



<b>Works approval number</b>	W6346/2020/1
<b>Works approval holder</b>	BHP Billiton Iron Ore Pty Ltd
<b>ACN</b>	008 700 981
<b>Registered business address</b>	Level 1, City Square Brookfield Place 125 St Georges Terrace PERTH WA 6000
<b>DWER file number</b>	DER2019/000678
<b>Duration</b>	22/06/2020 to 21/06/2023
<b>Date of issue</b>	22/06/2020
<b>Premises details</b>	Wheelarra Hill (Jimblebar) Iron Ore Mine Tenements M266SA NEWMAN WA 6753

Prescribed premises category description (Schedule 1, <i>Environmental Protection Regulations 1987</i> )	Assessed design capacity
Category 6: Mine dewatering	32,850,000 tonnes per annual period for cumulative design capacity of 80,105,000 tonnes per annual period

This works approval is granted to the works approval holder, subject to the attached conditions, on 22 June 2020, by:

**Alana Kidd**

**Manager, Resource Industries**

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

## Interpretation

In this works approval:

- (a) the words 'including', 'includes' and 'include' in conditions mean "including but not limited to", and similar, as appropriate;
- (b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;
- (c) where tables are used in a condition, each row in a table constitutes a separate condition;
- (d) any reference to an Australian or other standard, guideline, or code of practice in this works approval:
  - (i) if dated, refers to that particular version; and
  - (ii) if not dated, refers to the latest version and therefore may be subject to change over time;
- (e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and
- (f) unless specified otherwise, all definitions are in accordance with the EP Act.

**NOTE:** This works approval requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this works approval.

# Works approval conditions

The works approval holder must ensure that the following conditions are complied with:

## Construction phase

### Infrastructure and equipment

1. The works approval holder must:
  - (a) construct and/or install the infrastructure;
  - (b) in accordance with the corresponding design and construction / installation requirements; and
  - (c) at the corresponding infrastructure location,as set out in Table 1.

**Table 1: Design and construction / installation requirements**

	Infrastructure	Design and construction / installation requirements	Infrastructure location
1.	Turkeys Nest	<p>Turkeys Nest to hold dewatered groundwater from the Jimblebar Hub, designed and constructed as follows:</p> <ul style="list-style-type: none"><li>• Design capacity of 13 ML</li><li>• Design freeboard of 0.5 m</li><li>• 1.5 mm HDPE liner</li><li>• Compaction: embankment compacted to 98% maximum dry density (MDD) and foundation compacted to 95% MDD, including a keyed foundation</li><li>• A drainage bund to divert stormwater away from the turkeys nest, access and pump station</li><li>• Flow meter installed to calculate flow.</li></ul>	Figure 1 in Schedule 1
2.	Water conveyance pipeline	<p>Pipeline to be designed and constructed as follows:</p> <ul style="list-style-type: none"><li>• Approximately 22 km long</li><li>• Nominal 800 mm diameter polyethylene pipe, or equivalent</li><li>• Flow meter installed to calculate flow.</li></ul>	Figure 1 in Schedule 1

	Infrastructure	Design and construction / installation requirements	Infrastructure location
3.	Managed Aquifer Recharge (MAR) scheme	<p>The following monitoring bores are to be designed and constructed within the MAR bore construction zone:</p> <ul style="list-style-type: none"> <li>• HCM0043</li> <li>• HCM0044</li> <li>• HCM0045</li> <li>• HCM0046</li> <li>• HCM0047.</li> </ul> <p>Constructed bores to meet the Minimum Construction Standards for Water Bores in Australia (3rd Edition, 2012).</p>	MAR bore construction zone as shown in Figure 1 of Schedule 1
		<p>All additional reinjection bores and replacement reinjection bores for failed bores are to be located within the MAR bore construction zone as shown in Figure 1 of Schedule 1.</p> <p>Failed bores are to be decommissioned.</p>	
4.	Surplus water discharge scheme	<p>Caramulla Creek discharge point to be designed and constructed as follows:</p> <ul style="list-style-type: none"> <li>• Located on the bank of the Caramulla Creek at approximately the 100 year flood level (514 mAHD)</li> <li>• Discharge point configuration consists of a cement lined steel, or equivalent, discharge water source pipe split into two perpendicular pipes, leading to 18 discharge outlets</li> <li>• Discharge source pipe diameter nominal 700 mm diameter, reduced to 600 mm when split in two, and reduced to 250 mm for the discharge outlet pipes</li> <li>• Approximately 2.5 m of rip rap protection under the discharge outlets,</li> </ul> <p>as shown in Figure 2 of Schedule 1.</p>	Figure 1 in Schedule 1

## Compliance reporting

2. The works approval holder must within 30 calendar days of an item of infrastructure required by condition 1 being constructed and/or installed:
  - (a) undertake an audit of their compliance with the requirements of condition 1; and
  - (b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.

3. The Environmental Compliance Report required by condition 2, must include as a minimum the following:
- (a) certification by a suitably qualified professional engineer that the items of infrastructure or component(s) thereof, as specified in condition 1, have been constructed in accordance with the relevant requirements specified in condition 1;
  - (b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure, including bore logs for groundwater bores, specified in condition 1;
  - (c) where an item of infrastructure has been certified as not being located or constructed, or does not comply with the corresponding requirements, the works approval holder must correct the non-compliant or defective works, prior to re-certifying, or provide to the CEO a description of, and explanation for, any departures from the requirements specified in condition 1 that do not require relocation or rectification and do not constitute a material defect along with the Environmental Compliance Report;
  - (d) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person;
  - (e) contain results of groundwater quality monitoring at monitoring bores HCM0008 and HCM0017, as shown in Figure 1 of Schedule 1, as per parameters in condition 10; and
  - (f) contain results of water quality monitoring at the Turkeys Nest (shown in Figure 1 of Schedule 1) as per parameters in condition 10.

## Time limited operations phase

### Commencement and duration

4. The works approval holder may only commence time limited operations for an item of infrastructure identified in condition 1 where the Environmental Compliance Report as required by condition 2 has been submitted by the works approval holder for that item of infrastructure.
5. The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 6 (as applicable):
- (a) for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 4 for that item of infrastructure; or
  - (b) until such time as a licence for that item of infrastructure is granted in accordance with Part V of the *Environmental Protection Act 1986*.

## Time limited operations requirements

6. During time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 2 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 2.

**Table 2: Infrastructure and equipment requirements during time limited operations**

Site infrastructure and equipment	Time-limited operational requirement	Infrastructure location
Caramulla Creek surplus discharge point	May discharge no more than 16.4 GL from the Caramulla Creek surplus discharge point and the groundwater reinjection bores, in aggregate. May reinject no more than 5.9 GL from the groundwater reinjection bores.	Figure 1 in Schedule 1
Groundwater reinjection bores		
Turkeys Nest	A freeboard of 0.5 m to be maintained at the Turkeys Nest. Water quality testing as per condition 10.	
Groundwater quality monitoring bores: HCM0008 and HCM0017	Water quality testing as per condition 10.	
Groundwater level monitoring bores: HCM0019, HCM0043, HCM0044, HCM0045, HCM0046 and HCM0047	Water level recording as per condition 10.	

7. During time limited operations, the works approval holder must ensure that the emissions specified in Table 3 are discharged only from the corresponding discharge points and only at the corresponding discharge point locations.

**Table 3: Authorised discharge points during time limited operations**

Emission	Emission point reference	Discharge point location
Water from dewatering	Groundwater reinjection bores	Figure 1 in Schedule 1
	Caramulla Creek surplus discharge point	

8. During time limited operations, the works approval holder must ensure for the groundwater reinjection bores that:
- if the reinjection rate of 10.95 GL/a is not met with bores HCM0026, HCM0027 and HCM0028, additional reinjection bores may be installed within the MAR bore construction zone as shown in Figure 1 of Schedule 1;
  - if replacement bores are required for failed bores, these are located within the MAR bore construction zone as shown in Figure 1 of Schedule 1; and
  - failed bores are decommissioned.

9. During time limited operations, the works approval holder must conduct visual inspections of the infrastructure specified in Table 4.

**Table 4: Inspections of infrastructure**

Infrastructure	Type of inspection	Frequency
Pipelines	To confirm integrity	Monthly
Groundwater reinjection bores	To confirm integrity	Monthly
Caramulla Creek surplus discharge point	To confirm integrity and identify evidence of erosion	Monthly

### Monitoring during time limited operations

10. The works approval holder must monitor the groundwater and surface water quantity and quality during time limited operations for concentrations of the identified parameters in accordance with Table 5.

**Table 5: Monitoring of ambient concentrations during time limited operations**

Parameter	Monitoring location	Unit	Frequency	Averaging period
Water level <sup>1</sup>	HCM0019 HCM0043 HCM0044 HCM0045 HCM0046 HCM0047	mbgl	Monthly (when reinjecting)	Spot sample
Flow rate <sup>1</sup>	Turkeys Nest HCM0008 HCM0017	L/s	Monthly (when discharging or reinjecting)	
Cumulative volume <sup>1</sup>		kL		
pH <sup>1</sup>		pH units	Quarterly (when discharging or reinjecting)	
Electrical Conductivity <sup>1</sup>		µS/cm		
Total Dissolved Solids (TDS) Total Suspended Solids (TSS) HCO <sub>3</sub> Alkalinity Aluminium Arsenic Barium Boron CaCO <sub>3</sub> (Total Alkalinity) Cadmium Calcium Chloride Chromium Copper Fluoride		mg/L		

Parameter	Monitoring location	Unit	Frequency	Averaging period
Iron Lead Magnesium Manganese Mercury Molybdenum Nickel Nitrate as N Potassium Selenium Silica Sodium Sulfate as SO <sub>4</sub> <sup>2-</sup> Total Hardness as CaCO <sub>3</sub> Zinc				

Note 1: In-field non-NATA accredited analysis permitted.

11. The works approval holder must record the results of all monitoring activity required by condition 10.
12. The works approval holder must ensure that all monitoring required by condition 10 is undertaken:
  - (a) in each monthly period such that there are at least 15 days in between the days on which samples are taken in successive months; and
  - (b) in each quarterly period such that there are at least 45 days in between the days on which samples are taken in successive quarters.
13. The works approval holder must ensure that, for sampling required by condition 10:
  - (a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
  - (b) all groundwater sampling is conducted in accordance with AS/NZS 5667.11 as amended from time to time; and
  - (c) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured, unless indicated otherwise in Table 5.

### Compliance reporting

14. The works approval holder must submit to the CEO a report on the time limited operations within 60 calendar days of the completion date of time limited operations or 60 calendar days before the expiration date of the works approval, whichever is the sooner.



- 15.** The works approval holder must ensure the report required by condition 14 includes the following:
- (a) a summary of the time limited operations, including timeframes and amount of water discharged to the MAR scheme and surplus water discharge scheme;
  - (b) a summary of additional reinjection bores under condition 8, including the location of bore, bore logs, the bore reinjection (production) capacity and justification for why the additional reinjection bore was required;
  - (c) a summary of replacement reinjection bores under condition 8, including the location of replacement bores, bore logs and justification for the replacement;
  - (d) a summary of the environmental performance of all infrastructure as constructed or installed, which at minimum includes records detailing the visual inspections as conducted under condition 9;
  - (e) monitoring results obtained during time limited operations under condition 10;
  - (f) a review of performance and compliance against the conditions of the works approval; and
  - (g) where the conditions of this works approval have not been met, what measures will the works approval holder take to meet them, and what timeframes will be required to implement those measures.

## Records and reporting

- 16.** The works approval holder must record the following information in relation to complaints received by the works approval holder (whether received directly from a complainant or forwarded to them by the Department or another party) about any alleged emissions from the premises:
- (a) the name and contact details of the complainant, (if provided);
  - (b) the time and date of the complaint;
  - (c) the complete details of the complaint and any other concerns or other issues raised; and
  - (d) the complete details and dates of any action taken by the works approval holder to investigate or respond to any complaint.
- 17.** The works approval holder must maintain accurate and auditable books including the following records, information, reports, and data required by this works approval:
- (a) the works conducted in accordance with condition 1 and condition 8;
  - (b) any maintenance of infrastructure that is performed in the course of complying with condition 1 and condition 8;
  - (c) monitoring programmes undertaken in accordance with condition 10; and
  - (d) complaints received under condition 16.
- 18.** The books specified under condition 17 must:
- (a) be legible;
  - (b) if amended, be amended in such a way that the original version(s) and any subsequent amendments remain legible and are capable of retrieval;
  - (c) be retained by the works approval holder for the duration of the works approval; and
  - (d) be available to be produced to an inspector or the CEO as required.

## Definitions

In this works approval, the terms in Table 6 have the meanings defined.

**Table 6: Definitions**

Term	Definition
books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department administering the <i>Environmental Protection Act 1986</i> Locked Bag 10 Joondalup DC WA 6919 <a href="mailto:info@dwer.wa.gov.au">info@dwer.wa.gov.au</a>
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V Division 3 of the EP Act.
discharge	has the same meaning given to that term under the EP Act.
emission	has the same meaning given to that term under the EP Act.
Environmental Compliance Report	means a report to satisfy the CEO that the conditioned infrastructure and/or equipment has been constructed and/or installed in accordance with the works approval.
EP Act	<i>Environmental Protection Act 1986</i> (WA).
EP Regulations	<i>Environmental Protection Regulations 1987</i> (WA).
GL	gigalitres
GL/a	gigalitres per annum
mAHD	metres at Australian Height Datum
MAR	managed aquifer recharge
mbgl	metres below ground level
MDD	maximum dry density
mg/L	milligrams per litre
ML	megalitres
ML/day	megalitres per day

Term	Definition
premises	the premises to which this licence applies, as specified at the front of this licence and as shown on the premises map (Figure 1) in Schedule 1 to this works approval.
prescribed premises	has the same meaning given to that term under the EP Act.
suitably qualified professional engineer	means a person who: <ul style="list-style-type: none"> <li>a) holds a Bachelor of Engineering recognised by the Institute of Engineers; and</li> <li>b) has a minimum of five years of experience working in a relevant supervisory area of civil engineering; and</li> <li>c) is employed by an independent third party external to the works approval holder's business,</li> </ul> or is otherwise approved in writing by the CEO to act in this capacity
TDS	Total dissolved solids
time limited operations	refers to the operation of the infrastructure and equipment identified under this works approval that is authorised for that purpose, subject to the relevant conditions.
TSS	Total Suspended Solids
µS/cm	microsiemens per centimetre
works approval	refers to this document, which evidences the grant of the works approval by the CEO under section 54 of the EP Act, subject to the conditions.
works approval holder	refers to the occupier of the premises being the person to whom this works approval has been granted, as specified at the front of this works approval.

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## END OF CONDITIONS



## Schedule 1: Maps

### Premises map

The boundary of the prescribed premises and the proposed emission and monitoring points are shown in the map below (Figure 1).

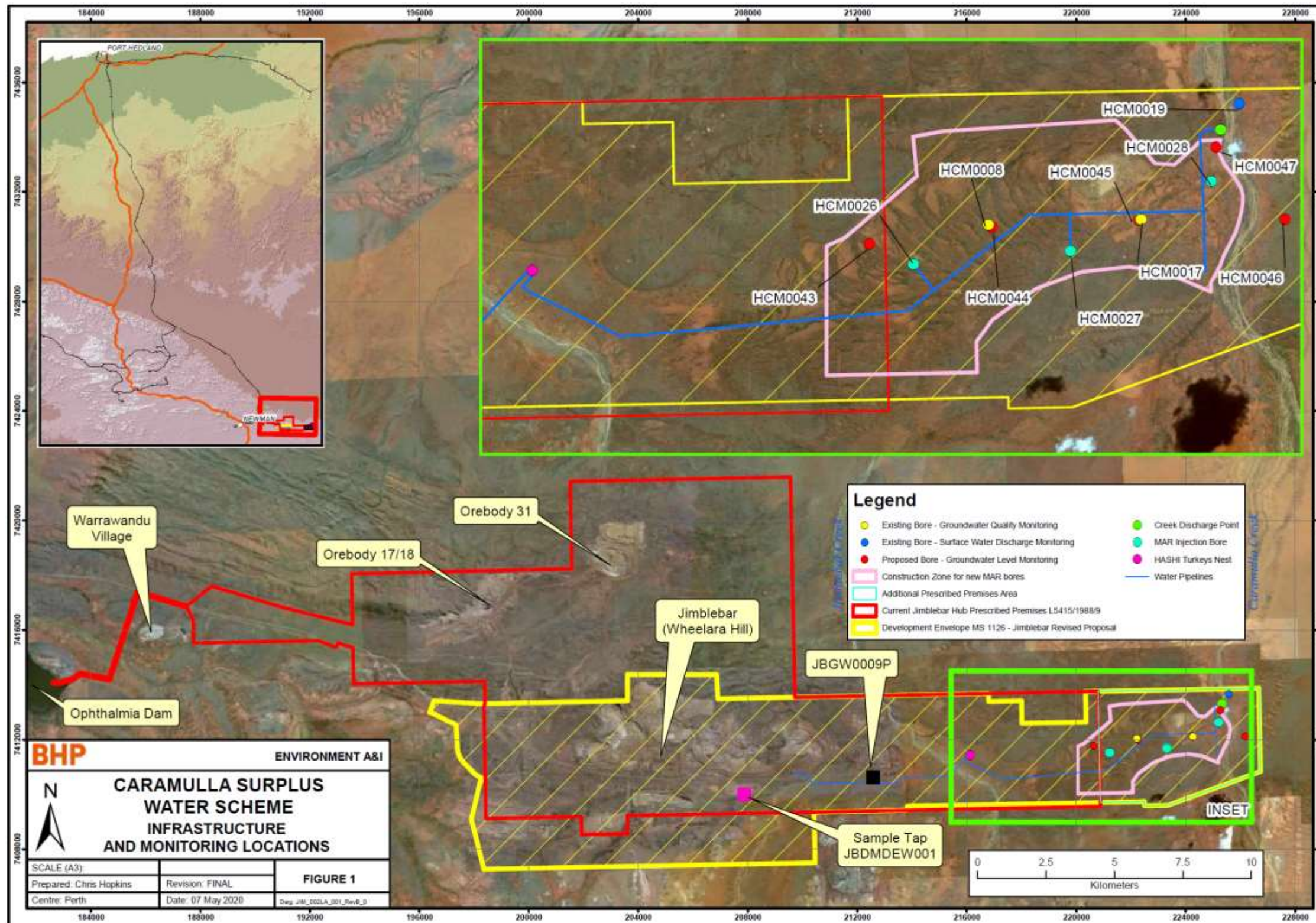


Figure 1: Map of the prescribed premises

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IR-T05 Works approval template (v5.0) (February 2020)



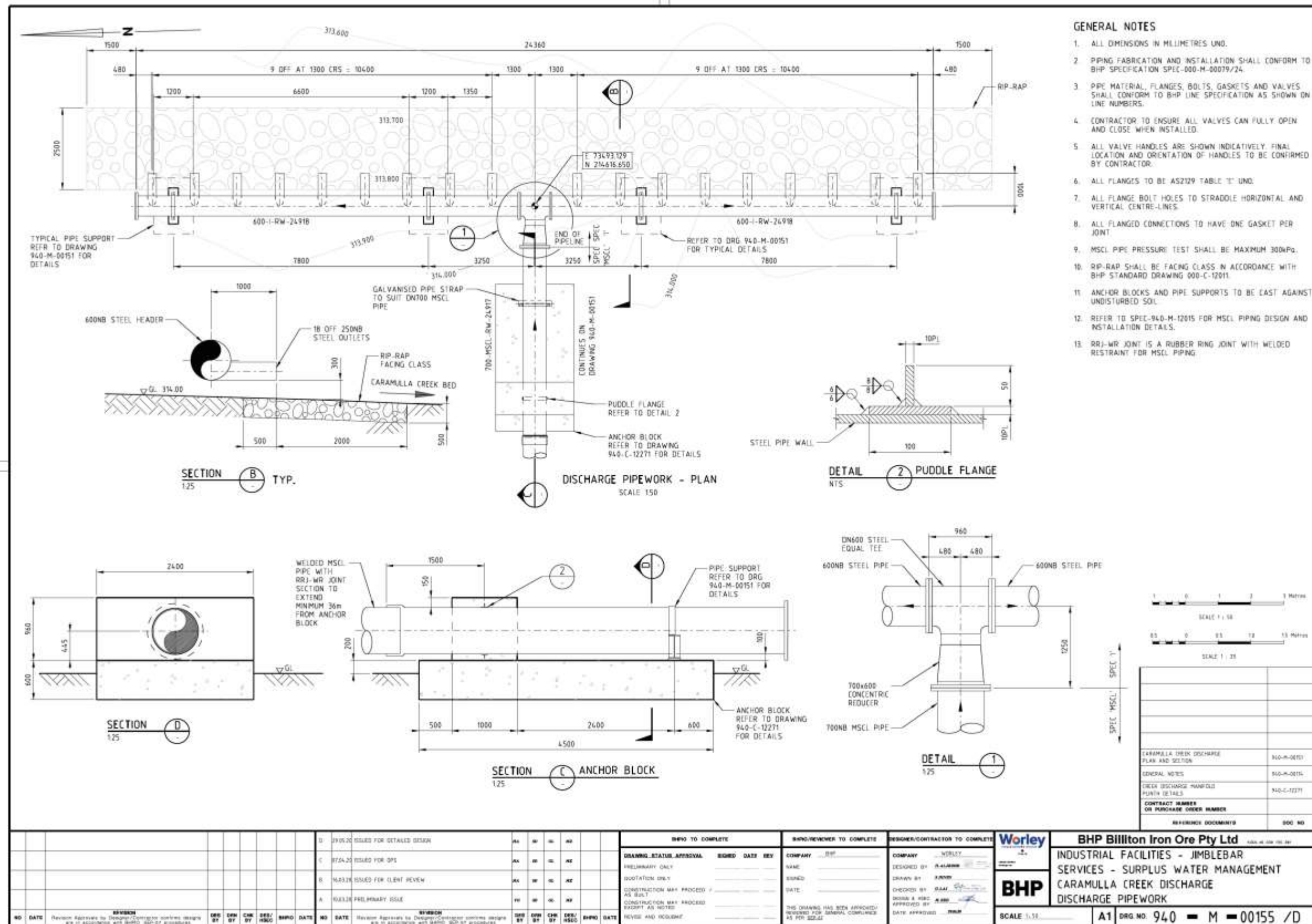


Figure 2: Caramulla Creek surplus discharge point design

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