Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6426/2020/1
Works approval holder	Greenstone Resources (WA) Pty Ltd
ACN	100 341 599
Registered business address	Level 2 35 Ventnor Avenue West Perth WA 6005
DWER file number	DER2020/000295
Duration	23/10/2020 to 22/10/2025
Date of amendment	7/11/2022
Premises details	King of the Hills Gold Operations Shire of Leonora Legal description - M37/67, M37/76, M37/90, M37/201, M37/222, M37/248, M37/330, M37/410, M37/429, M37/449, M37/451, M37/457, M37/547, M37/548, M37/572, M37/573, M37/574, M37/1105 As specified in Schedule 1

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed design capacity**
Category 5: Processing or beneficiation of metallic or non-metallic ore	4,000,000 tonnes per annual period

This works approval is granted to the works approval holder, subject to the attached conditions, on 7 November 2022 , by:

Christine Pustkuchen
Digitally signed by Christine Pustkuchen
Date: 2022.11.07 09:45:07 +08'00'

A/MANAGER, RESOURCE INDUSTRIES
REGULATORY SERVICES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Works approval history

Date	Reference number	Summary of changes
23/10/2020	W6426/2020/1	Works Approval issued
13/10/2022	W6426/2020/1	Amendment to extend time limited operations in condition 19 and include Table 7.
4/11/2022	W6426/2020/1	DWER initiated amendment to address typographical errors in numbering of conditions.

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 means the version of the standard, guideline or code of practice in force at the time of granting of this works approval and includes any amendments to the standard, guideline or code of practice which may occur from time to time during the course of the works approval;

(e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and

(f) unless specified otherwise, all definitions are in accordance with the EP Act.

NOTE: This works approval requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this works approval.

Works approval conditions

The works approval holder must ensure that the following conditions are complied with:

Construction phase

Critical Containment Infrastructure and equipment

1. The works approval holder must:

(a) construct the critical containment infrastructure;

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

(c) at the corresponding infrastructure location(s)

as set out in Table 1.

Table 1: Critical containment infrastructure design and construction requirements

	Infrastructure	Design and construction requirements	Infrastructure location
Tailings Storage Facility (TSF) 4 (Cells A and B)			
1.	TSF4 (Cells A and B) embankment lift	Constructed to provide a minimum 0.5 meter total freeboard (including and allowance for a 1% AEP 72-hour rain event) above the normal operating pond. TSF4 Cells A and B, Stage 6 embankment lift constructed in accordance with drawings; - PE801-015-A3000-100, and - PE801-015-A3000-201 of Schedule 1	As shown in drawing PE801-015-A3000-100, Figure 4 of Schedule 1.
2.	TSF4 (Cells A and B) decant system	TSF4 decant tower constructed in accordance with drawings; - PE801-015-A3000-301, - PE801-015-A3000-302 and - PE801-015-A3000-303 of Schedule 1	As shown in drawing PE801-015-A3000-100 Figure 4 of Schedule 1.
3.	TSF4 monitoring infrastructure	Existing TSF4 monitoring bores, recovery bores to be recommissioned or replaced in accordance with drawing 801-015-A3000-900 of Schedule 1 Vibrating wire piezometers and standpipe piezometers constructed as specified in drawing 801-015-A3000-900 of Schedule 1	As shown in drawing 801-015-A3000-900 Figure 21 of Schedule 1.
Tailings Storage Facility (TSF) 5 (Cells A and B)			
4.	TSF5 (Cells A and B) general requirements	Constructed within M37/547, M37/548 and M37/410 as per Figure 1 in Schedule 1. Storage area of 100 hectares. Constructed to provide a minimum 0.5 meter total freeboard (including an allowance for a 1% AEP 72 hour rain event) above the normal operating pond.	As shown in Figure 1 of Schedule 1.

5.	TSF5 (Cells A and B) starter embankment	Stage 1 embankments, including cut-off trench and toe drains constructed as specified in drawings; – PE801-015-A3000-101 – PE801-015-A3000-202 – PE801-015-A3000-203 – PE801-015-A3000-204 – PE801-015-A3000-205 of Schedule 1	As shown in drawing 801-015-A3000-101 Figure 6 of Schedule 1.
6.	TSF5 (Cells A and B) basin and seepage control infrastructure	All drill holes within the footprint of TSF5 are to be identified and sealed with grout, plugged with a cap then covered with low permeable material prior to the liner being installed. Basin to be constructed with an in-situ compacted or imported low permeability soil liner (minimum 300 mm thick). A 1.5mm HDPE geomembrane to be installed beneath the average climatic conditions supernatant pond extent. Underdrainage system consisting of embankment toe drains, collector, and finger drains across the basin of each cell to be constructed. All drainage to report to a recovery sump at the upstream toe of the embankment to each cell. Basin lining and drainage installation works to be constructed as specified in drawings; - PE801-015-A3000-400, - PE801-015-A3000-401 and - PE801-015-A3000-402 of Schedule 1	As shown in drawing 801-015-A3000-400 Figure 18 of Schedule 1.
7.	TSF5 (Cells A and B) decant system	Decant system to be constructed for each cell as specified in drawings - PE801-015-A3000-301 - PE801-015-A3000-302 - PE801-015-A3000-303 of Schedule 1	As shown in drawing 801-015-A3000-400 Figure 18 of Schedule 1.
8.	TSF5 embankment and decant tower and causeway raises Cells A and B	Embankment raises stage 2, 3 and 4 constructed as specified in drawings: – 801-015-A3000-104 – 801-015-A3000-203 – 801-015-A3000-204 – 801-015-A3000-206 – 801-015-A3000-207 – 801-015-A3000-208 – 801-015-A3000-303 – 801-015-A3000-400 – 801-0815-A3000-904	As shown in drawing 801-015-A3000-104 Figure 7 of Schedule 1.
9.	TSF5 monitoring infrastructure (Stage 1)	Vibrating wire piezometers and standpipe piezometers constructed as specified in drawing 801-015-A3000-901 of Schedule 1.	As shown in drawing 801-015-A3000-901 Figure 22 of Schedule 1.

2. The works approval holder shall undertake an investigation that includes but is not limited to:

(a) a geophysical survey to determine the presence and exact location of a paleochannel within the TSF5 basin area;

(b) works to define the extent, material properties and estimated permeability of the paleochannel; and

(c) details on what measures will be put into place to monitor and minimize seepage from the paleochannel.

3. The works approval holder is authorized to construct embankment raises for TSF4 Cells A and B and TSF5 Cells A and B to the construction height as specified in Table 2.

Table 2: Staged construction heights

Stage	Tailings Storage Facility	Construction height (mRL)
6	TSF 4 cells A and B	429.0
1	TSF5 cells A and B	412.5
2	TSF5 cells A and B	415.5
3	TSF5 cells A and B	418.0
4	TSF5 cells A and B	422.5

Infrastructure and equipment

4. The works approval holder must:

(a) construct and install the infrastructure and equipment;

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

(c) at the corresponding infrastructure location; and

(d) within the corresponding timeframe,

as set out in Table 3.

Table 3: Design and construction / installation requirements

	Infrastructure	Design and construction / installation requirements	Infrastructure location
1.	Gold Processing Plant and associated infrastructure	Gold processing plant comprises of the following infrastructure and equipment; - Run of Mine (ROM) pad; - Primary and secondary crusher with associated stockpile and reclaim areas; - Grinding circuit; - Carbon in leach (CIL) leach and absorption circuit; and - Elution and gold recovery circuit. Layout of processing plant to be in accordance with Figure 2 in Schedule 1. Raw water dam and process water dam to be constructed with compacted oxide or clay material,	As shown in Figure 2 of Schedule 1.

	Infrastructure	Design and construction / installation requirements	Infrastructure location
		lined with 1.0mm HDPE and designed to contain a one in one hundred-year 72 hours ARI rainfall event. Water sprays to be installed on crusher tipping areas. Dust collector to be installed on crusher discharge conveyor.	
2.	Tailings and return water pipelines	To be installed above ground within earth-bunded corridors with scour pits or sumps. To be fitted with isolation valves. To be fitted with flow and leak detection sensors.	As shown in Figure 3 of Schedule 1.
3.	Surface water management system	Stormwater diversion bunds to be constructed to divert surface water flows around processing plant area and construction areas. Site drainage collection pond to be constructed with compacted oxide or clay material, lined with 1.0mm HDPE and designed to contain a one in one hundred-year 72 hours ARI rainfall event.	Not shown As shown in Figure 2 of Schedule 1

Construction of groundwater monitoring wells

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

Table 4: Groundwater monitoring well construction requirements

Infrastructure	Design and construction / installation requirements	Monitoring well location (s)	Timeframe
Groundwater monitoring wells MB20-1, MB20-2, MB20-3, MB20-4, MB20-5, MB20-6 and MB20-7	<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.	As depicted in drawing PE801-015-A3000-901 Figure 22 of Schedule 1	Must be constructed, developed (purged), and determined to be operational prior to the commencement of time limited operations under condition 17.
	<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 Minimum Construction Requirements for Water Bores in Australia.		

	Any observations of staining / odours or other indications of contamination must be included in the bore log.		
	Well construction log: Well construction details must be documented within a well construction log to demonstrate compliance with the Minimum Construction Requirements for Water Bores in Australia. The construction logs shall include elevations of the top of casing position to be used as the reference point for water-level measurements, and the elevations of the ground surface protective installations.		
	Well development: All installed monitoring wells must be developed after drilling to remove fine sand, silt, clay and any drilling mud residues from around the well screen to ensure the hydraulic functioning of the well. A detailed record should be kept of well development activities and included in the well construction log.		
	Installation survey: the vertical (top of casing) and horizontal position of each monitoring well must be surveyed and subsequently mapped by a suitably qualified surveyor.		
	Well network map: a well location map (using aerial image overlay) must be prepared and include the location of all monitoring wells in the monitoring network and their respective identification numbers.		

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

Baseline groundwater monitoring

6. The works approval holder must undertake baseline ambient groundwater monitoring in accordance with Table 5 once the monitoring wells required by condition 4 have been constructed.

7. 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 Table 5.

Table 5: Determination of baseline ambient groundwater conditions

Monitoring well location	Parameter	Unit	Frequency	Method
	Standing water level[1]	mgbl		

Groundwater monitoring wells MB20-1, MB20-2, MB20-3, MB20-4, MB20-5, MB20-6 and MB20-7 As depicted in Drawing PE801-015-A3000-900 to -910 in Schedule 1	pH[1]	pH unit	One off sample	Spot sample, in accordance with AS/NZS 5667.11.
	Electrical conductivity[1]	µcm/S		
	Total dissolved solids	mg/L		
	WAD cyanide			
	Ca, Mg, Na, K, CO_3, Cl, SO_4, Al, As, Cd, Cr, Cu, Fe, Mn, Ni, Zn, Pb, Co			

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

Compliance reporting (critical containment infrastructure)

8. The works approval holder must within 30 calendar days of an item of Critical Containment Infrastructure identified by condition 1 being constructed and/or installed:

(a) undertake an audit of their compliance with the requirements of condition 1: and

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

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

(a) certification by a suitably qualified geotechnical or civil engineer that each item of critical containment infrastructure or component thereof, as specified in condition 1, has been built and installed in accordance with the requirements specified in condition 1;

(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 1;

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

(d) results of the investigation required by condition 2; 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 (non-critical containment infrastructure)

10. 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.

11. The Environmental Compliance Report required by condition 10, must include as a minimum the following:

(a) certification by a suitably qualified geotechnical or civil 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 (monitoring wells)

12. The works approval holder must, within 30 calendar days of the monitoring wells being constructed, submit to the CEO a well construction report and baseline groundwater monitoring data evidencing compliance with the requirements of conditions 5 to 7.

Environmental commissioning phase

Environmental commissioning requirements

13. The works approval holder may only commence environmental commissioning of an item of infrastructure listed in condition 14 once the Environmental Compliance Report has been submitted for that item of infrastructure in accordance with condition 3 of this works approval.

14. Any environmental commissioning activities undertaken for an item of infrastructure specified in Table 6 may only be carried out:

(a) in accordance with the corresponding commissioning requirements; and

(b) for the corresponding authorized commissioning duration.

Table 6: Environmental commissioning requirements

	Infrastructure	Commissioning requirements	Authorized commissioning duration
1.	Gold processing plant and associated infrastructure	Bunds and sumps shall be leak tested; Process control alarms for loss of containment shall be tested.	For a period not exceeding 3 calendar months in aggregate.
2.	Pipelines (tailings and return water) between processing plant and tailings facility	Pipelines shall be hydrotested. All flow meters shall be calibrated. All pressure meters shall be calibrated.	

Environmental Commissioning Reporting

15. The works approval holder must submit to the CEO an Environmental Commissioning Report within 60 calendar days of the completion date of environmental commissioning for each item of infrastructure specified in Table 6.

16. The works approval holder must ensure the Environmental Commissioning Report required by condition 15 of this works approval includes the following:

(a) a summary of the environmental performance of each item of infrastructure or equipment as constructed or installed (as applicable), which at minimum includes records detailing the:

(i) hydro-testing of pipelines;

(ii) calibration of flow meters and pressure transmitters; and

(iii) testing the system.

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

(c) where they have not been met, measures proposed to meet the manufacturer's design specifications and the conditions of this works approval, together with timeframes for implementing the proposed measures.

Time limited operations phase

Commencement and duration

17. The works approval holder may only commence time limited operations for an item of critical containment infrastructure identified in condition 1 where the CEO has notified the works approval holder that the Critical Containment Infrastructure Report for that item of infrastructure as required by condition 8 meets the requirements of that condition.

18. The works approval holder may only commence time limited operations for an item of infrastructure identified in condition 4:

(a) where the item of infrastructure is not authorised to undertake environmental commissioning, the Environmental Compliance Report as required by condition 10 has been submitted by the works approval holder for that item of infrastructure; and

(b) where the item of infrastructure is authorised to undertake environmental commissioning under condition 13, the Environmental Commissioning Report for that item of infrastructure as required by condition 15 has been submitted by the works approval holder.

19. The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 20 (as applicable):

(a) for a period specified in Table 7 from the day the works approval holder meets the requirements of condition 17 and 18 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 19(a).

Table 7: Duration of time limited operations

Infrastructure	Authorised time limited operation duration
TSF 4 (Cells A & B)	243 calendar days
TSF 5 (Cells A & B)	180 calendar days
Tailings and return water pipelines	180 calendar days
Gold processing facility and associated infrastructure	180 calendar days

Time limited operations infrastructure and equipment requirements

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

operational requirement set out in Table 8.

Table 8: Infrastructure and equipment requirements during time limited operations

	Site infrastructure	Operational requirement	Infrastructure location
1.	TSF4 (Cells A & B) and TSF 5 (Cells A & B)	A minimum 0.5 meter total freeboard (including and allowance for a 1% AEP 72-hour rain event) above the normal operating pond to be maintained within each TSF cell at all times.	As shown in Figure 1 of Schedule 1.
2.	Tailings and return water pipelines	Pipelines containing tailings or return water are required to be either: (a) equipped with telemetry systems and pressure sensors along pipelines to allow the detection of leaks and failures; or (b) equipped with automatic cut-outs in the event of a pipe failure; or (c) provided with secondary containment sufficient to contain any spill for a period equal to the time between daily inspections.	As shown in Figure 3 of Schedule 1.
3.	Gold processing facility and associated infrastructure	Stormwater is to be managed so contaminated or potentially contaminated stormwater is captured to prevent release into the environment. An operational freeboard of 0.3m is maintained at all times for all process water, raw water and site drainage dams.	As shown in Figure 2 of schedule 1.

21. During time limited operations, the works approval holder must conduct visual inspections of the infrastructure specified in Table 9.

Table 9: Inspections of infrastructure

	Infrastructure	Type of inspection	Frequency
1.	Tailings delivery pipelines	To confirm integrity	Twice daily
2.	Return water pipelines	To confirm integrity	Twice daily
3.	Tailings storage facilities embankment freeboard	To confirm required freeboard capacity is available	Daily
4.	Tailings storage decant ponds	To confirm size and location	Daily

22. During time limited operations, the works approval holder must provide to the CEO results of at least 10 individual representative tailings samples, including pore water, within 60 days of tailings deposition to TSF4 commencing, to determine the likely behaviour of elements under a range of leaching conditions, and may include, but not be limited to:

(a) testing using the LEAF Test Method 1313 pH-dependent leaching test (US EPA, 2017);

(b) geotechnical characterisation of tailings including: particle size distribution, volume

of solids, settling test (drained and undrained), air drying test and hydraulic conductivity of the same tailings tested in 22(a); and

(c) testing for the contaminants listed in Table 10.

Table 10: Tailings characterisation parameters

Stream	Contaminants	Unit
Tailings leachate	Aluminium, Antimony, Arsenic, Barium, Beryllium, Bismuth, Boron, Cadmium, Caesium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Manganese, Mercury, Molybdenum, Nickel, Niobium, Rubidium, Selenium, Silver, Strontium, Tantalum, Thallium, Thorium, Tin, Titanium, Tungsten, Uranium, Vanadium, Zinc, Calcium, Potassium, Magnesium and Sodium	mg/L
	Total dissolved solids	
	pH	pH units

23. During time limited operations, the Works Approval Holder shall sample monthly the composition of the tailings decant water (if available) from each TSF cell for the parameters in Table 10. A minimum of 5 samples shall be analysed.

Monitoring during time limited operations

24. The works approval holder must undertake a groundwater monitoring program during time limited operations in accordance with Table 11.

25. 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 Table 11.

Table 11: Ambient Groundwater Monitoring

Monitoring well location	Parameter	Unit	Limit	Frequency	Method
TSF4 monitoring bores MBH1 (S), MBH1 (D), MBH2(S) and MBH2(D), MBH3(S), MBH3(D), MBH6, MBH7, MBH14, MBH15, MBH18 and MBH19, MBH21 and MBH23 As depicted in drawing PE801-015-A3000-900 in Schedule 1 TSF5 monitoring bores MB20-1, MB20-2, MB20-3, MB20-4, MB20-5, MB20-6 and MB20-7 as depicted in Drawings PE801-015-A3000- 910 in Schedule 1	Standing water level[1]	mgbl	4mbgl	Quarterly	Spot sample, in accordance with AS/NZS 5667.11.
	pH[1]	pH unit	-		
	Electrical conductivity[1]	µcm/S	-		
	Total dissolved solids	mg/L	-		
	Weak acid dissociable (WAD) cyanide				
	Ca, Mg, Na, K, CO_3, Cl, SO_4, Al, As, Cd, Cr, Cu, Fe, Mn, Ni, Zn, Pb, Co				

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

26. The works approval holder must undertake monitoring of the water balance for TSF 4 and TSF 5 each monthly period during time limited operations, and as a minimum record the following information:

(a) site rainfall;

(b) evaporation rate;

(c) decant water, toe drainage and recovery bore (if applicable) volumes;

(d) volume of tailings deposited;

(e) volume of water in tailings;

(f) percentage (%) of solids in tailings; and

(g) calculated seepage losses.

Time limited operations – compliance reporting

27. The works approval holder must submit to the CEO a report on the time limited operations within 30 days of the completion date of time limited operations or 30 days before the expiration date of the works approval, whichever is the sooner.

28. The works approval holder must ensure the report required by condition 27 includes the following;

(a) a summary of the time limited operations, including timeframes and amount of gold bearing ore processed;

(b) a summary of the environmental performance of all infrastructure as constructed or installed (as applicable), which includes records detailing the:

(i) tailings deposited into each TSF;

(ii) inspection results obtained in accordance with condition 23;

(iii) results of tailings characterisation studies as conducted under conditions 22 and 23;

(iv) groundwater monitoring conducted in line with the groundwater monitoring program in condition 24;

(v) water balance for each TSF cell for the duration of time limited operations in accordance with condition 26;

(c) a review of performance and compliance against the conditions of the works approval; and

(d) where the 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)

29. 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.

30. The works approval holder must maintain accurate and auditable books including the following records, information, reports, and data required by this works approval:

(a) the works conducted in accordance with condition 1 and 4;

(b) any maintenance of infrastructure that is performed in the course of complying with condition 1 and 5;

(c) monitoring programmes undertaken in accordance with conditions 21 and 24; and

(d) complaints received under condition 29.

31. The books specified under condition 30 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 12 have the meanings defined.

Table 12: Definitions

Term	Definition
AEP	means Annual Exceedance Probability
ARI	means Average Recurrence Interval
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.
annual period	a 12-month period commencing from 1 July until 30 June of the immediately following year.
books	has the same meaning given to that term under the EP Act.
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
condition	a condition to which this works approval is subject under section 62 of the EP Act.
Critical containment infrastructure	means the infrastructure listed in condition 1
Critical Containment Infrastructure Report	means a report to satisfy the DEO that works of critical containment infrastructure have been constructed in accordance with the works approval.
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V Division 3 of the EP Act.
discharge	has the same meaning given to that term under the EP Act.
emission	has the same meaning given to that term under the EP Act.
Environmental commissioning	means the sequence of activities to be undertaken to test equipment integrity and operation, or to determine the environmental performance, of equipment and infrastructure to establish or test a steady state operation and confirm design specifications.
Environmental Commissioning Report	means a report on any commissioning activities that have taken place and a demonstration that they have concluded, with focus on emissions and discharges, waste containment, and other environmental factors.

Term	Definition
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).
LEAF	Leaching Environmental Assessment Framework
mbgl	means meters below ground level.
mg/L	milligrams per liter
NATA	means the (Australian) National Association of Testing Authorities.
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 or civil engineer	means a person who; (a) holds a relevant tertiary academic qualification related to geotechnical or civil engineering; and (b) has a minimum of three years of experience working in the field of geotechnical and or civil engineering.
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.
TSF	Tailings Storage Facility
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.
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).

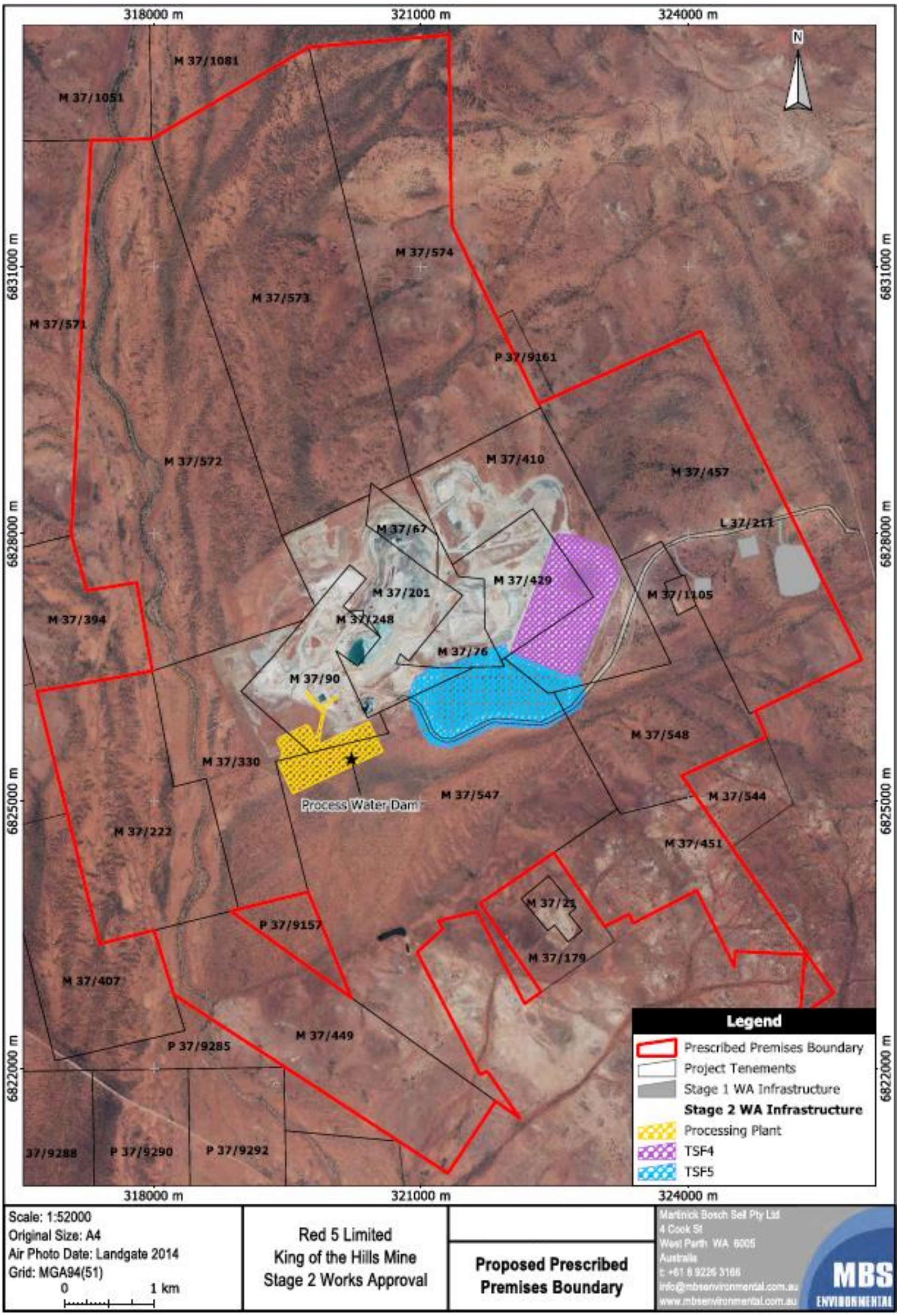


Figure 1: Map of the boundary of the prescribed premises

Processing Plant layout map

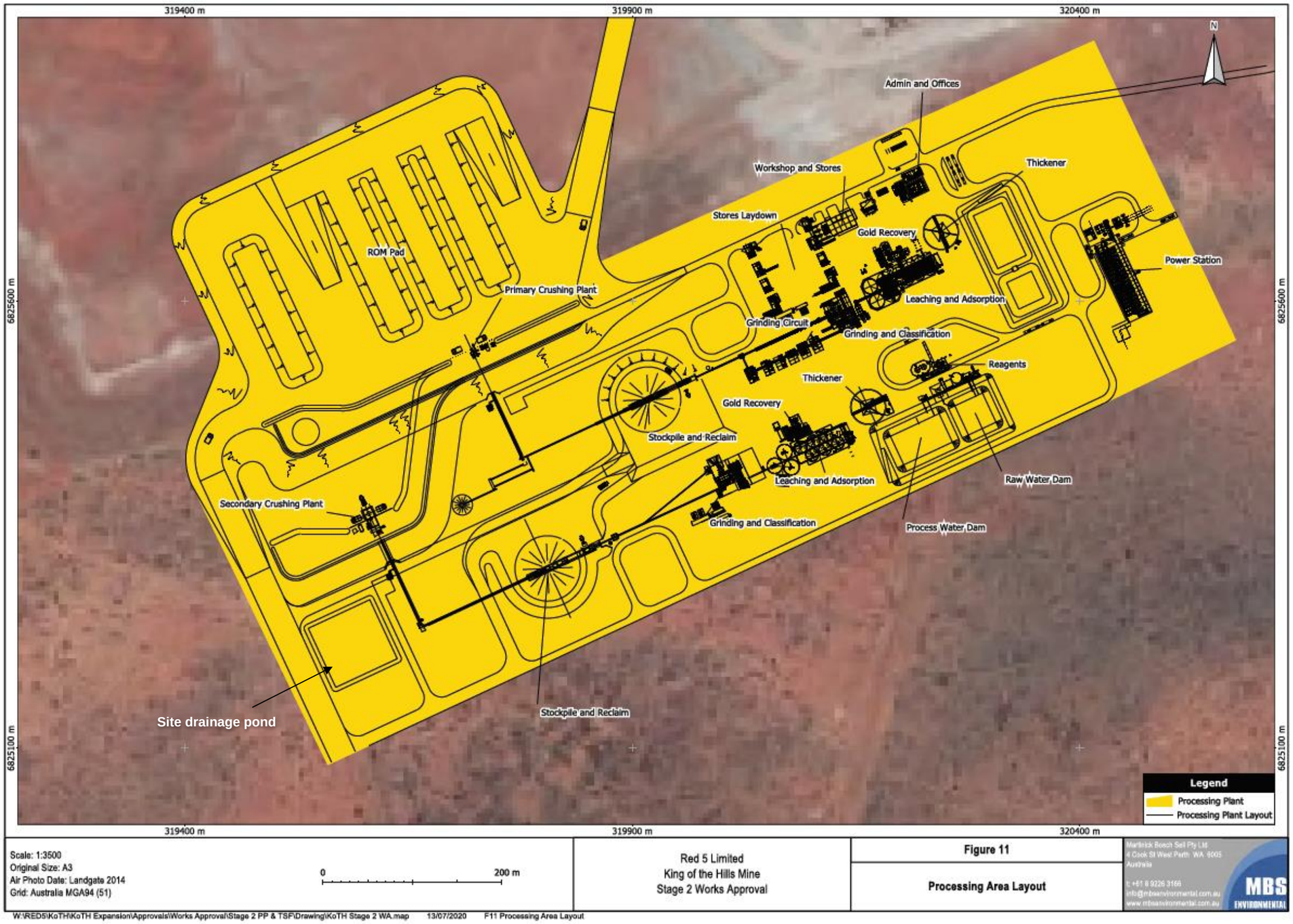


Figure 2: Processing plant layout

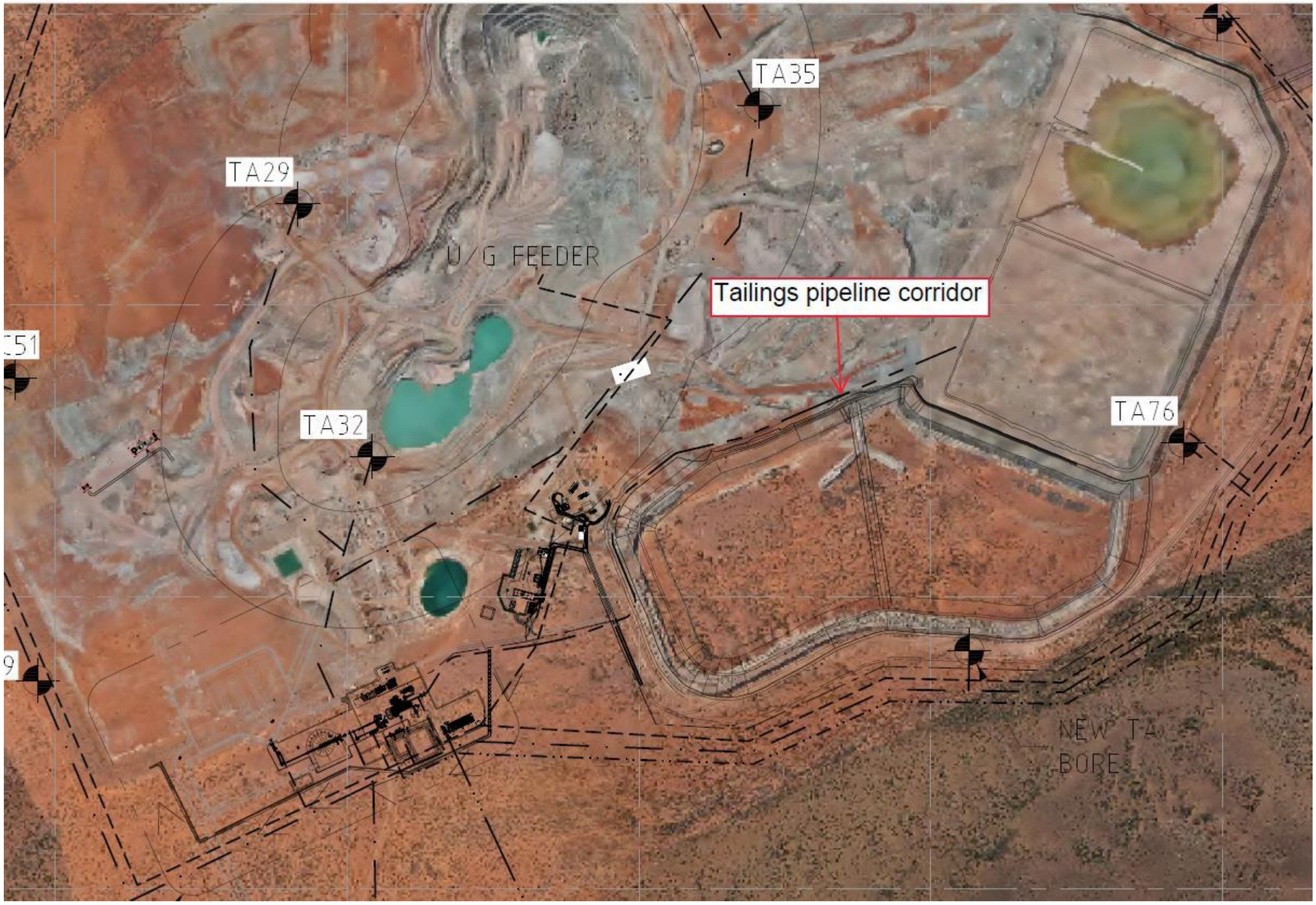


Figure 3: Tailings pipeline corridor

TSF 4 (stage 6) Design drawings

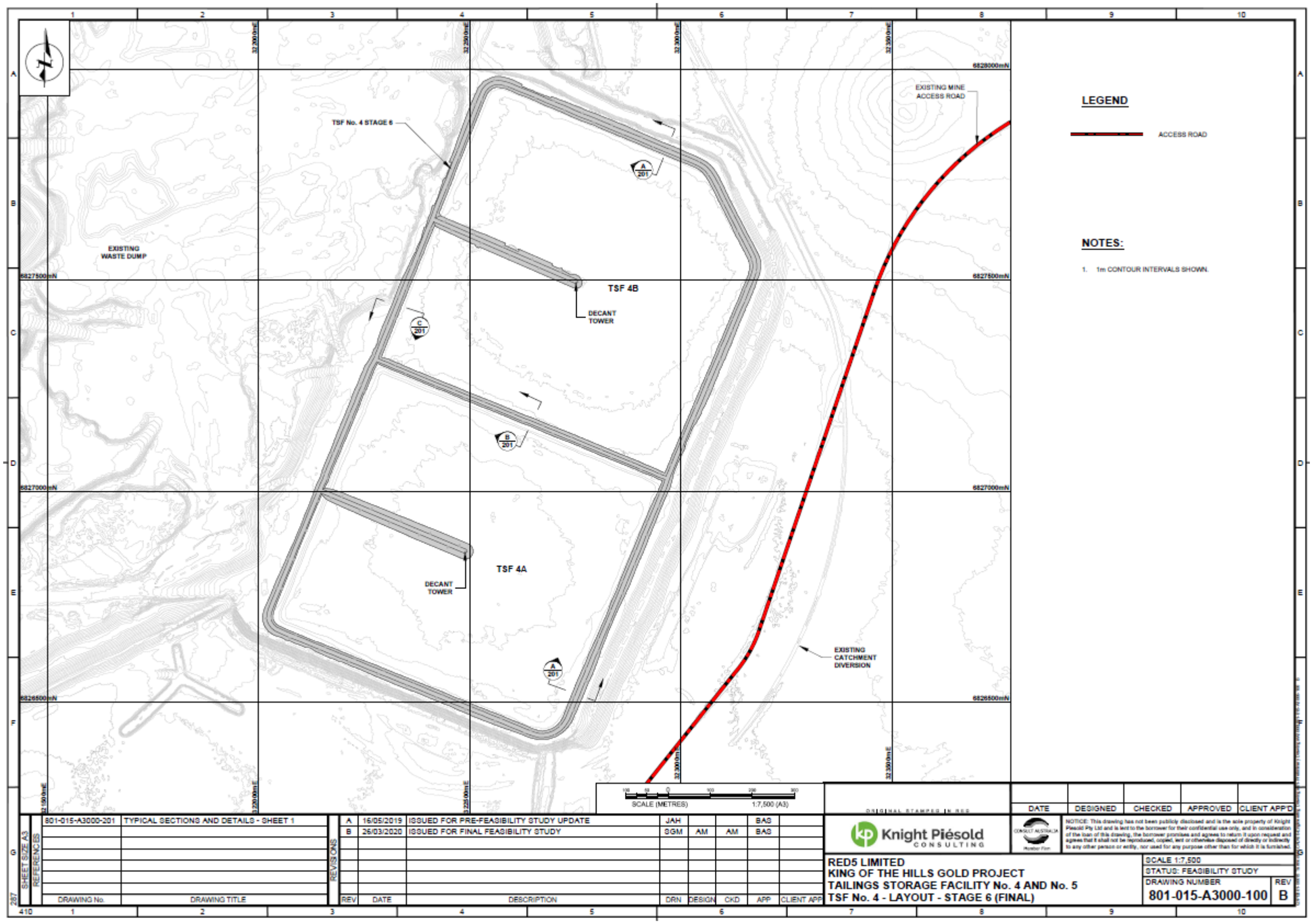
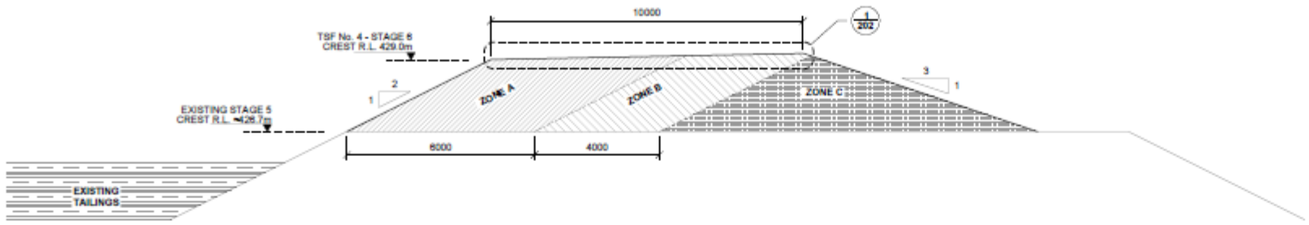
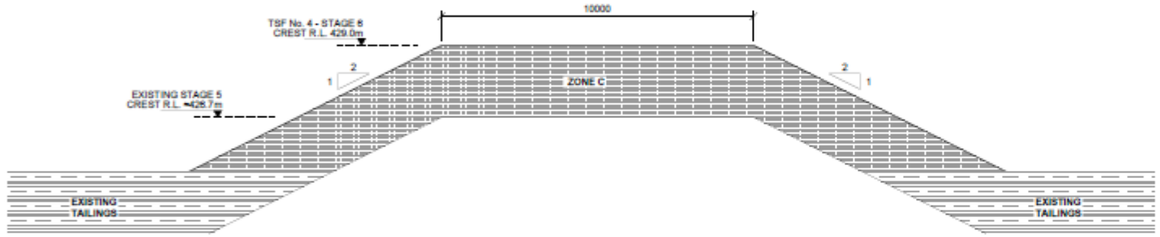


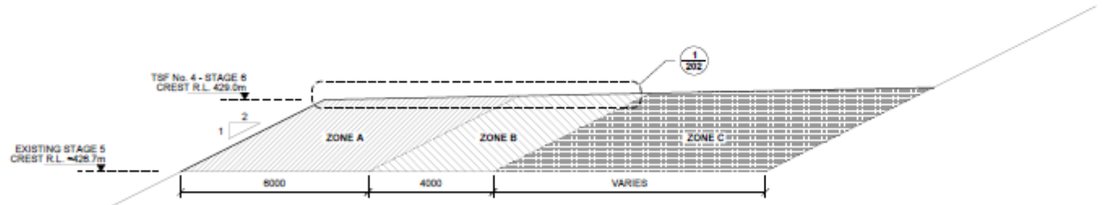
Figure 4: Drawing 801-015-A3000-100



A/100 TYPICAL TSF No. 4 EMBANKMENT SECTION



B/100 TYPICAL TSF No. 4 DIVIDER EMBANKMENT SECTION



C/100 TSF No. 4 DIVIDER EMBANKMENT SECTION ALONG WASTE DUMP

NOTES:

1. ALL CONSTRUCTED LAYERS TO BE TESTED AND APPROVED FOR COMPACTION AND MOISTURE CONTENT PRIOR TO PLACEMENT OF SUBSEQUENT LAYERS.
2. NATURAL TOPOGRAPHY MAY VARY BETWEEN DIFFERENT EMBANKMENT SECTIONS, HOWEVER ALL CONSTRUCTED FILL ZONES SHOULD RETAIN THE SAME PROFILE.

TABLE 1:
MATERIAL SPECIFICATIONS

ZONE KEY	ZONE TYPE	ZONE DESCRIPTION	ZONE COMPACTION SPECIFICATION
	ZONE A	LOW PERMEABILITY FILL	98□ SMDD, 0□ □ OMC □ □2□ 300mm LAYERS
	ZONE B	TRANSITION LAYER	95□ SMDD, -3□ □ OMC □ □3□ 300mm LAYERS
	ZONE C	STRUCTURAL FILL	95□ SMDD, -3□ □ OMC □ □3□ 500mm LAYERS
	ZONE C1	STRUCTURAL FILL (BY MINING)	95□ SMDD, OXIDE/TRANSITION: 500mm LAYERS FRESH: 200mm
	ZONE D	GENERAL FILL	UNIFORM DENSITY FREE FROM CAVITIES, 300mm LAYERS
	ZONE E	EROSION PROTECTION	UNIFORM DENSITY FREE FROM CAVITIES, 300mm LAYERS
	ZONE F1	DRAINAGE MEDIUM (SAND)	UNIFORM DENSITY FREE FROM CAVITIES, MOIST
	ZONE F2	DRAINAGE MEDIUM (CLEAN GRAVEL)	UNIFORM DENSITY FREE FROM CAVITIES, MOIST
	ZONE G	CLEAN COARSE HARD ROCK (□200mm)	UNIFORM DENSITY
	BASIN UNDERDRAINAGE FOUNDATION	INSITU MATERIAL AS APPROVED BY THE ENGINEER	95□ SMDD, -3□ □ OMC □ □3□ 500mm LAYERS
	EMBANKMENT FOUNDATION	INSITU MATERIAL AS APPROVED BY THE ENGINEER	WITHIN 6m OF CUT-OFF TRENCH, 95□ SMDD, -3□ □ OMC □ □3□
	CUT-OFF TRENCH	LOW PERMEABILITY FILL (EQUIVALENT TO ZONE A)	98□ SMDD, 0□ □ OMC □ □3□ 300mm LAYERS

DRAWING No.	DRAWING TITLE
801-015-A3000-100	TSF No. 4 - LAYOUT - STAGE 6 (FINAL)
801-015-A3000-202	TYPICAL SECTIONS AND DETAILS - SHEET 2

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	16/05/2019	ISSUED FOR PRE-FEASIBILITY STUDY UPDATE	JAH			BAS	
B	26/03/2020	ISSUED FOR FINAL FEASIBILITY STUDY	SGM	AM	AM	BAS	

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	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

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RED5 LIMITED
KING OF THE HILLS GOLD PROJECT
TAILINGS STORAGE FACILITY TSF No. 4 AND No. 5
TYPICAL SECTIONS AND DETAILS - SHEET 1

SCALE A3 SHOWN
STATUS: FEASIBILITY STUDY
DRAWING NUMBER 801-015-A3000-201
REV B

SHEET SIZE A3
REFERENCES
REVISIONS

Figure 5: Drawing 801-015-A3000-201

TSF 5 (stages 1 – 4) Design drawings

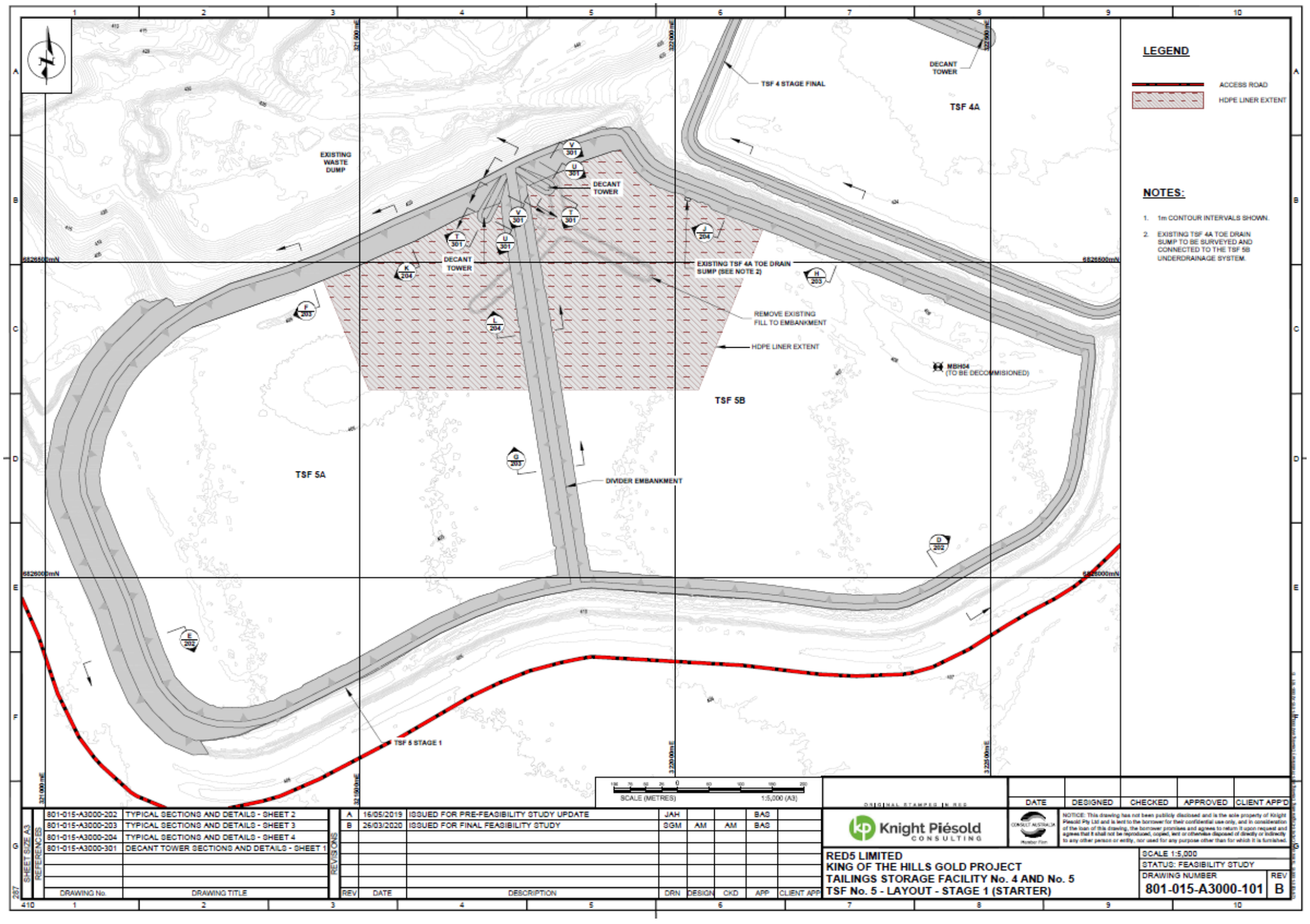


Figure 6: Drawing 801-015-A3000-101

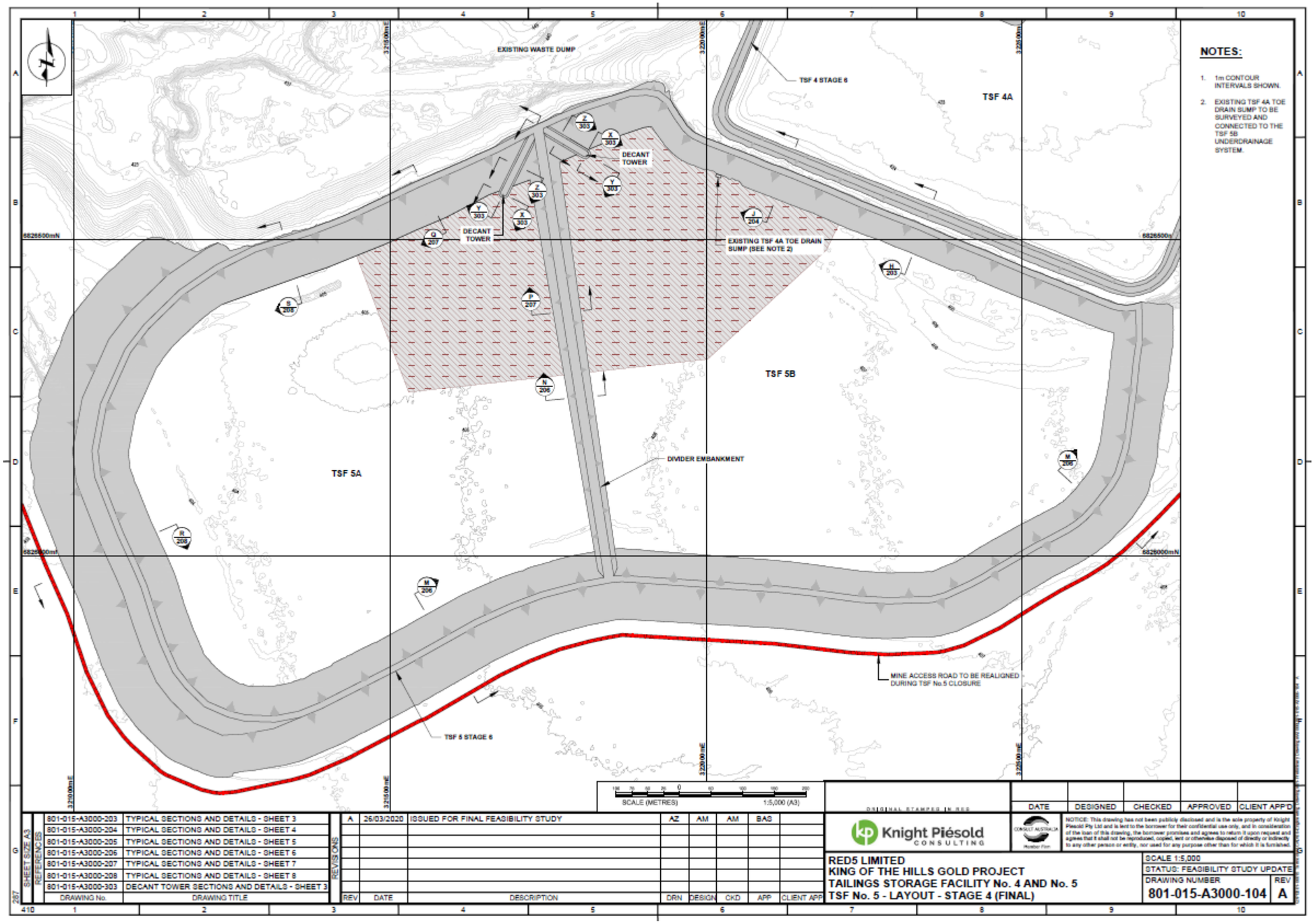
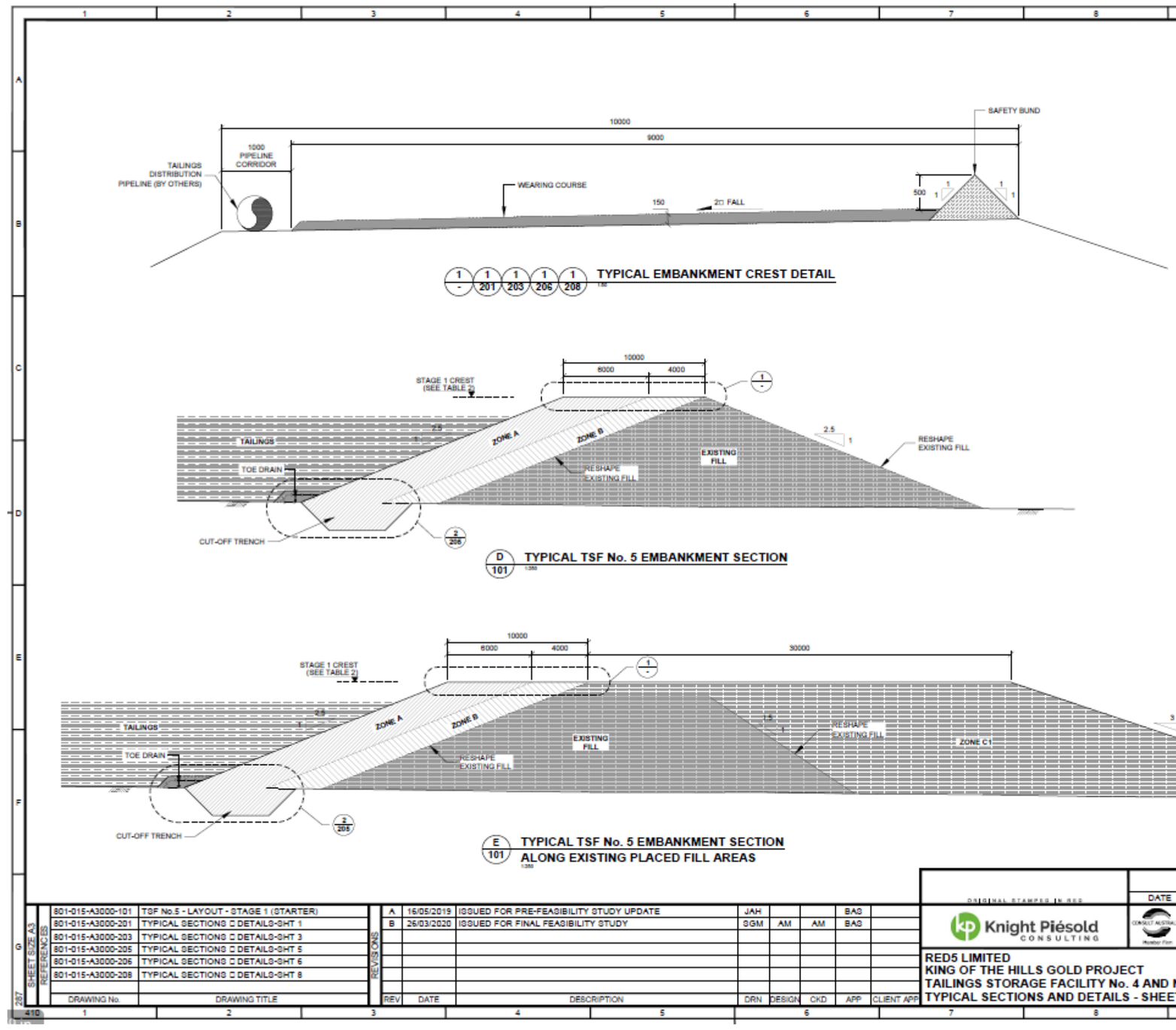


Figure 7: Drawing 801-015-A3000-104



NOTES:

1. ALL CONSTRUCTED LAYERS TO BE TESTED AND APPROVED FOR COMPACTION AND MOISTURE CONTENT PRIOR TO PLACEMENT OF SUBSEQUENT LAYERS.
2. NATURAL TOPOGRAPHY MAY VARY BETWEEN DIFFERENT EMBANKMENT SECTIONS, HOWEVER ALL CONSTRUCTED FILL ZONES SHOULD RETAIN THE SAME PROFILE.
3. SLOPE TO FOLLOW EXISTING WASTE DUMP SLOPE. WHERE FLATTER THAN 1V:2.5m
4. FOR ZONE SPECIFICATIONS REFER TABLE 1 ON DRAWING 801-015-A3000-201.
5. MINIMUM STRUCTURAL EMBANKMENT FILL SHOWN.

TABLE 2:

TSF No. 5 EMBANKMENT DETAILS

STAGE	CREST LEVEL (mRL)
STAGE 1	412.5
STAGE 2	415.5
STAGE 3	418.0
STAGE 4	422.5

REFERENCES	DRAWING No.	DRAWING TITLE
SHEET SIZE A3	801-015-A3000-101	TSF No.5 - LAYOUT - STAGE 1 (STARTER)
	801-015-A3000-201	TYPICAL SECTIONS □ DETAILS-SHT 1
	801-015-A3000-203	TYPICAL SECTIONS □ DETAILS-SHT 3
	801-015-A3000-205	TYPICAL SECTIONS □ DETAILS-SHT 5
	801-015-A3000-206	TYPICAL SECTIONS □ DETAILS-SHT 6
	801-015-A3000-208	TYPICAL SECTIONS □ DETAILS-SHT 8

REVISIONS	REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
	A	15/05/2019	ISSUED FOR PRE-FEASIBILITY STUDY UPDATE	JAH			BAS	
	B	26/03/2020	ISSUED FOR FINAL FEASIBILITY STUDY	SGM	AM	AM	BAS	

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	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

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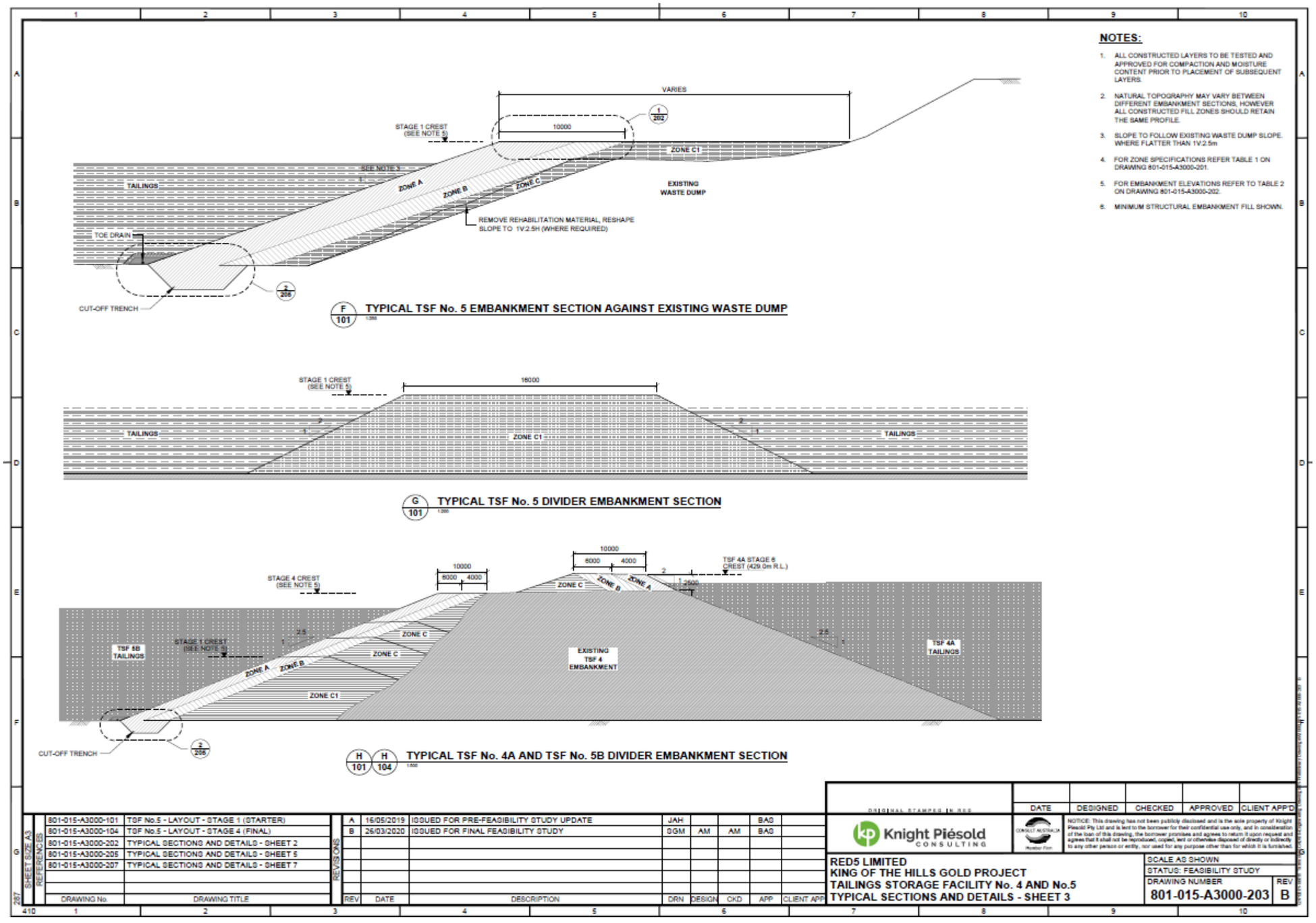
KING OF THE HILLS GOLD PROJECT
TAILINGS STORAGE FACILITY No. 4 AND No. 5
TYPICAL SECTIONS AND DETAILS - SHEET 2

SCALE AS SHOWN
STATUS: FEASIBILITY STUDY
DRAWING NUMBER 801-015-A3000-202
REV B

Figure 8: Drawing 801-015-A3000-202



NOTES:

1. ALL CONSTRUCTED LAYERS TO BE TESTED AND APPROVED FOR COMPACTION AND MOISTURE CONTENT PRIOR TO PLACEMENT OF SUBSEQUENT LAYERS.
2. NATURAL TOPOGRAPHY MAY VARY BETWEEN DIFFERENT EMBANKMENT SECTIONS, HOWEVER ALL CONSTRUCTED FILL ZONES SHOULD RETAIN THE SAME PROFILE.
3. SLOPE TO FOLLOW EXISTING WASTE DUMP SLOPE. WHERE FLATTER THAN 1V:2.5m
4. FOR ZONE SPECIFICATIONS REFER TABLE 1 ON DRAWING 801-015-A3000-201.
5. FOR EMBANKMENT ELEVATIONS REFER TO TABLE 2 ON DRAWING 801-015-A3000-202.
6. MINIMUM STRUCTURAL EMBANKMENT FILL SHOWN.

SHEET SIZE A3 REFERENCES	
801-015-A3000-101	TSF No.5 - LAYOUT - STAGE 1 (STARTER)
801-015-A3000-104	TSF No.5 - LAYOUT - STAGE 4 (FINAL)
801-015-A3000-202	TYPICAL SECTIONS AND DETAILS - SHEET 2
801-015-A3000-205	TYPICAL SECTIONS AND DETAILS - SHEET 5
801-015-A3000-207	TYPICAL SECTIONS AND DETAILS - SHEET 7

REVISIONS								
REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	16/05/2019	ISSUED FOR PRE-FEASIBILITY STUDY UPDATE	JAH			BAS	
B	26/03/2020	ISSUED FOR FINAL FEASIBILITY STUDY	SGM	AM	AM	BAS	

DRAWING No.	DRAWING TITLE

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	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

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KING OF THE HILLS GOLD PROJECT
TAILINGS STORAGE FACILITY No. 4 AND No.5
TYPICAL SECTIONS AND DETAILS - SHEET 3

SCALE A3 SHOWN
STATUS: FEASIBILITY STUDY
DRAWING NUMBER: 801-015-A3000-203
REV: B

Figure 9: Drawing 801-015-A3000-203

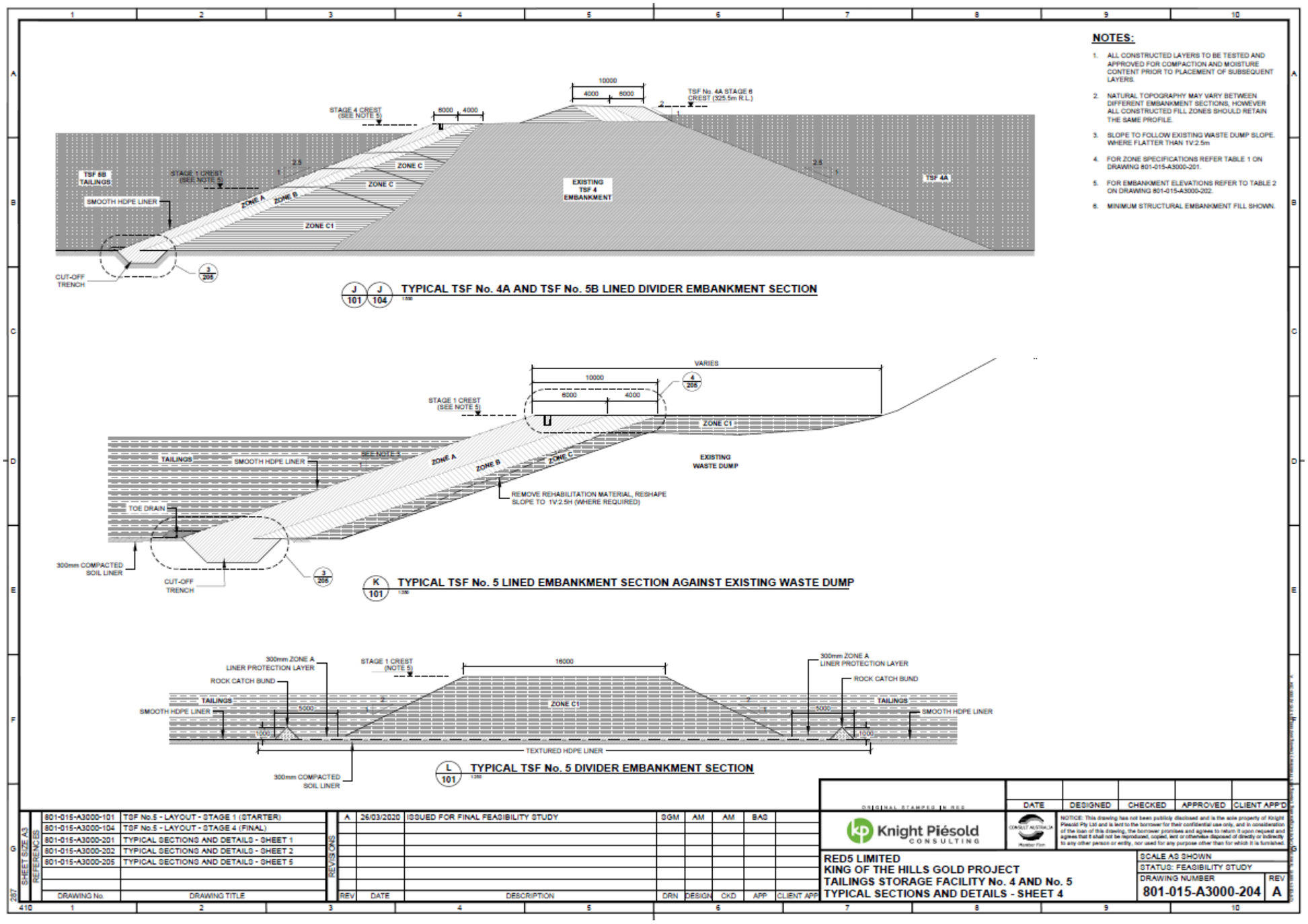
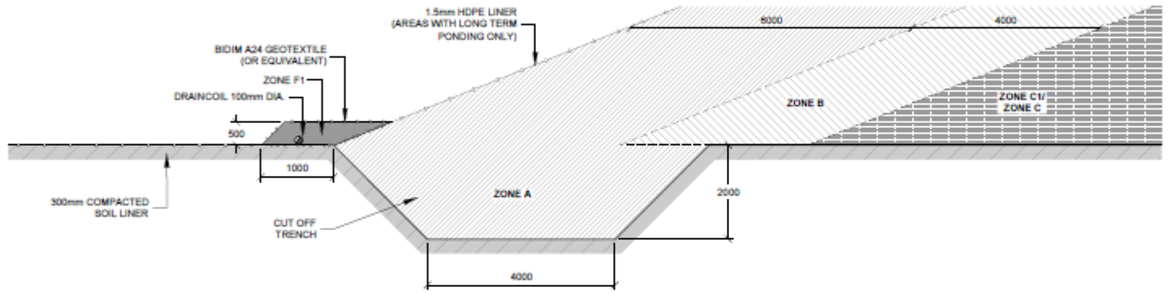
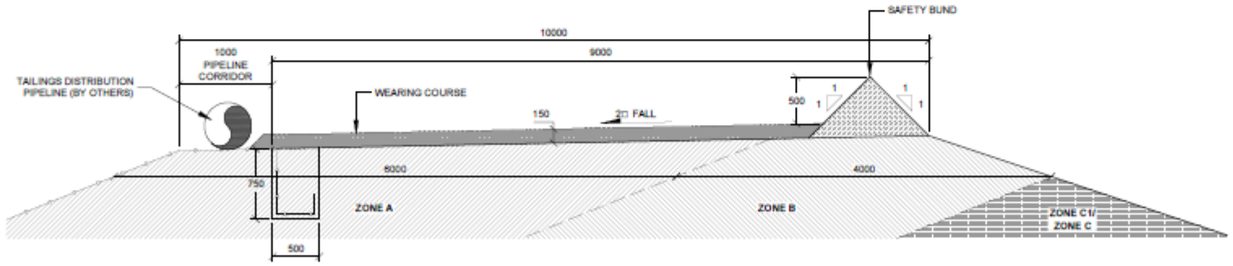


Figure 10: Drawing 801-015-A3000-204

2 202 2 203 2 206 2 208 **TYPICAL TSF No. 5 EMBANKMENT CUT OFF TRENCH AND TOE DRAIN DETAIL**



3 204 3 207 **TYPICAL TSF No. 5 LINED EMBANKMENT CUT OFF TRENCH AND TOE DRAIN DETAIL**



4 204 4 207 **TYPICAL LINED EMBANKMENT CREST DETAIL**

NOTES:

1. SAFETY BUND TO BE CONSTRUCTED OF ZONE D (GENERAL FILL MATERIAL).
2. COMPACTED IN-SITU SOIL LINER THROUGHOUT TSF BASIN AREA (300mm).
3. CUT-OFF TRENCH TO BE EXCAVATED 1m (MIN.) INTO COMPETENT MATERIALS AS DETERMINED BY ENGINEER ON SITE.
4. FOR ZONE SPECIFICATIONS REFER TABLE 1 ON DRAWING 801-015-A3000-201.

DRAWING No.	DRAWING TITLE
801-015-A3000-201	TYPICAL SECTIONS AND DETAILS - SHEET 1
801-015-A3000-202	TYPICAL SECTIONS AND DETAILS - SHEET 2
801-015-A3000-203	TYPICAL SECTIONS AND DETAILS - SHEET 3
801-015-A3000-204	TYPICAL SECTIONS AND DETAILS - SHEET 4
801-015-A3000-206	TYPICAL SECTIONS AND DETAILS - SHEET 6
801-015-A3000-207	TYPICAL SECTIONS AND DETAILS - SHEET 7
801-015-A3000-208	TYPICAL SECTIONS AND DETAILS - SHEET 8

SHEET SIZE A3 | REFERENCES | REVISIONS

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	15/05/2019	ISSUED FOR PRE-FEASIBILITY STUDY UPDATE	JAH			BAS	
B	26/03/2020	ISSUED FOR FINAL FEASIBILITY STUDY	SGM	AM	AM	BAS	

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	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

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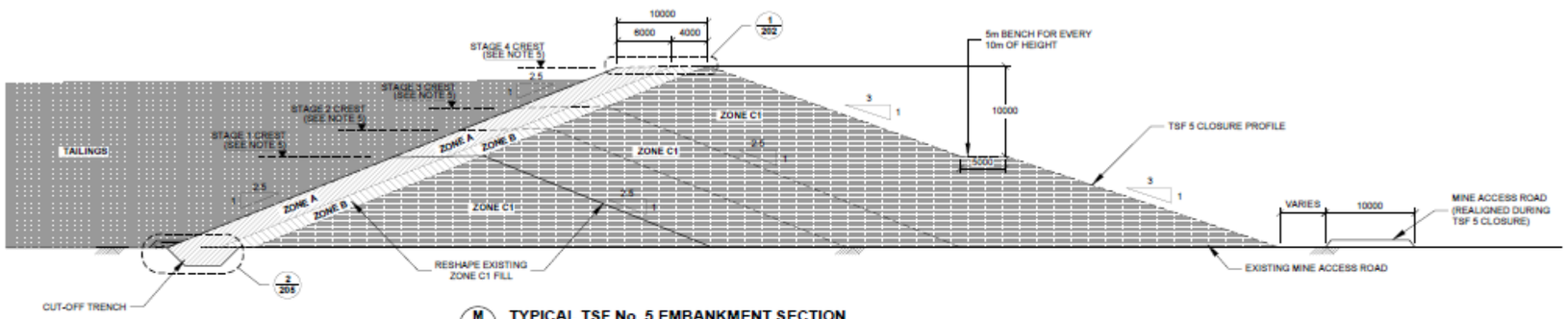
KING OF THE HILLS GOLD PROJECT
TAILINGS STORAGE FACILITY TSF No. 4 AND No. 5
TYPICAL SECTIONS AND DETAILS - SHEET 5

SCALE AS SHOWN
STATUS: FEASIBILITY STUDY
DRAWING NUMBER 801-015-A3000-205
REV B

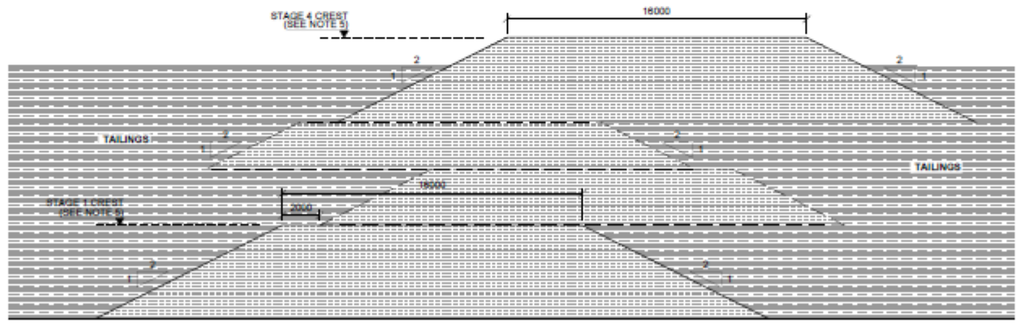
Figure 11: Drawing 801-015-A3000-205

NOTES:

1. SAFETY BUND TO BE CONSTRUCTED OF ZONE D (GENERAL FILL MATERIAL).
2. COMPACTED IN-SITU SOIL LINER THROUGHOUT TSF BASIN AREA (300mm).
3. CUT-OFF TRENCH TO BE EXCAVATED 1m (MIN.) INTO COMPETENT MATERIALS AS DETERMINED BY ENGINEER ON SITE.
4. FOR ZONE SPECIFICATIONS REFER TABLE 1 ON DRAWING 801-015-A3000-201.
5. FOR EMBANKMENT ELEVATIONS REFER TO TABLE 2 ON DRAWING 801-015-A3000-202.



M 104 **TYPICAL TSF No. 5 EMBANKMENT SECTION**



N 104 **TYPICAL TSF No. 5 DIVIDER EMBANKMENT SECTION**

DRAWING No.	DRAWING TITLE
801-015-A3000-104	TSF No. 5 - LAYOUT - STAGE 4 (FINAL)
801-015-A3000-201	TYPICAL SECTIONS AND DETAILS - SHEET 1
801-015-A3000-202	TYPICAL SECTIONS AND DETAILS - SHEET 2
801-015-A3000-205	TYPICAL SECTIONS AND DETAILS - SHEET 5

REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
A	26/03/2020	ISSUED FOR FINAL FEASIBILITY STUDY	SGM	AM	AM	BAS	

ORIGINAL STAMPED IN RED

DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

Knight Piésold CONSULTING

RED5 LIMITED
KING OF THE HILLS GOLD PROJECT
TAILINGS STORAGE FACILITY TSF No. 4 AND No. 5
TYPICAL SECTIONS AND DETAILS - SHEET 6

SCALE AS SHOWN
STATUS: FEASIBILITY STUDY
DRAWING NUMBER: 801-015-A3000-206
REV: A

SHEET SIZE A3
REFERENCES
REVISIONS

Figure 12: Drawing 801-015-A3000-206

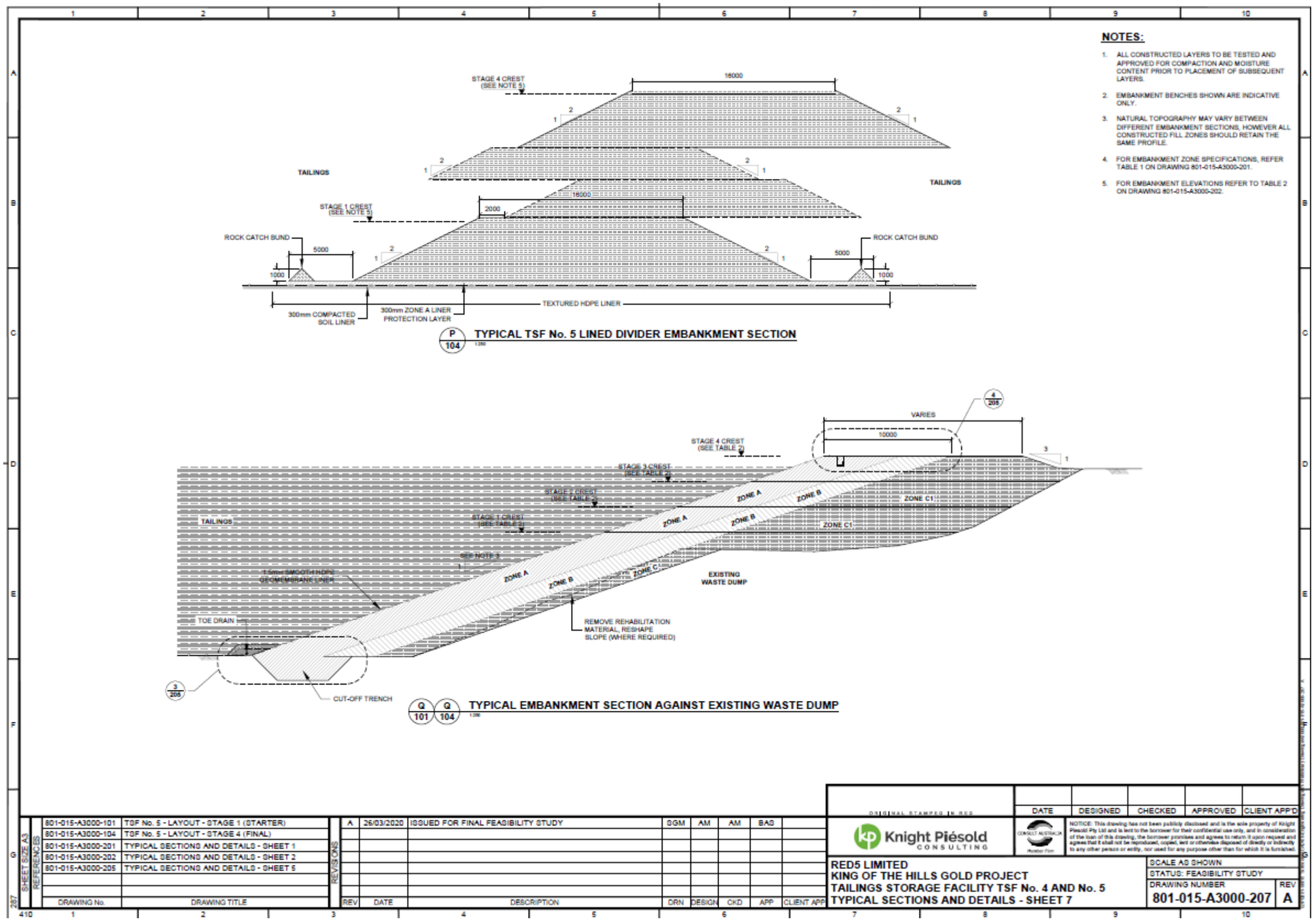


Figure 13: Drawing 801-015-A3000-207

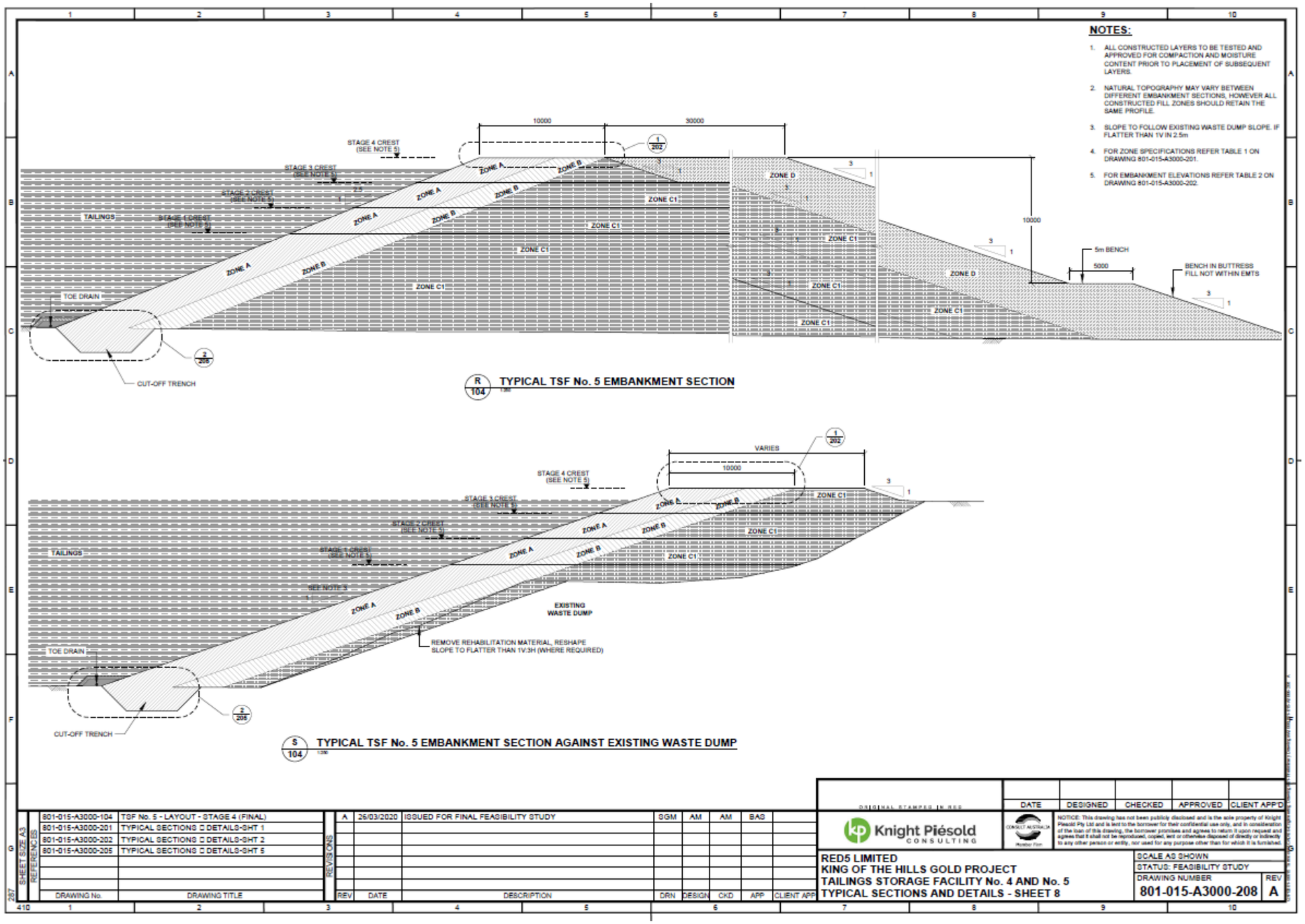


Figure 14: Drawing 801-015-A3000-208

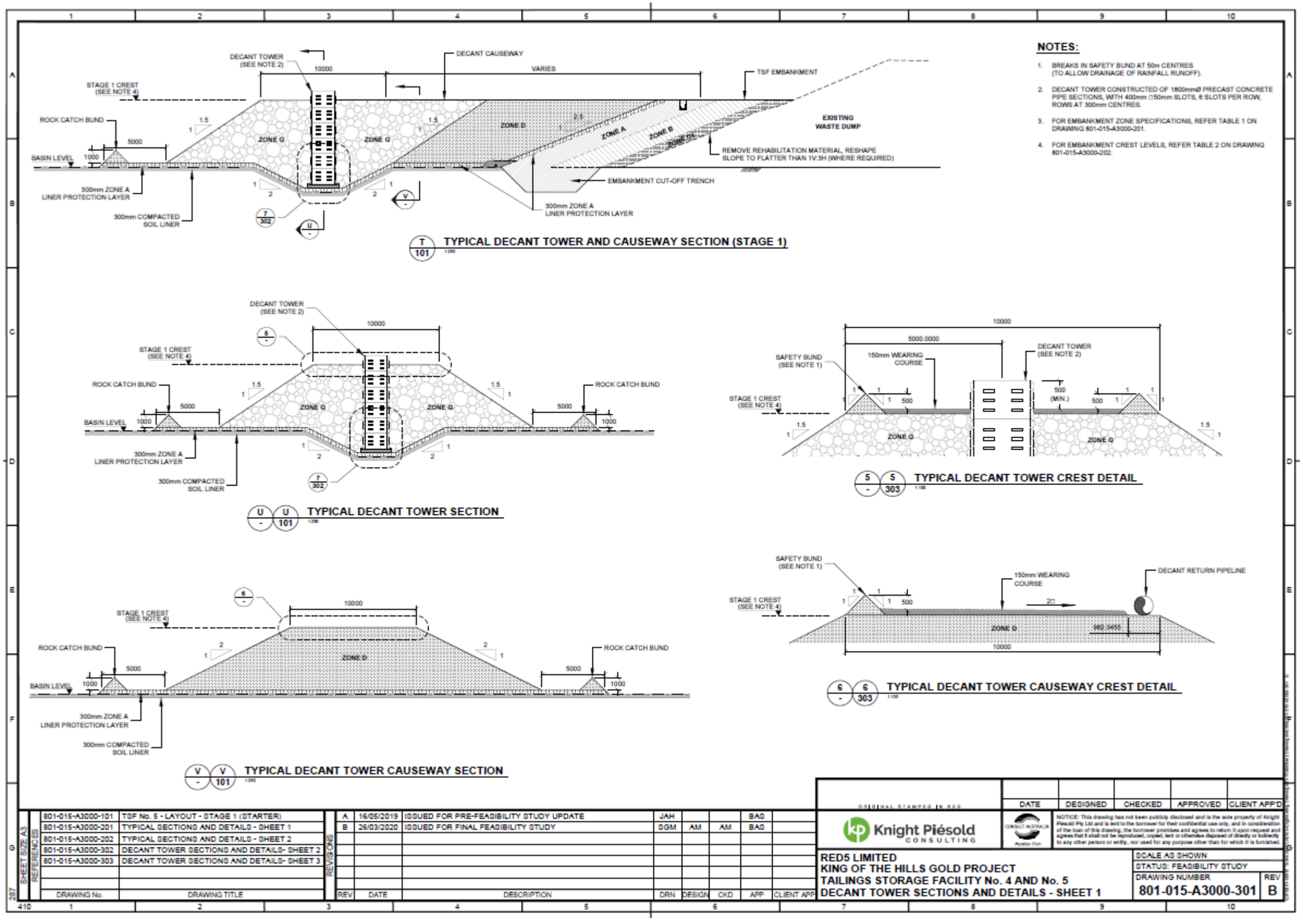


Figure 15: Drawing 801-015-A3000-301

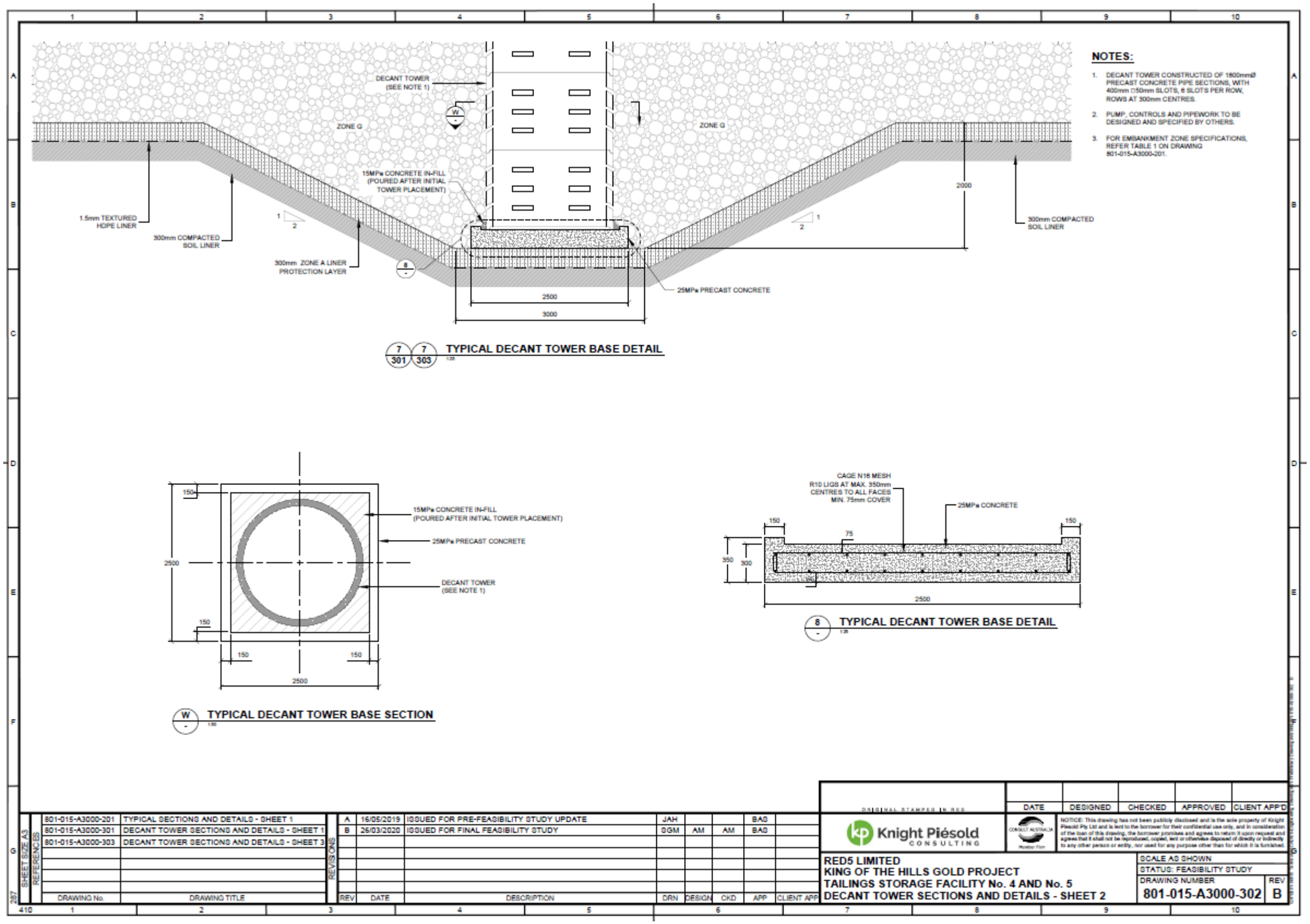


Figure 16: Drawing 801-015-A3000-302

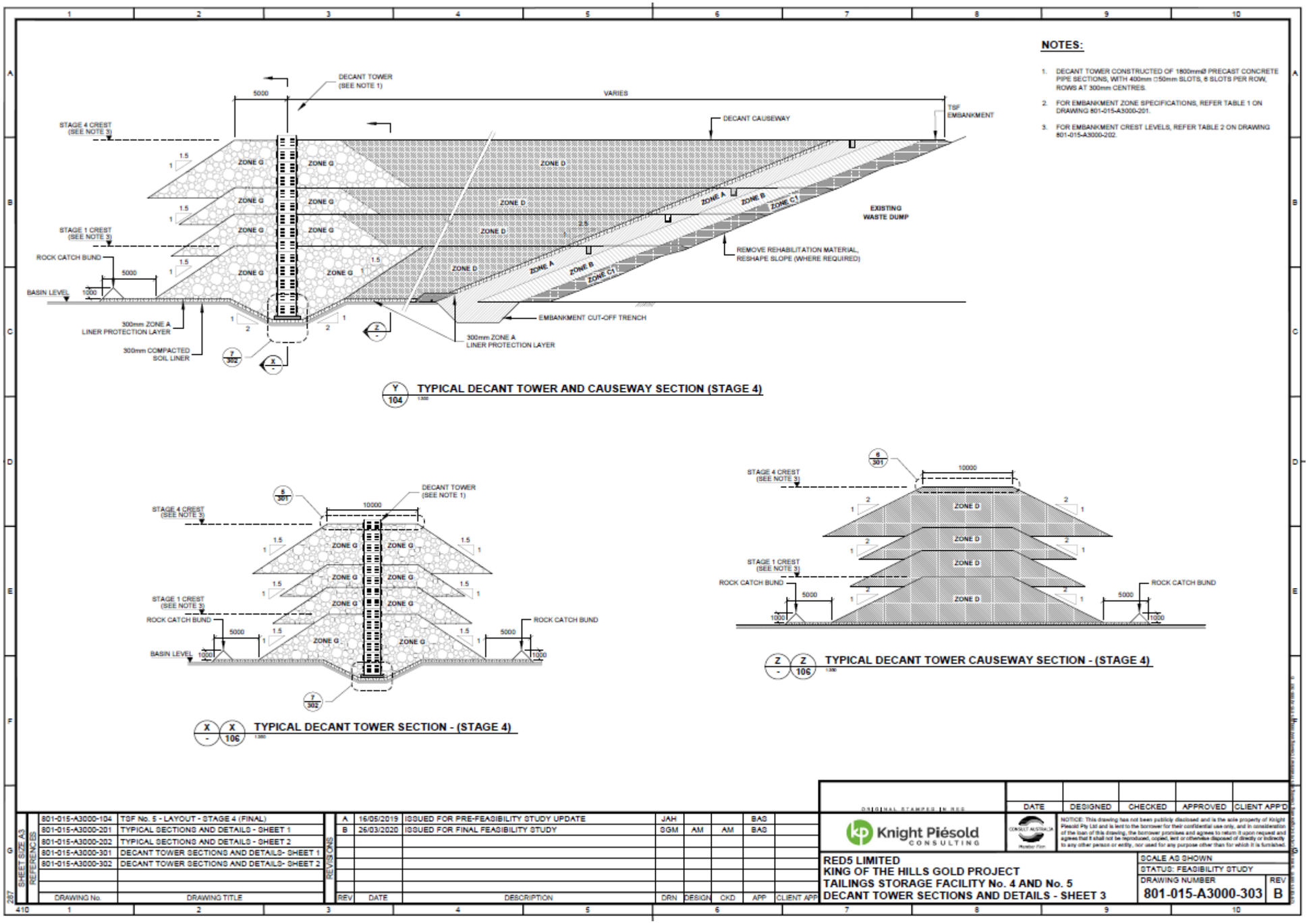


Figure 17: Drawing 801-015-A3000-303

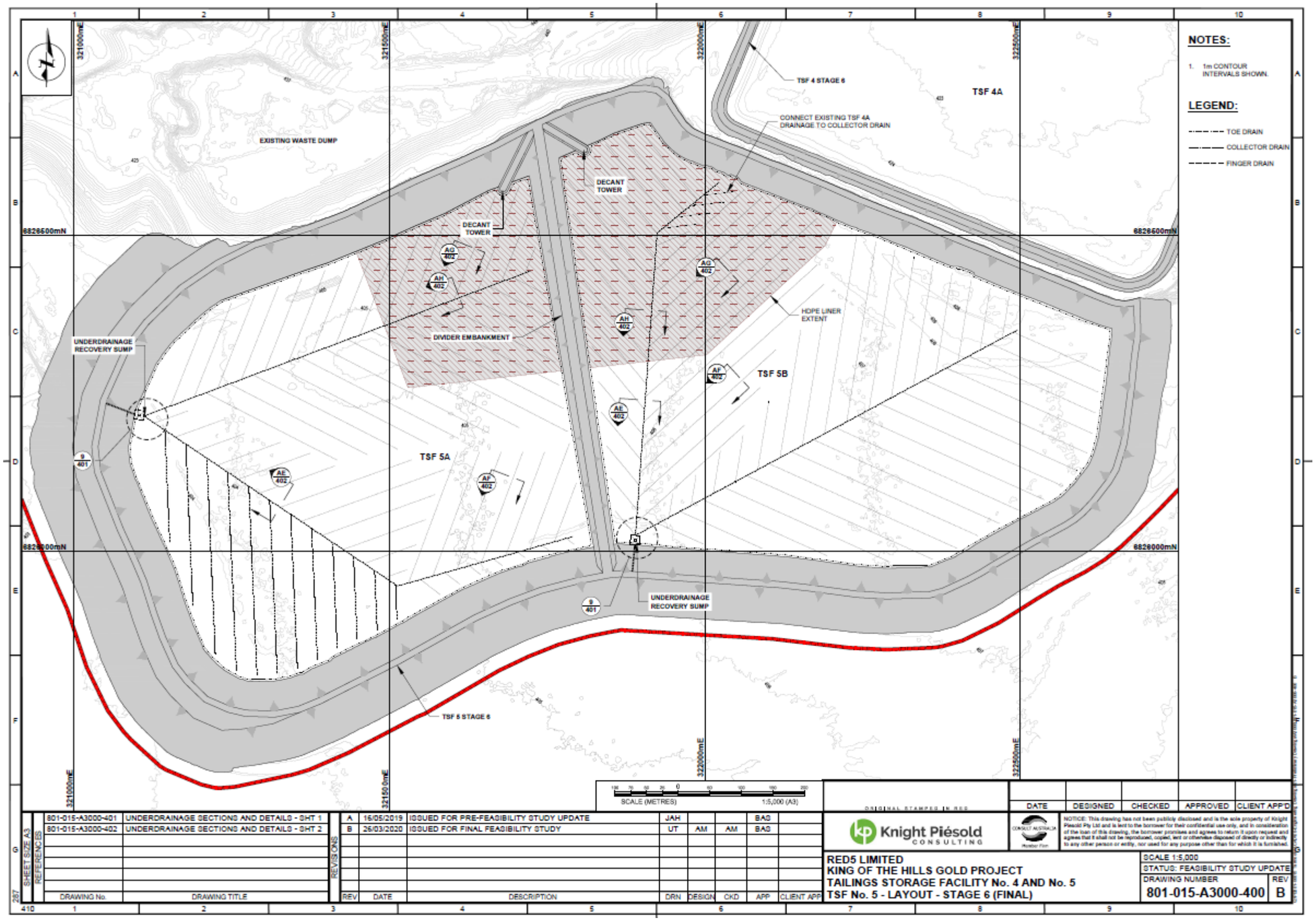


Figure 18: Drawing 801-015-A3000-400

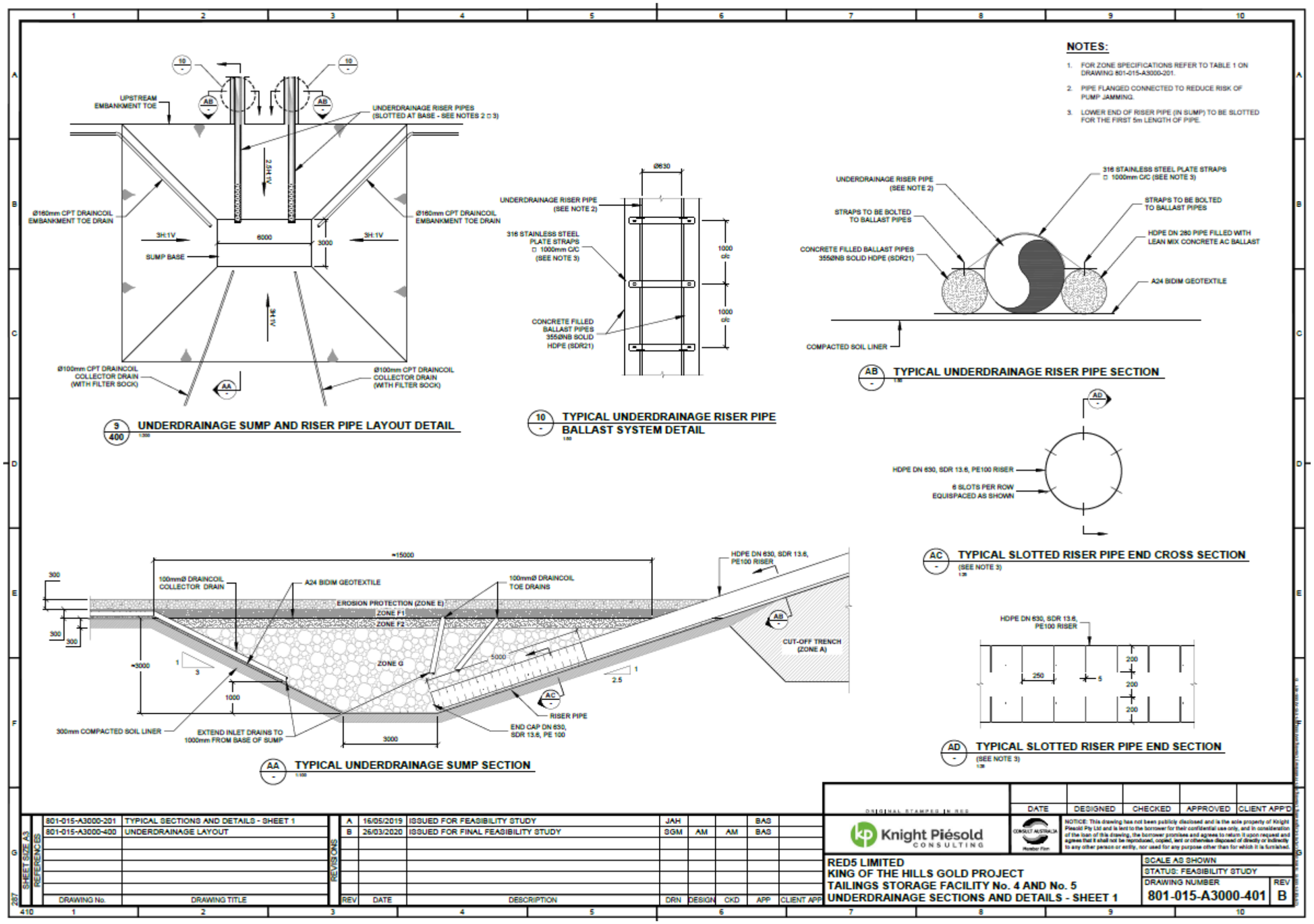
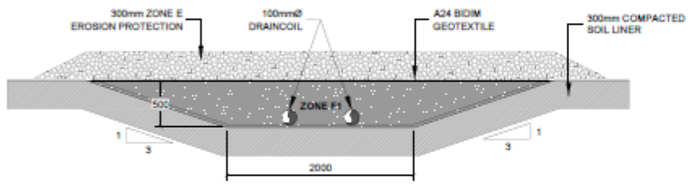


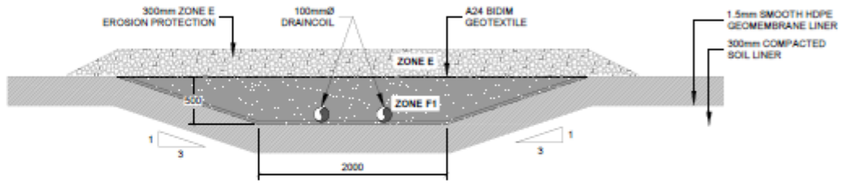
Figure 19: Drawing 801-015-A3000-401

NOTES:

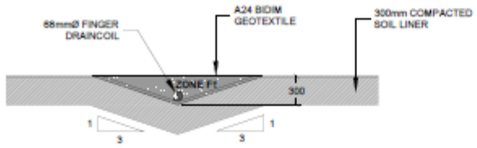
1. FOR ZONE SPECIFICATIONS REFER TO TABLE 1 ON DRAWING 801-015-A3000- 201.



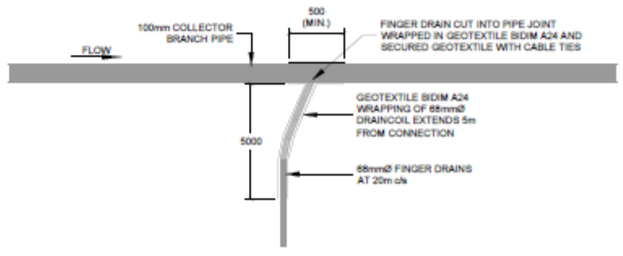
AE 400 **TYPICAL COLLECTOR DRAIN SECTION**



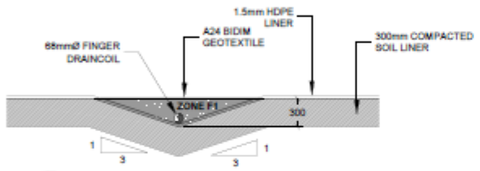
AH 400 **TYPICAL COLLECTOR DRAIN SECTION (HDPE LINED AREAS)**



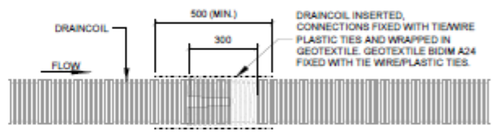
AF 400 **TYPICAL FINGER DRAIN SECTION SOIL LINED AREA**



TYPICAL FINGER DRAIN CONNECTION DETAIL



AG 400 **TYPICAL FINGER DRAIN SECTION HDPE LINED AREA**



TYPICAL SPLICED DRAIN CONNECTION DETAIL

REFERENCES	DRAWING No.	DRAWING TITLE
	800-015-A3000-201	TYPICAL SECTIONS AND DETAILS - SHEET 1
	800-015-A3000-400	UNDERDRAINAGE LAYOUT

REVISIONS	REV	DATE	DESCRIPTION	DRN	DESIGN	CKD	APP	CLIENT APP
	A	16/05/2019	ISSUED FOR PRE-FEASIBILITY STUDY UPDATE	JAH			BAS	
	B	26/03/2020	ISSUED FOR FINAL FEASIBILITY STUDY	SGM	AM	AM	BAS	

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	DATE	DESIGNED	CHECKED	APPROVED	CLIENT APP'D

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KING OF THE HILLS GOLD PROJECT
TAILINGS STORAGE FACILITY No. 4 AND No. 5
UNDERDRAINAGE SECTIONS AND DETAILS - SHEET 2

SCALE N.T.S.
STATUS: FEASIBILITY STUDY
DRAWING NUMBER: 801-015-A3000-402
REV: B

SHEET SIZE A3

Figure 20: Drawing 801-015-A3000-402

TSFs Monitoring bore location maps

The location of monitoring piezometers and bores for TSF 4 are shown in the diagram below

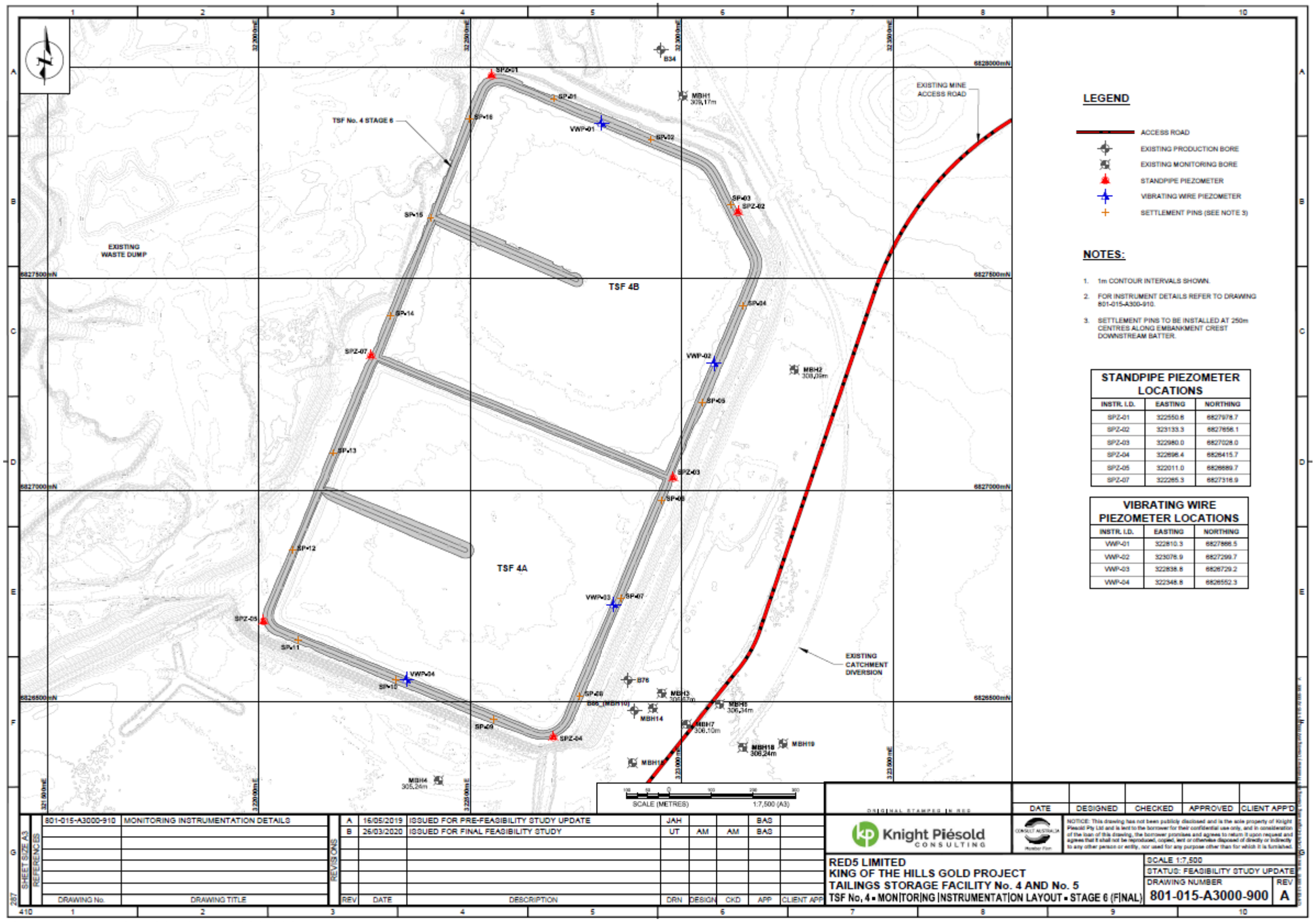

Figure 21: Drawing 801-015-A3000-900

The location of monitoring piezometers and bores for TSF 5 (stage 1 and Stage 4) are shown in the diagrams below

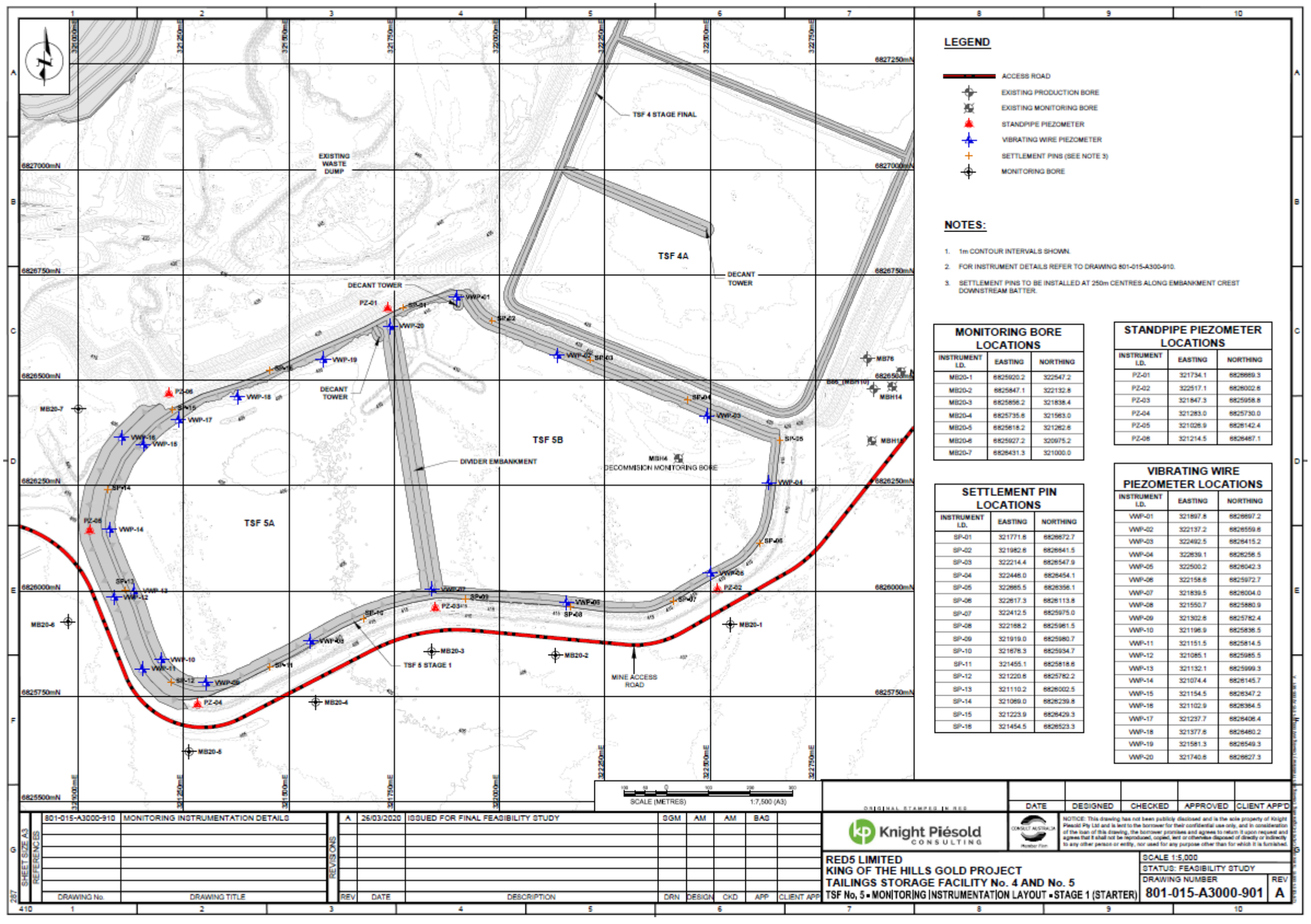

Figure 22: Drawing 801-015-A3000-901

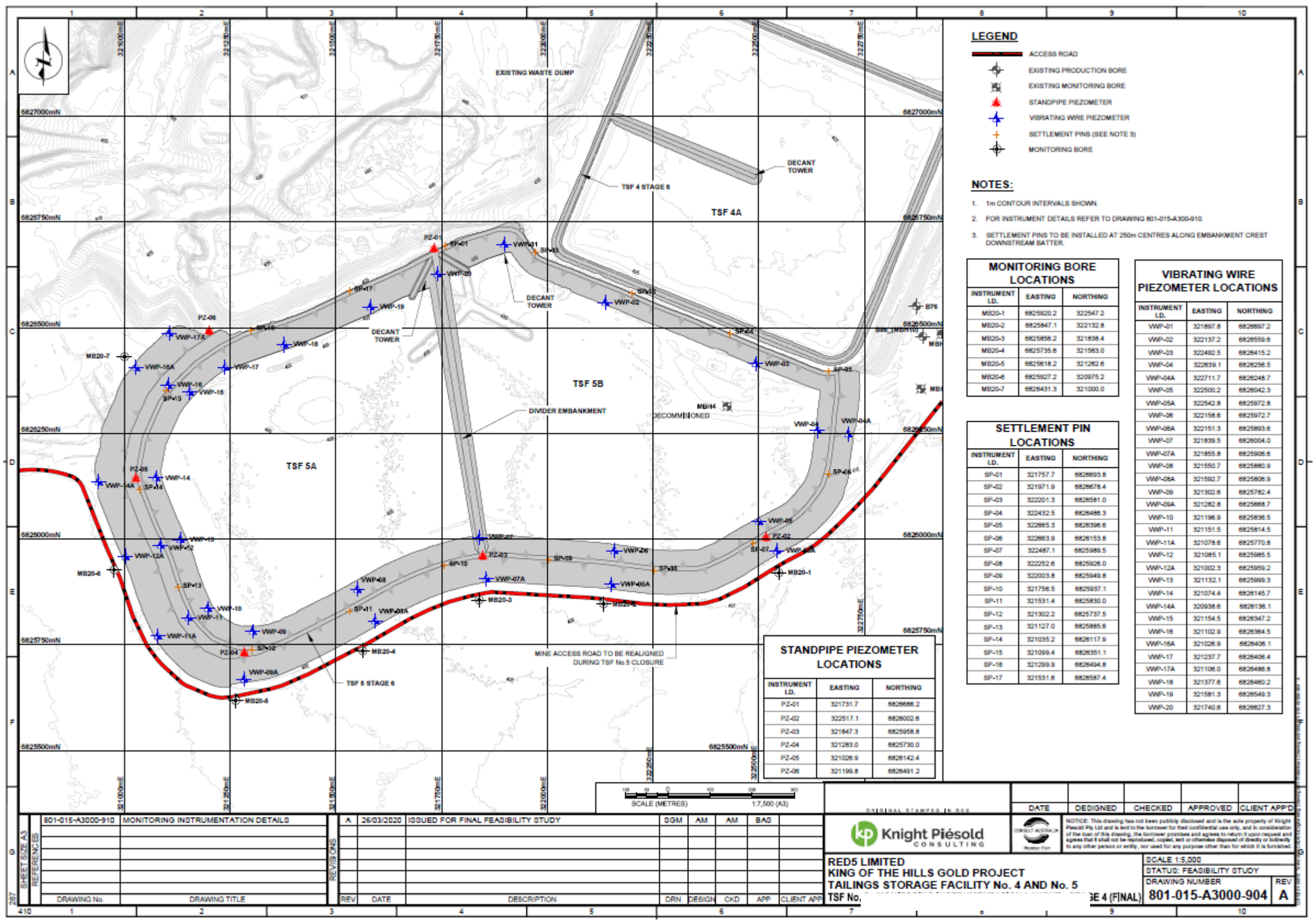

Figure 23: Drawing 801-015-A3000-904