Government of Western Australia
Department of Water and Environmental Regulation

# Decision Report

## Application for Works Approval

### Part V Division 3 of the *Environmental Protection Act 1986*

| | |
|---|---|
| **Works Approval Number** | W6857/2023/1 |
| **Applicant** | BHP Iron Ore Pty Ltd |
| **ACN** | 008 700 981 |
| **File number** | DER2023/000627 |
| **Premises** | Western Ridge<br>Mineral Lease: ML244SA<br>Mining Lease: M266SA<br>Miscellaneous Licence: L52/199<br>General Purpose Leases: G52/258, G52/260, G52/261, G52/262, G52/263, G52/264, G52/265, G52/266, G52/267, G52/268, G52/270, G52/271, G52/272, G52/273, G52/274, G52/277, G52/277 and G52/279<br>NEWMAN WA 6753<br><br>As defined by the coordinates in Schedule 2 of the works approval. As defined by the premises maps attached to the issued works approval |
| **Date of report** | 26 April 2024 |
| **Decision** | Works approval granted |

Jarrod Abrahams

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**MANAGER, RESOURCE INDUSTRIES REGULATORY SERVICES**
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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# 1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the premises. As a result of this assessment, works approval W6857/2023/1 has been granted.

# 2. Scope of assessment

## 2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) 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 and overview of premises

On 20 September 2023, BHP Iron Ore Pty Ltd (BHP / the applicant) submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act). The application is to undertake construction works, commissioning and time-limited operations relating to the following prescribed premises categories associated with the Western Ridge Mining Operations:

Category 5 – Processing or beneficiation of metallic or non-metallic ore:

- Primary Crusher and ROM Pad;
- Conveyor System, Transfer and Sample Stations;
- Radial Stacker;
- Bulk in Hopper Facility;
- Ore Handling Plant 4 Stacker / Elevated Feed Conveyor and Fixed Stacker; and
- Overland Conveyor System.

Category 12 – Screening, etc. of material:

- 3 Mtpa Mobile Crushing and Screening Plant.

Category 63 – Class I inert landfill site:

- Inert Landfill with a maximum capacity of 115,000 tonnes.

Other related infrastructure:

- Biomax C20 Wastewater Treatment Plant (WWTP) 3,600 L/day;
- Hydrocarbon Storage:
  - Bulk Diesel Storage 400 kL; and
  - Bulk Lube Station 5 kL;
- Concrete Batching Plant; and
- Oily Water Separators (OWSs).

The premises is approximately 1.5 km southwest of Newman in the Pilbara region of Western Australia.

The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020)

are outlined in works approval W6857/2023/1.

### 2.2.1 Category 5

The proposed mining rate for the Western Ridge Project is 50 Million tonnes per annum (Mtpa) of ore, noting this will replenish supplies from depleting ore reserves from the existing mining operations at Mt Whaleback and Eastern Ridge. The rate of ore processing through the Whaleback hub will therefore not increase because of the Project.

The Western Ridge ore processing infrastructure will be capable of processing up to 30 Mtpa of ore. Ore will be fed into the system from the ROM pad and processed by the Primary Crusher. Primary crushed ore will be transported from the Primary Crusher building to the surge bin building via Conveyor CV4102.

The overland conveyor system runs from the Western Ridge Primary Crusher to the Whaleback Hub Stockyards consisting of Conveyors CV4104 and CV4105, and Transfer Stations TS4104 and TS4105.

Ore from the overland conveyor then reports to the Radial Stacker. The Radial Stacker Feed Conveyor CV4107 is loaded at Transfer Station TS4105. CV4107 discharges onto Radial Stacker Conveyor CV4108. CV4107 is a 100 m conveyor and Transfer Station TS4108 is a rail style Radial Stacker that will build kidney stockpiles.

The Bulking-In Hopper is a packaged system that accepts rehandled high-grade feed from the high grade stockpile and transfers it onto CV4106 Fixed Stacking Conveyor. The high-grade ore is then rehandled by front end loaders.

The Crusher OHP4 Coarse Ore Stockpile Feed Conveyor CV4106 is loaded at Transfer Station TS4105. CV4106 crosses a haul road and rail line and discharges onto Whaleback OHP4 COS via a fixed stacker.

### 2.2.2 Category 12

The construction of the Western Ridge Conveyor earthworks will require the screening of borrow material for suitable grade for the conveyor formation. A 3 Mtpa mobile crushing and screening plant, running at approximately 7,000 tonnes per day, will be used to process approximately 145,000 tonnes for 9 months. The final design has yet to be selected by BHP, however, they have committed to providing this along with dust and noise controls prior to the construction commencing.

### 2.2.3 Category 63

The inert landfill is to be constructed approximately 1 km west of the proposed Primary Crusher and will cover an area of 3.85 ha. It will have a capacity of approximately 115,000 tonnes per annum of Inert Waste Type 1 that is generated from construction activities.

### 2.2.4 Other infrastructure

A Biomax WWTP with design capacity treating 3,600 L/day wastewater, with discharged to a 500 $m^2$ fenced reticulation area designed to meet the requirements of *Water Quality Protection Note 22: Irrigation with nutrient rich wastewater* (DoW, 2008).

A fuel facility will be incorporated, consisting of the following:

- 2 x 200 kL self-bunded storage tanks for light and heavy vehicle refuelling;
- 1 x 5 kL self-contained bulk lube / grease container for topping up mining trucks; and
- 1 x oily-water separator (OWS) to treat potentially hydrocarbon contaminated water from the facility.

Three additional OWSs will be installed at the Primary Crusher, TS4104 and TS4105 transformer compounds.

## 2.3 Part IV of the EP Act

BHP referred the Western Ridge Mining Operations to the EPA on 27 of January 2023 as a 'derived proposal' under Ministerial Statement 1105 (Pilbara Expansion Strategic Proposal). The EPA issued an Extract of Determination on 07 September 2023 stating that the Project was a Derived Proposal under Ministerial Statement (MS 1105). The Derived Proposal was signed off by the Minister for Environment on 17 October 2023.

EPA Report 1619 (MS 1105) notes that impacts from emissions and discharges from Pilbara Expansion Strategic Proposal can be managed under Part V of the EP Act and that it considers that a condition that specifically requires an environmental management plan for emissions and discharges of odours and noise is not required. The discharges of dust are however addressed under the Air Quality environmental factor.

## 2.4 Air Emissions

### 2.4.1 Risk review summary - dust

On 06 October 2020, the Department notified BHP that it will be reviewing the licenses for Mt Whaleback/Orebody 29/30/35 Iron Ore Mine (L4503/1975/14) (Western Ridge will be licensed under this licence); and Eastern Ridge Iron Ore Mine (L6942/1997/13). This review focused on dust emissions and impacts from the Premises, to ensure that the impacts of dust are well understood and regulated to appropriate levels.

Amended licences for Whaleback and Eastern Ridge were granted 16 January 2023. The licence required additional controls to manage dust, provide a plan of improvement works to manage dust within the Fixed Plant West area, and review the dust monitoring network. The plan for improvements works and the dust network review have been submitted to the DWER (January 2024). Some improvement works have been implemented and the licence is currently being updated by the Department.

While the Pilbara is a naturally dusty environment and there are numerous sources of local and regional dust, BHP operates two large iron ore mines that each have the potential to significantly contribute to ambient dust at Newman, being Mt Whaleback and Eastern Ridge, located approximately 2km and 4.5km respectively from the nearest residential receptors.

Potential dust generating activities and sources at both mine sites include ore crushing, screening, blasting, truck movements on mine roads, open/unsealed areas and clearing and rehabilitation works, among other general activities. Of these activities, licence L4503/1975/14 regulates ore processing activities, which includes crushing and screening of ore.

The review for Whaleback and Eastern considered prescribed premises activities only, including all associated dust sources, emissions, pathways and management measures, in addition to historic monitoring results and the findings of the recent dust study.

Existing and additional controls were placed on the amended licence and the justification for these controls provided. Following the implementation of additional controls through the amended licence the Department expects that the risk of dust emissions will be reduced from the premises and that overall dust emissions are likely will be acceptable. If unacceptable dust emissions are identified in the future, the licence may be modified (amended) again to require additional controls.

### 2.4.2 Ambient Air Quality Network

BHP has an existing ambient air quality monitoring network in and around the town of Newman, to measure background dust concentrations, determine potential impacts of operations at

sensitive receptors and to improve dust management in the region.

This comprises a primary dust monitoring network and secondary dust monitoring network – refer to Figure 1. The primary network includes eight fixed monitoring stations plus two operational weather stations. The secondary network comprises additional monitoring across Whaleback and Eastern Ridge, the locations of which are subject to review and change according to analytical needs and understanding of high-risk weather conditions. Airborne dust levels from existing approved Newman operations is reported periodically in respective Annual Environmental Reports.

Western Ridge will be using the same boundary monitors as specified in Mt Whaleback/Orebody 29/30/35 licence (L4503/1975/14) with this licence being amended to include Western Ridge operations following compliance with this works approval (W6857/2023/1). Requirements to manage air quality are also included under MS 1105 (condition 11). Therefore, the ambient air quality monitoring network will not be included onto the Western Ridge works approval as it is already regulated under the Mt Whaleback/Orebody 29/30/35 licence and under MS 1105.

### 2.4.3 Air Quality Management requirements under Part IV of the EP Act

Condition 6 of MS 1105 requires Condition Environmental Management Plans.

Condition 11 of MS 1105 requires the proponent to prepare an AQMP to meet the following objectives:

- Maintain air quality and minimize emissions so that environmental values are protected, and in particular, meet recognized air quality standards and criteria, including:
  - National Environment Protection (Ambient Air Quality) Measure for carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, lead, particles as $PM_{10}$ and $PM_{2.5}$; or
  - Other guidelines on a proposal specific basis as determined by the CEO.

The Newman Hub (Western Ridge) MS1105 Air Quality Management Plan (AQMP) was submitted as a *draft* with the referral documentation for the Newman Hub (Western Ridge) Derived Proposal to meet the requirements of the MS 1105 Condition 6 and Condition 11. The AQMP addresses both pre-clearing works and construction of infrastructure and mining activities during operations. A further revision of the Western Ridge AQMP was received by EPA in January 2024. A finalised version of the Western Ridge AQMP (BHP, January 2023) and the Air Quality Assessment has also been provided as part of the works approval application.

EPA Services sought technical advice on the original (draft) version of the AQMP and Air Quality Assessment from Air Quality Branch (AQB). AQB advised that in general, the modelling assessment meets the requirements of DWER's *Air Quality Modelling Guidance Notes.* Model predictions of cumulative 24-hour average concentrations indicate exceedances of the $PM_{10}$ National Environment Protection Measure (NEPM) guideline at identified sensitive receptor locations for the future cumulative model scenario, however, the future exceedances are predicted to be lower than the existing model scenario (Mt Whaleback and Eastern Ridge). The model predictions for annual concentrations for $PM_{10}$ and $PM_{2.5}$ are equivalent to the NEPM guideline values.

Recognising that haul roads and loading/unloading are the two largest emission sources, the project was designed to avoid emissions and impacts to air quality as far as practicable through the development of a new overland conveyor to transport ore from the western end of the Development Envelope to the existing Mt Whaleback mining operations.

At the time of this assessment the final/revised AQMP (BHP, January 2023) had not yet been approved by the DWER CEO (as required under MS 1105), however, EPA has confirmed that this does not constrain issuing of the works approval.

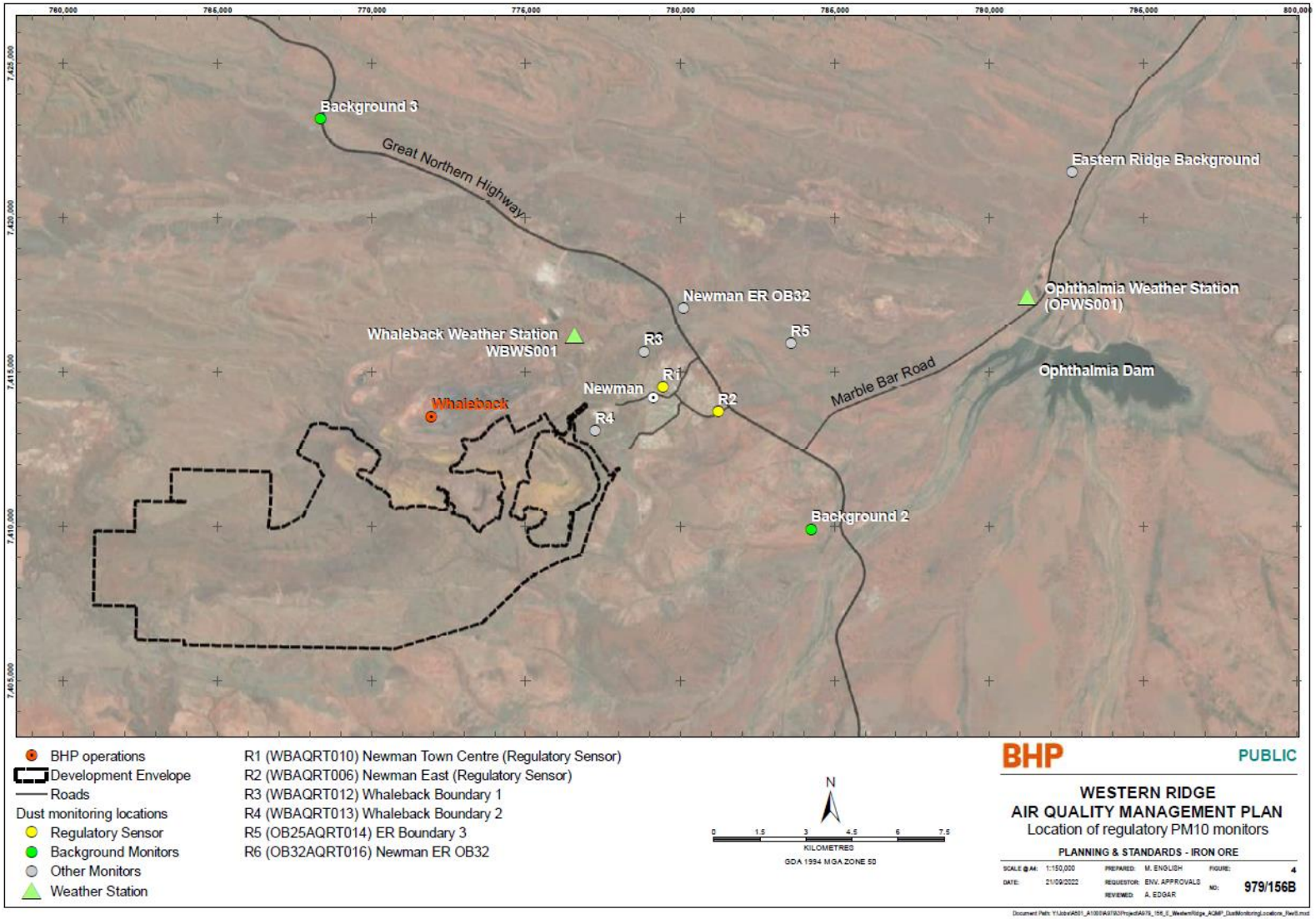


**Figure 1: Locations of regulatory $PM_{10}$ monitors (sourced from the Western Ridge AQMP (BHP, January 2023))**

## 2.5 Noise emissions

EPA Report 1619 for the Pilbara Expansion Strategic Proposal states that the EPA has noted that the impacts from emissions and discharges can be managed under Part V of the EP Act. EPA considers that a condition that specifically requires an environmental management plan for emissions and discharges of noise is not required.

The *Western Ridge Mining Operations Environmental Noise Assessment* (Talis Consultants, 18 March 2021) (ENA) was prepared to support the works approval application, with an aim to assess the noise impacts of Western Ridge on the Town of Newman against the *Environmental Protection (Noise) Regulations 1997* (Noise Regulations).

Noise modelling was conducted of Western Ridge in isolation and cumulative scenarios. The noise modelling found that Western Ridge in isolation comply with the Noise Regulations. When combined with existing operations, Western Ridge increases the cumulative noise levels in Newman (PR07) by 0.02 dB.

As part of this assessment DWER's Noise Regulation Branch (NRB) reviewed the ENA and indicated that the proposed Western Ridge operations are not likely to significantly contribute to an exceedance at any sensitive receivers in Newman. The ENA did however show a likely exceedance from the Pilbara Expansion Strategic Proposal (cumulative BHP projects) at refence receiver PR07 and, therefore, NRB suggested that noise monitoring could be undertaken at various key receivers in Newman to better quantify compliance.

BHP advised that the Strategic Environmental Assessment looked at three scenarios:

1. Existing Scenario: current BHP operations as of 2015, existing third-party operations and existing non-mining impacts.
2. 30% Scenario: existing scenario, plus 30% of BHP Billiton Iron Ore's identified operations are operating concurrently, reasonably foreseeable third party operations.
3. 100% Scenario: 30% scenario, plus all other BHP future developments.

While the 30% and 100% scenarios did show a potential exceedance for Newman Town Centre this was a broad conceptual model and included operations at Orebody 37 (south of Eastern Ridge) and Orebody 32 west (west of Eastern Ridge). Refer to Figure 2.

For the specific scenario of the Existing Operations plus Western Ridge, the modelling indicates that levels are well below the exceedance threshold. The difference in values is directly related to the fact that the additional orebodies associated with the 30% scenario are not part of the Western Ridge Approval and will be subject to future approvals under Part IV/V of the EP Act.

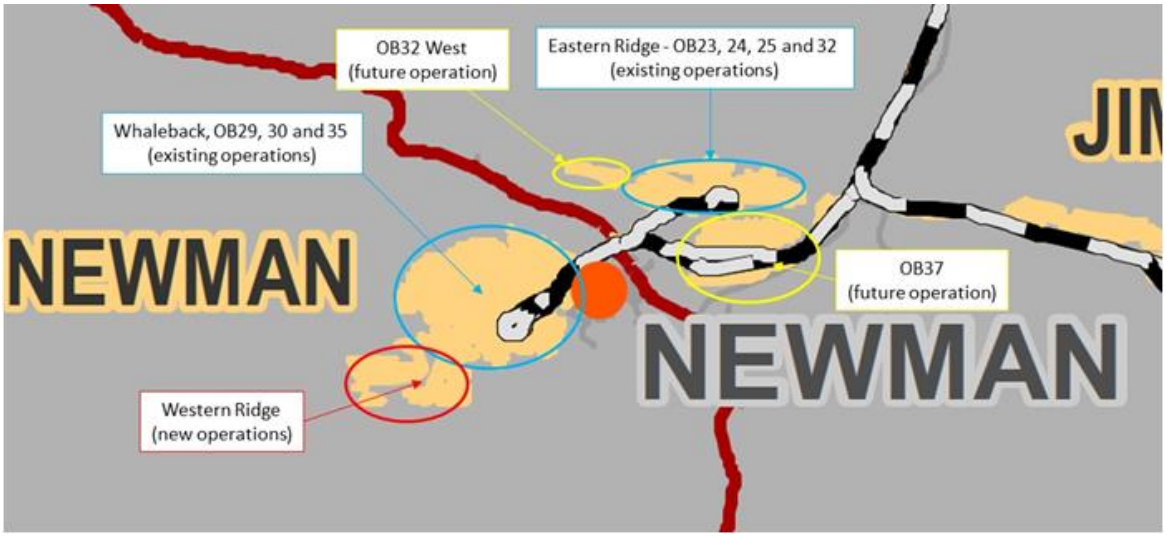


**Figure 2: Extract of the 30% Scenario for operations near Newman**

Noise from trucking was raised, however, it is proposed to construct a new crusher and overland conveyor to transport this ore to the Whaleback ore processing hub.

## 2.6 P1 Public Drinking Water Source Area (PDWSA)

The Western Ridge project area is partially located within a Priority 1 (P1) Public Drinking Water Source Area (PDWSA), the Newman Water Reserve, proclaimed under the *Country Areas Water Supply (CAWS) Act 1947* in 1983. A Drinking Water Source Protection Plan was prepared for the Newman Water Reserve in 2009 (Newman Water Reserve drinking water source protection plan) and can be found here: Newman Water Reserve drinking water source protection plan - WRP 97 (www.wa.gov.au). A review was undertaken in 2014 and that can be found here: Newman Water Reserve drinking water source protection review - WRP 146 (www.wa.gov.au)

The 2009 plan defines all Crown land within the Newman Water Reserve as a Priority 1 area. The P1 PDWSA (unconfined aquifer) is vulnerable to contamination from inappropriate land uses, it is the sole source for the Newman drinking water supply, and therefore, it should be afforded the highest feasible level of protection.

The 2009 plan identifies a number of activities, including the existing tailings dam, wastewater treatment plant, power station etc. in the P1 Newman Water Reserve as existing non-conforming activities, though the landfilling activities are not specifically mentioned. The plan identifies that the potential water quality risks from the activities are hydrocarbons/chemicals, wastewater, chemcials leaching from tailings, although it was also noted that iron ore tailings are chemically inert.

Recommended strategies to help protecting this PDWSA include ongoing water quality monitoring and best management practices.

The 2009 plan also states: “These land uses need to be managed as existing non-conforming land uses, provided they continue to operate according to their relevant approvals.” The department will not support expansion or intensification of an existing, incompatible land use unless the overall water quality contamination risk is reduced. Therefore, ongoing monitoring and best management practices need to be implemented to reduce the risks.

The 2009 plan also recommends “to investigate alternative locations for public drinking water supply bores remote from existing or future mining and upstream of the town”. The 2014 review states that the applicant is conducting these investigations and this had led to the applicant’s proposal for a new bore field in the Homestead Creek area, to become the main source of Newman’s drinking water. The new Homestead bore field will be in the undeveloped Homestead Creek surface water catchment area, approximately 5 to 10 kilometres north of Newman.

The risk of water quality contamination at the proposed Homestead bore field will be lower than at the existing bore field. This is due to the considerable distance between the proposed bore field and mining operations and urban activities.

BHP provided an updated during this assessment that the Homestead Creek Project is currently in an ‘Identification Phase’ of the studies which is looking at potential future locations for the Town drinking supply. The new borefield (when a preferred location is identified) will most likely be the subject of a Part IV referral (depending on potential environmental impacts).

In accordance with *WQPN 25: Land use compatibility tables for public drinking water source area* (DWER, August 2021), some mining activities including crushing and screening of material in P1 areas (but outside of wellhead protection zones) are compatible with conditions. However Class 1 landfill i.e. inert material and the discharge of wastewater via irrigation is considered incompatible with the P1 area.

The Department expects that the applicant addresses the following requirements for a land use or activity that is considered incompatible as per WQPN 25:

- Alternative locations for the land use or activity (outside the PDWSA or within a lesser priority area e.g. P2 or P3 instead of P1) have been fully considered and have been found to be unavailable. Proposals should include a report showing the alternative sites which were investigated.
- Detailed site-specific information about the extent of the land uses and activities, the risks to water quality and public health, and how they will be effectively managed to the satisfaction of the department.
- A risk assessment in accordance with the Australian drinking water guidelines which shows that the proposed land use will result in a lower risk of contamination than the present land use.

The siting of proposed activities regarding the incompatible nature of operations within a PDWSA was not specifically addressed in the works approval application. DWER notes that groundwater in the subject area is typically between 80-100 metres below ground level (mBGL), therefore risks to groundwater from regulated activities is low. Further, BHP has proposed controls to minimise impacts to water resources which are considered further in Section 3 of this report.

DWER also notes that investigations into alternative locations for public drinking water supply bores remain ongoing and should form a priority for the applicant to remove and/or reduce any residual risks from mining proposed activities.

Water Corporation has advised that this proposal is located within the existing area of BHP's existing mining operations, and is co-located within a Priority 1 area of the Newman PDWSA. This proposal is consistent with the existing land use which has already been approved by the WA Government. Overall the supporting documentation is comprehensive in terms of management of environmental risks. Given that this proposal is occurring mostly within a Priority 1 PDWSA, there is very little reference to the PDWSA itself, though it is noted that there are many synergies between the management of wastewater, stormwater and hydrocarbons from both environmental and public health perspectives. The use of the WWTP within the Priority 1 PDWSA was raised, however, this is a WWTP with a low capacity of 3,600 L/day with the treated wastewater discharged to a 500m$^2$ fenced belowground reticulation area, which has been designed to meet the requirements of *Water Quality Protection Note 22: Irrigation with nutrient rich wastewater.*

# 3. 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 *Guideline: Risk Assessments* (DWER 2020).

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.

## 3.1 Source-pathways and receptors

### 3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this decision report are detailed in Table 1 below. Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

**Table 1: Proposed applicant controls**

| Emission | Sources | Potential pathways | Proposed controls |
|---|---|---|---|
| **Category 5** | | | |
| **Construction** | | | |
| Dust | Construction activities, vehicle movements, lift-off from stockpiles and/or stored product, earthworks etc. | Air / windborne pathway | • Minimising the clearing footprint; and<br>• Using water carts to control dust from exposed areas.<br>Refer to Section 2.4. |
| Noise | Construction activities | Air / windborne pathway | Applicant not proposing specific noise management measures given the separation discharges between the town of Newman and construction activities.<br>Refer to Section 2.5. |
| **Commissioning, TLO and Operations** | | | |
| Primary Crusher and ROM Pad | | | |
| Dust | Crushing and movement of material | Air / windborne pathway | • Dust suppression fogging system on the ROM bin;<br>• Deluge system on the ROM bin;<br>• Enclosed transfer points;<br>• Narrow loading boots with dust shrouds to minimise air flow up and out a transfer point; and<br>• Reduced height of transfer points and speed of falling ore (reducing concertina |

| Emission | Sources | Potential pathways | Proposed controls |
|---|---|---|---|
| | | | effect).<br>Refer to Section 2.4. |
| Noise | Crushing and movement of material | Air / windborne pathway | • Enclosed transfer points;<br>• Narrow loading boots with dust shrouds to minimize air flow up and out a transfer point; and<br>• Reduced height of transfer points and speed of falling ore (reducing concertina effect).<br>Refer to Section 2.5. |
| Stormwater | Sediment laden stormwater | Direct discharges | • Primary Crusher Building concrete bunded;<br>• Transformer compound concrete bunded and containment sump achieving impermeability of $10^{-9}$ L/s;<br>• There will be no discharge from the sumps with any water taken offsite for disposal by a licensed contractor if required; and<br>• All drainage from earthworks pads flow through sedimentation ponds designed to slow the flow and encourage sediment to settle out. |
| Hydrocarbons / chemicals | Hydrocarbons present include hydraulic fluids, lubricants, greases and transformer oil. | Direct discharges | • Drip trays below any gearboxes, motors, hydraulic power units, lubrication skids, filters etc.;<br>• Primary Crusher Building is concrete bunded;<br>• Transformer compound concrete bunded and containment sump achieving impermeability of $10^{-9}$ L/s; and<br>• There will be no discharge from the sumps, with any water taken offsite for disposal by a licensed contractor if required. |
| Conveyor System, Transfer Station and Samples Stations | | | |
| Dust | Movement of ore along conveyor systems | Air / windborne pathway | • BOC sprays on CV4102;<br>• Conveyor hoods or skirts on elevated section of CV4102 inclined greater than 10 degrees;<br>• Enclosed transfer points;<br>• Narrow loading boots with dust shrouds to minimize air flow up and out a |

| Emission | Sources | Potential pathways | Proposed controls |
|---|---|---|---|
| | | | transfer point;<br>• Reduced height of transfer points and speed of falling ore (reducing concertina effect); and<br>• Ore conditioned on CV4104 to DEM level.<br>Refer to Section 2.4. |
| Noise | Use of equipment and machinery | Air / windborne pathway | • Enclosed transfer points;<br>• Narrow loading boots with dust shrouds to minimize air flow up and out a transfer point; and<br>• Reduced height of transfer points and speed of falling ore (reducing concertina effect).<br>Refer to Section 2.5. |
| Stormwater | Sediment laden stormwater | Direct discharges | • Sample Station Building and Surge Bin Building are concrete bunded; and<br>• All drainage from the earthworks pads will flow through sedimentation ponds designed to slow the flow and encourage sediment to settle out. |
| Hydrocarbons / chemcials | Hydrocarbons include lubricants and greases | Direct discharges | • Drip trays below any gearboxes, motors, lubrication skids, filters etc.; and<br>• Sample Station Building and Surge Bin Building are concrete bunded. |
| Overland Conveyor System | | | |
| Dust | Movement of ore along conveyor systems | Air / windborne pathway | • BOC sprays controlled by moisture analyser on CV4104;<br>• BOC sprays controlled by moisture analyser on CV4105;<br>• Moisture analysers on OLCs to control ore to DEM level;<br>• Enclosed transfer points;<br>• Narrow loading boots with dust shrouds to minimize air flow up and out a transfer point;<br>• Reduced height of transfer points and speed of falling ore (reducing concertina effect); and<br>• Discrete Element Modelling of transfer chutes used to engineer the flow path of the ore stream. |

| Emission | Sources | Potential pathways | Proposed controls |
|---|---|---|---|
| | | | Refer to Section 2.4. |
| Noise | Use of equipment and machinery | Air / windborne pathway | • Enclosed transfer points;<br>• Narrow loading boots with dust shrouds to minimize air flow up and out a transfer point;<br>• Reduced height of transfer points and speed of falling ore (reducing concertina effect);<br>• Discrete Element Modelling of transfer chutes used to engineer the flow path of the ore stream.<br>Refer to Section 2.5. |
| Stormwater | Sediment laden stormwater | Direct discharges | • CV4104 drive station concrete bunded;<br>• TS4104 concrete bunded;<br>• TS4105 concrete bunded;<br>• All drainage from the earthworks pads will flow through sedimentation ponds designed to slow the flow and encourage sediment to settle out; and<br>• OLC formation design for 5% AEP flood event with culverts to maintain natural water courses. |
| Hydrocarbons / chemicals | Hydrocarbons present include hydraulic fluids, lubricants, greases and transformer oil | Direct discharges | • Drip trays below any gearboxes, motors etc.;<br>• CV4104 drive station concrete bunded;<br>• TS4104 concrete bunded;<br>• TS4105 concrete bunded;<br>• TS4104 transformer compound concrete bunded and containment sump achieving impermeability of $10^{-9}$ L/s;<br>• TS4105 transformer compound concrete bunded and containment sump achieving impermeability of $10^{-9}$ L/s; and<br>• There will be no discharge from the sumps with any water taken offsite for disposal by a licensed contractor if required. |
| Radial Stacker | | | |
| Dust | Movement of ore in stacking of stockpiles | Air / windborne pathway | • Dust suppression fogging on radial stacker discharge;<br>• 4 stockpile cannons; |

| Emission | Sources | Potential pathways | Proposed controls |
|---|---|---|---|
| | | | • Enclosed transfer points;<br>• Narrow loading boots with dust shrouds to minimize air flow up and out a transfer point;<br>• Reduced height of transfer points and speed of falling ore (reducing concertina effect); and<br>• Discrete Element Modelling of transfer chutes used to engineer the flow path of the ore stream.<br>Refer to Section 2.4. |
| Noise | Use of equipment and machinery | Air / windborne pathway | • Enclosed transfer points;<br>• Narrow loading boots with dust shrouds to minimize air flow up and out a transfer point;<br>• Reduced height of transfer points and speed of falling ore (reducing concertina effect);<br>• Discrete Element Modelling of transfer chutes used to engineer the flow path of the ore stream.<br>Refer to Section 2.4. |
| Stormwater | Sediment laden stormwater | Direct discharges | • Radial Stacker drive station concrete bunded; and<br>• All drainage from the earthworks pads will flow through sedimentation ponds, designed to slow the flow and encourage sediment to settle out. |
| Hydrocarbons / chemicals | Hydrocarbons present include hydraulic fluids, lubricants and greases | Direct discharges | • Drip trays below any gearboxes, motors etc.; and<br>• Radial Stacker drive station concrete bunded. |
| Bulk In Hopper Facility | | | |
| Dust | Movement of ore into Hoper Facility | Air / windborne pathway | • Dust suppression fogging system on bulking-hopper;<br>• BOC spray on bulking-in feeder; and<br>• Transfer chute onto CV4106 is enclosed.<br>Refer to Section 2.4. |
| Noise | Use of equipment and machinery | Air / windborne pathway | Refer to Section 2.5. |
| Hydrocarbons / | Hydrocarbons present include | Direct | • Bulking-in hopper to be concrete |

| Emission | Sources | Potential pathways | Proposed controls |
|---|---|---|---|
| chemicals | hydraulic fluids, lubricants and greases | discharges | bunded with drive-in sump. |
| OHP 4 Stacker / Elevated Feed Conveyor and Fixed Stacker | | | |
| Dust | Movement of ore along conveyers and stackers | Air / windborne pathway | • BOC sprays on CV4106 controlled by moisture analyser on CV41406;<br>• Moisture analyser on OLCs to control ore to DEM level;<br>• Dust suppression fogging system on CV4106 discharge; and<br>• Reduced height of transfer points and speed to falling ore (reducing concertina effect).<br>Refer to Section 2.4. |
| Noise | Use of equipment and machinery | Air / windborne pathway | • Reduced height of transfer points and speed of falling ore (reducing concertina effect).<br>Refer to Section 2.5. |
| Stormwater | Sediment laden stormwater | Direct discharges | • CV4106 drive station concrete bunded; and<br>• All drainage from the earthworks pads will flow through sedimentation ponds, designed to slow the flow and encourage sediment to settle out. |
| Hydrocarbons / chemicals | Hydrocarbons present include lubricants and greases | Direct discharges | • Drip trays below any gearboxes, motors etc.; and<br>• CV4106 drive station concrete bunded. |
| **Category 12** | | | |
| **Construction** | | | |
| Dust | Construction of the Mobile Crushing and Screening Plant | Air / windborne pathway | • Minimising clearing footprint; and<br>• Using water carts to control dust from exposed areas.<br>Refer to Section 2.4. |
| Noise | Construction of the Mobile Crushing and Screening Plant | Air / windborne pathway | • Works only conducted during daylight hours.<br>Refer to Section 2.5. |
| **TLO and Operations** | | | |
| Dust | Crushing and | Air / windborne | • Dust from roads and stockpiles |

| Emission | Sources | Potential pathways | Proposed controls |
|---|---|---|---|
| | screening of ore | pathway | managed via the use of water carts;<br>• Only required for 9 months; and<br>• The final plant design has not yet been selected. Dust and noise controls will be fitted to the plant and BHP have committed to providing a copy of this design to DWER once the final plant is selected and prior to construction commencing. BHP has stated that dust and noise emissions from this plant would be lower than potential emissions from the Western Ridge Ore crushing facilities and associated conveyor and would not adversely impact the Newman airshed beyond the modelled impacts of the Project, given the mobile crushing and screening plant will not be operating at the same time as the ore crushing plant and associated infrastructure.<br>Refer for Sections 2.4 and 2.5. |
| Noise | Use of equipment and machinery | Air / windborne pathway | |
| **Category 63** | | | |
| **Construction** | | | |
| Dust | Vehicle movements on unsealed roads and construction of the landfilling area | Air / windborne pathway | • Dust control on unsealed roads will be managed via the use of water carts.<br>Refer to Section 2.4. |
| **TLO and Operations** | | | |
| Dust | Vehicle movements on unsealed roads and operation of the landfill | Air / windborne pathway | • Dust control on unsealed roads will be managed via the use of water carts where required; and<br>• Dust emissions will be localised and short term from covering activities.<br>Refer to Section 2.4. |
| Contaminated stormwater | Rainfall flowing within and through the landfilling area | Direct discharges | • The landfill facility will have an earthen bund to prevent stormwater entering or leaving the facility. |
| Leachate | Rainfall falling within landfilling area | Infiltration | • Only inert materials will be disposed of at the landfill so there should be no generation of contaminated leachates; and<br>• There are unlikely to be any impacts to groundwater as the depth to groundwater is typically between 80 – 100 mBGL. |

| Emission | Sources | Potential pathways | Proposed controls |
|---|---|---|---|
| Windblown waste | Exposed wastes carried via wind | Air / windborne pathway | • Wastes will be covered as per the requirements of the *Environmental Protection (Rural Landfill) Regulations 2002*. |
| Fauna ingress | Fauna attraction to wastes | Fauna contact with wastes | • Screened out as fauna not expected to be attracted to inert wastes. |
| **Other infrastructure** | | | |
| **Construction** | | | |
| Dust | WWTP | Air / windborne pathway | • Dust control on unsealed roads will be managed via the use of water carts.<br>Refer to Section 2.4. |
| Dust | Bulk Hydrocarbon Storage and OWSs | Air / windborne pathway | • Dust control on unsealed roads will be managed via the use of water carts.<br>Refer to Section 2.4. |
| Dust | Concrete Batching Plant | Air / windborne pathway | • Dust control on unsealed roads will be managed via the use of water carts.<br>Refer to Section 2.4. |
| Noise | | Air / windborne pathway | • Compliance with the *Environmental Protection (Noise) Regulations 1997*.<br>Refer to Section 2.5. |
| **TLO and Operations** | | | |
| WWTP | Sewage and/or treated effluent | Direct discharges | • *Environmental Protection (Unauthorised Discharges) Regulations 2004*; and<br>• *Water Quality Protection Note 22: Irrigation with nutrient rich wastewater* (DoW, 2008). |
| Hydrocarbons / chemcials | Bulk Hydrocarbon Storage and OWSs | Direct discharges | • Fuel facilities to be self bunded / self contained;<br>• Vehicle refueling points to be located within concrete bunded areas and have OWS to treat potentially contaminated water; and<br>• OWS designed to treat water to equal or < 15 mg/L TRH;<br>• Sump to collect water post treatment via the OWS;<br>• Storage tank to store water transferred from the sump; |

| Emission | Sources | Potential pathways | Proposed controls |
|---|---|---|---|
| | | | • Double containment for hydrocarbons; and<br>• Spill kit included. Water will be collected in a sump and transferred to a storage tank. Water will be tested for hydrocarbons and taken to the primary crusher (lined) turkey's nest if it is less than 15 mg/L total recoverable hydrocarbon (TRH). If the water is above 15 mg/L the water will be removed from site and disposed on in a licenced facility. |
| Dust | Concrete Batching Plant | Air / windborne pathway | • Applicant has confirmed that the Concrete Batching Plant will comply with the *Environmental Protection (Concrete Batching and Cement Product Manufacturing) Regulations 1998.*<br>Refer to Sections 2.4 and 2.5. |
| Noise | | Air / windborne pathway | |
| Contaminated wastewater | | Direct discharges | |

### 3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 2 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental Siting* (DWER 2020)).

**Table 2: Sensitive human and environmental receptors and distance from prescribed activity**

| Human receptors | Distance from prescribed activity |
|---|---|
| Town of Newman | 1.5km north-east of Application Area (at the closest point)<br>Category 5:<br>The Town is located at the following distances for respective Category 5 activities:<br>- 14km north-east.of the Primary Crusher and ROM Pad.<br>- 5.5km north-east at its closest point from the Conveyor System, Transfer and Sample Stations.<br>- 4km east at its closest point from the Overland Conveyor System. |

| | |
|---|---|
| | - 4.5km east from the Radial staker.<br>- 4km east of the Bulk in Hopper Facility.<br>- 4km east of the Ore Handling Plant 4 Stacker / Elevated Feed Conveyor and Fixed Stacker.<br>- 14km north-east of the associated concrete batching plant<br>Category 12: Town of Newman located approximately 12km north-east.<br>Category 63: Town of Newman located approximately 15 km north-east. |
| **Environmental receptors** | **Distance from prescribed activity** |
| Threatened Ecological Communities<br>Ethel Gorge aquifer stygobiont community | More than 4.5 km east. |
| Threatened and/or priority fauna<br>Five significant fauna species have been recorded within the Application Area:<br>• Ghost Bat (Macroderma gigas) (EPBC Act and BC Act Vulnerable);<br>• Northern Quoll (Dasyurus hallucatus) (EPBC Act and BC Act Endangered);<br>• Peregrine Falcon (Falco peregrinus) (BC Act Other Specially Protected Fauna);<br>• Pilbara Leaf-nosed Bat (Rhinonicteris aurantia) (EPBC Act and BC Act Vulnerable); and<br>• Pilbara Olive Python (Liasis olivaceus subsp. barroni) (EPBC Act and BC Act Vulnerable). | Within the Application Area. |
| Threatened and/or priority flora<br>Two Priority flora species | Within the Application Area. |
| Aboriginal and other heritage sites<br>Multiple sites | Within the Application Area. |
| Public drinking water source areas<br>Newman Water Reserve P1 and P3 | Within the Application Area. |
| Rivers, lakes, oceans, and other bodies of surface water, etc.<br>Numerous nonperennial drainage lines | Within the Application Area. |
| Acid sulfate soils<br>N/A | N/A |
| Groundwater | Depth to groundwater is typically between 80 – 100 mbgl dropping to 40 mbgl at OHP40 in the |

| | |
|---|---|
| | Whaleback Hub. |
| Surface water | Surface water drainage systems are separated from potential contaminants with the largest potential source of emissions (the Primary Crusher) located 250 m north of the closest non-perennial drainage line. |

## 3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. 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 3.1), 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 works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

Works approval W6857/2023/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 3 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises i.e. Categories 5, 12 and 63 activities. A risk assessment for the operational phase has been included in this decision report, however licence conditions will not be finalised until the department assesses the licence application.

## Table 3: Risk assessment of potential emissions and discharges from the premises during construction, commissioning and operation

| Risk events | | | | | Risk rating [1] C = consequence L = likelihood | Applicant controls sufficient? | Conditions [2] of works approval | Justification for additional regulatory controls / General comments |
|---|---|---|---|---|---|---|---|---|
| **Sources / activities** | **Potential emission** | **Potential pathways and impact** | **Receptors** | **Applicant controls** | | | | |
| **Category 5** | | | | | | | | |
| **Construction** | | | | | | | | |
| Construction activities, vehicle movements, lift-off from stockpiles and/or stored product, earthworks etc. | Dust | Air / windborne pathway causing impacts to health and amenity | Town of Newman – refer to Section 3.1.2<br>Vegetation | Refer to Section 3.1 | C = Moderate<br>L = Possible<br>**Medium Risk** | Y | Condition 1, Table 1 Design and construction / installation requirements: requires clearing footprint to be minimised and water carts | As outlined in Section 2.4, air quality objectives (which includes air quality monitoring) are managed under the existing licence for the Whaleback (L4503/1975/14) and MS 1105 (Condition 11) |
| | Noise | | | Refer to Section 3.1 | C = Slight<br>L = Rare<br>**Low Risk** | Y | N/A<br>Separation distances between the construction footprint and the Town of Newman, short term nature of construction period. | Provisions of the *Environmental Protection (Noise) Regulations 1997* apply. |
| **Commissioning and Operation (including time-limited-operations operations)** | | | | | | | | |
| Primary Crusher and ROM Pad<br>Conveyor System, Transfer Station and Samples Stations<br>Overland Conveyor System<br>Radial Stacker<br>Bulk In Hopper Facility<br>OHP 4 Stacker / Elevated Feed Conveyor and Fixed Stacker | Dust | Air / windborne pathway causing impacts to health and amenity | Town of Newman – refer to Section 3.1.2<br>Vegetation | Refer to Section 3.1 | C = Moderate<br>L = Possible<br>**Medium Risk** | Y | Condition 1, Table 1 Design and construction / installation requirements: requires dust suppression on infrastructure.<br>Condition 5, Table 2 Environmental commissioning requirements: requires regular maintenance of dust controls and visual inspections.<br>Condition 10, Table 4 Infrastructure and equipment requirements during time limited | As outlined in Section 2.4, air quality objectives (which includes air quality monitoring) are managed under the existing licence for the Whaleback (L4503/1975/14) and MS 1105 (Condition 11)<br>Conditions 11-13 have been included on the works approval to be consistent with controls imposed under the existing licence for Whaleback (L4503/1975/14). |

| Risk events | | | | | Risk rating [1]<br>C = consequence<br>L = likelihood | Applicant controls sufficient? | Conditions [2] of works approval | Justification for additional regulatory controls / General comments |
|---|---|---|---|---|---|---|---|---|
| **Sources / activities** | **Potential emission** | **Potential pathways and impact** | **Receptors** | **Applicant controls** | | | | |
| | | | | | | | operations: requires regular maintenance of dust controls and visual inspections<br>Conditions 11-13 requires operational controls to ensure dust suppression equipment is being used and that an inventory is in place for all dust control equipment. | |
| | Noise | Air / windborne pathway causing impacts to health and amenity | Town of Newman – refer to Section 3.1.2 | Refer to Section 3.1 | C = Slight<br>L = Possible<br>**Low Risk** | Y | Condition 1, Table 1 Design and construction / installation requirements: requires transfer points be enclosed, with reduced height etc. | Provisions of the *Environmental Protection (Noise) Regulations 1997* also apply. |
| | Hydrocarbons / chemcials / contaminated stormwater | Direct discharges | Soils, vegetation, groundwater | Refer to Section 3.1 | C = Slight<br>L = Possible<br>**Low Risk** | Y | Condition 1, Table 1 Design and construction / installation requirements: requires self bunding / self containment, treatment design criteria | Provisions of the *Environmental Protection (Unauthorised Discharges) Regulations 2004* also apply. |
| **Category 12** | | | | | | | | |
| **Construction** | | | | | | | | |
| Construction activities, vehicle movements, lift-off from stockpiles and/or stored product, earthworks etc. | Dust | Air / windborne pathway causing impacts to health and amenity | Town of Newman – refer to Section 3.1.2 | Refer to Section 3.1 | C = Moderate<br>L = Possible<br>**Medium Risk** | Y | Condition 1, Table 1 Design and construction / installation requirements: requires dust suppression on infrastructure | As outlined in Section 2.4, air quality objectives (which includes air quality monitoring) are managed under the existing licence for the Whaleback (L4503/1975/14) and MS 1105 (Condition 11).<br>Conditions 11-13 have been included on the works approval to be |

| Risk events | | | | | Risk rating [1]<br>C = consequence<br>L = likelihood | Applicant controls sufficient? | Conditions [2] of works approval | Justification for additional regulatory controls / General comments |
|---|---|---|---|---|---|---|---|---|
| **Sources / activities** | **Potential emission** | **Potential pathways and impact** | **Receptors** | **Applicant controls** | | | | |
| | | | | | | | | consistent with controls imposed under the existing licence for Whaleback (L4503/1975/14). |
| | Noise | Air / windborne pathway causing impacts to health and amenity | Town of Newman – refer to Section 3.1.2 | Refer to Section 3.1 | C = Slight<br>L = Possible<br>**Low Risk** | Y | Condition 1, Table 1 Design and Construction / installation requirements: requires that construction of the Mobile Crushing and Screening Plant only occurs during daylight hours | Provisions of the *Environmental Protection (Noise) Regulations 1997* also apply. |
| **Operation (including time-limited-operations operations)** | | | | | | | | |
| Mobile Crushing and Screening Plant | Dust | Air / windborne pathway causing impacts to health and amenity | Town of Newman – refer to Section 3.1.2 | Refer to Section 3.1 | C = Moderate<br>L = Possible<br>**Medium Risk** | Y | Condition 1, Table 1 Design and construction / installation requirements: requires dust suppression on infrastructure<br>Condition 10, Table 4 Infrastructure and equipment requirements during time limited operations: requires regular maintenance of dust controls and visual inspections<br>Conditions 11-13 requires operational controls to ensure dust suppression equipment is being used and that an inventory is in place for all dust control equipment. | As outlined in Section 2.4, air quality objectives (which includes air quality monitoring) are managed under the existing licence for the Whaleback (L4503/1975/14) and MS 1105 (Condition 11)<br>Conditions 11-13 have been included on the works approval to be consistent with controls imposed under the existing licence for Whaleback (L4503/1975/14) |
| | Noise | Air / windborne pathway causing impacts to health | Town of Newman – refer to | Refer to Section 3.1 | C = Slight<br>L = Possible | Y | N/A | Provisions of the *Environmental Protection (Noise) Regulations 1997* |

| Risk events | | | | | Risk rating [1]<br>C = consequence<br>L = likelihood | Applicant controls sufficient? | Conditions [2] of works approval | Justification for additional regulatory controls / General comments |
|---|---|---|---|---|---|---|---|---|
| **Sources / activities** | **Potential emission** | **Potential pathways and impact** | **Receptors** | **Applicant controls** | | | | |
| | | and amenity | Section 3.1.2 | | **Low Risk** | | | apply. |
| **Category 63** | | | | | | | | |
| **Construction** | | | | | | | | |
| Vehicle movements on unsealed roads and construction of the landfilling area | Dust | Air / windborne pathway causing impacts to health and amenity | Town of Newman – refer to Section 3.1.2 | Refer to Section 3.1 | C = Moderate<br>L = Possible<br>**Medium Risk** | Y | Condition 1, Table 1 Design and construction / installation requirements: requires dust suppression on infrastructure | As outlined in Section 2.4, air quality objectives (which includes air quality monitoring) are managed under the existing licence for the Whaleback (L4503/1975/14) and MS 1105 (Condition 11) |
| **Operation (including time-limited-operations operations)** | | | | | | | | |
| Landfill Facility | Dust | Air / windborne pathway causing impacts to health and amenity | Town of Newman – refer to Section 3.1.2 | Refer to Section 3.1 | C = Moderate<br>L = Possible<br>**Medium Risk** | Y | Condition 10, Table 4 Infrastructure and equipment requirements during time limited operations: requires dust control at landfill | As outlined in Section 2.4, air quality objectives (which includes air quality monitoring) are managed under the existing licence for the Whaleback (L4503/1975/14) and MS 1105 (Condition 11) |
| | Contaminated stormwater | Direct discharges | Soils, vegetation, groundwater | Refer to Section 3.1 | C = Slight<br>L = Rare<br>**Low Risk** | Y | Condition 1, Table 1 Design and Construction / installation requirements: requires earthen bund to prevent stormwater entering or leaving the facility | Provisions of the *Environmental Protection (Unauthorised Discharges) Regulations 2004* also apply |
| | Leachate. | Infiltration - only inert materials will be disposed of at the landfill so there should be no generation of | Soils, vegetation, groundwater | Refer to Section 3.1 | C = Slight<br>L = Rare<br>**Low Risk** | Y | Condition 1, Table 1 Design and Construction / installation requirements: requires earthen bund to prevent stormwater entering or leaving the | No additional regulatory controls are required to mitigate the risk. |

| Risk events | | | | | Risk rating [1] C = consequence L = likelihood | Applicant controls sufficient? | Conditions [2] of works approval | Justification for additional regulatory controls / General comments |
|---|---|---|---|---|---|---|---|---|
| **Sources / activities** | **Potential emission** | **Potential pathways and impact** | **Receptors** | **Applicant controls** | | | | |
| | | contaminated leachates | | | | | facility and separation distance to groundwater.<br>Condition 10, Table 4 Infrastructure and equipment requirements during time limited operations: restricts waste types disposed to the landfill (inert waste only) | |
| | Windblown waste | Air / windborne pathway causing impacts to health and amenity | Soils, vegetation | Refer to Section 3.1 | C = Slight<br>L = Rare<br>**Low Risk** | Y | Condition 10, Table 4 Infrastructure and equipment requirements during time limited operations: requires waste to be completely covered twice weekly | Specific cover requirements have been included to manage light-weight inert materials (i.e. plastics). |
| **Other infrastructure** | | | | | | | | |
| **Construction** | | | | | | | | |
| WWTP | Dust | Air / windborne pathway causing impacts to health and amenity | Soils, vegetation | Refer to Section 3.1 | C = Moderate<br>L = Possible<br>**Medium Risk** | Y | N/A | As outlined in Section 2.4, air quality objectives (which includes air quality monitoring) are managed under the existing licence for the Whaleback (L4503/1975/14) and MS 1105 (Condition 11) |
| Bulk Hydrocarbon Storage | Dust | Air / windborne pathway causing impacts to health and amenity | Soils, vegetation, groundwater | Refer to Section 3.1 | C = Moderate<br>L = Possible<br>**Medium Risk** | Y | N/A | |
| OWSs | Dust | Air / windborne pathway causing impacts to health and amenity | Town of Newman – refer to Section 3.1.2 | Refer to Section 3.1 | C = Moderate<br>L = Possible<br>**Medium Risk** | Y | N/A | |
| Concrete Batching Plant | Dust | Air / windborne pathway causing | Town of Newman – | Refer to | C = Moderate | Y | N/A | |

| Risk events | | | | | Risk rating [1] C = consequence L = likelihood | Applicant controls sufficient? | Conditions [2] of works approval | Justification for additional regulatory controls / General comments |
|---|---|---|---|---|---|---|---|---|
| **Sources / activities** | **Potential emission** | **Potential pathways and impact** | **Receptors** | **Applicant controls** | | | | |
| | | impacts to health and amenity | refer to Section 3.1.2 | Section 3.1 | L = Possible<br>**Medium Risk** | | | |
| **Operation (including time-limited-operations operations)** | | | | | | | | |
| WWTP | Sewage and/or treated effluent | Direct discharges | Soils, vegetation | Refer to Section 3.1 | C = Minor<br>L = Rare<br>**Low Risk** | Y | N/A | Provisions of the *Environmental Protection (Unauthorised Discharges) Regulations 2004* also apply. |
| Bulk Hydrocarbon Storage | Hydrocarbons / chemicals | Direct discharges | Soils, vegetation, groundwater | Refer to Section 3.1 | C = Minor<br>L = Rare<br>**Low Risk** | Y | Condition 10, Table 4 Infrastructure and equipment requirements during time limited operations: requires testing for TRH levels at the vehicle refuelling points and management where levels are exceeded | Provisions of the *Environmental Protection (Unauthorised Discharges) Regulations 2004* also apply. |
| OWSs | Contaminated wastewater | Direct discharges | Soils, vegetation, groundwater | Refer to Section 3.1 | C = Minor<br>L = Rare<br>**Low Risk** | Y | Condition 10 Table 4 Infrastructure and equipment requirements during time limited operations: requires sump providing containment with impermeability of $10^{-9}$ L/s with no discharges | Provisions of the *Environmental Protection (Unauthorised Discharges) Regulations 2004* also apply. |
| Concrete Batching Plant | Dust | Air / windborne pathway causing impacts to health and amenity | Town of Newman – refer to Section 3.1.2 | Refer to Section 3.1 | C = Moderate<br>L = Possible<br>**Medium Risk** | Y | N/A | As outlined in Section 2.4, air quality objectives (which includes air quality monitoring) are managed under the existing licence for the Whaleback (L4503/1975/14) and MS 1105 (Condition 11) |
| | Noise | Air / windborne | Town of | Refer to | C = Minor | Y | N/A | Provisions of the |

| Risk events | | | | | Risk rating [1]<br>C = consequence<br>L = likelihood | Applicant controls sufficient? | Conditions [2] of works approval | Justification for additional regulatory controls / General comments |
|---|---|---|---|---|---|---|---|---|
| **Sources / activities** | **Potential emission** | **Potential pathways and impact** | **Receptors** | **Applicant controls** | | | | |
| | | pathway causing impacts to health and amenity | Newman – refer to Section 3.1.2 | Section 3.1 | L = Rare<br>**Low Risk** | | | *Environmental Protection (Noise) Regulations 1997* apply |
| | Contaminated wastewater | Direct discharges | Soils, vegetation, groundwater | Refer to Section 3.1 | C = Minor<br>L = Rare<br>**Low Risk** | Y | N/A | Provisions of the *Environmental Protection (Unauthorised Discharges) Regulations 2004* apply |

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk Assessments* (DWER 2020).

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

# 4. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

**Table 4: Consultation**

| Consultation method | Comments received | Department response |
|---|---|---|
| Application advertised on the department's website on 12 February 2024 | None received | N/A |
| Local Government Authority advised of proposal on 12 February 2024 | None received | N/A |
| Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) advised of proposal 12 February 2024 | None received | N/A |
| Department of Planning, Lands and Heritage (DPLH) advised of proposal on 12 February 2024 | DPLH replied on 23 February 2024<br><br>the subject area intersects with Aboriginal site ID 9189 (SHOVELANNA HILL 15) and Aborignal heritage place ID 9187 (SHOVELANNA HILL 13).<br><br>The proposal is located within the Nyiyaparli and Nyiyaparli #3 Native Title Determination area, represented by the Karlka Nyiyaparli Aboriginal Corporation (KNAC). BHPIO state that all Aboriginal heritage sites within the development envelope will be avoided. If they cannot be practicably avoided, BHPIO will consult the relevant Traditional Owners and seek approval under the AHA before the site is disturbed. BHPIO also state they will submit a Cultural Heritage Management Plan for the proposal to minimise the impacts on Aboriginal heritage.<br><br>Ongoing consultation with KNAC is encouraged to allow for best practice management of the Aboriginal heritage extant in the vicinity of the project, and to ensure heritage surveys undertaken to date remain fit for purpose to manage Aboriginal heritage. | Noted. |

| | | |
|---|---|---|
| Department of Health advised of proposal on 12 February 2024 | None received | N/A |
| Department of Jobs, Tourism, Science and Innovation (JTSI) advised of proposal on 12 February 2024 | None received | N/A |
| Water Corporation advised of proposal on 21 March 2024 | Water Corporation replied on 19 April 2024<br>Refer to Section 2.6 | Water Corporation replied on 19 April 2024<br>Refer to Section 2.6 |
| Shire of East Pilbara advised of proposal on 12 February 2024 | None received | N/A |
| Karlka Nyiyaparli Aboriginal Corporation RNTBC advised of proposal on 12 February 2024 | None received | N/A |
| Yamatji Marlpa Aboriginal Corporation advised of proposal on 12 February 2024 | None received | N/A |
| Community organisations and stakeholders advised of proposal on 12 February 2024 | None received | N/A |
| Applicant was provided with draft documents on 10 April 2024 | Applicant replied on 17 April 2024<br>Refer to Appendix 1 | Applicant replied on 17 April 2024<br>Refer to Appendix 1 |

# 5. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

# References


1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
4. BHP Iron Ore Pty Ltd, Western Ridge Crusher Works Approval Application 20/09/2023, Perth, Western Australia.
5. BHP Iron Ore Pty Ltd, email - RE: New works approval - Western Ridge 02/11/2023, Perth, Western Australia (prescribed premises boundary information – DWER ref: A2213820).
6. BHP Iron Ore Pty Ltd, email - RE: New works approval - Western Ridge 03/11/2023, Perth, Western Australia (Part IV derived proposal information – DWER ref: A2214203 and A2214207).
7. BHP Iron Ore Pty Ltd, email - RE: W6857 Western Ridge Environmental Noise Assessment 05/03/2023, Perth, Western Australia (clarification on noise assessment matters – DWER ref: A2261530).
8. BHP Iron Ore Pty Ltd, email - RE: W6857 Western Ridge Environmental Noise Assessment 18/03/2023, Perth, Western Australia (clarification on noise assessment matters – DWER ref: A2263534).
9. BHP Iron Ore Pty Ltd, email - RE: W6857 Western Ridge Environmental Noise Assessment 25/03/2024, Perth, Western Australia (clarification on noise assessment matters – DWER ref: A2266912).
10. BHP Iron Ore Pty Ltd, email - RE: APPLICATION FOR A WORKS APPROVAL (W6857/2023/1) – DRAFT INSTRUMENT AND DECISION REPORT 17/04/2024, Perth, Western Australia (Applicant comments on draft documents – DWER ref: A2272293).

# Appendix 1: Summary of applicant's comments on risk assessment and draft conditions

| Condition | Summary of applicant's comment | Department's response |
|---|---|---|
| Prescribed premises category description Table Category 12 | Replace 30,000,000 tonnes per year with 3,000,000 tonnes per year | Updated as requested. |
| Condition 1, Table 1 | Table 1 Headings<br>Add the word Item to the first cell in Table 1 so that this provides a reference to "item of infrastructure" in Condition 2.<br>Row 2<br>BOC sprays on CV4102, moved to Row 3.<br>Puraceptor systems are no longer to be used. Potentially hydrocarbon contaminated water will go to a sump which will be lined. There will be no discharge with water removed from site via a licenced contractor if required.<br>The requirement for "All drainage from earthworks pads flow through sedimentation ponds designed to slow the flow and encourage sediment to settle out." Has been removed form the hydrocarbon section as this is not a hydrocarbon control.<br>Row 3<br>The PC Discharge Conveyor is a 2MW design<br>Added in the following infrastructure:<br>• Surge Bin (726t live capacity).<br>• ISO 3082 Sample Station.<br>BOC sprays on CV4102, moved from Row 2.<br>Added a reference to the surge bin building in the stormwater and Hydrocarbon controls. | Updated as requested.<br>On 24 April 2024, DWER queried BHP about the proposed provision that sumps will have an 'impermeability of $10^{-9}$L/s'. The 'L/s' provision was confirmed to be a typo.<br>The proposed specifications have since been updated to ensure that sumps need to be lined or constructed to meet a permeability of equal to, or less than, $10^{-9}$ m/s. |

| Condition | Summary of applicant's comment | Department's response |
|---|---|---|
| | Row 4<br>Updated the conveyor distance<br>Added a reference to BOC sprays being controlled by moisture analyser<br>Puraceptor systems removed and wording updated as per Row 2<br>Row 5<br>Amended the number of stockpile cannons from 8 to 4<br>Updated drainage requirements as per Row 2.<br>Row 6<br>Moved the General description from Row 7 to Row 6.<br>Updated stormwater and hydrocarbon controls<br>Row 7<br>Moved the General description from Row 7 to Row 6.<br>New General Condition added fro Row 7<br>Added a reference to BOC sprays being controlled by moisture analyser<br>Updated hydrocarbon controls<br>Row 8<br>Updated wording on final plant design selection<br>Row 9<br>Align groundwater separation distance to *Water Quality Protection Note 24 Landfilling with inert materials* which has a 2m separation.<br>Row 10<br>Only the fuel refuelling area is to be fitted with an OWS. Water will not be discharged unless it is <15 mg/KL TRH. | |
| Condition 5, Table 2, Rows 1 to 6, Dot Point 3 | Amend Dot point 3 as follows:<br>• To ensure the following facility controls are working effectively: | Updated as requested. |

| Condition | Summary of applicant's comment | Department's response |
|---|---|---|
| | ➢ Dust Controls: Daily inspections during active construction hours.<br>➢ Stormwater controls: daily inspections during wet weather events<br>➢ Hydrocarbons / chemicals: weekly inspections moving to daily during wet weather. | |
| Condition 8 | Replace "and" with "or" between Conditions 8a and 8b. | Not modified as Applicant is required to comply with both depending on what infrastructure has commissioning or no commissioning. |
| Condition 10, Table 3, Rows 1 to 6, Dot point 3; and Row 7, Dot point 3. | Amend Dot point 3 as follows:<br>• To ensure the following facility controls are working effectively:<br>➢ Dust Controls: Daily inspections during active construction hours.<br>➢ Stormwater controls: daily inspections during wet weather events<br>➢ Hydrocarbons / chemicals: weekly inspections moving to daily during wet weather. | Updated as requested. |
| Condition 10, Table 3, Row 9, Dot Point 1 | Vehicle refuelling points<br>Water to be tested and taken to the primary crusher (lined) turkey's nest if it is less than 15 mg/L TRH. If the water is above 15 mg/L the water will be removed from site and disposed of to a licensed facility. | Updated as requested. |
| Condition 10, Table 3, Row 10, Dot Point 1 | OWS is not to be installed at transformer compounds (See updated Table 1) therefore request that the following change is made:<br>~~• Water treated to equal or < 5 mg/L TRH~~<br>• Transformer compound bund and sump providing containment with impermeability of $10^{-9}$L/s<br>There will be no discharge from the sumps with any water taken offsite for disposal by a licenced contractor if required | Updated as requested. |

| Condition | Summary of applicant's comment | Department's response |
|---|---|---|
| Table 1. Category 12, Row 8, Dot Point 2 (Design and Construction/Installation Requirements) | Update Dot Point 2 to read "Final plant design yet to be selected, however, works approval holder to **notify** the department with dust and noise controls **to be** implemented prior to construction commencing. | Modified. |
| Compliance Reporting – Condition 2 | Note only: the word "Item" has been added to Table 1 Cell 1 to make it clear what is and "Item of Infrastructure" | Standard condition, not required. |