Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6816/2023/1
Works approval holder	Mt Weld Mining Pty Limited
ACN	053 160 400
Registered business address	Level 4 1 Howard St PERTH WA 6000
DWER file number	DER2023/000295
Duration	22/02/2024 to 21/02/2029
Date of issue	22/02/2024
Date of amendment	28 August 2024
Premises details	Mt Weld Rare Earths Project Elora Road LAVERTON WA 6440 Legal description - Mining leases M38/58, M38/59, M38/326, M38/327, G38/34 and G38/35 As defined by the map in Schedule 1

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed design capacity**
Category 5: Processing or beneficiation of metallic or non-metallic ore	**Tailings deposition:** 1.15 million tonnes per annual period **By-Products storage:** 132,000 tonnes (dry) per annual period of Iron Phosphate 330,000 tonnes (dry) per annual period of Gypsum

This amended works approval is granted to the works approval holder, subject to the attached conditions, on 28 August 2024 by:

Michael Greenslade

Digitally signed by Michael Greenslade
Date: 2024.08.28 09:26:51 +08'00'

MANAGER, PROCESS INDUSTRIES

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

Works approval history

Date	Reference number	Summary of changes
22/02/2024	W6816/2023/1	Works approval granted.
28/08/2024	W6816/2023/1	Amendment to increase the TSF footprint from 170ha to 280ha. Construction, commissioning and time limited operations for TSF4 Cells 1 – 8, Phase 1.

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 the infrastructure and/or equipment;

(b) in accordance with the corresponding design and construction requirements; and

(c) at the corresponding infrastructure location,

as set out in Table 1.

Table 1: Design and construction / installation requirements

<table>
<tr><th></th><th>Infrastructure /Equipment</th><th>Design and construction requirements</th><th>Infrastructure location</th></tr>
<tr><td>1.</td><td>By-Products unloading and transport</td><td>(a) Overland conveyors must be covered (roof only);
(b) By-Products loading hopper must be hooded;
(c) The transfer points to the lateral stacker to be enclosed;
(d) All fixed transfer points to be fitted with dust sprays for suppressing dust emissions; and
(e) The area used for unloading and stockpiling By-Products must comprise of a concrete apron with a perimeter lip and that is graded to a sump fitted with a level sensor.</td><td>Figure 1: Map of the boundary of the prescribed premises
Figure 2: Plan of By-Products unloading area showing location of dust suppression equipment.</td></tr>
<tr><td>2.</td><td>Groundwater monitoring wells</td><td>The following groundwater wells must be installed per the location in Figure 17 and to the corresponding depth specified below:
<table>
<tr><th>Bore ID</th><th>Nominal Depth (mbgl)</th><th>Bore ID</th><th>Nominal Depth (mbgl)</th></tr>
<tr><td>LWM17</td><td>20</td><td>LWM22</td><td>20</td></tr>
<tr><td>LWM18</td><td>20</td><td>LWM23</td><td>20</td></tr>
<tr><td>LWM19s</td><td>20</td><td>LWM24</td><td>20</td></tr>
<tr><td>LWM19d</td><td>80</td><td>LWM25</td><td>20</td></tr>
<tr><td>LWM20</td><td>20</td><td>LWM26</td><td>20</td></tr>
<tr><td>LWM21</td><td>20</td><td></td><td></td></tr>
</table></td><td>Figure 17: Groundwater monitoring locations</td></tr>
</table>

Compliance reporting

2. The works approval holder must within 30 calendar days of the 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 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 specified in condition 1; and

(c) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

Groundwater monitoring wells

4. The works approval holder must design, construct, and install groundwater monitoring wells in accordance with the requirements specified in Table 2.

Table 2: Infrastructure requirements – groundwater monitoring wells

Infrastructure	**Design, construction, and installation requirements**	Monitoring well location(s)	**Timeframe**
Groundwater monitoring wells	Well design and construction: Designed and constructed in accordance with ASTM D5092/D5092M-16. Wells must be constructed with a screened interval from the water table to a depth of 2 metres below the water table and 1 metre above the water table.	As depicted in Schedule 1, Figure 17 and labelled as LMW17 to LMW26.	Must be constructed, developed (purged), and determined to be operational by no later than 12 months prior to commencement of environmental commissioning under condition 10 and 11.
	Logging of borehole: Soil samples must be collected and logged during the installation of the monitoring wells. A record of the geology encountered during drilling must be described and classified in accordance with the Australian Standard Geotechnical Site Investigations AS1726. Any observations of staining / odours or other indications of contamination must be included in the bore log.		
	Well construction log: Well construction details must be documented within a well construction log to demonstrate compliance with ASTM D5092/D5092M-16. The construction logs shall include elevations of the top of casing position to be used as the reference point for water-level measurements, and the elevations of the ground surface protective installations.		
	Well development: All installed monitoring wells must be developed after drilling to remove fine sand, silt, clay and any drilling mud residues from around the well screen to ensure the hydraulic functioning of the well. A detailed record should be kept of well development activities and included in the well construction log.		
	Installation survey: the vertical (top of casing) and horizontal position of each monitoring well must be surveyed and subsequently mapped by a suitably qualified surveyor.		
	Well network map: a well location map (using aerial image overlay) must be prepared and include the location of all monitoring wells in the monitoring network and their respective identification numbers.		

5. The works approval holder must, within 30 calendar days of the monitoring wells being constructed, submit to the CEO a well construction report evidencing compliance with the requirements of condition 4.

Critical containment infrastructure

6. The works approval holder must:

(a) construct the critical containment infrastructure;

(b) in accordance with the corresponding design and construction; and

(c) at the corresponding infrastructure location

set out in Table 3.

Table 3: Critical containment infrastructure design and construction requirements

<table>
<tr><th>Critical Containment Infrastructure</th><th>Design and construction requirements</th><th>Infrastructure location</th></tr>
<tr><td>Tailings Storage Facility 4 (TSF4)

(Phase 1 only)</td><td>TSF4 must be constructed as follows and in accordance with the plans in Schedule 1:

(a) The construction footprint of TSF4 must be within the overall premises authorised disturbance area for tailings storage facilities of 280 ha TSF area;

(b) Each cell must be constructed with the minimum storage capacity specified below (excluding freeboard) and to the specified maximum crest elevation;

<table>
<tr><th>Cell</th><th>Capacity</th><th>Crest elevation</th></tr>
<tr><td>Cell 1A</td><td>472,697 m^3</td><td>423.2 mRL</td></tr>
<tr><td>Cell 1B</td><td>440,840 m^3</td><td>423.2 mRL</td></tr>
<tr><td>Cell 2A</td><td>399,757 m^3</td><td>423.2 mRL</td></tr>
<tr><td>Cell 2B</td><td>333,264 m^3</td><td>423.2 mRL</td></tr>
<tr><td>Cell 3</td><td>868,444 m^3</td><td>422.4 mRL</td></tr>
<tr><td>Cell 4</td><td>651,850 m^3</td><td>422.2 mRL</td></tr>
<tr><td>Cell 5</td><td>946,074 m^3</td><td>422.1 mRL</td></tr>
<tr><td>Cell 6</td><td>738,230 m^3</td><td>422.1 mRL</td></tr>
<tr><td>Cell 7</td><td>897,990 m^3</td><td>421.5 mRL</td></tr>
<tr><td>Cell 8</td><td>687,980 m^3</td><td>421.5 mRL</td></tr>
</table>
(c) The TSF shall be constructed per the following stages:

i. Stage 1: Cell 2B including the perimeter and internal embankments associated with Cell 2B, and the perimeter embankments associated with Cell 2A and Cell 4 as shown in Figure 4 of Schedule 1.

ii. Stage 2: Cell 2A including the internal embankments associated with Cell 2A and the perimeter embankment associated with Cell 1B as shown in Figure 5 of Schedule 1.

iii. Stage 3: Cell 1B including the internal embankments associated with Cell 1B and the perimeter embankment associated with Cell 1A, Cell 3 and Cell 4 as shown in Figure 6 of Schedule 1.

iv. Stage 4: Cell 1A including the internal embankment associated with Cell 1A and the perimeter embankment</td><td>Figure 1: Map of the boundary of the prescribed premises

Figure 3: General arrangement of TSF4 (Phase 1)

Figure 4: Plan showing Stage 1 of the TSF construction – Cell 2B construction

Figure 5: Plan showing Stage 2 of the TSF construction – Cell 2A construction

Figure 6: Plan showing Stage 3 of the TSF construction – Cell 1B construction

Figure 7: Plan showing Stage 4 of the TSF construction – Cell 1A construction

Figure 8: Plan showing Stage 5 of the TSF construction – Cell 4 construction

Figure 9: Plan showing Stage 6 of the TSF construction – Cell 3 construction

Figure 10: Plan showing Stage 7 of TSF construction – Cell 6

Figure 11: Plan showing Stage 8 of TSF construction – Cell 5

Figure 12: Plan</td></tr>
</table>

Critical Containment Infrastructure	Design and construction requirements	Infrastructure location
	associated with Cell 3 and Cell 4 as shown in Figure 7 of Schedule 1. v. Stage 5: Cell 4 including the internal embankments associated with Cell 4 and the perimeter embankment associated with Cells 3, 5, Cell 6 and Cell 7 as shown in Figure 8 of Schedule 1. vi. Stage 6: Cell 3 including the internal embankment associated with Cell 3 and the perimeter embankment associated with Cells 5, Cell 6 and Cell 7 as shown in Figure 9 of Schedule 1. vii. Stage 7: Cell 6 including the internal embankments associated with Cell 6 and the perimeter embankment associated with Cell 5, Cell 7 and Cell 8 as shown in Figure of Schedule 1. viii. Stage 8: Cell 5 including the internal embankment associated with Cell 5 and the perimeter embankment associated with Cell 7 and Cell 8 as shown in Figure 11 of Schedule 1. ix. Stage 9: Cell 8 including the perimeter embankment associated with Cell 8 as shown in Figure 12 of Schedule 1. x. Stage 10: Cell 7 including the perimeter embankment associated with Cell 7 as shown in Figure 13 of Schedule 1. (d) Constructed to contain stormwater from a 1 in 1,000-year AEP, 72-hour storm event plus a minimum operating freeboard of 300 mm; (e) Upstream perimeter embankments and internal embankments shall be constructed with slopes of 1(V):2(H); (f) Downstream perimeter embankments shall be constructed with slopes of 1(V):3(H); (g) Embankments crests must be a minimum of 6.2 m wide; (h) The maximum embankment height shall be 10.2 m (Phase 1); (i) Perimeter embankments must include: i. a 3 m upstream zone constructed using Zone 1 material comprising of clayey mine waste compacted to achieve an average compaction of 95% SMDD at a moisture content of ±2% OMC as determined by AS 1289.5.1.1 (or equivalent) and a hydraulic conductivity of 5 x 10^{-9} m/s or less; ii. a 3.2 m downstream zone constructed using Zone 4 material comprising of alluvium material compacted to achieve a minimum compaction of 92% SMDD at a moisture content of ±3% OMC as determined by AS 1289.5.1.1 (or equivalent); (j) TSF embankment foundations shall comprise colluvium soils ripped, moisture conditioned and re-compacted to achieve a minimum compaction of 95% SMDD; (k) The perimeter embankments shall be connected to the hardpan layer beneath the base of the TSF via a cut-off trench; (l) Stormwater diversion drains shall be constructed along the northern and easter sides of the TSF to divert stormwater away from the facility; (m) A rock armour (rip rap) shall be installed along the perimeter embankment walls to prevent erosion from surface water flows during high rainfall events;	showing Stage 9 of TSF construction – Cell 8 Figure 13: Plan showing Stage10 of TSF construction – Cell 7 Figure 14: TSF4 embankment design Figure 15: TSF4 embankment design showing erosion protection. Figure 16: Location of survey points and piezometers. Figure 18: Vibrating wire piezometer design drawing Figure 19: Spigot design

<table>
<tr><th>Critical Containment Infrastructure</th><th>Design and construction requirements</th><th>Infrastructure location</th></tr>
<tr><td></td><td>(n) A floating decant system shall be installed with a minimum capacity of at least 265 m^3/hour;
(o) The TSF shall include a water recovery system designed to capture and pump water directly from the TSF to the Return Water Pond; and
(p) Vibrating wire piezometers shall be installed:
i. at locations specified in Schedule 1: Figure 16; and
ii. in accordance with the design specifications of Schedule 1: Figure 18</td><td></td></tr>
<tr><td>Evaporation Pond (Stages 1 and 2)</td><td>(a) The Evaporation Pond must be constructed in two stages as follows (order of staged construction is not specified):
i. Stage 1: Eastern Evaporation Pond Cells 1 - 5; and
ii. Stage 2: Western Evaporation Pond Cells 6 – 10; and
(b) Stormwater, freeboard and seepage controls constructed per the requirements of this table.

Cells must be constructed as follows and in accordance with the plans in Schedule 1:
(c) Constructed to contain stormwater from a 1 in 100-year AEP, 72-hour storm event plus a minimum freeboard of 500 mm;
(d) Cells must be constructed with the following maximum capacity:
<table><tr><th>Cell</th><th>Capacity (m^3)</th><th>Cell</th><th>Capacity (m^3)</th></tr><tr><td>Cell 1</td><td>12,513</td><td>Cell 6</td><td>17,581</td></tr><tr><td>Cell 2</td><td>24,418</td><td>Cell 7</td><td>21,598</td></tr><tr><td>Cell 3</td><td>26,622</td><td>Cell 8</td><td>27,321</td></tr><tr><td>Cell 4</td><td>34,327</td><td>Cell 9</td><td>25,458</td></tr><tr><td>Cell 5</td><td>14,051</td><td>Cell 10</td><td>15,541</td></tr></table>(e) Embankments must be constructed with an upstream and downstream embankment slopes of 1(V):2(H);
(f) Embankments crests must be a minimum of 5.5 m width;
(g) Cell foundations must be constructed with a minimum 400 mm base comprising of in-situ soils compacted to achieve a hydraulic conductivity of 1.65 x 10^{-8} m/s or less;
(h) Constructed so that decommissioned groundwater monitoring bores LWM04 and LWM05 are decommissioned in accordance with the Minimum Construction Requirements for water Bores in Australia.</td><td>Figure 1: Map of the boundary of the prescribed premises
Figure 20: Plan of Evaporation Pond design (Phase 1).
Figure 21: Plan of Evaporation Pond design (Stage 2).
Figure 22: Plan showing design of the internal and perimeter embankments of the Evaporation Ponds.</td></tr>
<tr><td>By-Products Landform</td><td>(a) The base of the By-Product Landform shall have a hydraulic conductivity of 1 x 10^{-9} m/s or less;
(b) The By-Products Landform shall be constructed with toe drains on the southern and western sides to direct stormwater runoff to a stormwater run-off pond; and
(c) The stormwater run-off pond shall have a storage capacity of 127,500 m^3.</td><td>Figure 1: Map of the boundary of the prescribed premises</td></tr>
<tr><td>Pipelines</td><td>(a) All pipelines containing tailings or process water, including tailings</td><td>Figure 23: Plan showing the location of</td></tr>
</table>

Critical Containment Infrastructure	Design and construction requirements	Infrastructure location
	decant water, shall be: i. equipped with telemetry and pressure sensors to allow detection of leaks and failure; and/or ii. provided with secondary containment sufficient to contain any spills for a period equal to the time between routine inspections.	pipelines associated with discharge to and from the tailings facility and Evaporation Ponds.

7. The works approval holder must within 60 calendar days of each stage of the Critical Containment Infrastructure identified by condition 6 being constructed:

(a) undertake an audit of their compliance with the requirements of condition 6; and

(b) prepare and submit to the CEO a Critical Containment Infrastructure Report on that compliance.

8. The Critical Containment Infrastructure Report required by condition 7 must include as a minimum the following:

(a) a Quality Control / Quality Assurance Certificate from an independent experienced geotechnical specialist which demonstrates that each item of critical containment infrastructure or component thereof, as specified in condition 6, has been built and installed in accordance with the requirements specified in conditions 6;

(b) as constructed plans and a detailed site plan showing the location and dimensions for each item of critical containment infrastructure or component thereof, as specified in condition 6;

(c) photographic evidence of the installation of the infrastructure;

(d) records of any quality assurance/control testing undertaken to demonstrate the requirements of conditions 6, including the basis of any method specification adopted;

(e) details of any modifications to the original design together with the reasons why the modifications were necessary; and

(f) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

Environmental commissioning

Environmental commissioning – Commencement

9. The works approval may only commence environmental commissioning of completed cells of TSF4 when:

(a) the Critical Containment Report for that infrastructure as required by condition 7 has been submitted by the works approval holder, and where the CEO has notified the works approval holder that the Critical Containment Infrastructure Report required by condition 7 meets the requirements of that condition; or

(b) the Critical Containment Report for that infrastructure as required by condition 7 has been submitted by the works approval holder, and where at least 10 business days have passed after the Critical Containment Infrastructure

Report for that item of infrastructure as required by condition 7 has been submitted to the CEO.

10. The works approval holder must ensure that any environmental commissioning activities undertaken for an item of infrastructure specified in Table 5 is only carried out in accordance with the corresponding commissioning requirements specified in Table 4.

Table 4: Environmental commissioning requirements

	Site infrastructure and equipment	Operational requirement	Authorised commissioning duration
1.	Tailings Storage Facility 4	Cells 1A, 1B, 2A, 2B, 3, 4, 5, 6, 7 and 8 shall only receive REO tailings material and wastewater (raffinate), and only sufficient quantities to establish a 1m deep low permeability layer that achieves a final hydraulic conductivity of 1 x 10^{-8} m/s or less.	None specified

Environmental commissioning – Infrastructure and equipment

11. During environmental commissioning, the works approval holder must ensure visual inspections of the infrastructure specified in Table 5 are undertaken in accordance with the inspection requirements, and at the frequency set out in Table 5.

Table 5: Inspection requirements during environmental commissioning and time limited operation

Infrastructure	Inspection requirement	Frequency of inspection
Tailings delivery lines and water return lines	Visual integrity inspection	Daily when operating
TSF4 (Cells 1, 2 3, 4, 5, 6, 7 and 8)	Perimeter inspection which checks for: (a) Visual integrity of the embankments including signs of seepage; and (b) Freeboard capacity.	Every 12 hours (following commencement of waste deposition into the Cell)

12. The works approval holder must maintain a written log of all inspections undertaken in accordance with condition 11, with each inspection signed off by the person who conducted the inspection.

Monitoring during environmental commissioning – General

13. During environmental commissioning, the works approval holder must ensure that:

(a) monitoring is undertaken in each monthly period such that there are at least 15 calendar days in between the days on which samples are taken in successive months;

(b) monitoring is undertaken in each quarterly period such that there are at least 45 calendar days in between the days on which samples are taken in successive quarters; and

(c) monitoring undertaken in each six-monthly period such that there are at least 5 months in between the days on which samples are taken in successive periods of six months.

14. During environmental commissioning, the works approval holder must ensure that all sample analysis is undertaken by laboratories with current accreditation from the National Association of Testing Authorities (NATA) for the relevant parameters, unless otherwise specified.

Monitoring during commissioning – Ambient

15. The works approval holder must monitor groundwater during environmental commissioning for concentrations of the identified parameter in accordance with Table 6.

Table 6: Groundwater monitoring during environmental commissioning and time limited operations

Parameter	Monitoring location	Unit	Frequency	Averaging period	Method
					Sampling
Standing water level	LMW17 – LMW26 installed in accordance with conditions 1 and 4	m(AHD) and m bgl	Monthly for the first 6 months following the commencement of commissioning. Quarterly thereafter.	Spot sample	AS/NZS 5667.1 AS/NZS 5667.11
pH[1]		pH units			
Electrical conductivity[1]		µS/cm			
Total dissolved solids		mg/L			
Metal(oid)s – Aluminium, Arsenic, Cadmium, Chromium (III and VI), Copper, Iron, Lanthanum, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Strontium, Thallium, Thorium, Uranium, Zinc					
Major ions – Sodium, Potassium, Fluoride, Calcium, Magnesium, Bicarbonate, Chloride, Sulfate					
Radionuclides – Radium 226 and Radium 228		Bg/L	Six monthly		
Lanthanum	LMW1 – LMW16	mg/L	Six monthly		
Radionuclides – Radium 226 and Radium 228		Bg/L			

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

Monitoring during environmental commissioning – Process

16. The works approval holder shall undertake monitoring in Table 7 during environmental commissioning in accordance with the specifications of that table.

Table 7: Process monitoring during environmental commissioning.

Monitoring location	Parameter	Unit	Frequency	Averaging period	Method
					Sampling
TSF4 Cells 1A, 1B, 2A, 2B, 3, 4, 5, 6, 7 and 8.	Volume of tailings deposited into each cell	Cumulative tonnes and m^3	Continuous	Monthly	N/A
	Volume of wastewater	m^3	Continuous	Monthly	N/A

Monitoring location	Parameter	Unit	Frequency	Averaging period	Method
					Sampling
	(raffinate) deposited into each cell				

17. The works approval holder must record the results of all monitoring activity required by conditions 15 and 16.

18. The works approval holder must submit to the CEO an Environmental Commissioning Report within 30 calendar days of the completion date of environmental commissioning for the items of infrastructure specified in condition 6.

19. The works approval holder must ensure the Environmental Commissioning Report required by condition 18 of this works approval includes the following:

(a) a summary of the environmental commissioning activities undertaken, including details of the timing of commencement of environmental commissioning and duration;

(b) evidence demonstrating that the TSF cell foundations achieve a permeability of 1 x 10^{-8} m/s or less;

(c) a summary of the visual inspections recorded in accordance with condition 11 including a summary of any issues identified and actions taken or proposed to rectify those issues;

(d) a summary of the ambient groundwater monitoring results obtained in accordance with condition 15;

(e) results of the process monitoring undertaken in accordance with condition 16;

(f) a summary of the environmental performance of each item of infrastructure as constructed and commissioned;

(g) a review of the works approval holder's performance and compliance against the conditions of this works approval; and 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; and

(h) a summary of any complaints received during environmental commissioning.

20. The Environmental Commissioning Report submitted to satisfy the requirements of condition 19(b) must include as a minimum the following:

(a) a Quality Control / Quality Assurance Certificate from an independent experienced geotechnical specialist which demonstrates that the TSF cell foundations achieve a permeability of 1 x 10^{-8} m/s or less;

(b) records of any quality assurance/control testing undertaken to demonstrate that the TSF cell foundations achieve a permeability of 1 x 10^{-8} m/s or less, including the basis of any method specification adopted;

(c) details of any modifications to the original design together with the reasons why the modifications were necessary; and

(d) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

Time limited operations phase

Commencement and duration

21. The works approval holder may only commence time limited operations for infrastructure and equipment associated with TSF4, By-Products unloading and transport, the Evaporation Pond, and the By-products landform, as specified in conditions 1 and 6, when:

(a) the Environmental Compliance Report for that infrastructure as required by condition 2 has been submitted by the works approval holder;

(b) the Critical Containment Report for that infrastructure as required by condition 7 has been submitted by the works approval holder, and where the CEO has notified the works approval holder that the Critical Containment Infrastructure Report required by condition 7 meets the requirements of that condition; or

(c) the Critical Containment Report for that infrastructure as required by condition 7 has been submitted by the works approval holder, and where at least 10 business days have passed after the Critical Containment Infrastructure Report for that item of infrastructure as required by condition 7 has been submitted to the CEO.

22. The works approval holder may only conduct time limited operations for infrastructure and equipment associated with Byproducts unloading and transport, the Byproducts landform, the Evaporation Pond and TSF4:

(a) For a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 21 for that item of infrastructure; or

(b) Until such time as the 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 22(a).

Time limited operations – Infrastructure and equipment

23. During time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 8 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 8.

Table 8: Infrastructure and equipment requirements during time limited operations

	Site infrastructure and equipment	Operational requirement	Infrastructure location
1.	Tailings Storage Facility 4 Phase 1	(a) Only rare earth oxide (REO) tailings waste or solid waste from the concentrator shall be deposited into the TSF4; and (b) An operational freeboard of 300 mm must be maintained at all times.	Figure 3: General arrangement of TSF4 (Phase 1)
2.	Evaporation Pond	(a) Shall only receive a blend of raffinate from reverse osmosis and clarified TSF supernatant (decant) water; and (b) An operational freeboard of 300mm must be maintained at all times;	Figure 1: Map of the boundary of the prescribed premises

	Site infrastructure and equipment	Operational requirement	Infrastructure location
3.	By-products loading, handling and storage	(a) Dust suppression/water systems to be used to minimise dust generation whenever by-products materials are being handled or processed, including to be used at material transfer points and materials stockpiles; (b) The following activities must occur within a concrete apron that drains to a sump with a level indicator: i. unloading of rotainers containing iron phosphate and gypsum; ii. stockpiling of iron phosphate and gypsum; and iii. washing of rotainers used for the delivery of iron phosphate and gypsum; (c) Any iron phosphate and gypsum collected in the sump shall loaded into the By-Products hopper for transfer to the By-Products Landform; (d) Following initial receipt and handling, by-products (gypsum and iron phosphate) must only be stored within the By-Products Landform shown in Figure 1; (e) No more than 132,000 (dry) tonnes of iron phosphate shall be stored at the By-Products Landform per annual period. (f) No more than 330,000 (dry) tonnes of gypsum shall be stored at the By-Products Landform per annual period; and (g) By-products must be stored within the By-Products Landform in the following sequence: i. iron phosphate material deposited first; ii. capped by gypsum; and iii. with a final capping layer of alluvium, as depicted by the general arrangement shown in Schedule 1: Figure 24	Figure 1: Map of the boundary of the prescribed premises Figure 24: General storage arrangement of by-products within the By-Products Landform.

24. During time limited operations, the works approval holder must ensure visual inspections of the infrastructure specified in Table 9 are undertaken in accordance with the inspection requirements, and at the frequency set out in Table 9.

Table 9: Inspection requirements during time limited operations

Infrastructure	Inspection requirement	Frequency of inspection
Transfer pipework	Visual integrity inspection	Daily when operating
Evaporation Pond	Pond perimeter inspection which checks for: (a) Visual integrity of the embankments and geomembranes including signs of seepage; and (b) Freeboard capacity.	

Infrastructure	Inspection requirement	Frequency of inspection
TSF4	TSF4 perimeter inspection which checks for: (a) Visual integrity of the embankments, including signs of seepage; and (b) Freeboard capacity.	Daily when operating

25. The works approval holder must maintain a written log of all inspections undertaken in accordance with condition 24, with each inspection signed off by the person who conducted the inspection.

Monitoring during time limited operations – General

26. During time limited operations, the works approval holder must ensure that:

(a) monitoring is undertaken in each monthly period such that there are at least 15 calendar days in between the days on which samples are taken in successive months;

(b) monitoring is undertaken in each quarterly period such that there are at least 45 calendar days in between the days on which samples are taken in successive quarters; and

(c) monitoring undertaken in each six-monthly period such that there are at least 5 months in between the days on which samples are taken in successive periods of six months

27. During time limited operations, the works approval holder must ensure that all sample analysis is undertaken by laboratories with current accreditation from the National Association of Testing Authorities (NATA) for the relevant parameters, unless otherwise specified.

Monitoring during time limited operations – Ambient

28. The works approval holder must monitor groundwater during time limited operations for concentrations of the identified parameter in accordance with Table 6.

Monitoring during time limited operations – Process

29. The works approval holder must undertake the monitoring in Table 10 during time limited operations in accordance with the specifications of that table.

Table 10: Process monitoring during time limited operations.

Monitoring location	Parameter	Unit	Frequency	Averaging period	Method
					Sampling
Evaporation Pond (Stages 1 and 2: Cells 1 - 10)	Volume of waste deposited into each cell	m^3	Continuous	Monthly	N/A
TSF4	Volume of tailings deposited into each cell	m^3	Continuous	Monthly	N/A

30. The works approval holder must record the results of all monitoring activity required by conditions 28 and 29.

Time limited operations – Specified actions

31. During time limited operations, the works approval holder must determine the seepage from each cell of the Evaporation Pond using the pond drop test method once that cell has reached 75 percent (75%) of its design depth.

Time limited operations - Reporting

32. 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.

33. The works approval holder must ensure the report required by condition 32 includes the following:

    (a) a summary of time limited operations, including timeframes;

    (b) a summary of the visual inspections recorded in accordance with condition 24 including a summary of any issues identified and actions taken or proposed to rectify those issues;

    (c) results of the ambient monitoring and process monitoring recorded in accordance with conditions 28 and 29;

    (d) results of the pond drop test required by condition 31 including input data and calculations used and an assessment of results against the initial premises water balance and Evaporation Pond design;

    (e) a review of performance and compliance against the conditions of the works approval, which at minimum includes a comparison of any monitoring results against design specifications listed in conditions 1 and 6;

    (f) 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; and

    (g) a summary of any complaints received during time limited operations.

Records and reporting (general)

34. 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.

35. 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 6;

(b) any maintenance of infrastructure that is performed in the course of complying with condition 22;

(c) monitoring programmes undertaken in accordance with condition(s) 15, 16, 28 and 29; and

(d) complaints received under condition 34.

36. The books specified under condition 35 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 11 have the meanings defined.

Table 11: Definitions

Term	Definition
annual period	a 12 month period commencing from 1 January of that year until 31 December of that same year.
AS 1289.5.1.1	Means the Australian Standard 1289.5.1.1 *Methods of testing soils for engineering purposes Soil compaction and density tests - Determination of the dry density/moisture content relation of a soil using standard compactive effort*
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples*
AS/NZS 5667.11	means the Australian Standard AS/NZS 5667.11 *Water Quality – Sampling – Guidance on sampling of groundwaters*
ASTM D638	means the ASTM international standard *Standard test method for tensile properties of plastics (Designation: ASTM D638-14*), as amended from time to time.
ASTM D1238	means the ASTM international standard *Standard test method for melt flow rates of thermoplastics by extrusion plastometer (Designation: ASTM D1238-20)*, as amended from time to time.
ASTM D1505	means the ASTM international standard *Standard test method for density of plastics by the density – gradient technique (Designation: ASTM D1505-18)*, as amended from time to time.
ASTM D1603	means the ASTM international standard *Standard test method for carbon black content in olefin plastics (Designation: ASTM D1603-20)*, as amended from time to time.
ASTM D5321-D5321M-20	means the ASTM international standard *Standard test method for determining the shear strength of soil-geosynthetic and geosynthetic-geosynthetic interfaces by direct shear (Designation: ASTM D5321/D5321M-20*), as amended from time to time.
ASTM D5092/D5092M-16	means the ASTM international standard for *Standard practice for design and installation of groundwater monitoring wells (Designation: ASTM D5092/D5092M-16)*
books	has the same meaning given to that term under the EP Act.

Term	Definition
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department administering the *Environmental Protection Act 1986* Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au
critical containment infrastructure	means the items of infrastructure listed in condition 6.
Critical Containment Infrastructure Report	means a report to satisfy the CEO that works of critical containment infrastructure have been constructed in accordance with the works approval.
Department	means the department established under section 35 of the *Public Sector Management Act 1994* 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	*Environmental Protection Act 1986* (WA).
EP Regulations	*Environmental Protection Regulations 1987* (WA).
Experienced geotechnical specialist/engineer	means a person who: (a) holds a tertiary academic qualification in geotechnical engineering; (b) has a minimum of five years' experience working in the area / field of design engineering and certification of dams and/or tailings storage facilities; and (c) is employed by an independent third party external to the Works Approval Holder's business. or is otherwise approved in writing by the CEO to act in this capacity.

Term	Definition
freeboard	means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point.
mbgl	means metres below ground level
Minimum Construction Requirements for water Bores in Australia	means the National Uniform Drillers Licensing Committee (2020) *Minimum Construction Requirements for water Bores in Australia – Fourth edition* (available at https://adia.com.au/).
pond drop test method	Means the pond drop test method described in the Institution of Professional Engineers New Zealand (IPENZ) *Practice Note 21. Farm Dairy Effluent Ponds* as amended from time to time.
premises	the premises to which this works approval applies, as specified at the front of this works approval 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.
REO tailings material	means fines tailings material generated from the "REO flotation" unit identified in Figure
SMDD	standard maximum dry density
Suitably qualified engineer	means a person who: a) holds a Bachelor's degree recognised by Engineers Australia; and b) has a minimum of five years of experience working in a supervisory role in civil or structural engineering; and c) is employed by an independent third party external to the Works Approval Holder's business; or is otherwise approved in writing by the CEO to act in this capacity.
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.
waste	has the same meaning given to that term under the EP Act.
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).

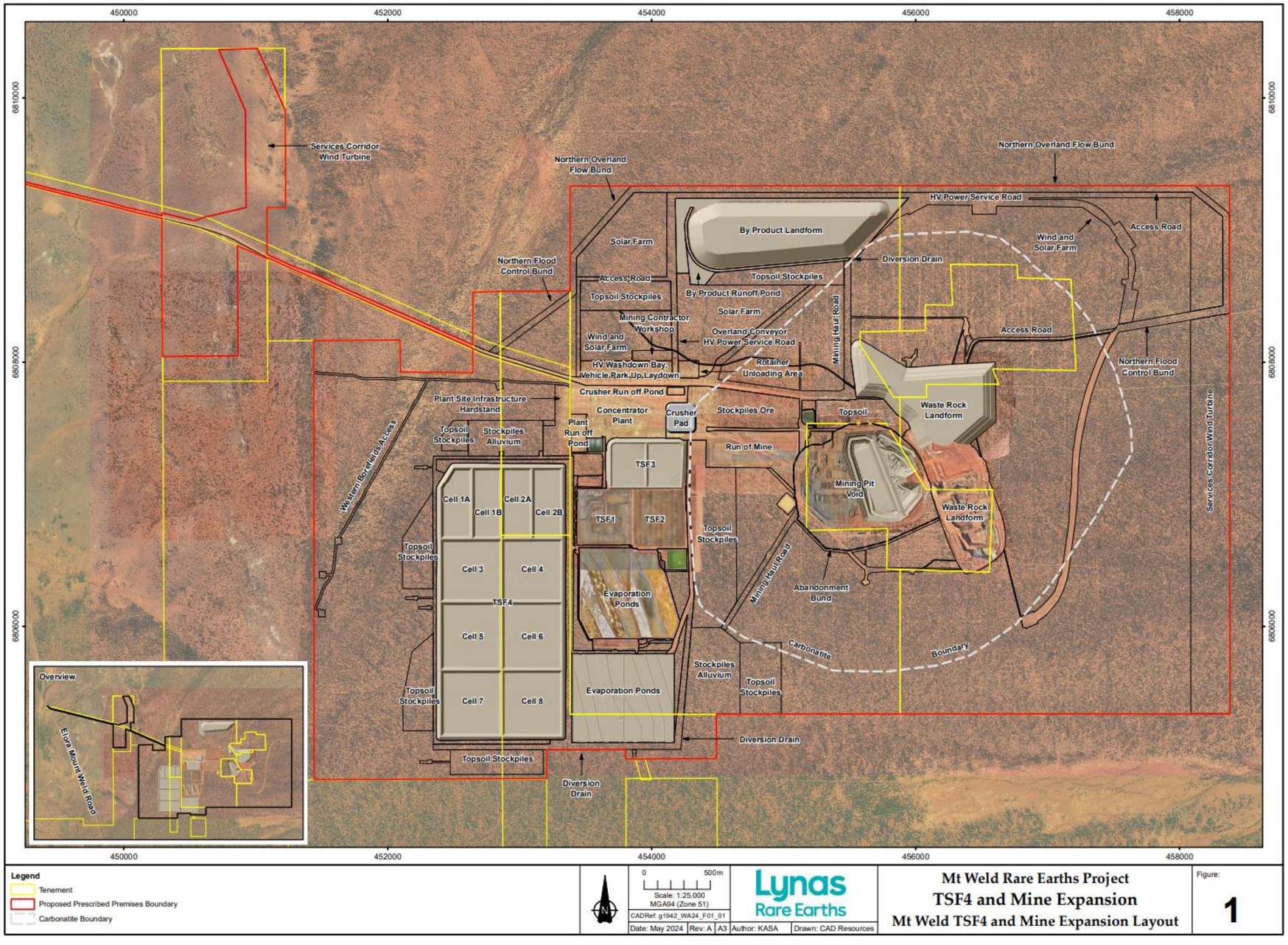


Figure 1: Map of the boundary of the prescribed premises

Plans and diagrams

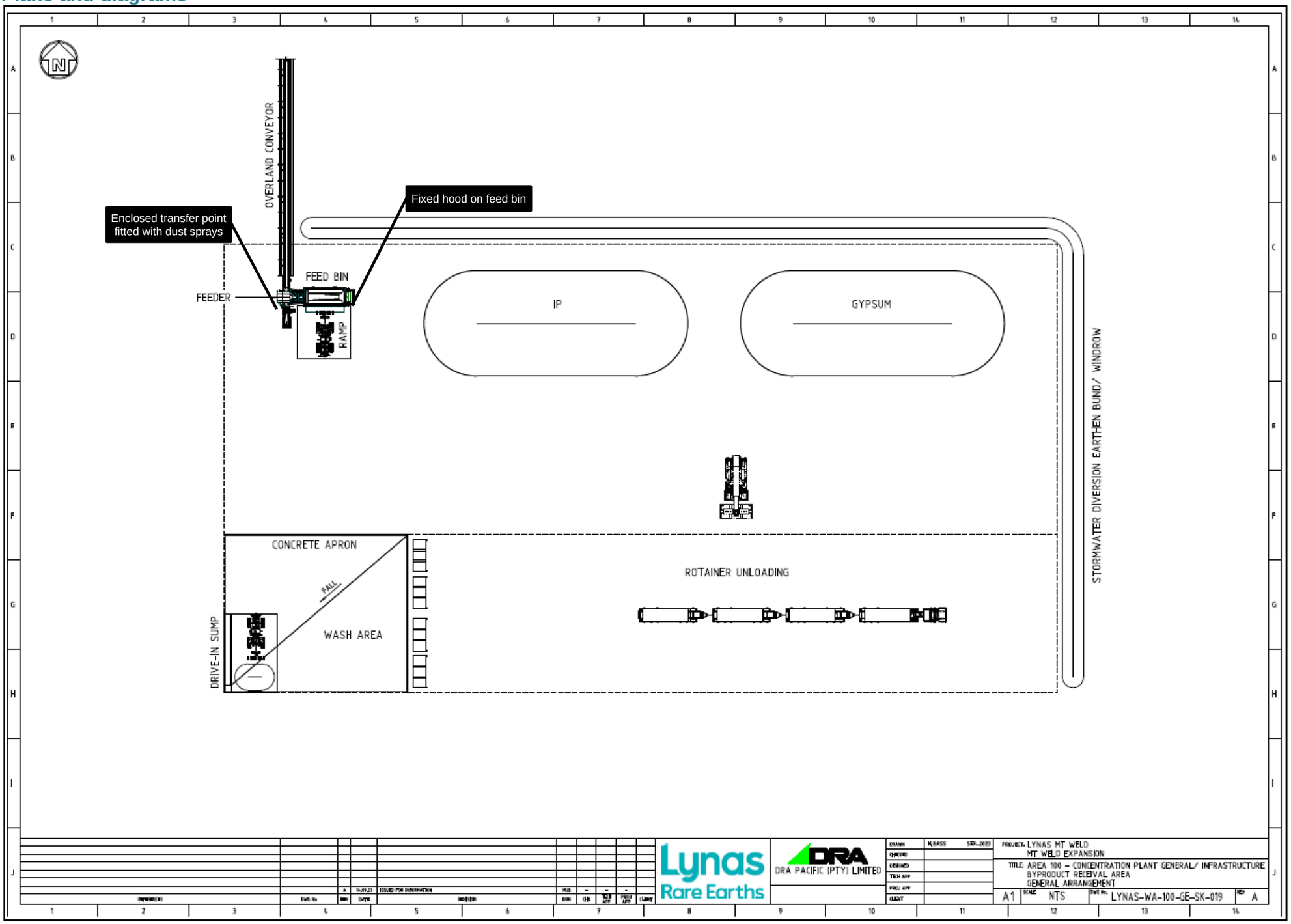


Figure 2: Plan of By-Products unloading area showing location of dust suppression equipment.

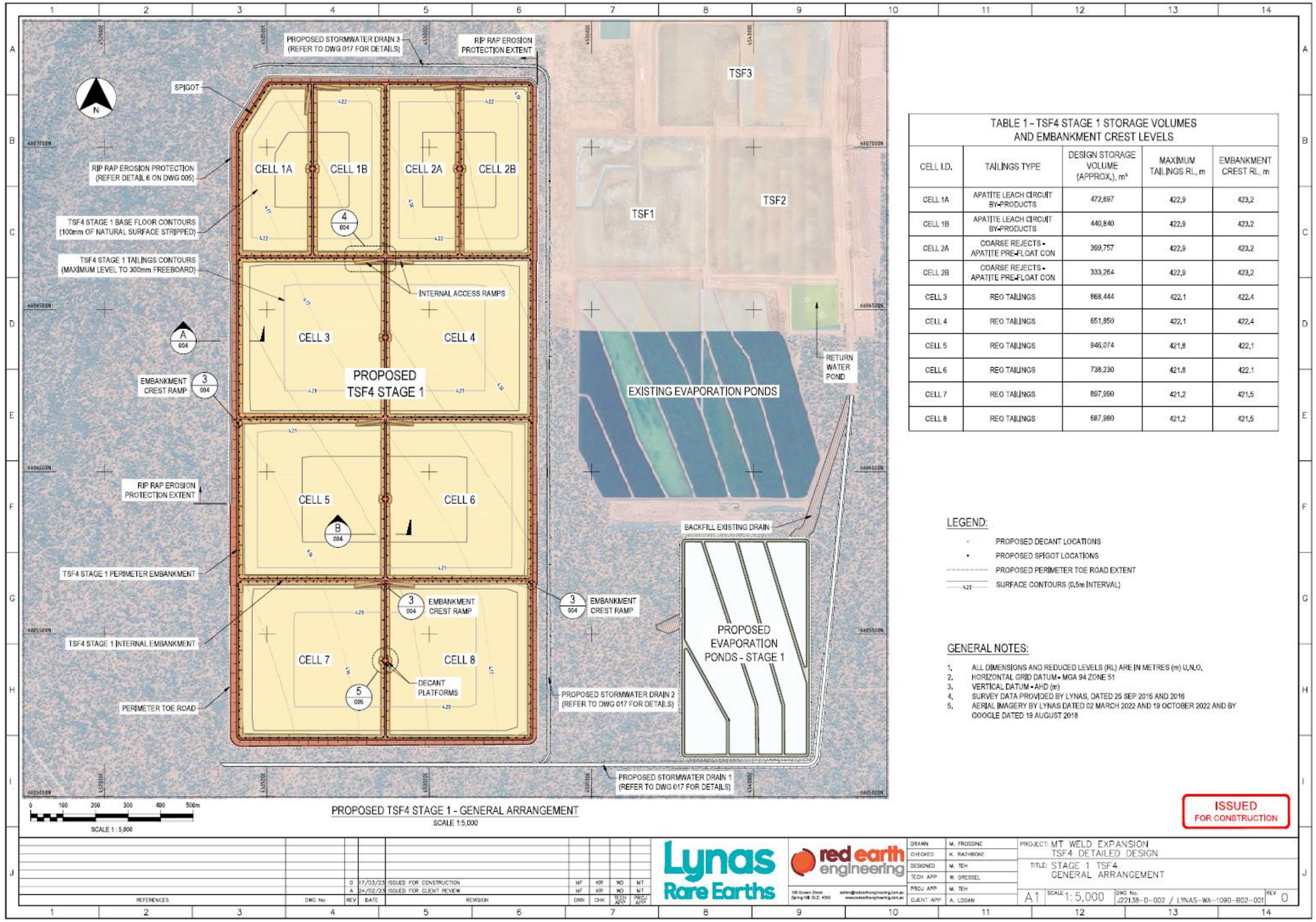


TABLE 1 – TSF4 STAGE 1 STORAGE VOLUMES AND EMBANKMENT CREST LEVELS				
CELL I.D.	TAILINGS TYPE	DESIGN STORAGE VOLUME (APPROX.), m³	MAXIMUM TAILINGS RL, m	EMBANKMENT CREST RL, m
CELL 1A	APATITE LEACH CIRCUIT BY-PRODUCTS	472,697	422.9	423.2
CELL 1B	APATITE LEACH CIRCUIT BY-PRODUCTS	440,840	422.9	423.2
CELL 2A	COARSE REJECTS - APATITE PRE-FLOAT CON	399,757	422.9	423.2
CELL 2B	COARSE REJECTS - APATITE PRE-FLOAT CON	333,264	422.9	423.2
CELL 3	REO TAILINGS	868,444	422.1	422.4
CELL 4	REO TAILINGS	651,850	422.1	422.4
CELL 5	REO TAILINGS	946,074	421.8	422.1
CELL 6	REO TAILINGS	738,230	421.8	422.1
CELL 7	REO TAILINGS	897,990	421.2	421.5
CELL 8	REO TAILINGS	687,960	421.2	421.5

LEGEND:

- PROPOSED DECANT LOCATIONS
- PROPOSED SPIGOT LOCATIONS
- PROPOSED PERIMETER TOE ROAD EXTENT
- SURFACE CONTOURS (0.5m INTERVAL)

GENERAL NOTES:

1. ALL DIMENSIONS AND REDUCED LEVELS (RL) ARE IN METRES (m) U.N.O.
2. HORIZONTAL GRID DATUM - MGA 94 ZONE 51
3. VERTICAL DATUM - AHD (m)
4. SURVEY DATA PROVIDED BY LYNAS, DATED 25 SEP 2015 AND 2016
5. AERIAL IMAGERY BY LYNAS DATED 02 MARCH 2022 AND 19 OCTOBER 2022 AND BY GOOGLE DATED 19 AUGUST 2018

ISSUED FOR CONSTRUCTION

REFERENCES	DWG No	REV	DATE	REVISION	DRN	CHK	TECH APP	PROJ APP
		0	17/03/23	ISSUED FOR CONSTRUCTION	MT	KR	WD	MT
		A	24/02/23	ISSUED FOR CLIENT REVIEW	MT	KR	WD	MT

Lynas Rare Earths

red earth engineering

DRAWN	M. FROSSINE
CHECKED	K. RATHBONE
DESIGNED	M. TEH
TECH APP	W. DRESSEL
PROJ APP	M. TEH
CLIENT APP	A. LOGAN

PROJECT: MT WELD EXPANSION TSF4 DETAILED DESIGN

TITLE: STAGE 1 TSF4 GENERAL ARRANGEMENT

A1 | SCALE 1:5,000 | DWG No. J22138-D-002 / LYNAS-WA-1090-802-001 | REV 0

Figure 3: General arrangement of TSF4 (Phase 1).

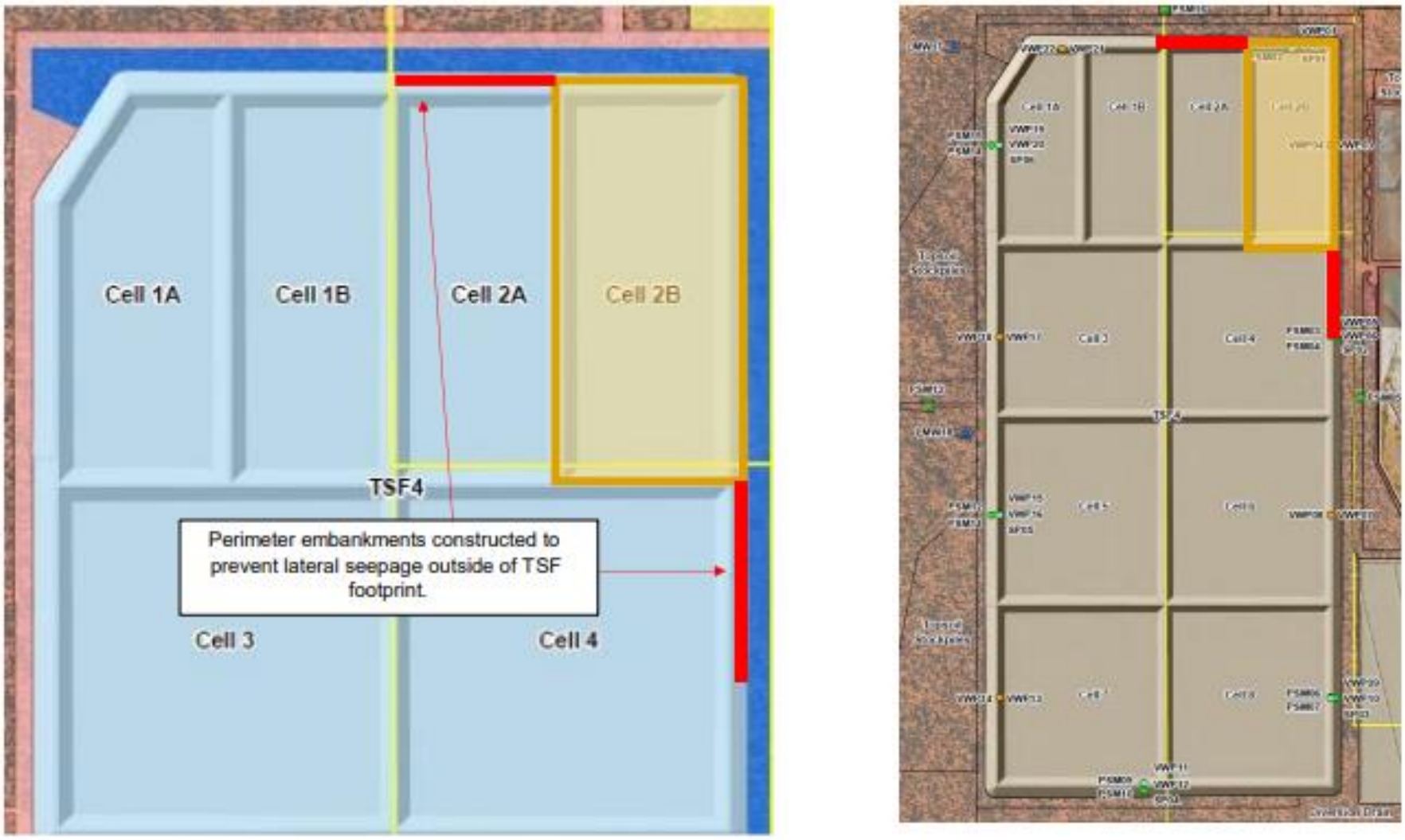


Figure 4: Plan showing Stage 1 of the TSF construction – Cell 2B construction

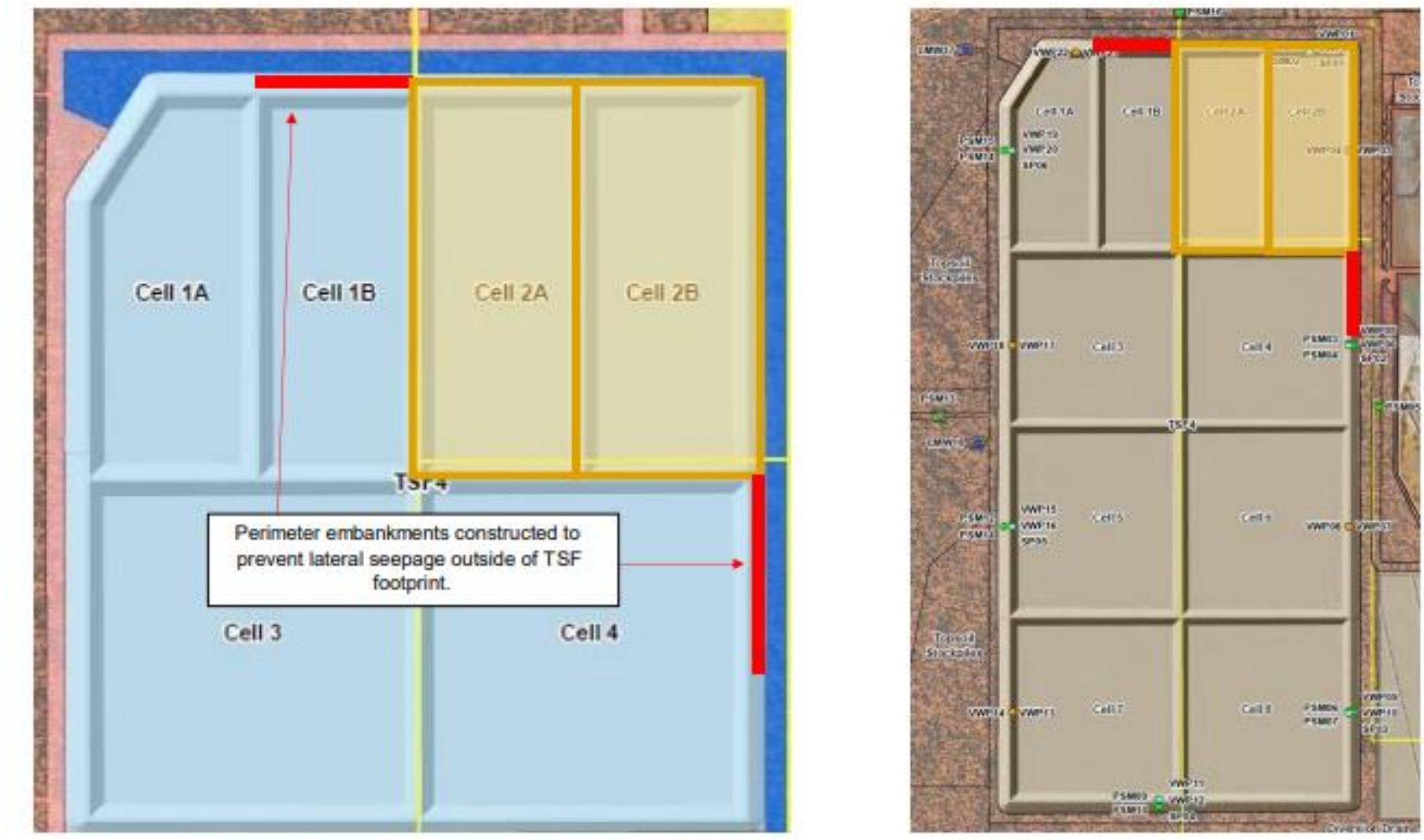


Figure 5: Plan showing Stage 2 of the TSF construction – Cell 2A construction

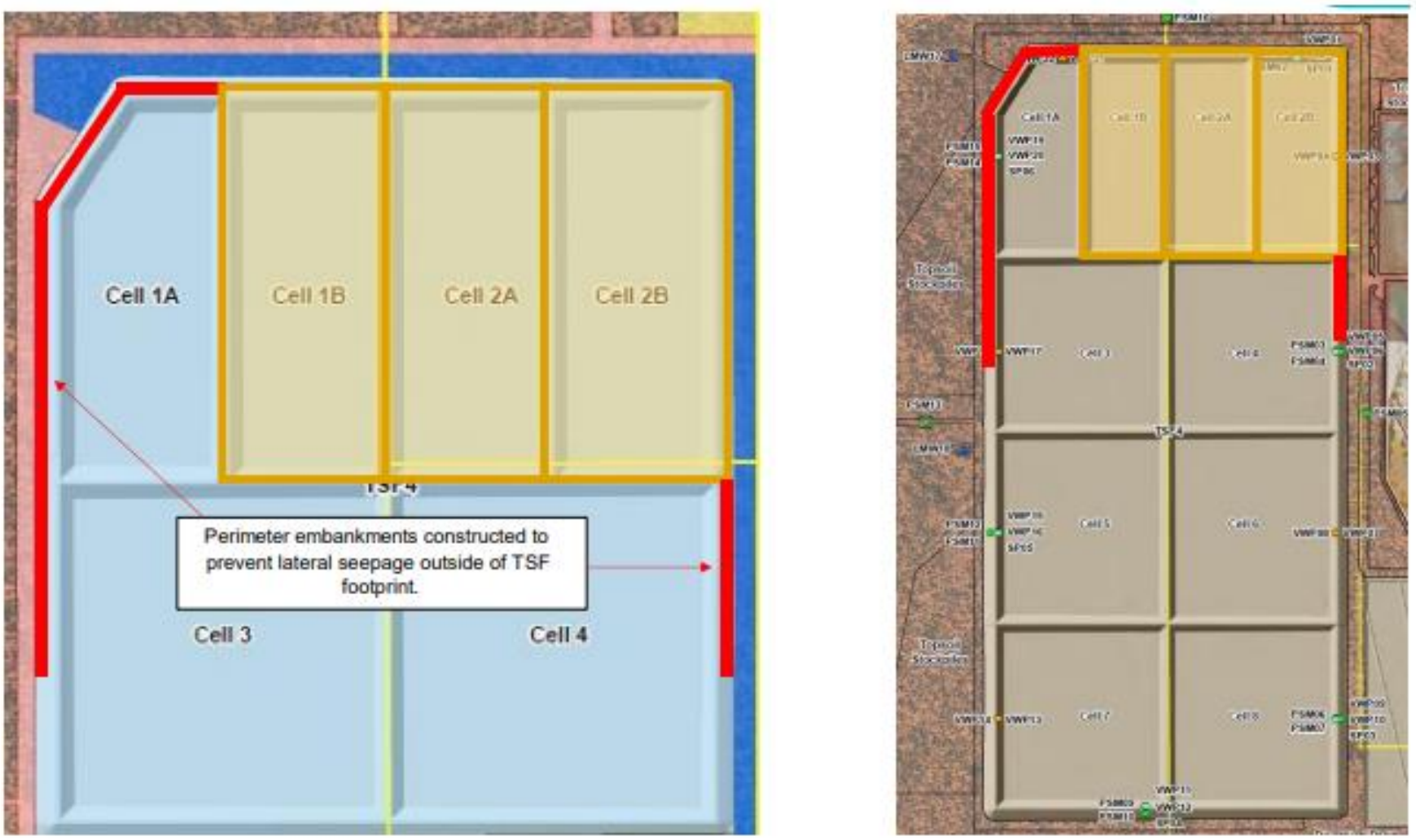


Figure 6: Plan showing Stage 3 of the TSF construction – Cell 1B construction

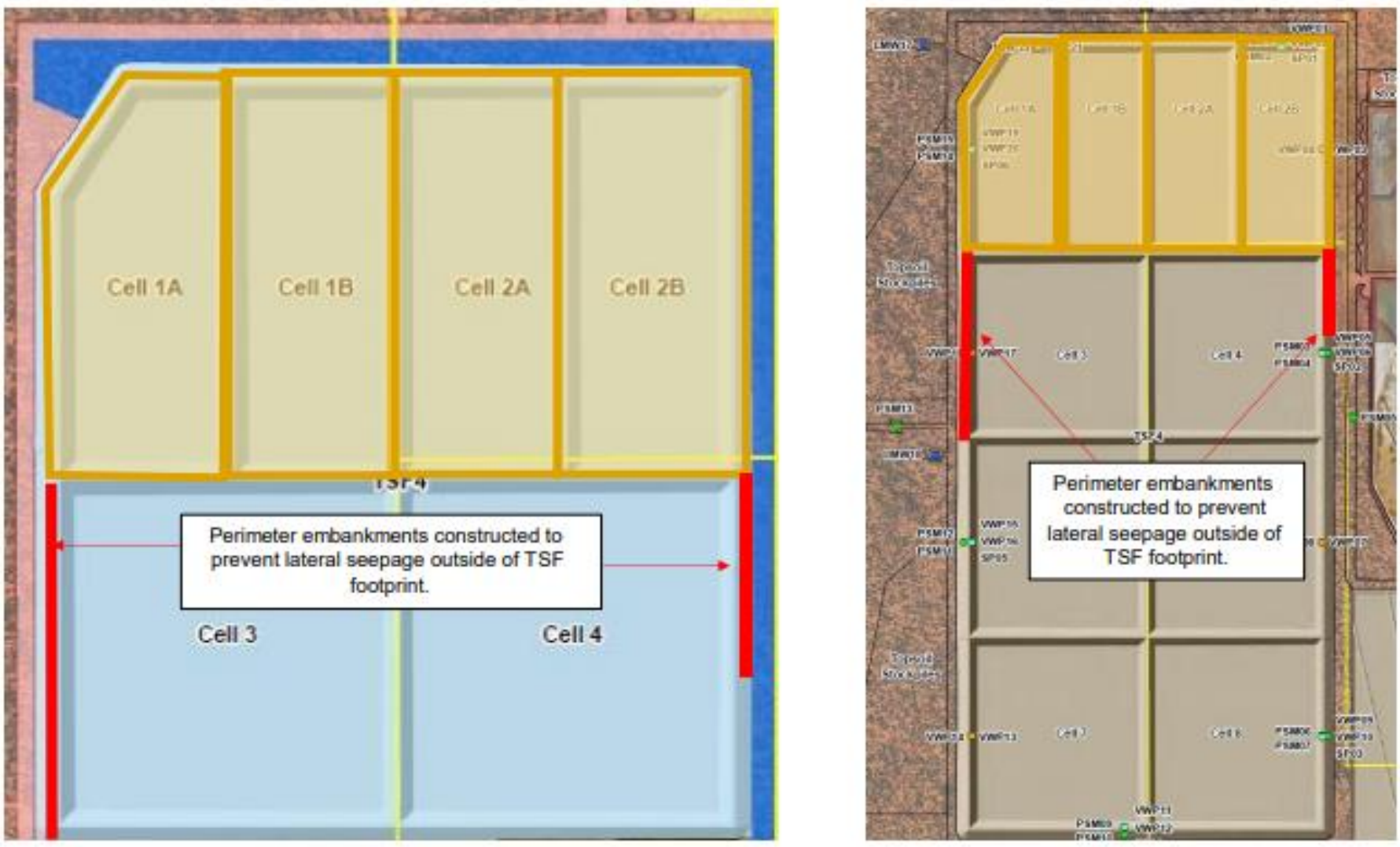


Figure 7: Plan showing Stage 4 of the TSF construction – Cell 1A construction

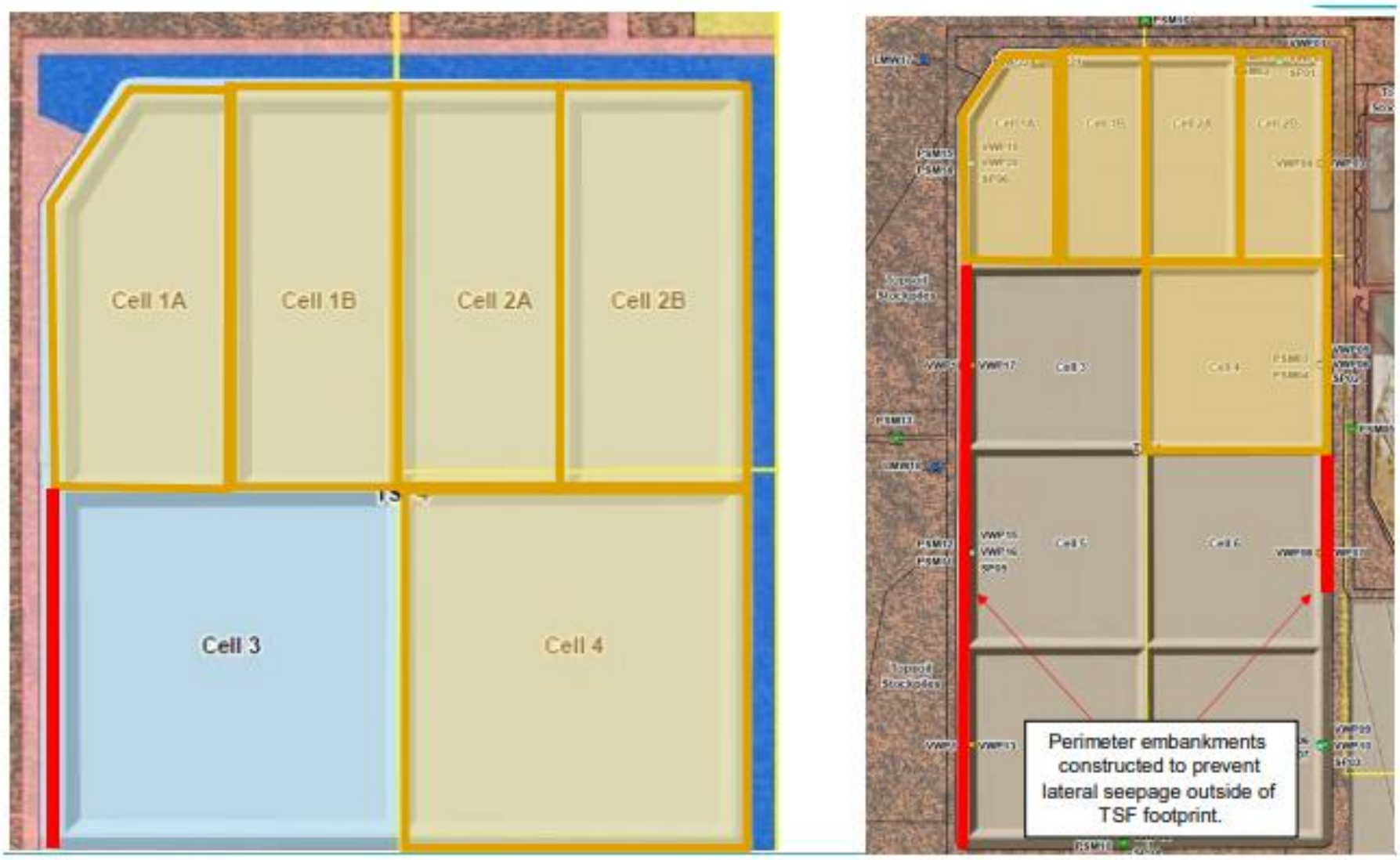


Figure 8: Plan showing Stage 5 of the TSF construction – Cell 4 construction

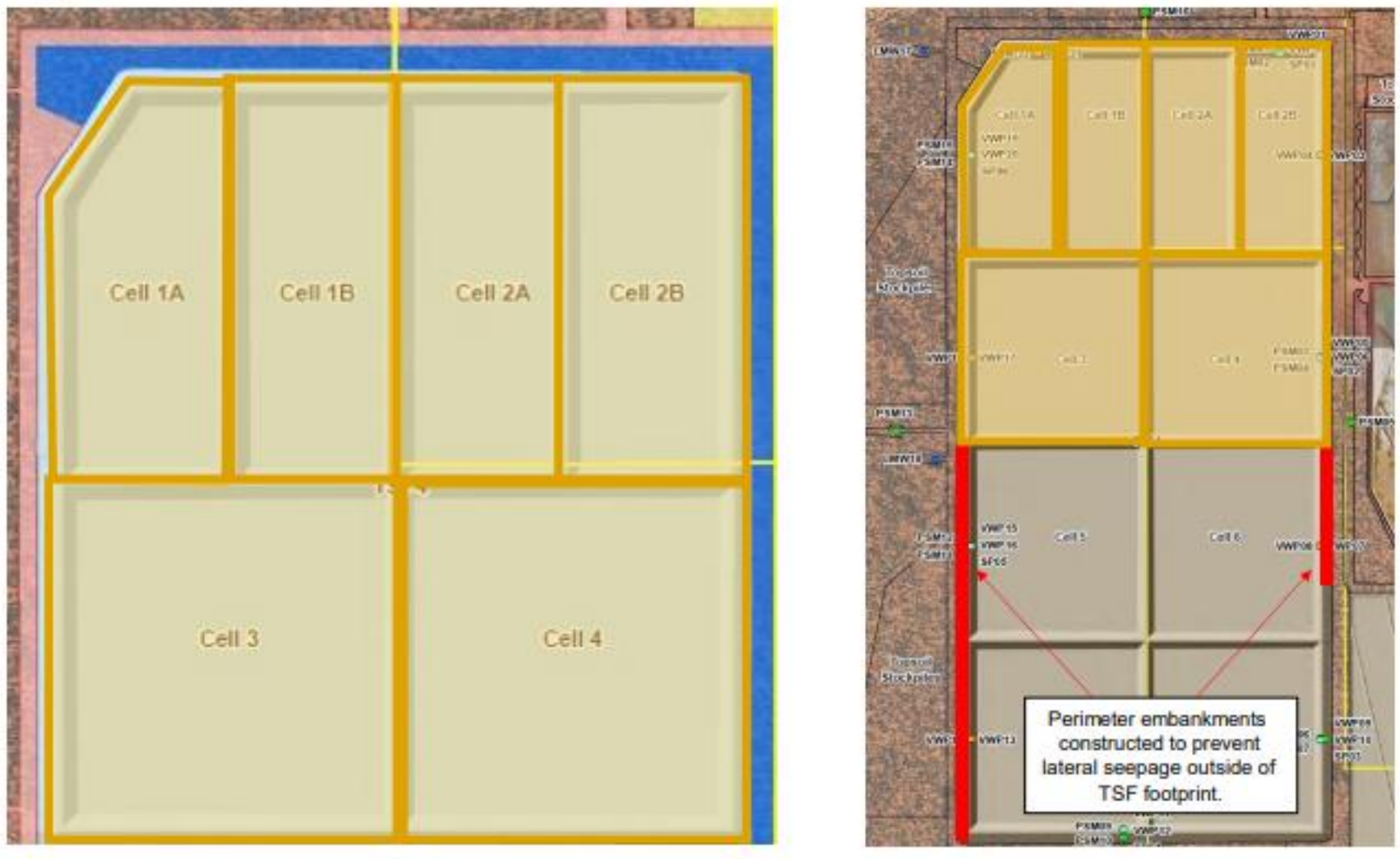


Figure 9: Plan showing Stage 6 of the TSF construction – Cell 3 construction

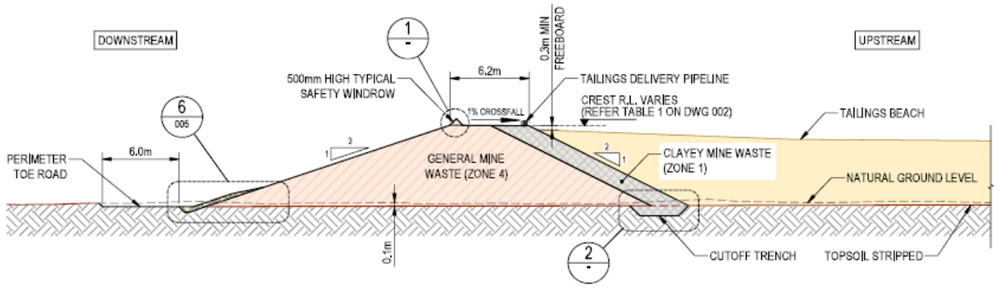
Figure 10: Plan showing Stage 7 of the TSF construction - Cell 6

Figure 11: Plan showing Stage 8 of the TSF construction – Cell 5

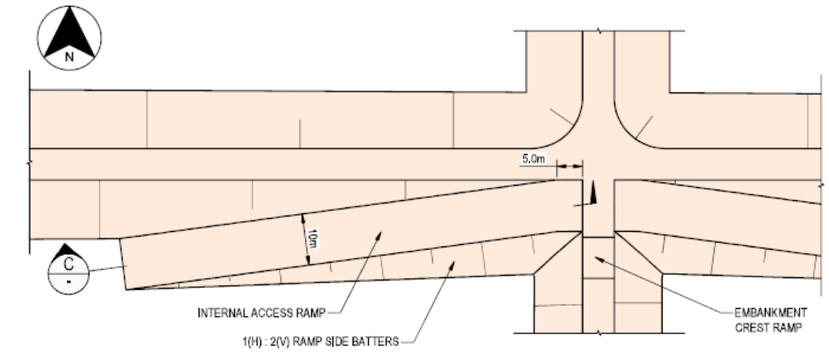
Figure 12: Plan showing Stage 9 of the TSF construction - Cell 8 (new)

Figure 13: Plan showing Stage 10 of the TSF Construction - Cell 7

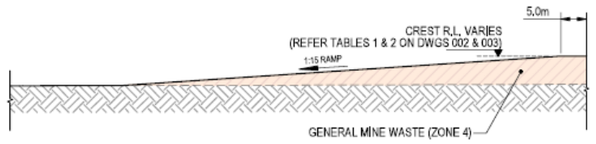
TABLE 3 - SUMMARY OF EMBANKMENT ZONE MATERIAL				
ZONE	NAME	PLACEMENT	COMPACTION	HATCH
ZONE 1	CLAYEY MINE WASTE	MAXIMUM 0,3m LOOSE LIFT THICKNESS, MOISTURE CONDITIONED TO +/- 2% OMC	GREATER THAN OR EQUAL TO 95% SMDD	
ZONE 3	BLENDED MINE WASTE	MAXIMUM 0,3m LOOSE LIFT THICKNESS, MOISTURE CONDITIONED TO +/- 3% OMC	GREATER THAN OR EQUAL TO 92% SMDD	
ZONE 4	GENERAL MINE WASTE	MAXIMUM 0,3m LOOSE LIFT THICKNESS, MOISTURE CONDITIONED TO +/- 3% OMC	GREATER THAN OR EQUAL TO 92% SMDD	



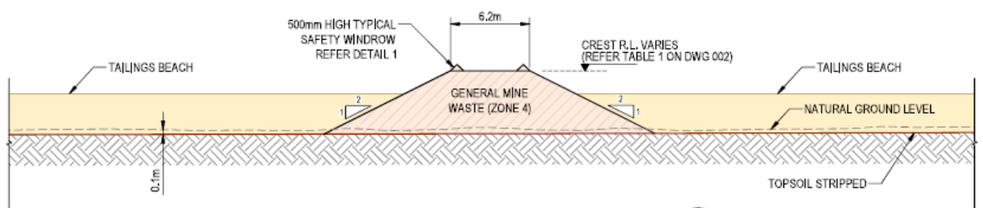
TSF4 STAGE 1 PERIMETER EMBANKMENT - TYPICAL SECTION (A, 002)
SCALE 1 : 200



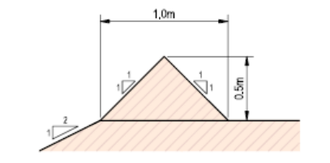
INTERNAL ACCESS RAMP - PLAN DETAIL (4, 002 / 4, 003)
SCALE 1 : 500



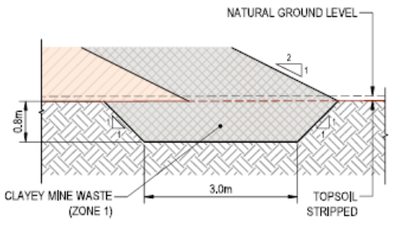
INTERNAL ACCESS RAMP - LONG SECTION (C)
SCALE 1 : 500



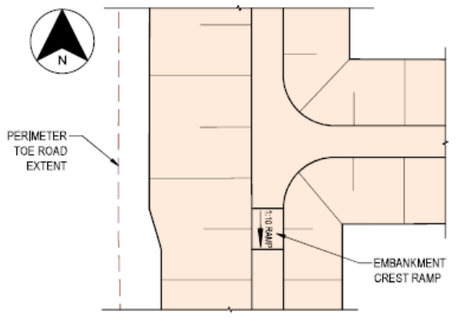
TSF4 STAGE 1 INTERNAL EMBANKMENT - TYPICAL SECTION (B, 002)
SCALE 1 : 200



TYPICAL SAFETY WINDROW DETAIL (1)
SCALE 1 : 20



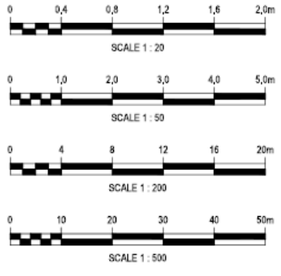
CUTOFF TRENCH DETAIL (2)
SCALE 1 : 50



EMBANKMENT CREST RAMP - PLAN DETAIL (3, 002 / 3, 003)
SCALE 1 : 500

GENERAL NOTES:

1. ALL DIMENSIONS AND REDUCED LEVELS (RL) ARE IN METRES (m) U.N.O.
2. HORIZONTAL GRID DATUM - MGA 94 ZONE 51
3. VERTICAL DATUM - AHD (m)
4. SURVEY DATA PROVIDED BY LYNAS, DATED 25 SEP 2015 AND 2016



ISSUED FOR CONSTRUCTION

REFERENCES	DWG No	REV	DATE	REVISION	DRN	CHK	TECH APP	PROJ APP
		0	17/03/23	ISSUED FOR CONSTRUCTION	MF	KR	WD	MT
		A	24/02/23	ISSUED FOR CLIENT REVIEW	MF	KR	WD	MT

Lynas Rare Earths

red earth engineering

DRAWN	M. FROSSINE
CHECKED	K. RATHBONE
DESIGNED	M. TEH
TECH APP	W. DRESSEL
PROJ APP	M. TEH
CLIENT APP	A. LOGAN

PROJECT: MT WELD EXPANSION
TSF4 DETAILED DESIGN

TITLE: TSF4
TYPICAL SECTIONS AND DETAILS (SHEET 1 OF 2)

A1 | SCALE: AS SHOWN | DWG No. J22138-D-004 / LYNAS-WA-1090-B03-001 | REV 0

Figure 14: TSF4 embankment design (Phase 1)

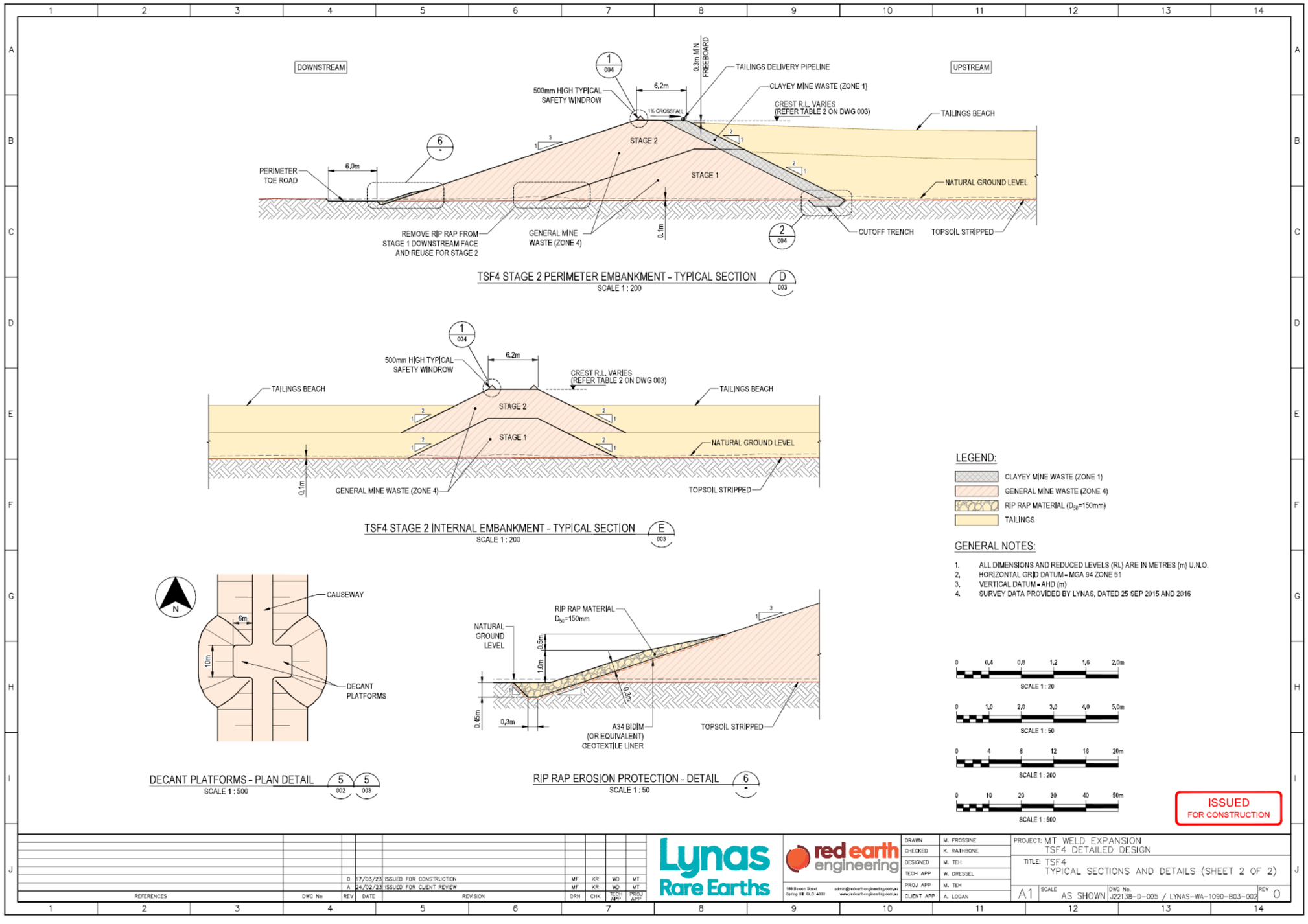


Figure 15: TSF4 embankment design showing erosion protection.

Figure 16: Location of survey points and piezometers.

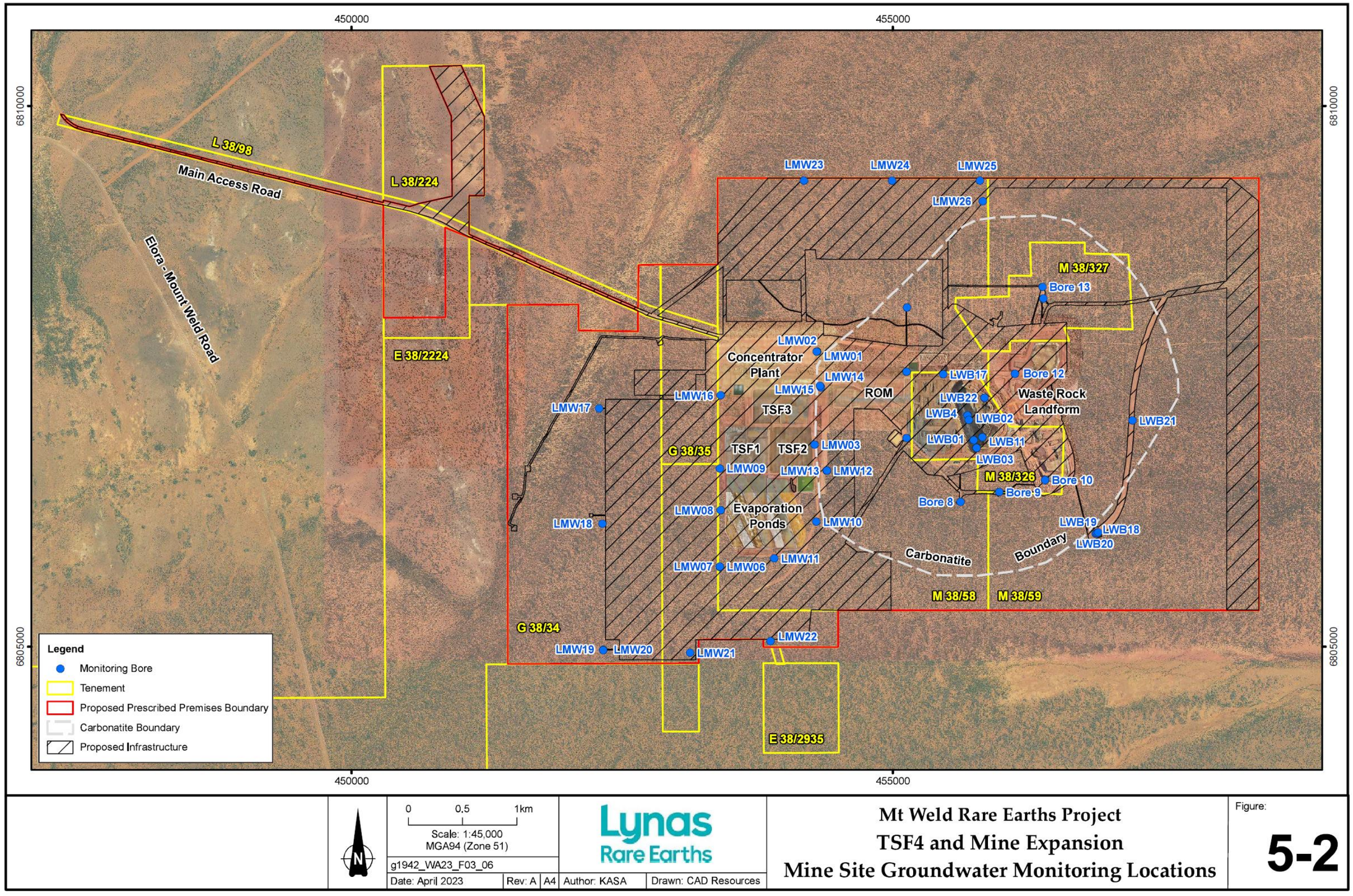
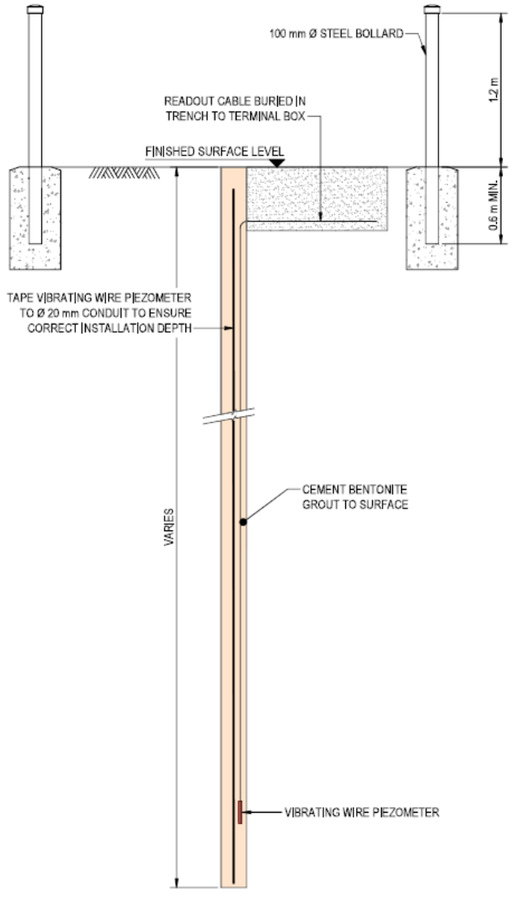
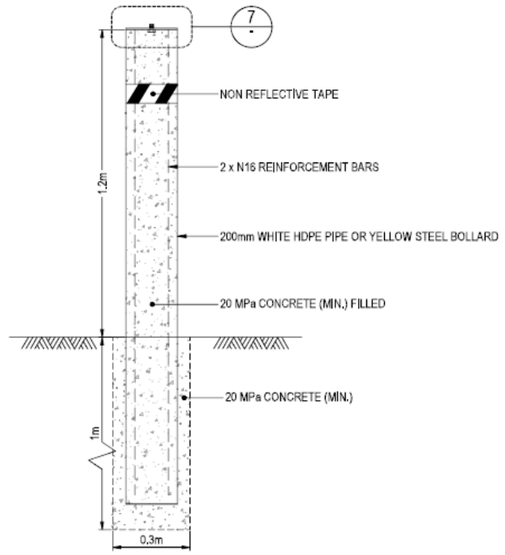


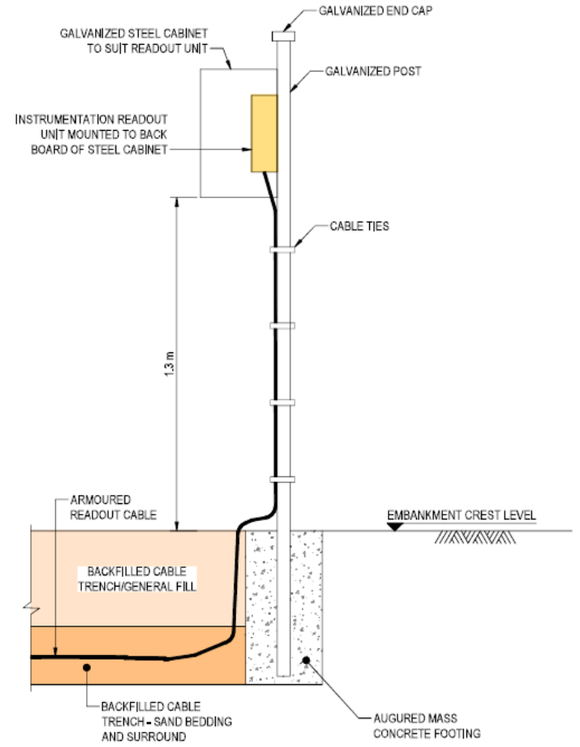
Figure 17: Groundwater monitoring locations



VIBRATING WIRE PIEZOMETER - TYPICAL DETAIL
SCALE 1:20

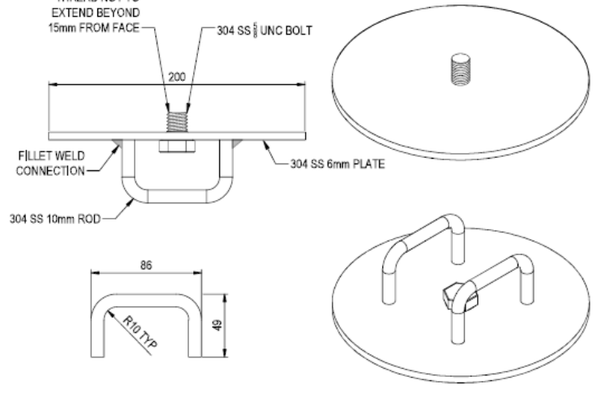


SETTLEMENT MONITORING TYPICAL DETAIL
SCALE 1:10



TERMINAL BOX - TYPICAL DETAIL
SCALE 1:10

NOTE: INSTRUMENT HOUSING TO MANUFACTURER'S REQUIREMENTS



STAINLESS STEEL PLATE WITH STANDARD 5/8 THREADED BOLT - DETAIL (7)
NOT TO SCALE

GENERAL NOTES:

1. ALL DIMENSIONS AND REDUCED LEVELS (RL) ARE IN METRES (m) U.N.O.
2. ALL INSTRUMENTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS

0 0.2 0.4 0.6 0.8 1.0m
SCALE 1 : 10

0 0.4 0.8 1.2 1.6 2.0m
SCALE 1 : 20

ISSUED FOR CONSTRUCTION

REFERENCES	DWG No	REV	DATE	REVISION	DRN	CHK	TECH APP	PROJ APP
		0	17/03/23	ISSUED FOR CONSTRUCTION	MF	KR	WD	MT
		A	24/02/23	ISSUED FOR CLIENT REVIEW	MF	KR	WD	MT

Lynas Rare Earths

red earth engineering
109 Bowen Street Spring Hill QLD 4000
admin@redearthengineering.com.au
www.redearthengineering.com.au

DRAWN	M. PROSSINE
CHECKED	K. RATHBONE
DESIGNED	M. TEH
TECH APP	W. DRESSEL
PROJ APP	M. TEH
CLIENT APP	A. LOGAN

PROJECT: MT WELD EXPANSION TSF4 DETAILED DESIGN

TITLE: MONITORING INSTRUMENTATION TYPICAL DETAILS

A1 | SCALE AS SHOWN | DWG No. J2213B-D-008 / LYNAS-WA-1090-B03-003 | REV 0

Figure 18: Vibrating wire piezometers design drawing.

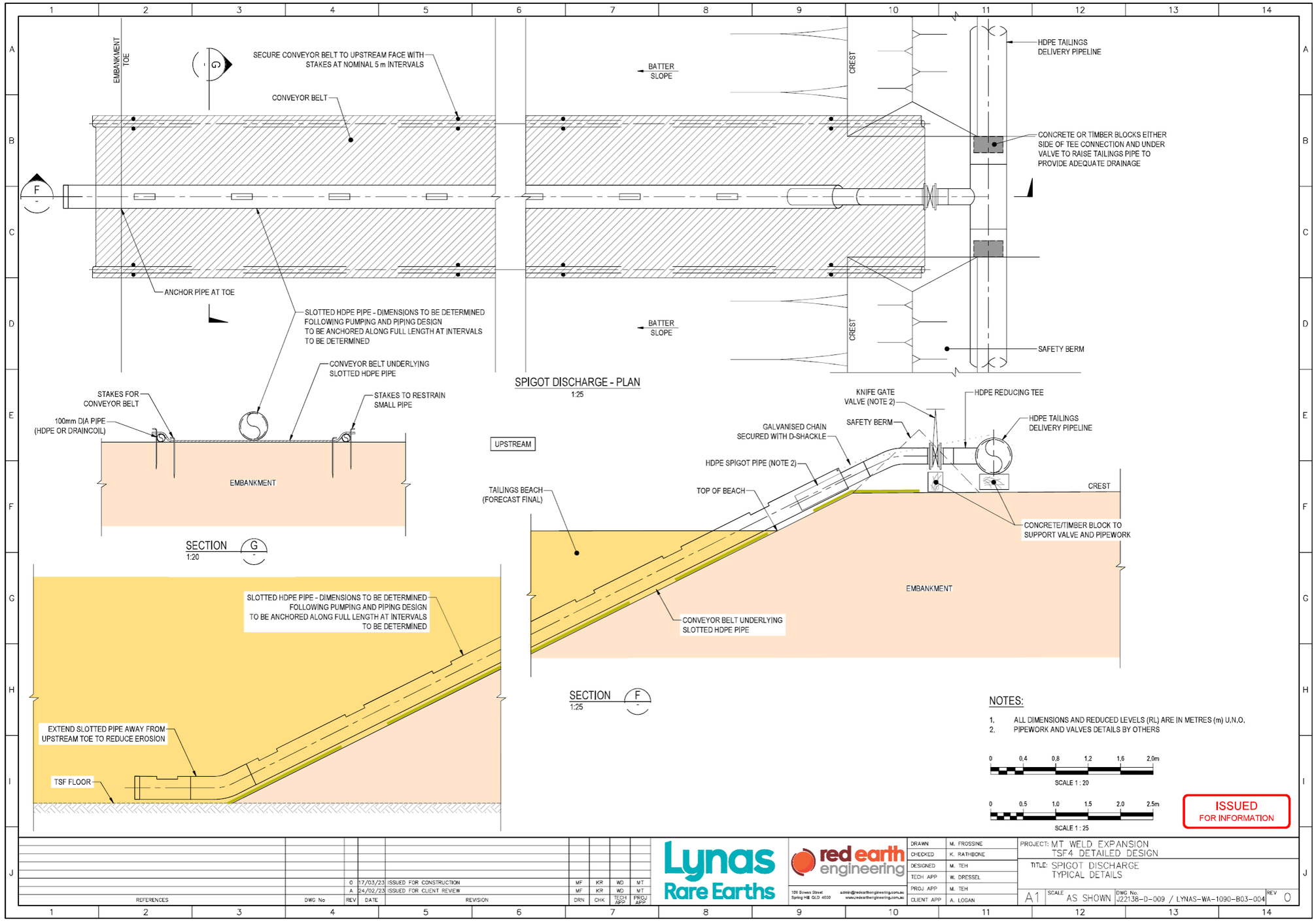
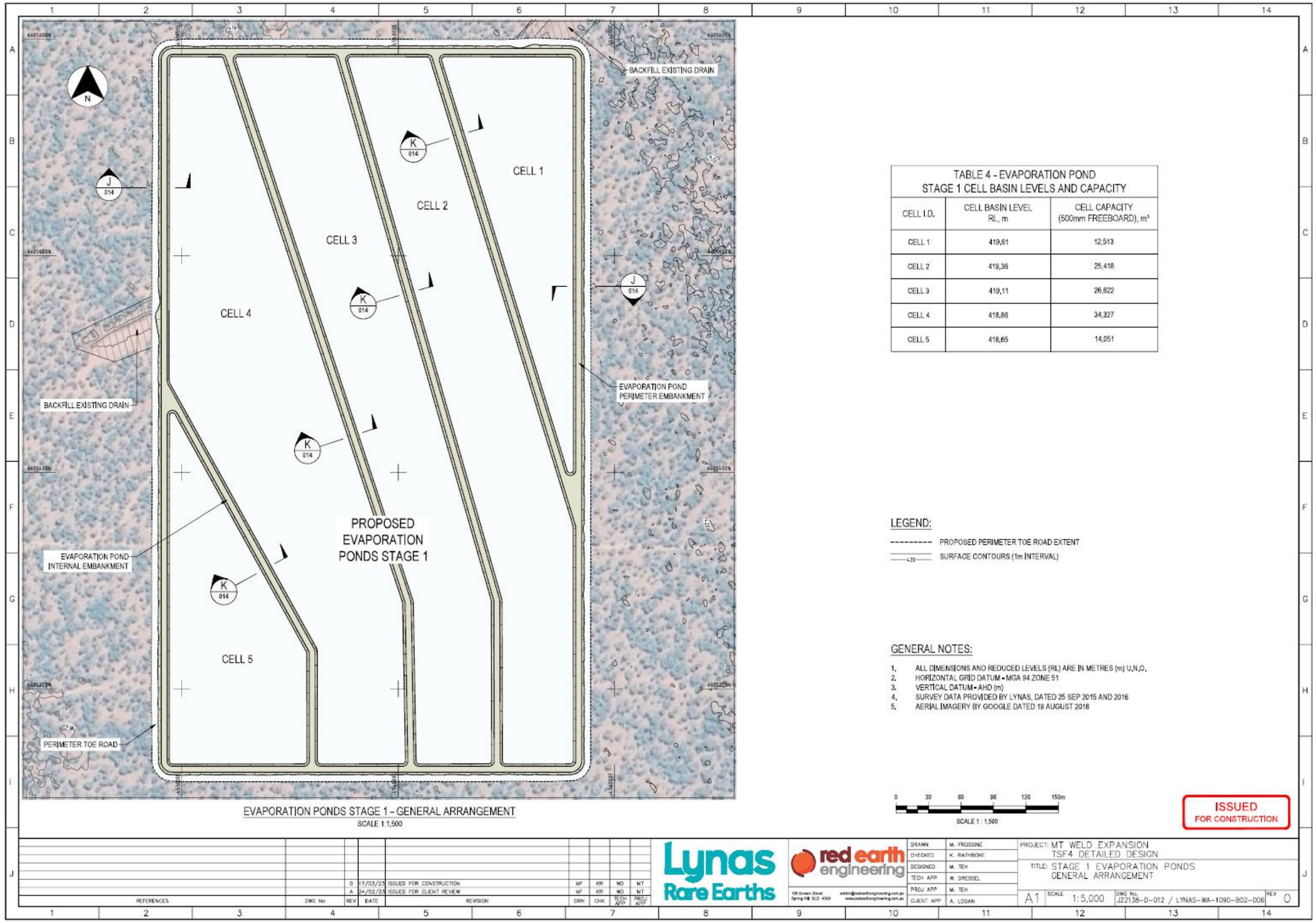


Figure 19: Spigot design



EVAPORATION PONDS STAGE 1 – GENERAL ARRANGEMENT
SCALE 1:1,500

TABLE 4 - EVAPORATION POND STAGE 1 CELL BASIN LEVELS AND CAPACITY		
CELL I.D.	CELL BASIN LEVEL RL, m	CELL CAPACITY (500mm FREEBOARD), m³
CELL 1	419,61	12,513
CELL 2	419,36	25,418
CELL 3	419,11	26,822
CELL 4	418,86	34,327
CELL 5	418,65	14,051

LEGEND:

---------- PROPOSED PERIMETER TOE ROAD EXTENT

420 SURFACE CONTOURS (1m INTERVAL)

GENERAL NOTES:

1. ALL DIMENSIONS AND REDUCED LEVELS (RL) ARE IN METRES (m) U.N.O.
2. HORIZONTAL GRID DATUM - MGA 94 ZONE 51
3. VERTICAL DATUM - AHD (m)
4. SURVEY DATA PROVIDED BY LYNAS, DATED 25 SEP 2015 AND 2016
5. AERIAL IMAGERY BY GOOGLE DATED 19 AUGUST 2018

0 30 60 90 120 150m
SCALE 1 : 1,500

ISSUED FOR CONSTRUCTION

REFERENCES	DWG No	REV	DATE	REVISION	DRN	CHK	TECH APP	PROJ APP
		0	17/03/23	ISSUED FOR CONSTRUCTION	MF	KR	WO	MT
		A	24/02/23	ISSUED FOR CLIENT REVIEW	MF	KR	WO	MT

Lynas Rare Earths

red earth engineering
120 Bowen Street, Spring Hill QLD 4000
admin@redearthengineering.com.au
www.redearthengineering.com.au

DRAWN	M. FROSSINE
CHECKED	K. RATHBONE
DESIGNED	M. TEH
TECH APP	W. DRESSEL
PROJ APP	M. TEH
CLIENT APP	A. LOGAN

PROJECT: MT WELD EXPANSION TSF4 DETAILED DESIGN
TITLE: STAGE 1 EVAPORATION PONDS GENERAL ARRANGEMENT
A1 | SCALE 1:5,000 | DWG No. J22138-D-012 / LYNAS-WA-1090-B02-006 | REV 0

Figure 20: Plan of Evaporation Pond design (Phase 1).

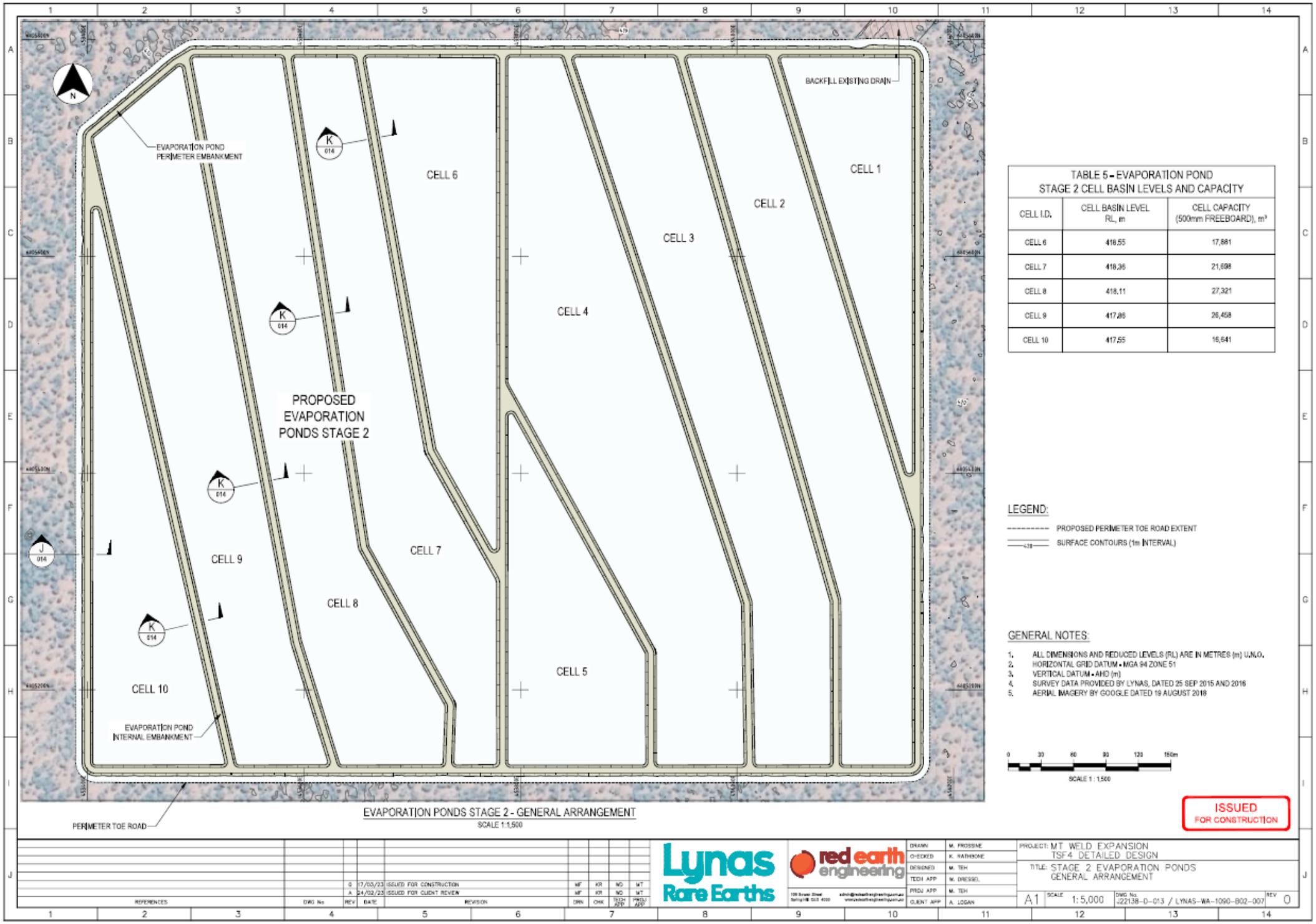
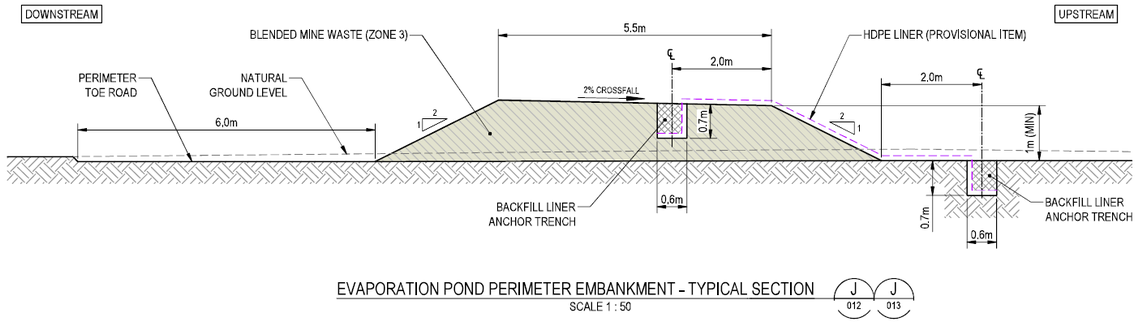


TABLE 5 - EVAPORATION POND STAGE 2 CELL BASIN LEVELS AND CAPACITY

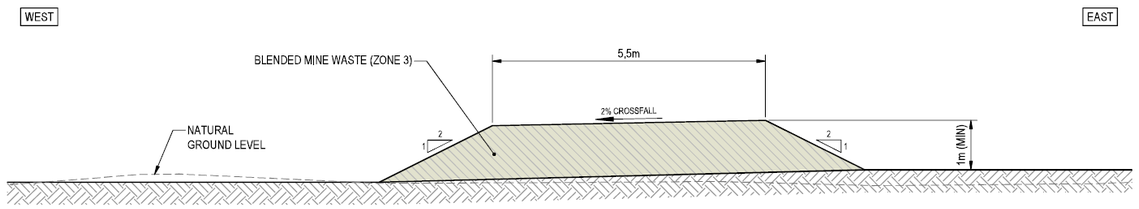
CELL I.D.	CELL BASIN LEVEL RL, m	CELL CAPACITY (500mm FREEBOARD), m³
CELL 6	418.55	17,881
CELL 7	418.36	21,698
CELL 8	418.11	27,321
CELL 9	417.86	26,458
CELL 10	417.55	16,641

Figure 21: Plan of Evaporation Pond design (Stage 2).



EVAPORATION POND PERIMETER EMBANKMENT - TYPICAL SECTION (J 012 / J 013)

SCALE 1 : 50



EVAPORATION POND INTERNAL EMBANKMENT - TYPICAL SECTION (K 012 / K 013)

SCALE 1 : 50

LEGEND:

BLENDED MINE WASTE (ZONE 3)

GENERAL NOTES:

1. ALL DIMENSIONS AND REDUCED LEVELS (RL) ARE IN METRES (m) U.N.O.
2. HORIZONTAL GRID DATUM - MGA 94 ZONE 51
3. VERTICAL DATUM - AHD (m)
4. SURVEY DATA PROVIDED BY LYNAS, DATED 25 SEP 2015 AND 2016

0 1,0 2,0 3,0 4,0 5,0m

SCALE 1 : 50

ISSUED FOR CONSTRUCTION

REFERENCES	DWG No	REV	DATE	REVISION	DRN	CHK	TECH APP	PROJ APP
		0	17/03/23	ISSUED FOR CONSTRUCTION	MF	KR	WD	MT
		A	24/02/23	ISSUED FOR CLIENT REVIEW	MF	KR	WD	MT

Lynas Rare Earths

red earth engineering

108 Bowers Street Spring Hill QLD 4000 admin@redearthengineering.com.au www.redearthengineering.com.au

DRAWN	M. FROSSINE
CHECKED	K. RATHBONE
DESIGNED	M. TEH
TECH APP	W. DRESSEL
PROJ APP	M. TEH
CLIENT APP	A. LOGAN

PROJECT: MT WELD EXPANSION TSF4 DETAILED DESIGN

TITLE: EVAPORATION PONDS TYPICAL SECTIONS AND DETAILS

A1 | SCALE 1:50 | DWG No. J22138-D-014 / LYNAS-WA-1090-B03-006 | REV 0

Figure 22: Plan showing design of the internal and perimeter embankments of the Evaporation Ponds.

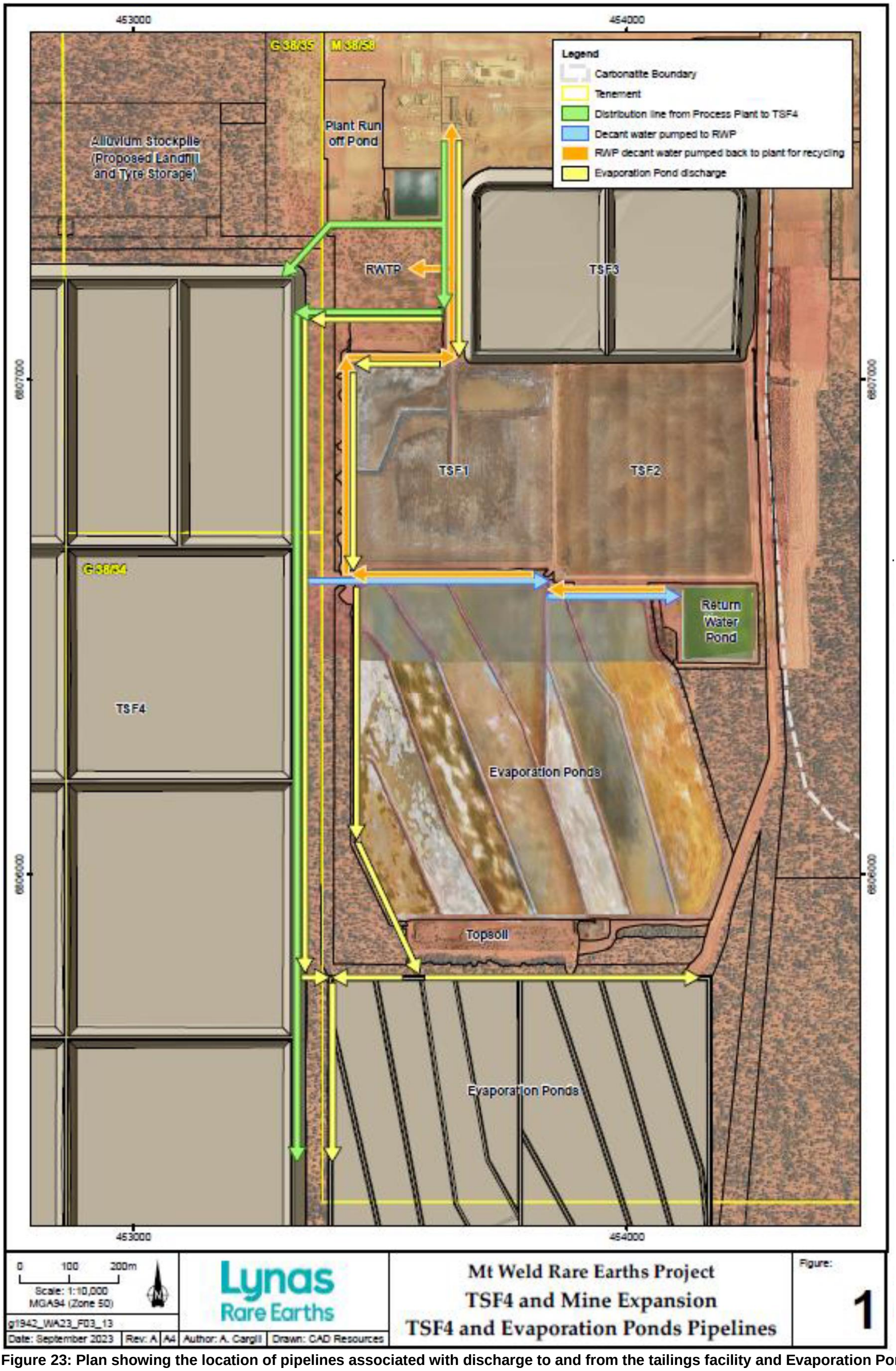
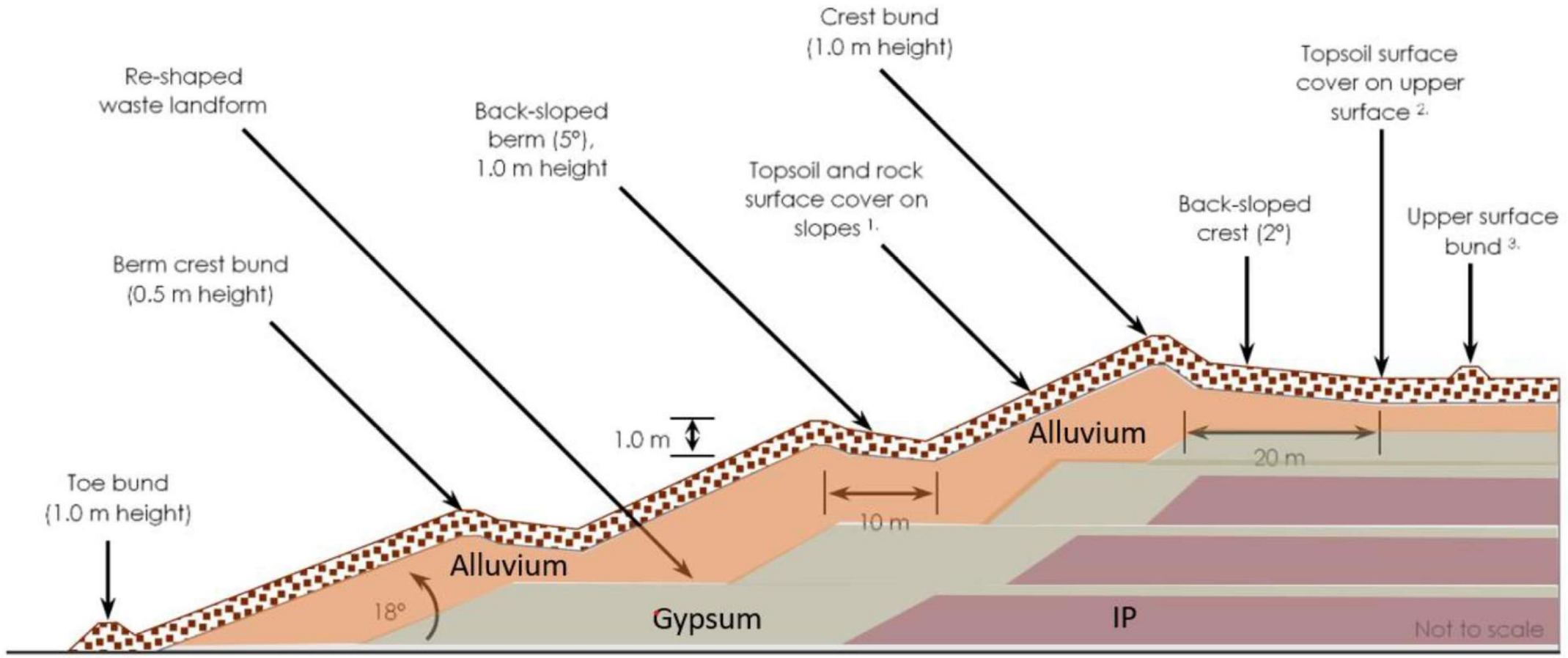


Figure 23: Plan showing the location of pipelines associated with discharge to and from the tailings facility and Evaporation Ponds.



1. 0.2 m topsoil with integrated benign competent rock (total 0.4 to 0.5 m cover depth, perpendicular to slope) on outer slopes.
2. 0.4 to 0.5 m topsoil on flat upper surface (in bunded drainage control cells).
3. Bunds across upper surface to break total surface catchment into smaller areas (approximately 0.25 ha in size).

Figure 24: General storage arrangement of by-products within the By-Products Landform.

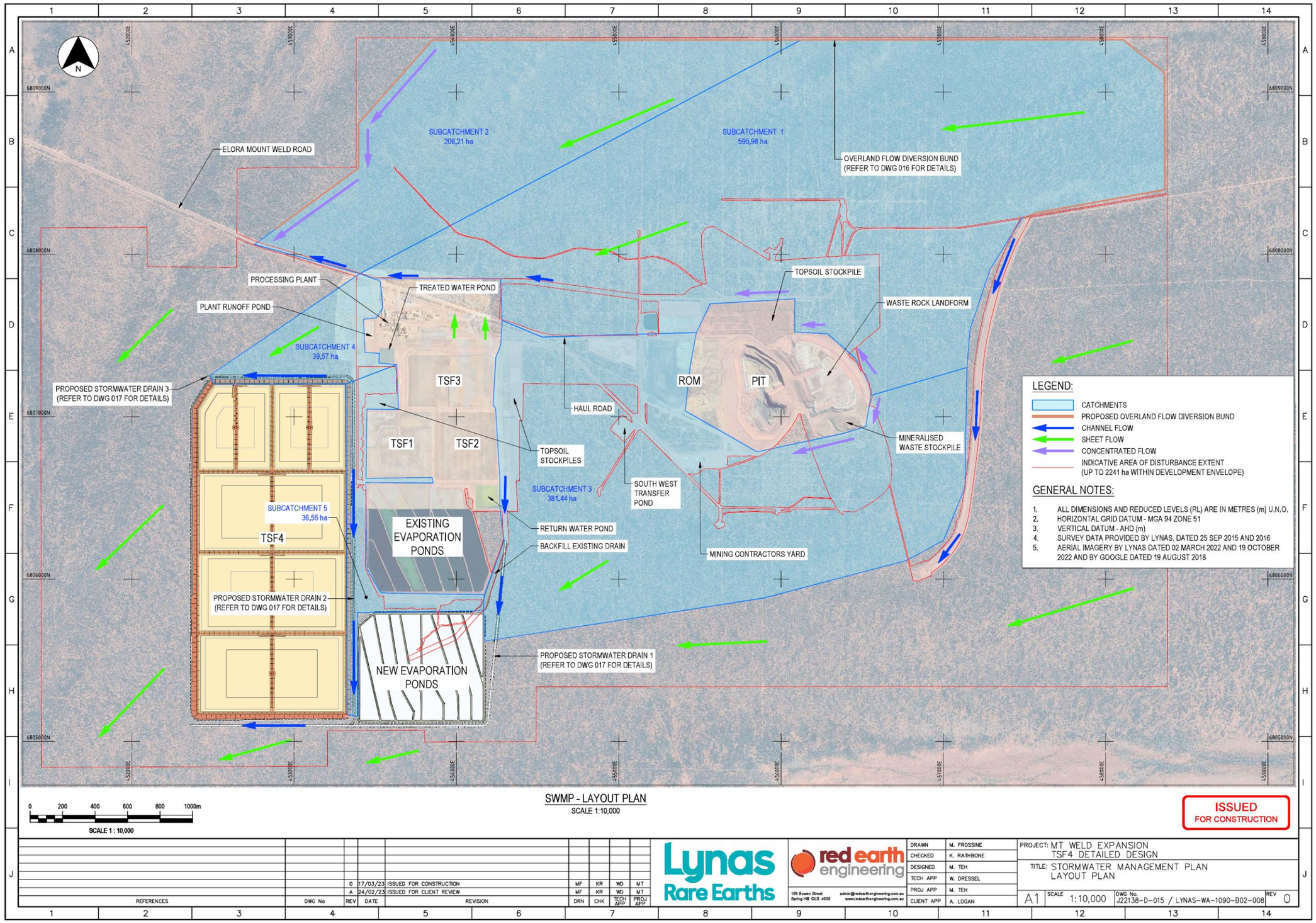


Figure 25: Plan of stormwater infrastructure controls

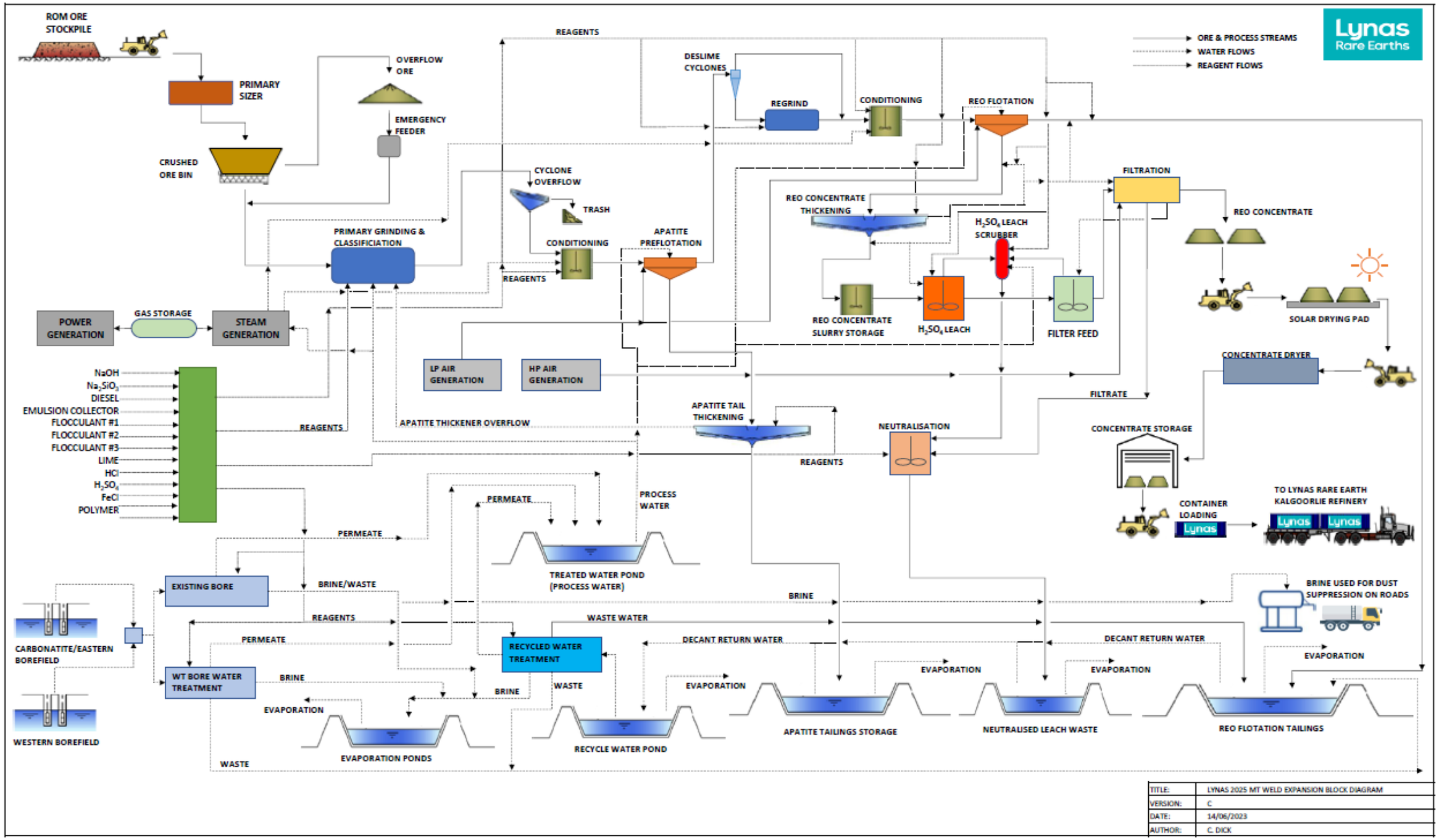


Figure 26: Flow digram of upgraded ore processing circuit showing origin of REO tailings