



Works approval number W6802/2023/1

Works approval holder FMG Solomon Pty Ltd
ACN 128 959 179

Registered business address Level 2, 87 Adelaide Terrace
EAST PERTH WA 6004

DWER file number DER2023/000004

Duration 31/07/2023 to 30/07/2028

Date of issue 27/11/2024

Premises details Solomon Mine
Mining tenements
E47/1011, E47/1334, E47/1532, M47/1409, M47/1410, M47/1411, M47/1413, M47/1431, M47/1453, M47/1466, M47/1473, M47/1474, M47/1475, L47/293, L47/294, L47/296, L47/301, L47/351, L47/360, L47/362, L47/363, L47/367, L47/381, E47/382, L47/391, L47/392, L47/397, L47/471, L47/472, L47/710, L47/711, L47/813, L47/814, P47/1279, P47/1286, P47/1287, P47/1304, P47/1305, P47/1735, P47/1736 and portion of E47/1319, E47/1333, E47/1398, E47/1399, E47/1447, E47/3094, E47/3464, L47/361 and L47/713 (as defined by the coordinates in Schedule 2)
MT SHEILA WA 6751

Prescribed premises category description (Schedule 1, <i>Environmental Protection Regulations 1987</i>)	Assessed production / design capacity
Category 5: Processing or beneficiation of metallic or non-metallic ore	95,300,000 tonnes per annual period
Category 64: Class II putrescible landfill	14,000 tonnes per annual period
Category 77: Concrete batching or cement products manufacturing	3,000 tonnes per year

This works approval is granted to the works approval holder, subject to the attached conditions, on 27 November 2024, by:

**MANAGER, RESOURCE INDUSTRIES
INDUSTRY REGULATION (STATE-WIDE DELIVERY)**
*Officer delegated under section 20
of the Environmental Protection Act 1986*

Works approval history

Date	Reference number	Summary of changes
31/07/2023	W6802/2023/1	Works approval granted.
27/11/2024	W6802/2023/1	Amendment for the extension of the TLO duration from 180 calendar days to 360 calendar days.

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 Brad tailings storage facility, pipelines, landfill expansion and mobilisation of the mobile concrete batching plant.

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

item	Infrastructure	Design and construction requirements	Infrastructure location
1.	Brad tailings storage facility: stage 1	(a) Main embankment stage 1 constructed to a height of 607 m RL (b) Main embankment stage 1 safety bund constructed to a height of 608.8 m RL (c) Eastern saddle embankment stage 1 constructed to a height of 640 m RL (d) Constructed to accommodate a 1:1000 year annual exceedance probability 72 hour storm event (631 mm) (e) Freeboard markers placed on embankments to allow visual freeboard inspection	As shown in Figure 1, Figure 2 and Figure 3 of Schedule 1
	Pipelines carrying tailings and decant return water	(a) Constructed according to Australian Standards AS/NZS 2033, 4129, 4130 and 4131 for polyethylene pipes (b) Tailings delivery and decant return pipelines to be equipped with real-time 24/7 telemetry monitoring with automatic cut-outs in the event of a pipeline failure (c) Cut off valves to have a separation distance of no more than 1 km from each other (d) Where pipelines are located above ground and outside existing road corridors, they	As shown in Figure 1 and Figure 2 of Schedule 1

item	Infrastructure	Design and construction requirements	Infrastructure location
		<p>must be bunded to a sufficient capacity to contain approximately 1 km pipeline spill volume which is equivalent to a volume of 130 m³;</p> <p>(e) Where pipelines are constructed within road corridors, those roads must be bunded by earthen windrows to contain pipelines leaks</p> <p>(f) Following construction and prior to time limited operations:</p> <ul style="list-style-type: none"> (i) Pipelines must be leak tested; (ii) All flow meters to be calibrated; and (iii) All pressure meters to be calibrated. 	
	Vibrating wire piezometers (VWP)	<p>(a) Install VWPs as per the design engineer specifications and maintain instrument operability to the satisfaction of the TSF Engineer of Record who shall review instrumentation and operation through quarterly and annual reporting to ensure suitable monitoring of failure modes are maintained.</p> <p>(b) All VWPs to be installed as per the specifications in Figure 7</p> <p>(c) VWP to have instrument readout stations (to download data to a central storage location)</p>	Within Brad TSF embankments as determined by the design engineer specifications
	Tailings storage facility surface water management	<p>(a) Contaminated stormwater is to be captured and prevented from being released to the environment during construction of the TSF</p> <p>(b) TSF to be constructed with sediment/stormwater controls and diversions as per Figure 11 of Schedule 1</p>	As shown in Figure 11 of Schedule 1

3. 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 2.

Table 2: Critical containment infrastructure design and construction requirements

item	Infrastructure	Design and construction requirements	Infrastructure location
1	Brad tailings storage facility: stage 2	(a) Main embankment stage 2 constructed to a height of 627 m RL (b) Main embankment stage 2 safety bund constructed to a height of 628.8 m RL (c) Constructed to accommodate a 1:1000 year annual exceedance probability 72 hour storm event (631 mm) (d) Freeboard markers placed on embankments to allow visual freeboard inspection	As shown in Figure 1, Figure 2 and Figure 4 of Schedule 1
	Vibrating wire piezometers (VWP)	(a) Install VWPs as per the design engineer specifications and maintain instrument operability to the satisfaction of the TSF Engineer of Record who shall review instrumentation and operation through quarterly and annual reporting to ensure suitable monitoring of failure modes are maintained (b) All VWPs to be installed as per the specifications in Figure 7 (c) VWP to have instrument readout stations (to download data to a central storage location)	Within Brad TSF embankments as determined by the design engineer specifications

Infrastructure and equipment (non-critical containment infrastructure)

4. The works approval holder must construct and/or install the infrastructure listed in Table 3;
- (a) in accordance with the corresponding design and construction / installation requirements; and
 - (b) at the corresponding infrastructure location;
- as set out in Table 3.

Table 3: Design and construction / installation requirements

item	Infrastructure	Design and construction / installation requirements	Infrastructure location
1.	Putrescible landfill expansion	(a) 0.37 hectare expansion only within the area as shown in Figure 8 of Schedule 1 (b) Landfill fence extended to include expansion area (c) Windrows and bunding constructed to divert clean stormwater around the landfill expansion (d) The separation distance between the base of the landfill expansion and the highest groundwater level shall not be less than 2 m.	As shown in Figure 1 and Figure 8 of Schedule 1

item	Infrastructure	Design and construction / installation requirements	Infrastructure location
2.	Mobile concrete batching plant	<p>(a) Diversion structures, including bunds or channels to be installed to divert clean surface water around the CBP work area and stockpiles</p> <p>(b) Construction of semi-enclosed materials bay(s) to assist with aggregate/sand dust management</p>	As shown in Figure 9 and Figure 10 of Schedule 1

Construction of groundwater monitoring wells and hyporheic zone monitoring points

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

Table 4: Infrastructure requirements – groundwater monitoring wells

Infrastructure	Design, construction, and installation requirements	Monitoring well location(s)	Timeframe
Groundwater monitoring well(s): MB-001 MB-003 MB-005 MB-008	<p><u>Well design and construction:</u> Designed and constructed in accordance with <i>ASTM D5092/D5092M-16: Standard practice for design and installation of groundwater monitoring bores</i>.</p> <p>Well screens must target the part, or parts, of the aquifer most likely to be affected by contamination¹. Where temporary/seasonal perched features are present, wells must be nested, and the perched features individually screened. The screened interval should be no longer than 6 metres.</p> <p><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.</p> <p><u>Well construction log:</u> Well construction details must be documented within a well construction log to demonstrate compliance with <i>ASTM D5092/D5092M-16</i>. 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.</p> <p><u>Well development:</u></p>	As depicted in Schedule 1, Figure 6. Map of groundwater monitoring well locations	Must be constructed, developed (purged), and determined to be operational by no later than 30 calendar days prior to commencement of time limited operations.

Infrastructure	Design, construction, and installation requirements	Monitoring well location(s)	Timeframe
	<p>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.</p> <p><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.</p> <p><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.</p>		

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

6. The works approval holder must design, construct, and install hyporheic zone monitoring points in accordance with the requirements specified in Table 5.

Table 5: Infrastructure requirements – hyporheic zone monitoring points

Infrastructure	Design, construction, and installation requirements	Monitoring well location(s)	Timeframe
Hyporheic zone monitoring points within Kangeenarina and Zalamea creeks as determined by a suitably qualified hydrogeologist	<p><u>Design and construction</u>: “Piezometers²” or “Mini-piezometers¹” as described by the “Hyporheic Handbook¹” (2009) installed within the hyporheic zone of the creek channel. Screened interval to target the hyporheic zone.</p> <p><u>Logging of borehole</u>: A record of the sediment/geology encountered during installation 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.</p> <p><u>Construction log</u>: Construction details, including the screened interval, must be documented within a construction log.</p> <p><u>Well network map</u>: a map (using aerial image overlay) must be prepared and include the location of all monitoring points in the monitoring network and their respective identification numbers.</p>	Within Kangeenarina and Zalamea creeks as determined by a suitably qualified hydrogeologist	Must be constructed and determined to be operational by no later than 30 calendar days prior to commencement of time limited operations.

Note 1: UK Environmental Agency 2009, *The Hyporheic Handbook: A handbook on the groundwater-surface water interface and hyporheic zone for environment managers*, Available from: <https://www.gov.uk/government/publications/the-hyporheic-handbook-groundwater-surface-water-interface-and-hyporheic-zone-for-environment-managers>

Note 2: In this instance, a piezometer is defined as a small-diameter well with a short screen, used to make head measurements and sample water at a specific depth. Mini-piezometers are similar devices, generally of smaller diameter and commonly installed at a maximum of 2m depth, either in the floodplain or directly in the channel. Please note that this is a different definition from the “vibrating wire piezometers” for installation in the TSF embankments.

Groundwater monitoring prior to time limited operations

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

- (a) at the corresponding monitoring location;
- (b) for the corresponding parameters;
- (c) in the corresponding unit;
- (d) at no less than the corresponding frequency;
- (e) using the corresponding method,

as set out in Table 6

Table 6 Groundwater monitoring of ambient concentrations

Monitoring well location	Parameter	Unit ²	Frequency	Method
Groundwater monitoring well(s) MB-001 MB-003 MB-005 MB-008 Satay bore SMB1056S SMB1056D	Standing water level	Metres below ground level (m bgl)	A single sampling event undertaken prior to commencement of time limited operations (specifically, prior to deposition of tailings in Brad TSF)	AS/NZS 5667.1 & AS/NZS 5667.11
	pH ¹	pH units		
	Electrical conductivity (EC)	µS/cm		
	Total dissolved solids (TDS)	mg/L		
	Dissolved oxygen (DO) ¹	mg/L		
	Major cations and anions	mg/L		
	Alkalinity			
	Ammonia			
	Calcium			
	Chloride			
	Magnesium			
	Nitrate			
	Potassium			
Sodium				
Sulfate				
Dissolved metals, metalloids and non-metals				
Antimony				
Arsenic				
Barium				
Boron				
Cadmium				
Cobalt				
Chromium III				
Chromium VI				

Monitoring well location	Parameter	Unit ²	Frequency	Method
	Copper Fluoride Iron Manganese Mercury Molybdenum Nickel Lead Selenium Strontium Titanium Uranium Zinc			
Hyporheic monitoring points, as per condition 6	pH ¹	pH units	A single sampling event undertaken prior to commencement of time limited operations (specifically, prior to deposition of tailings in Brad TSF)	AS/NZS 5667.1 & AS/NZS 5667.11.
	Electrical conductivity (EC)	µS/cm		
	Total dissolved solids (TDS)	mg/L		
	Dissolved oxygen ¹	mg/L		
	Major cations and anions	mg/L		
	Alkalinity			
	Ammonia			
	Calcium			
	Chloride			
	Magnesium			
Nitrate				
Potassium				
Sodium				
Sulfate				
Dissolved metals, metalloids and non-metals				
Antimony				
Arsenic				
Barium				
Boron				
Cadmium				
Cobalt				
Chromium III				
Chromium VI				
Copper				
Fluoride				
Iron				
Manganese				
Mercury				
Molybdenum				
Nickel				

Monitoring well location	Parameter	Unit ²	Frequency	Method
	Lead Selenium Strontium Titanium Uranium Zinc			

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

Note 2: The limits of reporting must be set to allow comparison with relevant assessment levels.

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 condition 7.
9. All sample analysis must be undertaken by laboratories with current accreditation from the National Association of Testing Authorities (NATA) for the relevant parameters, unless otherwise specified in condition 7.

Compliance reporting (critical containment infrastructure – Brad TSF stage 1)

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 of a geotechnical nature (embankment, VWPs and surface water management) or component thereof, as specified in condition 2, has been built and installed in accordance with the requirements specified in condition 2;
 - (b) certification by a suitably qualified mechanical engineer that each item of critical containment infrastructure (pipelines) or component thereof, as specified in condition 2, has been built and installed in accordance with the requirements specified in condition 2;
 - (c) 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;
 - (d) photographic evidence of the installation of the infrastructure; and
 - (e) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

Compliance reporting (critical containment infrastructure – Brad TSF stage 2)

12. The works approval holder must within 90 calendar days of the Critical Containment Infrastructure identified by condition 3 being constructed:

- (a) undertake an audit of their compliance with the requirements of condition 3; and
 - (b) prepare and submit to the CEO a Critical Containment Infrastructure Report on that compliance.
- 13.** The Critical Containment Infrastructure Report required by condition 12 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 3, has been built and installed in accordance with the requirements specified in condition 3;
 - (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 3;
 - (c) photographic evidence of the installation of the infrastructure; and
 - (d) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

Compliance reporting (non-critical containment infrastructure)

- 14.** The works approval holder must within 30 calendar days of an item of infrastructure or equipment required by condition 4 being constructed and/or installed:
- (a) undertake an audit of their compliance with the requirements of condition 4; and
 - (b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.
- 15.** The Environmental Compliance Report required by condition 14, 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 4, have been constructed in accordance with the relevant requirements specified in condition 4;
 - (b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 4; and
 - (c) 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 groundwater/hyporheic monitoring)

- 16.** The works approval holder must, within 60 calendar days of the monitoring wells and hyporheic monitoring points being constructed, submit to the CEO a construction report evidencing compliance with the requirements of conditions 5 and 6.
- 17.** The works approval holder must submit to the CEO, a monitoring report demonstrating their compliance with condition 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); and
- (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.

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

- 18.** The works approval holder may only commence time limited operations for an item of critical containment infrastructure identified in condition 2 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.
- 19.** The works approval holder may only commence time limited operations for an item of infrastructure identified in condition 4 where the Environmental Compliance Report as required by condition 14 has been submitted by the works approval holder for that item of infrastructure.
- 20.** The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 21 (as applicable):
 - (a) for a period not exceeding 360 calendar days from the day the works approval holder meets the requirements of condition 18 and 19 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 20(a).

Time limited operations requirements and emission limits

21. During time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 7 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 7.

Table 7: Infrastructure and equipment requirements during time limited operations

item	Site infrastructure and equipment	Operational requirement	Infrastructure location
1.	Brad tailings storage facility: stage 1	<ul style="list-style-type: none"> (a) To be maintained as per the design and construction/installation requirements in condition 2 (b) Capacity maintained for a 1:1000 year annual exceedance probability 72 hour storm event (631 mm) (c) Wet season maximum operating pond level 598.8m RL (d) Visual inspections daily and following significant rainfall events to check: <ul style="list-style-type: none"> (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) (iii) Change in seepage conditions or sudden change in water level (iv) Signs of erosion 	As shown in Figure 3 and Figure 5 of Schedule 1
	Pipelines carrying tailings and decant return water	<ul style="list-style-type: none"> (a) To be maintained as per the design and construction/installation requirements in condition 2 (b) Visual inspections every 24 hours when in operation to check the integrity of pipelines and bunding 	As shown in Figure 1 of Schedule 1
	Vibrating wire piezometers (VWP)	<ul style="list-style-type: none"> (a) Fortnightly inspections to ensure integrity of VWPs and to ensure telemetry data is downloading to a central storage location 	Within Brad TSF embankments as determined by the design engineer specifications
2.	Landfill expansion	<ul style="list-style-type: none"> (a) To be maintained as per the design and construction/installation requirements in condition 2 (b) Windrows and bunding maintained to divert clean stormwater around the landfill expansion (c) The separation distance between the base of the landfill expansion and the highest groundwater level shall not be less than 2 m. (d) Waste shall be placed in a defined trench or within an area enclosed by earthen bunds 	As shown in Figure 8 of Schedule 1

item	Site infrastructure and equipment	Operational requirement	Infrastructure location
		(e) Cover requirements: <ul style="list-style-type: none"> (i) Inert waste type 1: no cover required (ii) Inert waste type 2: covered weekly to ensure no waste is left exposed (iii) Putrescible waste – within 3 months cover to a depth of 1m 	
3.	Mobile concrete batching plant	(a) Diversion structures, including bunds or channels, to divert clean surface water around the CBP work area and stockpiles; (b) Aggregate/sand for use by CBP to be stored within an enclosed materials bay(s) for dust management purposes	As per Figure 9 or Figure 10 of Schedule 1

Emissions and discharges

22. The works approval holder must ensure that the emissions specified in Table 8, are discharged only from the corresponding discharge point and only at the corresponding discharge point location.

Table 8: Authorised discharge points

Emission	Discharge point	Discharge point location
Tailings from Solomon mine site	Brad tailings storage facility	Brad TSF as shown in Figure 1 and Figure 2 of Schedule 1

Tailings characterisation

23. During the first 60 calendar days of time limited operations, the works approval holder must collect at least 10 individual representative tailings samples (including pore-water) to determine the likely behavior of elements under a range of leaching conditions, to include, but not limited to:
- (a) testing for the contaminants listed in Table 9; and
 - (b) testing using the LEAF Test Method 1313 pH dependant leaching test (US EPA, 2017);
 - (c) All test results shall be collated in excel format and provided in a report to the CEO no more than 60 calendar days after sample collection.

Table 9: Tailings characterisation parameters

Stream	Contaminants	Unit
Tailings leachate	Aluminium Antimony Arsenic III Arsenic V	mg/L

Stream	Contaminants	Unit
	Beryllium	
	Boron	
	Cadmium	
	Calcium	
	Chloride	
	Chromium III	
	Chromium VI	
	Cobalt	
	Copper	
	Fluoride	
	Iron	
	Lead	
	Magnesium	
	Manganese	
	Mercury	
	Molybdenum	
	Nickel	
	Nitrate	
	Nitrite	
	Potassium	
	Selenium	
	Silver	
	Sodium	
	Sulfate	
	Strontium	
	Thallium	
	Titanium	
	Total Sulfur	
	Uranium	
	Vanadium	
	Zinc	
	Total dissolved solids	
	pH	pH units

Groundwater/hyporheic monitoring during time limited operations

- 24.** The works approval holder must conduct groundwater monitoring in accordance with the requirements specified in Schedule 3 and:
- at the corresponding monitoring location;
 - for the corresponding parameters;
 - with the corresponding limit;
 - in the corresponding unit;
 - at no less than the corresponding frequency;
 - using the corresponding method,
- as set out in Table 10

Table 10: Groundwater monitoring of ambient concentrations

Monitoring well location	Parameter	Triggers management action	Limit	Unit ²	Frequency	Method
Groundwater monitoring well(s) MB-001 MB-003 MB-005 MB-008 Satay bore SMB1056S SMB1056D	Standing water level	6	4	Metres below ground level (m bgl)	A single sampling event undertaken between 30 and 60 calendar days following commencement of time limited operations (specifically tailings deposition into Brad TSF). AND A single sampling event undertaken between 120 and 180 calendar days following commencement of time limited operations (specifically tailings deposition into Brad TSF).	AS/NZS 5667.1 & AS/NZS 5667.11
	pH ¹	-	-	pH units		
	Electrical conductivity (EC)	-	-	µS/cm		
	Total dissolved solids (TDS)	-	-	mg/L		
	Dissolved oxygen ¹	-	-	mg/L		
	Major cations and anions	-	-	mg/L		
	Alkalinity					
	Ammonia					
	Calcium					
	Chloride					
	Magnesium					
	Nitrate					
	Potassium					
	Sodium					
	Sulfate					
	Dissolved metals, metalloids and non-metals					
Antimony						
Arsenic						
Barium						
Boron						
Cadmium						
Cobalt						
Chromium III						
Chromium VI						
Copper						
Fluoride						
Iron						
Manganese						
Mercury						
Molybdenum						
Nickel						
Lead						
Selenium						

Monitoring well location	Parameter	Triggers management action	Limit	Unit ²	Frequency	Method
	Strontium Titanium Uranium Zinc					
Hyporheic monitoring points, as per condition 6	pH ¹	-	-	pH units	A single sampling event undertaken between 30 and 60 calendar days following commencement of time limited operations (specifically tailings deposition into Brad TSF).	AS/NZS 5667.11
	Electrical conductivity (EC)	-	-	µS/cm		
	Total dissolved solids (TDS)	-	-	mg/L		
	Dissolved oxygen ¹	-	-	mg/L		
	Major cations and anions Alkalinity Ammonia Calcium Chloride Magnesium Nitrate Potassium Sodium Sulfate					
	Dissolved metals, metalloids and non-metals Antimony Arsenic Barium Boron Cadmium Cobalt Chromium III Chromium VI Copper Fluoride Iron Manganese Mercury Molybdenum Nickel Lead Selenium Strontium Titanium	-	-	mg/L		

Monitoring well location	Parameter	Triggers management action	Limit	Unit ²	Frequency	Method
	Uranium Zinc					

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

Note 2: The limits of reporting must be set to allow comparison with relevant assessment levels.

Groundwater monitoring limit exceedances

25. The works approval holder must record, investigate, take corrective action and report to the CEO within 14 calendar days, in the event of a parameter in Condition 24 exceeding the corresponding limit or management action trigger.
26. The works approval holder must include the following information in the report referred to in condition 25 in relation to any exceedances of any limit identified in that condition:
- the nature, volume and characteristics of the emissions or concentrations exceedance;
 - the time and date when the exceedance occurred;
 - whether any environmental impact occurred as a result of the exceedance and, if so, what that impact was and where the impact occurred;
 - the details of the management action(s) taken pursuant with condition 25 in response to the exceedance;
 - the details and result of any investigation undertaken into the cause of the exceedance; and
 - what action has been taken, or will be taken, to prevent the exceedance occurring again and for the purpose of minimising the likelihood of pollution or environmental harm.

Groundwater monitoring reporting requirements

27. The works approval holder must submit to the CEO, a monitoring report demonstrating their compliance with condition 24, and must include:
- a clear statement of the scope of work carried out;
 - a description of the field methodologies employed;
 - a summary of the field and laboratory quality assurance / quality control (QA/QC) program;
 - copies of the field monitoring records and field QA/QC documentation;
 - an assessment of reliability of field procedures and laboratory results;
 - 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 assessment of results against previous monitoring results;
 - (j) 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; and
 - (k) 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*.

Water balance monitoring

- 28.** The works approval holder must review and assess the water balance for the TSF each monthly period, and (as a minimum) record the following information:
- (a) site rainfall (as determined by an on-site weather station);
 - (b) evaporation rate (as determined by an on-site weather station);
 - (c) decant water recovery volumes;
 - (d) volume of tailings deposited; and
 - (e) estimate of seepage losses.

Compliance reporting – time limited operations

- 29.** 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.
- 30.** The works approval holder must ensure the report required by condition 29 includes the following:
- (a) a summary of the time limited operations, including timeframes and amount of material processed;
 - (b) a summary of monitoring results obtained under condition 7, 23, 24 and 28;
 - (c) a summary of the environmental performance of all infrastructure as constructed or installed;
 - (d) 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)

- 31.** 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.
- 32.** 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 conditions 2, 3 and 1;
 - (b) any maintenance of infrastructure that is performed in the course of complying with condition 21;
 - (c) monitoring programmes undertaken in accordance with conditions 7, 23, 24 and 28; and
 - (d) complaints received under condition 31.
- 33.** The books specified under condition 32 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 27 November until 27 November of the immediately following year.
ARI	average recurrence interval
AS1726	means the Australian Standard AS1726 <i>Geotechnical Site Investigations</i>
AS/NZS 2033	means the Australian Standard AS/NZS 2033: Installation of polyethylene pipe systems
AS/NZS 4129	means the Australian Standard AS/NZS 4129: fittings for polyethylene (PE) pipes for pressure applications
AS/NZS 4130	means the Australian Standard AS/NZS 4130 Polyethylene pipes for pressure applications
AS/NZS 4131	means the Australian Standard AS/NZS 4131 Polyethylene compounds for pressure pipes and fittings.
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 <i>Water Quality – Sampling – Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples.</i>
AS/NZS 5667.11	means the Australian Standard AS/NZS 5667.11 <i>Water Quality - Sampling Guidance on sampling of groundwaters</i>
ASTM D5092/D5092M-16	means the ASTM international standard for <i>Standard practice for design and installation of groundwater monitoring wells</i> (Designation: ASTM D5092/D5092M-16).
ASTM D1505	Means the ASTM international standard for <i>Density by Variable Density Gradient Column</i>
ASTM D1603	Means the ASTM international standard for <i>Standard Test Method for Carbon Black Content in Olefin Plastics</i>
ASTM D5299/D5299M-18	means the ASTM international standard for <i>Decommissioning of Groundwater Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities</i> (Designation: D5299/D5299M-18).
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 <i>Environmental Protection Act 1986</i> Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au
critical containment infrastructure	means the items of infrastructure listed in conditions 2 and 3.
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 <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V Division 3 of the EP Act.
discharge	has the same meaning given to that term under the EP Act.
emission	has the same meaning given to that term under the EP Act.
Environmental Compliance Report	means a report to satisfy the CEO that the conditioned infrastructure and/or equipment has been constructed and/or installed in accordance with the works approval.
EP Act	<i>Environmental Protection Act 1986 (WA)</i> .
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i> .
Hyporheic zone	That part of the groundwater-river interface which is water-saturated and in which there is exchange of water from the stream into the riverbed sediments and then returning to the stream, within timescales of days to months.
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 engineer	Means a competent professional who: (a) holds a qualification in engineering or equivalent; and (b) has a minimum of at least three years experience working as an engineer.
suitably qualified mechanical engineer	Means a competent professional who: (a) holds a qualification in mechanical engineering or equivalent;

Term	Definition
	and (b) has a minimum of at least three years experience working as a mechanical engineer.
suitably qualified geotechnical engineer	Means a competent professional who: (c) holds a qualification in geotechnical engineering or equivalent; and (d) has a minimum of at least three years experience working as a geotechnical engineer.
suitably qualified hydrogeologist	Means a competent professional who: (a) holds a qualification in hydrogeology, geology or equivalent; and (b) has a minimum of at least three years experience working in the field of hydrogeology.
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.
VWP	Vibrating wire piezometers
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).

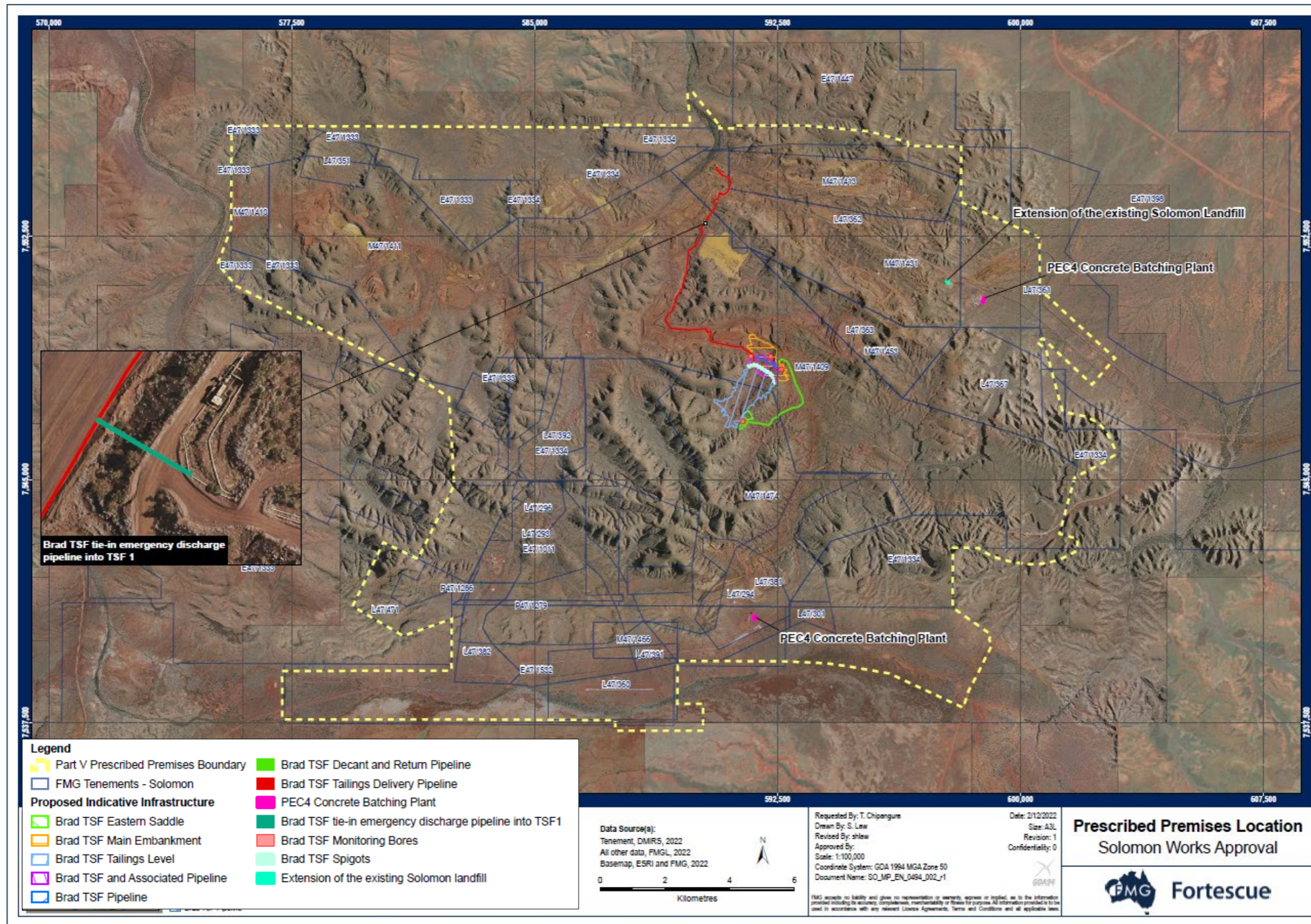


Figure 1: Map of the boundary of the prescribed premises

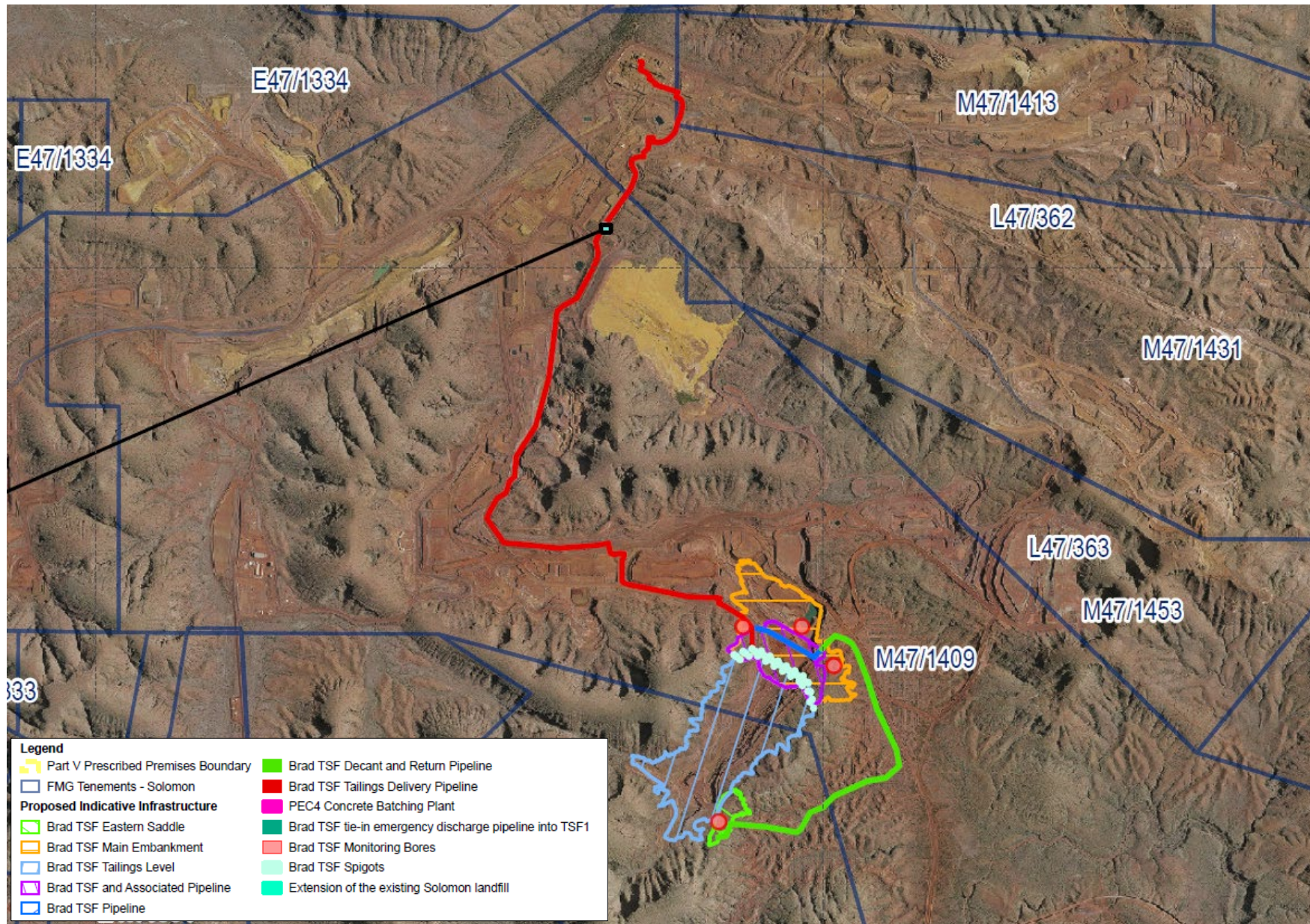


Figure 2 Brad TSF and pipeline locations, zoomed extent

W6802/2023/1

IR-T05 Works approval template (v6.0) (27/11/2024)

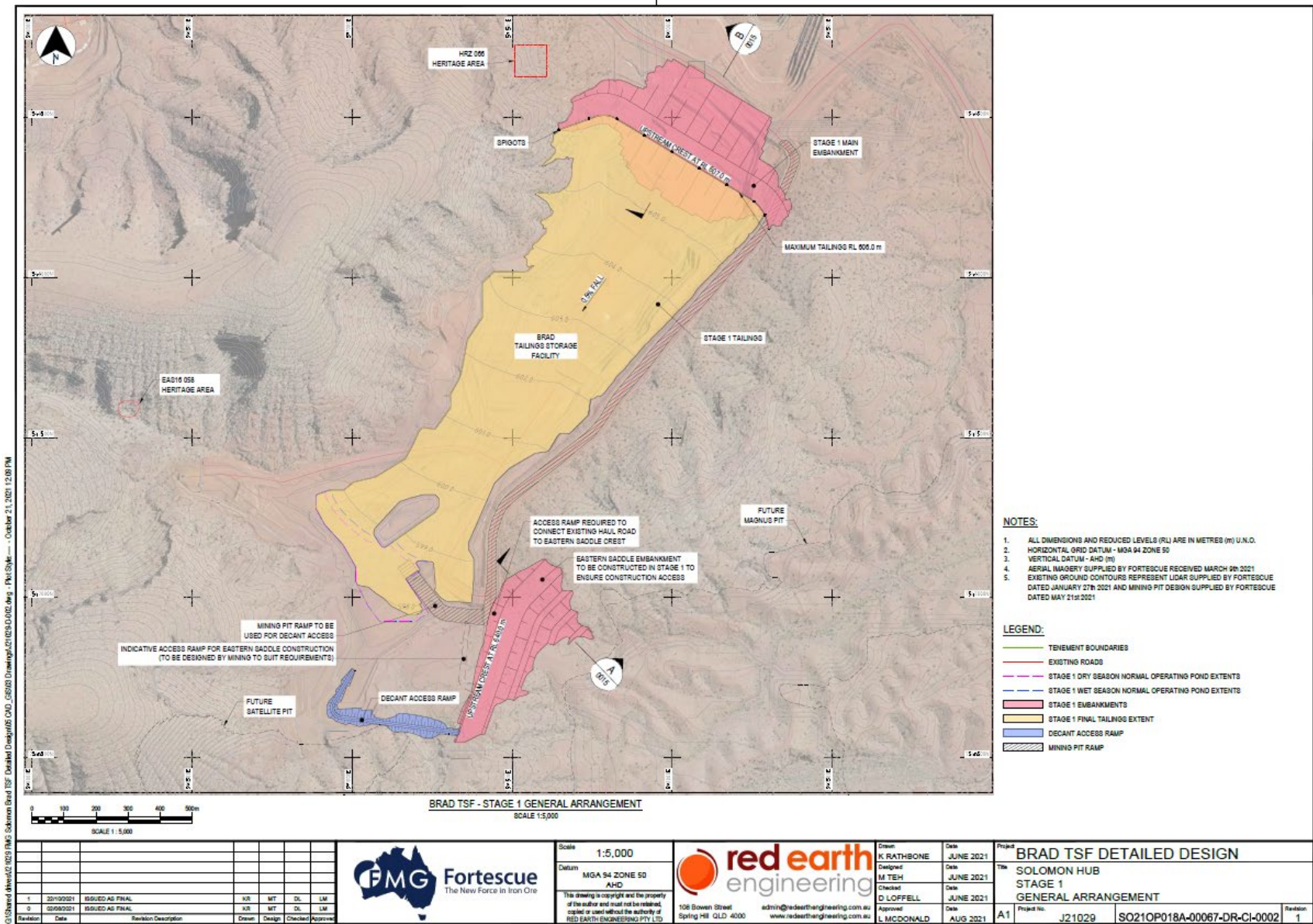


Figure 3 Brad TSF - Stage 1

W6802/2023/1
IR-T05 Works approval template (v6.0) (27/11/2024)

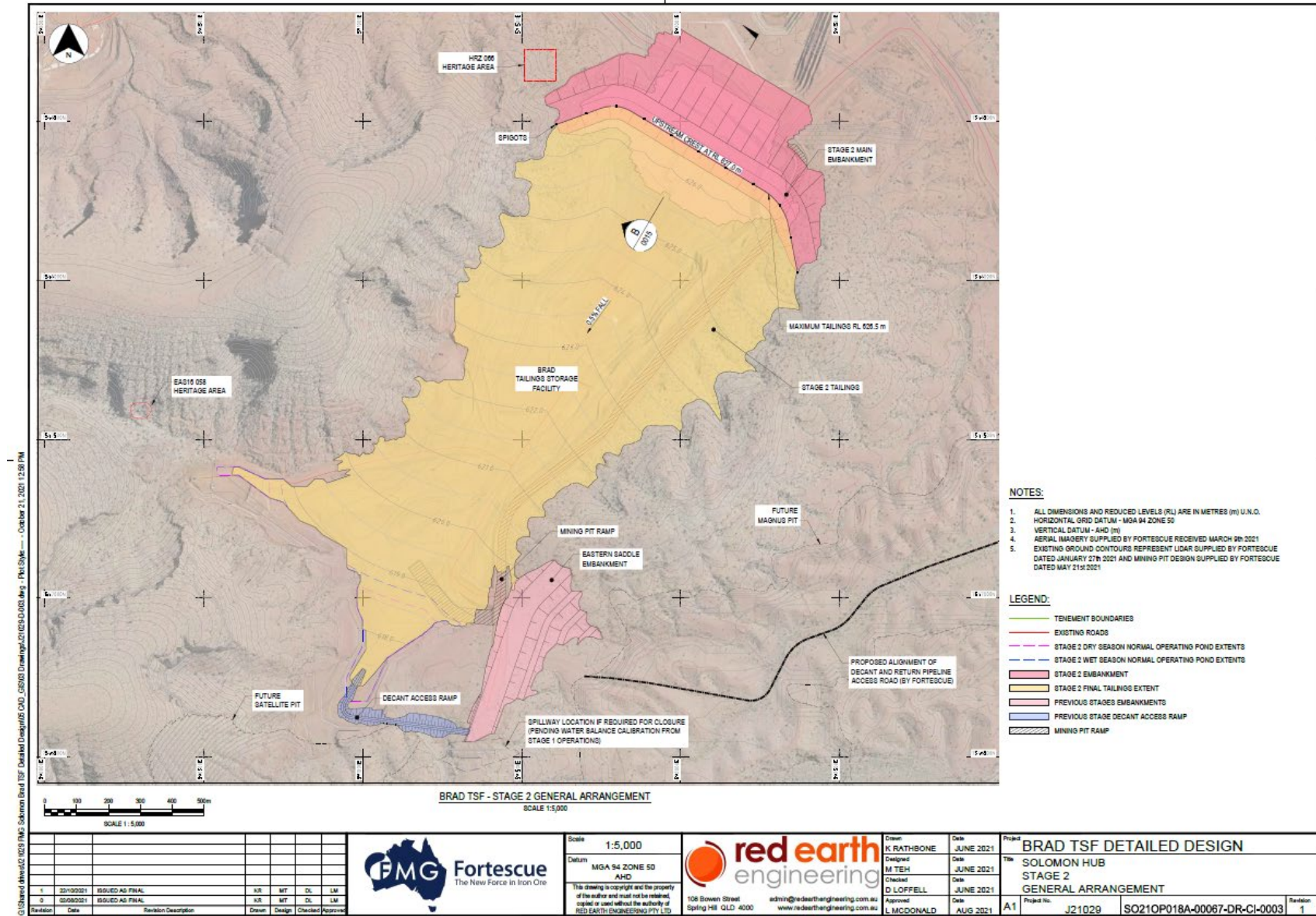
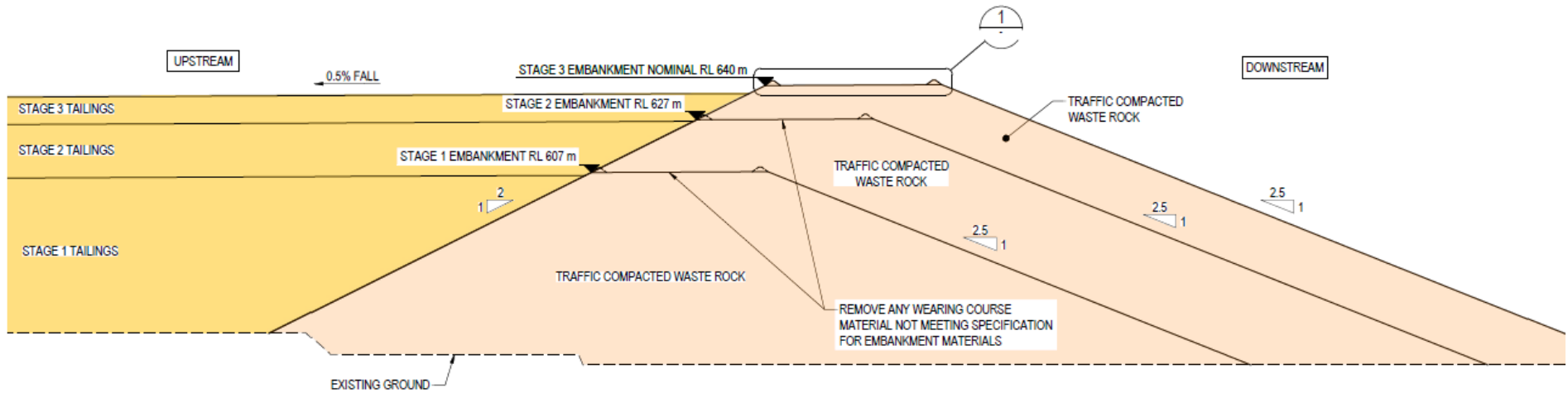


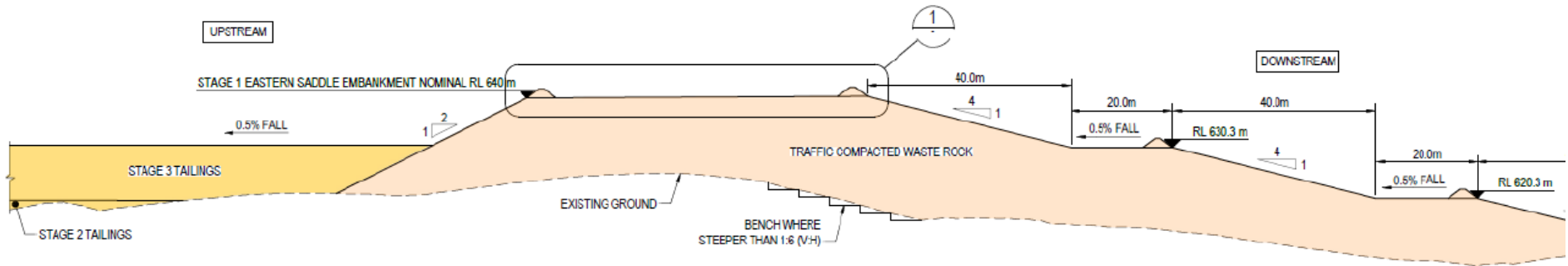
Figure 4 Brad TSF - Stage 2

W6802/2023/1

IR-T05 Works approval template (v6.0) (27/11/2024)



Main Embankment – typical section



Eastern Saddle Embankment – typical section

Figure 5 Typical embankment sections for main and eastern saddle embankment. Note that stages 1 and 2 for main embankment are authorised under this approval only. Eastern embankment to 640 m RL authorised under this approval

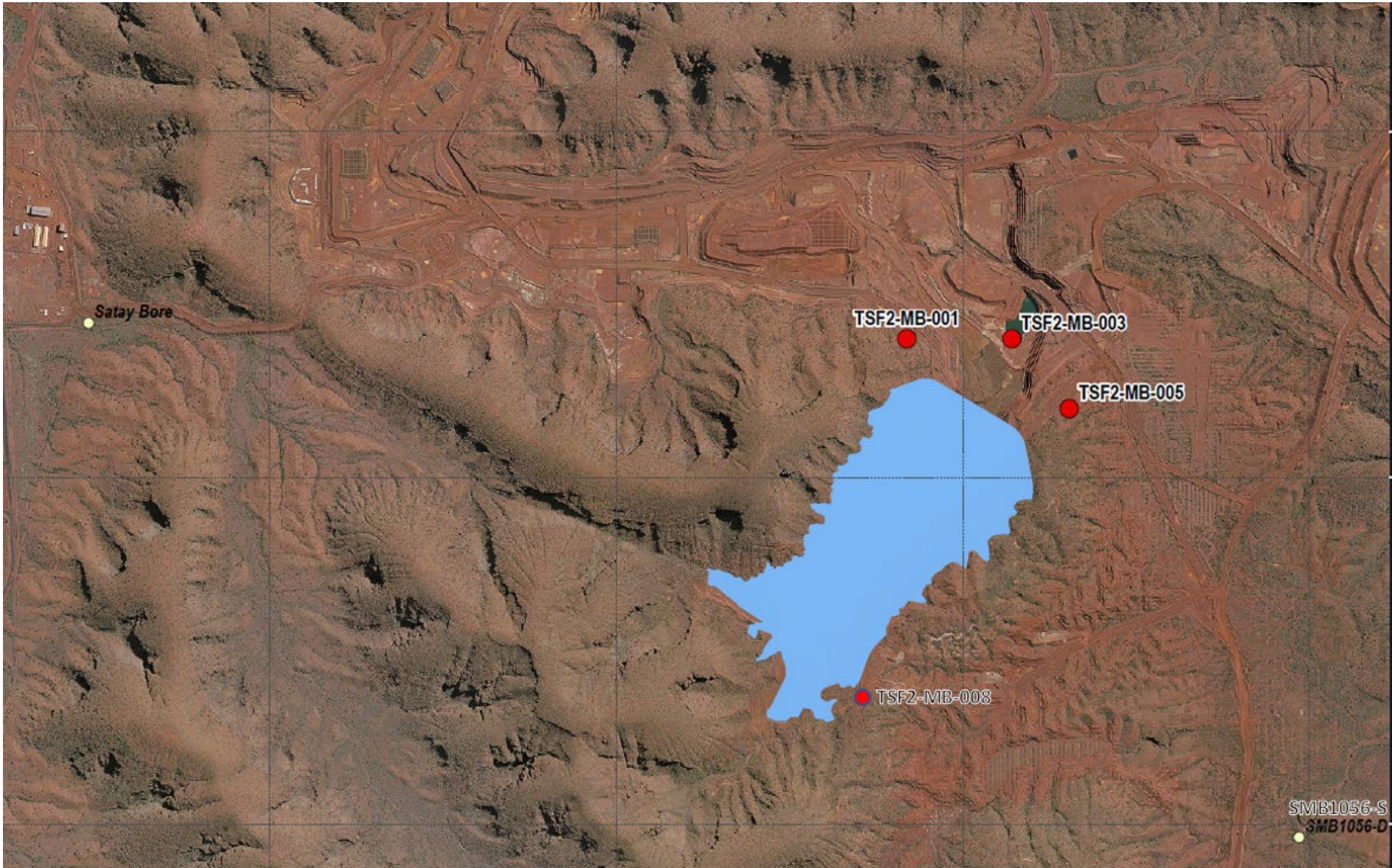


Figure 6 Brad TSF monitoring bore locations (new monitoring shown bores in red, existing in yellow)

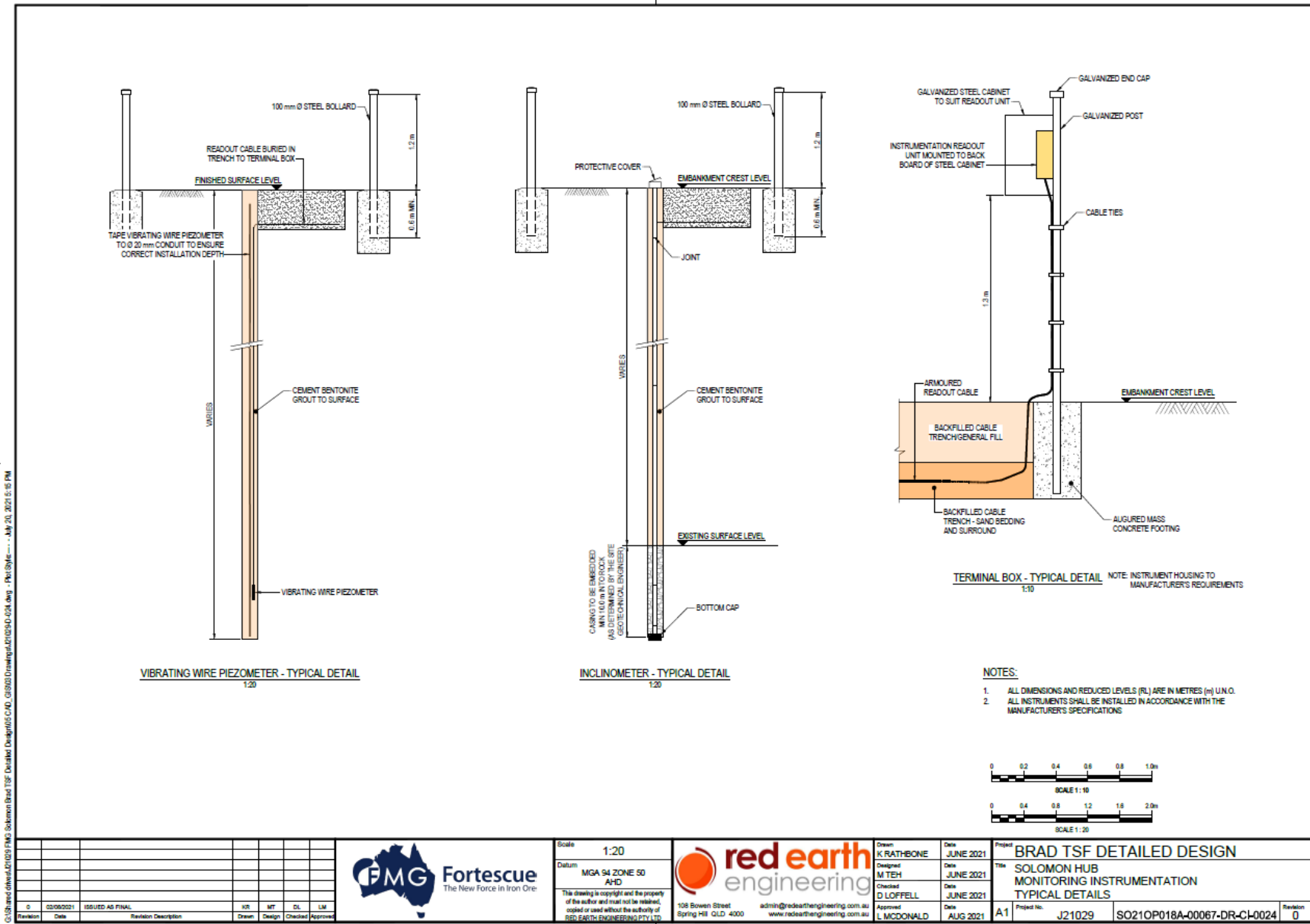


Figure 7 Monitoring instrumentation - typical detail

W6802/2023/1

IR-T05 Works approval template (v6.0) (27/11/2024)

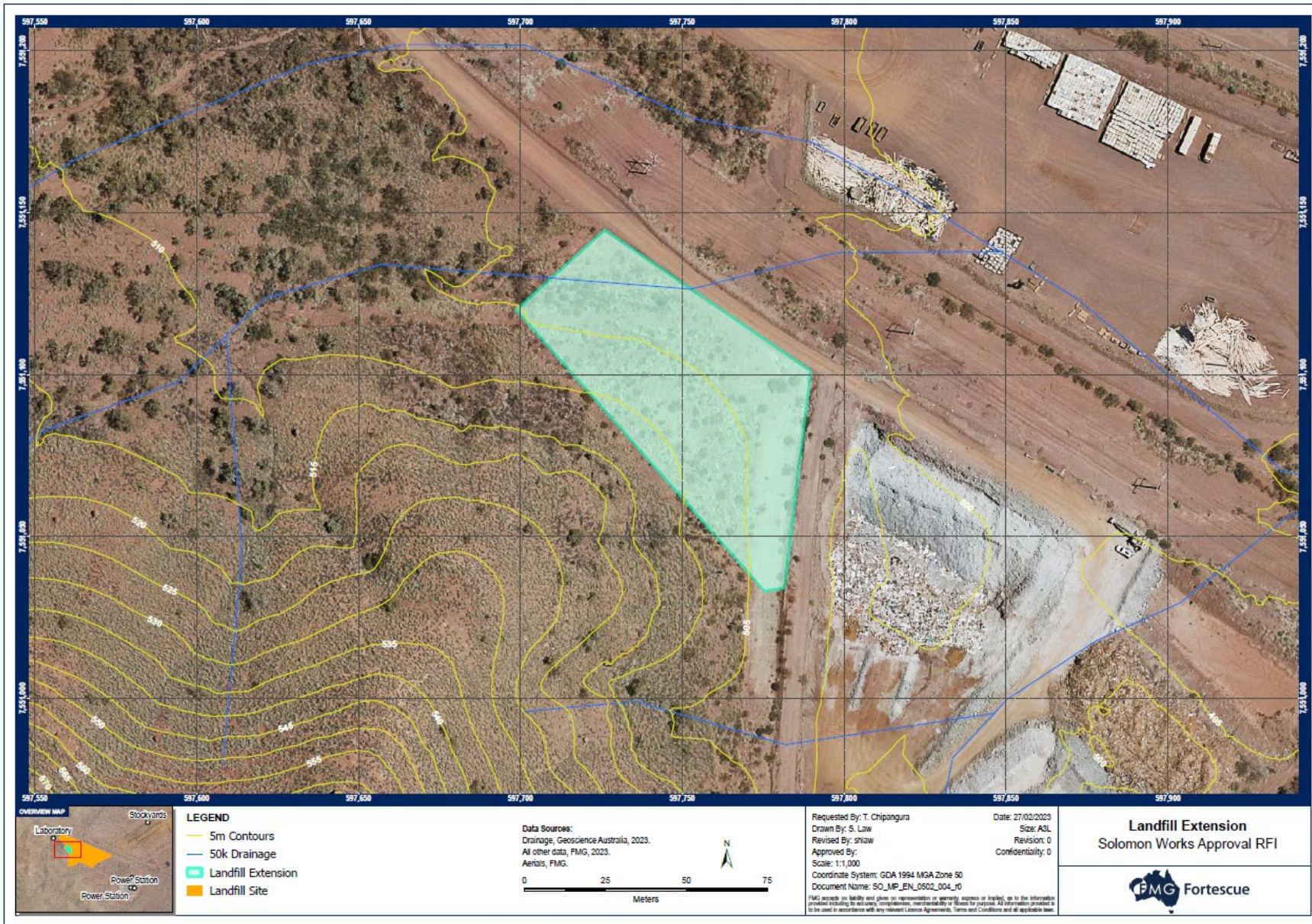


Figure 8 Landfill expansion

W6802/2023/1

IR-T05 Works approval template (v6.0) (27/11/2024)

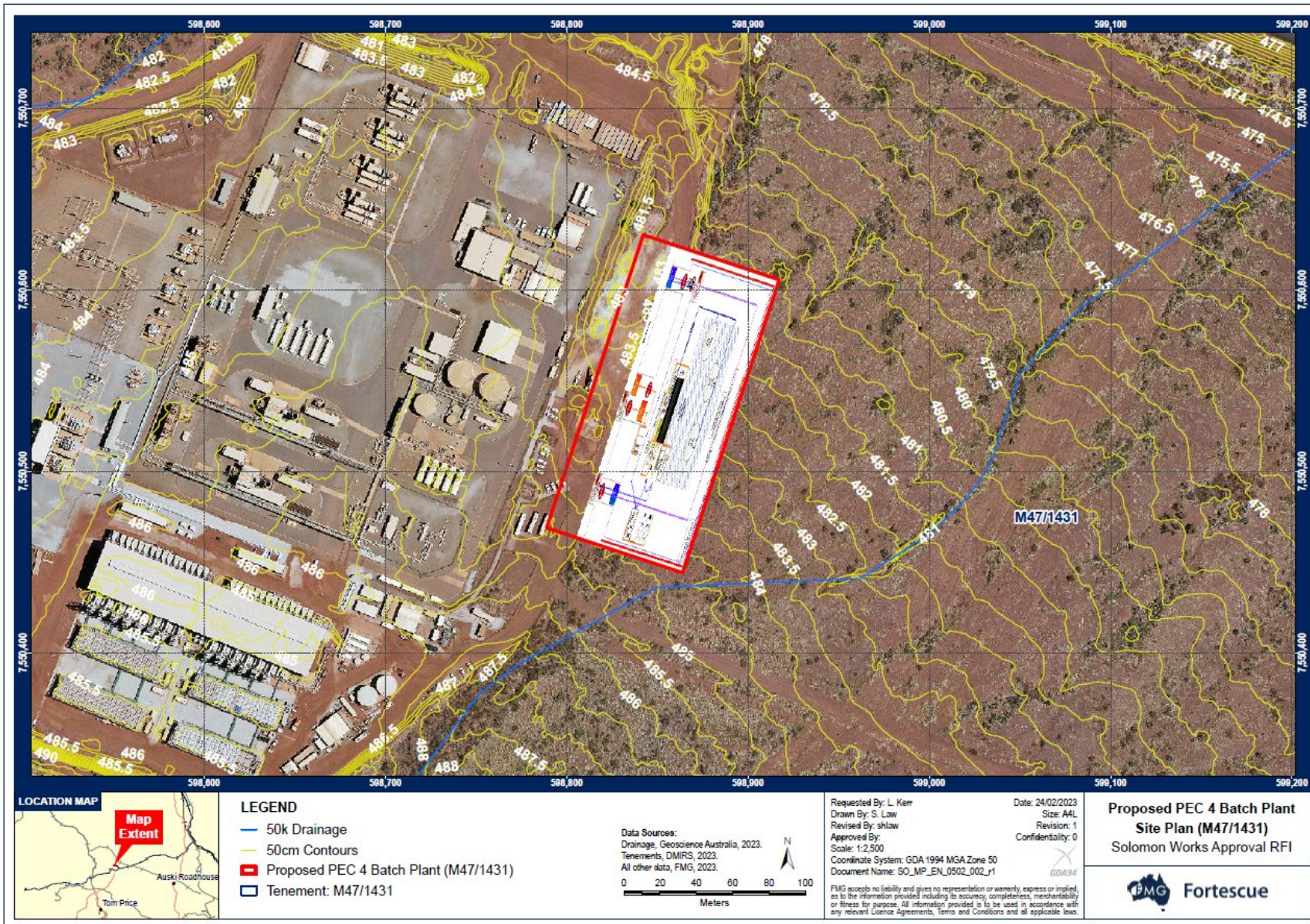


Figure 9 PEC 4 mobile concrete Batching Plant (location within M47/1431)

W6802/2023/1

IR-T05 Works approval template (v6.0) (27/11/2024)

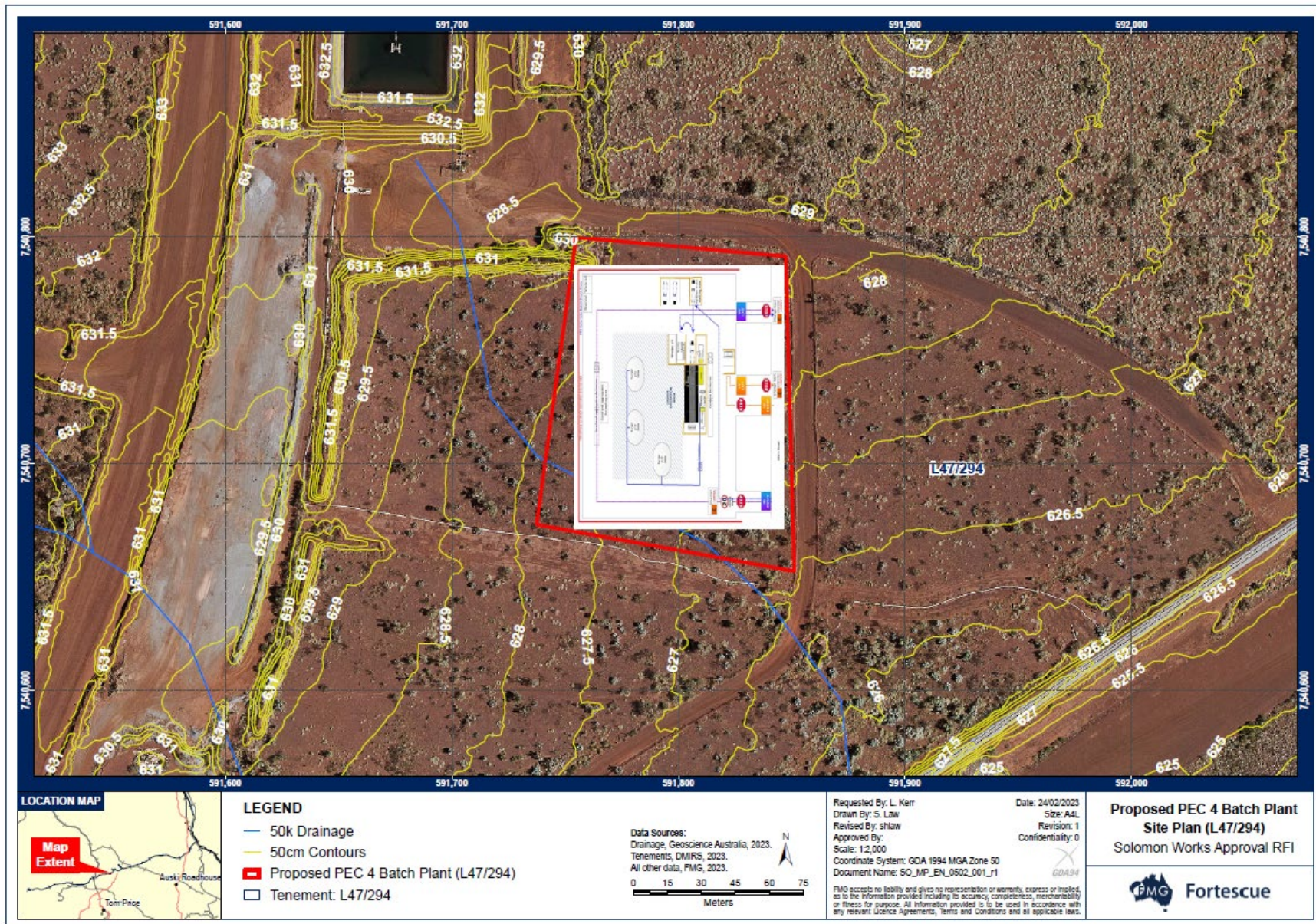


Figure 10 PEC 4 mobile concrete Batching Plant (location within L47/294)

W6802/2023/1

IR-T05 Works approval template (v6.0) (27/11/2024)

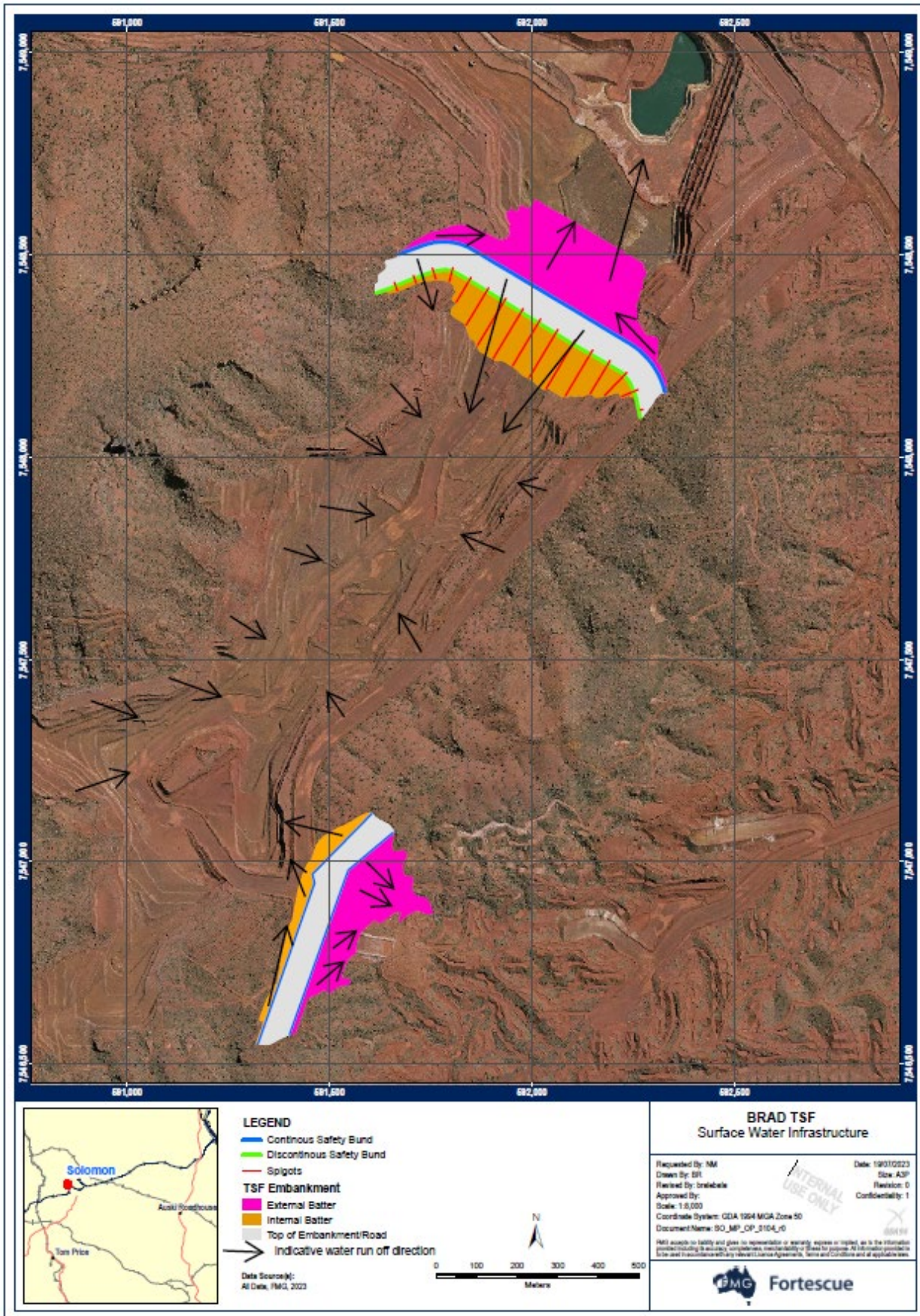


Figure 11 Brad TFS surface water management

Schedule 2: Premises boundary coordinates

ID#	Easting#	Northing#						
0#	590707#	7555929#	35#	601967.1#	7546949#	71#	602548.7#	7545518#
1#	590707.1#	7555842#	36#	602152#	7546875#	72#	602533.6#	7545508#
2#	591117#	7555840#	37#	602324.6#	7546789#	73#	602523#	7545501#
3#	591117.5#	7555929#	38#	602509.6#	7546641#	74#	602515.3#	7545496#
4#	593356.5#	7555928#	39#	602682.2#	7546407#	75#	602508#	7545492#
5#	595350.4#	7555742#	40#	602805.5#	7546185#	76#	602500.4#	7545487#
6#	596532.9#	7555415#	41#	602904.1#	7545951#	77#	602492.5#	7545482#
7#	596533.2#	7555296#	42#	602904.1#	7545753#	78#	602485#	7545478#
8#	598169.4#	7555270#	43#	602901#	7545749#	79#	602477.3#	7545474#
9#	598157.5#	7553568#	44#	602885#	7545738#	80#	602469.4#	7545469#
10#	598157.5#	7553568#	45#	602868.7#	7545728#	81#	602461.5#	7545465#
11#	600586.3#	7552464#	46#	602835.5#	7545706#	82#	602452.2#	7545460#
12#	600586.4#	7552439#	47#	602818.9#	7545695#	83#	602437.9#	7545453#
13#	600597.6#	7550683#	48#	602818.6#	7545695#	84#	602437.8#	7545453#
14#	600810.6#	7550683#	49#	602785.3#	7545673#	85#	602420#	7545444#
15#	601073.5#	7550427#	50#	602768.7#	7545662#	86#	602366.8#	7545417#
16#	602694.6#	7548944#	51#	602768.6#	7545662#	87#	602349.2#	7545408#
17#	602916.1#	7548742#	52#	602751.8#	7545651#	88#	602348.8#	7545408#
18#	602209.8#	7547932#	53#	602751.6#	7545651#	89#	602331.3#	7545399#
19#	600692.6#	7549349#	54#	602735.1#	7545640#	90#	602313.7#	7545390#
20#	600495.8#	7549257#	55#	602718.5#	7545629#	91#	602313.5#	7545390#
21#	600755.4#	7549034#	56#	602718.1#	7545629#	92#	602295.7#	7545381#
22#	600784.3#	7549009#	57#	602684.7#	7545607#	93#	602295.3#	7545381#
23#	600784.3#	7549009#	58#	602684.5#	7545607#	94#	602277.7#	7545372#
24#	600907.7#	7548552#	59#	602667.7#	7545596#	95#	602260.1#	7545363#
25#	600942.6#	7548423#	60#	602667.4#	7545596#	96#	602259.7#	7545363#
26#	600979.1#	7548288#	61#	602650.7#	7545585#	97#	602242#	7545354#
27#	601013#	7548162#	62#	602650.3#	7545585#	98#	602224.4#	7545345#
28#	601008.1#	7548157#	63#	602633.6#	7545574#	99#	602223.4#	7545344#
29#	601016.1#	7548150#	64#	602633.4#	7545574#	100#	602187.8#	7545326#
30#	601162.2#	7547609#	65#	602599.9#	7545552#	101#	602187.4#	7545326#
31#	601196.2#	7547483#	66#	602599.4#	7545551#	102#	602169.6#	7545317#
32#	601295.4#	7547116#	67#	602582.7#	7545540#	103#	602169.4#	7545317#
33#	601498.6#	7547048#	68#	602582.2#	7545540#	104#	602151.6#	7545308#
34#	601732.8#	7546999#	69#	602565.5#	7545529#	105#	602151.2#	7545307#
			70#	602548.9#	7545518#	106#	602133.4#	7545298#

107	602133	7545298	145	601707.2	7545083	183	601482.1	7542661
108	602115.2	7545289	146	601706.8	7545083	184	601465.4	7542652
109	602115	7545289	147	601694.3	7545076	185	601448.6	7542643
110	602097.3	7545280	148	601693.5	7545076	186	601431.4	7542634
111	602079.6	7545271	149	601688.2	7545073	187	601430	7542634
112	602079	7545270	150	601683.4	7545071	188	601426.2	7542632
113	602061.4	7545261	151	601680.7	7545069	189	601417.4	7542627
114	602026	7545243	152	601680.1	7545069	190	601409.8	7542623
115	602025.6	7545243	153	601671.7	7545065	191	601405.4	7542621
116	602008	7545234	154	601203.5	7543319	192	601398.8	7542617
117	601990.4	7545225	155	601203.6	7543319	193	601390.9	7542614
118	601990	7545225	156	601757.1	7543167	194	601374.3	7542605
119	601972.4	7545216	157	601757.6	7542865	195	601370.8	7542604
120	601954.8	7545207	158	601757.6	7542805	196	601365.2	7542601
121	601954.4	7545207	159	601744.8	7542798	197	601357.6	7542597
122	601936.8	7545198	160	601742.2	7542797	198	601339.5	7542589
123	601919.3	7545189	161	601724.6	7542787	199	601335.5	7542587
124	601902.2	7545180	162	601721.7	7542786	200	601329.5	7542584
125	601886	7545172	163	601704.1	7542777	201	601321.5	7542580
126	601870	7545164	164	601701.6	7542775	202	601303.2	7542572
127	601854	7545155	165	601684	7542766	203	601299.2	7542570
128	601838	7545147	166	601681.3	7542764	204	601293.2	7542568
129	601822	7545140	167	601663.6	7542755	205	601285.3	7542564
130	601806.5	7545132	168	601660.6	7542753	206	601266.9	7542557
131	601805.1	7545131	169	601642.9	7542744	207	601263	7542555
132	601794.9	7545126	170	601640.4	7542743	208	601257.2	7542552
133	601794.4	7545126	171	601622.6	7542734	209	601249.6	7542549
134	601789.6	7545123	172	601620.2	7542732	210	601231	7542542
135	601773.7	7545116	173	601602.4	7542723	211	601226.7	7542540
136	601757	7545107	174	601599.4	7542722	212	601220.6	7542538
137	601739.5	7545099	175	601596.6	7542720	213	601212.6	7542535
138	601735.3	7545097	176	601590.3	7542717	214	601194	7542528
139	601733.1	7545096	177	601583.4	7542713	215	601189.7	7542526
140	601733	7545096	178	601566.3	7542705	216	601183.6	7542524
141	601717.3	7545088	179	601549.5	7542696	217	601175.8	7542521
142	601716.4	7545087	180	601532.7	7542687	218	601156.9	7542514
143	601714.2	7545086	181	601515.8	7542679	219	601152.6	7542513
144	601709.7	7545084	182	601498.8	7542670	220	601146.6	7542510

221α	601138.9α	7542508α	259α	600833.6α	7542426α	297α	600550.5α	7542387α
222α	601119.9α	7542501α	260α	600819.8α	7542424α	298α	600546.8α	7542387α
223α	601115.4α	7542500α	261α	600819.3α	7542424α	299α	600542.5α	7542387α
224α	601109.2α	7542498α	262α	600813.4α	7542423α	300α	600537.9α	7542386α
225α	601101.4α	7542495α	263α	600810α	7542422α	301α	600518α	7542385α
226α	601082.3α	7542489α	264α	600805.6α	7542421α	302α	600514α	7542385α
227α	601078.4α	7542488α	265α	600800.2α	7542420α	303α	600509.6α	7542384α
228α	601072.9α	7542486α	266α	600780.5α	7542417α	304α	600504.9α	7542384α
229α	601065.9α	7542484α	267α	600777.3α	7542416α	305α	600484.9α	7542383α
230α	601058.5α	7542482α	268α	600773.1α	7542415α	306α	600481α	7542383α
231α	601047.1α	7542479α	269α	600768.1α	7542414α	307α	600476.8α	7542382α
232α	601043.5α	7542478α	270α	600763.3α	7542414α	308α	600472.3α	7542382α
233α	601038.3α	7542476α	271α	600762.8α	7542414α	309α	600452.4α	7542381α
234α	601031.7α	7542474α	272α	600761.1α	7542413α	310α	600448.4α	7542381α
235α	601026α	7542473α	273α	600746.1α	7542411α	311α	600444.2α	7542381α
236α	601014.4α	7542469α	274α	600742.7α	7542410α	312α	600439.8α	7542381α
237α	601010.9α	7542468α	275α	600738.3α	7542410α	313α	600419.8α	7542380α
238α	601005.9α	7542467α	276α	600733.1α	7542409α	314α	600415.6α	7542380α
239α	600999.6α	7542465α	277α	600713.3α	7542406α	315α	600411.2α	7542380α
240α	600980.2α	7542460α	278α	600709.9α	7542405α	316α	600406.7α	7542380α
241α	600977.3α	7542459α	279α	600705.7α	7542405α	317α	600386.7α	7542379α
242α	600972.9α	7542458α	280α	600700.7α	7542404α	318α	600380.6α	7542379α
243α	600967.2α	7542457α	281α	600680.8α	7542401α	319α	600374.3α	7542379α
244α	600947.8α	7542452α	282α	600677.2α	7542401α	320α	600368.1α	7542379α
245α	600944.4α	7542451α	283α	600672.9α	7542400α	321α	600348.1α	7542379α
246α	600939.7α	7542450α	284α	600667.8α	7542400α	322α	600341.4α	7542379α
247α	600933.7α	7542448α	285α	600648α	7542397α	323α	600334.7α	7542379α
248α	600914.3α	7542444α	286α	600644.6α	7542397α	324α	600328.2α	7542379α
249α	600911α	7542443α	287α	600640.6α	7542396α	325α	600311.5α	7542379α
250α	600906.4α	7542442α	288α	600635.9α	7542396α	326α	600310.9α	7542379α
251α	600900.6α	7542441α	289α	600616α	7542394α	327α	600310.4α	7542379α
252α	600881.1α	7542436α	290α	600612.3α	7542393α	328α	600310.1α	7542379α
253α	600877.6α	7542436α	291α	600607.9α	7542393α	329α	600306.8α	7542379α
254α	600872.9α	7542434α	292α	600602.9α	7542392α	330α	600300.7α	7542380α
255α	600867.1α	7542433α	293α	600583α	7542390α	331α	600294.6α	7542380α
256α	600847.5α	7542429α	294α	600579.3α	7542390α	332α	600288.8α	7542380α
257α	600844α	7542428α	295α	600575.1α	7542390α	333α	600268.8α	7542381α
258α	600839.3α	7542428α	296α	600570.4α	7542389α	334α	600262α	7542381α

335α	600255.4α	7542381α	373α	599934.3α	7542421α	411α	599591.3α	7542489α
336α	600249.2α	7542382α	374α	599914.6α	7542425α	412α	599588.2α	7542489α
337α	600229.2α	7542383α	375α	599894.9α	7542428α	413α	599586.5α	7542490α
338α	600222.4α	7542383α	376α	599894.9α	7542428α	414α	599567.1α	7542495α
339α	600215.9α	7542384α	377α	599875.4α	7542431α	415α	599562.6α	7542496α
340α	600209.8α	7542384α	378α	599856α	7542435α	416α	599559.4α	7542497α
341α	600196.2α	7542385α	379α	599855.5α	7542435α	417α	599557.5α	7542497α
342α	600195.5α	7542385α	380α	599835.8α	7542438α	418α	599538.2α	7542502α
343α	600195.5α	7542385α	381α	599816.6α	7542442α	419α	599534.1α	7542503α
344α	600189.2α	7542386α	382α	599797.4α	7542445α	420α	599531.4α	7542504α
345α	600182.3α	7542386α	383α	599793.1α	7542446α	421α	599530.2α	7542504α
346α	600175.9α	7542387α	384α	599789.7α	7542446α	422α	599510.9α	7542510α
347α	600170α	7542387α	385α	599787.3α	7542447α	423α	599507.3α	7542511α
348α	600150.1α	7542389α	386α	599767.7α	7542450α	424α	599505.1α	7542511α
349α	600142.8α	7542390α	387α	599763.6α	7542451α	425α	599504.4α	7542511α
350α	600136.1α	7542390α	388α	599760.5α	7542452α	426α	599485.1α	7542517α
351α	600130α	7542391α	389α	599758.5α	7542452α	427α	599481.4α	7542518α
352α	600110.1α	7542393α	390α	599738.9α	7542456α	428α	599479.2α	7542518α
353α	600103.2α	7542394α	391α	599734.8α	7542457α	429α	599478.5α	7542519α
354α	600096.9α	7542395α	392α	599731.8α	7542457α	430α	599462.8α	7542523α
355α	600091.4α	7542396α	393α	599729.9α	7542458α	431α	599459.4α	7542524α
356α	600071.6α	7542398α	394α	599710.3α	7542462α	432α	599456.2α	7542525α
357α	600064.1α	7542399α	395α	599706α	7542463α	433α	599454.5α	7542525α
358α	600057.4α	7542400α	396α	599702.8α	7542463α	434α	599454.3α	7542525α
359α	600051.5α	7542401α	397α	599700.8α	7542464α	435α	599435.1α	7542531α
360α	600031.7α	7542404α	398α	599681.2α	7542468α	436α	599431.4α	7542532α
361α	600024.6α	7542406α	399α	599677α	7542469α	437α	599429.2α	7542533α
362α	600018.4α	7542407α	400α	599674α	7542469α	438α	599428.5α	7542533α
363α	600013.2α	7542407α	401α	599672.1α	7542470α	439α	599409.3α	7542539α
364α	599993.5α	7542411α	402α	599652.6α	7542474α	440α	599406α	7542540α
365α	599993.3α	7542411α	403α	599648.3α	7542475α	441α	599404.1α	7542540α
366α	599975.4α	7542414α	404α	599645.3α	7542476α	442α	599403.8α	7542540α
367α	599974.5α	7542414α	405α	599643.5α	7542476α	443α	599384.7α	7542546α
368α	599973.8α	7542414α	406α	599624α	7542481α	444α	599381α	7542547α
369α	599954α	7542418α	407α	599619.8α	7542482α	445α	599378.8α	7542548α
370α	599953.9α	7542418α	408α	599616.8α	7542482α	446α	599378.2α	7542548α
371α	599938.4α	7542420α	409α	599615α	7542483α	447α	599359.2α	7542554α
372α	599934.8α	7542421α	410α	599595.6α	7542488α	448α	599355.8α	7542555α

449	599354.1	7542556	487	599042.1	7542676	525	598727.8	7542862
450	599354	7542556	488	599034.1	7542680	526	598724.9	7542865
451	599334.9	7542562	489	599028.1	7542683	527	598708.8	7542876
452	599331.2	7542563	490	599024.2	7542685	528	598701.3	7542882
453	599329	7542564	491	599006.3	7542694	529	598697.9	7542884
454	599328.5	7542564	492	598998.5	7542697	530	597913.4	7542889
455	599309.5	7542570	493	598992.8	7542700	531	597901.8	7541044
456	599306	7542571	494	598989.3	7542702	532	598954.6	7540306
457	599304.1	7542572	495	598971.5	7542711	533	599089.1	7540212
458	599303.9	7542572	496	598963.6	7542716	534	599063.6	7540136
459	599284.9	7542578	497	598957.9	7542719	535	599060.8	7540129
460	599280.9	7542580	498	598954.3	7542721	536	599038.5	7540076
461	599278.5	7542580	499	598936.7	7542730	537	599038.5	7540043
462	599277.8	7542581	500	598929.1	7542734	538	599065.8	7539989
463	599258.9	7542587	501	598923.6	7542738	539	599104.7	7539950
464	599251.7	7542589	502	598920.3	7542739	540	599106.2	7539865
465	599246.2	7542591	503	598902.9	7542749	541	599071.4	7539791
466	599242.5	7542593	504	598895.9	7542753	542	599019.5	7539680
467	599223.6	7542600	505	598891.1	7542756	543	598997.5	7539652
468	599215.8	7542602	506	598888.4	7542758	544	598938.7	7539532
469	599209.7	7542605	507	598871.2	7542768	545	598821	7539291
470	599205.4	7542606	508	598863.5	7542773	546	598644.6	7538929
471	599186.7	7542613	509	598857.9	7542776	547	598633.3	7538919
472	599178.9	7542616	510	598854.6	7542778	548	598607.1	7538854
473	599172.8	7542619	511	598837.6	7542789	549	598582.7	7538829
474	599168.7	7542621	512	598829.9	7542793	550	598580.4	7538823
475	599150.1	7542628	513	598824.5	7542797	551	598543.7	7538737
476	599142.2	7542631	514	598821.3	7542799	552	598517.4	7538707
477	599136.2	7542634	515	598804.5	7542810	553	598491.2	7538642
478	599132.1	7542635	516	598797	7542815	554	598467.3	7538616
479	599113.7	7542643	517	598791.8	7542818	555	598402.3	7538477
480	599105.8	7542647	518	598788.8	7542820	556	598388.6	7538447
481	599100	7542649	519	598772.2	7542831	557	598380.7	7538430
482	599096.1	7542651	520	598764.7	7542836	558	598379.1	7538425
483	599077.8	7542659	521	598759.6	7542840	559	598276	7538084
484	599069.9	7542663	522	598756.6	7542842	560	598254.7	7538013
485	599064	7542666	523	598740.3	7542854	561	598235	7537948
486	599060.2	7542667	524	598732.9	7542859	562	598210.7	7537959

563	598008.7	7537348	583	590204	7538071	603	575218.6	7551655
564	597917.2	7537071	584	590204	7537239	604	575628.3	7552766
565	597876.1	7536947	585	587489.4	7537239	605	575636.8	7554516
566	597639	7536229	586	587489.4	7537563	606	575636.8	7554516
567	597539.8	7535929	587	586304.3	7537570	607	575643.6	7555922
568	597448.9	7535654	588	582436.7	7537591	608	577362.8	7555914
569	597182.9	7535655	589	577208.2	7537591	609	577959.1	7555911
570	597126.4	7535656	590	577208.2	7538727	610	577972.4	7555915
571	597126.4	7535656	591	577200.6	7539083	611	577976	7555909
572	597020.6	7535656	592	582433.5	7539095	612	580247.1	7555902
573	597874.3	7538074	593	582433.1	7539289	613	584239.9	7555882
574	597884.1	7538110	594	582440.5	7540694	614	585959.1	7555873
575	595952.9	7539004	595	580942.4	7540165	615	587136.7	7555866
576	594682.9	7539226	596	579378.5	7541083	616	587137.2	7555947
577	593997.1	7539322	597	580331.9	7543054	617	589806.6	7555934
578	592738.7	7539378	598	581401	7542549	618	589716.5	7556944
579	589441.4	7539397	599	582515	7544826	619	589896.5	7556939
580	589440.5	7539250	600	582359.4	7547531	620	590707	7555929
581	589416.5	7539250	601	581439.6	7548119			
582	589407.5	7538071	602	575783.5	7550977			

Schedule 3: Groundwater monitoring quality assurance and quality control

The licence 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.