Licence

Licence number	L6869/1992/12
Licence holder	Pilbara Iron Company (Services) Pty Ltd
ACN	107 210 248
Registered business address	Level 22, Central Park 152-158 St Georges Terrace PERTH WA 6000
DWER file number	DER2013/001174
Duration	12/02/2015 to 11/02/2035
Date of issue	05/02/2015
Date of amendment	16/06/2022
Premises details	Marandoo Iron Ore Mine Part of AM70/272, G47/1237, L47/334, easement N276548 and Crown Lease 3114/1277 MT SHEILA WA 6751 Legal description As depicted in schedule 1

Prescribed premises category description (Schedule 1, ***Environmental Protection Regulations 1987***)	**Assessed production / design capacity**
Category 5: Processing or beneficiation of metallic or non-metallic ore	20,000,000 tonnes per annual period
Category 6: Mine dewatering	36,500,000 tonnes per annual period
Category 12: Screening, etc. of material	10 000 000 tonnes per annual period
Category 54: Sewage facility	342 cubic metres per day
Category 60: Incineration	190 kilograms per hour
Category 64: Class II putrescible landfill site	5,000 tonnes per annual period

This licence is granted to the licence holder, subject to the attached conditions, on 21 June 2022, by:

Courtney Henry
A/SENIOR ENVIRONMENTAL OFFICER – REGULATORY SERVICES
INDUSTRY REGULATION
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Contents

Licence History

Date	Reference number	Summary of changes
05/02/2015	L6869/1992/12	Licence Reissue
29/04/2016	L6869/1992/12	*Notice of amendment of licence expiry dates,* issued on 29 April 2016. Licence expiry amended to 11 February 2035
28/06/2018	L6869/1992/12	Amendment Notice 1 This notice is limited only to the construction, commissioning and operation of the Southern Waste Fines Storage Facility (SWFSF) under Category 5, changes to monitoring requirements under Category 6 and an increase to the throughput under Category 12.
16/06/2022	L6869/1992/12	The CEO has initiated an amendment to the type and style of licence and incorporated Amendment Notice 1. The obligations of the licence holder have not changed in making this administrative amendment. During the consolidation of amendment notices, DWER has not undertaken any additional risk assessment of the premises. In consolidating the licence, the CEO has, • Updated the format and appearance of the licence; • Deleted the redundant AACR form set out in Schedule 2 of the previous licence and advised the licence holder to obtain the form from the Department's website; • Revised the licence condition numbers, removed any redundant conditions and realigned condition numbers for numerical consistency; and • Corrected clerical mistakes and unintentional errors.

Interpretation

In this licence:

(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 licence:

(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 licence requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this licence.

Definitions

In these conditions of Licence, unless inconsistent with the text or subject matter:

'Act' means the Environmental Protection Act 1986;

'Annual Audit Compliance Report' means a report in a format approved by the CEO as presented by the Licence Holder or as specified by the CEO from time to time and published on the Department's website;

'annual period' means the inclusive period from 1 January until 31 December in the same year;

'ANZECC Guidelines' means the most recent version and relevant parts of the Australian and New Zealand Environment guidelines for fresh and marine water quality Volume 1 – 3 (Australian and New Zealand Environment and Conservation Council, Agriculture and Resource Management Council of Australia and New Zealand);

'AS/NZS 5667.1' means the Australian Standard AS/NZS 5667.1 Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples;

'Biosolids' has the meaning defined in Landfill Definitions;

'CEO' means Chief Executive Officer of the Department of Water and Environmental Regulation;

'CEO' for the purpose of correspondence or notification means;
Chief Executive Officer
Department Administering the *Environmental Protection Act 1986*
Locked Bag 10
JOONDALUP DC WA 6919
Telephone: (08) 6367 7000
Facsimile: (08) 6367 7001
Email: info@dwer.wa.gov.au

'Clean Fill' has the meaning defined in Landfill Definitions;

'cfu/100ml' means colony forming units per 100 millilitres;

'Department' means the department established under section 35 of the Public Sector Management Act and designated as responsible for the administration of Division 3 Part V of the EP Act.

'Engineer/geotechnical specialist' means a 3rd party (with relevant experience and competence in tailings management to verify the tailings storage facility construction) holding professional registration through the Institute of Engineers Australia or the Australasian Institute of Mining and Metallurgy.

'freeboard' means the vertical height between the maximum water surface elevations and the top of retaining banks or structures at their lowest point;

'Inert Waste Type 1' has the meaning defined in Landfill Definitions;

'Inert Waste Type 2' has the meaning defined in Landfill Definitions;

'Landfill Definitions' means the document titled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer and as amended from time to time;

'Licence' means this Licence numbered L6869/1992/12 and issued under the Act;

'Licence Holder' means the person or organisation named as Licence Holder on page 1 of the Licence;

'm/s' means metres per second;

'µS/cm' means microSiemens per centimetre;

'mg/L' means milligrams per litre;

'NATA' means the National Association of Testing Authorities, Australia;

'NTU' means nephelometric turbidity units;

'% sat' means percentage saturation;

'Putrescible' has the meaning defined in Landfill Definitions;

'Quarterly' means the 4 inclusive periods from 1 January to 31 March, 1 April to 30 June, 1 July to 30 September and 1 October to 31 December in the same year;

'Southern Waste Fines Storage Facility Detailed Design' means the document prepared by Knight Piésold Pty Limited September 2017 (PE801-00080/36 Rev 0) for the Rio Tinto Iron Ore Marandoo Mine;

'SFB' means the Southern Fortescue Borefield;

'Special Waste Type 1' has the meaning defined in Landfill Definitions;

'Standard Methods for Examination of Water and Wastewater' means the most recent edition of the Standard Methods for Examination of Water and Wastewater as published by the American Public Health Association (APHA), the American Water Works Association (AWWA) and the Water Environment Federation (WEF);

'WFSF' means waste fines storage facility;

'WWTPs' means wastewater treatment plants; and

'Western Australian guidelines for biosolids management' means the document titled "Western Australian guidelines for biosolids management, December 2012" published by the Department of Environment and Conservation as amended from time to time.

Licence Conditions

Dust management

1 The Licence Holder shall take measures to prevent the generation of visible dust from materials handling operations, stockpiles, open areas and transport activities. Such measures may include, but are not limited to:

(a) maintaining stockpiles in a damp condition;

(b) sealing non-working faces to prevent dust lift off;

(c) spraying surfaces with water;

(d) sealing surfaces with chemical dust suppressants; and

(e) rehabilitation of disturbed areas.

2 The Licence Holder shall maintain installed dust collection and dust control systems including:

(a) coverings on conveyors, transfer points and discharge points;

(b) skirtings; and

(c) dust filters,

as measures to prevent the generation of visible dust from the premises.

WWTPs

3 The Licence Holder shall ensure that treated effluent is only discharged to the irrigation areas depicted in Attachment 4.

4 The Licence Holder shall maintain, in accordance with the manufacturer's specifications, an accurate flow metering device that measures the cumulative volume of all treated effluent discharged from the WWTPs.

5 The Licence Holder shall record the cumulative volume of all treated effluent discharged for the purpose of irrigation and this data shall be included in the Annual Environmental Report in tabular form.

6 The Licence Holder shall ensure that water quality monitoring occurs during the operation of the WWTPs, such that water quality of the effluent is monitored at the frequency stated in column 2 of Table 1 for the parameters in column 1 of Table 1.

Table 1: Marandoo Mine and Marandoo Mine Camp WWTP water quality monitoring requirements	
Column 1	**Column 2**
Parameter	**Frequency**
Biochemical Oxygen Demand (mg/L)	Quarterly
Total Suspended Solids (mg/L)	
pH (pH units)	
Total Nitrogen (mg/L)	
Total Phosphorus (mg/L)	

E.coli (cfu/100mL)	

Disposal of biosolid and other residuals

7 The Licence Holder shall dispose of sludge and biosolids in accordance with the Western Australian guidelines for biosolids management or to a licensed or registered landfill facility.

8 The Licence Holder shall ensure that sludge is immediately removed offsite or stored onsite within a hardstand area or drying bed with a hydraulic conductivity of equal to or less than 1 x 10^{-9} m/s.

9 The Licence Holder shall ensure that the storage area referred to in condition 8 is bunded to enable the containment and recovery of any liquid matter.

Surface water – Discharge outfall

10 The Licence Holder shall ensure that the concentration of Total Recoverable Hydrocarbons in waters discharged from the premises does not exceed 30 mg/L.

Waste management from ancillary operations

11 The Licence Holder shall utilise and maintain, as appropriate, protective bunding, skimmers, silt traps, neutralisation pits, fuel and oil traps, drains, and sealed collection sumps around the process plant, maintenance workshops and power generation areas to enable recovery of spillages and protection of surrounding soils and groundwater.

12 The Licence Holder shall utilise measures or agents such as quick break detergents to prevent oil-water emulsions from passing through the separator systems.

Management of putrescible landfill

13 The Licence Holder shall bury only the following types of waste within the Putrescible Landfill facility depicted in Attachment 3:

(a) Clean Fill;

(b) Inert Waste Type 1; and

(c) Putrescible Waste;

as defined in Landfill Definitions.

14 The Licence Holder shall ensure that the tipping area of the landfill is not greater than:

(a) 30 metres in length; and

(b) 2 metres above ground level in height.

15 The Licence Holder shall ensure that waste in the tipping area of the landfill is covered:

(a) at least weekly;

(b) with a dense (at least 200 millimetres), inert and incombustible material; and

(c) totally, so that no waste is left exposed.

16 The Licence Holder shall ensure that there is no waste within:

(a) 100 metres of any surface water body at the site; and

(b) 3 metres of the highest level of the water table aquifer at the landfill site.

17 The Licence Holder shall manage stormwater on site so that:

(a) it is diverted from areas of the site where there is waste; and

(b) water that has come into contact with waste is to be diverted into a sump on the site, or otherwise retained on the site.

Management of waste dump landfill

18 The Licence Holder shall bury only the following types of waste within the Waste Dump Landfill facility depicted in Attachment 3:

(a) Inert Waste Type 1;

(b) Inert Waste Type 2;

(c) Special Waste Type 1; and

(d) Putrescible Waste (wooden pallets only);

as defined in the Landfill Definitions.

19 The Licence Holder shall ensure that waste in the tipping area of the landfill is covered with a dense (at least 200 millimetres), inert and incombustible material at final landform design.

20 The Licence Holder shall ensure that there is no waste within:

(a) 100 metres of any surface water body at the site; and

(b) 3 metres of the highest level of the water table aquifer at the landfill site.

21 The Licence Holder shall manage stormwater on the landfill site so that water that has come into contact with waste is to be retained on the site.

Pit emergency discharge points

22 The Licence Holder shall, on a monthly basis, measure and record in cubic metres during discharge, the cumulative volumes of waters discharged from the discharge points shown in column 1 of Table 2 and depicted in Attachment 1. These results shall be published in the Annual Environmental Report.

23 The Licence Holder shall ensure that water is only discharged through the emergency discharge points as necessary following above average periods of rainfall.

24 The Licence Holder shall collect and have analysed representative water samples from the monitoring sites shown in column 1 of Table 2, for the parameters listed in column 2 of Table 2, at the frequencies in column 3 of Table 2.

Table 2: Water monitoring schedule

Column 1	Column 2	Column 3
Monitoring site(s) (Attachment 2)	**Parameter**	**Frequency**
Evaporation pond discharge point	pH (pH units)[1] Total Dissolved Solids (mg/L) Total Suspended Solids (mg/L) Total Recoverable Hydrocarbons (mg/L) Chemical Oxygen Demand (mg/L) Surfactants (mg/L)	Quarterly - during discharge

	Metals (mg/L) – Pb, Cu, Fe, Mn, Mo, Zn, As, Hg, Cd and Cr	
Emergency discharge points: Tails pit TEX East TEX West	pH (pH units)[1] Total Dissolved Solids (mg/L) Total Suspended Solids (mg/L) Total Recoverable Hydrocarbons (mg/L)	Monthly - during discharge

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

WFSF Groundwater monitoring

25 The Licence Holder shall collect and have analysed representative water samples from the monitoring sites shown in column 1 of Table 3 and depicted in Attachment 3, for the parameters listed in column 2 of Table 3 at the frequencies in column 3 of Table 3.

Table 3: WFSF groundwater monitoring schedule

Column 1	**Column 2**	**Column 3**
Monitoring site(s) (Attachment 3)	**Parameter**	**Frequency**
MB14MN005 OW14	Depth to water pH (pH units)[1]	Quarterly
	Electrical Conductivity (µS/cm) [1] Total Hardness ($CaCO_3$) (mg/L) Major Ions (mg/L): Na, K, Ca, Cl, Mg, and SO_4 Metals (mg/L) – Cu, Fe, Mn, As, Cd and Cr	Annual

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

WFSF - Freeboard

26 The Licence Holder shall ensure that at least 500 millimetres of freeboard is maintained at the main embankment at all times.

Dewatering

27 The Licence Holder shall ensure the contingency discharge outlet is managed to ensure minimal erosion and scouring impacts at the discharge point.

28 The Licence Holder shall measure and record in cubic metres, the cumulative volumes of waters discharged to the agricultural project, SFB and from the contingency discharge outlet, and shall publish the results in the Annual Environmental Report.

29 The Licence Holder shall collect and have analysed representative water samples from the discharge locations listed in column 1 of Table 4, for the parameters listed in column 2 of Table 4, at the frequencies in column 3 of Table 4.

Table 4: Dewatering discharge monitoring		
Column 1	**Column 2**	**Column 3**
Discharge locations (Attachment 2)	**Parameter**	**Frequency**
Water supply to Agricultural Project	Electrical Conductivity (µS/cm) [1] pH (pH units)[1] Total Dissolved Solids (mg/L) Dissolved Oxygen (% sat) [1] Turbidity (NTU) Hardness ($CaCO_3$ mg/L) Ions and Metals (mg/L) – Al, B, Cl, Total Cr, Cu, Inorganic Hg, K, Mg, Mo, Na, NH_3, NO_3, Total Phosphorus, SO_4, Zn	Quarterly
Contingency discharge outlet		Quarterly – when discharging

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

Reinjection

30 The Licence Holder shall collect and have analysed representative water samples from the SFB reinjection bores listed in column 1 of Table 5, for the parameters listed in column 2 of Table 5, at the frequency in column 3 of Table 5.

Table 5: Reinjection discharge monitoring		
Column 1	**Column 2**	**Column 3**
SFB reinjection bores (Attachment 5)	**Parameter**	**Frequency**
SFP2 SFP4 SFP5 SFP6 SFP7 SFP8 SFP9 SFP10 SFP11 SFP12 WB10SF001	Electrical Conductivity (µS/cm) [1] pH (pH units)[1] Total Dissolved Solids (mg/L) Dissolved Oxygen (% sat) [1] Turbidity (NTU) Hardness ($CaCO_3$ mg/L) Ions and Metals (mg/L) – Al, Total As, B, Cd, Cl, Total Cr, Cu, Inorganic Hg, Mg, Mn, Mo, NH_3, NH_4-N, NO_3-N, NO_3, Ni, Total Phosphorus, Pb, SO_4, Total Se, Zn	Quarterly – for bores that have been operational during the monitoring period

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

Wastewater incinerator

31 The Licence Holder shall install and operate the wastewater incinerator in accordance with the commitments outlined in column 2 of Table 6 contained within the application document in column 1 of Table 6 below.

Table 6: Wastewater Incinerator installation and operation commitments	
Column 1	**Column 2**
Document	**Key Application Commitments**
Works Approval Application – Marandoo Iron Ore Mine Waste Water Incinerator. Rio Tinto, 4 November 2015	• No more than 190 kg of waste is incinerated per hour. • The wastewater incinerator is installed and operated within the Marandoo Mine footprint as depicted in Attachment 6. • Wastewater tanks are sealed. • Storage tanks to be located within an earthen bund to prevent potential contact with vehicles and to contain any wastewater released. • No emissions to land from the wastewater incinerator. • Spill kits to be located on all mobile refuelling trucks used to refuel the wastewater incinerator. • Only sewage waste is to be incinerated at the wastewater incinerator. • Solid waste is to be disposed at the Putrescible Landfill facility depicted in Attachment 3.

Reporting conditions

32 The Licence Holder shall provide the CEO notification of when the Wastewater Incinerator referred to in condition 31 first becomes operational.

33 The Licence Holder shall ensure that all water samples are collected and preserved in accordance with AS/NZS 5667.1.

34 The Licence Holder shall ensure that all parameters requiring laboratory analysis are conducted by an organisation with NATA accreditation for the specified parameters in accordance with the current Standard Methods for Examination of Water and Wastewater-APHA-AWWA-WEF.

Annual environmental report

35 The Licence Holder shall provide the CEO, by **30 April** each year, a copy of an Annual Environmental Report containing data collected, as required by any condition of this Licence during the period beginning **1 January** the previous year and ending on **31 December** in that year.

36 The Licence Holder shall ensure that the Annual Environmental Report also contains:

(a) a comparison of monitoring data against previous years' monitoring data; and

(b) a comparison of monitoring data against relevant guidelines including:

(i) Appropriate ANZECC Guidelines;

(ii) Marandoo Mine Phase 2 Operational Water Quality Guidelines for De-watering Discharge and the HAP; and

(iii) National Water Quality Management Strategy: Australian Guidelines for Sewerage Systems – Effluent Management 1997.

Annual audit compliance report

37 The Licence Holder must submit to the CEO a Compliance Report by 30 April in each year indicating the extent to which the Licence Holder has complied with the conditions in this Licence for the Annual Period.

Mobile crushing and screening plants

38 The Licence Holder shall ensure that the mobile crushing and screening plants are situated in a suitable location such that:

(a) They are located at least 50 metres from any permanent water body;

(b) The mobile plant area is contained so no contaminated runoff (any waste listed in Environmental Protection (Unauthorised Discharges) Regulations 2004) leaves the Premises. In the event that stormwater becomes contaminated with hydrocarbons, contaminated water is to be collected in sumps and removed via truck to a suitable licensed disposal/remediation facility; and

(c) Uncontaminated stormwater from the surrounding areas shall be diverted around the mobile plant area.

Southern waste fines storage facility

39 The Licence Holder must install and undertake the Works for the infrastructure and equipment:

(a) specified in Column 1;

(b) and to the requirements specified in Column 2;

(c) of Table 7 below.

40 The Licence Holder must not depart from the requirements specified in Column 2 of Table 7 except:

(a) where such departure does not increase risks to public health, public amenity or the environment;

(b) and all other Conditions in this Licence are still satisfied.

41 The construction details of any tailings storage embankment must be documented by an engineering or geotechnical specialist and confirm that the construction satisfied the design intent. The construction document shall include the records of all construction quality control testing, the basis of any method specification adopted, The construction document shall also present as-built drawings for the embankment earthworks and tailings pipework. A copy of the construction document shall be submitted to the CEO.

42 Where a departure from the requirements specified in Column 2 of Table 7 occurs and is of a type allowed by Condition 40, the Licence Holder must provide to the CEO a description of, and explanation for, the departure along with the certification required by Condition 40.

<table>
<tr><th colspan="2">Table 7: Infrastructure and equipment requirements table</th></tr>
<tr><th>Column 1</th><th>Column 2</th></tr>
<tr><th>Infrastructure/ Equipment</th><th>Requirements (design and construction)</th></tr>
<tr><td>Southern Waste Fines Storage Facility</td><td>Constructed within the approximate boundaries below:
<table>
<tr><td colspan="3">MGA 94 (Zone 50)</td></tr>
<tr><td>ID</td><td>Easting</td><td>Northing</td></tr>
<tr><td>1</td><td>618,400</td><td>7,493,520</td></tr>
<tr><td>2</td><td>620,340</td><td>7,493,400</td></tr>
<tr><td>3</td><td>619,690</td><td>7,492,620</td></tr>
<tr><td>4</td><td>618,610</td><td>7,492,760</td></tr>
</table></td></tr>
<tr><td>Southern Waste Fines Storage Facility</td><td>The Licence Holder shall construct the Southern Waste Fines Storage Facility in accordance with the Southern Waste Fines Storage Facility Detailed Design prepared by Knight Piésold Pty Limited September 2017(PE801-00080/36 Rev 0).

The construction of any tailings storage embankment must be supervised by an engineering or geotechnical specialist.</td></tr>
<tr><td>Southern Waste Fines Storage Facility embankment stages</td><td>The Licence Holder shall construct the Southern Waste Fines Storage Facility embankment to a final embankment height of 780 mRL, generally in accordance with the indicative stages shown below:
<table>
<tr><td>Stage</td><td>Construction year</td><td>Embankment configuration</td><td>Years of storage</td><td>Embankment Level (RL m)</td></tr>
<tr><td>1A</td><td>-1</td><td rowspan="5">Downstream</td><td>1</td><td>754.0</td></tr>
<tr><td>1B</td><td>1</td><td>3</td><td>762.0</td></tr>
<tr><td>2</td><td>3</td><td>3</td><td>768.0</td></tr>
<tr><td>Final</td><td>6</td><td>4</td><td>775.0</td></tr>
<tr><td>Expansion</td><td>11</td><td>-</td><td>780.0</td></tr>
</table></td></tr>
<tr><td>Decant system</td><td>The Licence Holder shall construct the decant infrastructure in accordance with the Southern Waste Fines Storage Facility Detailed Design prepared by Knight Piésold Pty Limited September 2017(PE801-00080/36 Rev 0).</td></tr>
<tr><td>Deposition infrastructure configuration</td><td>Perimeter embankment multi spigot discharge combined with 2 full single point discharge</td></tr>
<tr><td>Pipeline corridor</td><td>A 3 metre wide permanent pipeline corridor is to be established.</td></tr>
<tr><td>Tailings pipelines (2)</td><td>The waste fines pipelines are to consist of a 300-350 mm OD HDPE lined steel pipe for ~1.4 km, followed by a 400 mm OD PN20 HDPE pipeline for a total length of ~ 8.7 km to the far east side of the SWFSF.

All pipelines will contain air vents/vacuum breakers at pipeline high spots (five locations) and dump valves at all low spots (five locations) as depicted in the pipeline schematics in Attachments 7 and 8.

At each low spot in the pipelines, the dump valves will report to containment ponds (5 locations).

Tailings pipeline to be installed with a flow meter at the southern waste fines storage facility and a flow meter at the below water table processing plant.</td></tr>
</table>

Table 7: Infrastructure and equipment requirements table	
Column 1	**Column 2**
Infrastructure/ Equipment	**Requirements (design and construction)**
Decant return pipeline (1)	The decant pipeline is to consist of a 225 mm OD PN10 and 315 mm OD PN16 HDPE pipeline. All pipelines will contain air vents/vacuum breakers at pipeline high spots (five locations) and dump valves at all low spots (five locations) as depicted in Attachments 7 and 8. At each low spot, the dump valves will report to containment ponds (5 locations). Decant pipelines to be installed with valve station, turbidity gauge, pressure gauges, flow gauges, dump valves and air vents as depicted in Attachments 5 and 6. Decant pipeline to be installed with a flow meter at the decant and a flow meter at the below water table processing plant.
Pipeline containment ponds	The 5 containment ponds are to be sized (2000 m^3) to contain the full pipe volume plus two hours of continuous pumping. Constructed in the locations depicted in Attachment 9.
Pipeline bunding	Pipeline bunding (or pipe with sleeve) must be constructed for all areas of the pipeline.
Additional shallow groundwater monitoring bore	A groundwater bore shall be installed at location MB16MN004, as shown in Attachment 10. The bore shall be slotted to intercept the groundwater mounding from the SWFSF (approximately at a depth of 6 – 12 mbgl). The bore shall be installed prior to tailings deposition to the SWFSF commencing.

43 Groundwater bores construction logs for monitoring bores in Table 8 shall be supplied to the CEO within one month of the signing of this Amendment Notice. The groundwater bore construction log for the monitoring bore to be constructed as per Table 7 shall be supplied to the CEO within one month of installation.

44 The SWFSF shall be inspected daily by the Licence Holder during periods of deposition to ensure that the facility is functioning as per the design intent. The available freeboard in the SWFSF at the main embankment shall be checked and recorded. The integrity of tailings pipelines shall be inspected daily and recorded. At least 90% of inspections in a month shall be completed, to allow for operational or weather constraints. Reasons for missed inspections shall be documented in the Annual Environmental Report.

45 An engineering or geotechnical specialist shall audit and review the active tailings storage facility on an annual basis. The specialist shall review past performance, validate the design, examine tailings management, and review the results of monitoring. Any deficiencies noted in the audit and review report shall be addressed and improved. The audit and review report shall be submitted to the CEO and should be accompanied by a recent survey pick-up of the facility and an updated tailings storage data sheet.

46 At the time of decommissioning of the SWFSF and prior to rehabilitation, a further review report by a geotechnical or engineering specialist shall be submitted to the CEO. This report shall review the status of the structure and its contained waste fines, examine and address the implications of the physical and chemical characteristics of the materials, and present and review the results of all monitoring. The rehabilitation stabilisation works proposed and any on-going remedial requirements shall also be addressed.

47 The Licence Holder shall submit a detailed operating manual for the Southern Waste Fines Storage Facility in accordance with the Department of Mines, Industry Regulation and Safety's Guide to Departmental requirements for the management and closure of tailings storage facilities (TSFs).

48 Following submission of the construction documents required by Condition 41 to the CEO, the Licence Holder shall be authorised to deposit tailings to the SWFSF for a commissioning period of no longer than 3 months.

49 The Licence Holder shall not operate the facility and deposit tailings in the approved staged manner to the SWFSF until the construction documents required by Condition 41 have been submitted to the CEO.

Southern waste fines storage facility groundwater monitoring

50 The Licence Holder shall collect and have analysed representative water samples from the monitoring sites shown in column 1 of Table 8 for the parameters listed in column 2 of Table 8 at the frequencies in column 4 of Table 8. The Licence Holder is required to meet the limits in Column 3 of Table 8.

Table 8: SWFSF groundwater monitoring schedule (Attachment 10)

Column 1	**Column 2**	**Column 3**	**Column 4**
Monitoring site(s) (Attachment 3)	**Parameter**	**Limit**	**Frequency**
Southern Waste Fines Storage Facility bores MB16MN002 MB16MN003 MB16MN004 MB16MN006 MB16MN007 MB16MN008 MB16MN009 MB16MN0010[4] MB16MN0011[4] MB16MN0012[4] MB16MN0013	Depth to water[1]	4 mbgl Non specified	Monthly
MB16MN003 MB16MN004 MB16MN006 MB16MN007 MB16MN008	Electrical Conductivity (µS/cm) [1] pH (pH units)[1] Total Hardness ($CaCO_3$) (mg/L) TDS (mg/L) NO_3	Non specified	Quarterly

MB16MN009 MB16MN0010[4] MB16MN0011[4] MB16MN0012[4]	Major Ions (mg/L): Na, K, Ca, Cl, F, Br Mg, and SO_4, Metals/metalloids (mg/L) – Ag, Al, Ba, Cu^2, Fe^2, Mn^2, As^2, Cd^2, Cr^2, Pb^2, Hg^2, Ni^2, Co^2, Se^2, B^2, Mo^2, Sb^2, Si^2, Sn^2, Sr^2, Th^2, U, V^2, Zn^2 and Tl^3		

Note 1: In-field non NATA analysis permitted
Note 2: Comparison against the 95% protection level in ANZECC 2000, taking background water quality into consideration is required
Note 3: Comparison against the USEPA National Primary Drinking Water Table of Contaminants 2009 is required
Note 4: Indicates shallow bores

51 In the event that the limit listed in Table 8 is exceeded, the Licence Holder must:

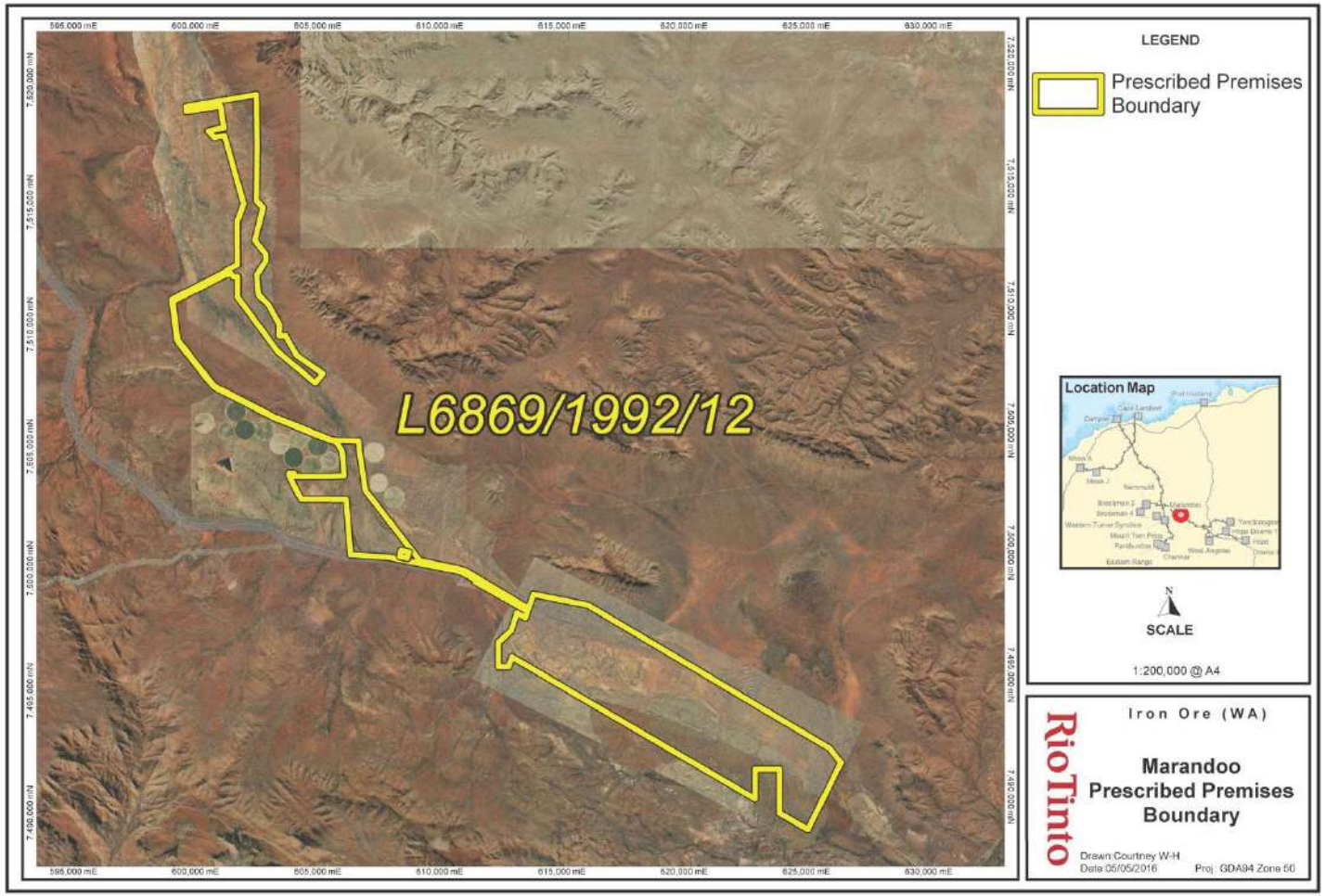
(a) undertake an investigation into the environmental impact of seepage from the Southern Waste Fines Storage Facility;

(b) provide the CEO a report within 3 months of completing the assessment; and

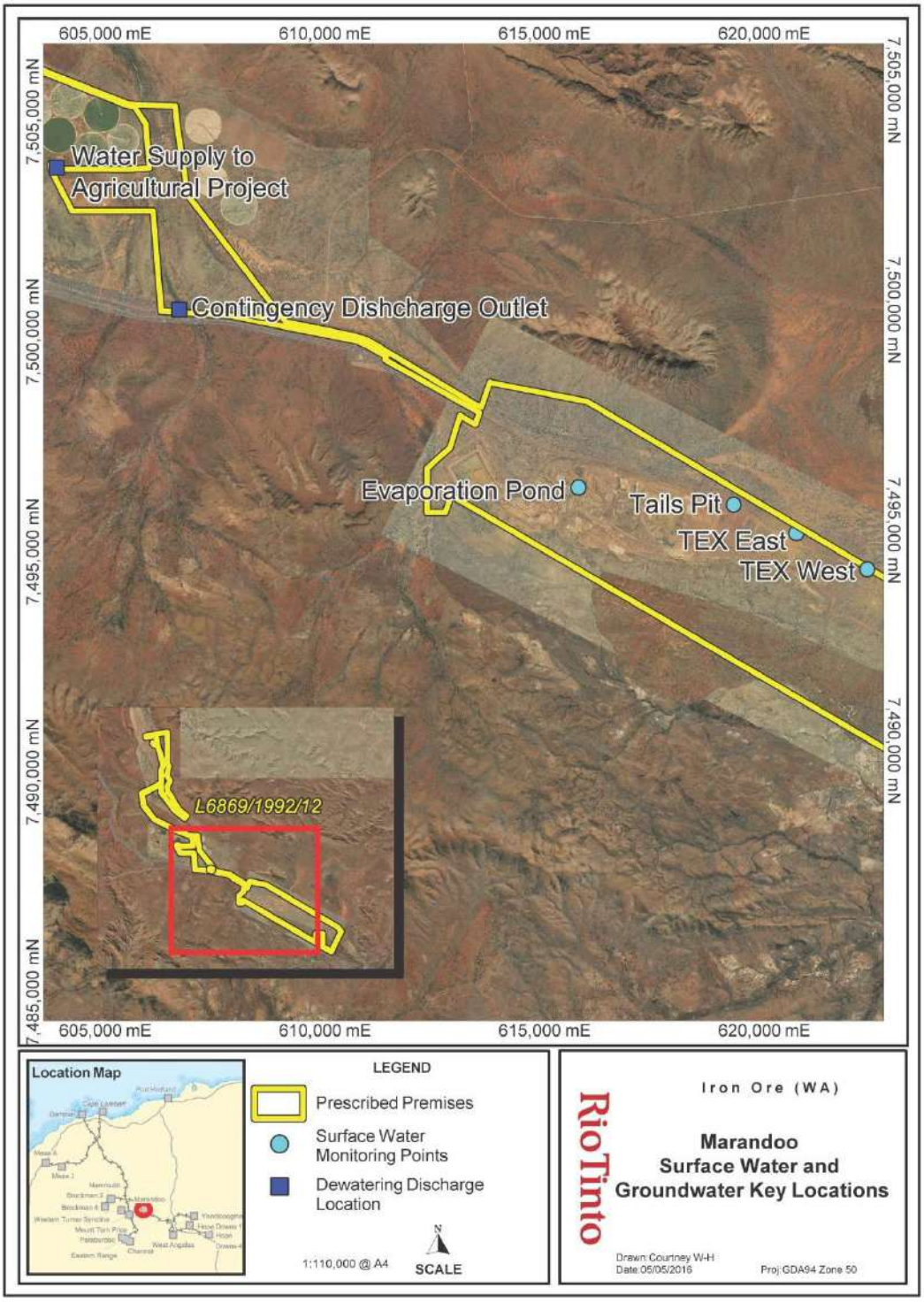
(c) clearly outline mitigation methods to reduce the environmental impact of seepage from the Southern Waste Fines Storage Facility.

Schedule 1: Maps

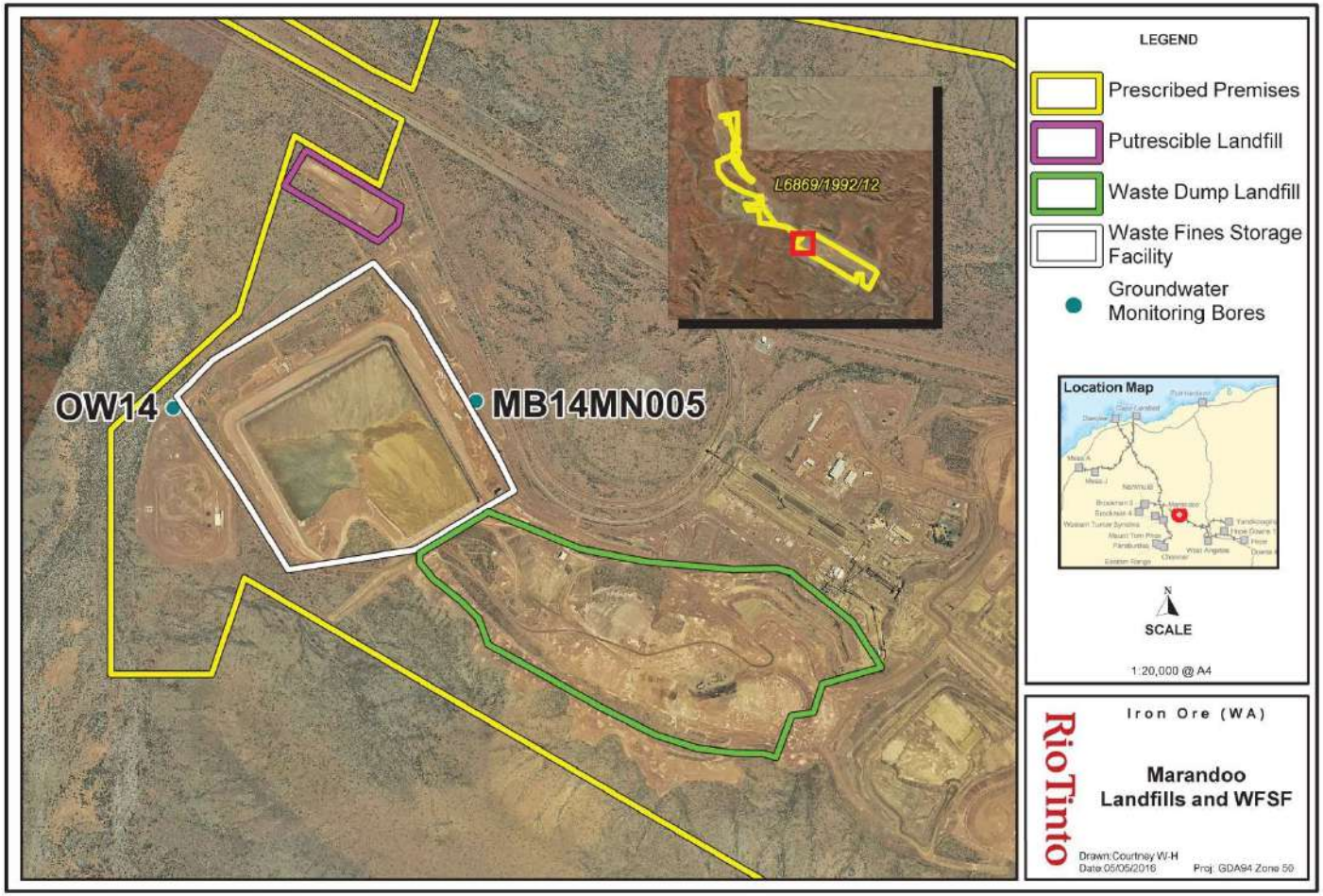
Attachment 1: Premises Boundary



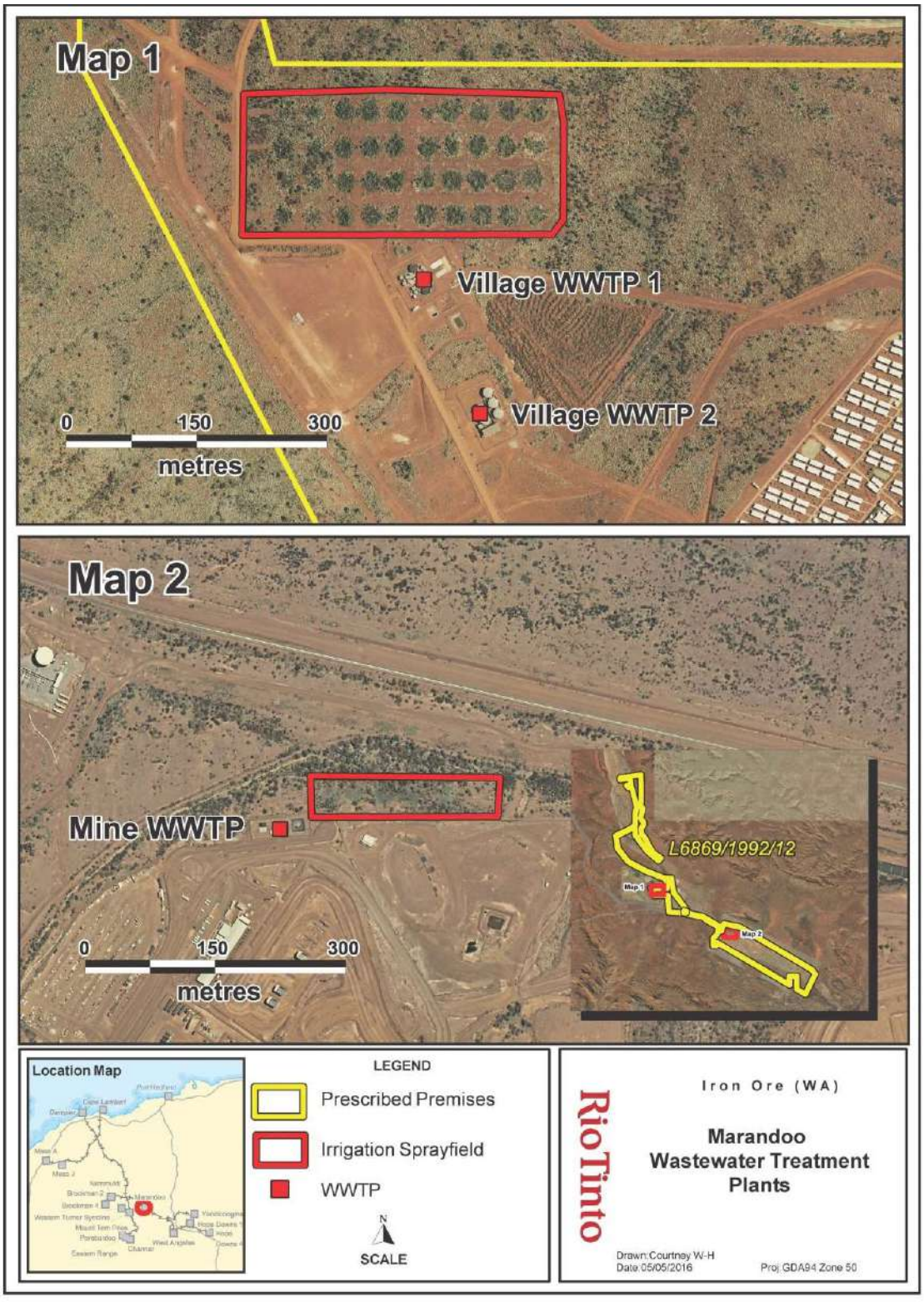
Attachment 2: Marandoo surface water and groundwater key locations



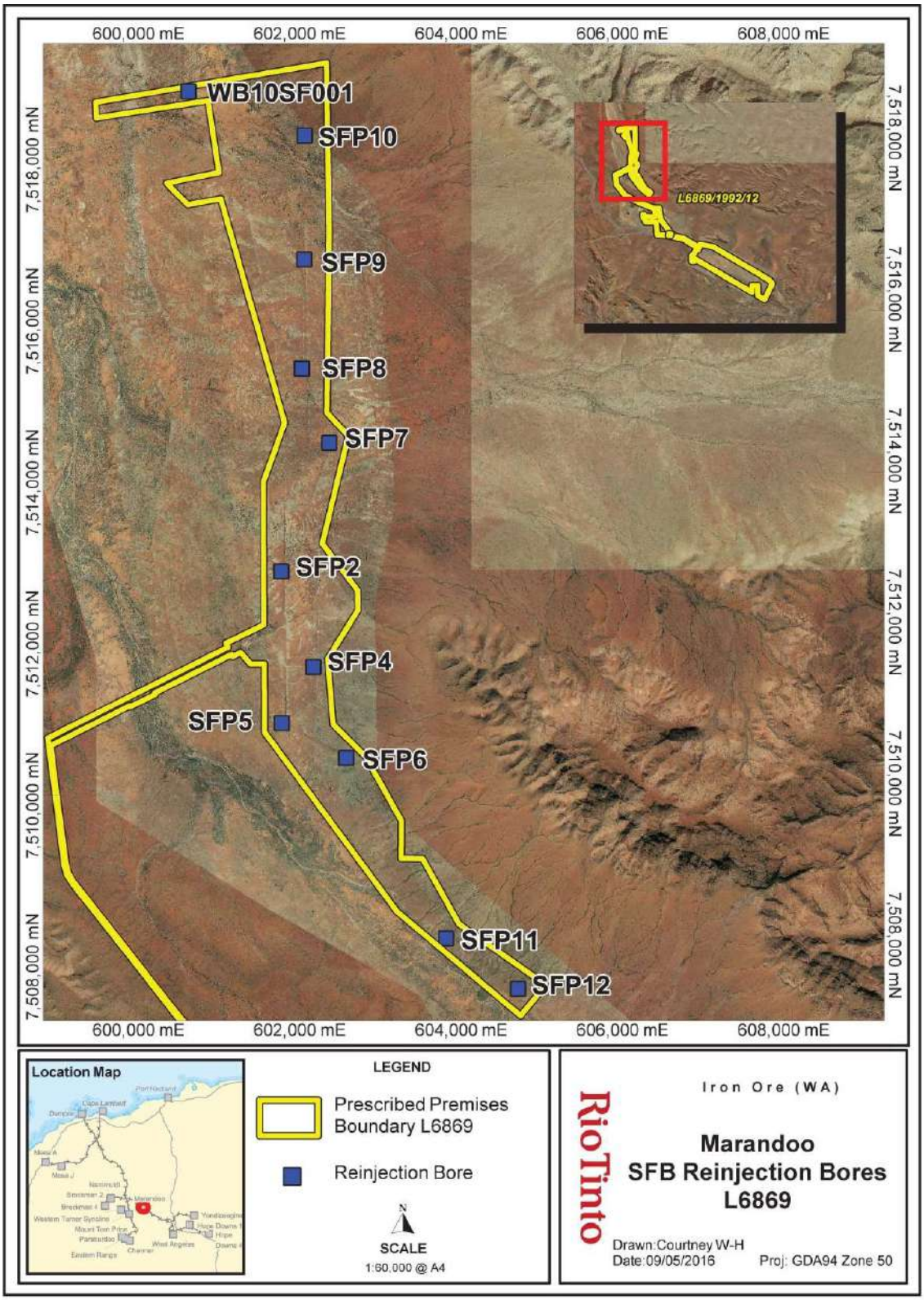
Attachment 3 – Landfill areas defined in conditions 13 and 18. WFSF groundwater monitoring locations defined in condition 25



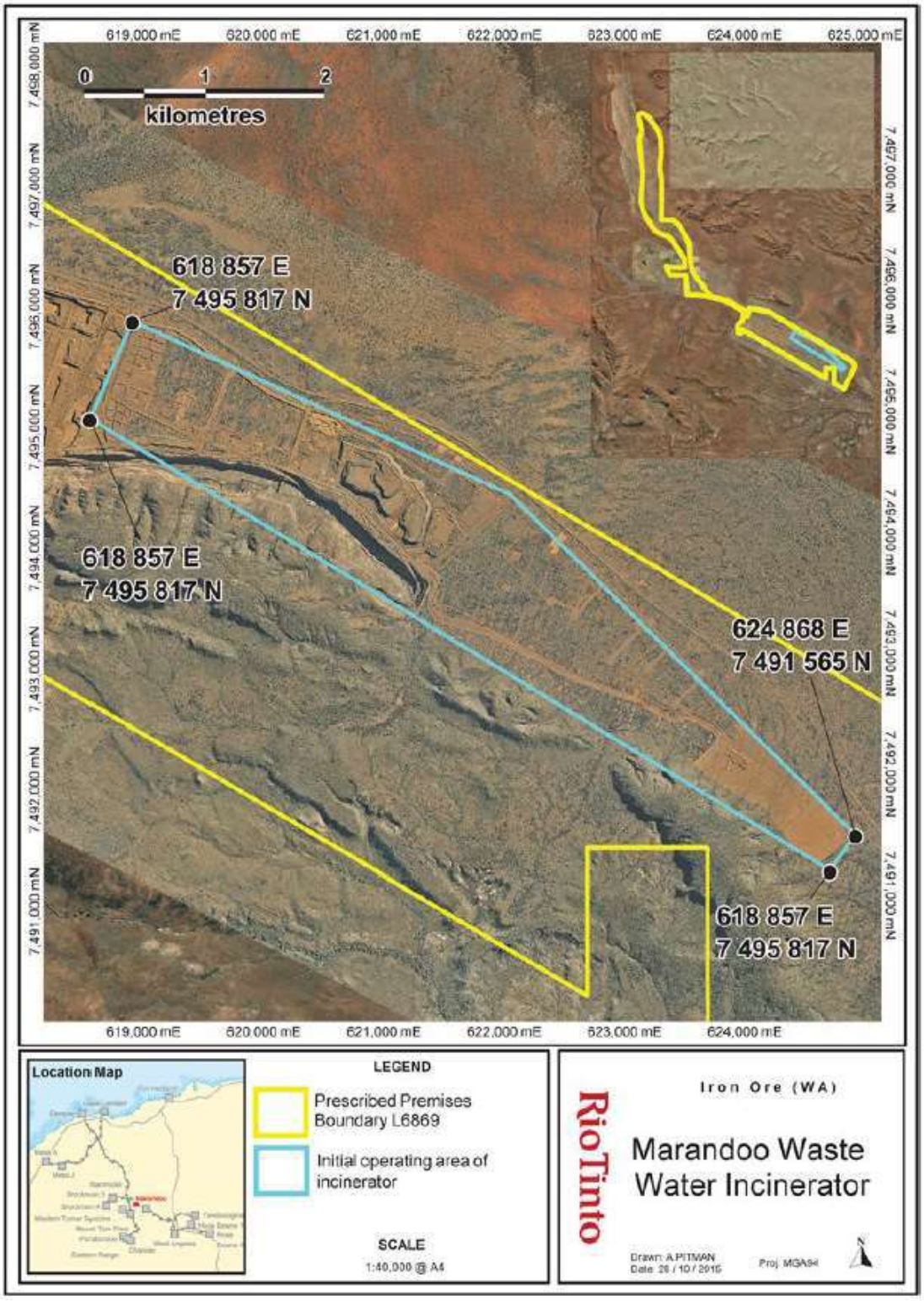
Attachment 4 – Wastewater treatment plant irrigation fields defined in condition 3



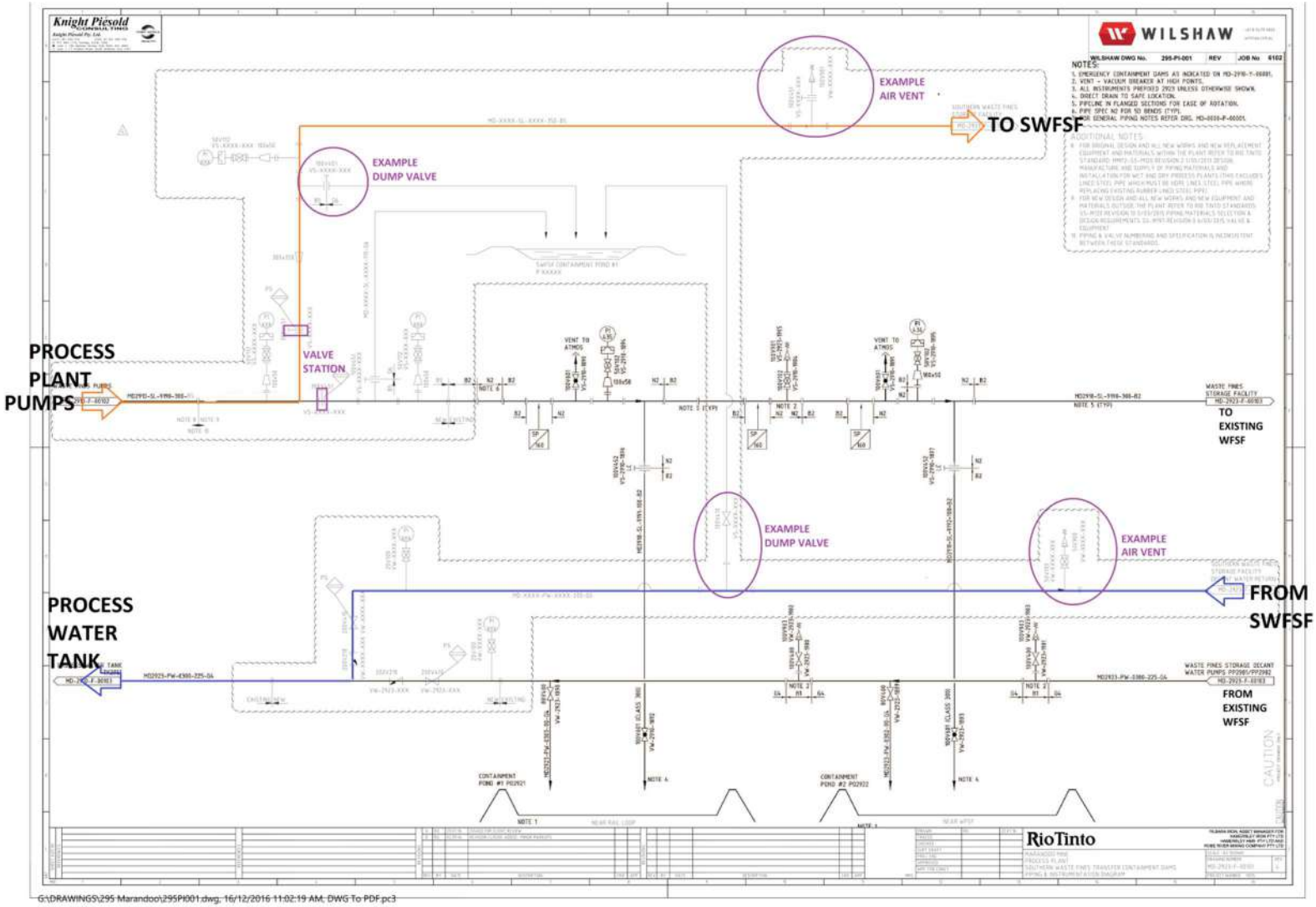
Attachment 5 – Marandoo SFB reinjection bores defined in condition 30



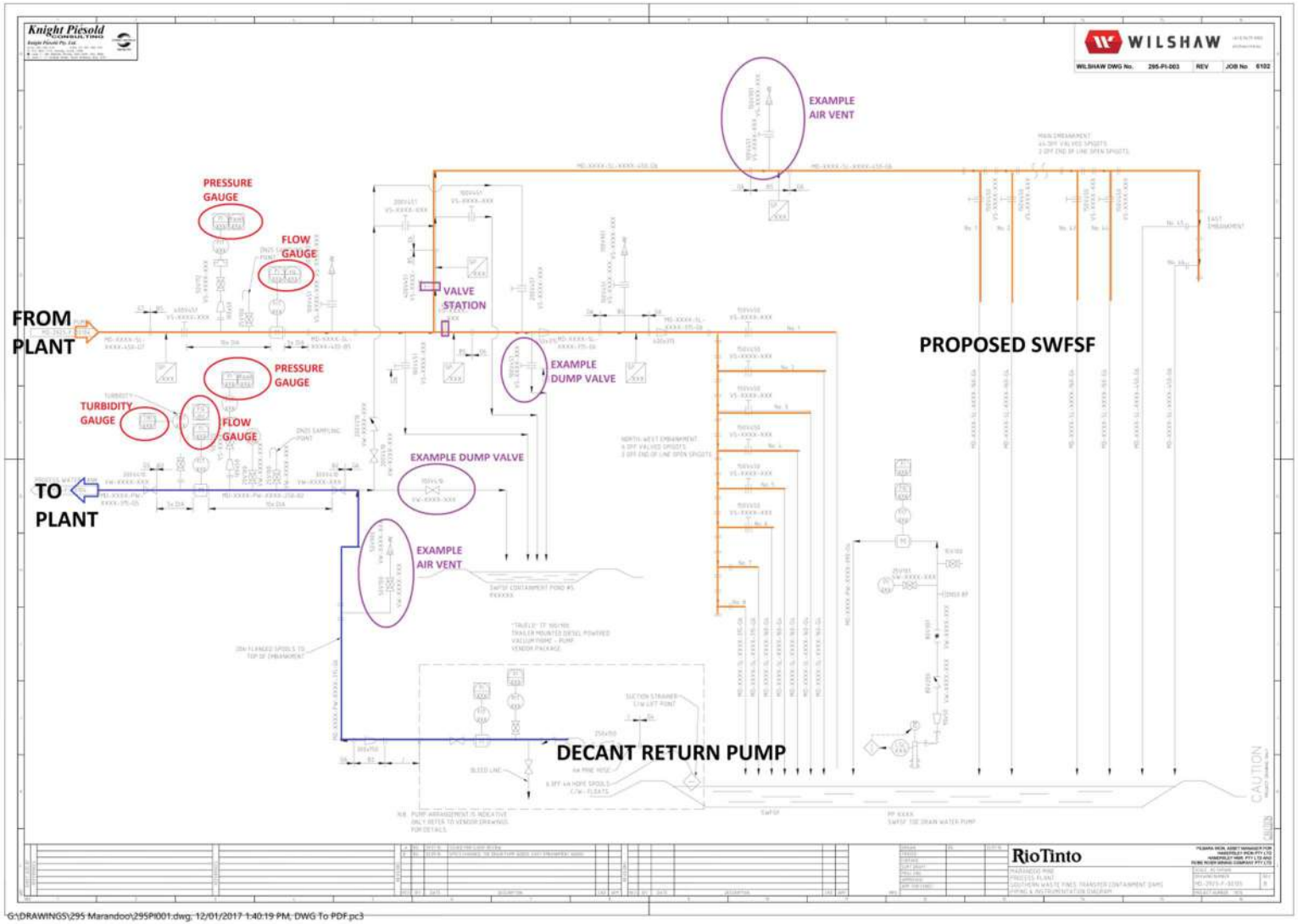
Attachment 6 – Operating area of wastewater incineration plant defined in condition 31



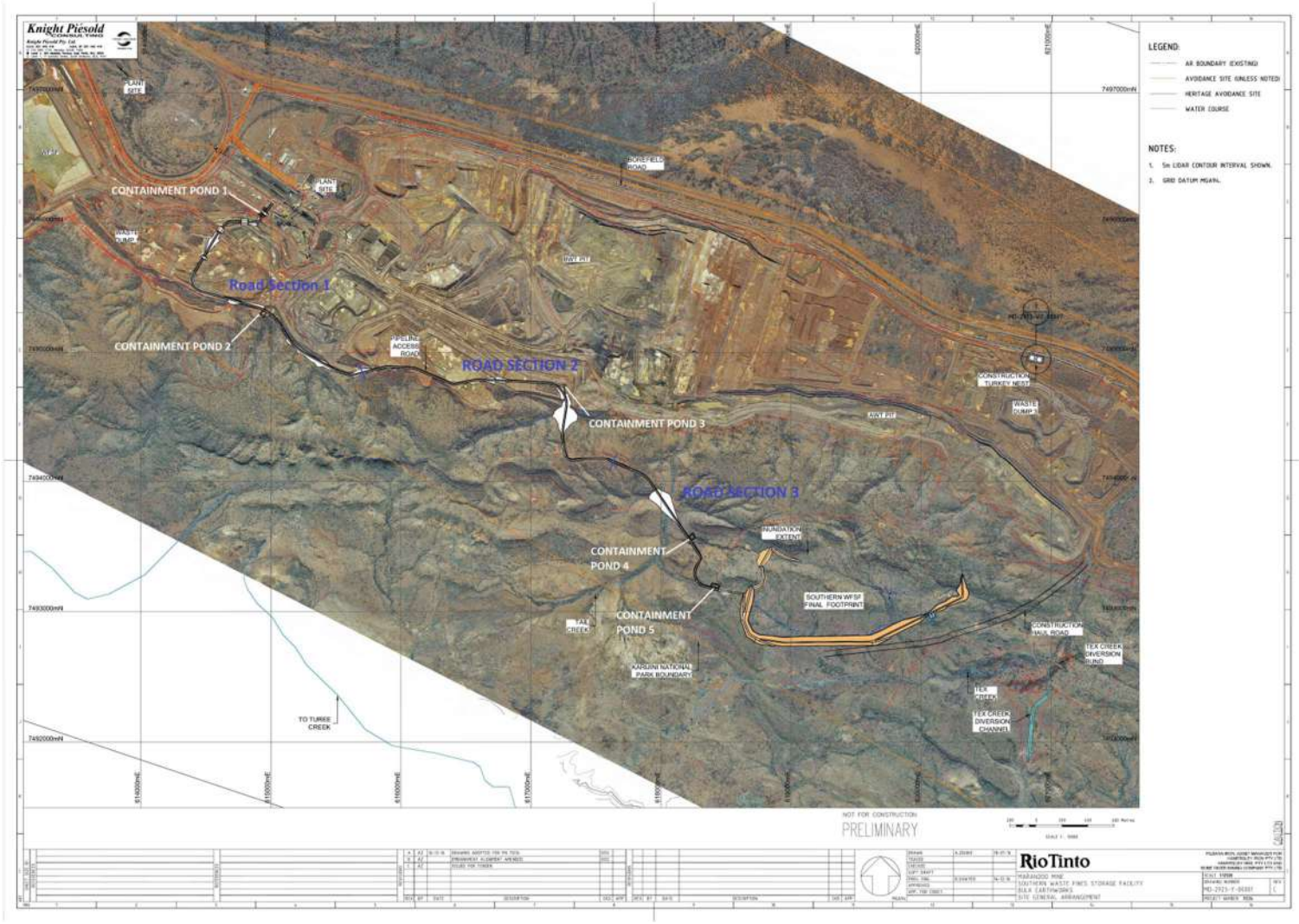
Attachment 7 – Tailings and decant return pipeline schematics at plant



Attachment 8 – Tailings and decant return pipeline schematics at SWFSF



Attachment 9 – Pipeline containment ponds



Attachment 10 – SWFSF groundwater monitoring locations