



Works approval number	W6495/2021/1
Works approval holder	Robe River Mining Co. Pty Limited
ACN	107 210 248
Registered business address	L 18, Central Park 152-158 St Georges Terrace Perth, WA, 6000
DWER file number	DER2020/000619
Duration	19/08/2021 to 19/08/2024
Date of amendment	29/08/2022
Premises details	Mesa J State Agreement Mineral Lease (ML) 248SA As defined by the coordinates in Schedule 2

Prescribed premises category description (Schedule 1, <i>Environmental Protection Regulations 1987</i>)	Assessed production / design capacity
Category 5: Processing or beneficiation of metallic or non-metallic ore	13 000 000 tonnes per year

This amended works approval is granted to the works approval holder, subject to the attached conditions, on 29 August 2022 by:

**A/MANAGER, RESOURCE INDUSTRIES
REGULATORY SERVICES**

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

Works approval history

Date	Reference number	Summary of changes
19 August 2021	W6495/2021/1	Works approval granted.
29 August 2022	W6495/2021/1	Amendment to: <ul style="list-style-type: none">increase the tailings deposition capacity of Tailings Storage Facility (TSF) 3 by 1.8 million tonnes (Mt), from 5.6 Mt to 7.4 Mt;install a new tower near Decant Ramp A; andthe progressive extension of existing spigots along the northern and western flanks, across the tailings beaches.

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 and/or equipment;
 - (b) in accordance with the corresponding design and construction / installation requirements; and
 - (c) at the corresponding infrastructure location; and
 - (d) within the corresponding timeframe,
 as set out in Table 1.

Table 1: Design and construction / installation requirements

	Infrastructure	Design and construction / installation requirements	Infrastructure location	Timeframe
1.	In pit tailings storage facility TSF 3 modifications	<ul style="list-style-type: none"> • Storage capacity: 7.4 million tonnes of tailings • Enlargement of Embankment 10 (height and length) along the north-western flank approximately 2.3 m above the existing pit bench elevation to 167.3 mRL • Installation of three 2 to 3 m high steel deposition towers on Embankment 9 • Deposition via one or more tailings discharge points located along the embankments at the locations shown in Figure 2 • Embankment 4 and 11 construction as specified in Figure 4 (if required) • Installation of an emergency spillway in Embankment 11 (if required) • Installation of a tower next to Decant Ramp A • Extension of the existing spigots along the northern and western flanks, across the tailings beaches 	Figures 2, 3, 4 and 5	Prior to the submittal of the Environmental Compliance Report required by condition 2
2.	In pit tailings storage facility TSF 5 modifications	<ul style="list-style-type: none"> • Storage capacity: 1 million tonnes of tailings • Construction of embankments to compartmentalise TSF 5 as specified in Figure 6 • Deposition of tailings from discharge points as shown in Figure 6 	Figures 6 and 7	Prior to the submittal of the Environmental Compliance Report required by condition 2

	Infrastructure	Design and construction / installation requirements	Infrastructure location	Timeframe
		<ul style="list-style-type: none"> Installation of 4 VWPs VWP-22U, VWP-22L, VWP-23U, VWP-23L As shown in Figure 6 		

Compliance reporting

2. The works approval holder must within 60 calendar days of an item of infrastructure or equipment 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 or builder 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 specified in condition 1;
 - (c) photographic evidence of the installation of the infrastructure;
 - (d) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person; and
 - (e) VWP data to indicate phreatic surface conditions at the premises prior to and immediately following construction of the item(s) of infrastructure.

Environmental commissioning phase

Environmental commissioning requirements and emission limits

4. The works approval holder may only commence environmental commissioning of an item of infrastructure identified in condition 4 once the Environmental Compliance Report has been submitted for that item of infrastructure in accordance with condition 2 of this works approval.
5. Any environmental commissioning activities undertaken for an item of infrastructure specified in Table 2 may only be carried out:
 - (a) in accordance with the corresponding commissioning requirements; and
 - (b) for the corresponding authorised commissioning duration.

Table 2: Environmental commissioning requirements

	Infrastructure	Commissioning requirements	Authorised commissioning duration
1	Pipeline Relocation to Embankment 10 and checking pipeline feeds to towers on Embankment 9 and Decant Ramp A (TSF 3)	Daily inspections of pipelines	Two weeks

Monitoring during environmental commissioning

6. The works approval holder must submit to the CEO an Environmental Commissioning Report within 60 calendar days of the completion date of environmental commissioning for each item of infrastructure specified in Table 2.
7. The works approval holder must ensure the Environmental Commissioning Report required by condition 6 of this works approval includes the following:
 - (a) a summary of the environmental commissioning activities undertaken, including timeframes and amount of tailings deposited;
 - (b) a summary of the environmental performance of each item of infrastructure or equipment as constructed or installed (as applicable), which at minimum includes records detailing the:
 - (i) commissioning of the infrastructure; and
 - (ii) testing of the infrastructure.
 - (c) a review of the works approval holder's performance against manufacturer design and specifications; and
 - (d) where they have not been met, measures proposed to meet the manufacturer's design specifications and the conditions of this works approval, together with timeframes for implementing the proposed measures.

Time limited operations phase

Commencement and duration

8. The works approval holder may only commence time limited operations for an item of infrastructure identified in condition 1:
 - (a) where the item of infrastructure is not authorised to undertake environmental commissioning, the Environmental Compliance Report as required by condition 2 has been submitted by the works approval holder for that item of infrastructure; and
 - (b) where the item of infrastructure is authorised to undertake environmental commissioning under condition 4, the Environmental Commissioning Report for that item of infrastructure as required by condition 6 has been submitted by the works approval holder.
9. The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 10:
 - (a) for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 8 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, if one is granted before the end of the period specified in condition 9(a).

Time limited operations requirements and emission limits

10. During time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 3 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirements set out in Table 3.

Table 3: Infrastructure and equipment requirements during time limited operations

	Site infrastructure and equipment	Operational requirements	Infrastructure location
1	Pipeline and towers	Daily inspections of pipelines.	Schedule 1: Maps, Premises map, Figure 2, Figure 5 and Figure 6
2	TSF 3 and TSF 5	<p>General:</p> <ul style="list-style-type: none"> Freeboard of 500mm maintained Tailings discharge of up to 4,000,000 tonnes per annum Tailings from Mesa H thickened to >40% w/w solids Decant pond to be maintained to the south of TSF 3 and TSF 5 Decant pond to be maintained at the minimum size <p>Daily inspection logs of the following:</p> <ul style="list-style-type: none"> Decant pumps Delivery pipeline Discharge locations Location of decant pond Freeboard General integrity of embankment Seepage downstream of main embankment including the embankment toe and seepage <p>Monthly records of:</p> <ul style="list-style-type: none"> Volume of tailings discharged Volume of decant recovered <p>Quarterly records of the following:</p> <ul style="list-style-type: none"> Location and size of decant pond Log of TSF 3 VWP-16U/L and VWP-21 Log of TSF 5 VWP-22 U/L and VWP-22 U/L 	Schedule 1: Maps, Premises map, Figure 2 and Figure 6

Monitoring during time limited operations

11. The works approval holder must monitor groundwater and decant water during time limited operations for concentrations of the identified parameters in accordance with Table 4.
12. The works approval holder must record the results of all monitoring activity required by condition 11 and report must compare against 95% level of species protection - ANZG 2018 criteria.

Table 4: Monitoring during time limited operations

Monitoring location	Parameter	Unit	Frequency	Averaging Period	Method	
					Sampling	Analysis
Tailings supernatant TSF3 and TSF5: JMB09 MB14MEJ001 MB14MEJ004 MB15MEJ004 MB16MEJ0008 MB19MEJ0001 MB19MEJ0002 MB21MEJ0001 ¹ MB21MEJ0002 ¹ MB21MEJ0003 ¹ (listed as TSFMB3a) MB21MEJ0004 ¹ MB21MEJ0005 ¹ (listed as TSFMB3b) MB21MEJ0006 ¹ (replacement of JMB01) MB22MEJ0007 ¹ (replacement of MB14MEJ0002) MB22MEJ0008 ¹ (replacement of JMB04) TSF4: MB16MEJ0003 MB16MEJ0006 MB17MEJ0005 as indicated in Figure 8:	Surface water level	mbgl	Monthly	Spot sample	AS/NZS 5667.1 AS/NZS 5667.11	N/A
	pH	pH units				In field
	Electrical Conductivity	µS/cm				
	Dissolved Oxygen	mg/L	Bimonthly	Spot sample	AS/NZS 5667.1 AS/NZS 5667.11	By a NATA accredited laboratory
	TDS	mg/L				
	Alkalinity CaCO ₃					
	Nitrate, Nitrite and Ammonia					
	Major Ions: Ca, Cl, F, K, Mg, Na and SO ₄ ,					
	Metals / metalloids: Al, As, Ba, B, Cd, Co, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Sb, Se, Si and Sn					
	Acrylamide					
Vibrating Wire Piezometer (VWP)	phreatic surface		mbgl	Monthly	Spot sample	AS/NZS 5667.1 AS/NZS 5667.11
TSF3:						
VWP-5						
VWP-6						
VWP-7						
VWP-8						
VWP-9						
VWP-10						

Monitoring location	Parameter	Unit	Frequency	Averaging Period	Method	
					Sampling	Analysis
VWP-11						
VWP-12						
VWP-13						
VWP-14						
VWP-15						
VWP-16 (U/L)						
VWP-17						
VWP-18						
VWP-19						
VWP-20						
VWP-21						
TSF5:						
VWP-22 (U/L)						
VWP-23 (U/L)						

Note 1: Newly installed (or replacement) groundwater monitoring bores

Specified actions

- 13.** The works approval holder must collect at least 10 individual representative tailings samples from Mesa H, including pore water, to determine the likely behaviour of elements under a range of leaching conditions, which may include, but not be limited to:
- testing using the LEAF Test Method 1313 pH-dependent leaching test (United States Environmental Protection Agency, 2017);
 - geotechnical characterisation of tailings including: particle size distribution, volume of solids, settling test (drained and undrained), air drying test and hydraulic conductivity of the same tailings tested in (a); and
 - testing for the contaminants listed in Table 5.

Samples must be collected, at least, 7 days apart. All test results shall be collated and provided in a report to the CEO no later than 60 days after the sample results become available.

Table 5: Tailings characterisation parameters

Stream	Contaminants	Unit
Tailings leachate and pore water	Metals / metalloids: Ag, Al, As, Ba, B, C (total), Cd, Co, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, S (total), Sb, Se, Si, Sn, Sr, Tl, U, V and Zn	mg/L
	Major Ions: Ca, Cl, K, Mg, Na, P and SO ₄	mg/L
	Nitrate, nitrite and ammonia	mg/L
	Alkalinity CaCO ₃	mg/L
	TDS - gravimetric	mg/L
	pH	pH units

14. The works approval holder must develop a transient mode seepage model for TSF 3 and TSF 5 calibrated with historical water level data to indicate how groundwater mounding near these facilities has evolved with successive tailings lifts.
15. Within 3 months of issue of the works approval, the works approval holder must submit to the CEO a nitrate management plan for Mesa J including:
 - (a) site specific trigger values to protect receptors;
 - (b) management actions including seepage recovery measures;
 - (c) treatment option(s), where required, to reduce nitrogen in abstracted water prior to discharge to Robe River; and
 - (d) timelines for implementation.

Compliance reporting

16. The works approval holder must submit to the CEO a report on the time limited operations within 30 calendar days of the completion date of time limited operations or 30 calendar days before the expiration date of the works approval, whichever is the sooner.
17. The works approval holder must ensure the report required by condition 16 includes the following:
 - (a) a summary of the time limited operations, including timeframes and volume of tailings deposited per month;
 - (b) the ambient groundwater monitoring results obtained during time limited operations under Table 4;
 - (c) a summary of the environmental performance of TSF 3 and TSF 5 as constructed or installed (as applicable), which includes records detailing the:
 - (i) volume of tailings deposited;
 - (ii) tailings density ;
 - (iii) tailings solid content;
 - (iv) TSF 3 and TSF 5 water balance where the rate of evaporation is not assumed to be the same as the pan evaporation rate; and
 - (v) monthly records of tailings level at TSF 3 and TSF 5 in mRL.
 - (vi) a review of performance and compliance against the conditions of the works approval and the Environmental Commissioning Report; and
 - (vii) where the manufacturer's design specifications and 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 (general)

18. 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.
- 19.** 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) any maintenance of infrastructure that is performed in the course of complying with condition 1;
 - (c) monitoring programmes undertaken in accordance with condition 11; and
 - (d) complaints received under condition 18.
- 20.** The books specified under condition 19 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
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 <i>Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples</i>
AS/NZS 5667.11	means the Australian Standard AS/NZS 5667.11 <i>Water Quality – Sampling – Guidance on sampling of groundwaters</i>
ANZG 2018	Australian and New Zealand guidelines for fresh and marine water quality https://www.waterquality.gov.au/guidelines/anz-fresh-marine
books	has the same meaning given to that term under the EP Act
British Geological Survey (2010)	British Geological Survey, 2010. Technical Note: Hyporheic Zone Sampling Procedures. BGS Groundwater Science Program, Open File Report OR/10/048. The report is available from web site http://nora.nerc.ac.uk/id/eprint/11707/1/OR10048.pdf .
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
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 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
Environmental Commissioning Report	means a report on any commissioning activities that have taken place and a demonstration that they have concluded, with focus on emissions and discharges, waste containment, and other environmental factors
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)
Freeboard	means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point

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 or builder	means a person who holds a tertiary academic qualification in engineering or their area of expertise and has a minimum of 3 years of experience in their area of expertise
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
VWPs	means vibrating wire piezometers
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

The boundary of the prescribed premises is shown in the map below (Figure 1).

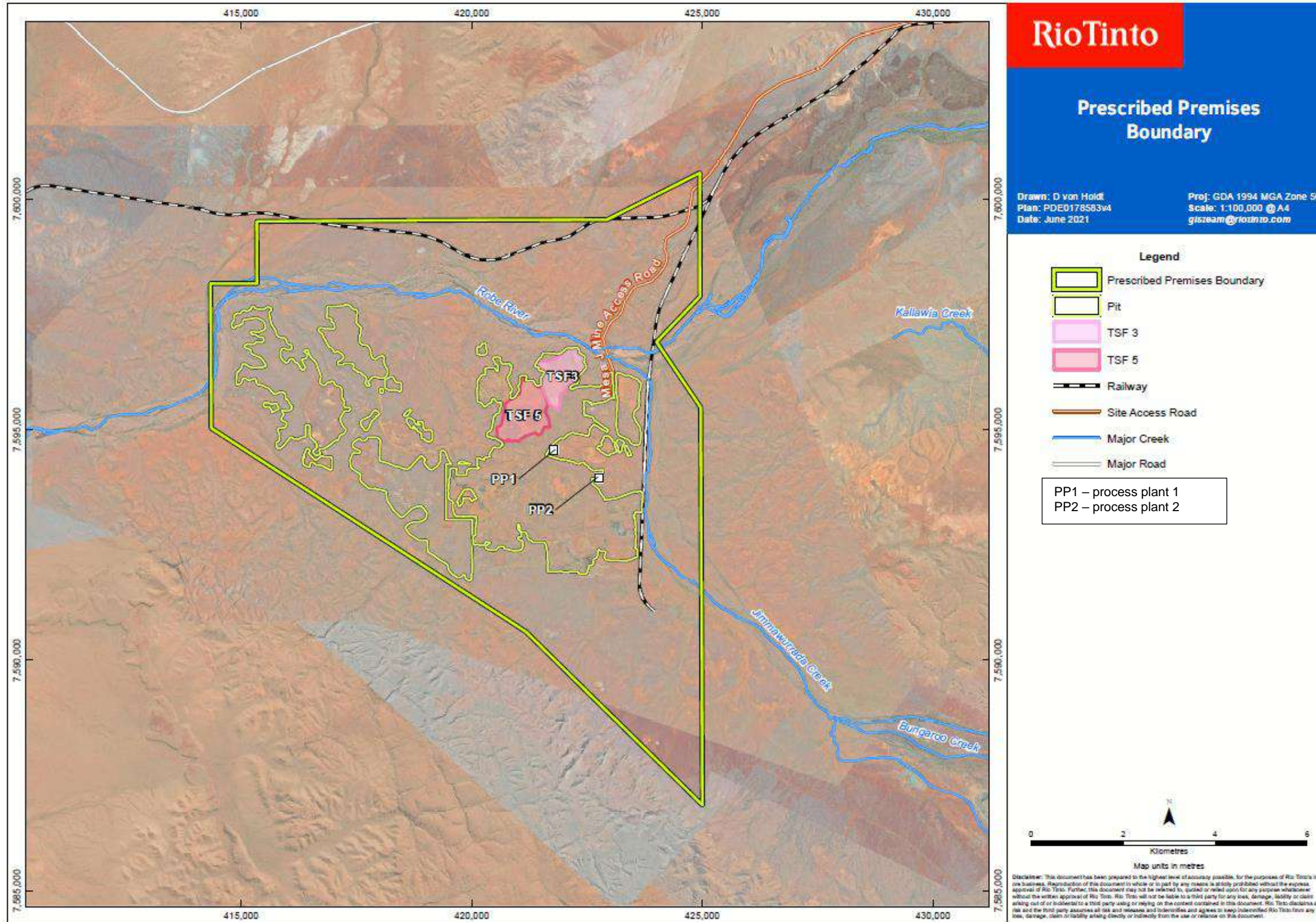


Figure 1: Map of the boundary of the prescribed premises

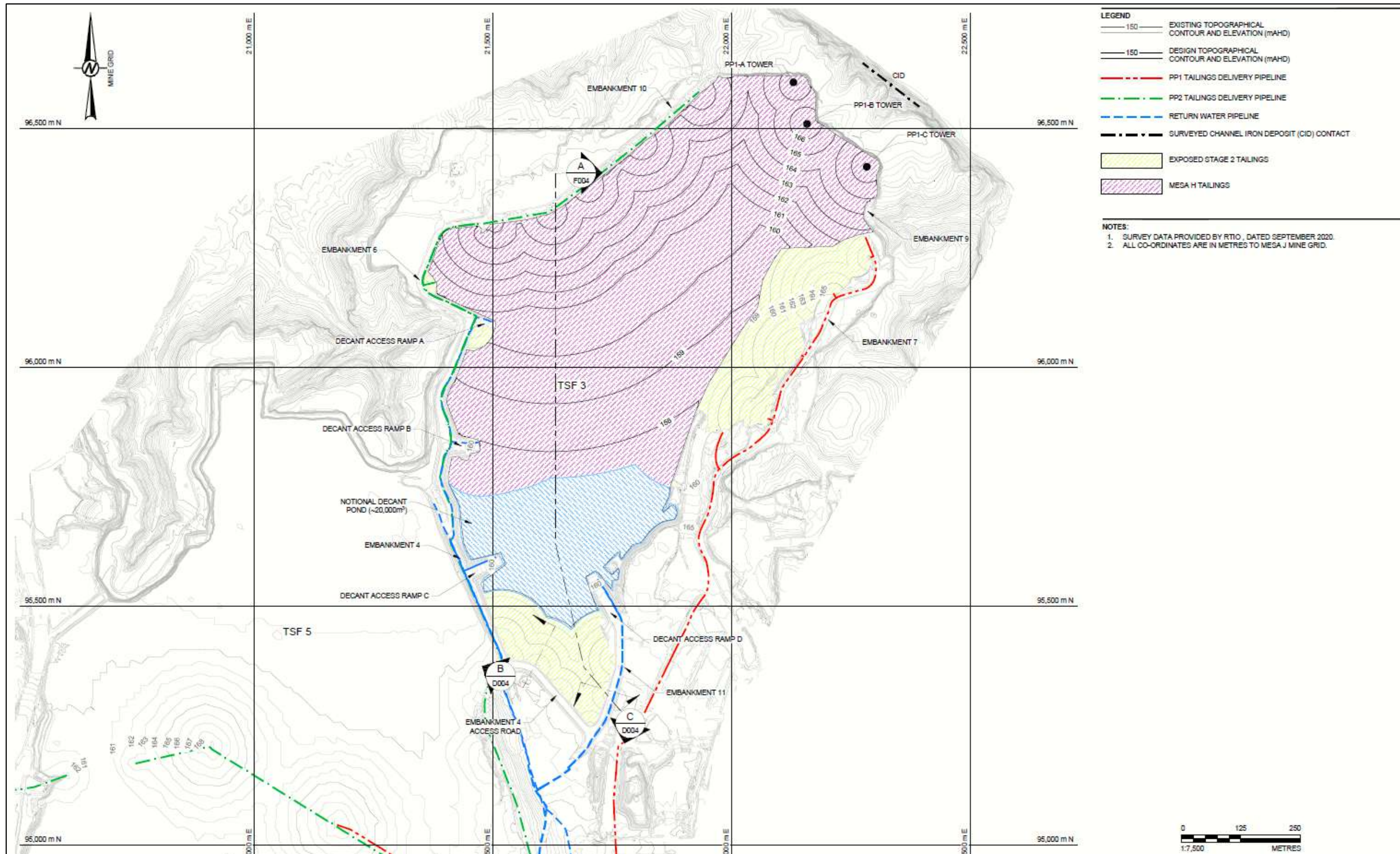


Figure 2: TSF 3 general arrangement during Mesa H tailings deposition.

TSF3 Embankment 10
Design Details

Drawn: D von Holdt
Plan: PDE0178583v4
Date: June 2021

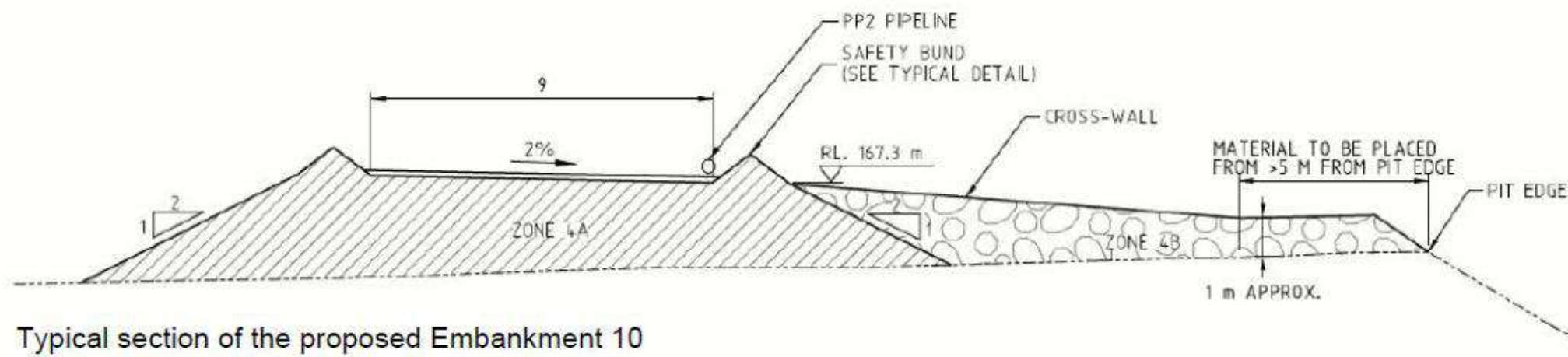
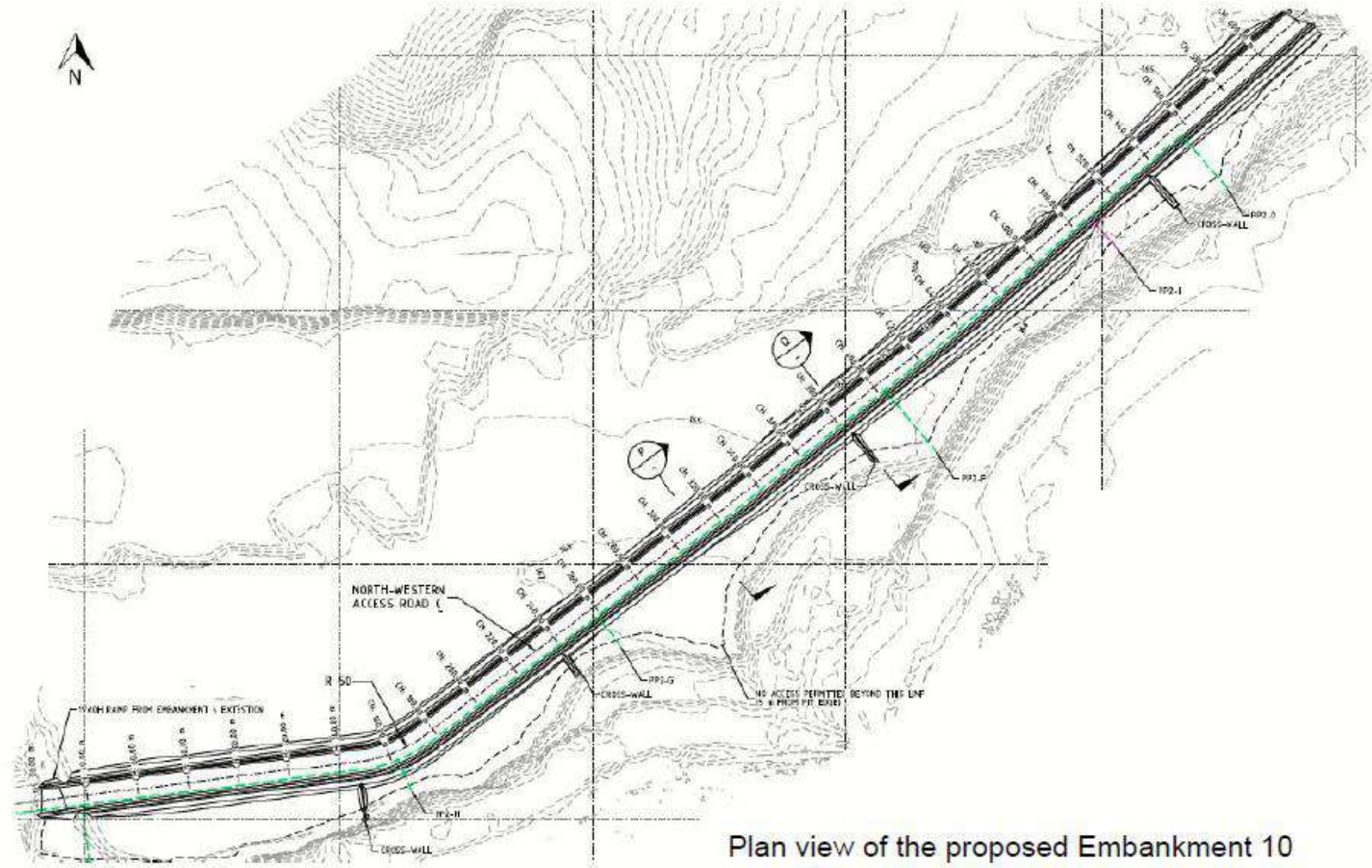


Figure 3: TSF 3 Embankment 10

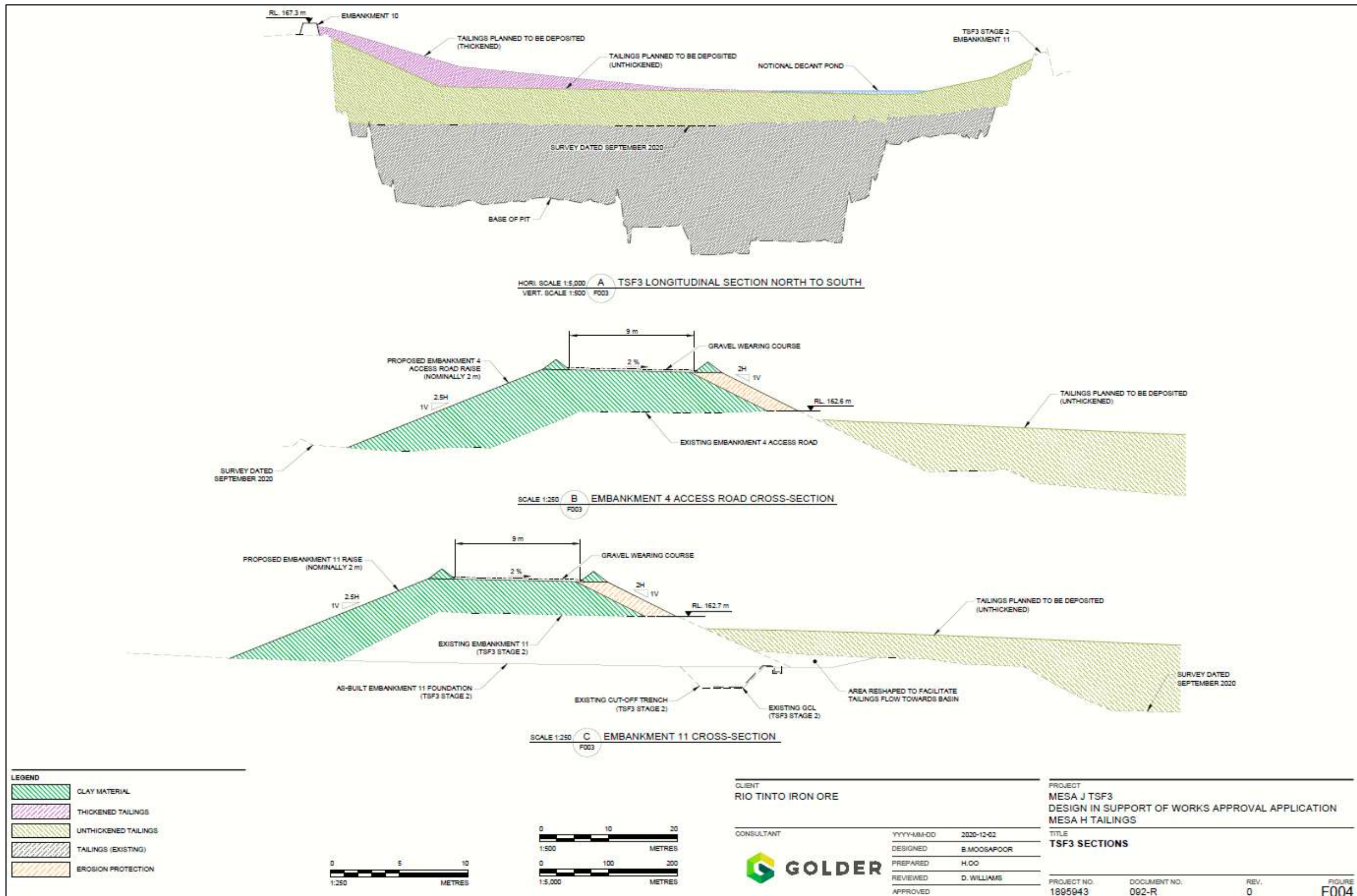


Figure 4: TSF 3 Embankments 4 and 11 design details.

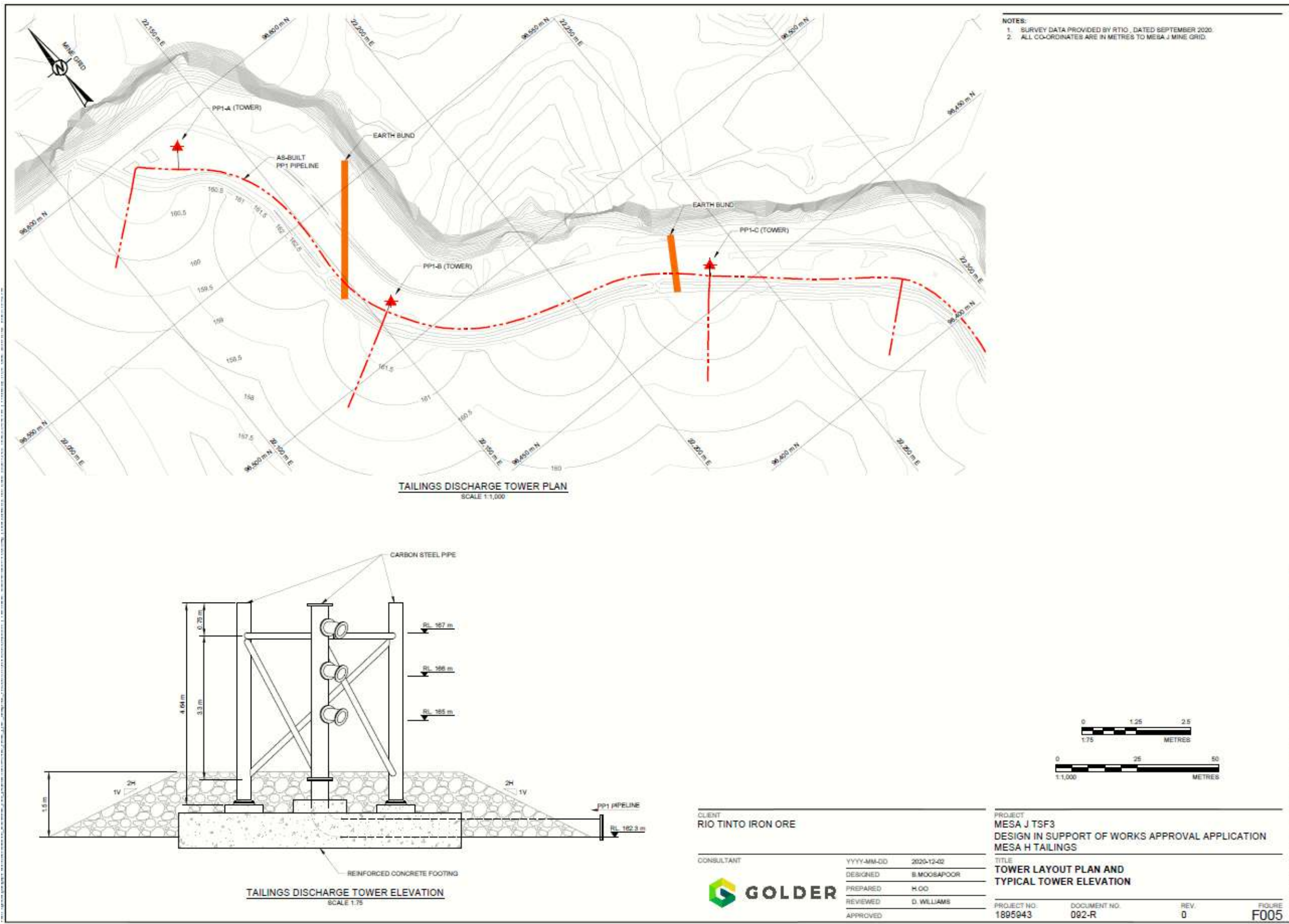


Figure 5: TSF 3 tailings discharge tower location and layout.

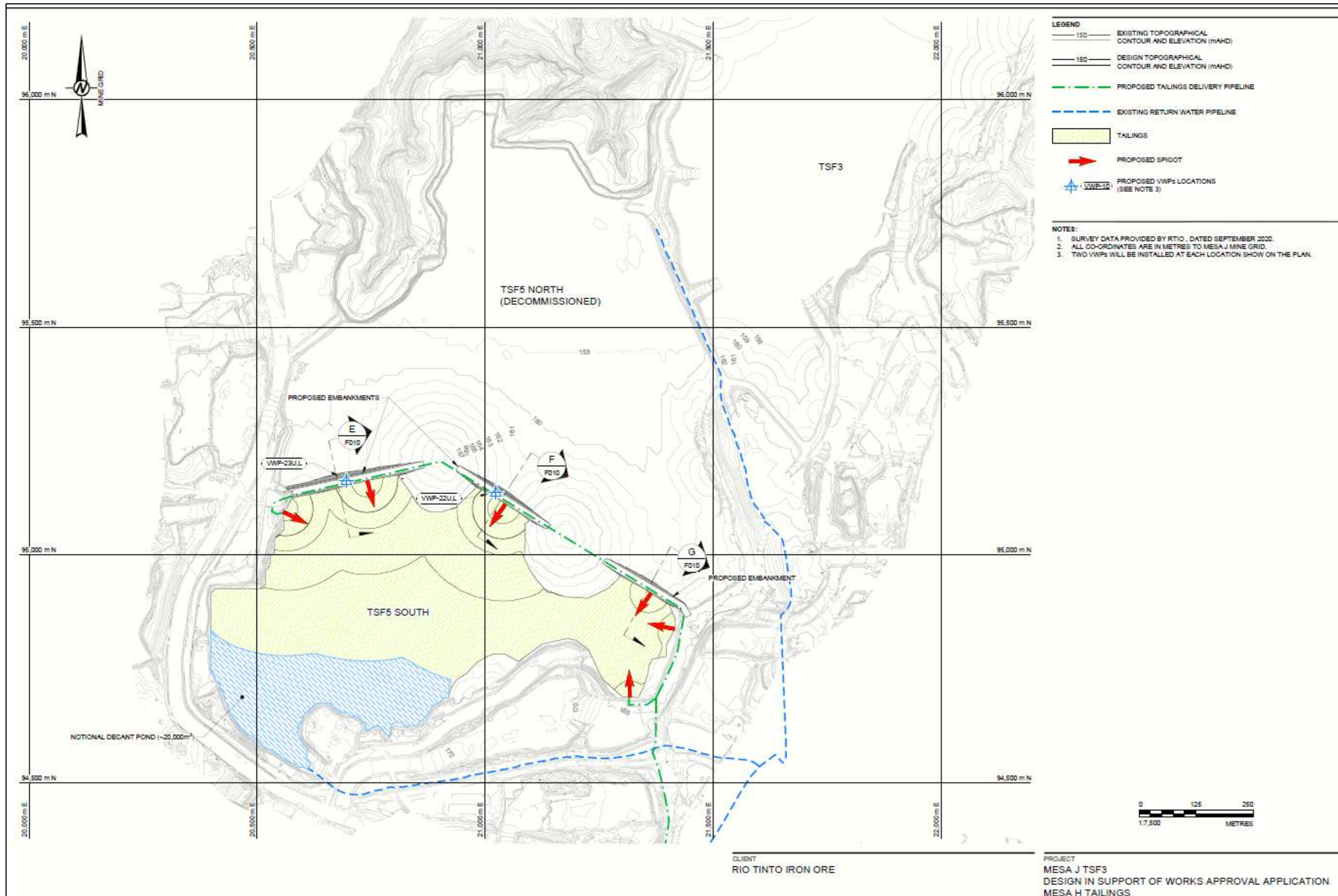


Figure 6: TSF 5 general arrangement during tailings deposition.

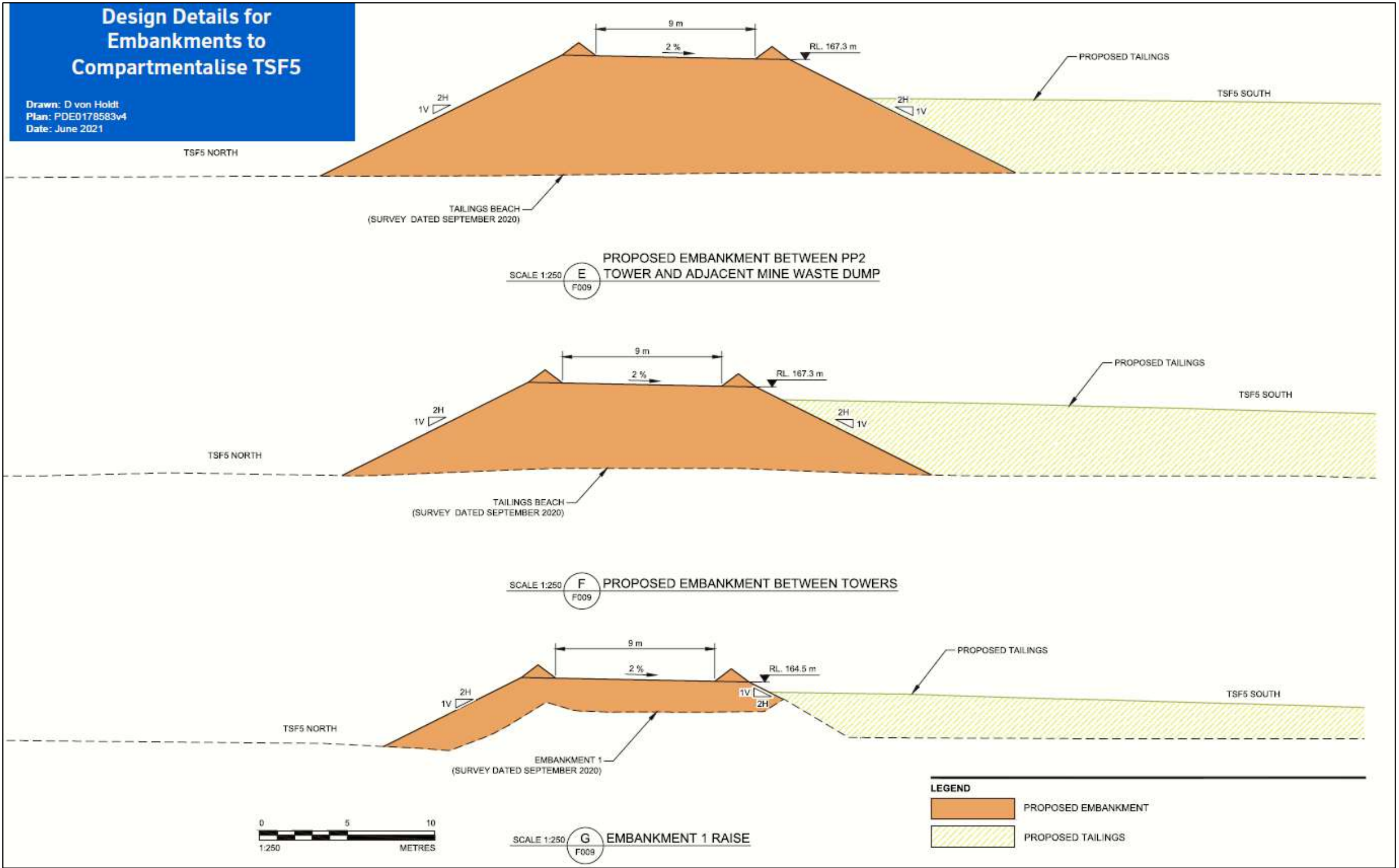


Figure 7: TSF 5 proposed embankment sections.

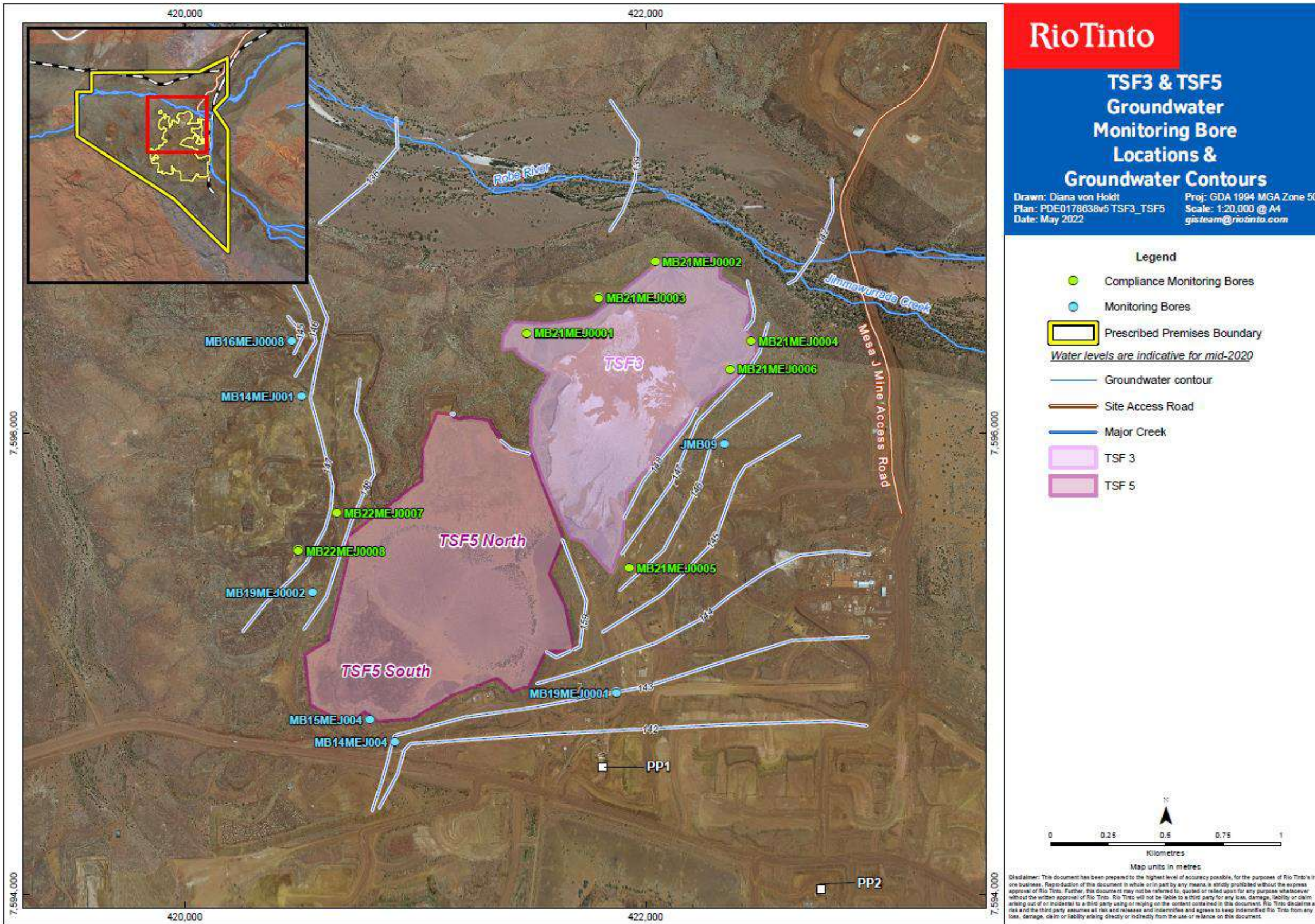


Figure 8: Monitoring bore locations.

Schedule 2: Premises boundary

The premises boundary is defined by the coordinates in Table 7.

Table 7: Premises boundary coordinates – GDA 1994 Zone 50.

Easting	Northing
415,333.80	7,599,518.91
419,132.63	7,599,538.54
422,931.63	7,599,556.92
424,939.56	7,600,568.66
424,951.07	7,597,889.54
424,001.63	7,596,897.91
424,961.30	7,595,487.03
425,002.46	7,586,861.56
421,173.46	7,590,615.82
414,344.17	7,595,032.98
414,327.57	7,598,172.23
415,340.93	7,598,169.27