Attachment 3B:
Works Approval Supporting Information

Miralga Creek Direct Shipping Ore Project – Sandtrax Operations

25/06/2025

101-EN-REP-0017 v [0]

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Abbreviations

Atlas	Atlas Iron Pty Ltd
ACHIS	Aboriginal Cultural Heritage Inquiry System
ACN	Australian Company Number
AEP	Annual Exceedance Probability
ALRE	Abydos Link Road East
ARI	Annual Recurrence Interval
ASIC	Australian and Securities and Investment Commission
BOM	Bureau of Meteorology
DCCEEW	Department of Climate Change, Energy the Environment and Water
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety
DPLH	Department of Planning, Lands and Heritage
DOW	Department of Water
DSO	Direct Shipping Ore
DWER	Department of Water and Environment Regulation
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act* 1986
EPBC Act	*Environment Protection Biodiversity Conservation Act* 1999
IBRA	Interim Biogeographical Regionalisation for Australia
IFD	Intensity Frequency Duration
km	kilometre
mbgl	Metres Below Ground Level
mm	Millimetres
MP	Mining Proposal
mRL	Metres Reduced Level
MS	Ministerial Statement
MSDS	Material Safety Data Sheet
Mtpa	Million tonnes per annum
NAC RNTBC	Nyamal Aboriginal Corporation Registered Native Title Body Corporate
PEC	Priority Ecological Communities
ROM	Run-of-mine
RiWI Act	*Rights in Water and Irrigation Act* 1914
SRE	Short Range Endemic
TDS	Total Dissolved Solids
TEC	Threatened Ecological Communities
The Project	Miralga Creek Direct Shipping Ore – Sandtrax Operations
This Report	Attachment 3B: Works Approval Application Information

1 Scope of this Document

Atlas Iron Pty Ltd (Atlas) is seeking to install a mobile crushing and screening facility on mining tenement M 45/1280 at the Miralga Creek Direct Shipping Ore (DSO) Sandtrax operations (the Project). No prescribed premise activities have been previously approved on this tenement; therefore, a works approval is required to authorise prescribed activities associated with:

- Prescribed Premise Category 5 - *Processing or beneficiation of metallic or non-metallic ore*

as defined under Schedule 1 of the *Environmental Protection Regulations* 1987, in accordance with Part V of the *Environmental Protection Act* 1986 (EP Act).

1.1 Project Overview

The Miralga Creek DSO Project is an iron ore mine located in the Pilbara region of Western Australia, approximately 100 km southeast of Port Hedland, along the Marble Bar Road. The project involves mining iron ore from five open pits located in three discrete mining areas (Miralga West, Miralga East, and Sandtrax using conventional drill and blast, load and haul methods. The deposits are all above the groundwater table and are mined in a staged sequence to maintain approximately 2 million tonnes per annum (Mtpa) over a life of mine of six years (2021 to 2027). All mined ore is hauled to the run-of-mine (ROM) pad at Miralga West for crushing and screening, with the final product hauled to Utah Point in Port Hedland for export overseas.

Support facilities such as the accommodation village, landfill, existing licensed borefield, road and water infrastructure including wastewater treatment plant from the nearby Abydos Mine are utilised by the project. Access for the site is via the existing Abydos Link Road East (ALRE) and haul road that links Sandtrax with the ALRE. The Project also utilises the Marble Bar Road route for haulage to Utah Point in Port Hedland.

The Project comprises above water table mining of iron ore from five satellite pits within three discrete mining areas, spread over 30 km and include:

1) Miralga East (Dasher, Vixen and Comet pits), 35 km north-east of the Atlas's Abydos operations, with the three pits located along an east to west trending ridge.
2) Miralga West (Rudolph Pit), 22 km north-east of Atlas's Abydos operations, with the pit on a north-east to southwest trending ridge.
3) Sandtrax (Blitzen Pit (formerly Prancer Pit)), 7 km north-east of Atlas's Abydos operations, with the pit along an east–west ridge.

This works approvals seeks approval for prescribed activities associated with Prescribed Premise Category 5 - *Processing or beneficiation of metallic or non-metallic ore* at the Sandtrax Operations on mining tenement M 45/1280. The installation of the mobile crushing and screening facility at Sandtrax operations supports mining operations by improving haulage efficiencies.

This Report (Attachment 3B) supports Atlas's submission of the 'Application form: works approval' as required by the Department of Water and Environmental Regulation (DWER).

650,000 mE
700,000 mE
750,000 mE
800,000 mE
7,750,000 mN
7,700,000 mN
7,650,000 mN

Port Hedland
Great Northern Hwy
North West Coastal Hwy
Great Northern Hwy
Marble Bar Road
Ripon Hills Rd

DE GREY
PIPPINGARRA
BOODARIE
MUNDABULLANGANA
WALLAREENYA
COONGAN
INDEE
STRELLEY
EGINBAH
KANGAN
PANORAMA

Miralga ROM
Miralga East
Miralga West
Sandtrax
Miralga Creek
Abydos
Marble Bar

Points of Interest
Atlas Projects
Development Envelope
Atlas Tenure
State Road
Local Road
Railways
Crown Reserves

File Name: GIS_3866.aprx	Projection: GCS GDA 1994	
Date: 20/06/2025	0 10 20 Kilometres	N
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Regional Location

Figure No: 1.1

MIRALGA CREEK ATLAS IRON

2 Applicant Details

Atlas Iron Pty Ltd (ACN 110 396 168) is the Applicant of this proposal. Atlas was acquired by Hancock Prospecting Pty Ltd in 2018; at which time it was de-listed from the Australian Securities Exchange. Atlas is an Australian and Securities and Investment Commission (ASIC) listed company, as demonstrated in Attachments 1A and 1B.

2.1 Occupier Status

The prescribed premises boundary and permitted category are located within mining tenement M 45/1280 held by Atlas (Table 2-1). The installation of the mobile screening and crusher facility will be located only on mining tenement M 45/1280 at the Sandtrax operations. Proof of occupier status has been provided in Attachment 1A.

Table 2-1: Tenure Status

Tenement	Tenement Holder	Grant Date	Expiry Date
M 45/1280	Atlas Iron Pty Ltd	23/03/2021	22/03/2042

3 Premises Details

Atlas will be the holder of the works approval issued under Part V of the *Environmental Protection Act* 1986 that permits the following Prescribed Premises Categories defined under Schedule 1 of the *Environmental Protection Regulations* 1987.

Table 3-1: Premises Legal Description

Prescribed Premise Category	Category production or design capacity	Premises production or design capacity
Category 5 – Processing or beneficiation of metallic or non-metallic ore	50,000 tonnes or more per year	2,500,000 tonnes per year

Atlas is seeking a works approval, in relation to Category 5 *Processing or beneficiation of metallic or non-metallic* ore at the Sandtrax Operations. The prescribed premises map and site plan is provided in (Attachment 2A and 2B).

4 Proposed Activities

Atlas is proposing to install a mobile crushing and screening facility at the Project to support processing of mined ore. The location of the facility will be at the existing ROM pad on mining tenement M 45/1280 that was cleared and established during the early development stages of the Project approved in 2020 (MS 1154; 2020 and MP REGID 95854; 2021). The ROM pad was built using a process of cut and fill material and was specifically located to minimise impacts to the surrounding environment. Determinant factors in site selection included the distance from adjacent drainage lines as well as no other sensitive land uses or environmental receptors intersect the ROM. The ROM Pad level is 200 mRL with a maximum height of 9 m. The stockpiling capacity at the ROM is approximately 700,000 tonnes.

4.1 Category 5 – Crushing and Screening

A mobile crushing and screening facility is required to process ore mined to the target product sizes prior to road transport to the port at Utah Point. The mobile crushing and screening facility will be mostly fabricated offsite and brought to site to be assembled.

A summary of the crushing and screening facility details is provided in Table 4-1. An indicative list of equipment for the crushing and screening facility is provided in Figure 4-1 to Figure 4-3 and the location of the ROM pad in Attachment 2B.

Table 4-1: Summary of the Crushing and Screening Facility

<table>
<tr><th>Component</th><th>Overview</th></tr>
<tr><td>Scope, size and scale, including details as to frequency, production and design capacity</td><td>Crushing and screening facility, operating 24 hours, 7 days per week, with a design capacity and expected production rate of 700,000 Mtpa.
The proposed schedule and key dates are as follows:
<table>
<tr><th>Development Stage</th><th>Indicative Timing (Calendar Year)</th></tr>
<tr><td>Obtain licence amendment</td><td>Q3 2025</td></tr>
<tr><td>Commence site installation</td><td>Q3 2025</td></tr>
<tr><td>Commence mining</td><td>Q4 2025</td></tr>
<tr><td>Mining ceases</td><td>Q3 2026</td></tr>
<tr><td>Decommissioning and closure</td><td>Q3 2027</td></tr>
</table></td></tr>
<tr><td>Key infrastructure and equipment</td><td>The crushing and screening facility will be mobile unit and include the following:
• 1x track mounted 696 Finlay 3 Deck Supertrack Screening Plant (or equivalent*)
• 1 x track mounted JM1310 Jaw Crusher (or equivalent*)
• 1 x Track mounted C-1540 Cone Crusher (or equivalent*)
• 2 x tracked conveyor
• 2 x 15 m Stackers</td></tr>
<tr><td colspan="2">Note: * Or equivalent means that a different brand or a lower production capacity equipment may be utilised to accommodate operational requirements. All equipment listed and maximum throughput capacity remains unchanged.</td></tr>
</table>

Component	Overview
Emissions and emission discharge points (Emissions are discussed further in Section 9)	Emission points associated with the crushing and screening facility include primary jaw crusher/feeder, transfer areas and the stacker. Potential emissions from the crushing and screening facility are as follows: <u>Noise:</u> • Installation and operation of the crushing and screening facility; • Associated vehicle movements; and • Equipment and machinery operation. <u>Dust:</u> • ROM and product stockpiles; • Crushing and screening facility, specifically primary feed hopper, conveyor transfer points and stackers; and • Associated vehicle movements, equipment and machinery operation on unsealed roads. <u>Light:</u> • The facility will operate on 24 hours a day seven days a week; and • Maintenance activities occurring at night which will require additional lighting. <u>Water:</u> • An earthen bund (comprised of drainage channels and haul road windows) surrounds the ROM pad to prevent stormwater ingress and egress.

Figure 4-1: Indicative jaw crusher

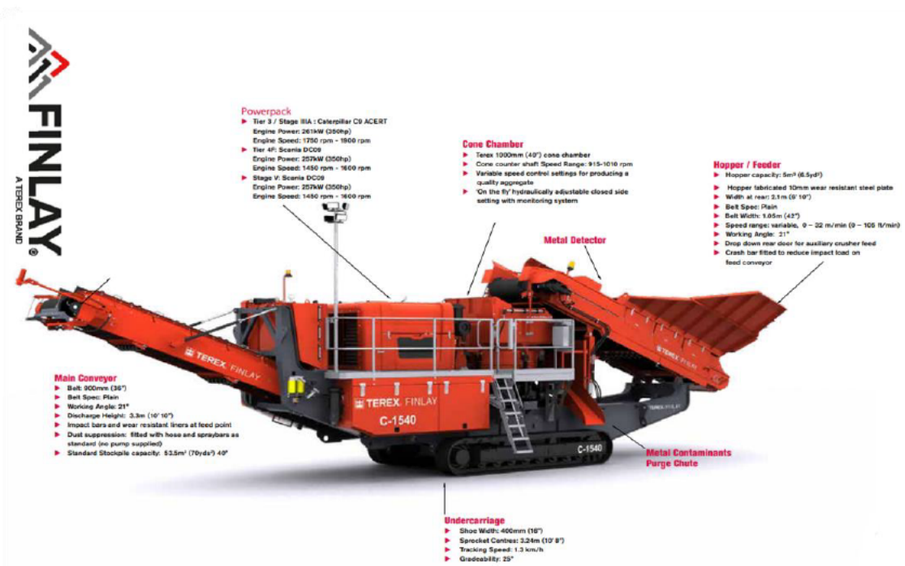

Figure 4-2: Indicative cone crusher

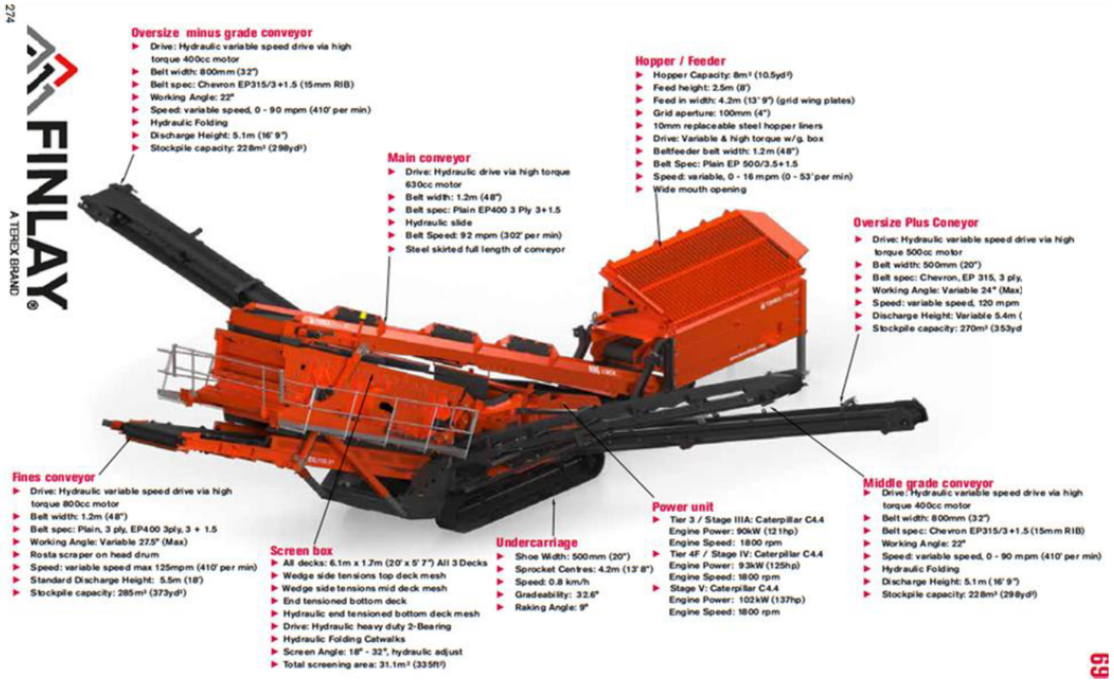

Figure 4-3: Indicative screen and conveyors

4.1.1 Construction / Installation

Equipment required for the crushing and screening facility will be semi mobile equipment and manufactured offsite before being assembled at the ROM (Attachment 2B). No clearing of native vegetation will be required to support construction works as the existing ROM is already cleared and disturbed from mining activities with no regrowth of vegetation established. Commencement of construction is expected to begin in July 2025.

4.1.2 Operations

Ore mined from the Blitzen Pit will be hauled via haul trucks to the ROM pad, where it will be stockpiled prior to processing. One front end loader will feed the stockpiled ore into the crushing and screening facility, where it will undergo two crushing stages and two screening stages before the ore is fed out, through a series of conveyors, onto the product stockyard via two radial stackers (one for lump product and one for fines product) (Figure 4-4 and Figure 4-5).

Water sprays will be installed on the feed bin, strategic conveyor transfer points and stacker head. In addition, a mobile truck with a water cannon and/or spray bar will be utilised to manage dust emissions on the ROM pad.

The ROM pad was built using a process of cut and fill material and was specifically located to minimise impacts to the surrounding environment. Determinant factors in site selection included the distance from adjacent drainage lines as well as no other sensitive land uses or environmental receptors intersect the ROM. The ROM Pad level is 200 mRL with a maximum height of 9 m. The stockpiling capacity at the ROM is approximately 700,000 tonnes. A earthen bund surrounds the ROM to prevent the ingress and egress of stormwater.

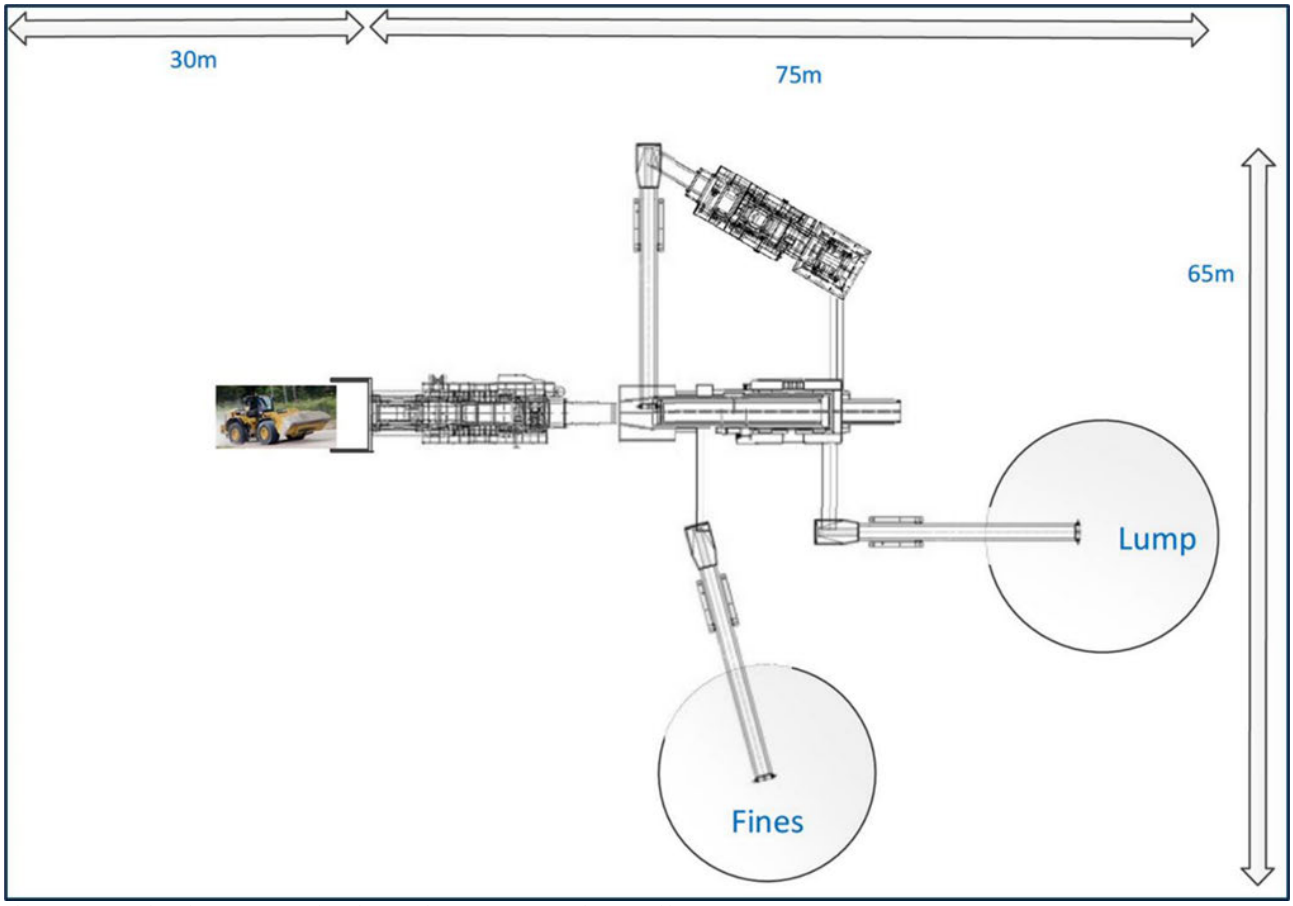

Figure 4-4: Indicative Schematic of Crushing and Screening Facility Layout on the ROM

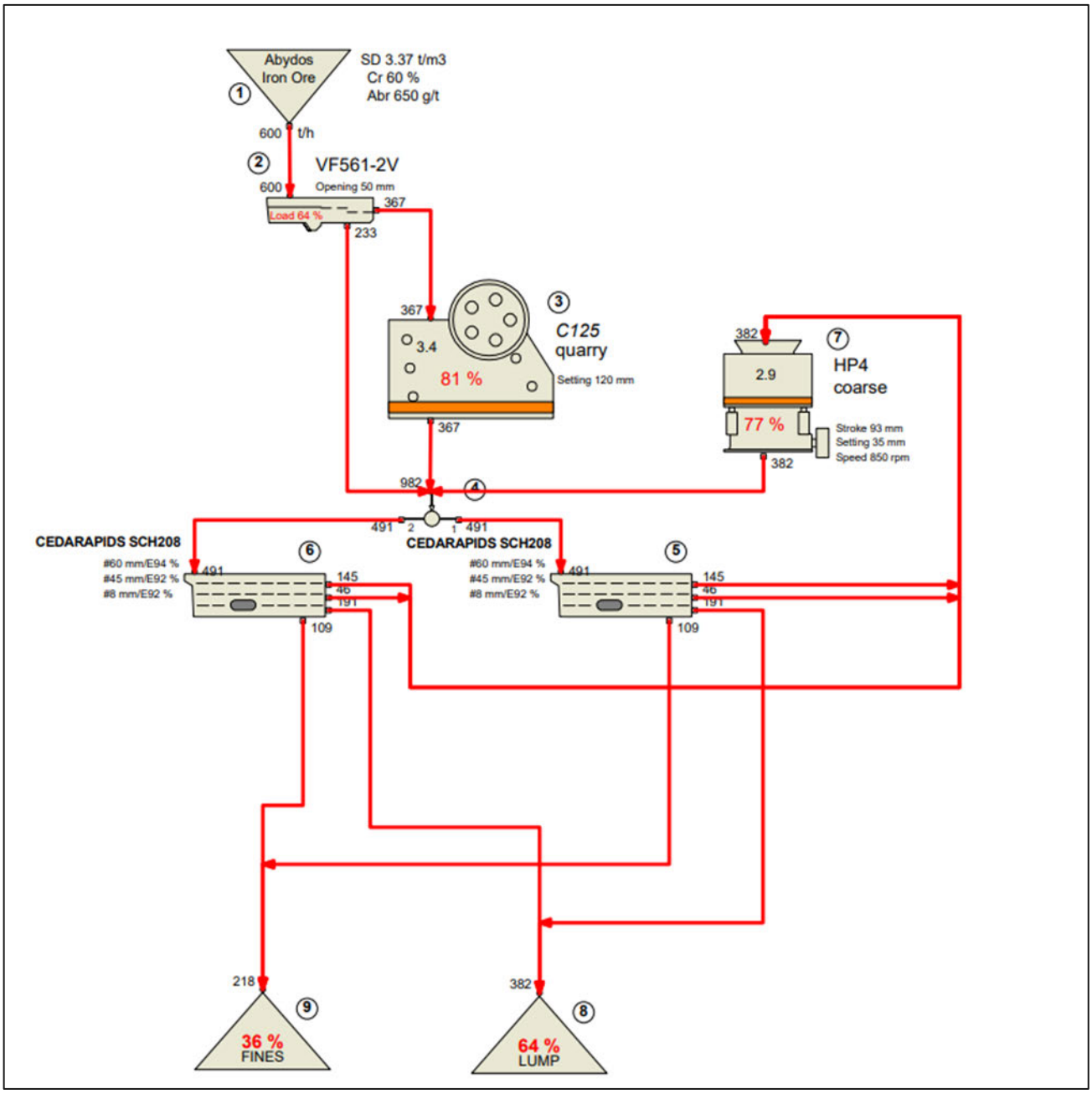

Figure 4-5: Indicative Schematic of Crushing and Screening Facility Process

4.2 Time Limited Operations

Atlas requires time limited operations post installation of the crushing and screening facility elements to allow operations of the facility whilst the approved activities under the Works Approval are converted to a licence.

5 Index of Biodiversity Surveys for Assessment

No biodiversity surveys are required to support the licence amendment as no clearing of native vegetation is required. The mobile crushing and screening facility will be located on ground previously cleared and approved for mining activities.

6 Other DWER Approvals

Water licensing is managed by DWER under the *Rights in Water and Irrigation Act* (RiWI Act) 1914. The Project will use bores managed under existing groundwater licence 5C GWL 176408(6) and 26D licence CAW211176 91). No additional bores are required to be constructed for the crushing and screening activity. These bores have previously been used for mining water supply and will provide sufficient allocation for the Project.

7 Other Approvals and Consultation

The Project was referred under the Environment Protection Biodiversity Conservation Act 1999 (EPBC Act) on 23 December 2019. Approval EPBC 2019/8601 was granted on 18 February 2021 with conditions relating to the protection of Threatened Fauna. The Project was referred under section 38 of part IV of the EP Act on 7 April 2020. The Project was approved on 23 November 2020 under Ministerial Statement No. 1154.

Atlas has approved Mining Proposals (MP) for the Project that enabled development of the Project over it's mine life which included expansion of pits, waste dumps and associated infrastructure. MP REGID 95854 was approved in May 2021 with a subsequent update MP REGID 101234 approved in March 2022.

Table 7-1: Current and historical approvals issued.

Regulator	Instrument	Approval ID	Status
Department of Climate Change, Energy the Environment and Water (DCCEEW)	EPBC	EPBC 2019/8601	Active
Environmental Protection Authority (EPA) – Part IV	Ministerial Statement	MS1154	Active
Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)	MP	REGID 95854	Active
	MP	REGID 101234	Active

Atlas has on-going consultation with relevant stakeholders (Table 7-2). The principal objectives of the stakeholder consultation program have been to:

- Identify interested and potentially affected individuals and groups and to understand the nature of stakeholders' interest in the Project.

- Ensure that stakeholders are properly informed about the Project and that there are adequate and timely opportunities for stakeholders to provide input and raise issues.
- Ensure that any stakeholder issues or concerns are managed with respect, are given due consideration and are responded to in a timely manner.
- Meet the relevant regulatory requirements with regard to appropriate stakeholder input to the impact assessment and approvals process.

Atlas is committed to continuing consultation with stakeholders through the approval, construction and operational phases of the Project to ensure stakeholders are regularly informed of Project developments and address any concerns raised efficiently. Consultation regarding the Project is ongoing and will continue with key stakeholders throughout the life of the Project.

Pastoral Stations: A meeting was held on 12 May 2025 with Coongan and Strelley Stations to provide an overview of the project. No concerns were raised.

Local Government: an email was sent on 28 and 29 May 2025 to the Town of Port Hedland and the Shire of East Pilbara providing them an update on the project and closure considerations. No response has been received yet.

Local Community: An email was sent to the Marble Bar Community Resource Centre on 29 May to provide a project update as well as closure considerations. A response was received expressing interest in the retention/transfer of assets post closure.

State Government: an email was sent 27 May 2025 to DWER to discuss approval pathways for this Proposal.

Table 7-2: Project Stakeholders

Pastoral stations	Strelley Station (Strelley Pastoral Co Pty Ltd)
	Hillside-Panorama Station (Hillside Station (WA) Pty Ltd)
	Coongan Station (Coongan Aboriginal Corporation)
Mining tenure holders	Venturex Sulphur Springs Pty Ltd
	Whim Creek Mining Pty Ltd
	Novo (Fastfield Pty Ltd)
	Le Aussie
Native title groups	NYAMAL PEOPLE #1 and NYAMAL PEOPLE #10 Native Title Groups represented by the Nyamal Aboriginal Corporation RNTBC.
Shire and local governments	Shire of East Pilbara
	Town of Port Hedland
State and Commonwealth government agencies	Department of Climate Change, Energy the Environment and Water
	Department of Energy, Mines, Industry Regulation and Safety
	Department of Water and Environmental Regulation
	Department of Biodiversity, Conservation and Attractions
	Main Roads Western Australia
	Department of Planning, Lands and Heritage
Local and Regional Groups	Marble Bar and Nullagine Community Resource Centre

8 Applicant History

Atlas holds or has held several instruments under Part V of the *Environmental Protection Act* 1986, as summarised in Table 8-1.

Table 8-1: Atlas's Prescribed Premises Instruments

Project	Instrument	Status
Abydos DSO Project	L8733/2013/1	Active
	W5253/2012/1	Inactive
	W5743/2014/1	Inactive
Sanjiv Ridge DSO Project	L9280/2021/1	Active
	W6043/2017/1	Inactive
Miralga DSO Project	L9337/2022/1	Active
	W6494/2021/1	Inactive
Mt Dove DSO Project	L8678/2012/1	Active
	W5181/2012/1	Inactive
Mt Webber DSO Project	L8788/2013/1	Active
	W5312/2012/1	Inactive
	W5373/2013/1	Inactive
	W5667/2014/1	Inactive
Pardoo DSO Project	L8276/2008/2	Inactive
	W4434/2008/1	Inactive
	W5191/2012/1	Inactive
McPhee Creek Project	W6780/2023/1	Active

9 Emissions, Discharges and Waste

This section describes potential emissions and discharges that may be generated during the operation of the crushing and screening facility. Mitigation and/or management measures that will be implemented to reduce environmental impacts associated with these potential emissions and discharges are also outlined in this section.

Waste generation from the proposed activities has not been provided as there will be no waste generated from the crushing and screening facility that needs to be disposed of or discharged onsite.

9.1 Potential Emissions

The following emissions will result from the installation and/or operation of the crushing and screening facility:

- Emissions to air:
  - Noise emissions will be generated during installation, and throughout operations.
  - Dust emissions will be generated during activities for installation and operations.
  - Light will be emitted from the crushing and screening facility at night.

- Emissions to land:
  - Stormwater carrying sediment and hydrocarbons (e.g. fines or undersized products of crushing).
- Emissions to water:
  - Stormwater carrying sediment and hydrocarbons (e.g. fines or undersized products of crushing).

9.2 Proposed Emission Controls

Atlas's business as usual pollution control measures include:

- Hydrocarbons and dangerous goods and hazardous substances will be stored and handled in accordance with the *Dangerous Goods (Storage and Handling of Non-explosives) Safety Regulations* 2007, relevant Australian Standards including the design specifications of AS 1940 – Storage and Handling of Flammable and Combustible Liquids and relevant MSDS.
- Adherence to the Atlas Hydrocarbon Management Procedure (950-EN-PRO-0008) and Hydrocarbon (and Chemical) Spill Management Procedure (950-EN-PRO-0007) at all times.
- Transport of dangerous goods to the project area will be undertaken in accordance with the *Dangerous Goods Safety (Road and Rail Transport of Non-explosives) Regulations* 2007, and the Australian Dangerous Goods Code.
- A dangerous goods and hazardous substances register will be maintained onsite and inventory audits will be regularly undertaken.
- Controlled wastes will be managed and transported offsite in accordance with the *Environmental Protection (Controlled Waste) Regulations* 2004. Offsite transport and disposal will be undertaken by a licensed waste contractor.
- Spill recovery and clean up materials will be maintained at all hydrocarbon/hazardous material storage areas. Relevant employees and contractors will be trained in the use of this equipment.
- Storage facilities for hydrocarbons/hazardous substances will be contained with impervious bunds and regularly inspected for evidence of leaks or spills.
- Contamination will be reported and managed in accordance with the *Contaminated Sites Act* 2003.
- Equipment will be regularly maintained in accordance with the manufacturer's recommendations.
- Implementation of the Dust Management Procedure (950-EN-PRO-0003), including conventional dust suppression techniques (i.e., water sprays and water carts).
- Vehicle speeds limits will be imposed and enforced on all Project roads.
- All site employees must complete a site induction prior to work.

The Project will also implement the following management measures at the crushing and screening facility to mitigate potential emissions:

- Water will be added to the ore during processing to achieve the required dust extinction moisture content.
- Installation and operation of water sprayers on the feed bin, strategic conveyor transfer points and stacker head.
- Dust suppression (via conditioning by the use of water cart) on the product stockpiles.
- Dust suppression (via water cart) on access roads and work areas within the crushing and screening facility to minimise dust from vehicles and equipment (e.g., bobcats, loaders).
- Regular inspections of the crushing and screening facility to assess the effectiveness of the water sprayers.
- Inhalable particulate monitoring (CONTAM monitoring) on personnel as required.
- Planned preventative maintenance to ensure the crushing and screening facility is operating as designed.

- Lighting, where required, directed towards the work area.
- Stormwater diversion around the ROM pad.

10 Environmental Siting and Location

Historical baseline data has been provided for pre mining environmental context in which the Project operate within. No significant environmental sensitivities intersect the ROM pad.

The mobile crusher and screening unit will be located on the ROM on mining tenement M 45/1280. The ROM has been previously cleared and disturbed from historical mining operations, and no native vegetation clearing is required at the ROM to support the installation and operation of the mobile crusher and screening facility.

10.1 Climate

The region has a semi-desert to tropical climate with highly variable, mostly summer rainfall (McKenzie, 2002; Leighton, 2004). The Pilbara climate is significantly influenced by tropical cyclones that develop over the Indian Ocean in Australia's north (Leighton, 2004), with typical average annual rainfall occurring predominantly from January to March. The closest official Bureau of Meteorology (BOM) weather station in operation is located at Marble Bar, located approximately 70 km south-east of the Project. The average annual rainfall and average monthly minimum and maximum temperatures are provided in Table 10-1(BOM, 2021). The average monthly maximum temperature ranges from 27 °C to 42 °C, while the average monthly minimum temperature ranges from 12.2 °C to 26.5 °C. Average monthly rainfall ranges from 0.7 mm to 109.3 mm, while the average annual rainfall is 403.1 mm.

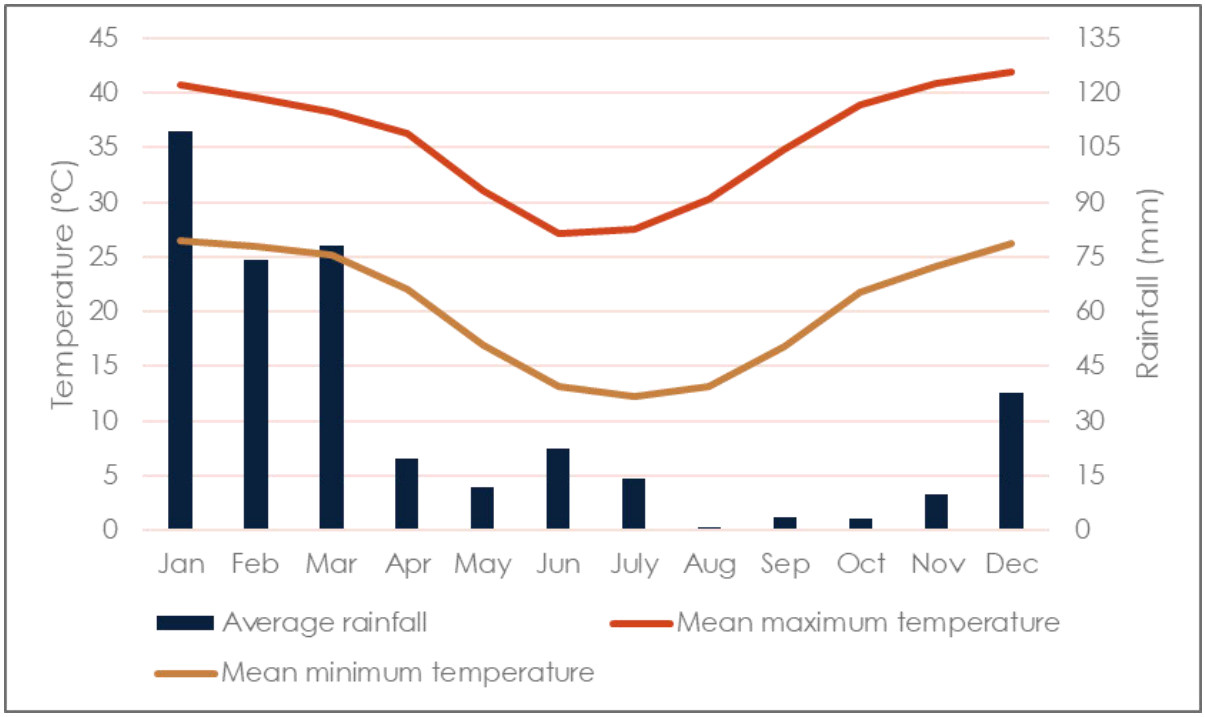

Figure 10-1: Average Monthly Rainfall and Temperatures at Marble Bar (2000 - 2021)

Source: BOM (2021) for Marble Bar station ID 4106

Analysis of rainfall data from single stations is often unreliable and is not temporally or spatially consistent. Therefore, Intensity-Frequency-Duration (IFD) design rainfall data has been derived for the

whole of Australia by the BOM. The design IFD values for each Annual Exceedance Probability (AEP) event for the Project area are detailed in Table 10-1.

Table 10-1: IFD Design Rainfall Intensity

Duration	Annual Exceedance Probability (AEP) (mm/hour)						
	63% AEP	50% AEP	20% AEP	10% AEP	5% AEP	2% AEP	1% AEP
1 hour	28	32	46	56	66	79	90
2 hour	34	39	57	70	83	100	115
6 hour	45	53	81	102	123	153	177
12 hour	53	65	102	130	160	202	234
24 hour	64	78	127	163	201	255	296
72 hour	81	100	160	202	246	303	354

Evaporation in the Pilbara is high with the average yearly evaporation of 3,300 mm greatly exceeding average annual rainfall of 362 mm (based on Marble Bar evaporation data), due to the heat and clear skies typical of arid to semi-arid areas.

The most common afternoon wind direction at the Marble Bar weather station is from the east or south-east. Annual mean wind speed is 16.7 km/h and maximum gusts range from 61 km/h in June to 126 km/h in December (BOM, 2021).

10.2 Landscape

The Project is in the Pilbara Interim Biogeographical Regionalisation for Australia (IBRA), entirely within the Chichester subregion (Department of Sustainability, Environment, Water, Population and Communities, 2012). The Chichester subregion is characterised by undulating granite and basalt plains with significant areas of basaltic ranges. The plains support a shrub steppe characterised by *Acacia inaequilatera* over *Triodia wiseana* (spinifex) hummock grasslands and the ranges support *Eucalyptus leuchophloia* tree steppes (Kendrick et al., 2001).

10.3 Local landscape

The Project area is typical of the surrounding regional landscape with steep sided ridges and hills dominating the landscape, while well-developed drainage lines dissect the ridges to form gullies and small gorges. The land surrounding the Project is predominantly used for mineral resource development (exploration and mining) as well as pastoral grazing.

10.4 Land Systems

Land system classifications are used to map the land according to similarities in landform, soil, vegetation, geology and geomorphology (Van Vreeswyk, 2004). Eight land systems occur within the Project area and are provided in in Table 10-2.

Table 10-2: Land Systems Within the Development Envelope

Land System	Description	Mapped Extent (ha)[1]	Extent Within the Development Envelope (%)
Rocklea	Basalt hills, plateaux, lower slopes and minor stony plains supporting hard (and occasionally soft spinifex) grasslands.	2,299,300	0.3%

Land System	Description	Mapped Extent (ha)[1]	Extent Within the Development Envelope (%)
Macroy	Sandy/Stony plains and occasional tor fields based on granite supporting hard and soft spinifex shrubby grasslands.	1,309,500	1.2%
Boolgeeda	Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands or mulga shrublands.	774,800	7.4%
Uaroo	Broad sandy plains supporting shrubby hard and soft spinifex grasslands	768,100	5.7%
Capricorn	Hills and ridges of sandstone and dolomite supporting low shrublands or shrubby spinifex grasslands.	529,600	58.4%
River	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.	408,800	3.8%
Platform	Dissected slopes and raised plains supporting spinifex grasslands	157,000	1.0%
Satirist	Stony plains and low rises supporting hard spinifex grasslands, and gilgai plains supporting tussock grasslands.	37,700	22.2%

1. Total extent of the land system, not just the portion within the Development Envelope.

10.5 Surface Hydrology

The Project is located within the Proclaimed Pilbara Surface Water Area regulated under the RiWI Act. Major surface drainage in the area generally trends north, through dryland tributaries/ creeks (including Miralga Creek), into either the Shaw River or Strelley River (RPS, 2020). Both rivers join the De Grey River system to the north. The De Grey River Basin covers an area of 56,890 km2 (Ruprecht, 2000) with its major tributaries being the Strelley, Shaw, Coongan, Oakover and Nullagine Rivers.

Surface flow in the region occurs almost exclusively as a direct response to rainfall and is highly skewed to summer events (December to March). Flow in the smaller channels is typically of short duration and ceases soon after the rainfall event passes. In the larger river channels, which drain the larger catchments, runoff can persist for several weeks and possibly months following major rainfall events such as tropical cyclones. There are no perennial streams occurring in the immediate vicinity of the Project. Surface water can persist throughout the year in waterholes along the main rivers and creeks (RPS, 2020). All of the proposed mining areas are located atop high, narrow ridges. As such surface runoff into the pits will be minimal. The narrow ridges would also be unlikely to support infiltration of significant amounts of surface water, so any mounding of the underlying local water table would likely be subdued.

10.6 Groundwater

The project area is located within the Pilbara Groundwater Management Area (DoW, 2008). Groundwater contours surrounding the Project broadly mimics the surface topography with groundwater flow generally towards the north, with measured depths ranging from 7 mbgl to greater than 100 mbgl (MWH, 2012). Hydrochemistry of groundwater over the project area ranges from near potable to brackish. Fresher groundwater was observed in high areas (e.g. ridge tops) where rainwater

infiltrates directly to recharge the watertable and residence times are shorter. Total Dissolved Solid (TDS) concentrations increase further along the groundwater flow paths and are subsequently greatest in low lying area.

10.7 Biodiversity

The Project is located within the Fortescue Botanical District (Beard, 1990). The District is characterised by tree (*Eucalyptus* spp. and *Corymbia* spp.) and shrub (*Acacia* spp., *Hakea* spp., *Grevillea* spp. and *Senna* spp.) steppe communities and *Triodia* spp. Hummock grasslands (Beard, 1990; Beard, 1975). Majority of the vegetation at the Project consists of Granite and dolorite hills and ranges, Isolated clumps of trees, mainly represented by *Eucalyptus leucophloia*, *Corymbia hamersleyana* or *C. ferriticola*, over mid to tall isolated shrubs of mixed Acacia species including *Acacia inaequilatera*, *A. tumida* var. *pilbarensis* and A. orthocarpa, and *Grevillea wickhamii* subsp. *hispidula* over low sparse shrubland of *Solanum phlomoides*, *Senna glutinosa* subsp. *glutinosa* and *Clerodendrum tomentosum* var. *lanceolatum* over hummock grassland to open hummock grassland dominated by *Triodia brizoides*, and less commonly *T. wiseana* and *T. epactia*, over isolated clumps of tussock grasses of *Cymbopogon ambiguus*, *Eriachne mucronata* and *Cyperus hesperius* on steep mid to upper slopes, usually adjoining cliff faces, with exposed granite, dolerite, ironstone or occasional quartz bedrock with skeletal red-brown sandy loam. Hills and steep slopes on ironstones; Open to sparse tall shrubland of *Acacia orthocarpa*, *A. tumida* var. *pilbarensis* and *Grevillea wickhamii* subsp. *hispidula* over hummock grassland of *Triodia epactia* on moderate to steep upper slopes and crests of metamorphic quartz, sandstone and granite hills and ridges with red-brown sandy loam soils.

10.8 Flora

A total of 380 discrete vascular flora taxa, one known hybrid and one putative hybrid were recorded in the Study Area during this survey, including 360 native taxa and 20 introduced taxa (Woodman Environmental, 2019). The most well-represented families were Fabaceae (73 taxa), Poaceae (61 taxa) and Malvaceae (35 taxa), and Cyperaceae (21 taxa). Of the discrete flora taxa recorded, the life-cycle of 135 taxa (36%) were classified as annual, and 245 taxa (64%) were classified as perennial. No Threatened Flora taxa, Threatened Ecological Communities or Priority Ecological Communities have been recorded within the Study Area. A total of 20 introduced flora taxa were recorded within the Study Area, including one Declared Pest *Caltropis procera*. This taxon was recorded at 24 locations within the Study Area, however it is exempt from management or control requirements with regard to agriculture (Woodman Environmental, 2019). No introduced taxa listed as Weeds of National Significance were recorded in the Study Area (Woodman Environmental, 2019).

10.9 Fauna

The desktop study and field survey identified that approximately 343 vertebrate species occurred in the study area. A total of 154 vertebrate fauna species comprising 24 native and four introduced mammal species, 84 bird species, 39 reptile species, and three amphibian species were recorded during the survey (Biologic, 2020). This number of species is comparable with other surveys of equivalent scope and size in the vicinity of the Study Area (Biologic, 2020). No unusual or unexpected species were recorded during the survey; all species had been recorded in the area by at least two previous surveys considered in the literature review.

A total of seven vertebrate species listed as conservation significant we recorded or are likely to occur at the Project. These include Northern Quoll, Pilbara Leaf-nosed Bat, Western Pebble-mound Mouse, Ghost Bat, Northern Brushtail Possum, Grey Falcon, Peregrine Falcon. Six vertebrate fauna habitats

were identified in the Study Area, four of which have Moderate to High levels of significance to vertebrate fauna (Sandy Plain, Major Drainage, Hillcrest/ Hillslope, and Gorge/ Gully).

10.10 Soils and Geochemical

The Cleaverville Formation underlies the Project which is overlaid with weathered iron-rich regolith and/ or thin, loose tertiary soils, dominated by three regolith types:

- Massive, bedded or pisolitic goethite-limonite laterite (ferricrete).
- Silcrete.
- Quartz-limonite-clay laterite.

Majority of the Project area is characterized by shallow and stony soils and brown loams. All soils are coarse grained, generally low clay content (minor increase in clay with depth), were non-saline, partially dispersive upon severe disturbance, free draining (moderate hydraulic conductivity) and typically low in organic carbon and plant-available nutrients. Soil associations at the Project consist of Ridgelines/Rocky outcrops, Low hills/scree slopes, stony plains, sandy plains and drainage channels. All these soil associations are widespread and not restricted to the Project area.

The Project is located on the northern margin of the Panorama Greenstone Belt, within the East Pilbara Terrane of Western Australia. The Cleaverville Formation (within the Gorge Creek Group) hosts the Miralga deposits and consists of packages of banded iron formation (BIF), chert, shale and sandstone (Atlas Iron, 2014). Mineralisation at the Sandtrax deposit consists of predominantly goethite (with lesser hematite) enrichment and is comprised of a low-grade hydrated zone that dips steeply to a depth of 30 to 50 m (Atlas Iron, 2012). All ore samples returned circum-neutral pH (5–9 pH) and low salinity. Negligible sulphides were present across all samples; All samples were classified as non-acid forming (NAF). Material at the Project is not problematic and does not require specific management.

10.11 Heritage

The Project is located within Determined Area "Nyamal People #10" (WCD2019/011) encompasses the Magazine Area, the majority of Miralga West and the western portion of the Miralga Haul Road. This area was determined in September 2019. Native Title Claim Area "Nyamal People #1" (WCD2019/010) across Sandtrax, Miralga East and the southernmost portion of Miralga West including the eastern portion of the Miralga Haul Road.

Atlas has an existing claim-wide Native Title Agreement with Nyamal People. The agreement spans areas covered by both of the above claims. Atlas conducts all activities in accordance with the Native Title Agreement and has a sound working relationship with Nyamal People and their representative the Nyamal Aboriginal Corporation.

Atlas has completed heritage surveys with the Nyamal People across the Development Envelope including the proposed Prescribed Premises Boundary (PPB). In addition to these surveys a desktop analysis of the Department of Planning, Lands and Heritage (DPLH) Aboriginal Cultural Heritage Inquiry System (ACHIS) did not identify any Registered Aboriginal heritage sites within the Projects Development Envelope. The nearest registered site is Sulphur Spring, approximately 2 km south of Sandtrax, outside of the Development Envelope. The area has heritage areas covering the area and no aboriginal cultural heritage sites are impacted by this proposal.

10.12 Key Receptors

Atlas has undertaken a review of sensitive land uses and sensitive environmental receptors that maybe impacted by the proposed prescribed premises activities. No major water courses, or environmental sensitive features and or heritage sites intersect the location of the ROM.

Key receptors that were identified within 10km of the boundary are shown in Attachment 7 as well as Table 10-3. Other key receptors were identified during the review, however due to their distance from the prescribed premise activity have not been considered further and are highlighted red below.

Table 10-3: Sensitive Land Uses and Environmental Receptors.

Type/Classification	Key Receptor	Distance and Direction
Sensitive Land Uses		
Townsite	Marble Bar Residential Area	Located approximately 60 km east of the ROM. ***Due to the distance from the prescribed premise activities no impacts are expected.***
Native Title	Nyamal Aboriginal Corporation RNTBC	Located within Nyamal People #1 (WCD2019/010)
Pastoral Leases	Panorama and Strelley Stations	**No Pastoral Leases intersect the ROM.** The nearest pastoral stations are located 416 m north and 5.82 km west respectively of the ROM.
Geo Heritage Site	Strelley Pool Formation (site ID 125)	**No Geo Heritage Sites intersect the ROM.** The nearest site is located 4.36 km west of the ROM.
Crown Reserve	Timber Reserve (R13619)	**No Crown Reserves intersect the ROM.** The nearest crown reserve is located 4.89 km west of the ROM.
Environmentally Sensitive Receptors		
Environmentally Sensitive Areas	De Grey River	**No ESAs intersect the ROM.** The nearest environmentally sensitive area is approximately 77 km northeast of the ROM/Plant Site. ***Due to the distance from the prescribed premise activities no direct impacts are expected.***
Threatened and Priority Ecological Communities (TEC and PEC)	TEC – *Themeda* grasslands on cracking clays (Hamersley Station, Pilbara) PEC - Gregory Land System (P3)	**No TEC and or PEC intersect the ROM.** The nearest TEC and PEC are over 189 km southwest and 63 km west of the ROM respectively ***Due to the distance from the prescribed premise activities no impacts are expected.***
Threatened and/or priority fauna. Threatened fauna habitat	Northern Quoll, Pilbara Leaf-nosed Bat, Ghost Bat, Pilbara Olive Python and Western Pebble mouse. Cave 21-19	**No threatened habitat intersects the ROM.** Within/adjacent to prescribed premises boundary. The nearest recorded cave is approximately 700 m southwest from the ROM.

Type/Classification	Key Receptor	Distance and Direction
Threatened and/or priority flora	*Quoya zonalis* (T) *Euphorbia clementii* (P3) *Triodia basitricha* (P3)	**No threatened or priority flora occurs within the ROM.** The closest threatened flora record is 3.24 km south east. The closest priority flora (*Triodia basitricha*) record to the ROM is located 1.07 km south west.
Aboriginal Heritage Site	ACH-00006046 (Sulphur Spring) Unregistered Site	**No heritage sites intersect the ROM.** The nearest DPLH registered site is 2.89 km south east of the ROM The nearest unregistered heritage site is located approximately 181 m east of the ROM.
Public Drinking Water Source Area	Marble Bar Water Reserve	Located approximately 60 km east. ***Due to the distance from the prescribed premise activities no impacts are expected.***
Rivers, lakes, oceans, and other bodies of surface water, etc.	Shaw River Sulphur Springs Creek	The Shaw River is located 11.02 km east of the ROM. Sulphur Springs Creek is located within 50 m east to the ROM.
Acid sulfate soils (ASS)	Shaw River (Moderate to low risk)	**No Acid Sulfate Soils intersect the ROM.** The acid sulfate soil risk area is located 11.02 km east of the ROM. ***Due to the distance from the prescribed premise activities no impacts are expected.***

10.13 Risk Assessment and Management Summary

Based on the sensitive land uses and environmentally sensitive receptors identified in Table 10-3 a risk assessment has been undertaken to determine which receptors are most likely to be impacted by the proposed activities.

Receptors that were not in close proximity to the proposed crushing and screening activities were deemed to have little or no risk during the assessment as they are unlikely to be impacted due to the significant distance.

The risk assessment and management summary evaluate and outline the key risks, impacts and the associated environmental management measures from the proposed works are summarised in Table 10-4. Risk rating was classified based on the risk rating matrices detailed in DWER's Guideline – Risk Assessments 2020 (see Table 12-1 and

Table 12-2 of Attachment 8A).

Table 10-4: Emissions Risk Assessment and Management for Crushing and Screening Facility

Source/Activity	Risk/Emissions	Risk Pathway	Receptors	Likelihood	Consequence	Risk	Actions to be implemented/treatment
Installation and operation of crushing and screening facility Vehicle and equipment movements operation on unsealed roads Loading / unloading material stockpiles	Noise Emissions potentially impacting health and amenity.	**Pathway**: Air /windborne	**Sensitive Land Uses**: • Native Title – within prescribed premises boundary. • Pastoral Leases ~ 416 m north and 6 km west the ROM	Rare	Slight	Low	• All mobile crushing equipment is to be constructed offsite, so it is not anticipated to impact with any sensitive land use or environmentally sensitive receptors. • All noise emissions will be compliant with *the Environmental Protection (Noise) Regulations* 1997. • Operation of the facility is only for a short duration of time (less than > 2 years) and is unlikely to have a significant impact. • Given the short-term nature of construction, distance to nearest non-Project related sensitive receptor (Marble Bar, approximately 65 km away) noise emissions are not anticipated to be significant. • It is unlikely there will be significant impacts on the Native Title and Pastoral Lease holders and noise generated will not impact their continued land uses. • Long term monitoring equipment has been established in caves around the project to monitor ongoing Pilbara Leaf Nosed Bat and Ghost Bat activity, as well as annual monitoring of significant species to assess/monitor potential impacts from noise. **With the addition of the above controls the overall risk for this emission is considered Low**.
			Environmentally Sensitive Receptors: • Threatened and/or priority fauna – within and adjacent to ROM. • Threatened Fauna habitat ~ 700 m southwest of ROM.	Possible	Moderate	Medium	
	Dust Emissions potentially impacting health and amenity, and/or smothering of vegetation	**Pathway**: Air /windborne	**Sensitive Land Uses**: • Native Title – within prescribed premises boundary. • Pastoral Leases ~ 416 m north and 6 km west the ROM • Geo heritage Site ~ 5 km west of ROM. • Timber Reserve ~ 6 km west of ROM	Rare	Slight	Low	• As the majority of the mobile crushing equipment is fabricated offsite, any impacts from dust emissions are considered to be low. • The ROM pad and associated infrastructure is already constructed, and no new clearing or disturbance is required to install the mobile crusher. • As no ground disturbance activities are planned it is unlikely that any Geo Heritage or Heritage sites will be impacted by this activity. Atlas does not require to sample or remove any rocks from the associate sites for the operation of the crushing facility. • Dust generated from crushing and screening is expected to be localised and unlikely to impact nearby receptors due to their distance from the premises boundary. • To manage dust emissions for sensitive receptors within the immediate vicinity of the premises a range of dust suppression measures will be implemented including: o Sprinklers and water sprays installed on the crushing facility. o Water carts will be utilised for regular dust suppression. o Adherence to Atlas' Dust Management Procedure (950-HSE-EN-PRO-0026) will ensure dust emissions and impacts are minimised. o **With the addition of the above controls the overall risk for this emission is considered Low**.
			Environmentally Sensitive Receptors: • Threatened and/or priority fauna – within and adjacent to ROM. • Threatened Fauna habitat ~ 700 m southwest of ROM • Heritage Site – within 181 m and adjacent to the ROM. • Sulphur Springs Creek – within 50 m and adjacent to ROM.	Possible	Minor	Medium	
	Artificial Light Emissions potentially impacting public health and amenity and/or fauna.	**Pathway**: Air /windborne	**Sensitive Land Uses**: • Native Title – within prescribed premises boundary. • Pastoral Leases ~ 416 m north and 6 km west the ROM	Rare	Slight	Low	• Artificial lighting will be required continuously through construction and operation of the crushing and screening facility. • Given the significant distance to the nearest town and the sparseness of Native Title and Pastoral Lease, artificial lighting is expected to have little to no impact on these receptors. • Directional lighting, where required, will be aimed at work areas to avoid excessive light pollution that may impact threatened fauna close to the facilities. • Long term monitoring equipment has been established in caves around the project to monitor ongoing Pilbara Leaf Nosed Bat and Ghost Bat activity, as well as annual monitoring of significant species to assess/monitor potential impacts. **With the addition of the above controls the overall risk for this emission is considered Low**.
			Environmentally Sensitive Receptors: • Threatened and/or priority fauna – within and adjacent to prescribed premises boundary. • Threatened Fauna habitat ~ 700m southwest of ROM.	Possible	Moderate	Medium	

Source/Activity	Risk/Emissions	Risk Pathway	Receptors	Likelihood	Consequence	Risk	Actions to be implemented/treatment
Installation and operation of crushing and screening facility	Sediment laden stormwater potentially impacting land and water resources	**Pathway**: surface water flow over land	**Environmentally Sensitive Receptors**: • No major watercourses intersect the Prescribed Premise boundary • Public Drinking Water Source Area approximately 60 km east of the premises boundary. • Shaw River - 21 km east of the premises boundary	Rare	Slight	Low	• The crusher and screening facility is surrounded by an earthen bund to prevent ingress and egress of storm water. • The ROM pad has been constructed so that all stormwater flow is diverted to the sedimentation basin and drainage channels. • Stormwater drains and sedimentation basins have been constructed based on a 5 year Annual Recurrence Interval (ARI) 72 our event. The capacity of the pond is ~ 4,500m² at 3 m deep and has capacity to contain any stormwater received over the two year mine life. Considering the distance to sensitive receptors is more than 20 km away and no major water sources intersect the prescribed premise boundary, and with the addition of the above mentioned controls, impacts from sediment laden water on land and/or water resources is not expected therefore the risk is considered **Low**.

Vehicle and equipment movements operation on unsealed roads
 	
Loading / unloading material stockpiles
	Stormwater containing hydrocarbons. potentially impacting land and water resources	**Pathways**: surface water flow over land
		direct spills/leaks to land
				Rare	Slight	Low	• The ROM pad has been constructed so that all stormwater flow is diverted to the sedimentation basin and drainage channels.
							• Stormwater drains and sedimentation basins have been constructed and are in place to contain any stormwater received.
							• The crusher and screening facility is surrounded by an earthen bund to prevent ingress and egress of storm water.
							• During operations Atlas will implement the following:
							  • Hydrocarbon Management Procedure and Hydrocarbon (and Chemical) Spill Management Procedure (950-EN-PRO-0007).
							  • Hydrocarbon Management Procedure (950-EN-PRO-0008).
							• Refuelling shall not occur within 30 metres of a watercourse.
							• Contaminated soil shall be stockpiled for removal offsite by a licenced controlled waste contractor.
							• In the event of a spill, the spill will be contained using spill kits.
							
							Considering the distance to sensitive receptors is more than 20 km away and no major water sources intersect the prescribed premise boundary, and with the addition of the above mentioned controls, impacts from stormwater containing hydrocarbons on land and/or water resources is not expected therefore the risk is considered **Low**.

11 Submission of Other Relevant Information

The proposed fee is calculated in Part 13 of the from. Further details are provided in Attachment 10. There is no commercially sensitive or confidential information.

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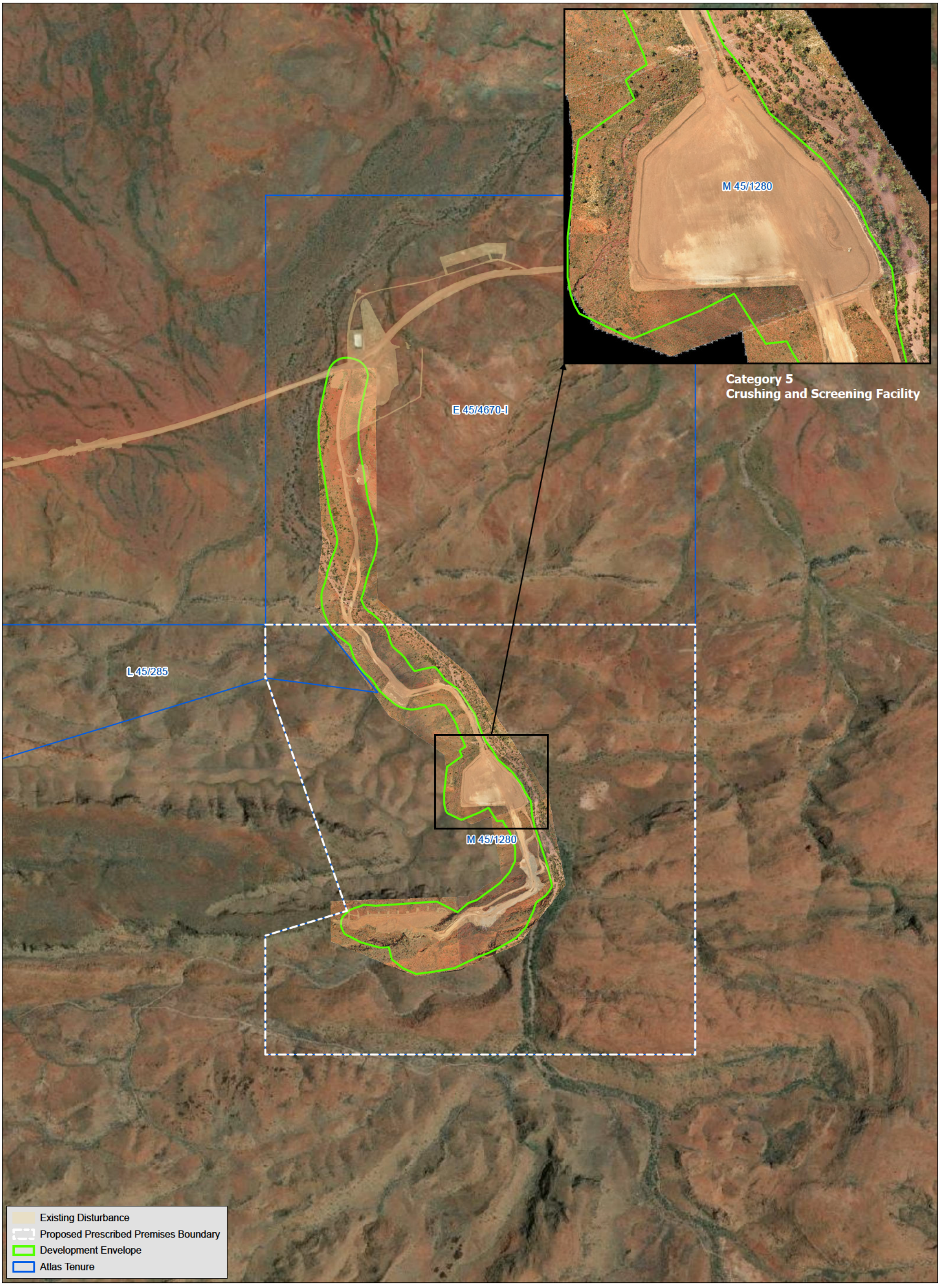

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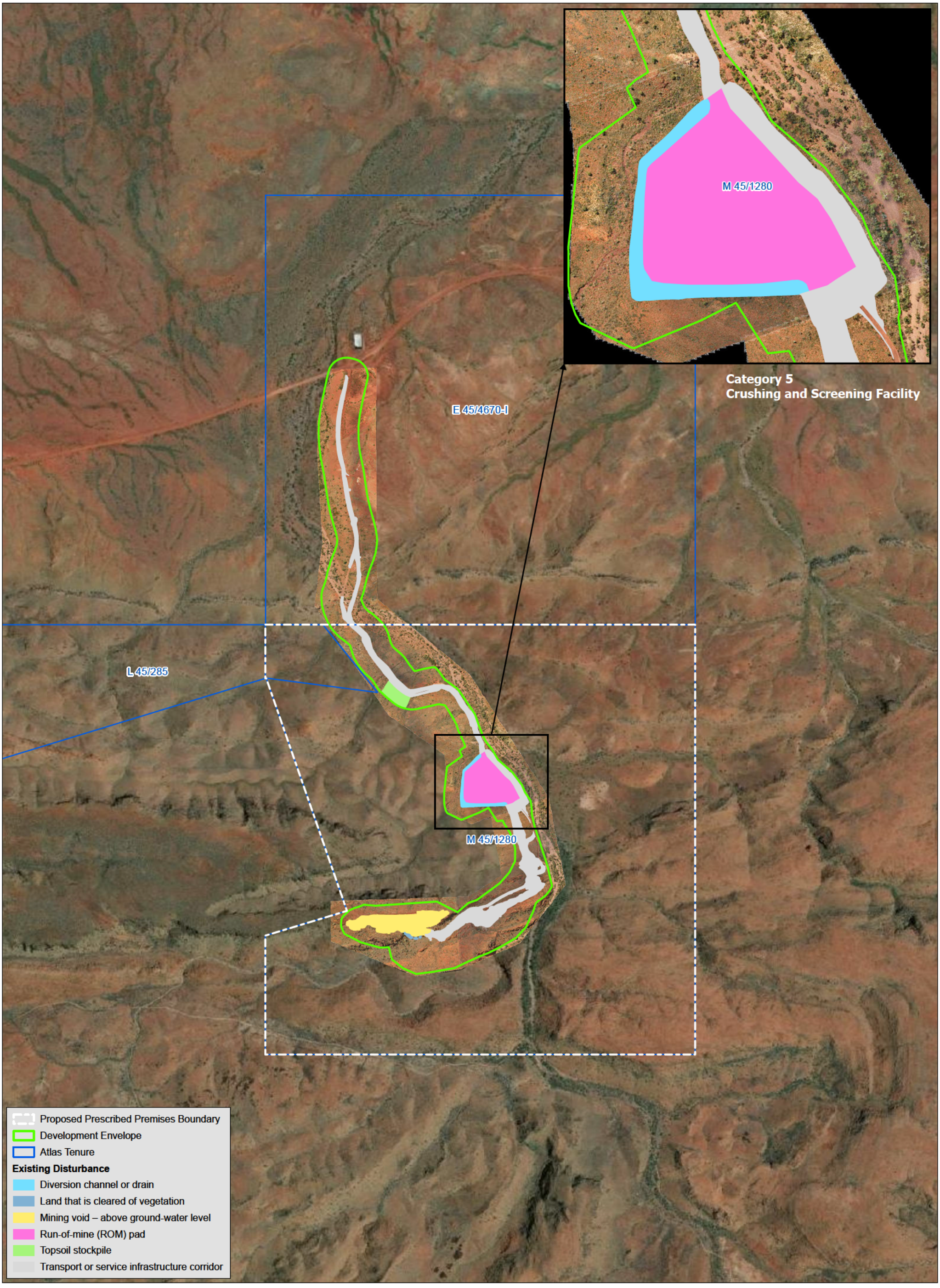
Proposed Prescribed Premises Boundary

Attachment 2B: Site Plan



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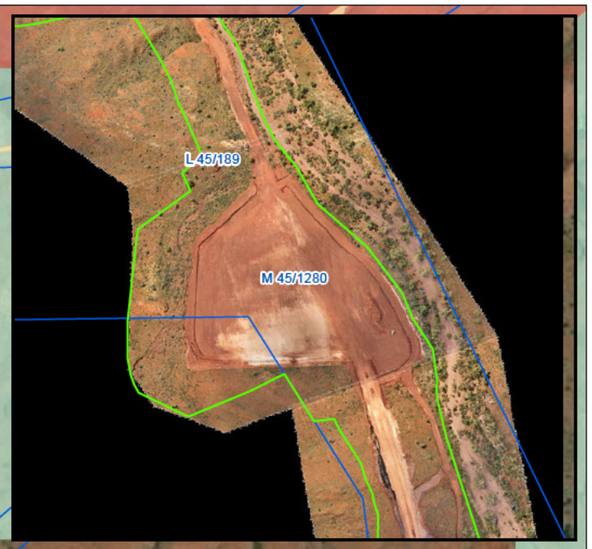
Site Plan

MIRALGA CREEK ATLAS IRON

Attachment 7: Siting and Location

730,000 mE



Proposed Prescribed Premises Boundary
Existing Disturbance
Development Envelope
Atlas Tenure

Environmentally Sensitive Receptors
- Caves and Rock Shelters
- Waterholes and Springs
- Gorges, Ridgelines and Shafts
- ACH - Register (DPLH-099)
- Aboriginal Cultural Heritage - Lodged (DPLH-100)

Threatened Fauna
- Critically Endangered
- Endangered
- Vulnerable

Flora Records
- Priority 2
- Priority 3
- Threatened Flora

Sensitive Land Uses
- Geoheritage Sites
- Panorama Station
- Strelley Station
- Crown Reserves

7,660,000 mN

730,000 mE

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Attachment 8A: Additional Information – DWER Risk Assessment Matrix

Table 12-1: DWER Risk Criteria

Consequence		
The department will use the following criteria to assess the consequences of a risk event occurring:		
	Environment	Public health* and amenity (such as air and water quality, noise and odour)
Severe	• Onsite impacts: **catastrophic** • Offsite impacts local scale: **high level or above** • Offsite impacts wider scale: **mid level or above** • **Mid to long-term or permanent impact to an area of high conservation value or special significance^** • **Specific Consequence Criteria (for environment) are significantly exceeded**	• **Loss of life** • Adverse health effects: **high level or ongoing medical treatment** • **Specific Consequence Criteria (for public health) are significantly exceeded** • Local scale impacts: **permanent loss of amenity**
Major	• Onsite impacts: **high level** • Offsite impacts local scale: **mid level** • Offsite impacts wider scale: **low level** • **Short-term impact to an area of high conservation value or special significance^** • **Specific Consequence Criteria (for environment) are exceeded**	• Adverse health effects: **mid level or frequent medical treatment** • **Specific Consequence Criteria (for public health) are exceeded** • Local scale impacts: **high level impact to amenity**
Moderate	• Onsite impacts: **mid level** • Offsite impacts local scale: **low level** • Offsite impacts wider scale: **minimal** • **Specific Consequence Criteria (for environment) are at risk of not being met**	• Adverse health effects: **low level or occasional medical treatment** • **Specific Consequence Criteria (for public health) are at risk of not being met** • Local scale impacts: **mid level impact to amenity**
Minor	• Onsite impacts: **low level** • Offsite impacts local scale: **minimal** • Offsite impacts wider scale: **not detectable** • **Specific Consequence Criteria (for environment) likely to be met**	• **Specific Consequence Criteria (for public health) are likely to be met** • Local scale impacts: **low level impact to amenity**
Slight	• Onsite impact: **minimal** • **Specific Consequence Criteria (for environment) met**	• Local scale: **minimal impacts to amenity** • **Specific Consequence Criteria (for public health) criteria met**

Likelihood	
The department will use the following criteria to assess the likelihood of a risk event occurring.	
Almost certain	**The risk event is expected to occur in most circumstances**
Likely	**The risk event will probably occur in most circumstances**
Possible	**The risk event could occur at some time**
Unlikely	**The risk event will probably not occur in most circumstances**
Rare	**The risk event may only occur in exceptional circumstances**

Table 12-2: DWER Risk Rating Matrix.

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High