



Works approval number	W6394/2020/1
Works approval holder	IB Operations Pty Ltd
ACN	165 513 557
Registered business address	Level 2 Hyatt Centre, 87 Adelaide Terrace EAST PERTH WA 6004
DWER file number	DER2020/000003
Duration	2/09/2020 to 1/09/2025
Date of issue	2/09/2020
Premises details	Iron Bridge Concentrate Handling Facility Part of Lot 6 on Reserve 50528 Utah Road, Boodarie, Port Hedland WA 6722

Prescribed premises category description (Schedule 1, <i>Environmental Protection Regulations 1987</i>)	Assessed production capacity
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.	22 Million tonnes per annum

This works approval is granted to the works approval holder, subject to the attached conditions, on 2 September 2020, by:

Christine Hass

Manager Licensing, 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

Infrastructure and equipment

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

Table 1: Design and construction / installation requirements

	Infrastructure	Design and construction / installation requirements	Infrastructure location
1.	Conveyor	Equipped with a belt wash station	CV301, as depicted in Figure 2 or Schedule 2
2.	Transfer station	Enclosed with skirting system for the purpose of minimising dust emissions. Dust spray bar fitted to the boom end.	TS301, as depicted in Figure 2 or Schedule 2
3.	Sample station	Near infrared moisture analyser installed and for the purpose of accurately determining the moisture content of ore prior to leaving the premises.	SS301, as depicted in Figure 2 or Schedule 2
4.	Concentrate dewatering infrastructure	Consisting of: • Concentrate thickener; • Four filter feed tanks; • Pressure belt filters; • Process water tank; • Filtered water tank; and • Return water pumps, fitted with noise absorbing baffles, plant exhaust mufflers for the purpose of minimising noise emissions during operation.	As depicted in Figure 2 or Schedule 2
5.	Concentrate Diversion Pond	Capable of storing entire concentrate pipeline contents.	Concentrate Diversion Pond, as depicted in Figure 2 or Schedule 2
6.	Sediment sumps and bunding	Earthen sumps and bunds constructed to prevent stormwater from discharging directly offsite during operations.	Where needed to achieve design requirements

	Infrastructure	Design and construction / installation requirements	Infrastructure location
7.	BAM	Installed in accordance with AS3580.1.1 and capable of continuously measuring particles as PM₁₀ (µg/m³) over 10 minute averaging periods. Installed prior to commencing construction work of infrastructure specified in rows 1 to 6 of this Table.	Monitoring location 'CHF', as depicted in Figure 3 of Schedule 1.

Dust management – construction

2. The works approval holder must:
 - (a) apply and maintain dust suppressant chemicals to long-term open and cleared areas;
 - (b) wet down exposed areas prior to construction work and/or clearing activities that involve ground disturbance;
 - (c) limit vehicle speeds to 40 km/h; and
 - (d) routinely dry sweep sealed areas
3. Immediately upon being notified of management trigger criteria specified in Table 2 being exceeded, the works approval holder must:
 - (a) cease all dust-generating activities; and
 - (b) wet down all roads and exposed areas with a water truck.

Table 2: Dust management trigger criteria

Management trigger criteria
- Visible dust generated from the Premises; and/or 300 µg/m³ PM₁₀ (rolling 1 hour average) recorded at monitoring location SE Corner, as depicted in Figure 3 of Schedule 1, when wind direction directions are between 201° and 231° for three or more ten minute periods during the hour, as measured at the TUL Met Station.
- Visible dust generated from the Premises; and/or 300 µg/m³ PM₁₀ (rolling 1 hour average) recorded at monitoring location CHF, as depicted in Figure 3 of Schedule 1, when wind direction directions are between 305° and 340° for three or more ten minute periods during the hour, as measured at the TUL Met Station.
Strong Wind Conditions

4. The works approval holder must continue actions specified in condition 3 for the duration of management trigger criteria being exceeded.

Compliance reporting – construction

5. The works approval holder must not depart from the requirements specified in column 2 of Table 1 except:

- (a) where such departure does not increase risks to public health, public amenity or the environment; and
 - (b) where all other conditions in this works approval are still satisfied.
- 6. The works approval holder must within 14 calendar days of the infrastructure or equipment required by each row of Table 1, condition 1 being constructed and installed, notify the CEO in writing, and within 30 calendar days of completing all infrastructure specified in Table 1 must:
 - (a) undertake an audit of their compliance with the requirements specified in all rows of Table 1, condition 1; and
 - (b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.
- 7. The Environmental Compliance Report required by condition 6, must include as a minimum the following:
 - (a) certification by a suitably qualified engineer that the infrastructure specified in Table 1 or component(s) thereof, as specified in condition 1, have been constructed in accordance with the relevant requirements specified in condition 1;
 - (b) where a departure from the requirements specified in Table 1 occurs and is of a type allowed by condition 5, the works approval holder must provide to the CEO a description of, and explanation for the departure; and
 - (c) be signed by a person authorised to represent the works approval holder and contain the printed name and position of that person.
- 8. The works approval holder must submit a Construction Dust Management Trigger Report to the CEO at a monthly frequency during earth moving activities, and on a quarterly basis thereafter until the completion of construction work.
- 9. The Construction Dust Management Trigger Reports required by condition 8, must include as a minimum the following:
 - (a) date(s), time and duration of event(s) specified in condition 3;
 - (b) raw unvalidated monitoring data, or validated data where available, in tabulated form, recorded at those monitoring stations, listed in rows 1 to 4, 7 and 8 of Table 3 as specified in condition 16, in the format specified in Schedule 3;
 - (c) time series graphical plots for the monitoring stations referred to in part (b) to this condition, on the day/s on which the event occurred;
 - (d) review of meteorological data (including temperature, wind speed, rainfall and direction) as recorded at TUL Met Station at the location depicted in Figure 2 of Schedule 1;
 - (e) a description of all dust controls implemented by site personnel as a response to visible dust or high dust levels recorded at the monitors specified in Table 3, including the time and duration of dust controls implemented with respect to peaks in dust concentrations monitored;
 - (f) all monthly dust depositional monitoring and analysis data for the reporting period as sampled from those monitors listed in row 5 of Table 3; and
 - (g) daily average and maximum 1-hourly dust levels, including the times of peaks in PM₁₀ concentrations as recorded at the monitors specified in Table 3.
- 10. The works approval holder must report any noise complaint received during

construction works providing:

- (a) the date and time of the complaint period;
- (b) a detailed description of construction works undertaken during the period referred to in part (a);
- (c) additional actions proposed to prevent further noise complaints, if applicable;
- (d) if any noise monitoring was conducted during the period referred to in part (a), within 7 days of receipt of the complaint.

Environmental commissioning

- 11.** Any environmental commissioning activities undertaken for an item of infrastructure specified in Table 1 may only be carried out for a period of not exceeding 90 calendar days from date of first delivery of ore to the Anderson Point Materials Handling Facility.

Time limited operations

Commencement and duration

- 12.** The works approval holder may conduct time limited operations for the infrastructure specified in Table 1:
- (a) for a period not exceeding 180 calendar days from the submission date of the Environmental Compliance Report required by condition 6 of this works approval; or
 - (b) until such time as a licence for the same is granted.

Time limited operations requirements

- 13.** The works approval holder must not allow the Concentrate Diversion Pond to discharge water from the concentrate dewatering infrastructure, specified in condition 1, into the environment.
- 14.** The works approval holder must operate the belt wash station at conveyor CV301 when handling iron ore at an average monthly availability rate of at least 90%.
- 15.** The works approval holder must routinely remove:
- (a) sediment from the belt wash station sump; and
 - (b) spilt ore from underneath the conveyor,
- for the purpose of preventing dust generation.

Monitoring

Monitoring during construction, environmental commissioning and time limited operations

- 16.** The works approval holder must obtain air quality and meteorological monitoring data:
- (a) in real time for monitoring specified in rows 1 to 4, 7 and 8 (for unvalidated data);
 - (b) from the monitoring stations specified in column 1 and shown in Figures 3 and 4 of Schedule 1,

- (c) for the parameters specified in column 2,
 - (d) calculated as an average over the period specified in column 3,
 - (e) at the frequency specified in column 4,
 - (f) in accordance with the method specified in column 5,
- of Table 3.

Table 3: Air quality and meteorological monitoring

Row	Column 1	Column 2	Column 3	Column 4	Column 5
	Monitoring Station	Parameter	Averaging Period	Frequency	Method
1.	SW Corner SE Corner TUL SW as depicted in Figure 3 of Schedule 1 ¹ .	Particles as PM ₁₀ (µg/m ³)	10 minutes	Continuous	AS3580.1.1 AS3580.9.11
2.	TUL SE as depicted in Figure 3 of Schedule 1 ¹ .	Particles as PM ₁₀ (µg/m ³)	10 minutes	Continuous	AS3580.1.1
3.	CHF as depicted in Figure 3 of Schedule 1.	Particles as PM ₁₀ (µg/m ³)	10 minutes	Continuous once installed in accordance with condition 1.	AS3580.1.1 AS3580.9.11
4.	Richardson St, Kingsmill St, Taplin St, Neptune Pl, BOM, Wedgefield, South Hedland, Yule as depicted in Figure 5 of Schedule 1.	Particles as PM ₁₀ (µg/m ³)	Hourly	Continuous	AS3580.9.11
5.	Dust Deposition Gauge 1 to 7 (inclusive), as depicted in Figure 4 of Schedule 1 ¹ .	Total mass (dry weight in grams) Deposition rate (g/m ²)	Monthly	Continuous from at least 12 months prior to the commencement of delivering magnetite ore to the Anderson Point Materials Handling Facility and ongoing for the duration of this Works Approval.	AS3580.1.1 AS3580.10.1
		Total crystalline material (g and % of total mass) Mineral phases present in the sample (as g and % of total crystalline material) ¹ .			Semi-quantitative x-ray diffraction analysis

Row	Column 1	Column 2	Column 3	Column 4	Column 5
	Monitoring Station	Parameter	Averaging Period	Frequency	Method
		Carbon (g and %) Total elemental analysis: Al, Ba, Ca, Fe, K, Mg, Mn, Na, Si, S, P			
6.	TUL Met Station as depicted in Figure 3 of Schedule 1.	Rainfall (mm)	10 minutes	Continuous during construction work and time limited operations	AS3580.14
7.		Wind direction (°)			
8.		Wind speed (m/s)			

Note 1: Provision of this data to the works approval holder is via the Fortescue Metals Group Ltd under Licence L8194/2007/3.

17. The works approval holder must obtain validated air quality and meteorological monitoring data specified in condition 16 within 45 days of data collection.

Monitoring during time limited operations

18. The works approval holder must undertake moisture content monitoring of Iron Ore at the Premises:
- for the parameter specified in column 1,
 - at the locations specified in column 2,
 - calculated as an average, over the period specified in column 3,
 - during the frequency specified in column 4,
 - using the method specified in column 5,
- of Table 4.

Table 4: Moisture content monitoring

Column 1	Column 2	Column 3	Column 4	Column 5
Parameter	Location	Averaging Period	Frequency	Method
Moisture content	Near infrared moisture analyser at sample station SS301, as depicted in Figure 2 of Schedule 1	Averaged for every 10,000 tonnes of material	Continuous	Analyser calibrated at least once during environmental commissioning and at least every six months thereafter against: ISO3087; or AS5621; or alternative method approved by the CEO.

Limits – time limited operations

- 19.** The works approval holder must ensure that 100% of ore conveyed from the Iron Bridge Concentrate Handling Facility has a Moisture Content at or above the DEM level derived from application of AS4156.6-2000 and updated on an annual basis through laboratory analysis.

Reporting – time limited operations

- 20.** The works approval holder must submit to the CEO a report within 30 calendar days following 90 days of time limited operation of the premises, that includes the following:
- (a) a summary of amount of iron ore handled;
 - (b) a summary of monitoring results obtained under conditions 16 and 18, including raw data in the format specified in Schedule 3;
 - (c) a summary of the environmental performance of all infrastructure as constructed or installed (as applicable), which includes records detailing the:
 - (i) performance of the near infrared analyser installed at sample station SS301 against the moisture content determined using ISO3087:2011, ATS5621-2012 or alternative method approved by the CEO;
 - (ii) average monthly availability rate of the belt wash station;
 - (iii) meteorological monitoring data, as required in condition 16, and raw dust monitoring data, presented in the format specified in Schedule 3, from implementing the Dust Monitoring and Management Plan.
 - (d) if applicable, what measures have been undertaken in the event that compliance with conditions 13, 14 and/or 15 has not been met.

Records and reporting (general)

- 21.** 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.
- 22.** 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;
 - (b) monitoring programmes undertaken in accordance with conditions 16 and 18; and
 - (c) complaints received under condition 21.
- 23.** The books specified under condition 22 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 5 have the meanings defined.

Table 5: Definitions

Term	Definition
average monthly availability	means the average percentage availability of equipment, calculated for each calendar month by dividing the time that the equipment is operating, by the time the equipment is required to be operating. Equipment is considered 'unavailable' when it is not operating, despite being required to operate in accordance with condition 14 of this works approval.
AS3580.1.1	means the Australian Standard AS3580.1.1 <i>Methods for sampling and analysis of ambient air - Guide to siting air monitoring equipment</i> .
AS3580.9.11	means the Australian Standard AS3580.9.11 <i>Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM₁₀ beta attenuation monitors</i> .
AS3580.10.1	means the Australian Standard AS3580.10.1 <i>Methods for sampling and analysis of ambient air Method 10.1: Determination of particulate matter—Deposited matter— Gravimetric method</i>
AS5621-2013	means Australian Technical Specification AS5621-2013 <i>Iron ores – rapid moisture determination</i> as amended from time to time
BAM	means beta attenuation monitor
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 info@dwer.wa.gov.au
complaint period	the time during which the complainant has identified noise to be excessive
construction work	has the same meaning as defined within the EP Noise Regulations
continuous/ continuously	means a data recovery rate of at least 90% per financial year quarter

Term	Definition
DEM Level	means the dust extinction moisture. It is the Moisture Content of the product at which the Dust Number is 10 derived from the Australian Standard AS4156.6-2000 or alternative standard as approved by the CEO.
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
Dust Monitoring and Management Plan	refers to the <i>Iron Bridge Concentrate Handling Facility – Dust Monitoring and Management Plan (Document Number 662PO-4000-PL-EN-0001_Rev B)</i> (DWER records: DWERT239234)
emission	has the same meaning given to that term under the EP Act
environmental commissioning	means the sequence of activities to be undertaken to test equipment integrity and operation, or to determine the environmental performance, of equipment and infrastructure to establish or test a steady state operation and confirm design specifications.
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Noise Regulations	<i>Environmental Protection (Noise) Regulations 1997 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
ISO3087:2011	means International Standardization Organization ISO3087:2011 <i>Iron ores – Determination of the moisture content of a lot</i>
moisture content	means the ratio of the mass of water in a sample to the mass of solids in the sample, expressed as a percentage. In equation form: $w = \frac{m_1 - m_2}{m_1} \times 100$ Where: w = moisture content of sample; m1 = initial mass, in grams, of the test portion; and m2 = mass, in grams, of the test portion after drying.
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

Term	Definition
quarterly	means by the last day of the following months in each year: • April (for January to March), • July (for April to June), • October (for July to September); and • January (for October to December) in any year.
strong wind conditions	means wind speeds of 14 metres per second or greater
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.
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.

END OF CONDITIONS

Schedule 1: Maps

Premises map



Figure 1: Premises boundary (depicted in purple) and the boundary of the Anderson Point Materials Handling Facility boundary (depicted in green)

W6394/2020/1
IR-T05 Works approval template (v5.0) (February 2020)

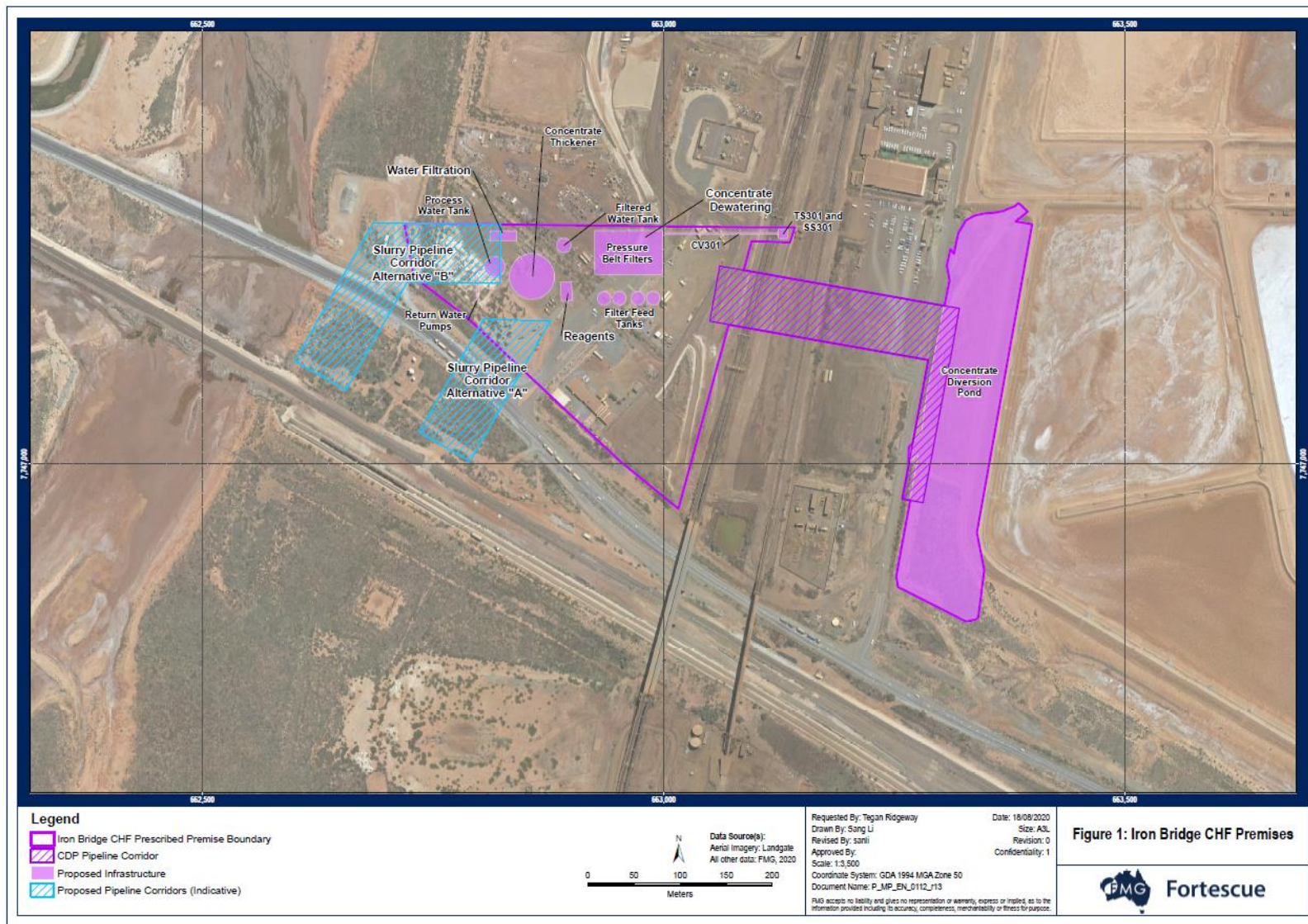


Figure 2: Site plan

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



Figure 3: Monitoring locations

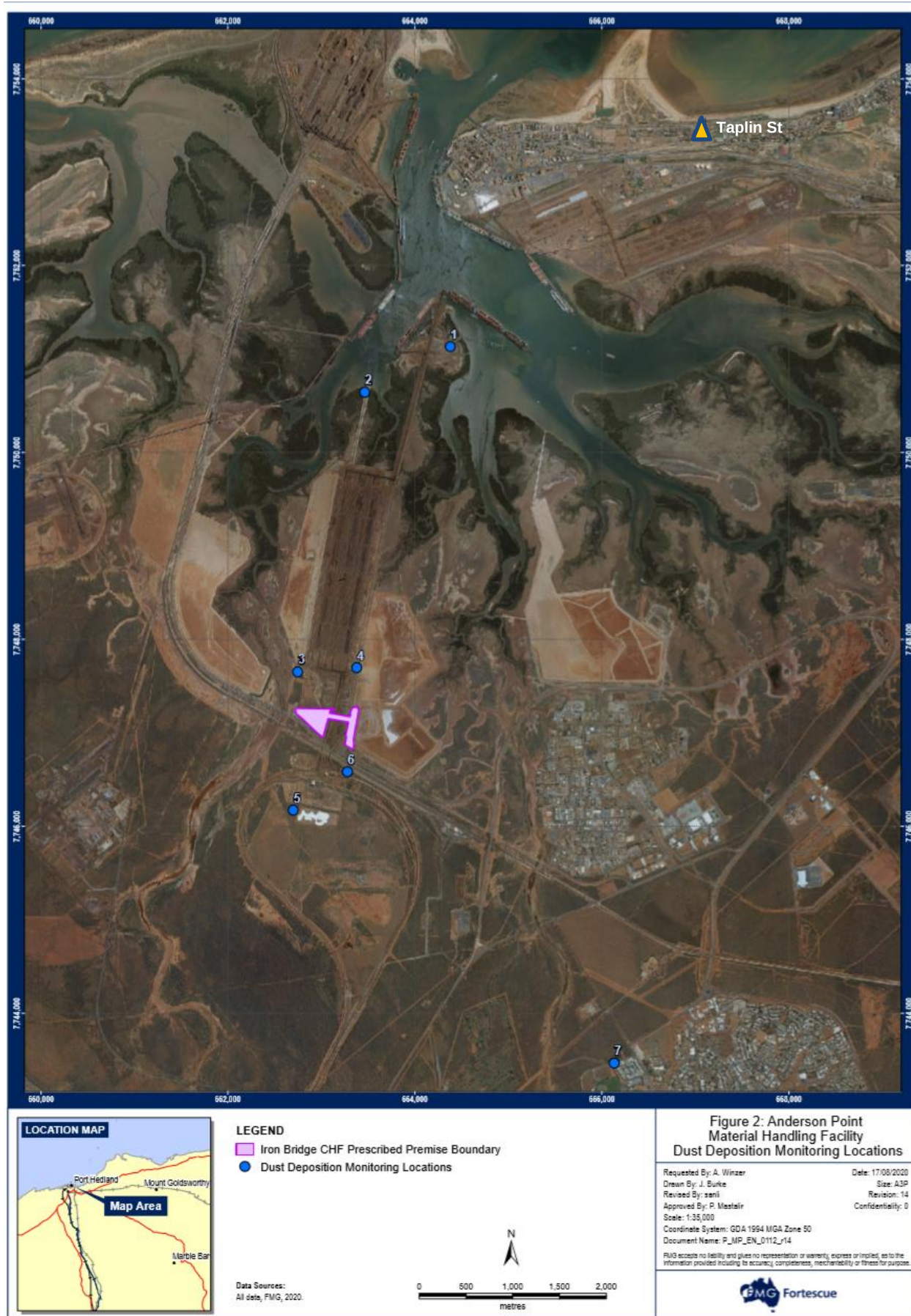


Figure 4: Dust deposition monitoring locations

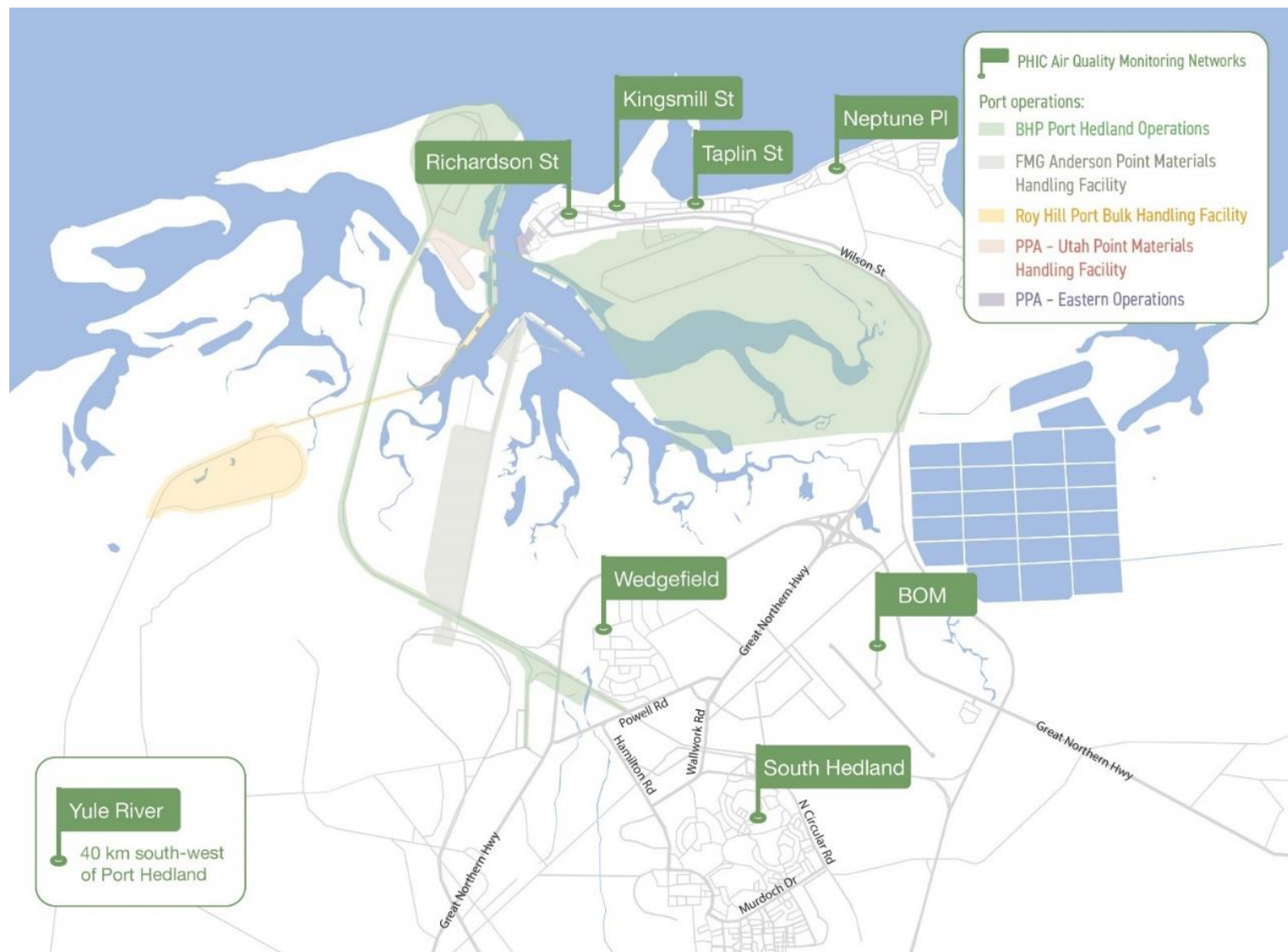


Figure 5: Ambient monitoring locations

Schedule 2: Premises boundary

The premises boundary is defined by the coordinates in Table 6.

Table 6: Premises boundary coordinates

ID	X (m)	Y (m)
1	662719.1	7747259.5
2	663142.4	7747255.7
3	663137.1	7747239.5
4	663095.4	7747241.0
5	663086.7	7747209.4
6	663304.4	7747170.7
7	663310.0	7747198.6
8	663307.1	7747214.3
9	663311.0	7747232.2
10	663314.7	7747227.2
11	663322.6	7747254.5
12	663327.8	7747263.4
13	663336.6	7747268.5
14	663347.4	7747270.7
15	663368.1	7747273.5
16	663384.6	7747282.5
17	663394.8	7747273.0
18	663381.7	7747262.1
19	663399.5	7747259.3
20	663339.6	7746925.1
21	663347.6	7746884.3
22	663341.1	7746832.9
23	663253.9	7746865.9
24	663267.4	7746959.8
25	663258.7	7746961.4
26	663265.9	7747017.5
27	663286.8	7747111.9
28	663070.6	7747150.3
29	663016.0	7746950.8
30	662786.4	7747158.6
31	662729.1	7747202.0

Schedule 3: Dust monitoring data format

The Licence Holder must ensure that validated (particle, gas and meteorological instrument data) results of ambient air monitoring are provided as a comma delimited time series listing on a suitable computer readable medium in the following format:

```
SITE NAME:XXXXXXXXX
column description
ddmmyyyy HHMM,x,x,x,...
ddmmyyyy HHMM,x,x,x,...
↓
↓
↓
ddmmyyyy HHMM,x,x,x,...
```

where: **dd** is the two digit day of the month i.e. 01, 02,...,31
mm is the two digit month of the year i.e. 01, 02,...,12
yyyy is the four digit year i.e. 2009, 2010, ...
HH is the two digit hour code i.e. 00, 01,...,23
MM is the two digit minute code i.e. 00, 10, 15,...,55
x,x,x is the comma delimited decimal data.

The time period for comma delimited time series listing must represent the end of the data period. Hence the first time stamp for any day must be 0005 hours and the data associated with this time stamp must be the averaged data for the period up to this time i.e. from midnight to 0005 hours. The last time for any day must be 2400 and the data associated with this time stamp must be the averaged data for the period up to this time i.e. from 2355 hours to midnight.

If the above method of timestamping is not achievable by your system, then the time series listing can be timestamped at the **start** of the period with the first timestamp of each day being 0000 hours which represents data from midnight to 00:05 and ends at 2355 hours which represents data from 23:55 to midnight on the same day.

Erroneous or invalid data must be denoted as a blank (**not** a space) or a numeric error code such as -99.0 within the data set. There should be no spaces in the data lines other than that between the date and time.

The covering documentation will indicate if the data timestamp is at the start of the data averaging period or the end of the data averaging period.

An example five minute averaged data set comprising eight parameters is provided below.

SITE NAME:- GENERIC AQMS

Date_Time,CO_ppm,NO_ppb,NO2_ppb,NOx_ppb,SO2_ppb,O3_ppb,PM10_ug_m3,PM2.5_ug_m3

26/04/2013 2325,0.2,31.4,11.4,42.8,,0.2,10.0,5.3

26/04/2013 2330,0.2,26.6,12.6,39.3,,0.1,8.6,4.7

26/04/2013 2335,0.1,14.8,14.6,29.4,,0.1,8.2,5.1

26/04/2013 2340,,,,,,,,,

26/04/2013 2345,,,,,,,,,

26/04/2013 2350,0.2,25.7,16.2,42,,0.5,14.6,13.4

26/04/2013 2355,0.2,,15.8,36,,0.6,14.2,11.3

26/04/2013 2400,0.2,,15.1,35,,0.5,14.3,9.7

27/04/2013 0005,0.2,24.8,15.3,40.1,,0.5,12.8,9

27/04/2013 0010,0.3,27.1,14.6,41.8,,0.4,12.7,9.2

27/04/2013 0015,0.4,33.2,14.5,47.7,,0.4,13.0,8.9

27/04/2013 0020,0.5,26.5,12.6,39.1,,0.2,12.0,7.9

The following units must be used for ambient data submitted as a comma delimited time series listing:

Pollutant	Units	Minimum precision
Carbon monoxide	parts per million	X.X (tenth of a ppm)
all other gases	parts per billion	X (tenth of a ppb)
particles	micrograms per cubic metre	X.X (tenth of a µg/m ³)
wind speed	metres per second	X.X (tenth of a m/s)
wind direction	degrees from north	X.X (tenth of a degree)
sigma	degrees	X.X (tenth of a degree)
air temperature	degrees Celsius	X.X (tenth of a degree)
relative humidity	%	X.X (tenth of a %)
pressure	hectopascals	X.X (tenth of a hPa)
solar radiation	watts per square metre	X.X (tenth of a watt/m ²)

These units must be used unless approval has been obtained from the Senior Manager, Air Quality Services to use alternative units.

The Licence Holder must provide:

- Data as five or 10 minute averages. If these are not available, then at shortest available averaging period;
- Site name, instrument manufacturer and model number;
- Site location (Latitude/Longitude GPS coordinates);
- Data validation procedure used to validate data; and
- all reported data must be time-stamped with the actual time to which the measurement refers. This means that the 1 hour offset inherent in BAMs must be corrected so that both the 1-hour and 10-minute data presented in reports represent the conditions existing at the time of the measurement.