flora species; *Enekbatus planifolius* (P1) and *Grevillea granulosa* (P3)

  - from analysis, Gutha is part of the 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC when including the extended portion of the site
- Perenjori Station (Area 3)
  - a total of 117 flora species from 34 families during the field survey, including 11 introduced (weeds) and 106 native species
  - one Declared Pest and WoNS: Paterson's Curse (*_Echium plantagineum_*)
  - two vegetation types: *Eucalyptus* sp. Woodland and Mixed *Melaleuca* spp. Shrubland
  - vegetation condition ranged from Degraded to Good
  - three conservation significant flora species; *Grevillea granulosa* (P3), *Grevillea asparagoides* (P3) and *Stylidium torticarpum* (P3)
  - it is highly likely Perenjori Station is part of the 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC
- Buntine (Area 4)
  - a total of 73 flora species from 25 families during the field survey, including eight introduced (weeds) and 65 native species
  - no Declared Pests or WoNS
  - two vegetation types: *Acacia acuminata* Tall Open Shrubland and *Eucalyptus* spp. Low Open Woodland
  - vegetation condition ranged from Degraded to Very Good
  - one conservation significant flora species: *Acacia scalena* (P3)
  - diagnostic characteristic of the 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC were not met for this site
- Ballidu (Area 5)
  - a total of 99 flora species from 34 families during the field survey, including eight introduced (weeds) and 91 native species
  - no Declared Pests or WoNS
  - one vegetation type: Mixed Acacia Shrubland
  - vegetation condition ranged from Completely Degraded to Very Good
  - two conservation significant flora species; *Balaustion baiocalyx* (P1) and *Microcorys tenuifolia* (P3)
  - no vegetation potentially associated with the 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC was present within the surveyed area
- Wyalkatchem Siding (Area 6)
  - a total of 130 flora species from 39 families during the field survey, including 23 introduced (weeds) and 107 native species
  - one Declared Pest and WoNS: Paterson's Curse (*_Echium plantagineum_*)
  - two vegetation types; *Allocasuarina acutivalvis* Tall Shrubland and *Eucalyptus salmonophloia* Woodland
  - vegetation condition ranged from Degraded to Good
  - no conservation significant flora
  - it is considered likely that the Wyalkatchem Siding survey area is part of the wider 'Eucalyptus Woodland of the Western Australian Wheatbelt' ecological community
- Knungajin (Area 7)

  - a total of 44 flora species from 19 families during the field survey, including 16 introduced (weeds) and 28 native species
  - one Declared Pest and WoNS; Paterson's Curse (**Echium plantagineum*)
  - one vegetation type; *Acacia acuminata* Open Woodland
  - vegetation condition was Degraded
  - no conservation significant flora
  - no vegetation potentially associated with the 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC was present within the surveyed area
- Bodallin Dam (Area 8)
  - a total of 67 flora species from 27 families during the field survey, including seven introduced (weeds) and 59 native species
  - no Declared Pests or WoNS
  - one vegetation type; *Allocasuarina acutivalvis* and *Melaleuca* sp. Mixed Open Shrubland
  - vegetation condition was Good
  - no conservation significant flora
  - no vegetation potentially associated with the 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC was present within the surveyed area
- Mt Cramphorne (Area 9)
  - a total of 55 flora species from 20 families during the field survey, including four introduced (weeds) and 51 native species
  - no Declared Pests or WoNS
  - one vegetation type; *Allocasuarina huegeliana* and *Leptospermum roei* Tall Open Shrubland
  - vegetation condition ranged from Good to Very Good
  - no conservation significant flora
  - no vegetation potentially associated with the 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC was present within the surveyed area
- Lake Magenta North (Area 11)
  - a total of 148 flora species from 39 families during the field survey, including 15 introduced (weeds) and 130 native species
  - no declared pests or WoNS
  - one vegetation type: Mixed Shrubland
  - vegetation condition ranged from Good to Completely Degraded
  - one conservation significant flora species: *Banksia xylothemelia* (P3)
  - no vegetation potentially associated with the 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC was present within the surveyed area.

The targeted fauna surveys confirmed the following:

- no evidence of foraging by Black cockatoo within any of the survey areas
- a total of 24 potential habitat trees (DBH ≥ 300 mm) were recorded across all survey areas. Four of these habitat trees contained a total of six hollows that met the type, size, and direction requirements to be considered potentially suitable for Black Cockatoos
- foraging value for each of the survey areas was assessed and a score of five for Carnaby's Cockatoo was obtained, which is considered 'high-quality native foraging habitat'
- no registered night roosting habitat present within, or in close proximity to, any of the survey areas

- Black Cockatoos were also observed flying overhead at Canna Dams and Gutha
- no Malleefowl individuals or mounds were noted during the surveys.

Contents

1.0 Introduction

Natural Area was commissioned by DWER in September 2022 to undertake flora and vegetation surveys, threatened ecological community assessments and targeted fauna habitat assessments at various locations throughout the Avon Wheatbelt and Mallee regions. In addition, four survey areas (Canna Dams, Gutha, Perenjori Station, and Ballidu) were resurveyed in October 2023 to undertake a targeted flora survey. DWER proposes to clear 31.7 hectares of native vegetation within various properties in the localities of Ballidu, Bodallin, Buntine, Canna, Cramphorne, Gutha, Magenta, Nungarin, Perenjori, and Wyalkatchem, for the purpose of drainage and catchment maintenance. These surveys were required by the by Native Vegetation Regulation Branch in their request for additional information to support DWER's clearing permit application (DWER, 2022; August 2022 personal communication).

1.1 Location

The flora and vegetation surveys occurred across ten survey areas within the Avon Wheatbelt and Mallee IBRA regions, as outlined below:

- Area 1 Canna Dams - Shire of Morawa, 0.18 ha within Crown Reserve 16491
- Area 2 Gutha - Shire of Morawa, 4.67 ha within Crown Reserve 18321
- Area 3 Perenjori Station - Shire of Perenjori, 12.53 ha within Crown Reserve 18555
- Area 4 Buntine - Shire of Dalwallinu, 2.98 ha within Crown Reserve 53393
- Area 5 Ballidu - Shire of Wongan-Ballidu, 7.23 ha within Crown Reserve 14087
- Area 6 Wyalkatchem Siding - Shire of Wyalkatchem, 0.39 ha within Crown Reserve 48765 and Crown Reserve 15697
- Area 7 Knungajin - Shire of Nungarin, 0.4 ha within Crown Reserve 10463
- Area 8 Bodallin Dam - Shire of Yilgarn, 0.25 ha within Crown Reserve 28291
- Area 9 Mt Cramphorne - Shire of Narembeen, 0.04 ha within Crown Reserve 27521
- Area 11 Lake Magenta North - Shire of Lake Grace, 2.74 ha within Crown Reserve 20274.

The location of each of these survey areas are shown in Figures 1-10. It should be noted that the aerial imagery provided by DWER for Lake Magenta North (Area 11) was utilised for mapping purposes as no suitable satellite imagery was available for this survey area. This contains an inbuilt outline of the survey area (depicted in yellow) and as such the mapping for this site contains both this yellow outline and Natural Area's mapped boundary (shown in red).

1.2 Scope

Activities undertaken by Natural Area include:

- Desktop database searches to identify potential conservation significant flora species, along with any threatened or priority ecological communities. Desktop searches include, but are not limited to, Protected Matters Search Tool (PMST), NatureMap and the Department of Biodiversity, Conservation and Attractions (DBCA) flora and communities database searches.
- Where required, detailed flora and vegetation surveys involving the establishment of a minimum of three quadrats per vegetation type were undertaken in accordance with the *EPA's Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment* (Environmental Protection Authority (EPA), 2016):

  - recording of key site characteristics, including landform, geology, and soil complex
  - recording of height, stratum, and percentage cover per species
  - determination of plant communities by traversing the bushland and assessing the vegetation structure and cover, recording the dominant over, middle and understorey species
  - assessment of vegetation condition using the rating scale attributed to Keighery in *Technical Guidance-Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
  - observations of conservation significant flora species, with a focus on 19 flora species specified by DWER
  - survey of areas adjacent within the property boundary to threatened or priority flora (if identified) to determine the population size and extent
  - observations of Weeds of National Significance (WoNS) (locations and counts) and Declared Pests
  - sampling of plant species unable to be identified in the field to enable later identification
  - capturing photographs of each quadrat and examples of vegetation communities, threatened or priority flora, potential habitat trees and vegetation condition
  - recording of data in the field using tablets, with a track log kept with a time/date attribute to demonstrate survey effort.
- Threatened Ecological Community (TEC) assessments of areas of Eucalypt Woodlands against classification criteria for the 'Eucalypt Woodlands of the Western Australian Wheatbelt TEC'. This involved the installation and analysis of quadrats (minimum of three quadrats per vegetation type) and traversing the survey areas to:
  - assess and map the vegetation type, composition, condition and patch width of the TEC
  - record native and non-native species presenting at the time of survey
  - record the locations of any threatened and priority flora or vegetation communities
  - record locations of any WoNS or Declared Pests
  - analyse data collected to determine the presence of a potential TECs.
- Black Cockatoo Habitat Assessments conducted in accordance with *Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black-cockatoo* (Department of Agriculture, Water and the Environment (DAWE), 2022b), *EPA Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment* (EPA, 2020) and *EPA Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA 2016).
- Recording of any observations of Malleefowl or Malleefowl mounds.
- Mapping and reporting outcomes of assessment activities.

The scope of work applicable to each of the locations is summarised in Table 1.

Table 1: Scope of work for each survey area. Those areas where an assessment was required are denoted with an 'X', those areas where on-site assessment indicated the need for further survey dependent on species present are denoted with an '*'

Survey Area	Detailed flora and vegetation survey	TEC assessment	Targeted fauna habitat assessment
Area 1. Canna Dams	X	X	X

Survey Area	Detailed flora and vegetation survey	TEC assessment	Targeted fauna habitat assessment
Area 2. Gutha	X	*	X
Area 3. Perenjori Station	X	X	X
Area 4. Buntine	X	X	X
Area 5. Ballidu	X	*	X
Area 6. Wyalkatchem Siding	*	X	X
Area 7. Knungajin	*	X	X
Area 8. Bodallin Dam	*	X	X
Area 9. Mount Cramphorne	X	*	X
Area 11. Lake Magenta North	X	*	X

1.3 Objectives

The objective of the surveys was to collect sufficient data to adequately address the Native Vegetation Branch's request for additional information in support of the DWER's clearing permit application. Clearing is proposed for drainage and catchment maintenance purposes in various locations throughout the Wheatbelt.

The flora and vegetation survey aimed to determine:

- the extent and boundaries of vegetation types and condition
- flora species (native and introduced) present
- the location and population extent of declared rare or priority flora and or ecological communities.

TEC assessments undertaken aimed to determine the presence of a TEC, its vegetation type, composition, condition, and extent.

The targeted fauna habitat assessment aimed to determine:

- presence of Black Cockatoos and Black Cockatoo habitat
- the location and condition of any potential Black Cockatoo habitat trees and hollows
- presence of Malleefowl and Malleefowl habitat.


Site
Perth Metropolitan Area
Canna Train Station
Legend
Site Boundary
Figure 1:
Site Location
Canna Dam (Area 1), Canna
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 21/12/2022
Image Source: Google Satellite 2022
Datum: GDA 94
0
100
200 m
N

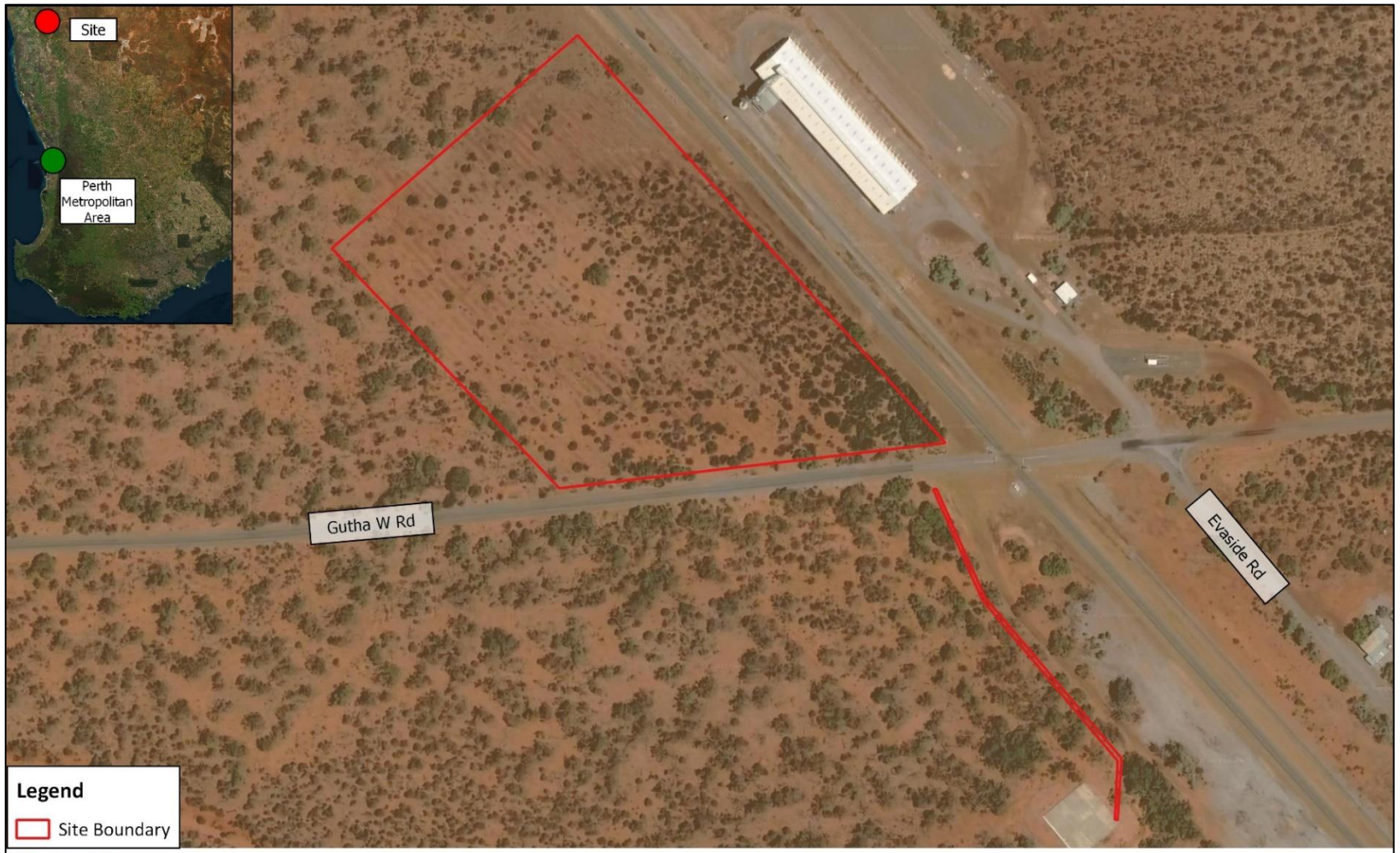
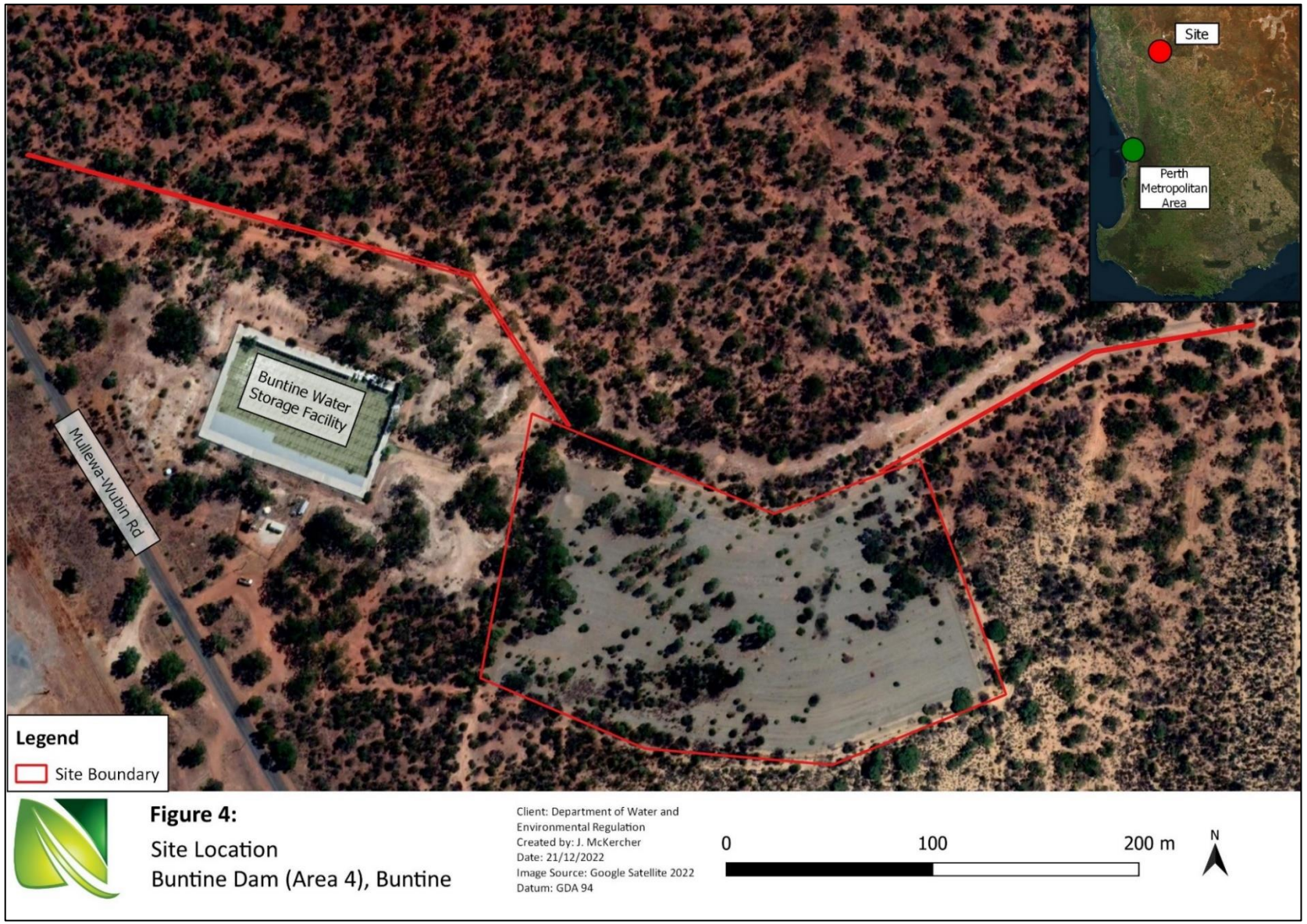


Figure 2:
Site Location
Gutha Dam (Area 2), Gutha

Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 21/12/2022
Image Source: Google Satellite 2022
Datum: GDA 94


Site
Perth Metropolitan Area
Wubin-Mullewa Rd
Perenjori Roadhouse
Legend
Site Boundary
Figure 3:
Site Location
Perenjori Dam (Area 3), Perenjori
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 21/12/2022
Image Source: Google Satellite 2022
Datum: GDA 94
0
250
500 m
N


Site
Perth Metropolitan Area
Buntine Water Storage Facility
Mullewa-Wubin Rd
Legend
Site Boundary
Figure 4:
Site Location
Buntine Dam (Area 4), Buntine
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 21/12/2022
Image Source: Google Satellite 2022
Datum: GDA 94
0
100
200 m
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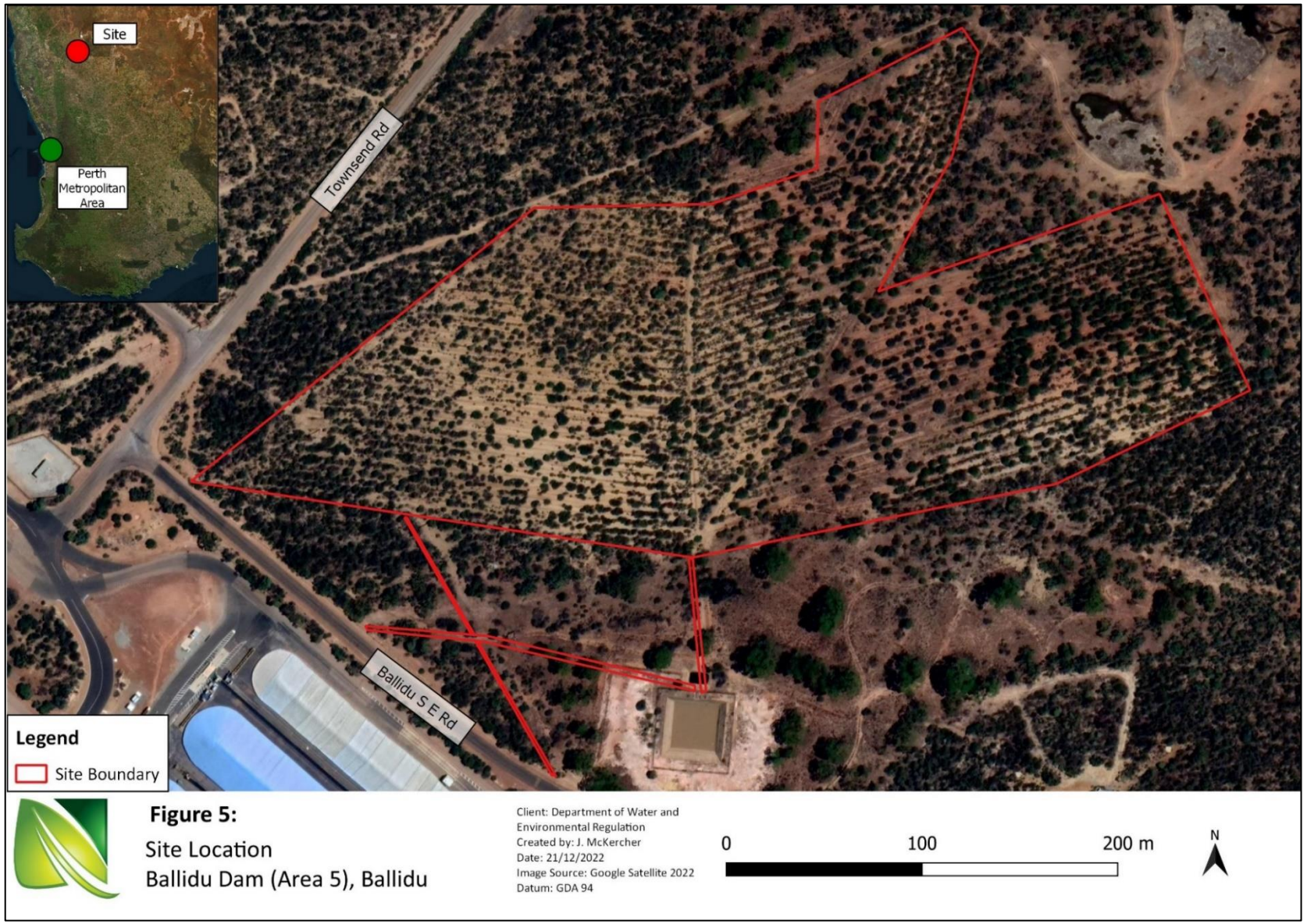

Site
Perth Metropolitan Area
Townsend Rd
Ballidu S E Rd
Legend
Site Boundary
Figure 5:
Site Location
Ballidu Dam (Area 5), Ballidu
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 21/12/2022
Image Source: Google Satellite 2022
Datum: GDA 94
0
100
200 m
N

Figure 6:
Site Location
Wyalkatchem Dam (Area 6),
Wyalkatchem

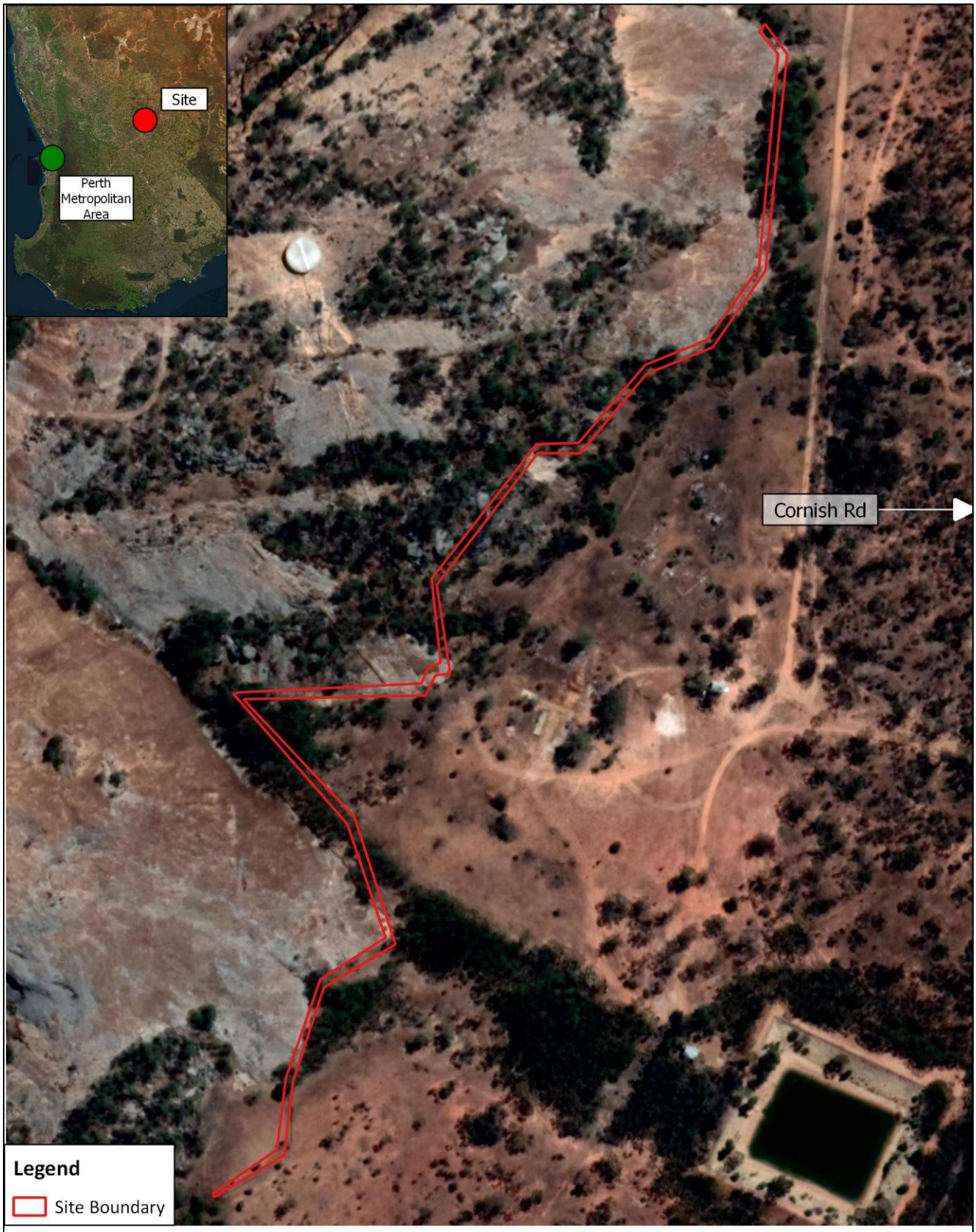


Figure 7:
Site Location
Knungajin Dam (Area 7),
Nungarin


Site
Perth Metropolitan Area
Great Eastern Highway
Legend
Site Boundary
Figure 8:
Site Location
Bodallin Dam (Area 8), Bodallin
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 21/12/2022
Image Source: Google Satellite 2022
Datum: GDA 94
0
25
50 m
N

Figure 9:
Site Location
Mt Cramphorne Dam (Area 9), Cramphorne

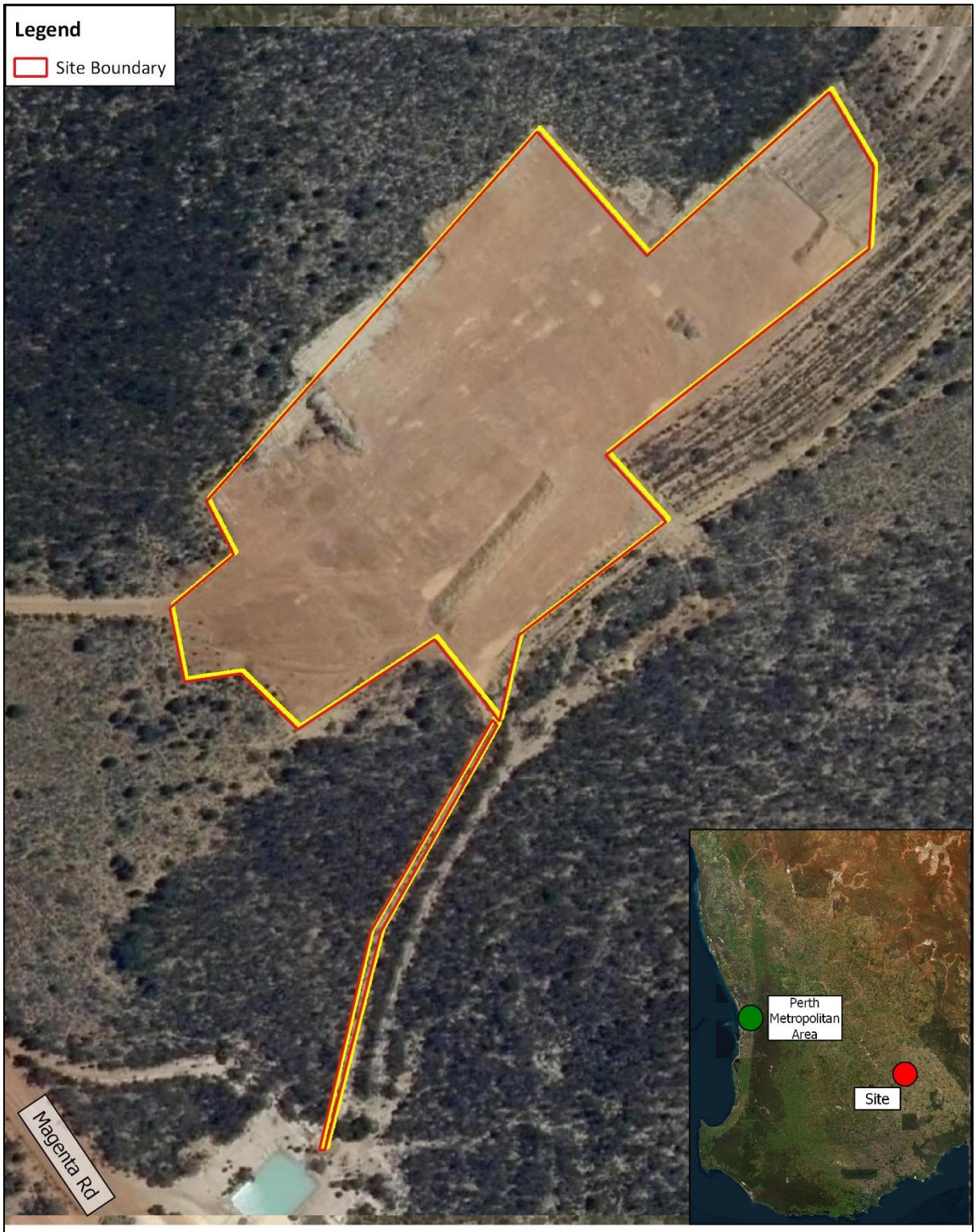


Figure 10:
Site Location
Lake Magenta Dam
(Area 11), Magenta

2.0 Site Characteristics

The characteristics of a site have a strong bearing on the flora, vegetation, fauna, and ecological communities present. Key characteristics of each survey area are outlined in this section.

All survey areas are located within the Avon Wheatbelt (AVW01 - Merredin) IBRA subregion with the exception of Lake Magenta North, which is within the Mallee (MAL02 – Western Mallee) IBRA subregion (Department of Primary Industries and Regional Development (DPIRD), 2022a). The climate experienced in the AVW01 and MAL02 subregions is Mediterranean, with dry, hot summers and cool, wet winters.

The AVW01 region is characterised by active drainage, with salt lake chains visible as remnants of an ancient drainage system. It has gently undulating landscapes with low relief. Soils are generally comprised of lateritic uplands and yellow sandplains (Beecham, 2001). Proteaceous scrublands, mixed Eucalypt and Casuarina, Jam Wattle and York Gum Woodlands are typical of this area (Beecham, 2001).

The MAL02 region is characterised by a gently undulating landscape with areas of higher relief compared to its eastern counterpart. Soils comprise predominantly of clays and silts with areas of sandplains, granite outcrops and lateritic pavements (Beecham B, and Danks, A. 2001). Salt lake systems over granite bedrock are also present throughout the region. Eucalypt woodlands are often found in association with clay and silt soil types, whilst scrub and heath vegetation types can be found on sandy and lateritic soils (Beecham B, and Danks, A. 2001).

A portion of the Buntine survey area is within an Environmentally Sensitive Area (ESA) ‘Buntine, Object ID 7124’ (Department of Water and Environmental Regulation (DWER), 2022). There are no ESAs within any of the other nine survey areas. There are also no Ramsar sites or important wetlands within any of the survey areas (DBCA 2022b, 2022d). No Aboriginal sites of significance were present within any of the survey areas (Department of Planning, Lands and Heritage (DPLH), 2022).

The following Other Heritage Places were identified across the survey areas (Government of Western Australia, 2021):

- A portion of the Ballidu survey area is within the boundary of an Other Heritage Place - ‘Ballidu Town Dam and Balli Balli Rocks’ (Place number 12491).
- A portion of the Wyalkatchem Siding survey area is within the boundary of an Other Heritage Place - ‘Railway Dam’ (Place number 08192).
- The Knungajin survey area is within the boundary of an Other Heritage Place - ‘Knungajin Hill, Dam and Trig Station, Nungarin’ (Place number 15282).
- A portion of the Bodallin survey area is within the boundary of an Other Heritage Place - ‘Railway Rock Catchment Dam Group, Yilgarn’ (Place number 25378).
- The Mount Cramphorne survey area is within the boundary of an Other Heritage Place - ‘Mt Cramphorne Rock (Site of water catchment dam)’ (Place number 06757).

Using the NRInfo Portal, various soil types were identified across the survey areas (DPIRD, 2022c). A general description of the soil types present across the various survey areas is provided in Table 2, soil types present within each of the individual survey areas are detailed further in subsections 2.1 to 2.10.

The vegetation complexes that are present throughout the survey areas are described in Table 3. Those that are present within each of the individual survey areas are detailed further in subsections 2.1 to 2.10.

Table 2: Soil types within the survey areas

Name	Symbol	Description	Soil type presence (survey areas)
Peterwangy 2 subsystem	271Pe_2	Undulating rises with granite outcrop on hill crests, sands on granite, sandy duplex soils and stony gradational red loams	Canna Dams (Area 1)
Pindar 2 subsystem	271Pi_2	Gently undulating sandplain and gentle slopes; acid yellow deep sand and sandy earths with some loamy earths and hardpan soils	Canna Dams (Area 1) Perenjori Station (Area 3)
Noolagabbi 2 subsystem	271Ng_2	Level to very gently inclined valley flats; sandy loams over red-brown hardpans	Canna Dams (Area 1)
Koolanooka 2 subsystem	270Ko_2	Lower, rolling hills with occasional rocky outcrops and gently inclined footslopes; red loams and clays over red-brown hardpan with some rock outcrops and shallow sands and loams	Gutha (Area 2)
Noolagabbi East subsystem 1	270Ni_1	Level to very gently inclined valley flats; brown loamy duplexes and red shallow loams over hardpans	Gutha (Area 2)
Granada 1 subsystem	271Gn_1	Undulating plain to low rises with broad convex gently inclined slopes; yellow and brown deep sands and loamy earths, some shallow loams over red-brown hardpans	Perenjori Station (Area 3)
Noolagabbi 1 subsystem	271Ng_1	Level to very gently inclined valley flats; brown loamy duplexes and red shallow loams over hardpans	Perenjori Station (Area 3)
Noolagabbi 7 subsystem	271Ng_7	Narrow drainage line, moderate secondary salinity; saline loamy soils, often with red-brown hardpans	Perenjori Station (Area 3)
Ballidu 4 subsystem	258Bd_4	Gently undulating sandplain to gently undulating sandy rises with long gentle slopes from weathered granite. Yellow deep sands and earths, often acid, some gravels, and sandy duplexes	Buntine (Area 4)
Ballidu 8 subsystem	258Bd_8	Areas of tertiary salinity; often heads of drainage lines, shallow depressions and areas of recent salt encroachment. Soils are salt affected variants of red-brown hardpan shallow loams and other soils of adjacent systems	Buntine (Area 4)

Name	Symbol	Description	Soil type presence (survey areas)
Ballidu 3 subsystem	258Bd_3	Undulating plain, crests and upper slopes from weathered granite. Mainly loamy gravel, yellow deep sand, sandy and loamy earth, Red shallow loamy duplex, minor of sandy loamy duplex	Ballidu (Area 5)
Kwolyin, Nembudding subsystem	258KyNE	Rises and low hills, in the northern Zone of Ancient Drainage, with alkaline red loamy duplex (mostly shallow) and yellow sandy earth. Mallee scrub and woodland	Wyalkatchem Siding (Area 6) Knungajin (Area 7)
Kwolyin, Kwelkan subsystem	258KyKW	Undulating granitic low hills, in the central Zone of Ancient Drainage, with bare rock, deep sandy duplex (grey and red), shallow sand (red and yellow/brown) and red loamy duplex. York gum-jam woodland	Knungajin (Area 7)
Tandegin 3 granite phase	258Ta_3g	Small areas of rock outcrop surrounded by shallow sandy skeletal soils and duplex soils (often sodic) forming from siliceous granite in irregularly undulating uplands of the eastern wheatbelt around Bruce Rock, Muntadgin and Merredin	Bodallin Dam (Area 8) Mount Cramphorne (Area 9)
Tandegin 3 rock outcrop phase	258Ta_3r	Rock outcrops and shallow soils supporting Acacia and Sheoak woodlands in irregularly undulating uplands of the eastern wheatbelt around Bruce Rock, Muntadgin and Merredin	Mount Cramphorne (Area 9)
Newdegate 1 subsystem	250Nw_1	Flats and lower to mid slopes. Soils dominantly grey and yellow/brown duplex soils, usually alkaline, grey calcareous loamy earths and colluvial ironstone gravelly soils	Lake Magenta North (Area 11)

Source: DPIRD, 2022c

Table 3: Vegetation Complexes within the survey boundaries

Vegetation Association	Vegetation Association Description	Vegetation Type	Vegetation Type Description	Percentage of system association remaining		Vegetation presence (survey areas)
				IBRA	LGA	
YARRA YARRA_142	Medium woodland; York Gum & Salmon Gum	4	Woodland York Gum, Salmon Gum, Gimlet, Redwood, River Gum	11.07	9.53	Canna Dams (Area 1) Gutha (Area 2)
PERENJORI_352	Medium woodland; York Gum	4		7.88	Perenjori 7.53; Dalwallinu 11.24	Perenjori Station (Area 3)
JIBBERDING_1049	Medium woodland; Wandoo, York Gum, Salmon Gum, Morrel & Gimlet	4		5.98	6.47	Wyalkatchem Siding (Area 6)
MUNTADGIN_8	Medium woodland; Salmon Gum & Gimlet	4		10.52	8.73	Knungajin (Area 7)
MOORINE ROCK_8	Medium woodland; Salmon Gum & Gimlet	4		14.11	10.47	Bodallin Dam (Area 8)
CHIDNUP_519	Shrublands; mallee scrub, *Eucalyptus eremophila*	16	Mallee Eucalypt shrubland: *Eucalyptus eremophila, Eucalyptus redunca, Eucalyptus* spp.	50.81	54.87	Lake Magenta North (Area 11)
JIBBERDING_435	Shrublands; *Acacia neurophylla*, *Acacia beauverdiana* & *Acacia resinomarginea* thicket	14	Thicket Shrubs > 1 m tall, consisting of *Acacia*, *Casuarina* and teatree *Acacia-Allocasuarina-Melaleuca* alliance	10.96	11.13	Buntine (Area 4)
GUANGAN_1024	Shrublands; mallee & *Casuarina* thicket	14		7.01	5.93	Ballidu (Area 5)

Vegetation Association	Vegetation Association Description	Vegetation Type	Vegetation Type Description	Percentage of system association remaining		Vegetation presence (survey areas)
				IBRA	LGA	
NANEKINE_684	Mosaic: shrublands; Jam scrub with scattered York Gum in the valleys / *Allocasuarina campestris* thicket	103	Woodland/Scrub	26.68	26.42	Canna Dams (Area 1)
MUNTADGIN_128	Bare areas; rock outcrops	54	Bare rock and associated sparse vegetation	42.37	45.02	Mount Cramphorne (Area 9)

Source: Government of Western Australia, 2019; DPIRD, 2022b; Beard *et al*., 2013

2.1 Canna Dams (Area 1)

According to the Bureau of Meteorology (2022); Morawa Airport WA (site number 008296) the region has an average:

- rainfall of 286.6 mm pa, with rain falling predominantly between May and August
- maximum temperature ranging from 18.8 °C in winter to 37.4 °C in summer, with a maximum recorded temperature of 47.2 °C
- minimum temperatures ranging from 6.2 °C in winter to 20.4 °C in summer, with a minimum recorded temperature of -1.9 °C
- predominant wind directions include morning easterlies and afternoon southern breezes during the summer months, with an average wind speed of 18.5 km/h and gusts of more than 100 km/h.

Using the NRInfo Portal, three soil types were identified within the survey area: Peterwangy 2 subsystem, Pindar 2 subsystem, and Noolagabbi 2 subsystem (DPIRD, 2022c). Descriptions are provided in Table 2 above. Topography of the survey area ranges from 332 to 338 m Australian Height Datum (AHD) (DPRID, 2022a). Soil types and contours for the survey area are shown in Figure 11.

The vegetation complexes occurring within the survey area are the Yarra Yarra_142 and Nanekine_684 system associations (DPIRD, 2022b) (Table 3 and Figure 21).

2.2 Gutha (Area 2)

According to the Bureau of Meteorology (2022); Morawa Airport WA (site number 008296) the region has an average:

- rainfall of 286.6 mm pa, with rain falling predominantly between May and August
- maximum temperature ranging from 18.8 °C in winter to 37.4 °C in summer, with a maximum recorded temperature of 47.2 °C
- minimum temperatures ranging from 6.2 °C in winter to 20.4 °C in summer, with a minimum recorded temperature of -1.9 °C
- predominant wind directions include morning easterlies and afternoon southern breezes during the summer months, with an average wind speed of 18.5 km/h and gusts of more than 100 km/h.

Using the NRInfo Portal, two soil types were identified within the survey area: Koolanooka 2 subsystem and Noolagabbi East subsystem 1 (DPIRD, 2022c). Descriptions are provided in Table 2. Topography of the survey area is relatively flat and sits at approximately 288 AHD (DPRID, 2022a). Soil types and contours for the survey area are shown in Figure 12.

The vegetation complex within the survey area is the Yarra Yarra_142 system association (DPIRD, 2022b) (Table 3 and Figure 22).

2.3 Perenjori Station (Area 3)

According to the Bureau of Meteorology (2022); Morawa Airport WA (site number 008296), the region has an average:

- rainfall of 286.6 mm pa, with rain falling predominantly between May and August
- maximum temperature ranging from 18.8 °C in winter to 37.4 °C in summer, with a maximum recorded temperature of 47.2 °C
- minimum temperatures ranging from 6.2 °C in winter to 20.4 °C in summer, with a minimum recorded temperature of -1.9 °C
- predominant wind directions include morning easterlies and afternoon southern breezes during the summer months, with an average wind speed of 18.5 km/h and gusts of more than 100 km/h.

Using the NRInfo Portal, four soil types were identified within the survey area: Granada 1 subsystem, Noolagabbi 1 subsystem, Pindar 2 subsystem and Noolagabbi 7 subsystem (DPIRD, 2022c). Descriptions are provided in Table 2. Topography of the survey area ranges from 278 m AHD in the south-east and gently rises to 290 m AHD in the north-west (DPRID, 2022a). Soil types and contours for the survey area are shown in Figure 13.

The vegetation complex within the survey area is the Perenjori_352 system association (DPIRD, 2022b) (Table 3 and Figure 23).

2.4 Buntine (Area 4)

According to the Bureau of Meteorology (2022); Dalwallinu, WA (site number 008297) the region has an average:

- rainfall of 297.8 mm pa, with rain falling predominantly between May and August
- maximum temperature ranging from 17 °C in winter to 35.3 °C in summer, with a maximum recorded temperature of 46.9 °C
- minimum temperatures ranging from 6 °C in winter to 18.4 °C in summer, with a minimum recorded temperature of -1 °C
- predominant wind directions include morning easterlies and afternoon southern breezes during the summer months, with an average wind speed of 19.7 km/h and gusts of more than 100 km/h.

Using the NRInfo Portal two soil types were identified within the survey area: Ballidu 4 subsystem and Ballidu 8 subsystem (DPIRD, 2022c). Descriptions are provided in Table 2. Topography of the survey area is relatively flat at 312 m AHD (DPIRD, 2022a). Soil types and contours for the survey area are shown in Figure 14.

The vegetation complex within the survey area is the Jibberding_435 system association (DPIRD, 2022b) (Table 3 and Figure 24).

2.5 Ballidu (Area 5)

According to the Bureau of Meteorology (2022); Wongan Hills Res. Station, WA (site number 008138) the region has an average:

- rainfall of 354.3 mm pa, with rain falling predominantly between May and August
- maximum temperature ranging from 16.3 °C in winter to 34.1 °C in summer, with a maximum recorded temperature of 47.5 °C
- minimum temperatures ranging from 6.4 °C in winter to 17.7 °C in summer, with a minimum recorded temperature of -1.2 °C
- predominant easterly winds during the summer months, with an average wind speed of 14.3 km/h.

Using the NRInfo Portal, one soil type was identified within the survey area: Ballidu 3 subsystem (DPIRD, 2022c). A description is provided in Table 2. Topography of the survey area sits at around 304-308 m AHD (DPRID, 2022a). Soil types and contours for the survey area are shown in Figure 15.

The vegetation complex within the survey area is the Guangan_1024 system association (DPIRD, 2022b) (Table 3 and Figure 25).

2.6 Wyalkatchem Siding (Area 6)

According to the Bureau of Meteorology (2022); Wyalkatchem, WA (site number 010140) the region has an average:

- rainfall of 328 mm pa, with rain falling predominantly between May and August
- maximum temperature ranging from 16 °C in winter to 33.9 °C in summer, with a maximum recorded temperature of 44 °C
- minimum temperatures ranging from 6.1 °C in winter to 17.9 °C in summer, with a minimum recorded temperature of -1.2 °C
- predominant easterly winds during the summer months, with an average wind speed of 11.2 km/h.

Using the NRInfo Portal, one soil type was identified within the survey area: Kwolyin Nembudding subsystem (DPIRD, 2022c). Descriptions are provided in Table 2. Topography of the survey area ranges from 314 m AHD in the south and gently rises to 322 m AHD in the north (DPRID, 2022a). Soil types and contours for the survey area are shown in Figure 16.

The vegetation complex within this survey area is the Jibberding_1049 system association (DPIRD, 2022b) (Table 3 and Figure 26).

2.7 Knungajin (Area 7)

According to the Bureau of Meteorology (2022); Merredin, WA (site number 010092) the region has an average:

- rainfall of 325.5 mm pa, with rain falling predominantly between May and August
- maximum temperature ranging from 16.4 °C in winter to 34 °C in summer, with a maximum recorded temperature of 46.2 °C
- minimum temperatures ranging from 5.6 °C in winter to 18.1 °C in summer, with a minimum recorded temperature of -3.4 °C
- predominant easterly wind direction during the summer months, with an average wind speed of 19.1 km/h.

Using the NRInfo Portal, two soil types were identified within the survey area: Kwolyin Kwelkan subsystem and Kwolyin Nembudding subsystem (DPIRD, 2022c). Descriptions are provided in Table 2. The survey area occurs along the base of a steep incline ranging from 316 to 330 AHD (DPRID, 2022a). Soil types and contours for the survey area are shown in Figure 17.

The vegetation complex within the survey area is the Muntadgin_8 system association (DPIRD, 2022b) (Table 3 and Figure 27).

2.8 Bodallin Dam (Area 8)

According to the Bureau of Meteorology (2022); Southern Cross Airfield, WA (site number 012320) the region has an average:

- rainfall of 301.3 mm pa, with rain falling predominantly between May and August
- maximum temperature ranging from 16.8 °C in winter to 34.8 °C in summer, with a maximum recorded temperature of 46.7 °C
- minimum temperatures ranging from 3.7 °C in winter to 17.9 °C in summer, with a minimum recorded temperature of -5 °C
- predominant easterly wind direction during the summer months, with an average wind speed of 19.1 km/h.

Using the NRInfo Portal, one soil type was identified within the survey area: Tandegin 3 granite phase (DPIRD, 2022c). Descriptions are provided in Table 2. The topography of the survey area ranges from 396-400 m AHD (DPRID, 2022a). Soil types and contours for the survey area are shown in Figure 18.

The vegetation complex within this survey area is the Moorine Rock_8 system association (DPIRD, 2022b) (Table 3 and Figure 28).

2.9 Mount Cramphorne (Area 9)

According to the Bureau of Meteorology (2022); Dalwallinu, WA (site number 008297) the region has an average:

- rainfall of 297.8 mm pa, with rain falling predominantly between May and August
- maximum temperature ranging from 17 °C in winter to 35.3 °C in summer, with a maximum recorded temperature of 46.9 °C
- minimum temperatures ranging from 6 °C in winter to 18.4 °C in summer, with a minimum recorded temperature of -1 °C
- predominant easterly wind direction during the summer months, with an average wind speed of 19.8 km/h.

Using the NRInfo Portal, two soil types were identified within the survey area: Tandegin 3 rock outcrop phase and Tandegin 3 granite phase (DPIRD, 2022c). Descriptions are provided in Table 2. The survey area gently rises from 380 m AHD in the west to 386 m AHD in the east (DPRID, 2022a). Soil types and contours for the survey area are shown in Figure 19.
The vegetation complex within this survey area is the Muntadgin_128 system association (DPIRD, 2022b) (Table 3 and Figure 29).

2.10 Lake Magenta North (Area 11)

According to the Bureau of Meteorology (2022); Newdegate, WA (site number 010692) the region has an average:

- rainfall of 366.4 mm pa, with rain falling predominantly between May and August
- maximum temperature ranging from 15.3 °C in winter to 31.3 °C in summer, with a maximum recorded temperature of 46.7 °C
- minimum temperatures ranging from 4.3 °C in winter to 14.1 °C in summer, with a minimum recorded temperature of -4.3 °C
- predominant easterly wind direction during the summer months, with an average wind speed of 21.3 km/h.

Using the NRInfo Portal, one soil type was identified within the survey area: Newdegate 1 subsystem (DPIRD, 2022c). Descriptions are provided in Table 2. Topography of the survey area ranges from 300 m AHD in the south and gently rises to 308 m AHD in the north (DPRID, 2022a). Soil types and contours for the survey area are shown in Figure 20.

The vegetation complex within this survey area is the Chidnup_519 Lake system association (DPIRD, 2022b) (Table 3 and Figure 30).

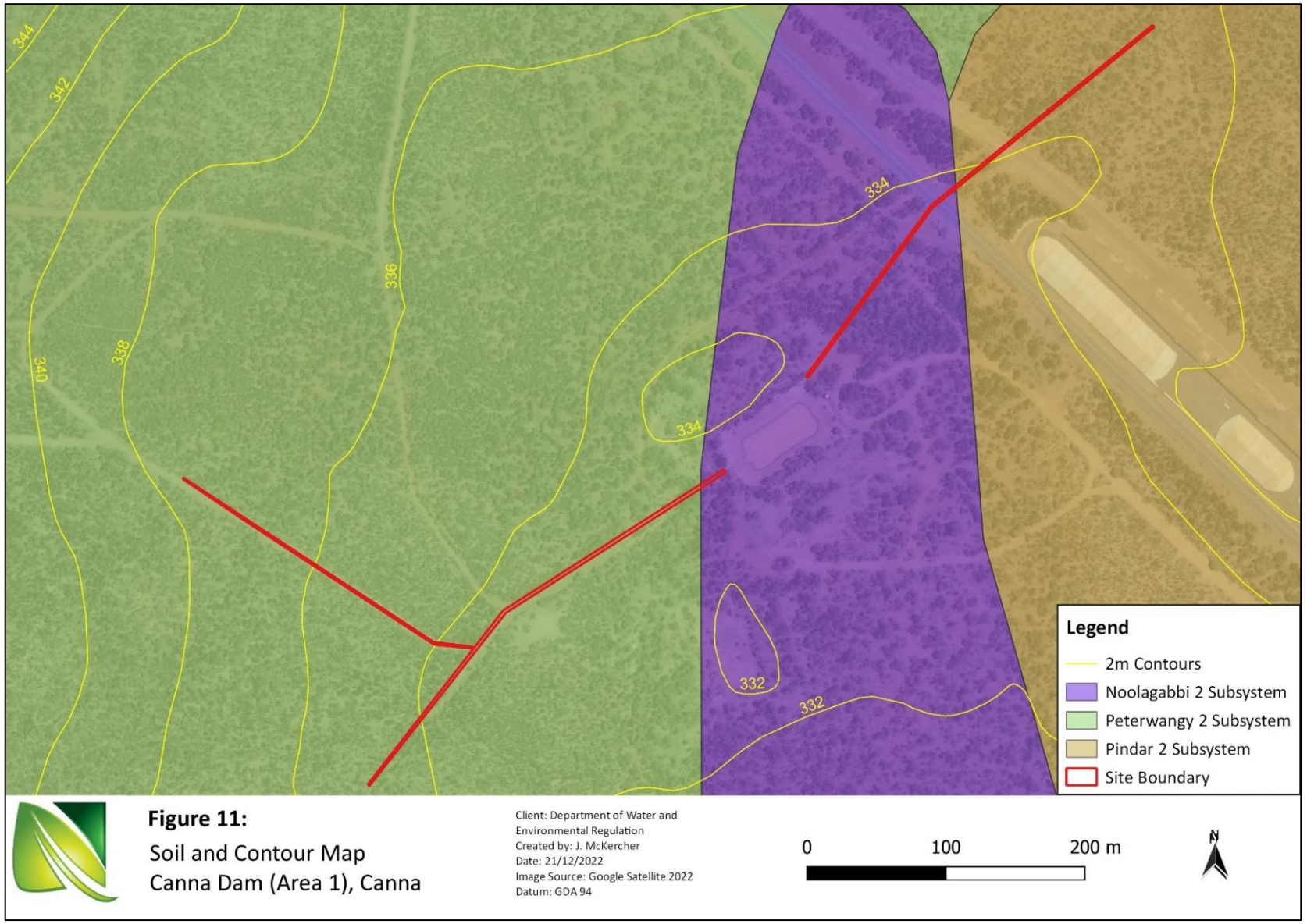


Figure 11:
Soil and Contour Map
Canna Dam (Area 1), Canna

Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 21/12/2022
Image Source: Google Satellite 2022
Datum: GDA 94

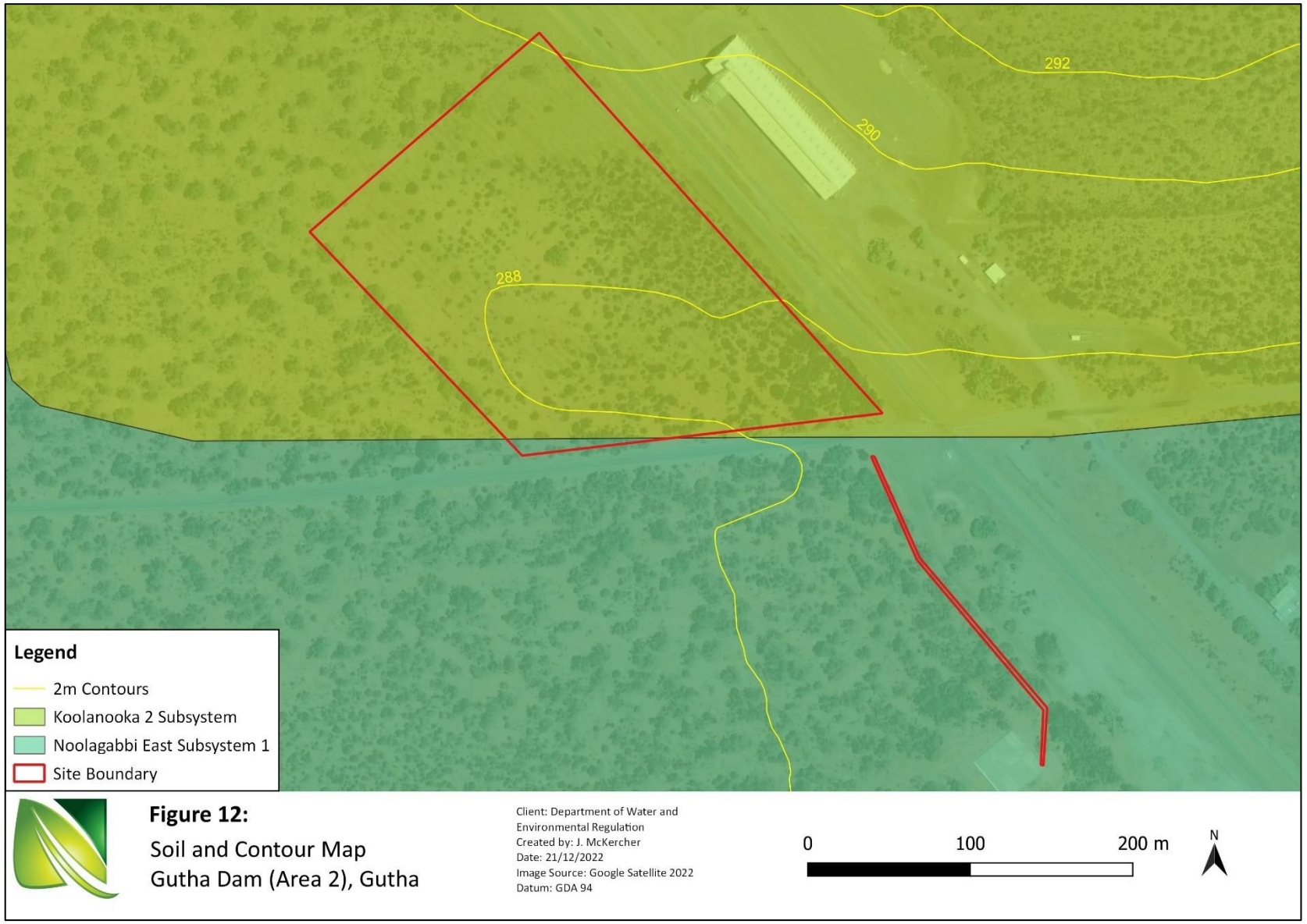
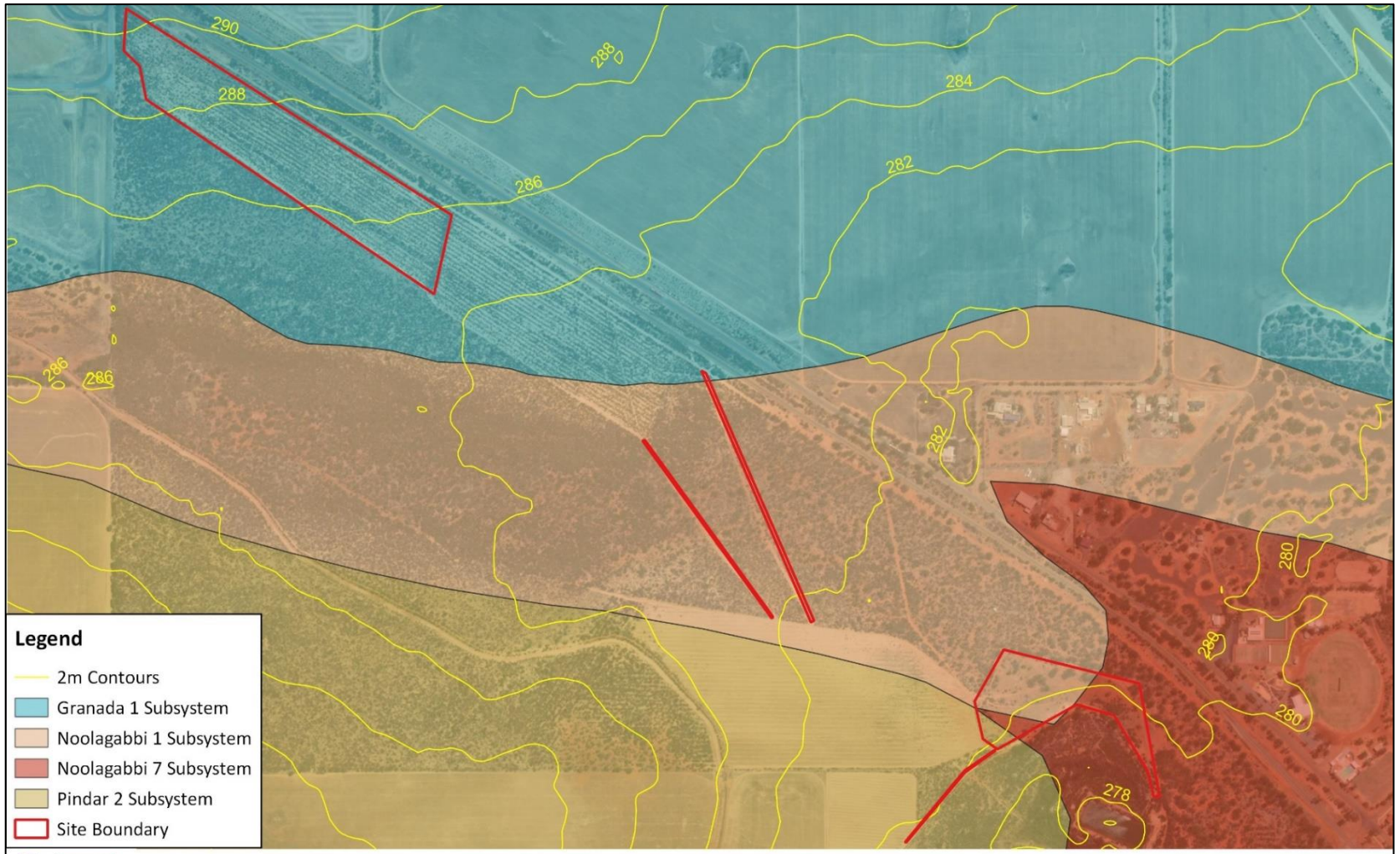
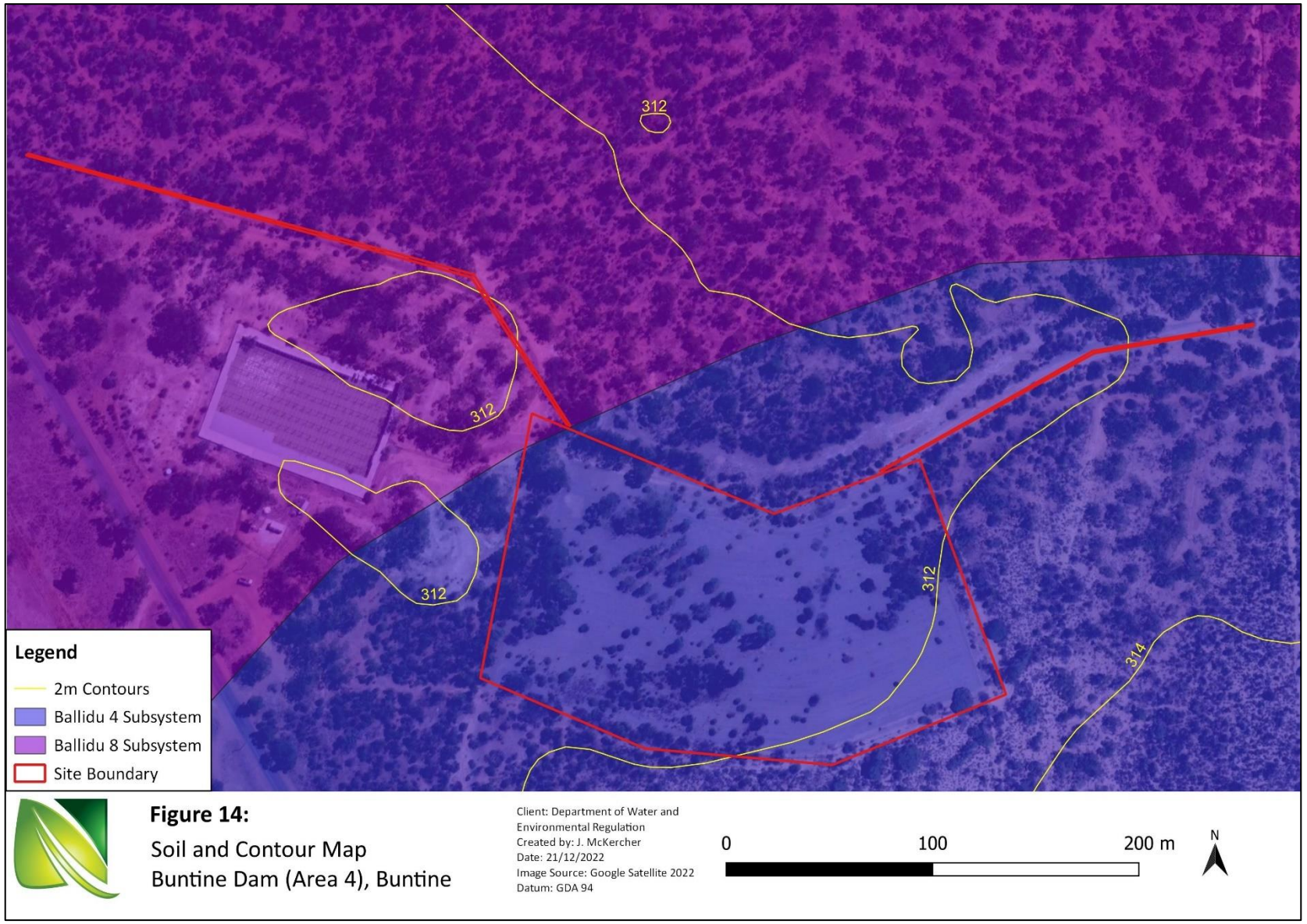


Figure 12:
Soil and Contour Map
Gutha Dam (Area 2), Gutha


290
288
288
284
286
282
286
286
282
280
289
280
278
Legend
2m Contours
Granada 1 Subsystem
Noolagabbi 1 Subsystem
Noolagabbi 7 Subsystem
Pindar 2 Subsystem
Site Boundary
Figure 13:
Soil and Contour Map
Perenjori Dam (Area 3), Perenjori
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 21/12/2022
Image Source: Google Satellite 2022
Datum: GDA 94
0
250
500 m
N


312
312
312
312
314
Legend
2m Contours
Ballidu 4 Subsystem
Ballidu 8 Subsystem
Site Boundary
Figure 14:
Soil and Contour Map
Buntine Dam (Area 4), Buntine
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 21/12/2022
Image Source: Google Satellite 2022
Datum: GDA 94
0
100
200 m
N

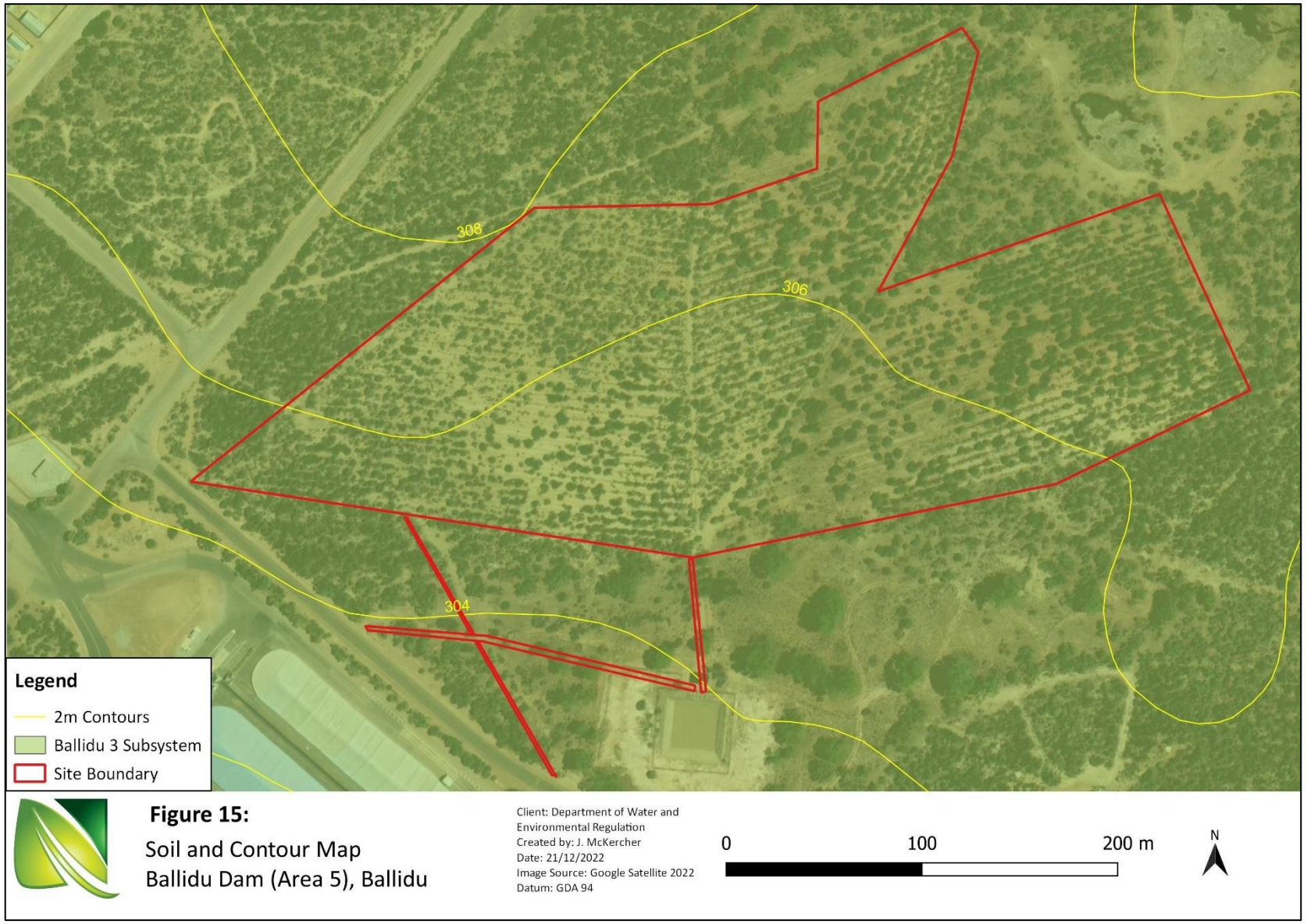

308
306
304
Legend
2m Contours
Ballidu 3 Subsystem
Site Boundary
Figure 15:
Soil and Contour Map
Ballidu Dam (Area 5), Ballidu
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 21/12/2022
Image Source: Google Satellite 2022
Datum: GDA 94
0
100
200 m
N

Figure 16:
Soil and Contour Map
Wyalkatchem Dam (Area 6),
Wyalkatchem

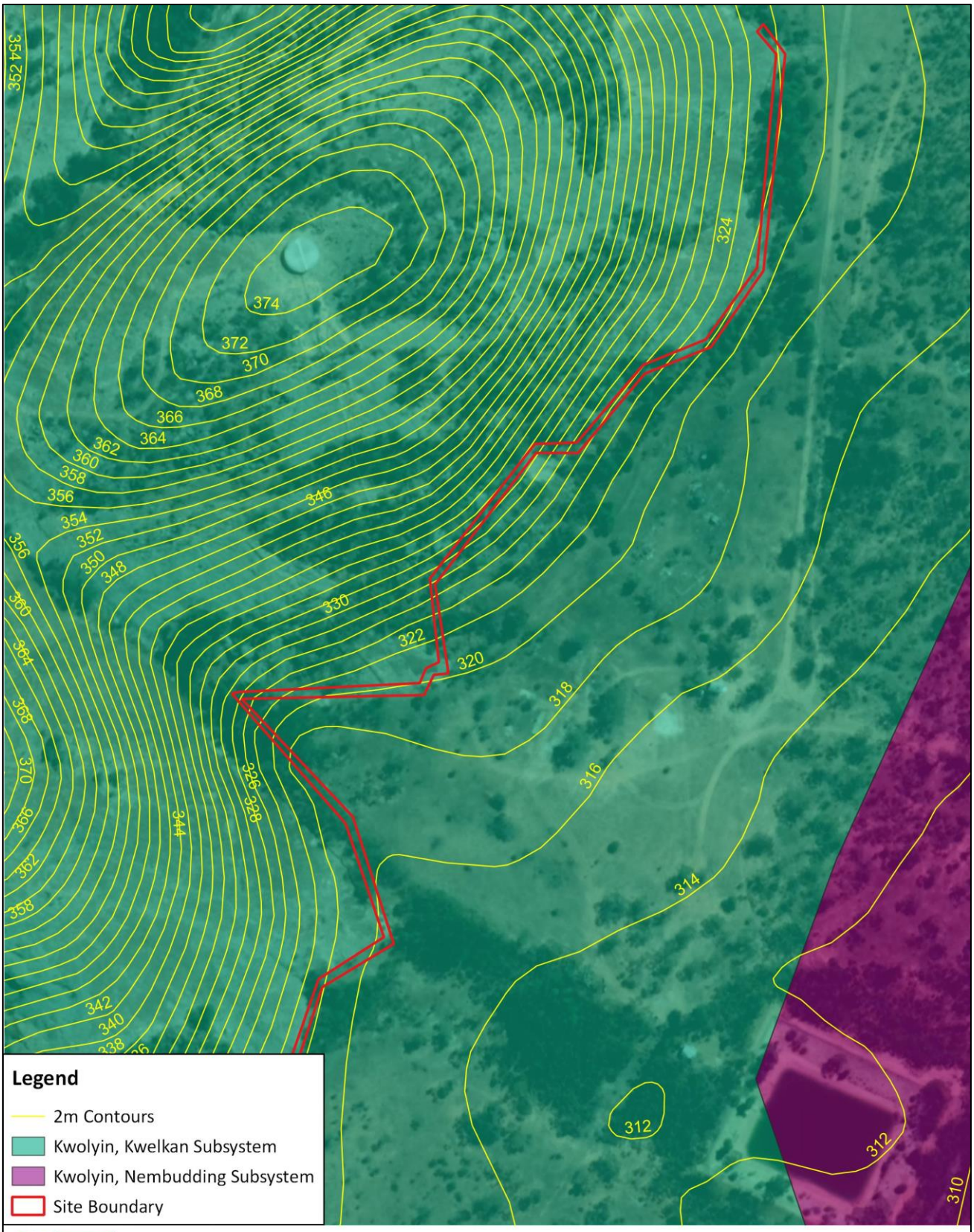


Figure 17:
Soil and Contour Map
Knungajin Dam (Area 7),
Nungarin

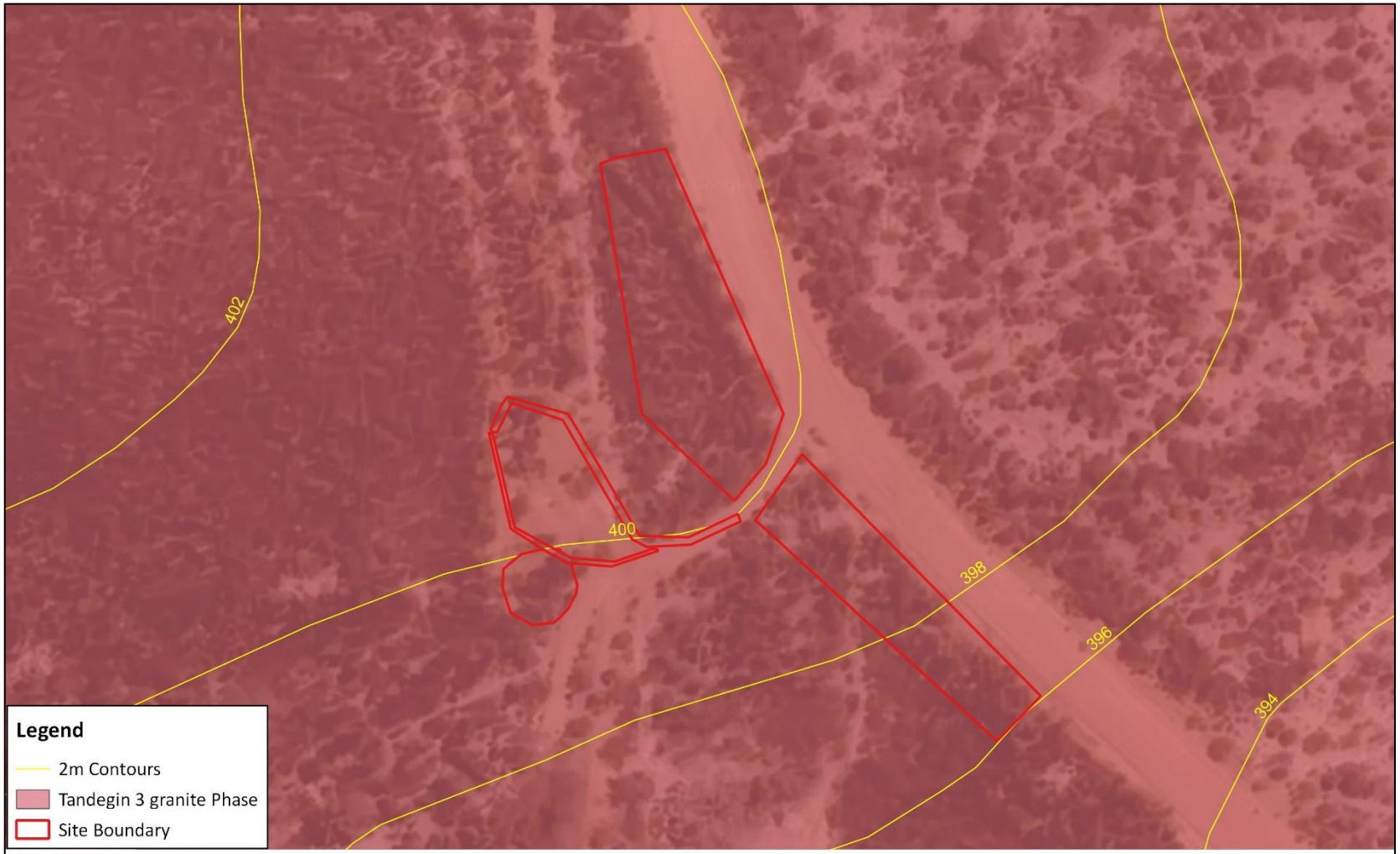


Figure 18:
Soil and Contour Map
Bodallin Dam (Area 8), Bodallin

Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 21/12/2022
Image Source: Google Satellite 2022
Datum: GDA 94

0 25 50 m

N

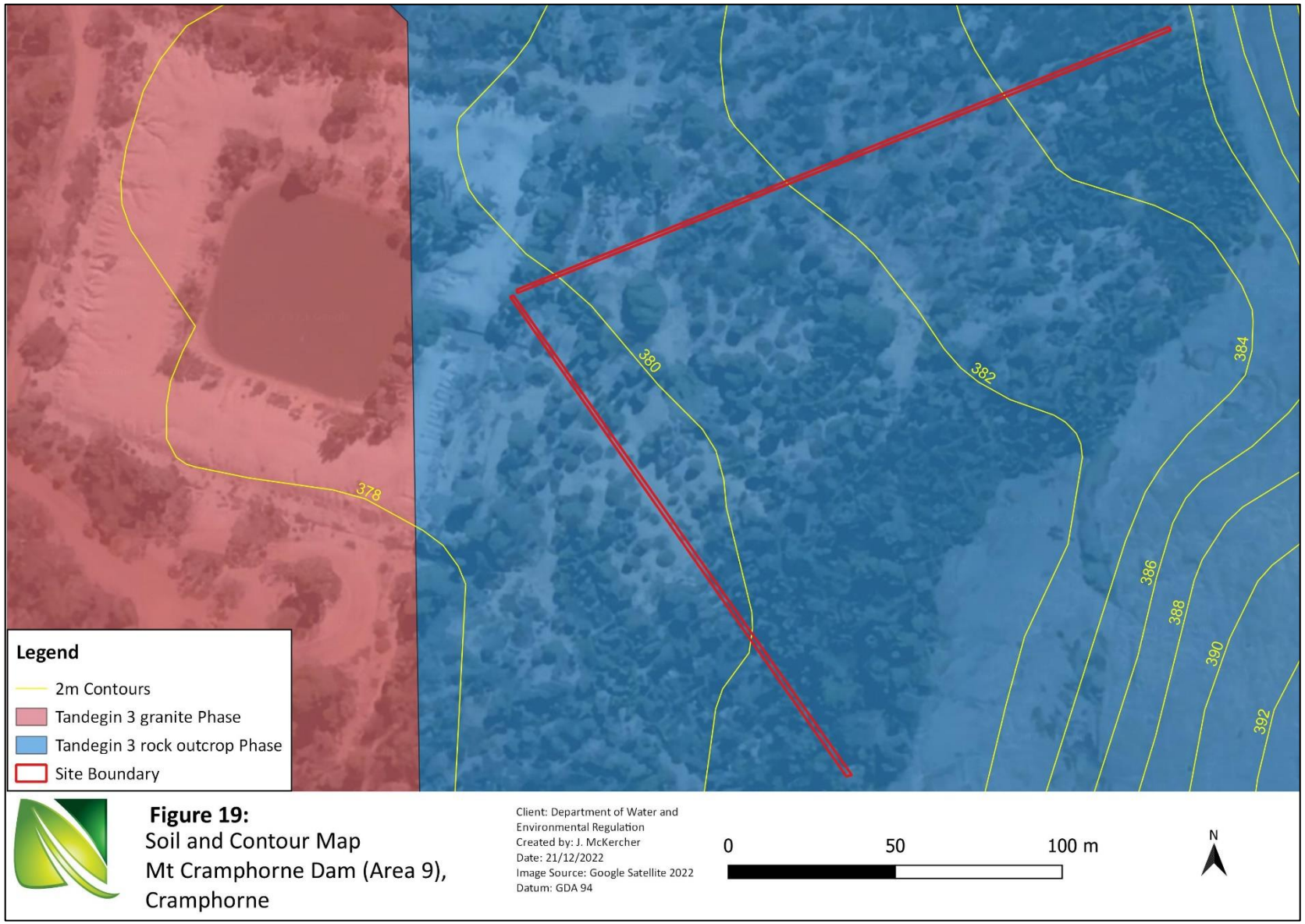


Figure 19:
Soil and Contour Map
Mt Cramphorne Dam (Area 9), Cramphorne

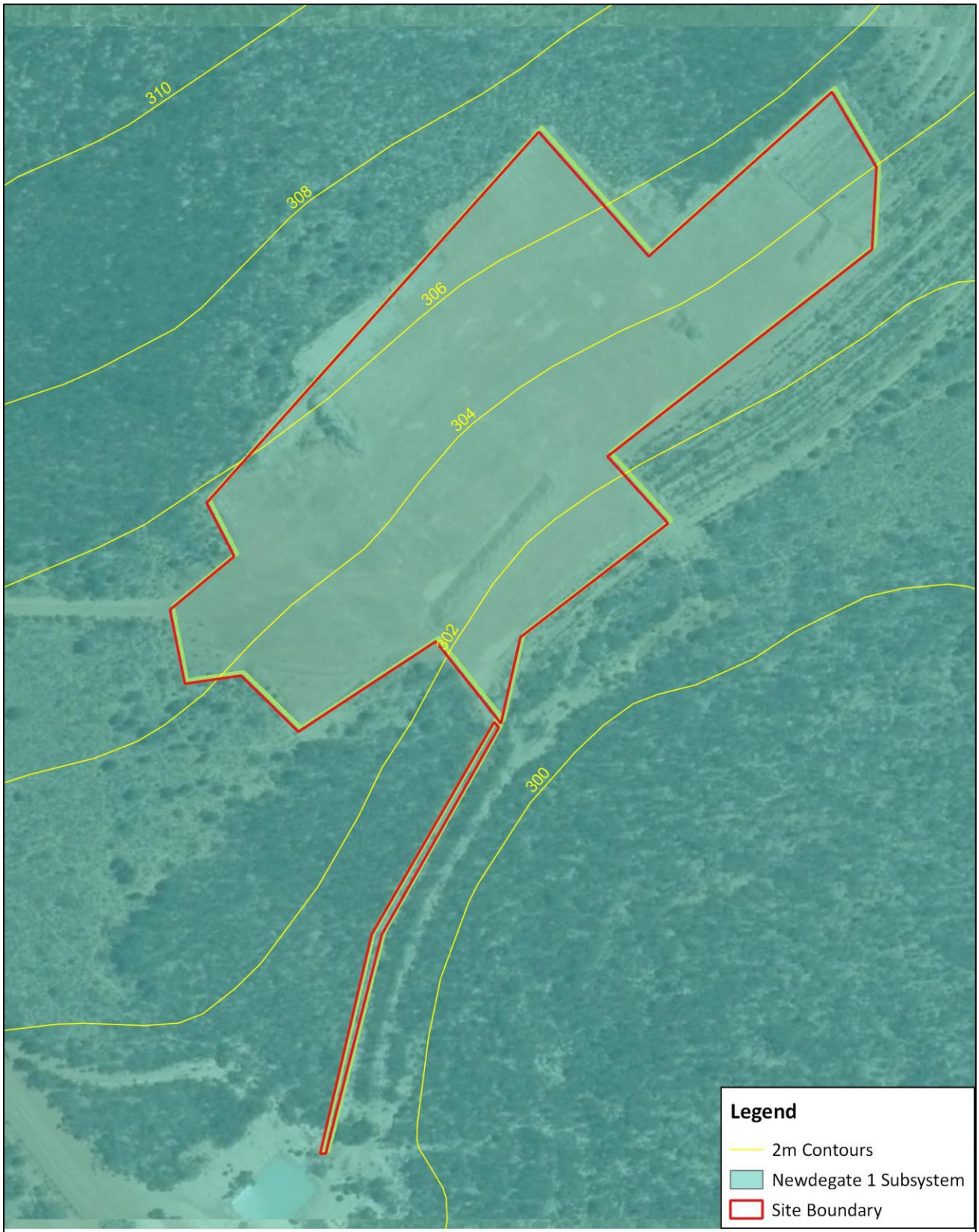


Figure 20:
Soil and Contour Map
Lake Magenta Dam
(Area 11), Magenta

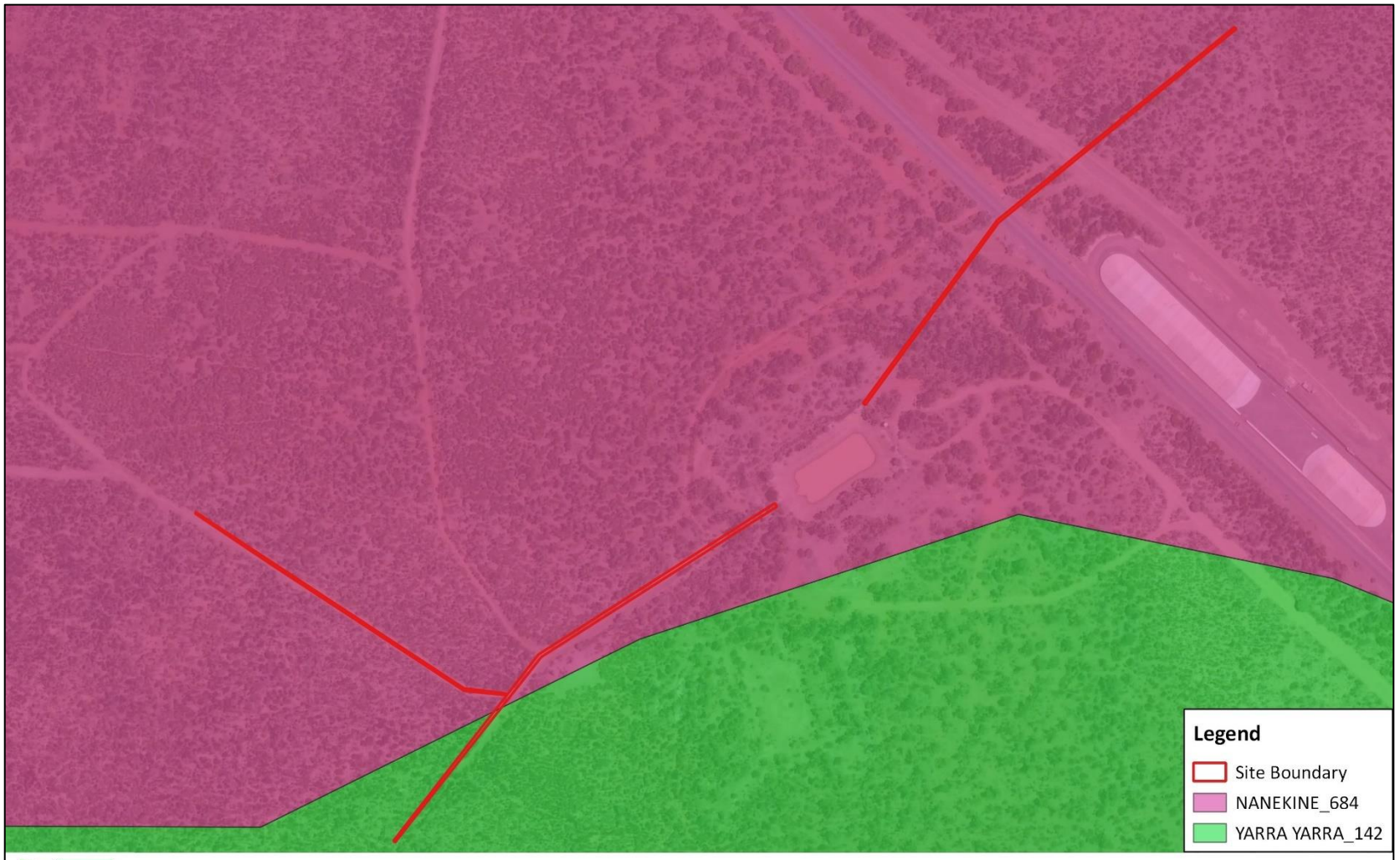


Figure 21:
Pre-European Vegetation Map
Canna Dam (Area 1), Canna

Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 21/12/2022
Image Source: Google Satellite 2022
Datum: GDA 94

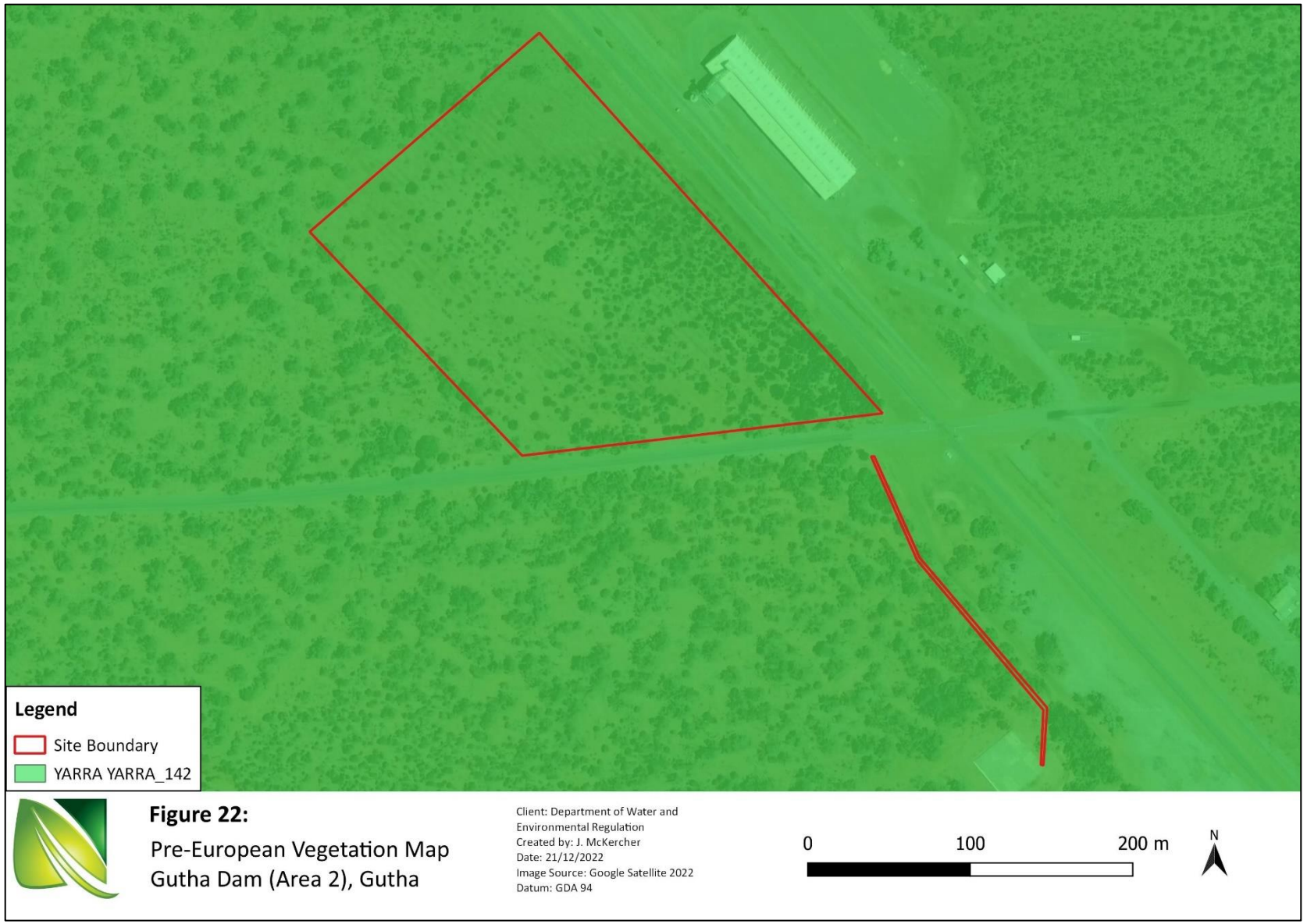


Figure 22:
Pre-European Vegetation Map
Gutha Dam (Area 2), Gutha

Figure 23:
Pre-European Vegetation Map
Perenjori Dam (Area 3), Perenjori

Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 21/12/2022
Image Source: Google Satellite 2022
Datum: GDA 94

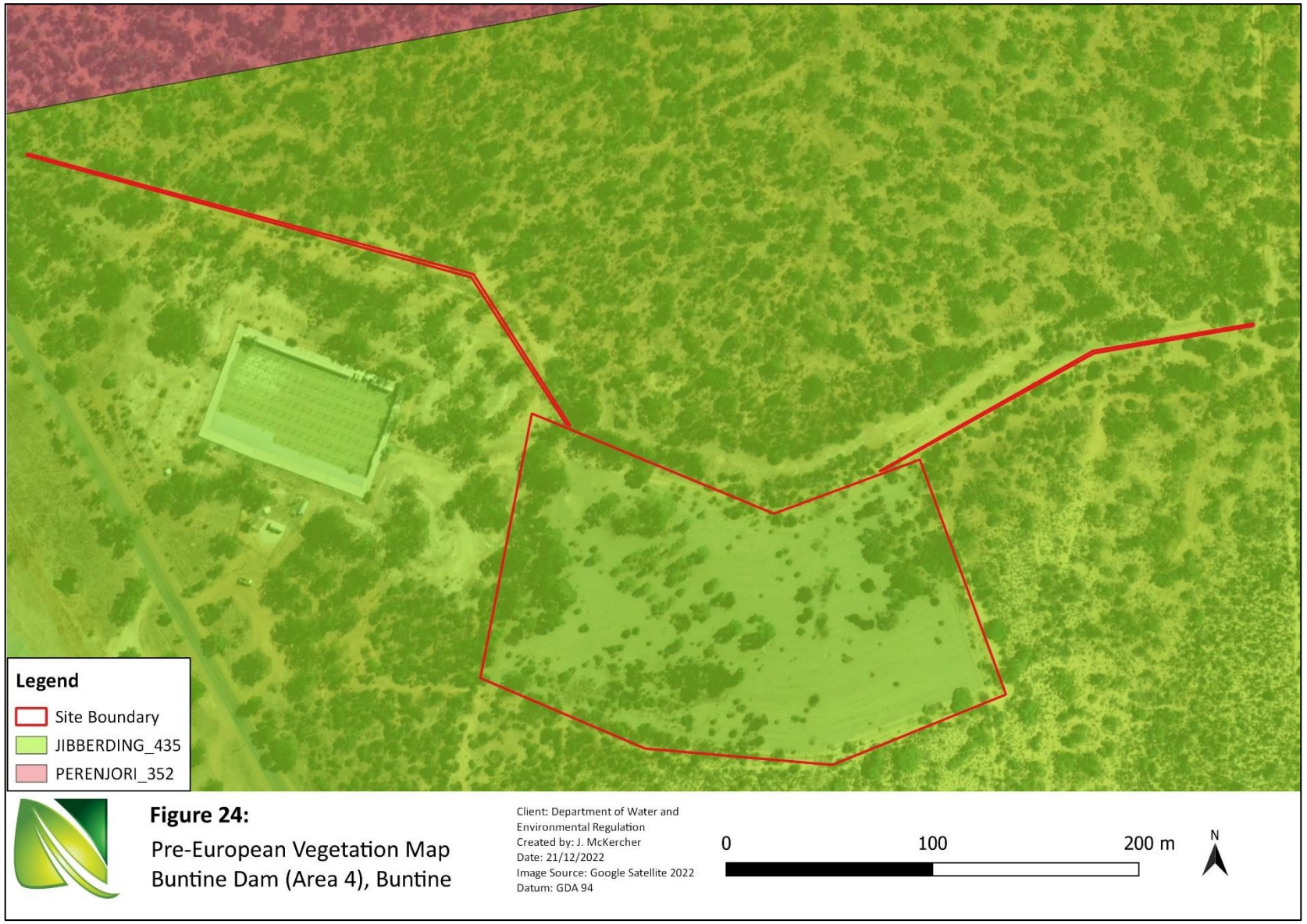


Figure 24:
Pre-European Vegetation Map
Buntine Dam (Area 4), Buntine

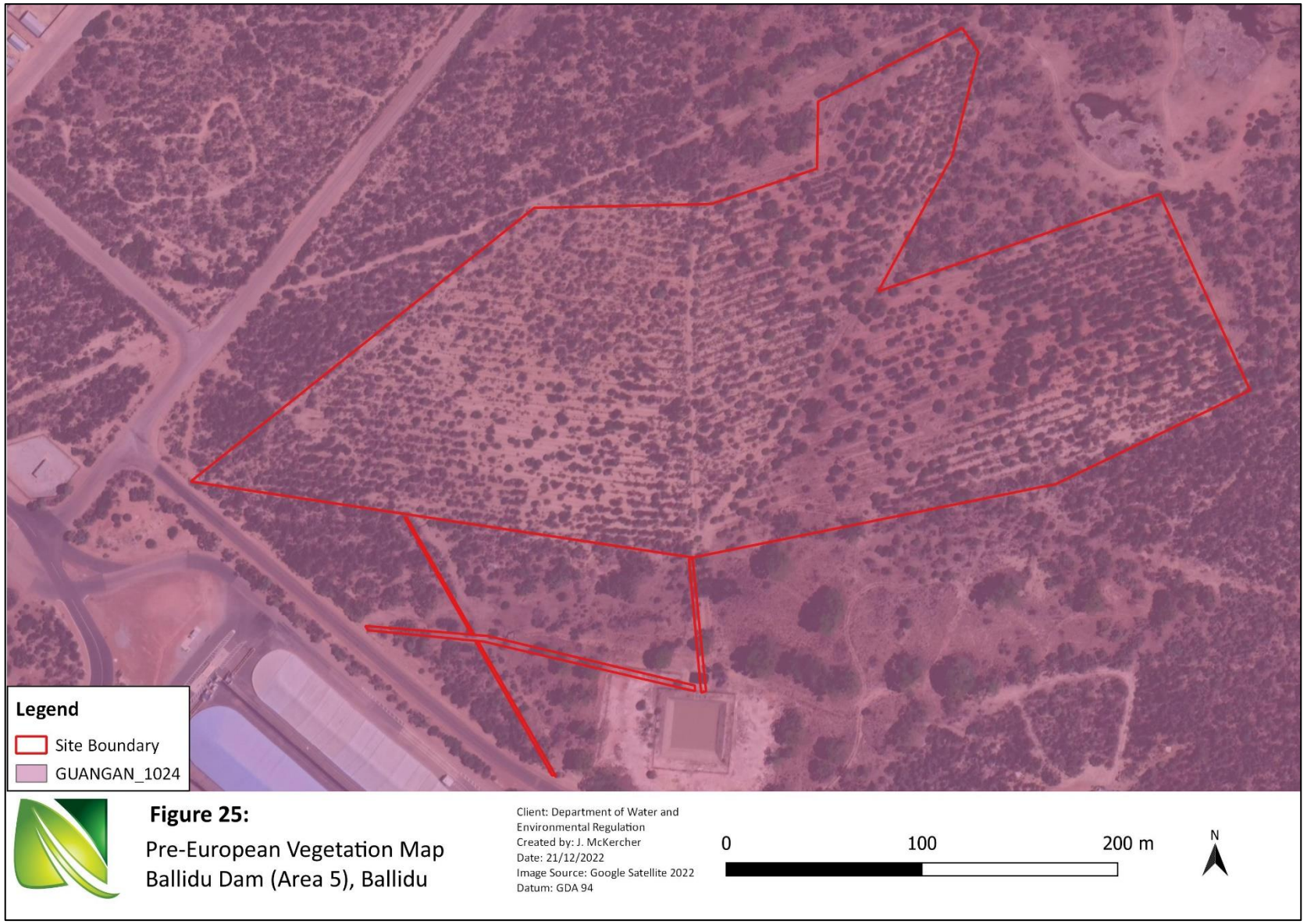


Figure 25:
Pre-European Vegetation Map
Ballidu Dam (Area 5), Ballidu

Figure 26:
Pre-European Vegetation Map
Wyalkatchem Dam (Area 6),
Wyalkatchem

Figure 27:
Pre-European Vegetation Map
Knungajin Dam (Area 7),
Nungarin

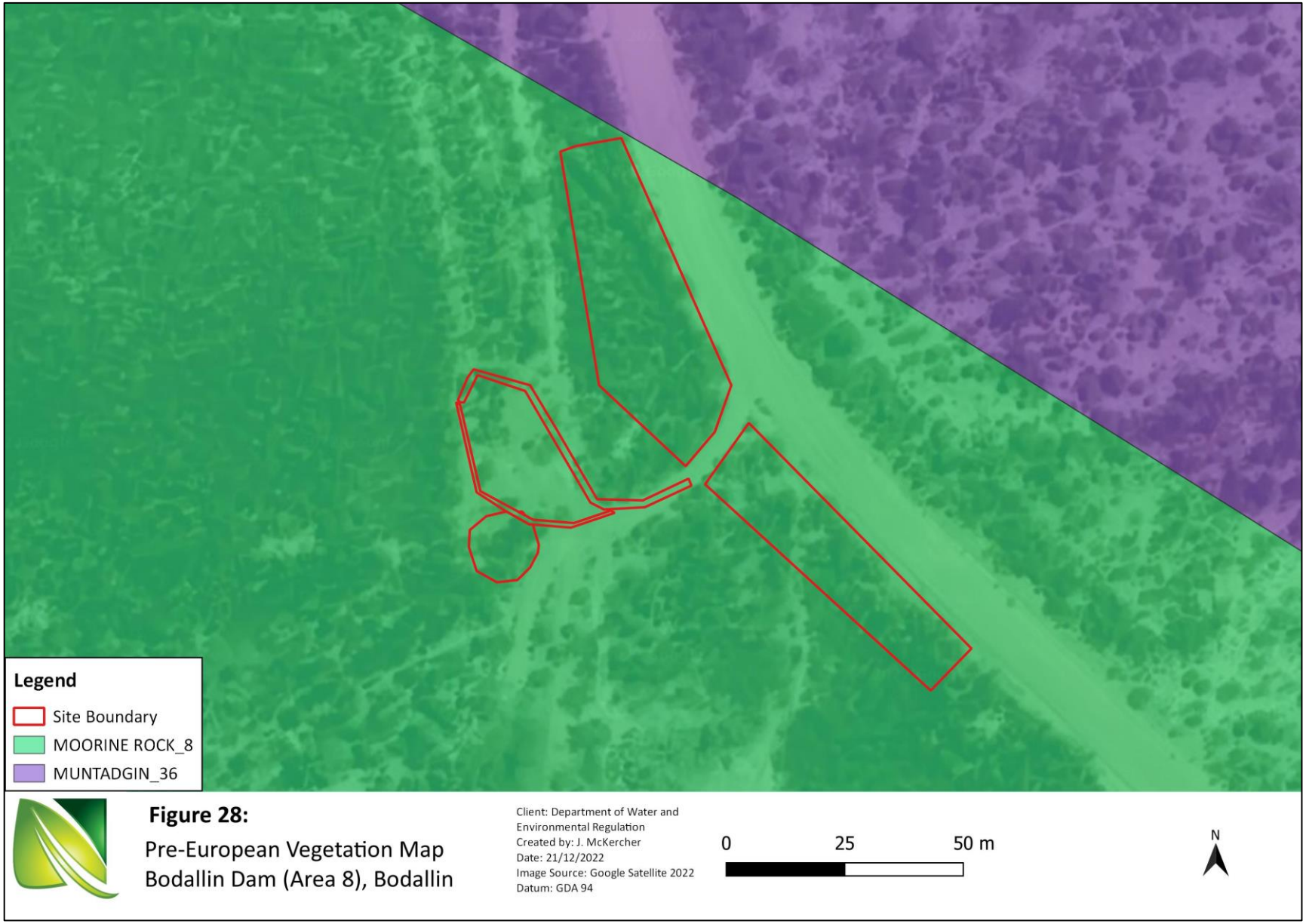

Legend
Site Boundary
MOORINE ROCK_8
MUNTADGIN_36
Figure 28:
Pre-European Vegetation Map
Bodallin Dam (Area 8), Bodallin
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 21/12/2022
Image Source: Google Satellite 2022
Datum: GDA 94
0
25
50 m
N

Figure 29:
Pre-European Vegetation Map
Mt Cramphorne Dam (Area 9), Cramphorne

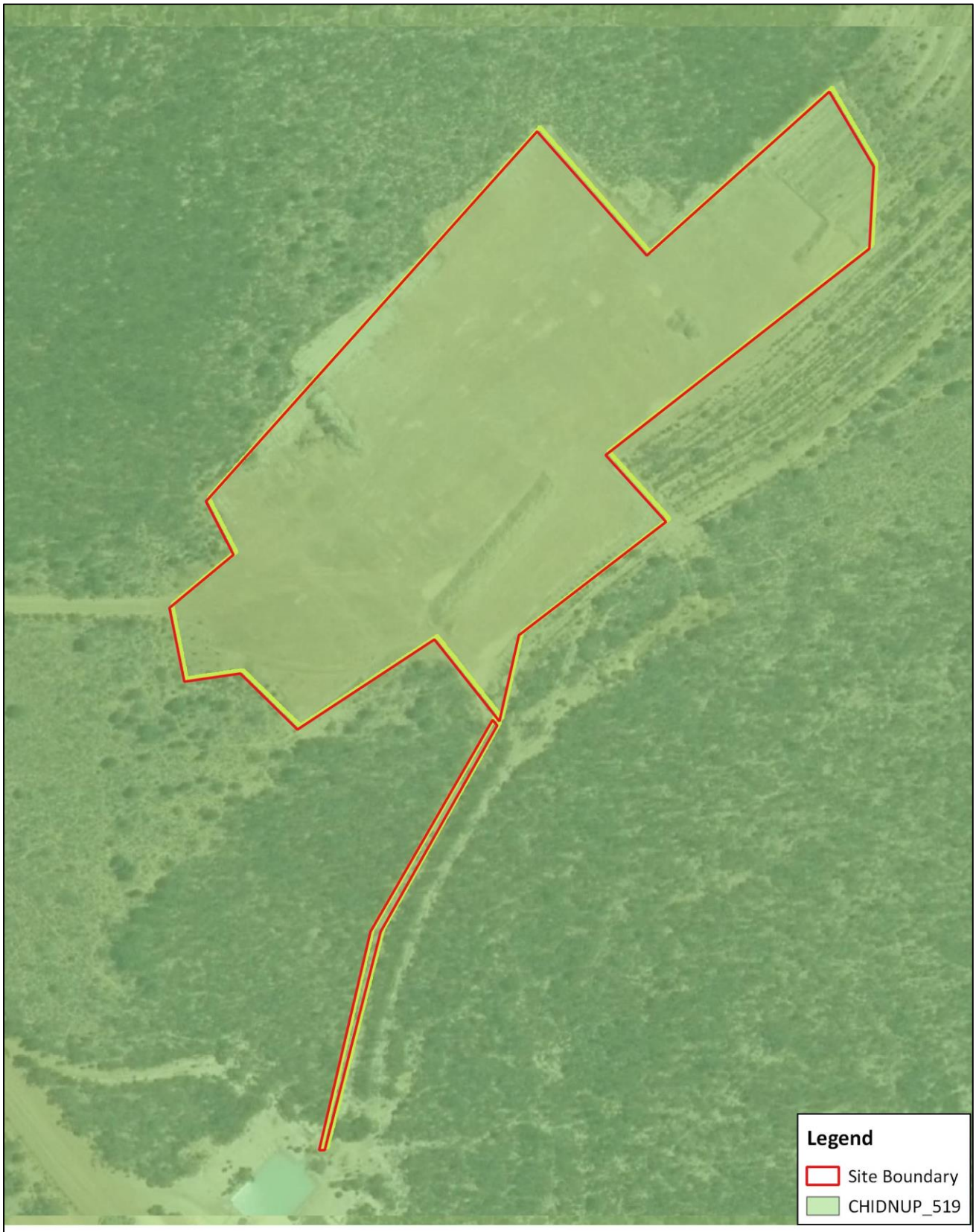


Figure 30:
Pre-European Vegetation Map
Lake Magenta Dam
(Area 11), Magenta

3.0 Methodology

3.1 Desktop and Literature Review

The desktop survey included reviewing online databases to gather contextual knowledge and determine preliminary site characteristics which include:

- likely native and non-native flora and fauna species present
- current extent of native vegetation
- general floristic community types
- likely presence of threatened or priority flora species
- likely presence of any threatened or priority ecological communities.

The following databases and client documents were accessed to obtain relevant information:

- NatureMap (DBCA, 2022c)
- PMST (DCCEEW, 2022a). These are provided as two individual reports due to limitations with the number of survey areas able to be included in each data request (Appendix 1)
- FloraBase (Western Australian Herbarium (1998-)
- Threatened and priority flora and ecological community database searches (DWER, personal communication, September 2022)
- 'Desktop assessment by site – Flora' (DWER, personal communication, 20 October 2022).

Summary sheets of threatened flora potentially occurring in the area were created as a guide in the field and are provided in Appendix 2.2. Conservation code definitions for the State and Commonwealth are provided in Appendix 3.

3.2 On-ground Flora Survey

The flora and vegetation surveys were conducted in accordance with *Technical Guidance-Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016), and included a desktop review of literature and databases. Samples were collected, or photographs taken of unfamiliar species to enable later identification.

Natural Area botanists Taryn Brebner, Tshering Chekey and Shelley Hill undertook the survey between the 24 October and 4 November 2022, with a total of ten days in the field. Key data was recorded using Mappt software on a handheld tablet. Survey works included:

- setting out a total of 34 quadrats (100 m^2 quadrats were set out across all of the survey areas with the exception of Lake Magenta where 400^2 m quadrats were used)
- photographing each quadrat in the north-west corner and recording GPS coordinates using GDA94 datum
- identification of flora species present by walking the survey area, including targeting declared rare and priority species indicated as potentially present during desktop assessments, with a focus on 19 flora species specified by DWER
- assessing boundaries of vegetation type and condition extent across the survey areas

- recording landscape characteristics including soil types/colour, aspect, slope, surface rock, leaf litter, topography and drainage using a modified recording sheets based on the NAIA templates developed for the Perth Biodiversity Project
- recording vegetation type including dominant over, middle and understorey species (Table 4) and condition using the scale attributed to Keighery (Table 5) (Government of Western Australia, 2000)
- the use of GPS to map significant species and boundaries of differing vegetation type and condition
- visual assessment of vegetation contained within adjacent properties, undertaken from the survey area boundary to determine extent of potential TEC and significant flora species
- recording evidence of disturbance, such as fire.

A targeted flora survey, in accordance with Environmental Protection Authority (2016) *Technical Guidance-Flora and Vegetation Survey for environmental Impact Assessment,* was conducted to determine the extent and locations of conservation significant flora which was identified in the original 2022 Spring survey. The targeted flora survey was conducted by Natural Area botanists, Karri Grant, and Zahra Stoney on the 16th to the 18th of October 2023. Four sites were revisited: Area 1 Canna Dams, Area 2 Gutha, Area 3 Perenjori Station, and Area 5 Ballidu during the October 2023 revisit. The survey timing was chosen to coincide with optimal flowering periods of each of the conservation significant species. Key data was recorded using Mappt software on a handheld tablet.

The following conservation significant species protected under the *Biodiversity Conservation Act 2016 (*WA) were surveyed:

- Area 1 – Canna Dams of *Stylidium pendulum* (Priority 1) listed under the State level under the *Biodiversity Conservation Act* 2016, recording locations and its abundance.
- Area 2 – Gutha of two conservation species, *Enekbatus planifolius* (Priority 1) and *Grevillea granulosa (*Priority 3). Both species are listed under the *Biodiversity Conservation Act* 2016. The targeted survey was to record the locations and its abundance.
- Area 3 – Perenjori of *Stylidium torticarpum* (Priority 3) listed under the State level under the *Biodiversity Conservation Act* 2016, recording locations and its abundance.
- Area 5 – Ballidu of two conservation species, *Balaustion baiocalyx (*Priority 1) and *Microcorys tenuifolia* (Priority 3). Both species are listed under the *Biodiversity Conservation Act* 2016. The targeted survey was to record the locations and its abundance.

3.2.1 Vegetation Type

The vegetation type was determined using the structural classes described in *Bush Forever Volume 2* (Government of Western Australia, 2000), and records dominant over, middle and understorey species. A tablet equipped with GPS mapping software (Mappt) was used to mark the change in vegetation type across the survey area. A description of the various structural classes is provided in Table 4.

Table 4: Vegetation structural classes

Life Form/Height Class	**Canopy Percentage Cover**			
	100 – 70%	**70 – 30%**	**30 – 10%**	**10 – 2 %**
Trees over 30 m	Tall closed forest	Tall open forest	Tall woodland	Tall open woodland
Trees 10 – 30 m	Closed forest	Open forest	Woodland	Open woodland
Trees under 10 m	Low closed forest	Low open forest	Low woodland	Low open woodland
Tree Mallee	Closed tree mallee	Tree mallee	Open tree mallee	Very open tree mallee
Shrub Mallee	Closed shrub mallee	Shrub mallee	Open shrub mallee	Very open shrub mallee
Shrubs over 2 m	Closed tall scrub	Tall open scrub	Tall shrubland	Tall open shrubland
Shrubs 1 – 2 m	Closed heath	Open heath	Shrubland	Open shrubland
Shrubs under 1 m	Closed low heath	Open low heath	Low shrubland	Low open shrubland
Grasses	Closed grassland	Grassland	Open grassland	Very open grassland
Herbs	Closed herbland	Herbland	Open herbland	Very open herbland
Sedges	Closed sedgeland	Sedgeland	Open sedgeland	Very open sedgeland

Source: Government of Western Australia, 2000

3.2.2 Vegetation Condition

Vegetation condition was assessed using the rating scale attributed to Keighery in *Technical Guidance-Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016). A tablet equipped with GPS mapping software (Mappt) was used to mark the change in vegetation condition across the survey area. Table 5 provides a description of the rating scale.

Table 5: Vegetation condition ratings

Category		Description
1	Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.
2	Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species. Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.
3	Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
4	Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds, partial clearing, dieback and grazing.
5	Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.
6	Completely Degraded	The structure of the vegetation is no longer intact, and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Source: EPA, 2016

3.3 Targeted Fauna Habitat Assessment

A Black Cockatoo Habitat Tree Assessment was undertaken in conjunction with other survey works at all survey areas where there were trees with a diameter at breast height (DBH) ≥ 300 mm. The Black Cockatoo habitat assessment was undertaken in accordance with the EPA 'Technical Guidance: Terrestrial vertebrate fauna surveys for environmental impact assessment' (EPA, 2020) and the 'Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo (*Zanda latirostris*), Baudin's Cockatoo (*Zanda baudinii*), Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*)' (DAWE, 2022b).

The Black Cockatoo habitat tree assessment included:

- traversing each survey area to identify potential habitat trees with a DBH ≥ 300 mm
- recording location and species of each habitat tree
- recording hollows if present along with the type and size of the hollow and direction of opening
- recording any secondary evidence of breeding, roosting and foraging activities (e.g., chew marks, feathers, chewed cones and nuts).

Opportunistic sightings for Malleefowl and Malleefowl mounds was also undertaken at each of the survey areas.

3.4 Limitations

Several limitations associated with both desktop and on-ground surveys exist. Limitations are outlined in Table 6.

Table 6: Survey limitations

Potential Limitation	Limitation	Comments
Availability of contextual information	None	Regional and local contextual information were readily available for the survey areas. All relevant resources were accessed, including NatureMap, PMST, FloraBase and the DBCA threatened and priority flora and ecological community database searches.
Competency/experience of team	None	The team who undertook the survey have extensive experience carrying out detailed flora surveys and cockatoo habitat tree assessments. Environmental Scientist/Botanist Taryn Brebner has over 5 years' experience undertaking various surveys in the Swan Coastal Plain and Wheatbelt regions. The Spring 2023 survey activities were undertaken by experienced botanists who have extensive experience undertaking detailed and targeted flora and vegetation surveys within the Swan Coastal Plain, Jarrah Forrest and Avon Wheatbelt bioregions.
Proportion of flora recorded/collected, any identification issues	Minor	A total of 497 flora species (taxa) were recorded from 59 families across ten of the survey areas, including 48 introduced (weeds) and 449 native species.

Potential Limitation	Limitation	Comments
		Of these, 20 species (4.02%) were unable to be identified to species level due to a lack of diagnostic characteristics present at the time of survey. Twelve of these species were able to be identified to genus level and three to family level, with the remaining being indistinct shrub and herb species with no diagnostic characteristics present. This is discussed further in Section 6.
Recording of threatened species locations and population extent	Minor	If a species was unable to be identified in the field, where possible samples were taken under flora licence, or photographs taken to enable later identification. The Spring 2023 survey was undertaken in accordance with EPA (2016) Technical Guidance and the plant specimens were collected and submitted to the WA Herbarium for identification.
Survey effort and extent	None	The level of survey conducted was sufficient to meet the requirements of the project. All survey areas were traversed in their entirety, with all surveys required being conducted over a period of ten days. A detailed flora and vegetation survey and/or a TEC assessment and a targeted survey for conservation significant flora was conducted at each of the survey areas based on the level of detail requested in the scope of works. Where solely a flora and vegetation survey was required, however the species present indicated the potential for a TEC, a TEC assessment was conducted. Similarly, where only a TEC assessment was required, however threatened or priority flora were identified, a targeted survey was undertaken to determine population size and extent. A Black Cockatoo habitat assessment was undertaken within each survey area, as well as searches for evidence of Malleefowl. Black cockatoo hollow assessment was conducted from the ground and is therefore limited to those hollows visible from ground level. As such, not all hollows may have been observed as new growth, dense foliage and position in the landscape can hide hollows

Potential Limitation	Limitation	Comments
		from vision. Additionally, internal hollow inspections would be required to confirm hollow characteristics such as internal hollow depth and structure and therefore their suitability to support nesting by Black Cockatoos. Areas 1 (Canna Dam), 2(Gutha), 3(Perenjori Station) and 5 (Ballidu) were resurveyed in Spring 2023 and were traversed over a two-day period. The entirety of the survey areas was traversed in a systematic grid (5 m apart) by two experienced botanists.
Access restrictions	None	No access restrictions were encountered at any of the survey areas.
Survey timing	None	The survey was undertaken within the optimal timing for the Wheatbelt and Mallee regions (Spring) and encompassed the flowering period of the majority of flora species. However, some species may flower earlier or later in the season and therefore may not be able to be identified. Of the 19 focus conservation significant flora species identified within the desktop survey, a total of 11 have flowering periods which are either outside of the survey timing or are unknown. Almost all of these species (10) are perennial shrub, sedge and herb species for which identification would have been possible outside of their flowering periods. The remaining species, *Gyrostemon reticulatus* (CR), is a fire ephemeral, requiring the occurrence of fire to initiate germination. In the absence of a fire event, the species remains within the soil seed bank but does not visibly present. No evidence of recent fire was observed within any of the survey areas, and as such there is the potential for *Gyrostemon reticulatus* to exist within the soil seed bank in the absence of active growth, inhibiting identification during survey works. The Spring 2023 targeted flora survey was undertaken in October and was therefore conducted during the optimal flowering period for these six species: ▪ *Stylidium pendulum* (Sept to Oct) ▪ *Enekbatus planifolius* (Sept to Oct) ▪ *Grevillea granulosa* (July to Oct) ▪ *Stylidium torticarpum* (Sept to Nov) ▪ *Balaustion baiocalyx*

Potential Limitation	Limitation	Comments
		▪ *Microcorys tenuifolia* (Oct to Dec).
Disturbances	None	No recent disturbances which may have had an impact on survey results, such as fire or clearing of vegetation, were noted within the survey areas.

4.0 Flora and Vegetation Results

4.1 Desktop Survey

4.1.1 Flora and vegetation survey

A desktop survey of online databases indicated the potential for a total of 447 conservation significant species to occur within 30 km of the survey areas (Appendix 2.1). NatureMap indicated 416 conservation significant flora species listed under the *Biodiversity Conservation Act 2016* (WA), as potentially occurring within 30 km radius of the survey areas (DBCA, 2022c). A review of the PMST (DCCEEW, 2022a) indicated 50 significant flora species listed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) as potentially occurring within a 30 km radius of the survey areas (Appendix 1). Conservation code descriptions are provided in Appendix 3.

All DBCA threatened and priority flora database searches were provided by DWER through personal communications on 20 October 2022. The data includes all species that have been recorded within the boundaries of each survey area. A review of this data indicated 154 threatened or priority species have been previously recorded across the survey areas.

A focus survey on 19 flora species was requested by DWER as part of this flora and vegetation survey. These species, their habitat preferences, and their likelihood of presence in each of the survey areas is summarised in Table 7.

Table 7: Focus flora species – habitat preferences and likelihood of occurrence

Species Name	Cons. code	Description	Habitat preferences	Known range	Species known to occur (DWER, personal communication, 20 October 2022) Likelihood of occurrence highlighted green									
					1	2	3	4	5	6	7	8	9	11
Androcalva adenothalia	CR	Prostrate shrub to 0.03 m high and 0.25 m wide. White flower appearing in August	Occurs in *Acacia* and *Allocasuarina* scrub with occasional mallee in orange/brown sand, gravel, and laterite	Morawa, Canna	X	X								
Beyeria disciformis	P1	-	-	Dalwallinu				X						
Brachyloma elusum	P2	-	-	Narembeen to Kondinin									X	
Chamelaucium repens	P3	-	-	Morawa	X	X								
Cheyniana rhodella	P2	-	-	Greater Geraldton to Morawa	X	X								
Dasymalla axillaris (Native Foxglove)	CR	Diffuse shrub 0.15-0.3 m high. Stems, leaves and calyx covered in white woolly hairs. Flowers are red, pink, or scarlet, produced in July to December	Found in disturbed areas with yellow sandy soils in *Acacia* and *Allocasuarina* scrub	Morawa to Wongan-Ballidu			X	X						
Enekbatus planifolius	P1	Spreading shrub, to 1.1 m high. Flowers pink, September to October.	Orange-brown fine silty sand. On gentle slopes.	Morawa	X	X								

Species Name	Cons. code	Description	Habitat preferences	Known range	Species known to occur (DWER, personal communication, 20 October 2022) Likelihood of occurrence highlighted green									
					1	2	3	4	5	6	7	8	9	11
Eremophila rarissima	P1	-	-	Wongan-Ballidu to Kulin					X					
Eremophila rostrata subsp. *trifida* (Beaked Eremophila)	CR	Shrub to 3 m high, with a three-parted leaf apex. Flowers pink, June to October.	Found in open shrubland and occasional mallee woodland with *Acacia*, *Eremophila* and *Ptilotus* species. Hard, light brown, sandy loams, granite	Perenjori to Dalwallinu			X							
Eucalyptus synandra (Jingymia Mallee)	VU	Mallee 3.5-10 m high, bark smooth. Flowers cream and pink, August or December or January to March	Grows on sandy & lateritic soils with heath and scrub of *Eucalyptus*, *Acacia,* and *Hakea*	Greater Geraldton to Koorda	X	X								
Grevillea dryandroides subsp. *dryandroides*	CR	Lightly suckering shrub, 0.1-0.5 m high. Flowers red/pink to red, September to October or February	Found in open heath with shrubs of *Allocasuarina* and *Melaleuca*, on yellow sand and grey sandy loam and gravel	Wubin to Ballidu					X					
Grevillea involucrata (Lake Varley Grevillea)	EN	Prostrate to low-domed open shrub, 0.15-0.3 m high, up to 2 m wide. Flowers pink/pink to red, June or October	Gravelly sand in mallee heath	Kulin to Kent										X

Species Name	Cons. code	Description	Habitat preferences	Known range	Species known to occur (DWER, personal communication, 20 October 2022) Likelihood of occurrence highlighted green									
					1	2	3	4	5	6	7	8	9	11
Grevillea nana subsp. *abbreviata*	P2	Low, often prostrate, spreading, irregular shrub, 0.2-0.5 m high, up to 2 m wide. Flowers pink-orange-yellow-red, September to October.	Sand, sandy loam.	Dalwallinu to Mukinbudin				X						
Gyrostemon reticulatus	CR	Shrub up to 1 m high with crowded, linear leaves. Leaves circular and sometimes have hooked tips. Germinates after fire	Dense shrubland with *Melaleuca* species, *Acacia acuminata* and *Allocasuarina campestris* on yellow-brown sandy slopes	Greater Geraldton to Koorda	X	X								
Hibbertia carinata	P1	Shrub, to 0.4 m high. Flowers yellow, August to September.	Well-drained gravelly sand, yellow sand with gravel.	Lake Grace to Esperance										X
Lepidosperma sp. Billyacatting	P2	-	-	Trayning to Narembeen									X	
Myoporum cordifolium	T	Spindly, erect shrub, 0.3-0.8 m high. Flowers white/white-pink, July to November	Found in mallee and open eucalypt woodland in sandy loam or clay loam	Ongerup to Jerramungup										
Ricinocarpos oliganthus	P1	Monoecious shrub, to 1.8 m high.	Gravelly, red-brown clay loam.	Morawa	X	X								
Thelymitra psammophila	T	Tuberous, perennial, herb 0.15-0.25 m high. Flowers yellow, September to October	Grows in open heath and sedges on seasonally wet sandy clay and loam	Lake Grace and										

Species Name	Cons. code	Description	Habitat preferences	Known range	Species known to occur (DWER, personal communication, 20 October 2022) Likelihood of occurrence highlighted green									
					1	2	3	4	5	6	7	8	9	11
(Sandplain Sun Orchid)				Jerramungup area										

Source: Western Australian Herbarium (1998-); (DWER, personal communication, 20 October 2022); Department of Environment and Conservation (DEC) (2013); DEC (2008); DEC (2003); DEC (2012); DEC (2009a), DEC (2009b); Department of the Environment, Water, Heritage and the Arts. (2008a, 2008b); Department of the Environment (DoE) (2016)

4.1.2 Threatened and Priority Ecological Communities

A review of the PMST reports identified one listed TEC, the 'Eucalypt Woodlands of the Western Australian Wheatbelt', that is likely to occur within 30 km of each of the survey areas (DCCEEW, 2022a). This TEC is endemic to southwestern Western Australia and is listed as Critically Endangered. Eucalypt Woodlands were once extensive throughout the Wheatbelt but now occur mostly as scattered remnants. This TEC is found within the flatter landscapes and lower rises of the Wheatbelt and has a predominantly open Eucalypt canopy with a variable understorey ranging from shrubs to grasses, herbs and wildflowers to largely bare ground (Commonwealth of Australia, 2016; DoE, 2015).

4.2 Field Survey

Examples of native flora and weed species found within some of the survey areas are shown in Figures 31 and 32. A complete flora species list and quadrat data results are provided in Appendix 14 and 15 respectively. Results of field surveys are reported in the following subsections and have been discussed individually per survey area.

Seringia hermanniifolia
(Crinkle-leaved firebush)

Waitzia acuminata
var. *acuminata*

Cheiranthera simplicifolia

Ptilotus exaltatus
(Tall Mulla Mulla)

Dampiera wellsiana
(Wells' Dampiera)

Glischrocaryon flavescens

Figure 31: Examples of native flora species recorded within the survey areas

Cape Weed
(**Arctotheca calendula*)

Cape Bluebell
(**Wahlenbergia capensis*)

Paterson's Curse
(**Echium plantagineum*)

Wild Radish
(**Raphanus raphanistrum*)

Maltese Cockspur
(**Centaurea melitensis*)

Red Brome
(**Bromus rubens*)

Figure 32: Examples of introduced flora species recorded within the survey areas

4.2.1 Canna Dams (Area 1)

A detailed flora and vegetation survey and TEC assessment involving the establishment of three quadrats (Appendix 4) was undertaken by Natural Area within the survey area.

4.2.1.1 Flora

A total of 133 flora species (taxa) were recorded from 37 families, including 17 introduced (weeds) and 116 native species. No Declared Pests or WoNS were identified within the survey area.

4.2.1.2 Vegetation Type and Condition

Two vegetation types were recorded within the survey area, being *Acacia acuminata* and *Melaleuca* spp. Open Shrubland occurring within the south-western portion of the survey area, and *Eucalyptus loxophleba* subsp. *loxophleba* Open Low Forest occurring within the north-eastern portion of the survey area. Vegetation types are described in Table 8. Vegetation condition throughout the survey boundary was classified as Good. Vegetation type and condition maps are provided in Appendix 4.

Table 8: Vegetation types within Canna Dam

Vegetation Type	Description	Photograph
Acacia acuminata and *Melaleuca* spp. Open Shrubland	An Open Shrubland dominated by *Acacia acuminata* and *Melaleuca* species over an understorey of *Waitzia acuminata* var. *acuminata* and other mixed native herbs and grasses.	
Eucalyptus loxophleba subsp. *loxophleba* Open Low Forest	An Open Low Forest of *Eucalyptus loxophleba* subsp. *loxophleba* over native herbs including *Waitzia acuminata* var. *acuminata* and *Podolepis aristata* other mixed native herbs and grasses.	

4.2.1.3 Significant Flora

One conservation significant flora species was identified within the survey area; *Stylidium pendulum*, which is listed as a Priority 1 species under the *Biodiversity Conservation Act 2016* (WA) (*BC Act 2016*) (Figure 33). This species was observed within the *Acacia acuminata* and *Melaleuca* spp. Open Shrubland vegetation type, however precise locations were not recorded as identification was made post field survey works (Appendix 4). Canna Dams was resurveyed in October 2023 and no individuals of the *Stylidium pendulum* were recorded on site. A *Stylidium* sp. was identified throughout the survey, positive identification could not be made due to the life stage during the 2023 survey. A total of 72 individuals of the *Stylidium* sp. were recorded throughout the survey area.

Stylidium pendulum – P1

Figure 33: Significant flora identified within the Canna Dam

4.2.1.4 Threatened Ecological Communities

Due to the potential for the TEC 'Eucalypt Woodlands of the Western Australian Wheatbelt' to occur within the survey area of Canna Dams, as indicated by the desktop survey, a TEC assessment was required.

The potential ecological community surveyed was in association with the *Eucalyptus loxophleba* subsp. *loxophleba* Open Low Forest vegetation type identified within the survey area. The vegetation type and quadrats surveyed met the requirements listed in the listing advice (Table 9) for the 'Eucalyptus Woodland of the Western Australian Wheatbelt' TEC as outlined in the *Approved Conservation Advice* (DoE, 2015). The extended portion of Eucalypt Woodland surrounding the survey boundary of Canna Dams was determined based on a visual assessment to also comprise this TEC and covers an approximate area of 4.855 ha. When the extended portion of the Eucalypt Woodland is included in the TEC assessment, the combined area meets the minimum patch size and condition criteria in the Good category. As a result, the survey area was determined to meet the requirements for the Eucalyptus Woodlands TEC when including the extended portion.

Table 9: Key Diagnostic Characteristics for determining Eucalyptus Woodland of the Western Australian Wheatbelt

Key Diagnostic Characteristics	Description	Site Specifics	Met Criteria
Local and Physical Environment	Occurs within: ▪ Avon Wheatbelt subregion Merredin ▪ Avon Wheatbelt subregion Katanning ▪ Mallee subregion Western Mallee	Yes, Canna Dams occur within the Avon Wheatbelt subregion – Merredin.	Yes
Structure	Dominated by a canopy of *Eucalyptus* spp. as a tree or mallet habits (Table 2 from the *Approved Conservation Advice,* 2015*)*	Yes, Canna Dam is dominated by *Eucalyptus loxophleba* subsp. *loxophleba* which is listed as a key species in Table 2.	Yes

Key Diagnostic Characteristics	Description	Site Specifics	Met Criteria
	A minimum of 10% crown cover for the tree canopy within the woodland	In the quadrats for Canna Dam, *Eucalyptus loxophleba* subsp. l*oxophleba* covered 50-70% of the canopy. This exceeds the minimum requirement.	Yes
Composition	Native understorey is present but variable composition and a combination of grass, herbs, and shrubs (Table A1 from *Approved Conservation Advice,* 2015)	Dominant species present included: ▪ *Acacia acuaria* ▪ *Melaleuca adnata* ▪ *Waitzia acuminata* var*. acuminata* ▪ *Rhagodia preissii* subsp*. preissii* ▪ *Austrostipa elegantissima* ▪ *Rytidosperma caespitosum.*	Yes
Patch Size and Condition	Condition thresholds for the Eucalyptus Woodlands of the Western Australian Wheatbelt TEC/PEC in Table 10	There is 0.065 ha of the vegetation type *Eucalyptus loxophleba* subsp. l*oxophleba* Open Low Forest present within the survey area, all in Good condition. Alone this does not meet the minimum patch size and condition requirements to be a TEC. However, with the extended portion (visual assessment Eucalyptus Woodlands) there is additional areas in potentially Good condition (estimation of 4.855 ha) that would enable the minimum patch size and condition criteria to be met.	Yes, only with the extended portion of vegetation mapped.

Source: DoE, 2015

Table 10: Condition thresholds for the Eucalyptus Woodlands of the Western Australian Wheatbelt TEC/PEC. Green denotes the vegetation thresholds applicable to this TEC assessment

Vegetation Condition	Minimum Patch Size	Weeds	Trees
Excellent to Very Good	2 ha	0-30% understorey weed cover	Mature trees may be present of absent
Good	2 ha	30-50% understorey weed cover	5 mature trees (DBH >300 mm) per half hectare
Degraded	5 ha	50-70% understorey weed cover	5 mature trees (DBH >300 mm) per half hectare

Source: DoE, 2015

4.2.2 Gutha (Area 2)

A detailed flora and vegetation survey and TEC assessment involving the establishment of six quadrats was undertaken by Natural Area within the survey area.

4.2.2.1 Flora

A total of 89 flora species (taxa) were recorded from 27 families during the field survey, including 15 introduced (weeds) and 74 native species (Appendix 5). One species within this survey area was identified to genus level only, *Calandrinia* sp., due to a lack of diagnostic characteristics present at the time of survey. An assessment of the likelihood of this species being of significance is provided in Section 6.1 below.

One Declared Pest and WoNS was identified within the survey area: Paterson's Curse (**Echium plantagineum*). The species was recorded at 14 locations (Appendix 5). Declared Pests are listed on the Western Australian Organism List (WAOL) under the *Biosecurity and Agriculture Management Act 2007* (WA) (*BAM Act 2007*) (DPIRD, 2021). This classification requires the landowner/land manager to control the population to limit damage as a result of the presence of these species (DPIRD, 2019).

4.2.2.2 Vegetation Type

Two vegetation types were recorded within the survey area: *Acacia* spp. Mixed Shrubland occurring within the entirety of the catchment area and *Eucalyptus loxophleba* subsp. *loxophleba* Open Forest occurring within the channel to the east of the catchment area. Vegetation types are described in Table 11 and maps are provided in Appendix 5.

Table 11: Vegetation types within Gutha Dam

Vegetation Type	Description	Photograph
Acacia spp. Mixed Shrubland	A mixed Shrubland dominated by *Acacia* species over native herbs including *Waitzia acuminata* var. *acuminata* and *Ptilotus gaudichaudii.*	

Eucalyptus loxophleba subsp. *loxophleba* Open Forest	An Open Forest of *Eucalyptus loxophleba* subsp. *loxophleba* over *Atriplex* sp. and *Waitzia acuminata* var. *acuminata.*	

4.2.2.3 Vegetation Condition

Vegetation condition with the survey boundary ranges from Good to Degraded, with the highest vegetation condition located within the east of the catchment area and along the channel (Table 12). Vegetation condition maps are provided in Appendix 5.

Table 12: Vegetation condition within Gutha Dam

Vegetation Condition	Pristine	Excellent	Very Good	Good	Degraded	Completely Degraded	Total
Area (ha)	0	0	0	2.34	2.33	0	4.67
Area (%)	0	0	0	50.1	49.9	0	100

4.2.2.4 Significant Flora

A total of two conservation significant flora species were identified within the survey area: *Enekbatus planifolius* and *Grevillea granulosa* (Figure 34). These are listed as a Priority 1 and Priority 3 species respectively under the *BC Act 2016*. Both species were identified within the *Acacia* spp. Mixed Shrubland vegetation type (Appendix 5). During the October 2023 targeted survey, four *Grevillea granulosa* individuals were identified throughout the sit while no individuals of *Enekbatus planifolius* were recorded.

Enekbatus planifolius – P1

Grevillea granulosa – P3

Figure 34: Significant flora identified within Gutha Dam

4.2.2.5 Threatened Ecological Communities

A TEC assessment was not required to determine the likely presence of 'Eucalypt Woodlands of the Western Australian Wheatbelt' within the survey area of Gutha. However, the flora and vegetation survey conducted identified the potential for the occurrence on this TEC as a result of the vegetation types and dominant species identified.

The potential ecological community surveyed was in association with the Open Forest of *Eucalyptus loxophleba* subsp. *loxophleba*. This vegetation type was found to meet all key diagnostic characteristics, minimum patch size and the condition thresholds (Table 13). Additionally, the extended portion of Eucalyptus Woodland surrounding the survey boundary of Gutha was determined based on a visual assessment to also be characteristic of this TEC. This area covers approximately 111.109 ha of the surrounding vegetation based on the visual assessment. As a result, the survey area was determined to meet the requirements for the Eucalyptus Woodlands TEC when including the extended portion.

Table 13: Key Diagnostic Characteristics for determining Eucalyptus Woodland of the Western Australian Wheatbelt.

Key Diagnostic Characteristics	Description	Site Specifics	Met Criteria
Local and Physical Environment	Occurs within: ▪ Avon Wheatbelt subregion Merredin ▪ Avon Wheatbelt subregion Katanning ▪ Mallee subregion Western Mallee	Yes, Gutha occur within the Avon Wheatbelt subregion – Merredin.	Yes
Structure	Dominated by a canopy of Eucalyptus spp. as a tree or mallet habits (Table 2 from the *Approved Conservation Advice,* 2015*)*	Yes, the survey area of Gutha is dominated by *Eucalyptus loxophleba* subsp. *loxophleba* which is listed a key species in Table 2.	Yes
	A minimum of 10% crown cover for the tree canopy within the woodland	In the quadrats for the vegetation type, Open Forest of *Eucalyptus loxophleba* subsp. l*oxophleba,* all had a tree canopy over 45%	Yes – all quadrats
Composition	Native understorey is present but variable composition and a combination of grass, herbs, and shrubs. (Table A1 from *Approved Conservation Advice,* 2015)	Dominant species present included: ▪ *Comesperma integerrimum* ▪ *Amphipogon caricinus* ▪ *Waitzia acuminata* var. *acuminata* ▪ *Atriplex paludosa* ▪ *Austrostipa elegantissima* ▪ *Eucalyptus moderata*	Yes
Patch Size and Condition	Condition thresholds for the Eucalyptus Woodlands of the Western Australian Wheatbelt TEC/PEC in Table 14	The vegetation type *Eucalyptus loxophleba* subsp. l*oxophleba* Open Forest with the extended Eucalypt Woodland portion outside of the survey boundary meets the minimum patch size and condition criteria as per Table 14. There is 0.045 ha of the vegetation type *Eucalyptus loxophleba* subsp. l*oxophleba*	Yes

Key Diagnostic Characteristics	Description	Site Specifics	Met Criteria
		Open Forest present within the survey area, all in Good condition. Alone this does not meet the minimum patch size and condition requirements to be a TEC. However, with the extended portion (visual assessment Eucalyptus Woodlands) there is an additional area potentially in Very Good condition (estimation of 111.109 ha) which would enable the minimum patch size and condition criteria to be met.	

Source: DoE, 2015

Table 14: Condition thresholds for the Eucalyptus Woodlands of the Western Australian Wheatbelt TEC/PEC. Green denotes the vegetation thresholds applicable to this TEC assessment.

Vegetation Condition	Minimum Patch Size	Weeds	Trees
Excellent to Very Good	2 ha	0-30% understorey weed cover	Mature trees may be present of absent
Good	2 ha	30-50% understorey weed cover	5 mature trees (DBH >300 mm) per half hectare
Degraded	5 ha (meets requirements when vegetation outside of the survey boundary is incorporated)	50-70% understorey weed cover	5 mature trees (DBH >300 mm) per half hectare

Source: DoE, 2015

4.2.3 Perenjori Station (Area 3)

A detailed flora and vegetation survey and TEC assessment involving the establishment of six quadrats (Appendix 6) was undertaken by Natural Area within the survey area.

4.2.3.1 Flora

A total of 117 flora species (taxa) were recorded from 34 families during the field survey, including 11 introduced (weeds) and 106 native species. A total of four species were identified to genus level only due to a lack of diagnostic characteristics present at the time of survey: *Caesia* sp., *Eucalyptus* sp., *Psammomoya* sp. and *Thysanotus* sp. An assessment of the likelihood of these species being of significance is provided in Section 6.1 below.

One Declared Pest and WoNS was identified within the survey area: Paterson's Curse (**Echium plantagineum*). The species was recorded at 12 locations (Appendix 6). Declared Pests are listed on the WAOL under the *BAM Act 2007* (WA) (DPIRD, 2021). This classification requires the landowner/land manager to control the population to limit damage as a result of the presence of these species (DPIRD, 2019).

4.2.3.2 Vegetation Type

Two vegetation types were recorded within the survey area: *Eucalyptus* sp. Woodland occurring within the south-eastern catchment area and drainage channels, and Mixed *Melaleuca* spp. Shrubland occurring within the north-western catchment area. Vegetation types are described in Table 15 and maps provided in Appendix 6.

Table 15: Vegetation type within Perenjori Station

Vegetation Type	Description	Photograph
Eucalyptus sp. Woodland	A Woodland of *Eucalyptus* sp. over mixed *Acacia* species, *Waitzia acuminata* var. *acuminata* and *Ptilotus polystachyus*	
Mixed *Melaleuca* spp. Shrubland	A Shrubland of mixed *Melaleuca* species over *Dampiera lavandulacea*, *Amphipogon caricinus* and mixed native herbs.	

4.2.3.3 Vegetation Condition

Vegetation condition within the survey area ranged from Degraded to Good (Table 16). The majority of the survey area was in a Good condition, being associated with the areas of Mixed *Melaleuca* spp. Shrubland. Vegetation condition maps are provided in Appendix 6.

Table 16: Vegetation condition within Perenjori Station

Vegetation Condition	Pristine	Excellent	Very Good	Good	Degraded	Completely Degraded	Total
Area (ha)	0	0	0	9.08	3.44	0	12.52
Area (%)	0	0	0	72.5	27.5	0	100

4.2.3.4 Significant Flora

A total of three conservation significant flora species were identified within the survey area: *Grevillea granulosa*, *Grevillea asparagoides* and *Stylidium torticarpum* (Figure 35). These species are all listed as Priority 3 under the *BC Act 2016*. All three species were identified within the Mixed *Melaleuca* spp. Shrubland vegetation type, being found predominantly within the north-western catchment area, however a few individuals were also identified within the southern portion of the western drainage channel (Appendix 6). A total of 106 *Grevillea granulosa* individuals and three *Grevillea asparagoides* individuals were recorded within the survey area. As identification of was *Stylidium torticarpum* made following 2022 survey activities, precise locations and species numbers were not recorded. The area was resurveyed in October 2023 however, no individuals of *Stylidium torticarpum* were recorded on site at the time of the survey, despite the survey being conducted during recommended surveying period.

Stylidium torticarpum – P3

Grevillea asparagoides – P3

Figure 35: Significant flora identified within Perenjori Station

4.2.3.5 Threatened Ecological Communities

Due to the potential for the TEC 'Eucalypt Woodlands of the Western Australian Wheatbelt' to occur within the survey area of Perenjori Station, as indicated by the desktop survey, a TEC assessment was required.

The potential ecological community surveyed was in association with *Eucalyptus* sp. Woodland vegetation type identified within the survey area. The *Eucalyptus* sp. was unable to be identified due to limited diagnostic features present, however is considered likely to be a listed Eucalypt species on Table 2 of the *Approved Conservation Advice* (DoE, 2015) and as such tentatively meets the TEC structure requirements. The survey area met the criteria for composition (Table 17).

The extended portion of Eucalypt Woodland surrounding the survey boundary of Perenjori Station was determined based on a visual assessment to also comprise this TEC and covers an area of approximately 4.101 ha. When the extended portion of the Eucalypt Woodland is included in the assessment, the combined area meets the minimum patch size and condition criteria in the Good category. As a result, the survey area was determined to meet the requirements for the Eucalyptus Woodlands TEC when including the extended portion.

Table 17: Key Diagnostic Characteristics for determining Eucalyptus Woodland of the Western Australian Wheatbelt.

Key Diagnostic Characteristics	Description	Site Specifics	Met Criteria
Local and Physical Environment	Occurs within: ▪ Avon Wheatbelt subregion Merredin ▪ Avon Wheatbelt subregion Katanning ▪ Mallee subregion Western Mallee	Yes, the survey area of Perenjori Station occurs within the Avon Wheatbelt subregion – Merredin.	Yes
Structure	Dominated by a canopy of Eucalyptus spp. as a tree or mallet habits (Table 2 from the *Approved Conservation Advice,* 2015*)*	The survey area of Perenjori Station is dominated by *Eucalyptus* sp. This species was unable to be identified due to limited diagnostic features present during the time of survey. It is considered likely this species would be listed on Table 2 from the *Approved Conservation Advice, 2015.*	High likelihood of meeting criterion
	A minimum of 10% crown cover for the tree canopy within the woodland	In the *Eucalyptus* sp. quadrats, Quadrat 1 had a tree canopy of 40% while Quadrats 2 and 3 only had a canopy of 5%.	Yes – however, only Eucalyptus sp. Woodland Quadrat 1
Composition	Native understorey is present but variable composition and a combination of grass, herbs,	Dominant species present included: ▪ *Acacia acuaria* ▪ *Acacia acuminata*	Yes

Key Diagnostic Characteristics	Description	Site Specifics	Met Criteria
	and shrubs. (Table A1 from *Approved Conservation Advice,* 2015)	▪ *Enchylaena tomentosa* ▪ *Waitzia acuminata* var*. acuminata* ▪ *Austrostipa elegantissima*	
Patch Size and Condition	Condition thresholds for the Eucalyptus Woodlands of the Western Australian Wheatbelt TEC/PEC in Table 18	The vegetation type *Eucalyptus* sp. Woodland when including the extended portion meets the minimum patch size and condition criteria as per Table 18. There is 3.88 ha of the vegetation type *Eucalyptus* sp. Woodland present within the survey area, with Good and Degraded condition. Alone this does not meet the minimum patch size and condition requirements to be a TEC. However, with the extended portion (visual assessment Eucalyptus Woodlands) there is an additional area (4.101 ha) which would enable the minimum patch size and condition criteria to be met.	Yes

Source: DoE, 2015

Table 18: Condition thresholds for the Eucalyptus Woodlands of the Western Australian Wheatbelt TEC/PEC. Green denotes the vegetation thresholds applicable to this TEC assessment.

Vegetation Condition	Minimum Patch Size	Weeds	Trees
Excellent to Very Good	2 ha	0-30% understorey weed cover	Mature trees may be present of absent
Good	2 ha	30-50% understorey weed cover	5 mature trees (DBH >300 mm) per half hectare
Degraded	5 ha	50-70% understorey weed cover	5 mature trees (DBH >300 mm) per half hectare

Source: DoE, 2015

4.2.4 Buntine (Area 4)

A detailed flora and vegetation survey and TEC assessment involving the establishment of six quadrats was undertaken by Natural Area within the survey area. 4.2.4.1 Flora

A total of 73 flora species (taxa) were recorded from 25 families during the field survey, including eight introduced (weeds) and 65 native species. One species was identified to genus level only due to a lack of diagnostic characteristics present at the time of survey, being a *Eucalyptus* species. An assessment of the likelihood of this species being of significance is provided in Section 6.1 below.

No Declared Pests or WoNS were identified within the survey area.

4.2.4.2 Vegetation Type

Two vegetation types were recorded within the survey area: *Acacia acuminata* Tall Open Shrubland occurring throughout the catchment area and in the western end of the drainage channel, and *Eucalyptus* spp. Low Open Woodland occurring throughout the majority of the drainage channel. Vegetation types are described in Table 19 and maps provided in Appendix 7.

Table 19: Vegetation type within Buntine survey area

Vegetation Type	Description	Photograph
Acacia acuminata Tall Open Shrubland	A Tall Open Shrubland dominated by *Acacia acuminata* over *Waitzia acuminata* var. *acuminata* and other mixed native herbs and grasses.	
Eucalyptus spp. Low Open Woodland	A Low Open Woodland of *Eucalyptus* species over mixed *Acacia* species, *Maireana georgei* and *Sclerolaena diacantha.*	

4.2.4.3 Vegetation Condition

Vegetation condition within the survey area ranged from Degraded to Very Good, with the majority of the survey area, being the entirety of the catchment area and a portion of the drainage channel, classified as Degraded (Table 20). Vegetation condition maps are provided in Appendix 7.

Table 20: Vegetation condition within Buntine survey area

Vegetation Condition	Pristine	Excellent	Very Good	Good	Degraded	Completely Degraded	Total
Area (ha)	0	0	0.01	0.01	2.96	0	2.98
Area (%)	0	0	0.34	0.34	99.32	0	100

4.2.4.4 Significant Flora

One conservation significant flora species was identified within the survey area; *Acacia scalena* (Figure 36) which is listed as a Priority 3 species under the *BC Act 2016*. A total of three individuals were identified within the *Acacia acuminata* Tall Open Shrubland vegetation type, located in close proximity to the southern boundary of the catchment area, with two individuals occurring outside the boundary (Appendix 7).

Acacia scalena – P3

Figure 36: Significant flora identified within Buntine survey area

4.2.4.5 Threatened Ecological Communities

Due to the potential for the TEC 'Eucalypt Woodlands of the Western Australian Wheatbelt' to occur within the survey area of Buntine, as indicated by the desktop survey, a TEC assessment was required. The assessment found that the vegetation type, *Eucalyptus* spp. Low Open Woodland had the potential to be part of the TEC although would require analysis of the surrounding vegetation outside of the survey boundary for accurate determination.

The vegetation type and quadrats surveyed do not meet all the requirements listed in the listing advice as discussed in Table 21. The minimum 10% tree canopy cover requirement was not met in any of the quadrats surveyed and the minimum patch size and condition criteria for the survey area alone is not met. Therefore, is not defined as the TEC according to the analysis in Table 21. Although, the survey area has previously been identified in close proximity (< 100 m to the north) to an area listed as the 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC (DWER, personal communication, 20 October 2022). There is the potential for the survey area to be connected to that patch and would require a detailed analysis of the surrounding vegetation.

Table 21: Key Diagnostic Characteristics for determining Eucalyptus Woodland of the Western Australian Wheatbelt.

Key Diagnostic Characteristics	Description	Site Specifics	Met Criteria
Local and Physical Environment	Occurs within: ▪ Avon Wheatbelt subregion Merredin ▪ Avon Wheatbelt subregion Katanning ▪ Mallee subregion Western Mallee	Yes, the survey area of Butine occurs within the Avon Wheatbelt subregion – Merredin.	Yes
Structure	Dominated by a canopy of Eucalyptus spp. as a tree or mallet habits (Table 2 from the *Approved Conservation Advice,* 2015*)*	Likely, the survey area of Butine is dominated by *Eucalyptus* sp. This species was unable to be identified due to limited diagnostic features present during the time of survey. It is likely this *Eucalyptus* sp. would be listed on the Table 2 from the *Approved Conservation Advice, 2015. Eucalyptus camaldulensis* is also present within the quadrats, however, is naturalised in the Avon Wheatbelt and is not a species included in Table 2.	Likely
	A minimum of 10% crown cover for the tree canopy within the woodland	All Eucalyptus spp. Low Open Woodland quadrats had less than 10% tree canopy (between 2-5%).	No
Composition	Native understorey is present but variable composition and a combination of grass, herbs, and shrubs. (Table A1 from *Approved Conservation Advice,* 2015)	Dominant species present included: ▪ *Acacia erinacea* ▪ *Acacia hemiteles* ▪ *Sclerolaena diacantha* ▪ *Rhagodia drummondii* ▪ *Austrostipa elegantissima*	Yes
Patch Size and Condition	Condition thresholds for the Eucalyptus Woodlands of the Western Australian Wheatbelt TEC/PEC in Table 22	The survey area of Buntine is in a Degraded condition and does not meet the minimum patch size of 5 ha (Table 22). This survey area would require detailed analysis of the surrounding vegetation to determine if this criterion is met.	No

Source: DoE, 2015

Table 22: Condition thresholds for the Eucalyptus Woodlands of the Western Australian Wheatbelt TEC/PEC. Green denotes the vegetation thresholds applicable to this TEC assessment.

Vegetation Condition	Minimum Patch Size	Weeds	Trees
Excellent to Very Good	2 ha	0-30% understorey weed cover	Mature trees may be present of absent
Good	2 ha	30-50% understorey weed cover	5 mature trees (DBH >300 mm) per half hectare
Degraded	5 ha	50-70% understorey weed cover	5 mature trees (DBH >300 mm) per half hectare

4.2.5 Ballidu (Area 5)

A detailed flora and vegetation survey and TEC assessment involving the establishment of three quadrats (Appendix 8) was undertaken by Natural Area within the survey area.

4.2.5.1 Flora

A total of 99 flora species (taxa) were recorded from 34 families during the field survey, including eight introduced (weeds) and 91 native species. One species was identified to family level only, Fabaceae sp., due to a lack of diagnostic characteristics present at the time of survey. An assessment of the likelihood of this species being of significance is provided in Section 6.1 below. Additionally, one invasive species was unable to be identified to species level but was identified to be a member of the **Asclepias* genus.

No Declared Pests or WoNS were identified within the survey area.

4.2.5.2 Vegetation Type

One vegetation type was recorded within the survey area, being a Mixed Acacia Shrubland. This vegetation type is characterised as a Mixed Tall Shrubland of *Acacia* species over *Waitzia acuminata* var. *acuminata*, *Amphipogon caricinus* and *Scholtzia drummondii* (Figure 37 and Appendix 8).

Figure 37: Vegetation type within Ballidu survey area

4.2.5.3 Vegetation Condition

Vegetation condition within the survey area ranged from Completely Degraded to Very Good, with the entirety of the catchment area and with the majority of the survey area being in Very Good condition (Table 23). Vegetation condition maps are provided in Appendix 8.

Table 23: Vegetation condition within Ballidu survey area

Vegetation Condition	Pristine	Excellent	Very Good	Good	Degraded	Completely Degraded	Total
Area (ha)	0	0	7.14	0.03	0	0.05	7.22
Area (%)	0	0	98.89	0.42	0	0.69	100

4.2.5.4 Significant Flora

Two conservation significant flora species were identified within the survey area: *Balaustion baiocalyx* and *Microcorys tenuifolia* (Figure 38). These are listed as Priority 1 and Priority 3 species respectively under the *BC Act 2016*. Both species were identified within the Acacia spp. Mixed Tall Shrubland, however precise locations and population numbers were not recorded in Spring 2022 as identification was made following field survey works. *Balaustion baiocalyx* (P1) and *Microcorys tenuifolia* (P3) were present across the survey area during the October 2023 survey. Across the site, six *Balaustion baiocalyx* (P1) individuals and five *Microcorys tenuifolia* (P3) individuals were recorded. It should be noted that the identification of *Balaustion baiocalyx* (P1) was made utilising the available technical description, distribution, habitat preferences and phenology of the species (Rye, 2022), and in the absence of reference samples due to a recent revision in the genus.

Balaustion baiocalyx – P1


Microcorys tenuifolia – P3

Figure 38: Significant flora identified within Ballidu survey area

4.2.5.5 Threatened Ecological Communities

A TEC assessment was not required to determine the likely presence of 'Eucalypt Woodlands of the Western Australian Wheatbelt' within the survey area of Ballidu. Additionally, the flora and vegetation survey conducted did not identify the presence of a vegetation type consistent with the occurrence of this TEC due to a lack of dominant or co-dominant key eucalypt species, as outlined in the *Approved Conservation Advice* (DoE, 2015). As such, results from the quadrats surveyed during the flora and vegetation survey indicated that the survey area did not meet any of the criteria for classification as the 'Eucalypt Woodlands of the Western Australian Wheatbelt' ecological community.

4.2.6 Wyalkatchem Siding (Area 6)

A detailed flora and vegetation survey was not undertaken at this survey area as requested by DWER in the scope of works. Natural Area conducted a TEC assessment involving the establishment of three quadrats, and a basic flora survey including the development of a species list for the survey area.

4.2.6.1 Flora

A total of 130 flora species (taxa) were recorded from 39 families during the field survey, including 23 introduced (weeds) and 107 native species. Four species were unable to be identified due to a lack of diagnostic characteristics present at the time of survey, with two being *Eucalyptus* species, one being a Restionaceae species and the other being unable to be identified to family level (Unidentified sp. 1). An assessment of the likelihood of these species being of significance is provided in Section 6.1 below.

One Declared Pest and WoNS was identified within the survey area: Paterson's Curse (**Echium plantagineum*). The species was recorded at three location (Appendix 9). Declared Pests are listed on the WAOL under the *BAM Act 2007* (WA) (DPIRD, 2021). This classification requires the landowner/land manager to control the population to limit damage as a result of the presence of these species (DPIRD, 2019).

4.2.6.2 Vegetation Type

Two vegetation types were recorded within the survey area: *Allocasuarina acutivalvis* Tall Shrubland occurring within the northern sections of the drainage channels and *Eucalyptus salmonophloia* Woodland

occurring within the southern and eastern portions of the drainage channels. Vegetation types are described in Table 24 and maps are provided in Appendix 9.

Table 24: Vegetation type within Wyalkatchem Siding

Vegetation Type	Description	Photograph
Eucalyptus salmonophloia Woodland	A Woodland of *Eucalyptus salmonophloia* over an understorey of mixed herbs and grasses.	
Allocasuarina acutivalvis Tall Shrubland	A Tall Shrubland of *Allocasuarina acutivalvis* over an understorey of mixed native herbs.	

4.2.6.3 Vegetation Condition

Vegetation condition within the survey area ranged from Degraded to Good (Table 25). Areas of vegetation in Good condition were located predominantly within the *Eucalyptus salmonophloia* Woodland vegetation type. Vegetation condition maps are provided in Appendix 9.

Table 25: Vegetation condition within Wyalkatchem Siding

Vegetation Condition	Pristine	Excellent	Very Good	Good	Degraded	Completely Degraded	Total
Area (ha)	0	0	0	0.25	0.14	0	0.39
Area (%)	0	0	0	64.1	35.9	0	100

4.2.6.4 Significant Flora

No conservation significant flora species were identified within the survey area.

4.2.6.5 Threatened Ecological Communities

Due to the potential for the TEC 'Eucalypt Woodlands of the Western Australian Wheatbelt' to occur within the survey area of Wyalkatchem Siding, as indicated by the desktop survey, a TEC assessment was required.

The potential ecological community surveyed was in association with the *Eucalyptus salmonophloia* Woodland vegetation type identified within the survey area. The three quadrats surveyed within this vegetation type met three of the four criteria for classification as 'Eucalyptus Woodland of the Western Australian Wheatbelt' ecological community as outlined in the *Approved Conservation Advice* (DoE, 2015). The survey area was found to meet the criteria for location, structure, and composition, however as the survey area was found to contain only 0.186 ha of *Eucalyptus salmonophloia* Woodland (0.001 ha in a Degraded condition and 0.185 ha in a Good condition), it did not meet the minimum patch size and condition criteria (Table 26).

The extended *Eucalyptus* spp. Woodland boundary (estimation of 20.993 ha), as shown in Appendix 9, was determined based on a visual assessment of the adjacent vegetation and broader landscape only. No quadrat-based TEC assessment was undertaken within this area. As a result, the presence/absence of the TEC within this area cannot be confirmed, however, the Wyalkatchem Siding survey area was considered likely to be part of the wider 'Eucalyptus Woodland of the Western Australian Wheatbelt' ecological community as it meets the minimum patch size and condition criteria, as well as the presence of key Eucalypt species. A further assessment of the adjacent vegetation would be required to confirm the presence of this TEC.

Table 26: Key Diagnostic Characteristics for determining Eucalyptus Woodland of the Western Australian Wheatbelt

Key Diagnostic Characteristics	Description	Site Specifics	Met Criteria
Local and Physical Environment	Occurs within: ▪ Avon Wheatbelt subregion Merredin ▪ Avon Wheatbelt subregion Katanning ▪ Mallee subregion Western Mallee	Yes, Wyalkatchem Siding occurs within the Avon Wheatbelt subregion – Merredin.	Yes
Structure	Dominated by a canopy of *Eucalyptus* spp. as a tree or mallet habits (Table 2 from the *Approved Conservation Advice,* 2015)	Yes, Wyalkatchem Siding and the surrounding areas are dominated by *Eucalyptus salmonophloia* which is listed as a key species in Table 2.	Yes
	A minimum of 10% crown cover for the tree canopy within the woodland	Yes, *Eucalyptus salmonophloia* covered 20% of the canopy in one of the three quadrats. This exceeds the minimum crown cover requirement.	Yes
Composition	Native understorey is present but variable composition and a combination of grass, herbs, and	Dominant species present included: ▪ *Waitzia acuminata* var. *acuminata*	Yes

Key Diagnostic Characteristics	Description	Site Specifics	Met Criteria
	shrubs. (Table A1 from *Approved Conservation Advice,* 2015)	▪ *Austrostipa elegantissima* ▪ *Enchylaena tomentosa* var*. tomentosa* ▪ *Dampiera lavandulacea* ▪ *Maireana brevifolia* ▪ *Rhagodia preissii* subsp*. preissii* ▪ *Melaleuca atroviridis* ▪ *Acacia erinacea* ▪ *Rhagodia drummondii* ▪ *Acacia erinacea*.	
Patch Size and Condition	Condition thresholds for the 'Eucalyptus Woodlands of the Western Australian Wheatbelt' TEC/PEC in Table 27	There is 0.186 ha of *Eucalyptus salmonophloia* Woodland present within the survey area (0.001 in a Degraded condition and 0.185 in a Good condition). It therefore does not meet the minimum patch size and condition requirements to be a TEC. However, from the site and desktop assessments, it is considered likely that the surrounding areas are part of the TEC. As a result, when the survey area is combined with the extended Eucalypt Woodland boundary (20.993 ha), it meets the minimum patch size requirements.	No

Source: DoE, 2015

Table 27: Condition thresholds for the 'Eucalyptus Woodlands of the Western Australian Wheatbelt' TEC. Green denotes the vegetation thresholds applicable to this TEC assessment.

Vegetation Condition	Minimum Patch Size	Weeds	Trees
Excellent to Very Good	2 ha	0-30% understorey weed cover	Mature trees may be present of absent
Good	2 ha	30-50% understorey weed cover	5 mature trees (DBH >300 mm) per half hectare
Degraded	5 ha	50-70% understorey weed cover	5 mature trees (DBH >300 mm) per half hectare

4.2.7 Knungajin (Area 7)

A basic flora survey was conducted by Natural Area, including the development of a species list. A detailed flora and vegetation survey was not undertaken within this survey area as requested by DWER in their scope of works. Natural Area conducted a TEC assessment within the survey area, however due to the patch size of the potential TEC within the survey area, only one quadrat was able to be established (Appendix 10). A visual assessment of the survey area was used to support the TEC assessment and quadrat findings.

4.2.7.1 Flora

A total of 44 flora species (taxa) were recorded from 19 families during the field survey, including 16 introduced (weeds) and 28 native species.

One Declared Pest and WoNS was identified within the survey area: Paterson's Curse (**Echium plantagineum*) shown in Appendix 10. Declared Pests are listed on the WAOL under the *BAM Act 2007* (WA) (DPIRD, 2021). This classification requires the landowner/land manager to control the population to limit damage as a result of the presence of these species (DPIRD, 2019).

4.2.7.2 Vegetation Type and Condition

One vegetation type was recorded within the survey area: *Acacia acuminata* Open Woodland (Figure 39). This is classified as a low open woodland of *Acacia acuminata* over an understorey comprised of mixed native grasses and herbs. Vegetation condition was classified as Degraded throughout the survey area. Vegetation type and condition maps are provided in Appendix 10.

Figure 39: Vegetation type within Knungajin

4.2.7.3 Significant Flora

A desktop survey indicated the potential for conservation significant flora species to be present within the survey area. No conservation significant flora were identified during the survey.

4.2.7.4 Threatened Ecological Communities

Due to the potential for the TEC 'Eucalypt Woodlands of the Western Australian Wheatbelt' to occur within the survey area of Knungajin, as indicated by the desktop survey, a TEC assessment was required.

A quadrat-based assessment was undertaken within the survey area, despite the predominant overstorey species being *Acacia acuminata*, in an area determined to contain Eucalypt species. Analysis of the data obtained from this assessment, supported by a visual assessment, determined the vegetation within the survey area did not meet the key diagnostic criteria outlined in the *Approved Conservation Advice (*DoE, 2015*)*. The survey area contained one species of *Eucalypt*: *Eucalyptus petraea*. However, as this is not listed as one of the key Eucalypt species for this TEC (DoE, 2015), the survey area is not considered to meet the criteria for classification as the 'Eucalypt Woodlands of the Western Australian Wheatbelt' ecological community.

The extended Eucalyptus Woodland boundary (Appendix 10) was determined based on a visual assessment of the broader landscape, and covers approximately 33.37 ha. No TEC assessment was undertaken within this area, and therefore the absence/presence of this TEC is unable to be confirmed. However, it is considered likely that this area is part of the TEC as it meets the minimum patch size and condition criteria, as well as the potential for the presence of key Eucalypt species. Additionally, the desktop assessment also indicates the presence of a confirmed 'Eucalypt Woodlands of the Western Australian Wheatbelt' TEC in this area.

4.2.8 Bodallin Dam (Area 8)

A basic flora survey was conducted including the development of a species list. A detailed flora and vegetation survey was not undertaken at this survey area as requested by DWER in the scope of works. A visual assessment of the vegetation type within the survey area determined that a TEC assessment was not required.

4.2.8.1 Flora

A total of 67 flora species (taxa) were recorded from 27 families during the field survey, including seven introduced (weeds) and 59 native species. One flora species was unable to be identified due to the lack of diagnostic features presenting at the time of the survey. One species was unable to be identified to family level due to a lack of diagnostic characteristics present at the time of survey (Unidentified sp. 2). An assessment of the likelihood of this species being of significance is provided in Section 6.1 below.

No Declared Pests or WoNS were identified within the survey area during the survey.

4.2.8.2 Vegetation Type and Condition

One vegetation type was recorded within the survey area, being *Allocasuarina acutivalvis* and *Melaleuca* sp. Mixed Open Shrubland (Figure 40). This is characterised as an Open Shrubland of *Allocasuarina acutivalvis, Melaleuca conothamnoides* and *Melaleuca hamata* over mixed native shrubs. Vegetation condition was classified as Good throughout the survey area. Vegetation type and condition maps are provided in Appendix 11.

Figure 40: Vegetation type within the Bodallin Dam survey area

4.2.8.3 Significant Flora

A desktop survey indicated the potential for conservation significant flora species to be present within the survey area. No conservation significant flora was identified during the survey.

4.2.8.4 Threatened Ecological Communities

Due to the potential for the TEC 'Eucalypt Woodlands of the Western Australian Wheatbelt' to occur within the survey area of Bodallin Dam, as indicated by the desktop survey, a TEC assessment was required.

A visual assessment of the survey area during the flora and vegetation survey, however, did not identify the presence of a vegetation type consistent with the occurrence of this TEC due to a lack of dominant or co-dominant key Eucalypt species, as outlined in the *Approved Conservation Advice* (DoE, 2015). As a result, a quadrat-based TEC assessment was not undertaken and therefore the survey area was determined to not represent a TEC.

4.2.9 Mount Cramphorne (Area 9)

Natural Area conducted a detailed flora and vegetation survey and TEC assessment within the survey area involving the establishment of three quadrats.

4.2.9.1 Flora

A total of 55 flora species (taxa) were recorded from 20 families during the field survey, including four introduced (weeds) and 51 native species. Four flora species were unable to be identified due to the lack of diagnostic features present at the time of the survey. Three species were identified to genus level, being two *Lepidosperma* species and one *Diuris* species, and one species was identified to family level, being a Myrtaceae species. An assessment of the likelihood of these species being of significance is provided in Section 6.1 below.

No Declared Pests or WoNS were identified within the survey area.

4.2.9.2 Vegetation Type

One vegetation type was recorded within the survey area, being *Allocasuarina huegeliana* and *Leptospermum roei* Tall Open Shrubland (Figure 41). This is characterised as a tall open shrubland of *Allocasuarina huegeliana* and *Leptospermum roei* over mixed shrubs, *Lepidosperma* spp. and *Podolepis aristata,* shown in Appendix 12.

Figure 41: Vegetation type within Mount Cramphorne survey area

4.2.9.3 Vegetation Condition

Vegetation condition within the survey area ranged from Good to Very Good (Table 28). The portion of Very Good vegetation was identified within the north-eastern section of drainage channel. Vegetation condition maps are provided in Appendix 12.

Table 28: Vegetation condition within Mount Cramphorne survey area

Vegetation Condition	Pristine	Excellent	Very Good	Good	Degraded	Completely Degraded	Total
Area (ha)	0	0	0.012	0.033	0	0	0.045
Area (%)	0	0	26.67	73.33	0	0	100

4.2.9.4 Significant Flora

A desktop survey indicated the potential for conservation significant flora species to be present within the survey area. No conservation significant flora species were identified within the survey area during the Spring 2022 survey.

4.2.9.5 Threatened Ecological Communities

A TEC assessment was not required to determine the likely presence of 'Eucalypt Woodlands of the Western Australian Wheatbelt' within the survey area of Mount Cramphorne. Additionally, the flora and vegetation survey conducted did not identify the presence of a vegetation type consistent with the occurrence of this TEC due to a lack of dominant or co-dominant key eucalypt species, as outlined in the *Approved Conservation Advice* (DoE, 2015). As such, results from the quadrats surveyed determined that the survey area did not meet any of the criteria for classification as the 'Eucalypt Woodlands of the Western Australian Wheatbelt' ecological community.

4.2.10 Lake Magenta North (Area 11)

A detailed flora and vegetation survey and TEC assessment involving the establishment of three quadrats was undertaken by Natural Area within the survey area.

4.2.10.1 Flora

A total of 148 flora species (taxa) were recorded from 39 families during the field survey, including 15 introduced (weeds) and 130 native species. Four flora species were unable to be identified due to the lack of diagnostic features present at the time of survey. Two species were identified to genus level, a *Tecticornia* species and a *Lepidosperma* species. The remaining three flora species were unable to be identified to family or genus level (Unidentified spp. 3 – 5). An assessment of the likelihood of these species being of significance is provided in Section 6.1 below.

No Declared Pests or WoNS were identified within the survey area.

4.2.10.2 Vegetation Type

One vegetation type was recorded within the survey area, being a Mixed Shrubland (Figure 42). This is characterised as a Mixed Shrubland dominated by *Verticordia* spp., *Austrostipa* spp., *Grevillea* spp. and *Synaphea* spp. over an understorey of mixed native herbs.

Maps are provided in Appendix 13.

Figure 42: Vegetation type within Lake Magenta North

4.2.10.3 Vegetation Condition

Vegetation condition within the survey area ranged from Good to Completely Degraded (Table 29). The majority of the catchment area was identified to be in Degraded condition, whilst the drainage channel was in Good condition. Vegetation condition maps are provided in Appendix 13.

Table 29: Vegetation condition within Lake Magenta North

Vegetation Condition	Pristine	Excellent	Very Good	Good	Degraded	Completely Degraded	Total
Area (ha)	0	0	0	0.04	2.16	0.55	2.75
Area (%)	0	0	0	1.45	78.55	20	100

4.2.10.4 Significant Flora

One conservation significant flora species was identified within the survey area, *Banksia xylothemelia* (Figure 43). This species is listed as a Priority 3 species under the *BC Act 2016*. A total of two individuals were identified within the survey area, the locations of which are shown in Appendix 13.

Banksia xylothemelia – P3

Figure 43: Significant flora identified within Lake Magenta North

4.2.10.5 Threatened Ecological Communities

A TEC assessment was not required to determine the likely presence of 'Eucalypt Woodlands of the Western Australian Wheatbelt' within the survey area of Lake Magenta North. Additionally, the flora and vegetation survey conducted did not identify the presence of a vegetation type or species consistent with the occurrence of this TEC as no *Eucalyptus* species were identified within the survey area. As such, results from the quadrats surveyed during the flora and vegetation survey indicated that the survey area did not meet any of the criteria for classification as the 'Eucalypt Woodlands of the Western Australian Wheatbelt' ecological community.

5.0 Targeted Fauna Habitat Assessment Results

Natural Area conducted a targeted fauna habitat assessment within each of the survey areas including:

- a Black Cockatoo habitat tree assessment
- opportunistic sightings of Malleefowl or Malleefowl mounds.

5.1 Desktop Survey

A desktop survey of online databases including NatureMap database (DBCA, 2022c) and the PMST (DCCEEW, 2022a) indicated the potential for the Carnaby's Black Cockatoo (*Zanda latirostris*), the Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) and Malleefowl (*Leipoa ocellata*) to occur within all of the survey areas (Table 30).

Table 30: Targeted fauna species listed by NatureMap and PMST

Species Name	Cons Code	Nature Map	PMST	Presence
Carnaby's Cockatoo *(Zanda latirostris)*	EN	X	X	Breeding known to occur within area
Red-tailed Black Cockatoo *(Calyptorhynchus banksii naso)*	VU	X		Species or species habitat known to occur within area
Malleefowl (*Leipoa ocellata*)	VU	X	X	Species or species habitat known to occur within area

There are no registered Black Cockatoo breeding or roosting sites < 12 km from the majority of the survey areas, with the exception of Lake Magenta North where there is a confirmed Black Cockatoo Breeding site approximately 7.7 km north-east of the survey area (DBCA, 2022a).

5.2 Field Survey

Various vegetation types were recorded across the survey areas, which align with different habitat types available for fauna. Habitat for bird species is present within the well-developed canopy of trees, mallees, and shrubs within the survey areas. Within the middle and understorey structural layers, good quality habitat is present for mammals, reptiles, and invertebrates. Logs and leaf litter also provide habitat for small mammals and reptiles in the area. Connected patches of vegetation provide important ecological linkages to other patches of remnant vegetation within the area and provides transient feeding opportunities.

5.2.1 Black Cockatoo Habitat

The Black Cockatoo habitat tree assessment was undertaken to determine if the survey areas contained potential habitat trees in the form of suitable roosting, foraging, and nesting habitat for threatened Black Cockatoos. A total of 24 potential habitat trees (DBH ≥ 300 mm) were recorded across all survey areas. The majority of the trees recorded were *Eucalyptus loxophleba* subsp. *loxophleba* and *Eucalyptus salmonophloia*, both of which are used by Black Cockatoos for nesting and foraging (DEC, 2011). All trees were observed to be in a mature and good condition, with the exception of one dead *Eucalyptus* sp. tree.

Four of these habitat trees contained a total of six hollows that met the type, size, and direction requirements to be considered potentially suitable hollows for Black Cockatoo nesting. These hollows were found in *Eucalyptus* tree species within the Eucalypt Woodlands vegetation type at Canna Dam and Gutha

(Table 31; Appendix 4 and 5). The minimum entrance diameter requirement for hollows utilised by Black Cockatoos is 100 mm (Cherriman, 2022). Hollows recorded during the surveys had entrance diameters ranging from approximately 100 mm to 200 mm. It should be noted, however, that nest hollows considered suitable for Black Cockatoos are only found in live trees with a DBH > 500 mm (DAWE, 2022b). As all six of the potential hollows identified during the survey were found in trees with a DBH < 500 mm, these hollows were not considered currently suitable for Black Cockatoo nesting. However, these trees may develop a suitable nest hollow in the future. These have the capacity to provide habitat for other native bird species.

No evidence of nesting or foraging by Black Cockatoos was observed at any of the survey areas, however Black Cockatoos were sighted flying overhead at Canna Dam and Gutha.

A summary of the potential Black Cockatoo habitat trees recorded during the surveys is provided in Table 31 and their locations provided in Appendices 4 to 9. Examples of habitat trees and hollows observed are shown in Figures 44 and 45.

Table 31: Potential Black Cockatoo habitat trees recorded within each survey area

Survey area	Species	DBH (mm)	Potential hollows	Comments
Canna Dam	*Eucalyptus loxophleba* subsp. *loxophleba*	300	No	
Canna Dam	*Eucalyptus loxophleba* subsp. *loxophleba*	310	No	
Canna Dam	*Eucalyptus loxophleba* subsp. *loxophleba*	310	No	
Canna Dam	*Eucalyptus loxophleba* subsp. *loxophleba*	320	No	
Canna Dam	*Eucalyptus loxophleba* subsp. *loxophleba*	330	No	
Canna Dam	*Eucalyptus loxophleba* subsp. *loxophleba*	340	Yes	One oblique ‘pipe’ hollow, 100 mm wide entrance
Canna Dam	*Eucalyptus loxophleba* subsp. *loxophleba*	340	Yes	Two oblique ‘pipe’ hollows, 100 mm; 200 mm wide entrance
Canna Dam	*Eucalyptus loxophleba* subsp. *loxophleba*	360	No	
Canna Dam	*Eucalyptus loxophleba* subsp. *loxophleba*	400	No	
Gutha	*Eucalyptus* sp. (Dead Stag)	390	Yes	Two oblique ‘spout’ hollows, 100 mm; 100 mm wide entrance
Gutha	*Eucalyptus loxophleba* subsp. *loxophleba*	420	Yes	One oblique ‘spout’ hollow, 150 mm wide entrance

Survey area	Species	DBH (mm)	Potential hollows	Comments
Perenjori Station	*Eucalyptus* sp.	300	No	
Perenjori Station	*Eucalyptus* sp.	330	No	
Perenjori Station	*Eucalyptus* sp.	350	No	
Perenjori Station	*Eucalyptus* sp.	350	No	
Perenjori Station	*Eucalyptus* sp.	370	No	
Buntine	*Eucalyptus* sp.	300	No	
Buntine	*Eucalyptus* sp.	610	No	
Ballidu	*Eucalyptus salmonophloia*	355	No	
Ballidu	*Eucalyptus salmonophloia*	855	No	
Wyalkatchem Siding	*Eucalyptus camaldulensis*	515	No	
Mount Cramphorne	*Eucalyptus salmonophloia*	420	No	

Figure 44: Examples of habitat trees observed

Figure 45: Examples of hollows observed

5.2.2 Malleefowl Habitat

During the flora and vegetation surveys, Natural Area assessed each survey area looking for evidence that would indicate the presence of Malleefowl. No Malleefowl individuals or mounds were noted during the surveys.

6.0 Implications of Results

6.1 Flora and Vegetation

The flora and vegetation surveys undertaken by Natural Area across ten survey areas within the Avon Wheatbelt and Mallee IBRA regions identified a total of 15 vegetation types containing 499 species from 59 families. Of these species, the majority (451; 90.3%) were native, whilst 48 (9.7%) were introduced species. The site with the highest diversity of native species was Lake Magenta North (133 species), whilst the survey area with the lowest species diversity was Kungajin (27 species).

One Declared Pest and WoNS was identified within the survey areas: Paterson's Curse (**Echium plantagineum*). This species was recorded within four of the ten survey areas (Appendix 5, 6, 9, and 10). Declared Pests are listed on the Western Australian Organism List (WAOL) under the *Biosecurity and Agriculture Management Act 2007* (WA) (*BAM Act 2007*) (DPIRD, 2021). This classification requires the landowner/land manager to control the population to limit damage as a result of the presence of these species (DPIRD, 2019). It is recommended that the control of these species be undertaken prior to any clearing activity to prevent the spread of vegetative material including seeds and rhizomes and the implementation of hygiene practices during clearing to prevent spread to other properties.

A total of 20 native flora across eight survey areas were unable to be identified to species level due to a lack of diagnostic characteristics (flowers/fruit) present at the time of survey. Of these species, 12 were able to be identified to genus level and three were identified to family level. The remaining five species were indistinct shrub and herb species which did not present flowering or fruiting characteristics necessary for identification at the time of survey. As a result, family determination was not possible. Of all unidentified species, 12 have the potential to be threatened or priority flora based on characteristics present and local records. All unidentified species and their likelihood of conservation significance are outlined in Table 32 below. Additionally, one invasive species was unable to be identified to species level but was identified to be a member of the **Asclepias* genus.

Table 32: Assessment of unidentified species and likelihood of conservation significance

Survey Area	Species ID	Potential for Priority	Comments
Gutha (Area 2)	*Calandrinia* sp.	Unlikely	Two priority *Calandrinia* species exist within the northern section of the Avon Wheatbelt bioregion (AW1), however neither have distributions within or in close proximity to the Local Government Area (LGA) of Morawa.
Perenjori Station (Area 3)	*Caesia* sp.	Possible	The identification of this species has been narrowed down to two possibilities: *Caesia* sp. Wongan and *Caesia* sp. Koolanooka Hills (P1). Distinction between these species requires the presence of flowers, however at the time of survey the individuals observed were within the seeding stage.

Survey Area	Species ID	Potential for Priority	Comments
	Eucalyptus sp. 1	Unlikely	Within the LGAs this species was identified within, there are four conservation significant *Eucalyptus* species: *E. jutsonii* subsp. *kobela* (P1), *E. sargentii* subsp. *onesis* (P3), *E. subangusta* subsp. *virescens* (P3) and *E. synandra* (T). All of these trees exhibit a multi-stemmed mallee growth form, whilst the *Eucalyptus* sp. observed exhibited a tree growth form. An additional 25 conservation significant species are found within the AW1 subregion. Of these species, none exhibit a growth form consistent with the species observed and with a distribution in relative proximity to the survey area.
	Psammomoya sp.	Possible	There are three *Psammomoya* species within the AW1 subregion, two of which are priority species. Identification of this genus through technical descriptions available in reference literature (Grieve, 1998) was made following the completion of field survey works, and as such the distinguishing characteristics between species were not known at the time of survey. Analysis of the distribution of each species suggests the species is likely to be *P. choretroides* which is not conservation listed.
	Thysanotus sp.	Unlikely	There are four priority *Thysanotus* species within the AW1 subregion, however none are located in close proximity to the survey area, with all having distributions south of Eneabba.
Buntine (Area 4)	*Eucalyptus* sp. 1	Unlikely	Within the LGAs this species was identified, there are four conservation significant *Eucalyptus* species: *E. jutsonii* subsp. *kobela* (P1), *E. sargentii* subsp. *onesis* (P3), *E. subangusta* subsp. *virescens* (P3) and *E. synandra* (T). All of these trees exhibit a multi-stemmed mallee growth form, whilst the *Eucalyptus* sp. observed exhibited a tree growth form. An additional 25 conservation significant species are found within the AW1 subregion. Of these species, none exhibit a growth form consistent with the species observed and a distribution in relative proximity to the survey area.
Ballidu (Area 5)	Fabaceae sp.	Possible	No diagnostic features, such as distinctive leaves, flowering or fruiting material, were identified on this individual at the time of survey. Features present are not consistent with conservation

Survey Area	Species ID	Potential for Priority	Comments
			significant Fabaceae species within the Perenjori LGA, however as genus identification could not be made, conservation significant flora present within the surrounding subregion cannot be excluded.
Wyalkatchem Siding (Area 6)	*Eucalyptus* sp. 2	Possible	Within the Wyalkatchem LGA, there is one conservation significant *Eucalyptus* species: *E. erythronema* subsp. *inornata* (P3). This species exhibits a growth form which could be consistent with the species observed, however, no diagnostic features, such as flowering or fruiting material, were identified on this individual at the time of survey. An additional 27 conservation significant species are found within the AW1 subregion. Of these species, a further eight exhibit a growth form potentially consistent with the species observed and a distribution in relative proximity to the survey area.
	Eucalyptus sp. 3	Possible	Within the Wyalkatchem LGA, there is one conservation significant *Eucalyptus* species: *E. erythronema* subsp. *inornata* (P3). This species exhibits a growth form which could be consistent with the species observed, however, no diagnostic features, such as flowering or fruiting material, were identified on this individual at the time of survey. An additional 27 conservation significant species are found within the AW1 subregion. Of these species, a further eight exhibit a growth form potentially consistent with the species observed and a distribution in relative proximity to the survey area.
	Unidentified sp. 1	Possible	No diagnostic features, such as flowering or fruiting material, were identified on this individual at the time of survey. Those characteristics present were consistent with multiple families of native flora, and therefore did not enable a more precise identification. This species did not exhibit any characteristics consistent with the 19 focus species as specified by DWER.
	Restionaceae sp.	Unlikely	There is a single conservation significant Restionaceae species within the AW1 subregion, *Lepidobolus densus* (P4). This species, however, has not been recorded in close proximity to the survey area and is not consistent with the characteristics of the species observed.

Survey Area	Species ID	Potential for Priority	Comments
Bodallin Dam (Area 8)	Unidentified sp. 2	Possible	No diagnostic features, such as flowering or fruiting material, were identified on this individual at the time of survey. Those characteristics present were consistent with multiple families of native flora, and therefore did not enable a more precise identification. This species did not exhibit any characteristics consistent with the 19 focus species as specified by DWER.
Mount Cramphorne (Area 9)	*Diuris* sp.	Unlikely	There are two conservation significant *Diuris* species present within the Avon Wheatbelt bioregion, however both are more coastal in their distribution and are not located within close proximity to the survey area.
	Lepidosperma sp. 1	Possible	There are eight conservation significant *Lepidosperma* species present within the Avon Wheatbelt bioregion. Of these species, two have distributions which are in close proximity to the survey area; *L.* sp. Billyacatting (P2) and *L.* sp. Mt Caudan (P1). No technical descriptions or reference material are available for these species to enable positive identification.
	Lepidosperma sp. 2	Possible	There are eight conservation significant *Lepidosperma* species present within the Avon Wheatbelt bioregion. Of these species, two have distributions which are in close proximity to the survey area; *L.* sp. Billyacatting (P2) and *L.* sp. Mt Caudan (P1). No technical descriptions or reference material are available for these species to enable positive identification.
	Myrtaceae sp.	Possible	No diagnostic features, such as flowering or fruiting material, were identified on this individual at the time of survey. Within the Narembeen LGA, there are ten conservation significant Myrtaceae species with a growth form consistent with the observed species. Characteristics such as leaf structure and arrangement of the observed species are not consistent with those species for which technical descriptions and reference material are available, however this is not available for five of the aforementioned species. As this species was not able to be identified to genus level, conservation

Survey Area	Species ID	Potential for Priority	Comments
			significant species within the surrounding bioregion cannot be excluded.
Lake Magenta North (Area 11)	*Lepidosperma* sp. 3	Unlikely	There are two conservation significant *Lepidosperma* species present within the Western Mallee subregion: *Lepidosperma amantiferrum* (P1) and *Lepidosperma* sp. Pigeon Rocks (P3). Neither of these species have distributions which are in close proximity to the survey area, with both being isolated to small populations approximately 80 km north. However, no technical descriptions or reference material are available for these species to enable definite exclusion.
	Tecticornia sp.	Unlikely	There are three conservation significant *Tecticornia* species within the Western Mallee subregion: *T. entrichoma* (P4), *T.* sp. Chinocup (P2) and *T. uniflora* (P4). The *Tecticornia* species identified within the survey area is unlikely to be one of these priority species due to distribution and habitat requirements. All three conservation significant species have limited distributions, which are predominantly not in close proximity to the survey area. Additionally, all species are associated with salt or brackish lakes and clay pans. The survey area was identified to be shrubland and contained minimal species associated with salt lakes and clay pans. Additionally, the *Tecticornia* species identified within the survey area was located within an area of soil disturbance and high weed cover, being unlikely to meet the habitat requirements of the conservation significant species.
	Unidentified sp. 3	Possible	No diagnostic features, such as flowering or fruiting material, were identified on this individual at the time of survey. Those characteristics present were consistent with multiple families of native flora, and therefore did not enable a more precise identification. This species did not exhibit any characteristics consistent with the 19 focus species as specified by DWER.
	Unidentified sp. 4	Possible	No diagnostic features, such as flowering or fruiting material, were identified on this individual at the time of survey. Those characteristics present were consistent with multiple families of native flora, and

Survey Area	Species ID	Potential for Priority	Comments
			therefore did not enable a more precise identification. This species did not exhibit any characteristics consistent with the 19 focus species as specified by DWER.
	Unidentified sp. 5	Possible	No diagnostic features, such as flowering or fruiting material, were identified on this individual at the time of survey. Those characteristics present were consistent with multiple families of native flora, and therefore did not enable a more precise identification. This species did not exhibit any characteristics consistent with the 19 focus species as specified by DWER.

6.2 Significant Flora

The flora and vegetation identified a total of nine conservation significant flora species, comprised of three Priority 1 species and six Priority 3 species under the *BC Act 2016*. These species are as follows:

- *Acacia scalena* (P3)
- *Balaustion baiocalyx* (P1)
- *Banksia xylothemelia* (P3)
- *Enekbatus planifolius* (P1)
- *Grevillea asparagoides* (P3)
- *Grevillea granulosa* (P3)
- *Microcorys tenuifolia* (P3)
- *Stylidium pendulum* (P1)
- *Stylidium torticarpum* (P3).

Locations were recorded at the time of the 2022 survey for the following species:

- *Grevillea asparagoides* (P3) within Perenjori Station (Area 3)
- *Grevillea granulosa* (P3) within Perenjori Station (Area 3)
- *Acacia scalena* (P3) within Buntine (Area 4).

Locations were not recorded for the remaining priority species identified, as positive identification was made following the completion of field survey works upon review of all available reference material. These priority species were resurveyed in October 2023 to record GPS locations and populations. These species included:

- Area 1 (Canna Dams) -*Stylidium pendulum* (P1)
- Area 2 (Gutha) – *Enekbatus planifolius* (P1) and *Grevillea granulosa* (P3)
- Area 3 (Perenjori Station) – *Stylidium torticarpum* (P3)
- Area 5 (Ballidu) – *Balaustion baiocalyx (*P1) and *Microcorys tenuifolia (*P3).

The *Stylidium pendulum* (Canna Dams), *Enekbatus planifolius* (Gutha) and *Stylidium torticarpum* (Gutha) was not recorded on site in the October 2023 targeted flora survey. Despite the October survey being conducted during the recommended surveying time (optimal flowering period) these species were not recorded and

may be a result of seasonal variation.The weather experienced prior to the survey in the region was not consistent with long term climate data; 2023 experienced lower average rainfall and higher temperatures as compared to previous years(BoM, 2023).

Of the 19 focus flora species identified in the request for additional information made by the Native Vegetation Regulation Branch to support the DWER's clearing permit application (DWER, 2022, August 2022 personal communication), only one was identified within a single survey area. This species was *Enekbatus planifolius* (P1) which was identified within Gutha (Area 2). Of the remaining species, seven (37% of total) were determined to be perennial shrubs and herbs which exhibit flowering periods consistent with the survey timing. Whilst desktop survey determined their occurrence as 'possible' within select survey areas due to habitat requirements (see Section 4.1), if present, these species would most likely have been detected due to the combination of size, growth form and flowering period. As a result, the following species are determined to be unlikely to occur within the survey areas:

- *Dasymalla axillaris* (Native Foxglove; CR)
- *Eremophila rostrata* subsp. *trifida* (Beaked Eremophila; CR)
- *Grevillea dryandroides* subsp. *dryandroides* (CR)
- *Grevillea involucrata* (Lake Varley Grevillea; EN)
- *Grevillea nana* subsp. *abbreviata* (P2)
- *Myoporum cordifolium* (T).

One focus species, *Thelymitra psammophila* (Sandplain Sun Orchid), is a perennial herb of the Orchidaceae family which has a flowering period consistent with the survey timing. However, such species are known to have complex life-history traits and may not consistently present annually and as such, there is potential for this species to occur within Lake Magenta North (Area 11) despite being unobserved during this survey.

A total of nine species have flowering periods which are either inconsistent with the survey period or are not currently recorded within available literature. Of these species, eight (42% of total) were determined to be perennial shrubs and sedges for which identification would have been possible outside of their flowering periods. As a result, the following species are determined to be unlikely to occur within the survey areas:

- *Androcalva adenothalia* (CR)
- *Beyeria disciformis* (P1)
- *Brachyloma elusum* (P2)
- *Chamelaucium repens* (P3)
- *Cheyniana rhodella* (P2)
- *Eremophila rarissima* (P1)
- *Eucalyptus synandra* (Jingymia Mallee; VU)
- *Hibbertia carinata* (P1)
- *Lepidosperma* sp. Billyacatting (P2)
- *Ricinocarpos oliganthus* (P1).

The single remaining species, *Gyrostemon reticulatus* (CR), is a fire ephemeral, requiring the occurrence of fire to initiate germination. Following germination, individuals flower, set seed and senesce, remaining within the soil seed bank until subsequent fire events (DEC, 2009b). No evidence of recent fire was observed within any of the survey areas, and as such there is the potential for *Gyrostemon reticulatus* to exist within

the soil seed bank in the absence of active growth, inhibiting identification during survey works. This species has been previously recorded in Canna Dams (Area 1), Gutha (Area 2) and Perenjori Station (Area 3) (DWER, personal communication, 20 October 2022) and was determined likely to occur in Buntine (Area 4) and Ballidu (Area 5). The presence of habitat types consistent with requirements for this species was recorded in all five of these survey areas. Due to the life traits of this species, its presence/absence could not be determined.

As a precaution, the preservation of topsoil from all ten survey areas is recommended to minimise impacts on potential conservation significant flora.

6.3 Threatened Ecological Communities

Results of the PMST reports (DCCEEW, 2022a) indicated the potential for one Threatened Ecological Community, 'Eucalyptus Woodlands of the Western Australian Wheatbelt' to occur within a 30 km radius of the survey areas (Appendix 1). A review of the DBCA's threatened communities database indicated that several survey areas are located in close proximity or within the survey area boundaries for the 'Eucalyptus Woodlands of the Western Australian Wheatbelt' TEC. The survey areas are:

- Area 1 Canna Dams – located within a previously identified TEC
- Area 3 Perenjori – located within a previously identified TEC
- Area 4 Buntine – located within close proximity to a previously identified TEC
- Area 6 Wyalkatchem – located within close proximity to a previously identified TEC
- Area 7 Knungajin – located within a previously identified TEC
- Area 8 Bodallin Dam – located within a previously identified TEC.

Of the ten survey areas that Natural Area assessed, three have been determined to contain the 'Eucalyptus Woodlands of Western Australian Wheatbelt' TEC within their survey boundaries (Canna Dams, Gutha, and Wyalkatchem Siding). It is also likely that Perenjori and its *Eucalyptus* sp. Woodland vegetation type is classified as the TEC. These four survey areas met condition criteria, minimum patch size, and key diagnostic characteristics (Table 33).

Table 33: Survey areas and the likelihood of the TEC being present.

Survey Area	Vegetation Type	Vegetation Condition	Mets Criteria to be classified as 'Eucalyptus Woodlands of the Western Australian Wheatbelt' TEC	Area of TEC (ha)	
				Within Survey Area	Extended Portion (based on visual assessment)
Canna Dams (Area 1)	*Eucalyptus loxophleba* subsp. *loxophleba* Open Low Forest	Good	Yes	0.065	4.855
Gutha (Area 2)	*Eucalyptus loxophleba* subsp. *loxophleba* Open Forest	Good	Yes	0.045	111.109
Perenjori Station (Area 3)	*Eucalyptus* sp. Woodland	Good Degraded	Likely	3.88	4.101
Buntine (Area 4)	*Eucalyptus* spp. Low Open Woodland	Very Good Good Degraded	No	-	-
Ballidu (Area 5)	Mixed Acacia Shrubland	-	No	-	-

Survey Area	Vegetation Type	Vegetation Condition	Mets Criteria to be classified as 'Eucalyptus Woodlands of the Western Australian Wheatbelt' TEC	Area of TEC (ha)	
				Within Survey Area	Extended Portion (based on visual assessment)
Wyalkatchem Siding (Area 6)	*Eucalyptus salmonophloia* Woodland	Good Degraded	Yes	0.186	20.993
Knungajin (Area 7)	*Acacia acuminata* Open Woodland	-	No	-	-
Bodallin Dam (Area 8)	*Allocasuarina acutivalvis* and *Melaleuca* sp. Mixed Open Shrubland	-	No	-	-
Mount Cramphorne (Area 9)	*Allocasuarina huegeliana* and *Leptospermum roei* Tall Open Shrubland	-	No	-	-
Lake Magenta North (Area 11)	Mixed Shrubland	-	No	-	

6.4 Targeted Fauna Habitat

6.4.1 Black Cockatoo Habitat

It is recommended that, where possible, the alignment of clearing boundaries be considered to ensure Black Cockatoo foraging, breeding and roosting habitat is protected. Consideration should also be given to the proximity of clearing activities to these trees as damage to root systems can affect a trees structural integrity and long-term viability.

Foraging

Although no evidence of Black Cockatoo foraging (e.g., feeding debris, scats) was observed during the field survey, Eucalypt or proteaceous Woodland is considered to be of foraging value for the Carnaby's Cockatoo, and preferred plant species include *Banksia* spp., *Hakea* spp., *Grevillea* spp., *Callistemon* spp. and *Corymbia calophylla* (Marri) (DAWE, 2022b). The foraging value of each of the survey areas was assessed using the Foraging Quality Scoring Tool Template provided in the *Referral guideline for 3 WA threatened black cockatoo species - Carnaby's Cockatoo (Zanda latirostris), Baudin's Cockatoo (Zanda baudinii) and the Forest*

Red-tailed Black-cockatoo (Calyptorhynchus banksii naso) (DAWE, 2022b). The Foraging Quality Scoring Tool Templates for each site are provided in the Appendices for the report.

Suitable foraging habitat, which includes the preferred foraging flora species, was present at a total of five survey areas: Canna Dams, Gutha, Perenjori Station, Buntine, and Wyalkatchem Siding. Each of these survey areas received a foraging value score for Carnaby's Cockatoo of five which is considered 'high-quality native foraging habitat'. Black Cockatoos were also seen flying overhead at Canna Dams and Gutha. The vegetation types within these sites identified to provide suitable foraging habitat were all associated with an overstorey dominated by Eucalypt species, including *Eucalyptus loxophleba* (York Gum) and *Eucalyptus salmonophloia* (Salmon Gum). The total area of suitable foraging habitat within each site is as follows:

- 0.07 ha within Canna Dams (36.1% of total area)
- 0.05ha within Gutha (1.0% of total area)
- 3,89 ha within Perenjori Dam (31.0% of total area)
- 0.36 ha within Buntine (12.1% of total area)
- 0.19 ha within Wyalkatchem Siding (47.7% of total area).

The vegetation type within the remaining survey areas was considered unlikely to provide suitable foraging habitat for the Carnaby's Cockatoo as it did not contain any of the preferred plant species listed in DAWE (2022b).

None of the survey areas are located within the known breeding or non-breeding ranges of the Baudin's Cockatoo. This species is known to feed primarily on the seeds of *Corymbia calophylla* (Marri) and proteaceous species, such as *Banksia* species and *Hakea* species, with rare observations of feeding on seeds of *Eucalyptus marginata* (Jarrah) (DAWE, 2022b). No vegetation containing these preferred foraging species was identified within any of the survey areas and therefore no survey areas are considered to contain suitable foraging habitat for this species.

None of the survey areas are located within the known breeding or non-breeding ranges of the Red-tailed Black Cockatoo. This species is known to feed primarily on the seeds of *Eucalyptus marginata* (Jarrah) and *Corymbia calophylla* (Marri), *Allocasuarina* cones and *Persoonia longifolia* (Snottygobble). Other important foods include *Eucalyptus patens* (Blackbutt), *Eucalyptus megacarpa* (Bullich), *Allocasuarina fraseriana*, *Hakea* species, *Eucalyptus gomphocephala* (Tuart), *Eucalyptus decipiens* (Redheart) and *Eucalyptus lehmannii* (Bushy Yate) (DAWE, 2022b). No vegetation containing these preferred foraging species was identified within any of the survey areas and therefore no survey areas are considered to contain suitable foraging habitat for this species.

Breeding

Breeding habitat for Black Cockatoos is defined as habitat that contains known, suitable or potential nesting trees (DAWE, 2022b). The hollows that were identified in the field were of a size and shape considered potentially suitable for Black Cockatoos, however as all of these trees had either a DBH < 500mm or were dead, it is considered that these trees are unlikely to support a nesting hollow for Black Cockatoos at their current stage of development (DAWE, 2022b). These trees may be suitable for development of a nest hollow in the future, and it is therefore recommended that they be protected from clearing activities.

It should be noted that the Black Cockatoo hollow assessment was conducted from the ground and is therefore limited to those hollows visible from ground-level. As such, not all hollows may have been observed as new growth, dense foliage and position in the landscape can hide hollows from vision. Additionally, internal hollow inspections would be required to confirm hollow characteristics such as internal hollow depth and structure and therefore their suitability to support nesting by Black Cockatoos.

Roosting

Night roosting habitat is usually found within close proximity to an important water source and within an area of high-quality foraging habitat. Breeding areas are also considered to be potential night roosting habitat (DAWE, 2022b). There is no registered night roosting habitat present within, or in close proximity to, any of the survey areas. However, four survey areas: Canna Dam, Gutha, Perenjori Station, Buntine, and Wyalkatchem Siding, contain high-quality foraging habitat for Carnaby's Cockatoo and are in close proximity to a water source. Lake Magenta North is also in close proximity (7.7 km) to a known breeding site. As a result, these six survey areas have the potential to provide suitable night roosting habitat. To confirm the presence/absence of night roosting sites, a dusk survey would be required.

6.4.2 Malleefowl Habitat

Malleefowl (*Leipoa ocellata*) are listed as Vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cwth) (*EPBC Act 1999*). Historically, the distribution of this species extends through much of the southern half of Western Australia, and its presence is associated with shrublands and woodlands located within semi-arid to arid climate areas (Benshemesh, 2007). Malleefowl mounds are considered to be the best indicators of Malleefowl presence (National Malleefowl Recovery Team, 2016). These mounds are comprised of a large mass of sand, with a diameter of 3-5 m and a height of one meter, and can contain up to a cubic meter of buried moist leaf litter (Benshemesh, 2007). As a result, a sandy substrate and abundance of leaf litter are critical for their construction. No evidence of Malleefowl individuals or mounds were observed during the survey by Natural Area.

As the majority of survey areas were within drainage lines and surrounding catchments which contained clayey sand substrates and low levels of leaf litter, it is considered unlikely that these survey areas would support suitable habitat critical for the construction of nesting mounds. However, the surrounding vegetation identified at Canna Dams, Gutha, Perenjori Station, Buntine, Ballidu, Wyalkatchem Siding and Knungajin survey areas were identified to include Mixed Shrubland and Eucalypt Woodland, which could provide suitable habitat for Malleefowl nesting. The Eucalypt Woodland present within the Wyalkatchem Siding survey area contained sandy soils and high levels of leaf litter (up to 50%) (Appendices 9 and 15). This survey area is therefore considered to have the potential to be suitable habitat for the construction of Malleefowl mounds. Additionally, Malleefowl are known to move throughout their home-range by foot and disperse using corridors of vegetation, including roadsides, to find suitable patches of remnant vegetation (Benshemesh, 2007). Although some of the survey areas may not contain suitable vegetation to support nesting, it is possible that they could form part of a Malleefowl's home-range or be used for dispersal throughout the landscape.

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Appendix 2: Conservation Significant Species

Appendix 2.1 Species List

Species Name	Cons Code	PMST	DWER, pers. comm, 2022	NatureMap
Acacia ancistrophylla var. *perarcuata*	P3			Y
Acacia aprica	EN	Y		
Acacia ascendens	P2			Y
Acacia ataxiphylla subsp. *magna*	EN	Y		
Acacia auratiflora	VU			Y
Acacia botrydion	P4			Y
Acacia caesariata	VU			Y
Acacia campylophylla	P3		Y	Y
Acacia cerastes	P1			Y
Acacia cochlocarpa subsp. *cochlocarpa*	EN	Y		
Acacia cochlocarpa subsp. *velutinosa*	CR	Y		Y
Acacia congesta subsp. *cliftoniana*	P1			Y
Acacia congesta subsp. *wonganensis*	P2			Y
Acacia crenulata	P3		Y	Y
Acacia cylindrica	P3			Y
Acacia denticulosa	VU			Y
Acacia dissona var. *indoloria*	P3		Y	Y
Acacia drewiana subsp. *minor*	P2			Y
Acacia dura	P2			Y
Acacia filifolia	P3		Y	Y
Acacia graciliformis	P1		Y	Y
Acacia inceana subsp. *latifolia*	P1			Y
Acacia inophloia	P3			Y
Acacia isoneura subsp. *nimia*	P3		Y	Y
Acacia lanceolata	P3			Y
Acacia lanuginophylla	VU	Y		Y
Acacia leptoneura	CR			Y
Acacia leptospermoides subsp. *obovata*	P2			Y
Acacia lineolata subsp. *multilineata*	P1			Y

Species Name	Cons Code	PMST	DWER, pers. comm, 2022	NatureMap
Acacia lirellata subsp*. compressa*	P2		Y	Y
Acacia merrickiae	P4			Y
Acacia muriculata	P1		Y	Y
Acacia mutabilis subsp*. stipulifera*	P3		Y	Y
Acacia nigripilosa subsp*. latifolia*	P1		Y	Y
Acacia phaeocalyx	P3			Y
Acacia pharangites	CR			Y
Acacia pterocaulon	P1			Y
Acacia pygmaea	EN			Y
Acacia recurvata	VU			Y
Acacia scalena	P3		Y	Y
Acacia sciophanes	CR	Y		Y
Acacia semicircinalis	P4			Y
Acacia sp. Manmanning	P1			Y
Acacia sp. Petrudor Rocks	P1		Y	Y
Acacia torticarpa	P1			Y
Acacia trinalis	P1			Y
Acacia undosa	P3			Y
Acacia vassalii	CR	Y		Y
Acacia volubilis	CR	Y		Y
Acacia yorkrakinensis subsp*. yorkrakinensis*	P2			Y
Aluta aspera subsp*. localis*	P2		Y	Y
Andersonia gracilis	EN	Y		
Androcalva adenothalia	CR	Y	Y	Y
Androcalva fragifolia	P1			Y
Angianthus micropodioides	P3		Y	Y
Anigozanthos bicolor subsp*. minor*	VU			Y
Austrostipa blackii	P3		Y	Y
Austrostipa frankliniae	P2		Y	Y
Austrostipa sp*. Dowerin*	P2			Y
Babingtonia minutifolia	P1			Y
Babingtonia peteriana	P2			Y

Species Name	Cons Code	PMST	DWER, pers. comm, 2022	NatureMap
Baeckea exserta	P3			Y
Baeckea sp. Beringbooding	P1			Y
Baeckea sp. Billeranga Hills	P1		Y	Y
Baeckea sp. Koorda	P1			Y
Baeckea sp. Morawa	P1			Y
Baeckea sp. Muntadgin	P1			Y
Baeckea sp. Perenjori	P2		Y	Y
Baeckea sp. Stockton Road	P1			Y
Baeckea sp. Tampia Hill	P1			Y
Baeckea sp. Walkaway	P3			Y
Baeckea sp. Yorkrakine	P1			Y
Balaustion baiocalyx	P1			Y
Balaustion bimucronatum	P1			Y
Balaustion exsertum	P3			Y
Balaustion filifolium	P2			Y
Balaustion grande	P3			Y
Balaustion hemisphaericum	P1			Y
Balaustion sp. Billyacatting Hill	P2			Y
Balaustion sp. Yorkrakine	P1			Y
Banksia bella	P4			Y
Banksia benthamiana	P4		Y	Y
Banksia comosa	P4			Y
Banksia dallanneyi subsp*. pollosta*	P3			Y
Banksia epimicta	P2			Y
Banksia erythrocephala var*. inopinata*	P3		Y	Y
Banksia fraseri var*. oxycedra*	P1		Y	Y
Banksia horrida	P3		Y	Y
Banksia porrecta	P4		Y	Y
Banksia pteridifolia subsp*. inretita*	P2		Y	Y
Banksia rufa subsp*. chelomacarpa*	P3		Y	Y
Banksia rufa subsp*. flavescens*	P3			Y
Banksia shanklandiorum	P4			Y

Species Name	Cons Code	PMST	DWER, pers. comm, 2022	NatureMap
Banksia sphaerocarpa var. *dolichostyla*	VU	Y		Y
Banksia wonganensis	P4			Y
Banksia xylothemelia	P3		Y	Y
Bentleya spinescens	P4			Y
Beyeria apiculata	P1			Y
Beyeria disciformis	P1		Y	Y
Boronia adamsiana	VU	Y	Y	Y
Boronia capitata subsp. *capitata*	EN	Y		
Boronia ericifolia	P2		Y	Y
Borya sp. Wheatbelt	P2			Y
Bossiaea atrata	P3		Y	Y
Bossiaea concinna	P3			Y
Bossiaea spinosa	P3			Y
Brachyloma elusum	P2		Y	Y
Caesia sp. Koolanooka Hills	P1		Y	Y
Caladenia cristata	P1			Y
Caladenia drakeoides	CR	Y	Y	Y
Caladenia xhopperi	P1			Y
Calandrinia kalanniensis	P2			Y
Calectasia grandiflora	P2			Y
Calectasia obtusa	P3		Y	Y
Calectasia pignattiana	VU	Y		Y
Calothamnus brevifolius	P4			Y
Calothamnus quadrifidus subsp. *asper*	P2			Y
Calytrix chrysantha	P4			Y
Calytrix ecalycata subsp. *ecalycata*	P3			Y
Calytrix nematoclada	P3		Y	Y
Calytrix parvivallis	P2			Y
Calytrix plumulosa	P3		Y	Y
Cassinia arcuata	P2			Y
Chamelaucium repens	P3		Y	Y
Chamelaucium sp. Bunjil	P1			Y

Species Name	Cons Code	PMST	DWER, pers. comm, 2022	NatureMap
Chamelaucium sp. Mukinbudin	P1			Y
Chamelaucium sp. *Wongan Hills*	P3		Y	Y
Chamelaucium sp. Yalgoo	P1		Y	Y
Cheyniana rhodella	P2		Y	Y
Chorizema humile	CR	Y		Y
Comesperma griffinii	P2			Y
Commersonia rotundifolia	P3			Y
Conospermum eatoniae	P3			Y
Conostylis albescens	P2			Y
Conostylis wonganensis	EN			Y
Cryptandra dielsii	P3			Y
Cryptandra nola	P3		Y	Y
Cryptandra stellulata	P3			Y
Cryptandra subtilis	P3		Y	Y
Cyanicula fragrans	P3		Y	Y
Cyphanthera odgersii subsp. *occidentalis*	CR			Y
Dampiera glabrescens	P1		Y	Y
Dampiera orchardii	P2			Y
Dampiera scaevolina	P1		Y	Y
Darwinia chapmaniana	VU			Y
Darwinia polychroma	EN		Y	Y
Darwinia sp. Chiddarcooping	P4			Y
Darwinia sp. Morawa	P3		Y	Y
Darwinia sphaerica	P2		Y	Y
Dasymalla axillaris	CR	Y	Y	Y
Daviesia debilior subsp. *sinuans*	P3			Y
Daviesia dielsii	EN			Y
Daviesia euphorbioides	CR	Y		Y
Daviesia lineata	P2			Y
Daviesia microcarpa	EN	Y		
Daviesia nudiflora subsp. *amplectens*	P1			Y
Daviesia nudiflora subsp. *drummondii*	P3			Y

Species Name	Cons Code	PMST	DWER, pers. comm, 2022	NatureMap
Daviesia smithiorum	P2			Y
Daviesia spiralis	P4			Y
Daviesia uncinata	P3			Y
Dicrastylis reticulata	P3			Y
Dicrastylis velutina	P3			Y
Diuris recurva	P4			Y
Dodonaea scurra	P1		Y	Y
Drosera grievei	P1			Y
Drosera paleacea	P1			Y
Drummondita billyacatting	P2			Y
Drummondita rubriviridis	P1		Y	Y
Drummondita sp. Trayning	P2			Y
Duma horrida subsp*. abdita*	EN	Y		Y
Enekbatus dualis	P1			Y
Enekbatus longistylus	P3		Y	Y
Enekbatus planifolius	P1		Y	Y
Epitriche demissus	P2			Y
Eremophila adenotricha	P1			Y
Eremophila glabra subsp*.* Morawa	P1			Y
Eremophila nivea	CR	Y	Y	Y
Eremophila pinnatifida	CR			Y
Eremophila rarissima	P1		Y	Y
Eremophila resinosa	EN	Y		Y
Eremophila rostrata subsp*. trifida*	CR		Y	Y
Eremophila sargentii	P2		Y	Y
Eremophila sericea	P1		Y	Y
Eremophila serpens	P4			Y
Eremophila sp. Wubin North	P1			Y
Eremophila subteretifolia	CR			Y
Eremophila ternifolia	VU			Y
Eremophila veneta	P4			Y
Eremophila vernicosa	VU			Y

Species Name	Cons Code	PMST	DWER, pers. comm, 2022	NatureMap
Eremophila verticillata	CR	Y	Y	Y
Eremophila virens	EN	Y		Y
Eremophila viscida	EN	Y	Y	Y
Eremophila waitii	P1			Y
Eucalyptus arachnaea subsp*. arrecta*	P3		Y	Y
Eucalyptus beardiana	VU	Y		
Eucalyptus blaxellii	P4			Y
Eucalyptus brevipes	EN	Y		Y
Eucalyptus caesia subsp*. caesia*	P4			Y
Eucalyptus caesia subsp*. magna*	P4			Y
Eucalyptus calycogona subsp*. miraculum*	P1			Y
Eucalyptus crucis subsp*. crucis*	EN	Y		Y
Eucalyptus dissimulata subsp*. dissimulata*	P4			Y
Eucalyptus ebbanoensis subsp*. photina*	P4		Y	Y
Eucalyptus efflorescens	P1			Y
Eucalyptus erythronema subsp*. inornata*	P3			Y
Eucalyptus exigua	P3			Y
Eucalyptus leptophylla var*. floribunda*	P1			Y
Eucalyptus mimica subsp*. continens*	P1			Y
Eucalyptus mimica subsp*. mimica*	P3		Y	Y
Eucalyptus ornata	P3			Y
Eucalyptus recta	VU	Y		Y
Eucalyptus sargentii subsp*. onesis*	P3		Y	Y
Eucalyptus subangusta subsp*. virescens*	P3			Y
Eucalyptus synandra	VU	Y	Y	Y
Eucalyptus x carnabyi	P4			Y
Euryomyrtus recurva	P3		Y	Y
Eutaxia acanthoclada	P3		Y	Y
Eutaxia hirsuta	P2			Y
Eutaxia nanophylla	P3			Y
Fitzwillia axilliflora	P2		Y	Y
Fitzwillia sp. Newdegate	P1			Y

Species Name	Cons Code	PMST	DWER, pers. comm, 2022	NatureMap
Frankenia bracteata	P1		Y	Y
Frankenia conferta	VU	Y		Y
Frankenia drummondii	P3			Y
Frankenia glomerata	P4			Y
Frankenia sp. southern gypsum	P3		Y	Y
Gastrolobium cruciatum	P3		Y	Y
Gastrolobium diabolophyllum	CR	Y		Y
Gastrolobium glaucum	CR			Y
Gastrolobium graniticum	VU	Y		Y
Gastrolobium hamulosum	CR	Y	Y	
Gastrolobium spectabile	P3			Y
Gastrolobium wonganense	P2			Y
Glossostigma trichodes	P1			Y
Gnephosis multiflora	P3			Y
Gnephosis setifera	P1		Y	Y
Gompholobium cinereum	P3		Y	Y
Gompholobium wonganense	P3		Y	Y
Goodenia granitica	P2			Y
Goodenia perryi	P3		Y	Y
Goodenia salina	P2		Y	Y
Grammosolen odgersii subsp. *occidentalis*	CR			Y
Grevillea asparagoides	P3		Y	Y
Grevillea asteriscosa	P4			Y
Grevillea bracteosa subsp. *howatharra*	CR			Y
Grevillea dryandroides subsp. *dryandroides*	CR	Y	Y	Y
Grevillea dryandroides subsp. *hirsuta*	VU	Y		Y
Grevillea globosa	P3			Y
Grevillea granulosa	P3		Y	Y
Grevillea haplantha subsp. *recedens*	P3			Y
Grevillea hirtella	P3			Y
Grevillea involucrata	EN	Y	Y	Y
Grevillea kenneallyi	P2		Y	Y

Species Name	Cons Code	PMST	DWER, pers. comm, 2022	NatureMap
Grevillea leptopoda	P3		Y	Y
Grevillea minutiflora	P1			Y
Grevillea nana subsp. *abbreviata*	P2		Y	Y
Grevillea newbeyi	P3			Y
Grevillea pinifolia	P1			Y
Grevillea prostrata	P4		Y	Y
Grevillea pythara	CR	Y		Y
Grevillea rosieri	P2			Y
Grevillea roycei	P3			Y
Grevillea sp. Trayning	P1			Y
Grevillea squiresiae	P1			Y
Grevillea tenuiloba	P3		Y	Y
Guichenotia asteriskos	P2			Y
Guichenotia glandulosa	P2			Y
Gyrostemon prostratus	P3		Y	Y
Gyrostemon reticulatus	CR	Y	Y	Y
Haegiela tatei	P4			Y
Hakea brachyptera	P3		Y	Y
Hakea rigida	P2		Y	Y
Hemiandra coccinea	P3		Y	Y
Hemiandra gardneri	CR	Y	Y	Y
Hemigenia conferta	P4			Y
Hemigenia sp. major	P1			Y
Hibbertia acrotrichion	P2			Y
Hibbertia carinata	P1		Y	Y
Hibbertia chartacea	P2			Y
Hibbertia cockertoniana	P3		Y	Y
Hibbertia glabriuscula	P3		Y	Y
Hibbertia glomerosa var. *bistrata*	P3		Y	Y
Hysterobaeckea ochropetala subsp. *ochropetala*	P1		Y	Y
Isoetes brevicula	P3			Y
Jacksonia debilis	P1			Y

Species Name	Cons Code	PMST	DWER, pers. comm, 2022	NatureMap
Jacksonia pungens	T	Y		
Jacksonia rubra	P2			Y
Jacksonia velutina	P4		Y	Y
Lasiopetalum sp. Desmond	P2			Y
Lechenaultia acutiloba	P3			Y
Lechenaultia galactites	P3		Y	Y
Lepidium genistoides	P3			Y
Lepidium pseudotasmanicum	P4			Y
Lepidobolus densus	P4		Y	Y
Lepidosperma lyonsii	P1			Y
Lepidosperma sp. Billyacatting	P2		Y	Y
Lepidosperma sp. Blue Hills	P1		Y	Y
Lepidosperma sp. Koolanooka	P1		Y	Y
Lepidosperma sp. Pigeon Rocks	P3			Y
Leptospermum exsertum	P1		Y	Y
Leucopogon sp. Bungulla	P3			Y
Leucopogon sp. Howatharra	P2			Y
Leucopogon sp. Ironcaps	P3			Y
Leucopogon sp. Lake Magenta	P1		Y	Y
Loxocarya albipes	P4			Y
Lysiosepalum abollatum	CR			Y
Malleostemon decipiens	P1		Y	Y
Malleostemon sp. Yalgoo Road	P1		Y	Y
Melaleuca agathosmoides	P1			Y
Melaleuca barlowii	P3		Y	Y
Melaleuca fissurata	P4			Y
Melaleuca grieveana	P1		Y	Y
Melaleuca manglesii	P1			Y
Melaleuca sciotostyla	EN			Y
Melaleuca sclerophylla	P3			Y
Melaleuca sculponeata	P3		Y	Y
Microcorys eremophiloides	VU			Y

Species Name	Cons Code	PMST	DWER, pers. comm, 2022	NatureMap
Microcorys tenuifolia	P3			Y
Micromyrtus redita	P1			Y
Microseris walteri	P3		Y	Y
Millotia dimorpha	P1		Y	Y
Millotia steetziana	P2			Y
Mirbelia ferricola	P3		Y	Y
Mirbelia sp. Cordifolia	P1			Y
Mirbelia sp. Ternata	P1			Y
Myoporum cordifolium	T			
Myriophyllum petraeum	P4			Y
Papistylus grandiflorus	P2		Y	Y
Persoonia brevirhachis	P3		Y	Y
Persoonia pentasticha	P3		Y	Y
Persoonia pungens	P3			Y
Petrophile globifera	P3			Y
Petrophile pauciflora	P3			Y
Petrophile trifurcata	P2			Y
Phebalium brachycalyx	P3			Y
Phebalium drummondii	P3			Y
Philotheca basistyla	EN	Y		
Philotheca cymbiformis	P2		Y	Y
Philotheca richardsoniana	P2			Y
Philotheca sp. Latham	P1			Y
Philotheca wonganensis	EN			Y
Pityrodia scabra subsp. *scabra*	CR	Y		Y
Podotheca pritzelii	P3		Y	Y
Podotheca uniseta	P3			Y
Prostanthera scutata	P2			Y
Psammomoya implexa	P3		Y	Y
Pultenaea adunca	P3		Y	Y
Pultenaea brachyphylla	P2			Y
Pultenaea daena	P3		Y	Y

Species Name	Cons Code	PMST	DWER, pers. comm, 2022	NatureMap
Pultenaea indira subsp. *monstrosita*	P3			Y
Pultenaea vestita	P3			Y
Rhagodia acicularis	VU			Y
Rhodanthe chlorocephala subsp. *chlorocephala*	P1		Y	Y
Rhodanthe collina	P3			Y
Ricinocarpos oliganthus	P1		Y	Y
Ricinocarpos trichophorus	EN	Y		
Rinzia affinis	P4			Y
Roebuckiella halophila	P3		Y	Y
Roycea pycnophylloides	VU	Y	Y	Y
Salicornia globosa	P3		Y	Y
Schoenia filifolia subsp. *subulifolia*	EN			Y
Schoenus griffinianus	P4			Y
Scholtzia subsessilis	P1			Y
Sclerolaena sp. Koolanooka Hills	P1			Y
Seorsus clavifolius	P2		Y	Y
Seringia adenogyna	P3			Y
Sphaerolobium validum	P3			Y
Spyridium mucronatum subsp. *recurvum*	P3			Y
Stenanthemum poicilum	P3		Y	Y
Stylidium amabile	CR	Y	Y	Y
Stylidium coroniforme subsp. *coroniforme*	EN			Y
Stylidium merrallii	P4			Y
Stylidium pendulum	P1		Y	Y
Stylidium periscelianthum	P3			Y
Stylidium pulviniforme	P3		Y	Y
Stylidium rhipidium	P3			Y
Stylidium ricae	P3		Y	Y
Stylidium sp. Three Springs	P2		Y	Y
Stylidium wilroyense	P3		Y	Y
Stylidium xanthopis	P1		Y	Y
Styphelia caudata	P3			Y

Species Name	Cons Code	PMST	DWER, pers. comm, 2022	NatureMap
Styphelia chlorantha	P2			Y
Styphelia tamminensis	P3			Y
Symonanthus bancroftii	CR	Y		Y
Synaphea boyaginensis	P2			Y
Synaphea canaliculata	P2		Y	Y
Synaphea constricta	P3		Y	Y
Synaphea drummondii	P3			Y
Tecticornia annelida	P1		Y	Y
Tecticornia bulbosa	VU	Y		Y
Tecticornia fimbriata	P3		Y	Y
Tecticornia sp. Lake Wallambin	P1		Y	Y
Tetratheca aphylla	VU	Y		
Tetratheca aphylla subsp. *megacarpa*	VU		Y	Y
Tetratheca retrorsa	P3			Y
Thelymitra psammophila	T			
Thelymitra stellata	EN			Y
Thomasia glabripetala	T		Y	
Thomasia tenuivestita	P3			Y
Thryptomene shirleyae	P2		Y	Y
Thysanotus brachiatus	P2			Y
Thysanotus cymosus	P3			Y
Thysanotus sp. Badgingarra	P2		Y	Y
Thysanotus tenuis	P3		Y	Y
Trachymene croniniana	P3			Y
Tribonanthes purpurea	VU			Y
Tricoryne sp. Bimbijy	P2			Y
Tricoryne sp. Wongan Hills	P2			Y
Triglochin protuberans	P3		Y	Y
Urodon capitatus	P3		Y	Y
Verticordia capillaris	P4			Y
Verticordia chrysostachys var. *pallida*	P3			Y
Verticordia comosa	P1			Y

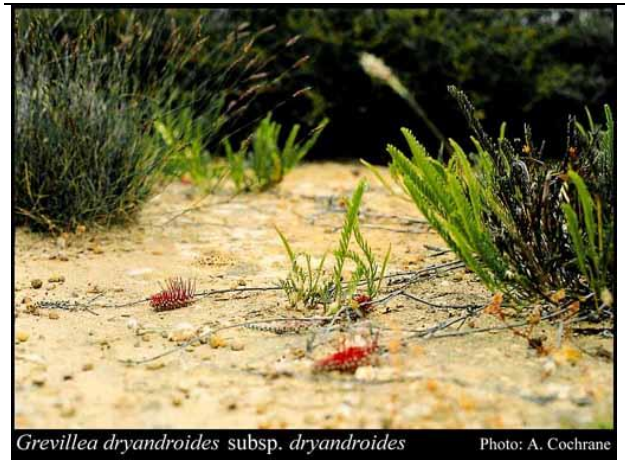
Species Name	Cons Code	PMST	DWER, pers. comm, 2022	NatureMap
Verticordia dasystylis subsp. *oestopoia*	P1			Y
Verticordia halophila	P2			Y
Verticordia hughanii	EN			Y
Verticordia integra	P4		Y	Y
Verticordia mitchelliana subsp. *mitchelliana*	P3		Y	Y
Verticordia mitodes	P3		Y	Y
Verticordia muelleriana subsp. *muelleriana*	P3			Y
Verticordia multiflora subsp. *solox*	P2			Y
Verticordia penicillaris	P4		Y	Y
Verticordia pulchella	P2			Y
Verticordia roei subsp. *meiogona*	P1			Y
Verticordia staminosa subsp. *staminosa*	CR			Y
Verticordia staminosa var. *cylindracea*	EN	Y		
Verticordia stenopetala	P3			Y
Verticordia venusta	P3		Y	Y
Verticordia wonganensis	P2			Y
Westringia acifolia	P1			Y
Westringia ophioglossa	P1		Y	Y
Xanthoparmelia sammyi	P1			Y

Source: NatureMap; PMST; DWER, personal communication, 20 October 2022

Appendix 2.2 Conservation Significant Flora Guide

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons Code
Androcalva adenothalia		Prostrate shrub to 0.03m high and to 0.25m wide. Flowers white.	Aug.	*Acacia* and *Allocasuarina* scrub with occasional mallee in orange/brown sand, gravel, and laterite.	T
Beyeria disciformis		-	-	-	P1
Brachyloma elusum		-	-	-	P2
		-	-	-	P1
Cheyniana rhodella		-	-	-	P2

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons Code
Dasymalla axillaris 		Diffuse shrub, 0.15-0.3 m high. Flowers red.	Jul to Dec.	Sandy soils.	T
		Spreading shrub, to 1.1 m high. Flowers pink.	Sep to Oct.	Orange-brown fine silty sand. On gentle slopes.	P1
Eremophila rarissima		-	-	-	P1
Eremophila rostrata subsp. *trifida*		Shrub, to 3 m high, with a three-parted leaf apex.		Hard, light brown, sandy loams, granite.	T

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons Code
		Mallee), 3.5-10 m high, bark smooth. Flowers cream and pink.	Aug or Dec or Jan to Mar.	Sandy & lateritic soils.	T
		Lightly suckering shrub, 0.1-0.5 m high. Flowers red/pink-red.	Sep to Oct or Feb.	Yellow sand & gravel, clay.	T

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons Code
	Lake Varley Grevillea	Prostrate to low-domed open shrub, 0.15-0.3 m high, up to 2 m wide. Flowers pink/pink-red.	Jun or Oct.	Gravelly sand.	T
Grevillea nana subsp*. abbreviata*		Low, often prostrate, spreading, irregular shrub, 0.2-0.5 m high, up to 2 m wide. Flowers. pink-orange-yellow-red.	Sep to Oct.	Sand, sandy loam.	P2
Gyrostemon reticulatus		Shrub, up to 1 m high with crowded, persistent linear leaves 11 to 35 mm long. Leaves circular and sometimes have hooked tips. Male and female flowers are on separate plants. Ephemeral, germinates after fire, growing rapidly, flowering, producing seed and dying before next fire.		Dense shrubland with *Melaleuca* species, *Acacia acuminata* and *Allocasuarina campestris* on yellow-brown sandy slopes.	T
Hibbertia carinata		Shrub, to 0.4 m high. Flowers yellow.	Aug to Sep.	Well-drained gravelly sand, yellow sand with gravel.	P1
Lepidosperma sp. Billyacatting		-	-	-	P2

Species Name	Common Name	Description	Flowering Period	Habitat Type	Cons Code
Ricinocarpos oliganthus		Monoecious shrub, to 1.8 m high.		Gravelly, red-brown clay loam.	P1

Appendix 3: Conservation Codes

Western Australia

Conservation Code	Name	Description
T	Threatened	Flora or fauna that is rare or likely to become extinct, ranked according to their level of threat using IUCN Red List criteria (Schedules 1-3 of the Wildlife Conservation (Specially Protected Fauna) Notice or the Wildlife Conservation (Rare Flora) Notice)
CR	Critically endangered	Species considered to be facing an extremely high risk of extinction within the wild in the immediate future
EN	Endangered	Species considered to be facing a very high risk of extinction in the wild in the near future
VU	Vulnerable	Species considered to be facing a high risk of extinction in the wild in the medium-term future
EX	Extinct Species	Species where 'there is no reasonable doubt that the last member of the species has died (Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice or the Wildlife Conservation (Rare Flora) Notice)
EW	Extinct in the Wild	Species that are known to only survive in cultivation, in captivity, or as a naturalised population well outside its past range; and it has not been recorded in its known or expected habitat at appropriate seasons anywhere in its past range, despite surveys over a timeframe appropriate to its life cycle and form
MI	Migratory Species	Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth (Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice)
CD	Conservation Dependent	Species of special conservation interest (conservation dependent fauna), being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened (Schedule 6 of the Wildlife Conservation (Specially Protected Fauna) Notice)
OS	Specially Protected	Fauna otherwise in need of special protection to ensure their conservation (Schedule 7 of the Wildlife Conservation (Specially Protected Fauna) Notice)
P	Priority Species	Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or

Conservation Code	Name	Description
		flora. Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.
P1	Priority One	Poorly known species – Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either very small or on lands not managed for conservation, such as road verges, urban areas, farmland, active mineral lease and under threat of habitat destruction or degradation.
2	Priority Two	Poorly known species – Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, such as national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves and similar.
3	Priority Three	Poorly known species – Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat
4	Priority Four	Rare or near threatened and other species in need of monitoring.

(Source: Department of Biodiversity, Conservation and Attractions, 2020a)

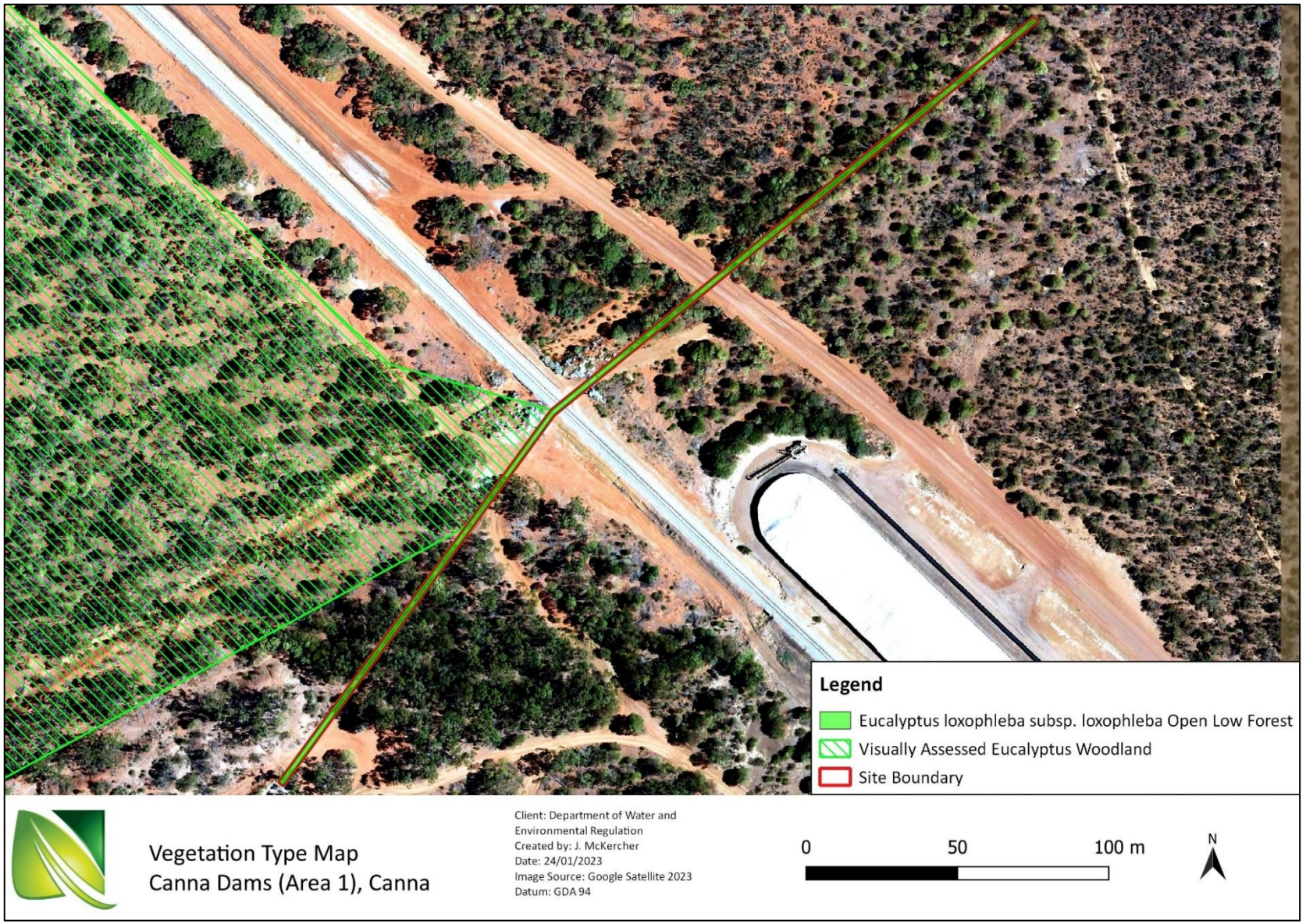
Commonwealth

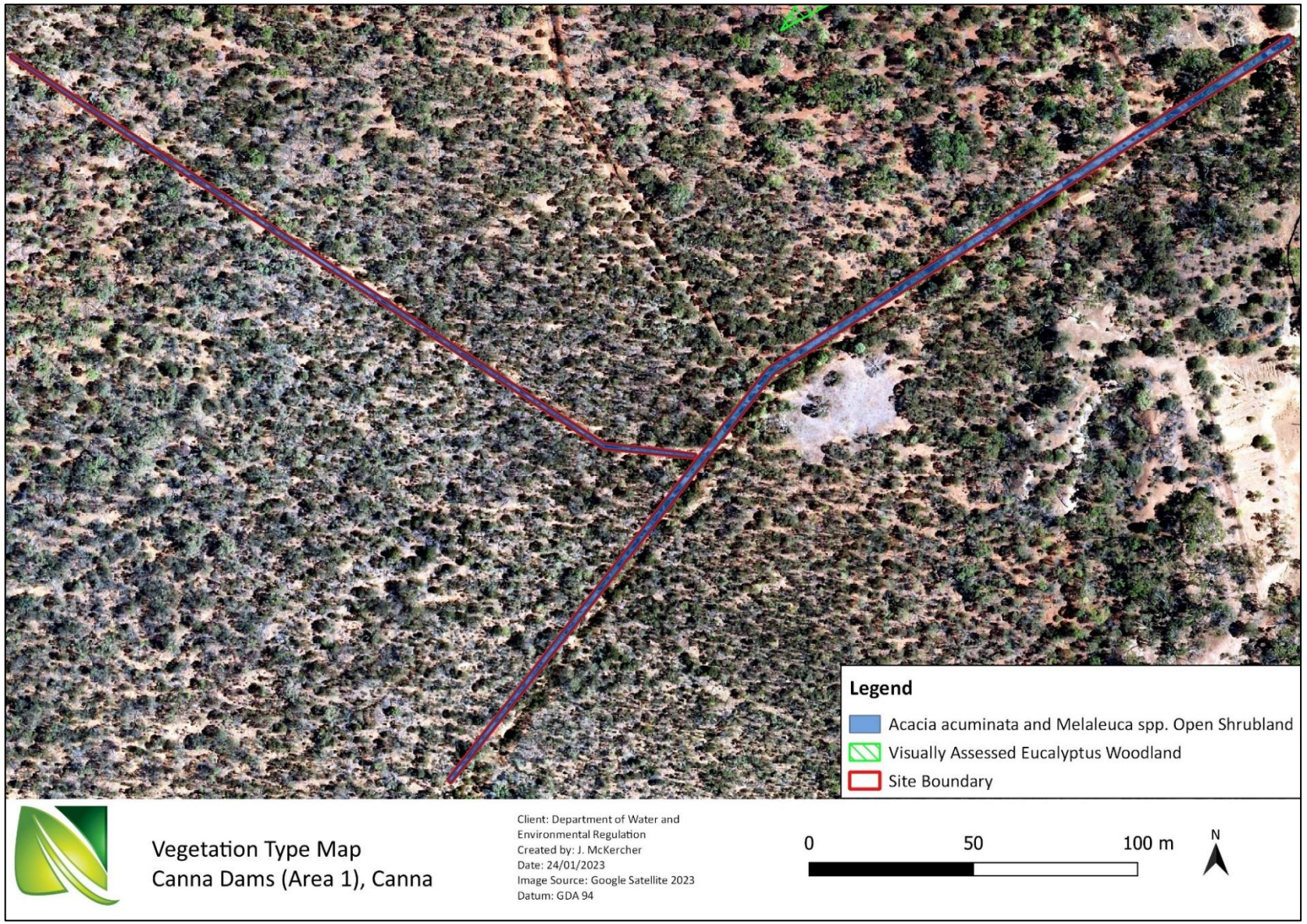
Category	Description
Critically Endangered	Species facing an extremely high risk of extinction in the wild in the immediate future
Endangered	Species facing a very high risk of extinction in the wild in the near future
Vulnerable	Species facing a high risk of extinction in the wild in the medium term

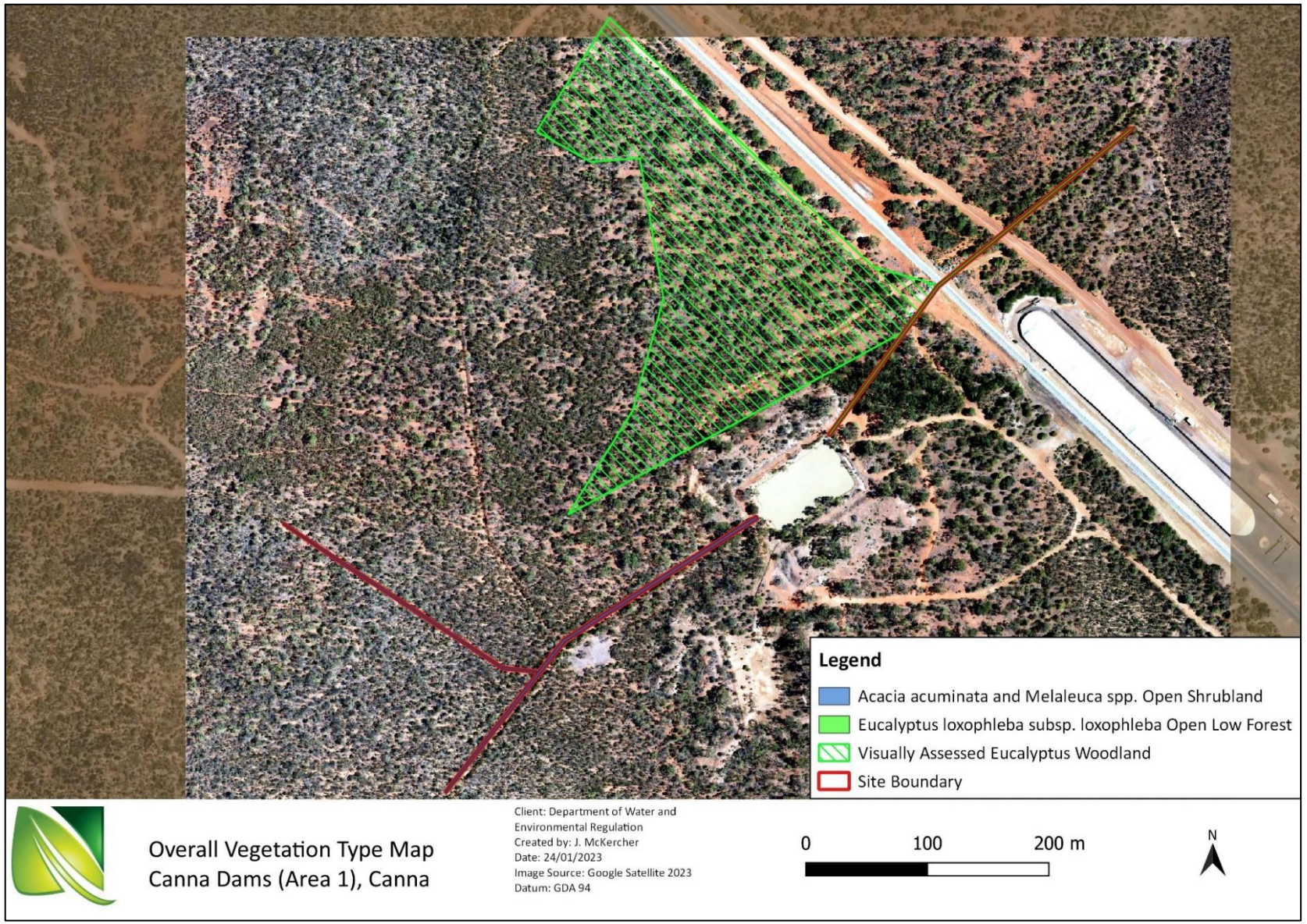
(Source: Department of Biodiversity, Conservation and Attractions, 2019)

Appendix 4: Area 1 Canna Dams

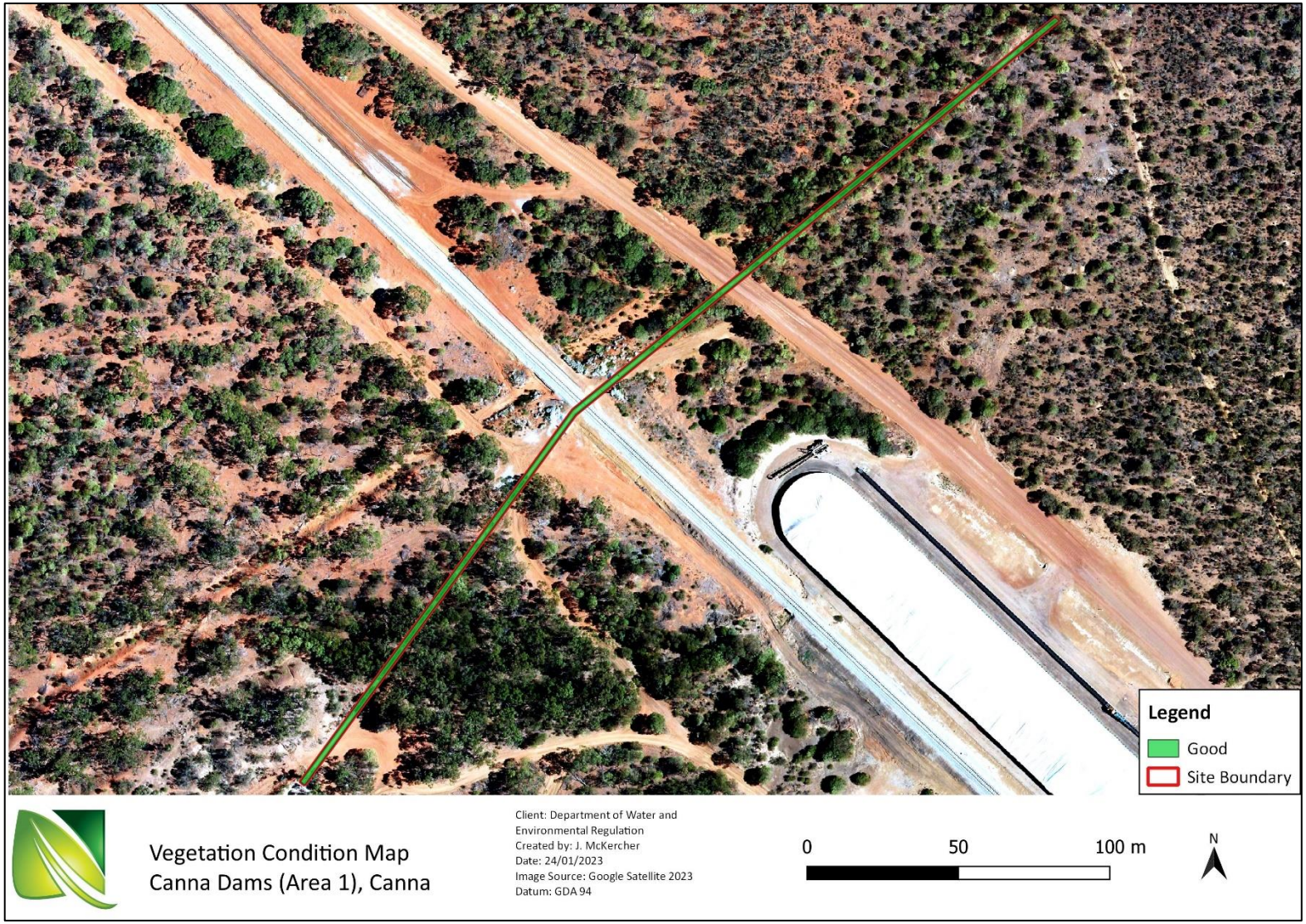
Appendix 4.1 Vegetation Type Map

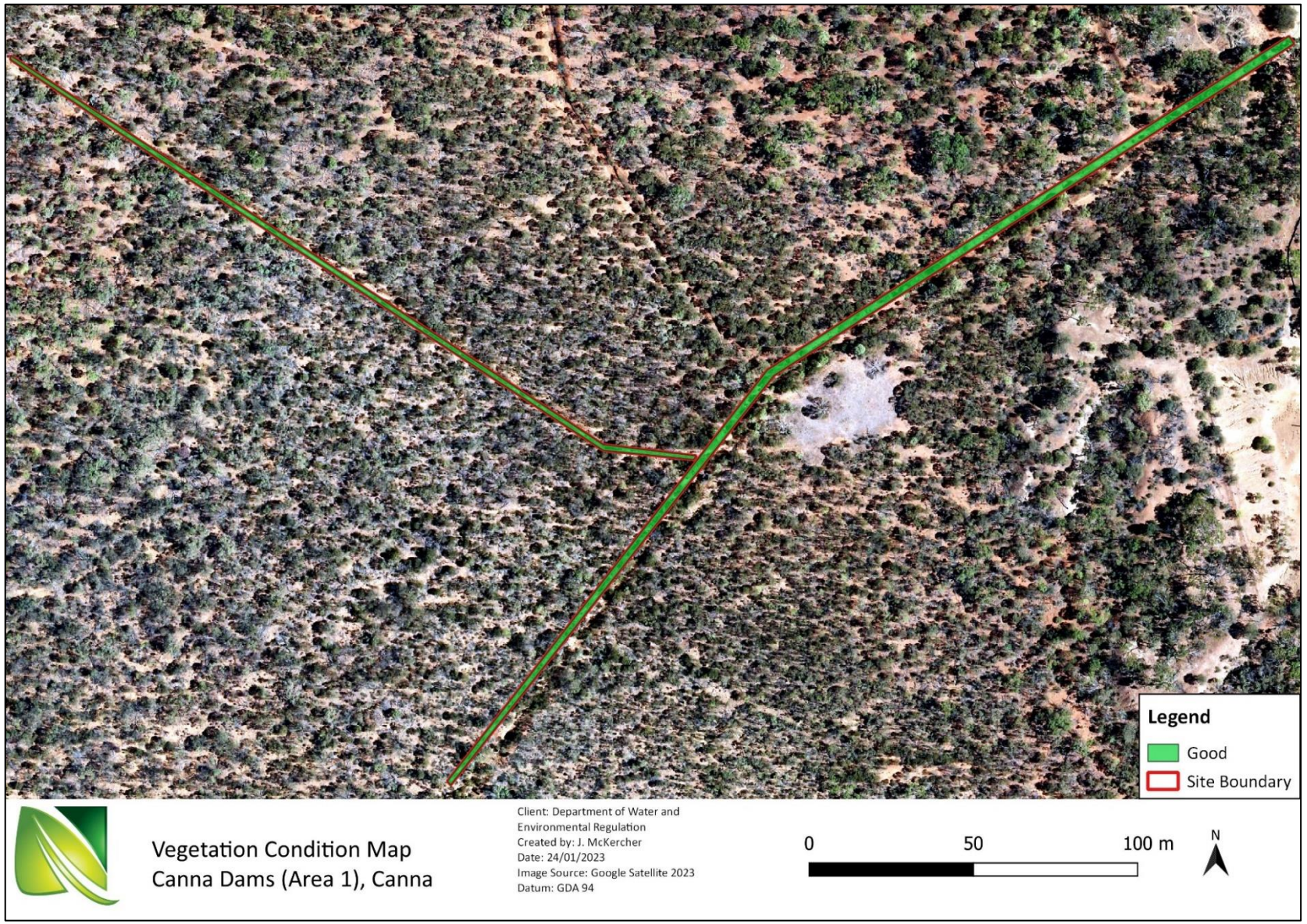

Legend
Eucalyptus loxophleba subsp. loxophleba Open Low Forest
Visually Assessed Eucalyptus Woodland
Site Boundary
Vegetation Type Map
Canna Dams (Area 1), Canna
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
50
100 m
N


Legend
Acacia acuminata and Melaleuca spp. Open Shrubland
Visually Assessed Eucalyptus Woodland
Site Boundary
Vegetation Type Map
Canna Dams (Area 1), Canna
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
50
100 m
N

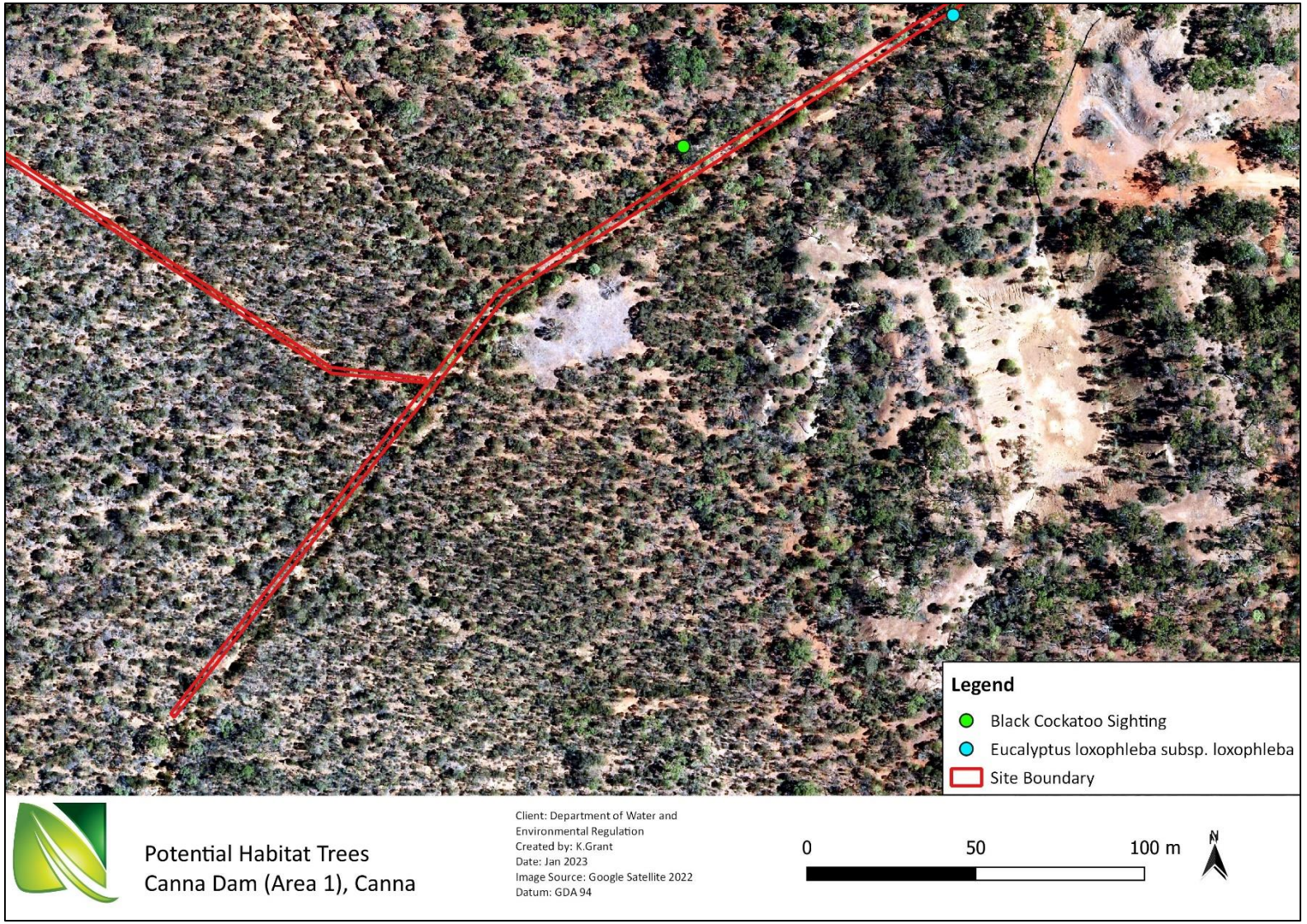

Legend
Acacia acuminata and Melaleuca spp. Open Shrubland
Eucalyptus loxophleba subsp. loxophleba Open Low Forest
Visually Assessed Eucalyptus Woodland
Site Boundary
Overall Vegetation Type Map
Canna Dams (Area 1), Canna
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
100
200 m
N

Appendix 4.2 Vegetation Condition Maps

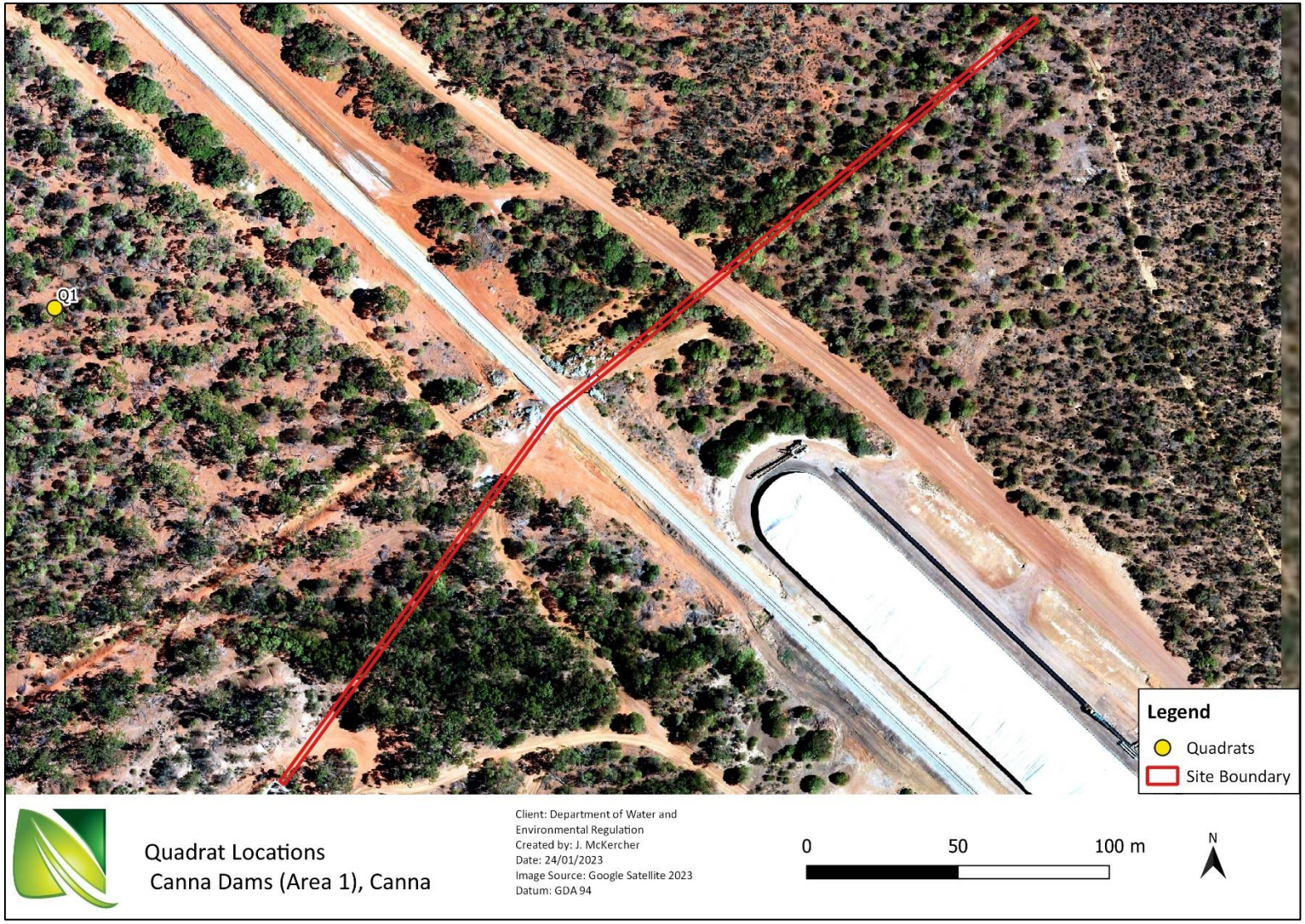



Legend
Good
Site Boundary
Vegetation Condition Map
Canna Dams (Area 1), Canna
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
50
100 m
N

Appendix 4.3 Black Cockatoo Habitat Tree Maps

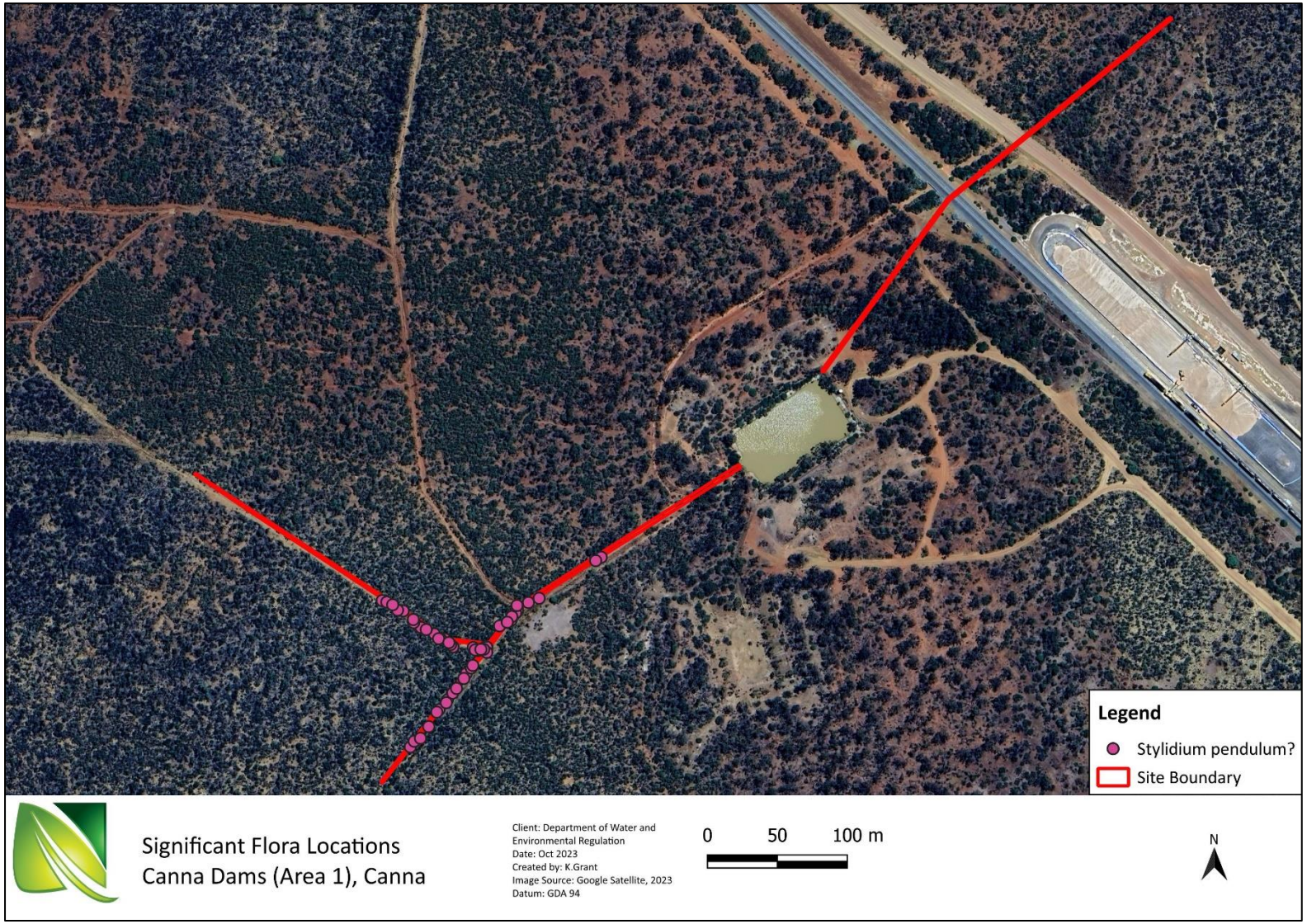


Appendix 4.4 Quadrat Location Maps




Q2
Q3
Legend
Quadrats
Quadrat Locations
Canna Dams (Area 1), Canna
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0 50 100 m
N

Appendix 4.5 Significant Flora Location Maps



Appendix 4.6 Foraging Quality Scoring Tool

Carnaby's Cockatoo foraging habitat		**Starting Score**
Canna Dams contained areas of native Eucalypt woodland dominated by known plant foraging species. It is also located within the known range of the Carnaby's Cockatoo. As such, starting score of 10 (very high quality) is assigned.		10
Context adjustors: attributes improving/ reducing functionality of foraging habitat	Foraging potential	-2
	Connectivity	0
	Proximity to breeding	-2
	Proximity to roosting	-1
	Impact from significant plant disease	0
	Final Score	**5**

Baudin's Cockatoo foraging habitat	**Starting Score**
Canna Dams contained areas of native Eucalypt woodland dominated by known plant foraging species. However, it is not located within the known range of the Baudin's Cockatoo. As such, the foraging quality scoring tool has not been applied.	-

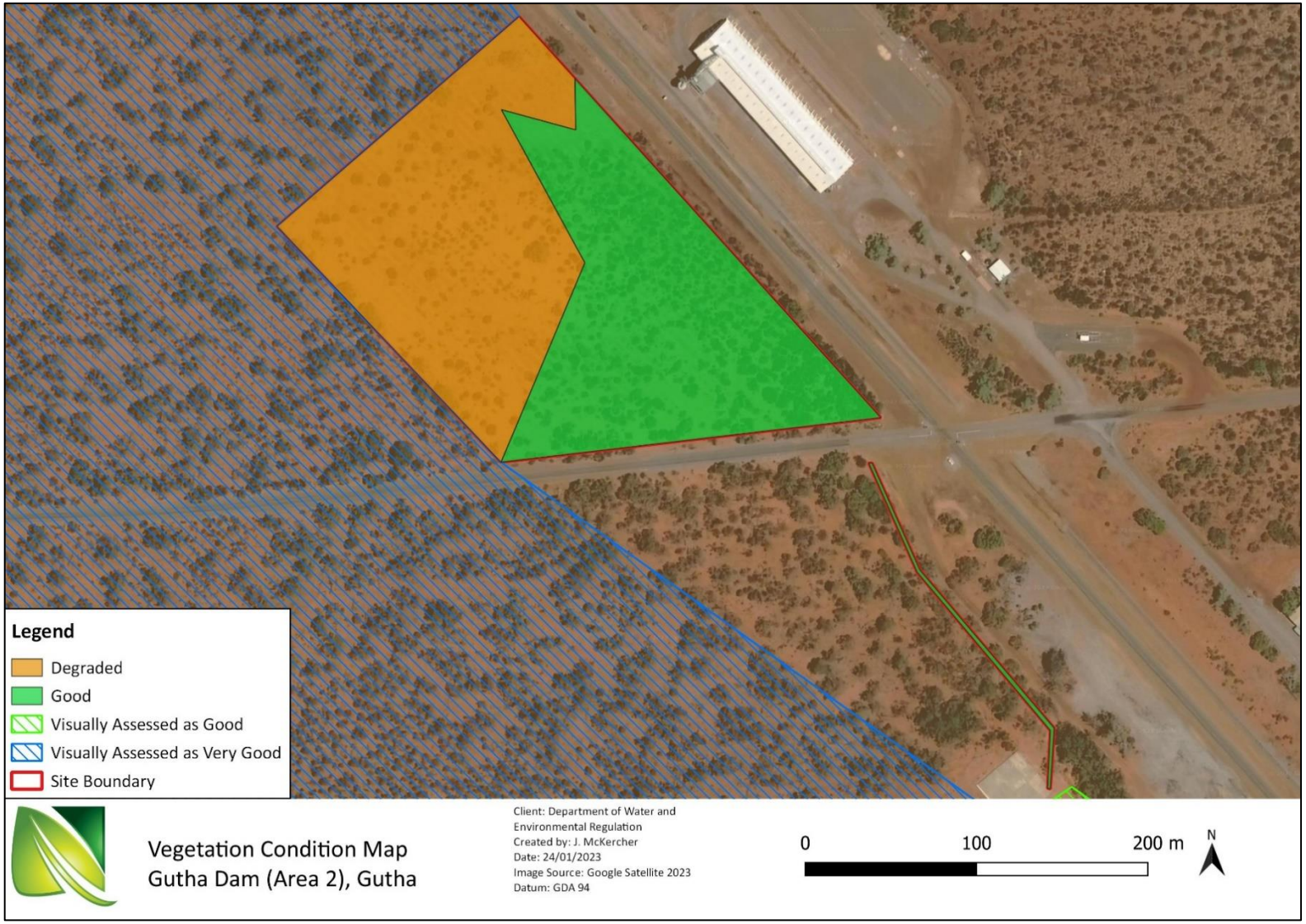
Forest Red-tailed Black Cockatoo foraging habitat	**Starting Score**
Canna Dams contained areas of native Eucalypt woodland dominated by known plant foraging species. However, it is not located within the known range of the Forest Red-tailed Black Cockatoo. As such, the foraging quality scoring tool has not been applied.	-

Appendix 5: Area 2 Gutha

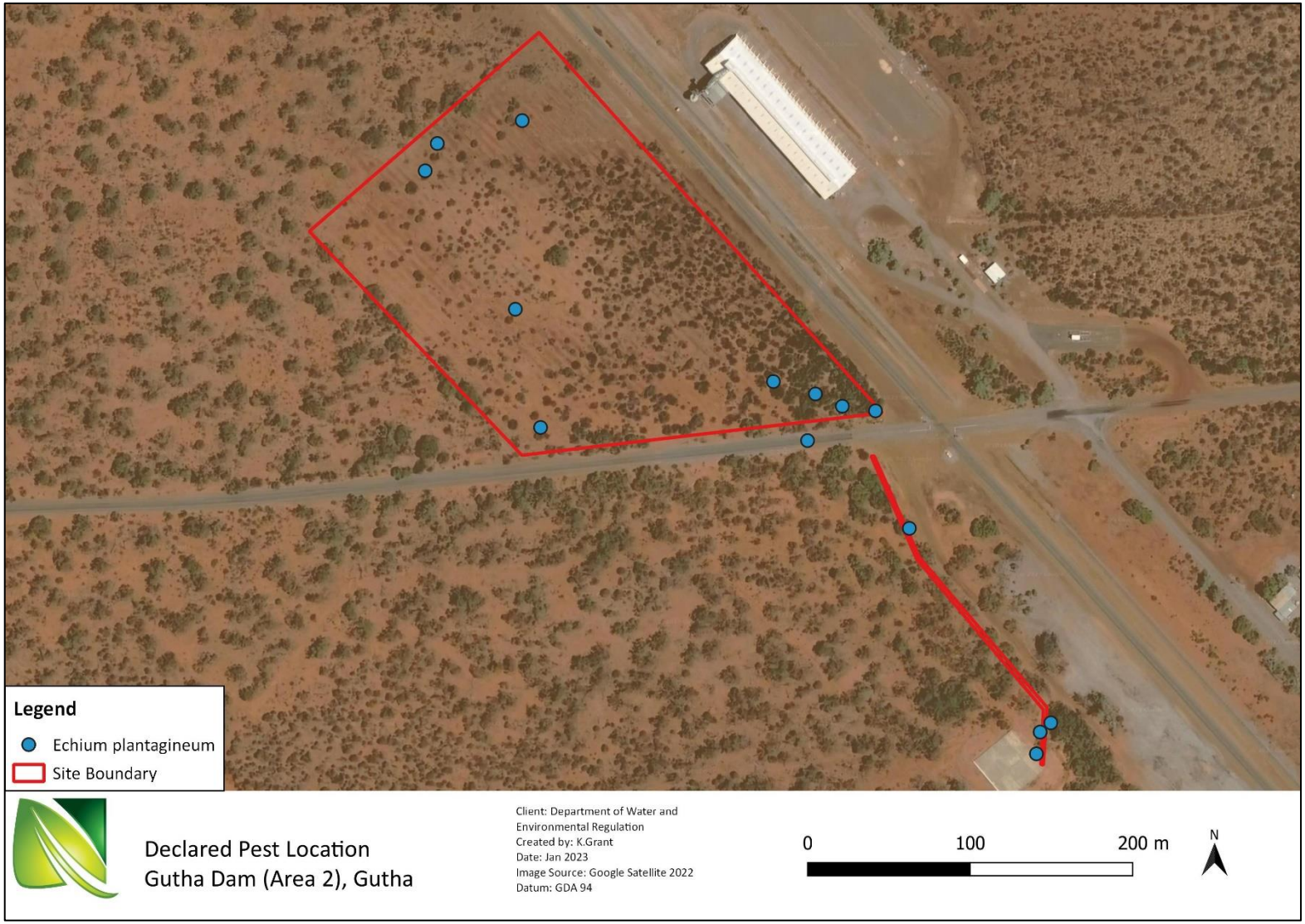
Appendix 5.1 Vegetation Type Maps


Legend
Acacia spp. Mixed Shrubland
Eucalyptus loxophleba subsp. loxophleba Open Forest
Visually Assessed Eucalyptus Woodland
Site Boundary
Vegetation Type Map
Gutha Dam (Area 2), Gutha
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
100
200 m
N

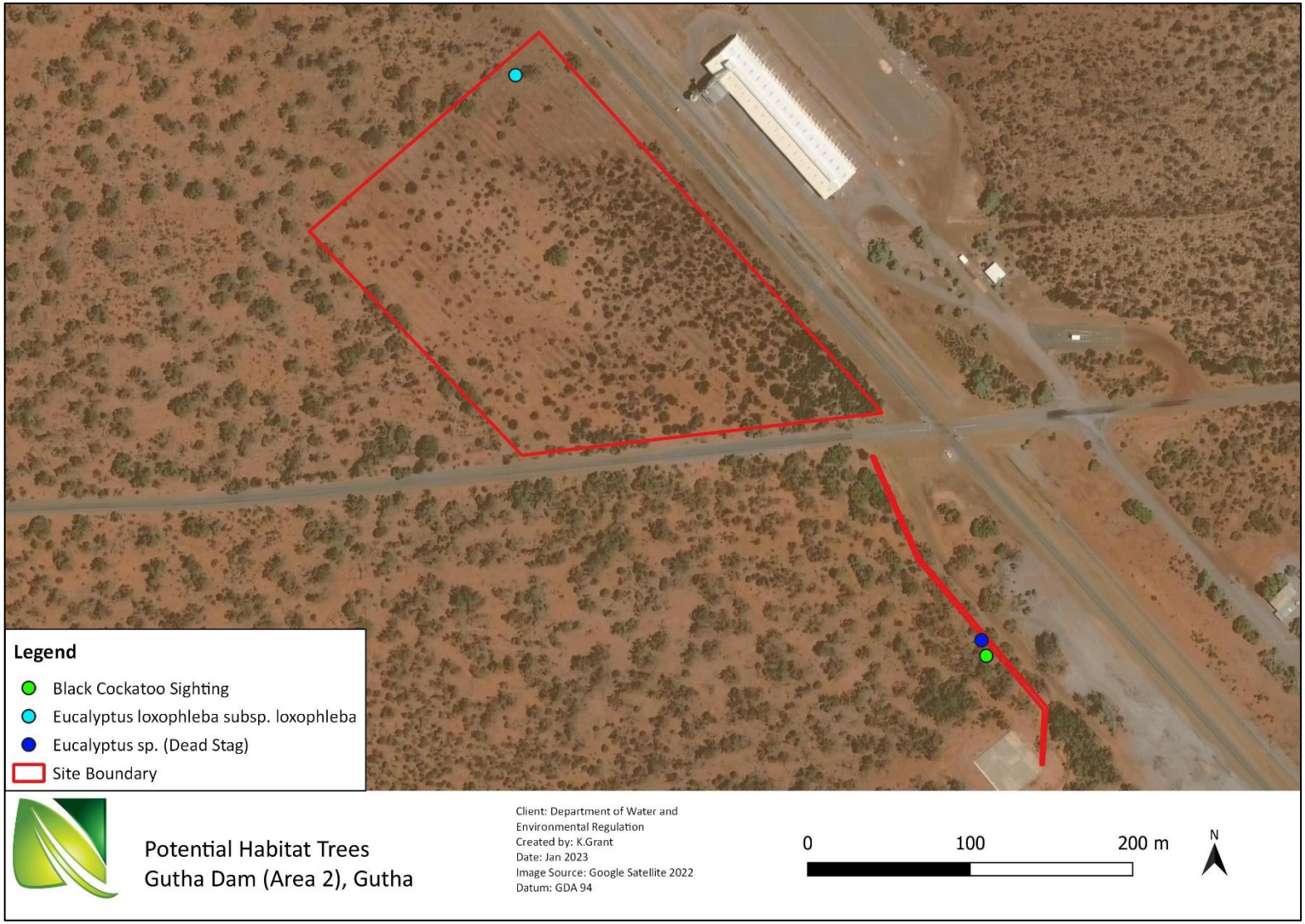
Appendix 5.2 Vegetation Condition Maps



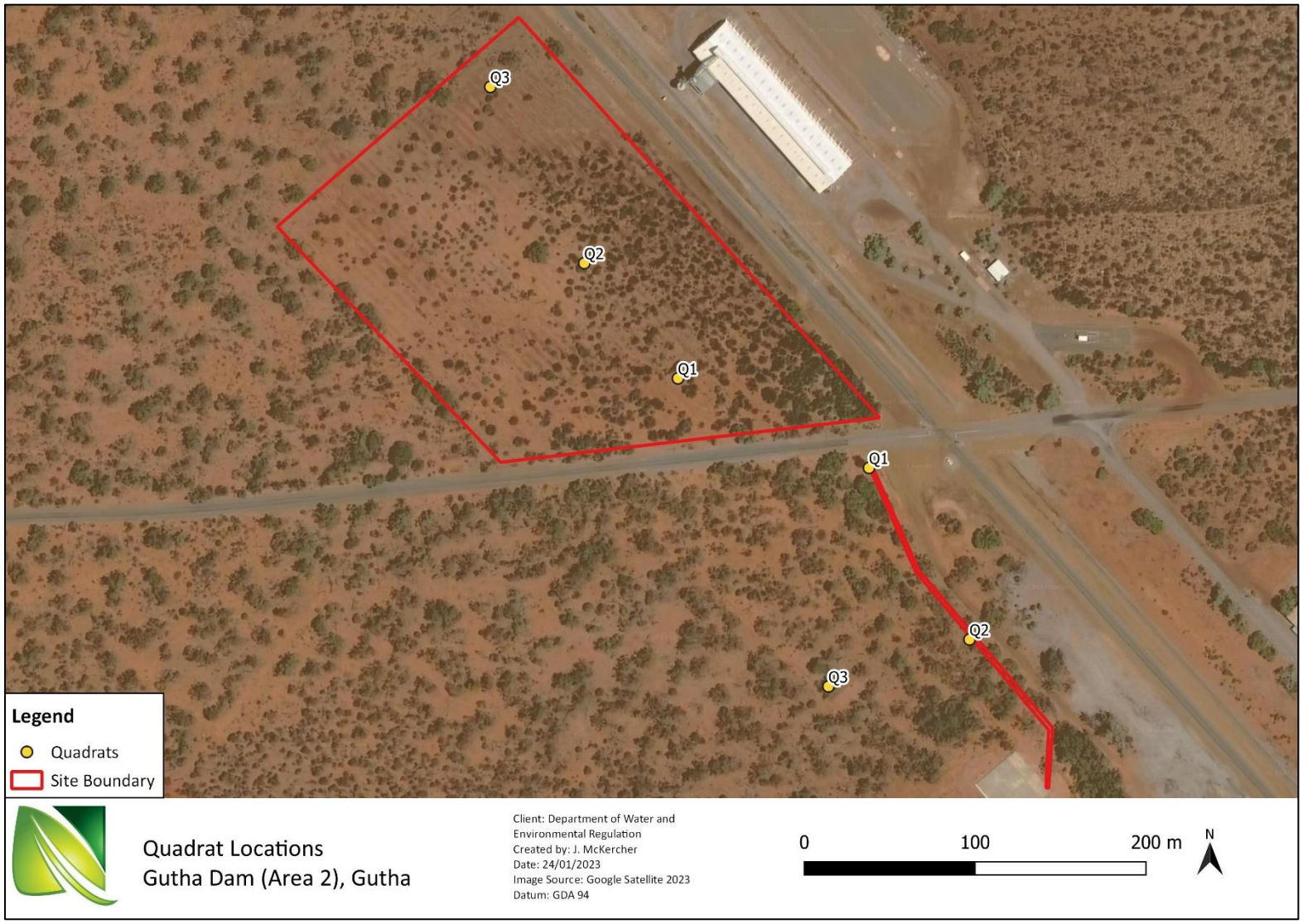
Appendix 5.3 Declared Pest Location Maps



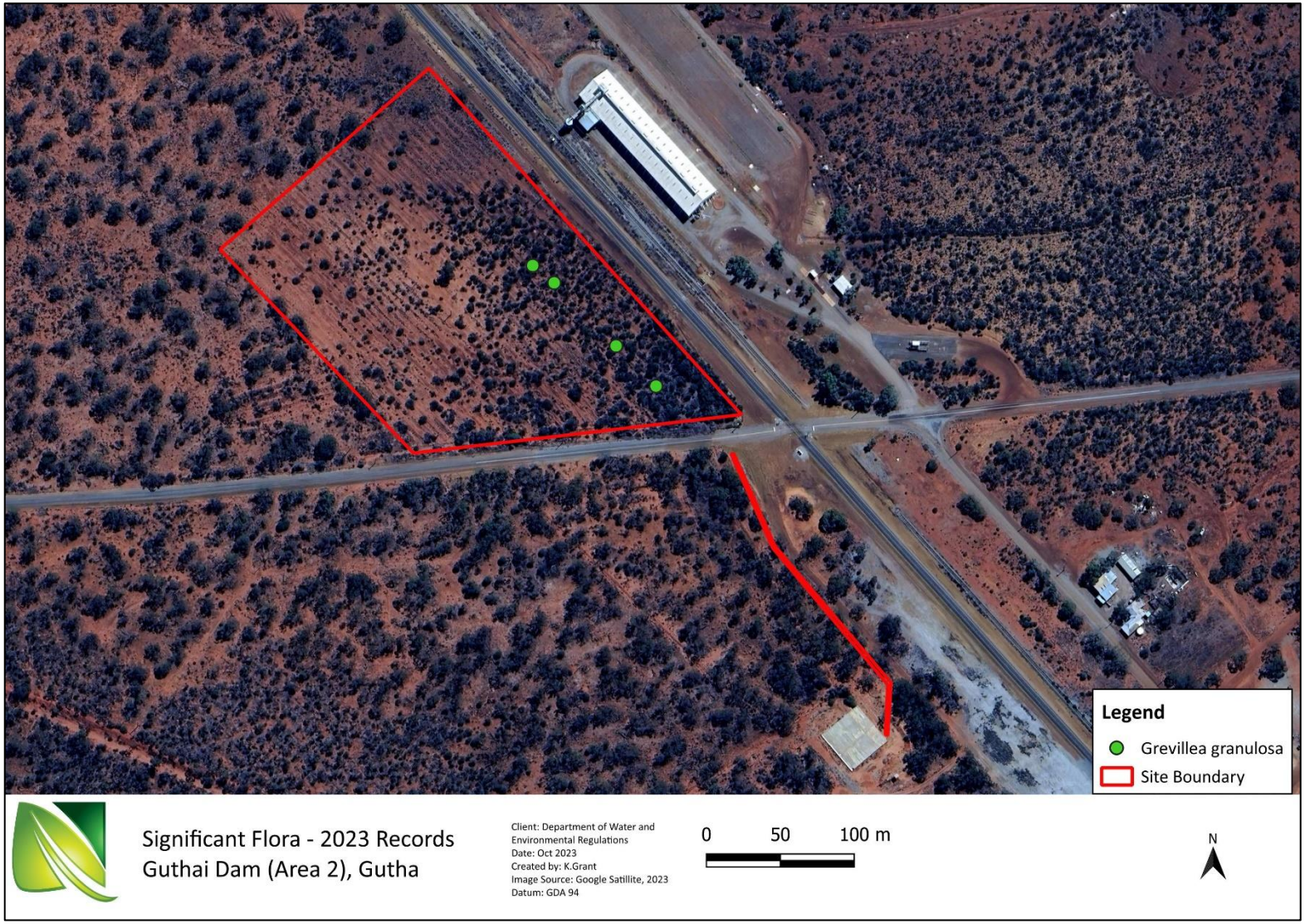
Appendix 5.4 Black Cockatoo Habitat Tree Maps



Appendix 5.5 Quadrat Location Map


Q3
Q2
Q1
Q1
Q2
Q3
Legend
Quadrats
Site Boundary
Quadrat Locations
Gutha Dam (Area 2), Gutha
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
100
200 m
N

Appendix 5.6 Significant Flora Location Maps



Appendix 5.7 Foraging Quality Scoring Tool

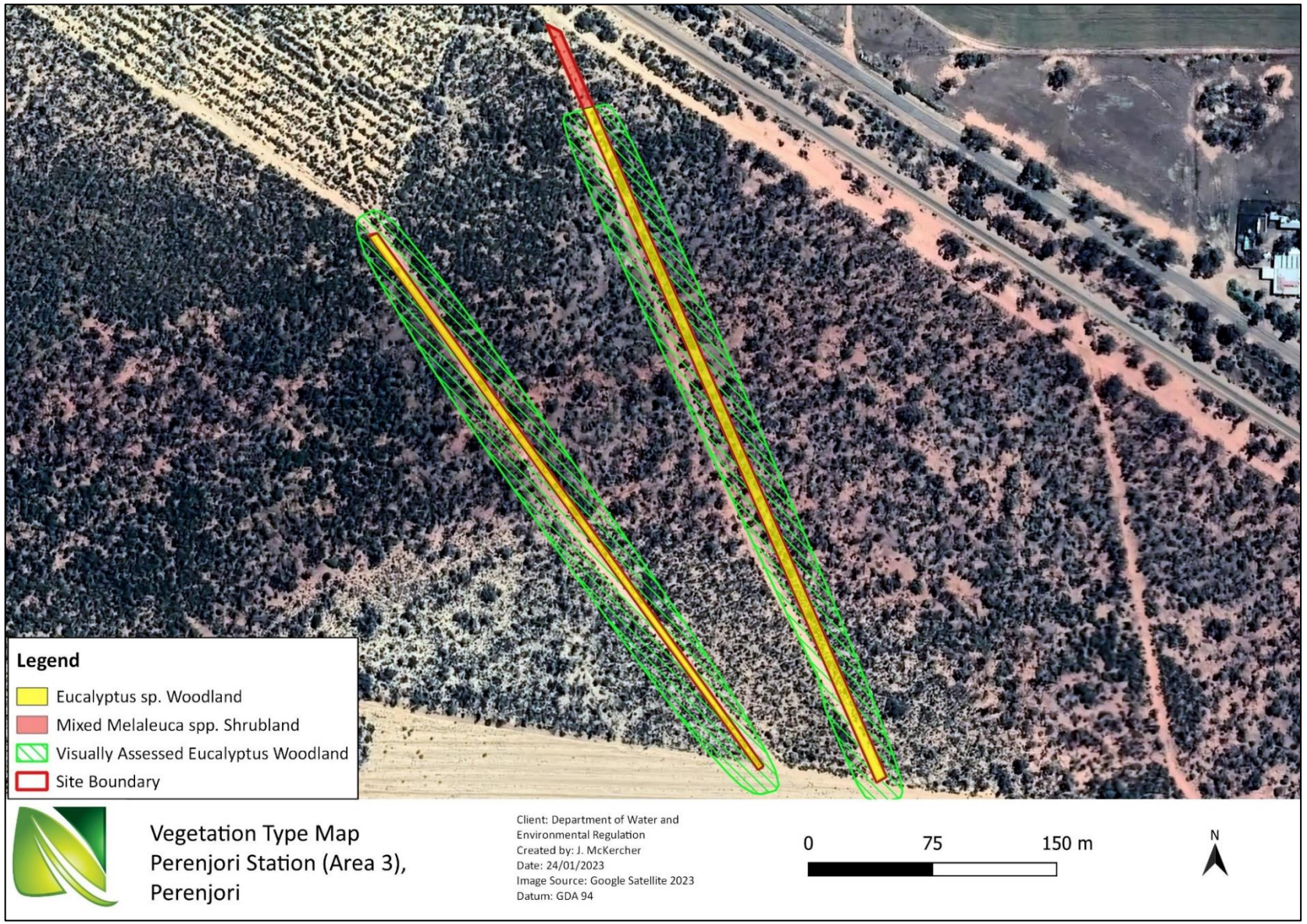
Carnaby's Cockatoo foraging habitat		**Starting Score**
Gutha contained areas of native Eucalypt woodland dominated by known plant foraging species. It is also located within the known range of the Carnaby's Cockatoo. As such, starting score of 10 (very high quality) is assigned.		10
Context adjustors: attributes improving/ reducing functionality of foraging habitat	Foraging potential	-2
	Connectivity	0
	Proximity to breeding	-2
	Proximity to roosting	-1
	Impact from significant plant disease	0
	Final Score	**5**

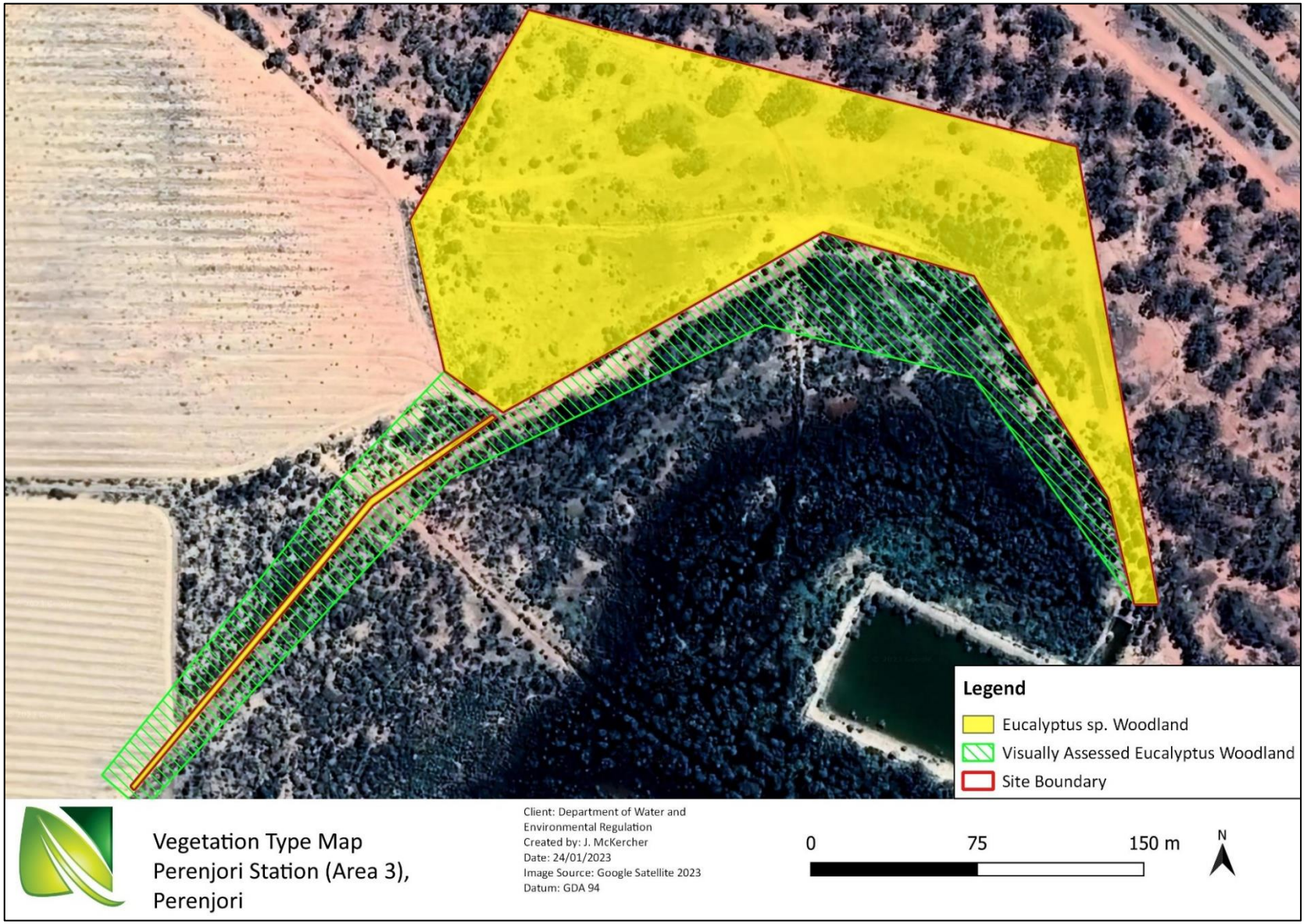
Baudin's Cockatoo foraging habitat	**Starting Score**
Gutha contained areas of native Eucalypt woodland dominated by known plant foraging species. However, it is not located within the known range of the Baudin's Cockatoo. As such, the foraging quality scoring tool has not been applied.	-

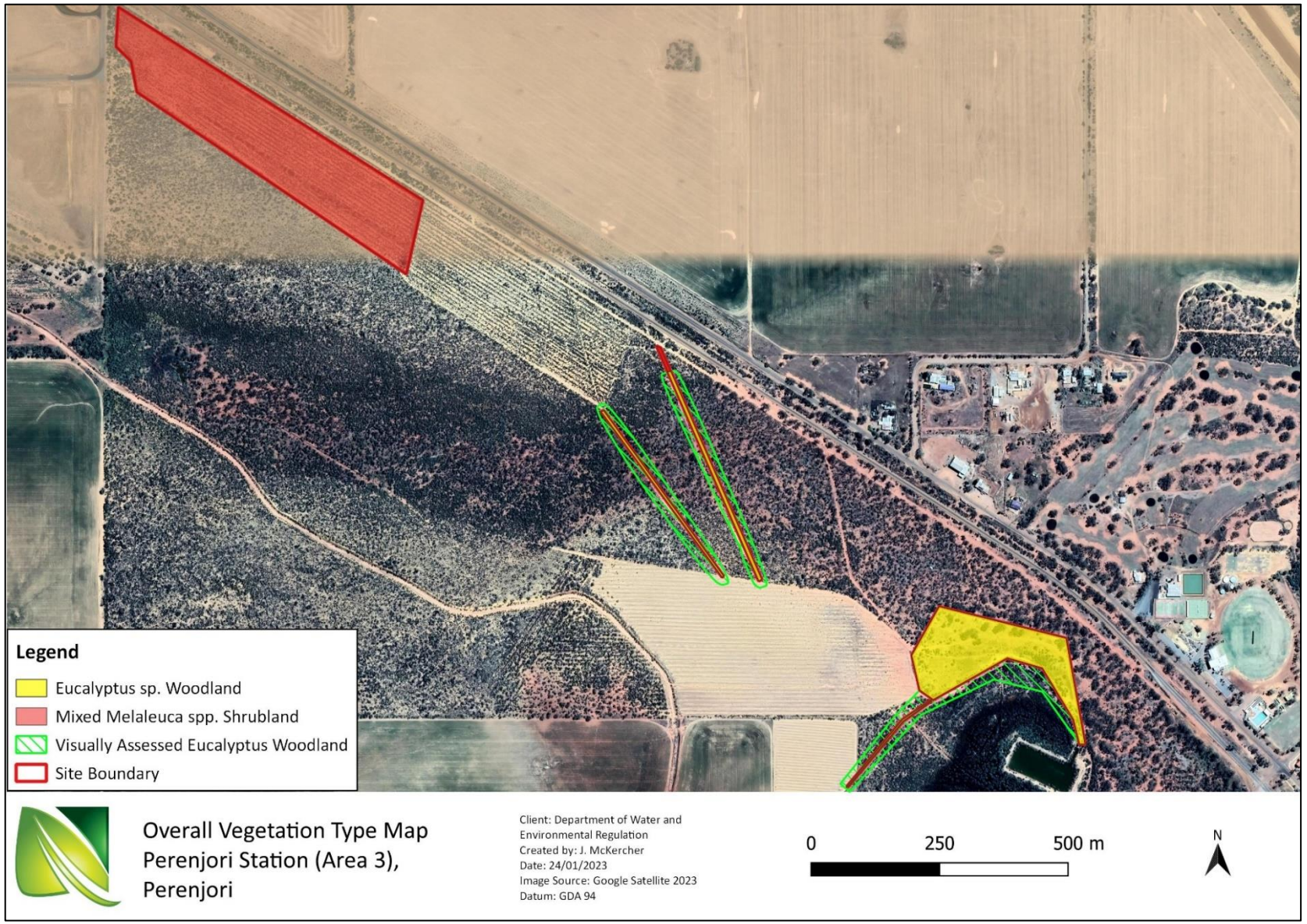
Forest Red-tailed Black Cockatoo foraging habitat	**Starting Score**
Gutha contained areas of native Eucalypt woodland dominated by known plant foraging species. However, it is not located within the known range of the Forest Red-tailed Black Cockatoo. As such, the foraging quality scoring tool has not been applied.	-

Appendix 6: Area 3 Perenjori Dam

Appendix 6.1 Vegetation Type Maps


Legend
Eucalyptus sp. Woodland
Mixed Melaleuca spp. Shrubland
Visually Assessed Eucalyptus Woodland
Site Boundary
Vegetation Type Map
Perenjori Station (Area 3),
Perenjori
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
75
150 m
N


Legend
Eucalyptus sp. Woodland
Visually Assessed Eucalyptus Woodland
Site Boundary
Vegetation Type Map
Perenjori Station (Area 3),
Perenjori
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
75
150 m
N

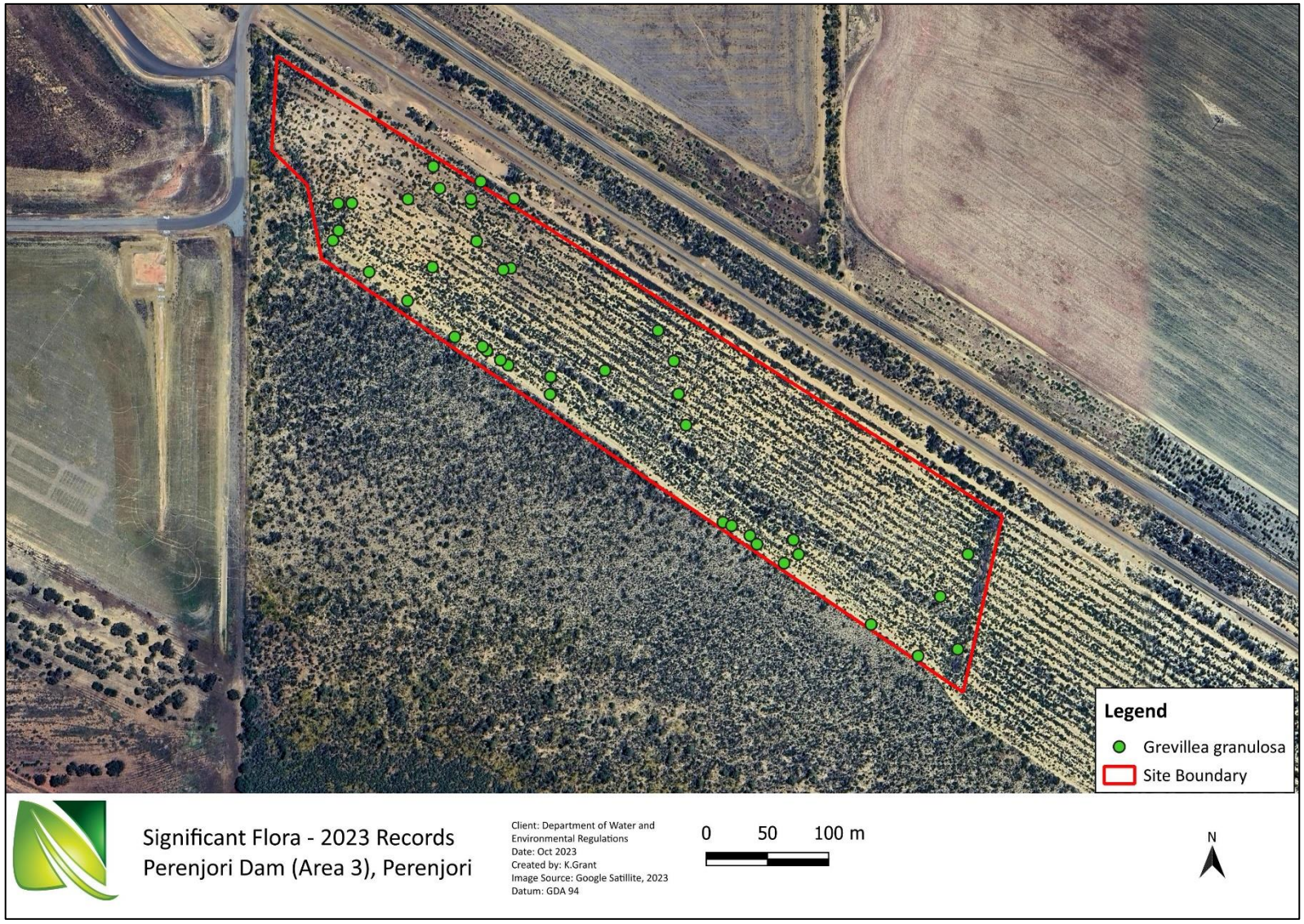

Legend
Eucalyptus sp. Woodland
Mixed Melaleuca spp. Shrubland
Visually Assessed Eucalyptus Woodland
Site Boundary
Overall Vegetation Type Map
Perenjori Station (Area 3),
Perenjori
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
250
500 m
N

Appendix 6.2 Vegetation Condition Maps

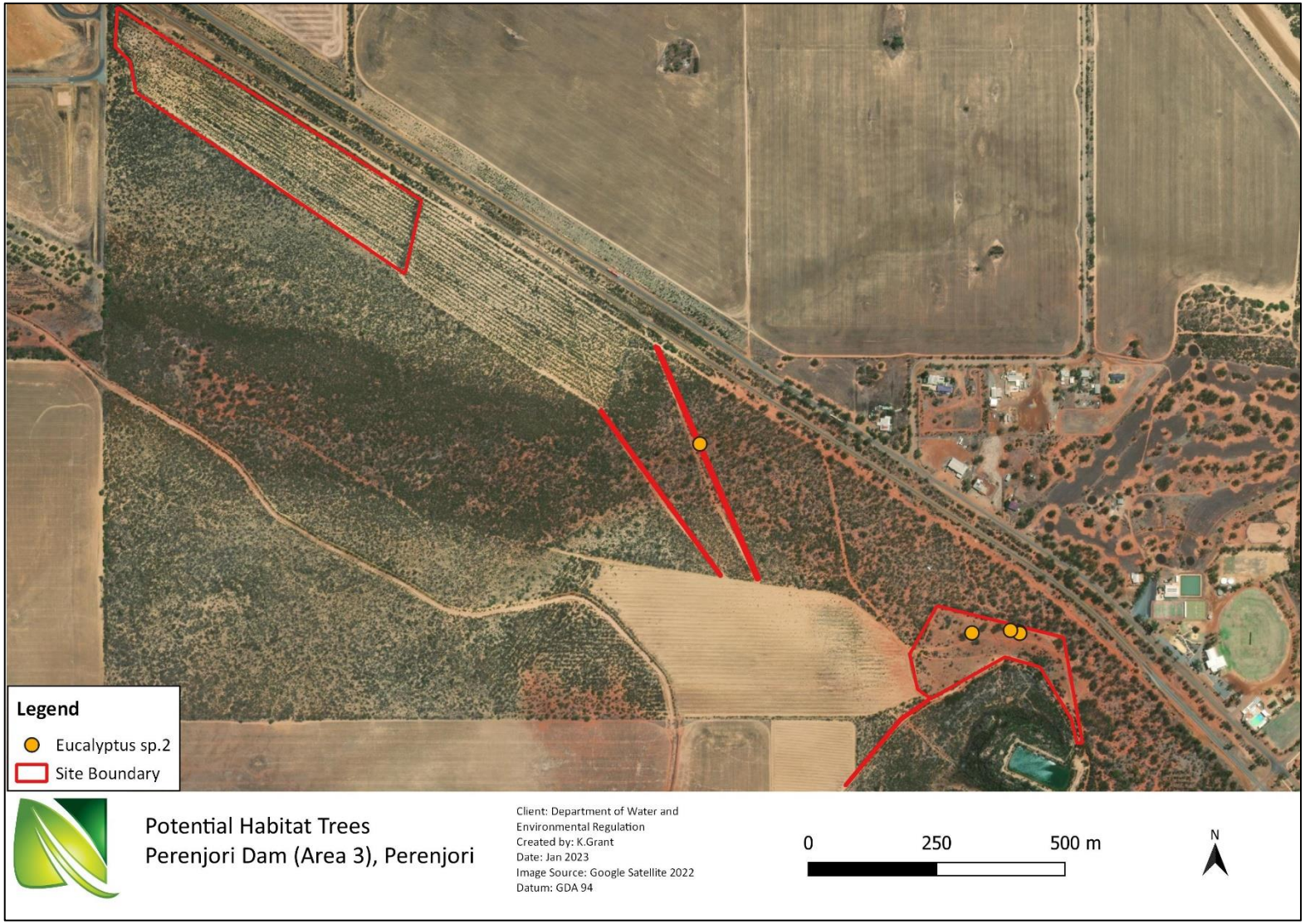

Legend
Degraded
Site Boundary
Vegetation Condition Map
Perenjori Dam (Area 3), Perenjori
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
75
150 m
N


Legend
Degraded
Good
Visually Assessed as Good
Site Boundary
Overall Vegetation Condition Map
Perenjori Dam (Area 3), Perenjori
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
250
500 m
N

Appendix 6.3 Conservation Significant Flora and Declared Pest Location Maps


Legend
Grevillea granulosa
Site Boundary
Significant Flora - 2023 Records
Perenjori Dam (Area 3), Perenjori
Client: Department of Water and Environmental Regulations
Date: Oct 2023
Created by: K.Grant
Image Source: Google Satillite, 2023
Datum: GDA 94
0 50 100 m
N

Appendix 6.4 Black Cockatoo Habitat Tree Maps



Appendix 6.5 Quadrat Location Map

Appendix 6.6 Foraging Quality Scoring Tool

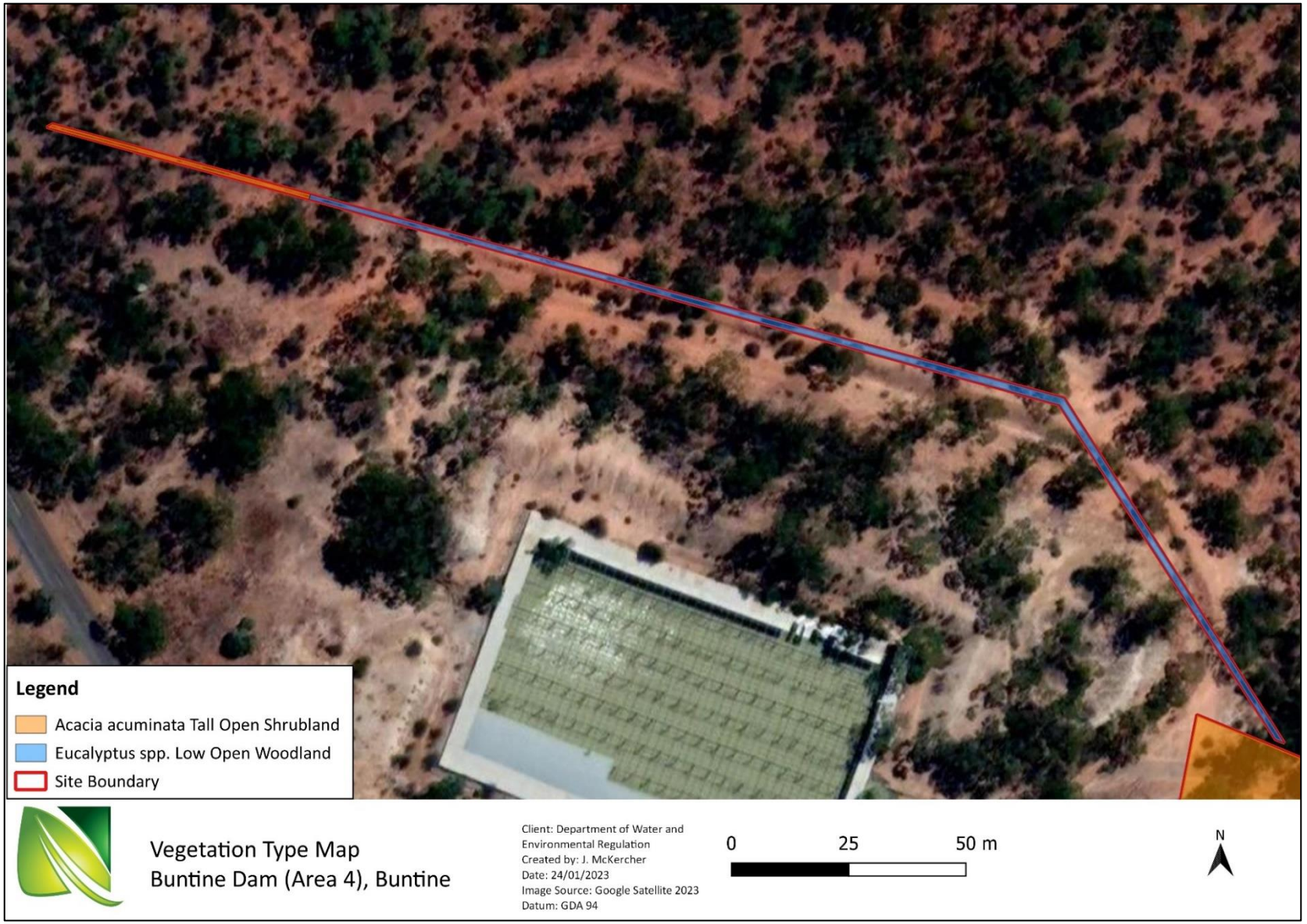
Carnaby's Cockatoo foraging habitat		**Starting Score**
Perenjori Dam contained areas of native Eucalypt woodland dominated by known plant foraging species. It is also located within the known range of the Carnaby's Cockatoo. As such, starting score of 10 (very high quality) is assigned.		10
Context adjustors: attributes improving/ reducing functionality of foraging habitat	Foraging potential	-2
	Connectivity	0
	Proximity to breeding	-2
	Proximity to roosting	-1
	Impact from significant plant disease	0
	Final Score	**5**

Baudin's Cockatoo foraging habitat	**Starting Score**
Perenjori Dam contained areas of native Eucalypt woodland dominated by known plant foraging species. However, it is not located within the known range of the Baudin's Cockatoo. As such, the foraging quality scoring tool has not been applied.	-

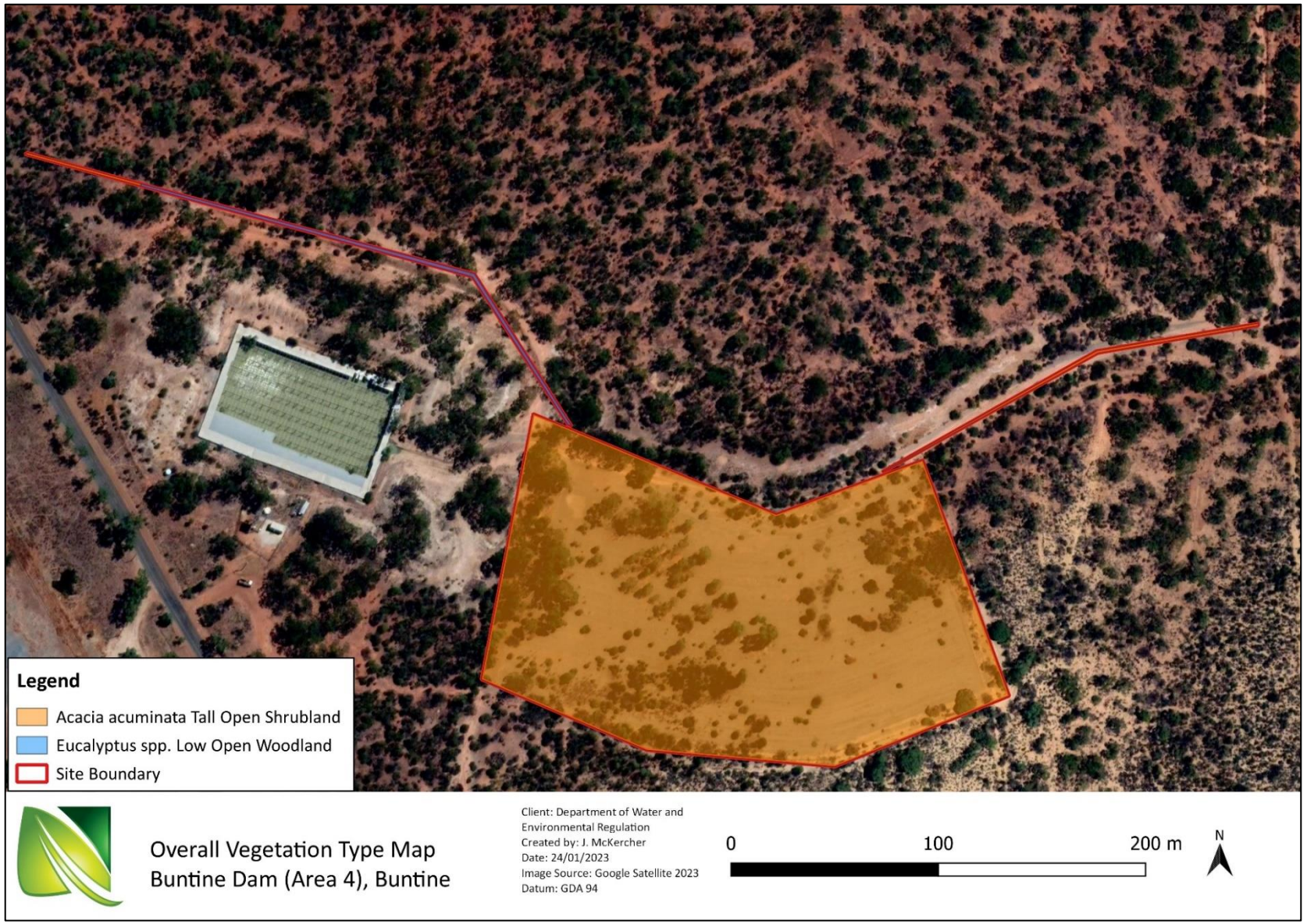
Forest Red-tailed Black Cockatoo foraging habitat	**Starting Score**
Perenjori Dam contained areas of native Eucalypt woodland dominated by known plant foraging species. However, it is not located within the known range of the Forest Red-tailed Black Cockatoo. As such, the foraging quality scoring tool has not been applied.	--

Appendix 7: Area 4 Buntine

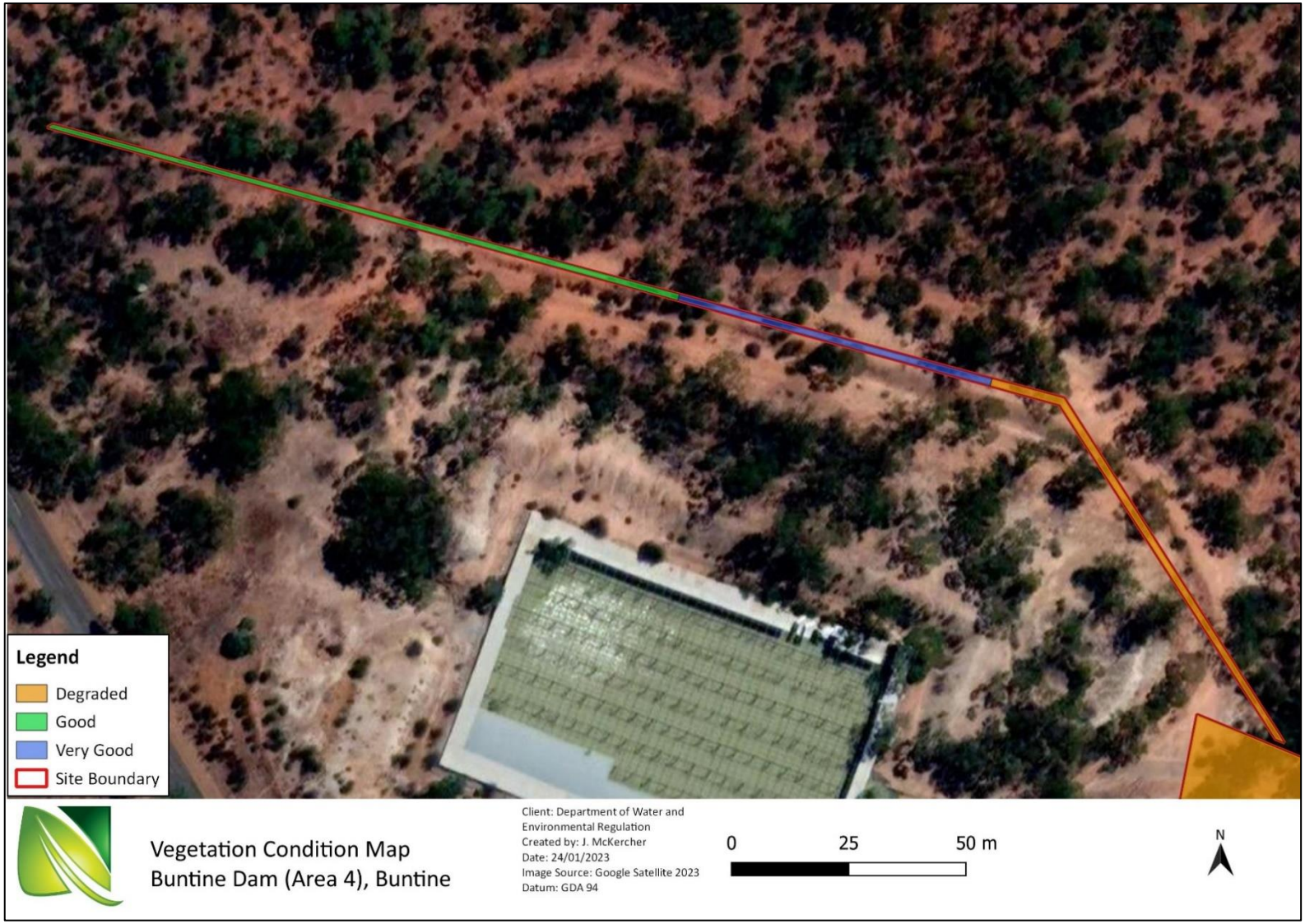
Appendix 7.1 Vegetation Type Maps


Legend
Acacia acuminata Tall Open Shrubland
Eucalyptus spp. Low Open Woodland
Site Boundary
Vegetation Type Map
Buntine Dam (Area 4), Buntine
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
25
50 m
N

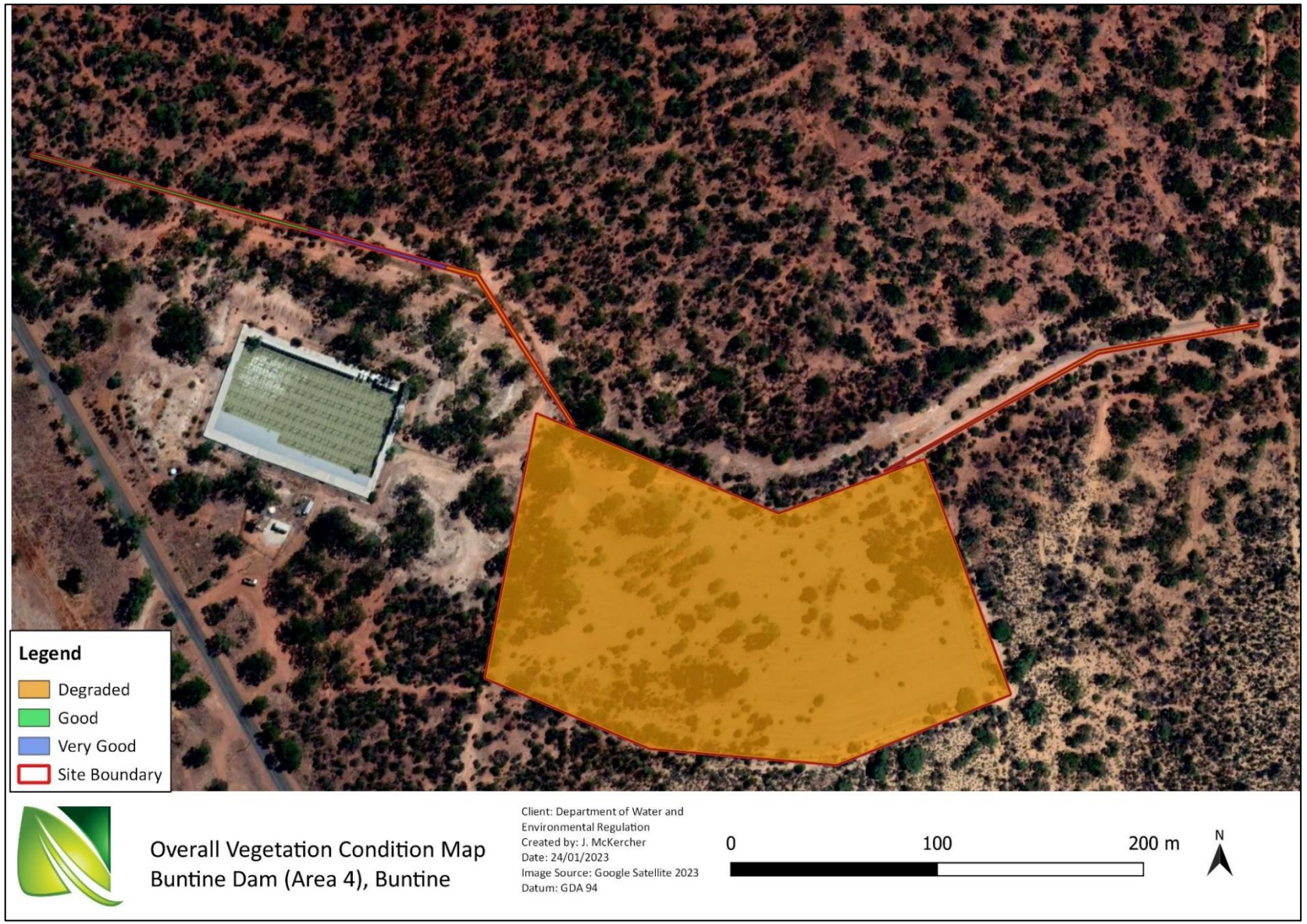

Legend
Acacia acuminata Tall Open Shrubland
Site Boundary
Vegetation Type Map
Buntine Dam (Area 4), Buntine
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
25
50 m
N


Legend
Acacia acuminata Tall Open Shrubland
Eucalyptus spp. Low Open Woodland
Site Boundary
Overall Vegetation Type Map
Buntine Dam (Area 4), Buntine
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
100
200 m
N

Appendix 7.2 Vegetation Condition Maps

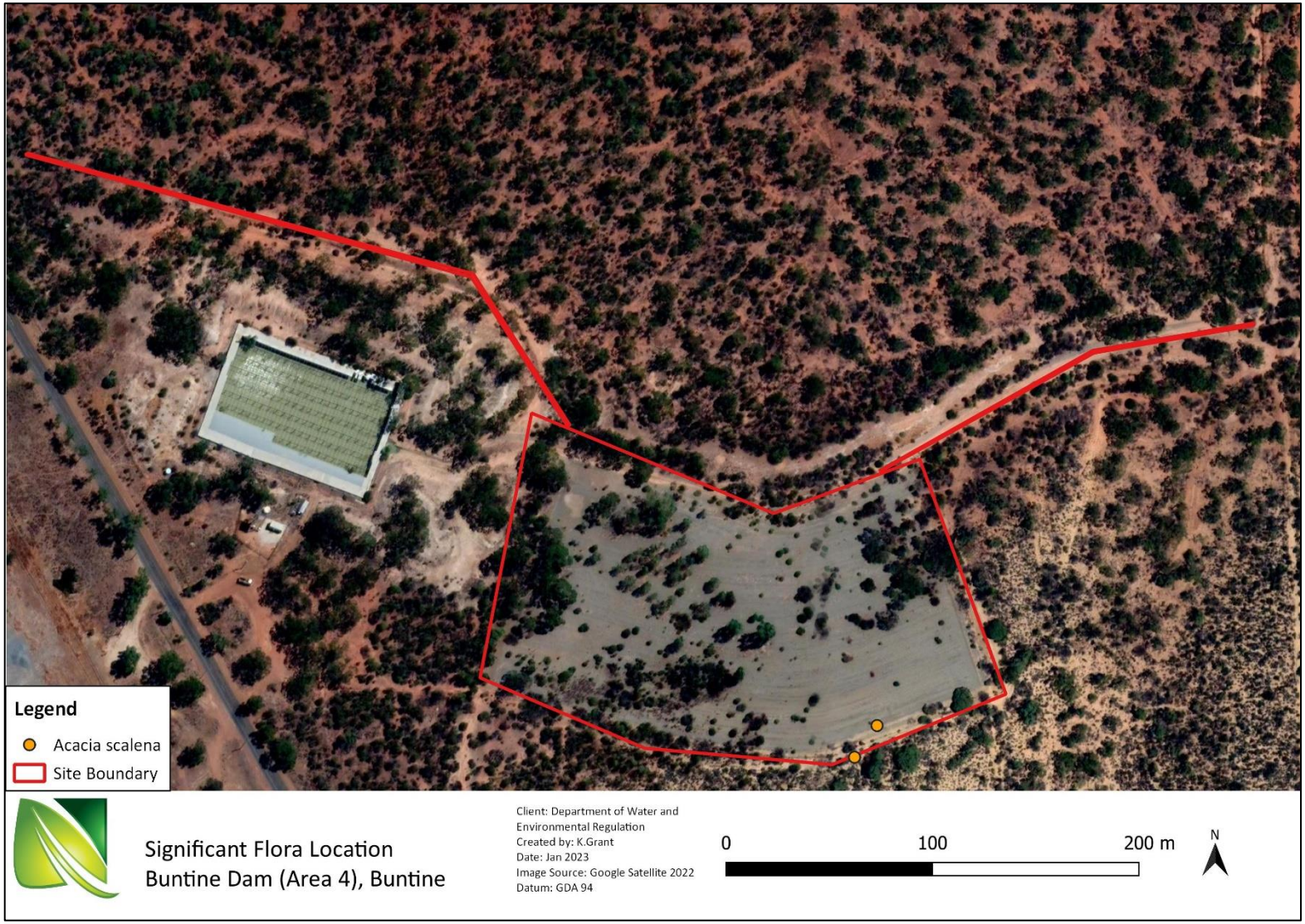



Legend
Degraded
Site Boundary
Vegetation Condition Map
Buntine Dam (Area 4), Buntine
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
25
50 m
N

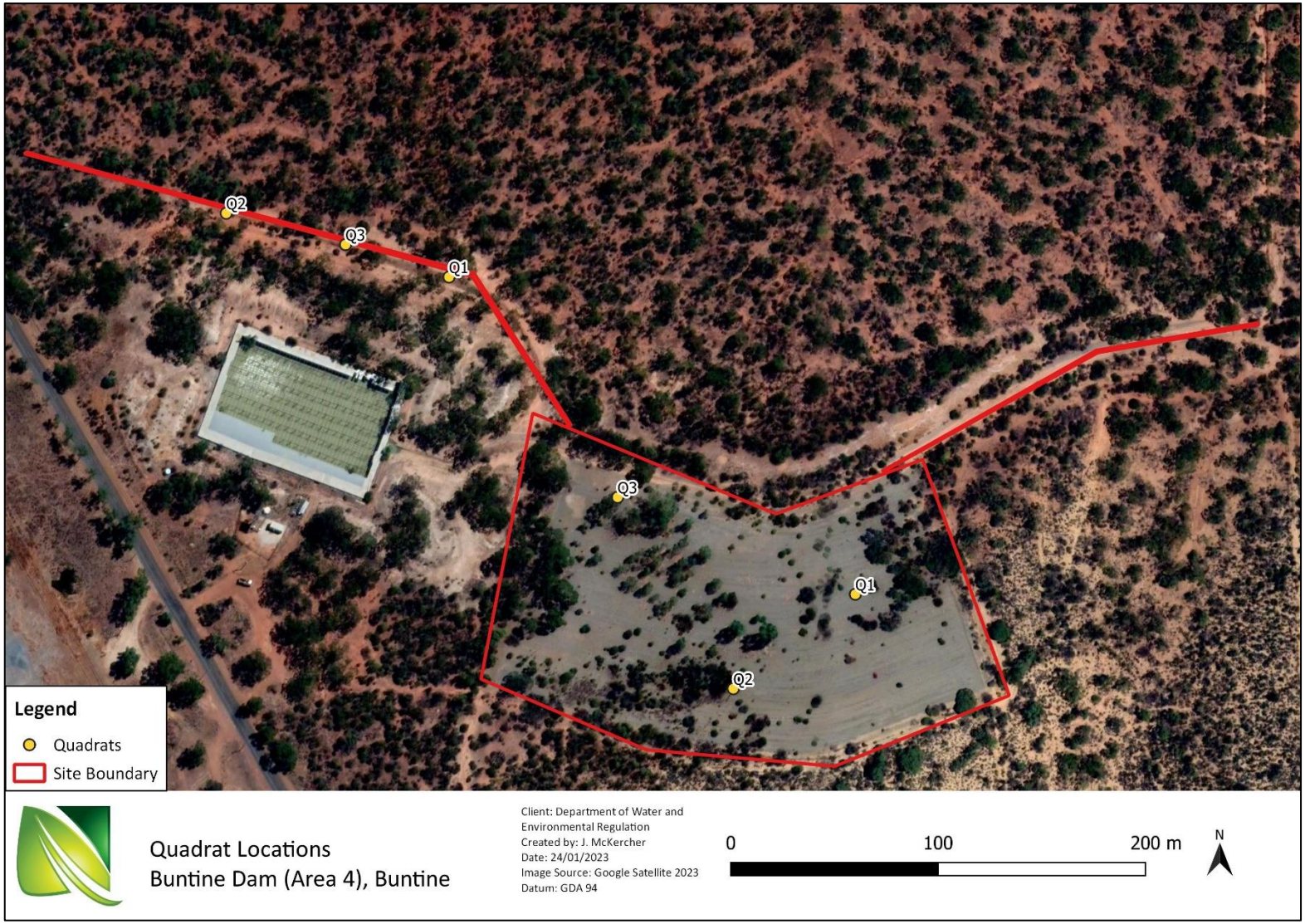

Legend
Degraded
Good
Very Good
Site Boundary
Overall Vegetation Condition Map
Buntine Dam (Area 4), Buntine
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
100
200 m
N

Appendix 7.3 Black Cockatoo Habitat Tree Maps

Appendix 7.4 Conservation Significant Flora Maps



Appendix 7.5 Quadrat Location Map



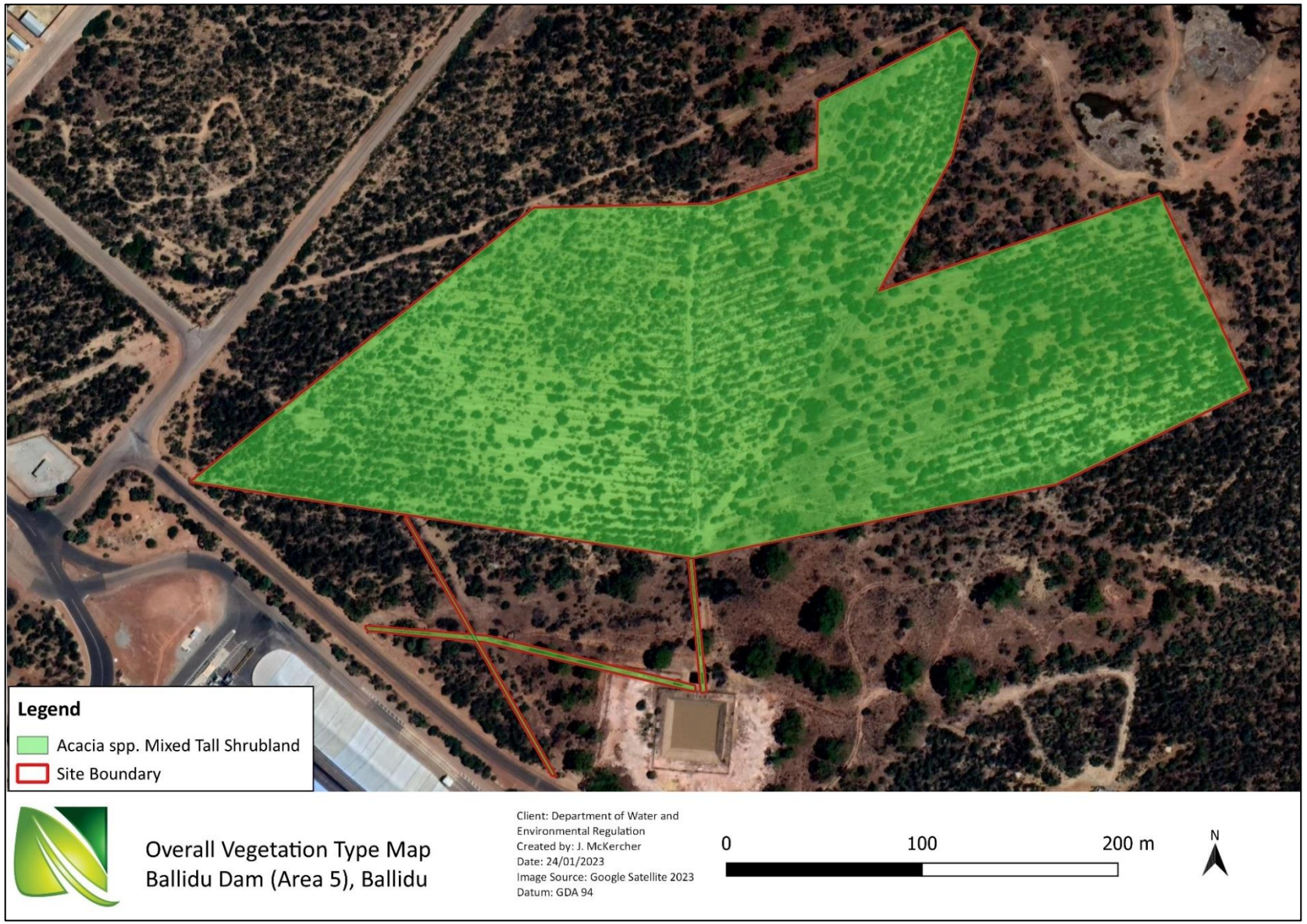
Appendix 7.6 Foraging Quality Scoring Tool

Carnaby's Cockatoo foraging habitat		**Starting Score**
Buntine contained areas of native Eucalypt woodland dominated by known plant foraging species. It is also located within the known range of the Carnaby's Cockatoo. As such, starting score of 10 (very high quality) is assigned.		10
Context adjustors: attributes improving/ reducing functionality of foraging habitat	Foraging potential	-2
	Connectivity	0
	Proximity to breeding	-2
	Proximity to roosting	-1
	Impact from significant plant disease	0
	Final Score	**5**
Baudin's Cockatoo foraging habitat		**Starting Score**
Buntine contained areas of native Eucalypt woodland dominated by known plant foraging species. However, it is not located within the known range of the Baudin's Cockatoo. As such, the foraging quality scoring tool has not been applied.		-
Forest Red-tailed Black Cockatoo foraging habitat		**Starting Score**
Buntine contained areas of native Eucalypt woodland dominated by known plant foraging species. However, it is not located within the known range of the Forest Red-tailed Black Cockatoo. As such, the foraging quality scoring tool has not been applied.		-

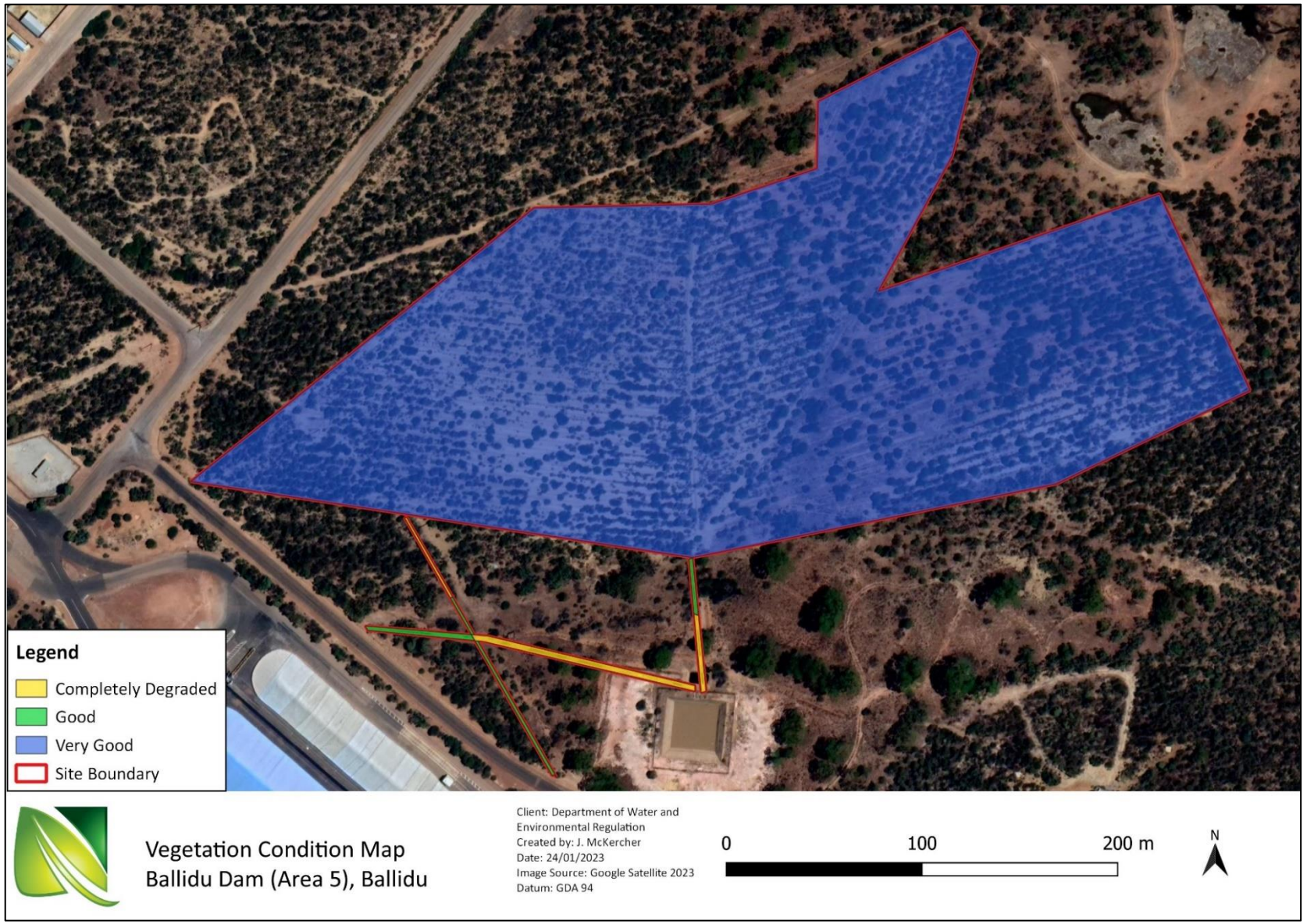
Appendix 8: Area 5 Ballidu

Appendix 8.1 Vegetation Type Maps

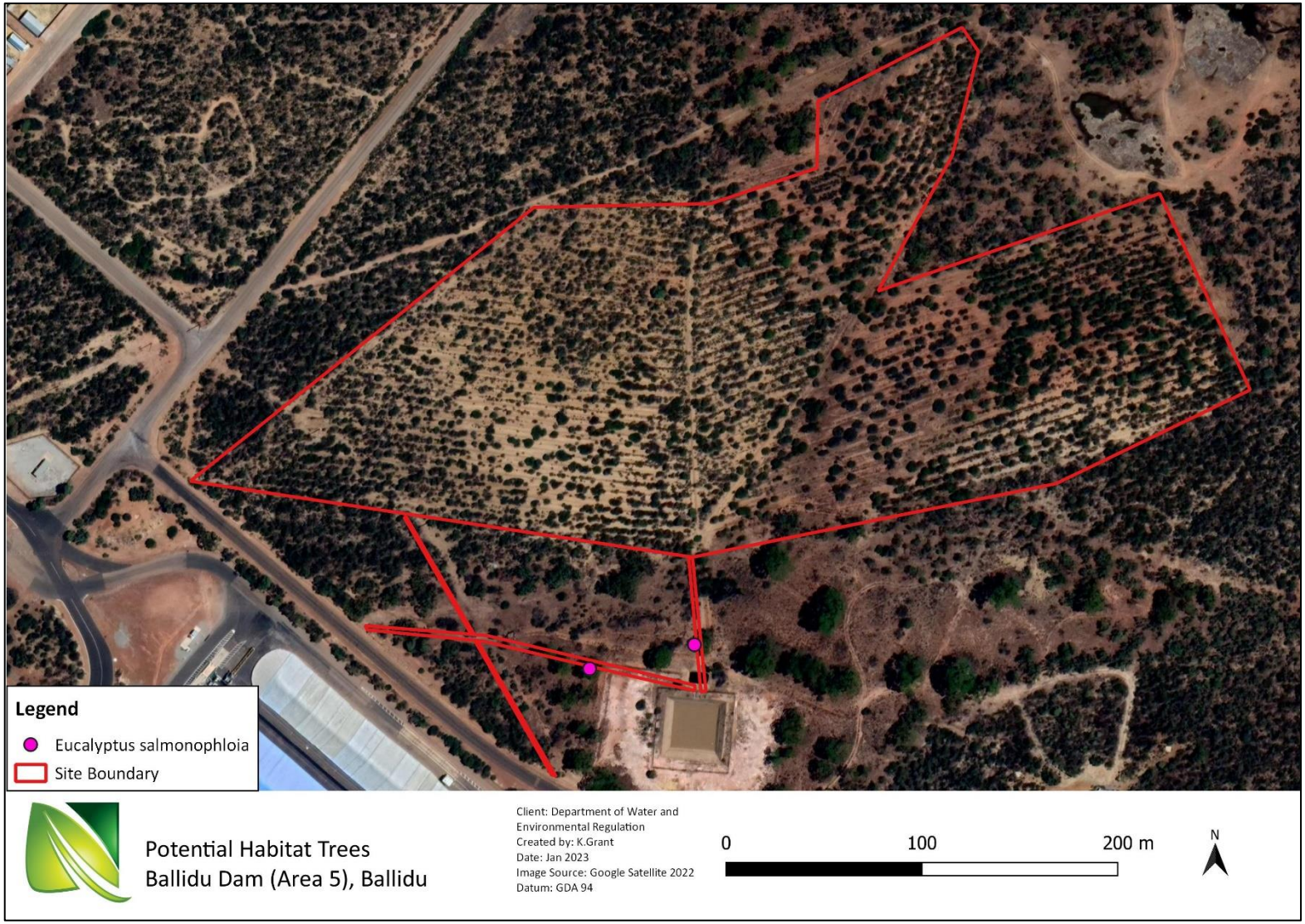

Legend
Acacia spp. Mixed Tall Shrubland
Site Boundary
Vegetation Type Map
Ballidu Dam (Area 5), Ballidu
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
25
50 m
N


Legend
Acacia spp. Mixed Tall Shrubland
Site Boundary
Overall Vegetation Type Map
Ballidu Dam (Area 5), Ballidu
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
100
200 m
N

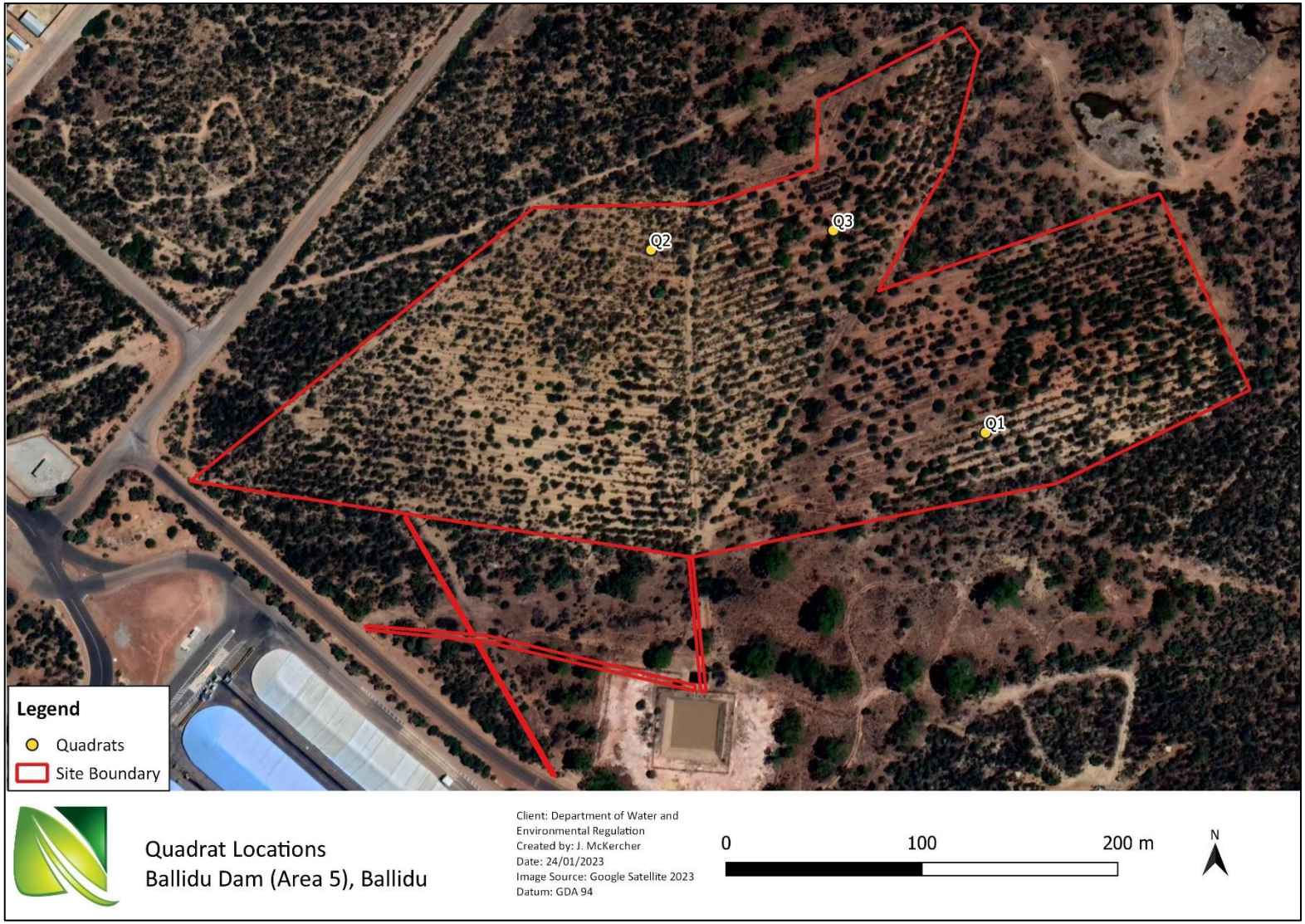
Appendix 8.2 Vegetation Condition Maps


Legend
Completely Degraded
Good
Very Good
Site Boundary
Vegetation Condition Map
Ballidu Dam (Area 5), Ballidu
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
100
200 m
N

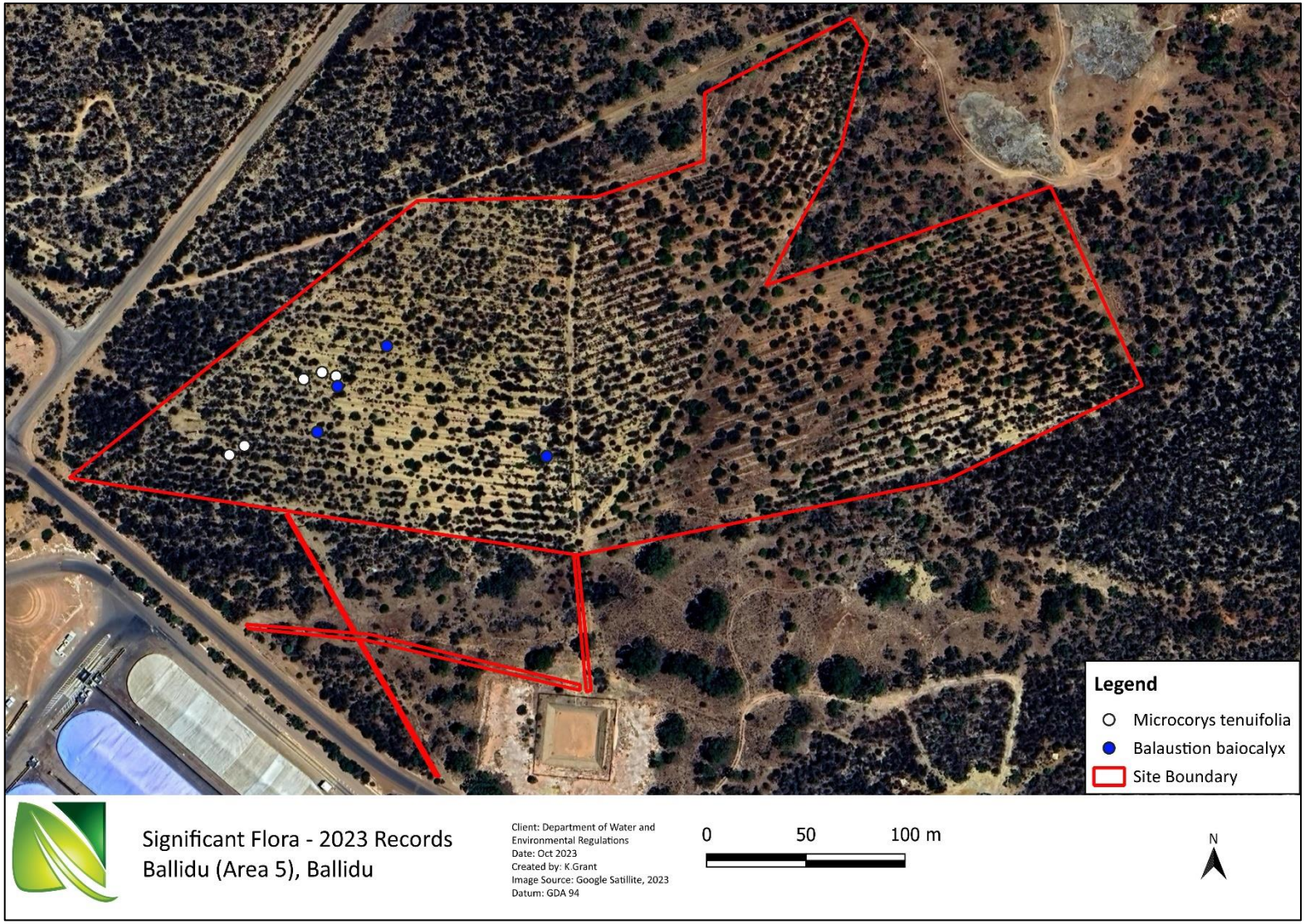
Appendix 8.3 Black Cockatoo Habitat Tree Maps



Appendix 8.4 Quadrat Location Map



Appendix 8.5 Significant Flora Location Maps



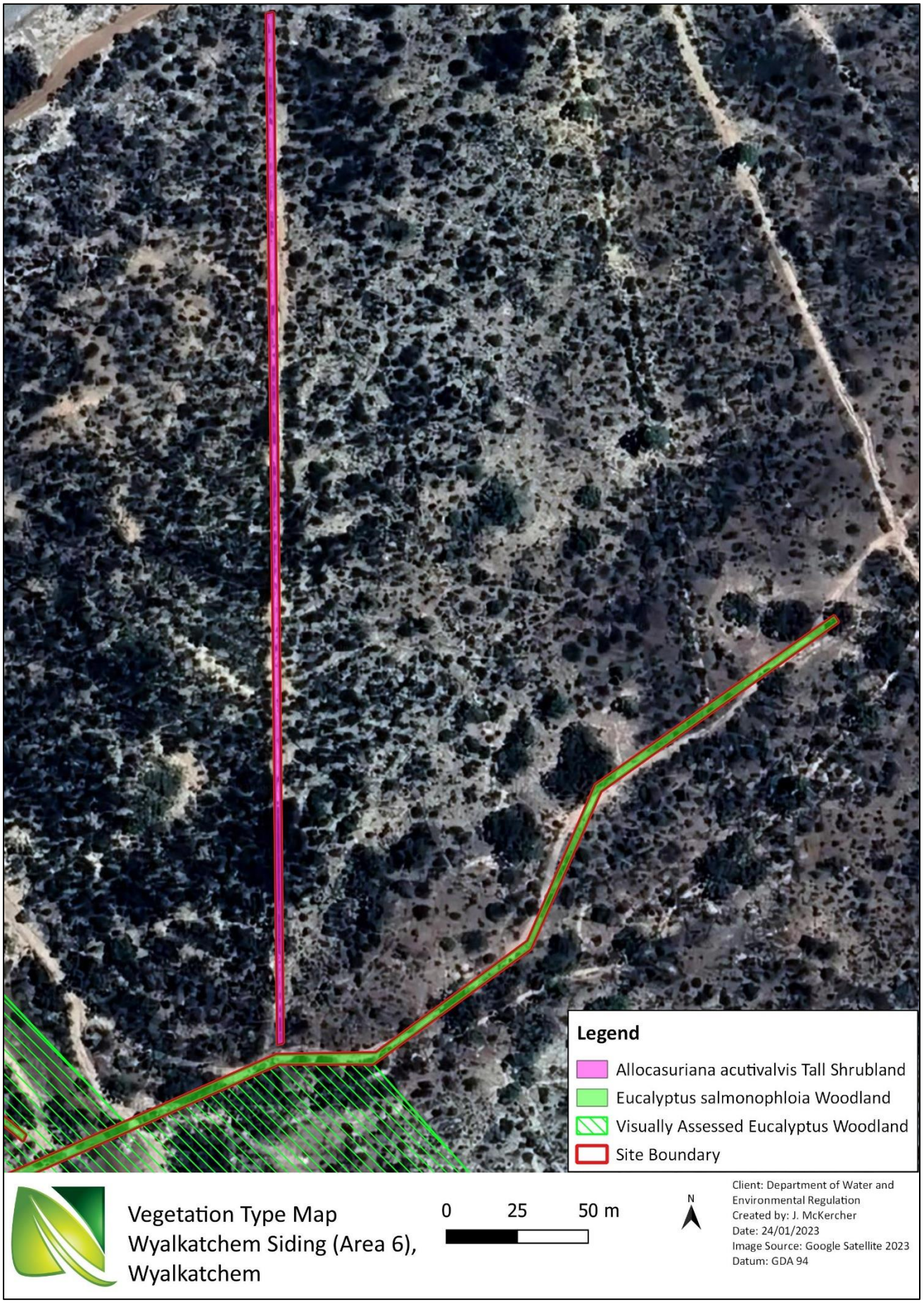
Appendix 8.6 Foraging Quality Scoring Tool

Carnaby's Cockatoo foraging habitat	**Starting Score**
Ballidu did not contain a vegetation type dominated by known plant foraging species, despite being located within the known range of the Carnaby's Cockatoo. As such, the foraging quality scoring tool has not been applied.	-
Baudin's Cockatoo foraging habitat	**Starting Score**
Ballidu did not contain a vegetation type dominated by known plant foraging species and is not located within the known range of the Baudin's Cockatoo. As such, the foraging quality scoring tool has not been applied.	-
Forest Red-tailed Black Cockatoo foraging habitat	**Starting Score**
Ballidu did not contain a vegetation type dominated by known plant foraging species and is not located within the known range of the Forest Red-tailed Black Cockatoo. As such, the foraging quality scoring tool has not been applied.	-

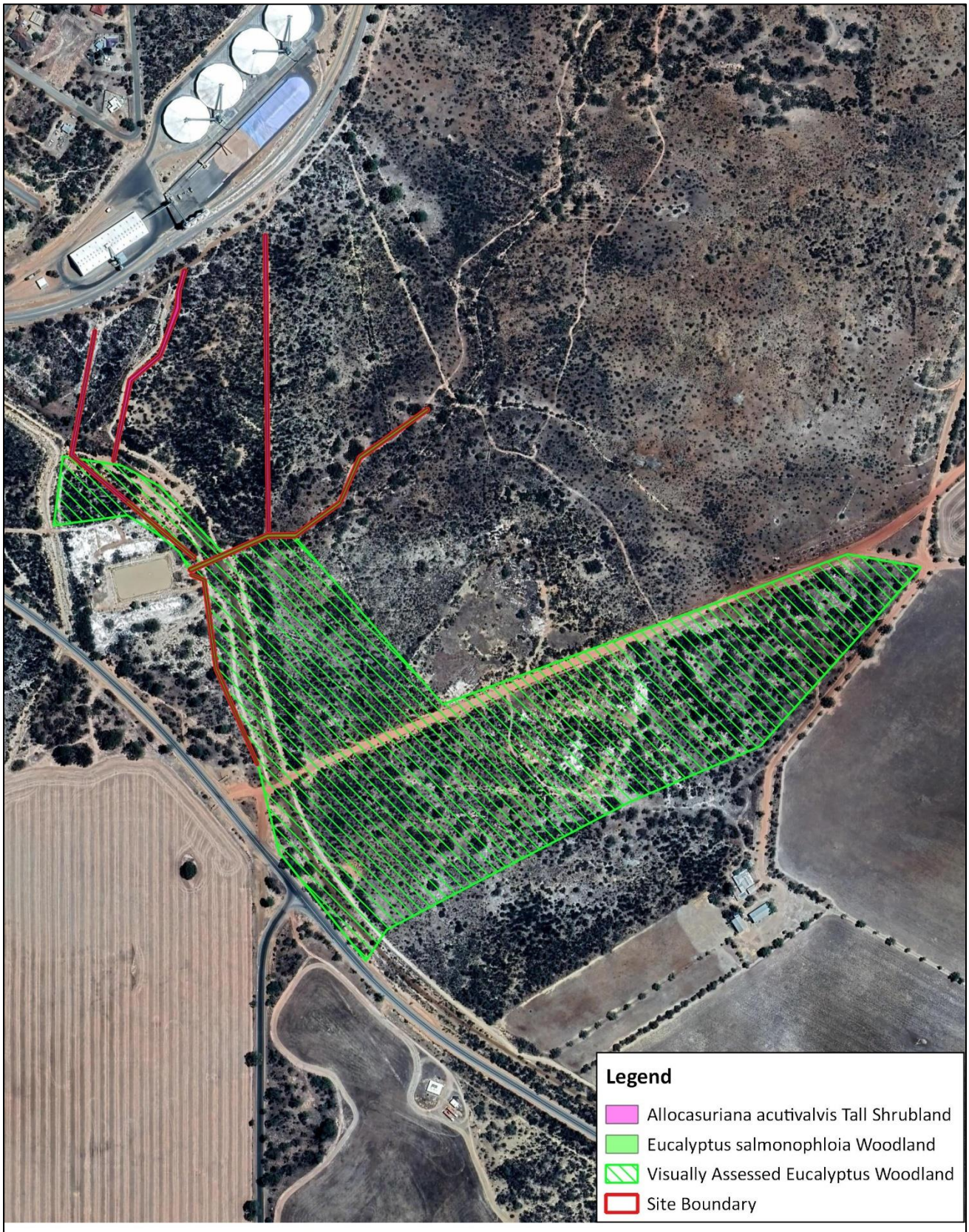
Appendix 9: Area 6 Wyalkatchem Siding

Appendix 9.1 Vegetation Type Maps


Legend
Allocasuriana acutivalvis Tall Shrubland
Eucalyptus salmonophloia Woodland
Visually Assessed Eucalyptus Woodland
Site Boundary
Vegetation Type Map
Wyalkatchem Siding (Area 6),
Wyalkatchem
0
25
50 m
N
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94


Legend
Allocasuriana acutivalvis Tall Shrubland
Eucalyptus salmonophloia Woodland
Visually Assessed Eucalyptus Woodland
Site Boundary
Vegetation Type Map
Wyalkatchem Siding (Area 6),
Wyalkatchem
0
25
50 m
N
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94


Legend
Eucalyptus salmonophloia Woodland
Visually Assessed Eucalyptus Woodland
Site Boundary
Vegetation Type Map
Wyalkatchem Siding (Area 6),
Wyalkatchem
0
20
40 m
N
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94


Legend
Allocasuriana acutivalvis Tall Shrubland
Eucalyptus salmonophloia Woodland
Visually Assessed Eucalyptus Woodland
Site Boundary
Overall Vegetation Type Map
Wyalkatchem Siding (Area 6),
Wyalkatchem
0
100
200 m
N
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94

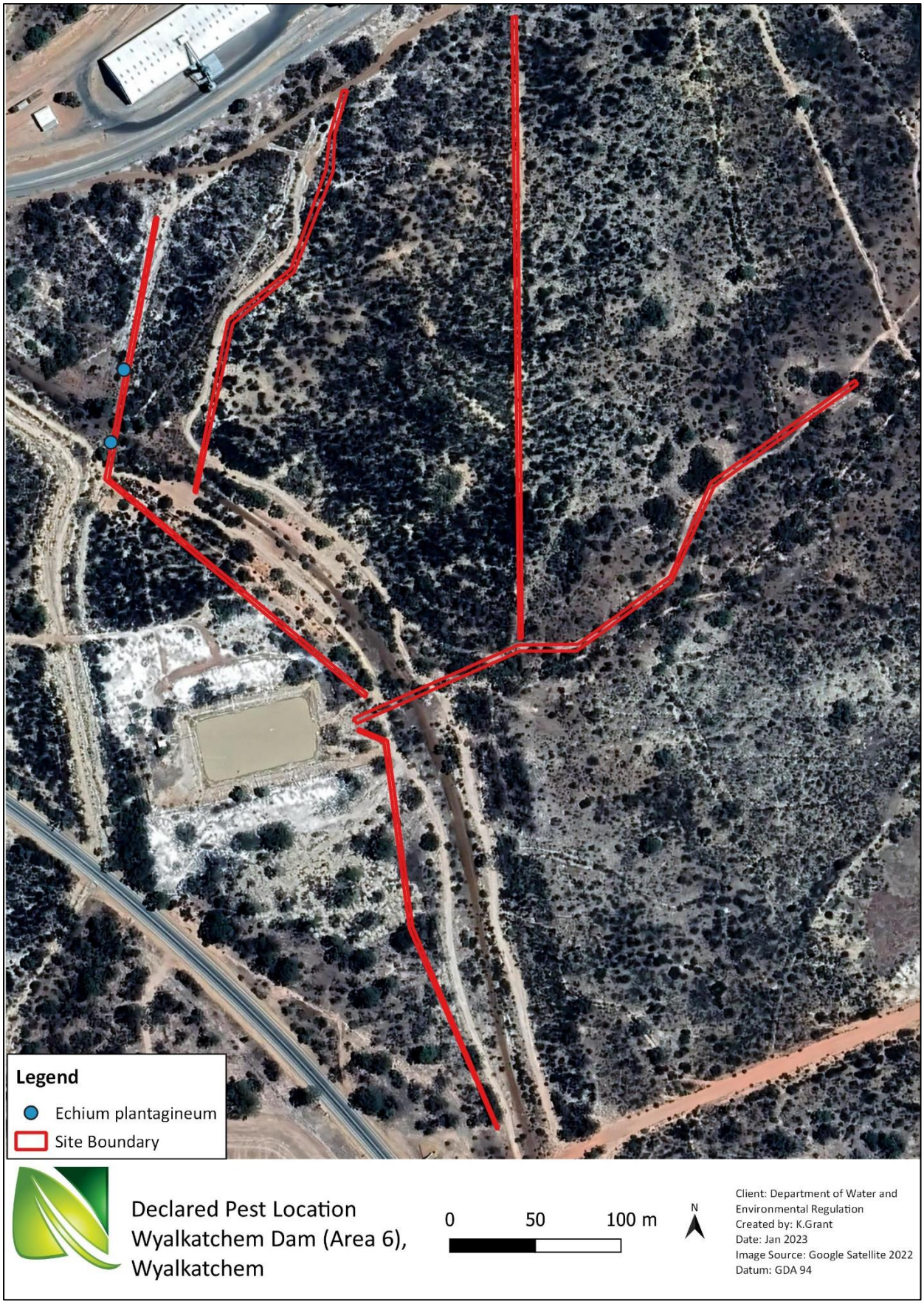
Appendix 9.2 Vegetation Condition Maps


Legend
Degraded
Good
Site Boundary
Vegetation Condition Map
Wyalkatchem Dam (Area 6),
Wyalkatchem
0
25
50 m
N
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94

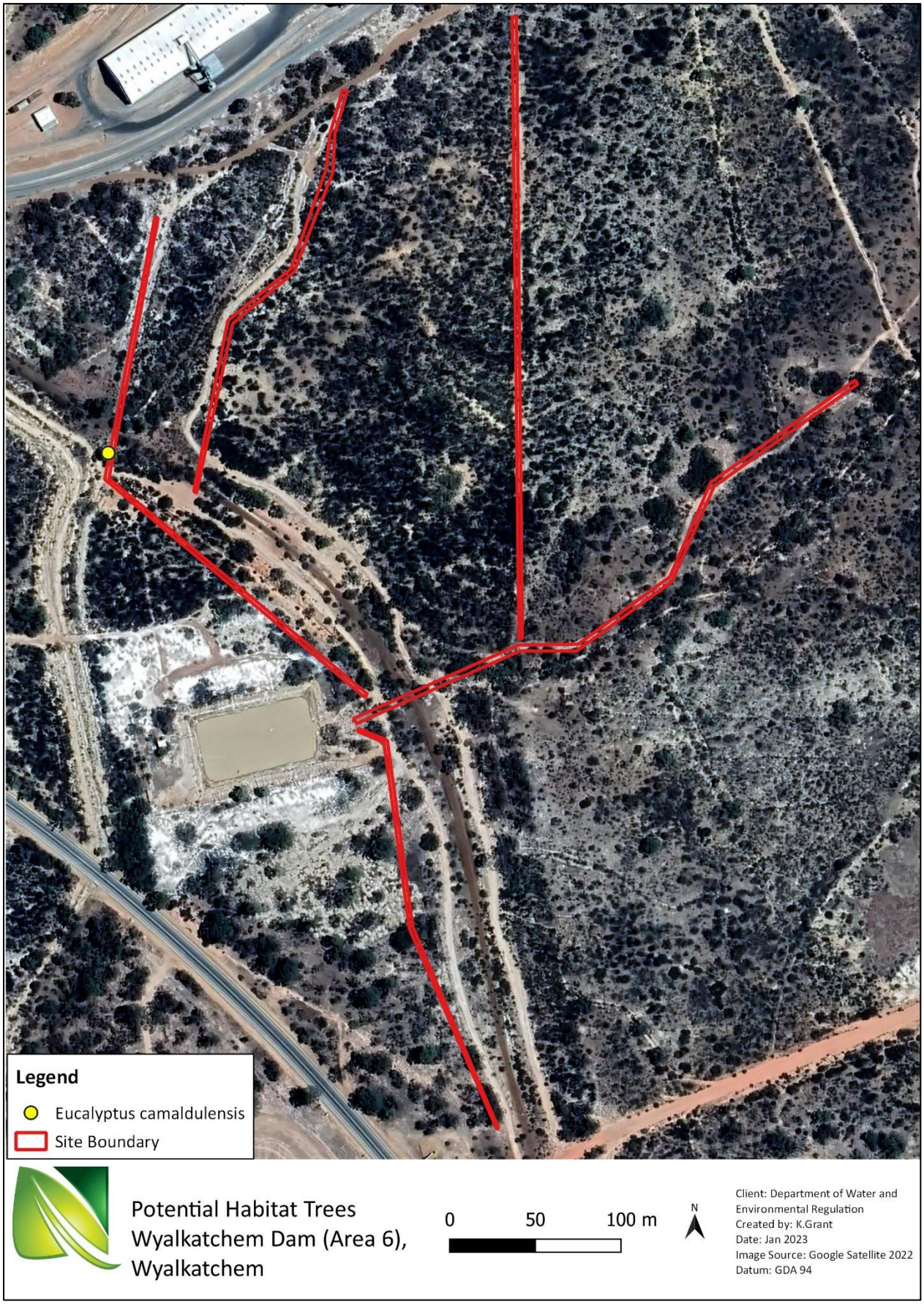
Vegetation Condition Map
Wyalkatchem Dam (Area 6),
Wyalkatchem

Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94

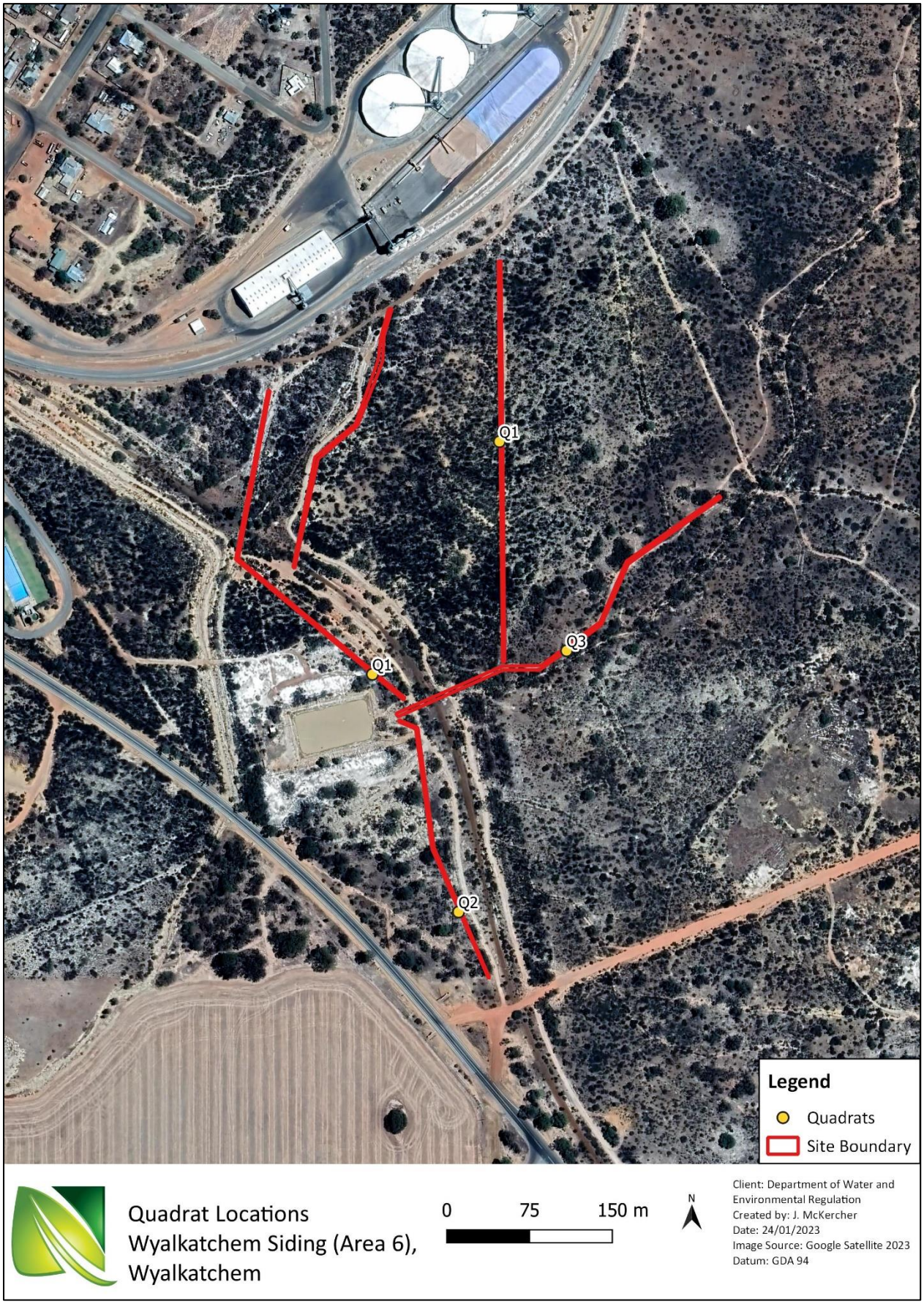
Appendix 9.3 Declared Pest Location Maps



Appendix 9.4 Black Cockatoo Habitat Tree Maps



Appendix 9.5 Quadrat Location Maps



Appendix 9.6 Foraging Quality Scoring Tool

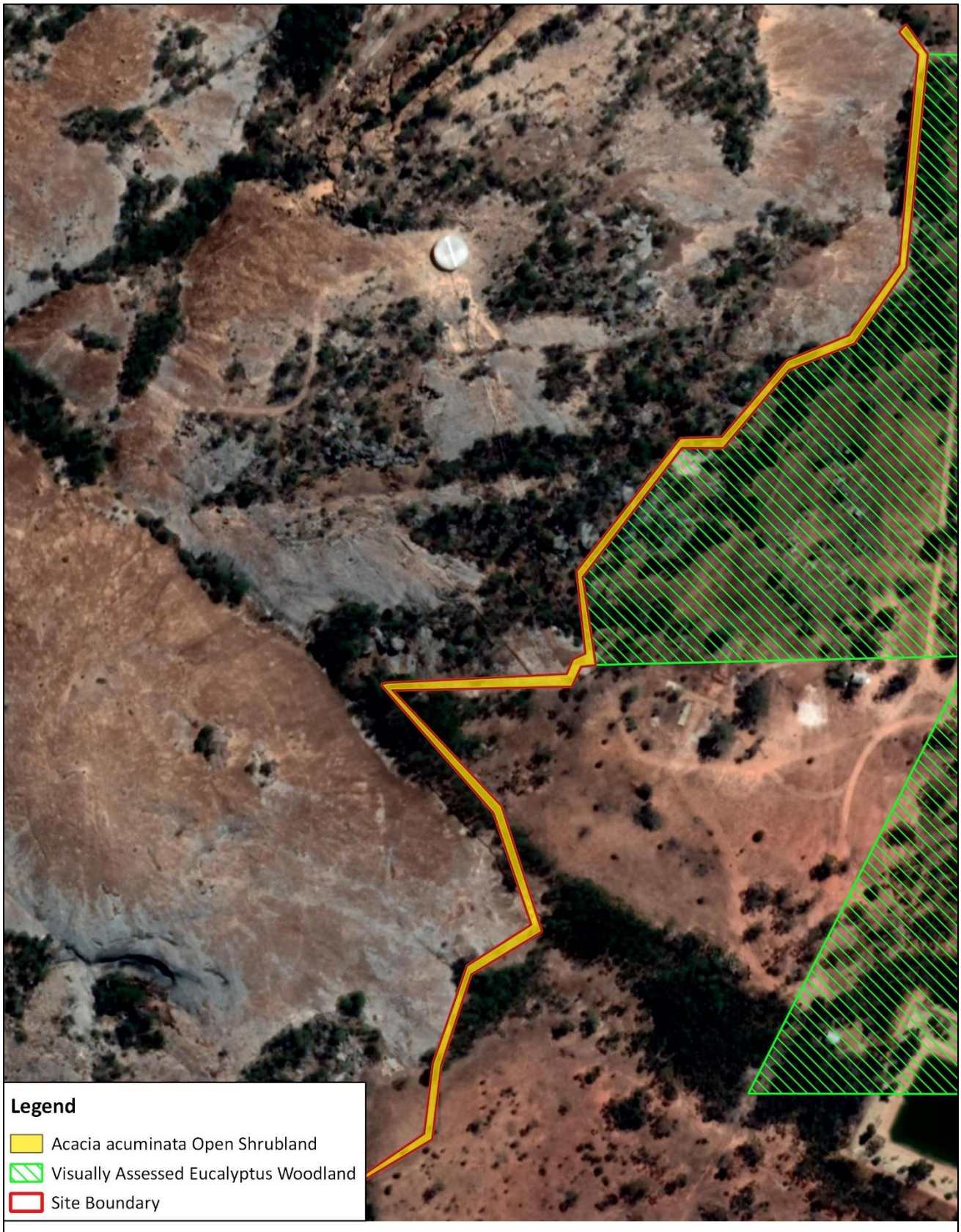
Carnaby's Cockatoo foraging habitat		**Starting Score**
Wyalkatchem Siding contained areas of native Eucalypt woodland dominated by known plant foraging species. It is also located within the known range of the Carnaby's Cockatoo. As such, starting score of 10 (very high quality) is assigned.		10
Context adjustors: attributes improving/ reducing functionality of foraging habitat	Foraging potential	-2
	Connectivity	0
	Proximity to breeding	-2
	Proximity to roosting	-1
	Impact from significant plant disease	0
	Final Score	**5**

Baudin's Cockatoo foraging habitat	**Starting Score**
Wyalkatchem Siding contained areas of native Eucalypt woodland dominated by known plant foraging species. However, it is not located within the known range of the Baudin's Cockatoo. As such, the foraging quality scoring tool has not been applied.	-

Forest Red-tailed Black Cockatoo foraging habitat	**Starting Score**
Wyalkatchem Siding contained areas of native Eucalypt woodland dominated by known plant foraging species. However, it is not located within the known range of the Forest Red-tailed Black Cockatoo. As such, the foraging quality scoring tool has not been applied.	-

Appendix 10: Area 7 Knungajin

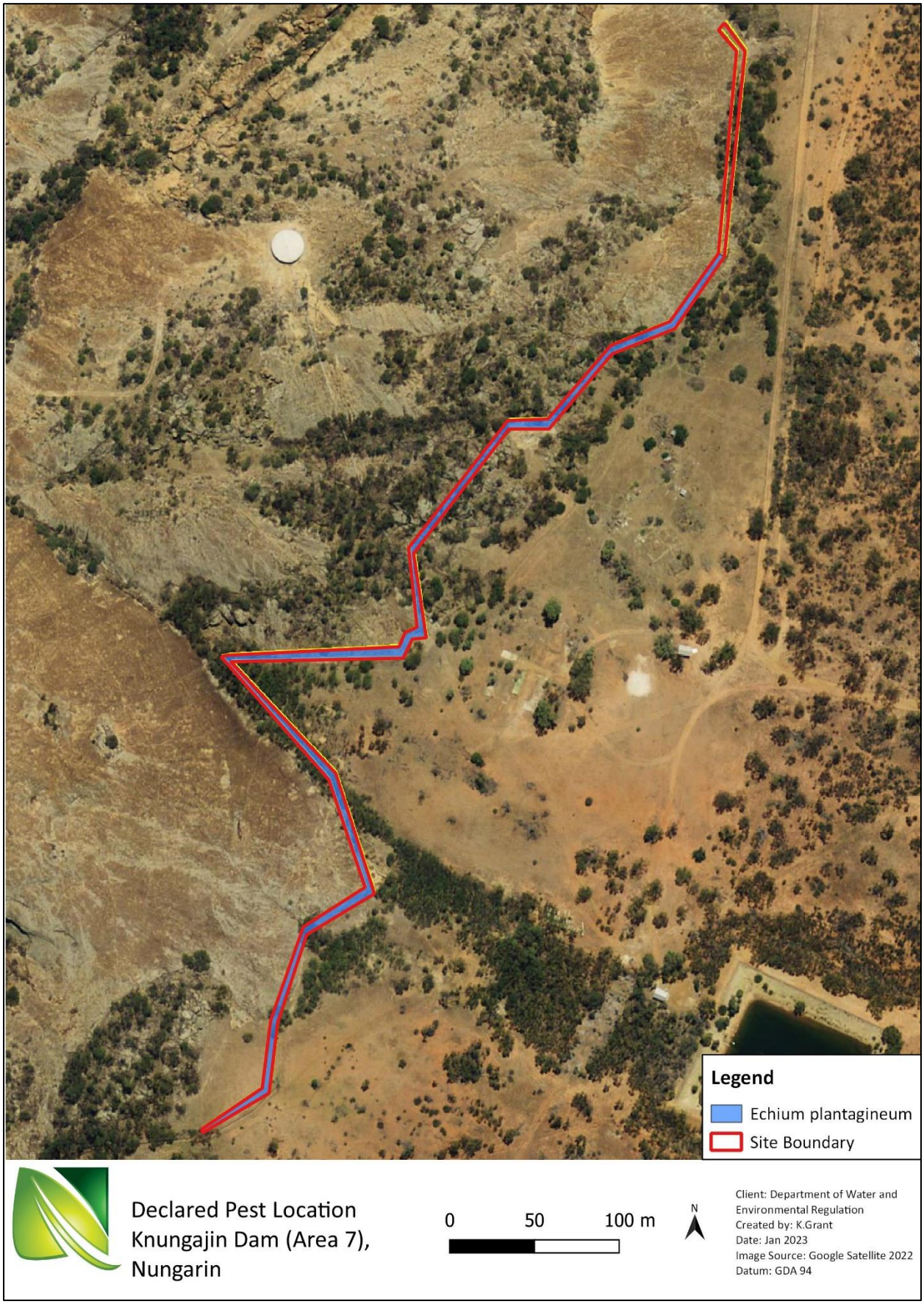
Appendix 10.1 Vegetation Type Maps


Legend
Acacia acuminata Open Shrubland
Visually Assessed Eucalyptus Woodland
Site Boundary
Vegetation Type Map
Knungajin Dam (Area 7),
Nungarin
0
50
100 m
N
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94

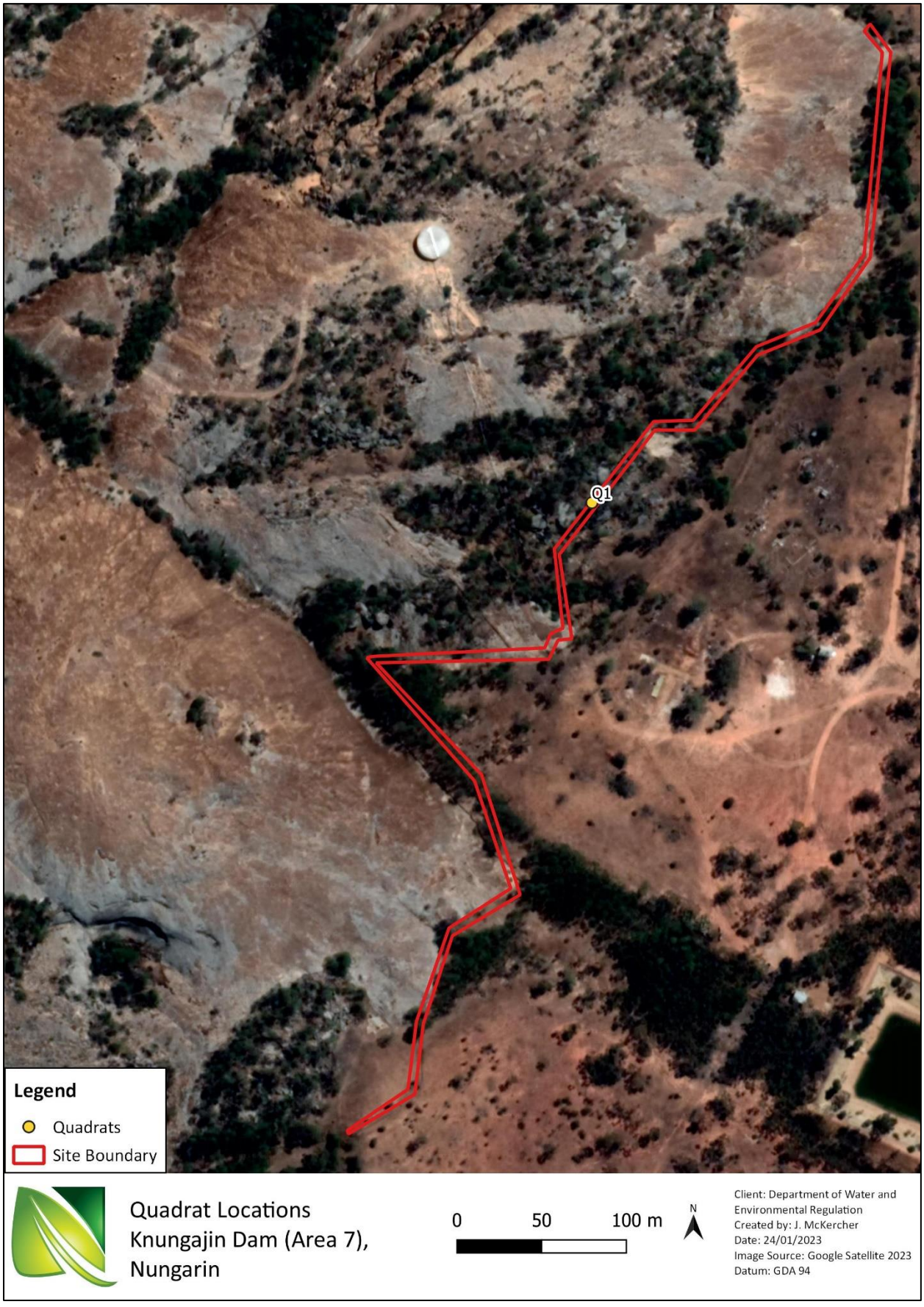

Legend
Acacia acuminata Open Shrubland
Visually Assessed Eucalyptus Woodland
Site Boundary
Overall Vegetation Type Map
Knungajin Dam (Area 7),
Nungarin
0
150
300 m
N
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94

Appendix 10.2 Vegetation Condition Maps

Appendix 10.3 Declared Pest Location Maps



Appendix 10.4 Quadrat Location Map

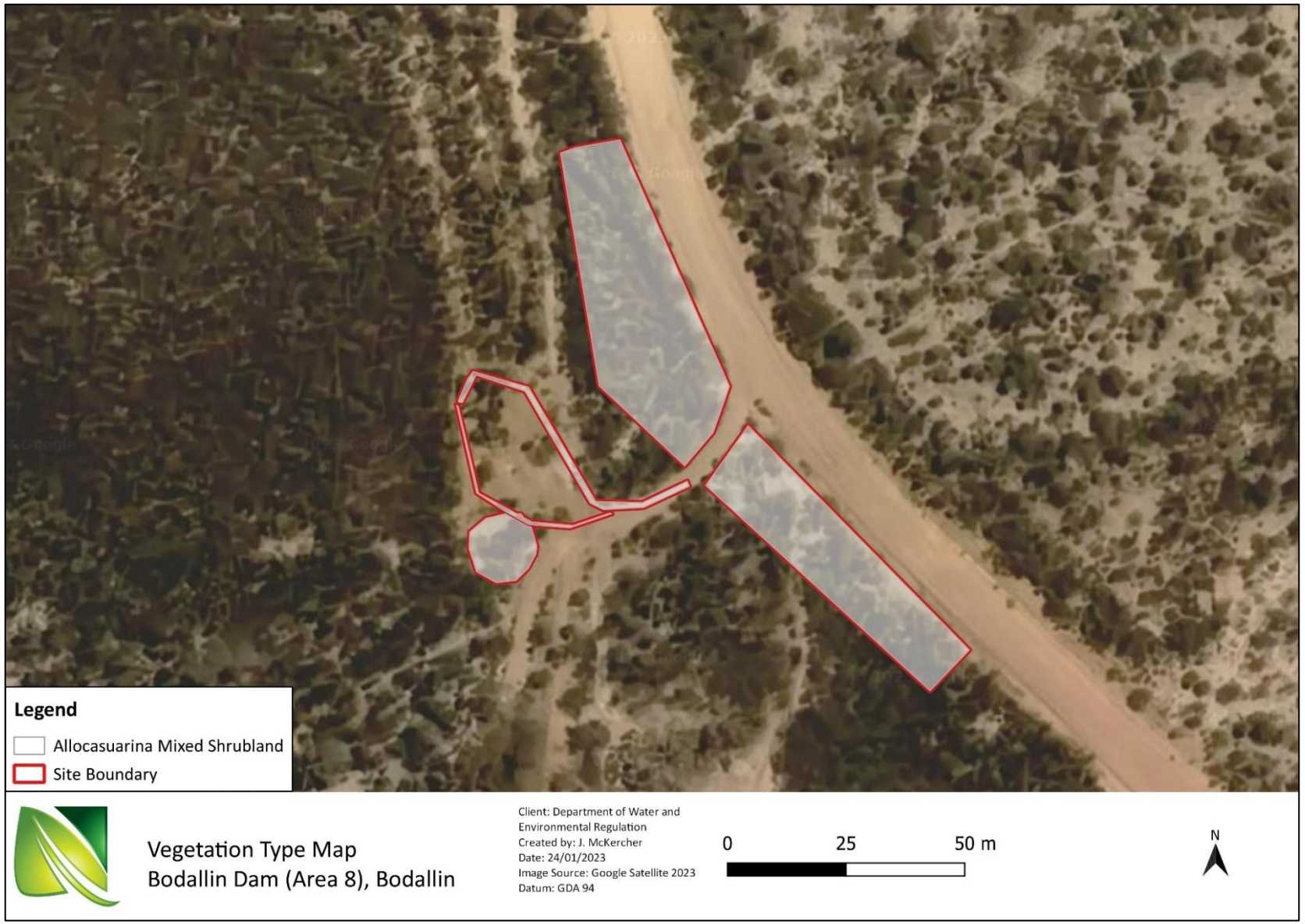


Appendix 10.5 Foraging Quality Scoring Tool

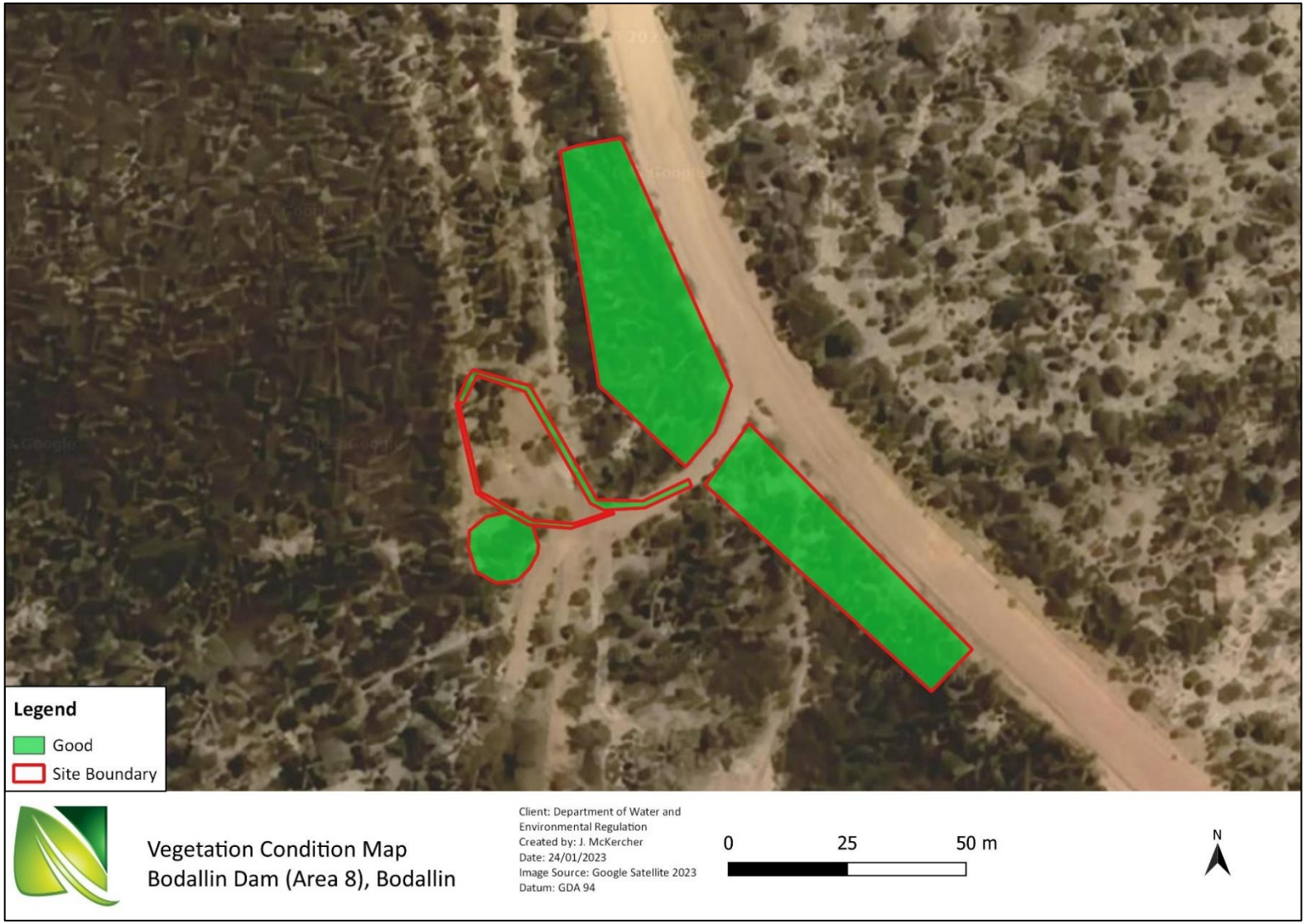
Carnaby's Cockatoo foraging habitat	**Starting Score**
Knungakin did not contain a vegetation type dominated by known plant foraging species, despite being located within the known range of the Carnaby's Cockatoo. As such, the foraging quality scoring tool has not been applied.	-
Baudin's Cockatoo foraging habitat	**Starting Score**
Knungajin did not contain a vegetation type dominated by known plant foraging species and is not located within the known range of the Baudin's Cockatoo. As such, the foraging quality scoring tool has not been applied.	-
Forest Red-tailed Black Cockatoo foraging habitat	**Starting Score**
Knungajin did not contain a vegetation type dominated by known plant foraging species and is not located within the known range of the Forest Red-tailed Black Cockatoo. As such, the foraging quality scoring tool has not been applied.	-

Appendix 11: Area 8 Bodallin Dam

Appendix 11.1 Vegetation Type Maps


Legend
Allocasuarina Mixed Shrubland
Site Boundary
Vegetation Type Map
Bodallin Dam (Area 8), Bodallin
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
25
50 m
N

Appendix 11.2 Vegetation Condition Maps



Appendix 11.3 Foraging Quality Scoring Tool

Carnaby's Cockatoo foraging habitat	**Starting Score**
Bodallin Dam did not contain a vegetation type dominated by known plant foraging species, despite being located within the known range of the Carnaby's Cockatoo. As such, the foraging quality scoring tool has not been applied.	-
Baudin's Cockatoo foraging habitat	**Starting Score**
Bodallin Dam did not contain a vegetation type dominated by known plant foraging species and is not located within the known range of the Baudin's Cockatoo. As such, the foraging quality scoring tool has not been applied.	-
Forest Red-tailed Black Cockatoo foraging habitat	**Starting Score**
Bodallin Dam did not contain a vegetation type dominated by known plant foraging species and is not located within the known range of the Forest Red-tailed Black Cockatoo. As such, the foraging quality scoring tool has not been applied.	-

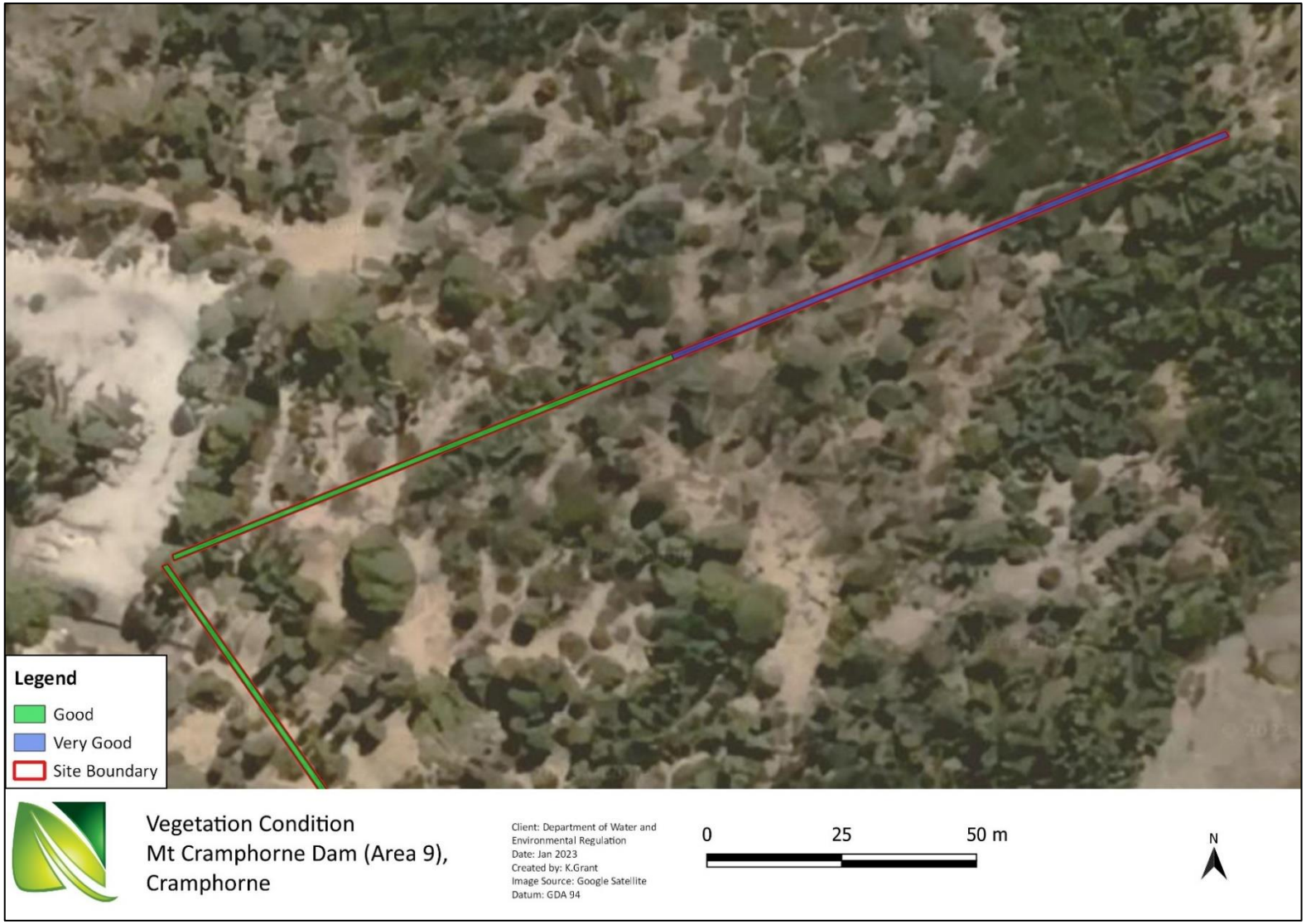
Appendix 12: Area 9 Mt Cramphorne

Appendix 12.1 Vegetation Type Maps


Legend
Allocasuarina huegliana and Leptospermum roei Tall Open Shrubland
Site Boundary
Vegetation Type Map
Mt Cramphorne Dam (Area 9),
Cramphorne
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
25
50 m
N

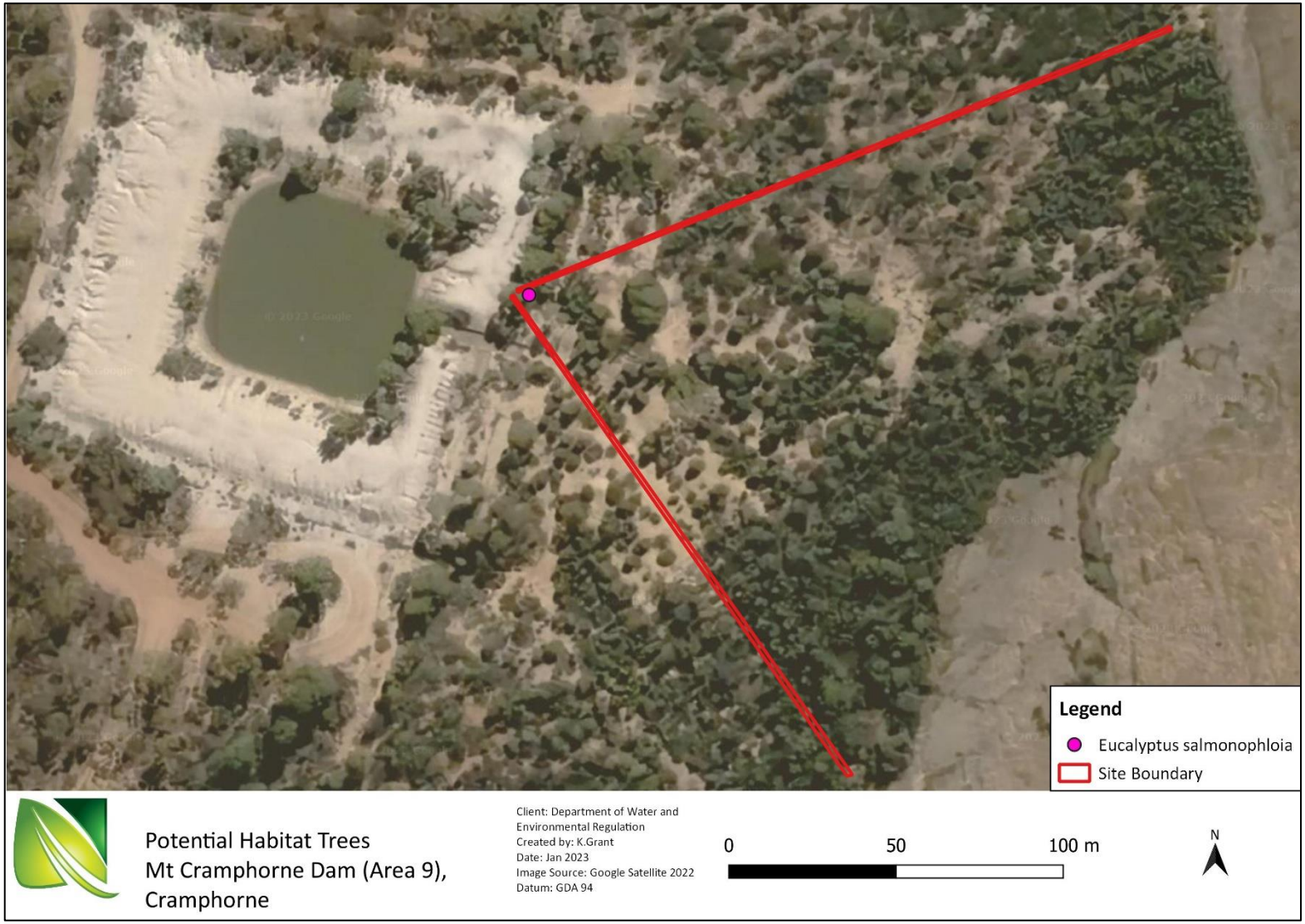

Legend
Allocasuarina huegliana and Leptospermum roei Tall Open Shrubland
Site Boundary
Vegetation Type Map
Mt Cramphorne Dam (Area 9),
Cramphorne
Client: Department of Water and Environmental Regulation
Created by: J. McKercher
Date: 24/01/2023
Image Source: Google Satellite 2023
Datum: GDA 94
0
25
50 m
N

Appendix 12.2 Vegetation Condition Maps




Legend
Good
Site Boundary
Vegetation Condition
Mt Cramphorne Dam (Area 9),
Cramphorne
Client: Department of Water and Environmental Regulation
Date: Jan 2023
Created by: K.Grant
Image Source: Google Satellite
Datum: GDA 94
0
25
50 m
N

Appendix 12.3 Black Cockatoo Habitat Tree Maps



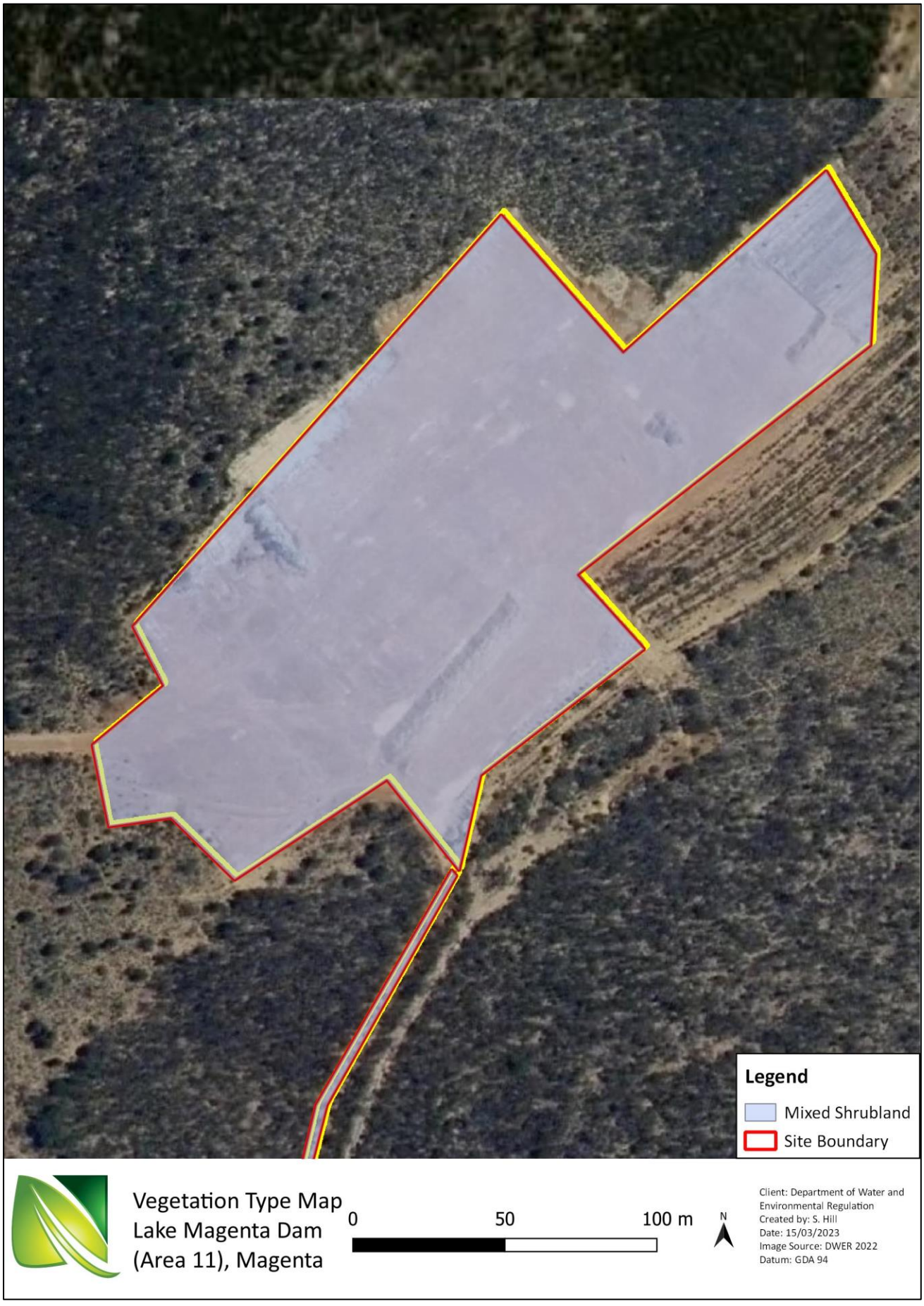
Appendix 12.4 Quadrat Location Map

Appendix 12.5 Foraging Quality Scoring Tool

Carnaby's Cockatoo foraging habitat	**Starting Score**
Mt Cramphorne did not contain a vegetation type dominated by known plant foraging species, despite being located within the known range of the Carnaby's Cockatoo. As such, the foraging quality scoring tool has not been applied.	-
Baudin's Cockatoo foraging habitat	**Starting Score**
Mt Cramphorne did not contain a vegetation type dominated by known plant foraging species and is not located within the known range of the Baudin's Cockatoo. As such, the foraging quality scoring tool has not been applied.	-
Forest Red-tailed Black Cockatoo foraging habitat	**Starting Score**
Mt Cramphorne did not contain a vegetation type dominated by known plant foraging species and is not located within the known range of the Forest Red-tailed Black Cockatoo. As such, the foraging quality scoring tool has not been applied.	-

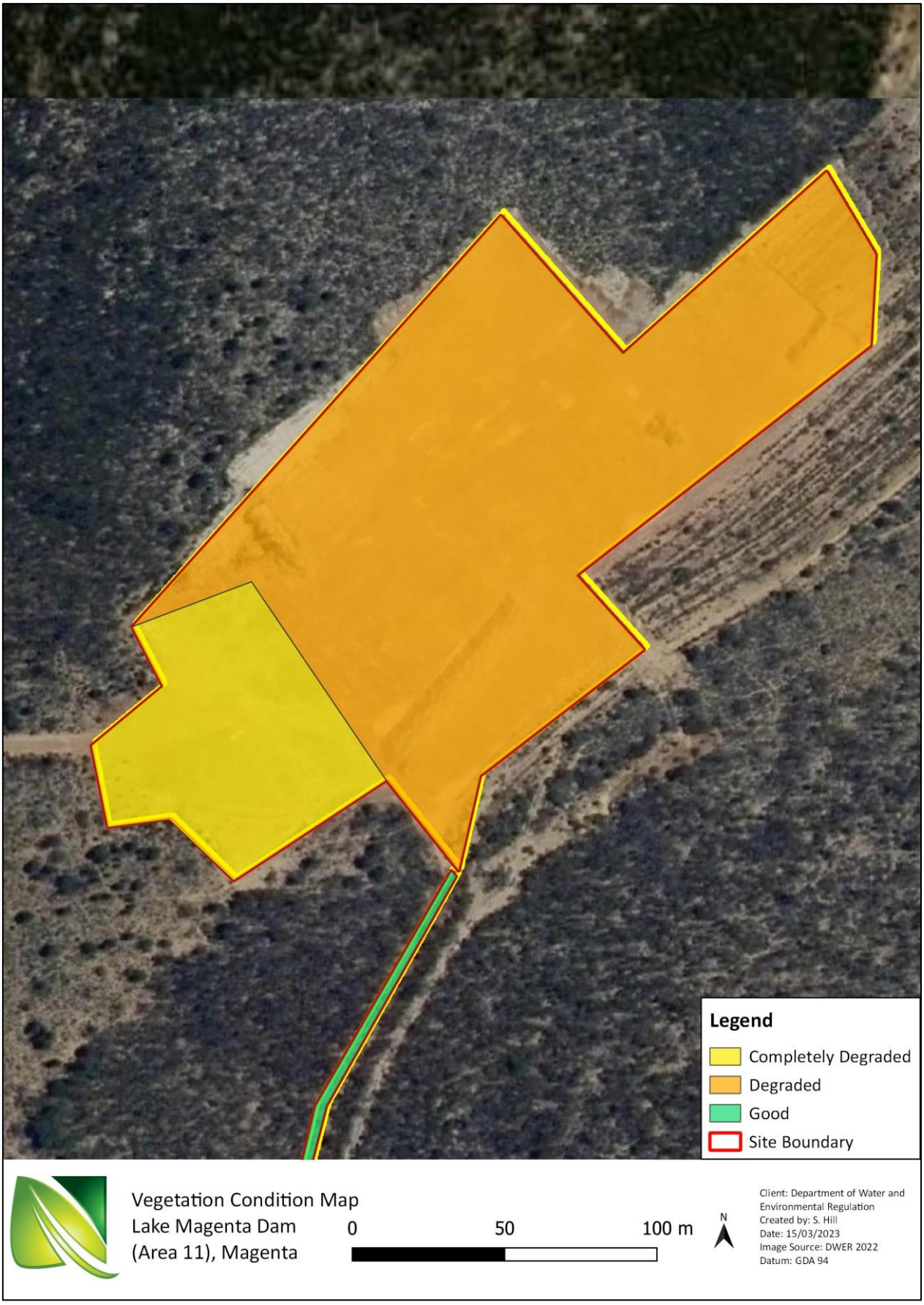
Appendix 13: Area 11 Lake Magenta North

Appendix 13.1 Vegetation Type Maps


Legend
Mixed Shrubland
Site Boundary
Vegetation Type Map
Lake Magenta Dam
(Area 11), Magenta
0
50
100 m
N
Client: Department of Water and Environmental Regulation
Created by: S. Hill
Date: 15/03/2023
Image Source: DWER 2022
Datum: GDA 94

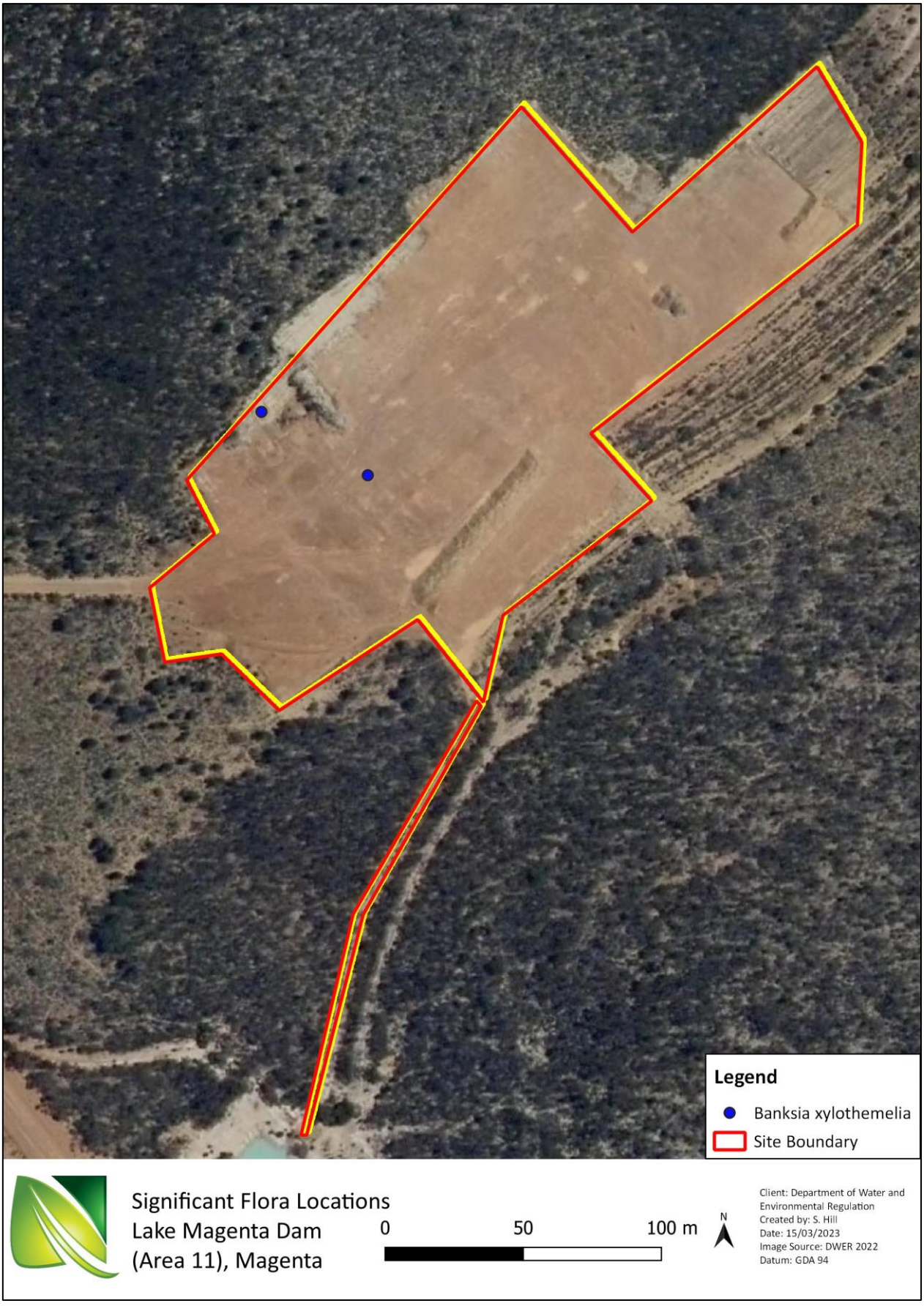

Legend
Mixed Shrubland
Site Boundary
Vegetation Type Map
Lake Magenta Dam
(Area 11), Magenta
0
25
50 m
N
Client: Department of Water and Environmental Regulation
Created by: S. Hill
Date: 15/03/2023
Image Source: DWER 2022
Datum: GDA 94

Appendix 13.2 Vegetation Condition Maps

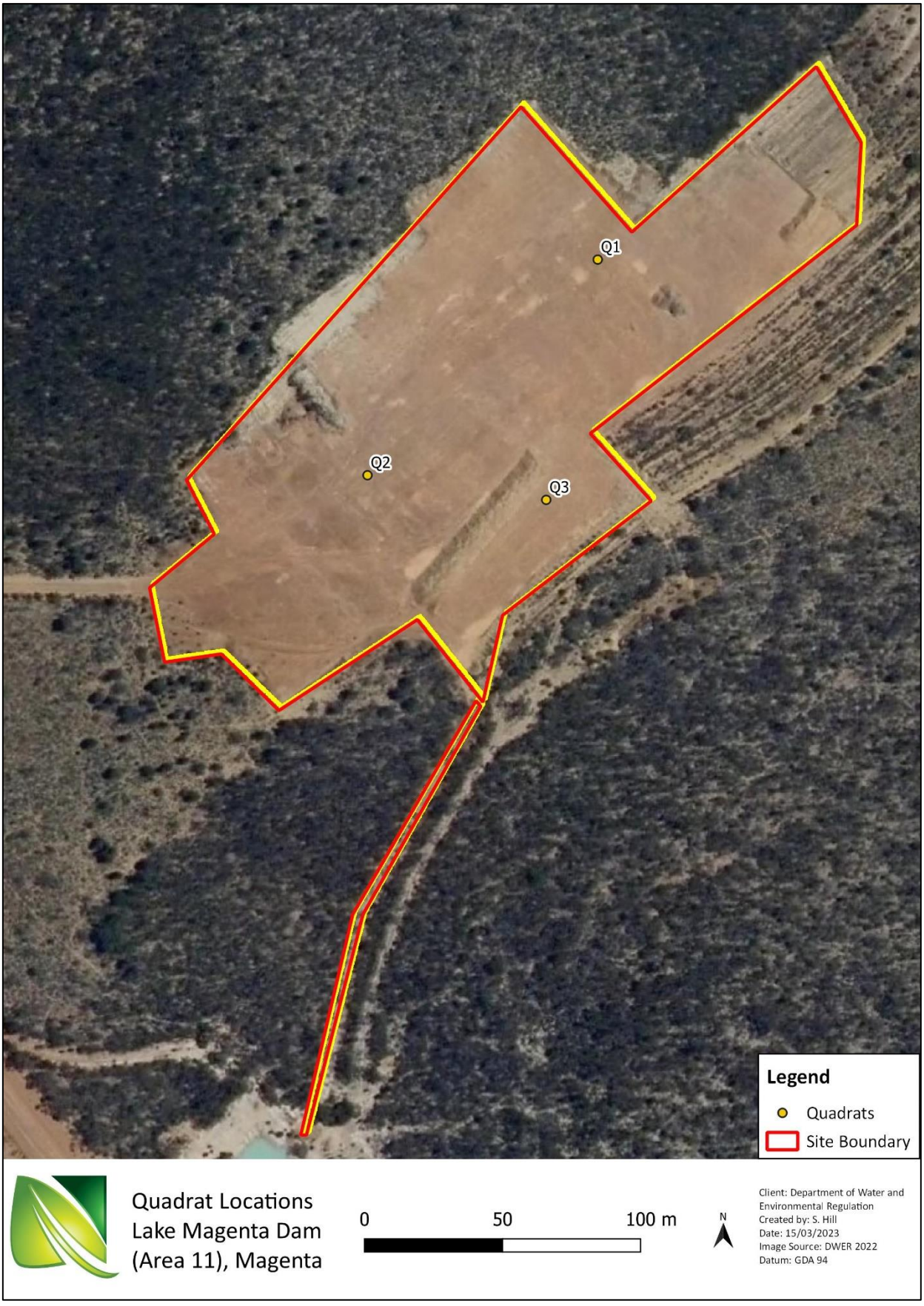



Legend
Completely Degraded
Degraded
Good
Site Boundary
Vegetation Condition Map
Lake Magenta Dam
(Area 11), Magenta
0
25
50 m
N
Client: Department of Water and Environmental Regulation
Created by: S. Hill
Date: 15/03/2023
Image Source: DWER 2022
Datum: GDA 94

Appendix 13.3 Conservation Significant Flora Maps



Appendix 13.4 Quadrat Location Maps



Appendix 13.5 Foraging Quality Scoring Tool

Carnaby's Cockatoo foraging habitat	**Starting Score**
Lake Magenta North did not contain a vegetation type dominated by known plant foraging species, despite being located within the known range of the Carnaby's Cockatoo. As such, the foraging quality scoring tool has not been applied.	-
Baudin's Cockatoo foraging habitat	**Starting Score**
Lake Magenta North did not contain a vegetation type dominated by known plant foraging species and is not located within the known range of the Baudin's Cockatoo. As such, the foraging quality scoring tool has not been applied.	-
Forest Red-tailed Black Cockatoo foraging habitat	**Starting Score**
Lake Magenta North did not contain a vegetation type dominated by known plant foraging species and is not located within the known range of the Forest Red-tailed Black Cockatoo. As such, the foraging quality scoring tool has not been applied.	-

Appendix 14: Species List/ Matrix

The complete flora list for the site is provided in the table below with flora listed by species, and vegetation type they occurred within indicated. *Denotes introduced species, red highlight denotes a Declared Pest, green highlight denotes a significant flora species

Family	*Species Name*	Common Name	Ballidu	Bodallin Dam	Buntine	Canna Dams	Gutha	Knunagajin	Lake Magenta	Mt Cramphorne	Perenjori	Wyalkatchem
Fabaceae	**Acacia pycnantha*	Golden Wattle										X
Poaceae	**Aira cupaniana*	Silvery Hairgrass	X	X	X	X	X				X	X
Poaceae	**Anthoxanthum odoratum*			X								
Asteraceae	**Arctotheca calendula*	Cape Weed	X		X	X	X	X	X		X	X
Apocynaceae	**Asclepias* sp.		X									
Poaceae	**Avena barbata*	Bearded Oat	X	X	X	X	X	X	X		X	X
Brassicaceae	**Brassica tournefortii*	Mediterranean Turnip		X					X			
Poaceae	**Briza maxima*	Blowfly grass				X	X	X		X		X
Poaceae	**Briza minor*	Shivery Grass				X						X
Poaceae	**Bromus diandrus*	Great Brome				X		X	X			X
Poaceae	**Bromus rubens*	Red Brome	X			X	X					
Asteraceae	**Carthamus lanatus*	Saffron Thistle					X				X	
Asteraceae	**Centaurea melitensis*	Maltese Cockspur	X	X	X	X						
Boraginaceae	**Echium plantagineum* (DP)	Paterson's Curse					X	X			X	X
Poaceae	**Ehrharta calycina*	Perennial Veldt Grass					X					
Poaceae	**Ehrharta longiflora*	Annual Veldt Grass	X			X	X	X	X	X		X
Poaceae	**Eragrostis curvula*	African Lovegrass										X
Asteraceae	**Gazania linearis*											X
Poaceae	**Hordeum leporinum*	Barley Grass									X	
Asteraceae	**Hypochaeris glabra*	Smooth Cats-ear				X		X	X			X
Asteraceae	**Hypochaeris radicata*	Flat Weed							X			
Juncaceae	**Juncus bufonius*	Toad Rush									X	X
Asteraceae	**Leontodon saxatilis*	Hairy Hawkbit						X				
Brassicaceae	**Lepidium africanum*	Rubble Peppercress							X			
Plumbaginaceae	**Limonium lobatum*						X					
Poaceae	**Lolium perenne*	Perennial Ryegrass									X	
Poaceae	**Lolium rigidum*	Wimmera Ryegrass				X			X			X

Family	*Species Name*	Common Name	Ballidu	Bodallin Dam	Buntine	Canna Dams	Gutha	Knunagajin	Lake Magenta	Mt Cramphorne	Perenjori	Wyalkatchem
Primulaceae	**Lysimachia arvensis*	Pimpernel			X	X	X					X
Fabaceae	**Medicago polymorpha*	Burr Medic							X			
Aizoaceae	**Mesembryanthemum crystallinum*	Iceplant										X
Aizoaceae	**Mesembryanthemum nodiflorum*	Slender Iceplant	X		X		X		X	X	X	X
Asteraceae	**Monoculus monstrosus*							X				X
Orobanchaceae	**Orobanche minor*	Lesser Broomrape				X		X				X
Poaceae	**Parapholis incurva*	Coast Barbgrass							X		X	
Caryophyllaceae	**Petrorhagia dubia*					X		X				
Caryophyllaceae	**Polycarpon tetraphyllum*	Fourleaf Allseed			X							
Brassicaceae	**Raphanus raphanistrum*	Wild Radish				X	X					
Solanaceae	**Solanum nigrum*	Black Berry Nightshade						X				
Asteraceae	**Sonchus asper*	Rough Sowthistle		X				X	X			X
Asteraceae	**Sonchus oleraceus*	Common Sowthistle				X	X	X	X	X		X
Fabaceae	**Trifolium arvense*	Trifolium arvense						X				
Fabaceae	**Trifolium hirtum*	Rose Clover						X				
Poaceae	**Triticum aestivum*	Wheat				X						
Asteraceae	**Urospermum picroides*	False Hawkbit					X				X	
Asteraceae	**Ursinia anthemoides*	Ursinia		X				X	X			X
Asteraceae	**Vellereophyton dealbatum*	White Cudweed										X
Campanulaceae	**Wahlenbergia capensis*	Cape Bluebell			X							
Iridaceae	**Watsonia meriana* var. *bulbillifera*	Bugle Lily										X
Fabaceae	*Acacia acanthoclada* subsp. *acanthoclada*								X			
Fabaceae	*Acacia aciphylla*										X	
Fabaceae	*Acacia acuaria*					X	X				X	X
Fabaceae	*Acacia aculeiformis*					X						
Fabaceae	*Acacia acuminata*	Jam			X	X	X	X		X	X	X
Fabaceae	*Acacia aestivalis*		X				X					
Fabaceae	*Acacia andrewsii*				X	X	X				X	
Fabaceae	*Acacia anthochaera*					X	X				X	
Fabaceae	*Acacia assimilis*			X		X					X	

Family	*Species Name*	Common Name	Ballidu	Bodallin Dam	Buntine	Canna Dams	Gutha	Knunagajin	Lake Magenta	Mt Cramphorne	Perenjori	Wyalkatchem
Fabaceae	*Acacia assimilis* subsp. *assimilis*		X		X					X		X
Fabaceae	*Acacia brumalis*		X									
Fabaceae	*Acacia chrysella*											X
Fabaceae	*Acacia coolgardiensis*	Spinifex Wattle	X				X				X	
Fabaceae	*Acacia dielsii*										X	X
Fabaceae	*Acacia enervia* subsp. *enervia*											X
Fabaceae	*Acacia enervia* subsp. *explicata*			X								X
Fabaceae	*Acacia erinacea*		X		X							X
Fabaceae	*Acacia fragilis*										X	
Fabaceae	*Acacia hemiteles*			X	X						X	
Fabaceae	*Acacia ligustrina*		X									
Fabaceae	*Acacia longispinea*		X		X	X	X					
Fabaceae	*Acacia microbotrya*	Manna Wattle								X		X
Fabaceae	*Acacia multispicata*				X							
Fabaceae	*Acacia neurophylla* subsp. *erugata*		X	X								
Fabaceae	*Acacia pulchella* var. *glaberrima*								X			
Fabaceae	*Acacia restiacea*		X									
Fabaceae	*Acacia rostellata*								X			
Fabaceae	*Acacia saligna*	Orange Wattle									X	
Fabaceae	*Acacia scalena* (P3)				X							
Fabaceae	*Acacia stereophylla*				X							
Fabaceae	*Acacia tetragonophylla*	Kurara				X					X	
Asparagaceae	*Acanthocarpus canaliculatus*					X					X	
Casuarinaceae	*Allocasuarina acutivalvis*		X	X		X				X		X
Casuarinaceae	*Allocasuarina campestris*		X		X	X				X		X
Casuarinaceae	*Allocasuarina huegeliana*	Rock Sheoak								X		
Casuarinaceae	*Allocasuarina dielsiana*	Northern Sheoak									X	
Casuarinaceae	*Allocasuarina microstachya*								X			
Apocynaceae	*Alyxia buxifolia*	Dysentery Bush		X	X		X					
Poaceae	*Amphipogon strictus*	Greybeard Grass				X	X		X		X	

Family	*Species Name*	Common Name	Ballidu	Bodallin Dam	Buntine	Canna Dams	Gutha	Knunagajin	Lake Magenta	Mt Cramphorne	Perenjori	Wyalkatchem
Poaceae	*Amphipogon caricinus*	Long Greybeard Grass	X	X	X		X				X	X
Poaceae	*Amphipogon turbinatus*								X			
Malvaceae	*Androcalva stowardii*			X							X	
Asteraceae	*Angianthus tomentosus*	Camel-grass	X	X	X		X	X			X	X
Haemodoraceae	*Anigozanthos humilis*	Catspaw							X			
Solanaceae	*Anthocercis anisantha*							X				
Goodeniaceae	*Anthotium rubriflorum*	Red Anthotium							X			
Asteraceae	*Argentipallium niveum*								X			
Poaceae	*Aristida contorta*	Bunched Kerosene Grass	X		X	X	X	X		X	X	X
Asteraceae	*Asteridea athrixioides*				X							
Chenopodiaceae	*Atriplex codonocarpa*	Flat-topped Saltbush	X								X	
Chenopodiaceae	*Atriplex lindleyi*		X						X			
Chenopodiaceae	*Atriplex paludosa*	Marsh Saltbush					X	X				
Chenopodiaceae	*Atriplex semibaccata*	Berry Saltbush					X					
Chenopodiaceae	*Atriplex stipitata*	Mallee Saltbush										X
Chenopodiaceae	*Atriplex semilunaris*	Annual Saltbush										X
Poaceae	*Austrostipa elegantissima*		X	X	X	X	X		X	X	X	X
Poaceae	*Austrostipa eremophila*							X				X
Poaceae	*Austrostipa flavescens*		X		X						X	
Poaceae	*Austrostipa hemipogon*		X	X		X	X	X	X		X	
Poaceae	*Austrostipa macalpinei*						X		X	X		X
Poaceae	*Austrostipa nitida*			X	X		X				X	
Poaceae	*Austrostipa trichophylla*		X			X	X					X
Poaceae	*Austrostipa variabilis*								X	X		X
Myrtaceae	*Baeckea muricata*		X		X							
Myrtaceae	*Baeckea* sp. Dudawa										X	
Myrtaceae	*Balaustion baiocalyx* (P1)		X									
Proteaceae	*Banksia xylothemelia* (P3)								X			
Myrtaceae	*Beaufortia bracteosa*											X
Myrtaceae	*Beaufortia micrantha*	Little Bottlebrush							X			

Family	*Species Name*	Common Name	Ballidu	Bodallin Dam	Buntine	Canna Dams	Gutha	Knunagajin	Lake Magenta	Mt Cramphorne	Perenjori	Wyalkatchem
Myrtaceae	*Beaufortia puberula*	Hairy-leaved Beaufortia							X			
Rutaceae	*Boronia spathulata*	Boronia							X			
Boryaceae	*Borya constricta*				X						X	X
Fabaceae	*Bossiaea spinescens*										X	
Asteraceae	*Brachyscome ciliaris*			X								
Asteraceae	*Brachyscome pusilla*									X	X	
Goodeniaceae	*Brunonia australis*	Native Cornflower	X			X					X	
Hemerocallidaceae	*Caesia sp.*										X	
Montiaceae	*Calandrinia calyptrata*	Pink Purslane			X			X				
Montiaceae	*Calandrinia eremaea*					X						
Montiaceae	*Calandrinia* sp.						X					
Montiaceae	*Calandrinia eremaea*	Twining Purslane										X
Cupressaceae	*Callitris canescens*											X
Cupressaceae	*Callitris preissii*	Rottnest Island Pine							X			
Asteraceae	*Calocephalus multiflorus*	Yellow-top		X	X	X	X					X
Myrtaceae	*Calothamnus gilesii*		X	X						X		
Myrtaceae	*Calothamnus quadrifidus* subsp. *quadrifidus*								X			
Myrtaceae	*Calothamnus hirsutus*									X		
Myrtaceae	*Calytrix breviseta*											X
Myrtaceae	*Calytrix leschenaultii*								X			
Myrtaceae	*Calytrix strigosa*										X	
Aizoaceae	*Carpobrotus modestus*	Inland Pigface							X	X		
Lauraceae	*Cassytha glabella*				X							X
Lauraceae	*Cassytha melantha*		X								X	
Lauraceae	*Cassytha glabella forma dispar*								X			
Lauraceae	*Cassytha pomiformis*	Dodder Laurel				X					X	
Centrolepidaceae	*Centrolepis aristata*	Pointed Centrolepis				X			X	X		
Myrtaceae	*Chamelaucium brevifolium*		X									
Myrtaceae	*Chamelaucium pauciflorum*					X						
Pteridaceae	*Cheilanthes sieberi*	Mulga Fern						X		X		

Family	*Species Name*	Common Name	Ballidu	Bodallin Dam	Buntine	Canna Dams	Gutha	Knunagajin	Lake Magenta	Mt Cramphorne	Perenjori	Wyalkatchem
Pittosporaceae	*Cheiranthera filifolia*		X				X				X	
Pittosporaceae	*Cheiranthera simplicifolia*					X						
Fabaceae	*Chorizema aciculare* subsp. *aciculare*								X			
Fabaceae	*Chorizema racemosum*					X						
Cyperaceae	*Chrysitrix distigmatosa*										X	
Polygalaceae	*Comesperma spinosum*			X								
Polygalaceae	*Comesperma volubile*	Love Creeper		X								X
Polygalaceae	*Comesperma calymega*	Blue-spike Milkwort							X			
Polygalaceae	*Comesperma integerrimum*		X		X	X	X		X		X	X
Goodeniaceae	*Coopernookia strophiolata*								X			
Rhamnaceae	*Cryptandra myriantha*										X	X
Rhamnaceae	*Crytandra apetala* var. *apetala*						X					
Lamiaceae	*Cyanostegia angustifolia*	Tinsel-flower	X									
Rutaceae	*Cyanothamnus coerulescens*						X		X		X	
Poaceae	*Cymbopogon ambiguus*	Scentgrass						X				
Solanaceae	*Cyphanthera microphylla*								X			
Goodeniaceae	*Dampiera lavandulacea*		X			X			X		X	X
Goodeniaceae	*Dampiera sacculata*	Pouched Dampiera							X			
Goodeniaceae	*Dampiera salahae*										X	
Goodeniaceae	*Dampiera wellsiana*	Wells' Dampiera				X					X	
Myrtaceae	*Darwinia capitellata*										X	
Myrtaceae	*Darwinia purpurea*	Rose Darwinia	X									
Myrtaceae	*Darwinia sp. Karonie*										X	
Lamiaceae	*Dasymalla terminalis*	Native Foxglove	X								X	
Fabaceae	*Daviesia aphylla*								X			
Fabaceae	*Daviesia benthamii*						X					
Fabaceae	*Daviesia hakeoides* subsp. *subnuda*				X							
Fabaceae	*Daviesia incrassata* subsp. *teres*								X			
Fabaceae	*Daviesia lancifolia*								X			
Fabaceae	*Daviesia nematophylla*											X

Family	*Species Name*	Common Name	Ballidu	Bodallin Dam	Buntine	Canna Dams	Gutha	Knunagajin	Lake Magenta	Mt Cramphorne	Perenjori	Wyalkatchem
Restionaceae	*Desmocladus virgatus*											X
Hemerocallidaceae	*Dianella revoluta*	Blueberry Lily	X	X	X	X	X		X	X	X	X
Asparagaceae	*Dichopogon capillipes*					X	X					
Lamiaceae	*Dicrastylis fulva*										X	
Fabaceae	*Dillwynia uncinata*								X			
Orchidaceae	*Diuris* sp.									X		
Sapindaceae	*Dodonaea caespitosa*								X			
Sapindaceae	*Dodonaea divaricata*		X									
Sapindaceae	*Dodonaea larreoides*		X			X						
Sapindaceae	*Dodonaea viscosa* subsp. *angustissima*										X	X
Droseraceae	*Drosera leucoblasta*	Wheel Sundew							X			
Solanaceae	*Duboisia hopwoodii*	Pituri				X						
Ecdeiocoleaceae	*Ecdeiocolea monostachya*			X								X
Cyperaceae	*Eleocharis acuta*	Common Spikerush				X						
Chenopodiaceae	*Enchylaena lanata*		X	X	X	X						X
Chenopodiaceae	*Enchylaena tomentosa*	Barrier Saltbush	X		X	X	X				X	
Chenopodiaceae	*Enchylaena tomentosa* var. *tomentosa*	Barrier Saltbush										X
Myrtaceae	*Enekbatus planifolius* (P1)						X					
Myrtaceae	*Enekbatus sessilis*					X						
Poaceae	*Eragrostis dielsii*	Mallee Lovegrass									X	
Scrophulariaceae	*Eremophila drummondii*											X
Scrophulariaceae	*Eremophila decipiens* subsp. *decipiens*	Slender Fuschia Bush	X									
Scrophulariaceae	*Eremophila decipiens* subsp. *linearifolia*	Narrow-leaved Fuschia Bush					X				X	
Scrophulariaceae	*Eremophila lehmanniana*											X
Myrtaceae	*Ericomyrtus serpyllifolia*		X		X						X	X
Geraniaceae	*Erodium cygnorum*	Blue Heronsbill					X					X
Asteraceae	*Erymophyllum tenellum*		X		X		X					
Myrtaceae	*Eucalyptus armillata*	Flanged Mallee	X									
Myrtaceae	*Eucalyptus burracoppinensis*	Burracoppin Mallee		X								
Myrtaceae	*Eucalyptus camaldulensis*	River Gum			X							X

Family	*Species Name*	Common Name	Ballidu	Bodallin Dam	Buntine	Canna Dams	Gutha	Knunagajin	Lake Magenta	Mt Cramphorne	Perenjori	Wyalkatchem
Myrtaceae	*Eucalyptus flocktoniae* subsp. *flocktoniae*	Merrit							X			
Myrtaceae	*Eucalyptus incrassata*	Ridge-fruited Mallee										X
Myrtaceae	*Eucalyptus leptopoda*	Tammin Mallee			X						X	
Myrtaceae	*Eucalyptus loxophleba* subsp. *lissophloia*	Smooth-barked York Gum		X								
Myrtaceae	*Eucalyptus loxophleba* subsp. *loxophleba*	York Gum				X	X					
Myrtaceae	*Eucalyptus moderata*	Redwood Mallee	X				X					
Myrtaceae	*Eucalyptus petraea*	Granite Rock Box						X				X
Myrtaceae	*Eucalyptus salmonophloia*	Salmon Gum	X							X		X
Myrtaceae	*Eucalyptus* sp.1				X							
Myrtaceae	*Eucalyptus* sp.2										X	
Myrtaceae	*Eucalyptus* sp.3											X
Myrtaceae	*Eucalyptus* sp.4											X
Myrtaceae	*Eucalyptus stowardii*	Fluted Horn Mallee										X
Myrtaceae	*Eucalyptus subangusta* subsp. *subangusta*	Grey Mallee	X									
Myrtaceae	*Eucalyptus kochii* subsp. *borealis*	Mullewa Mallee				X						
Myrtaceae	*Eucalyptus obtusiflora*	Dongara Mallee				X						
Myrtaceae	*Eucalyptus subtilis*	Narrow-leaved Mallee							X			
Santalaceae	*Exocarpos aphyllus*	Leafless Ballart					X					
Santalaceae	*Exocarpos sparteus*	Broom Ballart				X						
Fabaceae	Fabaceae sp.		X									
Cyperaceae	*Gahnia drummondii*		X		X						X	
Fabaceae	*Gastrolobium calycinum*	York Road Poison	X									
Fabaceae	*Gastrolobium floribundum*			X								
Fabaceae	*Gastrolobium bennettsianum*	Cluster Poison										X
Asteraceae	*Gilruthia osbornei*						X					
Haloragaceae	*Glischrocaryon angustifolium*					X						
Haloragaceae	*Glischrocaryon aureum*	Common Popflower	X			X				X	X	
Haloragaceae	*Glischrocaryon flavescens*		X			X						
Haloragaceae	*Glischrocaryon roei*								X			
Asteraceae	*Gnephosis tenuissima*					X				X	X	

Family	*Species Name*	Common Name	Ballidu	Bodallin Dam	Buntine	Canna Dams	Gutha	Knunagajin	Lake Magenta	Mt Cramphorne	Perenjori	Wyalkatchem
Fabaceae	*Gompholobium gompholobioides*								X			
Fabaceae	*Gompholobium marginatum*								X			
Goodeniaceae	*Goodenia affinis*	Silver Goodenia							X			
Goodeniaceae	*Goodenia berardiana*							X				X
Goodeniaceae	*Goodenia glareicola*								X			
Goodeniaceae	*Goodenia helmsii*		X						X			
Goodeniaceae	*Goodenia micrantha*					X	X			X		
Goodeniaceae	*Goodenia rosea*	Pink Velleia				X	X					
Goodeniaceae	*Goodenia pusilliflora*	Smallflower Goodenia				X						
Proteaceae	*Grevillea asparagoides* (P3)										X	
Proteaceae	*Grevillea beardiana*	Red Combs							X			
Proteaceae	*Grevillea biformis*			X								
Proteaceae	*Grevillea extorris*										X	
Proteaceae	*Grevillea granulosa* (P3)						X				X	
Proteaceae	*Grevillea huegelii*		X									
Proteaceae	*Grevillea levis*				X	X						
Proteaceae	*Grevillea obliquistigma* subsp. *funicularis*										X	
Proteaceae	*Grevillea obliquistigma* subsp. *obliquistigma*		X			X	X					
Proteaceae	*Grevillea paniculata*									X		X
Proteaceae	*Grevillea paradoxa*	Bottlebrush Grevillea	X	X		X						X
Proteaceae	*Grevillea petrophiloides* subsp. *petrophiloides*		X									
Proteaceae	*Grevillea shuttleworthiana*								X			
Proteaceae	*Grevillea teretifolia*	Round Leaf Grevillea	X		X				X			
Proteaceae	*Grevillea yorkrakinensis*			X								
Malvaceae	*Guichenotia sarotes*								X			
Haemodoraceae	*Haemodorum discolor*								X			
Proteaceae	*Hakea erecta*			X					X			
Proteaceae	*Hakea francisiana*	Emu Tree				X					X	
Proteaceae	*Hakea invaginata*			X							X	
Proteaceae	*Hakea recurva*	Djarnokmurd	X		X	X	X	X			X	X

Family	*Species Name*	Common Name	Ballidu	Bodallin Dam	Buntine	Canna Dams	Gutha	Knunagajin	Lake Magenta	Mt Cramphorne	Perenjori	Wyalkatchem
Proteaceae	*Hakea scoparia*											X
Proteaceae	*Hakea scoparia* subsp. *scoparia*		X									
Boraginaceae	*Halgania anagalloides*					X			X			
Boraginaceae	*Halgania integerrima*			X							X	
Haloragaceae	*Haloragis gossei*										X	
Haloragaceae	*Haloragis trigonocarpa*					X						
Malvaceae	*Hannafordia bissillii*					X						
Lamiaceae	*Hemigenia botryphylla*				X		X					
Lamiaceae	*Hemigenia ciliata*										X	
Lamiaceae	*Hemigenia divaricata*					X						
Lamiaceae	*Hemigenia westringioides*	Open Hemigenia	X									X
Dilleniaceae	*Hibbertia acerosa*	Needle Leaved Guinea Flower							X			
Dilleniaceae	*Hibbertia exasperata*			X								
Dilleniaceae	*Hibbertia glomerosa*	Guinea-flower	X	X		X					X	
Dilleniaceae	*Hibbertia gracilipes*								X			
Dilleniaceae	*Hibbertia stowardii*			X								
Dilleniaceae	*Hibbertia rupicola*											X
Asteraceae	*Hyalosperma glutinosum* subsp. *venustum*					X						
Cyperaceae	*Isolepis cernua*	Nodding Club-rush										X
Cyperaceae	*Isolepis congrua*				X							
Fabaceae	*Jacksonia nematoclada*			X								
Fabaceae	*Jacksonia rhadinoclada*				X	X						
Fabaceae	*Jacksonia acicularis*										X	
Juncaceae	*Juncus kraussii*	Sea Rush										X
Juncaceae	*Juncus subsecundus*	Finger Rush				X						
Poaceae	*Lachnagrostis filiformis*					X				X		
Malvaceae	*Lasiopetalum rosmarinifolium*								X			
Asparagaceae	*Laxmannia paleacea*								X			
Goodeniaceae	*Lechenaultia formosa*	Red Leschenaultia							X			
Asteraceae	*Leiocarpa semicalva*							X				

Family	*Species Name*	Common Name	Ballidu	Bodallin Dam	Buntine	Canna Dams	Gutha	Knunagajin	Lake Magenta	Mt Cramphorne	Perenjori	Wyalkatchem
Cyperaceae	*Lepidobolus chaetocephalus*	Bristle-headed Chaff Rush							X			
Restionaceae	*Lepidobolus preissianus*										X	
Cyperaceae	*Lepidosperma benthamianum*					X						
Cyperaceae	*Lepidosperma costale*			X					X	X	X	X
Cyperaceae	*Lepidosperma pruinosum*											X
Cyperaceae	*Lepidosperma resinosum*							X		X		
Cyperaceae	*Lepidosperma sanguinolentum*								X			
Cyperaceae	*Lepidosperma* sp. Bandalup Scabrid											X
Cyperaceae	*Lepidosperma* sp. 1									X		
Cyperaceae	*Lepidosperma* sp. 2									X		
Cyperaceae	*Lepidosperma* sp. 3								X			
Cyperaceae	*Lepidosperma squamatum*											X
Cyperaceae	*Lepidosperma tenue*								X	X		
Santalaceae	*Leptomeria preissiana*			X	X							X
Fabaceae	*Leptosema daviesioides*					X						
Myrtaceae	*Leptospermum roei*									X		
Myrtaceae	*Leptospermum erubescens*	Roadside Teatree		X				X	X	X		X
Ericaceae	*Leucopogon fimbriatus*								X			
Ericaceae	*Leucopogon sp. Wheatbelt*								X			
Stylidiaceae	*Levenhookia stipitata*	Common Stylewort							X			
Campanulaceae	*Lithotoma petraea*							X				
Campanulaceae	*Lobelia heterophylla*	Wing-seeded Lobelia		X								
Campanulaceae	*Lobelia rhytidosperma*	Wrinkled-seeded Lobelia				X						
Asparagaceae	*Lomandra effusa*	Scented Matrush								X	X	
Asparagaceae	*Lomandra marginata*										X	
Asparagaceae	*Lomandra micrantha* subsp. *teretifolia*								X			
Asparagaceae	*Lomandra mucronata*								X			
Asparagaceae	*Lomandra suaveolens*					X						
Ericaceae	*Lysinema pentapetalum*								X			
Malvaceae	*Lysiosepalum rugosum*	Wrinkled Leaf Lysiosepalum				X						X

Family	*Species Name*	Common Name	Ballidu	Bodallin Dam	Buntine	Canna Dams	Gutha	Knunagajin	Lake Magenta	Mt Cramphorne	Perenjori	Wyalkatchem
Macarthuriaceae	*Macarthuria australis*										X	
Chenopodiaceae	*Maireana brevifolia*	Small Leaf Bluebush									X	X
Chenopodiaceae	*Maireana carnosa*	Cottony Bluebush	X		X		X				X	X
Chenopodiaceae	*Maireana georgei*	Satiny Bluebush			X		X					X
Chenopodiaceae	*Maireana trichoptera*	Downy Bluebush	X				X					
Chenopodiaceae	*Maireana planifolia*										X	
Myrtaceae	*Malleostemon tuberculatus*		X	X		X				X	X	
Pittosporaceae	*Marianthus bicolor*	Painted Marianthus							X			
Myrtaceae	*Melaleuca acuminata*											X
Myrtaceae	*Melaleuca acutifolia*					X						
Myrtaceae	*Melaleuca adnata*					X						
Myrtaceae	*Melaleuca atroviridis*								X	X	X	X
Myrtaceae	*Melaleuca concreta*										X	
Myrtaceae	*Melaleuca conothamnoides*		X	X	X						X	X
Myrtaceae	*Melaleuca cordata*					X					X	
Myrtaceae	*Melaleuca ctenoides*										X	
Myrtaceae	*Melaleuca eleuterostachya*					X				X	X	
Myrtaceae	*Melaleuca hamata*		X	X	X	X	X			X	X	X
Myrtaceae	*Melaleuca lateriflora*	Gorada							X			
Myrtaceae	*Melaleuca laxiflora*									X		X
Myrtaceae	*Melaleuca marginata*		X									X
Myrtaceae	*Melaleuca sapientes*								X			
Myrtaceae	*Melaleuca scalena*								X			
Myrtaceae	*Melaleuca societatis*								X			
Myrtaceae	*Melaleuca stereophloia*					X					X	
Myrtaceae	*Melaleuca subtrigona*								X			
Myrtaceae	*Melaleuca villosisepala*								X			
Cyperaceae	*Mesomelaena preissii*								X			
Lamiaceae	*Microcorys tenuifolia* (P3)		X									
Lamiaceae	*Microcorys barbata*								X			

Family	*Species Name*	Common Name	Ballidu	Bodallin Dam	Buntine	Canna Dams	Gutha	Knunagajin	Lake Magenta	Mt Cramphorne	Perenjori	Wyalkatchem
Myrtaceae	*Micromyrtus racemosa*											X
Fabaceae	*Mirbelia depressa*					X						
Fabaceae	*Mirbelia floribunda*	Purple Mirbelia							X			
Fabaceae	*Mirbelia microphylla*				X						X	
Fabaceae	*Mirbelia multicaulis*								X			
Fabaceae	*Mirbelia spinosa*					X	X					
Fabaceae	*Mirbelia ramulosa*					X						
Fabaceae	*Mirbelia trichocalyx*								X			
Poaceae	*Monachather paradoxus*					X					X	X
Euphorbiaceae	*Monotaxis grandiflora*	Diamond of the Desert	X									
Polygonaceae	*Muehlenbeckia adpressa*	Climbing Lignum						X				
Myrtaceae	Myrtaceae sp.									X		
Poaceae	*Neurachne alopecuroidea*	Foxtail Mulga Grass	X	X		X			X	X		X
Solanaceae	*Nicotiana rotundifolia*	Round-leaved Tobacco				X				X		
Asteraceae	*Olearia sp. Eremicola*				X				X	X		X
Asteraceae	*Olearia muelleri*	Goldfields Daisy	X									
Rubiaceae	*Opercularia vaginata*	Dog Weed	X			X			X			
Loganiaceae	*Orianthera flaviflora*	Yellow Logania		X					X			
Asteraceae	*Panaetia lessonii*					X						
Iridaceae	*Patersonia drummondii*	Drummond's Patersonia		X								
Iridaceae	*Patersonia graminea*	Grass-leaved Patersonia									X	
Iridaceae	*Patersonia rudis*	Hairy Flag										X
Myrtaceae	*Pericalymma ellipticum*	Swamp Teatree							X			
Proteaceae	*Persoonia saundersiana*			X								
Proteaceae	*Persoonia stricta*							X				
Proteaceae	*Persoonia quinquenervis*		X									
Proteaceae	*Petrophile glauca*								X			
Proteaceae	*Petrophile incurvata*										X	
Proteaceae	*Petrophile rigida*								X			
Rutaceae	*Phebalium tuberculosum*			X					X			

Family	*Species Name*	Common Name	Ballidu	Bodallin Dam	Buntine	Canna Dams	Gutha	Knunagajin	Lake Magenta	Mt Cramphorne	Perenjori	Wyalkatchem
Rutaceae	*Phebalium filifolium*	Slender Phebalium										X
Rutaceae	*Philotheca deserti*				X							
Rutaceae	*Philotheca brucei* subsp. *brucei*						X					
Thymelaeaceae	*Pimelea angustifolia*	Narrow-leaved Pimelea		X				X				
Thymelaeaceae	*Pimelea avonensis*		X									
Thymelaeaceae	*Pimelea imbricata*								X			
Thymelaeaceae	*Pimelea sulphurea*	Yellow Banjine							X			
Apiaceae	*Platysace juncea*								X			
Asteraceae	*Podolepis aristata*		X		X	X	X			X		X
Asteraceae	*Podotheca angustifolia*	Sticky Longheads						X	X			
Asteraceae	*Podotheca gnaphalioides*	Golden Long-heads				X	X			X		X
Asteraceae	*Pogonolepis muelleriana*				X						X	
Celastraceae	*Psammomoya* sp.										X	
Asteraceae	*Pterochaeta paniculata*	Woolly Waitzia							X			
Amaranthaceae	*Ptilotus benlii*					X	X					
Amaranthaceae	*Ptilotus declinatus*	Curved Mulla Mulla										X
Amaranthaceae	*Ptilotus exaltatus*	Tall Mulla Mulla			X	X	X				X	
Amaranthaceae	*Ptilotus gaudichaudii*		X		X	X	2				X	
Amaranthaceae	*Ptilotus halophilus*		X									
Amaranthaceae	*Ptilotus manglesii*	Pom Poms				X						
Amaranthaceae	*Ptilotus obovatus*	Cotton Bush			X	X	X				X	
Amaranthaceae	*Ptilotus polystachyus*	Prince of Wales Feather	X		X	X	X	X	X		X	X
Amaranthaceae	*Ptilotus spathulatus*			X								X
Fabaceae	*Pultenaea empetrifolia*								X			
Restionaceae	Restionaceae sp.											X
Chenopodiaceae	*Rhagodia drummondii*				X	X	X				X	X
Chenopodiaceae	*Rhagodia preissii subsp. preissii*					X						X
Chenopodiaceae	*Rhagodia* sp. Watheroo						X					
Asteraceae	*Rhodanthe chlorocephala subsp. splendida*					X						
Asteraceae	*Rhodanthe chlorocephala*					X						

Family	*Species Name*	Common Name	Ballidu	Bodallin Dam	Buntine	Canna Dams	Gutha	Knunagajin	Lake Magenta	Mt Cramphorne	Perenjori	Wyalkatchem
Asteraceae	*Rhodanthe spicata*						X					
Euphorbiaceae	*Ricinocarpos velutinus*					X						
Euphorbiaceae	*Ricinocarpos graniticus*								X			
Euphorbiaceae	*Ricinocarpos psilocladus*					X						
Myrtaceae	*Rinzia communis*	Mallee Rinzia							X			
Poaceae	*Rytidosperma acerosum*								X			
Poaceae	*Rytidosperma caespitosum*			X		X						
Poaceae	*Rytidosperma setaceum*											X
Chenopodiaceae	*Salsola australis*						X					X
Santalaceae	*Santalum acuminatum*	Quandong	X			X						X
Goodeniaceae	*Scaevola restiacea*										X	
Goodeniaceae	*Scaevola spinescens*	Currant Bush					X					
Goodeniaceae	*Scaevola hamiltonii*					X						
Asteraceae	*Schoenia cassiniana*	Schoenia		X		X	X				X	X
Cyperaceae	*Schoenus brevisetis*			X								
Cyperaceae	*Schoenus pleiostemoneus*								X			
Cyperaceae	*Schoenus subaphyllus*										X	
Cyperaceae	*Schoenus sesquispicula*								X			
Cyperaceae	*Schoenus subflavus*	Yellow Bog-rush							X			
Myrtaceae	*Scholtzia drummondii*		X		X							
Chenopodiaceae	*Sclerolaena diacantha*	Grey Copperburr	X		X		X			X		X
Chenopodiaceae	*Sclerolaena fusiformis*						X					
Fabaceae	*Senna artemisioides* subsp. *filifolia*		X		X						X	X
Fabaceae	*Senna charlesiana*					X	X					
Malvaceae	*Seringia hermanniifolia*	Crinkle-leaved firebush				X						
Malvaceae	*Seringia integrifolia*	Common firebush				X						
Asteraceae	*Siemssenia capillaris*	Wiry Podolepis		X		X	X	X		X		X
Asteraceae	*Siloxerus multiflorus*					X						
Solanaceae	*Solanum hoplopetalum*	Thorny Solanum			X				X			
Solanaceae	*Solanum lasiophyllum*	Flannel Bush	X			X	X				X	

Family	*Species Name*	Common Name	Ballidu	Bodallin Dam	Buntine	Canna Dams	Gutha	Knunagajin	Lake Magenta	Mt Cramphorne	Perenjori	Wyalkatchem
Solanaceae	*Solanum orbiculatum*	Wild Tomato						X				
Poaceae	*Spartochloa scirpoidea*							X				X
Caryophyllaceae	*Spergularia marina*					X						
Fabaceae	*Sphaerolobium linophyllum*								X			
Celastraceae	*Stackhousia monogyna*								X	X		
Rhamnaceae	*Stenanthemum notiale*					X						
Rhamnaceae	*Stenanthemum notiale subsp. notiale*								X			
Rhamnaceae	*Stenanthemum pomaderroides*		X			X						X
Stylidiaceae	*Stylidium confluens*		X			X						
Stylidiaceae	*Stylidium dielsianum*	Tangle Triggerplant		X								
Stylidiaceae	*Stylidium involucratum*								X			
Stylidiaceae	*Stylidium pendulum* (P1)					X						
Stylidiaceae	*Stylidium piliferum*	Common Butterfly Triggerplant							X			
Stylidiaceae	*Stylidium repens*	Matted Triggerplant							X			
Stylidiaceae	*Stylidium torticarpum* (P3)										X	
Stylidiaceae	*Stylidium yilgarnense*	Yilgarn Triggerplant		X								
Stylidiaceae	*Stylidium zeicolor*	Maize Triggerplant							X			
Hemerocallidaceae	*Stypandra glauca*	Blind Grass						X	X	X		
Ericaceae	*Styphelia dielsiana*								X			
Ericaceae	*Styphelia intertexta*								X			
Ericaceae	*Styphelia melaleucoides*								X			
Ericaceae	*Styphelia serratifolia*		X	X		X			2			X
Proteaceae	*Synaphea interioris*								X			
Chenopodiaceae	*Tecticornia* sp.								X			
Fabaceae	*Templetonia aculeata*				X							
Myrtaceae	*Tetrapora preissiana*								X			
Orchidaceae	*Thelymitra petrophila*								X			
Malvaceae	*Thomasia tremandroides*		X									
Chenopodiaceae	*Threlkeldia diffusa*	Coast Bonefruit							X			
Myrtaceae	*Thryptomene kochii*			X								

Family	*Species Name*	Common Name	Ballidu	Bodallin Dam	Buntine	Canna Dams	Gutha	Knunagajin	Lake Magenta	Mt Cramphorne	Perenjori	Wyalkatchem
Myrtaceae	*Thryptomene cuspidata*					X						
Asparagaceae	*Thysanotus manglesianus*	Fringed Lily			X	X						
Asparagaceae	*Thysanotus patersonii*		X	X	X	X	X					X
Asparagaceae	*Thysanotus* sp.										X	
Asparagaceae	*Thysanotus triandrus*								X			
Araliaceae	*Trachymene cyanopetala*											X
Araliaceae	*Trachymene ornata*	Spongefruit	X	X	X	X				X		X
Araliaceae	*Trachymene pilosa*	Native Parsnip	X	X		X	X			X	X	
Hemerocallidaceae	*Tricoryne elatior*	Yellow Autumn Lily										
Myrtaceae	*Verticordia acerosa* var. *preissii*								X			
Myrtaceae	*Verticordia chrysantha*		X						X		X	
Myrtaceae	*Verticordia picta*	Painted Featherflower							X			
Myrtaceae	*Verticordia roei* subsp. *roei*								X			
Asteraceae	*Vittadinia gracilis*								X			
Campanulaceae	*Wahlenbergia gracilenta*	Annual Bluebell			X							
Asteraceae	*Waitzia acuminata* var. *acuminata*		X	X	X	X	X	X		X	X	X
Xanthorrhoeaceae	*Xanthorrhoea nana*	Dwarf Grasstree								X		
	Unidentified sp. 1											X
	Unidentified sp. 2			X								
	Unidentified sp. 3								X			
	Unidentified sp. 4								X			
	Unidentified sp. 5								X			

Appendix 15: Quadrat Data

Location:	Canna Dam
Quadrat No.	1
Survey Date:	25/10/22
Personnel:	TB, TC
Latitude:	-28.8958
Longitude:	115.8576
Condition:	Good
Aspect:	Flat
Topography:	Plain
Slope:	0%
Soil:	Brown clay
Gravel:	0%
Rock:	0%
Leaf Litter:	5%
Bare Ground:	60%
Drainage:	Poor

Vegetation Type: *Eucalyptus loxophleba subsp. loxophleba* Open Low Forest over *Waitzia acuminata var. acuminata* and *Podolepis aristata*

Native Species	Cover (%)	Height (m)
Acacia acuaria	2.0	0.5
Acacia tetragonophylla	4.0	0.5
Austrostipa elegantissima	0.1	0.1
Austrostipa trichophylla	0.1	0.2
Dianella revoluta	0.5	0.3
Dichopogon capillipes	0.1	0.1
Eucalyptus loxophleba subsp. *loxophleba*	50.0	8.0
Eucalyptus kochii subsp. *borealis*	7.0	4.0
Eucalyptus obtusiflora	20.0	5.0
Hyalosperma glutinosum subsp. *venustum*	5.0	0.1
Monachather paradoxus	0.1	0.1
Podolepis aristata	0.1	0.1
Ptilotus gaudichaudii	0.1	0.1
Ptilotus polystachyus	0.1	0.2
Rhagodia preissii subsp. *preissii*	1.0	0.5
Rytidosperma caespitosum	0.1	0.1
Waitzia acuminata var. *acuminata*	5.0	0.2

Location:	Canna Dam
Quadrat No.	2
Survey Date:	25/10/22
Personnel:	TB, TC
Latitude:	-28.9072
Longitude:	115.8604
Condition:	Very good
Aspect:	Flat
Topography:	Plain
Slope:	0
Soil:	Red/brown clay
Gravel:	0%
Rock:	0%
Leaf Litter:	5%
Bare Ground:	40%
Drainage:	Poor

Vegetation Type: *Eucalyptus loxophleba subsp. loxophleba* Open Low Forest over *Waitzia acuminata var. acuminata* and *Podolepis aristata*

Native Species	Cover (%)	Height (m)
Acacia acuaria	5.0	1.0
Acanthocarpus canaliculatus	1.0	0.2
Austrostipa elegantissima	0.1	0.2
Acacia andrewsii	5.0	0.5
Acacia anthochaera	2.0	1.0
Enchylaena tomentosa	0.2	0.3
Eucalyptus loxophleba subsp. *loxophleba*	50.0	7.0
Monachather paradoxus	0.1	0.1
Rhagodia preissii subsp. *preissii*	9.0	0.5
Lomandra suaveolens	0.5	0.2
Ptilotus polystachyus	0.1	0.2
Ptilotus gaudichaudii	0.3	0.1
Podolepis aristata	0.5	0.1
Siemssenia capillaris	0.5	0.1
Rhagodia preissii subsp. *preissii*	1.0	0.4
Thysanotus sp.	0.2	0.2
Trachymene pilosa	0.5	0.1
Waitzia acuminata var. *acuminata*	1.0	0.15

Location:	**Canna Dam**
Quadrat No.	3
Survey Date:	25/10/22
Personnel:	TB, TC
Latitude:	-28.9135
Longitude:	115.8650
Condition:	Very good
Aspect:	Flat
Topography:	Plain
Slope:	0%
Soil:	Red/brown clay
Gravel:	0%
Rock:	0%
Leaf Litter:	1%
Bare Ground:	50%
Drainage:	Poor

Vegetation Type: *Eucalyptus* Woodland

Native Species	**Cover (%)**	**Height (m)**
Acacia acuaria	5.0	0.5
Acacia andrewsii	1.0	0.5
Austrostipa elegantissima	0.3	0.1
Enchylaena tomentosa	0.5	0.3
Eucalyptus loxophleba subsp. Loxophleba	70.0	8.0
Melaleuca adnata	3.0	4.0
Monachather paradoxus	0.2	0.1
Podolepis aristata	0.1	0.1
Ptilotus gaudichaudii	0.2	0.2
Ptilotus polystachyus	0.2	0.2
Rhodanthe chlorocephala subsp. *splendida*	3.0	0.1
Trachymene pilosa	1.0	0.1
Waitzia acuminata var. acuminata	0.3	0.1

Location:	Gutha Dam
Quadrat No.	1
Survey Date:	25/10/22
Personnel:	TB, TC
Latitude:	-28.9898
Longitude:	115.9431
Condition:	Good
Aspect:	Flat
Topography:	Plain
Slope:	0%
Soil:	Brown clay
Gravel:	0%
Rock:	0%
Leaf Litter:	0.5%
Bare Ground:	30%
Drainage:	Poor

Vegetation Type: Mixed Open Shrubland

Native Species	Cover (%)	Height (m)
**Mesembryanthemum nodiflorum*	0.2	0.01
Acacia aestivalis	0.5	0.5
Acacia longispinea	0.2	3.0
Amphipogon caricinus	7.0	0.4
Calocephalus multiflorus	0.1	0.02
Comesperma integerrimum	5.0	2.0
Dianella revoluta	0.4	0.6
Enekbatus planifolius (P1)	2.0	0.7
Erodium cygnorum	1.0	0.2
Goodenia micrantha	0.5	0.5
Goodenia rosea	10.0	0.2
Hakea recurva	5.0	2.0
Hemigenia botryphylla	10.0	0.5
Podolepis aristata	1.0	0.3
Podotheca gnaphalioides	0.1	0.1

Native Species	Cover (%)	Height (m)
Ptilotus benlii	1.0	0.5
Ptilotus gaudichaudii	1.0	0.3
Ptilotus polystachyus	2.0	0.5
Schoenia cassiniana	0.2	0.3
Waitzia acuminata var. *acuminata*	30.0	0.4

Note: *denotes introduced species.

Location:	Gutha Dam
Quadrat No.	2
Survey Date:	25/10/22
Personnel:	TB, TC
Latitude:	-28.9892
Longitude:	115.9425
Condition:	Good
Aspect:	Flat
Topography:	Plain
Slope:	0%
Soil:	Red/brown clay
Gravel:	0%
Rock:	0%
Leaf Litter:	3%
Bare Ground:	60%
Drainage:	Poor

Vegetation Type: Mixed Open Shrubland

Native Species	Cover (%)	Height (m)
**Mesembryanthemum nodiflorum*	0.1	0.1
Acacia aestivalis	10	2.5
Acacia coolgardiensis	4	3
Acacia longispinea	10	1.5
Amphipogon caricinus	4	0.4
Amphipogon strictus	0.2	0.1
Calocephalus multiflorus	1	0.1
Comesperma integerrimum	5	2
Dianella revoluta	0.2	0.3
Enekbatus planifolius (P1)	1	0.5
Gilruthia osbornei	0.1	0.1
Goodenia micrantha	0.5	0.1
Hemigenia botryphylla	2	1
Maireana carnosa	0.3	0.1
Sclerolaena fusiformis	0.3	0.1

Native Species	Cover (%)	Height (m)
Trachymene pilosa	0.6	0.1
Waitzia acuminata var. acuminata	4	0.2

Note: *denotes introduced species.

Location:	Gutha Dam
Quadrat No.	3
Survey Date:	25/10/22
Personnel:	TB, TC
Latitude:	-28.9883
Longitude:	115.9420
Condition:	Good
Aspect:	Flat
Topography:	Plain
Slope:	0%
Soil:	Red/brown clay
Gravel:	0%
Rock:	0%
Leaf Litter:	10%
Bare Ground:	30%
Drainage:	Poor

Vegetation Type: Mixed Open Shrubland

Native Species	Cover (%)	Height (m)
**Aira cupaniana*	0.1	0.2
**Echium plantagineum*	0.1	0.3
**Mesembryanthemum nodiflorum*	0.5	0.2
**Limonium lobatum*	2.0	0.1
Acacia anthochaera	20	2.5
Amphipogon strictus	0.5	0.2
Aristida contorta	0.1	0.1
Atriplex paludosa	5.0	0.5
Austrostipa elegantissima	3.0	0.5
Comesperma integerrimum	4.0	1.0
Enchylaena tomentosa	1.0	0.2
Gilruthia osbornei	5.0	0.1
Maireana carnosa	0.2	0.1
Maireana georgei	1.0	0.3
Podolepis aristata	0.4	0.2
Ptilotus gaudichaudii	6.0	0.3

Native Species	Cover (%)	Height (m)
Ptilotus polystachyus	0.5	0.4
Ptilotus obovatus	2.0	0.5
Schoenia cassiniana	0.1	0.2
Sclerolaena diacantha	1.0	0.1
Waitzia acuminata var. acuminata	20.0	0.4

Note: *denotes introduced species.

Location:	**Gutha Dam**
Quadrat No.	Potential TEC 1
Survey Date:	26/10/22
Personnel:	TB, TC
Latitude:	-28.9903
Longitude:	115.9442
Condition:	Good
Aspect:	North-east
Topography:	Mid-slope
Slope:	1-3%
Soil:	Red clay
Gravel:	2%
Rock:	0%
Leaf Litter:	5%
Bare Ground:	25%
Drainage:	Poor

Vegetation Type: *Eucalyptus* Woodland

Native Species	**Cover (%)**	**Height (m)**
**Raphanus raphanistrum*	0.1	0.3
**Mesembryanthemum nodiflorum*	1.0	0.1
Acacia acuaria	5.0	1.0
Acacia aestivalis	3.0	3.0
Acacia anthochaera	1.0	1.5
Amphipogon strictus	0.1	0.3
Atriplex paludosa	50.0	1.0
Austrostipa elegantissima	0.2	0.3
Austrostipa macalpinei	0.1	0.3
Comesperma integerrimum	1.0	1.0
Dianella revoluta	0.3	0.5
Enchylaena tomentosa	4.0	0.4
Erymophyllum tenellum	0.2	0.15
Eucalyptus loxophleba subsp. *loxophleba*	45.0	9.0
Eucalyptus moderata	20.0	7.0

Native Species	Cover (%)	Height (m)
Exocarpos aphyllus	5.0	3.0
Gilruthia osbornei	3.0	0.01
Hemigenia botryphylla	4.0	0.3
Maireana carnosa	2.0	0.1
Maireana trichoptera	1.0	0.3
Maireana georgei	2.0	0.3
Melaleuca hamata	1.0	1.5
Podolepis aristata	0.3	0.15
Ptilotus gaudichaudii	2.0	0.15
Ptilotus polystachyus	1.0	0.5
Ptilotus obovatus	4.0	0.5
Rhagodia drummondii	5.0	0.4
Sclerolaena diacantha	2.0	0.2
Sclerolaena fusiformis	0.3	0.15
Thysanotus patersonii	10.0	0.5
Waitzia acuminata var. *acuminata*	35.0	0.15

Note: *denotes introduced species.

Location:	**Gutha Dam**
Quadrat No.	Potential TEC 2
Survey Date:	26/10/22
Personnel:	TB, TC
Latitude:	-28.9912
Longitude:	115.9448
Condition:	Degraded
Aspect:	North-east
Topography:	Mid-slope
Slope:	1-3%
Soil:	Red clay
Gravel:	5%
Rock:	0%
Leaf Litter:	10%
Bare Ground:	35%
Drainage:	Poor

Vegetation Type: *Eucalyptus* Woodland

Native Species	**Cover (%)**	**Height (m)**
**Echium plantagineum*	0.2	0.2
**Bromus rubens*	0.2	0.2
**Limonium lobatum*	0.1	0.15
**Raphanus raphanistrum*	0.1	0.3
Acacia andrewsii	8.0	1.0
Amphipogon strictus	0.1	0.3
Atriplex paludosa	35.0	1.0
Austrostipa elegantissima	0.2	0.3
Austrostipa macalpinei	0.2	0.3
Dianella revoluta	0.3	0.5
Dichopogon capillipes	0.1	0.3
Enchylaena tomentosa	2.0	0.4
Eucalyptus loxophleba subsp. *loxophleba*	70.0	9.0
Maireana carnosa	0.5	0.1
Maireana trichoptera	1.0	0.3

Native Species	Cover (%)	Height (m)
Maireana georgei	1.0	0.3
Philotheca brucei subsp*. brucei*	0.5	0.4
Podolepis aristata	0.3	0.15
Podotheca gnaphalioides	0.2	0.15
Ptilotus exaltatus	0.1	0.3
Ptilotus gaudichaudii	2.0	0.15
Ptilotus polystachyus	0.3	0.5
Ptilotus obovatus	1.0	0.5
Rhagodia drummondii	1.0	0.4
Salsola australis	0.1	0.3
Scaevola spinescens	1.0	1.0
Sclerolaena diacantha	1.0	0.2

Note: *denotes introduced species.

Location:	**Gutha Dam**
Quadrat No.	Potential TEC 3
Survey Date:	26/10/22
Personnel:	TB, TC
Latitude:	-28.9914
Longitude:	115.9440
Condition:	Very good
Aspect:	Flat
Topography:	Plain
Slope:	0%
Soil:	Red clay
Gravel:	0%
Rock:	0%
Leaf Litter:	5%
Bare Ground:	5%
Drainage:	Poor

Vegetation Type: *Eucalyptus* Woodland

Native Species	**Cover (%)**	**Height (m)**
**Mesembryanthemum nodiflorum*	2.0	0.1
**Raphanus raphanistrum*	0.3	0.3
Atriplex paludosa	6.0	1.0
Austrostipa macalpinei	0.3	0.2
Austrostipa nitida	4.0	0.4
Dichopogon capillipes	0.2	0.2
Enchylaena tomentosa	2.0	0.4
Erymophyllum tenellum	0.3	0.2
Eucalyptus loxophleba subsp. *loxophleba*	50.0	9.0
Maireana carnosa	0.5	0.1
Maireana georgei	1.0	0.3
Podolepis aristata	3.0	0.2
Ptilotus gaudichaudii	2.0	0.2
Ptilotus polystachyus	8.0	0.5
Rhagodia drummondii	3.0	0.4

Native Species	Cover (%)	Height (m)
Sclerolaena diacantha	3.0	0.2
Sclerolaena fusiformis	0.3	0.15
Waitzia acuminata var. *acuminata*	5.0	0.2

Note: *denotes introduced species.

Location:	Perenjori Dam
Quadrat No.	1
Survey Date:	26/10/22
Personnel:	TB, TC
Latitude:	-29.4292
Longitude:	116.2656
Condition:	Good
Aspect:	Mid-slope
Topography:	Undulating
Slope:	1%
Soil:	Yellow clay
Gravel:	10%
Rock:	0%
Leaf Litter:	1%
Bare Ground:	50%
Drainage:	Poor

Vegetation Type: Mixed Shrubland

Native Species	Cover (%)	Height (m)
Acacia dielsii	2.0	0.5
Amphipogon caricinus	0.3	0.1
Amphipogon strictus	0.1	0.1
Baeckea sp. Dudawa	2.0	0.4
Cassytha glabella	3.0	1.0
Chrysitrix distigmatosa	0.2	0.3
Cyanothamnus coerulescens	2.0	0.5
Dampiera lavandulacea	1.0	0.2
Ericomyrtus serpyllifolia	1.0	0.3
Grevillea obliquistigma subsp. *funicularis*	7.0	1.0
Melaleuca cordata	15	1.5
Melaleuca hamata	3.0	1.5
Melaleuca conothamnoides	5.0	1.8
Schoenus subaphyllus	0.2	0.4
Thysanotus sp.	0.2	0.3
Waitzia acuminata var. *acuminata*	0.1	0.15

Location:	Perenjori Dam
Quadrat No.	2
Survey Date:	26/10/22
Personnel:	TB, TC
Latitude:	-29.4286
Longitude:	116.2640
Condition:	Good
Aspect:	Mid-slope
Topography:	Undulating
Slope:	1%
Soil:	Yellow clay
Gravel:	10%
Rock:	0%
Leaf Litter:	1%
Bare Ground:	50%
Drainage:	Poor

Vegetation Type: Mixed Shrubland

Native Species	Cover (%)	Height (m)
Acacia dielsii	5.0	1.0
Amphipogon strictus	0.2	0.1
Baeckea sp. Dudawa	10.0	0.3
Cassytha glabella	6.0	1.0
Dampiera lavandulacea	0.2	0.2
Darwinia capitellata	0.2	0.1
Grevillea asparagoides	1.0	0.5
Grevillea obliquistigma subsp. *funicularis*	5.0	1.0
Grevillea extorris	0.5	0.3
Hakea invaginata	6.0	2.0
Lepidobolus preissianus	5.0	0.2
Melaleuca cordata	6.0	1.5
Melaleuca conothamnoides	2.0	0.4
Melaleuca hamata	10	2.0
Petrophile incurvata	1.0	0.5
Schoenus subaphyllus	0.2	0.5
Waitzia acuminata var. *acuminata*	0.1	0.1

Location:	Perenjori Dam
Quadrat No.	3
Survey Date:	26/10/22
Personnel:	TB, TC
Latitude:	-29.4270
Longitude:	116.2619
Condition:	Good
Aspect:	Mid-slope
Topography:	Undulating
Slope:	1%
Soil:	Yellow clay
Gravel:	10%
Rock:	0%
Leaf Litter:	1%
Bare Ground:	50%
Drainage:	Poor

Vegetation Type: Mixed Shrubland

Native Species	Cover (%)	Height (m)
Amphipogon caricinus	1.5	0.2
Borya constricta	2.0	0.5
Cassytha pomiformis	5.0	1.0
Dianella revoluta	0.2	0.1
Grevillea granulosa	0.5	0.5
Grevillea obliquistigma subsp. *funicularis*	10.0	1.0
Malleostemon tuberculatus	0.1	0.2
Melaleuca conothamnoides	2.0	0.5
Melaleuca cordata	9.0	1.0
Melaleuca hamata	7.0	1.5
Melaleuca stereophloia	1.0	1.0
Schoenus subaphyllus	1.0	1.5
Waitzia acuminata var. *acuminata*	0.2	0.2

Location:	**Perenjori Dam**
Quadrat No.	Potential TEC 1
Survey Date:	27/10/22
Personnel:	TB, TC
Latitude:	-29.4333
Longitude:	116.2721
Condition:	Good
Aspect:	Flat
Topography:	Flat
Slope:	0%
Soil:	Red clay
Gravel:	0%
Rock:	0%
Leaf Litter:	5%
Bare Ground:	50%
Drainage:	Poor

Vegetation Type: *Eucalyptus* Woodland

Native Species	**Cover (%)**	**Height (m)**
Acacia acuaria	6.0	0.1
Amphipogon caricinus	0.2	0.15
Austrostipa elegantissima	1.0	0.3
Austrostipa flavescens	2.0	0.5
Dianella revoluta	0.4	0.5
Enchylaena tomentosa	0.5	0.2
Eremophila decipiens subsp. *linearifolia*	0.3	0.2
Eucalyptus sp. 2	40.0	7.0
Ptilotus gaudichaudii	0.2	0.1
Ptilotus polystachyus	0.3	0.2

Location:	**Perenjori Dam**
Quadrat No.	Potential TEC 2
Survey Date:	27/10/22
Personnel:	TB, TC
Latitude:	-29.4340
Longitude:	116.2711
Condition:	Degraded
Aspect:	North-east
Topography:	Mid-slope
Slope:	1-3%
Soil:	Red clay
Gravel:	0%
Rock:	1%
Leaf Litter:	3%
Bare Ground:	80%
Drainage:	Poor

Vegetation Type: *Eucalyptus* Woodland

Native Species	**Cover (%)**	**Height (m)**
Acacia acuminata	2.0	1.2
Dianella revoluta	0.2	0.1
Enchylaena tomentosa	1.0	0.2
Eucalyptus sp.	5.0	8.0
Hakea francisiana	2.0	3.0
Hemigenia ciliata	0.5	0.2
Ptilotus gaudichaudii	0.1	0.1
Ptilotus polystachyus	0.3	0.2
Waitzia acuminata var. *acuminata*	5.0	0.1

Location:	**Perenjori Dam**
Quadrat No.	Potential TEC 3
Survey Date:	27/10/22
Personnel:	TB, TC
Latitude:	-29.4372
Longitude:	116.2791
Condition:	Degraded
Aspect:	Flat
Topography:	Plain
Slope:	0%
Soil:	Red clay
Gravel:	0%
Rock:	0%
Leaf Litter:	0.5%
Bare Ground:	75%
Drainage:	Poor

Vegetation Type: *Eucalyptus* Woodland

Native Species	**Cover (%)**	**Height (m)**
**Echium plantagineum*	0.2	0.2
**Mesembryanthemum nodiflorum*	0.5	0.1
Aristida contorta	0.2	0.2
Austrostipa elegantissima	1.5	0.5
Eucalyptus sp. 2	5.0	6.0
Hakea recurva	15	2.0
Maireana planifolia	0.5	0.5
Ptilotus polystachyus	5.0	0.4
Rhagodia drummondii	1.0	0.5
Schoenia cassiniana	0.2	0.2
Solanum lasiophyllum	0.5	0.3
Waitzia acuminata var. *acuminata*	0.3	0.1

Note: *denotes introduced species.

Location:	Buntine Dam
Quadrat No.	1
Survey Date:	27/10/22
Personnel:	TB, TC
Latitude:	-29.9855
Longitude:	116.5747
Condition:	Good
Aspect:	Flat
Topography:	Plain
Slope:	0%
Soil:	Bitumen, soil unknown
Gravel:	0%
Rock:	0%
Leaf Litter:	0%
Bare Ground:	95%
Drainage:	Poor

Vegetation Type: Mixed Shrubland
Notes: Plants growing through cracks in bitumen

Native Species	Cover (%)	Height (m)
**Aira cupaniana*	0.1	0.1
**Centaurea melitensis*	0.1	0.2
**Lysimachia arvensis*	0.1	0.1
**Polycarpon tetraphyllum*	0.2	0.1
**Wahlenbergia capensis*	0.1	0.1
Acacia acuminata	2.0	3.0
Amphipogon caricinus	0.2	0.5
Aristida contorta	0.1	0.1
Grevillea levis	2.0	1.5
Podolepis aristata	0.1	0.1
Ptilotus polystachyus	1.0	1.0
Wahlenbergia gracilenta	0.1	0.1
Waitzia acuminata var. *acuminata*	0.3	0.1

Note: *denotes introduced species.

Location:	Buntine Dam
Quadrat No.	2
Survey Date:	27/10/22
Personnel:	TB, TC
Latitude:	-29.9859
Longitude:	116.5740
Condition:	Degraded
Aspect:	Flat
Topography:	Plain
Slope:	0%
Soil:	Bitumen, soil unknown
Gravel:	0%
Rock:	0%
Leaf Litter:	0%
Bare Ground:	85%
Drainage:	Poor

Vegetation Type: Mixed Shrubland
Notes: Plants growing through cracks in bitumen

Native Species	Cover (%)	Height (m)
Acacia acuminata	2.0	2.0
Acacia longispinea	4	1.5
Amphipogon caricinus	0.5	0.3
Austrostipa elegantissima	0.1	0.3
Melaleuca hamata	5.0	2.0
Scholtzia drummondii	6.0	1.0
Waitzia acuminata var. *acuminata*	0.1	0.1

Location:	Buntine Dam
Quadrat No.	3
Survey Date:	27/10/22
Personnel:	TB, TC
Latitude:	-29.9851
Longitude:	116.5735
Condition:	Degraded
Aspect:	Flat
Topography:	Plain
Slope:	0%
Soil:	Bitumen, soil unknown
Gravel:	0%
Rock:	0%
Leaf Litter:	15%
Bare Ground:	60%
Drainage:	Poor

Vegetation Type: Mixed Shrubland
Notes: Plants growing through cracks in bitumen

Native Species	Cover (%)	Height (m)
Acacia acuminata	6.0	3.0
Calandrinia calyptrata	0.5	0.1
Eucalyptus camaldulensis	20.0	6.0
Eucalyptus sp. 1	50.0	80.0
Hakea recurva	2.0	1.5
Rhagodia drummondii	1.5	0.6
Waitzia acuminata var. *acuminata*	0.1	0.1

Location:	Buntine Dam
Quadrat No.	Potential TEC 1
Survey Date:	27/10/22
Personnel:	TB, TC
Latitude:	-29.9842
Longitude:	116.5726
Condition:	Degraded
Aspect:	South
Topography:	Drainage line
Slope:	3-5%
Soil:	Light orange/brown clay
Gravel:	70%
Rock:	0%
Leaf Litter:	10%
Bare Ground:	90%
Drainage:	Poor

Vegetation Type: *Eucalyptus* Woodland
Notes: 50x2 transect quadrats

Native Species	Cover (%)	Height (m)
**Mesembryanthemum nodiflorum*	0.5	0.1
Acacia acuminata	2.0	3.0
Acacia andrewsii	1.0	1.0
Acacia hemiteles	2.0	1.0
Acacia erinacea	2.0	1.0
Austrostipa elegantissima	0.2	0.5
Eucalyptus sp. 1	2.0	6.0
Maireana georgei	0.5	0.1
Ptilotus exaltatus	0.2	0.3
Rhagodia drummondii	0.5	0.5
Sclerolaena diacantha	5.0	0.2
Thysanotus patersonii	0.5	0.4

Note: *denotes introduced species.

Location:	**Buntine Dam**
Quadrat No.	Potential TEC 2
Survey Date:	27/10/22
Personnel:	TB, TC
Latitude:	-29.9839
Longitude:	116.5715
Condition:	Good
Aspect:	South
Topography:	Mid-slope
Slope:	3-5%
Soil:	Light orange/brown clay
Gravel:	5%
Rock:	0%
Leaf Litter:	3%
Bare Ground:	70%
Drainage:	Poor

Vegetation Type: *Eucalyptus* Woodland
Notes: 50x2 transect quadrats

Native Species	**Cover (%)**	**Height (m)**
Acacia hemiteles	2.0	1.0
Acacia erinacea	5.0	1.0
Angianthus tomentosus	0.1	0.2
Eucalyptus sp. 1	5.0	10.0
Erymophyllum tenellum	0.2	0.2
Maireana carnosa	0.1	0.1
Maireana georgei	2.0	0.5
Ptilotus exaltatus	0.1	0.5
Rhagodia drummondii	2.0	0.5
Sclerolaena diacantha	0.4	0.5
Waitzia acuminata var. *acuminata*	0.1	0.1

Location:	Buntine Dam
Quadrat No.	Potential TEC 3
Survey Date:	27/10/22
Personnel:	TB, TC
Latitude:	-29.9840
Longitude:	116.5721
Condition:	Good
Aspect:	South
Topography:	Mid-slope
Slope:	3-5%
Soil:	Light orange/brown clay
Gravel:	3%
Rock:	0%
Leaf Litter:	5%
Bare Ground:	85%
Drainage:	Poor

Vegetation Type: *Eucalyptus* Woodland
Notes: 50x2 transect quadrats

Native Species	Cover (%)	Height (m)
**Avena barbata*	0.1	0.3
**Mesembryanthemum nodiflorum*	0.2	0.2
Acacia acuminata	2.0	1.5
Acacia hemiteles	6.0	1.0
Acacia hemiteles	2.0	1.0
Acacia erinacea	6.0	1.0
Alyxia buxifolia	3.0	1.0
Amphipogon caricinus	0.1	0.3
Angianthus tomentosus	0.1	0.1
Aristida contorta	0.1	0.1
Austrostipa elegantissima	0.2	0.4
Austrostipa flavescens	0.1	0.4
Comesperma integerrimum	3.0	1.0
Enchylaena tomentosa	0.1	0.2
Eucalyptus sp. 1	2.0	6.0

Native Species	Cover (%)	Height (m)
Grevillea teretifolia	1.0	1.0
Maireana georgei	0.5	0.5
Podolepis aristata	0.2	0.1
Ptilotus exaltatus	0.1	0.4
Ptilotus obovatus	0.2	0.3
Sclerolaena diacantha	1.0	0.5
Senna artemisioides subsp. *filifolia*	1.0	1.0
Trachymene ornata	0.1	0.1
Waitzia acuminata var. *acuminata*	0.1	0.2

Note: *denotes introduced species.

Location:	Ballidu Dam
Quadrat No.	1
Survey Date:	28/10/22
Personnel:	TB, TC
Latitude:	-30.5990
Longitude:	116.7791
Condition:	Good
Aspect:	Undulating
Topography:	Drainage line
Slope:	0%
Soil:	Yellow/orange clay
Gravel:	5%
Rock:	0%
Leaf Litter:	5%
Bare Ground:	45%
Drainage:	Poor

Vegetation Type: Mixed Shrubland

Native Species	Cover (%)	Height (m)
Acacia brumalis	9.0	3.0
Acacia longispinea	7.0	2.0
Amphipogon caricinus	0.2.0	0.2
Austrostipa flavescens	0.5	0.5
Cassytha melantha	0.5	1.2
Dianella revoluta	0.1	0.5
Grevillea paradoxa	1.0	1.0
Scholtzia drummondii	20.0	1.0
Stylidium confluens	0.5	0.2
Trachymene pilosa	1.0	0.1
Waitzia acuminata var. *acuminata*	8.0	0.2

Location:	Ballidu Dam
Quadrat No.	2
Survey Date:	28/10/22
Personnel:	TB, TC
Latitude:	-30.5981
Longitude:	116.7773
Condition:	Good
Aspect:	Undulating
Topography:	Plain
Slope:	0%
Soil:	Yellow/orange clay
Gravel:	4%
Rock:	0%
Leaf Litter:	10%
Bare Ground:	50%
Drainage:	Poor

Vegetation Type: Mixed Shrubland

Native Species	Cover (%)	Height (m)
Acacia aestivalis	5.0	1.5
Acacia brumalis	2.0	2.0
Acacia longispinea	20.0	1.5
Amphipogon caricinus	35	0.2
Austrostipa elegantissima	0.5	0.6
Enchylaena tomentosa	0.1	0.1
Grevillea paradoxa	4.0	1.0
Hibbertia glomerosa	0.3	0.2
Neurachne alopecuroidea	0.3	0.2
Pimelea avonensis	0.2	0.5
Scholtzia drummondii	10.0	1.0
Thysanotus patersonii	0.1	0.6
Trachymene pilosa	0.1	0.1
Waitzia acuminata var. *acuminata*	0.2	0.2

Location:	Ballidu Dam
Quadrat No.	3
Survey Date:	28/10/22
Personnel:	TB, TC
Latitude:	-30.5980
Longitude:	116.7783
Condition:	Good
Aspect:	Undulating
Topography:	Plain
Slope:	0%
Soil:	Orange clay
Gravel:	5%
Rock:	0%
Leaf Litter:	5%
Bare Ground:	35%
Drainage:	Poor

Vegetation Type: Mixed Shrubland

Native Species	Cover (%)	Height (m)
Acacia brumalis	20.0	3.0
Acacia longispinea	12.0	1.5
Amphipogon caricinus	15.0	0.2
Aristida contorta	0.4	0.1
Austrostipa elegantissima	10.0	1.0
Austrostipa trichophylla	0.3	0.5
Dianella revoluta	0.4	0.5
Grevillea paradoxa	5.0	1.0
Neurachne alopecuroidea	0.2	0.2
Scholtzia drummondii	6.0	1.0
Stylidium confluens	0.4	0.5
Trachymene pilosa	2.0	0.1
Waitzia acuminata var. *acuminata*	10.0	0.2

Location:	**Wyalkatchem Dam**
Quadrat No.	1
Survey Date:	31/10/22
Personnel:	TB, SH
Latitude:	-31.1833
Longitude:	117.3886
Condition:	Good
Aspect:	East
Topography:	Mid-slope
Slope:	1-3%
Soil:	Light brown clay
Gravel:	2%
Rock:	0%
Leaf Litter:	50%
Bare Ground:	0%
Drainage:	Poor

Vegetation Type: Mixed *Allocasuarina* Shrubland

Native Species	**Cover (%)**	**Height (m)**
Acacia enervia subsp. *explicata*	0.5	1.5
Allocasuarina acutivalvis	40.0	3.0
Austrostipa trichophylla	0.1	0.5
Calandrinia eremaea	0.5	0.2
Ecdeiocolea monostachya	2.0	0.5
Eucalyptus sp. 3	1.0	6.0
Grevillea paradoxa	0.5	1.0
Lepidosperma costale	2.0	0.5
Maireana georgei	0.1	0.3
Melaleuca atroviridis	2.0	2.0
Melaleuca hamata	25.0	2.0
Melaleuca marginata	2.0	1.0
Micromyrtus racemosa	0.5	1.5
Phebalium filifolium	4.0	1.5
Styphelia serratifolia	1.0	1.0
Waitzia acuminata var. *acuminata*	3.0	0.2

Location:	**Wyalkatchem Dam**
Quadrat No.	Potential TEC 1
Survey Date:	31/10/22
Personnel:	TB, SH
Latitude:	-31.1852
Longitude:	117.3874
Condition:	Good
Aspect:	North-east
Topography:	Mid-slope
Slope:	1-3%
Soil:	Light brown clay
Gravel:	1%
Rock:	0%
Leaf Litter:	1%
Bare Ground:	25%
Drainage:	Poor

Vegetation Type: *Eucalyptus* Woodland

Native Species	**Cover (%)**	**Height (m)**
**Avena barbata*	5.0	0.5
**Bromus diandrus*	1.0	0.5
**Sonchus oleraceus*	1.0	0.2
Acacia erinacea	0.5	0.5
Acacia enervia subsp. *explicata*	2.0	2.0
Angianthus tomentosus	0.1	0.1
Austrostipa elegantissima	0.5	0.3
Austrostipa macalpinei	0.2	0.5
Austrostipa variabilis	1.0	0.5
Austrostipa eremophila	0.5	0.5
Cryptandra myriantha	0.5	0.5
Dianella revoluta	0.1	1.0
Enchylaena tomentosa var. *tomentosa*	3.0	0.3
Erodium cygnorum	0.2	0.3
Eucalyptus petraea	10.0	8.0

Native Species	Cover (%)	Height (m)
Grevillea paniculata	1.0	1.5
Maireana brevifolia	1.0	0.5
Maireana georgei	0.1	0.2
Melaleuca atroviridis	1.0	2.0
Olearia sp*. Eremicola*	0.2	0.5
Ptilotus spathulatus	0.1	0.1
Rhagodia preissii subsp*. preissii*	1.0	1.0

Note: *denotes introduced species.

Location:	**Wyalkatchem Dam**
Quadrat No.	Potential TEC 2
Survey Date:	31/10/22
Personnel:	TB, SH
Latitude:	-31.1871
Longitude:	117.3882
Condition:	Good
Aspect:	Previous earthworks
Topography:	Plain
Slope:	0%
Soil:	Grey clay
Gravel:	0%
Rock:	0%
Leaf Litter:	3%
Bare Ground:	15%
Drainage:	Poor

Vegetation Type: *Eucalyptus* Woodland

Native Species	**Cover (%)**	**Height (m)**
**Aira cupaniana*	0.1	0.1
**Avena barbata*	2.0	1.0
**Mesembryanthemum crystallinum*	1.0	0.1
**Mesembryanthemum nodiflorum*	2.0	0.1
**Sonchus oleraceus*	0.1	0.2
Acacia erinacea	1.0	1.0
Acacia pycnantha	1.0	2.5
Amphipogon caricinus	0.1	0.2
Aristida contorta	1.0	0.3
Atriplex semilunaris	0.1	0.2
Austrostipa elegantissima	0.5	0.5
Austrostipa macalpinei	0.1	0.2
Austrostipa eremophila	0.5	0.2
Borya constricta	0.1	0.1
Enchylaena tomentosa var. *tomentosa*	0.5	0.1

Native Species	Cover (%)	Height (m)
Eremophila drummondii	0.5	1.0
Erodium cygnorum	0.1	0.1
Eucalyptus salmonophloia	20.0	8.0
Hakea recurva	0.5	1.0
Lepidosperma pruinosum	0.5	0.2
Maireana brevifolia	0.5	1.0
Maireana carnosa	0.1	0.1
Maireana georgei	0.1	0.5
Melaleuca atroviridis	1.0	1.5
Monachather paradoxus	0.1	0.1
Neurachne alopecuroidea	0.1	0.2
Podolepis aristata	0.5	0.2
Rhagodia preissii subsp. *preissii*	1.0	0.5
Salsola australis	0.1	0.3
Santalum acuminatum	1.0	2.0
Schoenia cassiniana	0.1	0.1
Sclerolaena diacantha	0.1	0.2
Waitzia acuminata var. *acuminata*	1.0	0.2

Note: *denotes introduced species.

Location:	**Wyalkatchem Dam**
Quadrat No.	Potential TEC 3
Survey Date:	31/10/22
Personnel:	TB, SH
Latitude:	-31.1850
Longitude:	117.3892
Condition:	Good
Aspect:	Flat
Topography:	Plain
Slope:	0%
Soil:	Brown clay
Gravel	1%
Rock:	0%
Leaf Litter:	50%
Bare Ground:	5%
Drainage:	Poor

Vegetation Type: *Eucalyptus* Woodland

Native Species	**Cover (%)**	**Height (m)**
**Aira cupaniana*	0.1	0.1
**Avena barbata*	2.0	0.5
**Ehrharta longiflora*	0.5	0.5
Acacia erinacea	1.0	1.0
Acacia pycnantha	1.0	1.5
Acacia enervia subsp. *explicata*	1.0	0.5
Aristida contorta	0.5	0.2
Austrostipa elegantissima	5.0	0.5
Austrostipa macalpinei	0.1	0.5
Austrostipa eremophila	5.0	0.5
Dampiera lavandulacea	2.0	0.1
Dianella revoluta	0.5	0.1
Enchylaena tomentosa var. *tomentosa*	0.5	0.2
Eucalyptus petraea	20.0	10.0
Grevillea paniculata	10.0	1.5

Native Species	Cover (%)	Height (m)
Hakea recurva	0.5	1.0
Leptomeria preissiana	0.5	1.0
Maireana georgei	0.1	0.3
Olearia sp*. Eremicola*	0.1	0.5
Podolepis aristata	0.1	0.1
Ptilotus polystachyus	0.5	0.2
Ptilotus spathulatus	0.1	0.1
Rhagodia drummondii	1.5	0.3
Rhagodia preissii subsp*. preissii*	0.5	0.5
Santalum acuminatum	1.0	2.0
Schoenia cassiniana	0.1	0.1
Sclerolaena diacantha	0.5	0.1
Waitzia acuminata var*. acuminata*	10.0	0.1

Note: *denotes introduced species.

Location:	**Knungajin Dam**
Quadrat No.	Potential TEC 1
Survey Date:	1/11/22
Personnel:	TB, SH
Latitude:	-31.1354
Longitude:	118.2250
Condition:	Degraded
Aspect:	South
Topography:	Mid-slope
Slope:	<5%
Soil:	Dark brown sand
Gravel:	0%
Rock:	40%
Leaf Litter:	2%
Bare Ground:	1%
Drainage:	Poor

Vegetation Type: *Eucalyptus* Woodland

Native Species	**Cover (%)**	**Height (m)**
**Avena barbata*	4.0	0.5
**Ehrharta longiflora*	50.0	0.5
**Sonchus asper*	0.1	0.2
Acacia acuminata	5.0	1.5
Anthocercis anisantha	1.0	1.5
Eucalyptus petraea	20.0	6.0
Persoonia stricta	5.0	4.0
Ptilotus polystachyus	2.0	0.5
Solanum orbiculatum	0.1	0.1

Note: *denotes introduced species.

Location:	Mt Cramphorne Dam
Quadrat No.	1
Survey Date:	2/11/22
Personnel:	TB, SH
Latitude:	-31.8301
Longitude:	118.7116
Condition:	Good
Aspect:	Flat
Topography:	Plain
Slope:	0%
Soil:	Light brown quartz sand
Gravel	0%
Rock:	0%
Leaf Litter:	20%
Bare Ground:	2%
Drainage:	Well

Vegetation Type: Mixed Shrubland

Native Species	Cover (%)	Height (m)
**Ehrharta longiflora*	0.1	0.3
**Sonchus oleraceus*	0.1	0.1
Acacia acuminata	1.0	3.0
Allocasuarina huegeliana	5.0	5.0
Allocasuarina campestris	1.0	1.0
Aristida contorta	0.1	0.2
Austrostipa elegantissima	1.0	0.5
Austrostipa macalpinei	0.1	0.3
Austrostipa variabilis	0.1	0.3
Brachyscome pusilla	0.1	0.1
Calothamnus hirsutus	10.0	3.0
Carpobrotus modestus	0.5	0.5
Dianella revoluta	0.5	1.0
Eucalyptus salmonophloia	3.0	8.0

Native Species	Cover (%)	Height (m)
Gnephosis tenuissima	0.1	0.1
Grevillea paniculata	0.5	2.0
Lepidosperma sp. 1	1.0	1.0
Lomandra effusa	1.0	0.2
Melaleuca hamata	1.0	2.5
Melaleuca eleuterostachya	2.0	2.0
Melaleuca laxiflora	1.0	1.0
Neurachne alopecuroidea	0.5	0.2
Nicotiana rotundifolia	0.5	0.5
Olearia sp. Eremicola	3.0	1.0
Podolepis aristata	0.1	0.1
Podotheca gnaphalioides	0.1	0.1
Siemssenia capillaris	0.1	0.2
Stypandra glauca	0.5	0.3
Waitzia acuminata var. *acuminata*	0.1	0.1

Note: *denotes introduced species.

Location:	Mt Cramphorne Dam
Quadrat No.	2
Survey Date:	2/11/22
Personnel:	TB, SH
Latitude:	-31.8298
Longitude:	118.7126
Condition:	Very good
Aspect:	West
Topography:	
Slope:	0-1%
Soil:	Light brown quartz sand
Gravel:	0%
Rock:	0%
Leaf Litter:	30%
Bare Ground:	2%
Drainage:	Well

Vegetation Type: Mixed Shrubland

Native Species	Cover (%)	Height (m)
Acacia microbotrya	1.0	2.5
Allocasuarina huegeliana	1.0	5.0
Allocasuarina acutivalvis	1.0	2.0
Aristida contorta	1.0	0.3
Austrostipa variabilis	0.5	0.5
Brachyscome pusilla	3.0	0.1
Calothamnus gilesii	2.0	1.5
Calothamnus hirsutus	5.0	2.0
Cheilanthes sieberi	0.1	0.1
Dianella revoluta	0.5	0.5
Glischrocaryon aureum	1.0	1.0
Gnephosis tenuissima	0.5	0.1
Grevillea paniculata	3.0	1.5
Lepidosperma costale	0.5	0.5

Native Species	Cover (%)	Height (m)
Leptospermum roei	30.0	2.5
Leptospermum erubescens	1.0	2.0
Lomandra effusa	0.5	0.2
Melaleuca atroviridis	1.0	1.5
Neurachne alopecuroidea	0.5	0.1
Olearia sp. Eremicola	1.0	1.0
Podolepis aristata	20.0	0.1
Podotheca gnaphalioides	1.0	0.1
Siemssenia capillaris	0.5	0.2
Stackhousia monogyna	0.5	0.2
Stypandra glauca	0.1	0.5
Trachymene pilosa	0.1	0.1
Waitzia acuminata var. *acuminata*	0.5	0.2
Xanthorrhoea nana	2.0	1.0

Location:	Mt Cramphorne Dam
Quadrat No.	3
Survey Date:	2/11/22
Personnel:	TB, SH
Latitude:	-31.8302
Longitude:	118.7116
Condition:	Good
Aspect:	West
Topography:	Drainage line
Slope:	0-1%
Soil:	Light brown clay
Gravel:	20%
Rock:	0%
Leaf Litter:	5%
Bare Ground:	80%
Drainage:	Poor

Vegetation Type: Mixed Shrubland

Native Species	Cover (%)	Height (m)
**Briza maxima*	0.1	0.2
**Mesembryanthemum nodiflorum*	0.1	0.1
Acacia assimilis subsp. *assimilis*	0.5	1.5
Allocasuarina huegeliana	1.0	6.0
Centrolepis aristata	0.1	0.1
Diuris sp.	0.1	0.1
Eucalyptus salmonophloia	1.0	8.0
Goodenia micrantha	0.1	0.1
Lachnagrostis filiformis	0.1	0.3
Lepidosperma costale	0.5	0.5
Leptospermum roei	1.0	2.0
Leptospermum erubescens	2.0	1.5
Lomandra effusa	0.5	1.0
Malleostemon tuberculatus	0.5	1.0
Melaleuca atroviridis	4.0	2.5

Native Species	Cover (%)	Height (m)
Melaleuca hamata	1.0	1.5
Melaleuca laxiflora	5.0	1.0
Neurachne alopecuroidea	0.5	0.1
Sclerolaena diacantha	0.1	0.1
Stypandra glauca	0.1	0.4
Trachymene ornata	0.1	0.1

Note: *denotes introduced species.

Location:	Lake Magenta Dam
Quadrat No.	1
Survey Date:	3/11/22
Personnel:	TB, SH
Latitude:	-33.3644
Longitude:	119.2459
Condition:	Degraded
Aspect:	Flat
Topography:	Plain
Slope:	0-1%
Soil:	Brown/red sandy clay
Gravel:	95%
Rock:	0%
Leaf Litter:	0.5%
Bare Ground:	50%
Drainage:	Poor

Vegetation Type: Mixed Shrubland

Native Species	Cover (%)	Height (m)
**Sonchus asper*	0.1	0.1
**Ursinia anthemoides*	0.1	0.2
Acacia acanthoclada subsp. *acanthoclada*	0.5	0.5
Amphipogon strictus	0.1	0.2
Amphipogon turbinatus	0.1	0.2
Austrostipa hemipogon	1.0	0.4
Austrostipa macalpinei	0.1	0.2
Austrostipa variabilis	3.0	0.3
Boronia spathulata	0.1	0.3
Comesperma calymega	0.1	0.2
Dampiera lavandulacea	0.5	0.2
Dampiera sacculata	0.5	0.2
Daviesia incrassata subsp. *teres*	1.0	1.0
Dillwynia uncinata	0.1	0.1
Dodonaea caespitosa	0.5	0.3
Glischrocaryon roei	1.0	0.3
Gompholobium gompholobioides	0.1	0.2

Native Species	Cover (%)	Height (m)
Gompholobium marginatum	0.1	0.1
Goodenia affinis	0.5	0.1
Grevillea shuttleworthiana	5.0	1.5
Guichenotia sarotes	0.1	0.3
Halgania anagalloides	0.1	0.3
Hibbertia acerosa	0.1	0.2
Laxmannia paleacea	0.1	0.1
Leucopogon sp. Wheatbelt	0.5	0.2
Lomandra micrantha subsp*. teretifolia*	0.5	0.2
Lomandra mucronata	0.1	0.2
Orianthera flaviflora	0.5	0.1
Pimelea imbricata	0.5	0.2
Pimelea sulphurea	0.1	0.3
Ricinocarpos graniticus	0.5	0.2
Rinzia communis	0.2	0.2
Schoenus pleiostemoneus	0.1	0.1
Schoenus sesquispicula	0.1	0.2
Schoenus subflavus	0.1	0.2
Solanum hoplopetalum	0.1	0.1
Sphaerolobium linophyllum	0.1	0.2
Stackhousia monogyna	0.1	0.3
Stylidium piliferum	0.1	0.1
Stylidium zeicolor	0.1	0.2
Styphelia dielsiana	0.5	0.2
Styphelia melaleucoides	0.5	0.2
Synaphea interioris	5.0	0.2
Tetrapora preissiana	0.5	0.5
Thysanotus triandrus	0.1	0.2
Tricoryne elatior	0.5	0.2
Unknown sp. 3	2.0	0.3
Verticordia chrysantha	3.0	0.5
Verticordia picta	5.0	1.0
Verticordia roei subsp*. roei*	1.0	0.5

Note: *denotes introduced species.

Location:	Lake Magenta Dam
Quadrat No.	2
Survey Date:	3/11/22
Personnel:	TB, SH
Latitude:	-33.3651
Longitude:	119.2450
Condition:	Degraded
Aspect:	Flat
Topography:	Plain
Slope:	0%
Soil:	Brown/red sandy clay
Gravel:	95%
Rock:	0%
Leaf Litter:	0%
Bare Ground:	20%
Drainage:	Poor

Vegetation Type: Mixed Shrubland

Native Species	Cover (%)	Height (m)
**Sonchus asper*	0.1	0.1
**Ursinia anthemoides*	0.1	0.1
Acacia rostellata	0.5	0.2
Amphipogon turbinatus	0.1	0.4
Amphipogon strictus	0.1	0.3
Anigozanthos humilis	0.1	0.2
Anthotium rubriflorum	0.1	0.2
Austrostipa hemipogon	15	0.5
Austrostipa macalpinei	0.1	0.4
Austrostipa variabilis	15.0	0.1
Banksia xylothemelia	0.1	0.3
Beaufortia micrantha	2.0	0.5
Boronia spathulata	0.5	0.3
Callitris preissii	1.0	0.5
Calytrix leschenaultii	0.1	0.4

Native Species	Cover (%)	Height (m)
Comesperma calymega	0.1	0.3
Cyanothamnus coerulescens	0.1	0.5
Dampiera lavandulacea	0.5	0.3
Daviesia incrassata subsp*. teres*	1.0.	1.0
Dillwynia uncinata	0.1	0.2
Drosera leucoblasta	0.1	0.2
Gompholobium marginatum	0.1	0.2
Goodenia glareicola	0.1	0.3
Grevillea teretifolia	0.5	0.3
Guichenotia sarotes	0.1	0.3
Halgania anagalloides	0.1	0.3
Hibbertia acerosa	0.1	0.3
Laxmannia paleacea	0.1	0.1
Lechenaultia formosa	0.1	0.1
Lepidobolus chaetocephalus	0.1	0.2
Leucopogon fimbriatus	0.1	0.3
Leucopogon sp. Wheatbelt	0.1	0.2
Lomandra micrantha subsp*. teretifolia*	0.1	0.2
Lomandra mucronata	0.1	0.3
Lysinema pentapetalum	0.5	0.3
Melaleuca subtrigona	0.5	1.0
Mesomelaena preissii	0.1	0.3
Mirbelia floribunda	0.1	0.1
Mirbelia multicaulis	0.5	0.3
Neurachne alopecuroidea	0.1	0.1
Opercularia vaginata	0.1	0.2
Orianthera flaviflora	0.1	0.2
Pericalymma ellipticum	0.5	0.3
Pimelea imbricata	0.1	0.2
Pimelea sulphurea	0.1	0.3
Podotheca angustifolia	0.1	0.1
Schoenus pleiostemoneus	1.0	0.2

Native Species	Cover (%)	Height (m)
Schoenus sesquispicula	0.1	0.3
Schoenus subflavus	0.1	0.2
Stylidium piliferum	0.1	0.1
Stylidium repens	0.5	0.1
Stylidium zeicolor	0.5	0.1
Styphelia serratifolia	0.1	0.3
Styphelia dielsiana	0.1	0.3
Styphelia melaleucoides	0.5	0.3
Tetrapora preissiana	1.0	0.5
Tricoryne elatior	0.1	0.2
Unknown sp. 4	2.0	0.2
Verticordia acerosa var. *preissii*	1.0	0.7
Verticordia chrysantha	20.0	1.0
Verticordia picta	3.0	1.0
Verticordia roei subsp. *roei*	5.0	1.0

Note: *denotes introduced species.

Location:	Lake Magenta Dam
Quadrat No.	3
Survey Date:	3/11/22
Personnel:	TB, SH
Latitude:	-33.3652
Longitude:	119.2457
Condition:	Degraded
Aspect:	Flat
Topography:	Plain
Slope:	0%
Soil:	Brown/red sandy clay
Gravel:	95%
Rock:	2%
Leaf Litter:	0%
Bare Ground:	40%
Drainage:	Poor

Vegetation Type: Mixed Shrubland

Native Species	Cover (%)	Height (m)
Austrostipa hemipogon	1.0	0.5
Austrostipa macalpinei	0.1	0.3
Austrostipa variabilis	0.5	0.3
Boronia spathulata	0.5	0.2
Comesperma calymega	0.5	0.3
Cyanothamnus coerulescens	0.1	0.4
Dampiera lavandulacea	0.5	0.3
Dampiera sacculata	0.5	0.3
Daviesia incrassata subsp. *teres*	0.1	1.0
Dillwynia uncinata	0.1	0.1
Gompholobium gompholobioides	0.1	0.2
Goodenia glareicola	0.1	0.3
Goodenia helmsii	0.1	0.4
Grevillea shuttleworthiana	35.0	1.5
Grevillea teretifolia	1.0	0.5
Halgania anagalloides	0.1	0.3
Laxmannia paleacea	0.1	0.1

Native Species	Cover (%)	Height (m)
Lepidosperma costale	0.1	0.6
Lomandra micrantha subsp. *teretifolia*	0.5	0.2
Melaleuca subtrigona	0.1	0.5
Mirbelia multicaulis	0.1	0.3
Mirbelia trichocalyx	0.1	0.4
Neurachne alopecuroidea	0.1	0.1
Orianthera flaviflora	0.1	0.2
Pimelea imbricata	0.1	0.2
Pimelea sulphurea	0.5	0.3
Schoenus sesquispicula	0.1	0.2
Stackhousia monogyna	0.1	0.3
Styphelia serratifolia	0.5	0.3
Styphelia dielsiana	0.1	0.4
Synaphea interioris	1.0	0.3
Tricoryne elatior	0.1	0.2
Unknown sp. 5	1.0	0.2
Verticordia chrysantha	20.0	1.0
Verticordia picta	10.0	1.0