Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W3175/2025/1
Works approval holder	Alcoa of Australia Limited
ACN	004 879 298
Registered business address	Level 2, 235 St Georges Terrace PERTH WA 6000
DWER file number	INS-0003175
Duration	04/05/2026 to 03/05/2029
Date of issue	04/05/2026
Premises details	Wagerup Alumina Refinery Gallium Plant Willowdale Road, Waroona, WA, 6215 Legal description - Part of Lot 700 on Plan 59305, Certificate of Title Volume 2708 Folio 955 As defined by the premises map in Schedule 1- Figure 1 and the coordinates in Schedule 2

Prescribed premises category description (Schedule 1, Environmental Protection Regulations 1987)	Assessed production capacity
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

This works approval is granted to the works approval holder, subject to the attached conditions, on 4 May 2026, by:

Amine Fisher
Digitally signed by Amine Fisher
Date: 2026.05.04 11:58:36 +08'00'

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

Works approval history

Date	Reference number	Summary of changes
04/05/2026	W3175/2025/1	Works approval granted.

Interpretation

In this works approval:

(a) the words ‘including’, ‘includes’ and ‘include’ in conditions mean “including but not limited to”, and similar, as appropriate;

(b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;

(c) where tables are used in a condition, each row in a table constitutes a separate condition;

(d) any reference to an Australian or other standard, guideline, or code of practice in this works approval:

(i) if dated, refers to that particular version; and

(ii) if not dated, refers to the latest version and therefore may be subject to change over time;

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

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

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

Works approval conditions

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

Construction phase

Infrastructure and equipment

1. The works approval holder must:

(a) construct and/or install the infrastructure and/or equipment;

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

(c) at the corresponding infrastructure location,

as set out in Table 1.

Table 1: Design and construction / installation requirements

	Infrastructure and equipment	Design and construction / installation requirements	Infrastructure location
Gallium trains			
1.	5 x Gallium trains each comprising: 2 x ion exchange adsorption tower 1 x dilute acid tank 1 x eluate tank 1 x eluent tank 1 x dilute caustic tank 1 x spent liquor transfer tank 1 x caustic waste tank 1 x wash water tank; 1 x counter current wash tank 1 x acid waste tank 1 x electrolytic solution buffer tank 1 x hot water tank 1 x eluate neutralisation tank 1 x filter aid tank 1 x filter cake re-pulp tank 1 x mixed metals removal tank 1 x repulp tank 1 x dissolution/enrichment tank 1 x vanadium removal tank 1 x sodium sulphate	(a) The infrastructure comprising each train, with the exception of air receivers, must be wholly located within the Gallium plant building. (b) Each gallium train must have a design throughput of not more than 106 m^3/hour (c) All tanks that will contain corrosive substances must be designed and constructed to meet the requirements of AS 3780. (d) All tanks must be enclosed.	As shown in Schedule 1, Figure 2 as: Gallium trains 1-5

	Infrastructure and equipment	Design and construction / installation requirements	Infrastructure location
	transfer tank 1 x second centrate transfer tank 1 x caustic waste transfer tank 1 x H_2O_2 dosing rig 1 x lime storage tank 1 x reagent dosing pump area 3x heat exchangers 1 x air receiver Various pumps and transfer lines		
Common infrastructure			
2.	Gallium plant building	(a) Must be a fully enclosed building constructed from fabricated steel. (b) Building access points (doorways) must be located on the northern, eastern or western sides of the building. (c) Building must be constructed with a bunded concrete floor that: (i) includes a densifying admixture within the concrete to inhibit corrosion; (ii) is sufficiently impervious to retain and enable the recovery of any spillage; (iii) has capacity to contain not less than 110% of the volume of the largest storage vessel or 25% of the total storage volume within the bunded floor area; and (iv) drains towards a sump or sumps which are fitted with level sensors, a high-level alarm, and an automated pump to transfer liquids back to the process.	As shown in Schedule 1, Figure 2
3.	Spent liquor preparation circuit compromising: 2 x gel precipitation tank 1 x screen spray water tank 1 x gel discharge tank 1 x linear screen 1 x gel screen underflow tank Various pumps and transfer lines	(a) The infrastructure comprising the spent liquor preparation circuit must be wholly located within the Gallium plant building. (b) All tanks that will contain corrosive substances must be designed and constructed to meet the requirements of AS 3780. (c) All tanks must be enclosed, with the exception of the screen spray water tank.	As shown in Schedule 1, Figure 2 as: “Spent liquor preparation”

	Infrastructure and equipment	Design and construction / installation requirements	Infrastructure location
4.	Common process and reagent tanks compromising: 1 x brine tank 1 x chilled water tank 1 x fresh water tank 1 x spent liquor feed tank 1 x spent liquor return tank 1 x recycle water tank 1 x caustic water storage tank 1 x flocculant mixing and storage tank 1 x return water transfer tank; 1 x 50% caustic soda tank 1 x 98% sulfuric acid Various pumps and transfer lines	(a) The infrastructure comprising the common process and reagent tanks must be wholly located within the Gallium plant building. (b) All tanks that will contain corrosive substances must be designed and constructed to meet the requirements of AS 3780. (c) All tanks must be enclosed. (d) The caustic water storage tank and the 50% caustic soda tank must be A283 steel vented tanks located wholly within a discrete concrete bund that: (i) includes a densifying admixture within the concrete to inhibit corrosion; (ii) is sufficiently impervious to retain and enable the recovery of any spillage; (iii) has capacity to contain not less than 110% of the volume of the largest storage vessel or 25% of the total storage volume within the bund; and (iv) drains towards a sump which is fitted with level sensors, a high-level alarm, and an automated pump to transfer liquids to the return water transfer tank. (e) The 98% sulfuric acid tank must be an A240 316 stainless steel vented tank located within a discrete concrete bund that: (i) has an acid-resistant epoxy coating on all exposed concrete surfaces; (ii) is sufficiently impervious to retain and enable the recovery of any spillage; (iii) has capacity to contain not less than 110% of the volume of the largest storage vessel or 25% of the total storage volume within the bund; and (iv) drains towards a sump which is fitted with level sensors, a high-level alarm, and an automated pump to transfer liquids to the primary acid neutralisation tank. (f) The 50% caustic soda and 98% sulfuric acid tanks must be fitted with a high-level indicator connected to a visual or audible alarm, and a high-high level indicator connected to an automatic pump cut-off	As shown in Schedule 1, Figure 2 as: “Utilities”

	Infrastructure and equipment	Design and construction / installation requirements	Infrastructure location
		switch which are monitored by the process monitoring system.	
5.	Reagent receival area comprising: Concrete bunded hardstand Delivery pumps	(a) The reagent receival area must be constructed with a concrete bunded floor that is graded to direct drainage towards a sump which is fitted with level sensors, a high-level alarm, and an automated pump for recovery of spilled liquids. (b) The reagent receival area bunded floor must be covered by a roofed structure. (c) Delivery pumps must have interlocks which will shut-off in the event of a high-high level being reached in storage tanks.	As shown in Schedule 1, Figure 2 as: "Deliveries"
6.	Electrowinning circuit comprising: 1 x electrolyte return tank 10 x electrolytic cells 2 x standby electrolytic cells 1 x vent extraction system	(a) The infrastructure comprising the electrowinning circuit must be wholly located within the Gallium plant building. (b) All tanks must be designed and constructed to meet the requirements of AS 3780. (c) All tanks must be enclosed.	As shown in Schedule 1, Figure 2 as: "Electrowinning"
7.	Sulphate concentration & removal circuits comprising: 1 x sulphate tank 1 x permeate tank 1 x acid wastewater tank 3 x containerised water filtration units 1 x secondary acid neutralisation tank; 1 x primary acid neutralisation tank; 1 x lime storage silo with screw feeder; 1 x gypsum filter wash water tank 1 x sulphate filtrate tank 1 x plate and frame filter press 1 x concrete storage bunker for filter cake Various pumps and transfer lines	(a) The infrastructure comprising the sulphate concentration circuit and the sulphate removal circuit must be wholly located within the Gallium plant building. (b) All tanks that will contain corrosive substances, must be designed and constructed to meet the requirements of AS 3780. (c) The concrete storage bunker must be located beneath the plate and frame filter press and be constructed with: (i) a minimum capacity of 80 m^3; (ii) an access ramp; (iii) three walls with an externally facing opening for mobile plant access; and (iv) a solid panel roof with downward opening doors.	As shown in Schedule 1, Figure 2 as: "Sulphate concentration & removal circuits"
8.	Cooling plant comprising: 2 x chiller units 2 x cooling towers 2 x cooling water pumps	(a) Chiller units must be housed within noise mitigation enclosures.	As shown in Schedule 1 Figure 2 as: "Cooling plant area"

	Infrastructure and equipment	Design and construction / installation requirements	Infrastructure location
9.	Process monitoring system	(a) A process monitoring system must be installed and programmed which is capable of monitoring process tank levels, alarms and implementing automated shut-offs during operation of the gallium plant and associated pipelines connected to the refinery.	NA
10.	Pipelines between the refinery and the gallium plant for: Bayer liquor delivery Bayer liquor return De-sulphated water return 2x delivery pumps	(a) Pipeline tie-in points must be located over concrete slabs with bunding or other suitable bunded containment that will contain potential spillage of process liquor. (b) Refinery process liquor pipes connected to the pipeline tie-in points must be bled and isolated prior to commencing tie-in works or where this is not possible tie-in works must be undertaken in a manner which prevents discharge of bayer liquor or process water outside bunded containment. (c) Pipelines must be constructed using new materials that meet applicable Australia/New Zealand Standards: (i) AS/NZS 4130 for high density polyethylene pipelines; or (ii) AS 4041 for carbon and stainless steel pipelines. (d) Pipelines must be installed above ground within existing refinery pipe racks to enable visual inspection and leak detection. (e) Pressure indicators must be installed on the pipelines which are monitored by the process monitoring system and connected to a PLC programmed with an alarm and to cease pumping in the event of pressure loss.	As shown in Schedule 1, Figure 1 as: “Liquor transfer pipeline” “Water pipeline”
11.	5 x Electricity transformers	(a) Each transformer must be established within a bunded concrete containment area with a capacity to contain 110% of the volume of the transformer’s oil storage capacity.	As shown in Schedule 1 Figure 2 as: “Transformers”
12.	Noise offset project at: Tray seed pump 3 Tray seed pump 4	(a) Tray seed pumps must be retrofitted with an acoustic enclosure. (b) Enclosures must be installed prior to commencing time limited operations in accordance with condition 5.	As shown in Schedule 1, Figure 3 as: “45C3 tray seed pump” 45C4 tray seed pump”

2. The works approval holder must manage dust generation during construction, within the gallium plant area illustrated in Schedule 1, Figure 1, by:

(a) limiting speeds of all vehicle traffic; and

(b) conducting visual dust monitoring and implementing additional dust controls where visible dust is generated from construction activities or open areas.

Compliance reporting

3. The works approval holder must within 30 calendar days of all infrastructure or equipment required to operate each gallium train prescribed by condition 1 being constructed and/or installed:

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

(b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.

4. The Environmental Compliance Report required by condition 3, must include as a minimum the following:

(a) certification by a suitably qualified engineer that the items of infrastructure or component(s) thereof, as specified in condition 1, have been constructed in accordance with the relevant requirements specified in condition 1;

(b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 1; and

(c) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

Time limited operations phase

Commencement and duration

5. The works approval holder may only commence time limited operations for the infrastructure identified in condition 1 where an Environmental Compliance Report as required by condition 3 has been submitted by the works approval holder for that item of infrastructure.

6. The works approval holder may conduct time limited operations for the infrastructure specified in condition 1:

(a) for a period of time up to the expiry of this works approval; or

(b) until such time as a licence for that item of infrastructure is granted in accordance with Part V of the *Environmental Protection Act 1986,* if one is granted before the end of the period specified in condition 6(a).

7. The works approval holder must notify the CEO in writing within 7 days of the date of commencement of time limited operations for each gallium train.

Time limited operations – infrastructure and equipment

8. During time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 2 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 2 .

Table 2: Infrastructure requirements during time limited operations

	Site infrastructure and equipment	Operational requirements	Infrastructure location
1	Gallium trains 1-5	(a) Containment bunding must be maintained in a fit for purpose condition for containing liquids, free of damage which may impact its ability to contain fluids. (b) Spill kits must be available for clean-up of spillages. (c) Process liquor or chemical spillages must be immediately recovered for disposal or returned to the process. (d) Spent ion exchange resins removed from the adsorption towers must be stored within an enclosed steel containment receptacle with a stainless steel mesh screen for drainage of entrained liquid located within the gallium plant building. (e) Process liquor drained from spent ion exchange resins must be recovered within a collection vessel and returned to the process. (f) Recovered mixed metal precipitates must be stored within an enclosed skip bin or self-dumping tipping bin located within the gallium plant building. (g) Spent ion exchange resins and mixed metal precipitates must be removed from the premises by an appropriately licensed waste carrier and disposed of to an appropriately authorised waste facility. (h) Operation of the gallium train infrastructure must be monitored in real time by a process monitoring system programmed to alarm and/or shut-off when faults or malfunctions are detected. (i) All process monitoring system malfunction alarms must be investigated.	As shown in Schedule 1, Figure 2 as: Gallium trains 1 – 5
2	Gallium plant building and common infrastructure including: – Spent liquor preparation circuit – Common process and reagent tanks – Electrowinning circuit – Sulphate concentration & removal circuits	(a) Building access points (doorways) must remain closed, except to allow personnel or vehicle access. (b) Containment bunding must be maintained in a fit for purpose condition for containing liquids, free of damage which may impact its ability to contain fluids. (c) Spill kits must be available for clean-up of spillages. (d) Process liquor or chemical spillages must be immediately recovered for disposal or returned to the process. (e) Calcium sulphate filter cake recovered from the filter press must be stored within the designated concrete storage bunker. (f) Calcium sulphate spillages outside the storage bunker must be recovered and returned into the bunker. (g) Calcium sulphate filter waste must be removed from the premises by an appropriately licensed waste	As shown in Schedule 1, Figure 2 as: “Spent liquor preparation” “Utilities” “Electrowinning” “Sulphate concentration & removal circuits”

	Site infrastructure and equipment	Operational requirements	Infrastructure location
		carrier and disposed of to an appropriately authorised waste facility. (h) Operation of the gallium plant common infrastructure must be monitored in real time by a process monitoring system programmed to alarm and/or shut-off when faults or malfunctions are detected. (i) All process monitoring system malfunction alarms must be investigated.	
3	Reagent receival area	(a) Containment bunding must be maintained in a fit for purpose condition for containing liquids, free of damage which may impact its ability to contain fluids. (b) Spill kits must be available for clean-up of spillages (c) Reagent spillages must be immediately recovered for disposal or returned to storage tanks (d) Unloading of bulk reagents must be manned and undertaken within the receival area. (e) Bulk reagent delivery trucks must be connected to the unloading pumps with stainless steel camlock fittings on either end. (f) Reagent unloading must be monitored in real time by a process monitoring system programmed to alarm if a tank high level indicator is reached and cease pumping if a high-high level indicator is reached. (g) All process monitoring system malfunction alarms must be investigated.	As shown in Schedule 1, Figure 2 as: "Deliveries"
4	Pipelines between the refinery and the gallium plant for: Bayer liquor delivery Bayer liquor return De-sulphated water return Delivery pumps	(a) Pipelines must be maintained in a fit for purpose condition for containing liquids, free of damage which may impact its ability to contain fluids. (b) Pressure indictors on the pipeline inflow and outflow must be monitored in real time by the process monitoring system and a PLC programmed to alarm and cease pumping in the event of pressure loss. (c) All process monitoring system failure and malfunction alarms must be investigated. (d) Spills or leaks must be recovered for disposal or returned to the refinery.	As shown in Schedule 1, Figure 1 as: "Liquor transfer pipeline" "Water pipeline"
5	Mobile machinery including: Forklift CAT IT Wheel Loader Franna Crane Semi-trailer truck	(a) The listed mobile equipment must only be operated between the hours of: (i) 0700–1900, Monday to Saturday; and (ii) 0900-1900, Sunday or public holiday.	As shown in Schedule 1, Figure 1 as: "Gallium plant area"

9. During time limited operations, the works approval holder must ensure visual inspections of the infrastructure specified in Table 3 are undertaken in accordance with the inspection requirements, and at the frequency set out in Table 3.

Table 3: Inspection requirements during time limited operations

Infrastructure	Inspection requirement	Frequency of inspection
Pipelines between the refinery and the gallium plant for: – Bayer liquor delivery – Bayer liquor return – De-sulphated water return – Delivery pumps Shown in Schedule 1, Figure 1 as: "Liquor transfer pipeline" "Water pipeline"	Visual integrity inspection of the pipeline, tie-ins and pumps to identify damage or leaks.	At least once every 12 hours when the pipeline is operational.

10. The works approval holder must maintain a written log of all inspections undertaken in accordance with condition 9, with each inspection signed off by the person who conducted the inspection.

Waste monitoring

11. During time limited operations, the works approval holder must record the total amount of waste removed from the premises and the disposal location for the waste types listed in Table 4 in the corresponding unit, and for the corresponding time period, as set out in Table 4.

Table 4 Waste monitoring

Waste type	Waste disposal facility	Unit	Time period
Spent Ion-Exchange Resin	Name, location and classification	tonnes	Every month
Mixed metal precipitates			
Calcium sulphate solid waste			

Noise validation

12. Prior to commencing time limited operations in accordance with condition 5, the works approval holder must retain the services of a person qualified and experienced in the area of environmental noise assessment and who by their qualifications and experience is eligible to hold membership of the Australian Acoustical Society or the Australian Association of Acoustical Consultants to prepare and implement a Noise Validation Plan and a Noise Validation Report for the infrastructure constructed in accordance with condition 1.

13. The Noise Validation Plan must include:

(a) A monitoring program to determine the sound power levels of the as installed gallium plant and external ancillary infrastructure including but not limited to the cooling plant, water and liquor delivery pumps, tray seed pumps 3 and 4 and mobile equipment. The program must include a description of:

(i) monitoring equipment, with regards to Schedule 4 of the Noise Regulations, which will be used;
(ii) monitoring methods which will be used, including any relevant

Australian/New Zealand or acoustic monitoring standards; and
(iii) monitoring locations.

(b) A monitoring program to measure received noise levels in proximity to the gallium plant. The program must include a description of:

(i) monitoring equipment, with regards to Schedule 4 of the Noise Regulations, which will be used;
(ii) monitoring methods which will be used, including any relevant ISO or AS/NZS acoustic monitoring standards;
(iii) recording of meteorological conditions;
(iv) relevant near-field and/or far-field monitoring locations where received noise levels will be measured for the purposes of noise model validation;
(v) justification for the selected monitoring locations; and
(vi) the duration of monitoring at each location

14. The works approval holder must submit to the CEO the Noise Validation Plan prepared pursuant to condition 13 within 30 days of commencing time limited operations in accordance with condition 5.

15. When the CEO or their delegate has notified the works approval holder that the Noise Validation Plan has been accepted as suitably meeting the requirements of condition 13, and Gallium train 5 has commenced operation in accordance with condition 5, the works approval holder must:

(a) implement the Noise Validation Plan; and

(b) submit a Noise Validation Report to the CEO at least 90 days before the expiry of the works approval.

16. The Noise Validation Report prepared pursuant to condition 15 must include:

(a) a description of the locations and methods used for monitoring noise emissions from the premises;

(b) details and the results of the monitoring undertaken pursuant to the Noise Validation Plan,

(c) an assessment of the effectiveness of the tray seed noise enclosure noise offset;

(d) description of updates and changes made to the Wagerup Refinery Noise Model including inputs and adjustments, to incorporate outcomes of the monitoring undertaken pursuant to the Noise Validation Plan;

(e) details and results of investigations and modelling undertaken to:

(i) predict the nature and extent of the as-built noise emissions from the premises;
(ii) assess compliance of the predicted noise emissions against the Approved Levels specified in the Wagerup Refinery Noise Approval; and
(iii) demonstrate the gallium plant operation has no net increase to the Wagerup Alumina Refinery noise emissions.

(f) a plan detailing further proposed noise mitigation measures if the investigations undertaken in accordance with part (e) indicate the Wagerup Alumina Refinery noise emissions have increased or do not comply with the Approved Levels specified in the Wagerup Refinery Noise Approval.

Time limited operations – Reporting

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

18. The works approval holder must ensure the report required by condition 17 of this works approval includes the following:

(a) a summary of the time limited operations, including timeframes and amount of gallium produced;

(b) a summary of the visual inspections recorded in accordance with condition 10 including a summary of any issues identified and actions taken or proposed to rectify those issues;

(c) a summary of waste generation and disposal recorded in accordance with condition 11;

(d) a summary of any complaints received and recorded in accordance with condition 19;

(e) a summary of the environmental performance of all infrastructure as constructed or installed;

(f) a review of operational performance and compliance against the conditions of this works approval; and

(g) where the conditions of this works approval have not been met, what measures the works approval holder will take to meet them, and what timeframes will be required to implement those measures.

Records and reporting (general)

19. The works approval holder must record the following information in relation to complaints received by the works approval holder (whether received directly from a complainant or forwarded to them by the department or another party) about any alleged emissions from the premises:

(a) the name and contact details of the complainant, (if provided);

(b) the time and date of the complaint;

(c) the complete details of the complaint and any other concerns or other issues raised; and

(d) the complete details and dates of any action taken by the works approval holder to investigate or respond to any complaint.

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

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

(b) any maintenance of infrastructure that is performed in the course of complying with condition 8;

(c) visual inspections conducted in accordance with condition 9 and recorded in accordance with condition 10;

(d) monitoring programmes undertaken in accordance with condition 11 and condition 15(a); and

(e) complaints received under condition 19.

21. The books specified under condition 20 must:

(a) be legible;

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

(c) be retained by the works approval holder for the duration of the works approval; and

(d) be available to be produced to an inspector or the CEO as required.

Definitions

In this works approval, the terms in Table 5 have the meanings defined.

Table 5: Definitions

Term	Definition
AS/NZS	means Australian Standard / New Zealand Standard
AS 3780	means the most recent version and relevant parts of the Australian Standard *AS 3780:2023 — The storage and handling of corrosive substances*.
AS 4041	means the most recent version and relevant parts of the Australian Standard *AS 4041:2006 - Pressure piping*
AS/NZS 4130	means the most recent version and relevant parts of the Australian/New Zealand Standard *AS/NZS 4130:2018 - Polyethylene (PE) pipes for pressure applications*
books	has the same meaning given to that term under the EP Act.
bulk	means an undivided quantity of a reagent
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department administering the *Environmental Protection Act 1986* Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V Division 3 of the EP Act.
discharge	has the same meaning given to that term under the EP Act.
emission	has the same meaning given to that term under the EP Act.
Environmental Compliance Report	means a report to satisfy the CEO that the conditioned infrastructure and/or equipment has been constructed and/or installed in accordance with the works approval.
EP Act	*Environmental Protection Act 1986* (WA).
EP Regulations	Environmental Protection Regulations 1987 (WA).
Gallium Plant Noise Model	means the noise model referred to in the Alcoa Gallium Plant Environmental Noise Impact Assessment (Rpt01-AU03098-Rev1-9/2/2026)
ISO	means the International Organisation for Standardisation
Noise Regulations	Environmental Protection (Noise) Regulations 1997
PLC	means Programmable Logic Controller
premises	the premises to which this works approval applies, as specified at the front of this works approval and as shown on the

Term	Definition
	premises map Figure 1 in Schedule 1 to this works approval.
prescribed premises	has the same meaning given to that term under the EP Act.
standard daytime hours	meaning 0700 to 1900 hours Monday to Saturday, or on Sundays and public holidays.
Suitably qualified engineer	means a person who: a. holds a tertiary academic qualification in mechanical engineering; and b. has a minimum of five years' experience working in the area / field of plant design and operation, including validation and verification testing and reporting.
time limited operations	refers to the operation of the infrastructure and equipment identified under this works approval that is authorised for that purpose, subject to the relevant conditions.
Wagerup Refinery Noise Approval	Environmental Protection (Wagerup Alumina Refinery Noise Emissions) Approval 2012
Wagerup Refinery Noise Model	means the noise model referred to in the Wagerup Refinery Noise Model Design and Verification (1401217-4-600 Rev 5 19 Oct 2016)
waste	has the same meaning given to that term under the EP Act.
works approval	refers to this document, which evidences the grant of the works approval by the CEO under section 54 of the EP Act, subject to the conditions.
works approval holder	refers to the occupier of the premises being the person to whom this works approval has been granted, as specified at the front of this works approval.

END OF CONDITIONS

Schedule 1: Maps

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

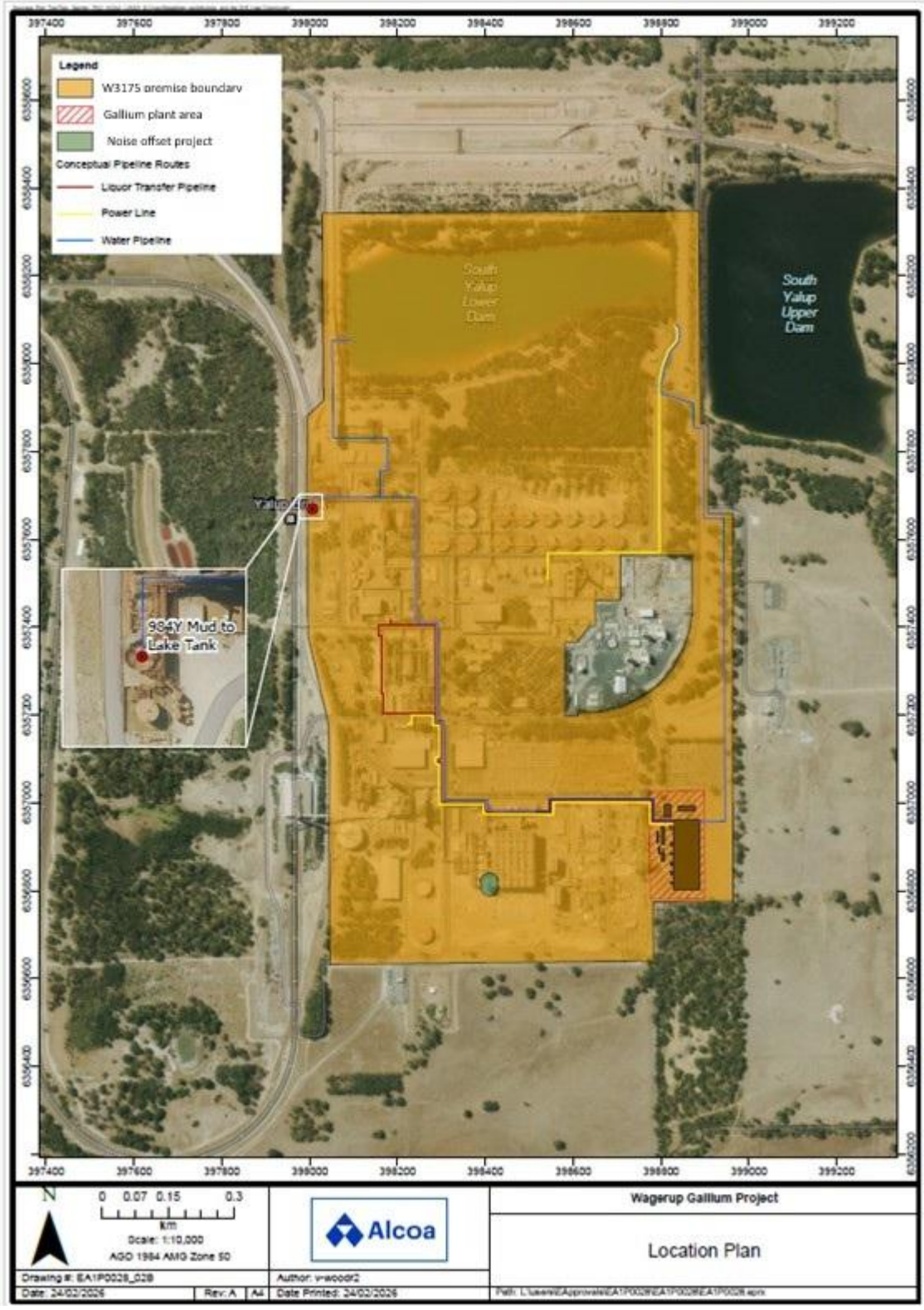
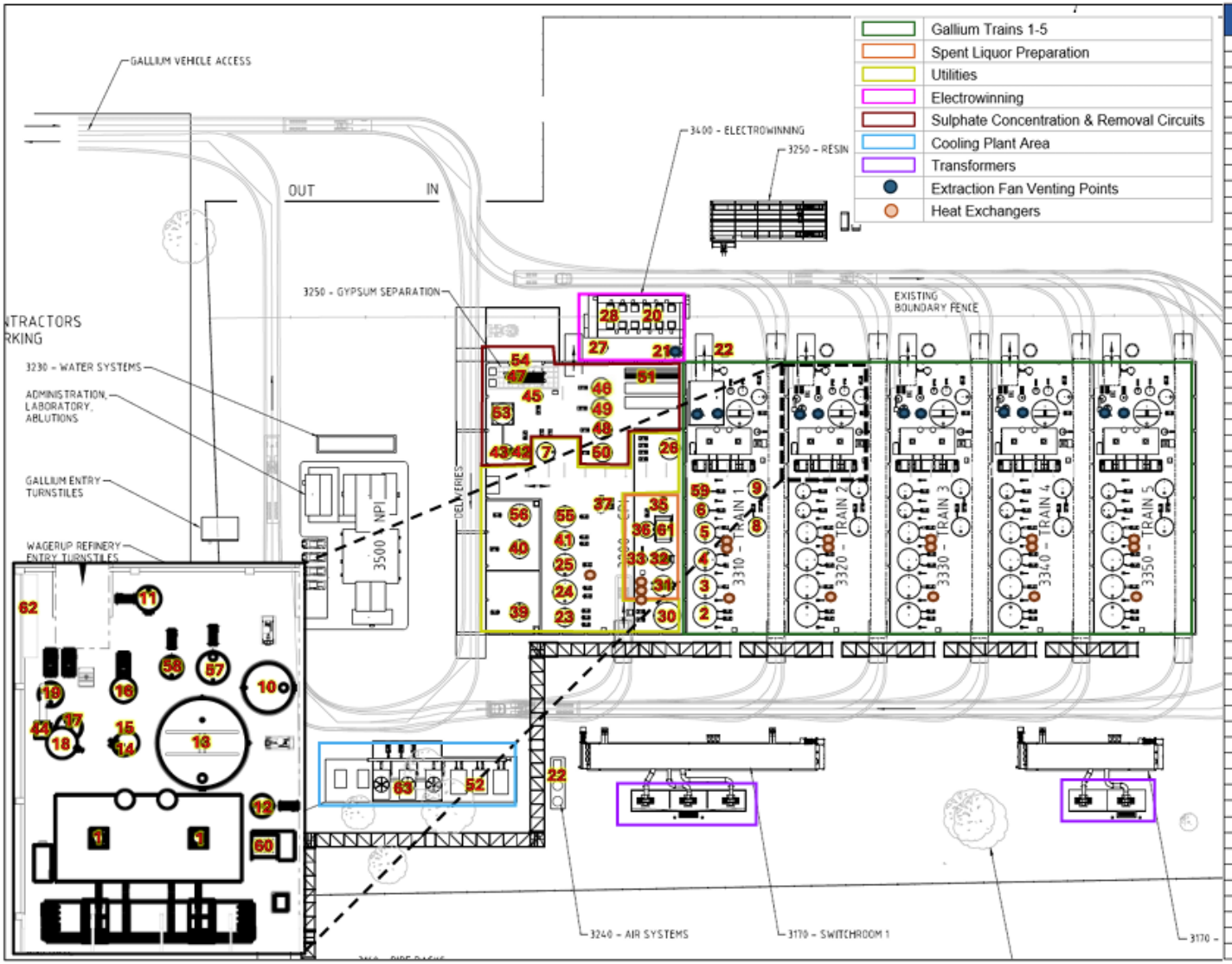


Figure 1: Map of the boundary of the prescribed premises



New Infrastructure	Infrastructure Location
Ion Exchange Towers	- 1
Dilute Acid Tank	- 2
Eluate Tank	- 3
Eluent Tank	- 4
Dilute Caustic tank	- 5
Spent Liquor Transfer Tank	- 6
Caustic Waste Tank	- 7
Wash Water Tank	- 8
Counter current Wash Tank	- 9
Acid Waste Tank	- 10
Electrolytic Solution Buffer Tank	- 11
Hot Water Tank	- 12
Eluate Neutralisation Tank	- 13
Filter Aid Tank	- 14
Filter Cake Re-Pulp Tank	- 15
Mixed Metals Removal Tank	- 16
Re-Pulp Tank	- 17
Dissolution/Enrichment Tank	- 18
Vanadium Removal Tank	- 19
Electrolytic Cells	- 20
Vent Extraction Systems	- 21
Air Receivers	- 22
Brine Tank	- 23
Chilled Water Tank	- 24
Fresh Water Tank	- 25
Spent Liquor Feed Tank	- 26
Electrolyte Return Tank	- 27
Standby Electrolytic Cells	- 28
Spent Liquor Return Tank	- 30
Gel Precipitation Tank 1	- 31
Gel Precipitation Tank 2	- 32
Screen Spray Water Tank	- 33
Gel Discharge Tank	- 35
Gel Screen Underflow	- 36
Flocculant Mixing	- 37
98% Sulphuric Acid Tank	- 39
50% Caustic Tank	- 40
Return Water Transfer Tank	- 41
Secondary Acid Neutralisation Tank	- 42
Primary Acid Neutralisation Tank	- 43
Lime Storage Tank	- 44
Gypsum Filter Wash Water Tank	- 45
Plate and Frame Filter Press	- 47
Sulphate Tank	- 48
Acid Waste Water Tank	- 50
3x Containerised Filtration Facility	- 51
Chillers	- 52
Lime Storage Silo	- 53
Calcium Sulphate Storage Bunker	- 54
Recycle water tank	- 55
Caustic Wash Storage Tank	- 56
Sodium Sulphate transfer tank	- 57
Second Centrate transfer tank	- 58
Caustic waste transfer tank	- 59
H_2O_2 Dosing Rig	- 60
Linear screen	- 61
Reagent dosing pump area	- 62
Cooling towers	- 63

Figure 2: Gallium plant layout

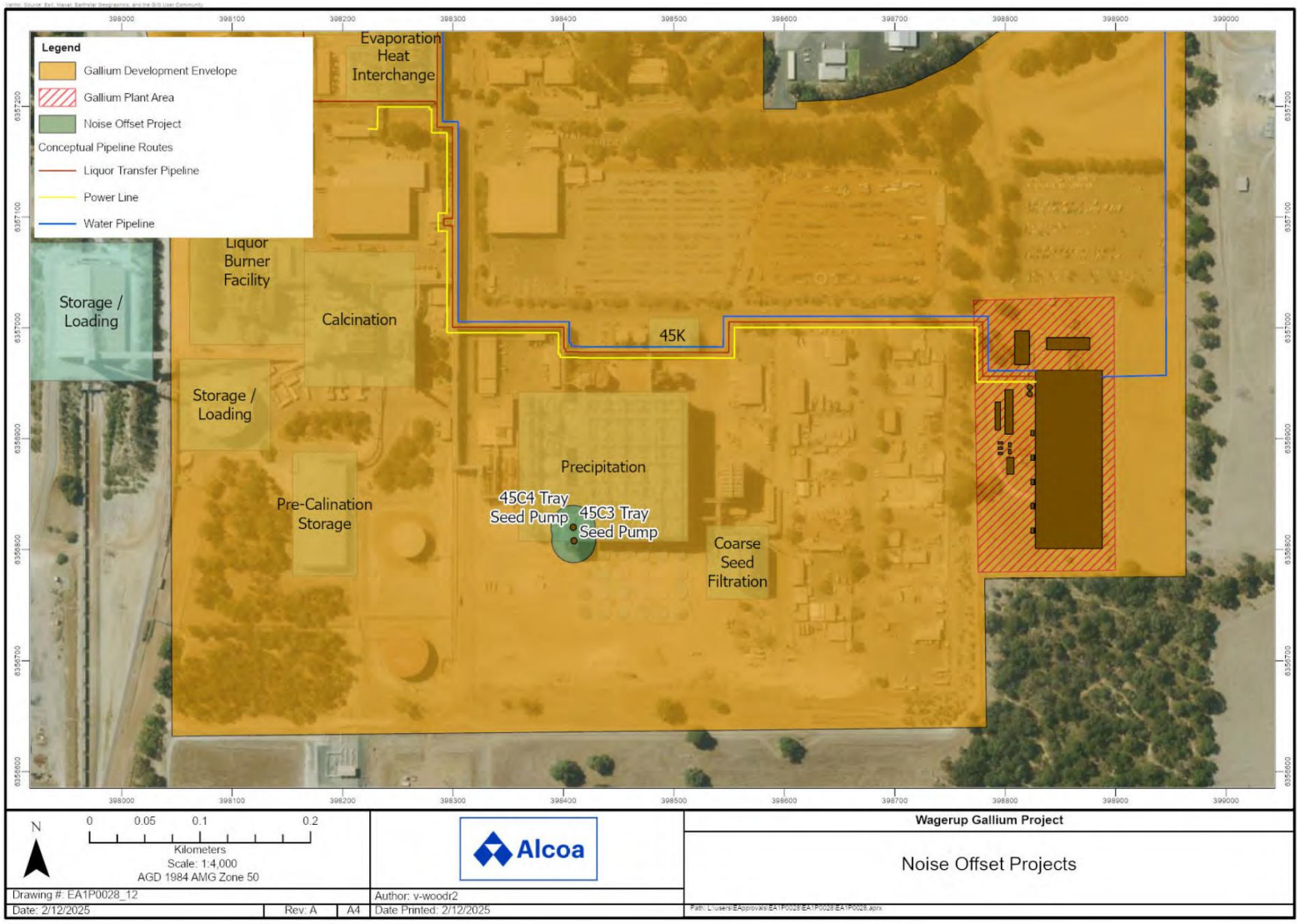


Figure 3: Location of noise offset projects

Schedule 2: Premises boundary

The corners of the premises boundary are the coordinates listed in Table 6.

Table 6: Premises boundary coordinates (GDA2020)

	Easting	Northing		Easting	Northing
1.	399103.4382	6356925.49	32.	399010.9642	6357594.781
2.	398921.369	6356923.279	33.	399010.9578	6357615.686
3.	398922.9518	6356789.811	34.	399010.9571	6357618.684
4.	398185.5231	6356781.879	35.	399010.9271	6357712.67
5.	398183.5345	6357326.618	36.	398920.9827	6357712.642
6.	398136.1228	6357527.977	37.	398915.6052	6357712.639
7.	398134.6184	6358029.414	38.	398899.7797	6357712.635
8.	398171.6308	6358065.952	39.	398876.8454	6357712.627
9.	398168.2481	6358492.198	40.	398859.484	6357712.622
10.	399026.5407	6358497.118	41.	398847.4727	6357712.617
11.	399030.5659	6358012.95	42.	398847.4729	6357711.947
12.	399040.2789	6358012.824	43.	398847.4793	6357692.373
13.	399046.2556	6358006.848	44.	398847.4912	6357658.241
14.	399046.8566	6357807.721	45.	398847.4993	6357633.248
15.	399102.7782	6357807.804	46.	398847.5045	6357616.832
16.	398721.0899	6357515.114	47.	398847.5052	6357613.833
17.	398721.1675	6357347.46	48.	398847.5068	6357611.643
18.	398750.6605	6357347.472	49.	398836.7687	6357611.64
19.	398750.6595	6357349.472	50.	398831.7598	6357611.638
20.	398750.6584	6357354.171	51.	398790.5272	6357611.622
21.	398800.5935	6357356.346	52.	398790.5427	6357575.998
22.	398849.3182	6357367.488	53.	398790.5417	6357575.848
23.	398894.6318	6357388.585	54.	398790.5427	6357574.469
24.	398934.6777	6357418.495	55.	398790.5434	6357572.999
25.	398967.2973	6357456.362	56.	398790.5435	6357571.85
26.	398991.7624	6357499.946	57.	398790.5444	6357569.47
27.	399006.3205	6357547.764	58.	398790.5514	6357552.633
28.	399009.0421	6357567.633	59.	398778.5553	6357552.628
29.	399009.4492	6357570.614	60.	398748.0814	6357515.125
30.	399010.9687	6357581.708	61.	398721.0899	6357515.114
31.	399010.9668	6357588.785			