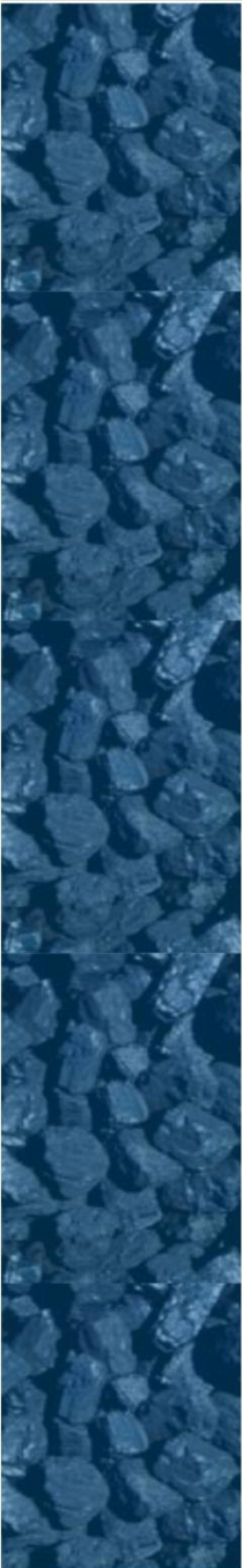




Adani Mining Pty Ltd

adaniTM



Carmichael Coal Mine and Rail Project SEIS

Offsite Infrastructure
Property Vegetation Management Plan

31 October 2013





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Table of contents

1.	Introduction.....	1
1.1	Project overview.....	1
1.2	Property details	2
1.3	Report purpose	2
1.4	Assumptions and limitations	3
1.5	Project need and justification.....	5
1.6	Vegetation Management Act 1999	5
2.	Existing environmental values.....	8
2.1	Project locality.....	8
2.2	Flora survey methodology	8
2.3	Regional ecosystem verification	8
3.	Clearing activities	16
3.1	Summary of offsite infrastructure.....	16
3.2	Proposed extent of clearing	16
3.3	Consideration of alternatives	17
3.4	Mitigation.....	18
4.	Brigalow Belt and Western Bioregion regional codes	19
4.1	Brigalow Belt bioregion regional code	19
4.2	Western Bioregions Regional code	27
5.	Conclusion.....	32
6.	References	33

Table index

Table 1	Property details	2
Table 2	Summary of regional ecosystem mapping changes.....	9
Table 3	Regional ecosystems recorded within the Study Area	10
Table 4	Clearing extent for offsite infrastructure works	16
Table 5	Clearing extent of regional ecosystems.....	17
Table 6	Proposed clearing extent of assessable vegetation	19
Table 7	Performance requirements and solutions for coordinated projects within the Brigalow Belt bioregion	21
Table 8	Proposed clearing extent of assessable vegetation	27



Table 9	Performance requirements and solutions for significant projects within the Desert Uplands bioregion	28
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Figure index

Figure 1	Offsite infrastructure Study Area.....	4
Figure 2	DEHP Certified Regional Ecosystem Mapping (v 6.1) and Study Area	7
Figure 3	Field verified Regional Ecosystems within the Project (Offsite) footprint	15

1. Introduction

1.1 Project overview

Adani Mining Pty Ltd (Adani, the Proponent), commenced an Environmental Impact Statement (EIS) process for the Carmichael Coal Mine and Rail Project (the Project) in 2010. On 26 November 2010, the Queensland (Qld) Office of the Coordinator General declared the Project a 'significant project' and the Project was referred to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) (referral No. 2010/5736). The Project was assessed to be a controlled action on the 6 January 2011 under section 75 and section 87 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The controlling provisions for the Project include:

- World Heritage properties (sections 12 & 15A)
- National Heritage places (sections 15B & 15C)
- Wetlands (Ramsar) (sections 16 & 17B)
- Listed threatened species and communities (sections 18 & 18A)
- Listed migratory species (sections 20 & 20A)
- The Great Barrier Reef Marine Park (GBRMP) (sections 24B & 24C)
- Protection of water resources (sections 24D & 24E)

The Qld Government's EIS process has been accredited for the assessment under Part 8 of the EPBC Act in accordance with the bilateral agreement between the Commonwealth of Australia and the State of Queensland.

The Proponent prepared an EIS in accordance with the Terms of Reference (ToR) issued by the Qld Coordinator-General in May 2011 (Qld Government, 2011). The EIS process is managed under section 26(1) (a) of the *State Development and Public Works Act 1971* (SDPWO Act), which is administered by the Qld Government's Department of State Development, Infrastructure and Planning (DSDIP).

The EIS, submitted in December 2012, assessed the environmental, social and economic impacts associated with developing a 60 million tonne (product) per annum (Mtpa) thermal coal mine in the northern Galilee Basin, approximately 160 kilometres (km) north-west of Clermont, Central Queensland, Australia. Coal from the Project will be transported by rail to the existing Goonyella and Newlands rail systems, operated by Aurizon Operations Limited (Aurizon). The coal will be exported via the Port of Hay Point and the Point of Abbot Point over the 60 year (90 years in the EIS) mine life.

Project components are as follows:

- The Project (Mine): a greenfield coal mine over EPC 1690 and the eastern portion of EPC 1080, which includes both open cut and underground mining, on mine infrastructure and associated mine processing facilities (the Mine) and the Mine (offsite) infrastructure including a workers accommodation village and associated facilities, a permanent airport site, an industrial area and water supply infrastructure



- The Project (Rail): a greenfield rail line connecting to mine to the existing Goonyella and Newlands rail systems to provide for the export of coal via the Port of Hay Point (Dudgeon Point expansion) and the Port of Abbot Point, respectively including:
 - Rail (west): a 120 (km) dual gauge portion running west from the Mine site east to Diamond Creek
 - Rail (east): a 69 km narrow gauge portion running east from Diamond Creek connecting to the Goonyella rail system south of Moranbah
 - Quarries: five local quarries to extract quarry materials for construction and operational purposes

1.2 Property details

Table 1 provides a summary of the property details for which the Property Vegetation Management Plan (PVMP) applies.

Table 1 Property details

Address	Moray Carmichael Boundary Road, Moray Downs
Lot number	Lot 662 on PH1491
Application area	Approximately 7635.8 ha
Local government area	Isaac Regional Council
Local plan zoning	Rural
Existing land use	Grazing
Proposed land use	Accommodation village, industrial area, airport and water infrastructure to support development of the Carmichael Coal Mine
Land tenure	Leasehold

1.3 Report purpose

In April 2013, Adani commissioned the preparation of a PVMP which forms part of an application to clear native vegetation associated with project works described in Section 3.1. As the construction work will involve the use of heavy machinery, it will be necessary to remove vegetation mapped as regional ecosystems (REs) and small areas of high value regrowth vegetation. Full details regarding vegetation clearing are provided in Section 3.

The information contained within this PVMP is intended to demonstrate compliance with the performance requirements identified in Part S of Department of Environment and Heritage Protection (DEHP) (2012) *Regional Vegetation Management Code for Brigalow Belt and New England Tablelands Bioregions – Version 2.1* and the *Regional Vegetation Management Code for Western Bioregions – Version 2.1*.

This application will be submitted in conjunction with an application for a Property Map of Assessable Vegetation (PMAV). The PMAV requests amendment to the certified RE map covering the Project. This application for clearing is based on the results of the PMAV for Lot 662 on PH1491.

The location of investigations has been determined by the proposed design and location of the Project's key components. This application is for clearing associated with the offsite infrastructure. The area to be assessed in this application represents the footprint of proposed



direct clearing of vegetation, and will hereafter be referred to as the 'Project (Offsite) footprint' (see Section 3.1 for a definition of this term).

The study area for this report was defined by the Project (Mine) Offsite footprint. At the time of reporting, the footprint included an offsite bore field and associated pipelines. The bore field is no longer a component of the Carmichael Coal Mine and Rail Project. As such, the study area for this report includes areas where the bore field was to be situated.

1.4 Assumptions and limitations

Field surveys were undertaken within the Study Area outlined in Figure 1. This assessment is based on the outcomes of the PMAV for the site.

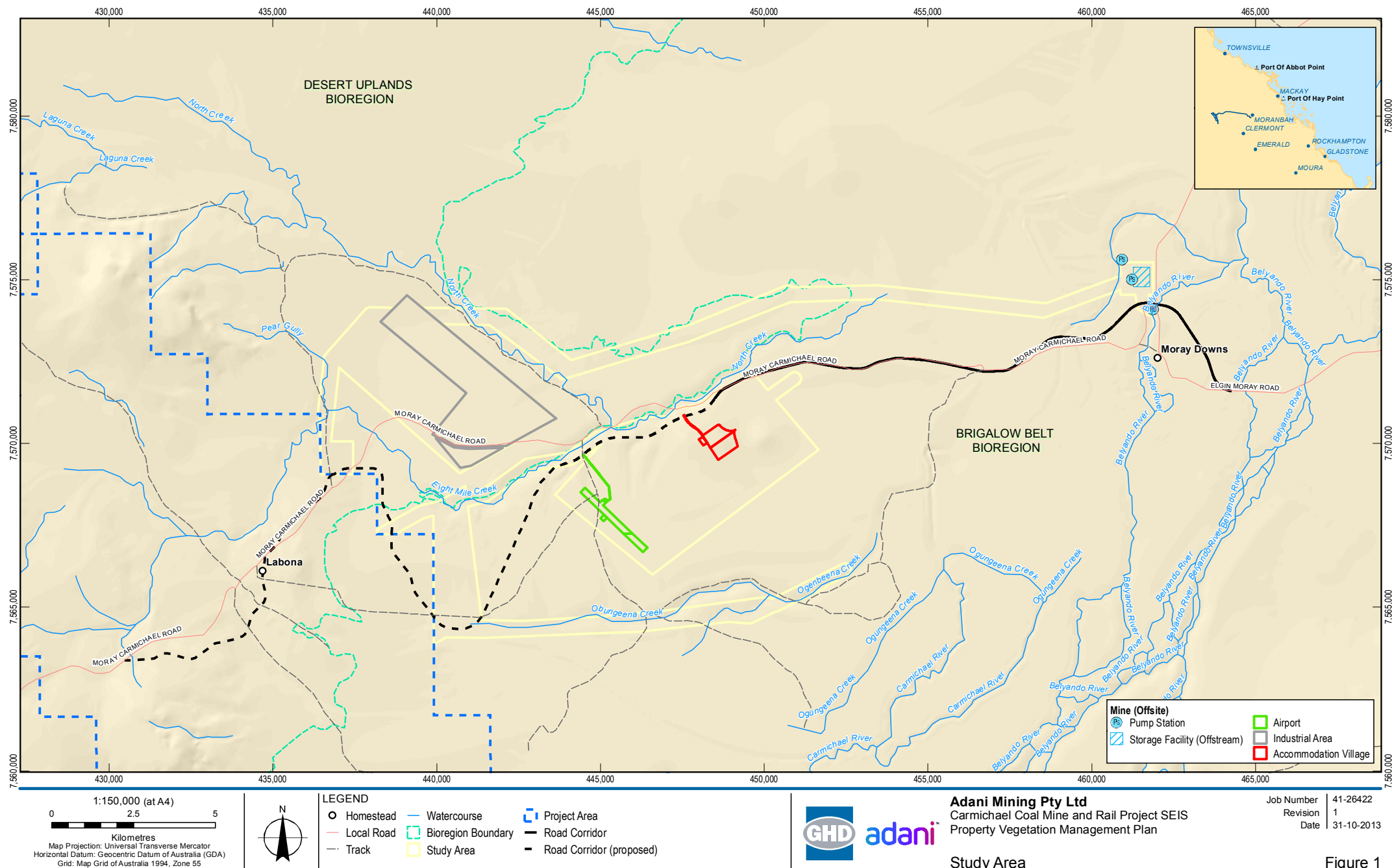


Figure 1

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1.5 Project need and justification

Coal is Queensland's largest export industry. Queensland's saleable coal production in 2011–12 amounted to a total of 187.6 Million tonnes (Mt) (DNRM, 2013). Exports totalling 164 Mt, and valued at approximately \$4.7 billion were made to 30 countries, with Asia representing 27.73 percent of total exports (DNRM, 2013).

Queensland's world-class mining and petroleum industries are cornerstones of Queensland's economy. Queensland has a rich endowment of high-quality coal resources, with more than 32 billion tonnes (raw coal in-situ) identified by drilling operations (DSEWPac, 2011). Queensland has 58 per cent of Australia's recoverable black coal (DLGP, 2011). The Galilee Basin spans over 247,000 km² of land and contains coal resources that are largely high-volatile, low-sulphur thermal coal of Permian age.

In 2011–12, the resources sector directly contributed an estimated \$36 billion to the Queensland economy and \$69.7 billion in aggregate spending through supply chain opportunities. Mining in Queensland generated over \$3.4 billion in royalties last year which will be used to fund essential services, including schools, hospitals and emergency services. In 2012–13, the resource sector also created over 64,000 direct jobs for Queenslanders.

Adani is the largest private power generating company in India and the largest integrated coal management firm in India: it plays a critical role in the supply of power for India. Adani aims to generate 20,000 MW of power by 2020 from its power plants (including from those under construction and scheduled to be built) and sees supply from Queensland coal resources as key to meeting that aim.

1.6 Vegetation Management Act 1999

The proposed clearing detailed in this application is to comply with the *Vegetation Management Act 1999* (VM Act). This legislation governs the management of vegetation within the state of Queensland, and compliance with government regulations is required to obtain approval. The VM Act regulates vegetation clearing in Queensland and provides protection to remnant and regulated regrowth vegetation. The VM Act is relevant to all tenures.

Vegetation clearing approvals are triggered under the VM Act for the clearance of native vegetation falling within remnant REs. Under the VM Act, vegetation is defined as a:

“.....native tree or plant other than the following:-

- a. grass or non woody herbage;
- b. a plant within a grassland regional ecosystem prescribed under a regulation;
- c. a mangrove”

Vegetation clearing is required for the proposed offsite infrastructure. The extent of clearing is described in Section 3 and illustrated in Figure 3.

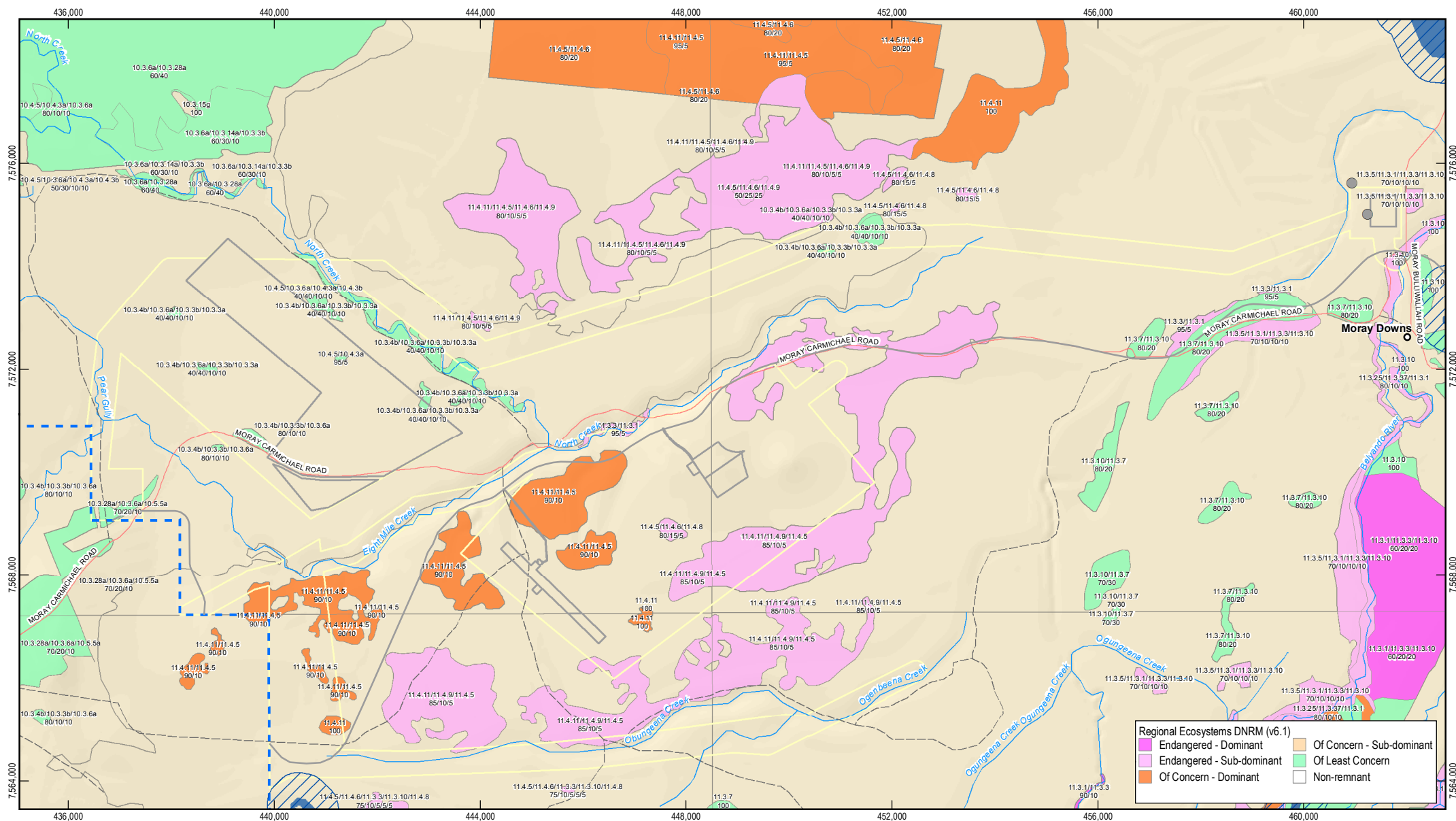
Schedule 3, Table 4 of the *Sustainable Planning Act 2009* identifies when a permit is required for the clearing of native vegetation. A permit for the removal of remnant native vegetation is required for freehold, road reserve, lease hold, trust land, unallocated State land or land subject to a licence or permit under the *Land Act 1994* unless otherwise exempt.

The proposed development is a component of a 'coordinated project' declared under section 26, of the SDPWO Act, as such it is a 'relevant purpose' under the VM Act.



Approximately 28.4 hectares (ha) of least concern, 13.9 ha of concern and 1.6 ha of endangered vegetation is likely to be impacted by clearing for the proposed offsite infrastructure. This area comprises 13 regional ecosystems (REs). The floristic composition of the 13 RE types impacted by the clearing is provided in Section 2.3.

Mapping showing the extent of REs over the Project (Offsite) footprint is provided in Figure 3.



1:100,000 (at A4)

0 2 4

Kilometres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 55



LEGEND

- Homestead (Black dot)
- Great Barrier Reef (Blue outline)
- Wetland Protection Area (Blue outline)
- Great Barrier Reef Wetland (Blue outline)
- Protection Area Trigger (Blue outline)
- Study Area (Yellow outline)
- Project Area (Blue outline)
- Mine (Offsite) (Grey outline)
- Track (Black line)
- Watercourse (Blue line)
- Local Road (Red line)
- MORAY CARMICHAEL ROAD (Red line)
- North Creek (Blue line)
- Eight Mile Creek (Blue line)
- Ogungena Creek (Blue line)
- Baylands Creek (Blue line)
- PEAR GULLY (Blue line)



Adani Mining Pty Ltd
Carmichael Coal Mine and Rail Project SEIS
Property Vegetation Management Plan
DNRM Certified Regional Ecosystems
Mapping (v6.1) and Study Area

Job Number 41-26422
Revision 1
Date 15-10-2013

Figure 2

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Data source: DME: EPC1690 (2010)/EPC1080 (2011); DNRM: Regional Ecosystems, GBR Wetland Protection Area (2011); © Commonwealth of Australia (Geoscience Australia): Watercourse, Tracks (2007);
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2. Existing environmental values

2.1 Project locality

The Study Area is east of the proposed Mine and extends approximately 14 km to the east and 5 km north and south of the Carmichael Road. As such, the offsite infrastructure Project Area has the same regional context as the proposed Mine. The Study Area occurs within one pastoral lease (Lot 662 on PH1491) at the north-east of the mine. The land associated with the works is largely in a disturbed state associated with livestock grazing, with a number access tracks traversing the Study Area. The landscape has been heavily fragmented by historic land-clearing.

Environmental values were considered in the selection of suitable locations for offsite infrastructure to the Mine. Where possible, areas of native vegetation were avoided. As a result of this site selection process, the Project (Offsite) footprint has been located within an area which has been predominantly cleared of natural vegetation.

2.2 Flora survey methodology

Flora surveys were undertaken within the Study Area following the wet season from 29 April to 7 May 2013). The main objectives of the survey were to assess and document the flora species and vegetation communities present, the landforms on which they occurred, habitat condition and the level of incursion of exotic plants.

Floristic surveys were conducted using CORVEG Quaternary level site assessment methodologies recommended by the Queensland Herbarium for mapping REs and vegetation communities (Neldner et al., 2012). Flora surveys targeted areas of mapped remnant and non-remnant vegetation for the purposes of ground-truthing REs and identifying potential habitat for endangered, vulnerable or near threatened flora and fauna species.

2.3 Regional ecosystem verification

A total of 14 REs were field-verified to occur within the Study Area, comprising:

- 8 least concern REs
- 4 of concern REs
- 2 endangered REs

Descriptions of the RE communities that are mapped or that were field-verified within the Study Area are provided in Table 3. A total of seven Desert Uplands bioregion REs and 10 Brigalow Belt bioregion REs are mapped within the Study Area. Results from the flora surveys indicate that three Desert Uplands REs and one Brigalow Belt RE are not actually present within the Project (Offsite) footprint. Additionally, one desert upland RE was observed within the Study Area but is not mapped. In total, 14 REs were identified within the Study Area, five from the Desert Uplands and nine from the Brigalow Belt. These changes from the latest Department of Natural Resources and Mines (DNRM) certified RE mapping are summarised in Table 2. The field-verified RE map for the Study Area is shown in Figure 3.

Of the 14 REs identified within the Study Area, 6 were field verified within the Project (Offsite) footprint. Where field-verified REs occur within the Project (Offsite) footprint, these have been



assessed within this plan against the relevant clearing codes. For REs within the Project (Offsite) footprint, but outside the Study Area, field-verification surveys have not occurred. In these instances, certified RE mapping has been used in the assessment.

Table 2 Summary of regional ecosystem mapping changes

Bioregion	Officially mapped but not present	Observed but not officially mapped
Brigalow Belt	11.4.8 (1 RE)	
Desert Uplands	10.3.3, 10.3.4 and 10.4.3 (3 REs)	10.3.14 (1 RE)

Table 3 Regional ecosystems recorded within the Study Area

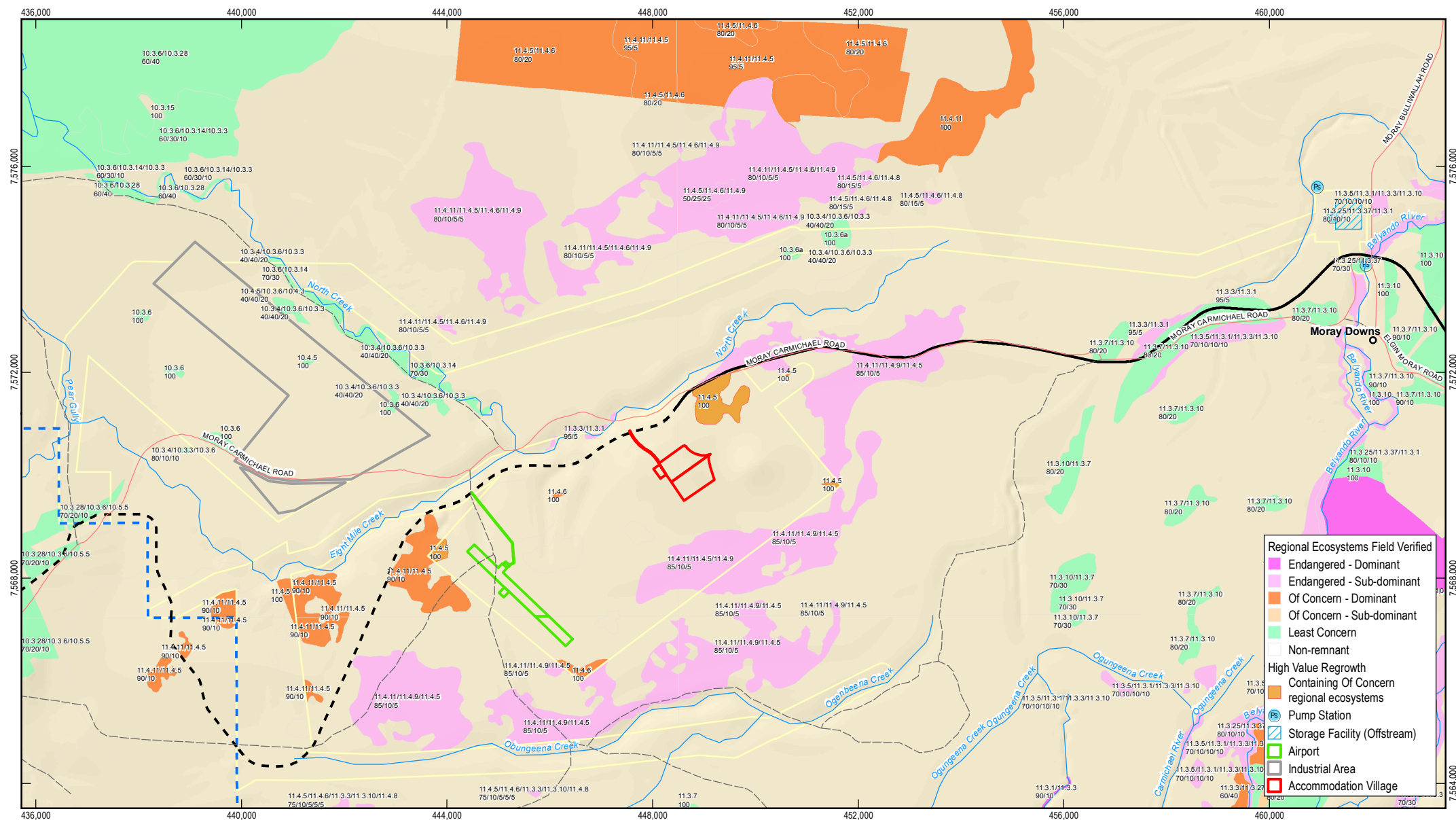
RE	VM Act class	Land form	Description	Extent within Project (Offsite) footprint (ha)
Desert Uplands REs				
10.3.3	least concern	Occurs on alluvial plains.	Low open-woodland of <i>Acacia harpophylla</i> +/- <i>Eucalyptus cambageana</i> emergents or open-woodland of <i>Eucalyptus cambageana</i> +/- understorey of <i>Acacia harpophylla</i> over a very open tussock grassland ground layer.	Mapped at eight locations across the Study Area as a single RE polygon and as a heterogeneous polygon with 10.3.14. Not observed within the Study Area. Not present within the Project (Offsite) footprint.
10.3.4	least concern	Occurs on heavy clay and texture contrast soils on alluvial plains.	Low open-woodland to woodland of <i>Acacia cambagei</i> with very open tussock grassland. Minor occurrences of <i>Acacia tephрина</i> woodland.	Mapped at eight locations across the Study Area as a heterogeneous polygon with 10.3.4 and 10.3.6. Not observed within the Study Area. Not present within the Project (Offsite) footprint.
10.3.6a	least concern	Occurs on alluvial plains with clays and texture contrast soils.	<i>Eucalyptus brownii</i> open-woodland to woodland.	One of the major vegetation communities in the Study Area, present on plains in small and often isolated patches. Approximately 2.9 ha occur within the Project (Offsite) footprint, based on field-verification. Approximately 0.1 ha occurs within the Project (Offsite) footprint, as officially mapped.
10.3.14	least concern	Occurs on channels, levees and flood plains with sandy to clayey soils along larger watercourses.	<i>Eucalyptus camaldulensis</i> and/or <i>E. coolabah</i> woodlands and open-woodlands on channels, levees and floodplains.	Present along North Creek in the northern section of the Study Area. Occurs as a heterogeneous polygon with 10.3.6. Not present within the Project (Offsite) footprint.
10.3.28	least concern	Occurs on sandy alluvial fans with yellow earth and duplex soils formed from outwash from sandstone hills.	Open-woodland to woodland of <i>Eucalyptus melanophloia</i> or <i>Eucalyptus crebra</i> .	Present within two small areas directly adjacent to the Project Mine at the western end of the Study Area. This RE occurs as a heterogeneous polygon with 10.3.6 and 10.5.5. Approximately 1.3 ha occurs within the Project (Offsite) footprint, based on field verification.

RE	VM Act class	Land form	Description	Extent within Project (Offsite) footprint (ha)
10.4.3	least concern	Occurs on clay and texture contrast soils, gently undulating downs and plains on Cainozoic lake deposits.	<i>Acacia harpophylla</i> and/or <i>Eucalyptus cambageana</i> open-woodland.	Mapped within a small and isolated patch of remnant vegetation on the western end of the Study Area as a heterogeneous polygon with 10.4.5. Not observed within the Study Area. Not present within the Project (Offsite) footprint.
10.4.5	least concern	Occurs on plains and gently undulating downs on Cainozoic lake deposits. Cracking clay soils, usually gilgaied, and minor areas of texture contrast soils.	<i>Acacia cambagei</i> low woodland sometimes with <i>A. harpophylla</i> .	Present within a small and isolated patch of remnant vegetation on the western end of the Study Area. Approximately 2.5 ha occur within the Project (Offsite) footprint, based on field verification.
10.5.5a	least concern	Occurs on loamy red and yellow earths on undulating sand plains.	Mostly <i>Eucalyptus melanophloia</i> open-woodland with open-grassland understorey of <i>Aristida</i> spp. and/or <i>Triodia</i> spp.	Present within two small areas directly adjacent to the Project Mine at the western end of the Study Area. This RE occurs as a heterogeneous polygon with 10.3.28 and 10.3.6. Approximately 0.2 ha occurs within the Project (Offsite) footprint, based on field verification. Approximately 0.1 ha occurs within the Project (Offsite) footprint, as officially mapped.
Brigalow Belt REs				
11.3.1	endangered	Associated with Cainozoic alluvial plains which may be occasionally flooded. Landforms range from level to very gently sloping plains, alluvial flats, drainage floors, back-swamps and abandoned channels. Associated soils are predominantly deep to very deep cracking clays, sometimes with gilgai or texture contrast soils with sandy surface.	Open-forest dominated by <i>Acacia harpophylla</i> and/or <i>Casuarina cristata</i> (particularly in southern parts), with or without scattered emergent <i>Eucalyptus</i> spp. such as <i>E. coolabah</i> , <i>E. largiflorens</i> , <i>E. populnea</i> , <i>E. orgadophila</i> , and <i>E. pilligaensis</i> .	Present in one narrow area along an ephemeral watercourse in the centre of the Study Area. Occurs as a heterogeneous polygon with 11.3.3. Not present within the Offsite footprint, based on field verification. Approximately 0.1 ha occur within the Project (Offsite) footprint, as officially mapped.

RE	VM Act class	Land form	Description	Extent within Project (Offsite) footprint (ha)
11.3.3	of concern	Occurs on Cainozoic alluvial plains or levees with clay or sometimes texture contrast soils.	<i>Eucalyptus coolabah</i> woodland to open-woodland with a grassy understorey.	Present in two narrow areas along both an ephemeral watercourse in the centre of the Study Area and the Belyando River at the eastern end of the Study Area. Occurs as a heterogeneous polygon with 11.3.1, 11.3.25 and 11.3.37. Not present within the Offsite footprint, based on field verification. Approximately 0.1 ha occur within the Project (Offsite) footprint, as officially mapped.
11.3.7	least concern	Occurs on levees and plains formed from Quaternary alluvial deposits.	<i>Corymbia clarksoniana</i> , <i>C. tessellaris</i> and <i>C. dallachiana</i> tall woodland to open-woodland (12 – 17 m high).	Present as three patches along the road corridor at the eastern end. Occurs as a heterogeneous polygon with 11.3.10. Not present within the Offsite footprint, based on field verification. Approximately 16.6 ha occur within the Project (Offsite) footprint, as officially mapped.
11.3.10	least concern	Occurs on Cainozoic alluvial plains.	<i>Eucalyptus brownii</i> grassy woodland.	Present as three patches along the road corridor at the eastern end. Occurs as a heterogeneous polygon with 11.3.7. Approximately 3.8 ha occur within the Project (Offsite) footprint, as officially mapped.
11.3.25	least concern	Occurs on fringing levees and banks of major rivers and drainage lines of alluvial plains throughout the region. Soils are very deep, alluvial, grey and brown cracking clays with or without some texture contrast. These are usually moderately deep to deep, soft or firm, acid, neutral or alkaline brown sands, loams or black cracking or non-cracking clays, and may be sodic	<i>Eucalyptus camaldulensis</i> or <i>E. tereticornis</i> open-forest to woodland.	Comprises the vegetation fringing the Belyando River, in the form of <i>E. camaldulensis</i> open forest with <i>Melaleuca leucadendra</i> and <i>M. trichostachya</i> lining the actual channel, and forming woodland along the south-western bank. Approximately 0.16 ha occur within the Project (Offsite) footprint, based on field verification. Approximately 0.8 ha occur within the Project (Offsite) footprint, as officially mapped.

RE	VM Act class	Land form	Description	Extent within Project (Offsite) footprint (ha)
		at depth.		
11.3.37	least concern	Includes larger waterholes and stream channels. Occurs on fringing stream channels, usually braided. Soils are bed loads of clay or silt with cobbles and boulders in some areas.	<i>Eucalyptus coolabah</i> with <i>Eucalyptus camaldulensis</i> forming a distinct but discontinuous woodland to low woodland.	Mapped along the Belyando River at the eastern extent of the Study Area. Occurs within a heterogeneous polygon with 11.3.25. Approximately 0.1 ha occurs within the Project (Offsite) footprint, based on field verification. Approximately 0.1 ha occurs within the Project (Offsite) footprint, as officially mapped.
11.4.5	of concern	Occurs on flat to gently undulating plains formed from unconsolidated Cainozoic deposits.	<i>Acacia argyrodendron</i> dominates the very sparse canopy (12 – 16 m high). There are usually scattered small trees (6-10 m high) including <i>A. argyrodendron</i> , <i>Terminalia oblongata</i> , <i>Owenia acidula</i> , <i>Lysiphyllum carroni</i> and <i>Eremophila mitchellii</i> .	Mapped within the centre of the Study Area in a large heterogeneous polygon with 11.4.11 and 11.4.9. Not present within Project (Offsite) footprint, based on field verification. Approximately 0.7 ha occur within the Project (Offsite) footprint, as officially mapped.
11.4.6	of concern	Occurs on gently undulating plains formed from Cainozoic sediments.	<i>Acacia cambagei</i> dominates the tree canopy (10 – 13 m high). There is a sparse to open low tree layer (7 – 9 m high) dominated by <i>Lysiphyllum carronii</i> , <i>Geijera parviflora</i> , <i>Acacia harpophylla</i> , and sometimes, <i>A. argyrodendron</i> , <i>Terminalia oblongata</i> , and <i>Eremophila mitchellii</i> . An open shrub layer (1 m high) dominated by species such as <i>Carissa ovata</i> , <i>Capparis lasiantha</i> , <i>Eremophila deserti</i> , <i>Apophyllum anomalum</i> and <i>Alectryon diversifolius</i> is also often present. The ground layer is sparse to open and dominated by grasses.	Present within a single small and isolated patch of remnant vegetation in the central part of the Study Area. Not present within the Project (Offsite) footprint.

RE	VM Act class	Land form	Description	Extent within Project (Offsite) footprint (ha)
11.4.9	endangered	Occurs on level to gently undulating Cainozoic plains, including weathered basalt. Associated soils are predominantly moderately deep to deep cracking clays that may be brown, red-brown or grey-brown, and with much surface gravel in some areas.	Open-forest, occasionally woodland, dominated by <i>Acacia harpophylla</i> usually with a low tree mid-storey of <i>Terminalia oblongata</i> and <i>Eremophila mitchellii</i> . <i>Casuarina cristata</i> sometimes replaces <i>Acacia harpophylla</i> in the over-storey and <i>Lysiphyllum cunninghamii</i> sometimes co-dominates.	Mapped within the centre of the Study Area in a large heterogeneous polygon with 11.4.11 and 11.4.5. Not present within the Offsite footprint, based on field verification. Approximately 1.5 ha occurs within the Project (Offsite) footprint, as officially mapped.
11.4.11	of concern	Occurs in shallow open valleys and poorly drained Cainozoic clay plains with deep cracking clay soils.	Grassland dominated by <i>Dichanthium sericeum</i> and forms a mosaic with clumps of <i>Acacia harpophylla</i> , <i>Lysiphyllum hookeri</i> and <i>L. carroni</i> (usually 8+/-5 m high).	Mapped within the centre of the Study Area in a large heterogeneous polygon with 11.4.5 and 11.4.9. Approximately 13.1 ha occur within the Project (Offsite) footprint, as officially mapped. Not present within the Offsite footprint, based on field verification.



Regional Ecosystems Field Verified

- Endangered - Dominant
- Endangered - Sub-dominant
- Of Concern - Dominant
- Of Concern - Sub-dominant
- Least Concern
- Non-remnant

High Value Regrowth

- Containing Of Concern regional ecosystems

Infrastructure

- Pump Station
- Storage Facility (Offstream)
- Airport
- Industrial Area
- Accommodation Village

1:100,000 (at A4)

0 2 4 Kilometres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 55

LEGEND

- Homestead
- Watercourse
- Project Area
- Local Road
- Study Area
- Road Corridor
- Track
- Road Corridor (proposed)

GHD adani

Adani Mining Pty Ltd
Carmichael Coal Mine and Rail Project SEIS
Property Vegetation Management Plan
Field Verified Regional Ecosystems
within the Project (Offsite) Footprint

Job Number 41-26422
Revision 1
Date 15-10-2013

Figure 3

3. Clearing activities

3.1 Summary of offsite infrastructure

The Mine (Offsite) infrastructure assessed in this report includes:

- Worker accommodation village and airport (126.8 ha): comprising a construction camp (Q4, 2013) and initial mine operations accommodation (2014) as part of a master planned community.
- Industrial precinct, including rail siding (964.8 ha) to facilitate services such as a fuel farm, rail siding, freight unloading terminal).
- An off-stream storage and pump station near Belyando River (0.04 ha)
- 2 gigalitres (GL) storage dam (51 ha)
- Moray-Carmichael Road (130.9 ha).

For the purposes of this report the following terminology is used:

- Study Area refers to the area of field investigation shown in Figure 1.
- 'Project (Offsite) footprint' refers to the actual area of direct clearing

The Project (Offsite) footprint covers an area of 1,157.7 ha (Figure 1). This comprises 7.1 ha of remnant vegetation (least concern REs) and 1,150.7 ha of non-remnant vegetation. Additional areas of officially mapped RE (36.9 ha) and non-remnant vegetation (78.7ha) are mapped within the Moray-Carmichael Road corridor.

3.2 Proposed extent of clearing

Vegetation clearing will be required in both non-remnant pasture lands and mapped remnant vegetation and will be kept to the minimum footprint required for the adequate and safe completion of works. A total of 1,157.7 ha of vegetation is likely to be directly impacted by clearing for the proposed works. Of this, a total of 7.1 ha of field verified remnant RE and 36.9 ha of officially mapped RE is to be cleared.

Table 4 details the total maximum clearing areas proposed within the Project (Offsite) footprint. A summary of REs to be cleared is provided in Table 5.

Table 4 Clearing extent for offsite infrastructure works

Offsite Infrastructure	Proposed clearing extent (ha)	Detailed clearing extent (ha)
Accommodation and airport	126.83	126.83 non-remnant 0.00 least concern 0.00 of concern 0.00 endangered
Industrial precinct, including rail siding	964.83	959.83 non-remnant 5.00 Least concern 0.00 of concern 0.00 endangered

Offsite Infrastructure	Proposed clearing extent (ha)	Detailed clearing extent (ha)
Water supply infrastructure	0.05	0.04 non-remnant 0.01 Least concern 0.00 of concern 0.00 endangered
Storage facility	51.00	51.00 non-remnant 0.00 Least concern 0.00 of concern 0.00 endangered
Road corridor	130.9	78.7 non-remnant 21.5 Least concern 13.9 of concern 1.6 endangered

Table 5 Clearing extent of regional ecosystems

Regional Ecosystem	Purpose for clearing	Proposed clearing extent (ha)
Endangered REs		
11.3.1	Road corridor	0.1
11.4.9	Road corridor	1.5
Total clearing extent for endangered REs:		1.6
Of concern REs		
11.3.3	Road corridor	0.1
11.4.11	Road corridor	13.1
11.4.5	Road corridor	0.7
Total clearing extent for of concern REs:		13.9
Least concern REs		
10.3.6a	Light industrial precinct	3
10.3.28	Road corridor	1.3
10.4.5	Light industrial precinct	2.5
10.5.5a	Road corridor	0.3
11.3.7	Road corridor	16.6
11.3.10	Road corridor	3.8
11.3.25	Road corridor, water infrastructure	0.96
11.3.37	Road corridor, water infrastructure	0.2
Total clearing extent for least concern REs:		28.66
Total		44.1

3.3 Consideration of alternatives

A careful site selection and design process was undertaken for the proposed offsite infrastructure. The selection process identified the preferred location and alignment of the various infrastructure proposed for the Project (Offsite). The selection process considered economic, social and environmental impacts while aiming to deliver the desired infrastructure outcomes. The proposed route selected avoids the majority of vegetation mapped as remnant vegetation (particularly of concern and endangered REs) and areas of high ecological value



where possible and the width of linear corridors has been reduced to the absolute minimum width necessary for construction. Proposed infrastructure has been located wherever possible in disturbed areas as mapped non-remnant vegetation. Where this is not possible they have been restricted to clearing to within non-remnant vegetation. Where this was not possible, clearing, especially of high conservation REs, has been selected as a last resort.

3.4 Mitigation

While clearing of non-remnant vegetation was deemed unavoidable for the Project (Offsite), mitigation measures have been developed to reduce the impact to environmental values within the Project Area. Environmental management and performance will be achieved through a number of mechanisms. This includes implementation of an Environmental Management Plan (EMP).

An EMP will be developed for the Project (Offsite) and will be implemented throughout the duration of construction and operation of the proposed offsite infrastructure. This plan contains Management Plans (MPs) designed to establish environmental issues, objectives, performance criteria, implementation, monitoring, reporting and corrective actions for each environmental value during the construction and operation phase of the Project (Offsite) as applicable. These environmental values include native flora and fauna, weeds and pests, revegetation, water quality, air quality, Aboriginal cultural heritage and erosion and sedimentation. The EMP identifies all reasonable steps or precautions to prevent environmental harm and/or contravention of the legislative and regulatory framework during construction and operation.

Permanent loss of vegetation will be offset in accordance with the Policy for Vegetation Management Offsets – Version 3 (DERM, 2011). An offset strategy is being developed for the Project which will meet the offset requirements associated with the Project.

4. Brigalow Belt and Western Bioregion regional codes

4.1 Brigalow Belt bioregion regional code

This section refers to clearing proposed for the construction of offsite infrastructure and assesses requirements against Part S of the *Regional Vegetation Management Code for Brigalow Belt and New England Tablelands Bioregions* (Brigalow Belt Regional Code) for the clearing for significant projects (DERM, 2009a). As detailed above, this application is to clear areas of remnant vegetation concerning least concern RE associated with wetlands and watercourses, of concern and endangered REs, and important vegetation for maintenance of connectivity across the landscape, that occur within the portion of the Project Area that falls within the Brigalow Belt bioregion. The REs proposed to be cleared are mapped in Figure 3. Table 7 provides a summary of Project (Offsite) compliance with the relevant performance requirements of the Brigalow Belt Regional Code.

Table 6 lists potentially impacted assessable vegetation under the VM Act that will require management during construction and operation phases to meet performance criteria listed in Part S of the *Regional Vegetation Management Code for Brigalow Belt and New England Tablelands Bioregions – version 2*

Table 6 Proposed clearing extent of assessable vegetation

Significant ecological feature	Description	Proposed extent of clearing (ha)
Wetland vegetation	The Project (Offsite) footprint intersects with a single Wetland Protection Trigger Area adjacent to Belyando Creek.	1.58
Watercourse vegetation	A single watercourse, assessable under the VM Act is intersected by the Project (Offsite) footprint and will be impacted by the Project. Watercourses have been defined in Regional Vegetation Management Code for Brigalow Belt and New England Bioregions (DERM, 2009a).	Stream order: 2: 0.25
Corridor vegetation	The Project (Offsite) footprint occurs within a highly-fragmented landscape. The footprint passes a number of remnant vegetation patches that vary in extent from 2 – 200 ha. A number of these will be further fragmented and/or reduced in size as a result of the Project.	Remnant extent: 37.1
Endangered REs	Two endangered REs occur within the Project (Offsite) footprint: <ul style="list-style-type: none"> 11.3.1 occurs within heterogeneous polygons at three locations 11.4.9, occurs within a heterogeneous polygon at a single location 	1.6
Of concern REs	Three of concern REs occur within the Project (Offsite) footprint:	13.91



Significant ecological feature	Description	Proposed extent of clearing (ha)
	<ul style="list-style-type: none"> 11.3.3 occurs within a heterogeneous polygon at one location 11.4.5 occurs within a heterogeneous polygon at two locations 11.4.11 occurs within a heterogeneous polygon at two locations 	
Conservation status threshold RE	A single threshold RE, 11.4.11, occurs within the Desert Uplands region of the Project (Offsite) footprint as a heterogeneous polygon.	13.12

Table 7 Performance requirements and solutions for coordinated projects within the Brigalow Belt bioregion

Performance Requirement	Acceptable Solution (Applicant may propose an alternative solution to meet performance requirements)	Background	Proposed Solution
<p>PR S.1: Limits to clearing</p> <p>To regulate the clearing of vegetation in a way that conserves remnant vegetation that are regional ecosystems, does not cause land degradation, prevents the loss of biodiversity and maintains ecological processes – subject to limitations required to meet PR S.2 to PR S.10.</p>	<p>Clearing is limited to the extent that is necessary for the project, any associated ancillary works, and the operation of works that comprise a project declared to be a significant project under the State Development and Public Works Organisation Act 1971, section 26.</p>	<p>The Project (Offsite) will require clearing of a small amount of remnant vegetation within the Brigalow Belt bioregion (37.50 ha) for the construction of the proposed offsite infrastructure (Figure 3). Clearing of remnant vegetation will be necessary for the construction of the following:</p> <ul style="list-style-type: none"> • Rail loop • Light industrial precinct • Water supply infrastructure • Road corridor 	<p>A careful site selection and design process was undertaken for the Project (Offsite). The selection process identified the preferred location and alignment of the various infrastructure proposed for the Project (Offsite). The selection process considered economic, social and environmental impacts while aiming to deliver the desired infrastructure outcomes. The proposed route selected avoids the majority of vegetation mapped as remnant vegetation (particularly of concern and endangered REs) and areas of high ecological value where possible and the width of linear corridors has been reduced to the absolute minimum width necessary for construction.</p> <p>The proposed works are compliant with the performance requirement S.1: Limits to clearing through the acceptable solution</p>
<p>PR S.2: Wetlands</p> <p>To regulate the clearing of vegetation in a way that prevents the loss of biodiversity and maintains ecological processes – maintain the current extent of assessable vegetation associated with and natural significant wetland and/or natural wetland to provide – maintain the current extent of assessable vegetation associated with any watercourse to provide –</p> <ul style="list-style-type: none"> • Water quality by filtering sediments, nutrients and other pollutants; and • Aquatic habitat; and • Terrestrial habitat 	<p>AS S.2.1</p> <p>Clearing does not occur –</p> <ul style="list-style-type: none"> • In any natural wetland; and • Within 100 m from any natural wetland; and • In any natural significant wetland; and • Within 200 m from any natural significant wetland. 	<p>One GBR protection wetland is located south of the Obungeena Creek at the south western extent of the Project Area (Figure 2). The Trigger area is located within the Project (Offsite) footprint, at the eastern extent of the proposed road corridor.</p>	<p>Clearing within the wetland will be kept to the minimum (1.58 ha) necessary for the proposed works and an ecologist will be on site during clearing to guide clearing in such a way that minimises vegetation loss and protects important habitat features, in accordance with the site-based EMP. Erosion and sediment control devices will be installed prior to clearing at sites in and around wetlands. Large trees will be retained where they do not directly impede construction works. Where a tree is felled, the roots will be preserved where possible. Permanent loss of vegetation will be offset in accordance with the Policy for Vegetation Management Offsets – Version 3. An Offset Strategy is being developed for the Project which will meet the offset requirements associated with Project.</p> <p>The proposed works are compliant with the performance requirement S.2: Wetlands through an alternative solution.</p>
<p>PR S.3: Watercourses</p> <p>To regulate the clearing of vegetation in a way that does not cause land degradation, prevents the loss of biodiversity and maintains ecological processes—maintain the current extent of assessable vegetation associated with any watercourse to provide—</p> <ul style="list-style-type: none"> • Bank stability by protecting against bank erosion; and • Water quality by filtering sediments, nutrients and other pollutants; and • Aquatic habitat; and • Terrestrial habitat. 	<p>AS S.3.1</p> <p>Clearing does not occur –</p> <ul style="list-style-type: none"> • In any watercourse; and • Within the relevant distance stipulated in Table 2 of the Code, of each high bank of each watercourse. 	<p>The Project (Offsite) footprint intersects the Belyando River at the eastern end of the footprint within the road corridor. A total area of 0.25 ha of remnant vegetation is expected to be cleared along the Belyando River. This is a second order stream.</p>	<p>The proposed Project (Offsite) footprint crosses a single watercourse as defined in the DERM (2009a) Brigalow Belt regional code – the Belyando River.</p> <p>Any potential impacts of clearing on the environment will be limited through the application of an EMP developed for the construction and operational phases. The solutions outlined in the EMP will seek to avoid any loss of connectivity between patches of remnant vegetation and maintain wildlife passage.</p> <p>Some of the management measures that will be implemented during works include:</p> <ul style="list-style-type: none"> • Keep clearing to the minimum necessary for the proposed works to reduce the risk of erosion and sedimentation. • Install erosion and sediment control devices prior to clearing at sites adjacent to watercourses and promptly stabilise disturbed areas to prevent flow-related scouring of bed and banks of stream. • Locate clearing footprint to areas where riparian vegetation is already disturbed, or, if not possible, large trees at water crossings will be retained where they do not directly impede the construction. • Locate equipment parking and laydown areas outside riparian areas to minimise disturbance area within riparian areas. The area of disturbance within streams and riparian zones will be the minimum area required for safe working and the area of disturbance

Performance Requirement	Acceptable Solution (Applicant may propose an alternative solution to meet performance requirements)	Background	Proposed Solution
			<p>for infrastructure installation clearly marked.</p> <ul style="list-style-type: none"> Reinstate disturbed areas as soon as possible, particularly for temporary infrastructure areas, such as lay down areas. Permanent loss of vegetation will be offset in accordance with the Policy for Vegetation Management Offsets – Version 3. An offset strategy has been developed for the entire Project (Offsite) which will meet the offset requirements associated with the Project. With the above measures in place, disturbance to watercourses impacted by the offsite infrastructure will be minimised and long term impacts avoided. <p>The proposed works are compliant with the performance requirement S.3: watercourses through an alternative solution.</p>
<p>PR S.4: Connectivity</p> <p>To regulate the clearing of vegetation in a way that prevents the loss of biodiversity and maintains ecological processes—areas of mapped remnant vegetation are—</p> <ul style="list-style-type: none"> Of sufficient size and configured in a way to maintain ecosystem functioning; and Of sufficient size and configured in a way to remain in the landscape in spite of any threatening processes; and Located on the lot(s) that are the subject of the application to maintain connectivity to mapped remnant vegetation on adjacent properties. 	<p>AS S.4.1</p> <p>Where clearing is less than –</p> <ul style="list-style-type: none"> 10 m wide in the coastal subregions of the Brigalow Belt Bioregion; or 2 ha in the coastal subregions of the Brigalow Belt Bioregions; or 25 m wide in the non-coastal subregions of the Brigalow Belt and the New England Tableland bioregion; or Is less than 5 ha in the non-coastal subregions of the Brigalow Belt and the New England Tableland Bioregion; <p>Clearing does not –</p> <ul style="list-style-type: none"> Reduce the width of mapped remnant vegetation to less than 200 m; and Occur where the width of mapped remnant vegetation is less than 200 m; <p>AND S.4.2</p> <p>Clearing does not –</p> <ul style="list-style-type: none"> Reduce areas of contiguous mapped remnant vegetation to less than 10 ha, in the coastal subregions of the Brigalow Belt bioregion; and Occur in areas of contiguous mapped remnant vegetation that are less than 10 ha in the coastal subregions of the Brigalow Belt bioregion; and Reduce areas of contiguous mapped remnant vegetation to less than 50 ha, in the non-coastal subregions of the Brigalow Belt and the New England Tableland bioregion; and Occur in areas of contiguous mapped remnant vegetation that are less than 50 hectares, in the non-coastal subregions of the Brigalow Belt and the New England Tableland Bioregion; and Reduce the width of mapped remnant vegetation to less than 200 m; Occur where the width of mapped remnant vegetation is less than 200 metres; and Reduce the total extent of mapped remnant vegetation to less than 30%; and Occur where the total extent of mapped remnant vegetation is less than 30%. <p>AND S.4.3</p> <ul style="list-style-type: none"> Where clearing is for a significant community project, maintain the current extent of mapped remnant vegetation where the vegetation is – of sufficient size and configured in a way to maintain ecosystem functioning; and of sufficient size and configured in a way to remain in the landscape in spite of any threatening processes; and located on the lot(s) that are the subject of the application to maintain 	<p>The Project (Offsite) footprint is predominantly located within agricultural land and land that has been previously cleared or degraded by past land use practises. Small areas of remnant vegetation will be impacted within the Brigalow Belt region of the Project (Offsite) footprint. These areas of remnant vegetation comprise regional and state corridors of biodiversity significance.</p> <p>Several patches of remnant vegetation are intersected by the Project (Offsite) footprint. These vary in size from 2 ha to up to 200 ha. This vegetation is consistent with REs 11.3.3, 11.3.1, 11.3.7, 11.3.10, 11.4.15 and 11.4.11 and provides habitat connectivity across the landscape. A number of these patches will be fragmented and/or reduced in size as a result of the Project.</p> <p>The condition of vegetation within many of these remnant patches, and the value of these communities for fauna, has been compromised to some extent by historical and existing land use pressures. These pressures (historic and current) include clearing (i.e. for access tracks), weed invasion, feral animal activity and livestock grazing. Nonetheless, these vegetation communities may provide habitat for a range of common native fauna species.</p>	<p>The proposed investigative works will require the clearance of 37.1 ha of mapped Brigalow Belt RE.</p> <p>Any potential impacts of clearing on the environment will be limited through the application of an EMP developed for the construction and operational phases. The solutions outlined in the EMP will seek to avoid any loss of connectivity between patches of remnant vegetation and maintain wildlife passage.</p> <p>Some of the management measures that will be implemented during works include:</p> <ul style="list-style-type: none"> Minimising vegetation clearance by; Utilising existing access tracks where possible and by clearing the minimal area for new access tracks. The clearing of corridor vegetation will predominately occur along the proposed road corridor; clearing will therefore be kept to a minimum and will not contribute greatly to further fragmenting habitat within the landscape... Restricting vehicular traffic to a minimum to avoid inadvertent widening of any tracks (e.g. during overtaking or turning vehicles around). Reinstating disturbed areas as soon as possible, particularly for temporary infrastructure areas, such as lay down areas <p>With the above measures in place, disturbance to the connectivity of the landscape investigations will be minimised and long term impacts avoided.</p> <p>Permanent loss of vegetation will be offset in accordance with the Policy for Vegetation Management Offsets – Version 3. An Offset Strategy has been developed for the entire Project which will meet the offset requirements associated with the Project.</p> <p>The proposed works are compliant with the performance requirement S.4: Connectivity through an alternative solution.</p>



Performance Requirement	Acceptable Solution (Applicant may propose an alternative solution to meet performance requirements)	Background	Proposed Solution
	connectivity to mapped remnant vegetation on adjacent properties.		
<p>PR S.5: Soil Erosion</p> <p>To regulate the clearing of vegetation in a way that does not cause land degradation and maintains ecological processes—the effect of clearing does not result in—</p> <ul style="list-style-type: none"> Mass movement, gully erosion, rill erosion, sheet erosion, tunnel erosion, stream bank erosion, wind erosion, or scalding; and Any associated loss of chemical, physical or biological fertility— including, but not limited to water holding capacity, soil structure, organic matter, soil biology, and nutrients, within and/or outside the lot(s) that are the subject of the application. 	<p>AS S.5.1</p> <p>Mechanical clearing only occurs on –</p> <ul style="list-style-type: none"> Very stable soils on a slope less than 15 %; and Stable soils on a slope less than 12 %; and unstable soils on a slope less than 8 %; and very unstable soils on a slope less than 5 %. <p>The proposed works are compliant with the performance requirement S.5: Soil Erosion the acceptable solution.</p>	<p>Soil erosion has the potential to threaten the integrity of structural foundations, and will need to be managed proactively throughout the lifetime of the Project.</p> <p>The Project Area occurs predominantly on gently undulating clay floodplains and alluvial soils, comprising kandosols, tenosols, rudosols and vertosols. Tenosols, which are often referred to as red and yellow sand-plains, typically have poor water retention and are mainly utilised for the livestock grazing of native pastures. Vertosols (cracking clays) are present in the alluvial areas around watercourses. Sodic soils are present and are supported by the presence of deep rutting and erosion gullies at a number of locations, which may be caused by overland flow. This indicates that the soils may be unstable when interacting with water and susceptible to dispersion and erosion.</p> <p>The Good Quality Agricultural Land (GQAL) classification is a Class C Pasture land. This land class is suitable for improved. At a preliminary assessment level this land is considered to be good quality as it is suitable for grazing and is situated in a region where pastoral enterprises are a major industry.</p> <p><i>Soil Erodibility</i></p> <p>Soil erodibility is determined by the rate of surface infiltration, permeability through the profile, and the coherence and structural stability of soil particles.</p> <p>The soils of the Study Area range in erodibility ratings from low to moderate.</p> <p><i>Existing Slope Gradient and Length</i></p> <p>Due to the low lying nature of the landscape, the slope gradients within the Project Area are generally low and are likely to have limited contribution to causing accelerated erosion.</p>	<p>The erodibility of the soils in the Brigalow Belt region of the Project Area is generally low to moderate (i.e. stable to very stable) and given the low lying nature of the landscape and scope of works it is not likely that the proposed works will contribute to erosion of the landscape.</p> <p>Further sampling and testing will be undertaken as part of the proposed works to confirm the anticipated soil erodibility conditions.</p> <p>Although the erosion potential of soils within the Project Area is low, erosion and sediment control will be undertaken as necessary throughout the construction and operation of site works to mitigate environmental incidents. An erosion and sediment control plan will be developed as part of the EMP for offsite infrastructure. Specifically, the following management actions will be implemented to avoid and mitigate impacts from erosion:</p> <ul style="list-style-type: none"> All clearing will be by mechanical means; Erosion and sediment control devices will be installed prior to clearing where necessary and will remain maintained and in place until the area is stabilised; There will be no storage of materials and spoil near watercourses; Topsoil and subsoil will be reinstated in the original sequence to ensure the layers are compatible; Native vegetation will be allowed to regenerate naturally from seed stock in topsoil; and Each site will be assessed before leaving to ensure that soils have been replaced and erosion risk is reduced.



Performance Requirement	Acceptable Solution (Applicant may propose an alternative solution to meet performance requirements)	Background	Proposed Solution
<p>PR S.6: Salinity</p> <p>To regulate the clearing of vegetation in a way that does not cause land degradation and maintains ecological processes—clearing does not contribute to—</p> <ul style="list-style-type: none"> Waterlogging; or The salinisation of groundwater, surface water or soil. 	<p>AS S.6.1</p> <p>Where clearing is less than –</p> <ul style="list-style-type: none"> 2 ha; or 10 m wide; Clearing does not occur in any discharge area <p>AND S.6.2</p> <p>Where clearing is less than –</p> <ul style="list-style-type: none"> 5 ha; or 50 m wide- clearing does not occur – In any discharge area; and Within 200 metres of any discharge area <p>AND S.6.3</p> <p>Clearing does not occur in areas greater than 5 ha.</p>	<p>The Natural Resource Management (NRM) Burdekin Basin Salinity Hazard Map indicates that the majority of the Project area falls within the ‘moderate’ and ‘high’ hazard areas for potential for salt mobilisation. Such biophysical features include groundwater depth and quality; relative position in landscape; potential salt in the soil and underlying geology; and the capacity for water to discharge.</p> <p>The extent of clearing of remnant vegetation for works within the Brigalow Belt bioregion will be 37.1 ha. This will include clearing on watercourse banks and other low-lying areas.</p>	<p>The extent of clearing within discharge areas is likely to exceed the acceptable amount according to the Regional Vegetation Management Code for Brigalow Belt and New England Tablelands Bioregions – version 2.4 given that the total maximum amount to be cleared will be 1,157.7 ha. However, clearing will be kept to the minimum necessary for construction of proposed infrastructure. Where possible, existing trees and shrubs in salt prone areas will be retained, which will help maintain the water table. Disturbed areas, where design allows, will be stabilised as soon as possible by reinstating topsoil and subsoil and compacting replaced soils. Through these measures the service provided by vegetation in relation to the management of salinity in these landscapes is expected be restored, and water logging and the salinisation of ground water, surface water and soil will be avoided.</p> <p>With the above measures in place, salinity impacts will be minimised and long term impacts avoided.</p> <p>The proposed works are compliant with the performance requirement S.6: Salinity through an alternative solution.</p>

Performance Requirement	Acceptable Solution (Applicant may propose an alternative solution to meet performance requirements)	Background	Proposed Solution
<p>PR S.7: Conserving Remnant Vegetation that are Endangered Regional Ecosystems and Of Concern Regional Ecosystems</p> <p>To regulate the clearing of vegetation in a way that conserves remnant vegetation that are endangered regional ecosystems and of concern regional ecosystems—maintain the current extent of endangered regional ecosystems and of concern regional ecosystems.</p>	<p>AS S.7.1</p> <p>Clearing –</p> <ul style="list-style-type: none"> Does not occur in an endangered regional ecosystem or an of concern regional ecosystem that is listed in Table 4; and In an endangered regional ecosystem or an of concern regional ecosystem that is not listed in Table 4 of the Code, only occurs where the clearing is less than 10 m wide or 0.5 ha. 	<p>Although site selection and design processes have minimised the amount of remnant vegetation impacted by the Project, construction of the offsite infrastructure will involve the clearing of endangered and of concern RE.</p> <p>A total of 1.6 ha of endangered RE (11.3.1 and 11.4.9) and 13.91 ha of of concern RE (11.3.3, 11.4.5 and 11.4.11) will be cleared for the Project.</p>	<p>The Project (Offsite) requires the clearing of endangered and of concern REs.</p> <p>Any potential impacts of clearing on the environment will be limited through the application of an EMP developed for the construction and operational phases. The solutions outlined in the EMP will seek to avoid any loss of extent of remnant vegetation and maintain connectivity between remnant patches.</p> <p>Some of the management measures that will be implemented during works include:</p> <ul style="list-style-type: none"> Minimise the clearing extent to the minimal amount necessary for the construction of the offsite infrastructure and wherever possible, existing cleared areas are to be utilised. Clearly identify the extent of vegetation clearing on construction plans and in the field. Areas that must not be cleared or damaged are to also be clearly identified on construction plans and in the field. Locate additional construction areas, such as site offices, construction stockpile locations, machinery/equipment laydown areas and storage where possible within existing cleared or disturbed areas Reinstate disturbed areas as soon as possible, particularly for temporary infrastructure areas, such as lay down areas Permanent loss of vegetation will be offset in accordance with the Policy for Vegetation Management Offsets – Version 3. An Offset Strategy is being developed for the Project which will meet the offset requirements associated with the Project. <p>The proposed works are compliant with the performance requirement S.7: Conserving Remnant Endangered or Of Concern Regional Ecosystems through an alternative solution.</p>
<p>PR S.8: Essential Habitat</p> <p>To regulate the clearing of vegetation in a way that prevents the loss of biodiversity—maintain the current extent of essential habitat.</p>	<p>AS S.8.1</p> <p>Clearing does not occur in an area shown as essential habitat on the essential habitat map.</p> <p>The proposed works are compliant with performance requirement S.8: Essential Habitat through the acceptable solution.</p>	<p>Essential habitat is vegetation in which a threatened species is believed to occur. No areas mapped by DEHP as essential habitat occur within the Brigalow Belt region of the Project (Offsite) footprint.</p>	<p>Not applicable</p>

Performance Requirement	Acceptable Solution (Applicant may propose an alternative solution to meet performance requirements)	Background	Proposed Solution
<p>PR S.9: Conservation Status Thresholds</p> <p>To regulate the clearing of vegetation in a way that prevents the loss of biodiversity and conserves remnant vegetation that are regional ecosystems—maintain the current extent of regional ecosystems listed in Table 5 of the Code.</p>	<p>AS S.9.1</p> <p>Clearing in a regional ecosystem listed in Table 5 of the Code, does not occur unless the clearing is less than –</p> <ul style="list-style-type: none"> 10 metres wide; or 2 hectares 	<p>Although site selection and design processes have minimised the amount of remnant vegetation impacted by the Project (Offsite), construction of the offsite infrastructure will involve the clearing of a single conservation threshold RE.</p> <p>RE 11.4.11 is a listed RE that is at risk of falling below 30% of its pre-clearing extent, or having a remnant extent of less than 10 000 hectares. A total of 13.13 ha of RE 11.4.11 will be cleared for the Project (Offsite). The Project (Offsite) footprint intersects this RE at two locations in the central region of the Study Area. This RE occurs as a heterogeneous polygon with 11.4.5 and 11.4.9.</p>	<p>The Project (Offsite) requires the clearing of a single conservation status threshold RE, 11.4.11.</p> <p>Any potential impacts of clearing on the environment will be limited through the application of an EMP developed for the construction and operational phases. The solutions outlined in the EMP will seek to avoid any loss of extent of remnant vegetation and maintain connectivity between remnant patches.</p> <p>Some of the management measures that will be implemented during works include:</p> <ul style="list-style-type: none"> Minimise the clearing extent to the minimal amount necessary for the construction of the offsite infrastructure and wherever possible, existing cleared areas are to be utilised. Clearly identify the extent of vegetation clearing on construction plans and in the field. Areas that must not be cleared or damaged are to also be clearly identified on construction plans and in the field. Locate additional construction areas, such as site offices, construction stockpile locations, machinery/equipment laydown areas and storage where possible within existing cleared or disturbed areas Reinstate disturbed areas as soon as possible, particularly for temporary infrastructure areas, such as lay down areas Permanent loss of vegetation will be offset in accordance with the Policy for Vegetation Management Offsets – Version 3. An Offset Strategy is being developed for the Project which will meet the offset requirements associated with the Project. <p>The proposed works are compliant with the performance requirement S.9: Conservation Status Thresholds through an alternative solution.</p>
<p>PR S.10: Acid Sulfate Soils (ASS)</p> <p>To regulate the clearing of vegetation in a way that does not cause land degradation and maintains ecological processes in the coastal subregions of the Brigalow Belt bioregion, and the Marlborough Plains subregion (11.14)—clearing activities do not result in disturbance of acid sulfate soils or changes to the hydrology of the location that will either—</p> <ul style="list-style-type: none"> Aerate horizons containing iron sulfides; or Mobilise acid and/or metals. 	<p>AS S.10.1</p> <p>In the coastal subregions of the Brigalow Belt bioregion, and the Marlborough Plan is subregion (11.14), clearing in land zone 1, and land zone 2 or land zone 3 in areas below 5 metre Australian Height Datum –</p> <ul style="list-style-type: none"> Is carried out in accordance with an acid sulphate soils environmental management plan as outlined in the State Planning Policy 2/02 Guideline: Planning and Managing Development involving Acid Sulfate Soils; and Follows management principles in accordance with the Soil Management Guidelines in the Queensland Acid Sulfate Soil Technical Manual. <p>The proposed works are compliant with performance requirement S.10: Acid sulfate soils through the acceptable solution.</p>	<p>The Project (Offsite) footprint does not occur within the coastal subregions of the Brigalow Belt bioregion, and the Marlborough Plains subregion.</p>	<p>Not applicable</p>

4.2 Western Bioregions Regional code

This section refers to clearing proposed for the construction of offsite infrastructure and assesses requirements against Part S of the *Regional Vegetation Management Code for Western Bioregions – Version 2.1* (Western Bioregions Regional Code) for the clearing for significant projects (DERM, 2009b). This application is to clear areas of remnant vegetation concerning least concern RE associated with wetlands and watercourses, and important vegetation for maintenance of connectivity across the landscape that occur within the Desert Uplands region of the Project Area. The REs proposed to be cleared are mapped in Figure 3. Table 9 provides a summary of the Project's compliance with the relevant performance requirements of the Western Bioregions Regional Code.

Table 8 lists potentially impacted assessable vegetation under the VM Act that will require management during construction and operation phases to meet performance criteria listed in Part S of the *Regional Vegetation Management Code for Brigalow Belt and New England Tablelands Bioregions – version 2*

Table 8 Proposed clearing extent of assessable vegetation

Significant Ecological Feature	Description	Proposed Extent of Clearing (ha)
Wetland vegetation	No natural or important wetland areas occur within the Desert Uplands region of the Project (Offsite) footprint.	0.0
Corridor vegetation	The Project (Offsite) footprint occurs within a highly-fragmented landscape. The footprint intersects with three small remnant vegetation patches. These are likely to be further fragmented and/or reduced in size as a result of the Project.	Remnant extent: 7.1

Table 9 Performance requirements and solutions for significant projects within the Desert Uplands bioregion

Performance Requirement	Acceptable Solution (Applicant may propose an alternative solution to meet performance requirements)	Background	Proposed Solution
<p>PR S.1: Limits to clearing</p> <p>To regulate the clearing of vegetation in a way that conserves remnant vegetation that are regional ecosystems, does not cause land degradation, prevents the loss of biodiversity and maintains ecological processes – subject to limitations required to meet PR S.2 to PR S.10.</p>	<p>Clearing is limited to the extent that is necessary for the project, any associated ancillary works, and the operation of works that comprise a project declared to be a significant project under the State Development and Public Works Organisation Act 1971, section 26.</p>	<p>The Project (Offsite) will require clearing of a small amount of remnant vegetation within the Desert Uplands bioregion (7.1 ha) for the construction of the proposed offsite infrastructure (Figure 3). Clearing of remnant vegetation will be necessary for the construction of the following:</p> <ul style="list-style-type: none"> • Water infrastructure • Rail loop • Light industrial precinct • Water supply infrastructure 	<p>A careful site selection and design process was undertaken for the Project (Offsite). The selection process identified the preferred location and alignment of the various infrastructure proposed for the Project (Offsite). The selection process considered economic, social and environmental impacts while aiming to deliver the desired infrastructure outcomes. The proposed route selected avoids the majority of vegetation mapped as remnant vegetation (particularly of concern and endangered REs) and areas of high ecological value where possible and the width of linear corridors has been reduced to the absolute minimum width necessary for construction.</p> <p>The proposed works are compliant with the performance requirement S.1: Limits to clearing through the acceptable solution.</p>
<p>PR S.2: Wetlands</p> <p>To regulate the clearing of vegetation in a way that prevents the loss of biodiversity and maintains ecological processes – maintain the current extent of assessable vegetation associated with and natural significant wetland and/or natural wetland to provide – maintain the current extent of assessable vegetation associated with any watercourse to provide –</p> <ul style="list-style-type: none"> • Water quality by filtering sediments, nutrients and other pollutants; and • Aquatic habitat; and • Terrestrial habitat 	<p>AS S.2.1</p> <p>Clearing does not occur –</p> <ul style="list-style-type: none"> • In any natural wetland; and • Within 100 m from any natural wetland; and • In any natural significant wetland; and • Within 200 m from any natural significant wetland. 	<p>No natural wetlands or natural significant wetlands are located within the Desert Uplands region of the Project Area.</p>	<p>The proposed works are compliant with the performance requirement S.2: Wetlands through the acceptable solution.</p>
<p>PR S.3: Watercourses</p> <p>To regulate the clearing of vegetation in a way that does not cause land degradation, prevents the loss of biodiversity and maintains ecological processes— maintain the current extent of assessable vegetation associated with any watercourse to provide—</p> <ul style="list-style-type: none"> • Bank stability by protecting against bank erosion; and • Water quality by filtering sediments, nutrients and other pollutants; and • Aquatic habitat; and • Terrestrial habitat. 	<p>AS S.3.1</p> <p>Clearing does not occur –</p> <ul style="list-style-type: none"> • In any watercourse; and • Within 200 m from each high bank of each watercourse with a stream order 5 or greater; and • Within 100 m from each high bank of each watercourse with a stream order 3 or 4; and • Within 50 m from each high bank of each watercourse with a stream order 1 or 2. 	<p>The only watercourses occurring within the Desert Uplands region of the Project area are Eight Mile Creek and North Creek.</p> <p>Watercourses in this bioregion must be determined using the representation of a creek, stream, river or watercourse on the most recent 1:100,000, 1:250,000 or 1:25,000 topographic maps. Both of the Desert Uplands watercourses cross the alignment as undefined drainage channels with minimal to no vegetative cover. The vegetation associated with these watercourses is not mapped as remnant and is therefore not assessable under the regional management code.</p>	<p>The proposed works are compliant with the performance requirement S.3: Watercourses through the acceptable solution.</p>
<p>PR S.4: Connectivity</p> <p>To regulate the clearing of vegetation in a way that prevents the loss of biodiversity and maintains ecological processes— areas of mapped remnant vegetation are—</p> <ul style="list-style-type: none"> • Of sufficient size and configured in a way to maintain ecosystem functioning; and • Of sufficient size and configured in a way to remain in the landscape in spite of any threatening processes; and • Located on the lot(s) that are the subject of the application to maintain connectivity to mapped remnant vegetation on adjacent properties. 	<p>AS S.4.1</p> <p>Where clearing is less than –</p> <ul style="list-style-type: none"> • 25 m wide; or • 5 ha; or <p>Clearing does not –</p> <ul style="list-style-type: none"> • Reduce the width of mapped remnant vegetation to less than 200 m; and • Occur where the width of mapped remnant vegetation is less than 200 m; <p>AND S.4.2</p> <p>Clearing does not –</p> <ul style="list-style-type: none"> • Reduce areas of contiguous mapped remnant vegetation to less than 50 ha; and • Occur in areas of contiguous mapped remnant vegetation that are less than 50 ha; and • Reduce the width of mapped remnant vegetation to less than 200 m; and • Occur where the width of mapped remnant vegetation is less than 200 m; and 	<p>The Project (Offsite) footprint is predominantly located within agricultural land and land that has been previously cleared or degraded by past land use practises. Small areas of remnant vegetation will be impacted within the Brigalow Belt region of the Project (Offsite) footprint. These areas of remnant vegetation comprise regional and state corridors of biodiversity significance.</p> <p>Several patches of remnant vegetation are intersected by the Project (Offsite) footprint. These vary in size from 2 ha to up to 200 ha. This vegetation is consistent with REs 10.3.6a, 10.3.28a, 10.4.5 and 10.5.5a, and provides habitat connectivity across the landscape. A number of these patches will be fragmented and/or reduced in size as a result of the Project.</p> <p>The condition of vegetation within many of these remnant patches, and the value of these communities for fauna, has been compromised to some extent by historical and existing land use pressures. These pressures (historic and current) include clearing (i.e. for access tracks), weed invasion, feral animal activity and livestock grazing.</p>	<p>The proposed investigative works will require the clearance of 7.1 ha of mapped Desert Uplands RE.</p> <p>Any potential impacts of clearing on the environment will be limited through the application of an EMP developed for the construction and operational phases. The solutions outlined in the EMP will seek to avoid any loss of connectivity between patches of remnant vegetation and maintain wildlife passage.</p> <p>Some of the management measures that will be implemented during works include:</p> <ul style="list-style-type: none"> • Minimising vegetation clearance by: <ul style="list-style-type: none"> – Utilising existing access tracks where possible and by clearing the minimal area for new access tracks. The clearing of corridor vegetation will predominately occur along the proposed road corridor; clearing will therefore be kept to a minimum and will not contribute greatly to further fragmenting habitat within the landscape... – Restricting vehicular traffic to a minimum to avoid inadvertent widening of any tracks (e.g. during

Performance Requirement	Acceptable Solution (Applicant may propose an alternative solution to meet performance requirements)	Background	Proposed Solution
	<ul style="list-style-type: none"> Reduce the total extent of mapped remnant vegetation to less than 30%; and Occur where the total extent of mapped remnant vegetation is less than 30%. <p>AND S.4.3</p> <p>Where clearing is for a significant community project, maintain the current extent of mapped remnant vegetation where the vegetation is –</p> <ul style="list-style-type: none"> Of sufficient size and configured in a way to maintain ecosystem functioning; and Of sufficient size and configured in a way to remain in the landscape in spite of any threatening processes; and Located on the lot(s) that are the subject of the application to maintain connectivity to mapped remnant vegetation on adjacent properties. 	Nonetheless, these vegetation communities may provide habitat for a range of common native fauna species.	<ul style="list-style-type: none"> overtaking or turning vehicles around). Reinstating disturbed areas as soon as possible, particularly for temporary infrastructure areas, such as lay down areas <p>With the above measures in place, disturbance to the connectivity of the landscape investigations will be minimised and long term impacts avoided.</p> <p>Permanent loss of vegetation will be offset in accordance with the Policy for Vegetation Management Offsets – Version 3. An Offset Strategy has been developed for the entire Project which will meet the offset requirements associated with the Project.</p> <p>The proposed works are compliant with the performance requirement S.4: Connectivity through an alternative solution.</p>
<p>PR S.5: Soil Erosion</p> <p>To regulate the clearing of vegetation in a way that does not cause land degradation and maintains ecological processes—the effect of clearing does not result in—</p> <ul style="list-style-type: none"> Mass movement, gully erosion, rill erosion, sheet erosion, tunnel erosion, stream bank erosion, wind erosion, or scalding; and Any associated loss of chemical, physical or biological fertility— including, but not limited to water holding capacity, soil structure, organic matter, soil biology, and nutrients, within and/or outside the lot(s) that are the subject of the application. 	<p>AS S.5.1</p> <p>Mechanical clearing can only occur on –</p> <ul style="list-style-type: none"> Stable soils on a slope less than 10%; and unstable soils on a slope less than 3%; and very unstable soils on a slope less than 1%. <p>The proposed works are compliant with the performance requirement S.5: Soil Erosion through the acceptable solution.</p>	<p>Soil erosion has the potential to threaten the integrity of structural foundations, and will need to be managed proactively throughout the lifetime of the Project.</p> <p>The Project Area occurs predominantly on gently undulating clay floodplains and alluvial soils, comprising kandosols, tenosols, rudosols and vertosols. Tenosols, which are often referred to as red and yellow sand-plains, typically have poor water retention and are mainly utilised for the livestock grazing of native pastures. Vertosols (cracking clays) are present in the alluvial areas around watercourses. Sodic soils are present and are supported by the presence of deep rutting and erosion gullies at a number of locations, which may be caused by overland flow. This indicates that the soils may be unstable when interacting with water and susceptible to dispersion and erosion.</p> <p>The Good Quality Agricultural Land (GQAL) classification is a Class C Pasture land. This land class is suitable for improved. At a preliminary assessment level this land is considered to be good quality as it is suitable for grazing and is situated in a region where pastoral enterprises are a major industry.</p> <p><i>Soil Erodibility</i></p> <p>Soil erodibility is determined by the rate of surface infiltration, permeability through the profile, and the coherence and structural stability of soil particles.</p> <p>The soils of the Study Area range in erodibility ratings from low to moderate.</p> <p><i>Existing Slope Gradient and Length</i></p> <p>Due to the low lying nature of the landscape, the slope gradients within the Project Area are generally low and are likely to have limited contribution to causing accelerated erosion.</p>	<p>The erodibility of the soils in the Desert Uplands region of the Project Area is generally low to moderate (i.e. stable to very stable) and given the low lying nature of the landscape and scope of works it is not likely that the proposed works will contribute to erosion of the landscape.</p> <p>Further sampling and testing will be undertaken as part of the proposed works to confirm the anticipated soil erodibility conditions.</p> <p>Although the erosion potential of soils within the Project Area is low, erosion and sediment control will be undertaken as necessary throughout the construction and operation of site works to mitigate environmental incidents. An erosion and sediment control plan will be developed as part of the EMP for offsite infrastructure. Specifically, the following management actions will be implemented to avoid and mitigate impacts from erosion:</p> <ul style="list-style-type: none"> All clearing will be by mechanical means; Erosion and sediment control devices will be installed prior to clearing where necessary and will remain maintained and in place until the area is stabilised; There will be no storage of materials and spoil near watercourses; Topsoil and subsoil will be reinstated in the original sequence to ensure the layers are compatible; Native vegetation will be allowed to regenerate naturally from seed stock in topsoil; and Each site will be assessed before leaving to ensure that soils have been replaced and erosion risk is reduced.



Performance Requirement	Acceptable Solution (Applicant may propose an alternative solution to meet performance requirements)	Background	Proposed Solution
<p>PR S.6: Salinity</p> <p>To regulate the clearing of vegetation in a way that does not cause land degradation and maintains ecological processes—clearing does not contribute to—</p> <ul style="list-style-type: none"> Waterlogging; or The salinisation of groundwater, surface water or soil. 	<p>AS S.6.1</p> <p>Where clearing is less than –</p> <ul style="list-style-type: none"> 2 ha; or 10 m wide; Clearing does not occur in any discharge area <p>AND S.6.2</p> <p>Where clearing is less than –</p> <ul style="list-style-type: none"> 5 ha; or 50 m wide- <p>Clearing does not occur –</p> <ul style="list-style-type: none"> In any discharge area; and Within 200 m of any discharge area <p>AND S.6.3</p> <p>Clearing does not occur in areas greater than 5 ha.</p>	<p>The Natural Resource Management (NRM) Burdekin Basin Salinity Hazard Map indicates that the majority of the Project area falls within the 'moderate' and 'high' hazard areas for potential for salt mobilisation. Such biophysical features include groundwater depth and quality; relative position in landscape; potential salt in the soil and underlying geology; and the capacity for water to discharge.</p> <p>The extent of clearing of remnant vegetation for works within the Desert Uplands bioregion will be 7.1 ha. This will include clearing on watercourse banks and other low-lying areas.</p>	<p>The extent of clearing within discharge areas is likely to exceed the acceptable amount according to the Western Bioregional Regional Code. 4 given that the total maximum amount to be cleared will be 1,157.7 ha. However, clearing will be kept to the minimum necessary for construction of proposed infrastructure. Where possible, existing trees and shrubs in salt prone areas will be retained, which will help maintain the water table. Disturbed areas, where design allows, will be stabilised as soon as possible by reinstating topsoil and subsoil and compacting replaced soils. Through these measures the service provided by vegetation in relation to the management of salinity in these landscapes is expected be restored, and water logging and the salinisation of ground water, surface water and soil will be avoided.</p> <p>With the above measures in place, salinity impacts will be minimised and long term impacts avoided.</p> <p>The proposed works are compliant with the performance requirement S.6: Salinity through the alternate solution.</p>
<p>PR S.7: Conserving Remnant Vegetation that are Endangered Regional Ecosystems and Of Concern Regional Ecosystems</p> <p>To regulate the clearing of vegetation in a way that conserves remnant vegetation that are endangered regional ecosystems and of concern regional ecosystems—maintain the current extent of endangered regional ecosystems and of concern regional ecosystems.</p>	<p>AS S.7.1</p> <p>Clearing –</p> <ul style="list-style-type: none"> Does not occur in an endangered regional ecosystem or an of concern regional ecosystem that is listed in Table 3 of the Code; and In an endangered regional ecosystem or an of concern regional ecosystem that is not listed in Table 3 of the Code, only occurs where the clearing is less than 10 m wide or 5 ha. 	<p>No clearing of endangered or of concern REs, or those listed in Table 3 of the Western Bioregions Regional Code, will occur within the Desert Uplands region of the Project (Offsite) footprint.</p>	<p>The proposed works are compliant with the performance requirement S.7: Conserving remnant Endangered and Of Concern REs through the acceptable solution.</p>
<p>PR S.8: Essential Habitat</p> <p>To regulate the clearing of vegetation in a way that prevents the loss of biodiversity—maintain the current extent of essential habitat.</p>	<p>AS S.8.1</p> <p>Clearing does not occur in an area shown as essential habitat on the essential habitat map.</p>	<p>Essential habitat is vegetation in which a threatened species is believed to occur. No areas mapped by DEHP as essential habitat occur within the Desert Uplands region of the Project (Offsite) footprint.</p>	<p>No clearing of essential habitat is required for the Project. All works will be in compliance with the Project EMP, which will be developed for the proposed works. The aim of the EMP is to minimise impacts to environmental values and ensure management strategies are implemented.</p> <p>The proposed works are compliant with the performance requirement S.8: Essential Habitat through the acceptable solution.</p>
<p>PR S.9: Conservation Status Thresholds</p> <p>To regulate the clearing of vegetation in a way that prevents the loss of biodiversity and conserves remnant vegetation that are regional ecosystems—maintain the current extent of regional ecosystems listed in Table 4 of the Code.</p>	<p>AS S.9.1</p> <p>Clearing in a regional ecosystem listed in Table 4 of the Code, does not occur unless the clearing is less than –</p> <ul style="list-style-type: none"> 10 m wide; or 2 ha 	<p>No threshold regional ecosystems listed in Table 4 of the Western bioregions Regional Code occur within the Desert Uplands region of the Project (Offsite) footprint</p>	<p>No clearing of a RE listed in Table 4 of the Western Bioregions Regional Code will occur.</p> <p>The proposed works are compliant with the performance requirement S.9: Conservation Status Threshold through the acceptable solution.</p>



Performance Requirement	Acceptable Solution (Applicant may propose an alternative solution to meet performance requirements)	Background	Proposed Solution
<p>PR S.10: Acid Sulfate Soils</p> <p>To regulate the clearing of vegetation in a way that does not cause land degradation and maintains ecological processes — clearing activities do not result in disturbance of acid sulfate soils or changes to the hydrology of the location that will either—</p> <p>Aerate horizons containing iron sulfides; or</p> <p>Mobilise acid and/or metals.</p>	<p>AS S.10.1</p> <p>Clearing in land zone 1, and land zone 2 or land zone 3 in areas below 5 m Australian Height Datum –</p> <ul style="list-style-type: none">Is carried out in accordance with an acid sulphate soils environmental management plan as outlined in the State Planning Policy 2/02 Guideline: Planning and Managing Development involving Acid Sulfate Soils; andFollows management principles in accordance with the Soil Management Guidelines in the Queensland Acid Sulfate Soil Technical Manual.	<p>Clearing for the Project will not occur within land zones 1, 2 or 3, in areas less than 5 m AHD.</p>	<p>The proposed works are compliant with the performance requirement S.10 Acid Sulfate Soils through the acceptable solution.</p>



5. Conclusion

The development of the proposed Offsite Infrastructure requires the clearing of assessable vegetation. The information contained within this PVMP demonstrates how the proposed works comply with the acceptable solutions outlined in the *Regional Vegetation Management Code for the Brigalow Belt and New England Tableland Bioregions – Version 2.4* and the *Regional Vegetation Management Code for the Western Bioregions – Version 2.4*, or nominates the proposed alternative solutions to meet the performance requirements.

Alternative solutions were proposed for PR S.2 (wetlands), PR S.3 (watercourses), PR S.4 Connectivity, and PR S.6 (salinity), PR S.7 Conserving endangered and of concern REs and PR S.9 Conservation status thresholds. This includes mitigation measures that will be included in the EMP to maintain overall standards of environmental protection set out by the Code. These measures will minimise the impact of the investigation works.

REs cleared will be offset according to the Policy for Vegetation Management Offsets (DEHP, 2009). An offset strategy is currently being developed for the Project which will meet the offset requirements associated with the offsite infrastructure outlined in Section 3. BioCondition assessments have been conducted within suitable sites within the Project Area.

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adani™



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GHD

145 Ann Street Brisbane QLD 4000

GPO Box 668 Brisbane QLD 4001



T: (07) 3316 3000 F: (07) 3316 3333 E: bnemail@ghd.com.au

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