Government of Western Australia
Department of Water and Environmental Regulation

Licence

Licence number	L7967/2003/6
Licence holder	Savannah Nickel Mines Pty Ltd
ACN (if applicable)	103 729 282
Registered business address	Level 9, 533 Hay Street, PERTH WA 6000
DWER file number	DER2013/001406-1
Duration	02/08/2014 to 01/08/2032
Date of amendment	22 June 2021
Premises details	Savannah Project Mining tenements M80/179, M80/180 and M80/181 WARMUN WA 6740

Prescribed premises category description **(Schedule 1, *Environmental Protection Regulations 1987*)**	**Assessed production / design capacity**
Category 5: Processing or beneficiation of metallic or non-metallic ore	950,000 tonnes per annual period
Category 54: sewage facility	100 cubic metres per day
Category 64: Class II putrescible landfill site	10,000 tonnes per annual period

This amended licence is granted to the licence holder, subject to the attached conditions, on 22 June 2021, by:

Carmen Standring
Digitally signed by Carmen Standring
Date: 2021.06.22 12:40:16 +08'00'

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

Licence history

Reference number	Date	Summary of changes
L7967/2003/4	02/02/2012	Licence amendment to allow emergency response training onsite.
L7967/2003/5	02/08/2012	Licence reissued.
L7967/2003/5	17/10/2013	Licence amendment to allow new putrescible landfill.
L7967/2003/6	01/08/2014	Licence reissue and conversion to new licence format.
L7967/2003/6	09/10/2014	Licence amendment to increase category 5 production and design capacity.
L7967/2003/6	18/07/2016	Licence amendment to allow for tyre burial within waste rock dump and to reduce design capacities of premises while during Care and Maintenance.
L7967/2003/6	24/04/2018	Licence Amendment Notice (#1) to change annual period to 1 July – 30 June.
L7967/2003/6	21/12/2018	Licence Amendment Notice (#2) to reinstate the approved premises production and design capacities and include amended conditions for the TSF as recommended during the TSF lift assessment (Works Approval W5208/2012/1), in anticipation of recommencement of production. Removal of category 6 for mine dewatering. Inclusion of an improvement condition to address the elevated Total Nitrogen and Total Phosphorus loading rates at the WWTP irrigation area. A typographical error has also been corrected from Amendment Notice #1, finalised 24 April 2018, where the annual period date has been written as 1 July – 31 June, instead of 1 July - 30 June in the Definitions section.
L7967/2003/6	24/6/2020	Licence amalgamated to include Amendment Notices 1 and 2. Licence also amended to the new licensing format; replaced the existing WWTP with an activated sludge bioreactor, increased ~~in~~ the irrigation area and included additional landfill cells.
L7967/2003/6	22/6/2021	Amendment for TSF lift from 378 to 382mRL and for construction of a spillway.

Interpretation

In this licence:

(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 licence:

(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 licence requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this licence.

Licence Conditions

1. General

1.1 Definitions

'Act' means the *Environmental Protection Act 1986*;

'**AEP**' means annual exceedance probability;

'Annual period' means the inclusive period from 1 July – 30 June of the immediately following year;

'AS/NZS 5667.1' means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples;*

'AS/NZS 5667.6' means the Australian Standard AS/NZS 5667.6 *Water Quality – Sampling – Guidance on sampling of rivers and streams*;

'AS/NZS 5667.10' means the Australian Standard AS/NZS 5667.10 *Water Quality – Sampling – Guidance on sampling of waste waters;*

'AS/NZS 5667.11' means the Australian Standard AS/NZS 5667.11 *Water Quality – Sampling – Guidance on sampling of groundwaters;*

'AS/NZ 2031' means the Australian Standard AS/NZS 2031: 2001 *Selection of containers and preservation of water samples for microbiological analysis;*

'ANZECC' Australian and New Zealand Environment Conservation Council;

'Averaging period' means the time over which a limit is measured or a monitoring result is obtained;

'CEO' means Chief Executive Officer of Department of Water and Environmental Regulation;

'CEO' for the purposes of notification means:
Chief Executive Officer
Department Administering the *Environmental Protection Act 1986*
Locked Bag 10
JOONDALUP DC WA 6027
Telephone: (08) 6367 7000
Facsimile: (08) 6367 7001
Email: info@dwer.wa.gov.au;

'cfu/100mL' means colony forming units per 100 millilitres;

'Clean fill' has the meaning defined in Landfill Definitions;
'Contaminated solid waste' has the meaning defined in Landfill Definitions;

'Controlled waste' has the definition in *Environmental Protection (Controlled Waste) Regulations 2004*;

'Delegated Officer' an Officer under section 20 of the EP Act

'Department' means the department established under s.35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Division 3 Part V of the *Environmental Protection Act 1986*;

'Environmental Commissioning Report' means a report on any commissioning activities to be undertaken to test equipment integrity and operation, or to determine the environmental performance, or equipment and infrastructure to establish or test a steady state operation and confirm design specifications;

'Freeboard' means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point;

'HDPE' means high density polyethylene;

'Inert waste type 1' has the meaning defined in Landfill Definitions;

'Inert waste type 2' has the meaning defined in Landfill Definitions;

'Landfill' means a site used for disposal of solid material (i.e. is spadeable) by burial in the ground that is licensed as a landfill under the *Environmental Protection Act 1986* and as defined in the document Landfill Waste Classification and Waste Definitions' 1996 (As amended December 2009);

***'*Landfill Definitions'** refers to the document *Landfill Waste Classification and Waste Definitions 1996* - as amended from time to time and published on Department's website;

'Licence' refers to this document, which evidences the grant of a Licence by the CEO under s.57 of the EP Act, subject to the Conditions;

'Licence Holder' refers to the occupier of the premises being the person to whom this Licence has been granted, as specified at the front of this Licence;

'**mRL**' means metres relative level;

'NATA' means the National Association of Testing Authorities, Australia;

'NATA accredited' means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis;

'NWQMS 1997' means the most recent version and relevant parts of the "National Water Quality Management Strategy, Australian Guidelines for Sewerage Systems - Effluent Management" as published by the Agriculture and Resource Management Council of Australia and New Zealand and Australian and New Zealand Environment and Conservation Council, 1997;

'Premises' means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Licence;

'qualified geotechnical engineer' as recognized by an Australian professional group or organisation to be competent in the duties required of a geotechnical engineer;

'suitably qualified hydrogeologist'
(a) holds a qualification in hydrogeology, geology, engineering or equivalent from a recognised educational institution; and

(b) has a minimum of three years of experience working in the field of hydrogeology.

'Putrescible' has the meaning defined in Landfill Definitions;

'Quarterly' means the 4 inclusive periods from 1 January to 31 March, 1 April to 30 June, 1 July to 30 September and 1 October to 31 December;

'Schedule 1' means Schedule 1 of this Licence unless otherwise stated;

'Schedule 2' means Schedule 2 of this Licence unless otherwise stated;

'Special Waste Type 1' has the meaning defined in Landfill Definitions;

'Special Waste Type 2' has the meaning defined in Landfill Definitions;

'Spot sample' means a discrete sample representative at the time and place at which the sample is taken;

'SWL or standing water level' means the water level of any surface water or in any piezometer measured prior to sampling and expressed in metres AHD (Australian Height Datum);

'TSF' means Tailings Storage Facility; and

'WSF' means Water Storage Facility.

1.2 Premises operation

1.2.1 The Licence Holder shall record and investigate the exceedance of any descriptive or numerical limit in this section.

1.2.2 The Licence Holder shall ensure that where waste produced on the Premises are not taken off-site for lawful use or disposal, they are managed according to the requirements in Table 1.2.1.

Table 1.2.1: Management of Waste

Facility as depicted in Schedule 1	Waste type	Management Strategy	Requirements[1]
Waste Water Treatment Plant	Sewage	Biological and physical treatment (activated sludge bioreactor)	Treatment of sewage waste shall be at or below the treatment capacity of 100 m^3/day.
Landfill	Clean fill Inert Waste Type 1 Inert Waste Type 2 Putrescible waste Contaminated Solid Waste Special Waste Type 1 (Asbestos) Special Waste Type 2 (Biomedical and Clinical Waste)	Handling, storage prior to or disposal of waste by landfilling	<u>All waste types</u> No more than 10,000 tonnes per annual period of all waste types cumulatively shall be disposed of by landfilling. Disposal of waste (except tyres) by landfilling shall only take place within the Landfill area shown on the Premises map in Schedule 1. Place waste within a defined trench or within an area enclosed by earthen or other bunds. Restrict the tipping area to a maximum linear length of 30 m. The separation distance between the base of the landfill and the highest groundwater level shall not be less than 3 m. Must meet the acceptance criteria for a Class II landfill. <u>Special Waste Type 1 (Asbestos)</u> Only to be disposed of into a designated asbestos disposal area within the landfill. Not to be deposited within 2 m of the final tipping surface of the landfill. No works shall be carried out on the landfill that could lead to a release of asbestos fibres. <u>Special Waste Type 2 (Biomedical and Clinical Waste)</u> Only to be disposed of into a designated biomedical waste disposal area within the landfill. Not to be deposited within 2 m of the final tipping surface of the landfill.

Table 1.2.1: Management of Waste			
Facility as depicted in Schedule 1	**Waste type**	**Management Strategy**	**Requirements[1]**
			No works shall be carried out on the landfill that could lead to biomedical wastes being excavated or uncovered.
North and South Waste rock dumps	Inert Waste Type 2 (Tyres only)	Handling and disposal by landfilling	Inert Waste Type 2 (Tyres)[2] No more than 70 tonnes of tyres per annual period shall be disposed of by landfilling. Tyres shall only be landfilled within the North waste rock dump and South waste rock dump as shown on the Premises map in Schedule 1. The location of where tyres are buried will be surveyed and latitude and longitude recorded.
TSF1	Tailings	Containment in TSF or directed to paste plant	Disposal of tailings shall only take place within TSF1 as shown on the Premises map in Schedule 1.

Note 1: Additional requirements for the acceptance and landfilling of controlled waste (including asbestos and tyres) are set out in the *Environmental Protection (Controlled Waste) Regulations 2004.*
Note 2: Requirements for landfilling tyres are set out in Part 6 of the *Environmental Protection Regulations 1987*.

1.2.3 The Licence Holder shall ensure that cover is applied and maintained on landfilled wastes in accordance with Table 1.2.2 and that sufficient stockpiles of cover are maintained on site at all times.

Table 1.2.2 Cover requirements[1]			
Waste Type	**Material**	**Depth**	**Timescales**
Inert Waste Type 1	No cover required.		
Inert Waste Type 2	Tyres only[1]		
Inert Waste Type 2 (excluding tyres)	Inert Waste Type 1 or soil	150 mm	By the end of the working day in which the waste was deposited. Plastic waste with the potential to become windblown shall be covered as soon as practicable after deposit.
Special Waste Type 1		300 mm	As soon as practicable after deposit and prior to compaction.
		300 mm	By the end of the working day in which the asbestos waste was deposited.
Special Waste Type 2		300 mm	As soon as practicable after deposit and prior to compaction.
Putrescible Waste		300 mm	Weekly.

Note 1: Requirements for the covering of tyres are set out in Part 6 of the *Environmental Protection Regulations 1987.*

1.2.4 The Licence Holder shall ensure that tailings, decant water, dewater effluent and process water are only discharged into containment cells and/or a water storage facility with the relevant infrastructure requirements and at the locations specified in Table 1.2.3 and identified in Schedule 1.

Table 1.2.3: Containment infrastructure			
Containment point reference	**Vessel or compound**	**Material**	**Requirements**
TSF1	TSF1	Tailings	Maintain a minimum top of embankment freeboard of 300 mm. Minimise the volume of water stored by preferentially pumping decant water to the Process Water Dam (PWD) for reuse in processing.
	Paste Plant	Tailings	Tailings from Paste Plant to report to Underground operations.
WSF1	WSF1	Seepage water from TSF1	Maintain a minimum top of embankment freeboard of 500 mm. Minimise the volume of water stored by preferentially pumping water to and storing water within WSF2 and WSF3.
WSF2	WSF2	Bore field water	1.5 mm HDPE liner to achieve a permeability of $<10^{-9}$m/s or equivalent. Maintain a minimum top of embankment freeboard of 300 mm in the process area run-off pond.
WSF3	WSF3	Bore field water	1.5 mm HDPE liner to achieve a permeability of $<10^{-9}$m/s or equivalent. Maintain a minimum top of embankment freeboard of 300 mm.
P1	Process area run-off water pond	Process water and stormwater from process plant	1.5 mm HDPE liner to achieve a permeability of $<10^{-9}$m/s or equivalent. Maintain a minimum top of embankment freeboard of 300 mm.

1.2.5 The Licence Holder shall manage the irrigation of treated wastewater such that:

(a) no irrigation generated run-off, spray drift or discharge occurs beyond the boundary of the defined irrigation area(s);
(b) treated wastewater is evenly distributed over the irrigation area;
(c) no soil erosion occurs;
(d) irrigation does not occur on land that is waterlogged; and
(e) vegetation cover is maintained over the irrigation areas identified in Table 2.3.1.

1.2.6 The Licence Holder shall ensure that all pipelines containing tailings, decant water, dewater effluent and process water are either:

(a) equipped with automatic cut-outs in the event of a pipe failure; or
(b) provided with a secondary containment sufficient to contain any spill for a period equal to the time between routine inspections.

1.2.7 The Licence Holder shall:
(a) undertake inspections as detailed in Table 1.2.4; and
(b) maintain a record of all inspections undertaken.

Table 1.2.4: Inspection of infrastructure		
Scope of inspection	**Type of inspection**	**Frequency of inspection**
Mine dewater pipelines	Visual integrity	Daily
Tailings delivery pipelines	Visual integrity	
Tailings return water lines	Visual integrity	
Internal embankment freeboard of the TSF	Visual to confirm required freeboard capacity is available	
Spillway	Visual integrity	Weekly

1.2.8 The Licence Holder shall ensure the limits specified in Table 1.2.5 are not exceeded.

Table 1.2.5: Production or design capacity limits		
Category[1]	**Category description[1]**	**Premises production or design capacity limit**
5	Processing or beneficiation of metallic or non-metallic ore	950,000 tonnes per annual period

Note 1: *Environmental Protection Regulations 1987,* Schedule 1.

1.2.9 The Licence Holder must:
(a) construct and/or install the equipment;
(b) in accordance with the corresponding installation requirements; and
(c) at the corresponding infrastructure location.
as set out in Table 1.2.6.

Table 1.2.6: Design and construction / installation requirements			
	Infrastructure	**Installation requirements**	**Infrastructure location**
1.	Wastewater treatment plant	100 m^3/day activated sludge bioreactor (ASBR) WWTP	As shown in Figure 6 Schedule 1 (Wastewater treatment plant)
2.	TSF1 lift	• Operational freeboard to be kept to 300 mm minimum. • Beach freeboard of 200 mm. • Combined operational and beach freeboard of 500 mm (including allowance for a 72 hour 1:100 year rainfall event). • All embankment crests sloped inwards to shed water into TSF1.	As shown in Figure 3 in Schedule 1
3.	Monitoring instrumentation	Installation of two additional vibrating wire piezometers.	As shown in Figure 3 in Schedule 1
4.	Spillway	• Constructed to discharge excess water from a storm event greater than a 1 in 100 year AEP 72 hour event (i.e. probable maximum precipitation (PMP) event of 1.19 m. • Width 18 m with an allowance for a significant wave run-up of 0.3 m. • Installed at 381 mRL. • Installed with competent natural rock with additional armouring of the spillway to reduce the development of erosion rills and gullies.	As shown in Figure 3 in Schedule 1

1.2.10 The Licence Holder is authorised to construct an embankment raise for TSF1 to the construction height as specified in Table 1.2.7.

Table 1.2.7 – Staged construction and operating heights			
Stage	**Infrastructure**	**Embankment elevation (mRL)**	**Maximum operating height (mRL) – with freeboard**
2	TSF1	382	381.7

1.2.11 The Licence Holder shall operate the TSF1 in accordance with the conditions of this licence, following submission of the compliance report required under condition 4.2.4

1.2.12 The Licence Holder must submit to the CEO within 3 months of this licence amendment a revised seepage management plan for TSF1 which includes, but is not limited to:

(a) review and ground-based investigations of geological and geophysical data;
(b) proposed and additional to existing ambient groundwater monitoring bores including justification for the number of bores; and location (also considering risk to hyporheic fauna), as determined by a suitably qualified hydrogeologist; and
(c) proposed additional seepage recovery bores including justification for the number of bores and locations (as determined by a suitably qualified hydrogeologist).

1.2.13 The Licence Holder shall implement the revised seepage management plan at the Premises within 3 months of submission as required by condition 1.2.12.

2 Emissions

2.1 General

2.1.1 The Licence Holder shall record and investigate the exceedance of any descriptive or numerical limit specified in any part of section 2 of this Licence.

2.2 Point source emissions to surface water

2.2.1 The Licence Holder shall ensure that where waste is emitted to surface water from the emission point in Table 2.2.1 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this Licence.

Table 2.2.1: Emission points to surface water		
Emission point reference and location on Map of emission points	**Description**	**Source including abatement**
E1	Overflow from WSF1 via spillway to mine creek	Overflow from WSF1

2.3 Emissions to land

2.3.1 The Licence Holder shall ensure that where waste is emitted to land from the emission points in Table 2.3.1 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this Licence.

Table 2.3.1: Emissions to land		
Emission point reference and location on Map of emission points	**Description**	**Source including abatement**
L1	Discharge of treated wastewater from oil water separator at Generator shed	Treated wastewater from the oil water separator at Generator shed
L2	Discharge of wastewater to a 2.4 ha spray irrigation field	Treated wastewater from the accommodation camp wastewater treatment plant

2.3.2 The Licence Holder shall not cause or allow emissions to land greater than the limits listed in Table 2.3.2.

Table 2.3.2: Emission limits to land			
Emission point reference	**Parameter**	**Limit (including units)**	**Averaging period**
L1	Total Recoverable Hydrocarbons	15 mg/L	Spot sample

2.3.3 The Licence Holder must ensure that treated wastewater is only discharged via irrigation to the specified authorised areas in accordance with the limits specified in Table 2.3.3

Table 2.3.3: Irrigation emission limits			
Discharge point	**Parameter**	**Concentration limit**	**Loading limit**
L2	Total nitrogen	19 mg/L	300 kg/ha/yr
	Total phosphorus	3.1	50 kg/ha/yr

3 Monitoring

3.1 General monitoring

3.1.1 The Licence Holder shall ensure that:
(a) all water sampling is conducted in accordance with AS/NZS 5667.1;
(b) all wastewater sampling is conducted in accordance with AS/NZS 5667.10;
(c) all groundwater sampling is conducted in accordance with AS/NZS 5667.11; and
(d) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured unless indicated otherwise in the relevant table.

3.1.2 The Licence Holder shall ensure that:
(a) quarterly monitoring is undertaken at least 45 days apart; and
(b) monthly monitoring is undertaken at least 15 days apart.

3.1.3 The Licence Holder shall ensure that all monitoring equipment used on the Premises to comply with the conditions of this Licence is calibrated in accordance with the manufacturer's specifications.

3.1.4 The Licence Holder shall, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the CEO accompanied with a report comprising details of any modifications to the methods.

3.2 Monitoring of point source emissions to surface water

3.2.1 The Licence Holder shall undertake the monitoring in Table 3.2.1 according to the specifications in that table.

Table 3.2.1: Monitoring of point source emissions to surface water			
Emission point reference	**Parameter**	**Units**	**Frequency**
E1	Estimated volume discharged	m^3/day	When discharging
	pH[1]	pH units	Weekly when discharging
	Total Dissolved Solids	mg/L	
	Selenium		
	Sulfate		
	Manganese		
	Nickel		
	Copper		
	Cobalt		

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

3.3 Monitoring of emissions to land

3.3.1 The Licence Holder shall undertake the monitoring in Table 3.3.1 according to the specifications in that table.

Table 3.3.1: Monitoring of emissions to land			
Emission point reference	**Parameter**	**Units**	**Frequency**
L1	Total Recoverable Hydrocarbons	mg/L	Quarterly
L2 - Wastewater Treatment Plant – outlet sample tap	pH[1]	-	Quarterly
	Biochemical Oxygen Demand	mg/L	
	Total Suspended Solids		
	Total Nitrogen		
	Total Phosphorus		
	E.coli	cfu/100mL	
	Total dissolved soils	mg/L	
	Total Chlorine	mg/L	
	Volumetric flow rate	m^3/day	Continuous

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

3.4 Monitoring of inputs and outputs

3.4.1 The Licence Holder shall undertake the monitoring in Table 3.4.1 according to the specifications in that table.

Table 3.4.1: Monitoring of inputs and outputs					
Input/output	**Monitoring point reference**	**Parameter**	**Units**	**Averaging period**	**Frequency**
Treated wastewater discharge to irrigation areas	L2 – Flow meter devices on outgoing pipelines	Volumetric flow rate (cumulative)	m^3/day	Daily	Continuous
Waste Inputs	Landfill	Clean fill, Inert Waste Type 1, Inert Waste Type 2, Putrescible waste, Contaminated Solid Waste, Special	m^3	N/A	Monthly

Table 3.4.1: Monitoring of inputs and outputs					
Input/output	**Monitoring point reference**	**Parameter**	**Units**	**Averaging period**	**Frequency**
		Waste Type 1, Special Waste Type 2			
	North and South Waste Rock Dumps	Inert Waste Type 2 (tyres)			
Water	TSF WSF1 WSF2 WSF3	Volumetric flow rate (cumulative)	m^3/day	Monthly	Continuous
TSF seepage	Seepage recovery bores: SMPB03 SMPB12	Volume	m^3/day	Daily	Continuous

3.5 Ambient environmental quality monitoring

3.5.1 The Licence Holder shall undertake the monitoring in Table 3.5.1 according to the specifications in that table.

Table 3.5.1: Monitoring of ambient groundwater and surface water quality						
Monitoring point reference and location as specified on Map in schedule 1.	**Parameter**	**Trigger**	**Limit**	**Units**	**Averaging period**	**Frequency**
Groundwater monitoring bores: SMMB1 SMMB2 SMMB3 SMMB07 SMMB08 SMMB13 SMMB20 SMMB27 PARPMB01	Standing Water Level	-	-	m(AHD)	Spot sample	Quarterly
	pH[1]	6.5-8.5	-	pH units		
	Electrical Conductivity	5,000	-	µS/cm		
	Total Dissolved Solids	4,000	-	mg/L		
	Total Recoverable Hydrocarbons	-	-			
	Aluminium	5	-			
	Ammonia	2.5	-			
	Arsenic	0.5	-			
	Cadmium	0.01	-			
	Calcium	-	-			
	Chloride	-	-			
	Chromium	0.05	-			
	Cobalt	1	-			
	Copper	2	-			
	Iron	0.3	-			
	Lead	0.1	-			

Table 3.5.1: Monitoring of ambient groundwater and surface water quality						
Monitoring point reference and location as specified on Map in schedule 1.	**Parameter**	**Trigger**	**Limit**	**Units**	**Averaging period**	**Frequency**
	Magnesium	-	-			
	Manganese	20	-			
	Mercury	0.002	-			
	Nickel	3	-			
	Nitrate	-	-			
	Potassium	-	-			
	Selenium	0.02	-			
	Silicon	-	-			
	Silver	0.02	-			
	Sodium	-	-			
	Sulfate	4,000	-			
	Zinc	20	-			
Production bores: SMPB02 SMPB10	Standing Water Level	-	-	m(AHD)	Spot sample	Quarterly
	pH[1]	6.5-8.5	-	pH units		
	Electrical Conductivity	1,500	-	µS/cm		
	Total Dissolved Solids	4,000	-	mg/L		
	Total Recoverable Hydrocarbons	-	-			
	Aluminium	5	-			
	Ammonia	2.5	-			
	Arsenic	0.01	-			
	Cadmium	0.01	-			
	Calcium	-	-			
	Chloride	-	-			
	Chromium	0.05	-			
	Cobalt	1	-			
	Copper	1	-			
	Iron	0.3	-			
	Lead	0.1	-			
	Magnesium	-	-			
	Manganese	0.1	-			
	Mercury	0.002	-			
	Nickel	0.05	-			
	Nitrate	-	-			
	Potassium	-	-			
	Selenium	0.01	-			
	Silicon	-	-			
	Silver	0.02	-			
	Sodium	-	-			
	Sulfate	500	-			
	Zinc	20	-			
Surface water monitoring points: WSF1 Seepage	pH[1]	-	-	pH units	Spot sample	Quarterly
	Electrical Conductivity	-	-	µS/cm		
	Total Dissolved Solids	-	-	mg/L		

Table 3.5.1: Monitoring of ambient groundwater and surface water quality						
Monitoring point reference and location as specified on Map in schedule 1.	**Parameter**	**Trigger**	**Limit**	**Units**	**Averaging period**	**Frequency**
Spillway 1 Spillway 2	Total Recoverable Hydrocarbons	-	15			
	Aluminium	-	-			
	Ammonia					
	Arsenic	-	-			
	Cadmium	-	-			
	Calcium	-	-			
	Chloride					
	Chromium	-	-			
	Cobalt	-	-			
	Copper	-	-			
	Iron	-	-			
	Lead	-	-			
	Magnesium	-	-			
	Manganese	-	-			
	Mercury	-	-			
	Nickel	-	-			
	Nitrate	-	-			
	Potassium	-	-			
	Selenium	-	-			
	Silicon	-	-			
	Silver	-	-			
	Sodium	-	-			
	Sulfate	-	-			
	Zinc	-	-			
Surface water monitoring point: Mine Creek @ HWY	pH[1]	-	-	pH units	Spot sample	Quarterly
	Electrical Conductivity	-	-	µS/cm		
	Total Dissolved Solids	-	-	mg/L		
	Total Recoverable Hydrocarbons	-	15			
	Aluminium	-	-			
	Ammonia					
	Arsenic	-	-			
	Cadmium	-	-			
	Calcium	-	-			
	Chloride	-	-			
	Chromium	-	-			
	Cobalt	1	-			
	Copper	1	-			
	Iron	-	-			
	Lead	-	-			
	Magnesium	-	-			
	Manganese	-	-			
	Mercury	-	-			
	Nickel	1	-			
	Nitrate	-	-			
	Potassium	-	-			

Table 3.5.1: Monitoring of ambient groundwater and surface water quality						
Monitoring point reference and location as specified on Map in schedule 1.	**Parameter**	**Trigger**	**Limit**	**Units**	**Averaging period**	**Frequency**
	Selenium	-	-			
	Silicon	-	-			
	Silver	-	-			
	Sodium	-	-			
	Sulfate	1,800	5,000			
	Zinc	-	-			
Surface water monitoring points: FCNCP (Fletchers Creek Northern Control Point) FCSCP2 (Fletchers Creek Southern Control Point 2)	pH[1]			pH units	Spot sample	Quarterly
	Electrical Conductivity	-	-	µS/cm		
	Total Dissolved Solids	-	-	mg/L		
	Total Recoverable Hydrocarbons	-	15			
	Aluminium	-	-			
	Ammonia					
	Arsenic	-	-			
	Cadmium	-	-			
	Calcium	-	-			
	Chloride	-	-			
	Chromium	-	-			
	Cobalt	0.003	-			
	Copper	0.0062	-			
	Iron	-	-			
	Lead	-	-			
	Magnesium	-	-			
	Manganese	-	-			
	Mercury	-	-			
	Nickel	0.067	-			
	Nitrate	-	-			
	Potassium	-	-			
	Selenium	-	-			
	Silicon	-	-			
	Silver	-	-			
	Sodium	-	-			
	Sulfate	350	700			
	Zinc	-	-			

4 Information

4.1 Records

4.1.1 All information and records required by the Licence shall:

(a) be legible;

(b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval;

(c) except for records listed in 4.1.1(d) be retained for at least 6 years from the date the records were made or until the expiry of the Licence or any subsequent licence; and

(d) for those following records, be retained until the expiry of the Licence and any subsequent licence:
(i) off-site environmental effects; or
(ii) matters which affect the condition of the land or waters.

4.1.2 The Licence Holder shall complete an Annual Audit Compliance Report indicating the extent to which the Licence Holder has complied with the conditions of the Licence, and any previous licence issued under Part V of the Act for the Premises for the previous annual period.

4.1.3 The Licence Holder shall implement a complaints management system that as a minimum records the number and details of complaints received concerning the environmental impact of the activities undertaken at the Premises and any action taken in response to the complaint.

4.2 Reporting

4.2.1 The Licence Holder shall submit to the CEO an Annual Environmental Report within 120 calendar days after the end of the annual period. The report shall contain the information listed in Table 4.2.1 in the format or form specified in that table.

Table 4.2.1: Annual Environmental Report

Condition or table (if relevant)	Parameter	Format or form
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
-	Summary of surface water monitoring data as required by *Savannah Nickel Project Operating Strategy*, prepared by RPS Aquaterra Pty Ltd for Savannah Nickel Mines Pty Ltd, 20 November 2013	None specified
1.2.12	A TSF1 seepage summary including but not limited to: (a) seepage levels at TSF1 and WSF1 and whether these have been reduced over the annual period; (b) measures that have been implemented as part of the revised seepage management plan; and (c) if levels have not been reduced, additional measures proposed to reduce seepage	None specified
Table 3.2.1	Monitoring results for the discharge of overflow water from WSF1 during discharge events	None specified
Table 3.3.1	Total Recoverable Hydrocarbons	LR1
	Monitoring results for the wastewater treatment plant with a comparison against the NWQMS Australian Guidelines for Sewerage Systems, Effluent Management, 1997	None specified
Table 3.4.1	Cumulative volumes to irrigation area, waste inputs, water and TSF seepage	None specified
Table 3.5.1	Groundwater bore monitoring results – pH, Electrical Conductivity, Total Dissolved Solids, Total Recoverable Hydrocarbons, Aluminium, Ammonia, Arsenic, Cadmium, Calcium, Chloride, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Nitrate, Potassium, Selenium, Silicon, Silver, Sodium, Sulfate and Zinc	AWQ1
Table 3.5.1	Surface water monitoring results - pH, Electrical Conductivity, Total Dissolved Solids, Total Recoverable Hydrocarbons, Aluminium, Ammonia, Arsenic,	AWQ1

Table 4.2.1: Annual Environmental Report		
Condition or table (if relevant)	**Parameter**	**Format or form**
	Cadmium, Calcium, Chloride, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Nitrate, Potassium, Selenium, Silicon, Silver, Sodium, Sulfate and Zinc	
Table 3.5.1	Breach of any trigger and/or limit specified in the Licence	None specified
4.1.2	Compliance	Annual Audit Compliance Report (AACR)[1]
4.1.3	Complaints summary	None specified

Note 1: The annual audit compliance form can be accessed online from DWER's website at: https://www.der.wa.gov.au/our-work/licences-and-works-approvals/publications#aacr

4.2.2 The Licence Holder shall ensure that the Annual Environmental Report also contains an assessment of the information contained within the report against previous monitoring results and Licence limits.

4.2.3 The Licence Holder shall submit the information in Table 4.2.2 to the CEO according to the specifications in that table.

Table 4.2.2: Non-annual reporting requirements				
Condition or table (if relevant)	**Parameter**	**Reporting period**	**Reporting date (after end of the reporting period)**	**Format or form**
-	Copies of original monitoring reports submitted to the Licence Holder by third parties	Not Applicable	Within 14 days of the CEOs request	As received by the Licence Holder from third parties

4.2.4 The licence holder must within 30 days of each item of infrastructure required by condition 1.2.9 or 1.2.10 being constructed:

(a) undertake an audit of their compliance with the requirements of the condition; and
(b) prepare and submit to the CEO an audit report on that compliance.

4.2.5 The report required by condition 4.2.4 must:

(a) be certified by a suitably qualified geotechnical engineer (for spillway and TSF infrastructure);
(b) provide a list of departures from the specified works certified by a suitably qualified geotechnical engineer; and
(c) be signed by a person authorised to represent the Licence Holder and contain the printed name and position of that person within the company.

4.3 Notification

4.3.1 The Licence Holder shall ensure that the parameters listed in Table 4.3.1 are notified to the CEO in accordance with the notification requirements of the table.

Table 4.3.1: Notification requirements			
Condition or table (if relevant)	**Parameter**	**Notification requirement[1]**	**Format or form[2]**
-	Recommencing start-up of operations (after a period of care and maintenance)	At least 90 days prior to recommencing production	None specified
1.2.7	Pipeline breach or discharge via spillway	As soon as practicable but no later than 12 hours after the event	None specified
1.3.1, 2.1.1, 2.3.3, 3.5.1	Breach of any limit specified in the Licence	Part A: As soon as practicable but no later than 5pm of the next usual working day. Part B: As soon as practicable	N1
3.1.4	Calibration report	As soon as practicable	None specified

Note 1: Notification requirements in the Licence shall not negate the requirement to comply with s72 of the Act
Note 2: Forms are in Schedule 2

END OF CONDITIONS

Schedule 1: Maps

Premises map

The boundary of the prescribed premises is shown in the map below

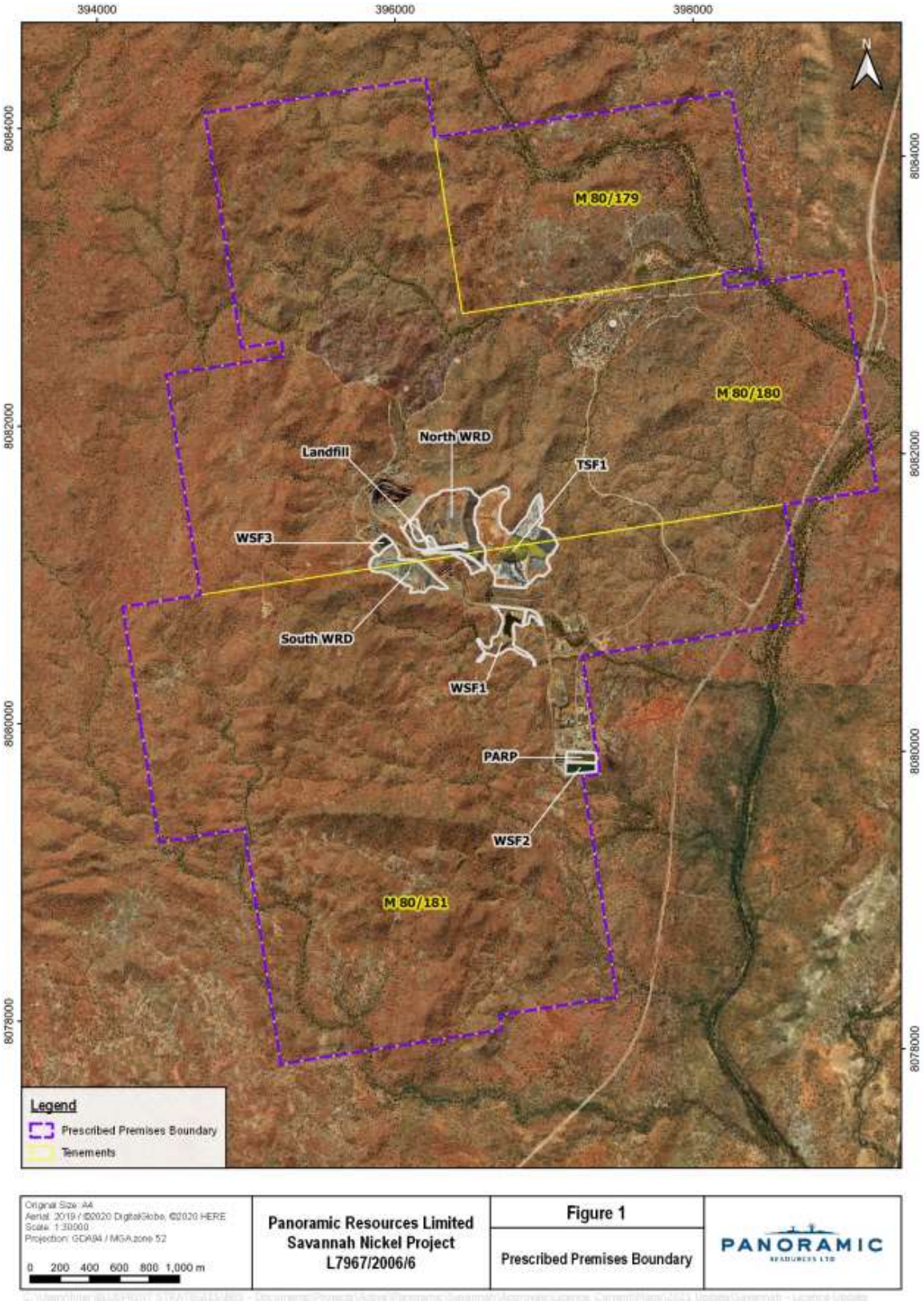

Figure 1 Prescribed premises

The location of the waste facilities and storage areas defined in Tables 1.2.1 and 1.2.3

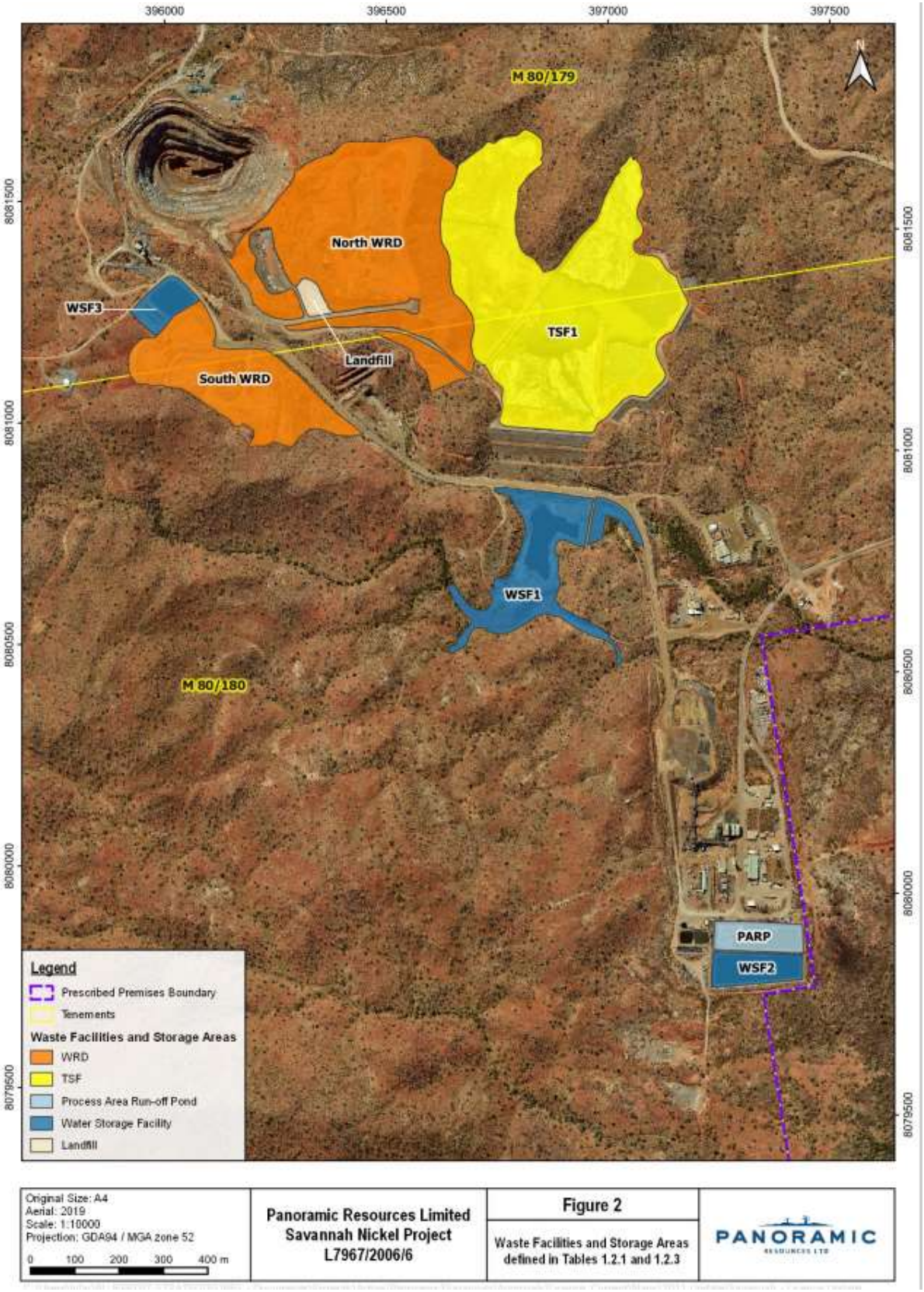

Figure 2: Waste facilities and storage areas defined in Tables 1.2.1 and 1.2.3

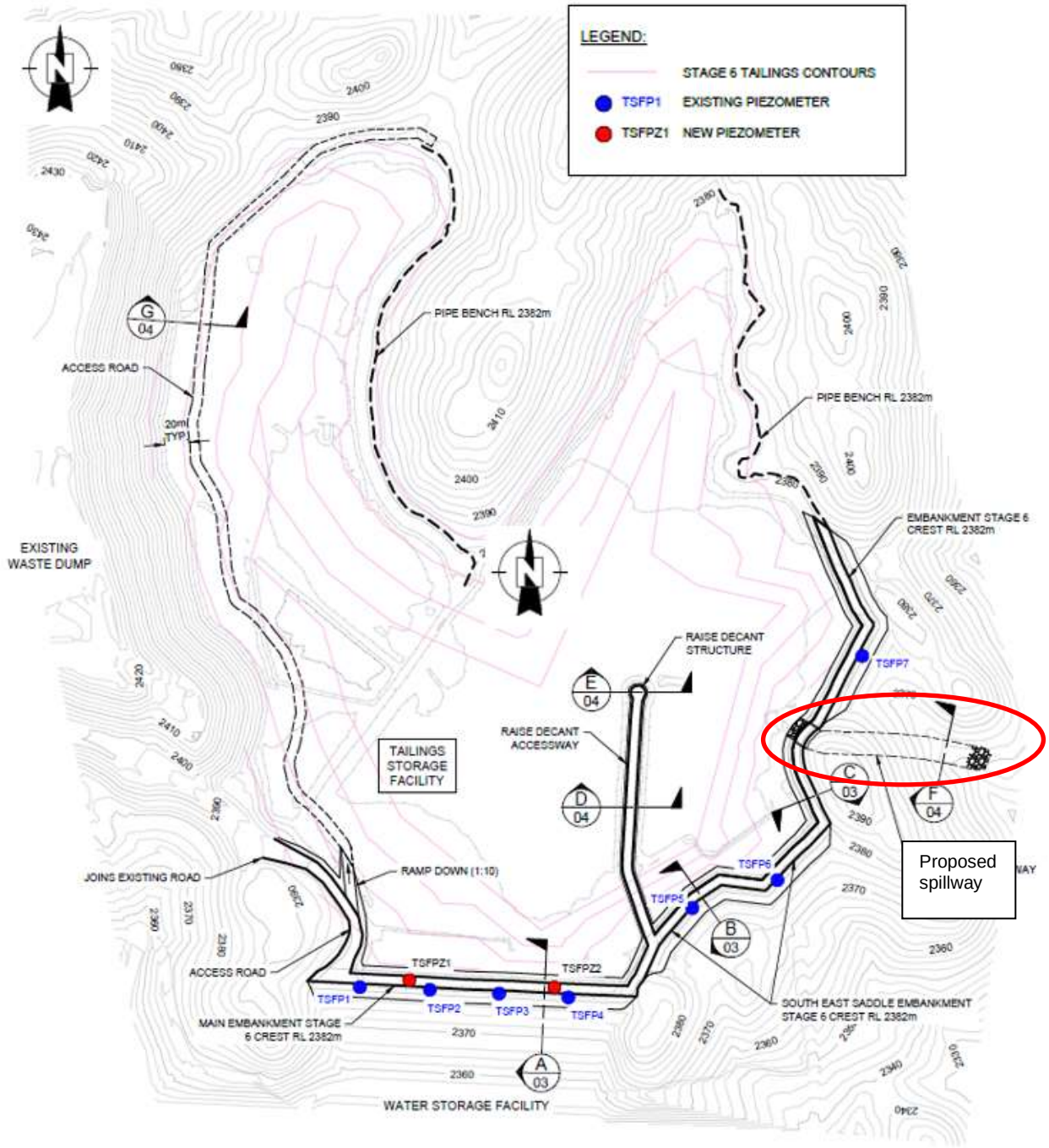

Figure 3: TSF1 including location of spillway and new piezometers. Bold sections are proposed for lift from 378 to 382mRL (amendment 2021).

The location of the emission point E1 defined in Table 2.2.1 is shown below.

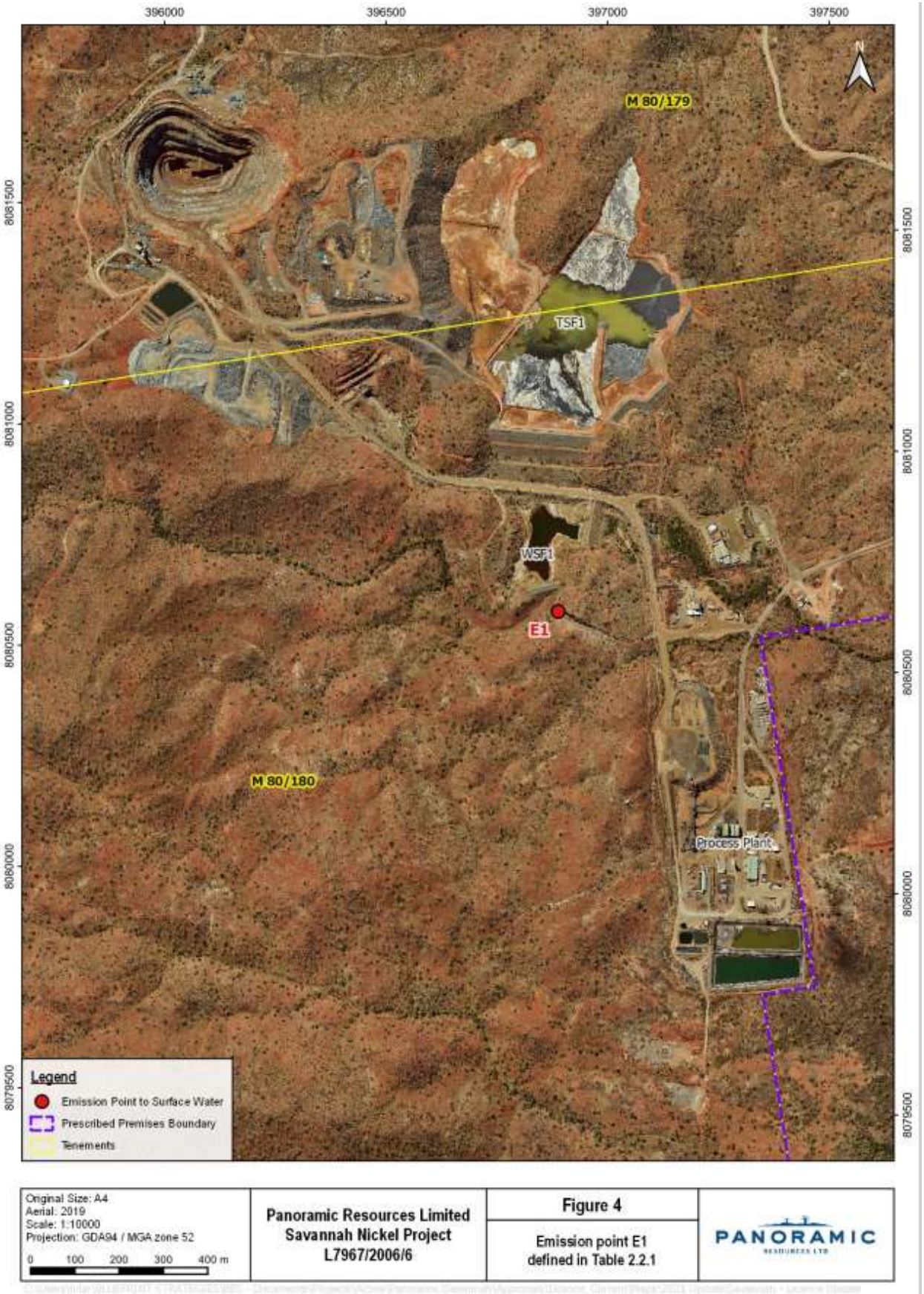

Figure 4: Emission point E1 defined in Table 2.2.1

Figure 5: Landfill layout

Figure 6: Wastewater treatment plant

The locations of the emission points L1 and L2 defined in Table 2.3.1 are shown below.

Figure 7: Location of the emission points L1 as defined in Table 2.3.1

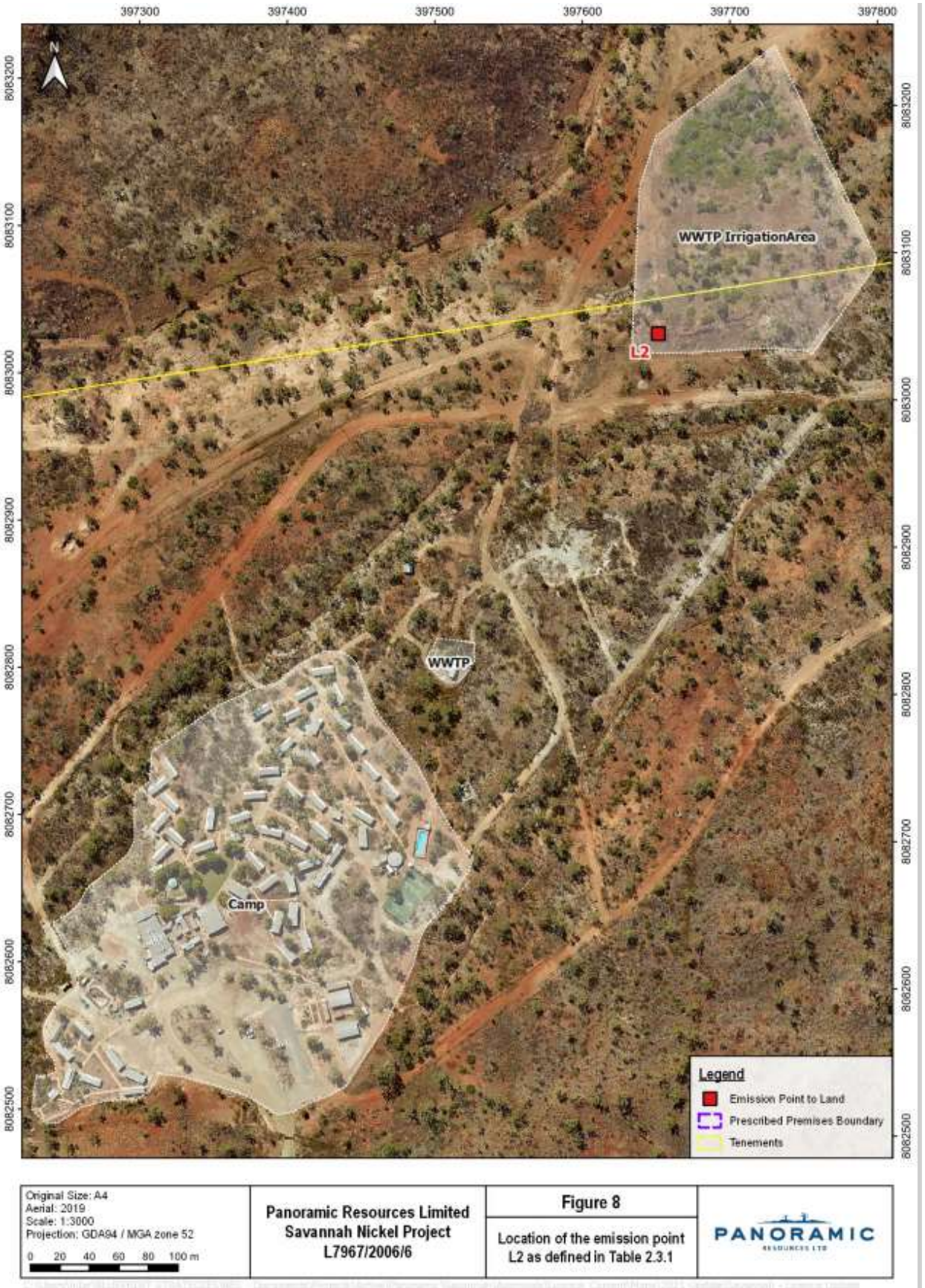

Figure 8: Location of the emission point L2 as defined in Table 2.3.1

Map of monitoring locations

The locations of the monitoring points defined in Table 3.4.1 and Table 3.5.1 are shown below.

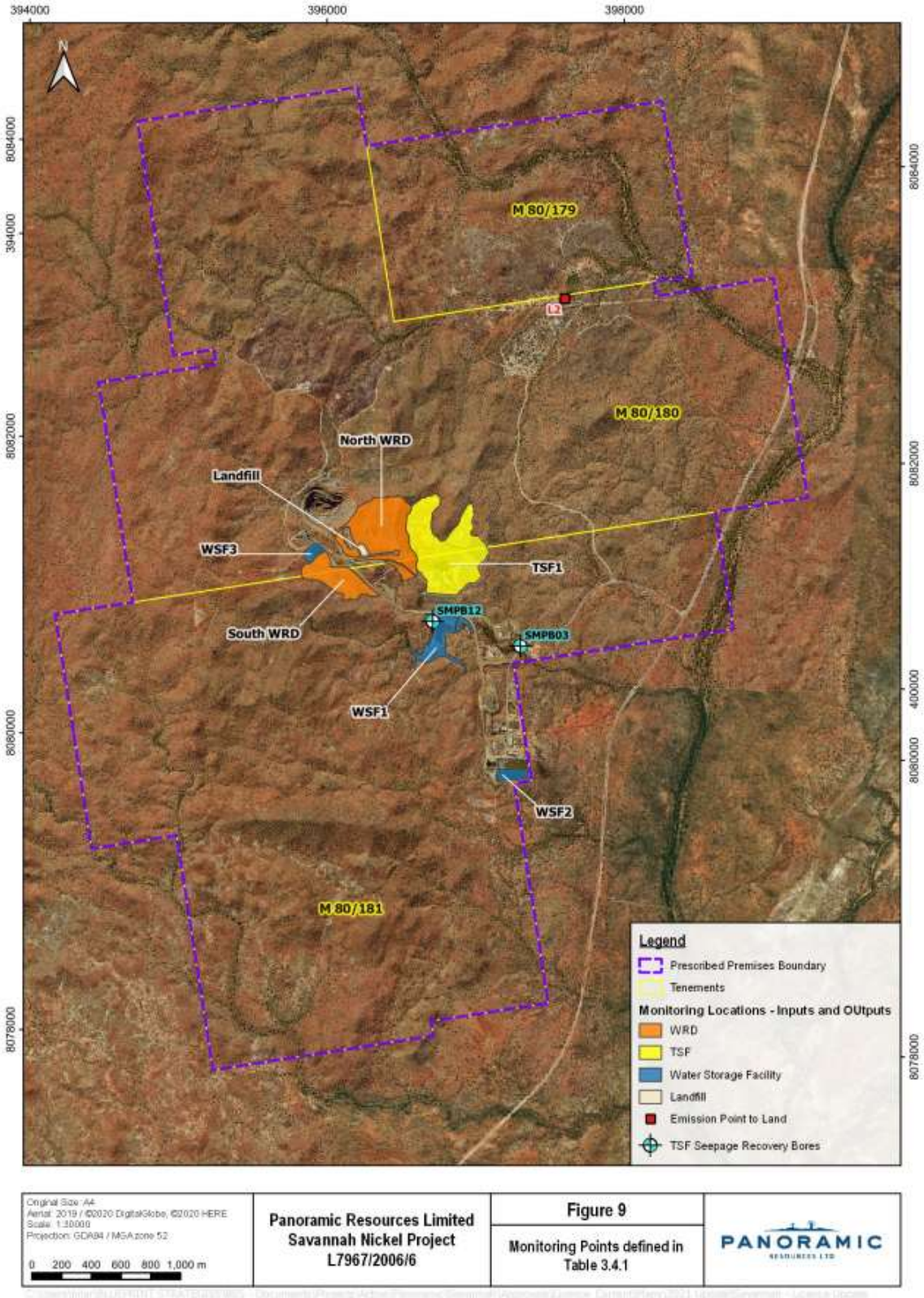

Figure 9: Monitoring areas

Map of monitoring locations

The locations of the groundwater and surface water monitoring points defined in Table 3.4.1 and Table 3.5.1 are shown below.

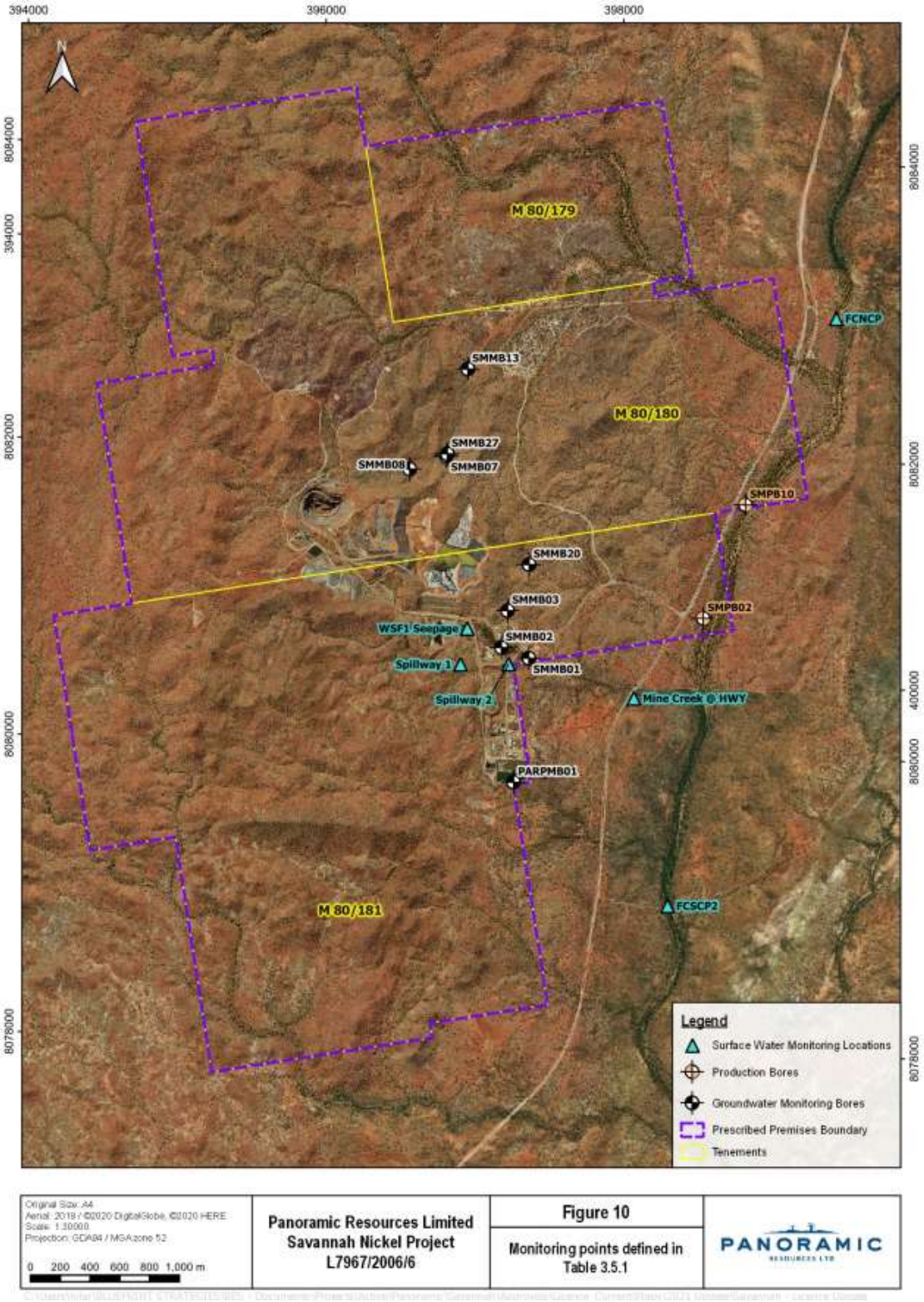

Figure 10 Groundwater and surface water monitoring points

Schedule 2:

Licence: L7967/2003/6 Licence Holder: Savannah Nickel Mines Pty Ltd

Form: AGWQ1 Period:

Name: Monitoring of ambient groundwater quality

Form AGWQ1: Monitoring of ambient groundwater quality							
Emission point	**Parameter**	**Trigger**	**Limit**	**Result**	**Averaging period**	**Method**	**Sample date & times**
Groundwater monitoring bores: SMMB1 SMMB2 SMMB3 SMMB07 SMMB08 SMMB13 SMMB20 SMMB27 PARPMB01	Standing Water Level	-	-	m(AHD)	Spot sample		
	pH[1]	6.5-8.5	-	pH units	Spot sample		
	Electrical Conductivity	5,000	-	µS/cm	Spot sample		
	Total Dissolved Solids	4,000	-	mg/L	Spot sample		
	Total Recoverable Hydrocarbons	-	-	mg/L	Spot sample		
	Aluminium	5	-	mg/L	Spot sample		
	Ammonia	2.5	-	mg/L	Spot sample		
	Arsenic	0.5	-	mg/L	Spot sample		
	Cadmium	0.01	-	mg/L	Spot sample		
	Calcium	-	-	mg/L	Spot sample		

	Chloride	-	-	mg/L	Spot sample		
	Chromium	0.05	-	mg/L	Spot sample		
	Cobalt	1	-	mg/L	Spot sample		
	Copper	2	-	mg/L	Spot sample		
	Iron	0.3	-	mg/L	Spot sample		
	Lead	0.1	-	mg/L	Spot sample		
	Magnesium	-	-	mg/L	Spot sample		
	Manganese	20	-	mg/L	Spot sample		
	Mercury	0.002	-	mg/L	Spot sample		
	Nickel	3	-	mg/L	Spot sample		
	Nitrate	-	-	mg/L	Spot sample		
	Potassium	-	-	mg/L	Spot sample		
	Selenium	0.02	-	mg/L	Spot sample		
	Silicon	-	-	mg/L	Spot sample		
	Silver	0.02	-	mg/L	Spot sample		
	Sodium	-	-	mg/L	Spot sample		
	Sulfate	4,000	-	mg/L	Spot sample		
	Zinc	20	-	mg/L	Spot sample		

Production bores: SMPB02 SMPB10	Standing Water Level	-	-	m(AHD)	Spot sample		
	pH[1]	6.5-8.5	-	pH units	Spot sample		
	Electrical Conductivity	1,500	-	µS/cm	Spot sample		
	Total Dissolved Solids	4,000	-	mg/L	Spot sample		
	Total Recoverable Hydrocarbons	-	-	mg/L	Spot sample		
	Aluminium	5	-	mg/L	Spot sample		
	Ammonia	2.5	-	mg/L	Spot sample		
	Arsenic	0.01	-	mg/L	Spot sample		
	Cadmium	0.01	-	mg/L	Spot sample		
	Calcium	-	-	mg/L	Spot sample		
	Chloride	-	-	mg/L	Spot sample		
	Chromium	0.05	-	mg/L	Spot sample		
	Cobalt	1	-	mg/L	Spot sample		
	Copper	1	-	mg/L	Spot sample		
	Iron	0.3	-	mg/L	Spot sample		
	Lead	0.1	-	mg/L	Spot sample		
	Magnesium	-	-	mg/L	Spot sample		

	Manganese	0.1	-	mg/L	Spot sample		
	Mercury	0.002	-	mg/L	Spot sample		
	Nickel	0.05	-	mg/L	Spot sample		
	Nitrate	-	-	mg/L	Spot sample		
	Potassium	-	-	mg/L	Spot sample		
	Selenium	0.01	-	mg/L	Spot sample		
	Silicon	-	-	mg/L	Spot sample		
	Silver	0.02	-	mg/L	Spot sample		
	Sodium	-	-	mg/L	Spot sample		
	Sulfate	500	-	mg/L	Spot sample		
	Zinc	20	-	mg/L	Spot sample		
Surface water monitoring points: WSF1 Seepage Spillway 1	pH[1]	-	-	pH units	Spot sample		
	Electrical Conductivity	-	-	µS/cm	Spot sample		
	Total Dissolved Solids	-	-	mg/L	Spot sample		
	Total Recoverable Hydrocarbons	-	15	mg/L	Spot sample		
	Aluminium	-	-	mg/L	Spot sample		
	Ammonia			mg/L	Spot sample		

Spillway 2	Arsenic	-	-	mg/L	Spot sample		
	Cadmium	-	-	mg/L	Spot sample		
	Calcium	-	-	mg/L	Spot sample		
	Chloride			mg/L	Spot sample		
	Chromium	-	-	mg/L	Spot sample		
	Cobalt	-	-	mg/L	Spot sample		
	Copper	-	-	mg/L	Spot sample		
	Iron	-	-	mg/L	Spot sample		
	Lead	-	-	mg/L	Spot sample		
	Magnesium	-	-	mg/L	Spot sample		
	Manganese	-	-	mg/L	Spot sample		
	Mercury	-	-	mg/L	Spot sample		
	Nickel	-	-	mg/L	Spot sample		
	Nitrate	-	-	mg/L	Spot sample		
	Potassium	-	-	mg/L	Spot sample		
	Selenium	-	-	mg/L	Spot sample		
	Silicon	-	-	mg/L	Spot sample		
	Silver	-	-	mg/L	Spot sample		

	Sodium	-	-	mg/L	Spot sample		
	Sulfate	-	-	mg/L	Spot sample		
	Zinc	-	-	mg/L	Spot sample		
Surface water monitoring point: Mine Creek @ HWY	pH[1]	-	-	pH units	Spot sample		
	Electrical Conductivity	-	-	µS/cm	Spot sample		
	Total Dissolved Solids	-	-	mg/L	Spot sample		
	Total Recoverable Hydrocarbons	-	15	mg/L	Spot sample		
	Aluminium	-	-	mg/L	Spot sample		
	Ammonia			mg/L	Spot sample		
	Arsenic	-	-	mg/L	Spot sample		
	Cadmium	-	-	mg/L	Spot sample		
	Calcium	-	-	mg/L	Spot sample		
	Chloride	-	-	mg/L	Spot sample		
	Chromium	-	-	mg/L	Spot sample		
	Cobalt	1	-	mg/L	Spot sample		
	Copper	1	-	mg/L	Spot sample		
	Iron	-	-	mg/L	Spot sample		

	Lead	-	-	mg/L	Spot sample		
	Magnesium	-	-	mg/L	Spot sample		
	Manganese	-	-	mg/L	Spot sample		
	Mercury	-	-	mg/L	Spot sample		
	Nickel	1	-	mg/L	Spot sample		
	Nitrate	-	-	mg/L	Spot sample		
	Potassium	-	-	mg/L	Spot sample		
	Selenium	-	-	mg/L	Spot sample		
	Silicon	-	-	mg/L	Spot sample		
	Silver	-	-	mg/L	Spot sample		
	Sodium	-	-	mg/L	Spot sample		
	Sulfate	1,800	5,000	mg/L	Spot sample		
	Zinc	-	-	mg/L	Spot sample		
Surface water monitoring points: FCNCP (Fletchers Creek	pH[1]			pH units	Spot sample		
	Electrical Conductivity	-	-	µS/cm	Spot sample		
	Total Dissolved Solids	-	-	mg/L	Spot sample		
	Total Recoverable Hydrocarbons	-	15	mg/L	Spot sample		

Northern Control Point) FCSCP2 (Fletchers Creek Southern Control Point 2)	Aluminium	-	-	mg/L	Spot sample		
	Ammonia			mg/L	Spot sample		
	Arsenic	-	-	mg/L	Spot sample		
	Cadmium	-	-	mg/L	Spot sample		
	Calcium	-	-	mg/L	Spot sample		
	Chloride	-	-	mg/L	Spot sample		
	Chromium	-	-	mg/L	Spot sample		
	Cobalt	0.003	-	mg/L	Spot sample		
	Copper	0.0062	-	mg/L	Spot sample		
	Iron	-	-	mg/L	Spot sample		
	Lead	-	-	mg/L	Spot sample		
	Magnesium	-	-	mg/L	Spot sample		
	Manganese	-	-	mg/L	Spot sample		
	Mercury	-	-	mg/L	Spot sample		
	Nickel	0.067	-	mg/L	Spot sample		
	Nitrate	-	-	mg/L	Spot sample		
	Potassium	-	-	mg/L	Spot sample		
	Selenium	-	-	mg/L	Spot sample		

	Silicon	-	-	mg/L	Spot sample		
	Silver	-	-	mg/L	Spot sample		
	Sodium	-	-	mg/L	Spot sample		
	Sulfate	350	700	mg/L	Spot sample		
	Zinc	-	-	mg/L	Spot sample		

Signed on behalf of Savannah Nickel Mines Pty Ltd: …….. Date: ……

Licence:	L7967/2003/6	Licence Holder:	Savannah Nickel Mines Pty Ltd
Form:	N1	Date of breach:	

Notification of detection of the breach of a limit.

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission **triggers/**limits.

Part A

Licence Number	
Name of operator	
Location of Premises	
Time and date of the detection	

Notification requirements for the breach of a limit	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Part B

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident.	

Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission.	
The dates of any previous N1 notifications for the Premises in the preceding 24 months.	

Name	
Post	
Signature on behalf of Savannah Nickel Mines Pty Ltd	
Date	