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A large, rusted metal gear or structure is the central focus of the image. It is set against a clear blue sky and a reddish-brown desert landscape. The gear has a complex, multi-toothed design and is surrounded by a network of metal beams and scaffolding. The lighting is warm, suggesting a sunset or sunrise, which casts long shadows and highlights the textures of the metal and the surrounding environment.

Application for a NVCP: Newman Shopping Centre Powerline

Native Vegetation Clearing Permit Application Supporting Document

December 2015

Table of Contents

1	INTRODUCTION.....	1
1.1	LOCATION.....	1
1.2	TENURE.....	1
1.3	LOCAL GOVERNMENT JURISDICTION	1
1.4	PROPONENT	1
1.5	PROJECT DESCRIPTION.....	2
1.6	PERMIT DATES.....	2
1.7	PROJECT CHARACTERISTICS AND COMMITMENTS	2
2	ASSOCIATED APPROVALS	3
3	EXISTING ENVIRONMENT.....	3
3.1	CLIMATE.....	3
3.2	BIOREGION, LANDFORMS AND LAND SYSTEMS	3
3.3	SOILS.....	3
3.4	FLORA, VEGETATION AND FAUNA.....	4
	3.4.1 Flora.....	4
	3.4.2 Weeds.....	4
	3.4.3 Vegetation Communities.....	4
	3.4.4 Fauna.....	5
3.5	GROUNDWATER	7
3.6	SURFACE WATER.....	7
4	ENVIRONMENTAL MANAGEMENT	8
5	PROJECT COMPLIANCE WITH THE TEN CLEARING PRINCIPLES	8
6	ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES	9
6.1	PRINCIPLE A.....	9
6.2	PRINCIPLE B.....	11
6.3	PRINCIPLE C.....	13
6.4	PRINCIPLE D.....	15
6.5	PRINCIPLE E.....	17
6.6	PRINCIPLE F	19
6.7	PRINCIPLE G	21
	6.7.1 Erosion.....	21
	6.7.2 Changes to pH.....	21
	6.7.3 Water logging and salinisation.....	21
	6.7.4 Weeds.....	21
6.8	PRINCIPLE H.....	23
6.9	PRINCIPLE I	25
6.10	PRINCIPLE J	27
7	HERITAGE.....	29
8	CONCLUSION	29
9	REFERENCES.....	30

Tables

Table 1: Project Characteristics and Commitments.....	2
Table 2: Extent of pre-European and current vegetation in the Gascoyne bioregion and vegetation associations represented in the Application Area (Government of Western Australia, 2013).....	4
Table 3: Vegetation associations of the Application Area (Onshore Environmental, 2015).....	5
Table 4: Conservation Significant Fauna Potentially Occurring within the Application Area (Onshore Environmental, 2015).....	6
Table 5: Assessment against Principle A components.....	10
Table 6: Assessment against Principle B components.....	12
Table 7: Assessment against Principle C components.....	14
Table 8: Assessment against Principle D components.....	16
Table 9: Assessment against Principle E components.....	18
Table 10: Assessment against Principle F components.....	20
Table 11: Assessment against Principle G components.....	22
Table 12: Assessment against Principle H components.....	24
Table 13: Assessment against Principle I components.....	26
Table 14: Assessment against Principle J components.....	28

Figures

Figure 1: Newman Shopping Centre Powerline Regional Overview.....	32
Figure 2: Newman Shopping Centre Powerline Vegetation Associations and Significant Flora.....	33
Figure 3: Newman Shopping Centre Powerline Fauna Habitats and Significant fauna.....	34

Appendices

Appendix 1: Letter of Consent to access Lot 348 on Deposited Plan 71871 and Lot 301 on Deposited Plan 47460, Newman.
Appendix 2: Public Road (Newman Drive) PIN 11435336.
Appendix 3: Newman Shopping Centre Powerline Extension Level 1 Flora, Vegetation and Vertebrate Fauna Survey (Onshore Environmental, 2015)

1 INTRODUCTION

BHP Billiton Iron Ore Pty Ltd (BHP Billiton Iron Ore) 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 Joint Venture (NJV) hub located approximately two kilometres (km) west of Newman Township and consists of Mount Whaleback, and Orebodies 29, 30 and 35;
- Mining Area C located approximately 90 km north west of Newman Township;
- Orebodies 18 and Wheelarra Hill (Jimblebar) Mine located approximately 35 km east of Newman Township;
- Orebodies 23, 24, 25 and 32; located approximately 5 km east of Newman Township;
- Yandi Mine located approximately 100 km north west of Newman Township; and
- Goldsworthy Mining Operations located approximately 180 km west of Port Hedland Township.

Ore from the NJV hub, Mining Area C, Orebodies 18, 23, 24 and 25, Wheelarra Hill (Jimblebar) and Yandi mining operations is transported to Port Hedland via the BHP Billiton Iron Ore Newman to Port Hedland Mainline (and associated spur lines). Ore is then shipped out through Port Hedland at the BHP Billiton Iron Ore facilities at Nelson Point and Finucane Island.

BHP Billiton Iron Ore has identified the need to install a new underground powerline from the Newman South Substation to Newman Drive to supply power to the new shopping centre development (**Figure 1**). In accordance with Part V Division 2 of the *Environmental Protection (EP) Act 1986*, BHP Billiton Iron Ore hereby refers this proposed Native Vegetation Clearing Permit (NVCP) for construction and maintenance of pipelines and all associated activities to the Department of Environment Regulation (DER).

This supporting document for an application for a NVCP describes the proposal to clear up to 10 hectares (ha) within an Application Area of 16.7 ha (**Figure 1**). The proponent for this NVCP application is “BHP Billiton Iron Ore Pty Ltd”.

The following information is provided in this document to support this NVCP application:

- a description of the works to be carried out;
- other associated approvals required;
- information on flora and fauna;
- an assessment against the ten clearing principles; and
- management strategies for indigenous heritage.

1.1 LOCATION

The Application Area is located on the western edge of Newman in the Pilbara region of Western Australia (**Figure 1**).

1.2 TENURE

The Application Area is located on:

- Lot 348 on Deposited Plan 71871 and Lot 301 on Deposited Plan 47460, Newman, which is held by the Department of Lands; and
- Public Road (Newman Drive) PIN 11435336, which is held by the Shire of East Pilbara.

BHP Billiton Iron Ore holds letters of consent to undertake the proposed works on these properties (**Appendix 1 and Appendix 2** respectively).

1.3 LOCAL GOVERNMENT JURISDICTION

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

1.4 PROPONENT

This application has been submitted by BHP Billiton Iron Ore on behalf of the owners being the Mount Newman Joint Venture. The Joint Ventures and their interests are:

- | | |
|---|-----|
| • BHP Billiton Minerals Pty Ltd | 85% |
| • Mitsui – Itochu Iron Pty Ltd | 10% |
| • Itochu Minerals and Energy of Australia Pty Ltd | 5% |

1.5 PROJECT DESCRIPTION

The proposed works will involve the construction and maintenance of above and below ground powerlines and associated activities.

1.6 PERMIT DATES

In order to align BHP Billiton Iron Ore's NVCPs across the business, BHP Billiton Iron Ore requests that:

- the Clearing Permit Annual Report is required to be submitted to the DER by the 01 October each year for the previous financial year;
- the date on which clearing can no longer be undertaken is the 30 November 2021;
- the Clearing Permit Final Report is required to be submitted to the DMP by the 30 November 2026; and
- the NVCP expiry date is the 30 November 2026.

1.7 PROJECT CHARACTERISTICS AND COMMITMENTS

BHP Billiton Iron Ore commits to undertake the proposed works in accordance with the details set out in **Table 1**.

Table 1: Project Characteristics and Commitments

Permit Characteristics			
Authorising Agency	DER.		
Permit Title:	Newman Shopping Centre Powerline.		
Area to be cleared:	10 hectares.		
Application Area:	16.7 hectares.		
Purpose of the permit:	Clearing for the purpose of construction and maintenance of above and below ground powerlines and associated activities.		
Tenure:	Lot 348 on Deposited Plan 71871, Newman; Lot 301 on Deposited Plan 47460, Newman; Newman Drive: Public Road PIN 1108384.		
Clearing Duration:	Until 30 November 2021.		
Permit Duration:	Until 30 November 2026.		
Proposed Annual Reporting Date:	01 October for the previous Financial Year.		
Proposed Final Reporting Date:	30 November 2026.		
Application Boundary:	Map Reference: <ul style="list-style-type: none"> • Figure 1: STPWR_005NVCP_001_RevC_0 • Figure 1: STPWR_005NVCP_002_RevC_0 • Figure 1: STPWR_005NVCP_003_RevC_0 BHP Billiton Iron Ore Shapefile 1 Doc Reference: http://io1doc/webtop/drl/objectId/0903c41a8253bc72		
Application Commitments		Project phase to which the Commitment Applies	Section
Control of established weed populations will be carried out according to the BHP Billiton Iron Ore Weed Control and Management Procedure.		All Phases	6.7.4

2 ASSOCIATED APPROVALS

Any other additional approvals will be sought as required.

3 EXISTING ENVIRONMENT

3.1 CLIMATE

The Application Area is 15 km east of Newman within the Pilbara region of Western Australia. Newman has an arid climate with very hot temperatures from November to February, and milder conditions in winter (Commonwealth of Australia, 2009). Rainfall is low and variable, with most rain falling between December and March, associated with tropical cyclones (Commonwealth of Australia, 2009). Average annual evaporation of approximately 2,500 millimetres (mm) exceeds average annual rainfall (Commonwealth of Australia, 2009).

Newman Aero meteorological site (007176) is the closest Bureau of Meteorology (BoM) station to the Application Area. Average annual rainfall at Newman Aero is 323.6 mm (BOM, 2015a). This is mainly derived from tropical storms and cyclones during summer, producing sporadic, heavy rains over the area. Mean monthly rainfall varies from 4.2 mm in September to 73.7 mm in February (BoM, 2015a). Daily rainfall is highly variable; the highest maximum daily rainfall ranges from 19.8 mm in October, to 214 mm in December (BoM, 2015a). The mean maximum temperature in summer months (October to March) is 34.9°C to 39.2°C, and mean maximum temperature in winter (April to September) is between 22.9°C and 31.7°C (BoM, 2015a).

Wittenoom meteorological site (005026) is the closest station to Newman that records daily evaporation. Wittenoom is located approximately 190 km northwest of Newman. Mean daily evaporation at Wittenoom throughout the year is 8.6 mm/day (BOM, 2015b), 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, 2015b).

3.2 BIOREGION, LANDFORMS AND LAND SYSTEMS

The proposed Application Area is located in the Hamersley subregion of the Pilbara bioregion:

The Hamersley subregion is described as:

“the Southern section of the Pilbara Craton. 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 300mm 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” (Kendrick, 2001).

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

- Newman “Rugged high mountains, ridges and plateaux with near vertical escarpments of jaspilite, chert and shale, the second largest system in the survey area and prominent in southern parts (e.g. Ophthalmia Range, Hamersley Range), relief up to 450 m.”
- Elimunna “Level to gently undulating stony plains, gilgai plains and drainage tracts derived from basalt, relief up to 15 m.”

3.3 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 unit occurs within the 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 and Dr2.32) soils on the limited areas of dissected pediments, while (Um5.52) and (Uf6.71) soils occur on the valley plains.”

3.4 FLORA, VEGETATION AND FAUNA

The most recent vegetation, flora and fauna survey conducted across the Application Area is the *Newman Shopping Centre Powerline Extension Level 1 Flora, Vegetation and Vertebrate Fauna Survey* (Onshore Environmental, 2015) (**Appendix 3**).

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

82 Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*.

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

Table 2: Extent of pre-European and current vegetation in the Gascoyne bioregion and vegetation associations represented in the Application Area (Government of Western Australia, 2013)

	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	6.36
Vegetation association 82 within Western Australia	2,565,901	2,553,217	99.51	10.25
Vegetation association 82 within the Pilbara	5,563,583	2,550,899	99.51	10.26

3.4.1 Flora

No species listed under the *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act), gazetted as Threatened Flora species under the *Wildlife Conservation Act, 1950* (WC Act) or listed as Priority Flora by the Department of Parks and Wildlife (DPaW) were identified within the Application Area (Onshore Environmental, 2015).

3.4.2 Weeds

Seven introduced flora species (weeds) were recorded within the Application Area: **Acetosa vesicaria*, **Aerva javanica* (Kapok Bush), **Coryza bonariensis* (Flaxleaf Fleabane), **Cenchrus ciliaris* (Buffel Grass), **Cenchrus setiger* (Birdwood Grass), **Flaveria trinervia* (Speedy Weed) and **Lactuca serriola* (Prickly Lettuce). Two weed species with a high rating under the Environmental Weed Strategy for Western Australia (CALM, 1999) were recorded within the Application Area: **Acetosa vesicaria* and Buffel Grass (Onshore Environmental, 2015). None of these taxa are listed as a Declared Pest under the *Biosecurity and Agriculture Management Act, 2007*.

3.4.3 Vegetation Communities

Onshore Environmental (2015) mapped a total of two broad floristic communities with four vegetation associations within the Application Area (**Table 3; Figure 2**). None of these vegetation associations are representative of a Threatened Ecological Community (TEC) or Priority Ecological Community (PEC) (Onshore Environmental, 2015). Vegetation condition within the Application Area ranges from Very Good to Completely Degraded (Onshore Environmental, 2015). Vegetation adjacent to the Application Area is in similar condition to the vegetation of the Application Area.

The buffer of one TEC (Ethel Gorge Aquifer Stygobiont community') listed by the DEC (not listed under the EPBC Act) overlaps the Application Area. The proposed project will not impact on groundwater of the region and hence will not impact upon this TEC.

Table 3: Vegetation associations of the Application Area (Onshore Environmental, 2015)

Broad Floristic Community	Vegetation Association	
<i>Triodia</i> Hummock Grassland	1a	Hummock Grassland of <i>Triodia wiseana</i> , <i>Triodia pungens</i> and <i>Triodia angusta</i> with Low Open Woodland of <i>Acacia pruinocarpa</i> , <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> and <i>Acacia aptaneura</i> and High Open Shrubland of <i>Acacia tetragonophylla</i> , <i>Acacia kempeana</i> and <i>Acacia synchronicia</i> on footslopes.
	1b	Hummock Grassland of <i>Triodia wiseana</i> , <i>Triodia angusta</i> and <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835) with Scattered Low Trees of <i>Eucalyptus leucophloia</i> subsp. <i>leucophloia</i> and Scattered Low Shrubs of <i>Lepidium pedicellosum</i> .
<i>Triodia</i> Open Hummock Grassland	2a	Open Hummock Grassland of <i>Triodia</i> sp. Shovelanna Hill (S. van Leeuwen 3835), <i>Triodia wiseana</i> and <i>Triodia pungens</i> over Open Tussock Grassland of * <i>Cenchrus ciliaris</i> , <i>Paraneurachne muelleri</i> and <i>Aristida holathera</i> var. <i>holathera</i> with High Open Shrubland of <i>Acacia bivenosa</i> , <i>Acacia ancistrocarpa</i> and <i>Acacia synchronicia</i> on footslopes.
	2b	Open Hummock Grassland of <i>Triodia wiseana</i> and <i>Triodia angusta</i> with Low Open Shrubland of <i>Ptilotus auricifolius</i> , <i>Corchorus lasiocarpus</i> subsp. <i>lasiocarpus</i> and <i>Ptilotus nobilis</i> and Scattered Tall Shrubs of <i>Acacia inaequiglumis</i> and <i>Acacia pachyacra</i> on scree slopes.

3.4.4 Fauna

Onshore Environmental (2015) identified one fauna habitat types occur within the Application Area (**Figure 3**): lower Crest / Slope habitat, which is in poor condition due to the proximity to the urbanised areas of the town of Newman and historic clearing.

Onshore Environmental (2015) recorded one fauna species of conservation significance within the Application Area (**Figure 3**):

- Rainbow Bee-eater (*Merops ornatus*) (Migratory, EPBC Act; Schedule 3, WC Act).

Based on the occurrence of the habitat types and conservation significant fauna species previously recorded in the vicinity, an additional one other species is considered to possibly occur within the Application Area:

- Western Pebble-mound Mouse (*Pseudomys chapmani*) (Priority 4, DPaW).

An assessment of the potential impact of the proposed clearing on the species of conservation significant fauna that may occur in the Application Area is provided in **Table 4**.

Table 4: Conservation Significant Fauna Potentially Occurring within the Application Area (Onshore Environmental, 2015)

Conservation Significant Species	Conservation Status	Distribution and Ecology	Habitat Relevance	Likelihood	Potential Impact on Species
Birds					
Rainbow Bee-eater (<i>Merops ornatus</i>)	Migratory (EPBC Act) Schedule 3 (WC Act)	The Rainbow Bee-eater is a common and widespread species in Western Australia, except in the drier interior of the State and the far south-west. It occurs in lightly wooded, often sandy country, preferring areas near water. The Rainbow Bee-eater feeds on airborne insects, and nests throughout its range in burrows excavated in sandy ground or banks, often at the margins of roads and tracks (Johnstone and Storr, 1998).	The Rainbow Bee-eater is a common and widespread species. It has been recorded at one location within the Application Area (Figure 3) (Onshore Environmental, 2015) and is known from multiple records in the the broader region. This species is likely to forage within the Application Area.	Recorded	Low As this species is common and widespread the potential impact on this species is low. This species is likely to forage within the Application Area. The Rainbow Bee-eater is not likely to be reliant on habitat within the Application Area as suitable habitat in the same or better condition is widespread in the Application Area surrounds.
Mammals					
Western Pebble-mound Mouse (<i>Pseudomys chapmani</i>)	Priority 4 (DPaW)	The Western Pebble-mound Mouse is restricted to the Pilbara, 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).	While the lower Crest / Slope habitat of the Application Area (Figure 3) is highly disturbed and in proximity to Newman the area could be utilised by this species as there are numerous records of this species within the broader region.	Possible	Low While the lower Hill Crest / Slope habitat of the Application Area may be utilised by the Western Pebble-mound Mouse, the proposed area for clearing is small in a regional context, the habitat is highly degraded and there are large areas of suitable habitat for this species in the broader region.

3.5 GROUNDWATER

Newman is located in the Pilbara Groundwater Area, proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act) (DoW, 2009a). Aquifers in the Mt Whaleback / Newman area are comprised of mineralised Joffre and Dales Gorge (orebodies) and fractured bedrock (Johnson and Wright, 2001). Dewatering of orebodies is undertaken to facilitate mining. Groundwater levels outside the mine area are largely unaffected by dewatering (Johnson and Wright, 2001). Groundwater is fresh to brackish (total dissolved solids 420 – 2800 mg/L) (Johnson and Wright, 2001).

Newman is also located in the Newman Water Reserve, a Public Drinking Water Source Area (DoW, 2009b). The Newman Water Reserve was established to protect the Newman town water supply, which is sourced from bores drilled into in-filled paleovalleys to the northeast and west of the town (DoW, 2009b). The Newman Water Reserve protects catchments that recharge the superficial aquifer from which the bores draw their supply (DoW, 2009b). Mining and extractive industries are compatible land uses in a Public Drinking Water Source Area (DoW, 2009b).

Depth to groundwater is approximately 100 m.

3.6 SURFACE WATER

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

There are no surface water features within, or adjacent to, the Application Area, with any surface water run-off moving in a generally easterly direction.

4 ENVIRONMENTAL MANAGEMENT

The management of the environmental aspects of BHP Billiton Iron Ore's operations at the 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 Billiton Iron Ore sites.

Additionally, operational controls for environmental management for the Application Area are guided by BHP Billiton'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 Group Level Documents have been developed.

BHP Billiton Iron Ore 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.

To support these documents BHP Billiton Iron Ore has an internal Project Environmental and Aboriginal Heritage Review (PEAHR) Procedure. The PEAHR will be used to manage any potential environmental impacts of the proposal. 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 Billiton Iron Ore's Sustainable Development Policy, industry standards, and codes of practice.

All personnel carrying out works associated with clearing activities are required to comply with BHP Billiton Iron Ore's Charter Values; GLDs; BHP Billiton Iron Ore's PEAHR; and relevant legislative and licensing requirements.

5 PROJECT COMPLIANCE WITH THE TEN CLEARING PRINCIPLES

BHP Billiton Iron Ore consider that the clearing within the 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 project against the Ten Clearing Principles has been based on the findings of the *Newman Shopping Centre Powerline Extension Level 1 Flora, Vegetation and Vertebrate Fauna Survey* (Onshore Environmental, 2015).

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 vegetation to the Application Area in a similar condition is located outside the Application Area. These other areas of similar vegetation type are therefore expected to have a similar or better biological diversity and conservation value than that of the Application Area.

No DPaW Priority listed flora was recorded within the Application Area (Onshore Environmental, 2015).

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

Table 5 provides an assessment of the proposed clearing activities within the Application Area against the components of clearing Principle A.

Table 5: 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 Application Area is represented in the same or better 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 Application Area is in the same or worse 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 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 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 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 <i>in situ</i> existence of significant habitat for priority flora species published by the Department of Environment and Conservation.	No DPaW Priority listed flora was recorded within the Application Area (Onshore Environmental, 2015).	Unlikely to be 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.

The vegetation and habitat found within the Application Area are considered to be well represented and in better in the Pilbara bioregion. One fauna species of conservation significance was recorded from within the Application Area (**Figure 3**) Rainbow Bee-eater (*Merops ornatus*) (EPBC Act Migratory; WC Act Schedule 3).

Based on the occurrence of the habitat types and conservation significant fauna species previously recorded in the vicinity, an additional species (Western Pebble-mound Mouse [*Pseudomys chapmani*] [Priority 4, DPaW]) has the possibility of occurring within the Application Area.

As described in **Section 3.4.4**, clearing of the Application Area is expected to have a low impact on these species as they are considered widespread throughout the region, and not reliant on the habitat within the Application Area with similar habitat in better condition located in the Application Area surrounds.

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

Table 6: 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 WC Act.	One WC Act protected species has been recorded within the Application Area: Rainbow Bee-eater (Onshore Environment, 2015). This species is unlikely to be significantly impacted by this proposal as: <ul style="list-style-type: none"> • it is wide-ranging and found throughout the broader region; • it is likely to be transitory within the Application Area and will be able to move away from disturbance; • the habitat of the Application Area is highly disturbed and in close proximity to the Town of Newman; and • similar habitat in better condition is found in the broader region. Based on the above the impact to the Rainbow Bee-eater within the Application Area occur will be low (Table 4).	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 Application Area (Onshore Environmental, 2015). One priority fauna species, the Western Pebble-mound Mouse, may utilise the habitat in the Application Area (Onshore Environmental, 2015). Clearing is unlikely to have a significant impact on this species as the habitat of the Application Area is highly disturbed and large areas of similar habitat in better condition occur in the broader region.	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 Application Area may be suitable for use by conservation significant fauna, however similar habitat in the same or better condition is widespread in the 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 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 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 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-populations.	The Application Area is not considered to contain significant habitat for faunal assemblages that are not also present in other areas within the vicinity. The 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 Flora under the WC Act were recorded in the Application Area (Onshore Environmental, 2015).

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

Table 7: 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 <i>in situ</i> existence of populations of Declared Rare Flora under the <i>WC Act 1950</i> .	No Threatened flora species were recorded in the Application Area (Onshore Environmental, 2015).	Not at variance with clearing principle.
	c2) Native vegetation should not be cleared if it is necessary for the continued <i>in situ</i> existence of other significant flora.	No species listed under the EPBC Act or other significant flora species were recorded in the Application Area (Onshore Environmental, 2015).	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.

No TECs, Environmentally Sensitive Areas or PECs are located in the Application Area (Onshore Environmental, 2015).

The buffer of one TEC (Ethel Gorge Aquifer Stygobiont community') listed by the DEC (not listed under the EPBC Act) overlaps the Application Area. The proposed project will not impact on groundwater of the region and hence will not impact upon this TEC.

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

Table 8: 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 <i>Environment Protection and Biodiversity Conservation Act 1999</i> are present.	No EPBC Act TECs are present in the 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 <i>Environment Protection and Biodiversity Conservation Act 1999</i> .	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 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 DPaW 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 <i>in situ</i> existence of significant examples of priority threatened ecological communities published by the Department of Environment and Conservation.	No DPaW 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 habitat and vegetation within the Application Area is well represented in the Bioregion (**Table 2**), and therefore it is unlikely individual species would be restricted to a particular habitat and vegetation occurring in the Application Area.

Table 9 provides an assessment of the proposed clearing activities within the Application Area against the components of clearing Principle E.

Table 9: 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 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 Application Area will not significantly reduce the known extent of the ecological community from pre-European extents. The current extent of this vegetation community in the bioregion is 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 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 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 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 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 no surface water features within the Application Area:

An assessment of the proposed clearing activities within the Application Area against the components of clearing Principle F is provided in **Table 10**.

Table 10: 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.	There are no wetlands located within or adjacent to the Application Area.	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).	There are no wetlands located within or adjacent to the Application Area.	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 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.	There are no wetlands located within or adjacent to the Application Area.	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 11** provides an assessment of the proposed clearing activities within the Application Area against the components of clearing Principle G.

Given the relatively small amount of clearing required for the proposed works, the proposed management strategies for weed species within the 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

Due to the small amount of clearing it is not anticipated that the removal of vegetation will contribute to increased amounts of wind or water erosion in the Application Area or adjacent areas. Any areas cleared that are no longer required will be re-vegetated, where practicable.

6.7.2 Changes to pH

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

6.7.3 Water logging and salinisation

The plants of the Application Area would not have a significantly high uptake of groundwater and therefore there is not expected to be a significant reduction in groundwater uptake due to the proposed clearing. Due to the small amount of clearing no water logging or increased salinisation is expected to occur as a result of the proposed clearing.

6.7.4 Weeds

Seven introduced flora species (weeds) were recorded within the Application Area: **Acetosa vesicaria*, **Aerva javanica* (Kapok Bush), **Conyza bonariensis* (Flaxleaf Fleabane), **Cenchrus ciliaris* (Buffel Grass), **Cenchrus setiger* (Birdwood Grass), **Flaveria trinervia* (Speedy Weed) and **Lactuca serriola* (Prickly Lettuce).

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

Table 11: 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 that are no longer required will be re-vegetated, where practicable.	Not at variance with clearing principle.
	g2) Native vegetation on land with soils with high or low pH should not be cleared.	The 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 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 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 Application Area is not within any conservation areas as listed by the DPaW or those protected under the EPBC Act. The closest conservation areas are Collier Range National Park (120 km south) and Karijini National Park (120 km north-east) of the Application Area.

The Application Area is not considered to form an ecological linkage to any conservation area.

An assessment of the proposed clearing activities within the Application Area against the components of clearing Principle H is provided in **Table 12** below.

Table 12: 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.	There are no conservation areas within the vicinity of the Application 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 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 100 km away.	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 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.

Newman is located in the:

- Pilbara Groundwater Area, proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act) (DoW, 2009a).
- Newman Water Reserve, a Public Drinking Water Source Area (DoW, 2009b).
- Pilbara Surface Water Area, proclaimed under the RIWI Act (DoW, 2009c).

Depth to groundwater is approximately 100 m and the small amount of clearing is unlikely to cause deterioration in the quality of any underground water.

There are no surface water features within, or adjacent to, the Application Area, with any surface water run-off moving in a generally easterly direction. Appropriate surface water management practices will be implemented to minimise erosion and minimise potential impacts on the quality of surface water. The small amount of clearing is unlikely to cause deterioration in the quality of any surface water.

Table 13 provides an assessment of the proposed clearing activities within the Application Area against the components of clearing Principle I.

Table 13: 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 Application Area due to the small amount of clearing within the 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.	The proposed clearing will not cause local erosion.	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 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 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. However, the incidence or intensity of flooding is not likely to be significantly influenced by the proposed small amount of 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.

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

Table 14: 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 Billiton Iron Ore that manages Aboriginal heritage matters. The Land Access Unit is responsible for ensuring that BHP Billiton Iron Ore 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 PEHR. The PEHR process ensures that all heritage sites in the vicinity of the Application Area are identified and avoided where practicable.

The Proposal is situated within the Nyiyaparli Native Title Claim (WC05/6). Ethnographic and archaeological surveys of the Application Area have been conducted in consultation with the Nyiyaparli people. No heritage sites have been identified within the Application Area.

If any heritage site cannot practicably be avoided, BHP Billiton Iron Ore would consult the relevant traditional owners and seek approval under the *Aboriginal Heritage Act, 1972* before the site is disturbed.

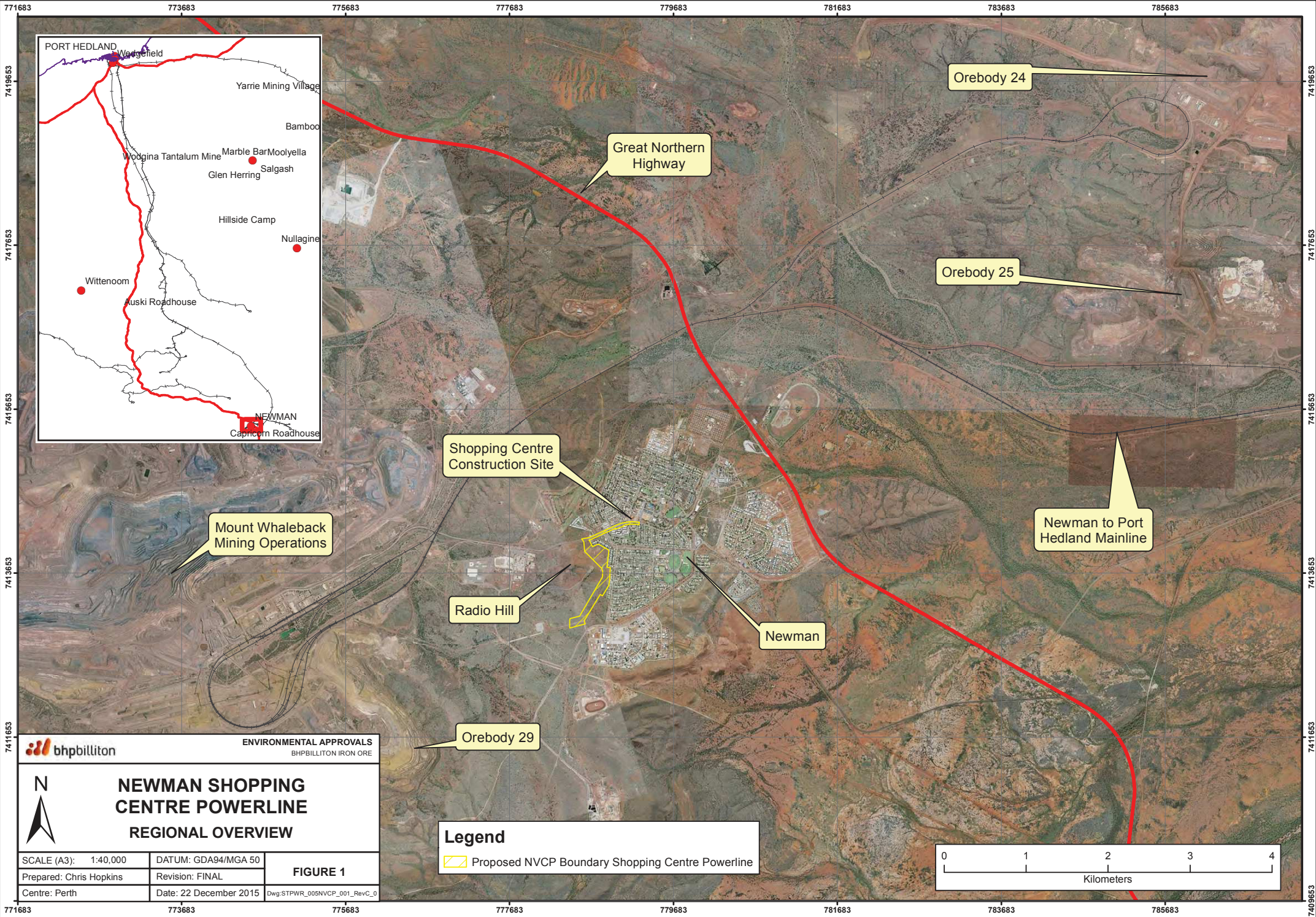
8 CONCLUSION

The proposed clearing within the Application Area is unlikely to be at variance to any of the Ten Clearing Principles. The proposal to clearing up to 10 ha within a boundary of 16.7 ha is unlikely to have any significant negative impacts on biodiversity and environmental values in the area.

9 REFERENCES

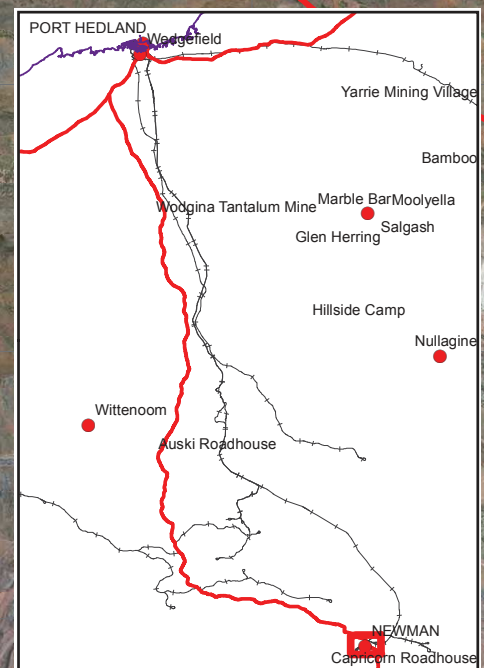
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Figures



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Great Northern Highway

Orebody 25

Mount Whaleback Mining Operations

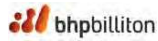
Shopping Centre Construction Site

Newman to Port Hedland Mainline

Radio Hill

Newman

Orebody 29



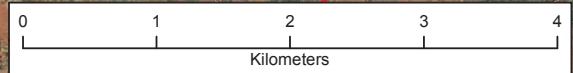
ENVIRONMENTAL APPROVALS
BHPBILLITON IRON ORE



NEWMAN SHOPPING CENTRE POWERLINE REGIONAL OVERVIEW

Legend

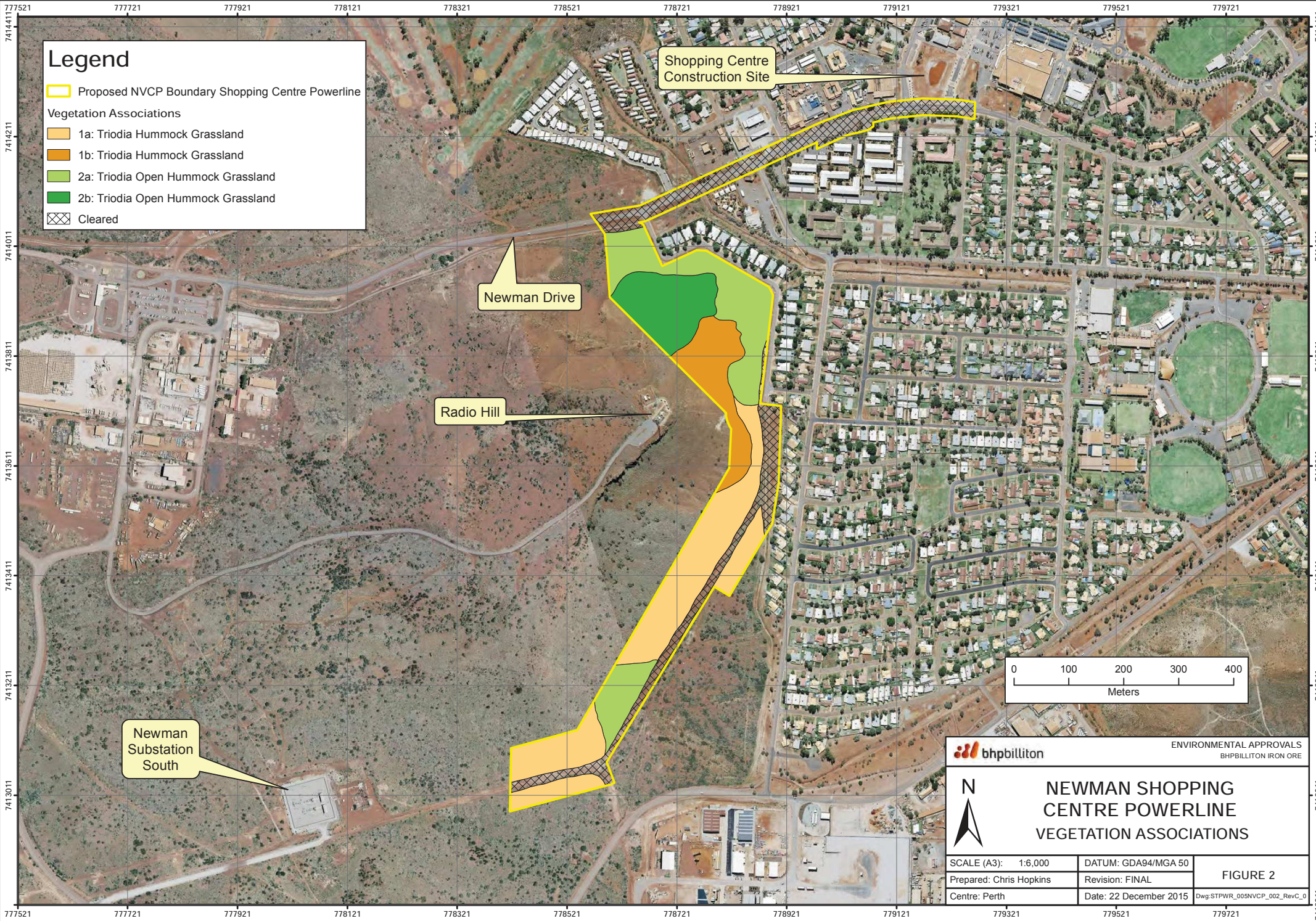
Proposed NVCP Boundary Shopping Centre Powerline



SCALE (A3): 1:40,000	DATUM: GDA94/MGA 50	FIGURE 1
Prepared: Chris Hopkins	Revision: FINAL	
Centre: Perth	Date: 22 December 2015	

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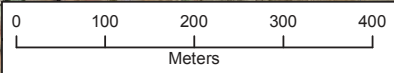
- Proposed NVCP Boundary Shopping Centre Powerline
- Vegetation Associations**
- 1a: Triodia Hummock Grassland
- 1b: Triodia Hummock Grassland
- 2a: Triodia Open Hummock Grassland
- 2b: Triodia Open Hummock Grassland
- Cleared

Newman Drive

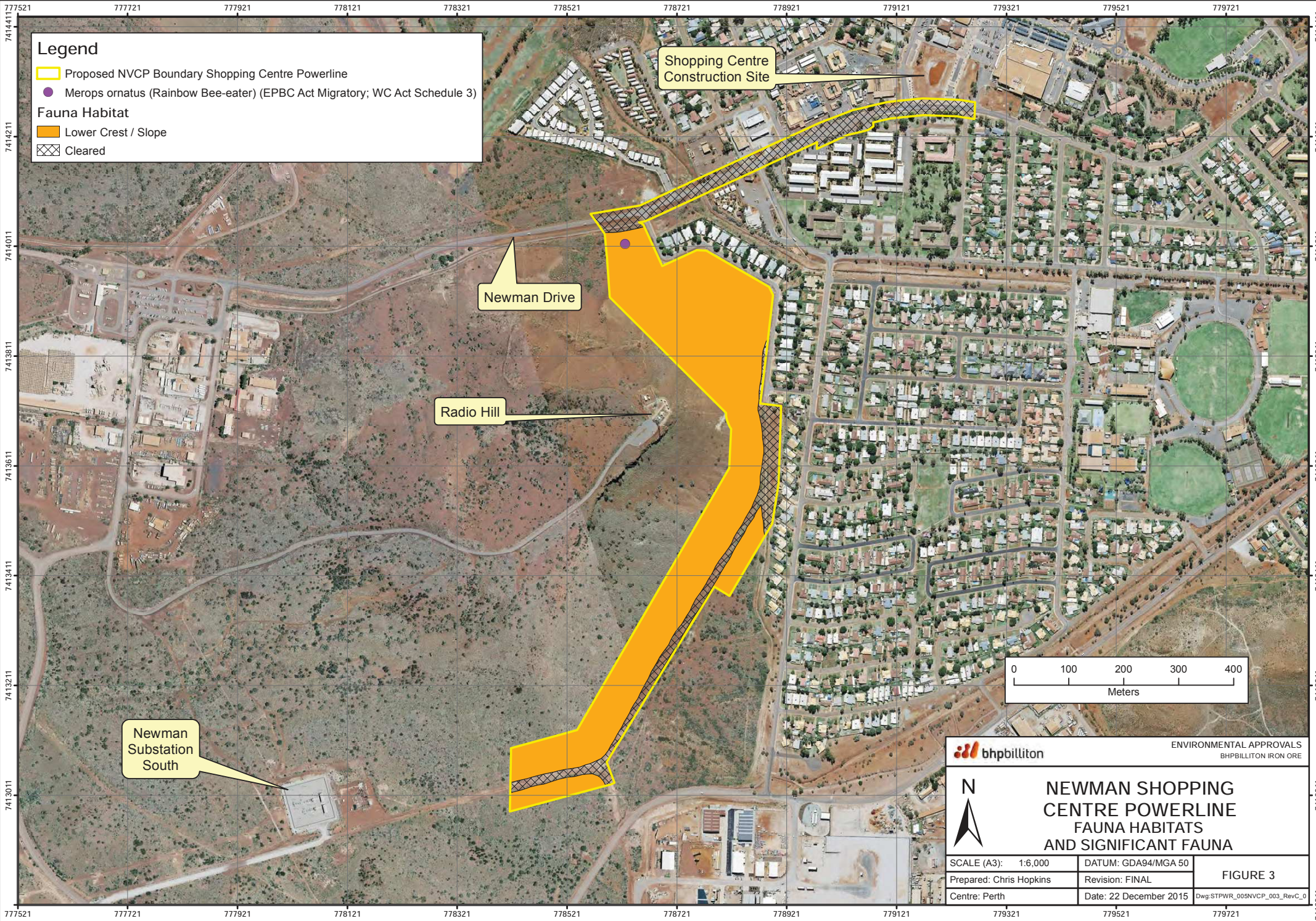
Radio Hill

Shopping Centre Construction Site

Newman Substation South



		ENVIRONMENTAL APPROVALS BHPBILLITON IRON ORE
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <p style="margin: 0;">N</p> </div> <div> <h2 style="margin: 0;">NEWMAN SHOPPING CENTRE POWERLINE VEGETATION ASSOCIATIONS</h2> </div> </div>		FIGURE 2
SCALE (A3): 1:6,000	DATUM: GDA94/MGA 50	
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Centre: Perth	Date: 22 December 2015	Dwg:STPWR_006NVCP_002_RevC_0



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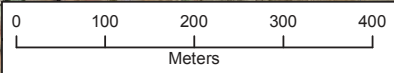
- Proposed NVCP Boundary Shopping Centre Powerline
 - Merops ornatus (Rainbow Bee-eater) (EPBC Act Migratory; WC Act Schedule 3)
- Fauna Habitat**
- Lower Crest / Slope
 - Cleared

Shopping Centre Construction Site

Newman Drive

Radio Hill

Newman Substation South



		ENVIRONMENTAL APPROVALS BHPBILLITON IRON ORE
<p>NEWMAN SHOPPING CENTRE POWERLINE FAUNA HABITATS AND SIGNIFICANT FAUNA</p>		
<p>N</p>		
SCALE (A3): 1:6,000	DATUM: GDA94/MGA 50	FIGURE 3
Prepared: Chris Hopkins	Revision: FINAL	
Centre: Perth	Date: 22 December 2015	Dwg:STPWR_006NVCP_003_RevC_0