

Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	10036/1
Permit type:	Purpose Permit
Applicant name:	Norton Gold Fields Pty Ltd
Application received:	29 December 2022
Application area:	310 hectares
Purpose of clearing:	Mineral Production and Associated Activities
Method of clearing:	Mechanical Removal
Tenure:	Mining Lease 26/115, 26/243, 26/430, 26/474
Location (LGA area/s):	City of Kalgoorlie-Boulder
Colloquial name:	Apache Project

1.2. Description of clearing activities

Norton Gas Gold Fields Pty Ltd proposes to clear up to 310 hectares of native vegetation within a boundary of approximately 378 hectares, for the purpose of mineral production and associated activities. The project is located approximately 10 kilometres west of Kalgoorlie, within the City of Kalgoorlie-Boulder.

The application is to allow for mining and supporting infrastructure (including but not limited to waste rock landforms, run-ofmine pad, topsoil stockpiles, roads, laydown and offices) (Norton Gold Fields, 2022).

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	23 February 2023
Decision area:	310 hectares of native vegetation

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Mines, Industry Regulation and Safety (DMIRS) on 29 December 2022. DMIRS advertised the application for a public comment for a period of 21 days, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix A), relevant datasets (Appendix D), supporting information provided by the applicant, including the results of a flora and vegetation survey, the clearing principles set out in Schedule 5 of the EP Act (Appendix C), proposed avoidance and minimisation measures (Section 3.1), relevant planning instruments and any other matters considered relevant to the assessment (Section 3.3).

The assessment identified that the proposed clearing may result in:

- loss of potential habitat for Arid Bronze Azure Butterfly; and
- loss of potential habitat for Inland Hairstreak Butterfly.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values.

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds; and
- undertake slow, progressive one-directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity.

1.5. Site map

A site map of proposed clearing is provided in Figure 1 below.

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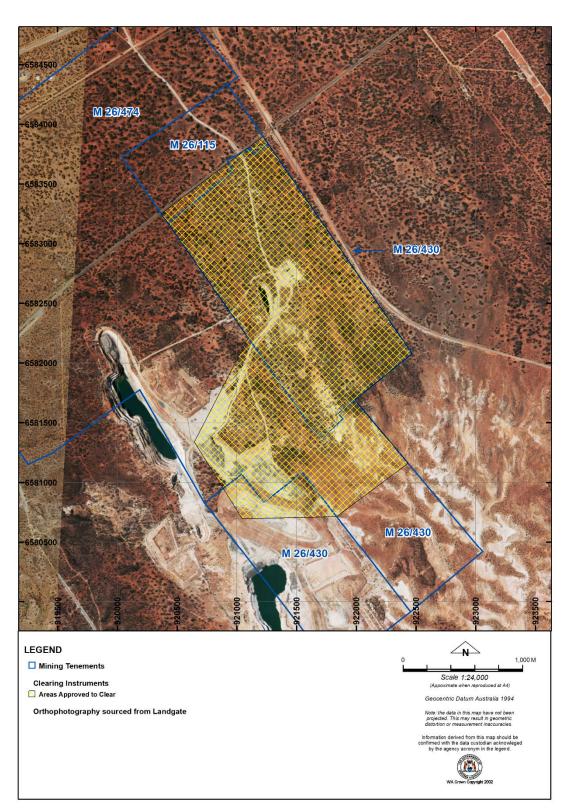


Figure 1. Map of the application area. The yellow area indicates the area within which conditional authorised clearing can occur under the granted clearing permit.

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 510 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

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• 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)
- Conservation and Land Management Act 1984 (WA) (CALM Act)
- Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act)
- Mining Act 1978 (WA)

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)
- Technical guidance Terrestrial Fauna Surveys for Environmental Impact Assessment (EPA, 2016)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

Evidence was submitted by the applicant, demonstrating that potential environmental impacts will be managed, such as:

- all vehicles and machinery will be inspected for weeds;
- dust suppression techniques will be utilised, including the use of water carts;
- mine layout has been designed to make use of existing disturbance, i.e. utilising existing roads; and
- a staged clearing approach will be utilised where possible.

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

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

The assessment against the clearing principles identified that the impacts of the proposed clearing present a risk to biological values (fauna). 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 (fauna) - Clearing Principles (b)

Assessment

A basic, targeted and Short Range Endemic (SRE) survey were completed in October 2021 by Spectrum Ecology (Spectrum Ecology, 2022b). No conservation significant vertebrate fauna were recorded during the survey (Spectrum Ecology, 2022b). Spectrum Ecology identified the following 14 conservation significant fauna species potentially occurring within the application area (Spectrum Ecology, 2022b):

- Leipoa ocellata (Malleefowl);
- Calidris ferruginea (curlew sandpiper);
- Zandra latirostris (Carnaby's cockatoo);
- Tringa nebularia (common greenshank, greenshank);
- Tringa hypoleucos (common sandpiper);
- Apus pacificus (fork-tailed swift);
- Charadius veredus (oriental plover);
- Calidris ruficollis (red-necked stint);
- Calidris acuminata (sharp-tailed sandpiper);
- Falco peregrinus (peregrine falcon);
- Thinormis cacullatus (hooded plover);
- Platycercus icterotis xanthogenys (western rosella);
- Ogyris subterrestris petrina (arid bronze azure butterfly); and
- Jalmenus aridus (inland hairstreak, desert blue butterfly).

The application area is located within a high priority survey area for the Arid Bronze Azure Butterfly (ABAB) (Spectrum Ecology, 2022b). Arid bronze azure (ABAB) larvae are myrmecophilous with host ant, *Camponotus sp. nr. terebrans*, whereby the ABAB larvae lives and develops in the ant colony's nest (Spectrum Ecology, 2022b). A targeted survey was conducted to determine the presence of *Camponotus* sp. nr. *terebrans* within the application area (Spectrum Ecology, 2022b). No *Camponotus* sp. nr. *terebrans* individuals were recorded during the survey, however suitable habitat trees for this species exists in the application area (Spectrum Ecology, 2022b). Given previously disturbed areas exist within the application area and that no *Camponotus* sp. nr. *terebrans* were identified during the targeted survey, the clearing is unlikely to lead to a significant impact to the ABAB.

The inland hairstreak butterfly, *Jalmenus aridus*, was originally first recorded at Douglas Lake, however the species has not been recorded from this location since 1997 (Spectrum Ecology, 2022b; GIS Database). Little is known about its biology or CPS 10036/1 Page 3

ecology, however based on historical records, the larvae is thought to feed on the leaves and flowers of young shrubs of *Senna artemisioides* subsp. *coriacea* and mature trees of *Acacia tetragonophylla*, and are attended by the froglet ant (*Froggattella kirbii*) (Spectrum Ecology, 2022b). No evidence of the froglet ant or the inland hairstreak butterfly were recorded during the survey, however some potential habitat or this species exists within the survey area (Spectrum Ecology, 2022b). Given previously disturbed areas exist within the application area and that no evidence of the froglet ant or the inland hairstreak butterfly were identified during the targeted survey, the clearing is unlikely to lead to a significant impact to the inland hairstreak butterfly.

The Malleefowl is found in semi-arid to arid shrublands and low woodlands, especially those dominated by mallee and/or acacias (DaWE, 2023). This species requires a sandy substrate with an abundance of leaf litter for breeding which is not abundant within the application area (DaWE, 2023; Spectrum Ecology, 2022b). No sightings or secondary evidence of Malleefowl were observed during the survey (Spectrum Ecology, 2022b). Malleefowl are known to occur in the region and may utilise the area for foraging, but it is not likely to represent significant habitat for this species.

Carnaby's cockatoo is a large cockatoo that is endemic to, and widespread in the south-west of Western Australia (DaWE, 2023). This species occurs in native eucalypt woodlands (e.g. those that contain salmon gum and wandoo, and in shrubland or kwongan heathland dominated by hakea, dryandra, banksia and grevillea species) (DaWE, 2023). The species has been recorded within 8 kilometres of the application area in the Kalgoorlie town centre, however this record is 250 kilometres outside of the current modelled distribution for this species (Spectrum Ecology, 2022b; GIS Database). No sightings or evidence of this species was recorded during the survey and this record is outside the distribution of the species, clearing is not likely to significantly impact this species (Spectrum Ecology, 2022b).

The following seven shorebirds listed as Migratory, with the exception of *Calidris ferruginea* which is listed as Critically Endangered, have a medium likelihood to occur within the application area (Spectrum Ecology, 2022b; GIS Database):

- Apus pacificus (fork-tailed swift)
- Calidris ferruginea (curlew sandpiper)
- Charadius veredus (oriental plover);
- Calidris ruficollis (red-necked stint);
- Calidris acuminata (sharp-tailed sandpiper);
- Tringa nebularia (common greenshank, greenshank); and
- Tringa hypoleucos (common sandpiper).

All six of these species have been recorded within 50 kilometres of the application area (Spectrum Ecology, 2022b; GIS Database). The claypans and ephemeral salt-lake habitat that is located south of the application area are likely to provide foraging habitat for shorebirds that feed on aquatic vertebrates, however, these species are non-breeding migrants to Australia and their presence within the application area is expected to be sporadic and temporary, depending on the availability of water (Spectrum Ecology, 2022b; GIS Database). It is therefore unlikely that the proposed clearing activities will significantly impact these species.

Thinormis cacullatus (hooded plover) is known to inhabit beaches with large amounts of washed up seaweed and sparsely vegetated dunes (Spectrum Ecology, 2022b). The species is known to nest away from the coast, inhabiting inland lakes in Western Australia (Spectrum Ecology, 2022b). The species has been recorded 30-47 kilometres from the application area and is rarely recorded from around the Kalgoorlie area (Spectrum Ecology, 2022b). The hooded plover was not recorded during the terrestrial fauna survey, however it may occur occasionally during periods of inundation (Spectrum Ecology, 2022b). As the habitat present is not considered significant to this species, the proposed clearing is not likely to have significant impacts.

Falco peregrinus (peregrine falcon) is one of the most widespread birds in the world and occurs across most of Australia (Spectrum Ecology, 2022b). The species inhabits cliffs, costal habitats, rivers, wooded water courses, lakes and urban environments (Spectrum Ecology, 2022b). No individuals were recorded during the fauna survey, however, this species has been recorded within wetland habitat approximately 65 kilometres from the application area, suggesting they use this habitat for foraging (Spectrum Ecology, 2022b). As the habitat present is not considered significant to this species, the proposed clearing is not likely to have significant impacts.

Platycercus icterotis xanthogenys (western rosella) occur in the inland of the south-west corner of Australia and can be found inhabiting fry mallee woodland, preferably with Salmon Gum and Wandoo as well as farmland with scattered trees (Spectrum Ecology, 2022b). This species has been recorded approximately 60 kilometres from the application area, although it was not recorded during the fauna survey, this species may utilise the application area sporadically (Spectrum Ecology, 2022b). As the habitat present is not considered significant to this species, the proposed clearing is not likely to have significant impacts.

Conclusion

Based on the above assessment, the proposed clearing will result in loss of potential habitat for the ABAB and inland hairstreak butterfly. For the reasons set out above, it is considered that the impacts of the proposed clearing on fauna habitats can be managed by taking steps to mitigate and avoid clearing of native vegetation, slow directional clearing to allow fauna.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Direction of clearing: Slow directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity which will minimise impact to individuals; and
- Avoid, minimise and reduce the impacts and extent of clearing.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 13 January 2023 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There are two native title claims over the area under application (DPLH, 2023). These claims have been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Aboriginal Sites of Significance within the application area (DPLH, 2023). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Other relevant authorisations required for the proposed land use include:

• A Mining Proposal / Mine Closure Plan approved under the Mining Act 1978.

It is the proponent's responsibility to liaise with the Department of Water and Environmental Regulation and the Department of Biodiversity, Conservation and Attractions, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is located six kilometres south-west of Kalgoorlie (GIS Database). The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia (GIS Database). The application area is surrounded by historical mining operations (GIS Database).
Ecological linkage	According to available databases, the application area does not contain any known or mapped ecological linkages (GIS Database).
Conservation areas	There are no conservation areas located within the application area (GIS Database). The Kurrawang Nature Reserve (R35453) is located approximately 2.3 kilometres west of the application area (GIS Database).
Vegetation description	 The vegetation of the application area is broadly mapped as the following Beard vegetation associations: 9: Medium woodland; coral gum (<i>Eucalyptus torquata</i>) & goldfields blackbutt (E. <i>le soufii</i>), (also some e10,11); and 123: Succulent steppe with open low woodland; sheoak over saltbush & bluebush (GIS Database). 1294: Medium woodland, coral gum; A flora and vegetation survey was conducted over the application area by Spectrum Ecology during October, 2021. The following six vegetation associations were recorded within the application area (Spectrum Ecology, 2022a): P1: <i>Eucalyptus griffithsii, Eucalyptus lesouefii,</i> and <i>Eucalyptus oleosa</i> subsp. <i>oleosa</i> mid open woodland, over <i>Eremophila scoparia, Senna artemisioides</i> subsp. <i>filifolia</i>, and <i>Scaevola spinescens</i> mid to tall sparse shrubland, over <i>Atriplex vesicaria</i> and <i>Maireana sedifolia</i> low open shrubland; P4: Eremophila scoparia and Acacia densiflora Mid to tall sparse shrubland, over <i>Cratystylis subspinescens, Scaevola spinescens,</i> and <i>Exocarpos aphyllus</i> low open shrubland; P5: <i>Acacia masliniana</i> and <i>Eremophila subsp. glabra</i> low sparse shrubland, over <i>Frankenia fecunda</i> and <i>Eremophila glabra</i> subsp. <i>glabra</i> low sparse shrubland; S1: <i>Acacia acuminata</i> (+<i>I-Melaleuca hamata</i>) tall open shrubland; S1: <i>Acacia acuminata</i> (+<i>I-Melaleuca hamata</i>) tall open shrubland; S1: <i>Acacia acuminata</i> (4/-<i>Melaleuca hamata</i>) tall open shrubland; D1: <i>Eucalyptus salubris</i> and/or <i>Eucalyptus longissima</i> low open woodland, over <i>Acacia acuminata</i>, Acacia tetragonophylla, and Alyxia buxifolia tall shrubland, over <i>Dodonaea lobulata</i> and <i>Scaevola subsp. bidens</i> and <i>Tecticornia disarticulata</i> (+<i>I-Atriplex vesicaria</i>) low sparse chenopod shrubland. Cratystylis subspinescens, Frankenia interioris, and <i>Sureya diandra</i> low open shrubland;
Vegetation condition	 The vegetation survey (Spectrum Ecology, 2022a) indicate the vegetation within the proposed clearing area is in 'Very Good' to 'Completely Degraded' (Trudgen, 1991) condition, described as Very Good: exploration tracks, scattered weeds; Good: some areas where some old clearing may have occurs;

Characteristic	Details
	 Poor: disturbance from installing the mining pit wall affecting vegetation structure; and Completely Degraded: Existing mining infrastructure.
	The full Trudgen (1991) condition rating scale is provided in Appendix C.
Climate and landform	The application area is located within the Goldfields region which is characterised as semi-arid with a mean annual rainfall of 264.6 millilitres (BoM, 2023). The following six landforms were recorded within the application area: undulating plains; sandy-clay floodplains surrounding lake bed; sand plain between salt pans; rocky granite hill slopes;
	 drainage lines; and salt lake and salt plans (Spectrum Ecology, 2022a).
Soil description	 The soils of the application area are broadly mapped as the following soil types: 265k9: Mx43 atlas system. Gently undulating valley plains and pediments; some outcrop of basic rock; and 266n6: SV15 atlas system. Salt lakes and their associated areas (DPIRD, 2023).
Land degradation risk	The soils of the Mx43 land system are described as alkaline red earth with limestone and limestone nodules at shallows depth on gently sloping slightly concave plains with low gentle rises (Norton Gold Fields, 2022). The SV15 land systems is characterised as gypseous and saline loams, with gypseous and saline soil on the lake beds (Norton Gold Fields, 2022). The vegetation present within the application area is sparse, previously disturbed land (mining operations) is located adjacent to the application area and the southern portion of the application area is mapped as a salt lake (GIS Database).
Waterbodies	The desktop assessment and aerial imagery indicated that two minor, non-perennial watercourses transect the area proposed to be cleared (GIS Database).
Hydrogeography	The application area is located within the proclaimed Goldfields groundwater area under the <i>Rights in Water and Irrigation Act 1914</i> (GIS Database). The mapped groundwater salinity is approximately 14,000 to 35,000 milligrams per litre total dissolved solids which is described as hypersaline (GIS Database).
Flora	 Spectrum Ecology identified a total 37 families and 94 genera within the survey area (Spectrum Ecology, 2022a). No conservation significant flora have been identified within the application area (Spectrum Ecology, 2022a; GIS Database). Two conservation significant flora species, <i>Alyxia tetanifolia</i> (Priority 3) and <i>Goodenia salina</i> (Priority 2), have the potential to occur within the area and were recorded within the survey area however were not recorded within the application area (Spectrum Ecology, 2022a). A total of nine introduced flora species were recorded within the survey area, one of these (<i>Tamarix aphylla</i>) were listed as a Weed of National Significance or a Declared Pest in Western Australia (Spectrum Ecology, 2022a).
Ecological	(Spectrum Ecology, 2022a). The application area is not located within a Priority Ecological Community or Threatened Ecological
communities	Community (Spectrum Ecology, 2022a; GIS Database). The Priority Ecological Community (Priority 3) Emu Land System, is located approximately 42 kilometres of the application area (GIS Database).
Fauna	 Spectrum Ecology (2022b) identified ten broad scale terrestrial fauna habitats within the application area: mixed Eucalypt open woodland over mixed shrubland on undulating plains on red/orange sandy clay soils; mixed Eucalypt low woodland with sparse shrubs over low hummock grassland on orange sandplains; <i>Allocasuarina</i> over mixed shrubland on rocky plains and rises; <i>Acacia</i> and <i>Eremophila</i> shrubland on sandplains and floodplains on orange clay loam to sand; <i>Acacia</i> shrubland on rocky granite slopes; <i>Callitris</i> and Eucalypt woodland over sparse shrubland on Kopi and gypseous dunes; Eucalypt woodland over mixed shrubland on low rocky hills with ironstone and quartz over red-orange sandy-clay; Eucalypt woodland over mixed shrubland in drainage lines on red-orange sandy-clay-loam; low sparse chenopod shrubland on salt lakes and salt pans; and cleared areas (Spectrum Ecology, 2022b).

Characteristic	Details
	Spectrum Ecology identified 14 conservation significant fauna species potentially occurring within the application area (Spectrum Ecology, 2022b). There are no records of conservation significant fauna within the application area (Spectrum Ecology, 2022b; GIS Database).

A.2. Vegetation extent

	Pre-European area (ha)	Current extent (ha)	Extent Remaining %	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA Managed Lands
IBRA Bioregion - Coolgardie	12,912,204.35	12,648,491.39	97.96	2,114,349.37	16.37
Beard vegetation associati - State	ons				
Veg Assoc No. 9	240,509.33	235,161.94	97.78	18,984.28	7.89
Veg Assoc No. 123	9,090.22	8,902.02	97.93	0	0
Veg Assoc No. 1294	6,295.55	6,047.45	96.06	114.97	1.83
Beard vegetation associati - Bioregion	ons				
Veg Assoc No. 9	240,441.99	235,100.97	97.78	18,984.28	7.90
Veg Assoc No. 123	9,090.22	8,902.02	97.93	0	0
Veg Assoc No. 1294	6,295.55	6,047.45	96.06	114.97	1.83

Government of Western Australia (2019)

A.3. Fauna analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix D), and biological survey information, impacts to the following conservation significant fauna required further consideration.

Species name	Common Name	Conservation status	Distance of closest record to application area (km)
Apus pacificus	fork-tailed swift	MI	<50
Calidris acuminata	sharp-tailed sandpiper	MI	<20
Calidris ferruginea	curlew sandpiper	CR	<50
Calidris ruficollis	red-necked stint	MI	<50
Charadius veredus	oriental plover	MI	<50
Falco peregrinus	peregrine falcon	OS	<50
Jalmenus aridus	inland hairstreak, desert blue butterfly	P1	<5
Leipoa ocellata	malleefowl	VU	<20
Ogyris subterrestris petrina	arid bronze azure butterfly	CR	<5
Platycercus icterotis xanthogenys	western rosella	P4	<50
Thinormis cacullatus	hooded plover	P4	<50
Tringa hypoleucos	common sandpiper	MI	<50
Tringa nebularia	common greenshank, greenshank	MI	<20
Zandra latirostris	Carnaby's cockatoo	EN	<20

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority, OS: Other specially protected

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."	Not likely to be at variance	No
Assessment:		
The application area is located within the Great Western Woodlands (GIS Database). The Great Western Woodlands covers almost 16 million hectares and is considered to be of global biological and conservation importance as one of the largest and healthiest temperate woodlands (DEC, 2011).		
A total 37 families and 94 genera were recorded within the survey area (Spectrum Ecology, 2022a). The area proposed to be cleared does not contain any known conservation significant flora, habitats or assemblages of plants (Spectrum Ecology, 2022a; GIS Database).		
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."	Not likely to be at variance	Yes Refer to Section
Assessment:		3.2.1 above.
The area proposed to be cleared may contain foraging habitat for a number of conservation significant fauna, however due to the presence of similar habitat in surrounding area, it is not likely significant habitat for fauna (Norton Gold Fields, 2022; Spectrum Ecology, 2022b; GIS Database).		
Principle (c): "Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."	Not likely to be at variance	No
Assessment:		
No conservation significant flora have been previously been recorded within the application area and no significant flora or habitat were identified during the survey (Spectrum Ecology, 2022a; GIS Database).		
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."	Not at variance	No
Assessment:		
There are no known Threatened Ecological Communities (TECs) located within the application area (GIS Database).		
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."	Not at variance	No
Assessment:		
The application area is located within the Coolgardie Bioregion of the Interim Biogeographic Regionalisation for Australia (GIS Database).		
The extent of the mapped vegetation type is consistent with the national objectives and targets for biodiversity conservation in Australia (Government of Western Australia, 2019). The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.		
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."	Not at variance	No
Assessment:		
There are no conservation areas located within the application area (GIS Database). The Kurrawang Nature Reserve (R35453) is located approximately two kilometres west of the application area (GIS Database).		
Given the distance to the nearest conservation area, the proposed clearing is not ikely to have an impact on the environmental values of nearby conservation areas.		

Assessment against the clearing principles	Variance level	Is further consideration required?
<u>Principle (f):</u> "Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."	Not at variance	No
Assessment:		
Two minor non-perennial water courses transect the application area (GIS Database). Vegetation surveys have not identified native vegetation associated with these non-perennial water courses and therefore the proposed clearing is not at variance with this principle (Spectrum Ecology, 2022a; GIS Database).		
<u>Principle (g):</u> "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."	Not likely to be at variance	No
Assessment:		
The mapped soils are not susceptible to wind or water erosion (GIS Database). Noting the location of the application area and that the surrounding area has not been extensively cleared and the small scale of the clearing, the proposed clearing is not likely to have an appreciable impact on land degradation.		
<u>Principle (i):</u> "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."	Not likely to be at variance	No
Assessment:		
The application area is not located in a Public Drinking Water Source Area (GIS Database). Given there is a series of small, interconnected salt basins directly south of the application area and two minor non-perennial water courses transect the application area, the proposed clearing has potential to impact on- or off-site hydrology and water quality (GIS Database). Surface water drainage within the application area has been historically impacted by the rail (to the east), highway (to the north) and waste rock landforms and open pits (to the west). Further clearing is not considered likely to cause deterioration in the quality of surface or underground water (Norton Gold Fields, 2022).		
<u>Principle (j):</u> "Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."	Not likely to be at variance	No
Assessment:		
The climate of the region is semi-arid, with an average annual rainfall of approximately 264.6 millilitres (BoM, 2023). The non-perennial watercourses that intersects the application area may remain dry for most of the time with most flows occurring after cyclonic rains (GIS Database). The proposed clearing is unlikely to increase the incidence or intensity of natural flooding events.		

Appendix C. 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 proposed to be cleared. This scale has been extracted from Trudgen, M.E. (1991) *Vegetation condition scale* in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.

Measuring vegetation condition for the Eremaean and Northern Botanical Provinces (Trudgen, 1991)

Condition	Description
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.

Condition	Description
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Very poor	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D. Sources of information

D.1. GIS databases

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

- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Clearing Regulations Schedule One Areas (DWER-057)
- 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)
- Hydrographic Catchments Catchments (DWER-028)
- Hydrography Inland Waters Waterlines
- Hydrography, Linear (DWER-031)
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Native Title (ILUA) (LGATE-067)
- Pre-European Vegetation Statistics
- Interim 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 (DPIRD-027)
- Soil Landscape Mapping Rangelands (DPIRD-064)
- WA Now Aerial Imagery

Restricted GIS Databases used:

- Black Cockatoo WTBC Breeding
- Black Cockatoo FRTBC Breeding
- Black Cockatoo BC Roosts
- Black Cockatoo BC Feeding SCP
- Black Cockatoo Feeding JF
- Black Cockatoo Feeding Areas Buffered
- Black Cockatoo Baudins Distribution
- Black Cockatoo Forest Red Tail Distribution
- Black Cockatoo Carnabys Distribution
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

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https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics
Spectrum Ecology (2022a) Binduli South Project Flora and Vegetation Assessment. Version 2. Prepared for Talis
Consulting/Norton Gold Fields, January 2022.
Spectrum Ecology (2022b) Binduli South Project Terrestrial Fauna and SRE Assessment. Prepared for Talis Consulting/Norton
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4. Glossary

Acronyms:

BoMBureau of Meteorology, Australian GovernmentDAADepartment of Aboriginal Affairs, Western Australia (now DPLH)DAFWADepartment of Agriculture and Food, Western Australia (now DPIRD)DAWEDepartment of Agriculture, Water and the Environment, Australian GovernmentDBCADepartment of Biodiversity, Conservation and Attractions, Western AustraliaDERDepartment of Environment Regulation, Western Australia (now DWER)DMIRSDepartment of Mines, Industry Regulation and Safety, Western AustraliaDMPDepartment of Mines and Petroleum, Western Australia (now DMIRS)DoEEDepartment of Water, Western Australia (now DWER)DoWDepartment of Vater, Western Australia (now DBCA)DPWDepartment of Parks and Wildlife, Western Australia (now DBCA)DPIRDDepartment of Primary Industries and Regional Development, Western AustraliaDPLHDepartment of Planning, Lands and Heritage, Western AustraliaDWRDepartment of Vater and Environmental Regulation, Western AustraliaDFFDeclared Rare Flora (now known as Threatened Flora)DWERDepartment of Vater and Environmental Regulation, Western AustraliaEPA Environmental Protection Act 1986, Western AustraliaEPA Environmental Protection Act 1986, Western AustraliaEPA Environmental Protection Authority, Western AustraliaEPB ActEnvironmental Protection and Biodiversity Conservation Act 1999 (Federal Act)GIS Geographical Information SystemhaHectare (10,000 square metres)IBRAInternational Union for the Conservation of Nature and Natural Resources – co	BC Act	Biodiversity Conservation Act 2016, Western Australia
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RIWI Act Rights in Water and Irrigation Act 1914, Western Australia		
TEC Threatened Ecological Community		
	TEC	Threatened Ecological Community

Definitions:

{DBCA (2019) Conservation Codes for Western Australian Flora and Fauna. Department of Biodiversity, Conservation and Attractions, Western Australia}:-

T <u>Threatened species:</u>

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened fauna is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the *Wildlife* Conservation (Rare Flora) Notice 2018 for Threatened Flora.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR Critically endangered species

Threatened species considered to be "facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines".

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN Endangered species

Threatened species considered to be "facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines".

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation* (Specially Protected Fauna) Notice 2018 for endangered fauna or the *Wildlife Conservation* (Rare Flora) Notice 2018 for endangered flora.

VU Vulnerable species

Threatened species considered to be "facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines".

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife Conservation* (Specially Protected Fauna) Notice 2018 for vulnerable fauna or the *Wildlife Conservation* (Rare Flora) Notice 2018 for vulnerable flora.

Extinct Species:

EX Extinct species

Species where "there is no reasonable doubt that the last member of the species has died", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

EW Extinct in the wild species

Species that "is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species:

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

MI Migratory species

CPS 10036/1

Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018.*

CD Species of special conservation interest (conservation dependent fauna)

Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018.*

OS Other specially protected species

Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018.*

P <u>Priority species:</u>

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

P1 Priority One - Poorly-known species

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2 Priority Two - Poorly-known species

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3 Priority Three - Poorly-known species

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4 Priority Four - Rare, Near Threatened and other species in need of monitoring

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special

protection but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Principles for clearing native vegetation:

- (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.
- (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.
- (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.
- (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.
- (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.
- (f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.
- (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.
- (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.
- (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.
- (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.