



Licence number	L5939/1988/11	
Licence holder	Tronox Management Pty Ltd	
ACN	009 343 364	
Registered business address	175 Brand Highway Muchea WA 6501	
DWER file number	DER2015/000624	
Duration	05/10/2013 to	04/10/2038
Date of issue	03/10/2013	
Date of amendment	26/04/2024	
Premises details	Tronox Chandala Processing Plant Brand Highway, Muchea Western Australia Legal description - Lot M1261 on Diagram 5326, Brand Highway Muchea, WA as depicted in Schedule 1, Figure 1.	

Prescribed premises category description (Schedule 1, <i>Environmental Protection Regulations 1987</i>)	Assessed production / design capacity
Category 8: Mineral sands mining or processing: premises on which mineral sands ore is mined, screened, separated or otherwise processed	775,000 tonnes per annual period

This licence is granted to the licence holder, subject to the attached conditions, on 26 April 2024, by:

Manager Process Industries

Regulatory Services

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

Licence History

Date	Reference number	Summary of changes
27/06/2012	L5939/1988/11	Transfer from Tiwest Pty Ltd to Tronox Management Pty Ltd.
17/09/2018	L5938/1988/11	Amendment Notice 1- extend expiry date of licence and administrative amendments.
16/05/2022	L5939/1988/11	Notice of amendment of licence reporting requirements section 59(2), section 59(1)(a) and 59(1)(b) <i>Environmental Protection Act 1986</i> Licensed Prescribed Premise.
26/04/2024	L5939/1988/11	Amendment to construct and operate a temporary coal stockpile. The CEO has additionally initiated an amendment to the type and style of licence and incorporate amendment notices, where relevant.

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.

Conditions of licence

Definitions

In these Conditions of Licence, unless inconsistent with the text or subject matter:

“**AACR**” means Annual Audit Compliance Report – available at:
[Annual Audit Compliance Reports | Western Australian Government \(www.wa.gov.au\)](https://www.wa.gov.au/government/publications/annual-audit-compliance-reports)

“**advise**” means advise in writing from time to time by the CEO;

“**approved**” or “approval” means approved or approval in writing from time to time by the CEO;

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

“**CEO**” means Chief Executive Officer of the Department of Water and Environment Regulation;

“**CEO**” for the purposes of correspondence or notification means:
Chief Executive Officer
Department Administering the *Environmental Protection Act 1986*
Locked Bag 10
JOONDALUP DC WA 6919
Telephone: (08) 6367 7000
Facsimile: (08) 6367 7001
Email: info@dwer.wa.gov.au

“**EP Act**” means *Environmental Protection Act 1986 (WA)*;

“**Inspector**” means a person appointed as an Inspector under Section 88 of the *Environmental Protection Act 1986*;

“**Licence Holder**” means the person or organisation named as Licence Holder on page 1 of the Licence;

“**m BGL**” means metres below ground level

“**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

“**premises**” means synthetic rutile and mineral sands separation plants located at Lot M1261 on Diagram 5326 Brand Highway Muchea as shown in **Schedule 1, Figure 1**; and

General conditions

Annual audit compliance report

- 1 The Licence Holder shall by 15 April and annually thereafter, provide to the CEO an Annual Audit Compliance Report in the form found on DWER's website, signed and indicating the extent to which the Licence Holder has complied with the conditions of this licence and any previous licence issued under part V of the EP Act for the premises during the period beginning January 1 the previous year and ending on December 31.

Discharge points

- 2 The Licence Holder shall ensure that during normal operation, process wastes from the premises, which cause or are likely to cause pollution, are discharged to the environment in the following ways:
 - (i) major gaseous emissions through the:
 - kiln exhaust stack (S1);
 - inhouse dedusting plant stack (S2); and
 - dryer stack (S3);
 - (ii) solid wastes generated by the process, in accordance with condition S1 of this licence; and
 - (iii) gases which arise from emergency venting operations shall be discharged through the kiln standby stack (E1).

Reporting requirements

- 3 The Licence Holder shall provide to the CEO a report containing monitoring data as required by any condition of this licence.
- 4 The Licence Holder shall ensure the Environmental Report required by condition 3 contains all the monitoring data and other collected data required by any condition of this licence. This report shall cover the two previous 12 month periods from January 1 to December 31. The report shall be forwarded to the CEO no later than 15 April 2022 and biennially thereafter (every second year).

Reporting of exceeded licence limits

- 5 The Licence Holder shall ensure that the CEO is notified of any measurement which indicates that any discharge limit specified in these conditions has been exceeded.
- 6 The notification shall include:
 - (i) the date, time and duration over which the limit was exceeded;
 - (ii) where appropriate, the extent of the discharge over that duration;
 - (iii) reasons for the limit being exceeded;
 - (iv) corrective action taken or planned to mitigate adverse environmental consequences of the discharge; and
 - (v) corrective action taken or planned to prevent a recurrence of the event which led to the limit being exceeded.
- 7 The Licence Holder shall forward notification, together with any other relevant supporting information to the CEO within 2 days of the Licence Holder becoming aware of the exceedance.

Air pollution control conditions

Kiln exhaust gas scrubber - operation requirement

- 8 The Licence Holder shall ensure that exhaust gases from the kiln are treated through a thermal oxidiser (afterburner) and a venturi scrubber prior to release to the environment through the chimney stack (S1).
- 9 The Licence Holder shall ensure the concentration of sulphur dioxide in the exit gases from the stack (S1) is not greater than 85 grams per second, expressed dry at 273 K and 101.325 kilopascals.
- 10 The Licence Holder shall ensure the concentration of particulate matter in the exit gases from the stack (S1) is not greater than 250 milligrams per cubic metre, expressed dry at 273 K and 101.325 kilopascals.
- 11 The Licence Holder shall monitor and record the pH of the discharge waters from the venturi scrubber. Records of the pH are not required to be reported under condition 3 but shall be kept for at least 12 months and shall be made available to an Inspector at all times.
- 12 The Licence Holder is exempt from compliance with the condition 10 during calibration of the on-line particulate monitor, on the provision that such calibration does not occur for more than a two hour period.

Inhouse dedusting plant - operation requirement

- 13 The Licence Holder shall ensure that exhaust and ventilation gases from the inhouse dedusting plant are treated through a baghouse dust collector and released to the environment through the chimney stack (S2).
- 14 The Licence Holder shall ensure the concentration of particulate matter in the exit gases from the stack (S2) is not greater than 120 milligrams per cubic metre, expressed dry at 273 K and 101.325 kilopascals.
- 15 The Licence Holder shall monitor and record the pressure drop across the baghouse unit continuously. Records of the pressure drop are not required to be reported under condition 3 but shall be kept for at least 12 months and shall be made available to an Inspector at all times.

Dryer scrubber - operation requirement

- 16 The Licence Holder shall ensure that exhaust gases from the dryer are treated through a wet scrubber prior to release to the environment through the chimney stack (S3).
- 17 The Licence Holder shall ensure the concentration of particulate matter in the exit gases from the wet scrubber servicing the dryer (S3) is not greater than 150 milligrams per cubic metre, expressed dry at 273 K and 101.325 kilopascals.

Thermal oxidiser (afterburner) - operation requirement

- 18 The Licence Holder shall ensure that gases from the settling chamber and gases from the leaching plant are treated during normal operation in a thermal oxidiser (afterburner).
- 19 The Licence Holder shall continuously monitor and record the temperature in the afterburner combustion chamber. Records of the afterburner temperature are not required to be reported under condition 3 but shall be kept for at least 12 months and shall be made available to an Inspector at all times.

Ground level concentration

- 20** The Licence Holder shall ensure that stack emissions of sulphur dioxide, dust and hydrogen sulphide are managed such that:
- (i) The ground level concentration of sulphur dioxide never exceeds 450 micrograms per cubic metre (1 hour averaging period) at any location and never exceeds 350 micrograms per cubic metre (1 hour averaging period) at any residence or other odour sensitive premises; and
 - (ii) The ground level concentration of hydrogen sulphide and other reduced sulphur compounds is such that there is no detectable odour of reduced sulphur compounds outside the boundary of the licensed premises at any time, when expressed in dry air of 273K and 101.325 kilopascals pressure.

Stack monitoring

- 21** The Licence Holder shall monitor, at the frequencies stated, the concentrations of the listed parameters at the following stacks as per Table 1:

Table 1: Stack monitoring requirements

Stack	Frequency	Parameters
Kiln stack (S1)	Monthly	Sulphur dioxide (SO ₂), total suspended particulates, hydrogen sulphide (H ₂ S)
Dedust stack (S2) Dryer stack (S3)	Quarterly	Total suspended particulates

- 22** The Licence Holder shall ensure the results of each set of source tests include the following information:
- (i) associated plant production rate, coal feed rate and sulphur feed rate relevant to the emissions at the time of the test,
 - (ii) in stack moisture content,
 - (iii) in stack volume flow rate,
 - (iv) in stack temperature,
 - (v) parameters monitored in the venturi scrubber system, scrubbing liquor flow rate, pressure drop across the scrubber system,
 - (vi) pressure drop across the baghouse unit connected to stack (S2),
 - (vii) sulphur dioxide, hydrogen sulphide and particulates concentrations, as defined in condition 21, and any other information relevant to the test results.

Dust - General requirement

- 23** The Licence Holder shall take all reasonable and practicable measures to prevent the generation of visible dust across the boundary of the premises from all materials handling operations, stockpiles, open areas and transport activities.
- 24** The Licence Holder shall employ routine maintenance and housekeeping practices to ensure that there is no accumulation of waste materials in or around the premises which may lead to the generation of visible dust.

Dust monitoring

- 25** The Licence Holder shall monitor the level of dust at the plant site on at least a quarterly basis.
- 26** The Licence Holder must monitor ambient air quality in accordance with Table 2:

Table 2: Ambient air quality monitoring requirements for temporary coal stockpile

Monitoring location	Parameter	Unit	Frequency	Averaging period	Sampling method
Temp Dust as shown in Schedule 1, Figure 2	Particulates as PM ₁₀	µg/m ³	Continuous (when there is coal present in the temporary coal stockpile area)	24-hour average	OSIRIS Mobile Monitoring Unit (or other similar battery operated, live stream PM ₁₀ monitor)

Opening of standby (emergency/maintenance) stack

- 27** The Licence Holder shall ensure that the kiln standby stack remains closed and sealed at all times during normal processing operations.
- 28** The Licence Holder shall keep a log of scheduled and unscheduled kiln emergency/maintenance stack cap openings. The log shall include the following information:
- (i) time and date the stack was opened;
 - (ii) the reasons for opening the stack cap;
 - (iii) the duration of stack cap opening; and
 - (iv) action taken to avoid a repetition of any malfunction that may have been the reason for opening the stack cap.

Water pollution control conditions

Process liquor ponds

- 29** The Licence Holder shall ensure that excess process liquors generated due to a failure of the process liquor treatment system is contained within the process liquor ponds. The Licence Holder shall ensure that the ponds are lined with a high density polyethylene membrane or polypropylene membrane.

Stormwater

- 30** The Licence Holder shall ensure the premises is drained such that uncontaminated stormwater is diverted away from all process areas.

Vehicle washdown areas

- 31** The Licence Holder shall ensure that vehicle wash down areas are equipped with fuel/oil traps and provisions to ensure detergent or solvent contaminated waters are not discharged to the environment.

Fuel/oil and silt traps

- 32** The Licence Holder shall ensure that any discharge of water from the premises, other than directly to sewer or septic systems, shall pass through silt traps and, where contaminated with fuel/oil, waters shall pass through fuel/oil traps also.

Water discharges - discolouration/floating matter

- 33** The Licence Holder shall ensure that water discharged from the premises demonstrates no discolouration nor contains any floating matter attributable to operations on the premises.

Protection of water pollution control systems

- 34** The Licence Holder shall ensure that all settlement ponds, bunded areas and silt traps, subject to cleaning or solids removal, are protected from machinery damage.

Maintenance of water pollution control systems

- 35** The Licence Holder shall ensure all fuel/oil traps, silt traps and settlement ponds have an adequate schedule of inspection and maintenance so as to ensure their efficient operation. A maintenance logbook shall be maintained and made available to an inspector on request.

Liquid chemical storage

- 36** The Licence Holder shall store environmentally hazardous chemicals including fuel, oil or other hydrocarbons (where the total volume of each substance stored on the premises exceeds 250 litres) within low permeability (10^{-9} metres per second or less) compound(s) designed to contain not less than 110% of the volume of the largest storage vessel or inter-connected system, and at least 25% of the total volume of substances stored in the compound.
- 37** The Licence Holder shall immediately recover, or remove and dispose of, any liquid resulting from spills or leaks of chemicals including fuel, oil or other hydrocarbons, whether inside or outside the low permeability compound(s).

Solid waste disposal condition

- 38** The Licence Holder shall ensure that solid wastes generated in the mineral sands separation, synthetic rutile and iron oxide pugging processes are disposed of by burial at the Cooljarloo mine site operated by the Licence Holder located at M268SA unless specific approval for other arrangements have been obtained from the CEO. Waste shall only be transported in vehicles properly equipped for waste haulage.

Groundwater monitoring

- 39** The Licence Holder must monitor ambient groundwater for concentrations of the parameters listed in Table 3:
- (a) at the corresponding monitoring locations;
 - (b) in the corresponding units;
 - (c) at no less than the corresponding frequency;
 - (d) for the corresponding averaging period; and
 - (e) using the corresponding method,
- as set out in Table 3.

Table 3: Groundwater monitoring requirements

Monitoring location	Parameter	Unit	Frequency	Averaging period	Method	
					Sampling	Analysis
MB C, MB D, MB-6S, MB-7S as shown in Schedule 1, Figure 2	SWL	m BGL	Monthly	Spot sample	NA	In-field non NATA accredited analysis permitted
	pH	-			Spot sample in accordance with AS/NZS 5667.1 and AS/NZS 5667.11	
	TDS	mg/L				
	Temperature	°C				
	EC	µS/cm				
	Mn	mg/L				NATA accredited for the parameters specified
	Fe					
	Al					
	Sulphate					
	Chloride					

Works conditions

Infrastructure and equipment

40 The Licence Holder must:

- install the infrastructure and/or equipment;
- in accordance with the corresponding installation requirements; and
- at the corresponding infrastructure location as set out in Table 4.

Table 4: Installation requirements

	Infrastructure	Installation requirements	Infrastructure location
1.	Temporary Coal Stockpile Area	<p>(a) Must be constructed with a compacted limestone pad with:</p> <ol style="list-style-type: none"> a minimum thickness of 150mm; maximum area of 70 m by 115 m; and graded to drain toward the collection sump as indicated in Schedule 2: Figure 3. <p>(b) Containment bunds must be constructed of limestone around three sides of the limestone pad with a minimum height of 500mm.</p>	As shown in Schedule 1: Figure 2 (Proposed Coal Stockpile)
2.	Drainage: <ul style="list-style-type: none"> Collection Sump Pump Pipeline 	<p>(a) Sump must be constructed with a minimum capacity of 2m³.</p> <p>(b) Sump must be installed with pump connected to a pipeline which is capable of transferring collected water to an existing containment pond.</p>	As shown in Schedule 2: Figure 3

Compliance reporting

- 41** The Licence Holder must within 30 days of the infrastructure required by condition 40 being constructed:
- (a) undertake an audit of their compliance with the requirements of condition 40; and
 - (b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.
- 42** The Environmental Compliance Report required by condition 41, must:
- (a) include certification whether the items of infrastructure or components thereof, as specified in condition 40, have been constructed in accordance with the relevant requirements specified in condition 40;
 - (b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 40; and
 - (c) be signed by a person authorised to represent the Licence Holder and contains the printed name and position of that person.

Schedule 1: Maps

Tronox Chandala

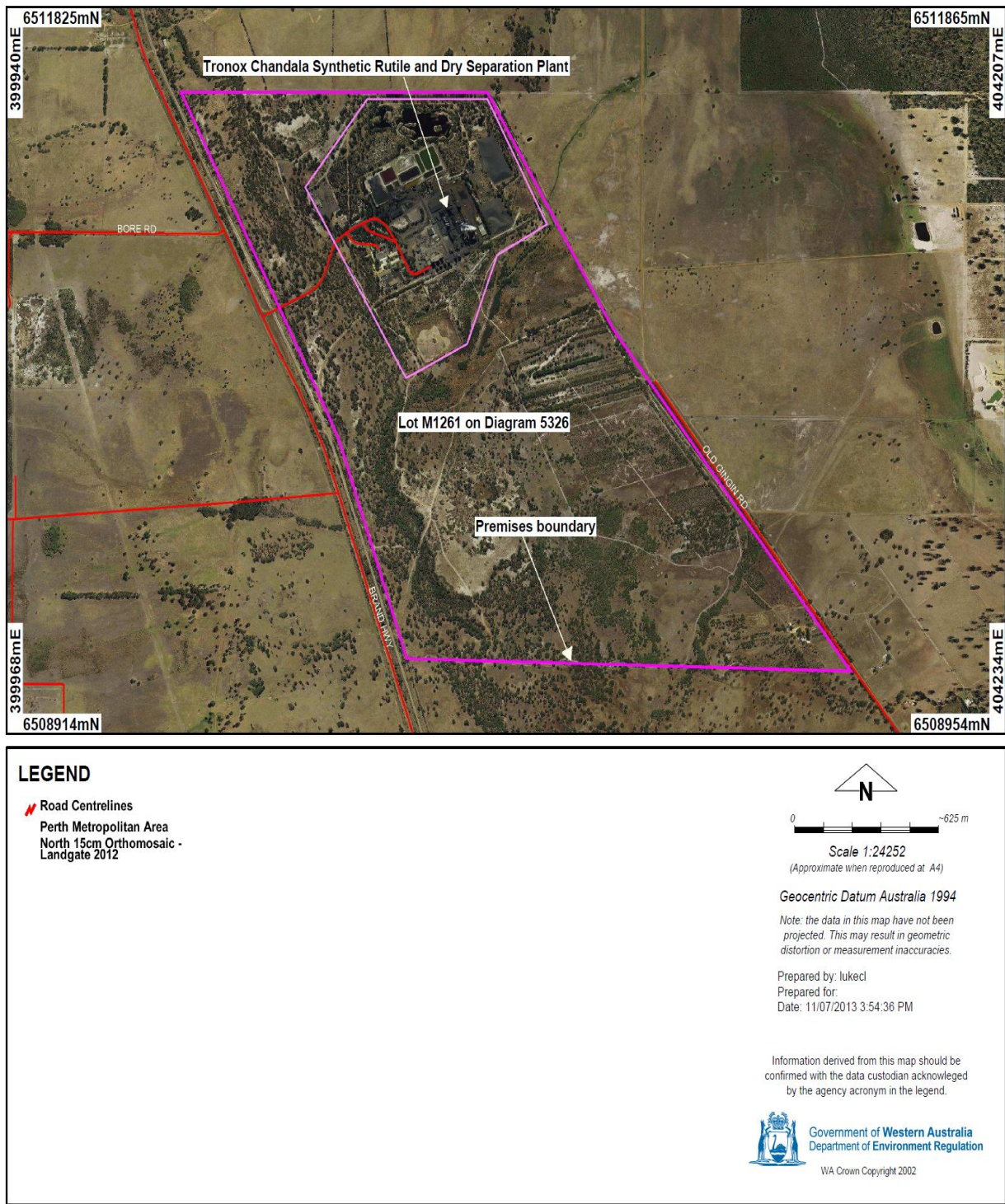


Figure 1: Premises Map

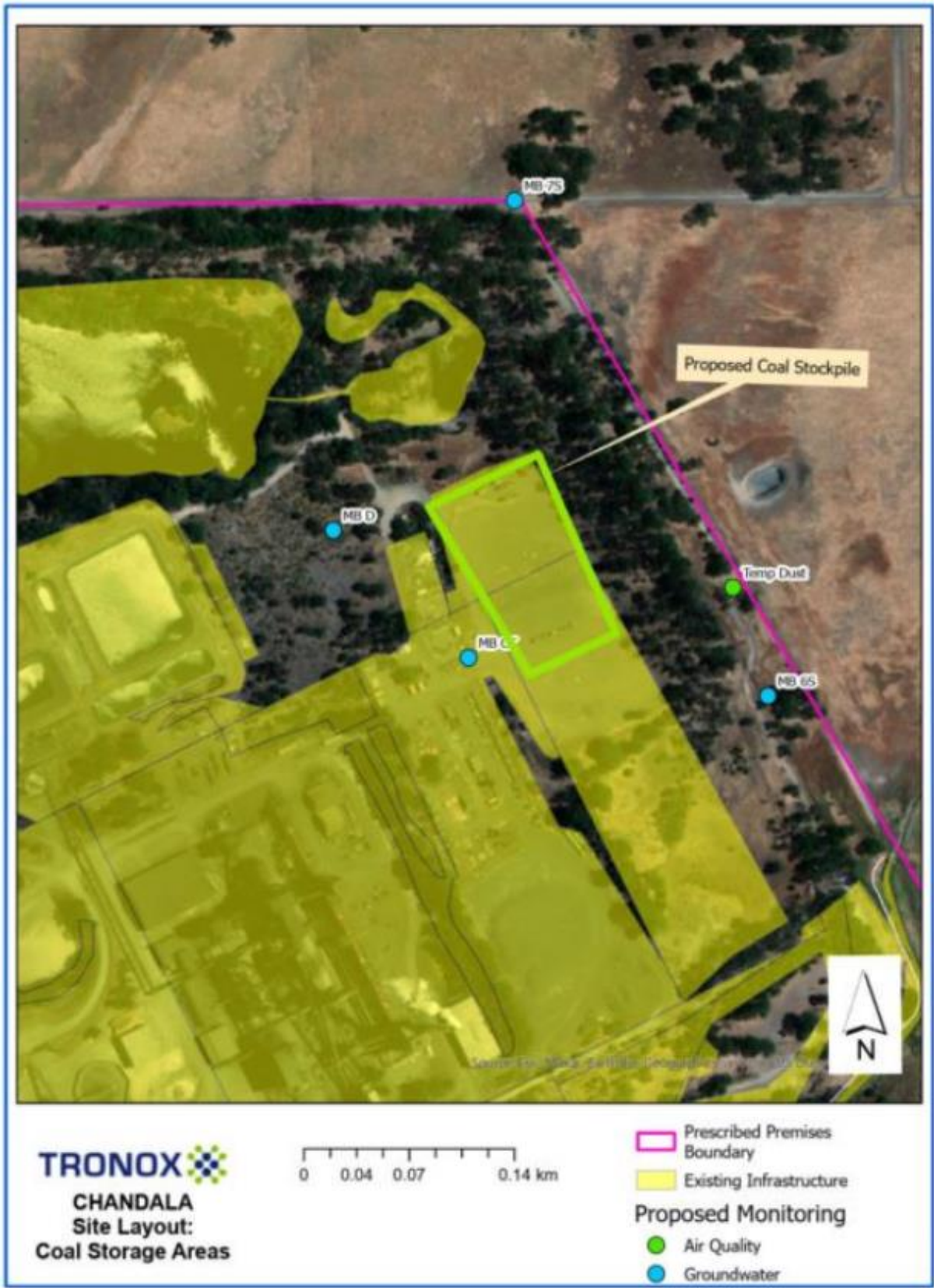


Figure 2: Temporary Coal Stockpile and Monitoring Locations

Schedule 2: Plans

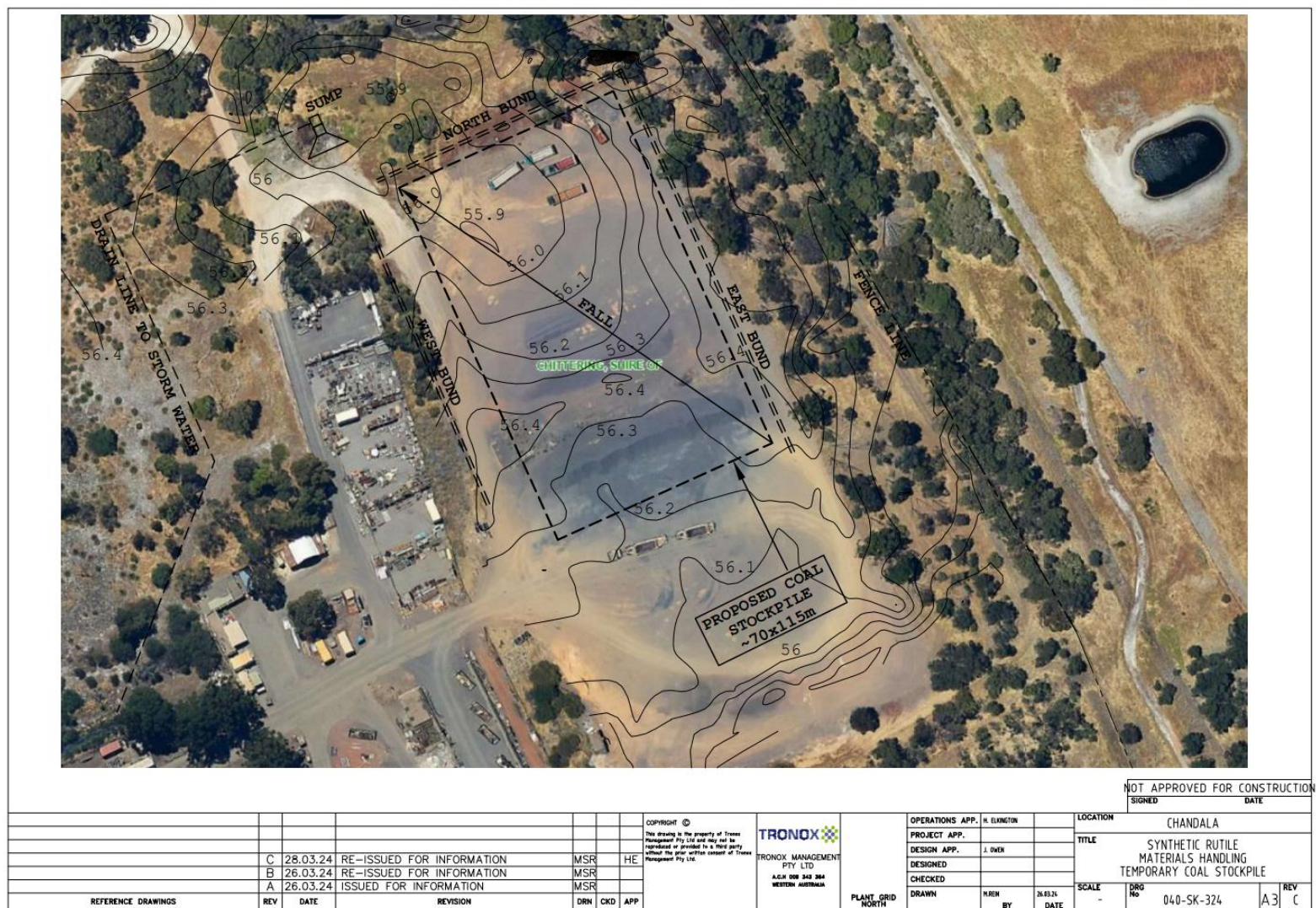


Figure 3: Temporary Coal Stockpile Drainage Plan