GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 9057/1
Permit Holder:	Australian Garnet Pty Ltd
Duration of Permit:	From 13 July 2021 to 13 July 2035

The permit holder is authorised to clear native vegetation subject to the following conditions of this permit.

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The permit holder is authorised to clear native vegetation for the purpose of mineral production.

2. Land on which clearing is to be done

Mining Lease 70/1280
General Purpose Lease 70/253
Miscellaneous Leases 70/167, 70/178, and 70/215

3. Clearing authorised

The permit holder must not clear more than 71 hectares of native vegetation within the area cross-hatched yellow in Figure 1 of Schedule 1.

4. Period during which clearing is authorised

The permit holder must not clear any native vegetation after 13 July 2026.

PART II – MANAGEMENT CONDITIONS

5. Avoid, minimise, and reduce impacts and extent of clearing

In determining the native vegetation authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending order of preference:

(a) avoid the clearing of native vegetation;

(b) minimise the amount of native vegetation to be cleared; and

(c) reduce the impact of clearing on any environmental value.

6. Weed management

When undertaking any clearing authorised under this permit, the permit holder must take the following measures to minimise the risk of introduction and spread of *weeds*:

(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;

(b) ensure that no known weed-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared; and

(c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

7. Directional clearing (fauna management)

When conducting clearing activities under this permit, the permit holder must conduct clearing in a slow, progressive manner from one direction to the other to allow fauna to move into adjacent native vegetation ahead of the clearing activity.

8. Revegetation

The permit holder shall:

(a) retain the vegetative material and topsoil removed by clearing authorised under this permit and stockpile in a nearby area that has already been cleared.

(b) Within 12 months following completion of mining activities, and no later than 13 July 2028, *revegetate* and *rehabilitate* the areas that are no longer required for the purpose for which they were cleared under this permit by:
  (i) re-shaping the surface of the land so that it is consistent with the surrounding uncleared land;
  (ii) ripping the ground on the contour to remove soil compaction;
  (iii) ripping the pit floor and contour batters within the extraction site; and
  (iv) laying the vegetative material and topsoil retained under condition 8(a) for this permit over the areas required to be *revegetated* and *rehabilitated* under condition 8(b) of this permit.

(c) within two years of laying the vegetative material and topsoil on the cleared area in accordance with condition 8(b) of this permit:
  (i) engage an *environmental specialist* to determine the species composition, structure and density of the area *revegetated* and *rehabilitated* and record these values within a report; and
  (ii) where, in the opinion of an *environmental specialist*, the composition structure and density determined under condition 8(c)(i) of this permit will not result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, *revegetate* the area by deliberately planting and/or direct seeding native vegetation that will result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area and ensuring only *local provenance* seeds and propagating material are used.

(d) where additional planting or direct seeding of native vegetation is undertaken in accordance with condition 8(c)(ii) of this permit, the permit holder shall repeat condition 8(c)(i) and 8(c)(ii) within 24 months of undertaking the additional planting or direct seeding of native vegetation.

(e) where a determination by an *environmental specialist* that the composition, structure and density within areas *revegetated* and *rehabilitated* will result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, as determined in condition 8(c)(i) and 8(c)(ii) of this

permit, that determination shall be submitted for the *CEO's* consideration. If the *CEO* does not agree with the determination made under condition 8(c)(ii), the *CEO* may require the permit holder to undertake additional planting and direct seeding in accordance with the requirements under condition 8(c)(ii).

9. Wind erosion management

The permit holder must implement and adhere to the document titled "Balline Garnet Project Dust Management Plan" (Document No: 96.1.4-0000-G-PLN-002, dated 22 October 2020), or future versions as approved by the *CEO*.

PART III - RECORD KEEPING AND REPORTING

10. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities	(a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the size of the area cleared (in hectares); and (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 5; (f) actions taken to minimise the risk of the introduction and spread of weeds in accordance with condition 6; (g) actions undertaken in accordance with condition 7; (h) actions undertaken in accordance with condition 9.
2.	In relation to the *revegetation and rehabilitation* of areas pursuant to condition 8 of this permit	(a) the location of any areas *revegetated* and *rehabilitated*, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees; (b) a description of the *revegetation* and *rehabilitation* activities undertaken; (c) the size of the area *revegetated* and *rehabilitated* (in hectares); (d) the species composition, structure and density of *revegetation* and *rehabilitation*; and (e) a copy of the *environmental specialist's* report.

11. Reporting

(a) The permit holder must provide to the *CEO* on or before 30 June of each year, a written report:

(i) of records required under condition 10 of this permit; and

(ii) concerning activities done by the permit holder under this permit between 1 January to 31 December of the preceding calendar year.

(b) If no clearing authorised under this permit has been undertaken, a written report confirming that no clearing under this permit has been undertaken, must be provided to the *CEO* on or before 30 June of each year.

(c) Prior to 13 April 2035, the permit holder must provide to the *CEO* a written report of records required under condition 10 of this permit where these records have not already been provided under condition 11(a) of this permit.

DEFINITIONS

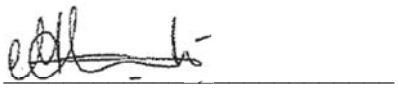
In this permit, the terms in Table have the meanings defined.

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*.
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 2.
direct seeding	means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species.
EP Act	*Environmental Protection Act 1986* (WA)
environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this permit, or who is approved by the CEO as a suitable environmental specialist.
fill	means material used to increase the ground level, or to fill a depression.
local provenance	means native vegetation seeds and propagating material from natural sources within 100 kilometres and the same Interim Biogeographic Regionalisation for Australia (IBRA) subregion of the area cleared
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
optimal time	means the optimal time for undertaking direct seeding and planting
planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species
rehabilitate/ed/ion/ing	means actively managing an area containing native vegetation in order to

Term	Definition
	improve the ecological function of that area
revegetate/ed/ion	means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area
weeds	means any plant – (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

END OF CONDITIONS



Meenu Vitarana
A/MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

18 June 2021

SCHEDULE 1

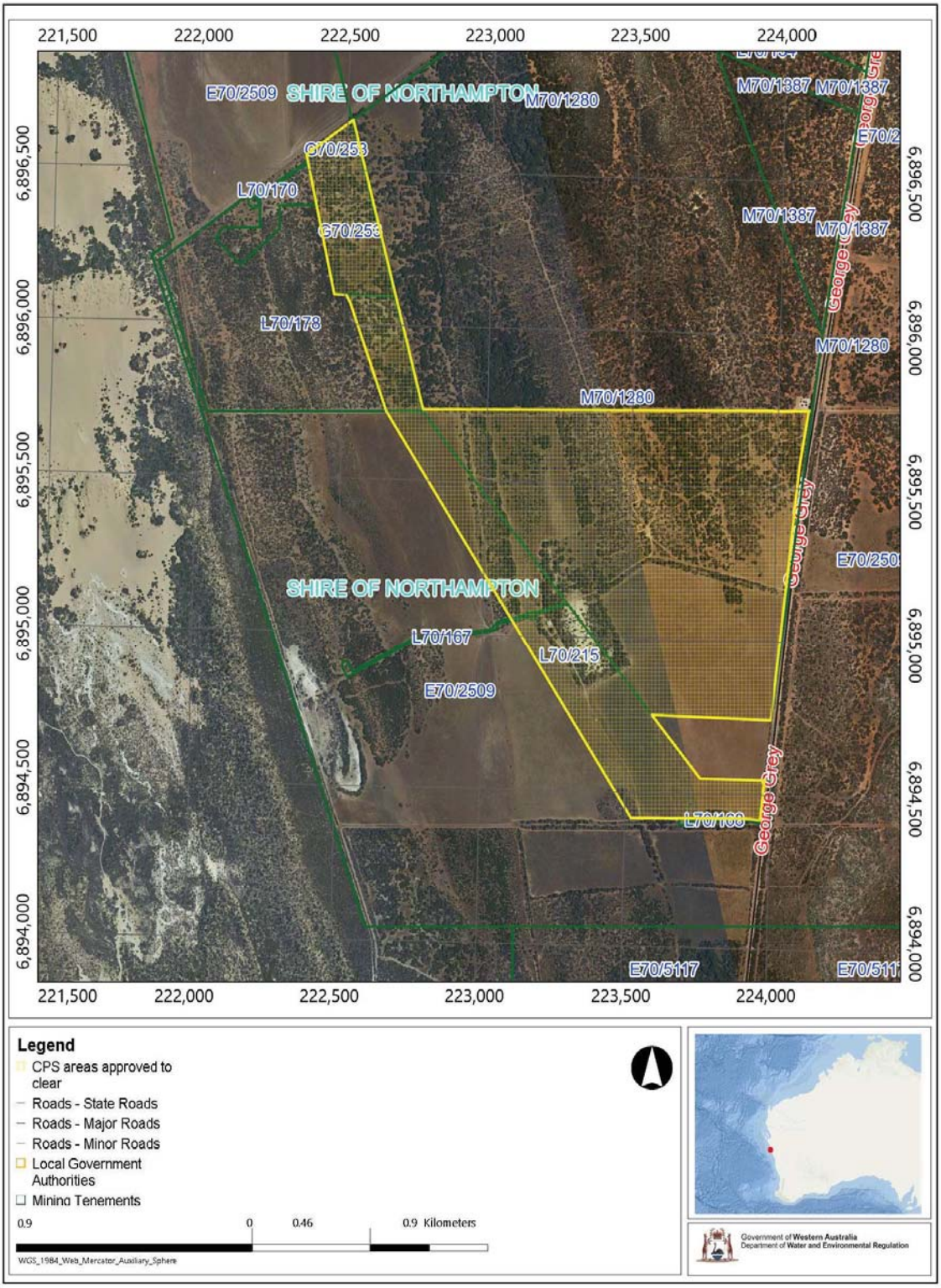


Figure 1: The area hatched yellow shows the area within which clearing may occur.

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9057/1
Permit type:	Purpose permit
Applicant name:	Australian Garnet Pty Ltd
Application received:	22 September 2020
Application area:	71 hectares of native vegetation within a 134.72 hectare footprint
Purpose of clearing:	Mineral production (Balline Garnet Mine)
Method of clearing:	Mechanical removal
Property:	Mining Lease (M) 70/1280, Miscellaneous Licence (L) L70/167, 70/178, L70/215 and General Purpose Lease (G) 70/253
Location (LGA area/s):	Shire of Northampton
Localities (suburb/s):	Northampton

1.2. Description of clearing activities

As part of the larger mining proposal, Australian Garnet Pty Ltd propose to construct an open cut mineral sands mine targeting alluvial garnet.

The vegetation within the application area forms part of a larger contiguous patch of remnant vegetation, mainly comprising *Acacia rostellifera* shrubland within the Geraldton Sandplains Bioregion (see Figure 1, Section 1.5).

1.3. Decision on application

Decision:	Granted
Decision date:	18 June 2021
Decision area:	71 hectares of native vegetation as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and no submissions were received.

In undertaking their assessment and in accordance with section 51O of the EP Act, the Delegated Officer considered the site characteristics (see Appendix B), the Clearing Principles in Schedule 5 of the EP Act (see Appendix C), planning instruments and other pertinent matters deemed relevant to the assessment (see Section 3), the findings of biological surveys (see Appendix F), and relevant datasets (see Appendix G).

The Delegated Officer has determined that the proposed clearing of 71 hectares of largely *Acacia rostellifera* regrowth in a completely degraded to good (Keighery, 1994) condition is unlikely to result in any significant environmental impacts.

However, the proposed clearing may result in the following impacts:

- the potential introduction and spread of weeds into adjacent native vegetation
- wind erosion
- direct impacts to fauna utilising the site during the time of clearing
- a reduction in the patch size of native vegetation that may contribute as a stepping stone for fauna moving within the landscape

After considering the available information, including the applicant's minimisation and mitigation measures (see Sections 3.1), the Delegated Officer determined that the following requirements will be conditioned on the clearing permit to manage and address the impacts of clearing:

- avoid and minimise measures to reduce the impacts and extent of clearing
- take hygiene steps to minimise the risk of the introduction and spread of weeds
- the applicant must adhere to its dust management plan to minimise wind erosion risks
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity
- progressively rehabilitate temporary cleared areas, to re-instate the pre-clearing vegetation type and condition

Given the above management condition requirements, the Delegated Officer determined that the proposed clearing is unlikely to lead to an unacceptable risk to the environment

1.5. Site map

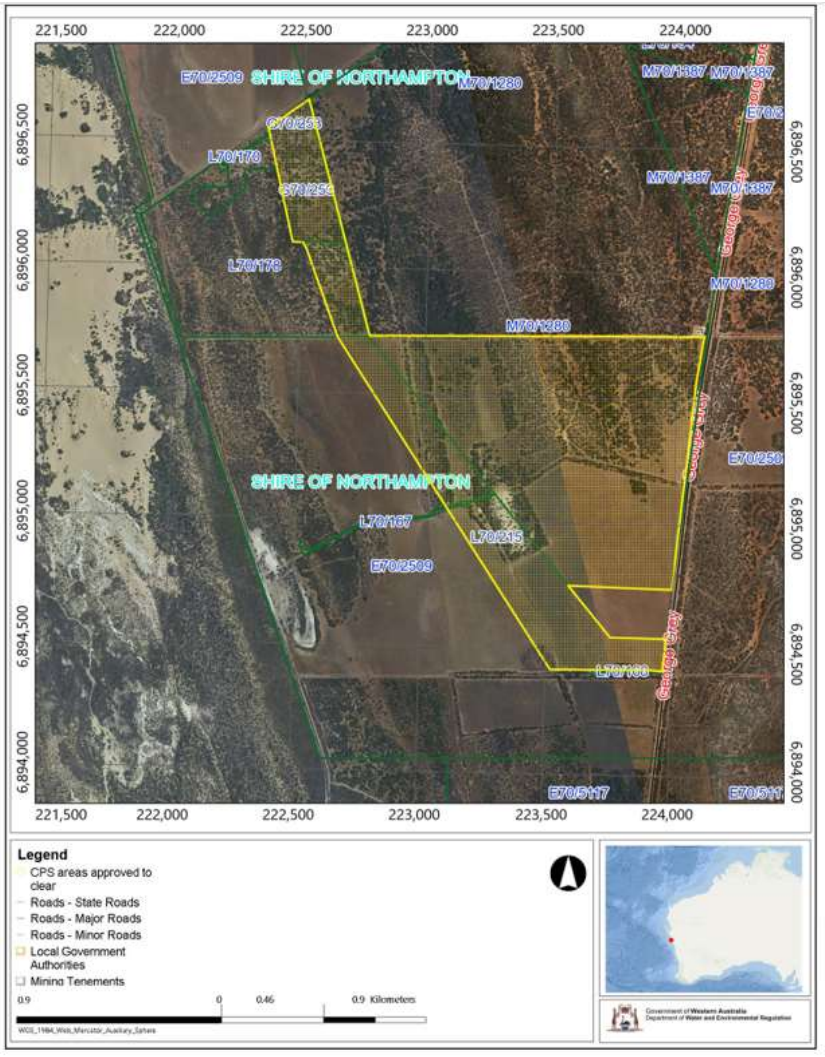


Figure 1. The area cross-hatched yellow indicates the area authorised to clear under the granted clearing permit.

2 Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant advised that it investigated options for mining areas of existing pasture and has done so where possible. The applicant notes that while some cleared areas have been used, exploration drilling showed the resource under some existing areas of largely regrowth *Acacia rostellifera*. The applicant notes that areas of greater environmental significance have been avoided, with large portions of the application area subject to historical clearing approval (CPS 6614/1), and historically impacted by agricultural activities.

The applicant has provided a mining proposal which includes several measures to minimise and mitigate environmental impacts. This includes a commitment to the rehabilitation of native vegetation within temporary cleared areas to a similar (or better) condition than currently present. The mining proposal notes that the applicant will develop an Environmental Management Plan and a Mine Closure Plan.

The applicant notes that dust management is seen as the major operational environmental risk requiring ongoing management. The applicant has developed a dust management plan to address this issue.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer had regard for the site characteristics (see Appendix C) and the extent to which the proposed clearing presents a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see **Error! Reference source not found.**) identified that the impacts of the proposed clearing present a risk to fauna, flora and land resource values. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Biological values (flora) - Clearing Principles (a) and (c)

Threatened and priority flora

The following 17 conservation significant flora species were identified as potentially occurring within the application area:

- *Acacia latipes subsp. licina* (state listed as Priority (P) 3)
- *Androcalva microphylla* (P2)
- *Anthocercis intricata* (P3)
- *Balladonia aervoides* (P3)
- *Beyeria cinerea subsp. cinerea* (P3)
- *Beyeria lepidopetala* (vulnerable under the Biodiversity Conservation Act 2016 (BC Act))
- *Caladenia bryceana subsp. cracens* (endangered under the BC Act)
- *Comesperma rhadinocarpum* (P3)

- *Cryptandra glabriflora* (P2)
- *Dampiera sp. Jurien (G. Lullfitz s.n. 10/7/1986)* (P2)
- *Desmocladus ferruginipes* (P1)
- *Drakaea concolor* (endangered under the BC Act)
- *Geleznowia sp. Binnu (K.A. Shepherd & J. Wege KS 1301)* (P3)
- *Lasiopetalum oldfieldii* (P3)
- *Melaleuca huttensis* (P3)
- *Scaevola kallophylla* (P4)
- *Scholtzia oleosa* (P2)

This presumption is based on habitat suitability of the application area, and the presence of known records of these species within the local area.

In October 2013, the applicant commissioned Onshore Environmental Consultants Pty Ltd (Onshore) to conduct a level 2 flora and vegetation survey (the Flora Survey). The larger survey area of 1,736 hectares encompassed the application area. The Flora Survey was carried out in accordance with EPA Guidance for the Assessment of Environmental Factors: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia No. 51. DWER notes the age of the Flora Survey and the constraints in the currency of information provided.

The entire survey area was ground-truthed at less than 100 metre intervals during the field assessment (Onshore, 2013). The Flora Survey noted that this coverage provided the opportunity to record opportunistic locations for significant flora and undertake closer examination of specific landforms where flora of interest were expected to occur (Onshore, 2013).

The Flora Survey identified 151 plant species from 65 families and 116 genera (Onshore, 2013). Of the 151 species, 127 were introduced or non-native species. No threatened flora was identified (Onshore, 2013).

The Flora Survey identified four state listed priority flora in the larger survey area, including *Melaleuca huttensis* (Priority 3), *Cryptandra glabriflora* (Priority 2), *Anthocercis intricata* (Priority 3) and *Beyeria cinerea* subsp. *cinerea* (Priority 3). None of the identified priority flora were located within the application area. The closest record of these was an occurrence of *Melaleuca huttensis* around 1.1 kilometres north east of the application area (Onshore, 2013).

Most of the application area has been subject to historical cropping and/or grazing, as indicated by historical imagery which shows varying levels of vegetation cover and density. As a result, the application area largely comprises *Acacia rostellifera* regrowth, in a completely degraded to good (Keighery, 1994) condition (Onshore, 2013).

Noting the findings of the Flora Survey and historical agricultural disturbance over the site, the application area is not likely to contain any threatened or priority flora species or contain a high level of biodiversity.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to impact on any threatened or priority flora species or contain a high level of biodiversity. However, the proposed clearing may increase the risk of weeds spreading into adjacent native vegetation comprising higher biodiversity, noting that numerous non-native species were recorded in the Flora Survey.

Outcome

To address the potential spread of weeds into adjacent native vegetation, the clearing permit contains a condition that requires the applicant to undertake weed hygiene management measures.

3.2.2. Biological values (fauna) - Clearing Principle (b)

Fauna Habitat and Suitability

A level 1 flora and fauna assessment undertaken by Ecoscape (2009), which covered the majority of the application area, identified one broad fauna habitat type within the application area, being, *Acacia rostellifera* scrub.

A further level 1 fauna assessment (the Fauna Assessment) by Bamford Consulting Ecologists (Bamford, 2013), which included a larger 1,176 hectare survey area covering the application area, identified two vegetation substrate associations:

- *Acacia* Shrubland to tall shrubland on yellow-brown sands. Degraded by grazing where livestock have not been excluded.
- Pasture. Widespread and well-represented in cleared land in the region.

This aligns with the Flora Survey which noted that the application area largely comprises *Acacia rostellifera* shrubland (Onshore, 2013).

The Fauna Assessment identified the following conservation listed fauna species as potentially occurring within the larger survey area (excluding potential vagrant species):

- *Neopasiphae simplicior* (short tongued bee) (critically endangered under the BC Act)
- *Cyclodomorphus branchialis* (gilled slender blue-tongue) (vulnerable under the BC Act)
- *Leipoa ocellata* (malleefowl) (vulnerable under the BC Act)
- *Falco peregrinus* (peregrine falcon) (other specially protected fauna under the BC Act)
- *Apus pacificus* (fork-tailed swift) (protected under international agreement)
- *Lerista axillaris* (striped-sided robust slider) (state listed as P2)

This presumption is based on habitat suitability of the application area, and the presence of known records of these species within the local area.

The fauna surveys did not identify any conservation listed fauna species (Bamford, 2013; Ecoscape, 2009).

The gilled slender blue-tongue is a ground dwelling species that shelters by day in hammock grass, leaf-litter, including *Acacia*, and under fallen logs and stumps (Cowan et al, 2018). This species prefers deep leaf litter on sandy beaches vegetated mainly with coastal Spinifex (Cowan et al, 2018). The closest record of this species is around 45 kilometres east. While the application area does not contain the preferred habitat for this species, the Fauna Assessment identified that this species may be present in the larger study area (Bamford, 2013).

The striped-sided robust slider has been found in leaf litter beneath *Acacia* scrub on brown sandy loam (Cowan et al, 2017). The closest record of this species is around 14 kilometres north of the application area. The Fauna Assessment noted that this species may be present in the project area, confined to patches of remnant vegetation (Bamford, 2013).

While suitable habitat exists for both the gilled slender blue-tongue and striped-sided robust slider, this habitat is not considered to be significant for the following reasons*:*

- no evidence of either species was recorded within the application area (Bamford, 2013)
- the application area has been subject to historical agriculture practices and is largely in a completely degraded to good (Keighery, 1994) condition
- there are extensive higher quality remnants comprising suitable habitat for both species within the local area, including Kalbarri National Park 16 kilometres north, which comprises around 186,000 hectares

The peregrine falcon is found in a variety of habitats, including rocky ledges, cliffs, watercourses, open woodland, and acacia shrublands (Bamford, 2013). The Fauna Assessment notes that it is unlikely that this species breeds in the project area due to lack of nesting habitat, however it is possible that it occasionally forages in the larger study area (Bamford, 2013). Noting the application area does not include suitable breeding habitat for this species and presence of extensive areas of foraging habitat in the local area, including Kalbarri National Park, the proposed clearing is not likely to impact on significant habitat for this species.

The malleefowl is found in semi-arid to arid shrubland and woodland dominated by mallee eucalypts and/or *Acacia*. It requires a sandy substrate and abundance of leaf-litter for breeding (Birdlife International, 2016). The Fauna Assessment did not identify any Malleefowl mounds (Bamford, 2013). The Fauna Assessment noted that the remnant vegetation within the site is unlikely to support the species but may allow for vagrant birds to move through the project area. Noting this, the application area is not likely to provide significant habitat for this species.

The fork-tailed swift is a migratory avian species. The Fauna Assessment notes that this species may occasionally fly over the project area (Bamford, 2013) and the application area is not likely to contain significant habitat for this species.

The Fauna Assessment noted that the short tongued bee may occur within the larger survey area (Bamford, 2013). The closest record of this species is around 16 kilometres south of the application area. Habitat for this species is poorly known. This species has only been collected on flowers of *Goodenia filiformis*, *Lobelia tenulor*, *Angianthus preissianus* (males only), and Velleia sp (Commonwealth of Australia, 2008). These flora species were not identified

during the Flora Survey (Onshore, 2013). Noting this, the proposed clearing is not likely to impact on significant habitat for this species.

Several species of non-conservation listed fauna were also identified within the larger 1,176 hectare survey area (Bamford, 2013). Noting the condition of the vegetation within the application area relative to surrounding higher quality native vegetation in the region, the application area is unlikely to impact on significant habitat for these species, however, the clearing activities may result in fauna deaths should fauna occur on site at the time of clearing.

Ecological Linkage Values

The application area forms part of a large stand of native vegetation which provides value as a stepping stone for fauna moving throughout the landscape, including between Kalbarri National Park (north) and Utcha Well Nature Reserve (south). In isolation, the proposed clearing will not sever, or significantly reduce the extent of linkage habitat. However, there are several proposals in the local area that have been approved to clear, largely related to mining for Garnet, and DWER recognises the cumulative impact of these proposals on coastal landscape linkage values.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to impact on significant habitat for any conservation listed fauna species. However, the proposed clearing may result in fauna fatalities should they occur on site at the time of clearing. The application area also provides value as a stepping stone for fauna movement within the landscape.

Outcome

To address the above impacts, the clearing permit contains conditions that require the applicant to undertake the following management measures:

- slow directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity
- progressive revegetation of temporary cleared areas post mining to reinstate ecological linkage values

3.3. Relevant planning instruments and other matters

The Shire of Northampton provided comment on the proposed clearing and advised that “Council has no objections to the application as submitted by Australian Garnet, however requests that dust suppression measures be enforced to address potential dust issues for traffic on George Grey Drive and that rehabilitation of the new mine areas be undertaken in a timely manner to also prevent dust emissions” (Shire of Northampton, 2020). The Shire has advised that Development Approval is not required for the project noting that the works will occur under the *Mining Act 1978*.

There are no Aboriginal Sites of Significance mapped within the application area. Several sites are located on the same tenements but are outside the application area. It is the permit holder’s responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Former Department of Mines and Petroleum (DMP) approval of a Mining Proposal for this project under the *Mining Act 1978* (Mining Act) was issued in 2010 to the previous owner, Altura Mining Pty Ltd (Altura), however the project did not proceed. In 2014, the applicant acquired the Australian Garnet portfolio from Altura and completed an updated feasibility study, with changes to the design, extent of Altura’s original proposal. Mining Act approval was subsequently sought and approved by DMP for the expansion on 23 October 2015 and 16 March 2016. The applicant has advised that a Mining Proposal to update the site access road identified in the 23 October 2015 approval is currently being developed, where it is proposed to use an existing unsealed pastoral track which will largely occur through cleared land instead of native vegetation.

On 30 April 2019 DWER issued the applicant with Works Approval (W6214/2019/1) under Part V Division 3 of the EP Act for the project, as the mine is considered a prescribed premises (Category 8: Mineral sands mining or processing: premises on which mineral sands ore is mined, screened, separated or otherwise processed). The Works Approval was later amended on 29 May 2021. The Works Approval is subject to environmental management conditions to address the risk of end land use related impacts.

On 11 May 2015 DWER issued the applicant a licence to abstract groundwater under the *Rights in Water and Irrigation Act 1914* (GWL 170860(4)). This licence was approved to take 1.7 gigalitres per year. The assessment associated with the licence noted that the abstraction will have minimal impacts on water quality and is using a borefield design to reduce drawdown at the coastline. The assessment noted that based on the volume of water

available in the aquifer and limited drawdown expected, the proposed abstraction is unlikely to pose a significant risk to stygofauna.

On 6 August 2015, the applicant was previously granted a clearing permit by the former DMP over most of the southern portion of the current application area (comprised 50 hectares of native vegetation) for mineral production (reference CPS 6614/1). Noting the previously mentioned delays with the project, the clearing was not substantially commenced, and the clearing permit expired on 31 July 2020.

The applicant holds a current clearing permit from DMIRS over adjoining vegetation immediately east of the application area (comprises 90 hectares of native vegetation), for activities associated with the Balline Garnet Mine which this current application relates to (reference CPS 3891/3). The applicant also holds a current clearing permit from DMIRS for the area adjoining to the north west of the application area (reference CPS 8358/1). This area is associated with a wind farm that will power some of the mining operations.

End

Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
Applicant submitted the *Balline Garnet Project Level 2 Flora and Vegetation Survey* (Onshore, 2013) - Prepared for Australian Garnet Pty Ltd November 2013.	Survey was incorporated in the assessment of the application and the consideration of the applied vegetation.
Applicant submitted *Level 1 Flora and Fauna Assessment* (Ecoscape, 2009). Prepared for Haddington Resources Balline.	Survey was incorporated in the assessment of the application and the consideration of the applied vegetation.
Applicant submitted *Level 1 Fauna Assessment* (Bamford, 2013). Prepared for the Balline Garnet Project.	Survey was incorporated in the assessment of the application and the consideration of the applied vegetation.

Appendix B. Details of public submissions

No public submissions were received in relation to the application.

Appendix C. Site characteristics

C.1. Site characteristics

Characteristic	Details
Local context	The application area is around 30 km south of Kalbarri and around 460 km north of Perth. The application area is a part of an extensive remnant of native vegetation in the Geraldton Sandplains Bioregion. It is surrounded by coastal vegetation and dunes to the west and large areas of cleared land for agriculture to the east. The proposed clearing area contains previously cleared areas including farmland pasture and remnant native vegetation in varying conditions. Spatial data indicates the local area (20 km radius from the centre of the application area) retains around 58 per cent of the original native vegetation cover.
Ecological linkage	According to available databases, the application area does not contain any known or mapped ecological linkages. The vegetation in the surrounding area is somewhat fragmented, with areas to the north, east and south cleared for agriculture. Given the proximity to the coastline (1.5 km), the application area may provide value as a stepping stone for fauna moving towards inland remnants, and north-south along the coast.
Conservation areas	The application area is located approximately 1.5 km north of the DBCA managed Utcha Well Nature Reserve. This reserve covers approximately 310 hectares of vegetation managed for the purposes of the conservation of flora and fauna. The application area is around 16 km south of the Kalbarri National Park which covers over 183 000 ha.
Vegetation description	A Level 2 Flora and vegetation survey (the Flora Survey) (Onshore, 2013) noted that the application area comprises five vegetation units: • **VT2:** Planted and partly rehabilitated vegetation adjacent to exposed limestone consisting of 'low woodland of *Eucalyptus camaldulensis*, *Eucalyptus sargentii*, *Casuarina obesa* over high open shrubland of *Acacia rostellifera*, *Melaleuca vimineaa* subsp. *vimineaa*, *Acacia saligna* subsp. *saligna* over scattered low shrubs of *Atriplex Amnicola';* • **VT6a:** Sandy hill slopes consisting of 'high Shrubland to open scrub of *Acacia rostellifera* over open annual tussock grassland of **Avena barbata, *Bromus rubens* and **Ehrharta longiflora* with open shrubland of *Rhagodia latifolia* var. *latifolia*, *Pimelea microcephala* and *Olearia* sp. indet.'

<table>
<tr><th>Characteristic</th><th>Details</th></tr>
<tr><td></td><td>

VT6b: Parkland cleared, sandy hill slopes consisting of ‘high shrubland of Acacia rostellifera, Alyogyne hakeifolia over open annual tussock arassland of *Avena barbata, *Bromus rubens over open herbland of *Brassica tournefortii, *Medicago truncate’;
VT6c: White sand dunes consisting of ‘high shrubland of Acacia rostellifera over open shrubland of Rhagodia latifolia var. latifolia, Olearia axillaris, Scaevola crassifolia; and
Cleared Areas.

VT6a, VT6b and cleared areas are the dominant vegetation types and account for more than 95 per cent of the larger application area.

The mapped vegetation types are broadly consistent with the mapped Beard Vegetation Association (BVA), noting the dominance of Acacia (wattle):

Beard Vegetation Association 17 - Wattle, casuarina and teatree acacia-allocasuarina-melaleuca alliance

</td></tr>
<tr><td>Vegetation condition</td><td>The Flora Survey (Onshore, 2013) indicates that most of the vegetation within the application area is in completely degraded to good condition (Keighery, 1994) condition.

The full Keighery (1994) condition rating scale is provided in Appendix E.</td></tr>
<tr><td>Climate and landform</td><td>The application area is around 1.5 km from the coastline and is close to sea level.

According to the Bureau of Meteorology, Kalbarri (26 km north of application area) has a mean annual rainfall of 338.7 mm.</td></tr>
<tr><td>Soil description</td><td>The soil within the application area is mapped as 231Ta_1: Tamala North 1 Subsystem which is described as low hills with relict dunes and some limestone outcrop, which forms a coastal band 3 to 7 km wide (DPIRD, 2017).</td></tr>
<tr><td>Land degradation risk</td><td>Risk mapping indicates that the application area has the following land degradation risks:

<table>
<tr><th>Land Degradation Risk</th><th>Risk Factor</th></tr>
<tr><td>Wind Erosion</td><td>10-30% of map unit has a high to extreme wind erosion risk</td></tr>
<tr><td>Water Erosion</td><td><3% of map unit has a moderate to very high risk of water erosion</td></tr>
<tr><td>Waterlogging</td><td><3% of map unit has a moderate to very high waterlogging risk</td></tr>
<tr><td>Subsurface Acidification</td><td><3% of map unit has a high subsurface acidification risk or is presently acid</td></tr>
<tr><td>Phosphorus Risk Export</td><td><3% of map unit has a high to extreme phosphorus export risk</td></tr>
<tr><td>Flood Risk</td><td><3% of the map unit has a moderate to high flood risk</td></tr>
<tr><td>Salinity Risk</td><td><3% of map unit has a moderate to high salinity risk or is presently saline</td></tr>
</table>
</td></tr>
<tr><td>Waterbodies</td><td>There is a mapped non-perennial inland flat within the application area which is subject to inundation. Based on the aerial imagery, this area forms a small depression within the landscape where rainwater would likely pool.</td></tr>
<tr><td>Salinity</td><td>The application area is within the Gascoyne Groundwater Area. The mapped groundwater salinity in the application area is mapped between 1000-3000 Total Dissolved Solids (mg/L).</td></tr>
</table>

Characteristic	Details
Conservation listed flora	The local area contains 144 records of threatened or priority flora species. Of these, the closest to the application area is *Comesperma rhadinocarpum* (Priority 3) located around 590 metres away. The Flora Survey did not identify any threatened or priority flora species within the application area (Onshore, 2013). Conservation listed flora species known from the local area from a similar habitat type to the application area are shown below in Table C.2.
Ecological communities	The local area contains one record of a priority ecological community; Kalbarri Ironstone Community (Priority 1). This community is located around 16.5 km south-east. The application area is not representative of this community, or any other known threatened or priority ecological communities.
Conservation listed fauna	There are records of 617 fauna of conservation significance within the local area with the nearest record, *Arenaria interpres* (Ruddy Turnstone), located around 3.3 km away. A level 1 flora and fauna survey undertaken by Ecoscape (2009), which covered the majority of the application area, and the Fauna Assessment (Bamford, 2013), did not identify any conservation listed fauna species. A list of flora species known from the local area within habitat types consistent with the application area is shown below in Table C.3.

C.2. Flora analysis table

The below table shows threatened and priority flora recorded within the local area that may occur within the application area based on the presence of suitable habitat.

Species name	Conservation status (state) (where P denotes priority and T denotes threatened)	Suitable habitat present? [Y/N]	Distance of closest record to application area (km) (approximate)	Number of known records in the local area	Did surveys identify within the application area? [Y/N]
Acacia latipes subsp. licina	P3	Y	9	1	N
Androcalva microphylla	P2	Y	4	11	N
Anthocercis intricata	P3	Y	18	9	N
Balladonia aervoides	P3	Y	16	1	N
Beyeria cinerea subsp. cinerea	P3	Y	19	1	N
Beyeria lepidopetala	T	Y	19	1	N
Caladenia bryceana subsp. cracens	T	Y	12	3	N
Comesperma rhadinocarpum	P3	Y	0.6	1	N
Cryptandra glabriflora	P2	Y	14	4	N
Dampiera sp. Jurien (G. Lullfitz s.n. 10/7/1986)	P2	Y	18	1	N
Desmocladus ferruginipes	P1	Y	16	1	N
Drakaea concolor	T	Y	19	1	N
Geleznowia sp. Binnu (K.A. Shepherd & J. Wege KS 1301)	P3	Y	10	12	N
Lasiopetalum oldfieldii	P3	Y	8	8	N
Melaleuca huttensis	P3	Y	4	2	N
Scaevola kallophylla	P4	Y	17	3	N
Scholtzia oleosa	P2	Y	3.5	14	N

C.3. Fauna analysis table

The below table shows threatened and priority fauna that may occur within the application area based on habitat suitability.

Species name	Conservation status (state)	Suitable habitat features? [Y/N]	Did surveys identify within the application area? [Y/N]
Neopasiphae simplicior (short tongued bee)	critically endangered	Unknown	N
Cyclodomorphus branchialis (gilled slender blue-tongue)	vulnerable	Y	N
Falco peregrinus (peregrine falcon)	other specially protected fauna	Y (foraging only)	N
Leipoa ocellata (malleefowl)	vulnerable	Y	N
Apus pacificus (fork-tailed swift)	protected under international agreement	Y	N
Lerista axillaris (striped-sided robust slider) (Kalbarri)	Priority 2	Y	N

C.4. Vegetation Extent

The below table shows the extent of vegetation remaining for the Bioregion, local area and mapped vegetation association.

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	% Current Extent in All DBCA-Managed Land (proportion of Current Extent)
IBRA Bioregion*					
Geraldton Sandplains	3,163,037	1,404,424	45	568,255	40.46
Beard Vegetation Association*					
17	54,078	45,159	83.5	6068	13.44
Local area					
20km radius	75,666	44,214	58.43	-	-

Appendix D. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: Flora and fauna surveys did not identify any threatened or priority flora or fauna or ecological communities within the application area (Onshore, 2013; Bamford, 2013).	Not likely to be at variance	Yes *(Refer to Section 3.2.1, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
The application area largely comprises *Acacia rostellifera* shrubland in a completely degraded to good (Keighery, 1994) condition and is not likely to contain a high level of biodiversity.		
Principle (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."* Assessment: The application area contains suitable habitat for five species of conservation listed fauna. Noting the extent of equally suitable or higher quality habitat for these species within the local area, the application area is not likely to contain significant habitat for these species.	Not likely to be at variance	Yes *(Refer to Section 3.2.1, above.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The application area is unlikely to contain any threatened flora species noting the findings of a Level 2 Flora and Vegetation survey, and the largely degraded to good (Keighery, 1994) condition of the application area, which has been subject to historical cattle grazing and largely comprises *Acacia rostellifera* regrowth.	Not likely to be at variance	Yes *(Refer to Section 3.2.1, above.*
Principle (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."* Assessment: The application area does not contain vegetation that is representative of any known threatened ecological communities.	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
Principle (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."* Assessment: The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). DWER notes the cumulative clearing associated with nearby mining proposals, and agriculture to the east of the application area. However, as shown in Appendix C, the mapped vegetation type, Bioregion and local area all retain greater than the 30 per cent threshold. Therefore, the application area is not within an extensively cleared area. DWER notes the value of the vegetation under application as a stepping stone for fauna movement. The applicant will be required to revegetate temporary cleared areas to the current vegetation condition and structure, which will minimise this impact.	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (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."* Assessment: Given the distance to the nearest conservation areas, the proposed clearing is not likely to impact on the environmental values of any conservation areas.	Not likely to be at variance	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: The application area contains a mapped inland flat depression which is subject to inundation during seasonally high rainfall. This area contains planted and rehabilitated low woodland of *Eucalyptus camaldulensis, Eucalyptus sargentii* and *Casuarina obesa,* in a degraded condition (Onshore, 2013). The applicant has advised that of the five hectares of vegetation mapped in and around the depression, the proposed clearing will be limited to around two hectares in this area, as the mine design only impacts vegetation on the eastern side of the depression. Given the limited extent of impacts to degraded riparian vegetation, the proposed clearing is unlikely to significantly impact on the extent of riparian habitat within the local area.	At variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The sandy soils mapped within the application area are susceptible to wind erosion, with the 10-30 per cent of the mapped soils identified as having a high to extreme risk of wind erosion. Noting the size of the application area, the proposed clearing may result in wind erosion and appreciable land degradation. The applicant has provided a dust management plan which outlines measures to reduce the risk of wind erosion, including: • use of various surface treatments on exposed or disturbed soils to stabilise soils • wetting down unsealed areas to suppress dust generation • planting of long term tree lined shelter belts • screening along the boundary of the site as a barrier	May be at variance	No
Principle (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."* Assessment: Given no permanent watercourses or wetlands are recorded within the application area, the proposed clearing is unlikely to impact surface or groundwater quality.	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: Noting the highly permeable mapped soils relatively flat topography, and lack of permanent nearby watercourses, the proposed clearing is unlikely to contribute to cause or exacerbate the incidence or intensity of flooding.	Not likely to be at variance	No

Appendix E. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation within the application area. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
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.

Appendix F. Biological survey information excerpts

Bamford Level 1 Fauna Assessment

A Level 1 fauna assessment was undertaken by Bamford Consulting Ecologists (Bamford) over a larger study area encompassing the application area. The assessment consisted of a desktop study and basic ground-truthing through a reconnaissance survey (Bamford, 2013).

The assessment was undertaken by senior zoologists on 14 September 2013 and included several components (Bamford, 2013):

- targeted searches for conservation significant fauna
- opportunistic fauna observations; and
- habitat assessment.

The assessment recorded vegetation and substrate associations throughout the survey area. The assessment searched for evidence of use by conservation listed fauna by traversing suitable habitat for such species (Bamford, 2013).

Onshore Level 2 Flora and Vegetation Survey

A level 2 flora and vegetation survey was undertaken by Onshore Environmental (Onshore) over a larger study area encompassing the application area. The survey was undertaken in accordance with EPA Guidance for the Assessment of Environmental Factors: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia No. 51 (Onshore, 2013).

The single season field survey was completed between the 5 and 11 October 2013 by a Principal Botanist. The survey notes that methods involved systematic sampling using 10 by 10 m quadrats (Onshore, 2013). A total of 15 quadrats were formally assessed within the study area. Vegetation descriptions were made at an additional 163 relevé sites to support vegetation mapping and data on a range of other environmental parameters was collected (Onshore, 2013).

The entire study area was ground-truthed at less than 100 m intervals during the field assessment, which provided the opportunity to record significant flora, and undertake closer examination of specific landforms where flora of interest may occur (Onshore, 2013).

Ecoscape Level 1 Flora and Fauna Survey

A reconnaissance flora and fauna survey was undertaken by Ecoscape over the majority of the application area. The survey was undertaken in accordance with EPA Guidance for the Assessment of Environmental Factors: Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia No. 51 (Ecoscape, 2009).

The survey involved a traversing all large remnants and any areas with remnant understorey or shrub layers, including (Ecoscape, 2009):

- assessment of vegetation type and structure
- search for flora of conservation significance
- allocation of a condition rating
- recorded flora from opportunistic sampling
- opportunistic field surveys for vertebrate fauna

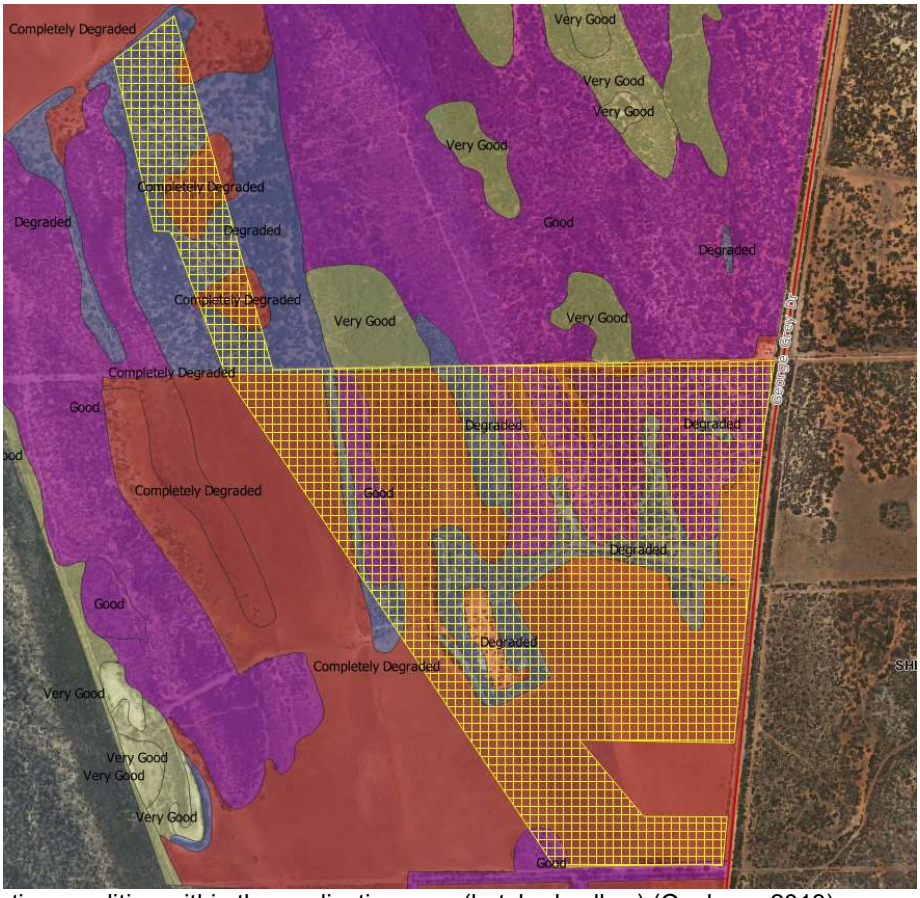


Figure 2. Vegetation condition within the application area (hatched yellow) (Onshore, 2013).

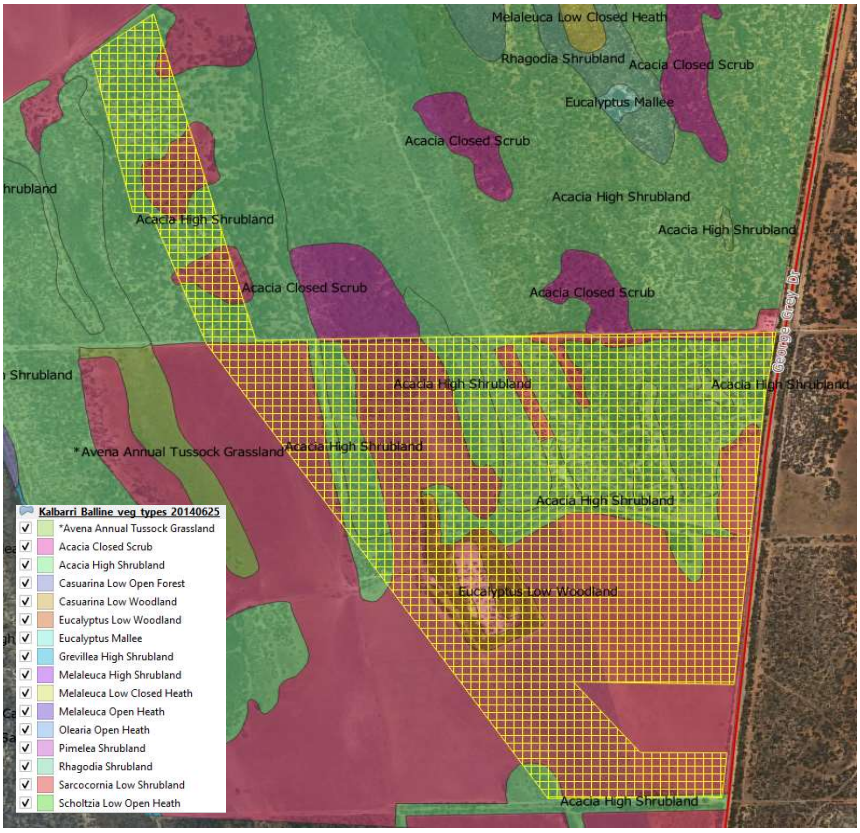


Figure 3. Vegetation types recorded within the application area (hatched yellow) where *Acacia* means *Acacia rostellifera* (Onshore, 2013).

Appendix G. Sources of information

G.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

G.2. References

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