Application to Amend NVCP CPS 4831/3 Coondewanna Airport NVCP

Native Vegetation Clearing Permit Amendment Application Supporting Document

February 2023

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

Ore from the Newman Operations, Mining Area C, Jimblebar Operations and Yandi mining operations is transported to Port Hedland via the BHP Newman to Port Hedland Mainline (and associated spur lines). Ore is then shipped out through Port Hedland at the BHP facilities at Nelson Point and Finucane Island.

BHP Iron Ore Pty Ltd (BHP) currently holds Native Vegetation Clearing Permit (NVCP) CPS 4831/3 for the purposes of mineral production and associated infrastructure (**Figure 1**). The clearing period of this permit expired on 30 November 2022.

The full extent of these works is yet to be undertaken, particularly with regards to ongoing maintenance of vegetation at Coondewanna Airport and therefore BHP therefore seeking to:

- Extend the permit duration to 30 November 2037;
- Extend the clearing period to 30 November 2032;
- Extend the final reporting date to 30 November 2037; and
- Update the Permit Holder to “BHP Iron Ore Pty Ltd.”

The current permit purpose (Clearing for mineral production and associated infrastructure) does not align with the original purpose requested (which was broadly clearing for buildings, airport and associated activities), and does not sufficiently limit the activities that can be undertaken. BHP is therefore also requesting that:

- the Permit Purpose be amended to: “Clearing for the purposes of construction and maintenance of airports, buildings and associated activities.”

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 4831/3 to the Department of Mines, Industry Regulation and Safety (DMIRS).

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 100 km north west of Newman in the Pilbara region of Western Australia (**Figure 1**).

1.2 TENURE

The Amendment Application Area is located on Mineral Lease 281SA.

1.3 LOCAL GOVERNMENT JURISDICTION

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

1.4 PROJECT DESCRIPTION

NVCP CPS 4831 is used for the ongoing maintenance of the Coondewanna Airport, the MAC Warehouse and associated infrastructure including the airport landing system, waste water treatment plants, and roads and tracks at the facilities.

1.5 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	DMIRS
Permit Title	Coondewanna Airport NVCP
Area to be cleared	38 hectares.
Amendment Application Area	371.1 hectares.
Purpose of the permit	Clearing for the purposes of construction and maintenance of airports, buildings and associated activities.
Tenure	The Amendment Application Area is located on: • Mineral Lease 281SA.
Clearing Duration	Until 30 November 2032
Permit Duration	Until 30 November 2037
Proposed Annual Reporting Date	01 October for the previous Financial Year
Proposed Final Reporting Date	30 November 2037
Application boundary	Map Reference: • MAC_002NVCP_001_RevA_0 • MAC_002NVCP_002_RevA_0 • MAC_002NVCP_003_RevA_0 BHP Shapefile 1 Doc Reference: https://waio-dctm.bhp.com/D2/?docbase=bhpbio_od_prod&locateId=0b03c41a84318d79&application=ManagedDocuments

Application Commitments	**Section**
Populations of Priority flora will be avoided by 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
If identified active mounds of the Western Pebble-mound Mouse 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 drainage lines. 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

1.6 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 commenced in March 2012 with a total of 25.7 ha cleared, with 2.93 ha of land rehabilitated to 30 June 2022 (BHP 2022). The remaining locations cleared are still required for the purpose for which they were cleared.

Clearing has been minimised by restricting activities to the minimal required for the safe operation of Coondewanna Airport, the MAC warehouse and the associated facilities. Populations of significant flora have been avoided, where practicable, using the BHP Project Environmental and Heritage Review (PEAHR) procedure. This internal BHP procedure authorises ground disturbing activities. Where populations or Priority Flora can be practicably avoided their locations are been clipped from the PEAHR boundary to prevent disturbance within 10 m of these populations.

No environmental offsets are required for this NVCP.

2 ASSOCIATED APPROVALS

Any other additional approvals will be sought as required.

3 EXISITING ENVIRONMENT

3.1 CLIMATE

Newman Aero meteorological site (007176) is the closest Bureau of Meteorology (BoM) station to the Amendment Application Area. Average annual rainfall at Newman Aero is 323.8 mm (BOM, 2023a). This is mainly derived from tropical storms and cyclones during summer, producing sporadic, heavy rains over the area. Mean monthly rainfall varies from 4.7 mm in September to 72.3 mm in February (BoM, 2023a). Daily rainfall is highly variable; the highest maximum daily rainfall ranges from 34.8 mm in October, to 305.6 mm in February (BoM, 2023a). The mean maximum temperature in summer months (October to March) is 35.1°C to 39.3°C, and mean maximum temperature in winter (April to September) is between 23.1°C and 32.2°C (BoM, 2023a).

Wittenoom meteorological site (005026) is the closest station to the Amendment Application Area that records daily evaporation. Wittenoom is located approximately 90 km north west 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, 2023b).

3.2 BIOREGION, LANDFORMS AND LAND SYSTEMS

The Amendment Application Area is situated in the following biogeographic subregion:

- Hamersley subregion (PIL3) of the Pilbara region described as: "*Mountainous area of Proterozoic sedimentary ranges and plateaux, dissected by gorges (basalt, shale and dolerite). Mulga low woodland over bunch grasses on fine textured soils in valley floors, and Eucalyptus leucophloia over Triodia brizoides on skeletal soils of the ranges. The climate is semi-desert tropical, average 300 mm rainfall, usually in summer cyclonic or thunderstorm events. Winter rain is not uncommon. Drainage into either the Fortescue (to the north), the Ashburton to the south, or the Robe to the west. Subregional area is 6,215,092ha*" (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 slopes; supporting hard and soft Spinifex grasslands and Mulga scrublands.

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

Wannamunna: Hardpan plains and internal drainage tracts supporting mulga shrublands and woodlands (and occasionally eucalypt woodlands).

These Land Systems are well represented in the Pilbara.

3.3 GEOLOGY AND SOILS

Soils of the Pilbara region have been defined and mapped at a scale of 1:2,000,000 by Bettenay *et al.* (1967). The following soil units occur in the Amendment Application Area, based on mapping by Bettenay *et al*. (1967):

Fa13: Ranges of banded jaspilite and chert along with shales, dolomites, and iron ore formations; some areas of ferruginous duricrust as well as occasional narrow winding valley plains and steeply dissected pediments. This unit is largely associated with the Hamersley and Ophthalmia Ranges. The soils are frequently stony and shallow and there are extensive areas without soil cover: chief soils are shallow stony earthy loams (Um5.51) along with some (Uc5.11) soils on the steeper slopes. Associated are (Dr2.33, Dr2.32) soils on the limited areas of dissected pediments, while (Um5.52) and (Uf6.71) soils occur on the valley plains.

Fb3: High-level valley plains set in extensive areas of unit Fa13. There are extensive areas of pisolitic limonite deposits: principal soils are deep earthy loams (Um5.52) along with small areas of (Gn2.12) soils.

3.4 FLORA, VEGETATION AND FAUNA

Thirteen flora and vegetation surveys, seven weed surveys and 12 vertebrate fauna surveys have been undertaken across the Amendment Application Area between 1998 and 2022. Primary surveys for the Application Area:

- *Consolidation of Regional Vegetation Mapping BHP Billiton Iron Ore Pilbara Tenure* (Onshore Environmental, 2014) (**Appendix 1**); and
- *Consolidated Fauna Habitat Mapping 2017* (Biologic, 2017) (**Appendix 2**).

3.4.1 Vegetation Communities

The Amendment Application Area is located within the Interim Biogeographic Regionalisation for Australia (IBRA) Pilbara Bioregion (Department of Environment and Heritage, 2005). According to the Government of Western Australia (2013), the bioregion is 99.9% vegetated (**Table 2**). The vegetation within the Amendment Application Area is classified as the following vegetation associations, as mapped by Beard (1975):

18 Low woodland; mulga (*Acacia aneura*)
82 Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*

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 (Shepherd *et al.*, 2001)

Vegetation Sub-Association	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	Pre-European % in IUCN Class I-IV Reserves
Pilbara IBRA Bioregion	17,808,657.06	17,733,583	99.58	6.34
Vegetation Association 18 within Western Australia	19,890,664.93	19,843,409.70	99.76	2.13
Vegetation Association 18within the Pilbara Bioregion	676,556.73	672,424.33	99.39	16.78
Vegetation Association 82 within Western Australia	2,565,901	2,553,217	99.51	10.25
Vegetation Association 82 within the Pilbara Bioregion	2,563,583	2,550,898	99.51	10.26

A total of four broad floristic formations with five vegetation associations have been described and mapped within the Amendment Application Area (**Figure 2 and Table 3**). None of these vegetation associations are representative of a Threatened Ecological Community (TEC) or Priority Ecological Community (PEC) (Onshore, 2014). The closest PEC's, Coolibah - Lignum Flats, sub types 1 and 2, are approximately 500m south west of the Amendment Application Area. Clearing within the Amendment Application Area will not impact on these PEC's.

The Onshore Environmental (2014) *Consolidation of Regional Vegetation Mapping BHP Billiton Iron Ore Pilbara Tenure* (**Appendix 1**) undertook a detailed review of all previous flora and vegetation surveys across BHP's Pilbara operations (162 baseline flora and vegetation surveys between 2004 and 2013). This review was 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 Project resolved the inconsistencies between previous vegetation mapping and created one consolidated regional Geographic Information System (GIS) database which:

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

The distinct mapped broad floristic communities and vegetation associations identified within the Amendment Application Area extend or occur beyond the proposed 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 low open woodland	FP AaAcaoAp ErlnSolPto ArcErdiArj	Low Open Woodland of *Acacia aptaneura*, *Acacia catenulata* subsp. *occidentalis* and *Acacia paraneura* over Low Open Shrubland of *Eremophila lanceolata*, *Solanum lasiophyllum* and *Ptilotus obovatus* over Very Open Tussock Grassland of *Aristida contorta*, *Eragrostis dielsii* and *Aristida jerichoensis* var. *subspinulifera* on red brown clay loam on hardpan intergrove plains.
Acacia low woodland	HS AaApr ErjpAmarCo cf TwTp	Low Woodland of *Acacia aptaneura* and *Acacia pruinocarpa* over Shrubland of *Eremophila jucunda* subsp. *pulcherrima*, *Acacia marramamba* and *Codonocarpus cotinifolius* over Open Hummock Grassland of *Triodia wiseana* and *Triodia pungens* on red brown loam on steep hill slopes.
Triodia hummock grassland	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.
	ME TpTlo ExAciCh PlApypGoro	Hummock Grassland of *Triodia pungens* and *Triodia longiceps* with Low Woodland of *Eucalyptus xerothermica*, *Acacia citrinoviridis* and *Corymbia hamerselyana* over High Shrubland of *Petalostylis labicheoides*, *Acacia pyrifolia* var. *pyrifolia* and *Gossypium robinsonii* on red brown clay loam on medium drainage lines and surrounding floodplains.
Triodia open hummock grassland	SP TpTm AaExAcao ApaErffAads	Hummock Grassland of *Triodia pungens* and *Triodia melvillei* with Low Open Woodland of *Acacia aptaneura*, *Eucalyptus xerothermica* and *Acacia catenulata* subsp. *occidentalis* and Open Shrubland of *Acacia pachyacra*, *Eremophila forrestii* subsp. *forrestii* and *Acacia adsurgens* on red brown clay loam or silty loam on stony plains and floodplains.

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) have been recorded within or adjacent to the Amendment Application Area.

One Priority 3 Flora species, *Rhagodia* sp. Hamersley (M. Trudgen 17794) has been identified within the Amendment Application Area (**Figure 2**). This species is located adjacent to the Amendment Application Area and is common in the broader region.

Populations of Priority flora will be avoided by a 10 m buffer where practicable.

3.4.3 Weeds

Twenty one introduced flora species (weeds) have been recorded within the Amendment Application Area (**Table 4**). These weeds are typical introduced species commonly recorded in the Pilbara region.

No Declared Pests under s22 of the *Biosecurity and Agriculture Management Act, 2007* (BAM Act) have been recorded from the Amendment Application Area.

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]
**Aerva javanica*	Kapok Bush	High and Rapid	No
**Bidens bipinnata*	Bipinnate Beggartick	Unknown and Rapid	No
**Cenchrus ciliaris*	Buffel Grass	High and Rapid	No
**Chloris barbata*	Purpletop Feathertop	High and Rapid	No
**Chloris virgata*	Feathertop Rhodes Grass	High and Rapid	No
**Citrullus amarus*	Bitter melon	Unknown and Moderate	No
**Cynodon dactylon*	Couch	High and Rapid	No
**Echinochloa colona*	Awnless Barnyard Grass	High and Rapid	No
**Erigeron bonariensis*	Flax leaf Fleabane		No
**Euphorbia hirta*	Asthma Plant	Low and Slow	No
**Flaveria trinervia*	Speedy Weed		No
**Lactuca serriola*	Prickly Lettuce		No
**Malvastrum americanum*	Spiked Malvastrum	High and Rapid	No
**Rumix vesicarius*	Ruby Dock	High and Rapid	No
**Setaria verticillata*	Whorled Pigeon Grass	High and Rapid	No
**Solanum nigrum*	Black Berry Nightshade	Low and Rapid	No
**Sonchus oleraceus*	Common Sowthistle	Low and Rapid	No
**Tridax procumbens*	Tridax	Low and Slow	No

3.4.4 Fauna Habitats and Significant Fauna

Biologic (2017) identified the following five vertebrate fauna habitats within the Amendment Application Area (Figure 3**):NVCP CPS 4831/3 Renewal Coondewanna Airport – Vertebrate Fauna Habitat**

- **Hillcrest / Hill slope:** These fauna habitats tend to be more open and structurally simple due to their recent depositional history than other fauna habitats, and are dominated by varying species of spinifex. A common feature of these habitats is a rocky substrate, often with exposed bedrock, and skeletal red soils. These are usually dominated by *Eucalyptus* woodlands, *Acacia* and *Grevillea* scrublands and *Triodia* spp. low hummock grasslands.
- **Drainage Area / Floodplain:** Characterised by *Eucalyptus xerothermica* and *Corymbia hamersleyana* woodland over broad-leafed *Acacia* shrubland on sandy loam soils sometimes with exposed rocky areas. These can have high vegetation density, complexity and diversity, and because they tend to occur on accretional or depositional areas, often have deeper and richer soils than other fauna habitats. Grasses tend to be dominated by tussock grasses rather than spinifex, or the weed Buffel Grass **Cenchrus ciliaris*.
- **Hardpan Plain:** Gently inclined alluvial plains with shallow loams. Typically covered by low scattered woodlands of Mulga in groves arranged at right angles to the direction of sheet water flow. In areas where the hardpan is close to the surface and soil depth is insufficient to support trees, an open scrub may persist.
- **Sand Plain:** Sand Plain habitat is characterised by relatively deep sandy soils supporting dense spinifex grasslands and sparse shrubs. This habitat transitions into patches of Mulga in places. This habitat often occurs as terraces along Major Drainage Lines.
- **Stony Plain:** These are erosional surfaces of gently undulating plains, ridges and associated footslopes. Mainly support hard spinifex (and occasionally soft spinifex) with a mantle of gravel and pebbles.

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

The Biologic (2017) *Consolidated Fauna Habitat Mapping BHP Billiton Iron Ore Pilbara Tenure* (**Appendix 2**) undertook a detailed review of all previous fauna surveys across BHP's Pilbara operations and the outputs from the Onshore Environmental (2014) consolidation project. This review

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

was supported by field visits where the analysis indicated that further information was required to confirm the fauna habitats.

The Project resolved the inconsistencies between previous mapping and created one consolidated regional Geographic Information System (GIS) database which:

- Serves as BHP's base line fauna habitat dataset.
- 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.

The surveys undertaken across the Amendment Application Area have not recorded any fauna species of significance from within the Amendment Application Area.

Based on the occurrence of the habitat types and significant fauna species previously recorded in the vicinity, an additional three 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):

- Ghost Bat (*Macroderma gigas*) (Vulnerable EPBC Act and BC Act);
- Pilbara Olive Python (*Liasis olivaceus barroni)* (Vulnerable EPBC Act and BC Act); and
- Western Pebble-mound Mouse (*Pseudomys chapmani*) (Priority 4 DBCA).

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
Mammals					
Ghost Bat (*Macroderma gigas*)	Vulnerable (EPBC Act) Vulnerable (BC Act)	Ghost Bats are patchily distributed across most of northern Australia, however the recent contraction in the distribution in central Australia has left the Pilbara population of ghost bats isolated by extensive sandy deserts (Worthington-Wilmer et al. 1994). They are generally associated with Gorge / Gully or drainage line habitats, requiring an undisturbed cave, deep fissure or disused mine shaft in which to roost. The Ghost Bat forages in areas of open woodland (Churchill, 2008).	While there are no caves located within the Amendment Application Area, this species has been previously recorded in the vicinity of the Amendment Application Area with suitable roost caves known from the surrounding area. It is possible that this species may forage or be transitory across the Amendment Application Area.	Possible	**Low** There are no caves within the Amendment Application an no key Ghost Bat foraging habitat. Clearing within the Amendment Application area would not impact on this species as it is only likely to be a transitory visitor across the Amendment Application Area while traveling from caves in the broader region to its foraging habitat.
Western Pebble-mound mouse (*Pseudomys chapmani*)	Priority 4 (DBCA)	The Western Pebble-mound Mouse is restricted to the Pilbara region, where it is recognized 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 Stony Plain habitat of the Amendment Application Area is suitable for this species. This species has been not been recorded within the Amendment Application Area, however it is widespread and commonly recorded adjacent to the Amendment Application Area and in the broader region.	Possible	**Low** This species has been recorded in the vicinity of the Amendment Application Area and is relatively widespread in the Pilbara. There are large areas of suitable habitat adjacent to the Amendment Application Area and the habitat within the Amendment Application Area is considered to be of low habitat value, and is considered not necessary for the continuance of this species. If identified active mounds of the Western Pebble-mound Mouse will be avoided using a 10 m buffer, where practicable.
Reptiles					
Pilbara Olive Python (*Liasis olivaceus barroni)*	Vulnerable EPBC Act Vulnerable BC Act	Pilbara Olive Python are widespread across the Pilbara, with many significant populations remaining (Pearson, 2003).The Pilbara Olive Python is found in a range of habitats, including drier areas of woodland, escarpments, rocky gorges, gullies and around watercourses (Wilson and Swan, 2010). This species is known to den/ shelter in rocky crevices or tree hollows and are often associated with areas containing watercourses. The Pilbara Olive Python uses drainage line habitat to forage and disperse throughout the landscape.	There is no suitable habitat for this species (Gorge / Gully or Major Drainage Lines) within the Amendment Application Area. It is possible that this species may forage or be transitory across the Amendment Application Area.	Possible	**Low** While this species has been recorded form the surrounding region there is no key habitat for this species within the Amendment Application Area. Clearing within the Amendment Application area would not impact on this species as it is only likely to be a transitory visitor across the Amendment Application Area.

3.5 GROUNDWATER

The Application Area is located in the Pilbara Groundwater Area proclaimed under the RIWI Act (DoW, 2009a).

There are two main aquifers within the Application Area:

Hamersley – Fractured Rock Aquifer: 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, 2015a).

Hamersley – Wittenoom Aquifer: The Wittenoom aquifer is distinguished as a separate aquifer system because the Wittenoom Dolomite is distinct from the other fractured rock aquifers in the Hamersley Basin, having karst development (solution cavities) and being overlain by a thick sequence of valley filled sediments consisting of pisolite, calcrete and alluvium. The Wittenoom Dolomite is the most important aquifer in the province and underlies the main valleys in the Hamersley Range; it is highly transmissive and high yielding where there is karst development. Water levels may be fairly deep. The groundwater is generally fresh. The aquifer has been developed for Tom Price and Marandoo water supply and has been investigated at other localities. There is likely to be significant development pressure on this aquifer for supply to iron ore operations (DoW, 2015b).

There are no public drinking water source areas within or adjacent to the Application Area.

3.6 SURFACE WATER

The Amendment Application Area is located in the Pilbara Surface Water Area, proclaimed under the RIWI Act (DoW, 2009b). There are no permanent watercourse or wetlands within or associated with the Amendment Application Area.

Two unnamed perennial drainage lines traverse the Amendment Application Area flowing to the west.

Where practicable, existing cleared tracks will be used to cross drainage lines. 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 the Amendment Application Area are managed under the company's AS/NZS ISO 14001:2016 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 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 Iron Ore operations. The Sustainable Development Policy outlines a commitment to setting objective and targets to achieve sustainable outcomes and to continually improve our performance.

To support these documents BHP has an internal Project Environmental and Aboriginal Heritage Review (PEAHR) system. The purpose of the system 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 system.

Within the Amendment Application Area all environmental management is currently governed by NVCP CPS 4831 and Environmental Licence L7851/2002/6.

All personnel carrying out works associated within the Amendment Application Area are required to comply with the Sustainable Development Policy, NVCP CPS 4831, Environmental Licence L7851/2002/6, the PEAHR system and any other 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.	One Priority flora species was recorded in the Amendment Application Area. Populations of Priority flora will be avoided by 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 five broad fauna habitat types within the Amendment Application Area (**Figure 3**).

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

No fauna species of significance have been recorded from within the Amendment Application Area with three 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.	No BC Act protected species have been recorded from the Amendment Application Area with two BC Act protected species 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: • There is no significant habitat for these species within the Amendment Application Area • All species are likely to be transient visitors to 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.	No priority fauna species have been recorded within the Amendment Application Area, with one species potentially occurring. As detailed in **Table 5** this species is 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 • If identified active mounds of the Western Pebble-mound Mouse 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.
	b7) Native vegetation should not be cleared if it provides significant habitat for fauna communities (assemblages) and meta-	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.	Not at variance with clearing principle.

Principle	Criteria	Assessment	Outcome
	populations.	The Amendment Application Area is not considered likely to contain geographically isolated fauna populations.	

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.

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.	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..	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 boundaries of CPS 4831/3 are associated with a TECs or PECs (Onshore Environmental, 2014). While the Coolibah - Lignum Flats, sub types 1 and 2 PEC's, are approximately 500m south west of the Amendment Application Area. Clearing within the Amendment Application Area will not impact on these PEC's (**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 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 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 habitat and vegetation within the Amendment Application Area is well represented in the Land Systems of the region (**Section 3.2**), and therefore it is unlikely individual species would be restricted to a particular habitat and 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 not likely to be at variance to this Principle.

There are no permanent watercourses or wetlands within or associated with the Amendment Application Area. Two number of unnamed non-perennial minor drainage line run south to north across the Amendment Application Area.

Where practicable, existing cleared tracks will be used to cross drainage lines. 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 watercourse or wetland with significant environmental values occurs within the Amendment Application Area or immediate surrounds.	Not 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).	A number of unnamed non-perennial minor drainage line run south to north across the Amendment Application Area. Where practicable, existing cleared tracks will be used to cross drainage lines. 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.	Not 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 small scale of proposed clearing, it 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.	There are no permanent watercourses or wetlands within the Amendment Application Area. Where practicable, existing cleared tracks will be used to cross drainage lines. 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.	Not 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.

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

Twenty one introduced flora species have been recorded in the Amendment Application Area (**Table 4**). These weeds are typical introduced species commonly recorded in the Pilbara region.

No Declared Pests under s22 of the *Biosecurity and Agriculture Management Act, 2007* (BAM Act) have been recorded from the Amendment Application Area.

Control of established weed populations will be carried out according to BHP's standard *Weed Control and Management Procedures.*

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 infrastructure.	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 the Karijini National Park which is located approximately 17 km to the 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 17 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.

The disturbance footprint of the Amendment Application Area does not intersect any significant watercourses. Two unnamed non-perennial minor drainage line run across the Amendment Application Area.

Appropriate surface water management practices will be implemented to minimise erosion and minimise potential impacts on the quality of surface water. The clearing is unlikely to cause deterioration in the quality of any surface or underground water.

Where practicable, existing cleared tracks will be used to cross drainage lines. 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 groundwater within the Amendment Application Area due to the small amount of clearing within the Amendment Application Area and lack of permanent waterbodies in the vicinity.	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 no permanent waterbodies present within the vicinity of the Amendment Application Area.	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 Cultural Heritage Act 2022*, 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 Amendment Application Area is situated within the Banjima Native Title Claim (WC 11/6). No heritage sites have been identified within the Amendment Application Area. In the event that a heritage site is identified which cannot be practicably be avoided, BHP would consult the relevant traditional owners and seek approval under the *Aboriginal Cultural Heritage Act 2022* 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 4831/3 authorises the clearing of up to 38 ha. To date BHP has cleared 25.7 ha and the clearing of the remaining 12.3 ha within an Amendment Application Area of 371.1 ha is unlikely to have any significant negative impacts on biodiversity and environmental values in the area.

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Figures

684000 686000 688000 690000 692000

7462000

7460000

7458000

Legend

- Proposed Boundary of CPS 4831/4
- Coondewanna Flats PEC

Great Northern Highway

Mining Area C

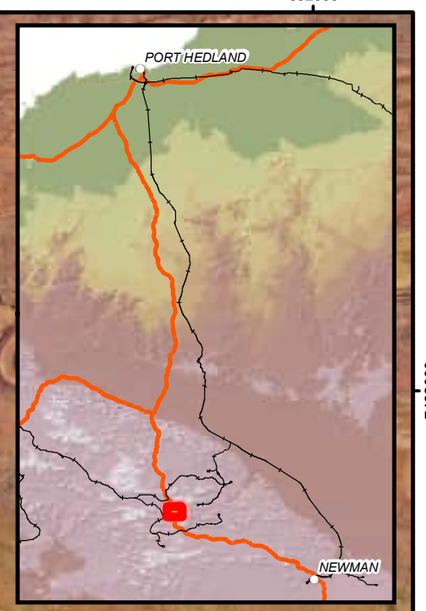
Mulla Mulla Village

MAC Warehouse

Coondewanna Airport

Coondewanna Flats PEC

South Flank



0 0.5 1 1.5 2
Kilometers

BHP

ENVIRONMENTAL APPROVALS

N

NVCP CPS 4831/3 RENEWAL
COONDEWANNA AIRPORT
REGIONAL OVERVIEW

SCALE (A3): 1:24,000	DATUM: GDA94/MGA 50	FIGURE 1
Prepared: Chris Hopkins	Revision: FINAL	
Centre: Perth	Date: 31 January 2023	Dwg: MAC_002NVCP_001_RevA_0

Document Path: G:\AssetDev\Env A&I\01 Approvals\05 MAC SF Hub\02 NVCP\002 CPS 4831_3 Airport Renewal\05 Spatial\MAC_002NVCP_001_RevA_0.mxd

684000 685000 686000 687000

7460000

7459000

Legend

Proposed Boundary of CPS 4831/4

Significant Flora Location

Rhagodia sp. Hamersley (M. Trudgen 17794) (Priority 3)

Vegetation Association Mapping

- Acacia Low Open Woodland (FP AaAcaoAp ErlnSolPto ArcErdiArj)
- Acacia Low Woodland (HS AaApr ErjpAmarCocf TwTp)
- Triodia Hummock Grassland (HS TsTwTp EllCh AhiAaa)
- Triodia Hummock Grassland (ME TpTlo ExAciCh PlApypGoro)
- Triodia Open Hummock Grassland (SP TpTm AaExAcao ApaErffAads)
- Cleared

0 0.25 0.5 0.75 1
Kilometers

N

BHP

ENVIRONMENTAL APPROVALS

NVCP CPS 4831/3 RENEWAL COONDEWANNA AIRPORT

VEGETATION ASSOCIATIONS AND SIGNIFICANT FLORA

SCALE (A3): 1:10,000	DATUM: GDA94/MGA 50	FIGURE 2
Prepared: Chris Hopkins	Revision: FINAL	
Centre: Perth	Date: 31 January 2023	Dwg: MAC_002NVCP_002_RevA_0

Document Path: G:\AssetDev\Env A&I\01 Approvals\05 MAC SF Hub\02 NVCP\002 CPS 4831_3 Airport Renewal\05 Spatial\MAC_002NVCP_002_RevA_0.mxd

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7460000

7459000

Legend

Proposed Boundary of CPS 4831/4

Vertebrate Fauna Habitat Mapping

- Drainage Area/ Floodplain
- Hardpan Plain
- Hillcrest/ Hillslope
- Sand Plain
- Stony Plain
- Cleared

0 0.25 0.5 0.75 1

Kilometers

BHP

ENVIRONMENTAL APPROVALS

N

NVCP CPS 4831/3 RENEWAL
COONDEWANNA AIRPORT
VERTEBRATE FAUNA HABITATS

SCALE (A3): 1:10,000	DATUM: GDA94/MGA 50	FIGURE 3
Prepared: Chris Hopkins	Revision: FINAL	
Centre: Perth	Date: 31 January 2023	Dwg: MAC_002NVCP_003_RevA_0

Document Path: G:\AssetDev\Env A&I\01 Approvals\05 MAC SF Hub\02 NVCP\002 CPS 4831_3 Airport Renewal\05 Spatial\MAC_002NVCP_003_RevA_0.mxd

Appendices

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

Appendix 2: *Consolidated Fauna Habitat Mapping 2017* (Biologic, 2017)