



Aragon Resources Pty Ltd (ACN 114 714 662)

**Fortnum Gold Operations
Labouchere – Regent Project**

**Native Vegetation Clearing Permit Application
Supporting Information**

M52/5, M52/125

August 2024

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1 INTRODUCTION

1.1 Purpose and Scope

Aragon Resources Pty Ltd (ACN 114 714 662) (Aragon), a wholly owned subsidiary of Westgold Resources Limited (Westgold), owns and operates the Fortnum Gold Operation (FGO) (the Project), located 750 kilometres (km) north of Perth and 150 km north-north-west of Meekatharra in the northern Murchison region of Western Australia. The Fortnum Project has been subject to extensive historical disturbance, dominated by mining and pastoral land uses.

The Project comprises the mining Fortnum main area (the Starlight underground mine, which remains active and operational, a processing plant and other open pits), along with the Labouchere, Regent-Messiah, Nathan's and Horseshoe mining areas (Figure 1).

This Native Vegetation Clearing Permit (NVCP) application is for clearing for the purpose of mineral production and associated activities, including development and construction of the Regent-Messiah mining area (Mining Proposal REG ID 126920) and to facilitate expansion at the Labouchere mining area.

1.2 Project

The purpose of this Native Vegetation Clearing Permit (NVCP) application is to seek permission to clear up to 150 hectares (ha) of native vegetation within a proposed 739 ha Permit Area (Figure 2). ***The proposed clearing area coincides with the Purpose Permit Envelope (PPE) of expired Purpose Permit number: 9345/1, which authorised the clearing of 95 hectares (ha) of native vegetation from 18 September 2021 to 31 December 2022.***

To accommodate future mining operations, vegetation clearing is necessary within the PPE. This involves 90 ha for the Regent-Messiah mining area and 60 ha for expanding the Labouchere mining area. While some parts of Regent-Messiah have undergone previous vegetation removal, the majority of the required clearing will impact undisturbed areas. The actual cleared area at Regent-Messiah is anticipated to be significantly smaller than 90 ha (Figure 3) to maintain design flexibility.

The PPE is located entirely within mining tenements currently held by Aragon, as listed in Table 1 and shown on Figure 2. Tenement summaries are provided as Attachment 1.

Table 1: Tenement Overview

Tenement	Area (ha)	Holder	Granted	Expiry
M52/5	464.85	Aragon Resources Pty Ltd	20/04/1983	19/04/2025
M52/125	309.80	Aragon Resources Pty Ltd	30/12/1988	29/12/2030

Clearing will be minimised, with infrastructure locations preferentially selected on areas that have already been disturbed and to avoid, where possible, watercourses, priority flora and rare flora species. Clearing will be undertaken as per Programme of Works (PoW) and Mining Proposal documents which will be submitted to Department of Energy, Mines, Industry Regulation and Safety (DEMIRS), entirely within the boundaries of the Permit Area as shown in Figure 2.

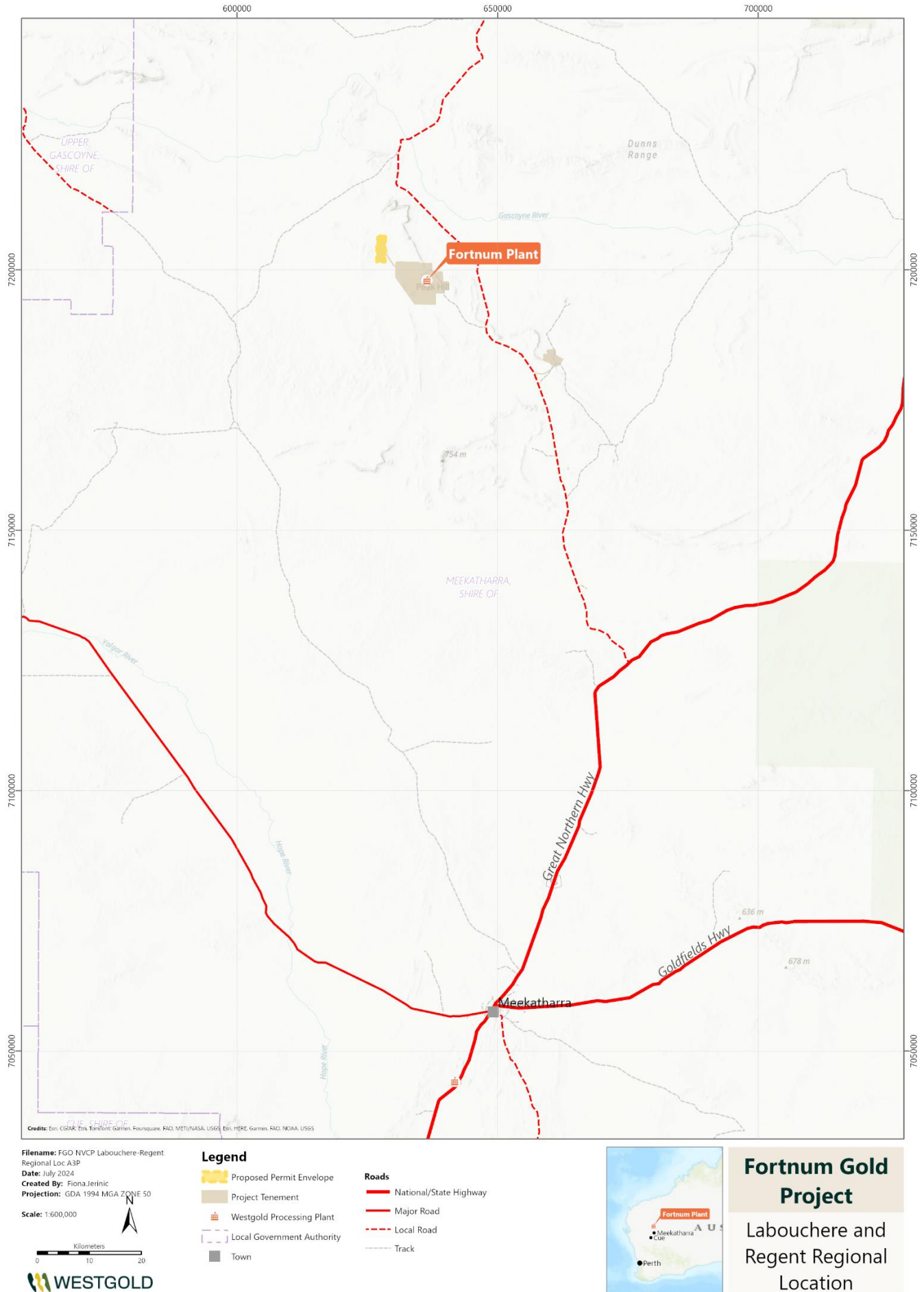







Figure 1: Fortnum Project Regional Location



Filename: FGO NVCP Labouchere-Regent
Tenure PPE A3P
Date: August 2024
Created By: Iliam Wright
Projection: GDA 1994 MGA ZONE 50

Scale: 1:15,000



Legend

-  Native Vegetation Clearing Permit (CPS)
-  Waste Rock Dumps
-  Mining Void or Excavation
-  Buildings and Infrastructure
-  Transport and Service Infrastructure
- Hydrology**
-  Drainage Line, Minor



Fortnum Gold Project
Labouchere and Regent
Messiah Mining Areas
 Tenure and Clearing
 Proposed Permit
 Envelope

Figure 2: Labouchere and Regent Project Tenure and Proposed Permit Envelope (PPE)

2 EXISTING ENVIRONMENT

2.1 Biogeographic Region

The PPE is located in the Augustus subregion (GAS03) of the Gascoyne Interim Biogeographic Regionalisation for Australia (IBRA) bioregion of Western Australia, approximately 40 km north of the boundary with the Murchison bioregion. Spanning an area of approximately 10,000,000 ha, the Augustus subregion is characterised by rugged, low Proterozoic sedimentary and granite ranges interspersed with broad, flat valleys of alluvial valley-fill deposits, with mulga parkland growing on the plains and mulga woodland with *Triodia* occurring on the rises (Desmond, 2002). The Gascoyne River System serves as the primary drainage network for the region.

2.2 Land Systems

The PPE intersects two land systems as described in Table 2 and shown on Figure 3.

Table 2: Land Systems (Rangelands) of the Fortnum Disturbance Envelope

Land System	Land System Description	Land Type	Area Within PPE (ha)	Proportion of DE (%)
Augustus Land System	Rugged ranges, hills, ridges and plateau with skeletal soils supporting mulga and other acacia shrublands in southern parts or hard spinifex grasslands in northern parts.	Hills and ranges; Acacia shrublands	251.4	34
Beasley Land System	Low ridges, hills and lateritised residuals above stony footslopes and broad, stony lower plains supporting scattered mulga and snakewood shrublands.	Low hills and stony plains; Acacia shrublands	487.6	66
Total			739.0	100

2.3 Soils

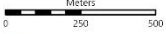
Fortnum lies within the Gascoyne Valley Zone 295 (Tille, 2006), featuring hardpan wash plains on alluvial deposits. Stony soils, derived from the sedimentary bedrock, dominate the hilly terrain. Alluvial plains and floodplains are associated with the Gascoyne River and its tributaries. Soils on hilly terrain are predominantly stony, including red loamy earths, red shallow loams, and red-brown hardpan shallow loams derived from sedimentary bedrock (Tille, 2006). Other soils include hardpan wash plains. Alluvial plains and floodplains are associated with the Gascoyne River and its tributaries.



Credits: Esri, HERE, Garmin, USGS, NGA, Maxar

Filename: FGO NVCP Labouchere-Regent
 Land Systems A3P
 Date: August 2024
 Created By: liam.wright
 Projection: GDA 1994 MGA ZONE 50

Scale: 1:15,119



Legend

Native Vegetation Clearing Permit (NVCPS)

Soil Landscape Mapping (DPIRD-064)

- Augustus System
- Beasley System
- George System
- Peak Hill System

Hydrology

Drainage Line, Minor



**Fortnum Gold Project
 Labouchere and Regent
 Messiah Mining Areas**

Land Systems
 (DPIRD-064)

Figure 3: Labouchere and Regent PPE Land Systems

2.4 Pre-European Vegetation

The PPE lies entirely within Beard Vegetation Association (BVA) 18 (Beard, 1976), which is well represented at a state-wide, regional, sub-regional and local government scale (Table 3), with at least 99.68% of pre-European levels of native vegetation remaining.

Table 3: Beard Vegetation Associations

Vegetation Association	Region	Pre-European Extent (Augustus Subregion)	Current Extent (Statewide)	Remaining (%)	Current Extent in DBCA-Managed Land (%)	Permit Area Extent (ha)	% of Permit Area
18 - Low woodland; mulga (<i>Acacia aneura</i>)	Statewide	19,892,306	19,843,148	99.75	6.62	739	100
	Murchison Bioregion	12,403,172	12,363,252	99.68	4.96		
	Augustus Subregion	2,425,858	2,424,368	99.94	11.61		

2.5 Vegetation and Flora

2.5.1 Vegetation Types

A Level 1 flora and vegetation reconnaissance and targeted flora survey of the Labouchere and Regent mining areas was undertaken by Maia Environmental Consultancy (Maia) in September 2016. Seven vegetation types were mapped (Table 5). Vegetation types are dominated by *Acacia* shrubland. All are considered locally common with low significance.

The report is provided as Attachment 4.

2.5.2 Vegetation Condition

Vegetation condition is described by (Maia, 2016) as pristine to nearly so, with localised mining impacts and evidence of grazing by cattle. Vegetation condition is summarised in Table 4.

The report is provided as Attachment 4.

Table 4: Vegetation Condition

Condition Rating	Condition Description	% of Area Surveyed
2	Pristine or nearly so	89
3	Slight to obvious signs of damage since European settlement	3
7	Disturbed	8
Total		100

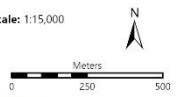
Table 5: Vegetation Types Recorded within the PPE (Maia, 2016)

Code	Vegetation Description	Habitat	Vegetation Condition	Area In PPE (ha)	%
ASL-1	Sparse Tall Acacia Shrubland of either <i>Acacia incurvaneura</i> or <i>A. aptaneura</i> with a Sparse mixed Low Shrubland (<i>Eremophila phyllopoda</i> , <i>Ptilotus schwartzii</i> , and <i>Scaevola spinescens</i>) and Isolated Low Trees of <i>Acacia pruinocarpa</i> and/or <i>A. citrinoviridis</i> .	Stony flat and undulating quartz plains and quartz and ironstone slopes.	2 (pristine or nearly so).	224.47	31.13
ASL-2	Sparse Tall Shrubland of <i>Acacia incurvaneura</i> and/or <i>A. rhodophloia</i> with a mixed Sparse Low Shrubland (<i>Eremophila jucunda</i> subsp. <i>jucunda</i> , <i>E. obliquisejala</i> (P3), <i>Ptilotus schwartzii</i>) and Isolated Low Trees of either <i>Grevillea berryana</i> , <i>Acacia citrinoviridis</i> or <i>A. pruinocarpa</i> .	Stony flat and undulating quartz and ironstone plains and ironstone hill slopes.	2 (pristine or nearly so). Exploration and mining activities noted.	197.39	27.37
ASL-3	Open Tall Shrubland of <i>Acacia incurvaneura</i> or <i>A. aptaneura</i> with a mixed Low Open Shrubland (<i>Eremophila latrobei</i> subsp. <i>Latrobei</i> , <i>E. jucunda</i> subsp. <i>Jucunda</i> and <i>Dodonaea pachyneura</i>) and +/- Scattered Mallee Trees of <i>Corymbia ferriticola</i> .	Crests and upper slopes of ironstone hills.	2 (pristine or nearly so). Exploration tracks and areas adjacent to the existing pit and exclusion bund noted.	86.29	11.97
ASL-4	Sparse Tall Shrubland of <i>Acacia aptaneura</i> and/or <i>A. xiphophylla</i> with a Sparse Low Shrubland of <i>Senna artemisioides</i> subsp. <i>oligophylla x helmsii</i> and <i>Solanum lasiophyllum</i> and a Sparse Chenopod Shrubland of <i>Sclerolaena eriacantha</i> , <i>Maireana georgei</i> and <i>Maireana villosa</i> .	Quartz stony plains.	2 (pristine or nearly so). No disturbance noted.	5.72	0.79
ASL-5	Open Tall Shrubland of <i>Acacia cuthbertsonii</i> subsp. <i>cuthbertsonii</i> , +/- <i>A. incurvaneura</i> or <i>A. rhodophloia</i> with a Sparse mixed Low Shrubland (<i>Dodonaea petiolaris</i> , <i>Eremophila glutinosa</i> and <i>E. exilifolia</i>) and Isolated Low Trees of <i>Acacia citrinoviridis</i> and/or <i>Grevillea berryana</i> .	Minor drainage lines and gullies.	2 (pristine or nearly so). No disturbance noted.	29.75	4.12
AWL-1	Low Woodland to Low Open Forest of <i>Acacia incurvaneura</i> , <i>A. aptaneura</i> and <i>A. cyperophylla</i> var. <i>cyperophylla</i> with a mixed tall shrubland (<i>Acacia cuthbertsonii</i> subsp. <i>Cuthbertsonii</i> , <i>A. ramulosa</i> var. <i>linophylla</i> , <i>Eremophila forrestii</i> subsp. <i>forrestii</i>) and a mixed Low Shrubland (<i>Indigofera monophylla</i> , <i>Abutilon cryptopetalum</i> and <i>Enchylaena tomentosa</i> var. <i>tomentosa</i>).	Low lying areas, depressions and broad drainage lines.	2 (pristine or nearly so). Minor grazing noted.	26.59	3.69
MSL-1	Sparse mixed Shrubland (<i>Senna glaucifolia</i> , <i>Eremophila phyllopoda</i> and <i>Ptilotus rotundifolius</i>) and a Sparse to Open Tussock Grassland of <i>Aristida contorta</i> .	Undulating quartz and ironstone stony plains.	2 (pristine or nearly so). No disturbance noted.	72.98	10.12
Disturbed				77.96	10.81
TOTAL				721.15	100



Filename: FGO NVCP Labouchere-Regent Veg
Types: ASP
Date: August 2024
Created By: liam.wright
Projection: GDA 1994 MGA ZONE 50

Scale: 1:15,000



Legend

Native Vegetation Cleaning Permit (NVC)

Vegetation Code

- ASL-1
- ASL-2
- ASL-3
- ASL-4
- ASL-5

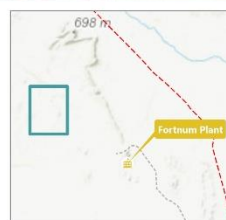
AWL-1

MSL-1

Disturbed

Hydrology

Drainage Line, Minor



**Fortnum Gold Project
Labouchere and Regent
Messiah Mining Areas**

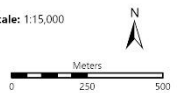
Vegetation Types
(Maia, 2016)

Figure 4: Labouchere and Regent PPE Vegetation Types



Filename: FGO NVCP Labouchere-Regent Veg
 Cond ASP
 Date: August 2024
 Created By: liam.wright
 Projection: GDA 1994 MGA ZONE 50

Scale: 1:15,000



Legend

Native Vegetation Clearing Permit (NVCP)

Condition

2

3

7

Hydrology

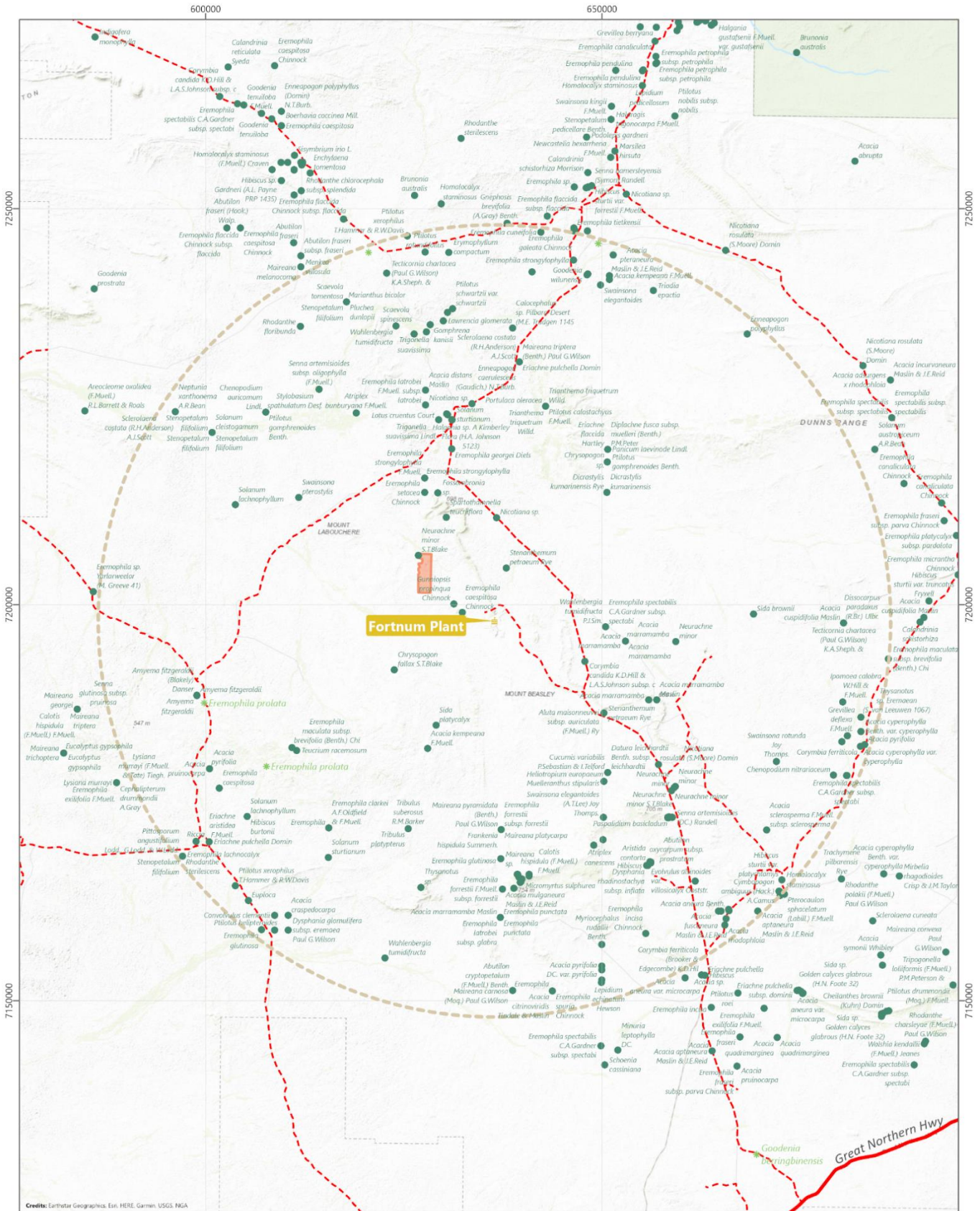
Drainage Line, Minor



**Fortnum Gold Project
 Labouchere and Regent
 Messiah Mining Areas**

Vegetation
 Condition
 (Maia, 2016)

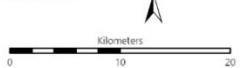
Figure 5: Labouchere and Regent PPE Vegetation Condition



Credits: Earthstar Geographics, Esri, HERE, Garmin, USGS, NGA

Filename: FGO NVCP Labouchere-Regent
 Reg Sig Veg A3P
 Date: July 2024
 Created By: Fiona Jerinic
 Projection: GDA 1994 MGA ZONE 50

Scale: 1:420,000



Legend

- Proposed Permit Envelope
- 50 km Buffer
- Westgold Processing Plant
- Dandoo Identified Species
- * Threatened or Priority Flora
- National/State Highway
- - - Local Road
- · - · - Track

**Fortnum Gold Project
 Labouchere and Regent
 Messiah Mining Areas**

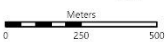
Government
 Database
 Significant Flora

Figure 6: Labouchere and Regent PPE Government Database Conservation Significant Flora



Filename: FGO NVCP Labouchere-Regent Sig
 Veg A3P
 Date: August 2024
 Created By: liam.wright
 Projection: GDA 1994 MGA ZONE 50

Scale: 1:15,000



Legend

- Proposed Permit Envelope
- Conservation Significant Flora (Maia, 2016)
 - Stenanthemum mediale (P1)
 - Eremophila obliquiseptala (P3)
 - Indigofera gilesii (P3)
 - Thryptomene sp. Leinster (B.J. Lepisch & L.A. Craven 4362) (P3)

Fortnum Gold Project
Labouchere and Regent
Messiah Mining Areas

Conservation
 Significant Flora

Figure 7: Labouchere and Regent PPE Conservation Significant Flora

2.5.3 Significant Flora

A desktop search (50km buffer) revealed no Listed Threatened Species in the Matters of National Environmental Significance (DCCEEW, 2024), whilst a desktop search (DBCA, 2024) identified 128 priority species potentially occurring in the Augustus subregion, none are within 50km of the PPE.

The desktop survey (Maia, 2016) identified four priority (P) species within 30 km: *Eucalyptus semota* (P1), *Solanum reclusum* (P1), *Eremophila obliquisejala* and *Maireana prothecochoaeta* (both P3). The application area comprises low to moderate native vegetation diversity and no Threatened or DRF species (Maia, 2016).

Five priority species were identified by (Maia, 2016) within the Survey Area (Table 6). The report is provided as Attachment 4.

Table 6: Conservation Significant Flora Within the PPE and Impact

Species	Conservation Status	Number Recorded (Maia, 2017)			Potential Impact (%)
		Impact Areas	Non-Impact Areas	Total	
<i>Stenanthemum mediale</i>	1	0	9	9	0
<i>Eremophila obliquisejala</i>	3	1,584	1,722	3,306	48
<i>Gunniopsis propinqua</i> *	3	2	48	50	4
<i>Indigofera gilesii</i>	3	0	3	3	0
<i>Thryptomene sp. Leinster</i> (B.J. Lepschi & L.A. Craven 4362)	3	0	10	10	0

*no longer conservation significant

None of the recorded vegetation types are considered to be unique, restricted, associated with a watercourse or are of conservation significance, as all are locally common and occur in surrounding areas (Maia, 2016).

As outlined in Table 6, while up to 48% of *Eremophila obliquisejala* individuals will be affected within the PPE, the overall impact on this species is relatively low due to its large population size and occurrence across multiple vegetation types, which also extend outside of the survey area. No individuals of *Stenanthemum mediale*, *Indigofera gilesii* and *Thryptomene sp. Leinster* will be impacted by the clearing activities as mitigation measures will be implemented to prevent impact.

To minimise impacts, the following mitigation measures will be implemented:

- Prioritise the use of existing access tracks and previously disturbed areas to avoid impacts on conservation significant flora.
- Implement a 10-metre clearance buffer around identified individuals of *Stenanthemum mediale*, *Thryptomene sp. Leinster* and *Indigofera gilesii* (Attachment 4).
- Utilise flagging and boundary markers to protect *Eremophila obliquisejala* populations and other significant flora.

These proposed measures align with condition 8(i)(ii) of the expired clearing permit CPS9345/1.

2.5.4 Introduced Flora Species

The (Maia, 2016) desktop review identified two declared pest plants; *Heliotropium europaeum* (Common Heliotrope) and *Datura leichhardtii* (Native Thornapple), along with *Atriplex canescens* (Fourwing Saltbush) and one weed species with potential habitat as likely to occur in the database search area: *Cenchrus ciliaris* (Buffel-grass). No weed species on any of the national weeds lists or declared in WA were recorded, although three environmental weed species were identified during the field survey:

- *Bidens bipinnata*
- *Cenchrus ciliaris*
- *Rumex vesicarius*

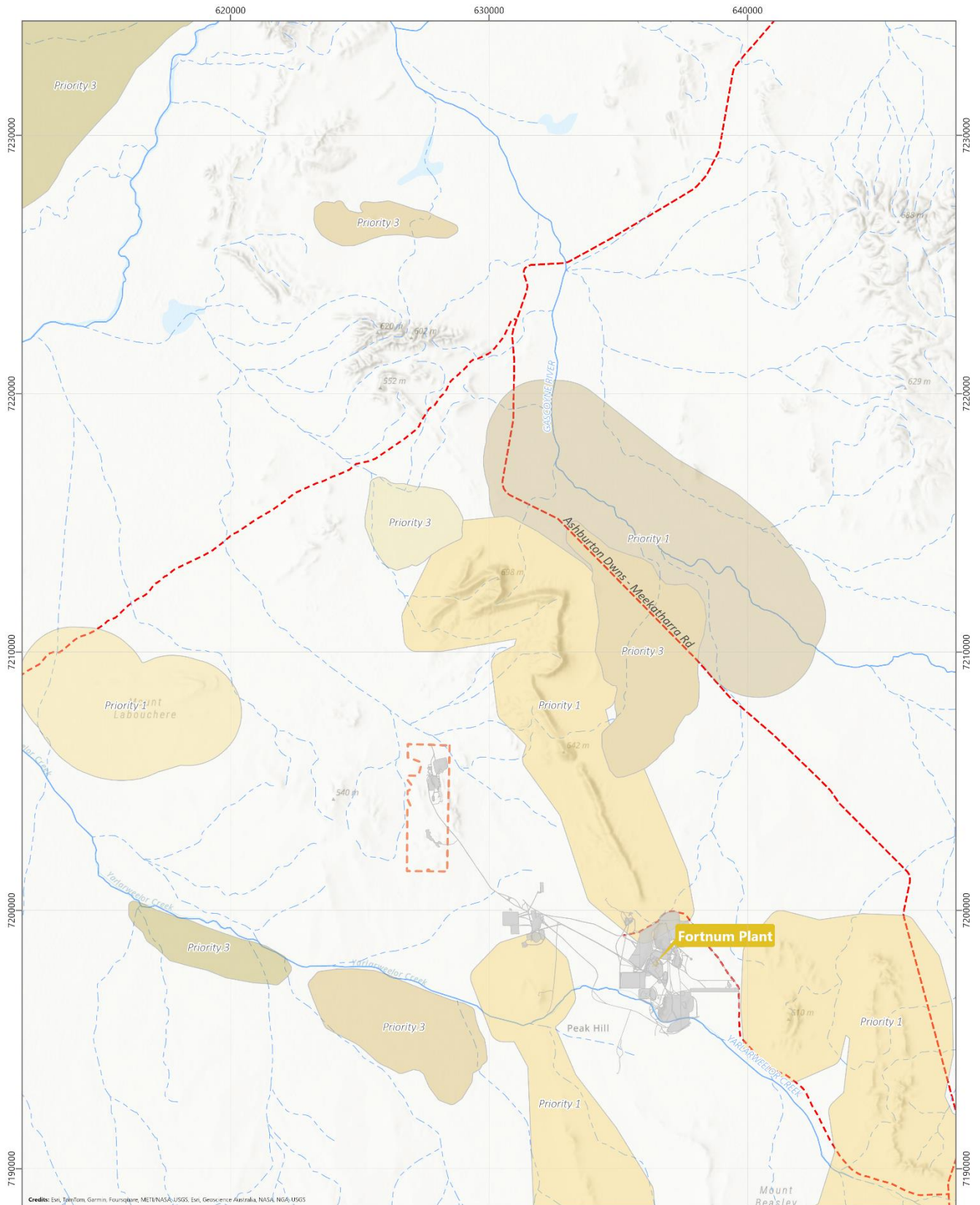
C. ciliaris and *R. vesicarius* are rated as having high ecological impact and rapid invasiveness; *R. vesicarius* was the most common weed recorded in the survey area.

2.5.5 Threatened and Priority Ecological Communities

A comprehensive survey (Maia, 2016) and recent desktop search (50km buffer, (DCCEEW, 2024) identified no Priority Ecological Communities (PECs) or Threatened Ecological Communities (TECs) within the survey area. The PPE does not overlap with any conservation areas, with the nearest located over 40 km away.

Four PECs occur in the vicinity of the PPE (Figure 8):

- Robinson Range vegetation complexes (banded ironstone formation) Priority 1 PEC. The PPE is approximately 2km from the buffer of this PEC.
- Milgun central calcrete groundwater assemblage types on Gascoyne palaeodrainage on Milgun Station (Priority 1 PEC) (approximately 12 km north north-east of the centre of the PPE).
- Milgun south calcrete groundwater assemblage types on Gascoyne palaeodrainage on Milgun Station (Priority 1 PEC) (approximately 12 km north-west of the centre of the PPE).
- Three Rivers Plutonic calcrete groundwater assemblage types on Gascoyne palaeodrainage on Three Rivers Station (Priority 1 PEC) (approximately 26 km north-east of the centre of the PPE).



Credits: Esri, DeLorme, Garmin, Foursquare, METI/NASA, USGS, Esri, GeoScience Australia, NASA, NOAA, USGS

Filename: FGO NVCP Labouchere-Regent ESA
 A3P
 Date: August 2024
 Created By: iiam.wright
 Projection: GDA 1994 MGA ZONE 50

Scale: 1:128,000



Legend

- Proposed Permit Envelope
- Previous Cleared Area
- Westgold Processing Plant
- Priority Ecological Community (PEC)**
- Bubbagundy LS
- Bubbagundy Land System
- Clere LS
- Clere Land System
- Fredrick Land System
- Milgun Central Calcrete
- Milgun South Calcrete
- Robinson Range BIF

Roads

- Local Road
- Track

Hydrology

- Drainage Line, Major
- Drainage Line, Minor

**Fortnum Gold Project
 Labouchere and Regent
 Messiah Mining Areas**

**Environmentally
 Sensitive Areas**

Figure 8: Environmentally Sensitive Areas

2.6 Fauna

2.6.1 Fauna Habitat

Five habitat types (Table 5) have been identified by (Maia, 2016) in the PPE:

- Stony flats and undulating quartz/ironstone plains and quartz/ironstone slopes.
- Crests and upper slopes of ironstone hills.
- Quartz stony plains.
- Minor drainage lines and gullies.
- Low lying areas, depressions and broad drainage lines.
- Undulating quartz and ironstone stony plains.

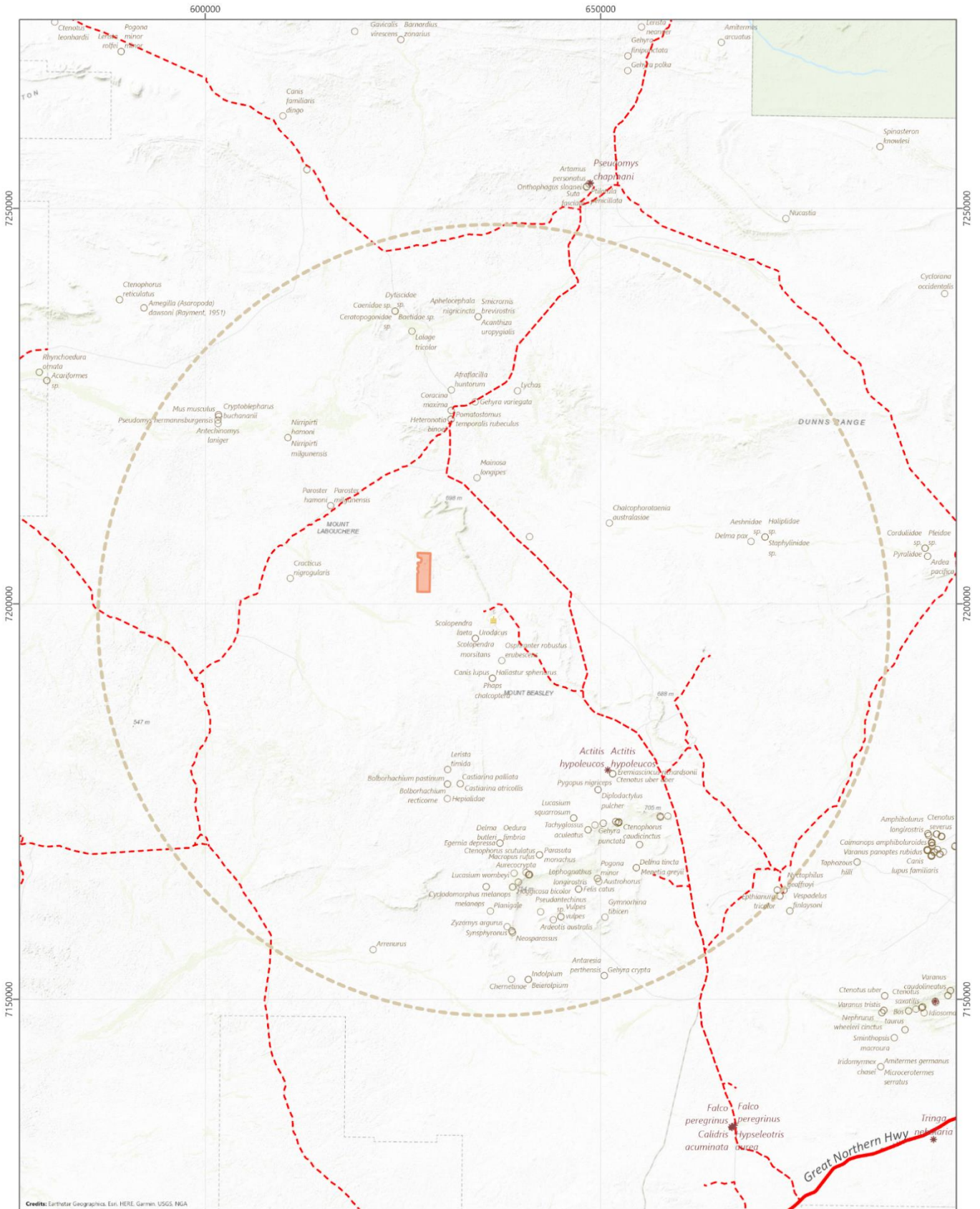
2.6.2 Significant Fauna

Previous database searches by (Rapallo, 2012) indicate no records of conservation significant fauna species known from the local area (20 km radius). Recent desktop searches (50km buffer) revealed Listed Threatened Species in the Matters of National Environmental Significance as shown in Table 7 (DCCEEW, 2024), whilst a desktop search of the Augustus subregion, (DBCA, 2024) identified 38 priority fauna species, none identified within 50km of the PPE.

The likelihood of species of conservation significance from the desktop search occurring in the project area based on species profile (DCCEEW, 2024) and habitats occurring in the project is included in Table 7.

The closest Level 1 terrestrial fauna survey to the PPE is by (Rapallo, 2012) which includes an area just west of the Fortnum Gold Mine. Relevant information is summarised here and in Table 7. The reconnaissance survey recorded fifty species of vertebrate fauna, and at least seven taxa of invertebrate fauna. Six vertebrate fauna species of Local Significance (as defined by Davis 2012, in (Rapallo, 2012)) were recorded, these were the Black Kite (*Milvus migrans*), Spotted Harrier (*Circus assimilis*), Inland Dotterel (*Charadrius australis*), Red-backed Kingfisher (*Todiramphus pyrrhopygius*), the Black-faced Woodswallow (*Artamus cinereus*), and the Australian Pipit (*Anthus australis*).

Regional fauna species are shown on Figure 9.



Filename: FGO NVCP Labouchere-Regent
 Reg Sig Fauna A3P
 Date: July 2024
 Created By: fiona.jerinic
 Projection: GDA 1994 MGA ZONE 50

Scale: 1:420,000

- Legend**
- Proposed Permit Envelope
 - 50 km Buffer
 - Westgold Processing Plant
 - Threatened or Priority Fauna

- Dandjoo Identified Species
- National/State Highway
- Local Road
- Track

**Fortnum Gold Project
 Labouchere and Regent
 Messiah Mining Areas**

Government
 Database
 Significant Fauna

Figure 9: Labouchere and Regent PPE Government Database Conservation Significant Fauna

Table 7: Conservation Significant Fauna Within and Up to 40km from PPE (DCCEEW, 2024)

Scientific Name	Common Name	Class	Species or Habitat Presence	EPBC Act Threatened Category	Migratory Status	WA Status	Habitat in PPE
<i>Calidris ferruginea</i>	Curllew Sandpiper	Bird	Possible	Critically Endangered	Migratory	Critically Endangered	Migratory – Suitable breeding or foraging habitat is unlikely within the PPE.
<i>Macroderma gigas</i>	Ghost Bat	Mammal	Possible	Vulnerable	Non-Migratory	Vulnerable	Project area does not contain species' preferred habitat. Unlikely to occur, and unlikely to be impacted by the project.
<i>Pityrodia augustensis</i>	Mt Augustus Foxglove	Plant	Known	Vulnerable	N/A	Vulnerable	Not recorded during flora survey.
<i>Liopholis kintorei</i>	Great Desert Skink, Tjakura, Warrarna, Mulyamiji, Tjalapa, Nampu	Reptile	Possible	Vulnerable	Non-Migratory	Vulnerable	Common in the arid zone of central and western Australia. Habitat is unlikely within the PPE.
<i>Rhinoicteris aurantia (Pilbara form)</i>	Pilbara Leaf-nosed Bat	Mammal	Possible	Vulnerable	Non-Migratory	Vulnerable	Project area does not contain species' preferred habitat. Unlikely to occur, and unlikely to be impacted by the project.
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	Bird	Possible	Vulnerable	Migratory	Vulnerable	Migratory – Suitable breeding or foraging habitat is unlikely within PPE.
<i>Falco hypoleucos</i>	Grey Falcon	Bird	Possible	Vulnerable	Non-Migratory	Vulnerable	Rare visitor to the region, project area contains suitable hunting habitat, but no nesting habitat. Species unlikely to be impacted by the project.
<i>Aphelocephala leucopsis</i>	Southern Whiteface	Bird	Known	Vulnerable	Non-Migratory	Vulnerable	Project area does not contain species' preferred habitat. Unlikely to be impacted by the project.
<i>Motacilla flava</i>	Yellow Wagtail	Bird	Possible	No Listing	Migratory	Migratory	Migratory – Suitable breeding or foraging habitat is unlikely within PPE.
<i>Actitis hypoleucos</i>	Common Sandpiper	Bird	Possible	No Listing	Migratory	Migratory	
<i>Motacilla cinerea</i>	Grey Wagtail	Bird	Possible	No Listing	Migratory	Migratory	
<i>Charadrius veredus</i>	Oriental Plover, Oriental Dotterel	Bird	Possible	No Listing	Migratory	Migratory	
<i>Calidris melanotos</i>	Pectoral Sandpiper	Bird	Possible	No Listing	Migratory	Migratory	

2.7 Hydrology

Fortnum is located in the upper reaches of the Gascoyne River catchment (Figure 10) which encompasses an area of 80.4 km². Most of the Project lies within the sub-catchment of Yarlarweelor Creek, a major tributary of the Gascoyne River, which originates 35km south-east of Fortnum. Natural drainage is to the north and west towards the Gascoyne River approximately 40 km north-west, and the Yarlarweelor Creek to the southwest, via a series of ephemeral drainage lines, which are typically poorly defined mulga creek beds with shallow, discontinuous channels less than one metre wide. Yarlarweelor Creek is ephemeral, flowing only after heavy rainfall.

Groundwater occurs in fractured rock aquifers of typically very low hydraulic conductivity (Rockwater, 2018) and (Rockwater, 2024). Structural features such as fractures, faults or shears and contact zones between different lithological units are the primary means of groundwater movement and storage under local and regional hydraulic gradients. Groundwater flows are northward away from Yarlarweelor creek and toward the Gascoyne River 14 km to the north (Rockwater, 2018) and (Rockwater, 2024).

Most rainfall in the region is lost to evaporation or surface runoff. Only a small portion infiltrates the soil and recharges the groundwater. Surface water generally only occurs after heavy rainfall. The PPE does not intersect any significant watercourses; however minor drainage lines traverse the PPE, directing surface water flow to the northwest towards the Gascoyne River and southwest towards the Yarlarweelor Creek.

Sediment and riparian vegetation are considered to be sensitive receptors within the creek and river systems. Whilst mapped vegetation types have not been identified as riparian, impacts to watercourses will be minimised by avoidance measures wherever possible. Given that the proposed area of clearing is relatively small, impacts to the quality of surface/groundwater, erosion related and/or flooding issues are not anticipated or likely to occur.

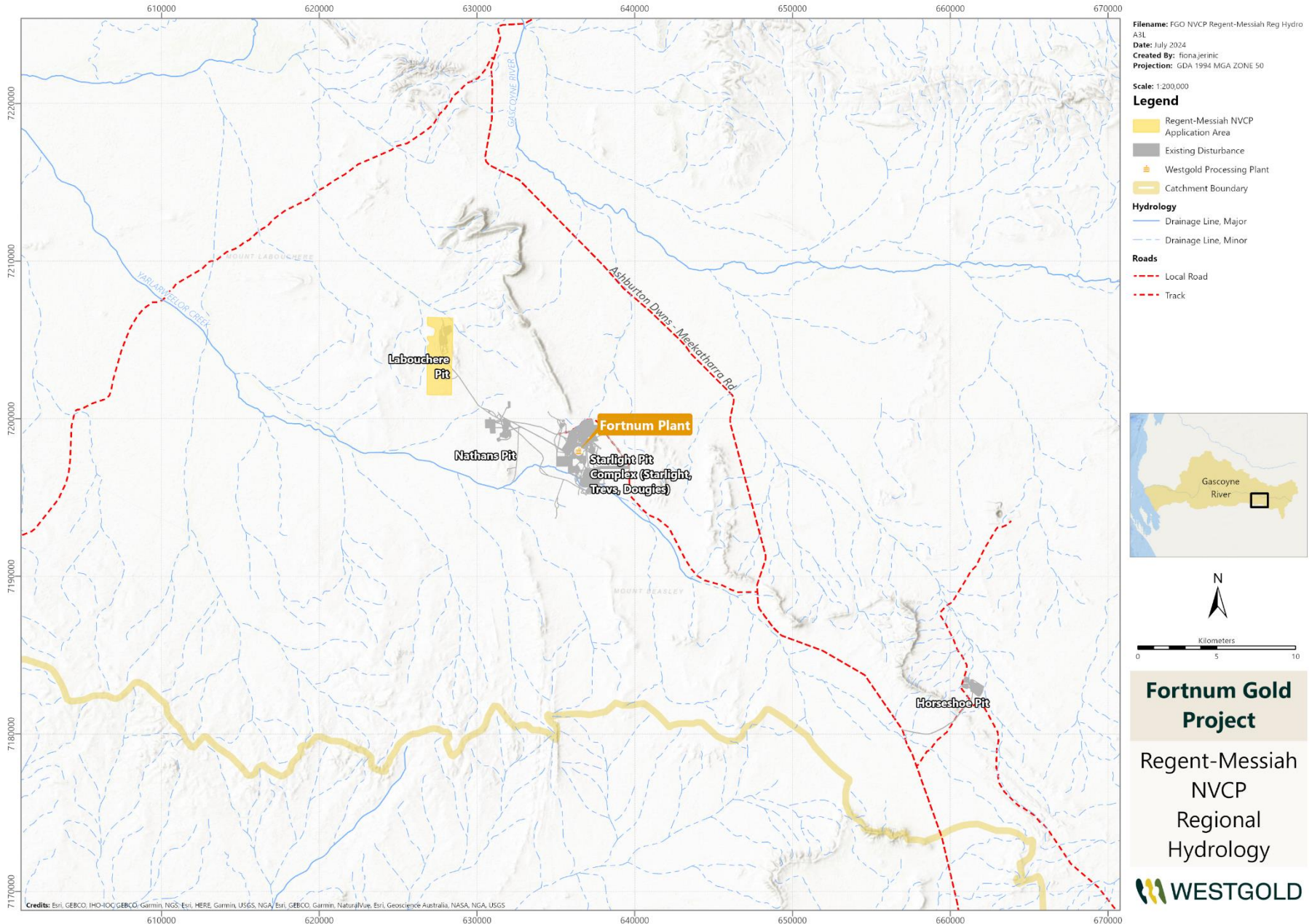


Figure 10: Fortnum Regional Hydrology

3 ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES

An assessment of the proposed clearing against the ten clearing principles outlined in Schedule 5 of the *Environmental Protection Act 1986* is provided in Table 8. This assessment demonstrates that the proposed removal of 135 ha of native vegetation within a PPE of 739 ha is not at variance with any of the ten clearing principles.

Table 8: Assessment against the Ten Clearing Principles

Relevant Information	Assessment	Proposed Control Measures	Outcome
(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.			
The condition of vegetation in the area to be cleared is very good to completely degraded. The area is described as pristine, to extensively disturbed from pastoral and mining activities as well as cattle grazing and trampling. One P1 and several P3 flora were recorded within the PPE and will be removed only under special conditions, as determined by this clearing permit. No priority listed fauna have been identified within 50km.	The clearing footprint will be limited to 150 ha within a PPE of 739 ha. Vegetation types are dominated by Acacia shrubland, considered locally common with low significance. The majority of flora and vegetation within the Survey Area is in pristine condition.	The native vegetation in the PPE is not representative of an area of high biodiversity. The vegetation does not support the whole, or a part of, a significant population of priority flora or priority ecological community, and the native vegetation within the project area does not have a higher diversity than other areas of the same ecological community in the region. Clearing will be minimised, with infrastructure locations preferentially selected on areas that have already been disturbed. Where the flora species <i>Stenanthemum mediale</i> , <i>Indigofera gilesii</i> and <i>Thryptomene sp. Leinster</i> have been identified (Attachment 4), no clearing shall occur within 10 metres of known occurrences.	The proposed clearing activities set out in this NVCP are NOT at variance with Clearing Principle (a).
(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.			
Three broad fauna habitat types were identified within the PPE. None of the habitats are described as significant habitat for fauna indigenous to Western Australia.	The PPE does not represent a habitat for specially protected or threatened fauna or meta-populations of fauna. Clearing will not affect the maintenance of habitat for priority, migratory, specially protected, threatened fauna or meta-populations of fauna.	Clearing will be minimised, with infrastructure locations preferentially selected on areas that have already been disturbed and avoiding watercourses.	The proposed clearing activities set out in this NVCP is NOT at variance with Clearing Principle (b).
(c) Native vegetation should not be cleared if it includes or is necessary for the continued existence of rare flora.			
No threatened, declared rare or undescribed significant flora species were found within the PPE during the 2016 flora and vegetation survey. Four Priority species were recorded within the PPE; <i>Stenanthemum mediale</i> , <i>Eremophila obliquisejala</i> , <i>Indigofera gilesii</i> and <i>Thryptomene sp. Leinster</i> (B.J. Lepschi & L.A. Craven 4362).	The 9 recorded individuals of <i>Stenanthemum mediale</i> are within the Labouchere disturbance envelope. The recorded individuals of <i>Indigofera gilesii</i> have been excluded from the disturbance envelope. Whilst there are populations of <i>Eremophila obliquisejala</i> in close proximity to the PPE, the clearing of small populations or individual plants will not impact on its conservation status due to the wide local distribution (thousands of plants) and the vegetation types in which it occurs (Maia, 2016).	To minimise potential impacts to the locally significant species <i>Eremophila obliquisejala</i> , clearing will be minimised and infrastructure will be preferentially placed where this species has not been recorded. Where the flora species <i>Stenanthemum mediale</i> , <i>Indigofera gilesii</i> and <i>Thryptomene sp. Leinster</i> have been identified (Attachment 4), no clearing shall occur within 10 metres of known occurrences.	The proposed clearing activities set out in this NVCP is NOT at variance with Clearing Principle (c).
(d) Native vegetation should not be cleared if it comprises the whole or a part of or is necessary for the maintenance of a threatened ecological community.			
No Threatened Ecological Communities (TEC) are situated within the PPE. The Robinson Range vegetation complex (banded ironstone formation (BIF)) PEC lies outside of the PPE and will remain unaffected by the proposed clearing activities.	No TECs, or habitat necessary for the maintenance of threatened ecological communities, are present within the PPE.	No control measures are applicable.	The proposed clearing activities set out in this NVCP is NOT at variance with Clearing Principle (d).
(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.			
Two land systems are mapped in the Survey Area – Beasley and Augustus.	The described land systems within the PPE are not regionally or locally significant and the proposed clearing will not reduce the extent of any of the vegetation associations below the 30% representation level within the bioregion.	Clearing will not be undertaken in an area which: <ul style="list-style-type: none"> • Contains the habitat for a threatened fauna species and is below the national target and objective for biodiversity conservation is proposed; • Comprises biologically diverse remnant vegetation within an extensively cleared landscape; • Is remnant vegetation which is part of a significant ecological linkage within an extensively cleared landscape; or • Is required to maintain ecosystem services or to compensate for a high degree of fragmentation. 	The proposed clearing activities set out in this NVCP is NOT at variance with Clearing Principle (e).
(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.			
Surface water within the PPE is only evident after heavy rainfall. Minor ephemeral drainage lines direct surface water flow to the northwest towards the Gascoyne River and southwest towards the Yarlweelor Creek. The PPE does not intersect any significant watercourses.	Mapped vegetation types have not been identified as riparian however are considered sensitive receptors.	Minor ephemeral drainage lines will be avoided where possible. No clearing of ephemeral drainage lines is proposed, and infrastructure will be preferentially placed to avoid drainage lines.	The proposed clearing activities set out in this NVCP is NOT at variance with Clearing Principle (f).
(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.			

Relevant Information	Assessment	Proposed Control Measures	Outcome
<p>Limited surface water flows from ephemeral drainage lines within and adjacent to the PPE will help to minimise the amount of erosion, with most of the soil erosion expected to be limited to localised areas. The proposed clearing is unlikely to significantly increase infiltration, which may otherwise lead to a rise in groundwater or increase salinity levels within the PPE.</p>	<p>Land degradation will be limited to the area of proposed disturbance and is not likely to cause significant land degradation to any surrounding areas.</p>	<p>Clearing is not likely to increase salinity, waterlogging, nutrient export, water and wind erosion or soil acidity.</p>	<p>The proposed clearing activities set out in this NVCP is NOT at variance with Clearing Principle (g).</p>
<p>(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.</p>			
<p>No conservation significant reserve, CALM Act 1984 listed nature reserve, EPBC Act Ramsar Wetland or ANZECC Wetlands Network (1994) wetland is located within 50 km of the PPE.</p>	<p>No Biodiversity, Conservation and Attractions managed lands, conservation covenants, significant wetlands and watercourses or heritage areas will be impacted by the clearing within the PPE.</p>	<p>No control measures are applicable.</p>	<p>The proposed clearing activities set out in this NVCP is NOT at variance with Clearing Principle (h).</p>
<p>(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.</p>			
<p>No significant perennial drainage lines are located within the PPE. Minor ephemeral drainage lines drain through the PPE in a north-westerly direction towards the Gascoyne River.</p>	<p>Given the relatively low annual rainfall of the region, the soil characteristics within the PPE and limited surface water flow, it is considered that clearing of native vegetation will not deteriorate the quality of surface water or groundwater.</p>	<p>Clearing for the Project is not likely to:</p> <ul style="list-style-type: none"> • Lead to adverse impacts through sedimentation of water bodies; • Contribute to increased nutrient levels in the catchment; • Result in low pH waters or acid sulphate soils; or • Contribute to increased salinity in catchments. 	<p>The proposed clearing activities set out in this NVCP is NOT at variance with Clearing Principle (i).</p>
<p>(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.</p>			
<p>The Fortnum region experiences relatively low annual rainfall, significant irregular rainfall events and a high evaporation rate.</p>	<p>The proposed clearing is unlikely to increase the possibility of flooding or waterlogging and should not significantly alter drainage characteristics during 1 in 100-year floods.</p>	<p>Infrastructure will be preferentially placed to avoid drainage lines. Protective bunds and diversion structures will be installed where required to protect natural drainage.</p>	<p>The proposed clearing activities set out in this NVCP is NOT at variance with Clearing Principle (j).</p>

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