Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6901/2024/1
Works approval holder	Talison Lithium Australia Pty Ltd
ACN	139 401 307
Registered business address	216 St Georges Terrace
DWER file number	DER2021/000628
Duration	22/07/2024 to 21/07/2029
Date of issue	22 July 2024
Date of amendment	31 October 2025
Premises details	Talison Lithium Mine Maranup Ford Road Greenbushes WA 6254 Part of mine tenements M01/6 and M01/7

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	7,100,000 tonnes per year

This amended works approval is granted to the works approval holder, subject to the attached conditions, on 31 October 2025, by:

Michael Greenslade

Digitally signed by Michael Greenslade
Date: 2025.10.31 13:33:02 +08'00'

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

Works approval history

Date	Reference number	Summary of changes
W6618/2021/1 – initial works approval for TSF4		
08/03/2022	W6618/2021/1	Works approval for construction of TSF4 granted.
04/07/2023	W6618/2021/1	Works approval amended to allow staged construction of starter embankment of TSF4 Cell 1 (i.e. starter embankment to 261 m AHD to subsequent lift to 265 m AHD).
01/09/2023	W6618/2021/1	Works approval amended for modification of TSF4 Cell 1 liner.
27/03/2024	W6618/2021/1	Works approval amended for modification of TSF4 Cell 2 liner.
W6901/2024/1 – this approval		
22/07/2024	W6901/2024/1	Works approval for TSF4 embankment lift to 270 m AHD and increased tailings deposition from 7,000,000 tonnes per year to 7,100,000 tonnes per year.
11/04/2025	W6901/2024/1	Works approval amendment to make changes to the specifications of the construction and material for the embankment raise.
31/10/2025	W6901/2024/1	Works approval amendment for TSF4 embankment lift to 275 m AHD

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:

General

1. The works approval holder must manage dust generation at the premises by wetting down activities associated with construction of the tailings storage facility 4 (TSF4) embankment lift to 275 m AHD.

Construction phase

Infrastructure and equipment (critical containment infrastructure – tailings storage facility)

2. The works approval holder must:

(a) construct all critical containment infrastructure;

(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: Critical containment infrastructure design and construction requirements

	Infrastructure	Design and construction requirements	Infrastructure location
1.	TSF4 embankment lift to 275 m AHD (Cell 1 and Cell 2): General	(a) Constructed as per the design specifications shown in Figure 2 to Figure 10 of Schedule 1; (b) Maximum embankment height authorised to 275 m AHD / 1275 m RL as shown in Figures 2 to 10 of Schedule 1; (c) Constructed to provide a minimum 0.9 metre total freeboard (including an allowance for a 1 in 100-year event, 72 hour period of 217 mm) above the normal operating pond; (d) Any mine waste rock to be used in the embankment construction shall be non-acid forming; (e) Perimeter embankment will have a minimum 3(H):1(V) upstream and downstream slopes; (f) Perimeter embankment minimum crest width for cell 1: (i) north: 6 m; (ii) east: 31.5 m; and (iii) south: 31.5 m; (g) Perimeter embankment minimum crest width for cell 2: (i) north: 1.5 m; (ii) west: 56.4 m; and (iii) south: 31.5 m; and (h) Divider embankment constructed using centreline construction with a minimum 3(H):1(V) slope.	As shown Figure 1 of Schedule 1

2.	TSF4 embankment lift to 275 AHD (Cell 1 and Cell 2): Bituminous geomembrane (BGM) liner	(a) Installation of new BGM liner along the embankment lift to 275 m AHD, to be tied into the existing liner for the embankment at 270 m AHD where present. As shown in Figure 4 to Figure 8, and Figure 15 of Schedule 1; (b) Installed by a competent and appropriately qualified installer and deployed in accordance with the manufacturers specifications; (c) Subgrade for BGM liner to have: (i) minimum 300 mm thickness on embankments; (ii) be free from angular material (i.e. sharp rocks), vegetation, tree roots and stumps; and (iii) have less than 3% organic material. (d) Minimum BGM installation specifications include: (i) The panels shall overlap 20 cm (minimum) for seaming. Ends and overlaps must be welded on a homogenous and continuous basis to ensure a watertight seam, leaving 10 – 30 mm bitumen bead along the seam; (ii) Quadruple overlaps due to alignment of 4 strips are not permitted. Triple overlaps must be offset by 300mm and patched; (iii) Field seams shall be non-destructively tested for continuity over their full length in accordance with the installers Quality Control procedures. Any seams which fail shall be documented and repaired in accordance with the installers Quality Control procedures. (iv) Non-destructive confirmational testing (Electrical leak survey in accordance with ASTM D7953) shall be conducted on installed BGM liner; (v) Immediately prior to covering the BGM must be inspected for defects, tears, holes or damage; and (vi) Tears, holes, blisters, and other defects shall be repaired with patches made of the same BGM and extend a minimum 200 mm beyond the edge of defects. (e) BGM liner (on embankment) to have the following properties: (i) permeability of <6.0 x 10^{-14} m/s; (ii) nominal thickness greater than 3.5 mm (ASTM D5199); (iii) Mass per unit area greater than 4.2 kg/m^2 (ASTM D5261); (iv) Tensile strength at least 24.8 kN/m longitudinal direction and 21.8 kN/m cross direction (ASTM D7275); and (v) Tensile tear resistance at least 713 N longitudinal direction and 638 N cross direction (ASTM D4073). (f) BGM liner (on floor) to have the following properties: (i) permeability of <6.0 x 10^{-14} m/s;	As shown in Figure 11 to Figure 14 of Schedule 1

	Infrastructure	Design and construction requirements	Infrastructure location
		(ii) nominal thickness greater than 3.1 mm (ASTM D5199); (iii) Mass per unit area greater than 3.7 kg/m^2 (ASTM D5261); (iv) Tensile strength at least 16.5 kN/m longitudinal direction and 13.5kN/m cross direction (ASTM D7275); and (v) Tensile tear resistance at least 563N longitudinal direction and 375 N cross direction (ASTM D4073).	
3.	TSF4 embankment lift to 275 m AHD (Cell 1 and Cell 2): Seepage collection	(a) Construction of seepage collection systems (above liner drainage) and connection to the existing system as depicted in Figure 16 to Figure 21 of Schedule 1; (b) Construction of elevated drains (as part of the 275m AHD embankment raise), consisting of: a. DN160 slotted DrainCoil pipes with geotextile socks, encased on Zone 2B material; b. 0.3% gravity fall for seepage conveyance; c. upstream sealing (at BGM liner) and downstream bentonite clay cutoff blocks to minimise embankment penetration; d. discharging to existing underdrainage collection sumps; and (c) Extension of toe drains.	As shown in Figure 16 to Figure 19 of Schedule 1.
4.	TSF4 embankment lift to 275 m AHD (Cell 1 and Cell 2): Piezometers	(a) Installation of 4 vibrating wire piezometers as shown in Figure 24 and Figure 25 of Schedule 1.	As shown in in Figure 24 and Figure 25 of Schedule 1
5.	TSF4 embankment lift to 275 m AHD (Cell 1 and Cell 2): Additional underdrainage pipelines	(a) Pipelines to be installed according to Australian Standards AS/NZS 2033-2008, AS/NZS 4130-2018, AS 4131-2010 for installation of polyethylene pipe systems, pipes for pressure applications and polyethylene compounds for pressure and fittings; (b) Pipes shall be placed and installed in accordance with the manufacturer's specifications; and (c) All pipes shall be surveyed and inspected prior to placement of backfill	As shown in Figure 16 and Figure 17 of Schedule 1

Construction of groundwater monitoring wells

3. 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
1.	Groundwater monitoring well(s): Three bores (shallow, intermediate and deep) for each of the following TSF4 perimeter bores: • MB24-01 • MB24-02 • MB24-03 • MB24-04 • MB24-05 • MB24-06 • MB24-07 • MB24-08	<u>Well design and construction:</u> Designed and constructed in accordance with *ASTM D5092/D5092M-16: Standard practice for design and installation of groundwater monitoring bores*. Well screens must target the part, or parts, of the aquifer most likely to be affected by contamination[1]. Where temporary/seasonal perched features are present, wells must be nested, and the perched features individually screened. The screened intervals should be no longer than 6 metres.	Perimeter bores as depicted in Figure 22 of Schedule 1. Proposed coordinates given in Schedule 2.	Must be constructed, developed (purged), and determined to be operational by no later than 30 calendar days prior to the commencement of time limited operations.
		<u>Logging of borehole:</u> 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.		
		<u>Well construction log:</u> 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.		
		<u>Well development:</u> 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.		
		<u>Installation survey:</u> the vertical (top of casing) and horizontal position of each monitoring well must be surveyed and subsequently mapped by a suitably qualified surveyor.		
		<u>Well network map:</u> 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.		
2.	Groundwater monitoring well adjacent to surface water monitoring point SW23-02 (as shown in Figure 23)	As per the specifications for Row 1	Groundwater monitoring well adjacent to SW23-02 as depicted in Figure 23, or as determined by condition 4.	As determined by condition 4

Note 1: refer to Section 8 of Schedule B2 of the *Assessment of Site Contamination NEPM* for guidance on well screen depth and length.

4. The works approval holder must undertake a targeted review (by a hydrogeological consultant) of the groundwater monitoring network hydraulically downstream of TSF4 and submit to the CEO a report that includes, but is not limited to:

(a) a review of the suitability of the groundwater monitoring network in the area to ensure that the existing deep monitoring bores are suitably located on regional fracture systems, and suitable for the purpose of monitoring seepage impacts from TSF4;

(b) consideration of the existing geological and geophysical information for the area;

(c) consideration of the presence of seasonal perched aquifers, whether seasonal perched aquifers would be significant conduits for groundwater flow, and whether additional shallow bores would be required to monitor these aquifers for seepage impacts from TSF4;

(d) propose additional monitoring sites (if recommended through the review undertaken under parts (a), (b) (c) of this condition), factoring in site accessibility;

(e) where additional monitoring sites (as per part (d) of this condition) are proposed, timeframes for the installation and development of the additional monitoring sites; and

(f) in the instance where the review indicates that existing monitoring wells would serve as a suitable replacement for the proposed groundwater monitoring well adjacent to SW23-02, (and are suitable to achieve the monitoring outcomes identified through the review), include:

(i) detail on the nature of this suitability in terms of local geological and geophysical information, aquifer presence and seepage pathways; and

(ii) proposed dilution attenuation factor (DAF) derived values to allow sufficient protection of the water quality and ecology within Woljenup Creek.

5. The works approval holder must submit the report specified in condition 4 to the CEO within 6 months of the date of amendment of the works approval.

Groundwater monitoring prior to time limited operations

6. The works approval holder must conduct groundwater monitoring in accordance with the requirements of Schedule 3 and:

(a) for the corresponding parameter;

(b) at the corresponding frequency;

(c) in the corresponding unit; and

(d) following the corresponding method and detail;

for monitoring wells in accordance with Table 3.

Table 3: Groundwater monitoring prior to time limited operations

Monitoring well location	Parameter[2]	Unit	Frequency	Method
Three bores (shallow, intermediate and deep) for each of the following TSF4 perimeter locations as installed according to condition	Standing water level	Metres below ground level (m bgl)	A sampling event within 1 month following monitoring well	AS/NZS 5667.1 & AS/NZS 5667.11
	pH[1]	pH units		
	Electrical conductivity	µS/cm		
	Total dissolved solids	(TDS)		

3: • MB24-01 • MB24-02 • MB24-03 • MB24-04 • MB24-05 • MB24-06 • MB24-07 • MB24-08 & Bore adjacent to SW23-02 as required by condition 3	Hardness	mg/L	installation and prior to time limited operations.	
	Dissolved oxygen[1]	mg/L		
	Major cations and anions • Calcium • Chloride • Magnesium • Manganese • Nitrate • Phosphate • Potassium • Sodium • Sulfate **Total and dissolved metals, metalloids and non-metals** • Aluminium • Antimony • Arsenic • Barium • Beryllium • Boron • Cadmium • Chromium III • Chromium VI • Cobalt • Copper • Iron • Lead • Lithium • Mercury • Molybdenum • Nickel • Radium 226 • Radium 228 • Rubidium • Selenium • Strontium • Thallium • Thorium • Tin • Uranium • Zinc	mg/L		

Note 1: In-field non-NATA accredited analysis permitted
Note 2: Samples are to be filtered and measured at the appropriate LORs so as to allow comparison with relevant water quality criteria (including for aquatic ecology and human health)

Surface water monitoring prior to time limited operations

7. The works approval holder must conduct surface water monitoring in accordance with the requirements specified in Schedule 3 and:

(a) for the corresponding parameter;

(b) at the corresponding frequency;

(c) in the corresponding unit; and

(d) following the corresponding method and detail;

for monitoring locations in accordance with Table 4.

Table 4: Surface water monitoring prior to time limited operations

Monitoring location	Parameter[2]	Unit	Frequency	Method
Surface water monitoring locations along Woljenup Creek: SW24-01 SW23-01 SW23-02 as shown in Figure 23	pH[1]	pH units	No later than 30 calendar days prior to the commencement of time limited operations.	AS/NZS 5667.1 & AS/NZS 5667.6
	Temperature	ºC		
	Electrical conductivity	µS/cm		
	Total dissolved solids	(TDS)		
	Alkalinity (total as $CaCO_3$)	mg/L		
	Dissolved oxygen[1]	mg/L		
	Major cations and anions • Calcium • Chloride • Nitrate • Sulfate **Total and dissolved metals, metalloids and non-metals** • Aluminium • Antimony • Arsenic • Cadmium • Caesium • Lithium • Manganese • Rubidium • Thallium • Uranium • Vanadium • Zinc	mg/L		

Note 1: In-field non-NATA accredited analysis permitted.
Note 2: Samples are to be filtered and measured at the appropriate LORs so as to allow comparison with relevant water quality criteria (including for aquatic ecology and human health)

8. The works approval holder must adhere to the field quality assurance and quality control procedures specified in Schedule 3 for the monitoring required by conditions 4 and 7.

9. 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 in conditions 4 and 7.

Compliance reporting (critical containment infrastructure)

10. The works approval holder must within 90 calendar days of the Critical Containment Infrastructure identified by condition 2 being constructed:

(a) undertake an audit of their compliance with the requirements of condition 2; and

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

11. The Critical Containment Infrastructure Report required by condition 10 must include as a minimum the following:

(a) certification by a suitably qualified geotechnical engineer that each item of critical containment infrastructure or component thereof, as specified in condition 2, has been built and installed in accordance with the requirements specified in condition 2;

(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 2;

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

(d) records of any quality assurance/control testing undertaken to demonstrate the requirements of condition 2, including the basis of any method specification adopted;

(e) a summary of BGM liner defects and repairs recorded during installation of the liner in accordance with condition 2; and

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

Compliance reporting (well construction and monitoring)

12. The works approval holder must within 60 calendar days of groundwater monitoring well installation required by condition 3:

(a) undertake an audit of their compliance with the requirements of condition 3; and

(b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.

13. The works approval holder must submit to the CEO, within 60 calendar days of completing monitoring required by conditions 6 and 7, a monitoring report demonstrating their compliance with condition 6 and 7, and must include:

(a) a clear statement of the scope of work carried out;

(b) a description of the field methodologies employed;

(c) a summary of the field and laboratory quality assurance / quality control (QA/QC) program;

(d) copies of the field monitoring records and field QA/QC documentation;

(e) an assessment of reliability of field procedures and laboratory results;

(f) a tabulated summary of results, as well as all raw data provided in an accompanying Microsoft Excel spreadsheet digital document/file (or a compatible equivalent digital document/file), with all results being clearly referenced to laboratory certificates of analysis;

(g) a diagram with aerial image overlay showing all monitoring locations and depicting groundwater level contours, flow direction and hydraulic gradient (relevant site features including discharge points and other potential sources of contamination must also be shown);

(h) an interpretive summary and assessment of the results against relevant assessment levels for water, as published in the Guideline Assessment and management of contaminated sites;

(i) an interpretive summary and proposal for dilution attenuation factor (DAF) derived values to allow sufficient protection of the water quality and ecology within Woljenup Creek;

(j) trend graphs to provide a graphical representation of historical results and to support the interpretive summary.

Note 1: General guidance on report presentation can be found in the Department's *Guideline: Assessment and management of contaminated sites*.

Time limited operations phase

Commencement and duration

14. The works approval holder may only commence time limited operations for an item of critical containment infrastructure identified in condition 2:

(a) where the CEO has notified the works approval holder that the Critical Containment Infrastructure Report for that item of infrastructure as required by condition 10 meets the requirements of that condition; or

(b) where at least 45 business days have passed after the Critical Containment Infrastructure Report (CCIR) for that item of infrastructure as required by condition 10 has been submitted to the CEO.

15. The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 16 (as applicable):

(a) for a period not exceeding 270 calendar days from the day the works approval holder meets the requirements of condition 14 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 15(a).

Time limited operations requirements and emission limits

16. During time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 5 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 5.

Table 5: Infrastructure and equipment requirements during time limited operations

	Site infrastructure and equipment	Operational requirement	Infrastructure location
1.	TSF4 embankment lift to 275 AHD	(a) To be maintained as per the design and construction/installation requirements in condition 2; (b) Maintained with a minimum 0.9 m total freeboard (including an allowance for a 1 in 100-year event, 72 hour period of 217mm) above the normal operating pond; (c) Minimise the size of the decant pond as much as practicable; (d) Visual inspections daily and following significant rainfall events to check: (i) Freeboard capacity; (ii) Location and size of decant pond (in hectares and expressed as a total percentage of the surface area of the TSF);	As shown Figure 1 of Schedule 1

	Site infrastructure and equipment	Operational requirement	Infrastructure location
		(iii) Change in seepage conditions or sudden change in water level; and (iv) Signs of erosion.	
2.	TSF4 embankment lift to 275 AHD – BGM liner	BGM liner maintained as per the design and construction/installation requirements in condition 2	As shown in Figure 11 to Figure 14 of Schedule 1
3.	TSF4 embankment lift to 275 AHD	Seepage collection maintained as per the design and construction requirements in condition 2	As shown in Figure 16 to Figure 19 of Schedule 1
4.	TSF4 embankment lift to 275 m AHD: Additional pipelines (additional underdrainage pipelines)	Pipelines maintained as per the design and construction requirements in condition 2	As shown in Figure 16 and Figure 17 of Schedule 1

Emissions and discharges

17. The works approval holder must ensure that the emissions specified in Table 6 are discharged only from the corresponding discharge point and only at the corresponding discharge point location.

Table 6: Authorised discharge points

Emission	Discharge point	Discharge point location
Tailings from onsite mining of the Talison Greenbushes lithium ore body	Tailings storage facility 4 (TSF4)	Tailings storage facility 4 (TSF4) as shown in Figure 1 of Schedule 1

Tailings characterisation

18. The works approval holder must provide completed results from long-term tailings kinetic leach testing. Interim results from kinetic leach tests[1] (first 18 months) have been provided to DWER, and final results of the remaining kinetic leach testing (minimum 6 to 12 additional months) must be provided to DWER once complete.

Note 1: GHD 2024 Talison Kinetic Leach Testing – Progressing Kinetic and Waste Rock Leach Test Results (August 2022 to December 2023).

Monitoring during time limited operations

19. The works approval holder must conduct groundwater monitoring in accordance with the requirements of Schedule 3 and:

(a) for the corresponding parameter;

(b) at the corresponding frequency;

(c) in the corresponding unit; and

(d) following the corresponding method and detail;

for monitoring wells in accordance with Table 7.

Table 7: Groundwater monitoring during time limited operations

Monitoring well location	Parameter[2]	Unit	Frequency	Method
Three bores (shallow, intermediate and deep) for each of the following TSF4 perimeter locations as installed according to condition 3 : • MB24-01 • MB24-02 • MB24-03 • MB24-04 • MB24-05 • MB24-06 • MB24-07 • MB24-08 Bore adjacent to SW23-02 as required by condition 3	Standing water level	Metres below ground level (m bgl)	A single sampling event undertaken between 60 and 180 calendar days following commencement of time limited operations (specifically tailings deposition into TSF4 after embankment construction to 270 m AHD); and A single sampling event undertaken between 60 and 180 calendar days following commencement of time limited operations (specifically tailings deposition into TSF4 after embankment construction to 275 m AHD).	AS/NZS 5667.1 & AS/NZS 5667.11
	pH[1]	pH units		
	Electrical conductivity	µS/cm		
	Total dissolved solids	(TDS)		
	Hardness	mg/L		
	Dissolved oxygen[1]	mg/L		
	Major cations and anions • Calcium • Chloride • Magnesium • Manganese • Nitrate • Phosphate • Potassium • Sodium • Sulfate **Total and dissolved metals, metalloids and non-metals** • Aluminium • Antimony • Arsenic • Barium • Beryllium • Boron • Cadmium • Chromium III • Chromium VI • Cobalt • Copper • Iron • Lead • Lithium • Mercury • Molybdenum • Nickel • Radium 226 • Radium 228 • Rubidium • Selenium • Strontium • Thallium • Thorium • Tin • Uranium • Zinc	mg/L		

Note 1: In-field non-NATA accredited analysis permitted.
Note 2: Samples are to be filtered and measured at the appropriate LORs so as to allow comparison with relevant water quality criteria (including for aquatic ecology and human health)

20. The works approval holder must conduct surface water monitoring in accordance with the requirements specified in Schedule 3 and:

(a) the corresponding parameter;

(b) at the corresponding frequency;

(c) in the corresponding unit; and

(d) following the corresponding method and detail;

for monitoring locations in accordance with Table 8.

Table 8: Surface water monitoring during time limited operations

Monitoring location	Parameter[2]	Unit	Frequency	Method
Surface water monitoring locations along Woljenup Creek: SW24-01 SW23-01 SW23-02 as shown in Figure 23	pH[1]	pH units	A single sampling event undertaken between 60 and 180 calendar days following commencement of time limited operations (specifically tailings deposition into TSF4 after embankment construction to 270 m AHD); and A single sampling event undertaken between 60 and 180 calendar days following commencement of time limited operations (specifically tailings deposition into TSF4 after embankment construction to 275 m AHD).	AS/NZS 5667.1 & AS/NZS 5667.6
	Temperature	ºC		
	Electrical conductivity	µS/cm		
	Total dissolved solids	(TDS)		
	Alkalinity (total as $CaCO_3$)	mg/L		
	Dissolved oxygen[1]	mg/L		
	Major cations and anions • Calcium • Chloride • Nitrate • Sulfate **Total and dissolved metals, metalloids and non-metals** • Aluminium • Antimony • Arsenic • Cadmium • Caesium • Lithium • Manganese • Rubidium • Thallium • Uranium • Vanadium • Zinc	mg/L		

Note 1: In-field non-NATA accredited analysis permitted
Note 2: Samples are to be filtered and measured at the appropriate LORs so as to allow comparison with relevant water quality criteria (including for aquatic ecology and human health)

21. The works approval holder must adhere to the field quality assurance and quality control procedures specified in Schedule 3 for the monitoring required by conditions 19 and 20.

22. 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 in conditions 19 and 20.

23. For monitoring conducted in accordance with conditions 19 and 20, the works approval holder must conduct a trigger investigation and/or management actions in

accordance with the "TSF4 Seepage Assessment - Seepage Monitoring and Management Plan, 2024[1] " when samples obtained indicate exceedances of specified trigger levels for the parameters listed in Table 7 and Table 8.

24. The works approval holder must submit to the CEO, within 60 calendar days of completing monitoring required by conditions 19 and 20, a monitoring report demonstrating their compliance with condition 19 and 20, and must include:

(a) a clear statement of the scope of work carried out;

(b) a description of the field methodologies employed;

(c) a summary of the field and laboratory quality assurance / quality control (QA/QC) program;

(d) copies of the field monitoring records and field QA/QC documentation;

(e) an assessment of reliability of field procedures and laboratory results;

(f) a tabulated summary of results, as well as all raw data provided in an accompanying Microsoft Excel spreadsheet digital document/file (or a compatible equivalent digital document/file), with all results being clearly referenced to laboratory certificates of analysis;

(g) a diagram with aerial image overlay showing all monitoring locations and depicting groundwater level contours, flow direction and hydraulic gradient (relevant site features including discharge points and other potential sources of contamination must also be shown);

(h) an interpretive summary and assessment of the results against relevant assessment levels for water, as published in the Guideline Assessment and management of contaminated sites[1];

(i) comparison with DAF derived values; and

(j) trend graphs to provide a graphical representation of historical results and to support the interpretive summary.

Note 1: General guidance on report presentation can be found in the Department's *Guideline: Assessment and management of contaminated sites*.

Compliance reporting – time limited operations

25. 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 90 calendar days before the expiration date of the works approval, whichever is the sooner.

26. The works approval holder must ensure the report required by condition 25 includes the following:

(a) a summary of the time limited operations, including timeframes and amount of material discharged to TSF4;

(b) a summary of monitoring results obtained under condition 6, 7, 19 and 20;

(c) a summary of any trigger investigations conducted under condition 23;

(d) a summary of the environmental performance of all infrastructure as constructed or installed; and

[1] TSF4 Seepage Assessment – Seepage Monitoring and Management Plan, Talison Lithium Pty Ltd, February 2024, GHD.

(e) 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)

27. 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.

28. 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 2 and 3;

(b) any maintenance of infrastructure that is performed in the course of complying with condition 16;

(c) monitoring programmes undertaken in accordance with conditions 6, 7, 19 and 20;

(d) complaints received under condition 27.

29. The books specified under condition 28 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 9 have the meanings defined.

Table 9: Definitions

Term	Definition
Assessment of Site Contamination NEPM	means the *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended from time to time.
books	has the same meaning given to that term under the EP Act.
AS/NZS 2033	means the Australian Standard *AS/NZS 2033: Installation of polyethylene pipe systems.*
AS/NZS 4130	means the Australian Standard *AS/NZS 4130 Polyethylene pipes for pressure applications.*
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 5667.6	means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance on the sampling of rivers and streams.*
AS/NZS 5667.11	means the Australian Standard AS/NZS 5667.11 *Water Quality - Sampling Guidance on sampling of groundwaters.*
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*).*
ASTM D5199	means the ASTM international standard: *Standard Test Method for Measuring the Nominal Thickness of Geosynthetics*
ASTM D7275	means the ASTM international standard: *Standard Test Method for Tensile Properties of Bituminous Geomembranes (BGM)*
BGM	bituminous geomembrane liner
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 2.
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*

Term	Definition
	Management Act 1994 and designated as responsible for the administration of Part V Division 3 of the EP Act.
dilution attenuation factor (DAF) derived values	DAF values can be used to determine the highest concentration that would be permissible in groundwater at the TSF that would protect a more distant receptor. This is done by multiplying the DAF value by the required concentration at the receptor to determine the maximum permissible concentration in groundwater near the contamination source (i.e. the TSF). In the absence of detailed information regarding the site, a suitable DAF value for TSF4 and downstream receptors has been calculated to be 6. Please refer to the decision report for W6901/2024/1 for further detail.
discharge	has the same meaning given to that term under the EP Act.
emission	has the same meaning given to that term under the EP Act.
Environmental Compliance Report	means a report to satisfy the CEO that the conditioned infrastructure and/or equipment has been constructed and/or installed in accordance with the works approval.
EP Act	*Environmental Protection Act 1986* (WA).
EP Regulations	*Environmental Protection Regulations 1987* (WA).
Hydrogeological consultant	Means a competent professional who: (a) holds a qualification in hydrogeology, geology, environmental science, geochemistry, geoscience, engineering, or related field; and (b) has a minimum of at least three years' experience working in hydrogeological consulting, groundwater resource assessment, and/or contaminated land investigation.
McJannet *et al*. (2022)	McJannet, D., Carlin, G., Ticehurst, C., Greve, A. and Sardella, C., 2022. Determination of evaporation from a tailings storage facility using field measurements and satellite observations. *Mine Water and the Environment*, **41**, 176-193.
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 geotechnical engineer	Means a competent professional who: (a) holds a qualification in geotechnical engineering or equivalent; and (b) has a minimum of at least three years' experience working as a geotechnical engineer.
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.

Term	Definition
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).

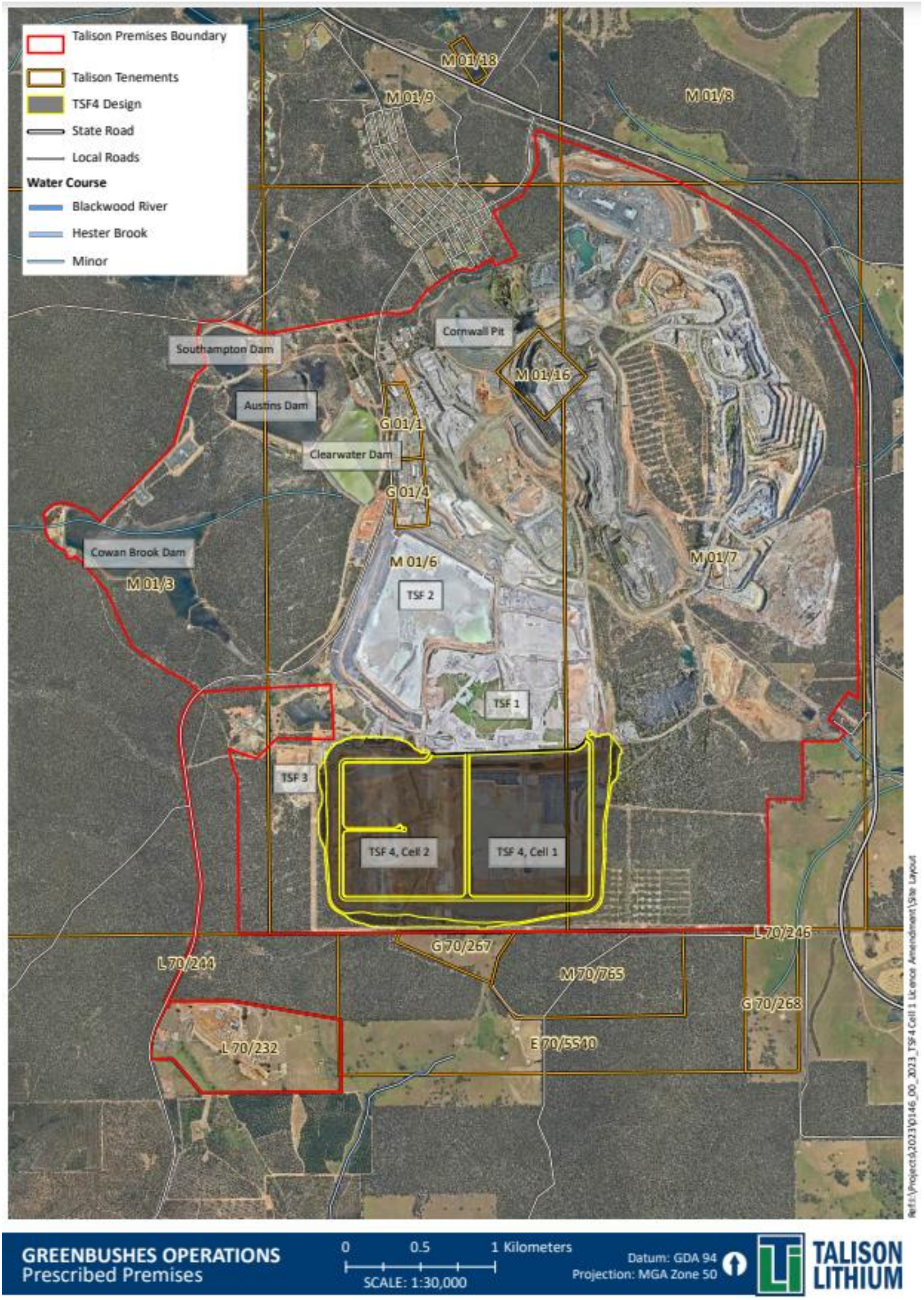


Figure 1: Map of the boundary of the prescribed premises and location of TSF4

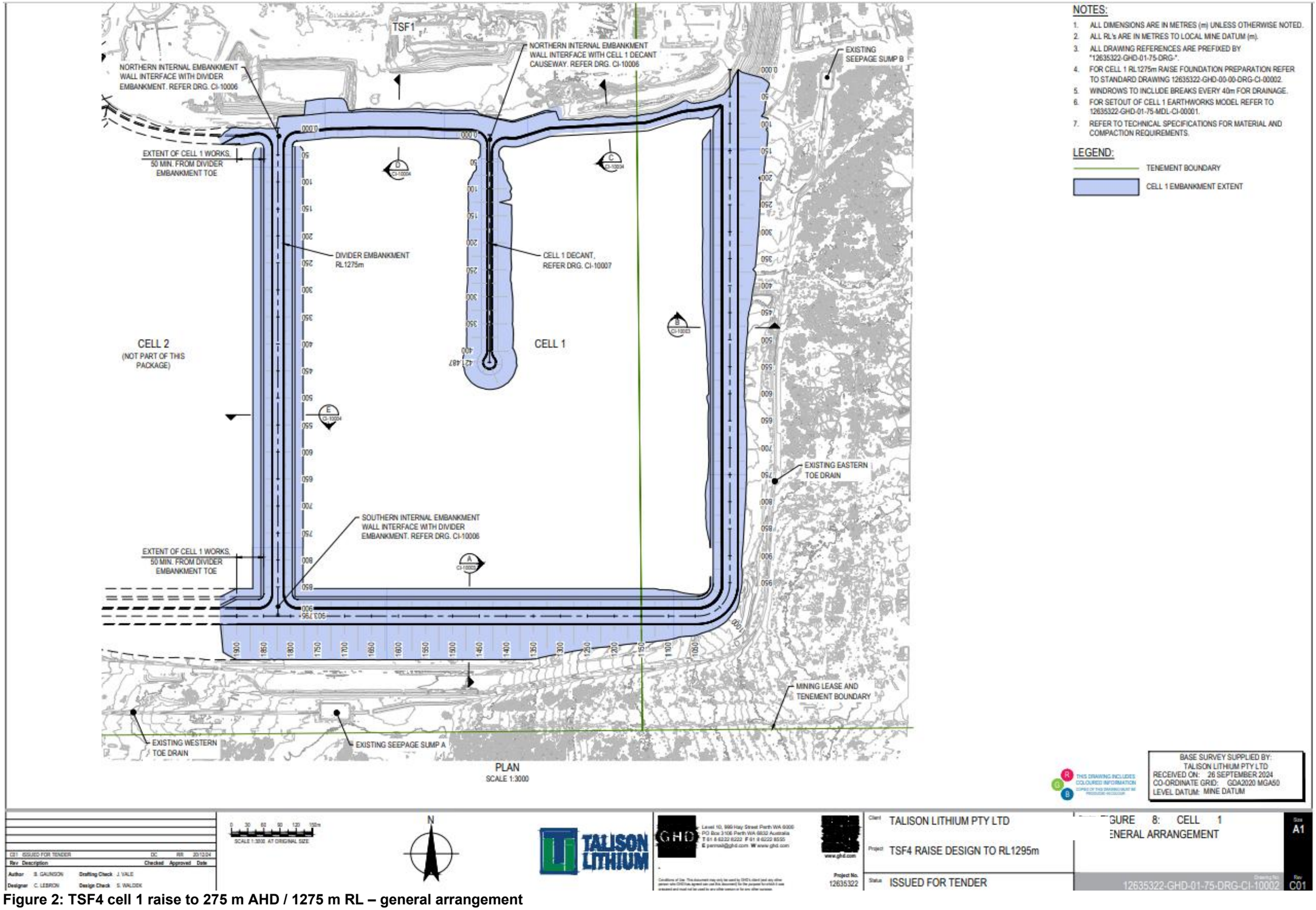


Figure 2: TSF4 cell 1 raise to 275 m AHD / 1275 m RL – general arrangement

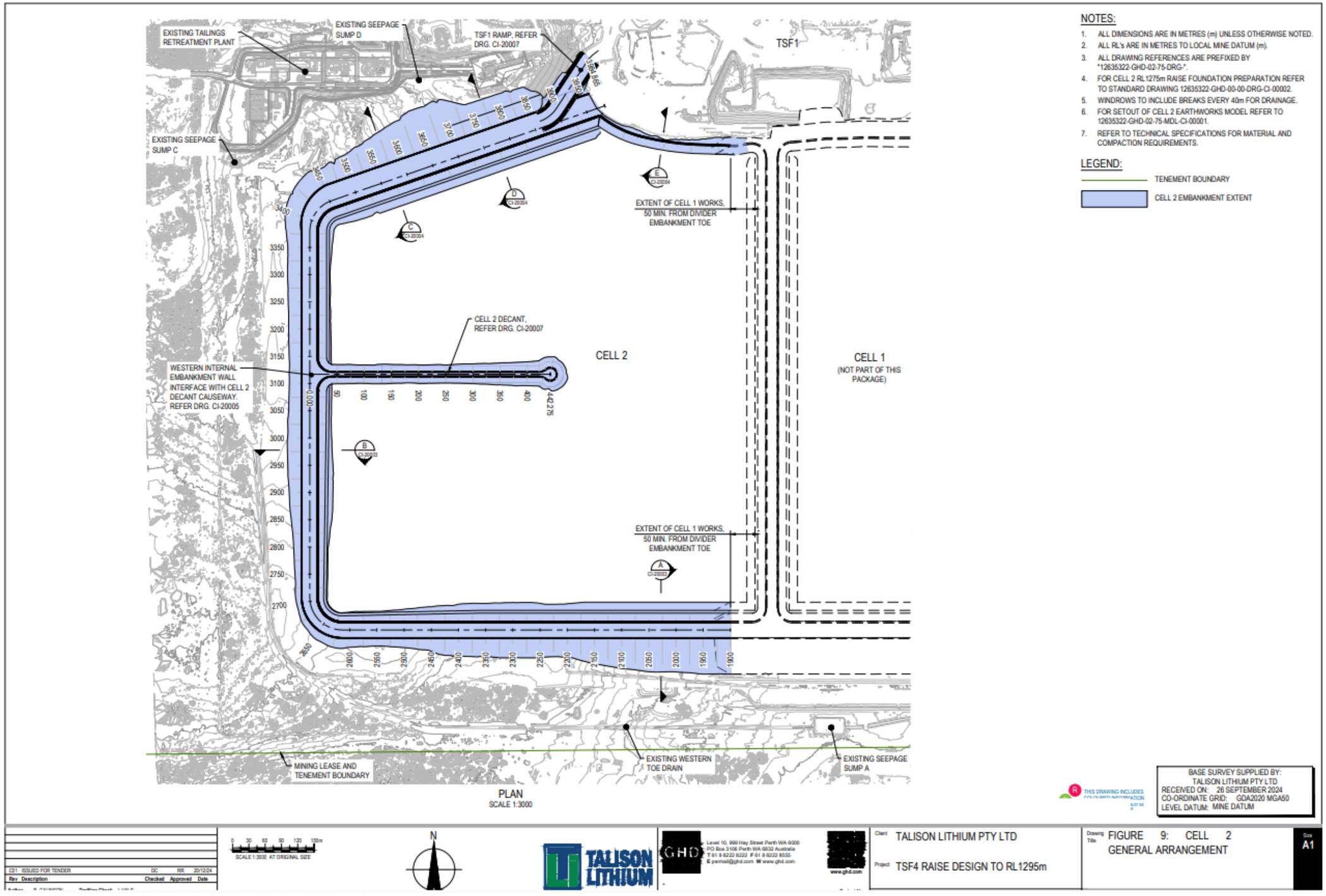


Figure 3: TSF4 cell 2 raise to 275 m AHD / 1275 m RL – general arrangement

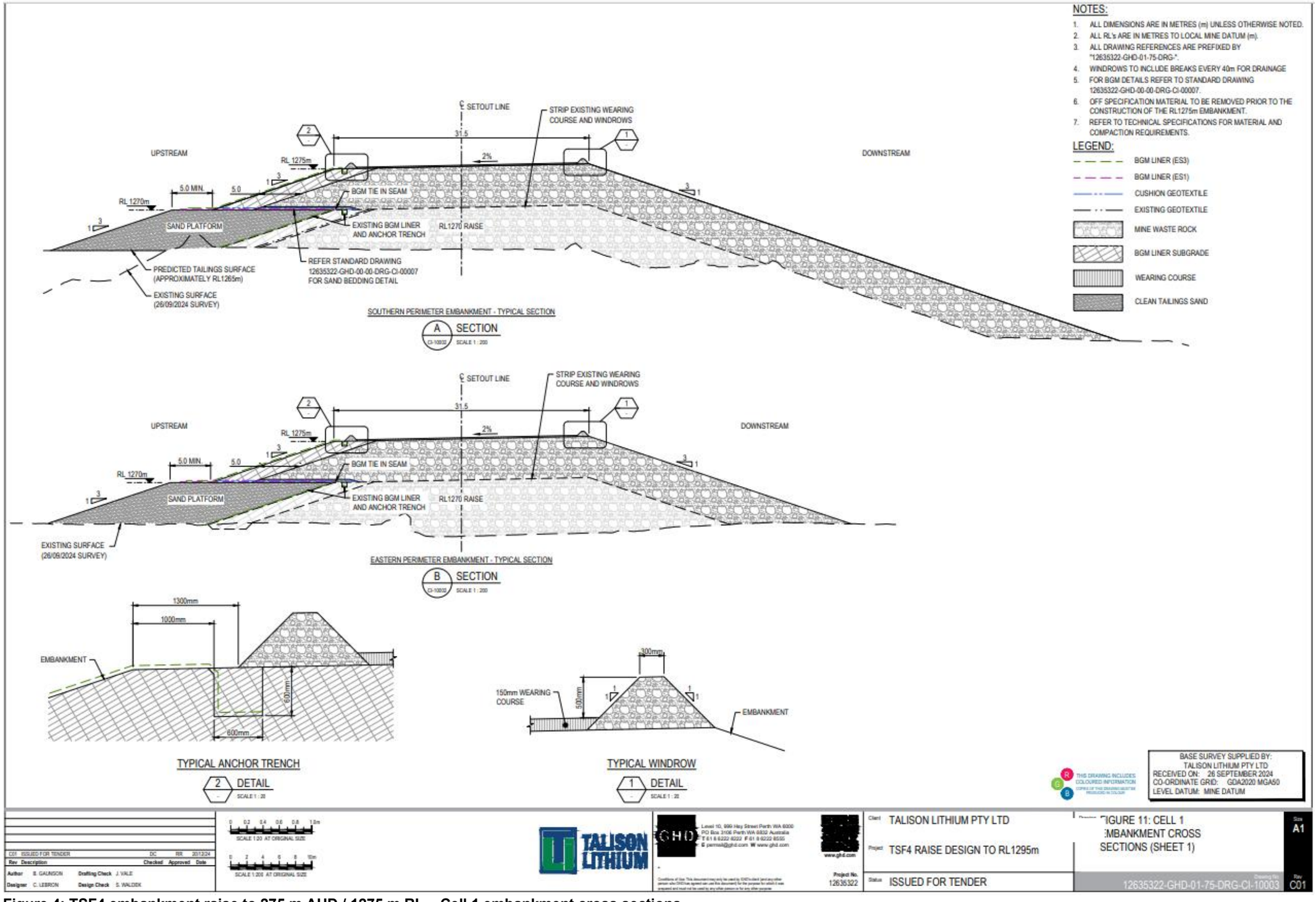


Figure 4: TSF4 embankment raise to 275 m AHD / 1275 m RL – Cell 1 embankment cross sections

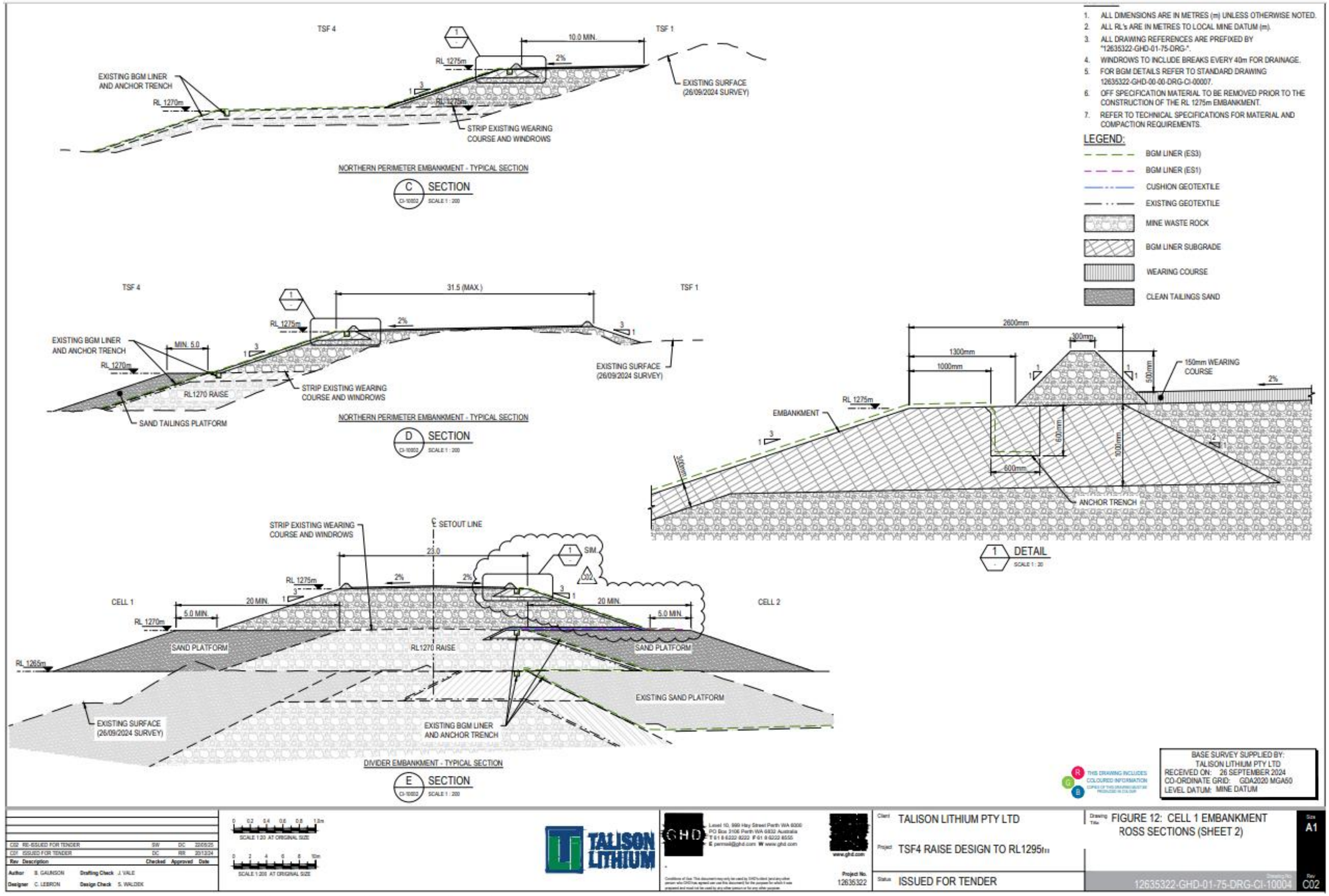


Figure 5: TSF4 embankment raise to 275 m AHD / 1275 m RL – Cell 1 typical embankment section detail (continued)

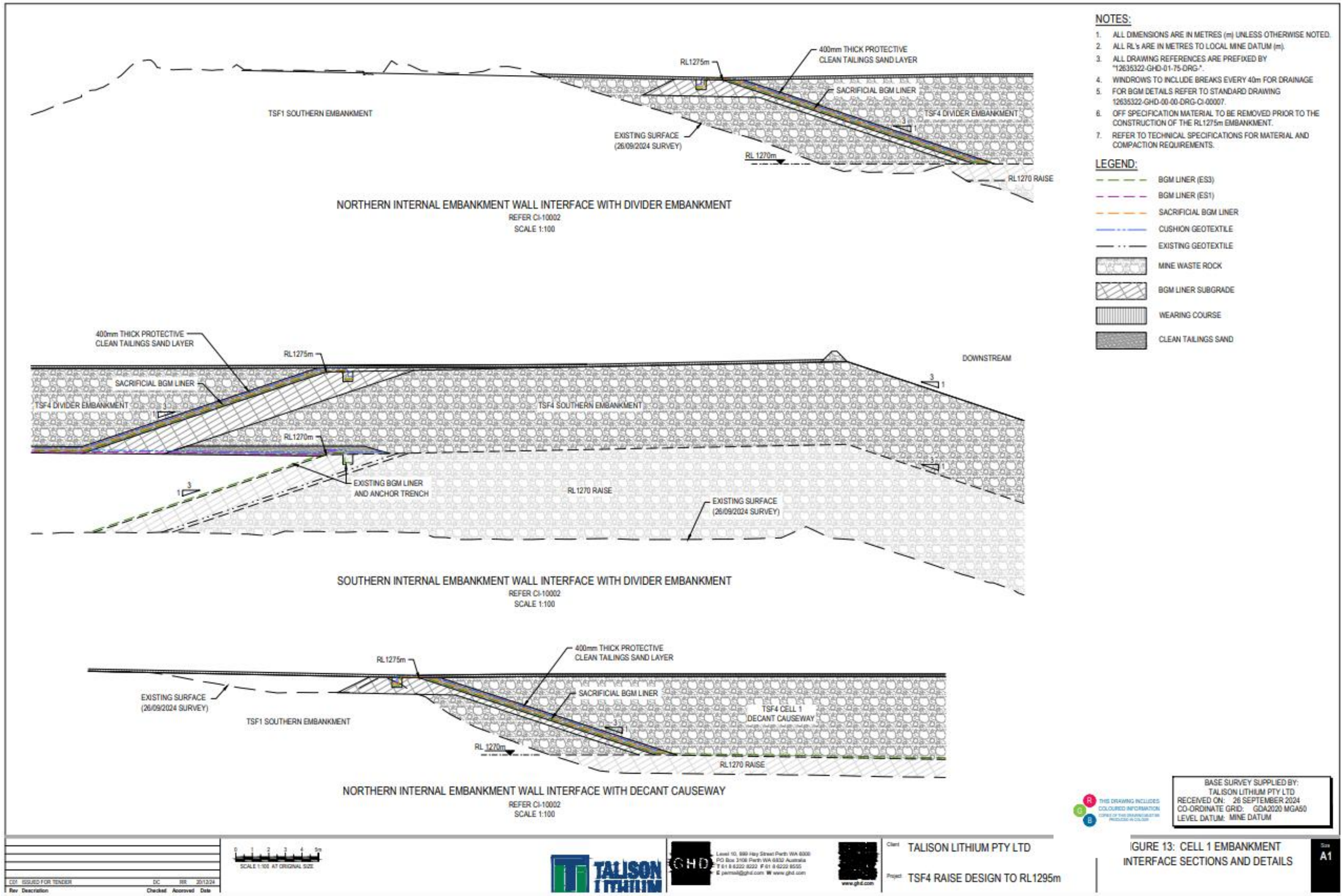


Figure 6: TSF embankment raise to 275 m AHD / 1275 m RL – Cell 1 typical embankment section detail – continued

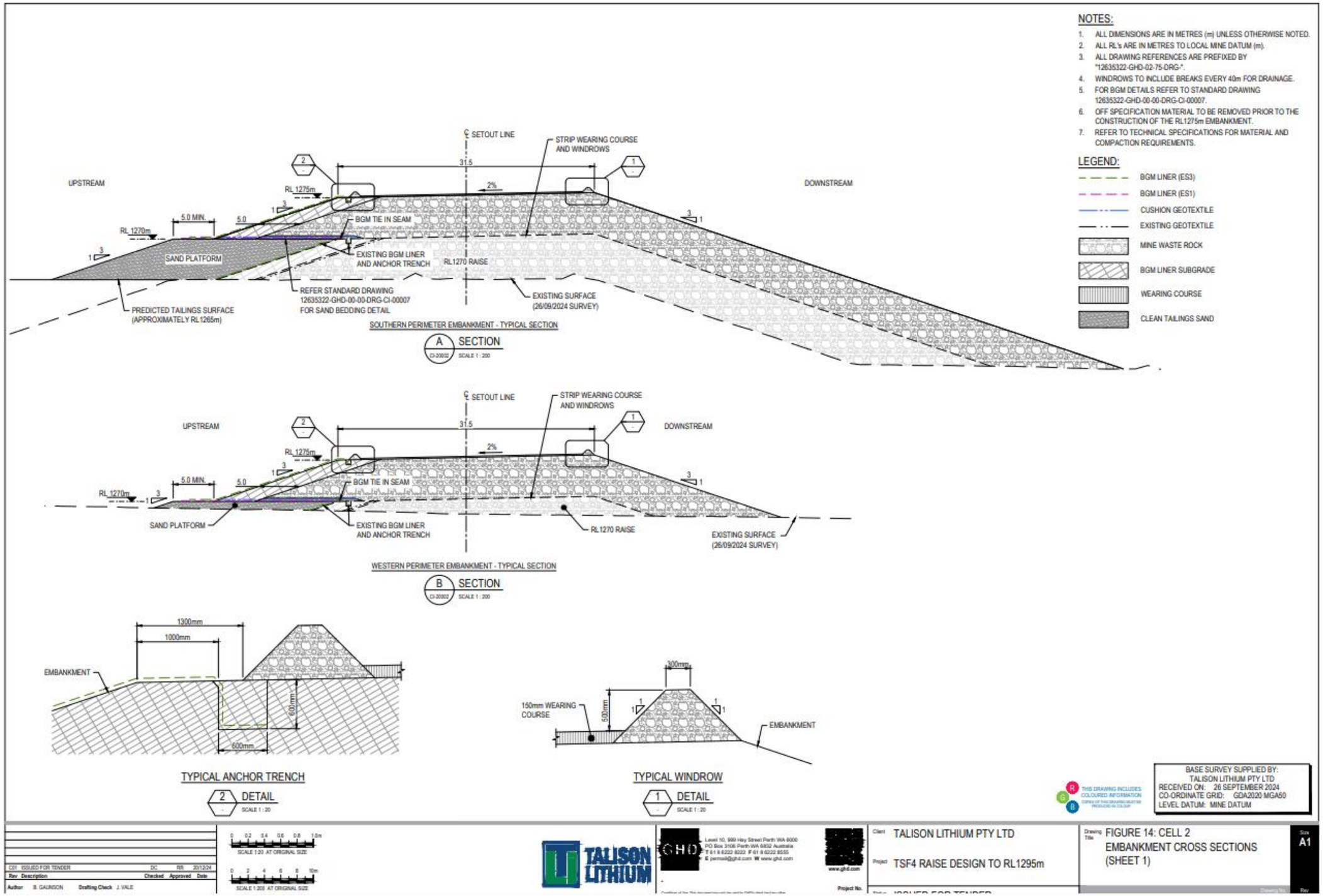


Figure 7: TSF embankment raise to 275 m AHD / 1275 m RL – Cell 2 typical embankment section detail

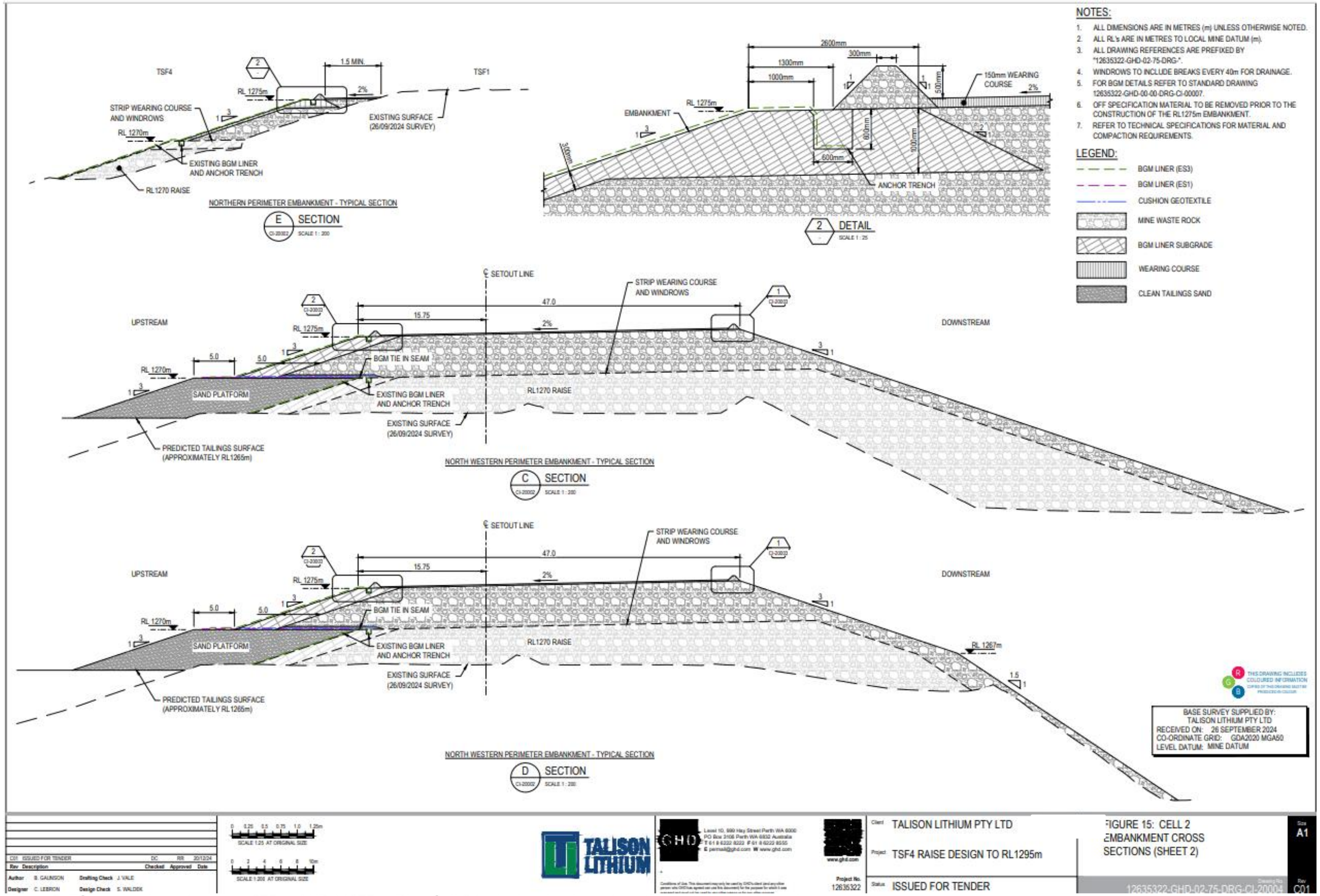


Figure 8: TSF embankment raise to 275 m AHD / 1275 m RL – Cell 2 typical embankment section detail – continued

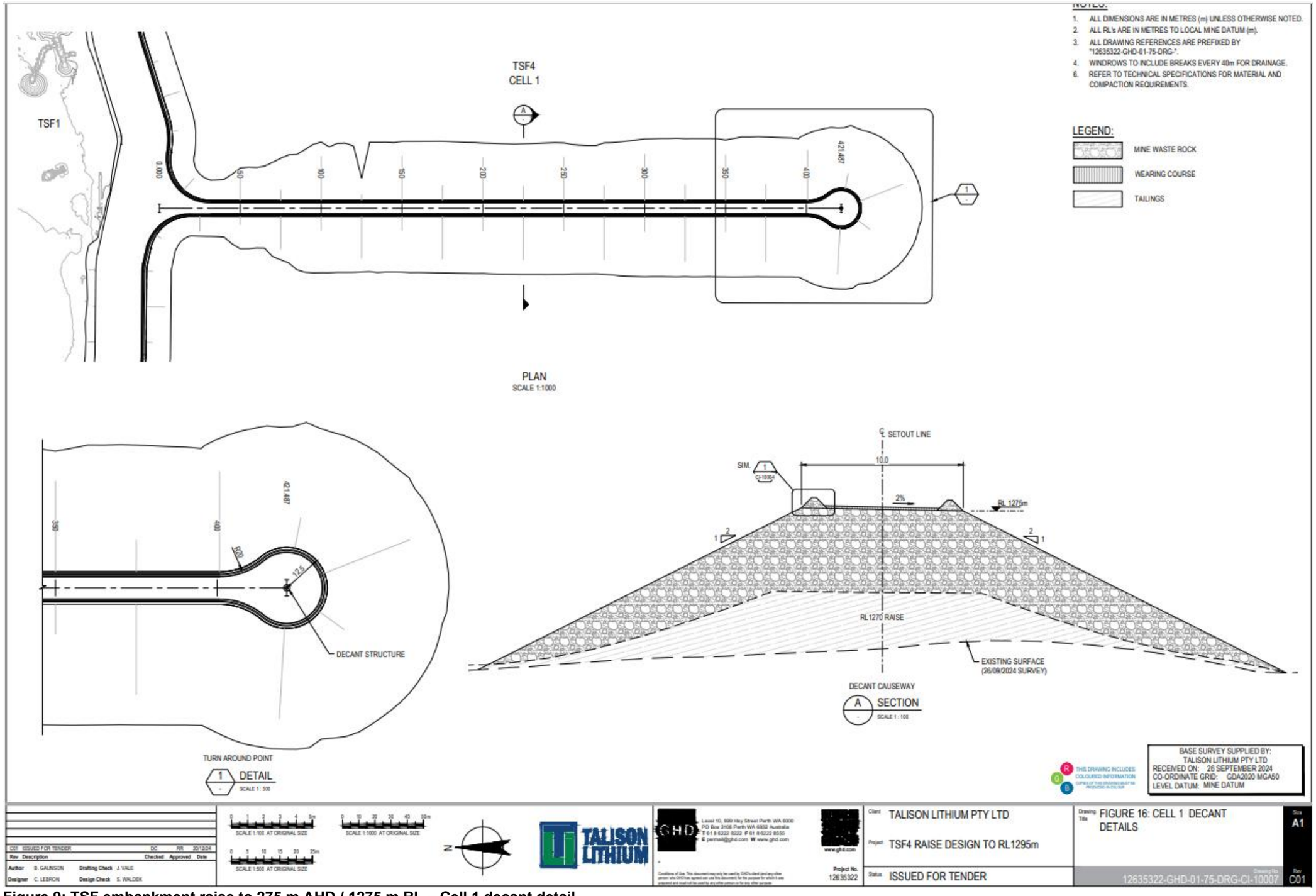


Figure 9: TSF embankment raise to 275 m AHD / 1275 m RL – Cell 1 decant detail

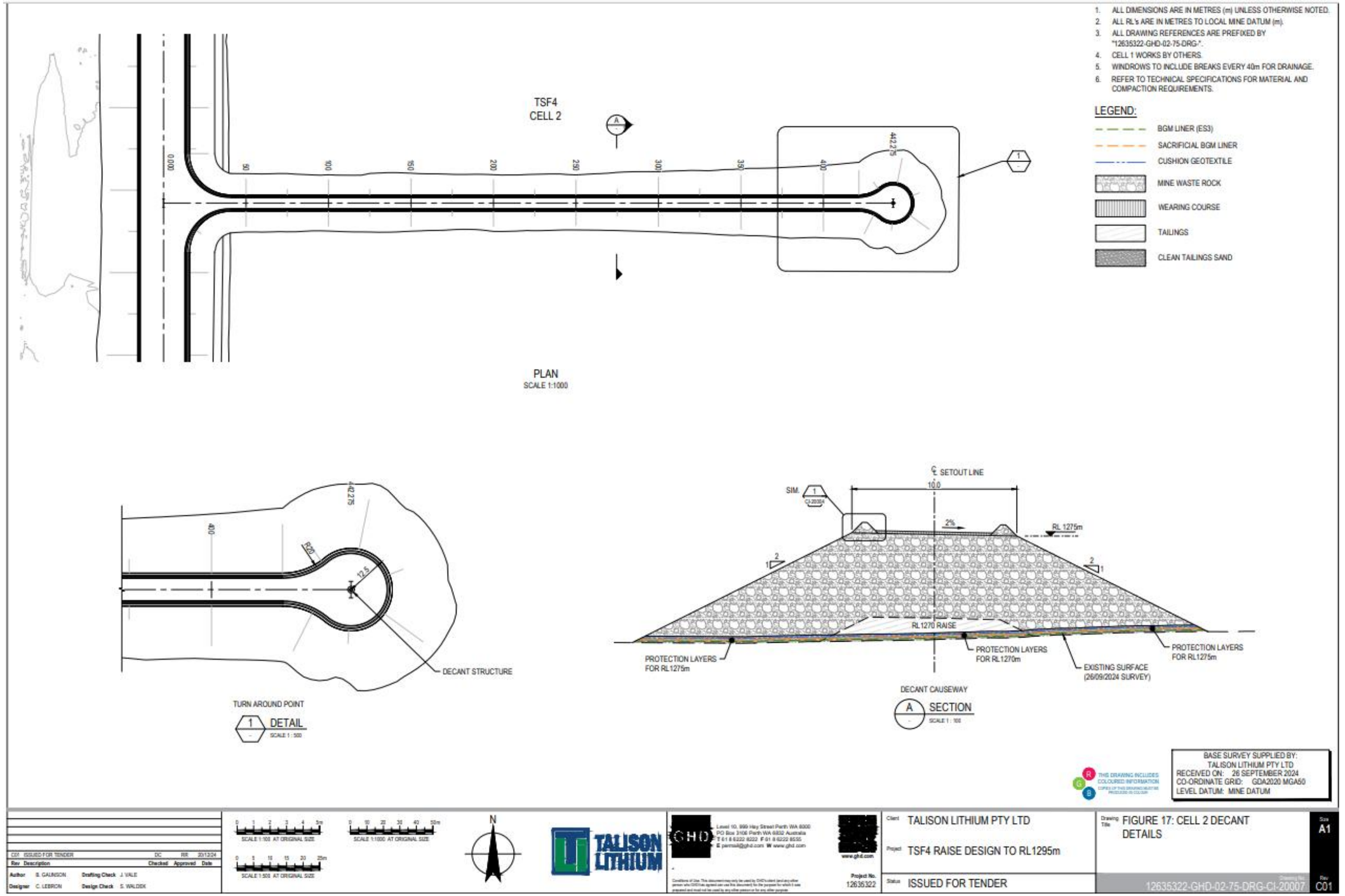


Figure 10: TSF embankment raise to 275 m AHD / 1275 m RL – Cell 2 decant detail

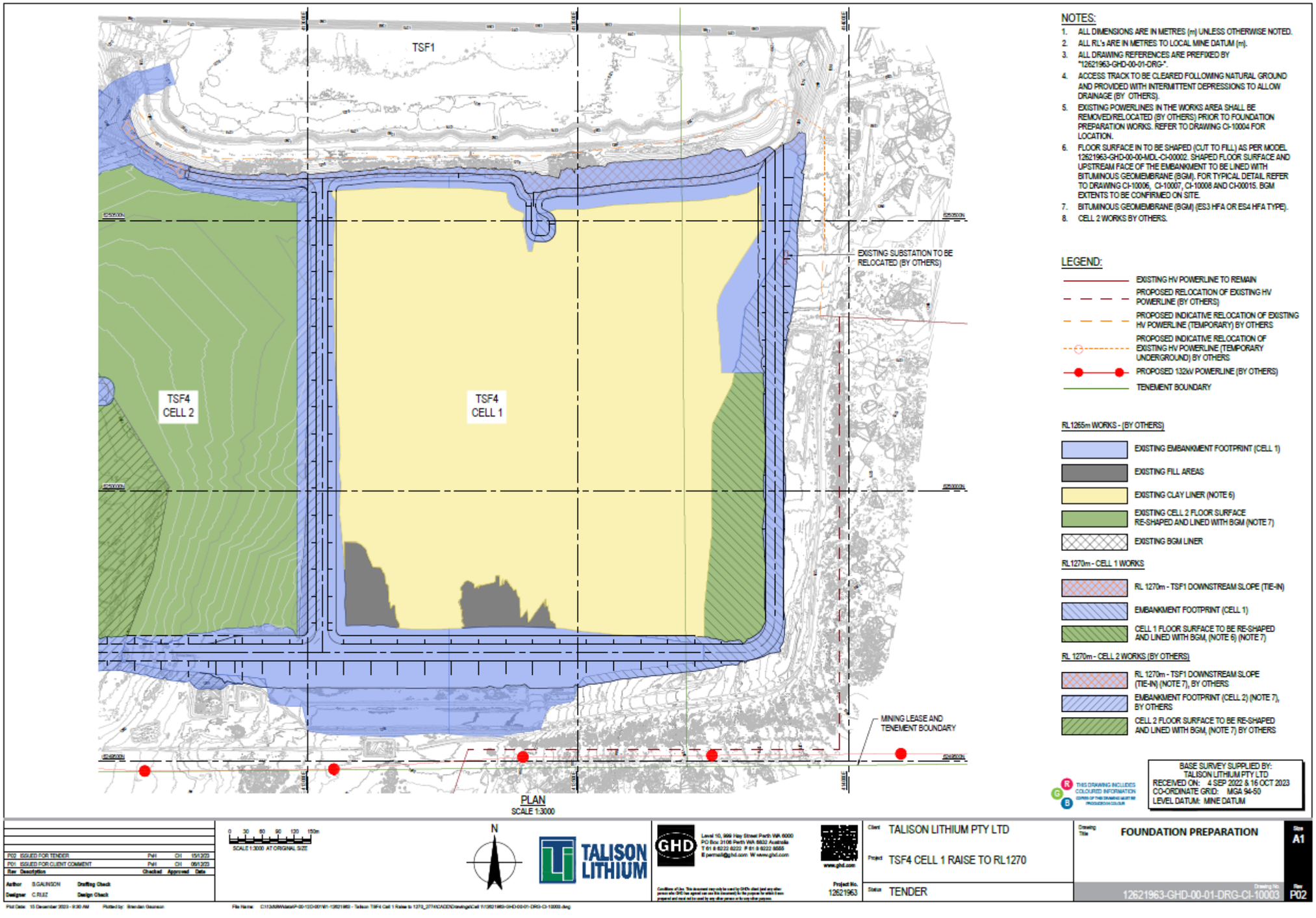


Figure 11: TSF4 cell 1 raise to 270 m AHD / 1270 m RL - foundation preparation

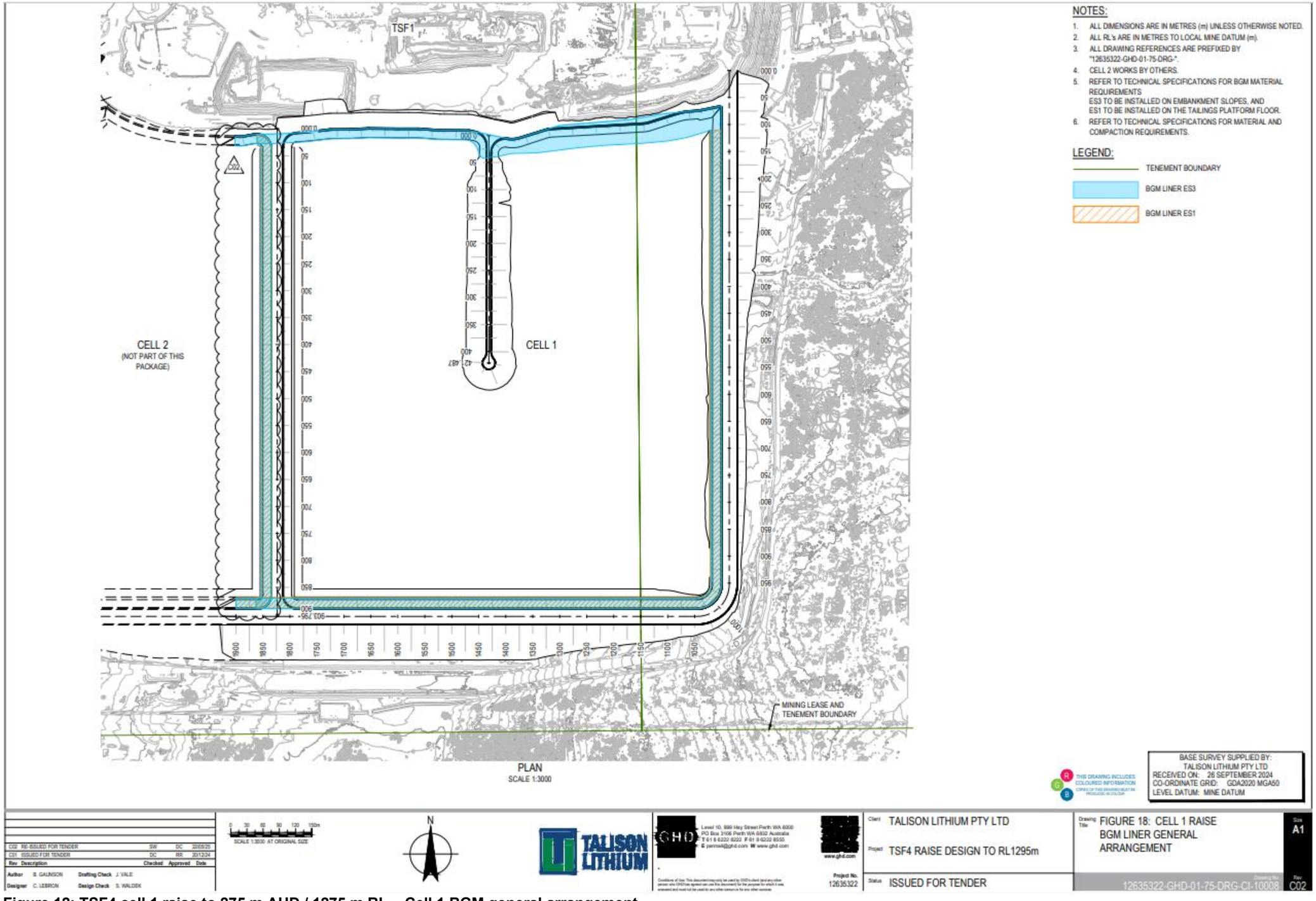


Figure 12: TSF4 cell 1 raise to 275 m AHD / 1275 m RL – Cell 1 BGM general arrangement

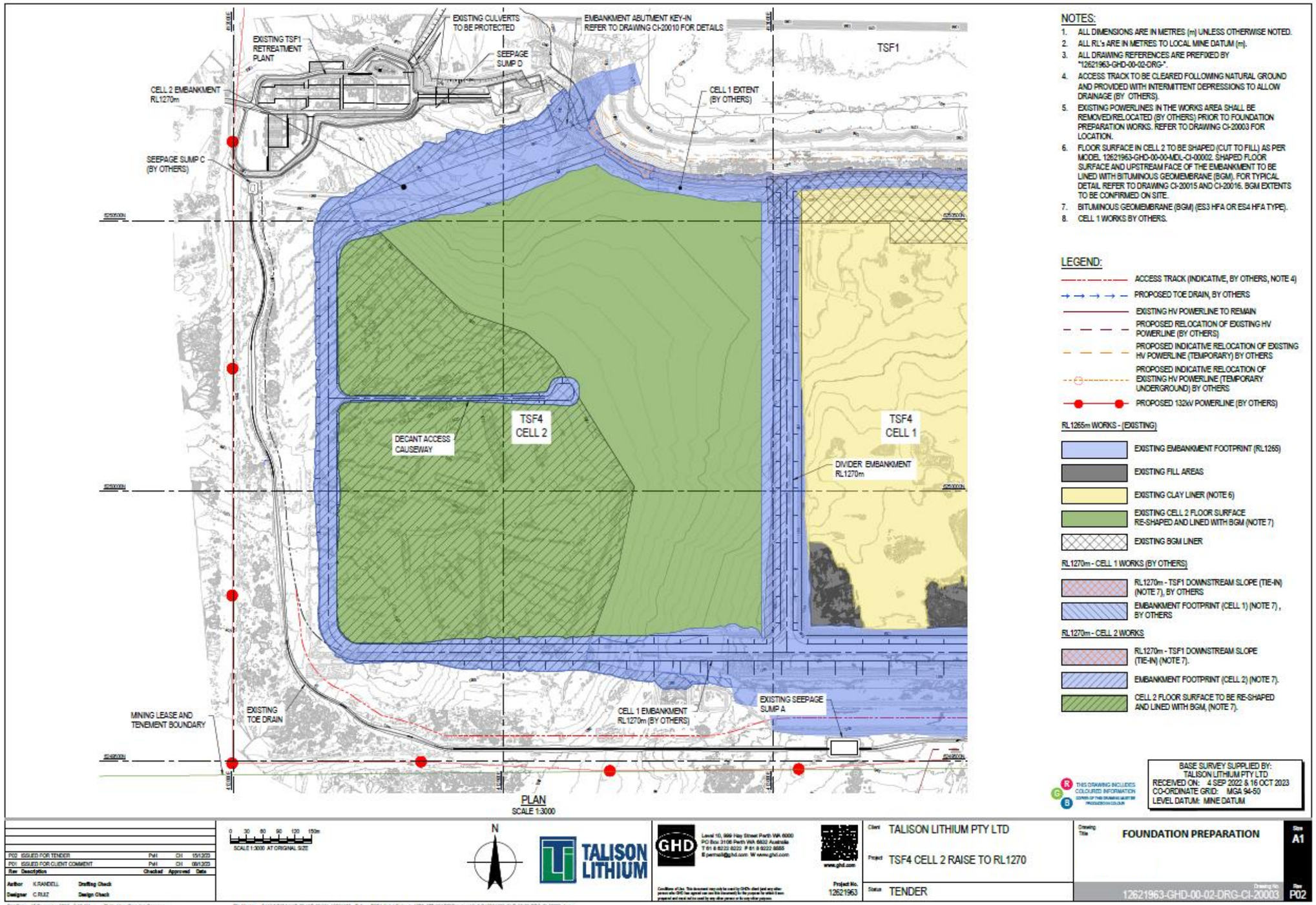


Figure 13: TSF4 cell 2 raise to 270 m AHD / 1270 m RL - foundation preparation

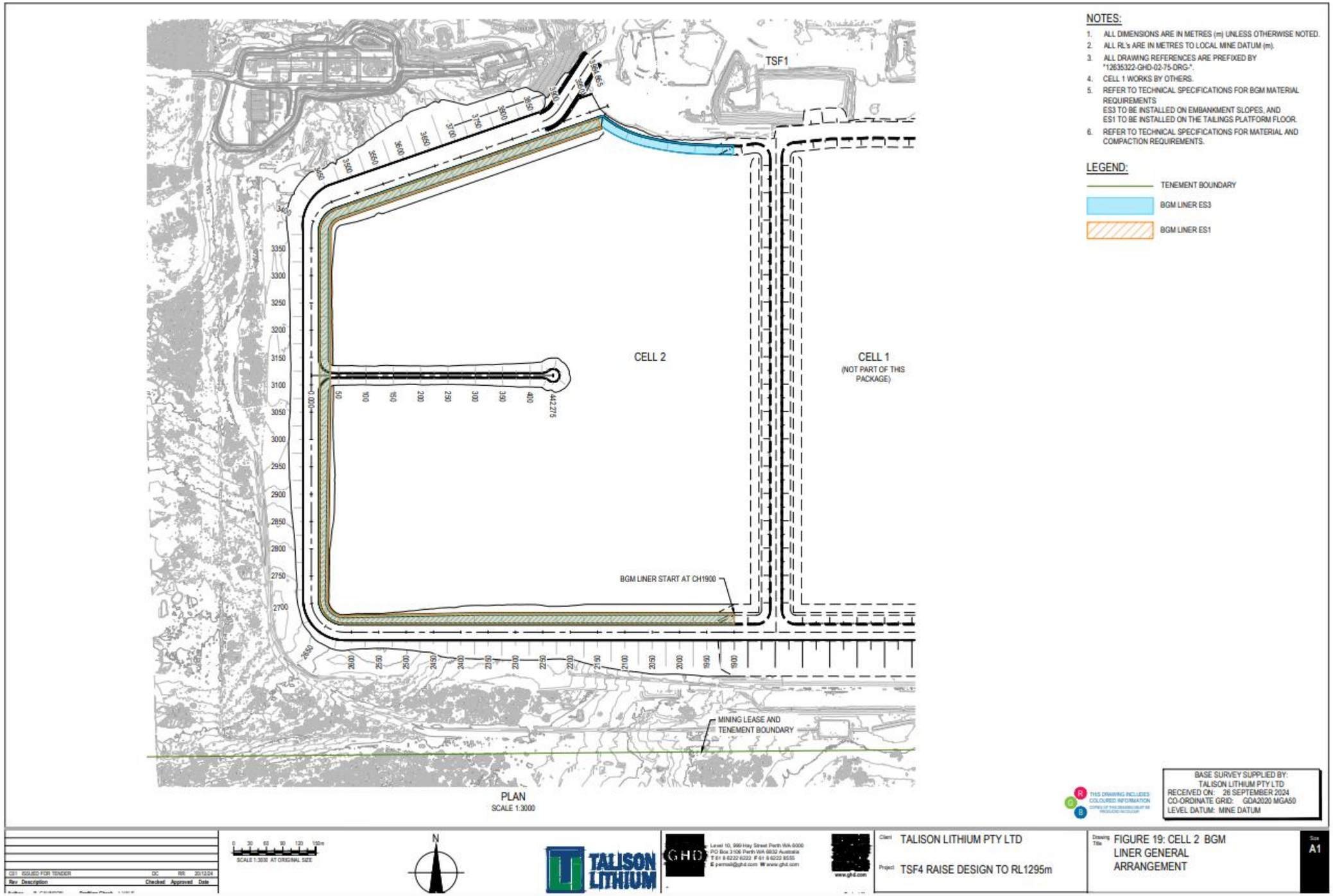


Figure 14: TSF4 cell 2 raise to 275 m AHD / 1275 m RL – Cell 2 BGM general arrangement

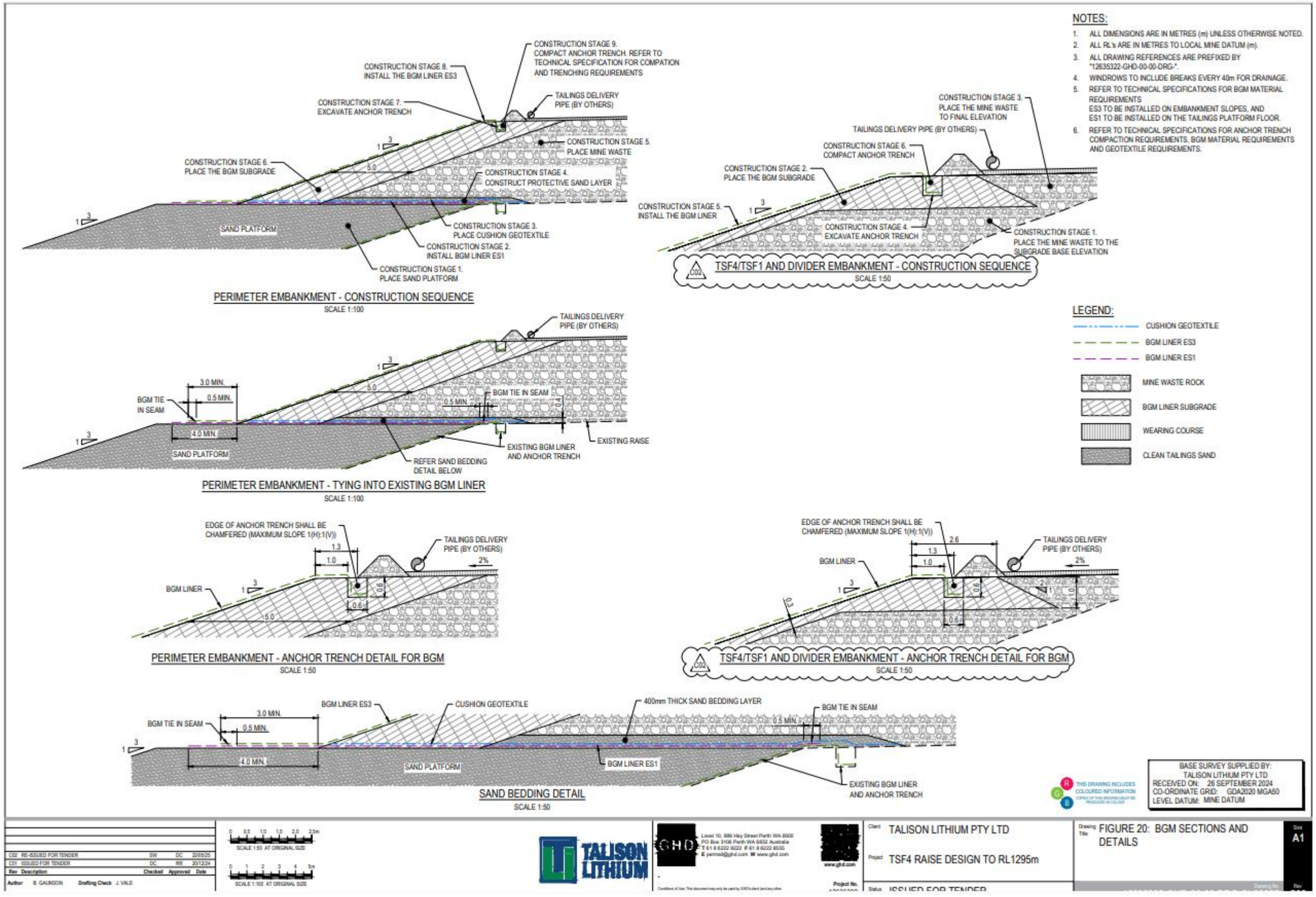


Figure 15: TSF4 raise to 275 m AHD / 1275 m RL – BGM sections and details

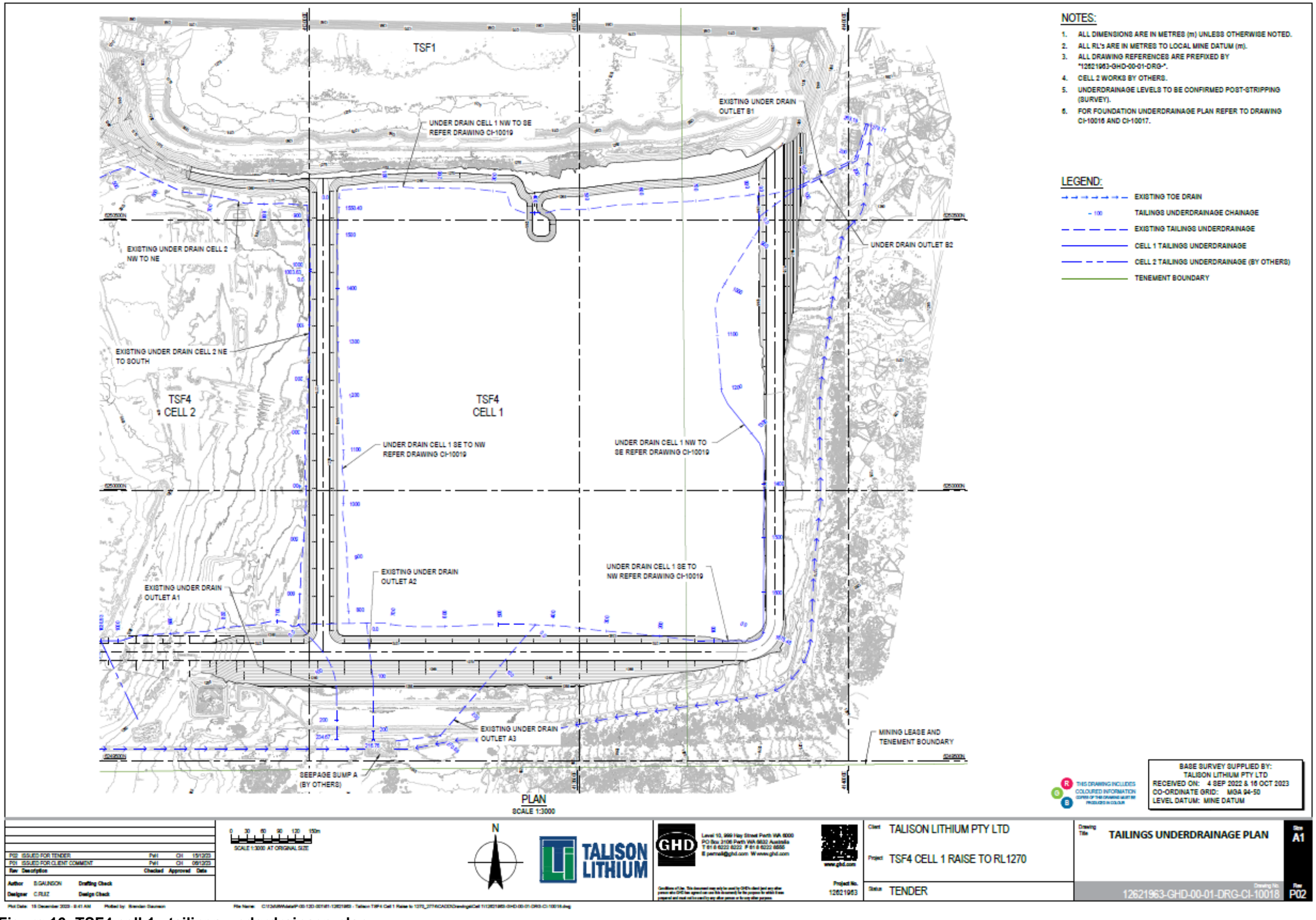


Figure 16: TSF4 cell 1 - tailings underdrainage plan

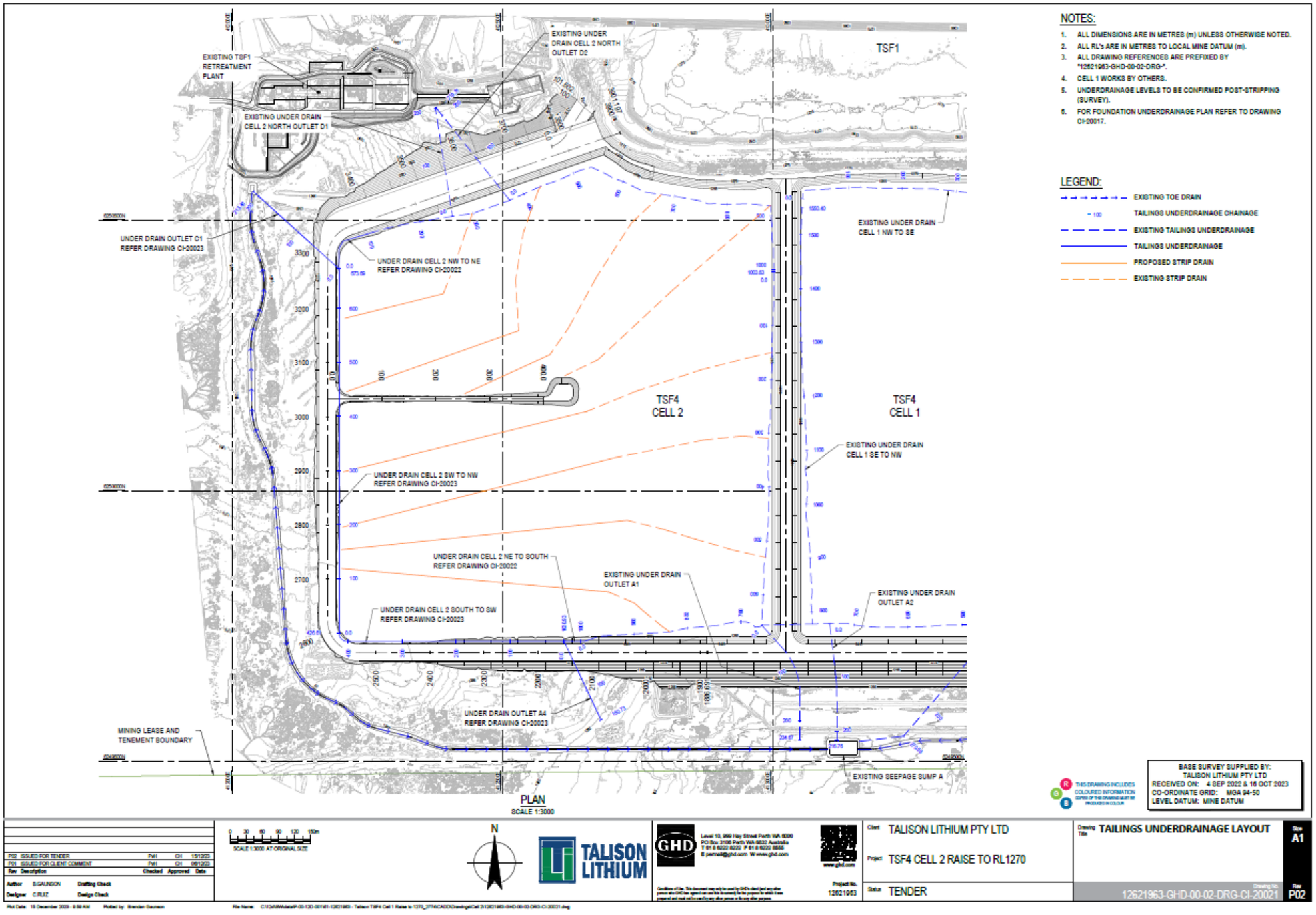


Figure 17: TSF4 cell 2 - tailings underdrainage plan

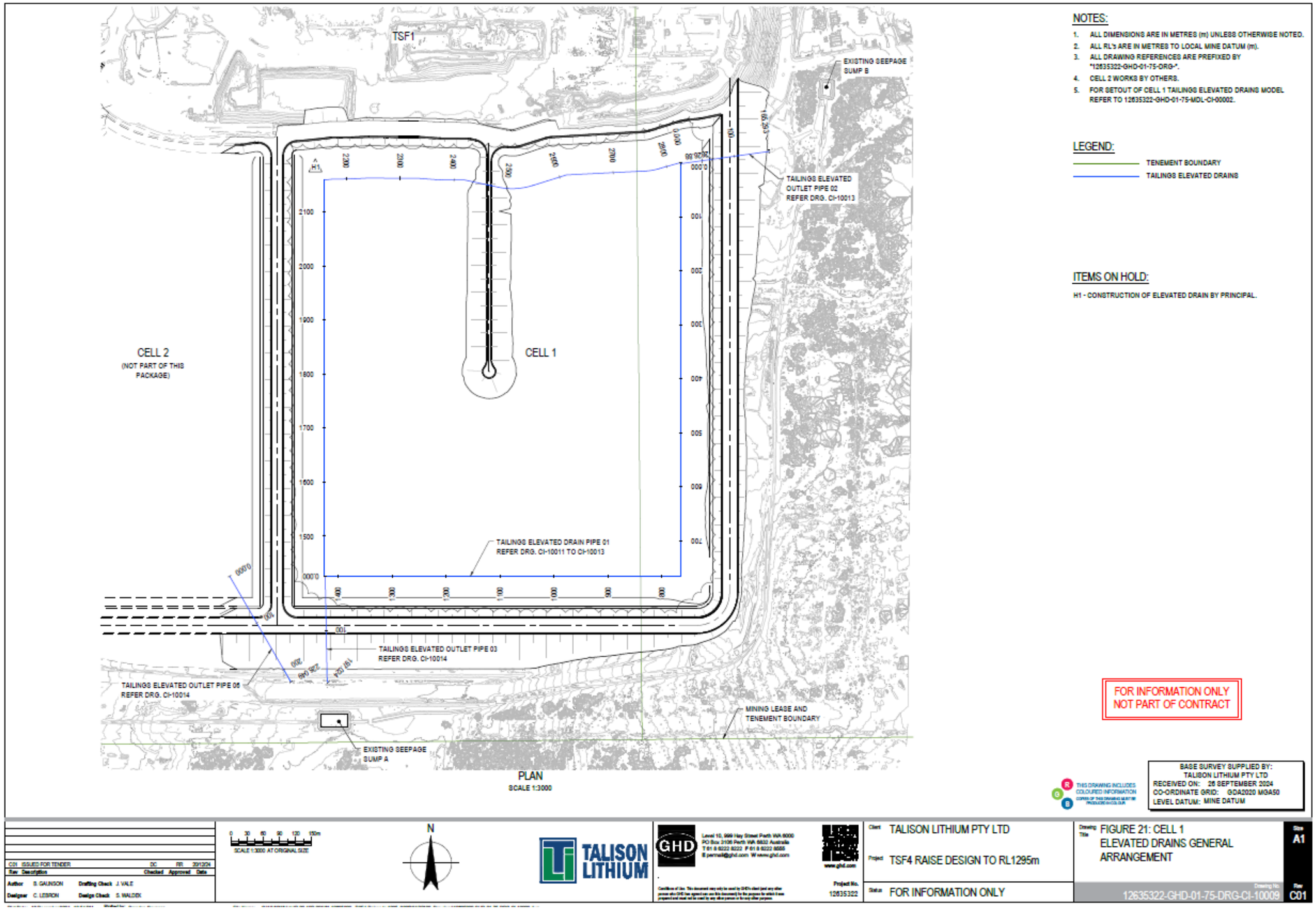


Figure 18: TSF4 cell 1 – elevated drainage general arrangement

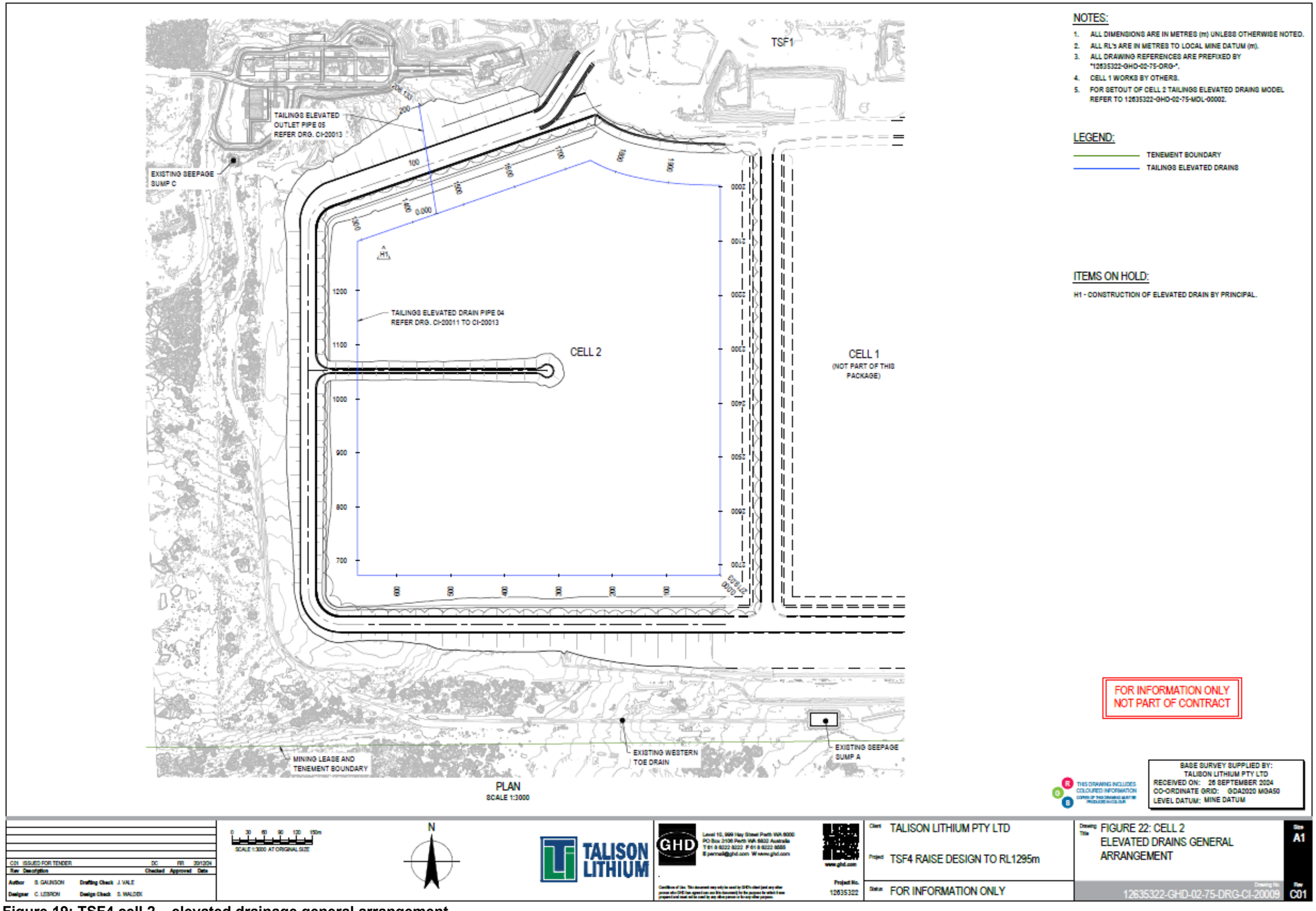


Figure 19: TSF4 cell 2 – elevated drainage general arrangement

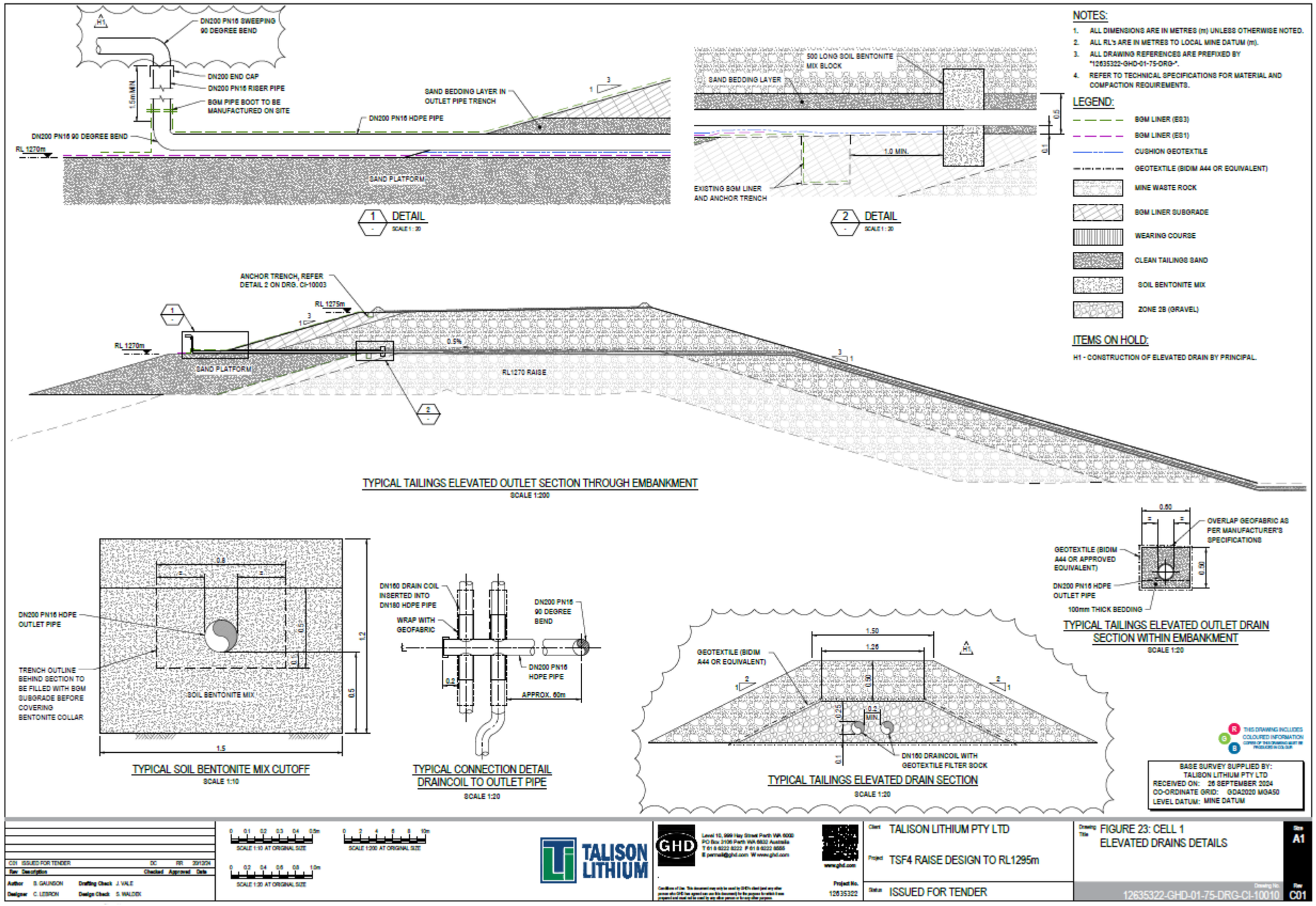


Figure 20: TSF4 cell 1 – elevated drainage detail

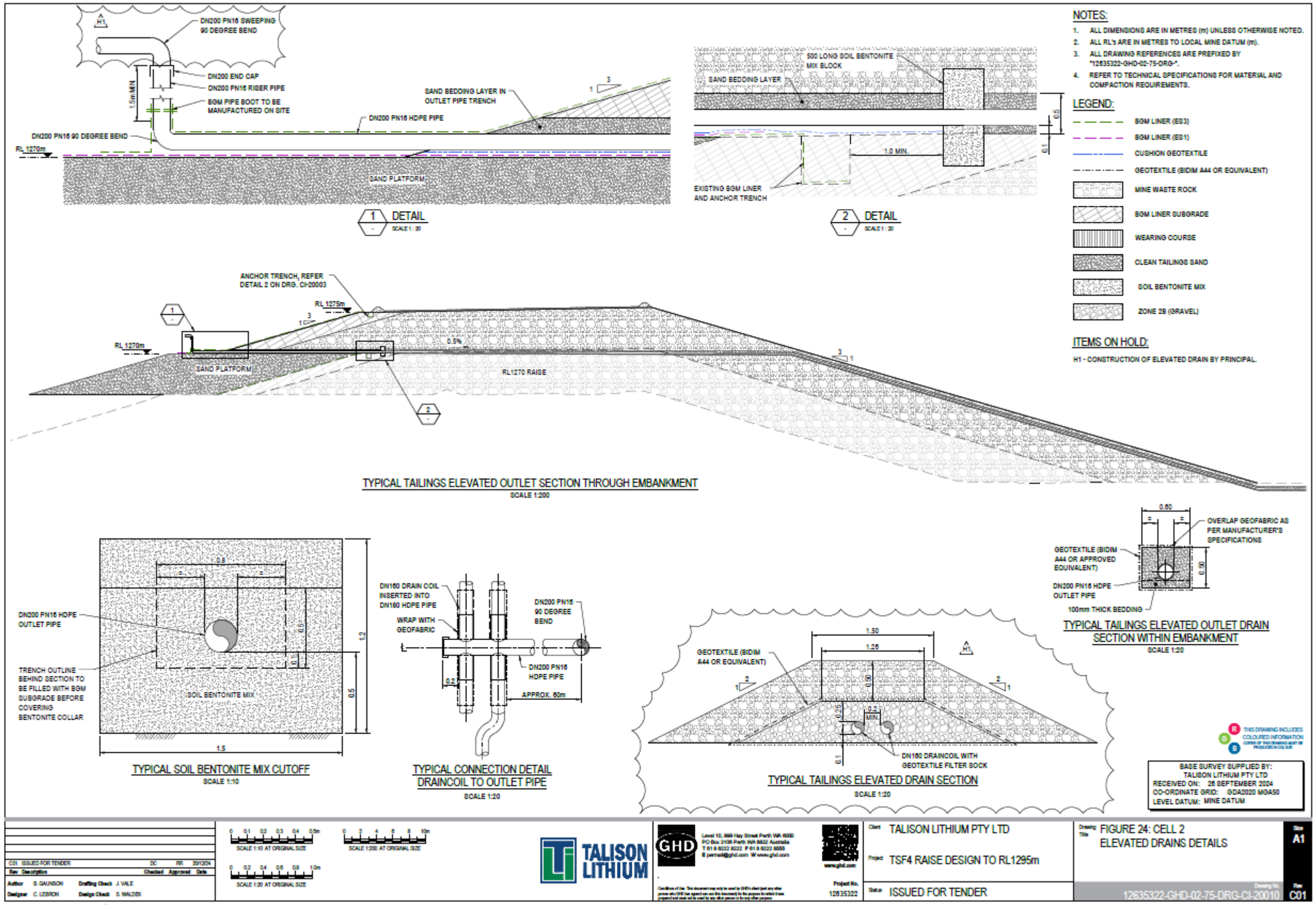


Figure 21: TSF4 cell 2 – elevated drainage detail

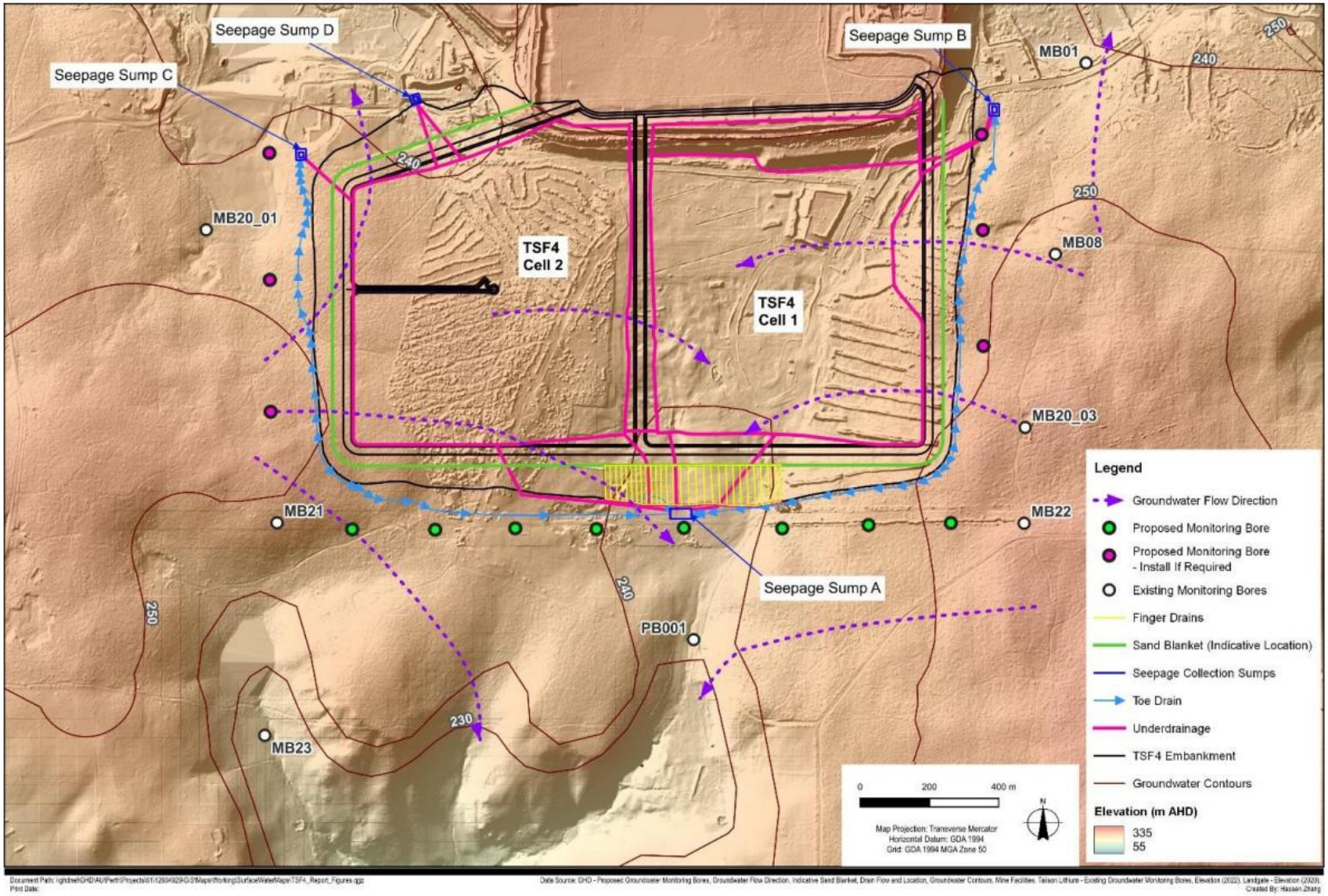


Figure 22: Seepage collection sumps and TSF4 southern perimeter monitoring bores (green)

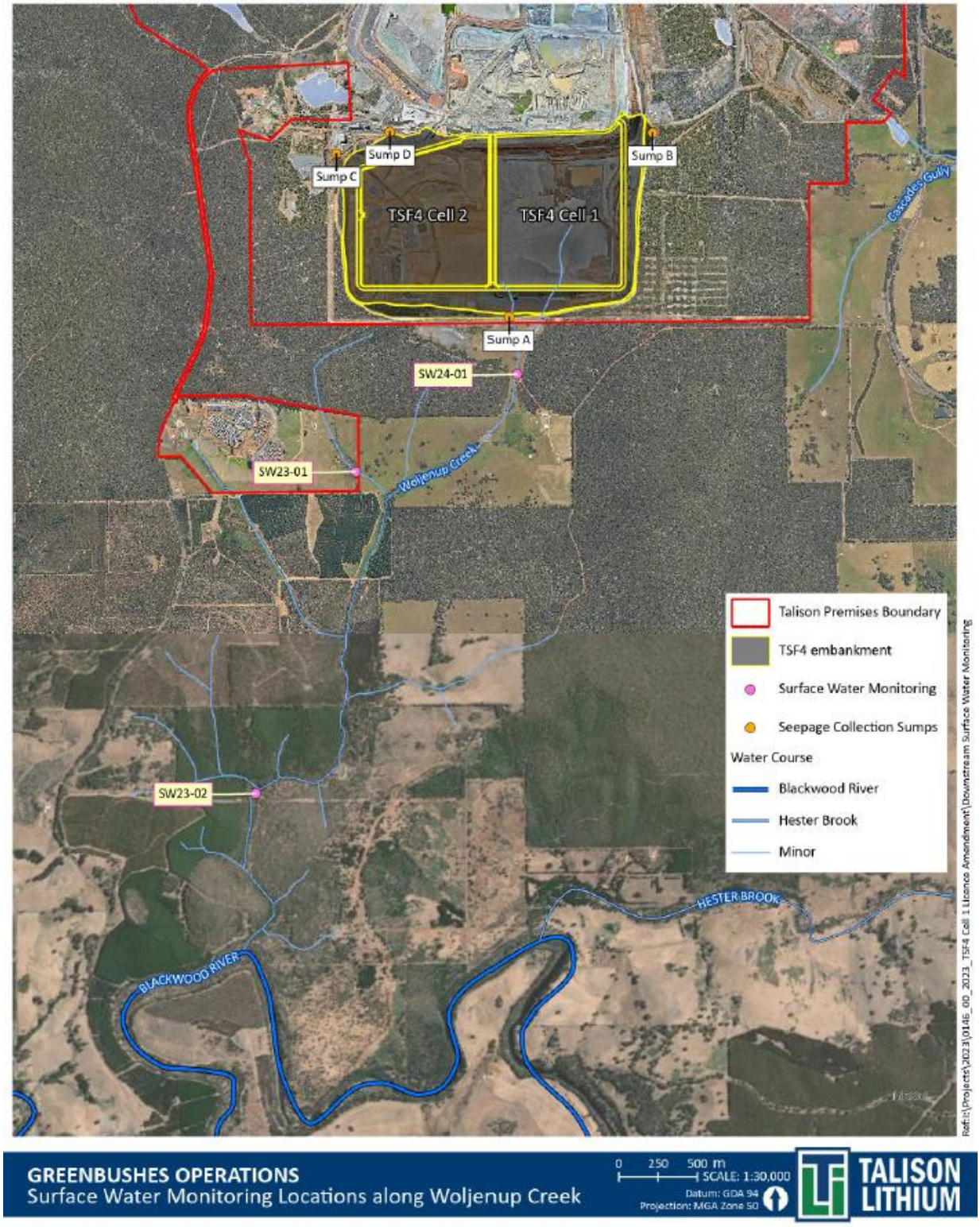
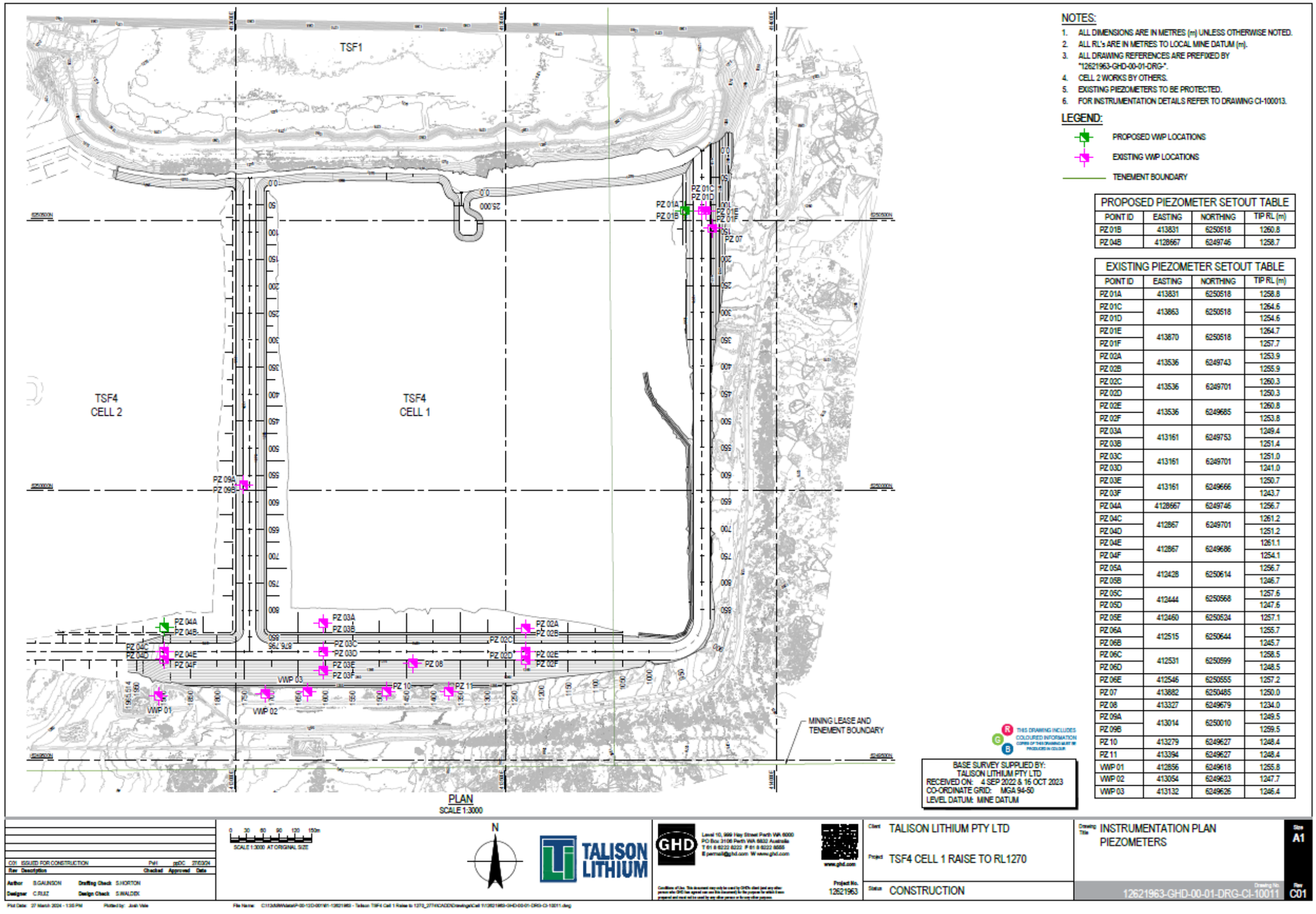


Figure 23: Surface water monitoring locations along Woljenup Creek



NOTES:

1. ALL DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE NOTED.
2. ALL RL's ARE IN METRES TO LOCAL MINE DATUM (m).
3. ALL DRAWING REFERENCES ARE PREFIXED BY "12621963-GHD-00-01-DRG-".
4. CELL 2 WORKS BY OTHERS.
5. EXISTING PIEZOMETERS TO BE PROTECTED.
6. FOR INSTRUMENTATION DETAILS REFER TO DRAWING CI-100013.

LEGEND:

- PROPOSED VWP LOCATIONS
- EXISTING VWP LOCATIONS
- TENEMENT BOUNDARY

PROPOSED PIEZOMETER SETOUT TABLE

POINT ID	EASTING	NORTHING	TIP RL (m)
PZ 01B	413831	6250518	1260.8
PZ 04B	4128667	6249746	1258.7

EXISTING PIEZOMETER SETOUT TABLE

POINT ID	EASTING	NORTHING	TIP RL (m)
PZ 01A	413831	6250518	1258.8
PZ 01C	413863	6250518	1264.6
PZ 01D			1254.6
PZ 01E	413870	6250518	1264.7
PZ 01F			1257.7
PZ 02A	413536	6249743	1253.9
PZ 02B			1255.9
PZ 02C	413536	6249701	1260.3
PZ 02D			1250.3
PZ 02E	413536	6249685	1260.8
PZ 02F			1253.8
PZ 03A	413161	6249753	1249.4
PZ 03B			1251.4
PZ 03C	413161	6249701	1251.0
PZ 03D			1241.0
PZ 03E	413161	6249666	1250.7
PZ 03F			1243.7
PZ 04A	4128667	6249746	1256.7
PZ 04C	412867	6249701	1261.2
PZ 04D			1251.2
PZ 04E	412867	6249686	1261.1
PZ 04F			1254.1
PZ 05A	412428	6250614	1256.7
PZ 05B			1246.7
PZ 05C	412444	6250568	1257.6
PZ 05D			1247.6
PZ 05E	412460	6250524	1257.1
PZ 06A	412515	6250644	1255.7
PZ 06B			1245.7
PZ 06C	412531	6250599	1258.5
PZ 06D			1248.5
PZ 06E	412546	6250555	1257.2
PZ 07	413882	6250485	1250.0
PZ 08	413327	6249679	1234.0
PZ 09A	413014	6250010	1249.5
PZ 09B			1259.5
PZ 10	413279	6249627	1248.4
PZ 11	413394	6249627	1248.4
VWP 01	412856	6249618	1255.8
VWP 02	413054	6249623	1247.7
VWP 03	413132	6249626	1246.4

THIS DRAWING INCLUDES COLOURED INFORMATION

BASE SURVEY SUPPLIED BY:
TALISON LITHIUM PTY LTD
RECEIVED ON: 4 SEP 2022 & 15 OCT 2023
CO-ORDINATE GRID: MGA 94-50
LEVEL DATUM: MINE DATUM

C01 ISSUED FOR CONSTRUCTION — PdH — zpDC — 27/03/24
Rev Description — Checked — Approved — Date

Author S.GAUNSON — Drafting Check S.HORTON
Designer C.RUIZ — Design Check S.WALDEK

SCALE 1:3000 AT ORIGINAL SIZE

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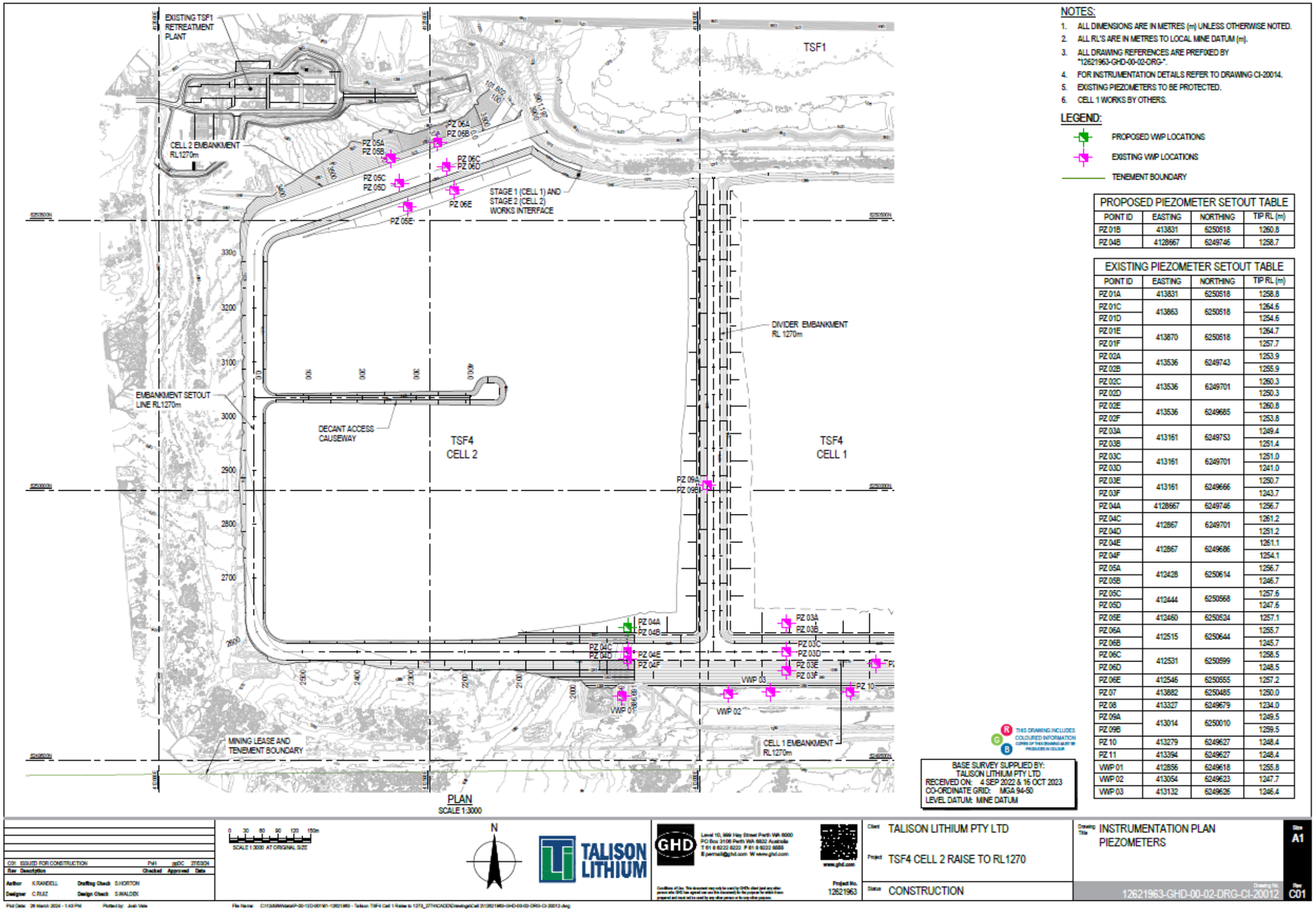
Project No. 12621963

Client TALISON LITHIUM PTY LTD
Project TSF4 CELL 1 RAISE TO RL1270
Status CONSTRUCTION

Drawing Title INSTRUMENTATION PLAN
PIEZOMETERS

Size A1
Drawing No. 12621963-GHD-00-01-DRG-CI-10011
Rev C01

Figure 24: Location of additional piezometers – TSF4 cell 1 (270m AHD lift)



PROPOSED PIEZOMETER SETOUT TABLE

POINT ID	EASTING	NORTHING	TIP RL (m)
PZ 01B	413831	6250518	1260.8
PZ 04B	4128667	6249746	1258.7

EXISTING PIEZOMETER SETOUT TABLE

POINT ID	EASTING	NORTHING	TIP RL (m)
PZ 01A	413831	6250518	1258.8
PZ 01C	413863	6250518	1264.6
PZ 01D			1254.6
PZ 01E	413870	6250518	1264.7
PZ 01F			1257.7
PZ 02A	413536	6249743	1253.9
PZ 02B			1255.9
PZ 02C	413536	6249701	1260.3
PZ 02D			1250.3
PZ 02E	413536	6249685	1260.8
PZ 02F			1253.8
PZ 03A	413161	6249753	1249.4
PZ 03B			1251.4
PZ 03C	413161	6249701	1251.0
PZ 03D			1241.0
PZ 03E	413161	6249666	1250.7
PZ 03F			1243.7
PZ 04A	4128667	6249746	1256.7
PZ 04C	412867	6249701	1261.2
PZ 04D			1251.2
PZ 04E	412867	6249686	1261.1
PZ 04F			1254.1
PZ 05A	412428	6250614	1256.7
PZ 05B			1246.7
PZ 05C	412444	6250568	1257.6
PZ 05D			1247.6
PZ 05E	412460	6250524	1257.1
PZ 06A	412515	6250644	1255.7
PZ 06B			1245.7
PZ 06C	412531	6250599	1258.5
PZ 06D			1248.5
PZ 06E	412546	6250555	1257.2
PZ 07	413682	6250485	1250.0
PZ 08	413327	6249679	1234.0
PZ 09A	413014	6250010	1249.5
PZ 09B			1259.5
PZ 10	413279	6249627	1248.4
PZ 11	413394	6249627	1248.4
VWP 01	412856	6249618	1255.8
VWP 02	413054	6249623	1247.7
VWP 03	413132	6249626	1246.4

Figure 25: Location of additional piezometers – TSF4 cell 2 (270m AHD lift)

Schedule 2: Approximate groundwater monitoring bore locations

Table 10: Approximate groundwater monitoring TSF4 southern perimeter bore locations.

Bore ID	Easting[1]	Northing[1]
MB24-01	412195	6249490
MB24-02	412435	6249490
MB24-03	412665	6249490
MB24-04	412900	6249490
MB24-05	413150	6249490
MB24-06	413435	6249490
MB24-07	413685	6249490
MB24-08	413920	6249490
Bore TBD	Adjacent to SW23-02	

Note 1: The proposed eastings and northings are approximate, small variations upon installation are considered acceptable.

Schedule 3: Monitoring quality assurance and quality control

The works approval holder must adhere to the following field quality assurance and quality control procedures, as specified in Schedule B2 of the Assessment of Site Contamination NEPM, and must include as a minimum:

(a) decontamination procedures for the cleaning of tools and sampling equipment before sampling and between samples;

(b) field instrument calibration for instruments used on site;

(c) blind replicate samples and rinsate blanks must be collected in the field and sent to the primary laboratory to determine the precision of the field sampling and laboratory analytical program;

(d) completed field monitoring sheets / sampling logs for each sample collected, showing:

  (i) time of collection;

  (ii) location of collection;

  (iii) initials of sampler;

  (iv) sampling method;

  (v) field analysis results;

  (vi) duplicate type / location (if relevant); and

  (vii) site observations and weather conditions, and

(e) chain-of-custody documentation must be completed which details the following information:

  (i) site identification;

  (ii) the sampler;

  (iii) nature of the sample;

  (iv) collection time and date;

  (v) analyses to be performed;

  (vi) sample preservation method;

  (vii) departure time from site;

  (viii) dispatch courier(s); and

  (ix) arrival time at the laboratory.

Schedule 4: Premises boundary coordinates

The corners of the premises boundary are the coordinates listed in Table 11.

Table 11: Premises boundary coordinates (GDA 2020)

FID	Easting	Northing
0.	413491.59	6254845.816
1.	414589.84	6254424.02
2.	415386.979	6253739.349
3.	415623.625	6253239.313
4.	415645.049	6251043.491
5.	415447.687	6250904.2
6.	415511.281	6250760.711
7.	415275.172	6250377.694
8.	415036.708	6250371.745
9.	415043.108	6249501.967
10.	411429.115	6250689.456
11.	412131.343	6250772.47
12.	412110.652	6251139.098
13.	411221.446	6251092.478
14.	410779.837	6251389.092
15.	410470.423	6251931.474
16.	410225.13	6252109.5
17.	410372.18	6252342.973
18.	410563.136	6252230.453
19.	411058.602	6252738.228
20.	411213.329	6253421.756
21.	411233.882	6253568.967
22.	411936.304	6253531.804
23.	412611.334	6253627.527

24.	413053.423	6253910.213
25.	413357.474	6254005.136
26.	413200.022	6254301.164
27.	411212.84	6249453.56
28.	411180.65	6249355.38
29.	411022.46	6249000
30.	410989.85	6249000
31.	411161.93	6249362.84
32.	411193.12	6249457.95
33.	411253.478	6249789.305
34.	411233.2145	6249788.975
35.	411111.4364	6250771.212
36.	411091.3706	6250770.007
37.	411447.549	6249022.973
38.	412177.2882	6248896.396
39.	412181.1117	6248415.739
40.	411246.193	6248406.33
41.	410907.2836	6248633.759
42.	411496.5304	6249473.76
43.	411755.3315	6250783.767
44.	411613.6532	6250645.728