



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 8523/1
Permit type: Purpose Permit

1.2. Applicant details

Applicant's name: Hamersley Iron Pty Limited
Application received date: 07 June 2019

1.3. Property details

Property: Unallocated Crown Land (PINS 1016554, 12264207, 12192667, 12264206, 12207904, 12207901, 12207903, 1016550, 12205068, 12264204, 12207902 and 12207900), Hamersley Range
Road Reserve - 11733924, Fortescue
Lot 128 on Plan 240249, Fortescue
Lot 148 on Plan 93149, Hamersley Range
Lot 201 on Plan 402889, Hamersley Range
Lot 501 on Plan 405377, Hamersley Range
Lot 502 on Plan 405377, Hamersley Range
Lot 503 on Plan 405377, Hamersley Range
Lot 504 on Plan 405377, Hamersley Range
Lot 55 on Plan 212209, Millstream
Lot 502 on Plan 61847, Millstream

Local Government Authority: Shire of Ashburton
Localities: Hamersley Range and Millstream and Fortescue

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	Purpose category:
60		Mechanical Removal	Miscellaneous

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 18 September 2019
Reasons for Decision: The clearing permit application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986* (EP Act). It has been concluded that the proposed clearing is at variance to principle (f), may be at variance to principles (a) and (h) and is not, or is not likely to be at variance to the remaining principles.

In determining to grant a clearing permit subject to conditions, the Delegated Officer considered that the environmental impacts of the proposed clearing can be managed through onsite avoidance and mitigation measures.

2. Site Information

Clearing Description The application is to clear 60 hectares of native vegetation within Lot 55 on Deposited Plan 212209, Lot 502 on Plan 61847, Millstream, Lot 128 on Plan 240249, Road Reserve - 11733924, Fortescue, Lot 148 on Deposited Plan 93149, Lot 201 on Deposited Plan 402889, Lot 501 on Plan 405377, Hamersley Range, Lot 502 on Deposited Plan 405377, Lot 503 on Deposited Plan 405377, Lot 504 on Deposited Plan 405377, Unallocated Crown Land (PINS 1016554, 12264207, 12192667, 12264206, 12207904, 12207901, 12207903, 1016550, 12205068, 12264204, 12207902 and 12207900), Shire of Ashburton for the purpose of hydrogeological investigations relating to the Coastal Water Supply Bungaroo to Millstream Water Pipeline, borefield and associated infrastructure.

Vegetation Description Twenty-eight vegetation units were described for the study area (714 hectare area including most of the application area);

- ten vegetation units were described from low hills and footslopes;
- three units from plains;
- thirteen units from creeklines and banks; and
- two from clay flats.

(Rio Tinto, 2019)

A description of each vegetation unit is provided below as an extract of the supporting documentation provided by Rio Tinto (2019):

Unit	Vegetation description	Extent (ha) within study area	Proportion (%) within study area
Vegetation of low hills and footslopes			
AaAacTbrTw	<i>Acacia ancistrocarpa</i> , <i>A. acradenia</i> scattered shrubs over <i>Triodia brizoides</i> , <i>T. wiseana</i> hummock grassland	5.6	0.78
AaAbAaTwAMs	<i>Acacia ancistrocarpa</i> , <i>A. bivenosa</i> , <i>A. atkinsiana</i> open shrubland over <i>Triodia wiseana</i> hummock grassland over <i>Amphipogon sericeus</i> scattered tussock grasses	55.3	7.74
AbAacTw	<i>Acacia bivenosa</i> , <i>A. acradenia</i> scattered shrubs over <i>Triodia wiseana</i> hummock grassland	21.6	3.0
AiAaAbTw	<i>Acacia inaequilatera</i> scattered tall shrubs over <i>A. ancistrocarpa</i> , <i>A. bivenosa</i> open shrubland over <i>Triodia wiseana</i> hummock grassland	13.3	1.8
AiAaAbTwAtuAaTw	<i>Acacia inaequilatera</i> scattered tall shrubs over <i>A. ancistrocarpa</i> , <i>A. bivenosa</i> open shrubland over <i>Triodia wiseana</i> hummock grassland/ <i>Acacia tumida</i> closed heath over <i>Triodia wiseana</i> open hummock grassland in creeklines	24.6	3.4
AiGwAdAaTe	<i>Acacia inaequilatera</i> , <i>Grevillea wickhamii</i> , <i>Acacia dictyophleba</i> , <i>A. ancistrocarpa</i> shrubland over <i>Triodia epactia</i> hummock grassland	137.1	19.2
AiTwTbr	<i>Acacia inaequilatera</i> scattered tall shrubs over <i>Triodia wiseana</i> , <i>T. brizoides</i> hummock grassland	10.2	1.4
ChAbAiAaTw	<i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia bivenosa</i> , <i>A. ancistrocarpa</i> open shrubland over <i>Triodia wiseana</i> hummock grassland	127.6	17.8
GwAaTe	<i>Grevillea wickhamii</i> , <i>Acacia ancistrocarpa</i> open shrubland over <i>Triodia epactia</i> hummock grassland	33.9	4.7
GwEUaTHCHTe	<i>Eucalyptus vitrix</i> scattered trees over <i>Grevillea wickhamii</i> tall open shrubland over <i>Eulalia aurea</i> , <i>Themeda triandra</i> , <i>Chrysopogon fallax</i> tussock grassland over <i>Triodia epactia</i> open hummock grassland	9.4	1.3
Total		438.6	61.4
Vegetation of plains			
AiAaTsTwTe	<i>Acacia inaequilatera</i> , <i>A. ancistrocarpa</i> tall shrubland over <i>Triodia schinzii</i> , <i>T. wiseana</i> , <i>T. epactia</i> hummock grassland	49	6.8
ApyAbTw	<i>Acacia pyrifolia</i> , <i>A. bivenosa</i> tall shrubland over <i>Triodia wiseana</i> hummock grassland	1.6	0.2
ChHcAsyAaAIVCE	<i>Corymbia hamersleyana</i> , <i>Hakea chordophylla</i> scattered low trees over <i>Acacia synchronica</i> , <i>A. ancistrocarpa</i> , <i>A. inaequilatera</i> , <i>Vachellia farnesiana</i> shrubland over <i>Cenchrus ciliaris</i> , <i>C. setiger</i> closed tussock grassland	7.7	1.0
Total		58.3	8.2
Vegetation of creeklines and banks			
AsyAbTeTw	<i>Acacia synchronica</i> , <i>Acacia bivenosa</i> open shrubland over <i>Triodia epactia</i> , <i>Triodia wiseana</i> hummock grassland	43.7	6.1
AtuTwTe	<i>Acacia tumida</i> tall closed shrubland over <i>Triodia wiseana</i> , <i>Triodia epactia</i> hummock grassland	1.7	0.2
AxTeTw	<i>Acacia xiphophylla</i> scattered tall shrubs over <i>Triodia epactia</i> , <i>Triodia wiseana</i> open hummock grassland	2.2	0.3
ChAaAcoTeTw	<i>Corymbia hamersleyana</i> scattered trees over <i>Acacia ancistrocarpa</i> , <i>Acacia colei</i> tall shrubland over <i>Triodia epactia</i> , <i>Triodia wiseana</i> hummock grassland	0.9	0.1
ChAaAtrAiAaEUaTe	<i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia atkinsiana</i> , <i>A. trachycarpa</i> , <i>A. inaequilatera</i> , <i>A. ancistrocarpa</i> tall closed scrub over <i>Eulalia aurea</i> tussock grassland over <i>Triodia epactia</i> very open hummock grassland	3.1	0.4
ChAbAsyAaAcoCECte	<i>Corymbia hamersleyana</i> scattered low trees over <i>Acacia bivenosa</i> , <i>A. synchronica</i> , <i>A. ancistrocarpa</i> , <i>A. colei</i> tall shrubland over <i>Cenchrus ciliaris</i> scattered tussock grasses over <i>Triodia epactia</i> open hummock grassland	0.7	0.09
ChAbGOrTe	<i>Corymbia hamersleyana</i> scattered trees over <i>Acacia bivenosa</i> , <i>Gossypium robinsonii</i> shrubland over <i>Triodia epactia</i> hummock grassland	8.4	1.2
ChExGOrAcEUaTHt	<i>Corymbia hamersleyana</i> , <i>Eucalyptus xerothermica</i> low open forest over <i>Gossypium robinsonii</i> , <i>Acacia colei</i> tall shrubland over <i>Eulalia aurea</i> , <i>Themeda triandra</i> tussock grassland	2	0.3
EcAscAeAtrPIGOrTHIEUaTe	<i>Eucalyptus camaldulensis</i> open forest over <i>Acacia sclerosperma</i> , <i>Acacia elachantha</i> , <i>Acacia trachycarpa</i> tall shrubland over <i>Petalostylis labicheoides</i> , <i>Gossypium robinsonii</i> open shrubland over <i>Themeda triandra</i> , <i>Eulalia aurea</i> open tussock grassland over T	0.2	0.02
EvEcAtrARGo	<i>Eucalyptus vitrix</i> , <i>E. camaldulensis</i> scattered trees over <i>Acacia trachycarpa</i> scattered shrubs over <i>Argemone ochroleuca</i> scattered herbs	3.3	0.4
ExChAcoAaTeTwTHt	<i>Eucalyptus xerothermica</i> , <i>Corymbia hamersleyana</i> scattered trees over <i>Acacia colei</i> , <i>Acacia ancistrocarpa</i> tall shrubland over <i>Triodia epactia</i> , <i>Triodia wiseana</i> hummock grassland over <i>Themeda triandra</i> open tussock grassland	5.2	0.7
ExChAtuGOrSsApyGwTe	<i>Eucalyptus xerothermica</i> , <i>Corymbia hamersleyana</i> scattered trees over <i>Acacia tumida</i> , <i>Gossypium robinsonii</i> , <i>Stylbasium spathulatum</i> , <i>Acacia pyrifolia</i> , <i>Grevillea wickhamii</i> tall open shrubland over <i>Triodia epactia</i> hummock grassland	25.7	3.6
GpGwAcoTErTeTw	<i>Grevillea pyramidalis</i> , <i>G. wickhamii</i> , <i>Acacia colei</i> shrubland over <i>Triodia epactia</i> , <i>T. wiseana</i> hummock grassland	3.3	0.5
Total		100.4	14.1
Vegetation of Clay Flats			
AiAtrEUaTe	<i>Acacia inaequilatera</i> tall open shrubland over <i>Acacia trachycarpa</i> low shrubland over <i>Eulalia aurea</i> open tussock grassland over <i>Triodia epactia</i> open hummock grassland	5.3	0.7
STk	<i>Stemodia kingii</i> heathland	1.3	0.2
Total		6.6	0.9
Other			
CL	Previously cleared areas (e.g. tracks) and bare creekbed	110.1	15.4
Total		110.1	15.4
Grand Total		714	100

Vegetation Condition

Supporting information provided by the applicant identified that some of the areas applied to be cleared have been previously cleared under clearing permits CPS 3597/1 and CPS 4220/4. The areas previously cleared account for approximately 30 per cent of the application area (Rio Tinto, 2019).

Given the above, and based on previous surveys of the application area, the vegetation condition ranges from degraded to pristine (Keighery, 1994) condition (Rio Tinto, 2019).

Local Area

The local area is defined as 20 kilometres from the edge of the application area.



Figure 1: CPS 8523/1 Application area

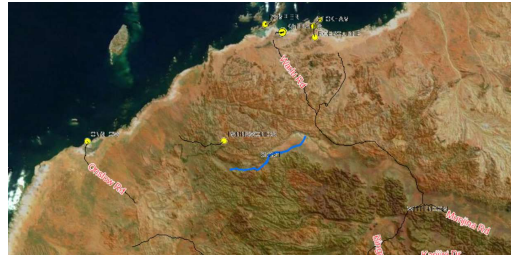


Figure 2: CPS 8523/1 Context map

3. Minimisation and mitigation measures

The applicant advised that “Hydrogeological investigations are considered to be low environmental impact, requiring minimal clearing and avoiding areas of special environmental significance wherever possible.” (Rio Tinto, 2019).

4. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biodiversity.

Proposed clearing may be at variance to this Principle

The proposed clearing may be at variance to this clearing principle as it includes priority flora and priority ecological communities which represent a higher level of biodiversity than other vegetation within the local area (20 kilometre radius).

As assessed within Principle (e), the local area is highly vegetated retaining approximately 99 per cent native vegetation.

A vegetation, flora and fauna assessment undertaken by Rio Tinto (2019) determined that two Priority Ecological Communities occur within the application area; the Kumina Land System Priority Ecological Community (Priority 3) and the Stygofaunal Community of the Bungaroo Aquifer Priority Ecological Community (Priority 1). The applicant advised that the Stygofaunal Community will not be impacted by clearing associated with the proposed work (Rio Tinto, 2019).

One species of Priority flora has been recorded within the application area: *Indigofera* sp. Bungaroo Creek (S. van Leeuwen 4301; P3)). Taxa that may be threatened or near threatened, but are data deficient or have not yet been adequately surveyed to be listed under the Rare Flora Notice, are added to the Priority Flora List under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status, so that consideration can be given to their declaration as threatened flora. Priority three – poorly known species are species that are known from several locations, and the species do not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations, but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

Indigofera sp. Bungaroo Creek (S. van Leeuwen 4301; P3) is broadly distributed across the Pilbara and known from 51 records. The proposed clearing is for hydrological investigations and therefore the clearing will be spread over a large area, minimising the impact at any one location. The applicant has advised that the proposed works are unlikely to affect the conservation significance of this Priority flora species, due to its broad distributions across the Pilbara and the small scale of the study area (Rio Tinto, 2019).

The applicant advises that:

“A further four Priority listed species were considered to have ‘Potential’ to occur within the study area. The timing and seasonal conditions of surveys conducted within the study area was considered optimal for the detection of these taxa however they may have been missed as the entire study area has not been intensively systematically searched. It is unlikely the Proposal will negatively impact on the conservation status of any of these species on either a local or bioregional scale.” (Rio Tinto, 2019)

Seven conservation listed fauna species were considered ‘likely’ to utilise habitats present within the study area (Northern Quoll, Pilbara Leaf-nosed Bat, Ghost Bat, Pilbara Olive Python, Peregrine Falcon, Western Pebble-mound Mouse and Lined soil-crevice skink) however, several fauna surveys have been undertaken within the application area and none have identified any conservation listed fauna species (Rio Tinto, 2019). Six broad fauna habitats are considered to occur within the application area (Rio Tinto, 2019). None of these fauna habitats are considered to be restricted at a local or regional level or are considered to be critical habitat for conservation significant fauna.

Given the above, the vegetation proposed to be cleared may represent high biodiversity given the presence of priority flora and ecological communities and therefore may be at variance to this principle. The impact of clearing these biological values is not likely to impact on the conservation status of either attribute and therefore the proposed clearing is not likely to have a significant impact on biodiversity within the local area.

(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.

Proposed clearing is not likely to be at variance to this Principle

The proposed clearing is not likely to be at variance to this principle as the vegetation within the application area does not comprise whole, or part of and is not necessary for the maintenance of significant habitat for fauna.

As assessed under Principle (a) above, seven conservation listed fauna species were considered 'likely' to utilise habitats present within the study area (Northern Quoll, Pilbara Leaf-nosed Bat, Ghost Bat, Pilbara Olive Python, Peregrine Falcon, Western Pebble-mound Mouse and Lined soil-crevice skink) however, several fauna surveys have been undertaken within the application area and none have identified any conservation listed fauna species (Rio Tinto, 2019). Six broad fauna habitats are considered to occur within the application area (Rio Tinto, 2019). None of these fauna habitats are considered to be restricted at a local or regional level or are considered to be critical habitat for conservation significant fauna.

As assessed within Principle (e), the local area is highly vegetated retaining approximately 99 per cent native vegetation.

Given the above, the proposed clearing is not likely to be at variance to this principle.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.

Proposed clearing is not likely to be at variance to this Principle

No threatened flora have been recorded within the local area of the application area. Previous flora surveys of the application area did not identify any threatened flora (Rio Tinto, 2019).

Given the above, the proposed clearing is not likely to be at variance to this 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.

Proposed clearing is not likely to be at variance to this Principle

No State threatened ecological communities have been recorded within the local area. Previous surveys of the application area did not identify any vegetation consistent with a known threatened ecological community within the application area (Rio Tinto, 2019).

Given the above, the proposed clearing is not likely to be at variance to this 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.

Proposed clearing is not at variance to this Principle

The national objectives and targets for biodiversity conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001).

The mapped Interim Biogeographic Region of Australia (IBRA) bioregion, Pilbara, retains 99.89 per cent native vegetation. Mapped Beard vegetation associations, 175, 609, 645 and 646 all retain above 98 per cent native vegetation within the Pilbara IBRA Bioregion. The local area retains approximately 99.66 per cent native vegetation. As the mapped vegetation associations and the local area occur significantly above the 30 per cent threshold, the proposed clearing does not occur within a highly cleared landscape.

Given the above, the proposed clearing is not at variance to this Principle.

Table 1: Vegetation extents.

	Pre-European (ha)	Current Extent (ha)	Remaining (%)	Extent in DBCA Managed Lands (%)
IBRA Bioregion*				
Pilbara	17804193.01	17,785,000.81	99.89	8.3
Beard vegetation association in Bioregion*				
175	507860.16	507466.80	99.92	7.93
609	74186.11	72765.18	98.08	0
645	84670.25	84658.03	99.98	0
646	47546.55	47546.55	100	26.88
Local Area				
20 kilometre radius	463,020.36	464,598.87	99.66	-

* Government of Western Australia (2018)

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Proposed clearing is at variance to this Principle

The application area includes native vegetation growing in, and in association with several watercourses and is therefore at variance to this principle.

The application area intersects Robe River and its tributaries as well as tributaries to Fortescue River.

Given the above, the proposed clearing is at variance to this principle. The proposed clearing is for hydrological investigations and therefore the clearing will be spread over a large area, minimising the impact at any one location. The impact of clearing riparian vegetation is not likely to be significant.

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

Proposed clearing is not likely to be at variance to this Principle

The application area is mapped within the following rangeland soil systems:

Boolgeeda System	Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands or mulga shrublands.
Brockman System	Gilgai alluvial plains with cracking clay soils supporting tussock grasslands and low woodlands.
Calcrete System	Low calcrete platforms and plains supporting shrubby hard spinifex grasslands.
Egerton System	Highly dissected plains and slopes with sparse mulga shrublands or shrubby hard spinifex grasslands.
Hookey System	Alluvial clay plains supporting a mosaic of snakewood shrublands and tussock grasslands.
Kanjenjie System	Stony clay plains supporting snakewood shrublands with tussock grasses.
Kumina System	Duricrust plains and plateau remnants supporting shrubby hard spinifex grasslands.
McKay System	Hills, ridges, plateaux remnants and breakaways of meta sedimentary and sedimentary rocks supporting hard spinifex grasslands with acacias and occasional eucalypts.
Newman System	Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands.
Oakover System	Breakaways, mesas, plateaux and stony plains of calcrete supporting hard spinifex shrubby grasslands.
Platform System	Dissected slopes and raised plains supporting shrubby hard spinifex grasslands.
River System	Narrow, seasonally active flood plains and major river channels supporting moderately close, tall shrublands or woodlands of acacias and fringing communities of eucalypts sometimes with tussock grasses or spinifex.
Robe System	Low plateaux, mesas and buttes of limonite supporting soft spinifex and occasionally hard spinifex grasslands.
Urandy System	Stony plains, alluvial plains and drainage lines supporting shrubby soft spinifex grasslands.

As assessed under Principle (f) above, major and minor watercourses are mapped within the application area. Rainfall is mapped as 500 millimetres per year with an evapotranspiration rate of 400 millimetres per year.

The proposed clearing is for hydrological investigations and therefore it is unlikely that the clearing will leave large areas of exposed soils. Given the above, the proposed clearing is not likely to be at variance to this Principle.

Further, the applicant has agreed to revegetate temporarily cleared areas reducing any potential impacts associated with land degradation from the exposure of soils through vegetation clearing (Rio Tinto, 2019)

(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.

Proposed clearing may be at variance to this Principle

The eastern end of the application area abuts Millstream Chichester National Park which is an A class nature reserve managed by the Department of Biodiversity, Conservation and Attractions.

Given the close proximity of the application area to the Millstream Chichester National Park it is possible that the proposed clearing may increase the spread of weeds into this conservation area and therefore may be at variance to this principle. Weed management conditions will be imposed on the permit to minimise the risk of weed spread into conservation areas. Further, the applicant has agreed to revegetate temporarily cleared areas reducing any potential impacts associated with land degradation from the exposure of soils through vegetation clearing (Rio Tinto, 2019).

(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.

Proposed clearing is not likely to be at variance to this Principle

As assessed within Principle (e), the local area is extensively vegetated retaining approximately 99 per cent native vegetation. As assessed within Principle (f), one significant watercourse and several tributaries are present within the application area.

Given the extent of native vegetation within the local area and taking into consideration that the proposed clearing is for 60 hectares along an 86 kilometre route, the proposed clearing is not likely to deteriorate the quality of surface or underground water.

Given the above, the proposed clearing is not likely to be at variance to this clearing Principle.

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

Proposed clearing is not likely to be at variance to this Principle

As assessed within Principles (e), (f) and (g), the local area is extensively vegetated retaining approximately 99 per cent native vegetation, major rivers and tributaries manage the flow of significant rainfall, and rainfall within the region is low at 500 millimetres per year.

Given the above, the proposed clearing is not likely to be at variance to this Principle.

Planning instruments and other relevant matters.

The clearing permit application was advertised on the DWER website on 31 July 2019 with a 14 day submission period. No public submissions were received in relation to this application.

Three Aboriginal sites of significance have been mapped within the application area (JIMMAWURRADA CREEK 08. - Artefacts / Scatter, Rockshelter; BVP09_10 – Rockshelter, BC04-37 - Artefacts / Scatter).

The applicant advised in their application that:

- The application relates to Licence 00882-2009-1-120, granted to the Company under section 91 of the Land Act 1933 (attached). Given the temporary nature of the section 91 Licence and the pending Easement, the Company requests that the 'land on which clearing is to be done' reflects clearing authorised under this permit is to be undertaken within land tenure or rights administered under the Land Administration Act 1997.
- Raised blade clearing will be undertaken where possible. Where not possible or already cleared, tracks and other areas may be graded using blade down clearing.
- Rehabilitation of cleared areas that are no longer required for the purpose for which they were cleared, will be carried out on completion of the authorised activity. Cleared areas will be re-profiled to reflect the previously undisturbed landform then ripped on the contour to impede erosion. Stockpiled topsoil and cleared vegetation will be returned to the disturbed areas to promote vegetative regeneration.
- Hydrogeological investigations are considered to be low environmental impact, requiring minimal clearing and avoiding areas of special environmental significance wherever possible.

The applicant holds water licences relating to this project:

- CAW203149 for the Hamersley Millstream aquifer and CAW203150 for the Wittenoom aquifer were recently granted (July 2019), authorising the construction of a number of new bores to investigate water supply options along the Bungaroo to Millstream Water Pipeline corridor (the subject of this Clearing Permit application).
- The purpose of the Bungaroo to Millstream Water Pipeline is to provide water supply from the Bungaroo Coastal Water Supply Borefield. Existing Groundwater Licence GWL 201931(1), issued in September 2018, authorises groundwater abstraction for water supply purposes from the Bungaroo Coastal Water Supply Borefield.

Note: The borefield is also subject to an existing Clearing Permit. No changes to the existing GWL or Clearing Permit are required for the proposed studies along the Bungaroo to Millstream Water Pipeline.

5. References

Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.
Government of Western Australia (2018) 2017 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of February 2018. WA Department of Parks and Wildlife, Perth.
Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
Rio Tinto (2019) Application form and supporting information for CPS 8523/1. A1794907.
Western Australian Herbarium (1998-) FloraBase - The Western Australian Flora. Department of Parks and Wildlife. <http://florabase.dpaw.wa.gov.au/> (Accessed February 2019).

GIS Database List

- SAC Bio datasets (September 2019)
- Hydrography, linear
- Aboriginal Sites of Significance
- PDWSA Areas
- Hydrography, linear
- Groundwater Salinity
- Pre-European vegetation
- DBCA Estate
- Soils, statewide
- Salinity Risk

- Rainfall, Areal Actual
- Evapotranspiration