

Decision Report

Application for Licence

Part V Division 3 of the Environmental Protection Act 1986

Licence Number	L9280/2021/1
Applicant ACN	Atlas Iron Pty Ltd 110 396 168
File Number	DER2020/000597
Premises	Sanjiv Ridge G45/339, L45/408, L45/407, L45/410 and M45/1257 NULLAGINE WA 6758 As defined by the Premises map attached to the issued licence
Date of Report	4 August 2021
Decision	Licence granted

Alana Kidd MANAGER, RESOURCE INDUSTRIES REGULATORY SERVICES

an officer delegated under section 20 of the Environmental Protection Act 1986 (WA)

Table of Contents

1.	Deci	sion summary	3
2.	Scop	pe of assessment	3
	2.1	Regulatory framework	3
	2.2	Application summary	3
	2.3	Part IV of the EP Act	3
	2.4	Related activities not assessed under the licence application	4
3.	Over	rview of Premises	5
	3.1	Siting and location	5
	3.2	Operational aspects	6
		3.2.1 Crushing and screening plant (Category 5)	7
		3.2.2 Putrescible Landfill (Category 89)	9
		3.2.3 Wastewater Treatment Plant (Category 85)	11
4.	Risk	assessment	14
	4.1	Source, pathways and receptors	14
		4.1.1 Emission sources and pathways	14
		4.1.2 Receptors	14
	4.2	Applicant Controls	18
	4.3	Risk Ratings	23
5.	Cons	sultation	28
6.	Cone	clusion	29
Ref	erence	es	29
Арр	endix	a 1: Application validation summary	31

1. **Decision summary**

This Decision Report documents the assessment of potential risks to the environment and public health from emissions and discharges during the operation of the Premises. As a result of this assessment, the Delegated Officer has granted Licence L9280/2021/1.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Decision Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary

On 23 November 2020 the Applicant submitted a licence application to the department under section 57 of the *Environmental Protection Act 1986* (EP Act) for the operation of a wastewater treatment plant (WWTP)(Category 85) and landfill (Category 89)(Atlas 2020a). The Applicant submitted a further licence application for the operation of Category 5 (Screening etc of material) activities on 11 March 2021 for the Premises (Atlas 2021a).

The Applicant constructed the WWTP, landfill and crushing and screening plant under Works Approval W6043/2017/1, granted to Atlas Iron Pty Ltd on 6 September 2017. Construction compliance reports were received by the department on 7 September 2020 (landfill)(Atlas 2020d); 5 October 2020 (WWTP)(Atlas 2020e and Atlas 2020f) and 15 February 2021 (crushing and screening plant)(Atlas 2021b).

The plant and equipment are currently operating under Time-limited operations under the Works Approval. The Applicant has applied for a licence for the on-going operation of the Premises for the prescribed premises categories and design capacities listed in Table 1. The department has assessed and considered the infrastructure and equipment listed in Licence L9280/2021/1 relating to these Premises categories and any associated activities.

The Applicant has also advised the department of the Premises' name change from "Corunna Downs Project" to 'Sanjiv Ridge' on 24 December 2020 (Atlas 2020b).

2.3 Part IV of the EP Act

Ministerial Statement 1125, published on 12 March 2020, provides for Part IV regulation of the premises. The Statement provides requirements for time limited proposal implementation, offset implementation, compliance reporting and conservation measures to protect the Pilbara Leaf-nosed Bat.

EPA Report 1665 provides detail of the recommendations from the Environmental Protection Authority to the Minister for Environment in relation to Ministerial Statement 1125. These recommendations included placing conditions on the proposal that limit the development envelope and indicative development footprint to avoid direct impacts to sensitive areas, exclusion areas and monitoring to manage potential impacts to bat cave CO-CA-03 and CO-CA-01, and offsets via the Commonwealth EPBC Approval 2017/7861.

Classification of Premises	Description	Approved Premises design capacity or throughput
Category 5	 Processing or beneficiation of metallic or non-metallic ore: premises on which — (a) metallic or non-metallic ore is crushed, ground, milled or otherwise processed; or (b) tailings from metallic or non-metallic ore are reprocessed; or (c) tailings or residue from metallic or non-metallic ore are discharged into a containment cell or dam. 	5,000,000 tonnes per year
Category 85	 Sewage facility: premises- (a) on which sewage is treated (excluding septic tanks); or (b) from which treated sewage is discharged onto land or into waters. 	45 m ³ /day treatment capacity 60 m ³ /day discharge capacity
Category 89	Putrescible landfill site: premises on which waste (as determined by reference to waste type set out in the document entitled "Landfill Waste Classifications and Waste Definitions 1996" published by the Chief Executive Officer, as amended from time to time) is accepted for burial.	

Table 1: Prescribed Premises Categories applied for

2.4 Related activities not assessed under the licence application

The following additional activities undertaken by the Applicant are not within the scope of this licence assessment:

- Mining of ore from open pits.
- Abstraction of groundwater from the borefield. This activity is regulated under the *Rights in Water and Irrigation Act 1914* (RiWI Act) and GWL 176960 has been issued.
- A Reverse Osmosis (RO) plant for the camp with a capacity of 0.029 gigalitres (GL) per year. This is below the threshold level of 0.5GL per year for which a premises must register as a category 85B prescribed premises. However, as the brine discharge is to be mixed with the sewage facility discharge prior to irrigation, the discharge forms part of this assessment.
- Construction of additional infrastructure and supporting facilities (including offices, workshops and roads).
- Storage and use of chemicals, explosives and hydrocarbons including 120 tonnes of ammonium nitrate, five 110 kilolitre (kL) tanks of diesel fuel (at the workshop, mine operations centre and crusher) and 28kL of diesel fuel (camp), and less than 5kL of chlorine. This is less than the 1,000m³ threshold level at which a premises must be registered for bulk storage of chemicals under category 73 and therefore does not form part of this assessment.
- Electricity generation will be produced by diesel generators, with a maximum capacity of 4.48 megawatt (MW). This is below the threshold level of 10MW, which triggers a category 52 prescribed premises and therefore does not form part of this assessment.

3. Overview of Premises

3.1 Siting and location

Sanjiv Ridge is located on mining tenements G45/339, M45/1257, L45/410, L45/407 and L45/408, approximately 20km south south-west of Marble Bar and 60km north-west of Nullagine in the Pilbara region of Western Australia, as shown in Figure 1. The Corunna Downs Homestead is approximately 17 km south-east of the Premises.

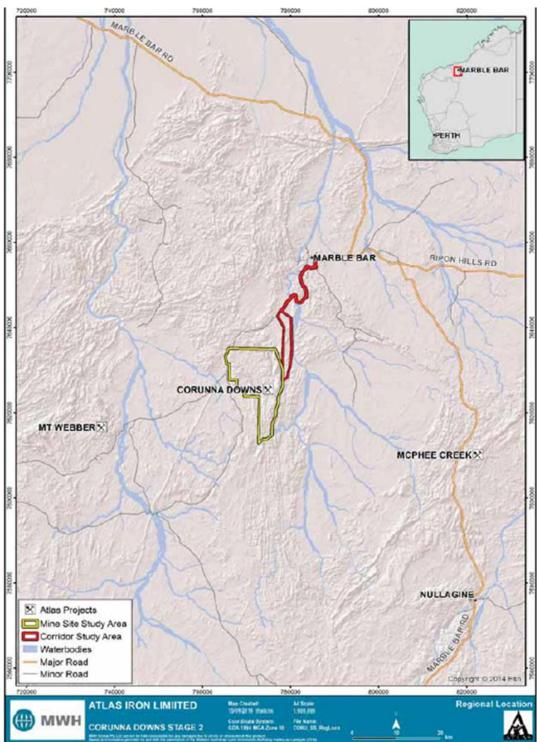


Figure 1: Regional context map

3.2 **Operational aspects**

The Sanjiv Ridge project aims to mine iron ore at a rate of five million tonnes per annum (mtpa) over a period of 6 years. Ore is sourced from five open pits using conventional drill and blast, load and haul methods. Ore is then trucked to the run-of-mine (ROM) pad for crushing and screening with the final product hauled to Utah Point in Port Hedland for export overseas.

The Premises currently consists of a Crushing and screening plant (Category 5), Wastewater Treatment Plant (Category 85) and landfill (Category 89). Figure 2 demonstrates the current Premises layout. The operational aspects for each prescribed category are described under the relevant category headings.

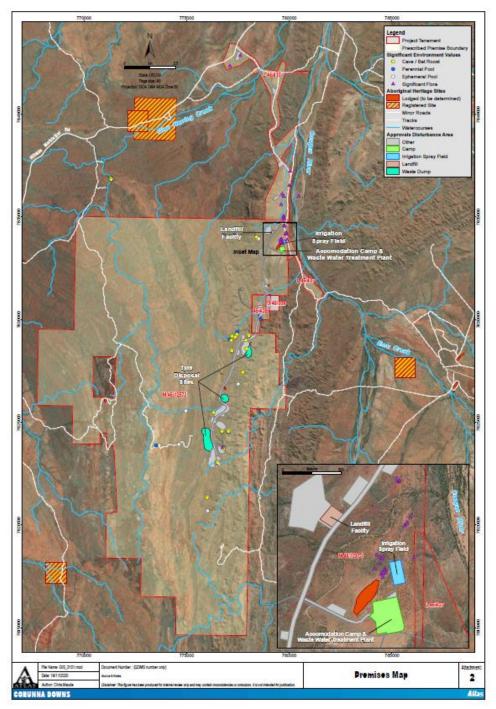


Figure 2: Premises layout (Atlas 2020a)

3.2.1 Crushing and screening plant (Category 5)

The Sanjiv Ridge project comprises a crushing and screening plant to process up to 23.3 million tonnes of ore over the life of the project. The plant is located on the Run of Mine (ROM) pad, and comprises a:

- feeder and grizzly
- Primary jaw crusher, secondary cone crusher and tertiary cone crusher
- 2 x twin deck sizing screens
- Pan feeders
- 2 x radial stackers
- Weightometers
- Metal detection units

Site operators will haul mined ore from the open pits to the ROM pad, where it will be stockpiled prior to processing. Front end loaders will feed the stockpiled ore into the crushing and screening plant. The ore will then undergo three crushing stages and two screening stages to produce lump (40 - 6.3 mm) and fine (<6.3 mm) products before being fed out onto the product stockyard via two radial stackers (one for lump and one for fines).

Oversized ore is separated into an oversize ore stockpile, which will be periodically processed using a rock breaker before being re-fed into the crushing and screening plant. Road trains transport the product to Utah Point in Port Hedland for export overseas.

The ROM pad aims to capture contaminated stormwater and sediment via stormwater sedimentation basins constructed on the ROM pad, with spillways to encourage settling of sediment and prevent erosion. Hydrocarbons are stored in a bunded hydrocarbon storage sea container to prevent hydrocarbon spills from fuel storage.

An indicative schematic of the crushing and screening plant layout is provided in Figure 3.

Figure 4 shows the layout of the plan as constructed on the premises.

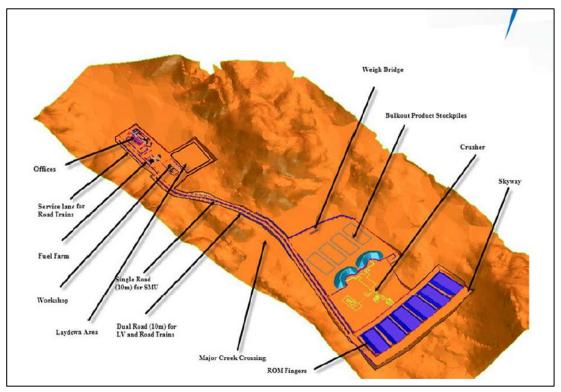


Figure 3: Indicative crushing and screening plant layout (Atlas, 2020b)

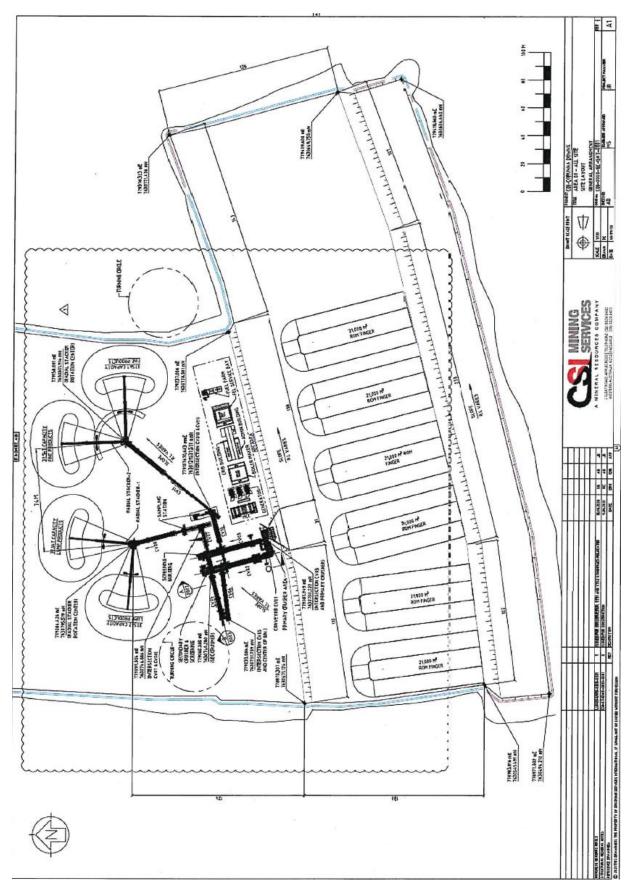


Figure 4: 'As constructed' crushing and screening plant layout (Atlas, 2021b)

3.2.2 Putrescible Landfill (Category 89)

The Sanjiv Ridge Project putrescible landfill is designed to cater for a throughput of 450 tonnes per year of putrescible and Inert Waste Type 1 generated at the accommodation camp and administration area. The premises will also generate and bury on site an additional 50 tonnes per annum of Inert Waste Type 2 (tyres).

Putrescible Landfill

Atlas Iron Pty Ltd has constructed a putrescible landfill on Mining Tenement M45/1257 in accordance with the *Environmental Protection (Rural Landfill) Regulations 2002* (Rural Landfill Regulations) and Works Approval W6043/2017/1. The landfill comprises:

- stormwater diversion structures to divert stormwater runoff around and away from the facility;
- 2.1m high boundary fencing designed and constructed with sufficient height and strength to prevent the access of cattle, horses and other fauna;
- lockable gate to prevent unauthorised access;
- 3 m wide fire break around the boundary fence of the landfill facility; and
- fire control equipment (i.e. fire extinguishers).

Consistent with the Rural Landfill Regulations, to manage potential emissions from the landfill the following management measures are applied:

- the tipping face (i.e. the landfill face) will not exceed 30m in length or 2m above ground level in height;
- the base of the landfill cell will be separated from the highest level of the water table aquifer at the site by at least 3 m;
- waste deposited at the landfill will be covered with an inert, incombustible material at least once per month;
- disposal areas will be levelled and compacted as soon as possible after waste disposal to ensure stability; and
- cells will be rehabilitated within 6 months after the final disposal to that cell has occurred.

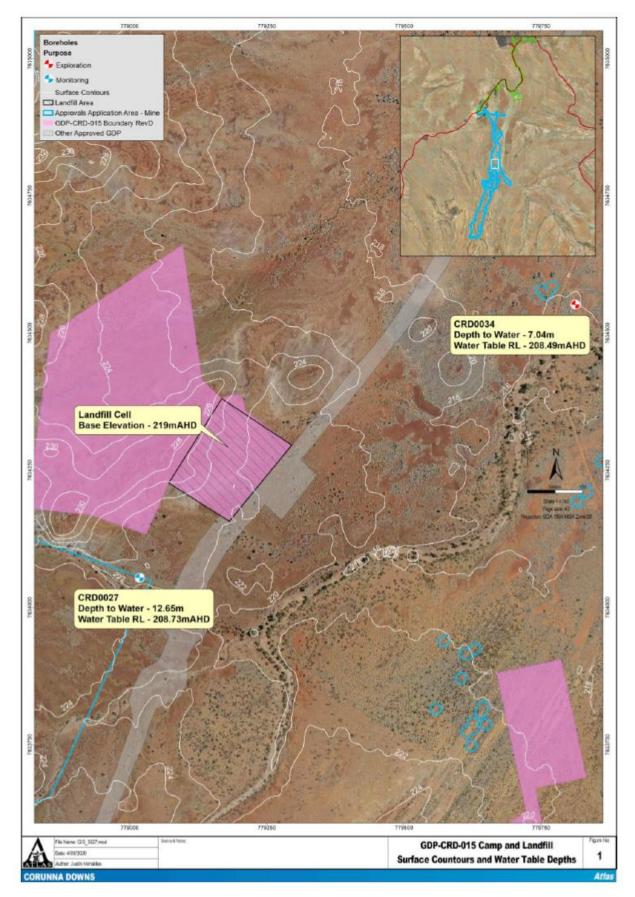
Tyres

The Licence application proposed to dispose of Inert Waste Type 2 (Tyres) to one of three active waste rock dumps (tyre disposal site). However, the Department understands that approval for this activity has not been assessed by the Department of Mine, Industry Regulation and Safety (DMIRS), and therefore this activity has not been included in the issuing of this licence. Tyre disposal to the landfill area has been considered with the disposal methods proposed in the application, being that tyres are disposed of in batches no greater than 40 m³ and that each batch for disposal will either be:

- reduced to pieces and separated from other batches by at least 100 mm of soil; or
- be disposed of in batches of not more than 1,000 whole tyres and be separated from other batches by at least 100 m of soil.

A 500 mm cover of soil will be applied as soon as practicable after completion of waste disposal in each area is achieved.

Atlas Iron Pty Ltd have been advised to seek an amendment to their Mining Proposal to allow for the disposal of waste tyres to the three waste rock dump areas, prior to requesting this approval from DWER.





3.2.3 Wastewater Treatment Plant (Category 85)

The Wastewater Treatment Plant (WWTP) and irrigation spray field are located near the accommodation camp buildings, with the irrigation spray field located more than 100 m downwind of the accommodation camp buildings and 500 m from the Coongan River (see Figure 7). The WWTP constructed at the premises is a Class 3 low risk lconic Wastewater Solution Unit. The unit has a 3 stage bardenpho process and a treatment capacity of 45 m³/day. The wastewater treatment plant services the accommodation camp sewage and wastewater and caters to a maximum of 180 people producing 250 L of waste per person per day.

The wastewater treatment plant (WWTP) comprises:

- a pump well;
- balance tank;
- anaerobic tank;
- anoxic tank;
- two aeration tanks;
- clarifier tank;
- settling tank;
- waste activated sludge tank;
- chlorine contact tank; and
- three (3) treated wastewater irrigation storage tanks (Atlas, 2020c).

Following treatment the wastewater treatment plant discharges the treated wastewater to a 1.7 ha irrigation sprayfield (treated wastewater discharge area) via a sprinkler system. The irrigation system also receives wastewater (brine) from the Reverse Osmosis (RO) plant, where it is mixed with the treated wastewater before discharge to the spray field. The discharge capacity of the system is 60 m³/day, which includes 15 m³/day of Reverse Osmosis brine.

Sludge from the WWTP is periodically removed via vacuum truck by a licensed controlled waste carrier for offsite disposal at a suitably licensed facility in accordance with the *Environmental Protection (Controlled Waste) Regulations 2004.*

The expected effluent quality from the wastewater treatment plant and RO plant, as assessed in the Works Approval, W6043/2017/1, is shown in Table 2.

Environmental commissioning of the wastewater treatment plant occurred in September and October 2020, with effluent quality parameters analysed to be lower than the expected maximum values shown in Table 2. A Time Limited Operations report provided to the department in April 2021 (Atlas, 2021c) provides additional effluent quality analysis, as shown in Table 3. The Applicant has advised that following the noted Total Suspended Solids (TSS) exceedance in the January 2021 sample, a licensed contractor was engaged to pump out the sludge and contact tanks which resulted in lower TSS values in subsequent testing. In response to the *E.coli* exceedance in the February 2021 sampling event, the Applicant increased chlorine dosing in the contact tank and commenced daily monitoring. Subsequent sampling has demonstrated that this has been effective in managing *E.coli* parameters.

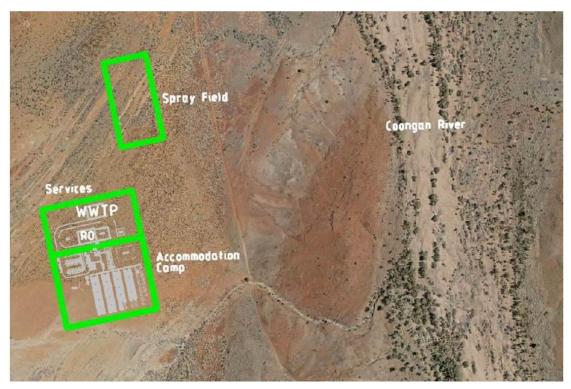


Figure 6: Wastewater treatment plant location (Atlas, 2020a)

Table 2: Expected effluent quality from wastewater treatment plant and RO plant (from Works Approval W6043/2017/1).

Parameter	Unit	Expected maximum
Biochemical oxygen demand (BOD)	mg/L	20
Total suspended solids (TSS)	mg/L	30
Total nitrogen (TN)	mg/L	30
Total phosphorus (TP)	mg/L	10
E. Coli	cfu/100 ml	1000
рН	-	6.8 to 8.5
Total dissolved solids (TDS)	mg/L	2,500

Table 3: Time limited operation effluent testing results (Atlas, 2021c)

Discharge Point	Parameter	Unit	Limit ^{1,2}	Method	Lab Report: 20-17239 Date: 2/10/2020	Lab Report: 20-21146 Date: 26/11/2020	Lab Report: 21-01075 Date: 19/01/2021	Lab Report: 21-03233 Date: 23/02/2021 (resample)	Lab Report: 21-04864-1 Date: 16/03/2021 (resample)
	Biochemical Oxygen Demand (BOD)	mg/L	20	AS5667.1- 1998 AS5667.10- 1998	<5	<5	<5	<5	<5
	Total Suspended Solids (TSS)	mg/L	30		8	11	34	24	6
Blended effluent from	Total Nitrogen (N)	mg/L	-		7.3	7.4	15	3.9	2.1
WWTP and RO plant	Total Phosphorus (TP)	mg/L	-		0.9	1.5	4.3	1.5	0.68
	E.Coli	cfu/100ml ²	1000		490	83	26	2400	88
	рН		6.8 to 8.5		7.5	7.9	7.8	7.4	7.6
	Total Dissolved Solids (TDS)	mg/L	2,500		650	860	1,100	630	840

Note 1: For pH, an acceptable range is given. Outside of this range is considered a limit exceedance. 2: No limit is given for those analytes regulated under the nutrient discharge limits in condition 18

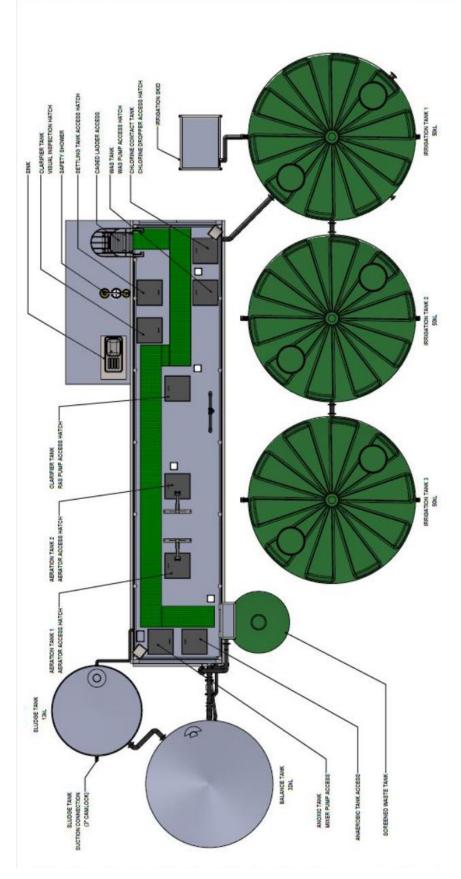


Figure 7: 'As constructed' Wastewater treatment plant layout (Atlas, 2020e)

4. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guidance Statement: Risk Assessments* (DER 2017).

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

4.1 Source, pathways and receptors

4.1.1 Emission sources and pathways

The key emissions and associated actual or likely pathway during premises operation which have been considered in this Decision Report are detailed in Table 4.

4.1.2 Receptors

Table 5 and Figure 2 provide a summary of potential environmental receptors that may be impacted as a result of the operation of the premises for the prescribed activities applied.

In accordance with the *Guidance Statement: Risk Assessment* (DER 2017), the Delegated Officer has excluded employees, visitors and contractors of the Applicant from its assessment. Other State legislation provides protection for these parties, which often involves different exposure risks and prevention strategies.

The Corunna Downs Homestead and the township of Marble Bar are also not considered receptors for this application, given they are approximately 17 km south-east and 33 km south of the Premises boundary.

Table 4: Emission	sources	and	pathway	ys
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Source	Emission	Pathway		
Category 5 activities	Dust associated with ore processing, crushing and screening, stackers and stockpiles	Air/wind dispersal		
Operation of crushing and screening plant,	Noise associated with the crushing and screening plant activities	Air/wind dispersal		
movement of ore on conveyors, stackers and stockpiles	 Contaminated stormwater from: dry processing leaks and spills of hydrocarbons and chemicals from crushing and screening activities and ore handling areas 	Direct discharge to land Surface water run off		
Category 85 activities	Odour from the degradation of biological matter and removal of sludge	Air/wind dispersion		
Sewage acceptance, storage and treatment including de-sludging	 Spills of untreated sewage from: accidental spillage or discharge of untreated sewage outside containment infrastructure; Pipe ruptures or leakage; Tank overtopping 	Direct discharge to land Surface water run off		
	Light emissions from safety lighting	Air dispersal		
Irrigation of treated effluent and brine	Treated effluent and brine mix discharged to spray field for irrigation	Direct discharge to land Surface water run off		
	Effluent with higher concentration of brine being discharged			
Category 89 activities	Dust from vehicle movement and levelling, compacting and covering of waste	Air/wind dispersion		
Acceptance of putrescible and inert waste for	Odour and gaseous emissions from the degradation of putrescible waste	Air/wind dispersion		
burial	Leachate and contaminated water from non- compliant waste streams	Direct discharge to land		
	Windblown waste	Air/wind dispersion		
	Landfill leachate	Direct discharge to land Surface water run off		
	Noise from the compaction and covering of waste	Air/wind dispersal		
Acceptance and burial of tyres	Contaminated fire water from tyre fires on the premises	Direct discharge to land Surface water run off		

Environmental receptors	Distance from prescribed activity			
<u>Threatened fauna</u> – Dasyurus hallocatus (Northern Quoll) (Endangered)	There are many recorded observations of threatened and priority fauna within the mining tenements occupied by the premises.			
<i>Rhinonicteris aurantia (Pilbara)</i> (Pilbara leaf- nosed bat) (Vulnerable)	The Premises Map provided with the application also identifies a number of cave/bat roosting areas within close proximity to the proposed			
Macroderma gigas (Ghost bat) (Vulnerable)	activity areas, including the waste tyre disposal			
<i>Pseudomys chapmani</i> (Western Pebble Mouse) (P4)	area (waste rock dump). A number of these caves and waterholes have been addressed for conservation through the project's Ministerial			
Lagorchestes conspicillatus leichardti (Spectacle- hare Wallaby)(P4)	Statetement and EPBC Act 1999 approval.			
Priority flora –	A flora and vegetation survey undertaken by the			
Rothia indica subsp. australis (P1)	Applicant in relation to their Part IV approval identified eleven classified Priority (P) flora taxa			
Eragrostis crateriformis (P3)	within the study area (EPA Report 1665, EPA			
Heliotropium murinum (P3)	2020).			
Swainsona thompsoniana (P3).	Four of these (listed adjacent) are within the development envelope of the Premises and are considered most likely to be at risk of direct impact.			
A further five species are considered potentially significant due to the identification of taxa having anomalous features (<i>Abutilon aff. Hannii</i> , <i>Oldenlandia</i> sp. and <i>Portulaca</i> sp.) or representing a range extension or outlier of the	The Premises Map also indicates there are "significant flora" in the vicinity of the WWTP, sprayfield and downstream of the landfill (see Figure 8).			
main range (<i>Acrostichum speciosum</i> and <i>Eriocaulon pusillum</i>).	Of the additional 'potentially significant species' noted, only <i>Acrostichum speciosum</i> was found in the overall Premises' development envelope.			
	Three occurrences of P3 (<i>Eragrostis crateriformis</i> , <i>Heliotropium murinum</i> and <i>Swainsona</i> <i>thompsoniana</i>) could not be avoided in the clearing of the Premises, however these species are considered to have a low level of regional impact as they are all well represented outside of the development envelope.			
Local vegetation communities, including five groundwater dependent vegetation (GDV) communities.	There are 14 vegetation communities within the Premises area which will be directly impacted in the disturbance footprint of the site.			
	Five vegetation types contain groundwater dependant vegetation (GDV) types.			
Surface Water features -				
Coongan River	Approx 500m east of WWTP sprayfield			
Coongan River tributary	Tributary in the vicinity of landfill			
Proclaimed Pilbara Surface Water Area	Within the premises boundary			

Within the premises boundary Approximately 18 km to the north-east of the
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Premises
Approximately 52 km to the south-east of the Premises
The Priority 1 Marble Bar Water Reserve supplies water to the town of Marble Bar.
"Marble Bar receives its water supply from Water Corporation bores located approximately 2-3 km west of the town, close to the banks of the Coongan River" (DWER, 2010).
Environmental value
A soil survey was conducted (Soil Resource Assessment, 2016) which identified that the soils have neutral pH, clayey or sandy loans that are prone to hardsetting with low to moderate water holding capacity and a moderate to moderately rapid drainage capacity.
The Premises lies within the middle reaches of the Coongan River catchment, which sits within the De Grey River Basin. The Coongan River system has a total catchment area of around 7,090 km ² and lies between the Chichester Ranges in the south and minor ranges on the west and east. The Coongan River borders the prescribed premises and is approximately 500 m east of the spray field and 2km from the ROM pad and the Shaw River is approximately 30 km to the west of the spray field. No perennial streams occur in the immediate

Groundwater*	Groundwater is greater than 13m below ground level. The local water table within the ore bodies lies at approximately 58 m below ground level (Mining Proposal, 2017).
	The standing water level recorded from the holes that intercepted groundwater along the main ridge ranged from 21.8 – 84.6 m below ground level (mbgl).
Meteorology*	The Pilbara bioregion experiences a semi-arid climate, characterised by hot, humid summers and relatively warm, dry winter. Tropical cyclones typically occur between January and April bringing sporadic drenching rainfall events.
	The nearest Bureau of Meteorology station at Marble Bar records 73% (277.8mm) of the annual rainfall (381.7mm) being received in this period.

** Note: This information has been copied from the department's Decision Report for W6043/2017/1

4.2 Applicant Controls

The assessment of this licence application considers the emissions generated by the Premises' operation and the proposed Applicant measures to assist in controlling these emissions, where necessary. The proposed Applicant control measures are shown in Table 6 below.

Emission	Sources	Potential pathways	Proposed controls
Category 5 acti	vities – Crushing and sc	reening	
Dust	Crushing of material, vehicle movements, lift-off from stockpiles and/or stored product, earthworks etc.	Air/windborne pathway	Use of a mobile water truck with cannon and / or spray bar. Water sprays installed on the feed bin, at strategic conveyor transfer points and on stacker head chutes.
Noise	Crushing and screening of material	Air/windborne pathway	Provisions of the <i>Environmental Protection</i> (<i>Noise) Regulations 1997</i> are also applicable.
Contaminated stormwater	Dry processing Leaks and spills of hydrocarbons and chemicals from crushing and screening activities and ore handling areas	Seepage to soil and groundwater Surface water run off	 Stormwater diversion structures constructed to divert uncontaminated stormwater around the ROM pad. Water collected on the ROM pad will be directed to a sedimentation basin to allow for sediment removal before discharge. Sedimentation basin designed to a 1 in 5 year annual recurrence interval rainfall event and incorporate a rock armoured spillway to encourage settling of sediment and prevent erosion. Implementation of the Atlas Hydrocarbon Management procedure (950-HSE-EN- PRO-0005) and Hydrocarbon (and Chemical) Spill Management Procedure (950-HSE-EN-PRO-0007). This will include the following management measures: Hydrocarbons stored in impermeable bunds consistent with AS1940:2017. Storage facilities not located near waterways or drainage lines. Refuelling on impermeable pads. No mobile refuelling within 30 m of a watercourse, dry break hoses used and spill kits carried with vehicles. Vehicles will be washed down on washpads with oil/water separators and impervious pads. Washdowns that take place outside of washdown areas shall be in designated areas with contaminated soil removed regularly for disposal. Personnel will be trained in spill response.

Emission	Sources	Potential pathways	Proposed controls
Category 85 ac	d irrigation sprayfield		
5 1 <i>i</i>		Air/wind dispersal	Atlas has committed to implementing its WWTP Management Plan Document No. 950-HSE_EN-PLN-0002, revision 0) and other management measures. These are:
			 Flow meters to allow monitoring of influent and irrigation volumes.
			Inline testing and sample ports.
			 Quarterly sampling (at least 45 days apart for pH, biochemical oxygen demand (BOD), Total Suspended Solids (TSS), Electrical Conductivity (EC), Total Dissolved Solids (TDS), Total Nitrogen (TN), Total Phosphorous (TP) and Escherichia coli).
			 Daily checks on system performance including manufacturer recommended parameters and discharge volume, pH, chlorine, irrigation tank levels, sprayfield outlets and irrigation pumps.
			 High level alarms (audible and visible).
			 Contingency tanks to allow for additional storage.
			Periodic sludge removal.
			Chlorination of treated effluent
Spills of untreated wastewater	Accidental spillage or discharge of untreated sewage outside containment infrastructure.	Direct discharges to land	Stormwater diversion structures (earthen bunding) constructed to divert uncontaminated stormwater away from the WWTP.
	Pipe ruptures or leakage.	Surface water run off	Daily inspections and checks for discharge volume, irrigation tank levels, sprayfield outlets and irrigation pumps.
	Tank overtopping.		High level alarms (audible and visible).
			Contingency tanks to allow for additional storage.
			Evacuation sump with pump.
			Above ground pipework.
			Atlas has committed to implementing its WWTP Management Plan Document No. 950-HSE_EN-PLN-0002, revision 0)

Emission	Sources	Potential pathways	Proposed controls
Discharges of treated	Treated effluent and brine mix discharged to spray field for irrigation	Direct discharges to	Flow meters to allow monitoring of influent and irrigation volumes.
effluent and brine	opray nota for imgation	land	Discharged effluent monitoring program -
Discharges with high brine		Surface water run off	Atlas Wastewater Treatment Plant Management Plan (950-HSE-EN-PLN- 0022) monitoring requirements (during TLO in accordance with W6043/2017/1).
			Quarterly sampling (at least 45 days apart for pH, biochemical oxygen demand (BOD), Total Suspended Solids (TSS), Electrical Conductivity (EC), Total Dissolved Solids (TDS), Total Nitrogen (TN), Total Phosphorous (TP) and <i>Escherichia coli</i>).
			5 m buffer provided from the sprayfield area to the fence to prevent spray drift leaving the irrigation area.
			Sprinkler heads chosen that maximise droplet size, reducing the risk of spray drift.
Light	Wastewater treatment plant	Air	Low wattage lighting used for safety around the WWTP
Contaminated stormwater/ runoff	Irrigation of treated wastewater and brine during storm	Direct discharges to land	5 m buffer provided from the spray field area to the fence to prevent spray drift leaving the irrigation area.
	events/high rainfall Pooling of irrigated wastewater within the	Surface water run off	Management of irrigation area to prevent ponding of irrigated wastewater
	sprayfield and mobilisation during storm events/high rainfall		
Category 89 – I	Putrescible Landfill and	Tyre disposal	
Odour	Putrescible waste	Air/wind	Bagging of putrescible waste prior to burial
	Decomposition of waste	dispersal	Regular covering of waste once deposited
Dust	Covering of waste	Air/wind	Water cart
	Trench excavation	dispersal	
Windblown	Active landfill cell and	Air/wind	Fencing of the landfill facility.
waste	waste deposition	dispersal	Regular covering of waste once deposited (at least once a month).
			Regular collection and retrieval of windblown waste outside of the facility.

Emission	Sources	Potential pathways	Proposed controls
Contaminated runoff/leachate	Non-compliant waste	Direct discharge to land	Signage and a logbook at the landfill entry stating permitted and prohibited waste streams.
			Training in permitted and prohibited waste streams prior to landfill use.
			Locked landfill entry gate to prevent unauthorised access.
			Stormwater management infrastructure has been constructed around the landfill (i.e., stormwater diversion bunds and basins) to divert clean stormwater away from the facility and contain runoff within the facility
Landfill leachate	Waste deposited into the landfill	Groundwater	Groundwater is located >13 m below ground level.
	Decomposition of waste	Surface water run off	Bagging all putrescible waste prior to disposal.
			Regular covering and compaction of waste.
			Stormwater management infrastructure has been constructed around the landfill (i.e. stormwater diversion bunds and basins) to divert clean stormwater away from the facility and contain runoff within the facility.
			Maintenance of installed stormwater diversion structures to divert clean runoff around facilities and retain contaminated stormwater within the facility.
			Implementation of the Atlas Hydrocarbon Management procedure (950-HSE-EN- PRO-0005) and Hydrocarbon (and Chemical) Spill Management Procedure (950-HSE-EN-PRO-0007).
Contaminated fire water	Tyre fires	Surface water run off	At least 3 m separation distance between tyre-disposal cell and maximum groundwater level.
			Tyres disposed of in batches no greater than 40 m ³ . Each batch will either be:
			 reduced to pieces and separated from other batches by at least 100 mm of soil; or
			• be disposed of in batches of not more than 1,000 whole tyres and be separated from other batches by at least 100 m of soil.
			A 500 mm cover of soil will be applied as soon as practicable completion of waste disposal in each area is achieved.

4.3 Risk Ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 4.1.1 and 4.1.2. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the Applicant has proposed mitigation measures/controls (as detailed in Section 4.2), these have been considered when determining the final risk rating. Where the Delegated Officer considers the Applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the Applicant's controls are not sufficient. Where this is the case the need for additional controls will be documented and justified in Table 7.

Licence L9280/2021/1 that accompanies this Decision Report authorises emissions associated with the operation of the WWTP, landfill and crushing and screening plant at the Premises.

The conditions in the issued Licence, as outlined in Table 7 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Risk Event	_				Risk rating ¹			Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of licence	
Operation								
	Dust	Air/windborne pathway causing impacts to vegetation and amenity	Vegetation	Use of a mobile water truck with cannon and /or spray bar. Water sprays and manifolds installed on the feed bin, at strategic conveyor transfer points and on stacker head chutes.	C = Moderate L = Possible Medium rating	Yes	Condition 1	N/A
Operation of the crushing and screening plant, movement of ore on conveyors, stackers and stockpiles	Noise	Air/windborne pathway causing impacts to conservation significant fauna	Conservation significant fauna species (e.g., Pilbara leaf-nosed bat)	Compliance with the provisions of the <i>Environmental</i> <i>Protection (Noise)</i> <i>Regulations 1997</i> Ministerial Statement 1165	C = Moderate L = Unlikely Medium rating	Yes	N/A	Noise is most likely to impact threatened fauna within the disturbance footprint. There are no occurrences of caves suitable for the Pilbara leaf- nosed bat within close proximity to the ROM pad. The risk of noise emissions impacting fauna has a 'medium' risk rating.
	Contaminated stormwater from dry processing and leaks and spills of hydrocarbons and chemicals	Direct discharges and infiltration causing erosion and scouring of ground. Overland sedimentation inhibiting vegetation growth Direct discharge causing turbidity, sedimentation and contamination of the Coongan River	Soil, groundwater Vegetation Coongan River, ~2km	Refer to Table 6	C = Minor L = Possible Medium rating	Yes	Condition 1	In addition to the infrastructure and its operating requirements, provisions of the Environmental Protection (<i>Unauthorised</i> <i>discharges</i>) <i>Regulations 2004</i> apply for certain discharges to the environment, such as hydrocarbons

Table 7: Risk assessment of potential emissions and discharges from the Premises during operation

Risk Event	Risk Event					Applicant			
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls	
	Odour	Air/windborne pathway causing impacts to health and amenity	The nearest residence is 17km south east of the premises	Refer to Table 6	C = Slight L = Unlikely Low rating	Y	Condition 1	N/A	
	Noise	Air/windborne pathway causing impacts to health and amenity	Conservation significant fauna species (e.g. Pilbara leaf- nosed bat)	Refer to Table 6	C = Slight L = Possible Low rating	Y	Condition 1	N/A	
Operation of WWTP	Light	Air pathway impacting threatened fauna foraging and habitats	Conservation significant fauna species (e.g. Pilbara leaf- nosed bat)	Refer to Table 6	C = Slight L = Possible Low risk	Y	N/A	N/A	
	Untreated sewage / RO brine	Direct discharges to land from spills	Soil, groundwater Vegetation Coongan River, 500m	Refer to Table 6	C = Moderate L = Unlikely Medium risk	Y	Condition 1, 2, 7	N/A	
	Treated effluent (mixed with RO brine)	Direct discharges to spray field Spray drift Runoff from spray field	Soil, groundwater Vegetation Nearby significant flora Coongan River, 500m	Refer to Table 6	C = Moderate L = Possible Medium risk	Ν	Condition 1, 6, 7, 8, 13 <u>Condition 14,</u> <u>19</u>	Due to the proximity of the Coongan River and significant flora to the irrigation sprayfield, additional control measures have been applied to the licence to monitor and assess potential impacts from the WWTP/RO discharges. This includes monitoring the discharge water quality, monitoring of vegetation within the sprayfield area, and reporting on monitoring events in the AER with a comparison against the discharge quality limits provided for in the Works Approval W6043/2017/1.	

Risk Event					Risk rating ¹	Applicant		Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	controls sufficient?	Conditions ² of licence	
Operation of the WWTP	Contaminated stormwater	Overland runoff from sprayfield following storm events	Soil, groundwater Vegetation Nearby significant flora Coongan River, 500m	Refer to Table 6	C = Moderate L = Unlikely Medium Risk	Y	Condition 1, 7	N/A
	Odour	Air/windborne pathway causing impacts to health and amenity	Conservation significant fauna species	Refer to Table 6	C = Slight L = Possible Low rating	Y	Condition 1, 2, 3	N/A
Operation of landfill	Dust	Air/windborne pathway causing impacts to health and amenity	Vegetation	Water carts	C = Slight L = Possible Low rating	Y	N/A	N/A
	Contaminated runoff/ leachate from non- conforming waste types	Overland runoff from landfill following rainfall events	Soil, groundwater Vegetation Nearby significant flora Coongan River, ~ 2km	Refer to Table 6	C = Minor L = Unlikely Medium rating	Ν	Condition 1, 2, 3	Standard landfill conditions have been included on the licence, including waste types approved for acceptance. These conditions are suitable to manage waste at the landfill premises, in conjunction with the measures proposed by the Applicant (e.g., signage and fencing).

Licence: L9280/2021/1

IR-T13 Decision Report Template (short) v2.0 (July 2020)

Risk Event	Risk Event			Risk rating ¹				
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of licence	Justification for additional regulatory controls
	Landfill leachate – containing organics, nutrients and hydrocarbons	Discharges to land and groundwater Infiltration	Soil Groundwater	Refer to Table 6	C = Minor L = Possible Medium rating	Y	Condition 1, 2, 3	N/A
Operation of landfill	Windblown waste	Air/windborne pathway causing impacts to health and amenity	Vegetation Fauna	Refer to Table 6	C = Minor L = Possible Medium rating	Ν	Condition 1, 3, 4 and 5	The Applicant has provided for monthly covering of waste, and monthly collections of windblown waste (Landfill Management Procedure, Atlas 2020a).
	Contaminated fire water	Discharge to land causing contamination Discharge to surface water causing contamination	Conservation significant fauna species	Refer to Table 6	C = Minor L = Unlikely Medium rating	Y	Condition 1, 2, 3	N/A

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Guidance Statement: Risk Assessments (DER 2017).

Note 2: Proposed applicant controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

5. Consultation

Table 8 provides a summary of the consultation undertaken by the department.

Table 8: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website (22/03/2021)	None received	N/A
Local Government Authority (Shire of East Pilbara) advised of proposal 01/04/2021	No response	N/A
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal 01/04/2021	Response received 26/07/2021 (A2029572) advising that "there is no mention of tyre disposal in the Waste Rock Landforms (WRL) (in the Mining Proposal). Atlas will have to seek an amendment to the mining proposal as the activity will change the characteristics of the Waste Rock Landforms (WRL), which is a key mine activity."	The department issued a draft licence to the Applicant which comprised of tyre disposal conditions for the Waste Rock dumps. Following the receipt of DMIRS advice this revised draft has been provided to the Applicant, noting the removal of tyre disposal approval to the waste rock dumps.
		The Applicant has been advised to liaise with DMIRS regarding amending their Mining Proposal for this activity.
Department of Health advised of proposal on 01/04/2021	Response received 20/04/2021 (DWERDT441587). DoH advised that they have no objection to the proposal, providing onsite wastewater disposal is undertaken in accordance with DoH Approval 45.20, and a Dust Management Plan is adopted and implemented to mitigate effects of dust on workers and visitors on site.	The issued licence contains dust control measures, as proposed by the Applicant. The irrigation of wastewater is addressed through conditions requiring the disposal to a dedicated fenced off irrigation area, and discharge quality limits.
Applicant was provided with draft documents on 16/07/2021	The Applicant responded to the draft Licence on 9/07/2021 (A2025311) noting some corrections to Table numbers in their response. The draft Licence comprised discharge water quality limits, which were part of the Works Approval Time-Limited Operations. The Applicant requested DWER reconsider this requirement given the long turn around time for sample results, also noting that monitoring of discharge water quality and vegetation condition will provide information about the irrigation discharge water quality and its	The department considers that the monitoring of discharges to land (irrigation sprayfield) and vegetation condition are sufficient to monitor potential impacts to land from the irrigation of treated wastewater and RO brine. Therefore, draft licence condition 7 and 18 have been removed from the issued Licence. All relevant table numbers have been updated to reflect the changed condition numbers and any clerical errors have been corrected.

potential impacts. Draft licence condition 18 required the reporting o licence limit exceedances, and it was noted that this condition would be removed if discharge to land limits were removed from the licence.	
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6. Conclusion

Based on the assessment in this Decision Report, the Delegated Officer will grant Licence L9280/2021/1, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

- Atlas Iron Pty Ltd (Atlas) 2020a, Licence Application Corunna Downs Wastewater Treatment Plant and Landfill and Supporting Information, received via email from Kate Stanbury, dated 23 November 2020. DWER Record DWERDT370674.
- 2. Atlas 2020b, *RE: Licence Application Corunna Downs*, received from Natassja Bell, dated 24 December 2020. DWER Record A1968751
- Atlas 2020c, Works Approval W6043/2017/1 Compliance Report, Wastewater Treatment Facility, Corunna Downs DSO Project (PRJ0185-ATL-1799-EN-REP-0004) October 2020 DWER Record DWERDT346825.
- Atlas 2020d, Works Approval W6043/2017/1 Construction Compliance Report Landfill Facility, Corunna Downs DSO Project, Revision A, 5 September 2020. DWER Record DWERDT332215.
- Atlas 2020e, Works Approval W6043/2017/1 Compliance Report Wastewater Treatment Facility, Corunna Downs DSO Project (PRJ0185-ATL-1799-EN-REP-0004) Revision A, 2 October 2020. DWER Record DWERDT346825.
- Atlas 2020f, Works Approval W6043/2017/1 Environmental Commissioning Report Wastewater Treatment Facility, Corunna Downs DSO Project (PRJ0185-ATL-1799-EN-REP-0003) Revision A, 2 October 2020. DWER Record DWERDT346825.
- Atlas 2021a, Atlas Iron Sanjiv Ridge- Crushing and screening facility Licence Application and Supplementary Documentation (Document 179-LAH-EN-REP-0024 v[1]), 11 March 2021. DWERDT426365.
- Atlas 2021b, Sanjiv Ridge Project: Works Approval Compliance Report Crushing and Screening Plant, W6043/2017/1 (179-LAH-EN-REP-0022 v[1]), 15 February 2021. DWER Record DWERDT414362.
- Atlas 2021c, Sanjiv Ridge Project: Time Limited Operations Report Wastewater Treatment Facility and Landfill Facility, Document ID v0 179-LAH-EN-REP-0026, 1 April 2021. DWER Record DWERDT435536.
- Atlas 2021d, Fw Applicant Notification Application for a Licence L9280/2021/1 Draft Instrument and Decision Report, email received from Theo Sprenkles with response to draft licence, dated 9 July 2021 (DWER Record A2025311).
- 11. Department of Environment Regulation (DER) 2016, *Guidance Statement: Environmental Siting*, Perth, Western Australia.
- 12. DER 2017, Guidance Statement: Risk Assessments, Perth, Western Australia.
- 13. DER 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
- 14. Environmental Protection Authority (EPA) 2020, Report and Recommendations of the

Environmental Protection Authority, Corunna Downs Project, Atlas Iron Pty Ltd, January 2020, Environmental Protection Authority, Perth, WA.

Appendix 1: Application validation summary

SECTION 1: APPLICATION	SUMN	IARY					
Application type							
Works approval							
		Relevant works approval number:W6043/2017/1None					
		Has the works approval been complied $Yes \boxtimes No \square$ with?					
		Has time limited operations under the works approval demonstrated acceptable operations?Yes □ No □ N/A □					
Licence	\boxtimes	Environmental Compliance Reports / Environmental Commissioning Report Yes I No I submitted?					
		Date Reports received: Compliance report for the landfill received 7/09/2020 (DWERDT332215) Compliance report and commissioning report for the WWTP received 5/10/2020 (DWERDT346825)					
		Compliance report for the crushing and screening plant received 15/02/2021 (DWERDT414362)					
Date application received		Category 85 and 89 application - 23/11/2020 Category 5 application - 11/03/2021					
Applicant and Premises deta	ils						
Applicant name/s (full legal nam	ne/s)	Atlas Iron Pty Ltd (ACN: 110 396 168)					
Premises name		Sanjiv Ridge (previously known as the Corunna Downs Project) refer to A1971714 email dated 24 December 2020					
Premises location		M45/1257 G45/339 L45/410 L45/407 L45/408					
Local Government Authority		Shire of East Pilbara					
Application documents							
HPCM file reference number:		DER2020/000597					
Key application documents (additional to application form):		 CRD WWTP and Landfill Supplementary Information; and 20210304_SMR Crusher Supplementary information. 					
Scope of application/assessr	nent						
Summary of proposed activities or changes to existing operations.		Operation of crushing and screening plant, WWTP and landfill constructed under W6043/2017/1. To note: tyre disposal is proposed at 3 separate locations to the landfill.					

Prescribed premises category and description		posed pr ign capa	oduction o city	r	Proposed changes to the production or design capacit (amendments only)		
Category 5	5,00	0,000 tor	nes per ani	num	N/A		
Category 85 – Sewage facility		n ³ /day, pl brine	us 15 m³/da	ly for	N/A		
Category 89 – Putrescible landfill site	450	tonnes p	er annum		N/A		
egislative context and other approv	/als						
Has the applicant referred, or do they				Refer	ral decision No:		
intend to refer, their proposal to the E under Part IV of the EP Act as a	PA	Yes 🗵	No 🗆	Mana	lged under Part V □		
significant proposal?				Asse	ssed under Part IV ⊠		
Does the applicant hold any existing F		Yes ⊠	No 🗆		terial statement No: MS 1125 – h 2020		
application?				EPA	EPA Report No: 1665		
				Refer	ence No: EPBC 2017/7861		
Has the proposal been referred and/o	or	Yes ⊠	No 🗆	Proje	Project approved on 23/2/2018		
assessed under the EPBC Act?					Variation to conditions determined on 30/10/2020		
				Minin Iron L	g lease tenement in name of Atla .td:		
				ML45	i/339 Expiry 15/11/2037		
Has the applicant demonstrated		Yes ⊠	No 🗆		ML45/407 Expiry 8/11/2037		
occupancy (proof of occupier status)?					ML45/408 Expiry 8/11/2037		
					ML45/410 Expiry 8/11/2037		
					5/1257 Expiry 26/05/2037		
					r evidence 🗆 Expiry:		
Has the applicant obtained all relevant planning approvals?		Yes □	No 🗆	If N/A	explain why? Mining tenure		
		N/A ⊠					
Has the applicant applied for, or have	an			CPS	No: N/A		
existing EP Act clearing permit in related to this proposal?		Yes □	No 🛛	Clear cleari	ing authorised under MS 1125 ng of 423.11 ha native vegetation the development envelope		
Has the applicant applied for, or hav				Applie	cation reference No: N/A		
existing CAWS Act clearing licenc relation to this proposal?	e in	Yes □	No 🗵	Licen	ce/permit No: N/A		

Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes 🛛 No 🗆	Licence/permit No: GWL176960 (5) Issued 3/4/2020 to draw 1.1GL/a for various uses including mining camp purposes.
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes □ No ⊠	Name: PilbaraType: Proclaimed Groundwater Areaand Surface Water AreaHas Regulatory Services (Water) beenconsulted?Yes □ No □ N/A ⊠Regional office: North West
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes □ No ⊠	Name: N/A Priority: N/A Yes □ No □ N/A ⊠
Is the Premises subject to any other Acts or subsidiary regulations (e.g. Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx)	Yes 🛛 No 🗆	Mining Act 1978 Environmental Protection (Unauthorised Discharges) Regulations 2004
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes 🗆 No 🛛	N/A
Is the Premises subject to any EPP requirements?	Yes 🗆 No 🛛	N/A
Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?	Yes □ No ⊠	Classification: N/A Date of classification: N/A