



<b>Licence number</b>	L6217/1983/15
<b>Licence holder</b>	Alcoa of Australia Limited
<b>ACN</b>	004 879 298
<b>Registered business address</b>	Level 2, 235 St Georges Terrace PERTH WA 6000
<b>DWER file number</b>	2012/007237-7
<b>Duration</b>	13/11/2013 to 12/10/2035
<b>Date of issue</b>	08/11/2013
<b>Date of amendment</b>	13/03/2026
<b>Premises details</b>	Wagerup Alumina Refinery 184 Willowdale Road WAGERUP WA 6215 Legal description – is shown in the table in Schedule 2 and the premises map in Schedule 1.

<b>Prescribed premises category description (Schedule 1 of the Environmental Protection Regulations 1987)</b>	<b>Assessed production capacity</b>
Category 46 Bauxite refining: premises (other than premises within paragraph (b) of category 5) on which alumina is produced from bauxite refining.	Not more than 2.9 million tonnes of alumina produced per annual period
Category 52 Electric power generation: premises (other than premises within category 53 or an emergency or standby power generating plant) on which electrical power is generated using a fuel.	Not more than 108 MW of power generated using natural gas per annual period
Category 64 Class II or III putrescible landfill site: premises (other than clean fill premises) on which waste of a type permitted for disposal for this category of prescribed premises, in accordance with the Landfill Waste Classification and Waste Definitions 1996, is accepted for burial.	Not more than 5,000 tonnes of waste disposed to Class II landfill per annual period
Category 67 Fuel burning: premises on which gaseous, liquid or solid fuel is burnt in a boiler for the supply of steam or in power generation equipment.	Not more than 65,000 kg of fuel burnt per hour

This licence is granted to the licence holder, subject to the attached conditions, on 13 March 2026, by:

**Amine Fisher**  
**Senior Manager, Heavy Industries**  
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

## Licence history

Date	Reference number	Summary of changes
30/10/2015	L6217/1983/15	Amended licence – Increase in alumina production capacity to 2.85 Mtpa.
29/04/2016	L6217/1983/15	Notice of amendment – Licence expiry date extended to 12 October 2035.
26/07/2019	L6217/1983/15	Amendment Notice 1 – construction and operation of an emergency spillway on runoff water storage (ROWS) pond.
10/11/2020	L6217/1983/15	Amended licence – Increase in alumina production capacity to 2.9 Mtpa, operational changes to causticisation and cooling towers, changes to aggregate calciner priority VOC limits, consolidation of previous amendments and administrative updates.
13/03/2026	L6217/1983/15	CEO initiated licence review (Stage 1) – changes to fugitive dust and mercury emission conditions; and licence updated to current format which includes administrative and reporting condition updates.

## 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

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

### Infrastructure and equipment

- The licence holder must ensure that the site infrastructure and equipment listed in Table 1 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement(s) set out in Table 1.

**Table 1: Infrastructure and equipment requirements**

Site infrastructure and equipment	Operational requirements	Infrastructure location
<b>Refinery and Bauxite storage and handling</b>		
1. Bauxite storage and handling area <ul style="list-style-type: none"> <li>Bauxite stockpiles</li> <li>Stockpile conveyor</li> <li>Stacker</li> <li>Reclaimer</li> <li>Milling</li> </ul>	(a) Perform a visual inspection of the bauxite storage and handling area at least every 12 hours for the purpose of identifying potential dust sources and assessing adequacy of dust control measures. (b) Implement a weather forecasting system that is capable of forecasting daily, 3-day and weekly weather conditions that includes wind speed and wind direction. (c) Based on the weather forecasting system in part (b) of this row determine a daily dust risk rating based on predicted wind speed and direction. (d) From October to April inclusive, perform visual inspections of the bauxite storage and handling area, at a minimum of every two hours, where a moderate, high or extreme daily dust risk rating has been determined as per part (c) of this row. (e) From October to April inclusive, a water truck with cannon must be available for dust suppression purposes where a moderate, high and extreme daily dust risk rating, has been determined per part (c) of this row. (f) If a visual inspection, as per part (d) of this row, detects dust lift off, dust suppression activities, including the use of a water truck with cannon, must commence. (g) Where present, covers must be in place when conveyors are in operation. (h) Where present, sprinklers must be operated when conveyors are in operation.	Labelled as "Bauxite Storage & Handling" in Schedule 1, Figure 2.
2. Digestion <ul style="list-style-type: none"> <li>Digester tanks</li> <li>Flash tanks</li> <li>Blow-off tanks</li> <li>Vapour condensers</li> <li>Polysulphide dosing system</li> </ul>	(a) Gases and vapour emitted from the digesters and flash tanks must pass through a condenser (unless the condenser is under maintenance). (b) Condensate extracted by the condenser, as specified in part (a) of this row, must be: <ol style="list-style-type: none"> <li>directed to the lower dam for oxidation; and/or</li> <li>directed to the Lakewater circuit at the premises; and/or</li> <li>used as process waters at the premises.</li> </ol> (c) Gases and vapour not extracted by the condenser, as specified in part (a) of this row, must be directed to the air feed of the boilers within the Powerhouse Boilers for incineration, unless maintenance is being undertaken on the air feed line to boilers. (d) Must operate a polysulfide dosing system (except when offline for maintenance) on the non-condensable gas stream for the control of mercury emissions and direct any subsequent condensate to the mercury treatment facility.	Labelled as "Digestion" in Schedule 1, Figure 2. Lower dam labelled as "Lower Dam" in Schedule 1, Figure 2.

Site infrastructure and equipment		Operational requirements	Infrastructure location
3.	<p>Thickening</p> <ul style="list-style-type: none"> <li>• Mud thickener and relay tanks</li> <li>• Clarification tanks</li> <li>• Causticisation tanks J13, J14, J15, J24 and J25</li> <li>• Filtration tanks</li> </ul>	(a) Must not operate more than three of the following causticisation tanks at any one time: J13, J14, J15, J24 and J25.	Labelled as "Thickening" in Schedule 1, Figure 2.
4.	<p>Evaporation</p> <ul style="list-style-type: none"> <li>• Vapour condensers</li> <li>• Flash tanks</li> <li>• Condensate tanks</li> <li>• Polysulphide dosing system</li> </ul>	(a) Must operate a polysulfide dosing system (except when offline for maintenance) on the non-condensable gas stream for the control of mercury emissions and direct any subsequent condensate to the mercury treatment facility.	Labelled as "Evaporation" in Schedule 1, Figure 2.
5.	<p>Mercury treatment facility</p> <ul style="list-style-type: none"> <li>• Copper sulphate dosing system</li> <li>• Associated storage tanks</li> </ul>	(a) Must be operated (except when offline for maintenance) for the conversion of dissolved mercury into a stable solid form prior to discharge to the residue storage area.	Labelled as "Mercury Treatment Facility" in Schedule 1, Figure 2.
6.	<p>Precipitation</p> <ul style="list-style-type: none"> <li>• Precipitation cooling towers</li> </ul>	(a) Make-up water for the precipitation cooling towers must be supplied from the Upper Dam water supply for a minimum period of 141 hours between 1 May and 30 September each annual period.	Labelled as "Precipitation" in Schedule 1, Figure 2. Upper Dam labelled as "Upper Dam" in Schedule 1, Figure 2.
7.	<p>Oxalate Removal</p> <ul style="list-style-type: none"> <li>• Gas-fired rotary kiln</li> <li>• Oxalate bioremoval facility</li> <li>• Oxalate storage tanks</li> <li>• Mercury control system consisting of:                             <ul style="list-style-type: none"> <li>○ polysulfide dosing system</li> <li>○ vapour condensers</li> <li>○ condensate treatment system</li> </ul> </li> <li>• Wet scrubber</li> <li>• Regenerative thermal oxidiser (RTO)</li> </ul>	<p>(a) Feed to the oxalate kiln must immediately cease if during operation of the oxalate kiln:</p> <ul style="list-style-type: none"> <li>(i) the temperature in the oxalate kiln RTO combustion zone falls below 750°C for more than 60 consecutive minutes; or</li> <li>(ii) the CO in the oxalate kiln RTO stack exceeds 100 ppm for more than 60 consecutive minutes; or</li> <li>(iii) the PM in the oxalate kiln RTO stack exceeds 30 mg/m<sup>3</sup> for more than 60 consecutive minutes;</li> </ul> <p>when monitored in accordance with condition 15.</p> <p>(b) The licence holder is exempt from complying with part (a) of this row during oxalate kiln start-up and oxalate kiln shut-down if the licence holder takes all practicable measures to minimise the discharge of PM and CO into the environment.</p> <p>(c) Feed to the oxalate kiln must immediately cease if:</p> <ul style="list-style-type: none"> <li>(i) the oxalate polysulfide dosing pump is offline for more than 72 consecutive hours during operation of the oxalate kiln; or</li> <li>(ii) the RTO has been bypassed for more than 10 consecutive minutes; or</li> <li>(iii) the wet scrubber has completely failed for more than 10 consecutive minutes.</li> </ul> <p>(d) Where feed has ceased to the oxalate kiln in accordance with part (a) or (c) of this row the licence holder must not recommence feed to the oxalate kiln until the cause of any cease of feed has been identified and rectified.</p> <p>(e) Oxalate separated from the process stream that is to be</p>	Labelled as "Oxalate Removal" in Schedule 1, Figure 2.

Site infrastructure and equipment	Operational requirements	Infrastructure location
	<p>stored on the premises must be directed to the oxalate storage ponds.</p> <p>(f) Must operate a polysulfide dosing system on the oxalate seed stream that feeds the oxalate crystalliser for the control of mercury emissions from the oxalate kiln.</p>	
<p>8. Liquor Burning Facility (LBF)</p> <ul style="list-style-type: none"> <li>• Gas-fired rotary kiln</li> <li>• Four stage electrostatic precipitator (ESP)</li> <li>• Quench duct</li> <li>• Dehumidifier</li> <li>• RTO</li> </ul>	<p>(a) Feed to the LBF kiln must immediately cease if during operation of the LBF kiln:</p> <ul style="list-style-type: none"> <li>(i) the temperature in the LBF RTO combustion zone falls below 750°C for more than 60 consecutive minutes; or</li> <li>(ii) the CO in the LBF RTO outlet ducting exceeds 100 ppm for more than 60 consecutive minutes; or</li> <li>(iii) the PM in the LBF exhaust stack exceeds 30 mg/m<sup>3</sup> for more than 60 consecutive minutes;</li> </ul> <p>when monitored in accordance with condition 15.</p> <p>(b) The licence holder is exempt from complying with part (a) of this row during:</p> <ul style="list-style-type: none"> <li>(i) LBF start-up and LBF shut-down if the licence holder takes all practicable measures to minimise the discharge of PM and CO into the environment; or</li> <li>(ii) complete failure of the LBF ESP subject to part (c)(i) and (c)(ii) of this row.</li> </ul> <p>(c) Feed to the LBF kiln must immediately cease if:</p> <ul style="list-style-type: none"> <li>(i) a complete failure of the LBF ESP has not been at least partially rectified within 10 minutes; or</li> <li>(ii) subject to part (c)(i) of this row, a complete failure of the LBF ESP has not been fully restored within 60 minutes; or</li> <li>(iii) the RTO has been bypassed for more than 10 consecutive minutes.</li> </ul> <p>(d) Where feed has ceased to the LBF kiln in accordance with part (a) or (c) of this row the licence holder must not recommence feed to the LBF kiln until the cause of any cease of feed has been identified and rectified.</p>	<p>Labelled as “Liquor Burner Facility” in Schedule 1, Figure 2.</p>
<p>9. Calcination</p> <ul style="list-style-type: none"> <li>• Calciner 1</li> <li>• Calciner 2</li> <li>• Calciner 3</li> <li>• Calciner 4</li> <li>• Cooling Towers</li> <li>• ESP on each calciner</li> </ul>	<p>(a) Feed to a calciner must immediately cease if:</p> <ul style="list-style-type: none"> <li>(i) CEMS monitoring, undertaken in accordance with condition 15, records a PM result of &gt;80 mg/m<sup>3</sup> for a continuous period exceeding 60 minutes for that calciner; or</li> <li>(ii) a partial failure of that calciner ESP has not been fully restored within 60 minutes; or</li> <li>(iii) a complete failure of that calciner ESP has not been at least partially rectified within 10 minutes; or</li> <li>(iv) subject to part (a)(iii) of this row, a complete failure of that calciner ESP has not been fully restored within 60 minutes.</li> </ul> <p>(b) Where feed has ceased to a calciner in accordance with part (a) of this row the licence holder must not recommence feed to that calciner until the cause of any cease of feed to that calciner has been identified and rectified.</p>	<p>Labelled as “Calcination” in Schedule 1, Figure 2.</p>
<p>10. Alumina storage and loading</p>	<p>(a) Rail carriages and loading area must be inspected and any spilt alumina removed prior to each train leaving the premises.</p>	<p>Labelled as “Storage / Loading” in Schedule 1, Figure 2.</p>

Site infrastructure and equipment		Operational requirements	Infrastructure location
11.	<p>Powerhouse Boilers</p> <ul style="list-style-type: none"> <li>• Three natural gas fired boilers (Boilers 1, 2 and 3)</li> <li>• Gas Turbine/Heat Recovery Steam Generator</li> <li>• Cooling tower</li> </ul>	(a) No specified requirements.	Labelled as "Powerhouse Boilers" in Schedule 1, Figure 2.
<b>Residue Management Area</b>			
12.	Whole of Residue Management Area	(a) Must maintain the water catchment and containment systems to prevent the release of contaminated water to the environment other than as authorised in accordance with condition 7.	Encompassing all infrastructure as shown in Schedule 1, Figure 3.
13.	<p>Residue Storage Area (RSA):</p> <ul style="list-style-type: none"> <li>• RSA2</li> <li>• RSA3</li> <li>• RSA4</li> <li>• RSA5</li> <li>• RSA6</li> <li>• RSA7</li> <li>• RSA8</li> <li>• RSA9</li> <li>• Roadways, embankments and drainage systems</li> </ul>	<p>(a) Must maintain RSAs base and embankment seals with a permeability of <math>1 \times 10^{-9}</math> to minimise seepage.</p> <p>(b) Must maintain RSAs gravity base underdrain systems for collection and removal of residue leachate.</p> <p>(c) Perform a visual inspection of the RSAs at least once per day for the purpose of identifying potential dust sources and assessing adequacy of dust control measures.</p> <p>(d) Implement a weather forecasting system that is capable of forecasting daily, 3-day and weekly weather conditions that includes wind speed and wind direction.</p> <p>(e) Based on the weather forecasting system in part (d) of this row determine a daily dust risk rating based on predicted wind speed and direction.</p> <p>(f) Implement dust control measures, which may include sprinkler use, water truck use and additional visual inspections, for moderate, high and extreme daily dust risk rating, as determined as per part (e) of this row.</p> <p>(g) Implement a system to track the age of mud deposited in each RSA.</p> <p>(h) Develop a dust management plan for:</p> <ul style="list-style-type: none"> <li>(i) mechanical works greater than 1 ha;</li> <li>(ii) RSAs that have not had fresh mud poured for 6 months or more;</li> <li>(iii) any work resulting in an open area of more than 0.1 ha (1,000 m<sup>2</sup>);</li> <li>(iv) landfill areas;</li> <li>(v) isolation or modification of sprinkler systems; and</li> <li>(vi) sand / spoil / fill stockpiles.</li> </ul> <p>(i) Sufficient dust control equipment, such as a water truck, must be available for dust suppression purposes to meet the requirements of any dust management plan, developed as per part (h) of this row.</p> <p>(j) Maintain and operate a sprinkler system that:</p> <ul style="list-style-type: none"> <li>(i) has at least 95% availability of sprinklers; and</li> <li>(ii) is able to cover at least 80% of the mud drying areas;</li> </ul> <p>for moderate, high and extreme daily dust risk rating as determined as per part (e) of this row.</p> <p>(k) Surface treatment class of all residue soils and surfaces, other than active mud deposition areas that have fixed sprinklers, to be measured weekly by survey.</p> <p>(l) No more than 5 ha of surfaces, excluding active mud deposition areas and areas subject to a dust</p>	Labelled as "RSA2", "RSA3", "RSA4", "RSA5", "RSA6", "RSA7", "RSA8" and "RSA9" in Schedule 1, Figure 3.

Site infrastructure and equipment		Operational requirements	Infrastructure location
		management plan as per part (h) of this row, with no surface treatment for Type A or Type B soil.	
14.	Oxalate ponds: <ul style="list-style-type: none"> <li>• Oxalate pond 1</li> <li>• Oxalate pond 2</li> <li>• Oxalate pond 3</li> </ul>	(a) Oxalate must be in a moist state when discharged into the oxalate storage pond(s). (b) Oxalate must be kept moist or maintained underwater or beneath a full surface cover that ensures dust is not generated from oxalate storage and does not impinge on the ability to fully recover the oxalate.	Labelled as "Oxalate Pond 1", "Oxalate Pond 2" and "Oxalate Pond 3" in Schedule 1, Figure 3.
15.	Run-off Water Storage (ROWS) Pond and Spillway	(a) Must maintain a composite lining system to minimise seepage of contaminated water.	Labelled as "ROWS Pond" and "ROWS Pond Spillway" in Schedule 1, Figure 3.
16.	Run-off collection ponds (ROCP): <ul style="list-style-type: none"> <li>• ROCP 2</li> <li>• ROCP 3</li> </ul>	(a) Must maintain a synthetic lining system to minimise seepage of contaminated water.	Labelled as "ROCP2" and "ROCP3" in Schedule 1, Figure 3.
17.	Cooling Pond	(a) Must maintain a synthetic lining system to minimise seepage of contaminated water.	Labelled as "Cooling Pond" in Schedule 1, Figure 3.
18.	Spent Liquor Pond	(a) Must maintain a synthetic lining system to minimise seepage of contaminated water.	Labelled as "Spent Liquor Pond" in Schedule 1, Figure 3.
19.	Landfill	(a) Must only dispose of the following waste types: <ul style="list-style-type: none"> <li>(i) inert waste type 1;</li> <li>(ii) uncontaminated fill;</li> <li>(iii) neutralised acid sulfate soil;</li> <li>(iv) putrescible wastes;</li> <li>(v) hydrocarbon contaminated waste.</li> </ul> (b) Must not dispose of the following waste types: <ul style="list-style-type: none"> <li>(i) elemental mercury collected as a waste stream;</li> <li>(ii) special waste type 1;</li> <li>(iii) packaged laboratory chemical waste;</li> <li>(iv) clinical waste.</li> </ul> (c) Waste must be placed in a defined trench or within an area enclosed by earthen bunds. (d) Waste must be covered with clean fill, residue or sand (or similar material) on a weekly basis. (e) Must ensure that no waste is burnt on the premises.	Labelled as "Landfill (Class II)" in Schedule 1, Figure 3.

## General

2. The licence holder must ensure the following limits on alumina production, measured by weightometer as alumina leaves the calciner, are not exceeded:
  - (a) 8,400 tonnes per 24-hour period; and
  - (b) 2.9 million tonnes in each annual period.

## Emissions and discharges

### Point source discharges to air

3. The licence holder must ensure that the emissions specified in Table 2, are discharged only from the corresponding discharge point and only at the corresponding discharge point location.

**Table 2: Authorised discharge points**

Emission	Discharge point	Discharge point location – ID# as per Schedule 1, Figure 4
NO <sub>x</sub> , CO, SO <sub>2</sub> , PM, NH <sub>4</sub> and VOCs	LBF stack	6
	Calciner 1 stack	
	Calciner 2 stack	
	Calciner 3 stack	
	Calciner 4 stack	1
NO <sub>x</sub> , CO, SO <sub>2</sub> , PM and VOCs	Oxalate kiln Regenerative Thermal Oxidiser (RTO) stack	7
NO <sub>x</sub> , CO, SO <sub>2</sub> , NH <sub>4</sub> and VOCs	Boiler 1 stack	18
	Boiler 2 stack	
	Boiler 3 stack	
NO <sub>x</sub> , CO and SO <sub>2</sub>	GT/HRSG stack	17
VOCs	45K Cooling Tower 1 vent	2
	45K Cooling Tower 2 vent	4
	45K Cooling Tower 3 vent	3
	50 Cooling Tower 1 vent	36
	50 Cooling Tower 2 vent	
	45 Precipitators	29
	50 Pan Filter Exhaust	5
	44-1 Main stack	27
	44-1 Low Volume Vent 1	37
	44-1 Low Volume Vent 2	
	44-2 Main stack	28
	44-2 Low Volume Vent	38
	Calciner 4 Low Volume Vent	30
	Calciner 4 Extraction Hoods stack	35
	48A Slurry Mixing Tank vent	31
NO <sub>x</sub> and VOCs	Calciner 1-3 Low Volume Vent	6
PM, NH <sub>4</sub> and VOCs	Mill 3 Milling vent	22
	Mill 4 Milling vent	21
	Mill 5 Milling vent	20
	35J-11 Tank vents	11
	35J-12 Tank vents	12
	35J-13 Tank vents	10

Emission	Discharge point	Discharge point location – ID# as per Schedule 1, Figure 4
	35J-14 Tank vents	13
	35J-15 Tank vents	9
	35J-24 Tank vents	14
	35J-25 Tank vents	34
NH <sub>4</sub> and VOCs	25A-1 Tank vent 1	24
	25A-1 Tank vent 2	
	25A-2 Tank vents	25
	25A-3 Tank vent 1	23
	25A-3 Tank vent 2	
	25A-4 Tank vents	26
	30-1 Blow-off tank vent	33
	30-2 Blow-off tank vent	32
	Oxalate Filter Press Building stack	8
	B26 stacks	19
	35A-1 Tank vents	16
	35A-2 Tank vents	15

4. The licence holder must ensure that emissions from the discharge points listed in Table 3 for the corresponding parameter(s) do not exceed the corresponding limit(s) when monitored in accordance with condition 15 or calculated in accordance with condition 5.

**Table 3: Point source discharge to air limits**

Discharge point	Parameter	Limit (mg/m <sup>3</sup> unless specified)
Calciner 1, Calciner 2, Calciner 3, Calciner 4 <i>Labelled as ID# 6 and 1 in Schedule 1, Figure 4</i>	PM	80 <sup>1,2</sup>
	NO <sub>x</sub>	350 <sup>1</sup>
Calciner 1, Calciner 2, Calciner 3, Calciner 4, Calciner 1-3 Low volume vents (LVV) <i>Labelled as ID# 6 and 1 in Schedule 1, Figure 4</i>	VOC	30,017 kg / annual period (aggregate calciner priority VOC emissions as calculated in accordance with condition 5)
Liquor Burning Facility (LBF) <i>Labelled as ID# 6 in Schedule 1, Figure 4</i>	PM	80 <sup>1,2</sup>
	CO	1000 <sup>1,2</sup>
	NO <sub>x</sub>	350 <sup>1</sup>
Boilers 1-3 when fired on gas (average over boilers) <i>Labelled as ID# 18 in Schedule 1, Figure 4</i>	NO <sub>x</sub>	350 <sup>1</sup> (average of all three boilers)

Note 1: expressed as 0°C and 1 atmosphere (101.325 kPa)

Note 2: the addition of diluting gases must not be used to achieve compliance with emission limit(s)

5. The licence holder must calculate aggregate calciner priority VOC emissions by summing the daily calciner priority VOC emissions from each of calciner 1, 2, 3 and 4, and from the low volume vents then multiplying the sum by the relevant number of days for the annual period. Individual calciner and low volume vent VOC emissions are calculated in accordance with daily calciner priority VOC emissions in Table 4

**Table 4: Daily calciner priority VOC emissions calculation**

Calciner (Labelled as specified ID# in Schedule 1, Figure 4)	Average priority VOC emissions in g/tonne of daily throughput <sup>1</sup>	Daily calciner priority VOC emissions
Calciner 1 (ID# 6)	13.35	Calciner 1 ADT <sup>2</sup> multiplied by 13.35
Calciner 2 (ID# 6)	12.73	Calciner 2 ADT <sup>2</sup> multiplied by 12.73
Calciner 3 (ID# 6)	9.49	Calciner 3 ADT <sup>2</sup> multiplied by 9.49
Calciner 4 (ID# 1)	7.3	Calciner 4 ADT <sup>2</sup> multiplied by 7.3
Calciner 1-3 Low volume vents (ID# 6)	0.28	Low volume vents ADT <sup>2</sup> multiplied by 0.28

Note 1: Based on NATA accredited analysis of point source discharges to air monitoring as per condition 15.

Note 2: ADT is average daily throughput of alumina for each calciner as applicable.

6. The licence holder is exempt from compliance with condition 4 for the discharge points in Table 5 during the corresponding event(s) for the corresponding parameter(s) if the licence holder’s response is in accordance with the corresponding action(s) to be taken.

**Table 5: Calciner discharge to air limit exemption events**

	Discharge point	Event	Parameter	Action(s) to be taken
1.	Calciner 1 Calciner 2	Start-up	PM	All practicable measures to minimise the discharge of PM into the environment. <sup>1</sup>
2.	Calciner 3 Calciner 4	Shut-down	PM	All practicable measures to minimise the discharge of PM into the environment. <sup>2</sup>
3.	Labelled as ID# 6 and 1 in Schedule 1, Figure 4	Partial failure of ESP continuing for more than 60 minutes	PM	As specified in condition 1, Table 1, row 9, (a)(ii) and (b).
4.		Complete failure of ESP	PM	As specified in condition 1, Table 1, row 9, (a)(iii), (a)(iv) and (b).
5.		Dust concentration meter correlation	PM	Prior notification to the CEO on each and every occasion correlation is to be undertaken.
6.		Normal operation	PM	As specified in condition 1, Table 1, row 9, (a)(i) and (b).

Note 1: AS3814-2009: Industrial and commercial gas-fired appliances, requires that ESPs and associated vessels be purged with at least 5 air changes before starting any combustion process associated with an ESP as a safety requirement to avoid potential explosion caused by sparking within the ESP.

Note 2: When shutting calciners down, the efficiency of the ESP is reduced due to unstable operating conditions caused by the reduction of the gas/products and air flows.

**Water discharges**

7. The licence holder must ensure that the emissions specified in Table 6, are discharged only from the corresponding discharge point and only at the corresponding discharge point location, in accordance with the corresponding specified requirements.

**Table 6: Authorised discharge point**

Emissions	Discharge point	Specified requirements	Discharge point location
Process water and potentially contaminated stormwater from the ROWS pond	ROWS pond spillway	(a) Must only be discharged as a result of a Wet Winter. (b) No discharge may occur from 15 December to 30 April in the following year (inclusive).	Labelled as “ROWS Pond Spillway” in Schedule 1, Figure 3.

## Waste acceptance

8. The licence holder must only accept onto the premises waste of a type that:
- does not exceed the rate at which that waste is received; and
  - meets the relevant acceptance specification, as set out in Table 7.

**Table 7: Waste acceptance criteria**

Waste type	Rate at which waste is received	Acceptance criteria
Inert waste type 1	Not more than 5,000 tonnes per annual period	(a) Must meet the acceptance criteria for Class II landfills, as specified in the <i>Landfill Waste Classification and Waste Definitions 1996</i> . (b) Waste must only be accepted from the following premises: (i) Willowdale Minesite; (ii) Bunbury Rail Terminal and Port Loading Facility; (iii) Alinta Corporation Wagerup Cogeneration Plant. (c) Waste accepted onto the premises must be disposed at the Landfill (Class II) identified within Schedule 1, Figure 3.
Uncontaminated fill		
Neutralised acid sulfate soil		
Putrescible wastes		
Hydrocarbon contaminated wastes		
Wastes generated from alumina production and associated activities, which may include: <ul style="list-style-type: none"> <li>Bauxite residue</li> <li>Oxalate</li> <li>Waste bauxite, alumina and hydrate</li> <li>Scale (any solid material from process circuits or tanks that contain caustic)</li> </ul>	N/A	(a) Waste must only be accepted from the following premises: (i) Willowdale Minesite; (ii) Bunbury Rail Terminal and Port Loading Facility. (b) Waste accepted onto the premises must be disposed at the Landfill (Process Waste) identified within Schedule 1, Figure 3.

9. The licence holder must record the total amount of waste accepted onto the premises, for the waste type listed in Table 8 in the corresponding unit, and for the corresponding period, as set out in Table 8.

**Table 8: Waste accepted onto the premises**

Waste type	Unit	Time period
Combined total of all waste types as set out in Table 7 accepted for disposal at the Landfill (Class II)	tonnes	Each load accepted at the premises
Waste generated from alumina production and associated activities as set out in Table 7 accepted for disposal at the Landfill (Process Waste)	tonnes	Each load accepted at the premises

## Monitoring

### General

10. The licence holder must ensure that all monitoring equipment used to comply with conditions 15, 20, 21, 26, 28 and 30 is operated and calibrated in accordance with the manufacturer's specifications.
11. The licence holder must ensure that all monitoring equipment used to undertake continuous emission monitoring in accordance with condition 15 is operated and calibrated in accordance with Section 2 of the CEMS Code, and is maintained so as to

Department of Water and Environmental Regulation

provide valid data for greater than 90% of the measurement intervals in every calendar month.

12. The licence holder must ensure that all monitoring equipment used to comply with conditions 20, 21 and 29 is operated in accordance with the relevant required method(s), and is maintained so as to provide valid data for greater than 90% of the measurement intervals in every calendar month.
13. The licence holder must ensure that the flow metering device used to comply with condition 26 is operated and calibrated in accordance with the relevant required method(s), and is maintained so as to provide valid data for greater than 90% of the total time when the stream is flowing in every annual period.
14. The licence holder must ensure that:
  - (a) monitoring is undertaken in each monthly period such that there are at least 15 days in between the days on which samples are taken in successive months;
  - (b) monitoring is undertaken in each quarterly period such that there are at least 45 days in between the days on which samples are taken in successive quarters; and
  - (c) monitoring is undertaken in each six-monthly period such that there are at least 5 months in between the days on which samples are taken in successive periods of six months.
  - (d) monitoring is undertaken in each annual period such that there are at least 9 months in between the days on which samples are taken in successive years.

**Monitoring of point source discharges to air**

15. The licence holder must monitor emissions:
  - (a) from each discharge point;
  - (b) at the corresponding monitoring location;
  - (c) for the corresponding parameter;
  - (d) at the corresponding frequency;
  - (e) for the corresponding averaging period;
  - (f) in the corresponding unit; and
  - (g) using the corresponding method;
 as set out in Table 9.

**Table 9: Monitoring of point source discharges to air**

Discharge point and monitoring location	Parameter	Unit <sup>1</sup>	Frequency	Averaging period	Method(s)	Response criteria
1. Calciner 1 Calciner 2 Calciner 3 Calciner 4	PM	Optical density converted to mg/m <sup>3</sup> and g/s	Continuous	60-minutes	CEMS	N/A
<i>Labelled as ID# 6 and ID# 1 in Schedule 1, Figure 4</i>	PM	mg/m <sup>3</sup>	Quarterly	60-minutes	USEPA Method 5 or 17	N/A
	NO <sub>x</sub>			30-minutes	USEPA Method 7E	
	SO <sub>2</sub>				USEPA Method 6C	
	CO			As per method	USEPA Method 10	
	Acetaldehyde			60-minutes	USEPA MMT05 or USEPA SW-846 Method 0011 <sup>3</sup>	
	Acetone					
	2-butanone					
	Formaldehyde					
Benzene		30-minutes	USEPA Method 18 (adsorption tube)			

Department of Water and Environmental Regulation

Discharge point and monitoring location		Parameter	Unit <sup>1</sup>	Frequency	Averaging period	Method(s)	Response criteria
		Odour concentration	Odour units (OU)		N/A	AS/NZS 4323.3	
		Volumetric flow rate	m <sup>3</sup> /min		As per method	USEPA Method 2	
		Velocity	m/sec				
		Gas flow rate	m <sup>3</sup> /min	Continuous when operating	24-hour	N/A	
		Calciner furnace temperature	°C				
2.	Calciner 1-3 Low Volume Vent (LVV) Stack (sampled at downstream port)  <i>Labelled as ID# 6 in Schedule 1, Figure 4</i>	NO <sub>x</sub>	mg/m <sup>3</sup>	Quarterly	30-minutes	USEPA Method 7E	N/A
		SO <sub>2</sub>				USEPA Method 6C	
		CO			As per method	USEPA Method 10	
		Acetaldehyde			60-minutes	USEPA MMT05 or USEPA SW-846 Method 0011 (anisokinetic) <sup>3</sup>	
		Acetone					
		2-butanone					
		Formaldehyde					
		Benzene			30-minutes	USEPA Method 18 (adsorption tube)	
		Odour concentration	Odour units (OU)		N/A	AS 4323.3	
3.	Calciner 1-3 LVV (sampled at upstream port)  <i>Labelled as ID# 6 in Schedule 1, Figure 4</i>	Volumetric flow rate	m <sup>3</sup> /min	Quarterly	As per method	USEPA Method 2	N/A
4.	Liquor Burning Facility (LBF) stack  <i>Labelled as ID# 6 in Schedule 1, Figure 4</i>	PM	Optical density converted to mg/m <sup>3</sup> and g/s	Continuous	60-minutes	CEMS	>30 mg/m <sup>3</sup> <sup>4</sup>
		PM	mg/m <sup>3</sup>	Quarterly	60-minutes	USEPA Method 5 or 17	N/A
		CO				As per method	
		NO <sub>x</sub>			60-minutes	USEPA Method 7E	
		SO <sub>2</sub>				USEPA Method 6C	
		Acetaldehyde				USEPA MMT05 or USEPA SW-846 Method 0011 <sup>3</sup>	
		Acetone					
		2-butanone			30-minutes	USEPA Method 18 (adsorption tube)	
		Formaldehyde					
		Benzene			N/A	AS/NZS 4323.3	
		Odour concentration			Odour units (OU)		
		Temperature	°C		As per method		
		Velocity	m/sec		As per method		
		Volumetric flow rate	m <sup>3</sup> /min				
		Dryer feed rate	m <sup>3</sup> /hr	Continuous when operating	24-hour	N/A	
		Kiln pressure	kPa				
		Dehumidifier pressure drop	kPa				

Department of Water and Environmental Regulation

Discharge point and monitoring location	Parameter	Unit <sup>1</sup>	Frequency	Averaging period	Method(s)	Response criteria
5. LBF Regenerative Thermal Oxidiser (RTO)  <i>Labelled as ID# 6 in Schedule 1, Figure 4</i>	CO ( <i>measured in the outlet ducting</i> )	mg/m <sup>3</sup>	Continuous	60-minutes	CEMS	>100 ppm <sup>4</sup>
	Temperature ( <i>measured in the combustion zone</i> )	°C				<750°C <sup>4</sup>
6. Oxalate Kiln RTO stack  <i>Labelled as ID# 7 in Schedule 1, Figure 4</i>	PM	Optical density covered to mg/m <sup>3</sup> and g/s	Continuous	60-minutes	CEMS	>30 mg/m <sup>3</sup> <sup>4</sup>
	CO	ppm				>100 ppm <sup>4</sup>
	Temperature ( <i>measured in the combustion zone</i> )	°C				<750°C <sup>4</sup>
	PM	mg/m <sup>3</sup>	Quarterly	60-minutes	USEPA Method 17	N/A
	CO			As per method	USEPA Method 10	
	NO <sub>x</sub>			30-minutes	USEPA Method 7E	
	SO <sub>2</sub>			30-minutes	USEPA Method 6C	
	Acetaldehyde			60-minutes	USEPA MMT05 or USEPA SW-846 Method 0011 <sup>3</sup>	
	Acetone			30-minutes	USEPA Method 18 (adsorption tube)	
	2-Butanone					
	Formaldehyde					
	Benzene					
	Odour concentration			Odour units (OU)	N/A	
	Temperature	°C	60-minutes	USEPA Method 2		
Velocity	m/sec	As per method				
Volumetric flow rate	m <sup>3</sup> /min	As per method				
7. Gas turbine / HRSG stack and Boiler stacks 1, 2 and 3 (whilst fired on natural gas)  <i>Labelled as ID# 17 and ID# 18 in Schedule 1, Figure 4</i>	NO	mg/m <sup>3</sup>	Quarterly	30-minutes	USEPA Method 7E	N/A
	NO <sub>2</sub>					
	NO <sub>x</sub>					
	CO			As per method	USEPA Method 10	
	Gas flow rate	m <sup>3</sup> /hour		60-minutes	N/A	
	Steam generation	tonnes/hr		As per method	USEPA Method 2	
	Velocity	m/sec				
	Volumetric flow rate	m <sup>3</sup> /min		60-minutes	Logbook entry	
Confirm if non-condensables are flowing to boilers 2 or 3	Yes / No					
8. Boiler stacks 2 and 3, fired on diesel (when operating for one month or greater)	NO	mg/m <sup>3</sup>	See note 2	30-minutes	USEPA Method 7E	N/A
	NO <sub>2</sub>					
	NO <sub>x</sub>					
	SO <sub>2</sub>				USEPA Method 6C	
	CO	As per method		USEPA Method 10		

Discharge point and monitoring location	Parameter	Unit <sup>1</sup>	Frequency	Averaging period	Method(s)	Response criteria
<i>Labelled as ID# 18 in Schedule 1, Figure 4</i>						
9. Boiler stacks 2 and 3 when fired on fuel oil or diesel  <i>Labelled as ID# 18 in Schedule 1, Figure 4</i>	Smoke colour	Shade on the Australian Miniature Smoke Chart	Continuous from start-up until emissions are lighter than shade 2	N/A	AS 3543	N/A

Note 1: All units are referenced to STP dry.

Note 2: The number of tests shall be adequate to define the relationship between: (a) mass discharge rate for NO; and mass discharge rate for NO<sub>2</sub>; and (b) steam output over the range of ambient temperatures that may reasonably be expected to occur over the course of the annual period.

Note 3: Two impingers at the front of the sample train may be used to act as a condensate dropout prior to the reagent when using USEPA SW-846 Method 0011.

Note 4: For more than 60 consecutive minutes.

16. The licence holder must ensure that all non-continuous stack sampling undertaken pursuant to condition 15 is undertaken at a sampling location in accordance with AS 4323.1.
17. The licence holder must ensure that all non-continuous sampling and analysis undertaken pursuant to condition 15 is undertaken by a holder of a current accreditation from the National Association of Testing Authorities (NATA) for the methods of sampling and analysis relevant to the corresponding parameter.
18. The licence holder must ensure that a minimum operational exhaust gas exit velocity of 12 metres per second is maintained for exhaust stacks(s) required to be non-continuously monitored in accordance with rows 1, 4, 6, 7 and 8 of Table 9 within condition 15.
19. The licence holder must record the date, start time and finish time of the period during which dark smoke is observed when monitored in accordance with condition 15.

### Monitoring and management of ambient dust

20. Until, and including, 30 April 2026, the licence holder must undertake ambient air quality monitoring:
  - (a) at each monitoring location;
  - (b) for the corresponding parameter(s);
  - (c) in the corresponding units;
  - (d) at no less than the corresponding frequency;
  - (e) for the corresponding averaging period;
  - (f) using the corresponding method(s);
 as set out in Table 10.

**Table 10: Ambient air quality monitoring (until 30 April 2026)**

Monitoring location	Parameter	Units	Frequency	Averaging period	Sampling method
BRW, RE, RW, RNE, RNW <i>as shown in Schedule 1, Figure 5</i>	TSP	µg/m <sup>3</sup>	Continuous	Daily	AS/NZS 3580.9.3

Department of Water and Environmental Regulation

- 21.** From, and including, 1 May 2026, the licence holder must undertake ambient air quality monitoring:
- (a) at each monitoring location;
  - (b) for the corresponding parameter(s);
  - (c) in the corresponding units;
  - (d) at no less than the corresponding frequency;
  - (e) for the corresponding averaging period;
  - (f) using the corresponding method(s);
- as set out in Table 11.

**Table 11: Ambient air quality monitoring (from 1 May 2026)**

Monitoring location	Parameter	Units	Frequency	Averaging period	Sampling method	Response criteria
RW (HVAS) (labelled as RW in Schedule 1, Figure 5)	PM <sub>10</sub>	µg/m <sup>3</sup>	Continuous, 1 November to 30 April the following year	Daily <sup>1</sup>	AS/NZS 3580.9.3	N/A
BAM-NW, BAM-NE, BAM-W, BAM-S, BAM-E, (as shown in Schedule 1, Figure 6) BAM-SW, BAM-N (located within the zones labelled as BAM-SW and BAM-N, as shown in Schedule 1, Figure 6)	PM <sub>10</sub>	µg/m <sup>3</sup>	Continuous	1-hour	AS/NZS 3580.9.11	≥ 100 µg/m <sup>3</sup>
BAM 2.5 (as shown in Schedule 1, Figure 6)	PM <sub>2.5</sub>	µg/m <sup>3</sup>	Continuous	1-hour	AS/NZS 3580.9.12	N/A
BAM-Bauxite (as shown in Schedule 1, Figure 6)	PM <sub>10</sub>	µg/m <sup>3</sup>	Continuous	1-hour	AS/NZS 3580.9.11	≥ 100 µg/m <sup>3</sup>
Depositional dust monitor A and Depositional dust monitor B (labelled as DDM-A and DDM-B in Schedule 1, Figure 6)	Deposited dust	g/m <sup>2</sup>	Continuous	30-days	AS/NZS 3580.10.1	N/A

Note 1: HVAS filter papers used to monitor PM<sub>10</sub> in accordance with Table 11 must be retained by the licence holder for a minimum of 12 months, unless that filter paper has been used for dust composition analysis in accordance with condition 24.

- 22.** Monitors used to comply with conditions 20 and 21 of this licence must be sited in accordance with AS/NZS 3580.1.1.
- 23.** Within one hour of a response criteria specified in condition 21 Table 11 being met, the licence holder must:
- (a) review relevant meteorological data including wind speed and direction at the time of the response criteria being met;
  - (b) investigate the probable source/cause of the response criteria being met; and
  - (c) where the investigation in part (b) of this condition identifies that activities on the premises are the probable cause of the response criteria being met:
    - (i) conduct a visual inspection of the residue storage area and/or bauxite

## Department of Water and Environmental Regulation

storage and handling area activities to identify any visible dust generation from these areas; and

- (ii) apply additional dust control measures; and/or
- (iii) stop all activities identified as the probable source/cause of the response criteria being met.

**24.** The licence holder must undertake ambient dust composition analysis:

- (a) at the specified monitoring location;
  - (b) for the corresponding parameters;
  - (c) in the corresponding units;
  - (d) at no less than the corresponding frequency;
  - (e) for the corresponding averaging period;
  - (f) using the correspond method(s);
- as set out in Table 12.

**Table 12: Ambient dust composition analysis**

Monitoring location	Parameter	Units	Frequency	Averaging period	Sampling and Analytical method(s)
RW (HVAS) (labelled as RW in Schedule 1, Figure 5)	Aluminium (as Al <sub>2</sub> O <sub>3</sub> )	µg/m <sup>3</sup>	Two (2) samples taken each month between 1 November and 30 April the following year, where the PM <sub>10</sub> dust concentration is the highest and second highest value (for the month being monitored) when monitored in accordance with condition 21.	Spot sample	AS/NZS 3580.9.15 HVAS filter paper to be collected. HVAS filter paper to be analysed by a laboratory NATA accredited for parameters being analysed.
	Antimony				
	Arsenic				
	Barium				
	Beryllium				
	Boron				
	Cadmium				
	Calcium				
	Chromium (III)				
	Chromium (VI)				
	Cobalt				
	Copper				
	Gallium				
	Iron (as Fe <sub>2</sub> O <sub>3</sub> )				
	Lead				
	Lithium				
	Magnesium				
	Manganese				
	Mercury				
	Molybdenum				
	Nickel				
	Phosphorus				
	Potassium				
Selenium					
Sodium					
Sulfur					
Thallium					
Thorium					
Tin					
Titanium					

Monitoring location	Parameter	Units	Frequency	Averaging period	Sampling and Analytical method(s)
	Uranium				
	Vanadium				
	Zinc				
	Alkalinity				
	pH				

25. The licence holder must analyse filter paper blanks for the parameters and in the corresponding units, as set out in condition 24 Table 12, using NATA accredited analytical methods for each filter paper batch analysed in accordance with Table 12.

**Monitoring of ambient surface water**

26. The licence holder must monitor the ambient surface water for concentrations of the parameters listed in Table 13:

- (a) at the corresponding monitoring location;
- (b) in the corresponding unit;
- (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 13.

**Table 13: Monitoring of ambient surface water**

Monitoring location	Parameter	Unit	Frequency	Averaging period	Methods	
					Sampling	Analytical
SP12 <i>as shown in Schedule 1, Figure 5</i>	pH	pH units	Monthly when flowing	Spot sample	AS/NZS 5667.1	NATA accredited
	Electrical conductivity (EC)	µS/cm				
	Turbidity	NTU				
	Sodium	mg/L	Monthly when flowing, if pH is <5 or >9.5, and EC is ≥2,000 µS/cm in the same month			
	Chloride	mg/L				
	Alkalinity (as calcium carbonate)	mg/L				
	Calculated sodium chloride ratio	N/A	Each time analysis for sodium and chloride is completed			
	Aluminium <sup>3</sup>	mg/L	Six-monthly (April-May and October – November)	Spot sample	AS/NZS 5667.1	NATA accredited
	Arsenic					
	Mercury					
	Selenium					
	Vanadium					
	Manganese					
	Molybdenum					
Uranium						
Volumetric flow	m <sup>3</sup>	Continuous	Monthly	Calculated		

27. The licence holder must ensure that activities at the premises are managed such that

Department of Water and Environmental Regulation

ambient surface water samples collected and analysed in accordance with condition 26 do not exceed the limits specified in Table 14.

**Table 14: SP12 Water quality limits**

Parameter	Limit
Sodium chloride ratio	0.8
Alkalinity (as calcium carbonate)	50 mg/L

**Monitoring of ambient groundwater**

**28.** The licence holder must monitor the ambient groundwater for concentrations of the parameters listed in Table 15:

- (a) at the corresponding monitoring locations;
  - (b) in the corresponding unit;
  - (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 15.

**Table 15: Monitoring of ambient groundwater**

Monitoring location	Parameter	Unit	Frequency	Averaging period	Methods		Response criteria
					Sampling	Analytical	
1G, 1W, 2G, 2W, 8G, 11G, 25G, 25W, 79G, 219S, 219G and 219W  <i>Labelled as 1GW, 2GW, 8G, 11G, 25GW, 79G and 219SGW as shown in Schedule 1, Figure 5</i>	Standing water level	mAHD mbgl	Six-monthly	Spot sample	AS/NZS 5667.1 and AS/NZS 5667.11	NATA accredited	None specified
	pH	pH units					<5 or >9
	Electrical conductivity	µS/cm					≥2,000 µS/cm
	Alkalinity	mg/L					None specified
	Sodium	mg/L					
	Chloride	mg/L					
	Uranium	mg/L					>0.2 mg/L
	Calculated sodium chloride ratio	N/A	N/A	Calculated	None specified		

**Meteorological monitoring**

**29.** The licence holder must monitor the ambient meteorological conditions at the premises in accordance with the requirements specified in Table 16 and record the results of all such monitoring.

**Table 16: Monitoring of ambient meteorological conditions**

Parameter	Unit	Monitoring location(s)	Height	Frequency	Averaging period	Method
Wind speed	m/sec	Labelled as “Bancell Rd West” as shown in Schedule 1, Figure 6	≥ 10 m	Continuous	6 minute average	AS/NZS 3580.14
Wind direction	degrees					
Rainfall	mm	Labelled as “Bancell Road” as shown in Schedule 1, Figure 5	-		1 hour	

**Mercury control system monitoring and management actions**

- 30.** The licence holder must monitor the mercury control system:
- (a) from each monitoring location;
  - (b) for the corresponding parameter;
  - (c) at the corresponding frequency;
  - (d) for the corresponding averaging period;
  - (e) in the corresponding unit
- as set out in Table 17.

**Table 17: Mercury Control System Monitoring**

Monitoring Location	Parameter	Units	Frequency	Averaging period	Response criteria
Oxalate belt filter cake	Mercury (as dry)	ppb	Weekly	Spot sample	>1,000 ppb
Oxalate polysulfide dosing pump	Polysulfide dosing rate	L/hr	Continuous	7-day average	N/A
Digester mercury vapour condenser exit gases	Temperature	°C	Continuous	Monthly and annual	>35°C (annual average)
Evaporation mercury vapour condenser exit gases					

**Records and reporting**

**General**

- 31.** The licence holder must maintain accurate and auditable books including the following records, information, reports, and data required by this licence:
- (a) the calculation of fees payable in respect of this licence;
  - (b) any operation, calibration or maintenance of infrastructure that is performed in the course of complying with conditions 1, 10, 11, 12, 13, 18, 20 and 21 of this licence;
  - (c) monitoring programmes undertaken in accordance with conditions 9, 15, 20, 21, 26, 28, 29 and 30 of this licence; and
  - (d) complaints received under condition 37 of this licence.
- 32.** The books specified under condition 31 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 licence holder for the duration of the licence; and
  - (d) be available to be produced to an inspector or the CEO as required.

**Notifications**

- 33.** The licence holder must, within 7 days of any of the limit(s) in conditions 2, 4 and 27 of this licence being exceeded, notify the CEO in writing.
- 34.** The notification referred to in condition 33 must include, but not be limited to:
- (a) the date, time and location of the limit being exceeded;
  - (b) cause of the limit being exceeded;
  - (c) estimate of the period over which the limit was or is likely to be exceeded;
  - (d) corrective actions taken and planned corrective actions to prevent a recurrence of the limit being exceeded; and

Department of Water and Environmental Regulation

- (e) indication of known or potential environmental impacts.
- 35. The licence holder must notify the CEO in writing within 24 hours of a discharge occurring at the ROWS pond spillway in accordance with condition 7 of this licence as per specified requirements (as a result of a Wet Winter).
- 36. The notification referred to in condition 35 must include, but not be limited to:
  - (a) the date(s) and time(s) the discharge occurred;
  - (b) the amount of rainfall measured in accordance with condition 29 of this licence from 1 May to 30 September in the same year the discharge occurred; and
  - (c) indication of known or potential environmental impacts.

**Complaints**

- 37. The licence holder must record the following information in relation to complaints received by the licence 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;
  - (d) wind direction, wind speed and temperature at the date and time of which the complaint relates to; and
  - (e) the complete details and dates of any action taken by the licence holder to investigate or respond to any complaint.

**Annual Reports**

- 38. The licence holder must:
  - (a) undertake an audit of their compliance with the conditions of this licence during the preceding annual period; and
  - (b) prepare and submit to the CEO an Annual Audit Compliance Report for that period in the approved form by 1 April each year.
- 39. The licence holder must:
  - (a) prepare an Environmental Report that provides information in accordance with Table 18 for the preceding annual period; and
  - (b) submit that Environmental Report to the CEO by 1 April each year.

**Table 18: Environmental reporting requirements**

Condition	Requirement
N/A	<ul style="list-style-type: none"> <li>(a) Summary of oxalate management activities.</li> <li>(b) Time-series graph showing annual total mercury (kg) in main refinery inputs (bauxite) and outputs (solids/residue, and condensers) and mercury emissions to air over a minimum 10-year period.</li> </ul>
1, Table 1, row 6 <i>Make-up water for cooling towers</i>	(a) Details of the time period(s) when the make-up water for the precipitation cooling towers is supplied from the Upper Dam. This must include, but is not limited to, date(s), time(s) and corresponding number of hours.
1, Table 1, rows 7, 8, 9 <i>Cease feed events for oxalate kiln, LBF kiln and calciners</i>	<ul style="list-style-type: none"> <li>(a) Summary of oxalate kiln cease feed events due to an offline polysulphide dosing pump, RTO being bypassed, or failure of the wet scrubber.</li> <li>(b) Summary of LBF kiln cease feed events due to complete failure of the LBF ESP or RTO being bypassed.</li> <li>(c) Summary of calciner 1, 2, 3 or 4 cease feed events due to a partial or completed failure of that calciner ESP.</li> </ul>

Department of Water and Environmental Regulation

Condition	Requirement
	(d) These summaries must include, but not be limited to, the date and duration of cease feed, cause of the cease feed, any actions taken, and any identified known or potential environmental impacts.
4, 5 <i>Aggregate calciner priority VOC emissions</i>	(a) Tabulated calculated aggregate calciner priority VOC emissions from calciner 1, calciner 2, calciner 3, calciner 4 and calciner 1-3 low volume vents. (b) An interpretation of the calculated data including comparison to historical trends and relevant emission limits specified in condition 4.
9 <i>Waste acceptance</i>	(a) Total amount of waste accepted at the premises.
11, 12, 13 <i>Availability of monitoring equipment – CEMS, ambient dust, meteorological station, flow meter</i>	(a) Information showing the availability of the monitoring equipment. (b) Cause of any monitoring equipment not able to meet the required availability. (c) Corrective actions taken or planned corrective actions to prevent a recurrence of the monitoring equipment not able to meet the required availability.
15, 18 <i>Point source discharges to air</i>	(a) Tabulated monitoring data results in Microsoft Excel format for each monitoring location. (b) Time-series graph for each monitoring location showing concentrations of all parameters over a minimum three-year period (where sufficient data allows). (c) An interpretation of the monitoring data results including comparison to historical trends and emission limits or response criteria (where relevant). (d) Information on exhaust gas exit velocity during monitoring of each stack. (e) Calculated mass emissions for parameters measured in Table 9, rows 1, 2, 4, 6, 7 and 8 using measured flow rates at the time of sampling of the parameter, and include the operational range for each operational parameter. (f) Copies of original monitoring, laboratory and analysis reports submitted by third parties (where relevant). (g) A list of any monitoring methods used to collect and analyse data required to demonstrate compliance with any methods specified for this monitoring.
15 <i>Point source discharges to air – response criteria</i>	(a) Date, time and location of the response criteria being met. (b) Cause of the response criteria being met. (c) Duration of the period over which the response criteria was met. (d) Corrective actions taken and planned corrective actions to prevent a recurrence of the response criteria being met. (e) Indication of known or potential environmental impacts.
19 <i>Dark smoke</i>	(a) Date, start time and finish time of the period during which any dark smoke was observed when monitoring in accordance with condition 15.
20, 21, 24, 25 <i>Ambient dust</i>	(a) Tabulated monitoring data results in Microsoft Excel format for each monitoring location. (b) Meteorological conditions (temperature, wind speed, wind direction, and rainfall) are required to be reported for the days on which analysis is undertaken in accordance with condition 24. (c) Time-series graph for each monitoring location showing concentrations of all parameters over a minimum three-year period (where sufficient data allows). (d) An interpretation of the monitoring data including comparison to historical trends and emission limits or response criteria (where relevant). (e) Copies of original monitoring, laboratory and analysis reports submitted by third parties (where relevant). (f) A list of any monitoring methods used to collect and analyse data required to demonstrate compliance with any methods specified for this monitoring.
21, 23 <i>Ambient air quality monitoring – response criteria</i>	(a) Date, time and location of the response criteria being met. (b) Wind speed and direction data at the time of the response criteria being met. (c) Cause of the response criteria being met. Where the investigation in condition 23(b) identifies that activities on the premises are the probable cause of the response criteria being met:

Condition	Requirement
	<ul style="list-style-type: none"> <li>(d) Details on whether visible dust was detected during visual inspections.</li> <li>(e) Duration of the period over which the response criteria was met.</li> <li>(f) Corrective actions taken and planned corrective actions to prevent a recurrence of the response criteria being met.</li> <li>(g) Indication of known or potential environmental impacts.</li> </ul>
26 <i>Surface water</i>	<ul style="list-style-type: none"> <li>(a) Tabulated monitoring data results in Microsoft Excel format for each monitoring location.</li> <li>(b) Time-series graph for each monitoring location showing concentrations of all parameters over a minimum three-year period (where sufficient data allows).</li> <li>(c) An interpretation of the monitoring data including comparison to historical trends and emission limits or response criteria (where relevant).</li> <li>(d) Copies of original monitoring, laboratory and analysis reports submitted by third parties (where relevant).</li> <li>(e) A list of any monitoring methods used to collect and analyse data required to demonstrate compliance with any methods specified for this monitoring.</li> </ul>
28 <i>Ambient groundwater</i>	<ul style="list-style-type: none"> <li>(a) Tabulated monitoring data results in Microsoft Excel format for each monitoring location.</li> <li>(b) Time-series graph for each monitoring location showing concentrations of all parameters over a minimum three-year period (where sufficient data allows).</li> <li>(c) An interpretation of the monitoring data including comparison to historical trends and emission limits or response criteria (where relevant).</li> <li>(d) Copies of original monitoring, laboratory and analysis reports submitted by third parties (where relevant).</li> <li>(e) A list of any monitoring methods used to collect and analyse data required to demonstrate compliance with any methods specified for this monitoring.</li> <li>(f) Date, time and location of the response criteria being met.</li> <li>(g) Cause of the response criteria being met.</li> <li>(h) Estimate of the period over which the response criteria was or is likely to be met.</li> <li>(i) Corrective actions taken and planned corrective actions to prevent a recurrence of the response criteria being met.</li> <li>(j) Indication of known or potential environmental impacts.</li> </ul>
29 <i>Meteorological monitoring</i>	<ul style="list-style-type: none"> <li>(a) Tabulated monitoring data results in Microsoft Excel format.</li> <li>(b) Daily summary of monitoring results for each parameter.</li> <li>(c) A list of any monitoring methods used to collect and analyse data required to demonstrate compliance with any methods specified for this monitoring.</li> </ul>
30 <i>Mercury control system</i>	<ul style="list-style-type: none"> <li>(a) Tabulated monitoring data results in Microsoft Excel format for each monitoring location.</li> <li>(b) Time-series graph for each monitoring location showing results of all parameters over a minimum three-year period (where sufficient data allows).</li> <li>(c) An interpretation of the monitoring data including comparison to historical trends and emission limits or response criteria (where relevant).</li> <li>(d) Copies of original monitoring, laboratory and analysis reports submitted by third parties (where relevant).</li> <li>(e) Date, time and location of the response criteria being met.</li> <li>(f) Cause of the response criteria being met.</li> <li>(g) Estimate of the period over which the response criteria was or is likely to be met.</li> <li>(h) Corrective actions taken and planned actions to prevent a recurrence of the response criteria being met.</li> <li>(i) Indication of known or potential environmental impacts.</li> </ul>
33, 34, 35, 36 <i>Notifications</i>	<ul style="list-style-type: none"> <li>(a) Summary of any notifications submitted to the CEO.</li> </ul>
37 <i>Complaints</i>	<ul style="list-style-type: none"> <li>(a) Details of any complaints received by the licence holder, including the information required by condition 37.</li> <li>(b) Summary of any correlations identified between complaints data and meteorological conditions and/or process variables.</li> </ul>

**Publishing of data**

- 40. The licence holder must publish on an Alcoa of Australia Limited website on the internet a quarterly summary of monitoring data for PM<sub>10</sub> from ambient monitoring stations as specified in, and monitored in accordance with, Table 11 of condition 21.
- 41. The data published in accordance with condition 40 must, at a minimum:
  - (a) be available to the public within 30 calendar days of the end of each quarterly period; and
  - (b) be displayed in a graph form as daily averages.

**Improvements**

- 42. The licence holder must complete the improvements in Table 19 by the corresponding date of completion in the same table.

**Table 19: Improvement program**

Improvement reference	Improvement	Date of completion
IR1	Conduct retubing of at least one of the B30 condensers with high pitting-resistant alloy (e.g. 2205 Duplex Stainless Steel) tubes and submit to the CEO a report on the retubing works undertaken. The report must include but not be limited to: <ul style="list-style-type: none"> <li>(a) a map showing the location of each condenser retubed;</li> <li>(b) date of completion for each condenser retubed;</li> <li>(c) type of alloy(s) that was used in the retubing of each condenser; and</li> <li>(d) summary of the retubing works undertaken.</li> </ul>	30 June 2026
IR2	Conduct a review, following completion of IR1, to investigate the correlation between condenser efficiency and mercury emissions to air and submit to the CEO a preliminary report and a final report on this review. The reports must include but not be limited to: <ul style="list-style-type: none"> <li>(a) comparison of the performance of each condenser that was retubed (as per IR1) prior to and after retubing;</li> <li>(b) assessment of the effectiveness of the retubing regarding condenser efficiency and mercury emissions to air;</li> <li>(c) any other causes identified that may be contributing to increased mercury emissions to air; and</li> <li>(d) proposed action(s), including timeframes, to address condenser efficiencies or other identified causes of increased mercury emissions to air following this review.</li> </ul> <p><i>The preliminary report must be based on operational data collected from at least 1 – 31 July 2026.</i></p> <p><i>The final report must be based on operational data collected from at least 1 July 2026 to 30 June 2027.</i></p>	Preliminary report: 31 August 2026  Final report: 31 July 2027

## Definitions

In this licence, the terms in Table 20 have the meanings defined.

**Table 20: Definitions**

Term	Definition
ACN	Australian Company Number
ADT	means average daily throughput of alumina for each calciner as applicable
Alinta Corporation Wagerup Cogeneration Plant	refers to the premises to which licence L8174/2007/5 applies, defined as Lot 701 on Plan 59305, Willowdale Rd, Waroona WA 6215, as shown in Schedule 1 of licence L8174/2007/5.
Annual Compliance Audit Report (AACR)	means a report submitted in a format approved by the CEO (relevant guidelines and templates may be available on the Department's website).
annual period	a 12 month period commencing from 1 January until 31 December of the same year.
AS	means Australian Standard
AS 3543	means AS 3543 <i>Use of standard Ringelmann and Australian Standard miniature smoke charts</i>
AS 3814-2009	means AS 3814 – 2009 <i>Industrial and commercial gas-fired appliances</i>
AS 4323.1	means AS 4323.1 <i>Stationary source emissions – Method 1: Selection of sampling positions and measurement of velocity in stacks</i>
AS/NZS	means Australian/New Zealand Standard
AS/NZS 3580.1.1	means AS/NZS 3580.1.1 <i>Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment</i>
AS/NZS 3580.9.3	means AS/NZS 3580.9.3 <i>Methods for sampling and analysis of ambient air – Method 9.3: Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method</i>
AS/NZS 3580.9.11	means AS/NZS 3580.9.11 <i>Methods for sampling and analysis of ambient air – Method 9.11: Determination of suspended particulate matter – PM<sub>10</sub> beta attenuation monitors</i>
AS/NZS 3580.9.12	means AS/NZS 3580.9.12 <i>Methods for sampling and analysis of ambient air – Method 9.12: Determination of suspended particulate matter – PM<sub>2.5</sub> beta attenuation monitors</i>
AS/NZS 3580.9.15	means AS/NZS 3580.9.15 <i>Methods for sampling and analysis of ambient air – Method 9.15: Determination of suspended particulate matter – Particulate metals high or low volume sampler gravimetric collection – Inductively coupled plasma (ICP) spectrometric method</i>
AS/NZS 3580.14	means AS 3580.14 <i>Methods for sampling and analysis of ambient air – Part 14: Meteorological monitoring for ambient air quality monitoring applications</i>
AS/NZS 4323.3	means AS/NZS 4323.3 <i>Stationary source emissions – Determination of odour concentration by dynamic olfactometry</i>
AS/NZS 5667.1	means AS/NZS 5667.1 <i>Water Quality – Sampling – Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples</i>
AS/NZS 5667.11	means AS/NZS 5667.11 <i>Water Quality – Sampling – Part 11: Guidance on sampling of groundwaters</i>
averaging period	means the time over which a monitoring result is obtained
books	has the same meaning given to that term under the EP Act.
Bunbury Rail Terminal and Port Loading Facility	refers to the premises to which licence L6744/1996/12 applies, defined as Lot 963 on Plan 220558 and Lot 962 on Plan 219848, Bunbury WA 6230, as shown in Schedule 1 of licence L6744/1996/12.

## Department of Water and Environmental Regulation

Term	Definition
calciner 1-3 LVV	means calciner 1-3 low volume vents which means calciner 1-3 vacuum pump and hydrate filter hoods
CEMS	means Continuous Emission Monitoring System
CEMS Code	means the current version of the document <i>Continuous Emission Monitoring System (CEMS) Code for Stationary Source Air Emissions</i> , Department of Water and Environmental Regulation, Perth, Western Australia.
CEO	means Chief Executive Officer of the Department. “submit to / notify the CEO” (or similar), means either: Director General Department administering the <i>Environmental Protection Act 1986</i> Locked Bag 10 Joondalup DC WA 6919 or: <a href="mailto:info@dwer.wa.gov.au">info@dwer.wa.gov.au</a>
clean fill	has the meaning defined in <i>Landfill Waste Classification and Waste Definitions 1996</i> , published by the CEO and as amended from time to time.
clinical waste	has the meaning defined in <i>Landfill Waste Classification and Waste Definitions 1996</i> , published by the CEO and as amended from time to time.
CO	means carbon monoxide
dark smoke	means smoke that, if compared with a chart known as the Australian Miniature Smoke Chart (AS 3543 1989), would appear darker than shade 1 on that chart.
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994 (WA)</i> and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
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.
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
ESP	means Electrostatic Precipitator
g/s	means grams per second
ha	means hectares
HRSG	means Heat Recovery Steam Generator
HVAS	means High-Volume Air Sampler
hydrocarbon contaminated waste	means waste permitted for disposal at a Class II landfill as per the document <i>Landfill Waste Classification and Waste Definitions 1996</i> , published by the CEO and as amended from time to time.
inert waste type 1	has the meaning defined in <i>Landfill Waste Classification and Waste Definitions 1996</i> , published by the CEO and as amended from time to time.
L/hr	means litres per hour
Lakewater circuit	means infrastructure that includes the ROCP 2, ROCP 3, ROWS Pond and the Cooling Pond.
Landfill Waste Classification and Waste Definitions 1996	refers to the <i>Landfill Waste Classification and Waste Definitions 1996 (as amended 2019) – Environmental Protection Act 1986</i> produced by the Department of Water and Environmental Regulation, dated December 2019
LBF	means Liquor Burning Facility
licence	refers to this document, which evidences the grant of a licence by the CEO under section 57 of the EP Act, subject to the specified conditions contained within.
licence holder	refers to the occupier of the premises, being the person specified on the front of the licence as the person to whom this licence has been granted.

## Department of Water and Environmental Regulation

Term	Definition
m	means metres
mm	means millimetres
m <sup>2</sup>	means square metres
mAHD	means elevation in metres with respect to the Australian Height Datum
mbgl	means metres below ground level
m <sup>3</sup> /hr	means cubic metres per hour
m <sup>3</sup> /min	means cubic metres per minute
m/sec	means metres per second
mg/L	means milligrams per litre
mg/m <sup>3</sup>	means milligrams per cubic metre
Mtpa	means million tonnes per annual period
monthly	means a one-month period commencing from the first day of a month until the last day of the same month
NATA	means National Association of Testing Authorities
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
NH <sub>4</sub>	means ammonium
NO	means nitrogen oxide
NO <sub>2</sub>	means nitrogen dioxide
NO <sub>x</sub>	means oxides of nitrogen, as the sum of NO and NO <sub>2</sub> expressed as NO <sub>2</sub>
normal operating conditions/normal operation	means any operation of a particular process excluding start up and shut down conditions
NTU	means nephelometric turbidity units
neutralised acid sulfate soil	has the meaning defined in <i>Landfill Waste Classification and Waste Definitions 1996</i> , published by the CEO and as amended from time to time.
OU	means odour units
partial failure	is defined as loss of a full zone of an ESP
PM	means particulate matter
PM <sub>2.5</sub>	means particulate matter with an aerodynamic diameter of less or equal to 2.5 µm
PM <sub>10</sub>	means particulate matter with an aerodynamic diameter of less or equal to 10 µm
ppb	means parts per billion
premises	refers to the premises to which this licence applies, as specified at the front of this licence and as shown on the premises map in Schedule 1, and the table in Schedule 2 to this licence.
prescribed premises	has the same meaning given to that term under the EP Act.
Priority VOC	means the combined emissions of Acetaldehyde, Acetone, 2-butanone, Formaldehyde and Benzene
putrescible wastes	has the meaning defined in <i>Landfill Waste Classification and Waste Definitions 1996</i> , published by the CEO and as amended from time to time.
quarterly	means each three-monthly period being: 1 January to 31 March, 1 April to 30 June, 1 July to 30 September and 1 October to 31 December, each annual period
ROWS	means Run Off Water Storage
RSA	means Residue Storage Area

Department of Water and Environmental Regulation

Term	Definition
RTO	means Regenerative Thermal Oxidiser
shut-down	means the period of time when plant or equipment is brought from normal operating conditions to inactivity
SO <sub>2</sub>	means sulphur dioxide
special waste type 1	has the meaning defined in <i>Landfill Waste Classification and Waste Definitions 1996</i> , published by the CEO and as amended from time to time.
spillway	means a structure to provide the controlled discharge from a pond
spot sample	means a discrete sample representative at the time and place at which the sample is taken
start-up	means the period of time when plant or equipment is brought from inactivity to normal operating conditions
surface treatment	means water applied from a water cart (at a ratio of 1 cart per 5 ha), spray on dust suppressant, pasture, mulch and/or aggregate.
SWL	means standing water level
TDS	means total dissolved solids
tonnes/hr	means tonnes per hour
TSP	means total suspended particulates
Type A soil	means friable solids such as residue sand and topsoil
Type B soil	means clay based soils
µg/m <sup>3</sup>	means micrograms per cubic metre
uncontaminated fill	has the meaning defined in <i>Landfill Waste Classification and Waste Definitions 1996</i> , published by the CEO and as amended from time to time.
µS/cm	means micro Siemens per centimetre
USEPA	means United States Environmental Protection Agency
USEPA Method 2	means USEPA Method 2 <i>Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)</i>
USEPA Method 5	means USEPA Method 5 <i>Determination of Particulate Matter Emissions From Stationary Sources</i>
USEPA Method 6C	means USEPA Method 6C <i>Determination of Sulfur Dioxide Emissions from Stationary Sources (Instrumental Analyzer Procedure)</i>
USEPA Method 7E	means USEPA Method 7E <i>Determination of Nitrogen Oxides Emissions From Stationary Sources (Instrumental Analyzer Procedure)</i>
USEPA Method 10	means USEPA Method 10 <i>Determination of Carbon Monoxide Emissions From Stationary Sources</i>
USEPA Method 17	means USEPA Method 17 <i>Determination of Particulate Matter Emissions From Stationary Sources</i>
USEPA Method 18 (adsorption tube)	means USEPA Method 18 <i>Measurement of Gaseous Organic Compound Emissions by Gas Chromatography</i>
USEPA MMT05	means USEPA Modified Method TO-5 <i>Method for the determination of aldehydes and ketones in ambient air using high performance liquid chromatography (HPLC)</i>
USEPA SW-846 Method 0011	means USEPA SW-846 Test Method 0011: <i>Sampling for Selected Aldehyde and Ketone Emissions from Stationary Sources</i>
VOC	means volatile organic compound
waste	has the same meaning given to that term under the EP Act.

## Department of Water and Environmental Regulation

Term	Definition
Wet Winter	means rainfall from 1 May to 30 September in each annual period that is greater than or equal to 880 mm as measured by the on-site meteorological weather station referred to in condition 29.
Willowdale Minesite	refers to the premises to which licence L6465/1989/10 applies, defined as Part of Mineral Lease 1SA, Willowdale Rd (via Wagerup Refinery Access Rd) Waroona WA 6215, as shown in Schedule 1 of licence L6465/1989/10.

**END OF CONDITIONS**

# Schedule 1: Maps

## Premises map

The boundary of the prescribed premises is shown in the map below (Figure 1).

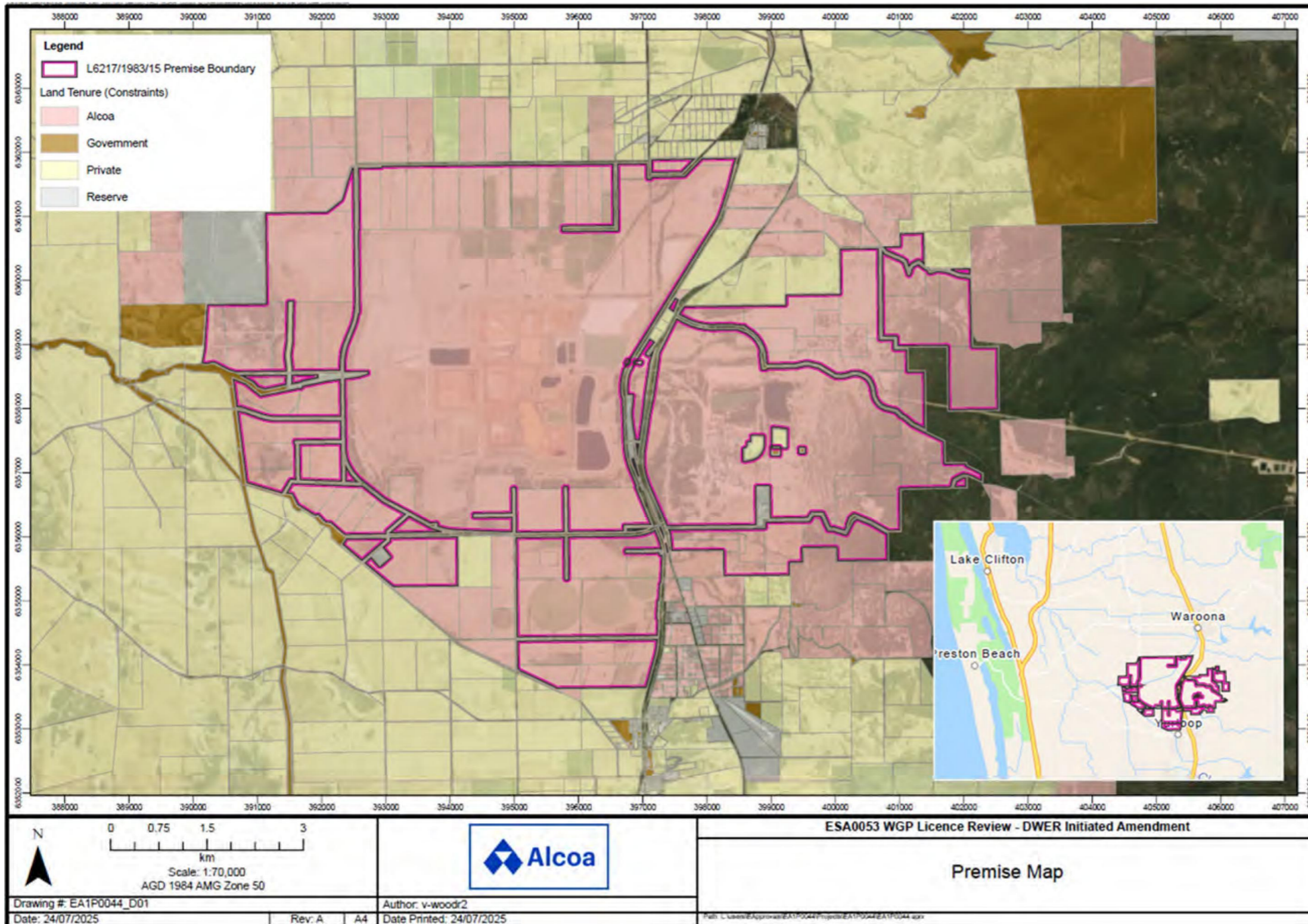


Figure 1: Map of the boundary of the prescribed premises

Infrastructure map – Refinery and Bauxite storage and handling

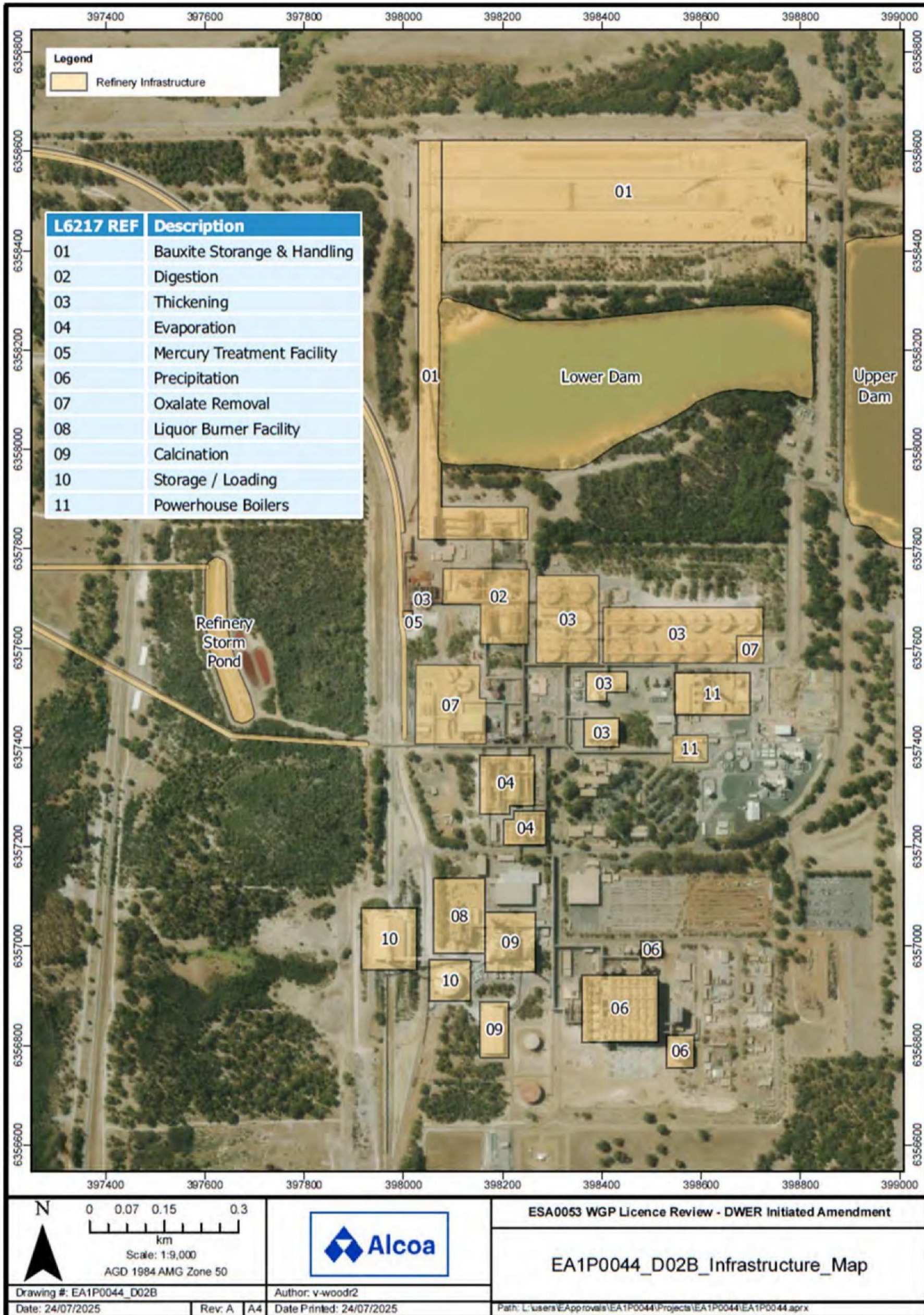


Figure 2: Map of Refinery and Bauxite storage and handling infrastructure

Infrastructure map – Residue Management Area

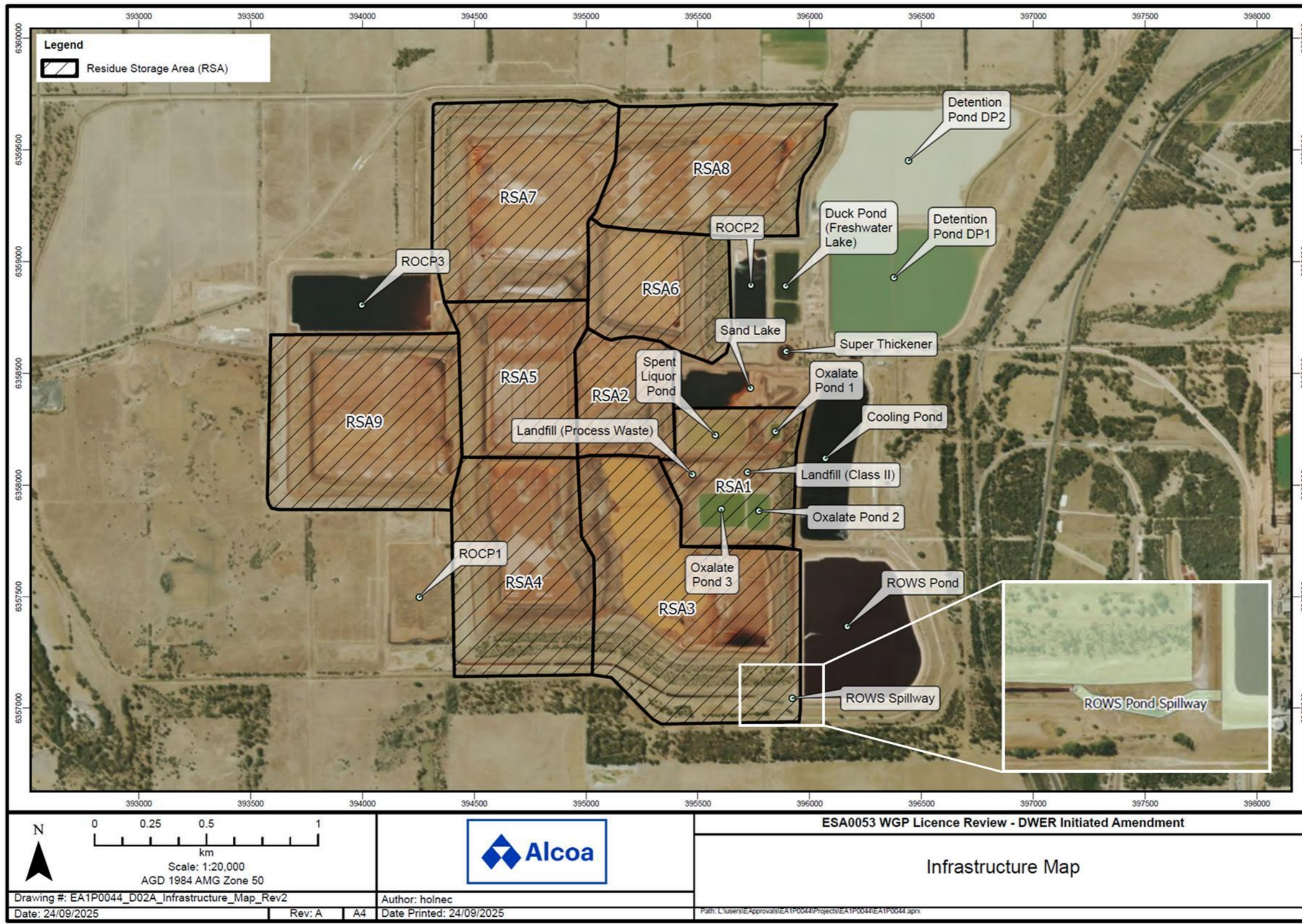


Figure 3: Map of Residue Management Area infrastructure

Authorised discharge points

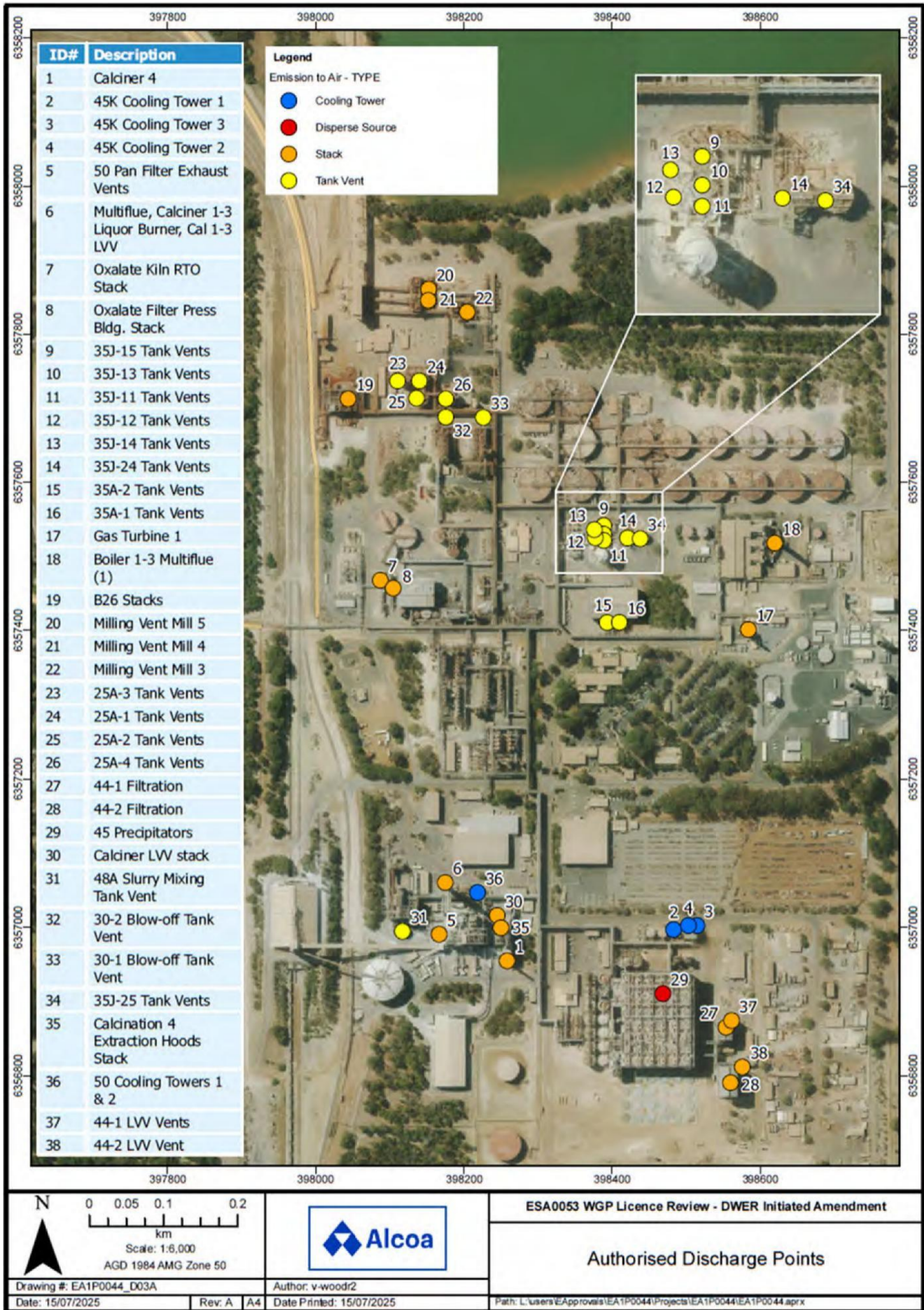


Figure 4: Authorised discharge points

Monitoring locations – Map 1

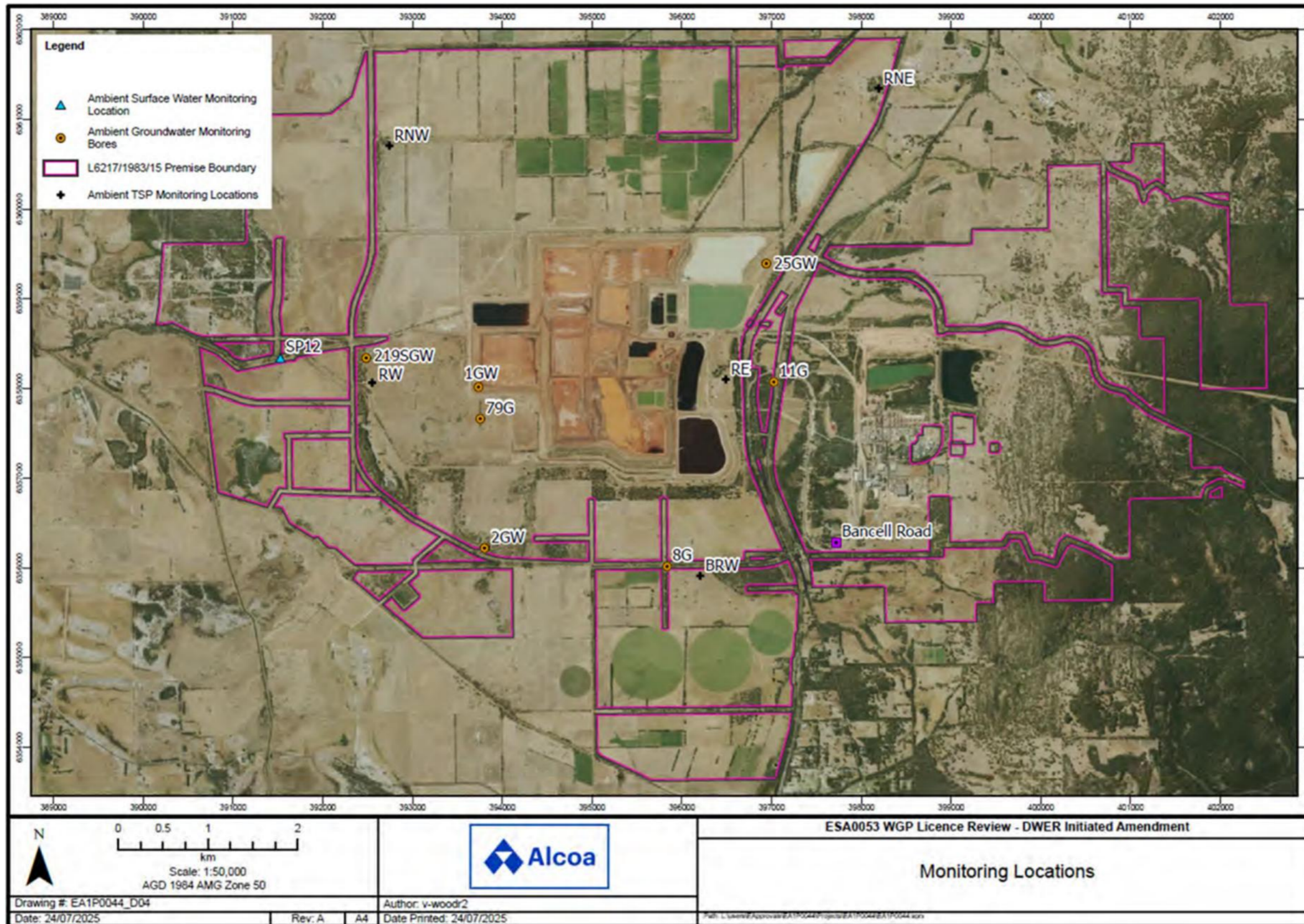


Figure 5: Ambient air quality (some locations shown, see Figure 6 for other locations), ambient surface water and ambient groundwater monitoring locations, and rainfall monitoring location.

Monitoring locations – Map 2

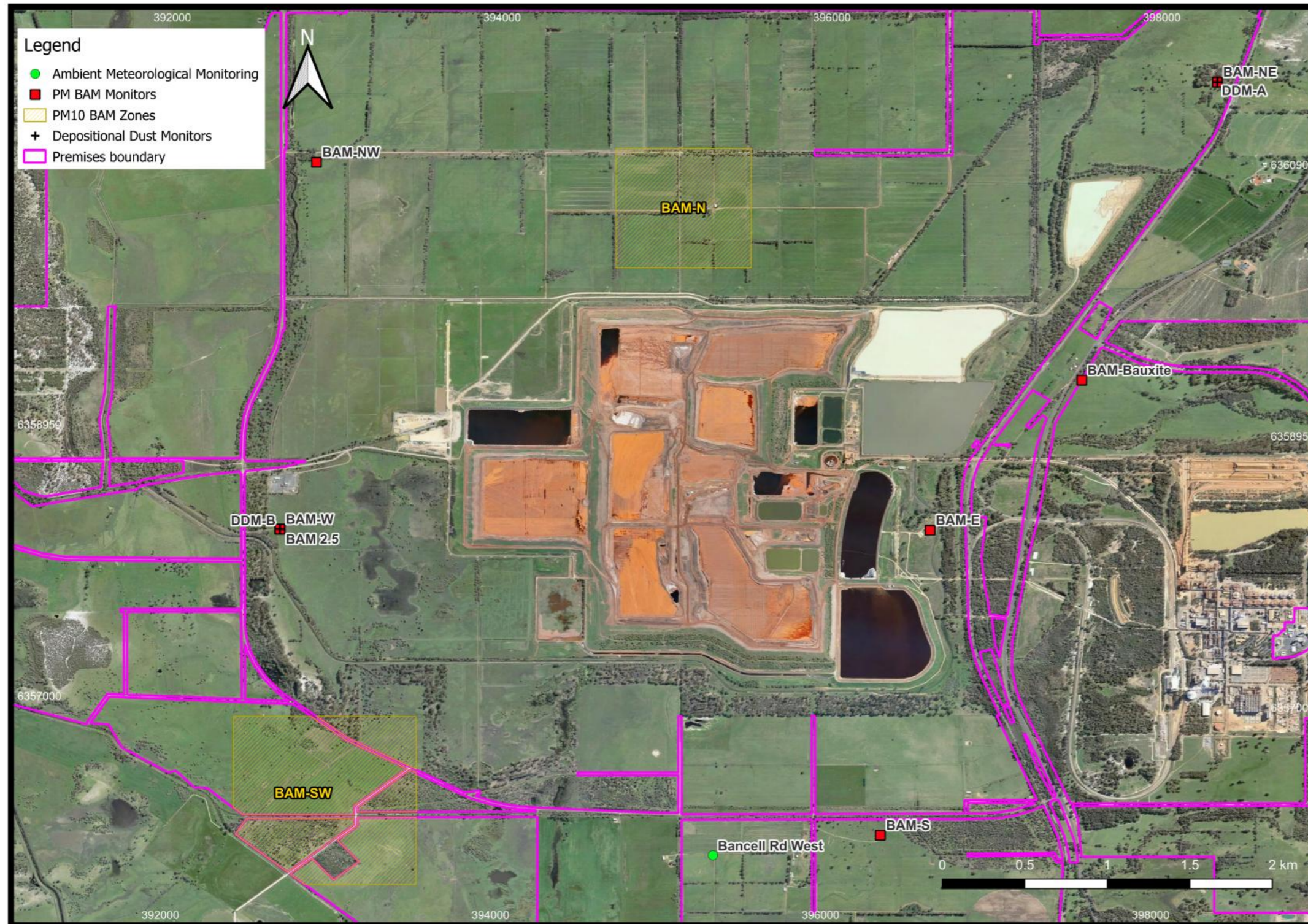


Figure 6: Ambient air quality monitoring locations and zones (some locations shown, see Figure 5 for other locations), and ambient meteorological monitoring location. Proposed zones for the installation of BAM-SW and BAM-N ambient air quality monitoring locations are depicted by diagonal yellow lines.

## Schedule 2: Premises – legal description

The prescribed premises includes the cadastral lots listed in Table 21, as depicted in Schedule 1.

**Table 21: Cadastral lots as part of the prescribed premises**

1	Lot 1031 on Plan 255274	36	Lot 12 on Diagram 59237	71	Lot 9 on Diagram 87877
2	Lot 700 on Plan 59305	37	Lot 13 on Diagram 59237	72	Lot 10 on Diagram 87877
3	Lot 703 on Plan 59305	38	Lot 1583 on Plan 211217	73	Lot 1 on Diagram 53224
4	Lot 11 on Plan 202652	39	Lot 387 on Plan 101039	74	Lot 2 on Diagram 53224
5	Lot 12 on Plan 202652	40	Lot 1546 on Plan 168342	75	Lot 72 on Plan 132033
6	Lot 16 on Plan 202652	41	Lot 390 on Plan 156002	76	Lot 68 on Plan 232807
7	Lot 846 on Plan 251130	42	Lot 202 on Diagram 63803	77	Lot 69 on Plan 232807
8	Lot 15 on Diagram 78210	43	Lot 88 on Plan 22686	78	Lot 70 on Plan 232807
9	Lot 16 on Diagram 78210	44	Lot 89 on Plan 22686	79	Lot 71 on Plan 232807
10	Lot 279 on Plan 253786	45	Lot 1254 on Plan 143719	80	Lot 410 on Plan 102461
11	Lot 400 on Plan 300751	46	Lot 160 on Plan 120100	81	Lot 65 on Plan 228592
12	Lot 401 on Plan 300751	47	Lot 93 on Plan 232779	82	Lot 67 on Plan 228592
13	Lot 217 on Plan 233039	48	Lot 94 on Plan 232779	83	Lot 4238 on Plan 251501
14	Lot 225 on Plan 233039	49	Lot 98 on Plan 232779	84	Lot 343 on Plan 143524
15	Lot 226 on Plan 233039	50	Lot 145 on Plan 232779	85	Lot 489 on Plan 254420
16	Lot 227 on Plan 233039	51	Lot 146 on Plan 232779	86	Lot 492 on Plan 254420
17	Lot 228 on Plan 233039	52	Lot 945 on Plan 232779	87	Lot 1 on Plan 11067
18	Lot 231 on Plan 233039	53	Lot 600 on Plan 300749	88	Lot 324 on Plan 100500
19	Lot 232 on Plan 233039	54	Lot 601 on Plan 300749	89	Lot 15 on Diagram 59238
20	Lot 233 on Plan 233039	55	Lot 602 on Plan 300749	90	Lot 269 on Plan 160884
21	Lot 234 on Plan 233039	56	Lot 1 on Diagram 26416	91	Lot 468 on Plan 105331
22	Lot 238 on Plan 233039	57	Lot 2 on Diagram 26416	92	Lot 14 on Diagram 59240
23	Lot 294 on Plan 215144	58	Lot 156 on Plan 116083	93	Lot 353 on Plan 232758
24	Part of Lot 203 on Plan 20529	59	Lot 1 on Diagram 55531	94	Lot 1 on Diagram 14273
25	Lot 53 on Plan 222558	60	Lot 201 on Diagram 63804	95	Lot 500 on Plan 54466
26	Lot 54 on Plan 222558	61	Lot 351 on Plan 246088	96	Lot 500 on Plan 300750
27	Lot 55 on Plan 222558	62	Lot 363 on Plan 246091	97	Lot 501 on Plan 300750
28	Lot 56 on Plan 222558	63	Lot 621 on Plan 253766	98	Lot 354 on Plan 246090
29	Lot 57 on Plan 222558	64	Lot 514 on Plan 109077	99	Lot 855 on Plan 137859
30	Part of Lot 1300 on Plan 144687	65	Lot 3343 on Plan 253789	100	Lot 916 on Plan 253793
31	Lot 267 on Plan 157705	66	Lot 883 on Plan 253788	101	Lot 1 on Diagram 18220
32	Lot 1417 on Plan 157705	67	Lot 3 on Diagram 25032	102	Lot 2 on Diagram 18220
33	Lot 1418 on Plan 157705	68	Lot 701 on Plan 300752	103	Lot 327 on Plan 100512
34	Lot 1208 on Plan 104726	69	Lot 260 on Plan 257221	104	Lot 206 on Plan 424949
35	Lot 296 on Plan 215147	70	Lot 8 on Diagram 87877		