Application to Amend NVCP CPS 4766/5 Orebody 31 Exploration

Native Vegetation Clearing Permit Amendment Application Supporting Document

February 2025

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1 INTRODUCTION

BHP Iron Ore Pty Ltd (BHP) currently operates a number of Iron Ore mines and associated rail and port infrastructure within the Pilbara region of Western Australia (WA). Current mining operations include the:

- Newman Operations consisting of:
  - The Mount Whaleback hub (including Orebodies 29, 30 and 35) located approximately two kilometres (km) west of Newman Township; and;
  - The Eastern Ridge hub (Consisting of Orebodies 23, 24, 25 25 West and 32) located approximately 5 km east of Newman Township;
- Mining Area C / South Flank located approximately 90 km north west of Newman Township;
- Orebodies 17, 18, 31 and Wheelarra Hill (Jimblebar) Mine located approximately 35 km east of Newman Township; and
- Yandi Mine located approximately 100 km north west of Newman Township.

Ore from the above mining operations is transported to Port Hedland via the BHP Newman to Port Hedland Mainline (and associated spur lines) and is then shipped out through Port Hedland at the BHP facilities at Nelson Point and Finucane Island.

BHP currently holds Native Vegetation Clearing Permit (NVCP) CPS 4677/6 for the purposes of mineral exploration, hydrological investigations, construction and maintenance of communications towers and associated infrastructure. The clearing period of this permit expires on 30 November 2025.

A majority of CPS 4677/5 is now covered by the Orebody 31 Ministerial Statement (MS) 1021.

The full extent of these works outside of MS 1021 are yet to be undertaken and therefore BHP therefore seeking to:

- Remove the area which overlaps MS 1021 (**Figure 1**) and where additional priority flora records have been identified;
- Reduce the area of clearing to 235 ha;
- Extend the permit duration to 30 November 2035;
- Extend the clearing period to 30 November 2030;
- Extend the final reporting date to 30 November 2035; and
- Update the Permit Holder to BHP Iron Ore Pty Ltd.; and

No other changes to the permit are required.

In accordance with Part V Division 2 of the *Environmental Protection Act 1986* (EP Act), BHP hereby refers the application to amend NVCP CPS 4677/5 to the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS).

BHP considers that the proposed amendment application will not result in any significant environmental or social impacts and that the proposed Project complies with the 'Ten Clearing Principles', as defined in Schedule 5 of the *Environmental Protection Act 1986* (EP Act).

1.1 LOCATION

The Amendment Application Area is located approximately 35 km east of Newman in the Pilbara region of Western Australia (**Figure 1**).

1.2 TENURE

The Amendment Application Area is located on State Agreement Mineral Lease 244SA.

1.3 LOCAL GOVERNMENT JURISDICTION

The Amendment Application Area is located within the Shire of East Pilbara.

1.4 PROPONENT

This Licence Amendment application has been submitted by BHP on behalf of the owners being the Mt Newman Joint Venture:

- BHP Iron Ore (Jimblebar) Pty Ltd 85%
- Itochu Minerals and Energy Australia Pty Ltd 5%
- Mitsui Iron Ore Corporation 10%

The key contact for this proposal is:

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1.5 PROJECT DESCRIPTION

The proposed works will involve clearing for the purposes of mineral exploration, hydrological investigations, construction and maintenance of communications towers and associated infrastructure.

1.6 PROJECT CHARACTERISTICS AND COMMITMENTS.

BHP commits to undertake the Project in accordance with the details set out in **Table 1**.

Table 1 Project Characteristics and Commitments

Permit Characteristics	
Authorising Agency	DEMIRS
Permit Title	OB31 Exploration Project
Area to be cleared	235 hectares[1]
Amendment Application Area	495.35 hectares[2]
Purpose of the permit	Clearing for the purposes of mineral exploration, hydrological investigations, construction and maintenance of communications towers and associated infrastructure.
Tenure	Mineral Lease M244SA.
Clearing Duration	Until 30 November 2030
Permit Duration	Until 30 November 2035
Proposed Annual Reporting Date	01 October for the previous Financial Year
Proposed Final Reporting Date	30 November 2035
Application boundary	Map Reference: • EXP_032NVCP_001_RevA_0 • EXP_032NVCP_002_RevA_0 • EXP_032NVCP_003_RevA_0 BHP Shapefile D2 Reference: https://waio-dctm.bhp.com/D2/?docbase=bhpbio_od_prod&locateId=0b03c41a84a2b31c&application=ManagedDocuments

Application Commitments	**Section**
Should any new populations of are identified they will be avoided using a 10 m buffer, where practicable.	3.4.2 6.1
Control of established weed populations will be carried out according to BHP's standard Weed Control and Management Procedures.	3.4.3 6.7.4
Active Mulgara burrows are identified they will be avoided using a 10 m buffer, where practicable.	3.4.4 6.2
In the event an active Western Pebble-mound Mouse mound is identified it will be avoided using a 10 m buffer, where practicable.	3.4.4 6.2
Where practicable, existing cleared tracks will be used to cross the unnamed non-perennial minor drainage line. If it is necessary for new crossings to be installed, clearing will be kept to a bare minimum and will be constructed flat level to the surface (i.e. a simple clearing with no bunds) to maintain the natural surface flow.	3.6 6.6 6.9

[1] Note that there are only 115.74 ha remaining on this NVCP (see Section 1.7). To minimise environmental impacts in the reduced permit boundary BHP is seeking to reduce the permit limit to 235 ha. Any remaining disturbance that was done within the boundary of MS 1021 will be rehabilitated in accordance with MS 1021.
[2] The permit boundary has been reduced to exclude the overlap between MS 1021.

1.7 NVCP RECORDS

BHP reports on each NVCP in accordance with the permit reporting conditions. For a majority of NVCPs this is incorporated into BHP Iron Ore's Annual Environmental Report (AER) which is submitted to government prior to the 01 October each year.

Clearing under CPS 4766/1 commenced in 2012 with a total of 184.26 ha cleared and 69.3 ha rehabilitated to the end of FY24 (BHP, 2024). The remaining locations cleared are still required for the purpose for which they were cleared or have become part of the Orebody 31 mining operations.

Clearing has been minimised by restricting activities to the minimal required for safety and equipment access. Populations of significant flora have been avoided using the BHP Project Environmental and Heritage Review (PEAHR) procedure. This internal BHP procedure authorises ground disturbing activities. No environmental offsets are required for this NVCP.

2 ASSOCIATED APPROVALS

Any other additional approvals will be sought as required.

3 EXISTING ENVIRONMENT

3.1 CLIMATE

Newman Aero meteorological site (007176) is the closest Bureau of Meteorology (BoM) station to the to the Amendment Application Area. Average annual rainfall at Newman Aero is 318.0 mm (BOM, 2024a). This is mainly derived from tropical storms and cyclones during summer, producing sporadic, heavy rains over the area. Mean monthly rainfall varies from 4.6 mm in September to 71.6 mm in February (BoM, 2024a). Daily rainfall is highly variable; the highest maximum daily rainfall ranges from 34.8 mm in October, to 305.6 mm in February (BoM, 2024a). The mean maximum temperature in summer months (October to March) is 35.2°C to 39.4°C, and mean maximum temperature in winter (April to September) is between 23.0°C and 32.1°C (BoM, 2024a).

Wittenoom meteorological site (005026) is the closest station to the Amendment Application Area that records daily evaporation. Wittenoom is located approximately 120 km northwest of the Amendment Application Area. Mean daily evaporation at Wittenoom throughout the year is 8.6 mm/day (BoM, 2023b), which equates to 3.1 metres per year. Evaporation greatly exceeds rainfall in the region throughout the year and on a month-by-month basis (BoM, 2024b).

3.2 BIOREGION, LANDFORMS AND LAND SYSTEMS

The Amendment Application Area is situated in the following biogeographic sub-regions:

- Fortescue Plains subregion (PIL2) of the Pilbara region described as: "*Alluvial plains and river frontage. Extensive salt marsh, mulga-bunch grass, and short grass communities on alluvial plains in the east. Deeply incised gorge systems in the western (lower) part of the drainage. River gum woodlands fringe the drainage lines. Northern limit of Mulga (Acacia aneura). An extensive calcrete aquifer (originating within a palaeo-drainage valley) feeds numerous permanent springs in the central Fortescue, supporting large permanent wetlands with extensive stands of river gum and cadjeput Melaleuca woodlands. Climatic conditions are semi desert tropical, with average rainfall of 300 mm, falling mainly in summer cyclonic events. Drainage occurs to the north-west. Subregional area is 2,041,914ha*." (Kendrick, 2001).

The proposed Amendment Application Area is also located in the following land systems, as mapped by van Vreeswyk et al. (2004):

Boolgeeda: Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands and mulga shrublands.

Divide: "Level to gently undulating sandplains and occasional small dunes."

Newman: Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands.

These Land Systems are well represented in their bioregions.

3.3 GEOLOGY AND SOILS

The Australian Soil Resource Information System (ASRIS) provides soil and land resource information across Australia. The following four soil types occur within the Amendment Application Area (CSIRO, 2021):

Fa13: Loamy soils with weak pedological development; largely associated with the Hamersley ranges. Shallow coherent and porous loamy soils; ranges of banded jaspilite and chert along shales, dolomites and iron formations; some areas of ferruginous duricrust and narrow winding valley plains and steeply dissected pediments. The soils are frequently shallow and stony and there are extensive areas without soil cover: chief soils are stony earthy loams.

Mz25: "Plains associated with the Fortescue valley; there is a surface cover of stony gravels close to the ranges and hills: chief soils are acid red earths (Gn2.11) with some neutral red earths (Gn2.12); red-brown hardpan is absent. Associated are areas of calcareous earths (Gc) and loams (Um1) on calcrete (kunkar) and some hard red (Dr) soils around creek lines."

3.4 FLORA, VEGETATION AND FAUNA

A total of seven flora and vegetation surveys have previously been completed within and adjacent to the proposed Amendment Application Area. The key flora and vegetation surveys relevant to this application are:

- *Consolidation of Regional Vegetation Mapping BHP Billiton Iron Ore Pilbara Tenure* (Onshore Environmental, 2014) (**Appendix 1**);

- *Orebody 31 Level 2 Flora and Vegetation Survey* (Onshore Environmental Consultants and Syrinx Environmental, 2014) (**Appendix 2**);
- *Targeted Survey for Acacia sp. East Fortescue* (surrounding OB31) (Onshore Environmental, 2015) (**Appendix 3**); and
- *BHP WAIO Jimblebar Eremophila capricornica Targeted Flora Survey* (Biologic, 2021) (**Appendix 4**).

A total of five vertebrate fauna surveys have been completed within and adjacent to the Amendment Application Area. The key vertebrate fauna surveys relevant to this application are:

- *Consolidated Fauna Habitat Mapping* (Biologic Environmental Survey, 2017) (**Appendix 5**);
- *OB 31 Vertebrate Fauna Survey* (Biologic Environmental Survey, 2014) (**Appendix 6**);
- *North Jimblebar: Targeted Northern Quoll Assessment* (Biologic Environmental Survey, 2022) (**Appendix 7**); and
- *Jimblebar Targeted Ghost Bat Survey* (GHD, 2020) (**Appendix 8**).

The Onshore Environmental (2014) *Consolidation of Regional Vegetation Mapping BHP Billiton Iron Ore Pilbara Tenure* (**Appendix 1**) and Biologic (2017) *Consolidated Fauna Habitat Mapping 2017* (**Appendix 5**). undertook a detailed review of all previous flora and vegetation surveys and vertebrate fauna surveys, respectively, across BHP's Pilbara operations. These reviews were supported by field visits where the analysis indicated that further information was required to confirm the exact vegetation associations.

Historical survey reports often used different techniques and/or nomenclature, however they generally utilised similar field methods. The Consolidation Projects resolved the inconsistencies between previous mapping and created one consolidated regional vegetation and one fauna habitat Geographic Information System (GIS) database which:

- Serves as BHP's base line vegetation and fauna datasets;
- Maps and describes a total of 53 broad floristic communities with 218 distinct vegetation associations across BHP's Pilbara operations;
- Maps and describes a total of 17 fauna habitats across BHP's Pilbara operations; and
- Provides consistency in methods and nomenclature across BHP's Pilbara operations.

3.4.1 Vegetation Communities

The Amendment Application Area is located within the Interim Biogeographic Regionalisation for Australia (IBRA) Pilbara (Department of Environment and Heritage, 2005). According to the Government of Western Australia (2013), this bioregion is more than 99% vegetated (**Table 2**). The vegetation within the Amendment Application Area is classified as the following vegetation associations, as mapped by Beard (1975):

82 Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*.
216 Low woodland; mulga (with spinifex) on rises.

There is more than 99% of the pre-European vegetation remaining of these vegetation associations (**Table 2**). The Amendment Application Area is not part of any significant remnant vegetation in the wider regional area.

Table 2 Pre European extent of vegetation associations occurring within the Amendment Application Area (Government of Western Australia, 2013)

Vegetation Association	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	Pre-European % in IUCN Class I-IV Reserves
Pilbara IBRA Bioregion	17,808,657	17,733,584	99.58	6.34
Vegetation association 82 within Western Australia	2,565,901	2,553,217	99.51	10.25
Vegetation association 82 within the Pilbara IBRA	2,563,583	2,550,899	99.51	10.26
Vegetation association 216 within Western Australia	280,759	279,237	99.46	0.00
Vegetation association 216 within the Pilbara IBRA	26,670	26,373	98.89	0.00

A total of eight broad floristic formations with 14 vegetation associations have been described and mapped within the Amendment Application Area (**Figure 2 and Table 3**). The vegetation consolidation project also identified one Threatened Ecological Community (TEC) and six Priority Ecological Communities (PECs) within the Consolidation Study Area. None of the vegetation associations or landforms identified within the boundary of the Amendment Application Area are associated with a TEC or PEC (Onshore Environmental, 2014). The closest PEC is more than 65 km north west.

The distinct mapped broad floristic communities and vegetation associations identified within Amendment Application Area extend or occur beyond the project boundary. It is considered unlikely that any changes in vegetation associations and local species over the time since the vegetation consolidation project would lead to elevated significance of the vegetation given that none of the vegetation associations identified within the Amendment Application Area were affiliated with any TECs or PECs and there are no vegetation associations within the Amendment Application Area that would be likely to be included in any updates to TEC or PEC listings.

Vegetation condition within the Amendment Application Area ranges from excellent to completely degraded.

Table 3 Vegetation associations of the Amendment Application Area (Onshore, 2014)

Broad Floristic Formation	Vegetation Association Description	
Acacia High Shrubland	FP AancAadsAe TtArhhPamu ChCaHl	High Shrubland of *Acacia ancistrocarpa*, *Acacia adsurgens* and *Acacia elachantha* over Open Tussock Grassland of *Themeda triandra*, *Aristida holathera* var. *holathera* and *Paraneurachne* muelleri with Low Open Woodland of *Corymbia hamersleyana*, *Corymbia aspera* and *Hakea lorea* subsp. *lorea* on loamy sand on drainage zones and floodplains.
Acacia Low Open Forest	MI AaApEll AwAteAb TpTs	Low Open Forest of *Acacia aptaneura*, *Acacia paraneura* and *Eucalyptus leucophloia* subsp. *leucophloia* over Open Scrub of *Acacia wanyu*, *Acacia tetragonophylla* and *Acacia bivenosa* over Open Hummock Grassland of *Triodia pungens* and *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) on brown loam on minor drainage lines through undulating ironstone ridges, hills and valleys.
Acacia Low Woodland	FP AciChAa AancApypPl TtAriCc	Low Woodland of *Acacia citrinoviridis*, *Corymbia hamersleyana* and *Acacia aptanerua* over High Shrubland of *Acacia ancistrocarpa*, *Acacia pyrifolia* var. *pyrifolia* and *Petalostylis labicheoides* over Very Open Tussock Grassland of *Themeda triandra*, *Aristida inaequiglumis* and **Cenchrus ciliaris* on brown sandy loam on floodplains and medium drainage lines.
	SP AaAcaoAay Asu Tb	Low Woodland of *Acacia aptaneura*, *Acacia catenulata* subsp. *occidentalis* and *Acacia ayersiana* over High Shrubland of *Acacia subcontorta* over Open Hummock Grassland of *Triodia basedowii* on orange silty clay loam on stony plains.
Acacia Open Scrub	MI AtpPlAm TpTs ChEll	Open Scrub of *Acacia tumida* var. *pilbarensis*, *Petalostylis labicheoides* and *Acacia monticola* over Open Hummock Grassland of *Triodia pungens* and *Triodia* sp. Shovelanna Hill (S.van Leeuwen 3835) with Low Open Woodland of *Corymbia hamerselyana* and *Eucalyptus leucophloia* subsp. *leucophloia* on red brown sandy loam on minor drainage lines.
Corymbia Low Open Woodland	SP ChEoCd AancApaAads TbTscTs	Low Open Woodland of *Corymbia hamersleyana*, *Eucalyptus odontocarpa* and *Corymbia deserticola* subsp. *deserticola* over Open Shrubland of *Acacia ancistrocarpa*, *Acacia pachyacra* and *Acacia adsurgens* over Open Hummock Grassland of *Triodia basedowii*, *Triodia schinzii* and *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) on red brown sandy loam on footslopes and stony plains.
Eremophila Low Shrubland	HC ErccErcuLepl AaAp AwSegl	Low Shrubland of *Eremophila compacta*, *Eremophila cuneifolia* and *Lepidium platypetalum* with Low Open Woodland of *Acacia aptaneura* and *Acacia paraneura* and High Open Shrubland of *Acacia wanyu* and *Senna glutinosa* subsp. x *luerssenii* on clay loam on low hill crests and hill slopes.
Triodia Hummock Grassland	FP Tb AaApr Erff	Hummock Grassland of *Triodia basedowii* with Low Open Woodland of *Acacia aptaneura* and *Acacia pruinocarpa* over Open Shrubland of *Eremophila forrestii* subsp. *forrestii* on red sandy loam on floodplains.
	FP Tp EtEg AbAancPl	Hummock Grassland of *Triodia pungens* with Very Open Mallee of *Eucalyptus trivalva* and *Eucalyptus gamophylla* over Shrubland of *Acacia bivenosa*, *Acacia ancistrocarpa* and *Petalostylis labicheoides* on red brown loam on uninsised drainage tracts on floodplains.

Broad Floristic Formation	Vegetation Association Description	
	FS Ts AwAbGrwh Segl	Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) with High Shrubland of *Acacia wanyu*, *Acacia bivenosa* and *Grevillea wickhamii* subsp. *hispidula* over Open Shrubland of *Senna glutinosa* subsp. x *luerssenii* on red brown silty loam on footslopes and lower hill slopes.
	FS Ts CdHc AancAiGrwh	Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835) with Low Open Woodland of *Corymbia deserticola* subsp. *deserticola* and *Hakea chordophylla* over Open Shrubland of *Acacia ancistrocarpa*, *Acacia inaequilatera* and *Grevillea wickhamii* subsp. *hispidula* on red brown sandy loam on footslopes and stony plains.
	HS Ta AsyAteAw ErcuLeplMapy	Hummock Grassland of *Triodia angusta* with Open Shrubland of *Acacia synchronicia*, *Acacia tetragonophylla* and *Acacia wanyu* over Low Open Shrubland of *Eremophila cuneifolia*, *Lepidium platypetalum* and *Maireana pyramidata* on brown silty loam on undulating hills, ironstone ridges and eroded slopes.
	HS TsTwTp EllCh AhiAaa	Hummock Grassland of *Triodia* sp. Shovelanna Hill (S. van Leeuwen 3835), *Triodia wiseana* and *Triodia pungens* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia* and *Corymbia hamersleyana* over Low Open Shrubland of *Acacia hilliana* and *Acacia adoxa* var. *adoxa* on red brown sandy loam on hill slopes.
Triodia Open Hummock Grassland	HS TpTb EllAaAcao SesSeglErcu	Open Hummock Grassland of *Triodia pungens* and *Triodia basedowii* with Low Open Woodland of *Eucalyptus leucophloia* subsp. *leucophloia*, *Acacia aptaneura* and *Acacia catenulata* subsp. *occidentalis* over Open Shrubland of *Senna stricta*, *Senna glutinosa* subsp. x *luerssenii* and *Eremophila cuneifolia* on orange sandy loam on hill slopes.

3.4.2 Significant Flora

No species listed under the *Environment Protection and Biodiversity Conservation Act*, *1999* (EPBC Act) or gazetted as Threatened Flora species under the *Biodiversity Conservation Act, 2016* (BC Act) were identified within the Amendment Application Area.

Three Priority Flora have been identified adjacent to the Amendment Application Area (**Figure 2**):

- *Acacia corusca* (Priority 1);
- *Eremophila capricornica* (Priority 1); and
- *Rhagodia* sp. Hamersley (M. Trudgen 17794) (Priority 3).

All known populations of Priority flora have been excluded from the Amendment Application Area with a 10 m buffer.

Should any new populations of are identified they will be avoided using a 10 m buffer, where practicable.

3.4.3 Weeds

One introduced flora species (weeds) has been recorded within the Amendment Application Area (**Table 4**). Control of established weed populations will be carried out according to BHP's standard *Weed Control and Management Procedures.*

Table 4 Introduced Flora of the Amendment Application Area

Species	Common Name	DPAW Rating (DPAW, 2016)	Declared Pest[1]
**Cenchrus ciliaris*	Buffel Grass	High and Rapid	No

[1] *Biosecurity and Agriculture Management Act*, 2007 (BAM Act) s22

3.4.4 Fauna Habitats and Significant Fauna

Biologic (2017a, 2017b and 2022) identified the following six vertebrate fauna habitats within the Amendment Application Area (**Figure 3**):

- **Drainage Area/ Floodplain:** Lower lying plain often subjected to sheet flow following large rainfall events. Vegetation and substrates of this habitat was variable, often comprising scattered *Eucalyptus* over *Acacia* and/or *Grevillea* shrubs with an understory dominated by *Triodia* hummock grasses and/or mixed tussock grasses on alluvial substrates, often with heavy clays and gravel. Tussock grasses can be dominant within Drainage Area/ Floodplain habitat as a result of high rainfall events.
- **Minor Drainage Line:** Usually lacks a tall dense upper storey, but with a dense mid storey, including sparse *Eucalyptus* sp., and *Acacia* sp. over tussock grasses and *Triodia* sp. hummock grasses.
- **Mulga Woodland:** Comprises stands of mulga (*Acacia aneura*) over clay or stony substrates. Differs from other plains by having a monoculture of mulga compared to a diversity of other Acacia species.
- **Stony Plain:** Comprises low-lying open plains and the rolling hills below upland areas, with very slight to no gradient. The substrate consists of gravel and pebbles, with vegetation dominated by *Triodia* and scattered Mulga, eucalpyt and *Acacia* trees, with patches of various small to medium shrub species.
- **Hillcrest/ Hillslope:** Comprises a rocky substrate, often with exposed bedrock, on moderate to steep slopes leading into lower footslopes. This habitat was characterised by steep slopes with a high proportion of coarse fragments dominated by ironstone. These can contain cracks and crevices. Instances of Gorge/ Gully is contained within this habitat. This habitat is usually dominated by open *Eucalyptus* woodlands, *Acacia* and *Grevillea* scrublands and *Triodia* low hummock grasslands.
- **Breakaway/ Cliffs:** Breakaway/ Cliffs are rugged, incised rocky hills and ranges. They tend to contain large rock fragments and more rock outcropping than other fauna habitats. Significant habitat features such as caves were sometimes encountered in this habitat type. Vegetation can be dense and complex in areas of soil deposition or sparse and simple where erosion has occurred.

There are no caves or waterhole features within or adjacent to the Amendment Application Area.

The fauna habitats identified within the Amendment Application Area extend beyond the project boundary and are common in the surrounding region.

The surveys undertaken across the Amendment Application Area have resulted in two fauna species of significance being recorded from within the Amendment Application Area (**Figure 3**):

- Brush-tailed mulgara (*Dasycercus blythi*) (DBCA Priority 4); and
- Fork-tailed Swift (*Apus pacificus*) (Migratory, EPBC Act and BC Act).

Based on the occurrence of the habitat types and significant fauna species previously recorded in the vicinity an additional four species are considered to potentially occur within the Amendment Application Area (i.e. those considered ‘likely’ or ‘possible’ to occur within the Amendment Application Area):

- Grey Falcon (*Falco hypoleucos*) (EPBC Act and BC Act Vulnerable); and
- Peregrine Falcon (*Falco peregrinus*) (‘Other Specially Protected Fauna’ BC Act); and
- Pilbara Flat-headed Blind-snake (*Anilios ganei*) (DBCA Priority 1).
- Western Pebble-mound Mouse (*Pseudomys chapmani*) (DBCA Priority 4).

An assessment of the potential impact of the proposed clearing on the species of significant fauna that may occur in the application amendment area is provided in **Table 5**.

Table 5 Significant Fauna Potentially Occurring within the Amendment Application Area

Significant Species	Conservation Status	Distribution and Ecology	Habitat Relevance	Likelihood	Potential Impact on Species
Birds					
Fork-tailed Swift (*Apus pacificus*)	Migratory (EPBC Act) Migratory (BC Act)	The Fork-tailed Swift breeds in north-east and east Asia, wintering in Australia and southern New Guinea (Johnstone and Storr, 1998). Fork-tailed Swifts are entirely aerial within the Pilbara and may forage sporadically over the Amendment Application Area in the summer months, associated with thunderstorms and cyclonic systems (Johnstone and Storr, 1998).	The Fork-tailed Swift is largely an aerial species and has a broad distribution across much of Western Australia. It is viewed as a nomadic species and may fly over the Amendment Application Area.	Recorded	**Negligible** As this species is entirely aerial and not reliant on terrestrial habitats, the impact to this species is considered to be negligible.
Grey Falcon (*Falco hypoleucos*)	Vulnerable (EPBC Act) Vulnerable (BC Act)	This species appears to have a distribution centred on ephemeral or permanent drainage lines (Garnett and Crowley, 2000) with numerous records from the Fortescue Marsh region. Grey Falcons prefer sparsely-treed open plains and drainage lines for hunting (Slater et al., 2009). They typically nest in the abandoned nest of a raptor or corvid (Slater et al., 2009) in trees or man-made structures, most notably repeater towers.	This species may forage over the habitats of the Amendment Application area, but no suitable breading habitat is present.	Possible	**Negligible** While the Grey Falcon could potentially forage over the Amendment Application Area, the proposed clearing is unlikely to impact on this species as: • No suitable breeding habitat is present; • It has the ability to egress from areas being disturbed • the habitat for this species occurs extensively throughout the Pilbara.
Peregrine Falcon (*Falco peregrinus*)	Other Specially Protected Fauna (BC Act)	The Peregrine Falcon is uncommon but wide ranging across Australia. They occur mainly along coastal cliffs, rivers and ranges as well as wooded watercourses and lakes. The Peregrine Falcon nests primarily on cliffs, granite outcrops and quarries, and feed mostly on birds (Johnstone and Storr 1998).	While this species has not been recorded within the Amendment Application Area all habitat types within the Amendment Application Area are potential foraging habitat.	Possible	**Low** The proposed clearing activities are unlikely to impact on the Peregrine Falcon as: • Breakaway habitat is unlikely to be disturbed by exploration activities; • It has the ability to egress from areas being disturbed • the habitat for this species occurs extensively throughout the Pilbara.

Significant Species	Conservation Status	Distribution and Ecology	Habitat Relevance	Likelihood	Potential Impact on Species
Mammals					
Brush-tailed Mulgara (*Dasycercus blythi*)	Priority 4 (DBCA)	Brush-tailed mulgaras occur in a range of vegetation types, however, the principal habitat is mature hummock grasslands of spinifex, especially *Triodia basedowii* and *T. pungens* (Masters *et al*., 2003). Note: Woolley, et. al. (2013) noted that the Crest-tailed Mulgara (*Dasycercus cristicauda*) is unlikely to occur within the Pilbara.	While this species preferred habitat (Sand Plain) is not present within the Amendment Application Area there are three records of this species within the Drainage Area / Flood Plain habitat and one record from the Stony Plain Habitat. There are a large number of records in the broader region.	Recorded	**Low** This species preferred habitat is absent from the Amendment Application Area. Active Mulgara burrows are identified they will be avoided using a 10 m buffer, where practicable.
Western Pebble-mound mouse (*Pseudomys chapmani*)	Priority 4 (DBCA)	The Western Pebble-mound Mouse is restricted to the Pilbara region, where it is recognised as an endemic species. Abandoned mounds to the east of its current range indicate a decline in distribution (Menkhorst and Knight, 2004). Abandoned mounds in disturbed areas suggest that the species is under threat by grazing and mining activities. The construction of extensive pebble mounds, built from small stones, which typically cover areas from 0.5-9.0 square metres, is characteristic of this species. Mounds are restricted to suitable class stones, and are usually found on gentle slopes and spurs (van Dyck and Strahan, 2008).	The Hillcrest / Hill slope and Stony Plain habitats of the Amendment Application Area is suitable for this species. This species has not been recorded within the Amendment Application Area. In the event an active Western Pebble-mound Mouse mound is identified it will be avoided using a 10 m buffer, where practicable.	Possible	**Low** There are large areas of suitable habitat adjacent to the Amendment Application Area. In the event an active Western Pebble-mound Mouse mound is identified it will be avoided using a 10 m buffer, where practicable.
Reptiles					
Pilbara Flat-headed Blind Snake (*Anilios ganei*)	Priority 1 (DBCA)	The Pilbara Flat-headed Blind Snake is a moderately robust blind snake known from widely separated areas between Newman and Pannawonica. A very cryptic species. Most often recorded in rocky or stony areas and considered to be possibly associated with moist gorges and gullies (Wilson and Swan, 2010)	Little is known about this species habitat preferences and it may occur within habitats of the Amendment Application Area. This species preferred habitat (Gorge and Gully) is not present within the Amendment Application Area, however this species may be a transient visitor.	Possible	**Low** This species may utilise the habitat types within the Amendment Application Area however is unlikely to be reliant on the areas within the Amendment Application Area.

3.5 GROUNDWATER

The Amendment Application Area is located in the Pilbara Groundwater Area, proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act) (DoW, 2009a).

There is one main aquifer within the Amendment Application Area, the Hamersley – Fractured Rock Aquifer which is described as: "The Precambrian rocks of the Hamersley Basin are principally volcanics, shales and iron formations. Groundwater is contained within fractures within these rocks. The groundwater level may be deep below the surface, and is generally fresh. The main use of this aquifer is for mining and mine dewatering from iron ore mines. Bores have also been drilled for road and railway construction. There will be increasing dewatering from the fractured rocks around iron ore mines as the pits become deeper (DoW, 2015)".

3.6 SURFACE WATER

The Amendment Application Area is situated in the Pilbara Surface Water Area, proclaimed under the RIWI Act (DoW, 2009b).

There are two non-perennial minor drainage lines that flow south to north and north to south across the Amendment Application Area. Both of these eventually join to Jimblebar Creek.

Where practicable, existing cleared tracks will be used to cross the unnamed non-perennial minor drainage line. If it is necessary for new crossings to be installed, clearing will be kept to a bare minimum and will be constructed flat level to the surface (i.e. a simple clearing with no bunds) to maintain the natural surface flow.

4 ENVIRONMENTAL MANAGEMENT

The management of the environmental aspects of BHP's operations at the Amendment Application Area are managed under the company's AS/NZS ISO 14001:2004 certified Environmental Management System (EMS). The EMS describes the organisational structure, responsibilities, practices, processes and resources for implementing and maintaining environmental objectives at all BHP sites

Additionally, operational controls for environmental management for the Project area are guided by BHP's Charter values. The Charter Values outline a commitment to develop, implement and maintain management systems for sustainable development that drive continual improvement and set and achieve targets that promote efficient use of resources. In order to give effect to the Charter Values, a series of Our Requirements Documents have been developed.

BHP has also developed a Sustainable Development Policy for its operations. The Sustainable Development Policy outlines a commitment to setting objective and targets to achieve sustainable outcomes and to continually improve our performance.

BHP also has an internal Project Environmental and Aboriginal Heritage Review (PEAHR) Procedure. The purpose of the procedure is to manage implementation of environmental, Aboriginal heritage, land tenure and legal commitments prior to and during land disturbance. All ground disturbance activities will meet the requirements of the PEAHR procedure, all relevant legislative and regulatory requirements, the BHP Charter, industry standards, and codes of practice.

All personnel carrying out works associated with clearing activities are required to comply with BHP's Charter Values, BHP's Our Requirements, and relevant legislative and licensing requirements.

5 PROJECT COMPLIANCE WITH THE TEN CLEARING PRINCIPLES

BHP considers that native vegetation clearing within the Amendment Application Area will not result in any significant environmental or social impacts, and complies with the Ten Clearing Principles, as defined in Schedule 5 of the EP Act. **Section 6** provides an assessment of project compliance with the Ten Clearing Principles.

6 ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES

The information used to assess the application against the Ten Clearing Principles has been based on the findings of multiple baseline surveys (**Section 3**).

6.1 PRINCIPLE A

Native vegetation should not be cleared if it comprises a high level of biological diversity

This proposal is not likely to be at variance to this Principle.

Similar habitat to the Amendment Application Area is located outside the Amendment Application Area. These other areas of similar vegetation type are therefore expected to have a similar biological diversity and conservation value than that of the Amendment Application Area.

The proposed clearing is therefore unlikely to have any significant impact on the biodiversity of the region.

Table 6 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle A.

Table 6 Assessment against Principle A components

Principle	Criteria	Assessment	Outcome
a) Native vegetation should not be cleared if it comprises a high level of biological diversity.	a1) Native vegetation should not be cleared if it is representative of an area of outstanding biodiversity in the Bioregion.	The native vegetation within the Amendment Application Area is represented in the same condition within the broader region and is not considered to be of outstanding biodiversity in the Bioregion.	Not at variance with clearing principle.
	a2) Native vegetation should not be cleared if it has higher diversity of indigenous aquatic or terrestrial plant or fauna species than native vegetation of that ecological community in good or better condition in the Bioregion.	The native vegetation within the Amendment Application Area is in the same condition as other areas of similar vegetation type within the broader region.	Not at variance with clearing principle.
	a3) Native vegetation should not be cleared if it has higher diversity of indigenous aquatic or terrestrial plant or fauna species than the remaining vegetation of that ecological community in the local area.	The native vegetation within the Amendment Application Area is not considered to have higher biodiversity and conservation value than that of the surrounding vegetation within the local area.	Not at variance with clearing principle.
	a4) Native vegetation should not be cleared if it has higher ecosystem diversity than other native vegetation of that local area.	The native vegetation within the Amendment Application Area is not considered to have a higher ecosystem diversity than other native vegetation of that local area.	Not at variance with clearing principle.
	a5) Native vegetation should not be cleared if it has higher genetic diversity than the remaining native vegetation of that ecological community.	The native vegetation within the Amendment Application Area is not considered to have a higher genetic diversity than the remaining native vegetation of that ecological community as the vegetation is contiguous with adjacent native vegetation and has no special features.	Not at variance with clearing principle.
	A6) Native vegetation should not be cleared if it is necessary for the continued in situ existence of significant habitat for priority flora species published by the Department of Environment and Conservation.	All Priority flora species have been excluded from the Amendment Application Area using a 10 m buffer. Should any new populations of are identified they will be avoided using a 10 m buffer, where practicable.	Not at variance with clearing principle.

6.2 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 indigenous to Western Australia

This proposal is not likely to be at variance to this Principle.

There are six broad fauna habitat types within the Amendment Application Area (**Figure 3**).

The vegetation and habitats found within the Amendment Application Area are considered to be well represented in the Pilbara bioregions.

Two fauna species of significance have been recorded from within the Amendment Application Area with an additional four species considered to potentially occur within the Amendment Application Area (**Table 5**). As described in **Section 3.4.4** and **Table 5** clearing of the Amendment Application Area is expected to have a low impact on these species.

Table 7 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle B.

Table 7 Assessment against Principle B components

Principle	Criteria	Assessment	Outcome
b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.	b1) Native vegetation should not be cleared if it is or is likely to be habitat for fauna that is declared Specially Protected under the BC Act.	One BC Act protected species has been recorded from the Amendment Application and two BC Act protected species are considered 'possible' or 'likely' to occur within the Amendment Application Area (**Table 5**). The proposed activities are unlikely to have a significant impact on these species as: • All species are wide-ranging and found throughout the broader region; • All species are only likely to forage within the Amendment Application Area; • These species do not exclusively depend on any habitat type or feature within the Amendment Application Area; and • Similar habitat is well represented outside the Amendment Application Area.	Not at variance with clearing principle.
	b2) Native vegetation should not be cleared if it is or is likely to be habitat for Priority Listed Fauna.	One priority fauna species has been recorded within the Amendment Application Area and two other priority species may occur. As detailed in **Table 5** these species are unlikely to be impacted for the following reasons: • The preferred habitat for these species is well represented outside the Amendment Application Area; • Similar habitat within close vicinity to the Amendment Application Area was found to be the same or better condition than that of the Amendment Application Area; and • Active Mulgara burrows are identified they will be avoided using a 10 m buffer, where practicable. • In the event an active Western Pebble-mound Mouse mound is identified it will be avoided using a 10 m buffer, where practicable.	Not at variance with clearing principle.
	b3) Native vegetation should not be cleared if it is or is likely to be habitat for fauna that is otherwise significant.	Habitat found within the Amendment Application Area may be suitable for use by conservation significant fauna, however similar habitat in the same or better condition is widespread in the Amendment Application Area surrounds	Not at variance with clearing principle.
	b4) Native vegetation should not be cleared if it provides significant habitat for fauna species in the local area.	Habitat within the Amendment Application Area is not considered significant habitat for fauna species within the local area. Similar habitat to that proposed to be cleared is located to the area surrounding of the Amendment Application Area.	Not at variance with clearing principle.
	b5) Native vegetation should not be cleared if it maintains ecological functions and processes that protect significant habitat for fauna.	The clearing of native vegetation is not considered to alter ecological functions and processes that protect significant habitat for fauna.	Not at variance with clearing principle.
	b6) Native vegetation should not be cleared if it forms, or is part of, an ecological linkage that is necessary for the maintenance of fauna.	No ecological linkages run through the Amendment Application Area that are necessary for the maintenance of fauna.	Not at variance with clearing principle.

Principle	Criteria	Assessment	Outcome
	b7) Native vegetation should not be cleared if it provides significant habitat for fauna communities (assemblages) and meta-populations.	The Amendment Application Area is not considered to contain significant habitat for faunal assemblages that are not also present in other areas within the vicinity. The Amendment Application Area is not considered likely to contain geographically isolated fauna populations.	Not at variance with clearing principle.

6.3 PRINCIPLE C

Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora

This proposal is not likely to be at variance to this Principle.

No species listed under the EPBC Act or gazetted as Threatened under the BC Act were recorded in the Amendment Application Area. Three species listed as Priority Flora by the DBCA have been recorded in the Amendment Application Area (**Section 3.4.2**).

Table 8 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle C.

Table 8 Assessment against Principle C components

Principle	Criteria	Assessment	Outcome
c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.	c1) Native vegetation should not be cleared if it is necessary for the continued *in situ* existence of populations of Declared Rare Flora under the *BC Act 2016*	No Threatened flora species were recorded in the Amendment Application Area (Spectrum Ecology and Spatial, 2022; Biologic, 2021; Onshore Environmental, 2015; Astron, 2013).	Not at variance with clearing principle.
	c2) Native vegetation should not be cleared if it is necessary for the continued *in situ* existence of other significant flora.	No species listed under the EPBC Act or other significant flora species were recorded in the Amendment Application Area (Spectrum Ecology and Spatial, 2022; Biologic, 2021; Onshore Environmental, 2015; Astron, 2013).	Not at variance with clearing principle.

6.4 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

This proposal is not likely to be at variance to this Principle.

None of the vegetation associations or landforms identified within the proposed boundaries of CPS 4677/6 are associated with a TEC or PEC. The closest PEC is more than 65 km north west of the Amendment Application Area (**Section 3.4.1**). **Table 9** provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle D.

Table 9 Assessment against Principle D components

Principle	Criteria	Assessment	Outcome
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.	d1) Native vegetation should not be cleared if threatened ecological communities listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* are present.	No EPBC Act TECs are present in the Amendment Application Area.	Not at variance with clearing principle.
	d2) Native vegetation should not be cleared if it is necessary for the maintenance of Threatened Ecological Communities listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.	No EPBC Act TECs or associated native vegetation will be impacted by the proposed works.	Not at variance with clearing principle.
	d3) Native vegetation should not be cleared if other significant ecological communities are present.	No other significant ecological communities are known to occur or are likely to occur within the Amendment Application Area.	Not at variance with clearing principle.
	d4) Native vegetation should not be cleared if it is necessary for the maintenance of other significant ecological communities.	No DBCA listed TECs or associated native vegetation will be impacted by the proposed works.	Not at variance with clearing principle.
	d5) Native vegetation should not be cleared if it is necessary for the continued *in situ* existence of significant examples of priority threatened ecological communities published by the Department of Environment and Conservation.	No DBCA listed PECs or associated native vegetation will be impacted by the proposed works.	Not at variance with clearing principle.

6.5 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

This proposal is not likely to be at variance to this Principle.

The habitats and vegetation within the Amendment Application Area are well represented in the Land Systems of the region (**Section 3.4.1**), and therefore it is unlikely individual species would be restricted to a particular habitat and / or vegetation occurring in the Amendment Application Area.

Table 10 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle E.

Table 10 Assessment against Principle E components

Principle	Criteria	Assessment	Outcome
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.	e1) Native vegetation should not be cleared if the remaining native vegetation represents less than 30%, or the clearing would reduce the representation of remaining native vegetation to less than 30% in the Bioregion (or subregion where applicable).	Clearing native vegetation within the Amendment Application Area will not reduce the extent of native vegetation below 30% in the bioregion or subregion.	Not at variance with clearing principle.
	e2) Native vegetation should not be cleared if an ecological community represents less than 30% of its original extent or clearing would reduce the representation of any ecological community to less than 30% of its original extent in the Bioregion (or subregion where applicable).	Clearing native vegetation within the Amendment Application Area will not significantly reduce the known extent of the ecological community from pre-European extents. Current remaining extents of the vegetation communities in the bioregion are almost 100% of pre-European extents.	Not at variance with clearing principle.
	e3) Native vegetation should not be cleared if clearing would reduce an ecological community to less than 1% of the Bioregion (or subregion where applicable)	Clearing native vegetation within the Amendment Application Area will not significantly reduce the known extent of the vegetation community in the bioregion.	Not at variance with clearing principle.
	e4) Native vegetation should not be cleared if the remaining native vegetation represents less than 30% or the clearing would reduce the representation of remaining native vegetation to less than 30% in the Local Area.	Clearing native vegetation within the Amendment Application Area will not reduce the representation of remaining native vegetation to less than 30% in the local area.	Not at variance with clearing principle.
	e5) Native vegetation should not be cleared if an ecological community represents less than 30% of its original extent or clearing will reduce the representation of any ecological community to less than 30% of its original extent in the Local Area.	Clearing native vegetation within the Amendment Application Area will not reduce the representation of any ecological community to less than 30% of its original extent in the local area.	Not at variance with clearing principle.
	e6) Native vegetation should not be cleared if clearing would reduce any ecological community to less than 1% of the Local Area.	Clearing native vegetation within the Amendment Application Area will not significantly reduce the known extent of the vegetation community in the local area.	Not at variance with clearing principle.

6.6 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

This proposal is unlikely to be at variance to this Principle.

There are two non-perennial minor drainage lines that flow south to north and north to south across the Amendment Application Area. Both of these eventually join to Jimblebar Creek.

Where practicable, existing cleared tracks will be used to cross the unnamed non-perennial minor drainage line. If it is necessary for new crossings to be installed, clearing will be kept to a bare minimum and will be constructed flat level to the surface (i.e. a simple clearing with no bunds) to maintain the natural surface flow.

Table 11 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle F.

Table 11 Assessment against Principle F components

Principle	Criteria	Assessment	Outcome
f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	f1) Native vegetation should not be cleared if it is growing in a watercourse or wetland that has been identified as having significant environmental values.	No watercourses of significant environmental value occur within the Amendment Application Area	Unlikely to be at variance with clearing principle.
	f2) Native vegetation should not be cleared if it provides a buffer area for watercourses and wetlands identified in criteria (f1) and (f2).	No native vegetation occurs within the Amendment Application Area that provides a buffer to watercourses or wetlands that have been identified as having significant environmental values.	Unlikely to be at variance with clearing principle.
	f3) Native vegetation should not be cleared if water tables are likely to change and adversely affect ecological communities that are wetland or groundwater dependent.	Due to the purpose of the clearing this project is not considered likely to adversely alter water tables, and as such will not impact on any ecological communities that are wetland or groundwater dependent.	Not at variance with clearing principle.
	f4) Native vegetation should not be cleared if it is growing in other watercourses or wetlands.	Where practicable, existing cleared tracks will be used to cross the unnamed non-perennial minor drainage line. If it is necessary for new crossings to be installed, clearing will be kept to a bare minimum and will be constructed flat level to the surface (i.e. a simple clearing with no bunds) to maintain the natural surface flow.	Unlikely to be at variance with clearing principle.

6.7 PRINCIPLE G

Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation

This proposal is not likely to be at variance to this Principle.

Land degradation may include impacts such as erosion, changes to pH, water logging, salinisation or spread of weeds. These potential impacts are assessed in the sections below. **Table 12** provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle G.

Given the relatively small amount of clearing required for the project, the proposed management strategies for weed species within the Amendment Application Area and the low susceptibility of the soils to erosion, it is considered that the project will not be at variance to Principle G.

6.7.1 Erosion

It is not anticipated that the removal of vegetation will contribute to increased amounts of wind or water erosion in the Amendment Application Area or adjacent areas.

6.7.2 Changes to pH

The Amendment Application Area is not in an area at risk of acid sulphate soils and there are no recorded acid sulphate soils within the Amendment Application Area. It is not expected that the proposed clearing will result in changes to soil pH.

6.7.3 Water logging and salinisation

It is not expected that there will be a significant reduction in groundwater uptake due to the proposed clearing. No water logging or increased salinisation is expected to occur as a result of the proposed clearing.

6.7.4 Weeds

One introduced flora species has been recorded in the Amendment Application Area (**Table 4**). This species is not listed as a Declared Pest under the BAM Act and is common in the Pilbara region.

Control of established weed populations will be carried out according to the *BHP Weed Control and Management Procedure*.

Table 12 Assessment against Principle G components

Principle	Criteria	Assessment	Outcome
g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	g1) Native vegetation should not be cleared if wind or water erosion of soil is likely to be increased (on or off site).	Soil erosion is not anticipated to occur as any areas cleared will be revegetated where practicable, if not required for ongoing use.	Not considered to be at variance with clearing principle.
	g2) Native vegetation on land with soils with high or low pH should not be cleared.	The Amendment Application Area is not considered to contain soils at risk of having acid sulphate soils present. No vegetation on soils with significantly low (or high) pH will be impacted by the proposed works.	Not at variance with clearing principle.
	g3) Native vegetation should not be cleared if water logging is likely to be increased (on or off site).	It is not expected that water logging would be increased by the clearing of native vegetation within the Amendment Application Area.	Not at variance with clearing principle.
	g4) Native vegetation should not be cleared if land salinisation is likely to be increased (on or off site).	Soil salinity is not considered to be increased in the Amendment Application Area (on or off site) by the clearing of native vegetation.	Not at variance with clearing principle.

6.8 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

This proposal is not likely to be at variance to this Principle.

The Amendment Application Area is not within any conservation areas as listed by the DBCA or those protected under the EPBC Act. The closest conservation area is Karijini National Park which is more than 140 km west of the Amendment Application Area.

The Amendment Application Area is not considered to form an ecological linkage to these conservation areas.

An assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle H is provided in **Table 13** below.

Table 13 Assessment against Principle H components

Principle	Criteria	Assessment	Outcome
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.	h1) Native vegetation should not be cleared if it contributes significantly to the environmental values of a conservation area.	The vegetation of the Amendment Application Area does not contribute to the environmental values of a conservation area.	Not at variance with clearing principle.
	h2) Native vegetation should not be cleared if that vegetation provides a buffer to a conservation area.	There are no conservation areas within the vicinity of the Amendment Application Area.	Not at variance with clearing principle.
	h3) Native vegetation should not be cleared if the land contributes to an ecological linkage to a conservation area.	The nearest conservation area is more than 140 km west of the Amendment Application Area.	Not at variance with clearing principle.
	h4) Native vegetation should not be cleared if it provides habitats not well represented on conservation land.	There are no habitats within the Amendment Application Area that are not well represented on conservation land.	Not at variance with clearing principle.

6.9 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

This proposal is not likely to be at variance to this Principle.

There are two non-perennial minor drainage lines that flow south to north and north to south across the Amendment Application Area. Both of these eventually join to Jimblebar Creek.

Where practicable, existing cleared tracks will be used to cross the unnamed non-perennial minor drainage line. If it is necessary for new crossings to be installed, clearing will be kept to a bare minimum and will be constructed flat level to the surface (i.e. a simple clearing with no bunds) to maintain the natural surface flow.

Table 14 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle I.

Table 14 Assessment against Principle I components

Principle	Criteria	Assessment	Outcome
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.	i1) Native vegetation should not be cleared if clearing the vegetation will reduce the quality of surface or underground water in proclaimed, gazetted or declared areas or catchments.	The clearing of native vegetation is not considered likely to alter the quality of surface or ground water within the Amendment Application Area due to the limited nature of the clearing within the Amendment Application Area.	Not at variance with clearing principle.
	i2) Native vegetation should not be cleared if sedimentation, erosion, turbidity or eutrophication of water bodies on or off site is likely to be caused or increased.	Localised erosion will not impact any waterbodies as clearing will be restricted to a bare minimum near surface water features and cleared areas that are no longer required will be revegetated.	Not at variance with clearing principle.
	i3) Native vegetation should not be cleared if water tables are likely to change significantly altering salinity or pH.	The clearing of native vegetation is not considered likely to alter the quality of surface or ground water within the Amendment Application Area.	Not at variance with clearing principle.
	i4) Native vegetation should not be cleared if the clearing is likely to alter the water regimes of groundwater-dependent ecosystems on or off site, causing degradation to the biological communities associated with these systems.	The clearing of native vegetation is not considered likely to alter the regimes of surface or groundwater dependent vegetation within the vicinity of the Amendment Application Area.	Not at variance with clearing principle.

6.10 PRINCIPLE J

Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding

This proposal is not likely to be at variance to this Principle.

Massive surface water runoff and localised flooding occurs following intense rainfall events during December to April. However, the incidence or intensity of flooding is not likely to be significantly influenced by the proposed vegetation clearing. It is highly improbable that surface runoff generated from the cleared area could create sufficient concentrated water volumes to cause even a localised flood event. Drainage infrastructure will be designed to ensure that post-construction flows will not differ significantly from pre-construction flows. Therefore the proposed clearing is unlikely to cause or exacerbate the incidence or intensity of flooding.

Table 15 provides an assessment of the proposed clearing activities within the Amendment Application Area against the components of clearing Principle J.

Table 15 Assessment against Principle J components

Principle	Criteria	Assessment	Outcome
j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.	j1) Native vegetation should not be cleared if it is likely to lead to an incremental increase in peak flood height.	The clearing of native vegetation is not considered likely to cause any alteration to peak flood height.	Not at variance with clearing principle.
	j2) Native vegetation should not be cleared if it is likely to lead to an incremental increase in duration of flood peak.	The clearing of native vegetation is not considered likely to cause any impact on duration of flood peak.	Not at variance with clearing principle.

7 HERITAGE

The Land Access Unit is the internal group within BHP that manages Aboriginal heritage matters. The Land Access Unit is responsible for ensuring that BHP complies with the *Aboriginal Heritage Act*, *1972*, and all other state and federal heritage legislation. All land disturbance activities are subject to ethnographic and archaeological surveys as part of an internal PEAHR. The PEAHR process ensures that all heritage sites in the vicinity of the Project Area are identified and avoided where practicable.

The Project Area falls within the Nyiyaparli Native Title Claim (WC05/6). Archaeological and ethnographic surveys of the proposed Amendment Application Area have been undertaken by BHP and a number of heritage sites have been identified. All heritage sites will be avoided, however if any heritage site cannot practicably be avoided, BHP would consult the relevant traditional owners and seek approval under the *Aboriginal Heritage Act*, *1972* before the site is disturbed.

8 CONCLUSION

The proposed clearing in the Amendment Application Area is unlikely to be at variance to any of the Ten Clearing Principles. CPS 4677/5 authorises the clearing of up to 300 ha. To date BHP has cleared 184.26 ha and the clearing of the remaining 115.76 ha within an Amendment Application Area of 495.35 ha is unlikely to have any significant negative impacts on biodiversity and environmental values in the area.

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Figures

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ENVIRONMENTAL APPROVALS

RENEWAL OF NVCP CPS 4677/5 OOREBODY 31 EXPLORATION

REGIONAL OVERVIEW

SCALE (A3): 1:150,000	DATUM: GDA2020/MGA51	FIGURE 1
Prepared: Chris Hopkins	Revision: FINAL	
Centre: Perth	Date: 13 November 2024	Dwg: EXP_032NVCP_001_RevA_0

N

170000 180000 190000 200000 210000 220000

7430000 7420000 7410000 7400000

PORT HEDLAND

NEWMAN

BHP Newamn to Port Hedland Rail Line

Jimblebar Creek

Eastern Ridge

Orebody 18

Orebody 31

Jimblebar

Newman

Ophthalmia Dam

Great Northern Highway

Legend

- Proposed Boundary for CPS 4677/6
- Ministerial Statement 1021 - Orebody 31

0 2.5 5 7.5 10

Kilometers

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ENVIRONMENTAL APPROVALS

RENEWAL OF NVCP CPS 4677/5 OOREBODY 31 EXPLORATION

BROAD FLORISTIC COMMUNITIES AND SIGNIFICANT FLORA

SCALE (A3): 1:24,000	DATUM: GDA2020/MGA51	FIGURE 2
Prepared: Chris Hopkins	Revision: FINAL	
Centre: Perth	Date: 13 November 2024	Dwg: EXP_032NVCP_002_RevA_0

N

0 0.5 1 1.5 2
Kilometers

202000 204000 206000 208000 210000

7422000

7420000

7418000

Legend

Proposed Boundary for CPS 4677/6

Significant Flora Location (all excluded with a 10m buffer)

- Acacia corusca (Priority 1)
- Eremophila capricornica (Priority 1)
- Rhagodia sp. Hamersley (M. Trudgen 17794) (Priority 3)

Vegetation Associations

- Acacia High Shrubland (FP AancAadsAe TtArhhPamu ChCaHl)
- Acacia Low Open Forest (Ml AaApEll AwAteAb TpTs)
- Acacia Low Woodland (FP AciChAa AancApypPl TtAriCc)
- Acacia Low Woodland (SP AaAcaoAay Asu Tb)
- Acacia Open Scrub (Ml AtpPlAm TpTs ChEll)
- Corymbia Low Open Woodland (SP ChEoCd AancApaAads TbTscTs)
- Eremophila Low Shrubland (HC ErccErcuLepl AaAp AwSegl)
- Triodia Hummock Grassland (FP Tb AaApr Erff)
- Triodia Hummock Grassland (FP Tp EtEg AbAancPl)
- Triodia Hummock Grassland (FS Ts AwAbGrwh Segl)
- Triodia Hummock Grassland (FS Ts CdHc AancAiGrwh)
- Triodia Hummock Grassland (HS Ta AsyAteAw ErcuLeplMapy)
- Triodia Hummock Grassland (HS TsTwTp EllCh AhiAaa)
- Triodia Open Hummock Grassland (HS TpTb EllAaAcao SesSeglErcu)
- Cleared

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ENVIRONMENTAL APPROVALS

RENEWAL OF NVCP CPS 4677/5 OOREBODY 31 EXPLORATION

VERTEBRATE FAUNA HABITAT AND SIGNIFICANT FAUNA

SCALE (A3): 1:22,628	DATUM: GDA2020/MGA51	FIGURE 3
Prepared: Chris Hopkins	Revision: FINAL	
Centre: Perth	Date: 13 November 2024	Dwg: EXP_032NVCP_003_RevA_0

N

0 0.5 1 1.5 2
Kilometers

202000 204000 206000 208000

7422000 7420000 7418000

Legend

- Proposed Boundary for CPS 4677/6

Significant fauna

- Brush-tailed Mulgara (Dasycercus blythi) (Priority 4)
- Fork-tailed Swift) Apus pacificus) (EPBC Act and BC Act Migratory)

Vertebrate Fauna Habitat

- Drainage Area/ Floodplain
- Minor Drainage Line
- Mulga Woodland
- Stony Plain
- Hillcrest/ Hillslope
- Breakaway/ Cliff
- Cleared/ Disturbed

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Appendices

Appendix 1: Consolidation of Regional Vegetation Mapping BHP Billiton Iron Ore Pilbara Tenure (Onshore Environmental, 2014)

Appendix 2: Orebody 31 Level 2 Flora and Vegetation Survey (Onshore Environmental Consultants and Syrinx Environmental, 2014)

Appendix 3: Targeted Survey for *Acacia* sp. East Fortescue (surrounding OB31) (Onshore Environmental, 2015)

Appendix 4: BHP WAIO Jimblebar *Eremophila capricornica* Targeted Flora Survey (Biologic, 2021)

Appendix 5: Consolidated Fauna Habitat Mapping 2017 (Biologic Environmental Survey, 2017)

Appendix 6: OB 31 Vertebrate Fauna Survey (Biologic Environmental Survey, 2014)

Appendix 7: North Jimblebar: Targeted Northern Quoll Assessment (Biologic, 2022)

Appendix 8: Jimblebar Targeted Ghost Bat Survey (GHD, 2020)