



ELDERS TOLL FORMULATION PTY LTD

**PROPOSED CHEMICAL MIXING
FACILITY – EAST ROCKINGHAM**

**WORKS APPROVAL SUPPORTING
DOCUMENT**

LOT 13 on P23754

4 LODGE DRIVE, EAST ROCKINGHAM

Document number	Version	Document Date
ELD-WAPP-1	0	25 July 2024

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- Appendix 1: Elders Dangerous Goods Licence**
- Appendix 2: Itemised list of equipment to be installed at the facility**
- Appendix 3: Formulation Tanks Plans**
- Appendix 4: Hazardous Substance Register**
- Appendix 5: Emission Monitoring Plan (Ektimo)**
- Appendix 5: Waste Management Plan**
- Appendix 7: GHG emission estimate**
- Appendix 8: Odour Screening Analysis**
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- Appendix 10: COA for Results of Groundwater Analyses (from Tetra Tech Coffey 2023)**
- Appendix 11: Construction Cost Breakdown**

1.0 INTRODUCTION

1.1 BACKGROUND

Elders Toll Formulation Pty Ltd (Elders) propose to install a chemical mixing facility within the City of Rockingham to produce crop chemicals including insecticide, adjuvants and herbicides on Lot 13 Lodge Drive, East Rockingham.

A large shed exists on Lot 13 which was used for a wool scouring plant from 1995-2000.

The proposed facility is a 'Prescribed Premises' as per Schedule 1 of the *Environmental Protection Regulations 1987* and requires licensing under Part V of the *Environmental Protection Act 1986*:

- Category 33 – Chemical blending or mixing: premises on which chemicals or chemical products are mixed, blended or packaged.

1.2 OBJECTIVE

The objective of this document is to support Elders' Works Approval application for the proposed chemical mixing facility and provides the required 'Attachments' as referred to in the application.

1.3 LOCATION

The proposed facility is located on Lot 13, 4 Lodge Drive, East Rockingham (Lot 13 on Deposited Plan P23754).

The facility is located in the Rockingham Industrial Zone (RIZ) on Land zoned as 'General Industry' under City of Rockingham Town Planning Scheme 2 (Figure 1).

A large shed exists on Lot 13 (Figure 2) which is split into three tenancies and the facility will be located within the existing building in the northern tenancy, Tenancy 3 (Figure 3). The shed is now used for wool storage (Tenancy 1) while Tenancy 2 area is currently not occupied.

1.4 OCCUPIER STATUS

The land on which the premises is located is owned by Hamersley 1 WA Pty Ltd (Certificate of Title in Attachment 1A) and has been leased to Elders for 10 years.

A copy of the full lease document, which is confidential, has been provided to DWER separately to this document.

A copy of the ASIC Company Extract for Elders is included as Attachment 1B (Section 3.0).

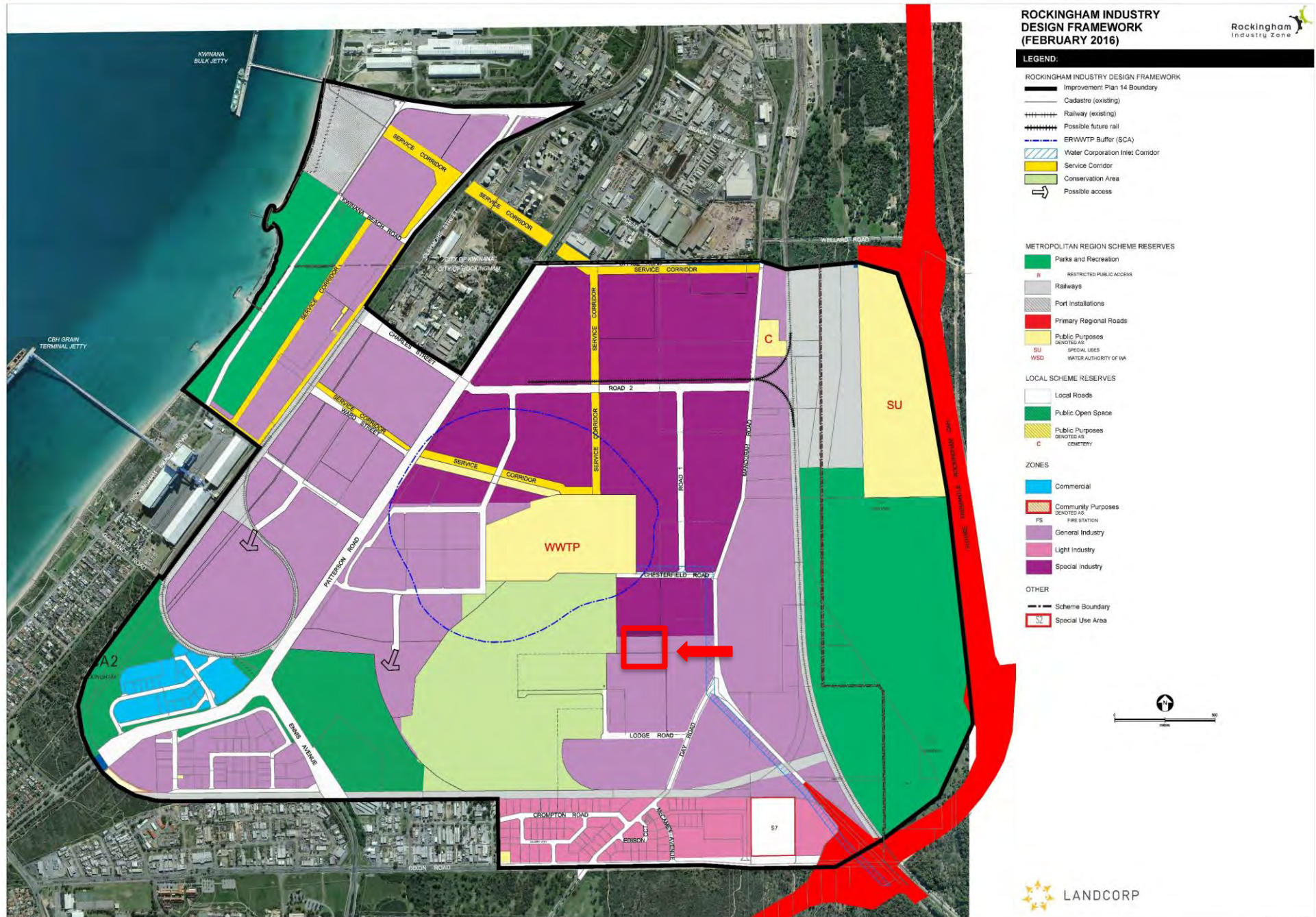


Figure 1: Location of the facility in Rockingham Industrial Zone (RIZ) (red arrow)

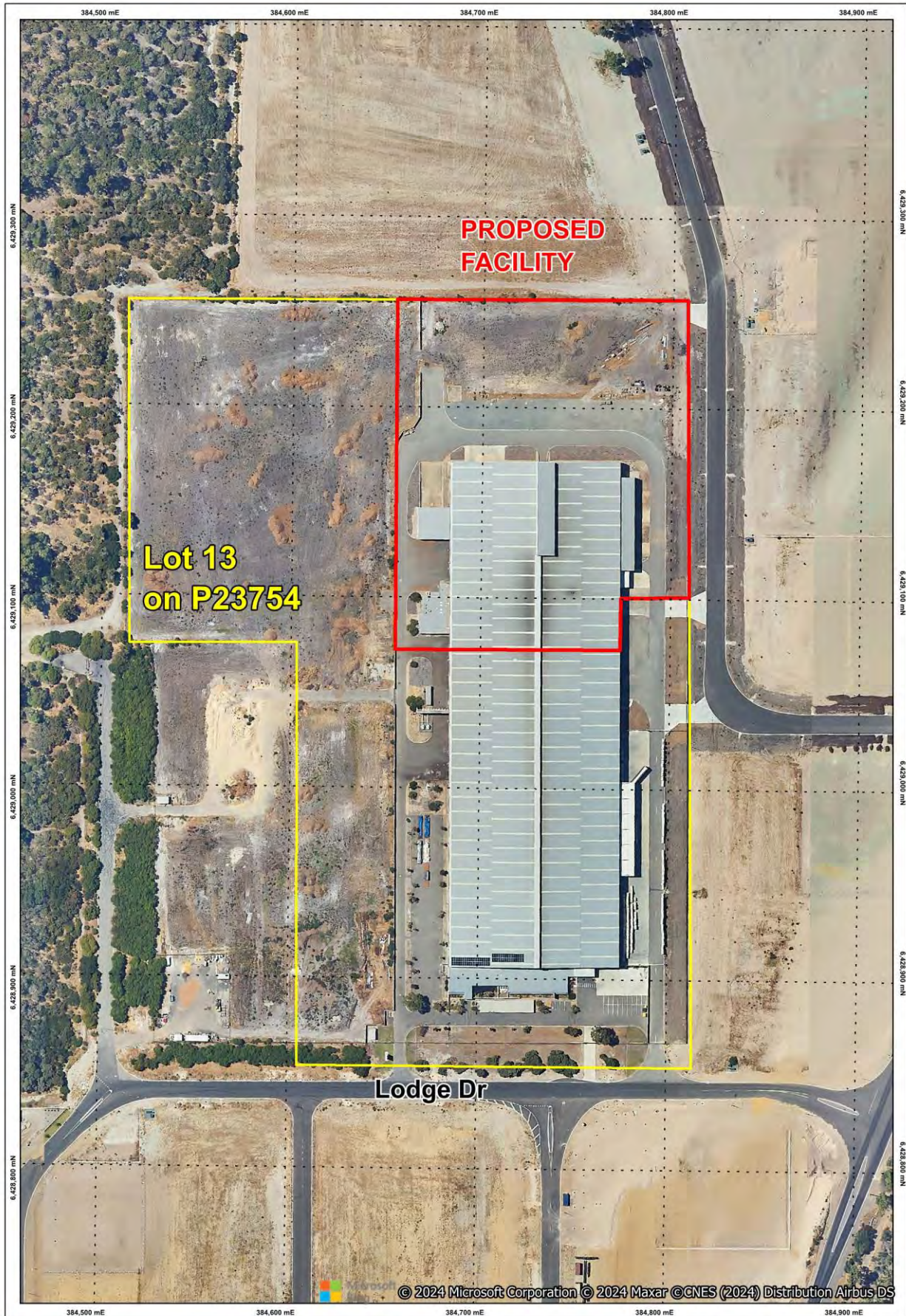


Figure 2: Location of premises relative to existing building

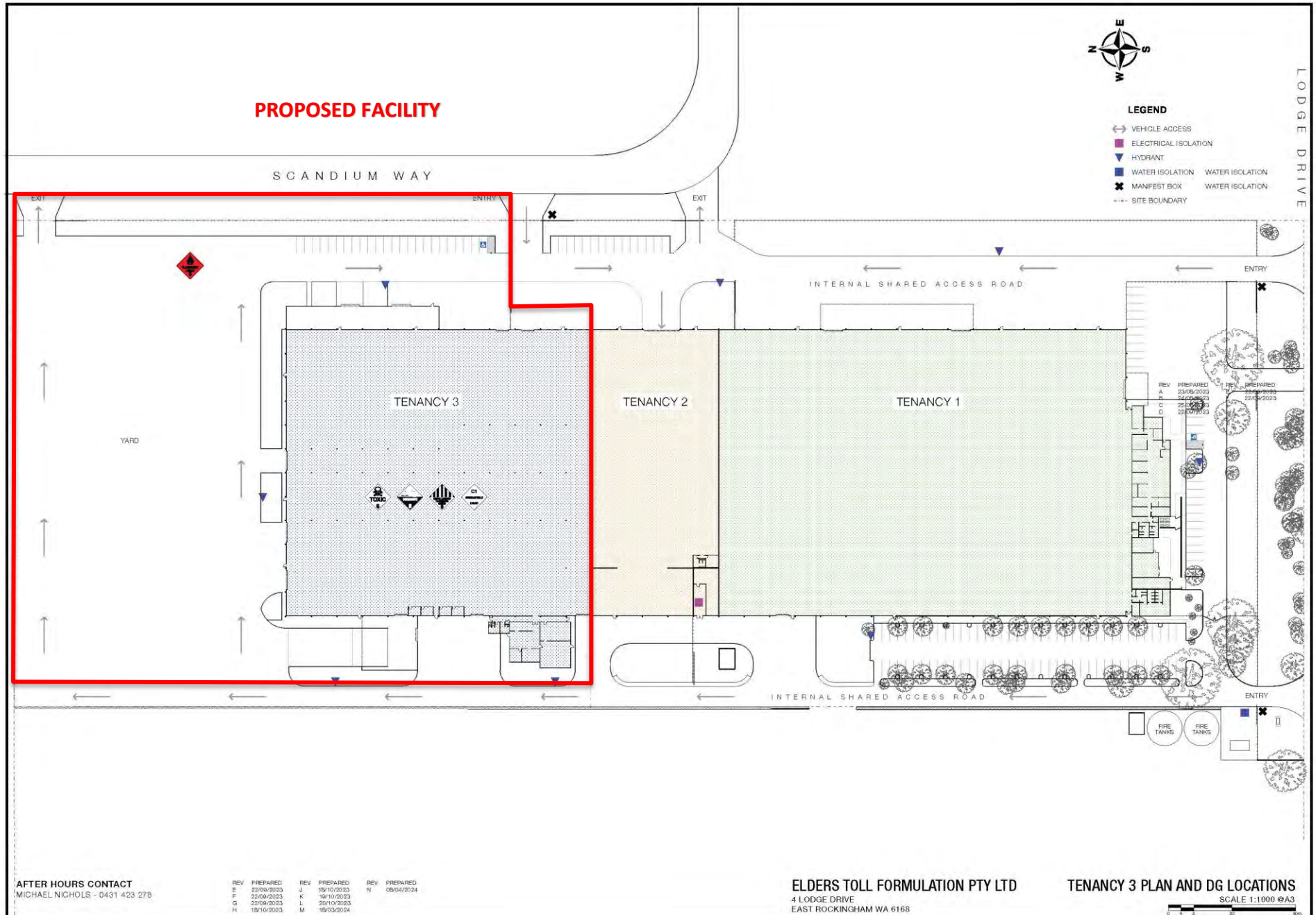


Figure 3: Location of proposed facility at Tenancy 3, 4 Lodge Drive

2 ATTACHMENT 1A - PROOF OF OCCUPIER STATUS

WESTERN			AUSTRALIA	
RECORD OF CERTIFICATE OF TITLE				
UNDER THE TRANSFER OF LAND ACT 1893				
		REGISTER NUMBER 13/P23754		
DUPLICATE EDITION 1	DATE DUPLICATE ISSUED 23/6/2006			
	VOLUME 2174	FOLIO 382		

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule,

BGRoberts
REGISTRAR OF TITLES 

LAND DESCRIPTION:

LOT 13 ON PLAN 23754

REGISTERED PROPRIETOR: (FIRST SCHEDULE)

HAMERSLEY 1 WA PTY LTD OF LEVEL 3 28-34 O'CONNELL STREET SYDNEY NSW 2000
(T O829620) REGISTERED 6/8/2021

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS: (SECOND SCHEDULE)

1. *H187834 NOTIFICATION CONTAINS FACTORS AFFECTING THE WITHIN LAND. LODGED 5/8/1999.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 2174-382 (13/P23754)
PREVIOUS TITLE: 2174-379
PROPERTY STREET ADDRESS: 4 LODGE DR, EAST ROCKINGHAM.
LOCAL GOVERNMENT AUTHORITY: CITY OF ROCKINGHAM

NOTE 1: DUPLICATE CERTIFICATE OF TITLE NOT ISSUED AS REQUESTED BY DEALING L564206

3 ATTACHMENT 1B - ASIC COMPANY EXTRACT



Australian Company

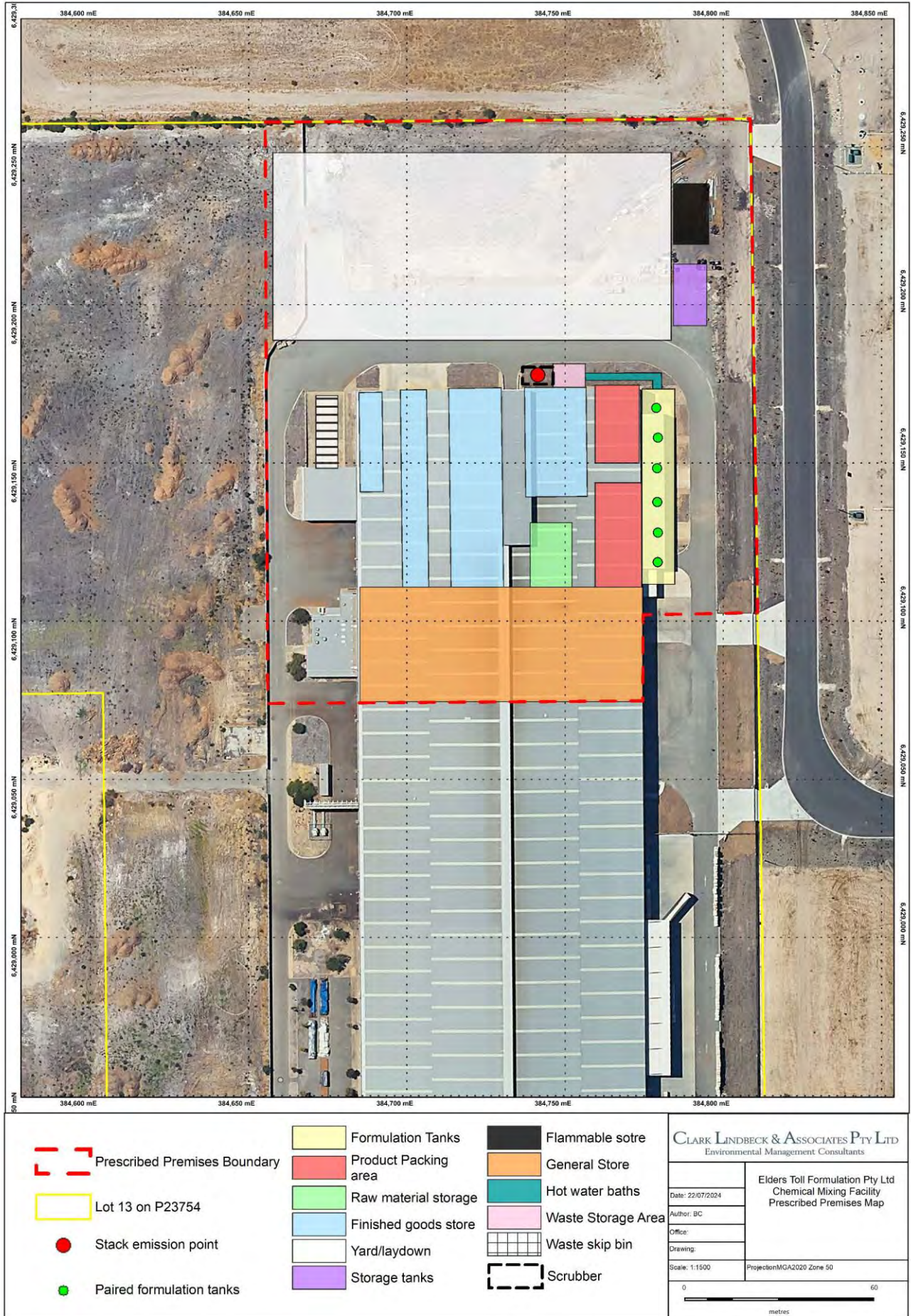
ELDERS TOLL FORMULATION PTY LTD
ACN 669 173 951

Extracted from ASIC's database at AEST 15:04:21 on 23/11/2023

Company Summary	
Name:	ELDERS TOLL FORMULATION PTY LTD
ACN:	669 173 951
ABN:	69 669 173 951
Registration Date:	27/06/2023
Next Review Date:	27/06/2024
Status:	Registered
Type:	Australian Proprietary Company, Limited By Shares
Locality of Registered Office:	ADELAIDE SA 5000
Regulator:	Australian Securities & Investments Commission

Further information relating to this organisation may be purchased from ASIC.

4 ATTACHMENT 2 - MAP OF PRESCRIBED PREMISES



5 ATTACHMENT 3 – PROPOSED ACTIVITIES

5.1 OVERVIEW

Elders propose to establish a chemical mixing facility to produce insecticides, adjuvants and herbicides which is a 'Category 33' prescribed premises (Table 1).

Activities at the facility will involve storing different raw materials and mixing those materials in formulation mixing tanks to produce a finished product to a set recipe and quality control standards that comply with those set by the Australian Pesticide and Veterinary Medicines Authority (APVMA).

Each type of product will have its own formulation mixing tank:

- Tank 1 - Insecticide
- Tank 2 – Adjuvant
- Tank 3 – Herbicide PreEm (Pre-Emergent)
- Tank 4 – Herbicide Phenoxo
- Tank 5 – Glyphosate
- Tank 6 – Suspension Concentrate (SC) Plant - water based herbicide.

Following blending of the raw materials in these mixing tanks, the blended product will be transferred to the adjacent paired tank for storage and pumping into packages which will range from 5 L to 1,000 L, and then stored on-site and dispatched as required in accordance with AS 1940:2017.

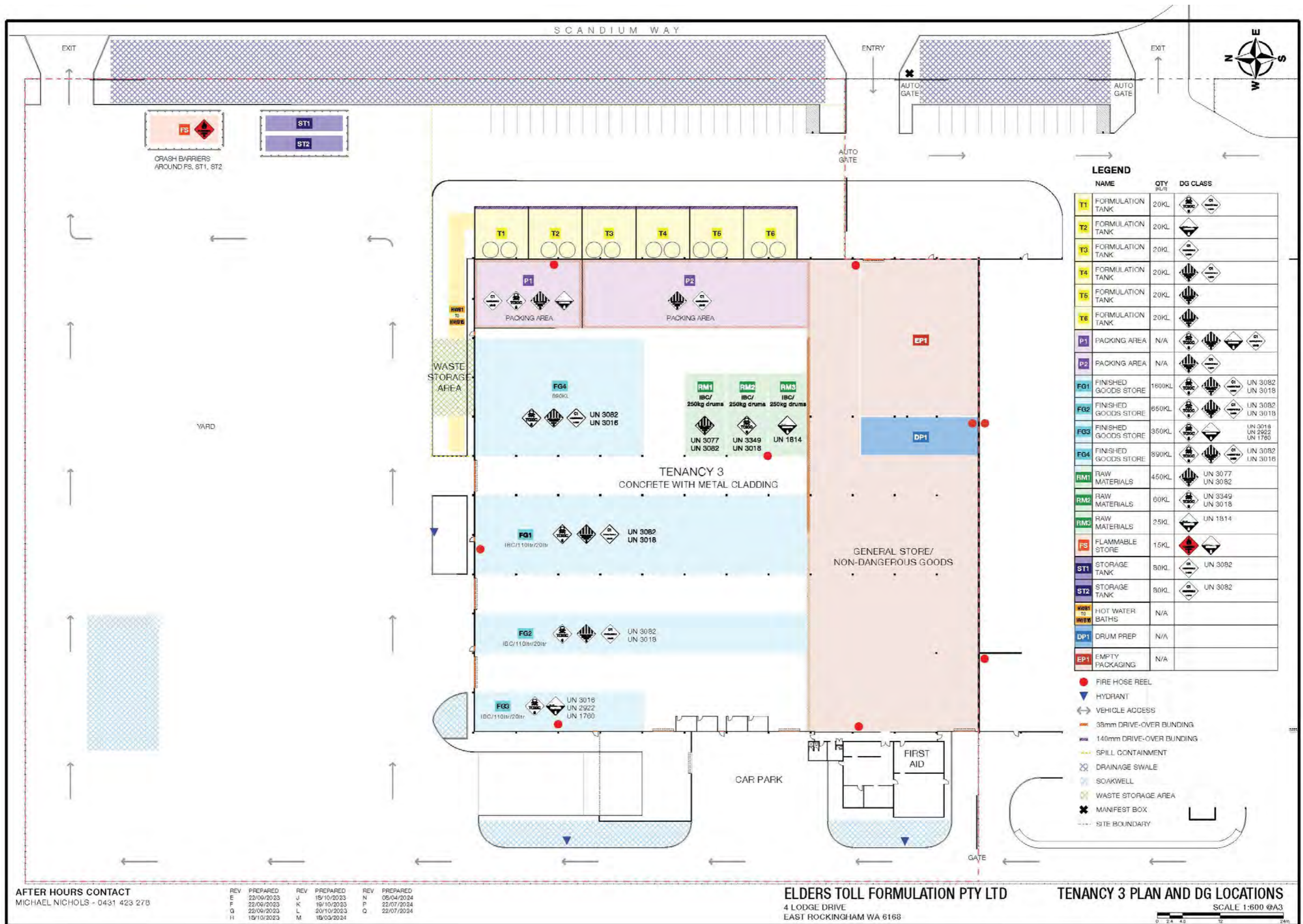
The total production from the facility is approximately 5,500 tpa (Year 1) ramping up to 9,500 tpa (Year 5). The production schedule is based on seasonal demand.

A site plan showing the layout with goods and storage volumes in provided in Figure 4.

The site has a Dangerous Good Licence which is attached as Appendix 1.

Table 1: Prescribed premises category summary

Category	Description	Production or design capacity threshold	Premises design capacity
33	Chemical blending or mixing: premises on which chemicals or chemical products are mixed, blended or packaged	500 tpa	9,500 tpa



AFTER HOURS CONTACT
MICHAEL NICHOLS - 0431 423 278

REV	PREPARED	REV	PREPARED	REV	PREPARED
E	22/09/2023	J	15/10/2023	N	05/04/2024
F	22/09/2023	K	19/10/2023	P	22/07/2024
G	22/09/2023	L	20/10/2023	Q	22/07/2024
H	15/10/2023	M	15/03/2024		

ELDERS TOLL FORMULATION PTY LTD
4 LODGE DRIVE
EAST ROCKINGHAM WA 6168

TENANCY 3 PLAN AND DG LOCATIONS
SCALE 1:600 @A3

Figure 4: Site layout of proposed facility with storage volumes and DG ratings

5.2 KEY INFRASTRUCTURE AND EQUIPMENT

A summary of the key infrastructure to be installed at site is provided in Table 2. Appendix 2 includes an itemised list of equipment.

All areas will comply with:

- AS1940:2017 Section 5.8 'Bunds and Compounds' and Appendix B 'Recommendations for the Design and Construction of Blending Plants'

The premises will also include (not part of 'prescribed premises' category):

- General Store
- Office/ablutions
- Laboratory.

Table 2: Elders summary of key infrastructure and equipment

Key infrastructure/equipment	Description
T1 - Insecticide T2 – Adjuvant T3 – Herbicide PreEm T4 – Herbicide Phenoxy T5 – Glyphosate Paired tanks at T1-T5 comprising: 5 x 20 kL Formulation mixing tanks 5 x 20 kL Packing tanks (Total 240 kL capacity) T6 – SC Plant 4 x 5,000 L Formulation mixing tanks 4 x 5,000 L Packing tanks	<p>Blending area is 10 m x 10 m for each paired tanks located on concrete hardstand. Formulation mixing tank area is located outside of the existing building and is roofed to prevent incident rainfall inflow.</p> <p>GA of formulation tanks included in Appendix 3.</p> <p>T1-T5 pairs tanks – combustible liquid; T6 pair – water based products</p> <p>In each pair of tanks one tank is for blending raw materials which are then transferred to the adjacent tank for storage and pumping into packages.</p> <p>Tanks designed to AS1940 and AS1692.</p> <p>All tanks are in concrete bunded areas in compliance with AS1940.</p> <p>Concrete bund wall constructed to 140mm around perimeter of blending areas (10 x 10m) allows secondary containment of 84 kL (>25% of the total storage volume capacity in the tanks).</p> <p>All tanks protected by bunding and fire safety wall.</p> <p>Pipes in pipe racks. Flexible hoses used to supply raw materials from IBCs or drums.</p> <p>Each tank will have Venting – 4m high tank; 4.5m from tank to roof – atmospheric vents.</p> <p>Liquid level alarm in tanks at 20 kL.</p> <p>Each bay is separated from the next by a low wall 100 mm high which will ensure catchment of 25% of each pair of tanks and contain any potential spills.</p> <p>Tilt panels to 4m height segregating each bay and cladded to 4m above the roof – so each bay is separate. Tilt panel on north, south and western side of all formulation tanks.</p> <p>Any spills and/or washdown water from this area will be pumped out and stored in tanks for reuse or removal offsite.</p> <p>Chemical vapours and/or powder dust vented into wet scrubber.</p> <p>Tanks are not pressurised.</p>

Key infrastructure/equipment	Description
Scrubber system	<p>Wet scrubber system to be installed which will include three dedicated vent headers going into the scrubber:</p> <ol style="list-style-type: none"> 1. Insecticide Tanks (T1 and T2), including mixing and storage tanks. 2. Herbicide Tanks (T3; T4 and T5), including mixing and storage tanks. There is provision in the design for an additional T6 to be included at a later date. 3. Extraction system from the filling area. <p>The combined extraction systems are then ducted to a single packed bed scrubber, complete with spray nozzles, recirculation pipework and pump system, mist eliminator, clean air ductwork, ID fan and discharge stack.</p> <p>Extraction system design based on assessment of raw and final products and associated flow rates in T1-T6.</p> <p>pH control systems fitted to scrubber to maintain pH of recirculating water.</p> <p>Carbon filter to be installed from vent headers.</p> <p>Scrubber Stack Emission point height: 19m (maximum).</p> <p>Emission monitoring points to be installed comprising 2 x 4" Flange sampling access ports. Sampling ports installed to conform with 'AS4323.1—Stationary source emissions Selection of sampling positions and measurement of velocity in stacks'.</p>
Packing area	<p>Blended product from the storage tank in each formulation area is pumped into different packages, the volume dependent on the product and volume ordered by clients (ranging from 5L-20L and 100L – 1,000L).</p> <p>Product is piped into the building to packing area i.e. from Mixing tank to inside building.</p> <p>Located in bunded hardstand storage areas, or, on self-contained bunding. P1, P2 on Attachment 2 (Map of Prescribed Premise).</p>
Raw materials storage	<p>Storage area for materials to be placed in formulation mixing tanks.</p> <p>Located in bunded hardstand storage areas, or, on self-contained bunding.</p> <p>RM1 - 450 kL storage area RM2 – 60 kL storage area RM3 – 25 kL storage area All IBC – 250 kg drums</p>
Finished Goods store	<p>Storage area for product prior to loading onto trucks for transport offsite.</p> <p>Store finished goods in designated area to AS 1940:2017 compliance.</p> <p>Located in bunded hardstand storage areas, or, on self-contained bunding.</p> <p>FG1 – 1,600 kL storage area: IBC – 110L/20L FG2 – 650 kL storage area: IBC – 110L/20L FG3 – 350 kL storage area: IBC – 110L/20L FG4 – 890 kL storage area</p>
Storage Tanks	<p>ST1, ST2 on Attachment 2 (Map of Prescribed Premise).</p> <p>2 x 80 kL storage tanks combustible liquid installed on concrete hardstand.</p> <p>Self-bunded double walled tanks</p>

Key infrastructure/equipment	Description
	<p>Designed to AS1692</p> <p>Pipework located within SBT</p> <p>Overfill alarm and overfill float valve</p> <p>2 x high level switches with auto-emergency shutoff</p> <p>Certified venting on top of tanks – water vapour trap fitted</p> <p>Tanks surrounded by bollards.</p> <p>Roll over/grate (sump) to capture any potential spills @ transfer point with concrete graded towards the grate.</p>
Hot Water Baths	To keep products warm for flowability of liquid and melt solid to liquid out of drums and pumping into mixing vessel.
Flammable Store	<p>15 kL storage area.</p> <p>Stored in accordance with the requirements of the <i>Dangerous Goods Safety Act 2004</i> and the <i>Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007</i>.</p>
Waste Storage Area	Separate segregated storage area for drums and containers.
Fire Protection	<p>Fire detection and fire-fighting equipment installed and maintained at the premises.</p> <p>Fire detection system linked to emergency services.</p>

5.3 SITE PREPARATION AND CONSTRUCTION

As the facility is located within an existing building, the construction works required for the proposed prescribed premise relate to:

- Ensuring area inside existing T3 facility has impervious concrete hardstand and construction of concrete bunded and hardstand areas for each formulation tank area (bay for T1-T6) in accordance with AS1940.
- Installation of equipment as listed in Table 2 and Appendix 1.
- Establishing power and water connections to the newly installed equipment.

The sealed hardstand area immediately north of the T3 building, which will not be used for storage of any chemicals/dangerous goods, is being established by Ovest (Landlord) and runoff off from this area will be directed a drainage swale north of this area .

The site has an existing stormwater management system and the location of soak wells and drainage swales, to which incident rainfall and surface water flow is directed, is shown in Figure 4. The overall site stormwater management plan is currently being updated Ovest.

The formulation tanks area is located on the eastern side of the facility (Attachment 2 – Map of Prescribed Activities) and raw materials will be transported to this area via forklift from inside the building. The running surface for the forklift from the building to the formulation area will be located on a sealed surface area with all runoff from this area being directed to a containment drain on the eastern side of the premise which will have a shutoff valve (Figure 5).

Further detail on spill management is provided in Section 8.6.



Figure 5: Surface water flow/containment outside of the existing building

Timing for construction works is included in Table 3. The SC Plant (T6) is proposed to be installed in Year 3. The formulation bay (minus the tanks and piping) will be constructed at the same time the bays for T1-T5 are constructed.

Construction (installation) works will be completed progressively as equipment/infrastructure is available, as such, Elders has allowed six months for completion of all infrastructure.

Table 3: Construction Activity Timing

Infrastructure	Construction duration
Chemical Mixing Facility T1-5	<ul style="list-style-type: none"> Construction work duration: allow 6 months Expected commencement of construction: July 2024 Expected completion of construction: December 2024
T6 (SC Plant) (Year 3)	<ul style="list-style-type: none"> Expected commencement of construction: July 2026 Expected completion of construction: September 2026

5.4 CHEMICAL MIXING PROCESS

5.4.1 Inputs and Outputs

Elders may use various products in the facility depending on the specific product ordered. These inputs are largely in liquid form with some solids with the main inputs comprising a variety of:

- Solvents
- Emulsifiers
- Surfactants
- Deionised water.

Appendix 4 includes a hazardous substance register which lists the various chemical inputs (also includes finished products).

Liquids will be transferred via flow meters via bulk site storage, while other inputs are added from drums or IBC's using pallet scales and air pumps.

Water used in the formulation process will be sourced from mains water supply and stored in a tank(s) at the facility.

Outputs from the process include the product itself (Section 5.4.3), wash water (which will be reused in the process) and emissions from the scrubbers (Section 8.2, Section 8.3).

5.4.2 Process flow

The process at the facility involves mixing of raw materials in formulation tanks to generate product and does not involve any additional processing.

An outline of the process in the proposed facility is outlined below:

- Goods Receipt.
- Unload delivery of materials.
- Store in designated storage area according to relevant AS 1940:2017.
- Check SDS and Manufacturing Instructions for relevant PPE requirements.
- Stage Bill of Materials (BOM) ready for production schedule.

- Add products to Mixing Vessel / Tank to Manufacturing Instructions inclusions list.
- Check product is within Quality Control parameters, once cleared by Laboratory Personal transfer to Pack Tank.
- Check packaging is correct to BOM items e.g. label, drum type, product name.
- Pack product to Quality Control Parameters litres / weight.
- Store finished goods in designated area to AS 1940:2017 compliance.
- Check stock is correct for dispatch as per picking slip information, load product to Australian Dangerous Goods Code, Department of Transport.

5.4.3 Products

A list of the products and volumes to be produced annually in each tank is provided in Table 4.

Products will be stored in drums or IBC ranging in size from 5 L - 100 L- 1,000 L for transport offsite.

5.5 SOLID AND LIQUID WASTES

Table 5 provides a summary of solid waste management for the facility.

Solid wastes to be produced at the facility include:

- General site waste
- Empty packaging – drums, etc
- Process filters
- Contaminated rags.

Solid waste skips bins will be installed on site for ‘General Waste’ and ‘Contaminated Waste’.

The mixing process does not create any liquid waste. Elders has included provision, if required, for offsite disposal of any liquid waste (i.e. washwater that is not reused) using Cleanaway.

Elders has produced as Waste Management Plan which is included as Appendix 5.

Table 5: Waste management on site

Waste type	Examples	Dangerous Goods classes	Method of storage	Method of disposal	Expected volume (tpa)
Contaminated /chemical waste	<ul style="list-style-type: none"> • Waste packaging • process filters • rags (that may contain toxic / corrosive / combustible / Class 9 Miscellaneous Goods residues). 	<ul style="list-style-type: none"> • 6.1 (Toxic) • 8 (Corrosive) • 9 (Miscellaneous Goods) • C1 Combustibles 	Skip bin	Third-party Waste Contractor	24
Putrescible	<ul style="list-style-type: none"> • Food scraps, office and lunch room waste 	<ul style="list-style-type: none"> • N/A 	Commercial waste bin with lid	Third-party Waste Contractor	1
General waste	<ul style="list-style-type: none"> • paper • plastics • cardboard • wood 	<ul style="list-style-type: none"> • N/A 	Commercial waste bin with lid	Third-party Waste contractor	20
Empty drums and containers	<ul style="list-style-type: none"> • Contaminated IBC plastic tanks • steel drums containing chemical residue 	<ul style="list-style-type: none"> • 6.1 (toxic) • 8 (Corrosive) • 9 (Miscellaneous Goods) • C1 Combustibles 	Segregated storage area	Clean Drum Co (WA) Pty Ltd; Schutz Australia	30

6 ATTACHMENT 3A – COMMISSIONING PLAN AND TIME LIMITED OPERATIONS

6.1 OVERVIEW OF COMMISSIONING

Commissioning of the facility will commence upon completion of equipment installation. This will involve progressive testing and commissioning of all systems to ensure they operate within the manufacturers guidance and establishment of power and water connections. including:

- Hot water baths (leak tested before arrival on site)
- Formulation mixing tanks – (pipework is pressure tested before delivery (leak tested).
- Scrubber – air flow testing.

As the formulation mixing and packing tanks in the formulation bays are not pressurised, there is not a lot of testing required as part of the commissioning works.

Elders has allowed provision for commissioning to be completed progressively with receipt of equipment/infrastructure over 6 months (expected August – December). Formulation mixing/packing tanks T1-5 will be installed initially, with the SC Plant tanks (T 6) to be installed in Year 3.

Time limited operations (TLO) are proposed to commence immediately upon the completion of all commissioning activity. Elders' requests TLO (allowance of 180 days or until DWER Licence is issued) be undertaken under the Works Approval to allow for assessment and issue of the Operating Licence by DWER.

6.2 MANAGEMENT AND MONITORING

6.2.1 Summary

Elders will oversee all commissioning and TLO and will have a Facility Manager on site at all times to supervise all activities.

The proposed controls and management measures to be implemented during commissioning and TLO are included in Section 8.7, Table 12 'Risk Assessment and Management Summary'.

6.2.2 Monitoring

6.2.2.1 Commissioning

During commissioning daily inspections of all areas will be undertaken to:

- Ensure all chemicals/dangerous goods are stored in bunded areas or self-contained bunds
- All works floors are free of spilled material.

As no chemicals/raw products will be added to the formulation tanks during commissioning, no emission monitoring is proposed.

Further detail on the monitoring to be undertaken during commissioning is included in Table 12.

6.2.2.2 Time-Limited operations

During TLO daily inspections of all areas will be undertaken to:

- Ensure all chemicals/dangerous goods are stored in bunded areas or self-contained bunds
- All works floors are free of spilled material.
- Ensure suitable capacity maintained in formulation tank bays, and all self-contained chemical storage bunds.

An Emission Monitoring Plan has been prepared by Ektimo which is included as Appendix 6. The stack and sampling port will be installed according to Ektimo's advice. The emission testing includes a number of parameters including speciated volatile organic compounds, MCPA (2-methyl-4-chlorophenoxyacetic acid) and Trifluralin.

Elders propose the following schedule for emission monitoring:

1. Initial sampling to coincide with commencement of full operational formulation (minimum of 2 x bays operating simultaneously) at commencement of TLO.
2. Sampling of 5 x bays operating simultaneously during TLO (i.e. when all operational)
3. Conduct sampling at 3-monthly intervals for the first 12 months of TLO/operations interval (assess results and determine if ongoing 3-monthly sampling is required).
4. Conduct sampling at 6-monthly intervals for 12 months (dependent on the results for #3).

Elders expects this will provide an accurate dataset to confirm low levels of emissions from the facility and that confirm that there is no significant impact on the environment and nearby sensitive receptors.

Further detail on the monitoring to be undertaken during TLO is included in Table 12.

6.2.3 Environmental Targets and Limits

A summary of Elders' targets/limits developed for commissioning and time limited operations is included in Table 6.

Table 6: Commissioning /TLO limits and targets

Infrastructure		Commissioning/Time limited operations Targets
Formulation scrubber	Tanks	All emissions from formulation tanks directed to scrubber.
		Emission monitoring is completed as per the schedule included in 6.2.2.2. No odour complaints by nearby industrial or sensitive receptors.
Chemical facility	mixing	Target – no release of chemicals/dangerous goods outside of containment areas.
		Target - All areas maintained free of spilled material/liquid.
		Target - All potential spills of raw materials or products outside of the facility are directed to the containment drain on the east of the formulation bays which are closed off in the event of a spill, until all material is removed and area cleaned of spilled material.

6.3 EMISSIONS AND DISCHARGES

The emissions and discharges relating to commissioning and time limited operations, with the proposed controls, are provided in Attachment 6A, Section 8.

6.4 CONTINGENCIES

If any of the targets/limits included in Table 6 are exceeded, the source will be investigated, and remedial actions implemented as required.

In relation to emissions from the scrubber, if the emission testing determines it is not operating to its design specifications, remedial works will be identified and completed and following any upgrade, additional emission testing will be completed to confirm the issue has been rectified.

6.5 MANAGEMENT OF MALFUNCTIONS

During the commissioning and TLO phase, malfunction of equipment may occur. If a failure occurs, then the system will be shut down until the fault is rectified.

6.6 REPORTING

All incidents will be recorded and investigated under an internal incident reporting system in place at the facility. Reporting of incidents other than minor incidents shall follow the requirements set out in s72 of the *Environmental Protection Act 1986*.

Should any of the targets (stated above) be exceeded during commissioning or time limited operations, Elders will provide the DWER with the following information:

- The non-conforming emission / discharge and extent to which the target value was exceeded.
- Management responses to the exceedance and their effect on the emission / discharge.
- An explanation as to why the exceedance may have occurred and any corrective actions taken to minimise/ameliorate the risk of a re-occurrence.

6.7 COMMISSIONING REPORT

Upon completion of commissioning activities, a Commissioning Report will be submitted to the DWER as soon as possible after completion of the commissioning program (in accordance with the Works Approval conditions – when issued).

6.8 RESPONSIBILITIES

To ensure that the commissioning plan is appropriately implemented the following responsibilities have been assigned in relation to key tasks and commitments (Table 7).

Table 7: Commissioning Plan responsibilities

Task/Commitment	Responsible Person
Undertake daily visual inspections of the facility during commissioning in accordance with Commissioning Plan	Michael Nichols
Undertake the required monitoring	Elders/CLA/Ektimo
Implement contingency actions in accordance with Commissioning Plan	Facility Manager
Report any emission exceedances to the DWER	Elders/CLA
Undertake reporting commitments in accordance with Commissioning Plan	Facility Manager
Submit a Commissioning Report to the DWER summarising relevant monitoring data and management upon completion of commissioning	Elders/CLA

7 ATTACHMENT 5 – OTHER APPROVALS AND CONSULTATION

7.1 OTHER STATUTORY APPROVALS

Table 8 summarises the statutory approvals required for the facility.

Table 8: Environmental Legislative Framework for the proposed facility

RELEVANT LEGISLATION	RELEVANT APPROVAL REQUIREMENT
APPROVALS	
<i>Aboriginal Heritage Act 1972</i>	Nil – no known Aboriginal sites impacted.
<i>Dangerous Goods Safety Act 2004</i>	Facility will ensure safe storage, handling and transport of dangerous goods in accordance with this Act. Dangerous Good Licence (DGS 023074) issued 12 December 2023.
<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>	Nil – no Matters of National Environmental Significance listed by the Department of Climate Change, Energy, the Environment and Water under the EPBC Act will be impacted.
<i>Environmental Protection Act 1986 (EP Act) Part IV (and Administrative Procedures 2012)</i>	Nil - no significant impact to any environmental factors resulting from the facility. Facility discussed with DWER (EPA Services on 8 November 2023) – refer to Table 10.
<i>Planning and Development Act 2005 Planning and Development (Local Planning Schemes) Regulations 2015</i>	A Development Application for a proposed change of use to ‘General Industry (Licensed)’ for Tenancy No.3 will need to be lodged with the City of Rockingham for assessment. This will be lodged concurrent with this Works Approval application. A Bushfire Management Plan and Bushfire Risk Management Plant will be submitted with the application.
<i>Environmental Protection Act 1986 (Part V) Environmental Protection (Clearing of Native Vegetation) Regulations 2004</i>	Nil – no clearing of native vegetation required. Vegetation on Lot 13 (and Lot 12) has been cleared by the land owner in accordance with CPS 9710/1 and EPBC 2021/9069. This activity is not managed by Elders, the applicant for this Works Approval.
<i>Rights in Water and Irrigation Act 1914</i>	Nil – no groundwater abstraction proposed.
STATUTORY REQUIREMENTS	
<i>Biosecurity and Agriculture Management Act 2007</i>	Identification and management of listed weeds and feral animals (‘Declared Pests’) requiring removal/control.
<i>Bush Fires Act 1954</i>	Construction and operation activities will be undertaken to prevent fire occurrence.
<i>Contaminated Sites Act 2003</i>	The identification and management of contaminated sites will be undertaken in accordance with the Act.
<i>Environmental Protection (Noise) Regulations 1997</i>	Facility will operate in accordance with standards for noise emissions, monitoring and controls outlined in the Regulations.

7.2 STAKEHOLDER CONSULTATION

Elders has undertaken consultation with the relevant key stakeholders (Table 9) and a summary of this consultation is included in Table 10.

Consultation with the land owner, which is ongoing, is not included in this table.

Table 9: Key Project Stakeholders

Group	Stakeholder
Local Government Authority	City of Rockingham
Land owner	Hamersley 1 WA Pty Ltd (managed by Ovest Industrial Pty Ltd)
State and/or Commonwealth Government Agencies	Department of Energy, Mines, Industry Regulation & Safety (DEMIRS) Department of Water and Environmental Regulation (DWER) – EPA Services DWER - Licensing
Other key stakeholders	Fire Safety Engineer: Total Essential Services Group (TESG)

Table 10: Stakeholder Consultation Summary Table

DATE	STAKEHOLDER	CONSULTATION	ITEMS DISCUSSED	OUTCOMES
22/9/2023	DWER (Licensing) Michael Greenslade	Scoping meeting – via Teams	<p>Elders provided an overview of the proposed facility and sought advice on Prescribed Premises category and if DWER had any concerns in relation to the facility.</p> <p>DWER advised they considered Category 33 'Chemical mixing' the most appropriate category for the premises.</p> <p>DWER advised they would expect roll over/grate/sump to capture any potential spills @ transfer points.</p> <p>DWER advised the submission would need to include:</p> <ul style="list-style-type: none"> Information on dangerous goods and fire risk Noise – show compliance with Noise Regulations Expected emissions and emission control/pollution control equipment. <p>DWER discussed the 'screening' included in their guidelines (Air emissions, Odour, etc) which could be utilised.</p> <p>Elders confirmed the facility is ~675m from the closest sensitive receptor, Rockingham Holiday Village, which is greater than the 300-500m buffer as per <u>Guidance for the Assessment of Environmental Factors – Separation Distances between Industrial and Sensitive Land Uses No.3.</u></p> <p>DWER acknowledged this and advised the submission would still need to show that there would be no impact from Elders' facility.</p> <p>DWER discussed parallel processing with the Development Application.</p>	<p>No significant issues raised.</p> <p>Submission of this Works Approval with the information requested.</p>
23/10/23	City of Rockingham Nyah Cheater	Meeting	<p>Elders provided an overview of the proposed facility and the development application to be submitted.</p> <p>Discussed the approved tyre recycling facility immediately west and the approved Bushfire Risk Management Plan/Risk Management Plan for that facility which was specific to that land use only. City advised this could potentially be amended to include Elders' facility and a new risk management plan would be required (specific to Elders' activities).</p> <p>City advised consideration of the following would be required for the DA:</p> <ul style="list-style-type: none"> Crossovers at site and vehicle movements within site would be queried by traffic engineers at facility (i.e. safety). Ensure traffic crossovers shown correctly on plan i.e. road train at northern entry Vehicle movements and peak volumes of traffic from facility – Elders advised there would be ~15 trucks/week. City advised trigger is 10 vehicle movements/hr – Elders facility below this level. Environmental information (similar to that included for a WApp application) Noise – details of machinery and noise levels (db), noting this is not expected to be an issue. 	<p>No significant issues raised.</p> <p>Bushfire Management Plan (produced by an Accredited Practitioner) will be prepared to support the application.</p>

DATE	STAKEHOLDER	CONSULTATION	ITEMS DISCUSSED	OUTCOMES
			<ul style="list-style-type: none"> • Waste management – estimate of volumes, storage and disposal. • Risk Assessment. <p>City queried if facility would have its own amenities – Elders confirmed it would.</p> <p>City advised they will consult with DEMIRS, DWER, DFES. Considered unlikely Health department would need to be consulted.</p> <p>City provided advice on the assessment process for the application including advice on different processes for assessment, i.e. Council vs joint assessment with Independent Panel (for Project >\$10M is mandatory). Elders confirmed construction costs <\$10M and City advised their preference to not have a joint assessment did not see any requirement for this process.</p> <p>City advised they had no concerns in relation to the proposed facility.</p>	
8/11/2023	DWER (EPA Services) Robert Hughes Hannah Summer	Scoping meeting – via Teams	<p>Elders provided an overview of the proposed facility and sought advice on the requirement for a referral and potential for formal assessment under Part IV of the EP Act.</p> <p>DWER (EPA Services) advised that they did not consider the facility required referral/formal assessment and the facility could be managed under the Part V process.</p> <p>DWER advised the projects they are looking at have CO₂^{-e} emissions >100,000 tpa and include annual production rates of 300,000 tpa – not the 9,500 tpa production proposed for this facility.</p>	No referral under s.38 of the EP Act to be undertaken by Elders.

8 ATTACHMENT 6A – EMISSIONS, DISCHARGES AND WASTE

8.1 POTENTIAL EMISSIONS

Potential emissions arising from the construction, commissioning and time-limited operations of the facility are:

- Gaseous and particulate emissions
- Odour
- Noise
- Contaminated or potentially contaminated stormwater.

8.2 GASEOUS AND PARTICULATE EMISSIONS

The facility is located in 'Area B' as defined in the *Environmental Protection (Kwinana) (Atmospheric Wastes) Policy 1999* and the *Environmental Protection (Kwinana) (Atmospheric Wastes) Regulations 1992* reflecting its location in an area zoned for industrial purposes (under a Town Planning Scheme).

The Regulation sets out Sulfur Dioxide standards and limits for each Area (Area A, B & C). Sulfur Dioxide is not expected to be a significant emission from this facility.

Elders has completed an assessment of the expected Greenhouse (GHG) Gas Emissions based on the equipment to be utilised and diesel usage/power generation which is attached as Appendix 7. The Scope 1 and 2 emissions are estimated at 208 t CO_{2-e}/yr. Emissions from diesel usage from the forklifts is still to be estimated.

The expected emission also do not include any fugitive emission, which will be confirmed during the emission testing, and which based on the production rate will be of a small volume. Given the size and scale of the facility, it is not expected to produce any significant GHG emissions.

Based on the nature and scale of the facility, there are not expected to be any significant air emissions from the facility. The wet scrubber system to be installed has been designed to remove vapours/powders released from the formulation mixing tanks and has been designed based on the raw materials and materials to be produced at facility, and, the expected flow rates.

Elders will undertake emission monitoring during time-limited operations (Section 6.2.2.2) to adequately measure the primary products which are likely to produce vapours released to the scrubbers, to confirm the effective operation of the scrubber system and confirm that the air emissions from the facility are not significant.

Elders will develop a Scrubber Operation and Maintenance Procedure to ensure efficient operating of the scrubber.

8.3 ODOUR

Products that have the potential to emit odour emissions are expected to comprise a small volume of the total annual production. Potential odour emissions will be contained via the wet Scrubber System.

Elders has completed the 'Screening Analysis for New Premises' form as per DWER (2021) "*Guideline - Odour emissions*" which indicates further detailed odour analysis is not required (Appendix 8).

8.4 NOISE

The facility will operate 5 days per week, from 7am – 3.30pm daily.

A list of the sound power levels from the equipment is contained in Table 11. Based on the nature of the facility with activities largely confined to the enclosed shed, with the exception of vehicle/truck

movements (truck movements 11-15/week), there are not expected to be any significant noise emissions.

Elders' has consulted the DWER (2021) "Draft Guidance for Assessment of Environmental Factors No. 8 – Environmental Noise" Screening Analysis tool, which indicates a detailed noise assessment is not required (Appendix 9). The facility will comply with the *Environmental Protection (Noise) Regulations 1997*

Figure 6 shows the location of sensitive noise receptors relative to the Project located the following distances from the closest premise boundary:

- I1 – 100m west (tyre recycling facility)
- I2 – 880m northwest
- I3 – 440m south
- R1 – 675 m south-west
- R2 – 1.3 km south.

At 4 Lodge Drive, Tenancy 2 is not utilised and Tenancy 1 (wool storage) is operated by Elders.

Table 11: Facility equipment power sound levels

Equipment/Machinery	Sound Power Level dBA
Compressor	72dBA
Forklift Truck	65dBA
Diaphragm Pump	Maximum 75 dBA

8.5 DANGEROUS GOOD/CHEMICAL STORAGE

The formulation tanks have been designed to the requirements of AS1940 and AS1692.

All dangerous good/chemical storage areas will be bunded with a containment capacity equivalent to 110% of the capacity of any tank/vessel or 25% of the total capacity of an interlinked system.

All Dangerous Goods will be stored in accordance with the Dangerous Goods Licence (DGS023074) and stored and handled according to the applicable sections of the *Dangerous Goods Safety Act 2004*, *Dangerous Goods Safety (Storage and Handling of Non-Explosives) Regulations 2007* and *Dangerous Goods Safety (Explosives) Regulations 2007*.

A copy of the Dangerous Goods Licence is attached as Appendix 1.

8.6 SPILL CONTAINMENT

Elders has identified the following areas where provision for containment of chemical/product spills is required and is addressed in Table 12:

- Inside the building: raw material, finished goods storage, packing area. All spill contained within the building
- Formulation tank bays.

- Running surface north of the building where product will be loaded onto trucks and between the building and formulation tanks.
- ST1, ST2 storage tanks (NE of premise) – tanks are double-skinned.



Figure 6: Location of noise receptors relative to proposed facility (I - Industrial, R - Residential)

8.7 RISK ASSESSMENT AND MANAGEMENT SUMMARY

A summary of the potential environmental risks relevant to the Works Approval application and the associated environmental management measures to be implemented to reduce these risks to an acceptable level, are summarised in Table 12.

The residual risk assessment ratings are consistent with the risk assessment matrix used by DWER as shown in (Table 13).

Table 12: Risk assessment and management summary for the chemical mixing facility

Activity	Potential Emission Type and Source	Potential Receptors	Potential Pathway	Potential Adverse Impacts	Impact Assessment/ Proposed Controls/Management Measures	Residual Risk		
						LIKELIHOOD	CONSEQUENCE	PRIORITY
CONSTRUCTION								
Installation of equipment/Machinery, containment infrastructure in Tenancy 3	Noise – Equipment, machinery and vehicles used during construction works	Sensitive receptors: <ul style="list-style-type: none"> Rockingham Holiday Village – 675m SE Residences – 1.3km south Area located within Rockingham Industrial area.	Air / wind dispersion	Amenity impacts	As the construction works are largely related to installation of equipment in the existing building and no clearing works are required, there are no significant noise impacts anticipated from the facility. The installation of the formulation tanks, ST1 & ST2 and outside of the building is not expected to result in significant noise levels. Construction activities limited to day-shift only. Operations will comply with the <i>Environmental Protection (Noise) Regulations 1997</i> .	Unlikely	Insignificant	Low
	Fugitive Dust because of - Earthworks associated with construction Vehicle movements	Sensitive receptors: <ul style="list-style-type: none"> Rockingham Holiday Village – 675m SE Residences – 1.3km south Area located within Rockingham Industrial area.	Air / wind dispersion	Adverse impacts to human health and amenity; vegetation health	The Elders facility will be located within an existing building with roads and hardstand areas to be constructed by the landowner (outside the scope of this WApp). Elders construction works are related to installation equipment in the existing building and on pre-existing cleared areas and no excessive dust generation is anticipated. Not considered an issue.	Unlikely	Insignificant	Low
	Light emissions	Local fauna in RIZ conservation area. Sensitive receptors: <ul style="list-style-type: none"> Rockingham Holiday Village – 675m SE Residences – 1.3km south 	Air dispersion.	Light spill may disrupt nocturnal foraging behaviour: Amenity impacts	Construction activities will be during dayshift only. Not considered an issue.	Unlikely	Insignificant	Low

Activity	Potential Emission Type and Source	Potential Receptors	Potential Pathway	Potential Adverse Impacts	Impact Assessment/ Proposed Controls/Management Measures	Residual Risk		
						LIKELIHOOD	CONSEQUENCE	PRIORITY
COMMISSIONING AND TIME-LIMITED OPERATIONS								
Commissioning and Operation of facility	Spillage of liquid chemicals/input through leaks or failure of equipment in the facility. Release of contaminated runoff from inside the building to the outside.	Soil adjacent to the facility. Area located within Rockingham Industrial area. Groundwater of beneficial use – none. Groundwater is ~2 m below ground level (bgl)	Overland flow and infiltration to soil and groundwater.	Soil/groundwater contamination..	<p>Facility is surrounded by cleared industrial lots.</p> <p>Facility is located within an enclosed building on a concrete hardstand with all chemicals/dangerous goods stored in bunded areas, or, on self-contained bunding.</p> <p>Chemical storage areas will be located within a bunded area, or self-contained bund, with a containment capacity equivalent to 110% of the capacity of any tank or 25% of the total capacity of an interlinked system.</p> <p>Regular inspection of bunded areas to ensure capacity is maintained.</p> <p>Entry/exit points to building have a 38mm external bund which will prevent any release of material outside of the building.</p> <p>Daily inspections of facility to identify an issues and where identified, rectified as soon as practicable.</p> <p>Spill kits made available in the facility.</p> <p>Spillages will be cleaned up and disposed of as per appropriate SDS, relevant environmental and safety guidelines.</p> <p>Storage and disposal of waste will be undertaken in accordance with the Waste Management Plan.</p> <p>Any release which is likely to cause pollution or environmental harm will be reported to the DWER in accordance with Section 72 of the EP Act.</p>	Unlikely	Minor	Medium

Activity	Potential Emission Type and Source	Potential Receptors	Potential Pathway	Potential Adverse Impacts	Impact Assessment/ Proposed Controls/Management Measures	Residual Risk		
						LIKELIHOOD	CONSEQUENCE	PRIORITY
	Loss of chemical or liquid during transfer of raw materials to formulation tanks, or, loading of product from inside the building onto trucks.	Area located within Rockingham Industrial area. Groundwater of beneficial use – none. Groundwater is ~2 m bgl. Drainage swale is located on the eastern edge of the Premises boundary.	Overland flow and infiltration to soil and groundwater.	Soil contamination. Contamination of groundwater.	The largest volume of raw material/product to be transferred by forklift is 1,000L. Supervision of all material transfer to the formulation bays and product loading onto trucks, in particular, during rain events to allow immediate identification of a spill. Any potential spills of raw materials or products will flow to a constructed drain east of the formulation bays (and west of the drainage swale on the eastern boundary) which will be contained by closing off the drain to the drainage swale when a spill is identified. Any spilled material contained in the drain, will be pumped out, any residual material cleaned prior to opening up the drain Transfer of raw materials to formulation bays on sealed surface which will drain to the containment drain. Transfer of products from building to trucks on sealed surface which drains to the same containment drain. Drain designed to contain the catchment area for the raw material/product transfer area and the largest storage vessel. Spill kits are located at various locations around site to contain any hydrocarbon and chemical spills. Spill management procedure to be developed outlining the steps to be followed in the event of a spill.	Unlikely	Minor	Medium
	Loss of material or product from formulation mixing bays (tanks).	Area located within Rockingham Industrial area. Groundwater of beneficial use – none. Groundwater is ~2 m bgl	Overland flow and infiltration to soil and groundwater.	Soil contamination. Contamination of groundwater.	Tanks area designed to AS1940 and AS1692. Formulation bays constructed of impervious concrete in compliance with AS1940. Each formulation bay is separate and has secondary containment which will ensure catchment of 25% of total volume of each pair of tanks (and allowance for fire water) to contain any spill. Liquid level alarm at 20 kL – probe in tank and alarm process. Regular inspections of formulations bays to identify any spills that requires clean up. Formulation bays only operate while the personnel at site.			

Activity	Potential Emission Type and Source	Potential Receptors	Potential Pathway	Potential Adverse Impacts	Impact Assessment/ Proposed Controls/Management Measures	Residual Risk		
						LIKELIHOOD	CONSEQUENCE	PRIORITY
	Loss of product during transfer of product into IBC or other vessel.	Area located within Rockingham Industrial area. Groundwater of beneficial use – none. Groundwater is ~2 m bgl	Overland flow and infiltration to soil and groundwater.	Soil contamination. Contamination of groundwater.	Product is transferred from the packing tank through pipework to inside the facility into IBC or other vessels. Any spills in the formulation bay will be contained (refer to above). Product storage areas are located on concrete hardstands within bunded areas. Any spills will be pumped into quarantine tanks (IBC) for disposal offsite or reworked into production. All site drainage managed in accordance with the site drainage system. Spill kits are located at various locations around site to contain any hydrocarbon and chemical spills.	Rare	Minor	Low
	Odours generated during mixing.	Sensitive receptors: <ul style="list-style-type: none"> Rockingham Holiday Village – 675m SE Residences – 1.3km south Other Industrial facilities.	Air/windborne pathway causing impacts to health and amenity.	Adverse impacts to amenity of third party receptors.	Low potential risk to nearby receptors and considered not warranting detailed assessment (Section 8.3). Wet scrubber installed to remove any odorous substances. Daily site inspections will record odour emissions which could create amenity issues.	Rare	Slight	Low
	Gaseous and particulate emissions from scrubber stack	Sensitive receptors: <ul style="list-style-type: none"> Rockingham Holiday Village – 675m SE Residences – 1.3km south Area located within Rockingham Industrial area.	Air / wind dispersion	Reduced local air quality due to particulate emissions Potential health impacts from inhalation of particulates. Adverse impacts to health of third party receptors.	Area is located within the Rockingham Industrial area with other prescribed premises in the proximity. Volume of products produced and emissions are not considered significant in comparison to the overall Kwinana/Rockingham area. Operation of Scrubber (water scrubber) to remove gases/particulates. Chemical vapours or powder dust vented into scrubber. Carbon filter to be included to remove solvent naphtha (hydrocarbon) and improve efficiency for extraction system and emission levels. Ongoing air emission testing to be undertaken during TLO to confirm no significant emissions. Elders will develop a Scrubber Operation and Maintenance Procedure to ensure efficient operating of the scrubber which will include ongoing checks of the scrubber system during TLO to ensure it is operating effectively.	Unlikely	Minor	Medium

Activity	Potential Emission Type and Source	Potential Receptors	Potential Pathway	Potential Adverse Impacts	Impact Assessment/ Proposed Controls/Management Measures	Residual Risk		
						LIKELIHOOD	CONSEQUENCE	PRIORITY
	Excessive noise generated from facility during commissioning and TLO.	Sensitive receptors: <ul style="list-style-type: none"> Rockingham Holiday Village – 675m SE Residences – 1.3km south Other Industrial facilities.	Air/windborne pathway causing impacts to amenity.	Amenity impacts. Noise emissions from the facility.	Facility does not involve any crushing or activities generating significant noise. Activities are dayshift only, 5-day per week (7am – 3.30pm). Premises activities, with the exception of material/product transport, are located within building. Average truck movements per week 11 – 15 depending on demand. Vehicles and equipment will be fitted with appropriate noise controls. All equipment and vehicles will be regularly inspected and maintained. Noise design standards ensure all equipment is below 85dB. Site operations will comply with the noise regulations under the <i>Environmental Protection (Noise) Regulations 1997</i> .	Unlikely	Minor	Medium
	Contaminated stormwater - Loss of liquid from storage tanks (2 x 80 kL) located outside of building .	No vegetation No local groundwater users	Overland flow and infiltration to soil and groundwater.	Soil contamination inhibiting vegetation growth and survival. Further contamination of groundwater.	Self-bunded double walled tanks designed to AS1692 Tanks will contain an overfill alarm and overfill float valve. 2 x high level switches with auto-emergency shutoff Roll over/grate to capture any potential spills @ transfer points to the tanks. Spill kits will be available around site to contain any hydrocarbon and chemical spills.	Unlikely	Minor	Medium

Table 13: Risk Criteria

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost Certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

Likelihood		Consequence		
The following criteria has been used to determine the likelihood of the risk / opportunity occurring.		The following criteria has been used to determine the consequences of a risk occurring:		
		Environment	Public Health* and Amenity (such as air and water quality, noise, and odor)	
Almost Certain	The risk event is expected to occur in most circumstances	Severe	<ul style="list-style-type: none"> on-site impacts: catastrophic off-site impacts local scale: high level or above off-site impacts wider scale: mid-level or above Mid to long term or permanent impact to an area of high conservation value or special significance[^] Specific Consequence Criteria (for environment) are significantly exceeded 	<ul style="list-style-type: none"> Loss of life Adverse health effects: high level or ongoing medical treatment Specific Consequence Criteria (for public health) are significantly exceeded Local scale impacts: permanent loss of amenity
Likely	The risk event will probably occur in most circumstances	Major	<ul style="list-style-type: none"> on-site impacts: high level off-site impacts local scale: mid-level off-site impacts wider scale: low level Short term impact to an area of high conservation value or special significance[^] Specific Consequence Criteria (for environment) are exceeded 	<ul style="list-style-type: none"> Adverse health effects: mid-level or frequent medical treatment Specific Consequence Criteria (for public health) are exceeded Local scale impacts: high level impact to amenity
Possible	The risk event could occur at some time	Moderate	<ul style="list-style-type: none"> on-site impacts: mid-level off-site impacts local scale: low level off-site impacts wider scale: minimal Specific Consequence Criteria (for environment) are at risk of not being met 	<ul style="list-style-type: none"> Adverse health effects: low level or occasional medical treatment Specific Consequence Criteria (for public health) are at risk of not being met Local scale impacts: mid-level impact to amenity
Unlikely	The risk event will probably not occur in most circumstances	Minor	<ul style="list-style-type: none"> on-site impacts: low level off-site impacts local scale: minimal off-site impacts wider scale: not detectable Specific Consequence Criteria (for environment) likely to be met 	<ul style="list-style-type: none"> Specific Consequence Criteria (for public health) are likely to be met Local scale impacts: low level impact to amenity
Rare	The risk event may only occur in exceptional circumstances	Slight	<ul style="list-style-type: none"> on-site impact: minimal Specific Consequence Criteria (for environment) met 	<ul style="list-style-type: none"> Local scale: minimal to amenity Specific Consequence Criteria (for public health) met

9 ATTACHMENT 7 – SITING AND EXISTING ENVIRONMENT

9.1 RECEPTORS

The distances to sensitive land uses are summarised in Table 14 and presented in Figure 7.

Table 14: Receptors and distance from activity boundary

Sensitive Land Uses	Distance from Prescribed Activity
Residential premises	Rockingham Holiday Village – 675m southeast of the facility. Residential area – 1.3km to the south of the facility.
Conservation area	RIZ Conservation Area located ~1km the west of the facility (as part of Ministerial Statement 863). Bush Forever Site 349 (Leda and Adjacent Bushland) – 725 m to the east of the facility. Bush Forever Site 356 (Lake Cooloongup etc and adjacent bushland) – 660m to the south of the facility.

9.2 SPECIFIED ECOSYSTEMS

DWER's *Guidance Statement: Environmental Siting* (November 2016) lists Specified Ecosystems and Designated Areas and relevant databases which are considered in risk assessments undertaken by DWER. The distances to specified ecosystems are summarised in Table 15.

The premises is bordered by areas that have been subject to detailed environmental assessment for (Figure 8):

- Rockingham Industrial Zone (RIZ) Strategic Environmental Assessment (SEA) Area – area formally assessed by the EPA with approval via Ministerial Statement (MS) 863, MS 973, MS 995 & MS 1043.
- Tyre recycling facility of Lots 12 and Lot 13 – ecological assessments included flora and vegetation, Tuart Woodland Threatened Ecological Community (TEC) assessment, Black Cockatoo Habitat assessment and wetland evaluation.

Reference to these results of studies completed for these areas is included in subsequent sections.

Table 15: Specified Ecosystems and Designated Areas

Specified ecosystems	Distance from the Premises
Ramsar Sites	None within 10km.
DBCA Managed Lands and Water	There are no conservation reserves or DBCA managed lands in the premises area. DBCA Managed Lands Section 51 (h) Reserve – 750 m east. Leda Nature Reserve - ~1.6 km east.
Ecological communities (TECs and PECs)	Threatened Ecological Community ‘Woodlands over Sedgeland in Holocene dune swales of the southern Swan Coastal Plain’ – approximately 165 m west of the facility. Tuart Woodland TEC located to the west of facility.
Biological /Physical Component	Distance from Premises
Threatened/ Priority Flora	No Threatened or Priority flora recorded within 5 km of the premises.
Threatened /Priority Fauna	Potential Carnaby’s Cockatoo foraging habitat in DBCA reserve areas. Area surrounded by cleared industrial lots.
Hydrography WA 250K – Surface Water Polygons	No rivers, lakes or significant surface water bodies at the facility area. Lake Cooloongup is located 1.6 km to the southeast of the premises.
Geomorphic wetlands	Geomorphic wetlands of Swan Coastal Plain located west of the facility (Figure 7).
Contaminated Sites	None recorded in DWER’s Contaminated Sites database.
Other relevant ecosystem values	Distance from the Premises
Potential groundwater dependent ecosystems	Geomorphic wetlands located west of the premises – vegetation is expected to be groundwater dependent (Figure 7).
Groundwater and water sources	Distance from the Premises
Public Drinking Water Source Areas	Jandakot Underground Water Pollution Control Area (P2) is located approximately 8.5 km northeast of the proposed facility.
RIWI Act	Premises is located within the Cockburn Groundwater Management Area. Premises is not located within a Proclaimed Surface Water Management Area.

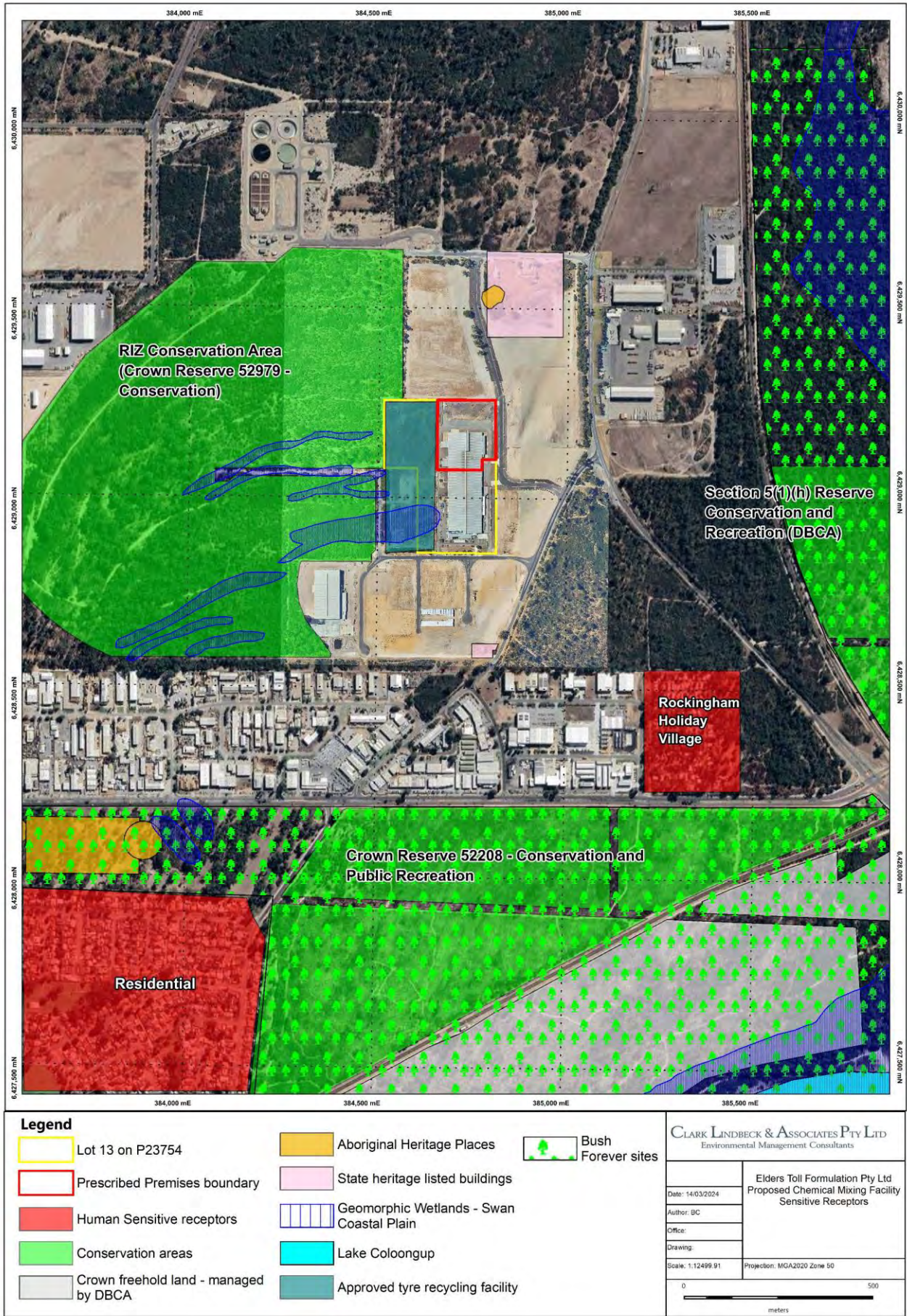


Figure 7: Location of sensitive receptors and other specified ecosystems relative to the proposed facility

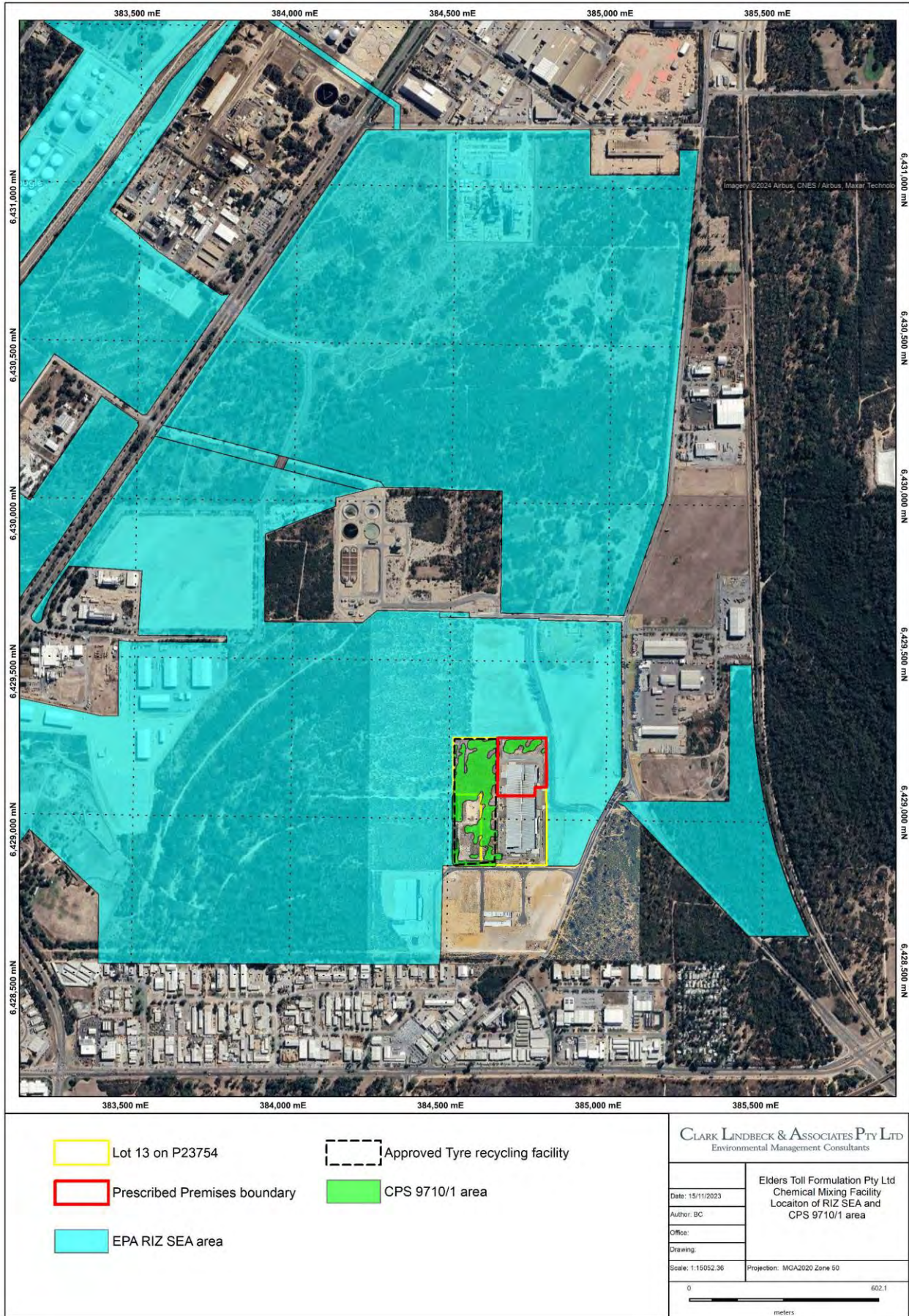


Figure 8: Location of RIZ SEA area and CPS 9710/1 clearing area for tyre recycling facility

9.3 CLIMATE

The Perth region experiences a Mediterranean climate which is characterised by warm, dry summers and cool, wet winters.

The nearest official meteorological station (still operating) is the Garden Island HSF (Station 009256) which has been recording since 2001.

Mean annual maximum temperature is 22.7°C and mean annual minimum is 15.0°C (BOM 2023).

Most of the rain falls from June to August with an average annual rainfall of 602.9 mm but the amount can vary both seasonally and annually. The highest daily rainfall recorded was 109 mm in February 2017.

Wind rose data sourced from the Perth airport, which has records from 1944 to 2019, shows that the average wind speeds at Perth airport vary throughout the year from 10.9 km/h in the morning to 22.7 km/h in the afternoon (BOM 2023).

The prevailing winds throughout the majority of the year are predominantly from the east (9am - morning) and the south-west (3pm - afternoon) (BOM 2023). Annual wind roses for Perth Airport in the morning and afternoon are presented in Figure 9 and Figure 10.

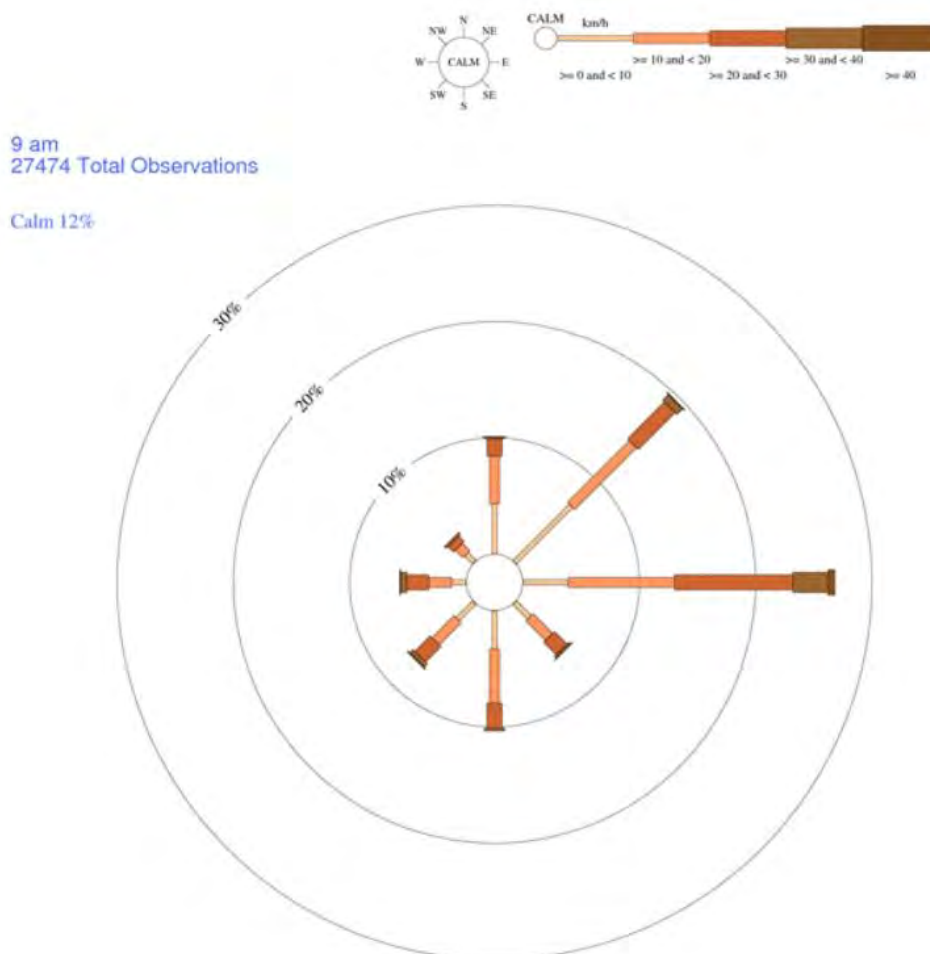


Figure 9: Perth Airport annual 9 am wind roses (BoM 2023)

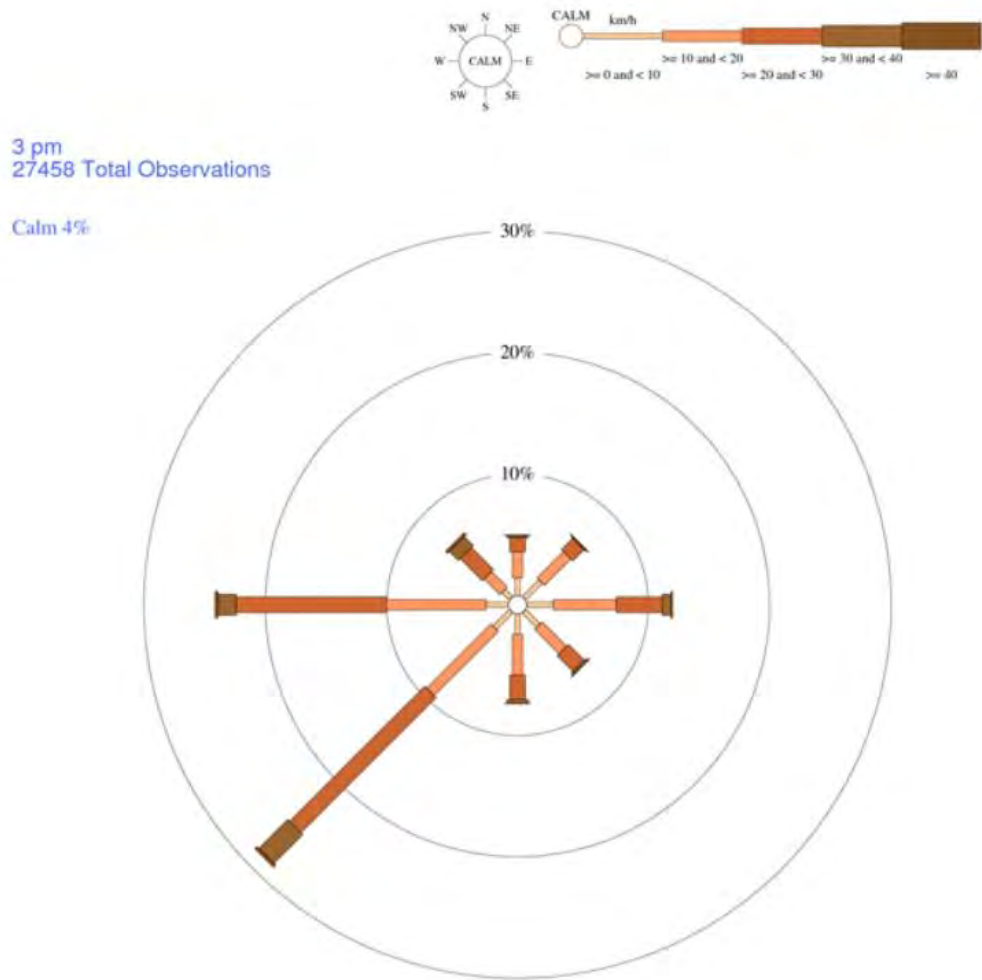


Figure 10: Perth airport annual 3 pm wind roses (BoM 2023)

9.4 LANDSCAPE AND SOILS

The premises is located on the Holocene coastal plain northeast of Rockingham and forms part of the Swan Coastal Plain in the Perth Basin.

The site is relatively flat at approximately 4m AHD and is mapped within the 'Quindalup South System' as Qf3 comprising: *"Relict foredunes forming a plain which is topographically lower than Qf2 with prominent ridges and swales. Swamps frequently occupy the swales. Deep calcareous sands with variable organic matter"*.

Drill logs from two monitoring wells established as part of groundwater investigations at Tenancy 1 at 4 Lodge Drive (Section 9.8), recorded the surface soils to be fine to coarse grained, well graded brown sands (Tetra Tech Coffey 2023).

9.5 ACID SULFATE SOILS

Based on the DWER Acid Sulfate Soil Risk Map for the Swan Coastal Plain (DWER-055), the facility is not located within an Acid Sulfate Soil risk area.

9.6 VEGETATION AND FLORA

No clearing of native vegetation is required for Elders' proposed facility, with the vegetation north and west (on Lot 12 and Lot 13) of the existing building currently being cleared by the landowners in accordance with CPS 9710/1 and EPBC 2021/9069 for a tyre recycling facility (Figure 11).

Elders proposed facility will be surrounded by other industrial facilities with native vegetation located 165 m to the west in a Rockingham Industry Zone (RIZ) Conservation Area, set aside as part of MS 863. This area contains vegetation mapped as a Threatened Ecological Community (TEC): 'Woodlands over Sedgeland in Holocene dune swales of the Southern Swan Coastal Plain (FCT 19b)' (Figure 11).

A total of 166 plant species has been recorded from the RIZ, of which 98 are native and 68 introduced.

The assessment of the vegetation on Lot 12 and Lot 13 (pre-clearing) recorded 55 flora species, of which 42 were introduced (PGV 2021a).

No Declared Rare or Priority Flora has been recorded from the RIZ or SEA Area, or, as part of the assessment taken for the tyre recycling facility (EPA 2011; PGV 2021a).

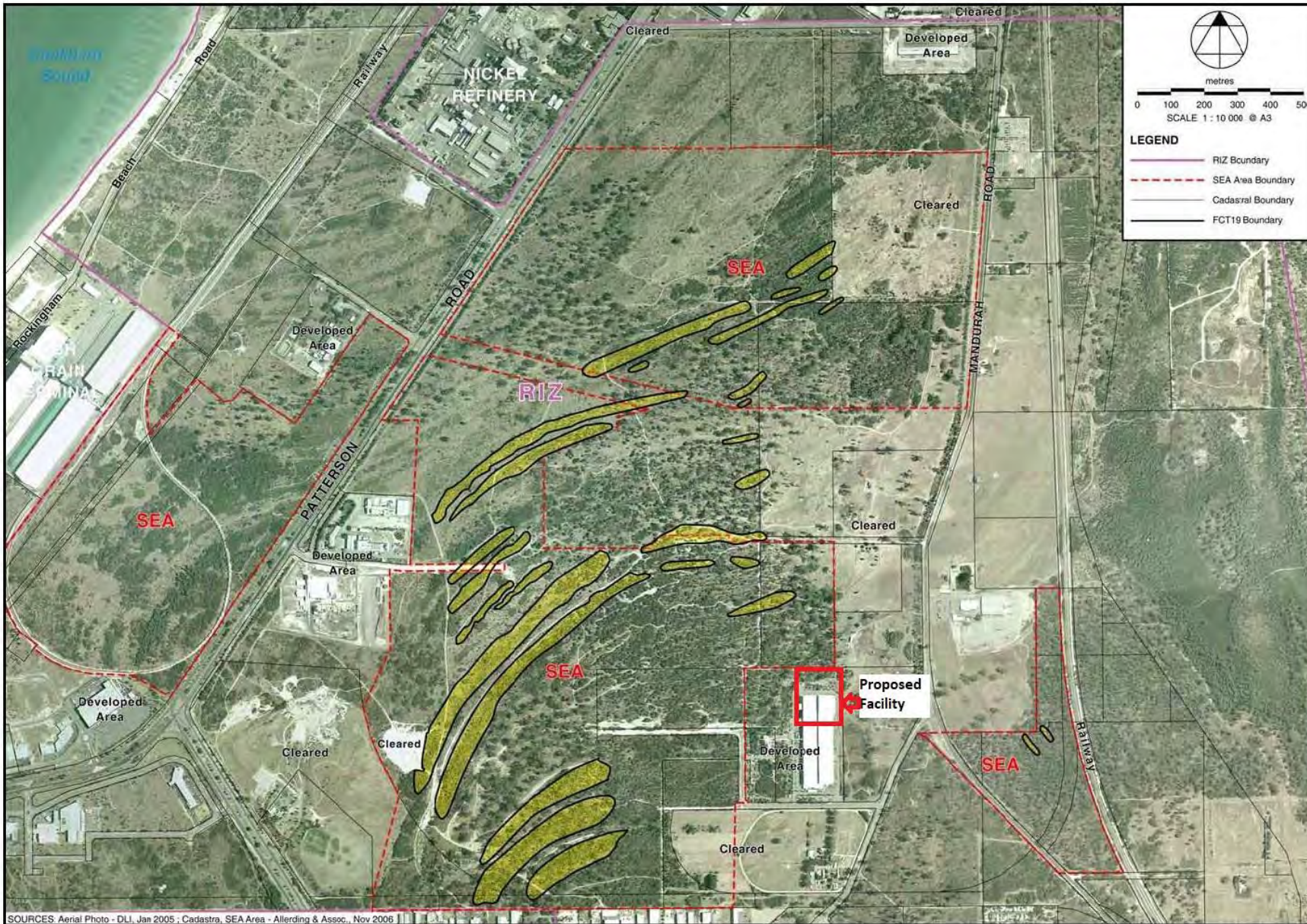


Figure 11: TEC (FCT19) areas west of proposed facility (map from EPA 2011)

9.7 FAUNA

As there is no native fauna habitat to be cleared, there is not expected to be any direct impacts to native fauna.

The premises is located within the modelled distribution for Black Cockatoo's (Carnaby's Cockatoo (*Zanda latirostris*) and Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksia* subsp. *naso*)) and it is possible potential breeding, foraging and roosting habitat is located in native vegetation in the local area (DWER 2023).

The clearing permit assessment report (CPS 9710/1) for Lot 12 and Lot 13 considers the following fauna species of conservation significance could be present in surrounding habitat, along with Black Cockatoos (and excluding waterbirds) (DWER 2023):

- Quenda (*Isodon fusciventer*).
- Black-striped snake (*Neelaps calonotos*).
- Western Brush Wallaby (*Marcopus irma*).
- Perth slider, lined skink (*Lerista lineata*).

Based on the location of the facility and the existing disturbance, there will not be any impact on these species.

9.8 GROUNDWATER HYDROLOGY

The facility is located within the Cockburn groundwater area.

The facility does not fall within a Public Drinking Water Source Area (PDWSA) or PDWSA Protection Zone. The closest PDWSA Protection zone is located 8.5 km northeast of the facility (Jandakot Underground Water Pollution Control Area (P2)).

Groundwater flows are understood to move in a northwesterly direction (DoW 2006). Groundwater beneath the SIZ SEA Area has a general movement west towards the coast and locally the groundwater gradient is known to be very flat (EPA 2011).

The Perth Groundwater Map (DWER 2023b) lists the surface geology as 'Safety Bay sand – Aeolian and beach lime sand' and estimates the depth of the water table from the ground surface at the facility as 2.48-3.00 m bgl (1.05-1.57m AHD) with a groundwater salinity of 3,000-7,000 mg/L.

As part of an environmental baseline assessment for Tenancy 1 at 4 Lodge Drive, Tetra Tech Coffey (2023) sampled groundwater from two groundwater monitoring wells, MW1 and MW3 located immediately south of the proposed facility (Figure 12). The groundwater quality analysis is considered representative for the Lot 13 site. The Certificate of Analysis (COA) with the results of the groundwater analyses undertaken is included as Appendix 10 and included:

- Total Recoverable Hydrocarbons
- Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene
- Polycyclic aromatic hydrocarbons
- Polychlorinated biphenyls
- Volatile Organic Compounds
- Heavy Metals.

Groundwater levels were recorded at 1.7 mbgl at MW1 and 2.45 mbgl at MW4 (Tetra Tech Coffey 2023). The Tetra Tech Coffey (2023) groundwater analyses revealed that the concentrations of the parameters targeted were either below the Limit of Reporting or significantly below the adopted criteria:

- Department of Health (2014). Domestic Non-Potable Groundwater Use and ADWG aesthetic value
- WHO (2005) World Health Organisation for Petroleum Products in Drinking Water (Tetra Tech Coffey 2023).

9.9 SURFACE WATER HYDROLOGY

There are no surface water bodies of significance, lakes or swamps on the premises.

Lake Coo loongup is the closest water body and is located approximately 1.6 km south of the facility.

The local area contains wetlands which are part of the Bercher Suite of consanguineous wetlands which are only located on the Rockingham Bercher Plain (EPA 2011).

Two conservation category wetlands (CCW) are mapped on Lot 12 immediately west of the proposed facility which have been highly modified as a results of clearing and grazing between 1961-1995 and are separated by a road from the main wetland (in the RIZ SEA conservation area) (DWER 2023) (Figure 12).

A wetland evaluation study was undertaken by PGV Environmental (2023b) in accordance with 'A methodology for the evaluation of wetlands on the Swan Coastal Plain, Western Australia (DBCA, 2017) on Lot 12 and Lot 13 Lodge Drive and determined the two wetlands:

- Do not meet the preliminary evaluation criteria for identification as a CCW – support a high level of ecological attributes. Two small areas retain their CCW rating (Figure 12).
- Wetland areas contain values commensurate with a Resource Enhancement wetland management category (REW) – *“wetlands which have been partially modified but still retain wetland ecological attributes and functions”*.

There is no direct impact to these wetlands from the facility, given no clearing or groundwater abstraction activities are required.

9.10 CONTAMINATED SITES

There are no recorded registered sites at the facility based on DWER's Contaminated Sites database (DWER 2023c).

The Environmental Baseline Assessment completed by Tetra Tech Coffey (2023) did not record any evidence of contamination in the groundwater (which is considered representative of Elders' proposed facility) or soils. Though the soil assessment was restricted to the Tenancy 1 area, this area included the old wool scouring plant and the existing transformer compound which are potential sources of contamination.

Walk-over inspections of the proposed premises area by Elders has not identified any evidence of contamination warranting further assessment.

9.11 HERITAGE

There are no sites of Aboriginal or European heritage sites of significance identified within the facility area (DPLH 2023; Government of WA 2023).

The CPS 9710/1 decision report (DWER 2023) refers to advice from the local Council that multiple Aboriginal scarred trees have been identified in the RIZ, but as there is no native vegetation to be cleared, there will be no impact to these trees.



Figure 12: Location of wetlands and monitoring wells in relation to the proposed facility

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PGV Environmental (2021b). *Lots 12 and 13 Lodge Drive, Tuart Woodland TEC Assessment and Black Cockatoo Habitat Assessment*. Report produced for Hero Properties Pty Ltd, 18 October 2021. Report No. 2021-598.

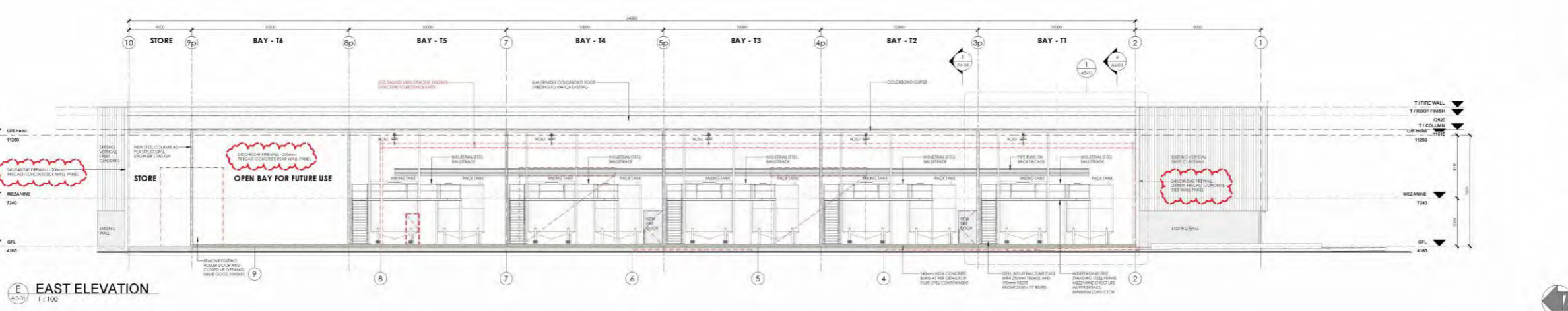
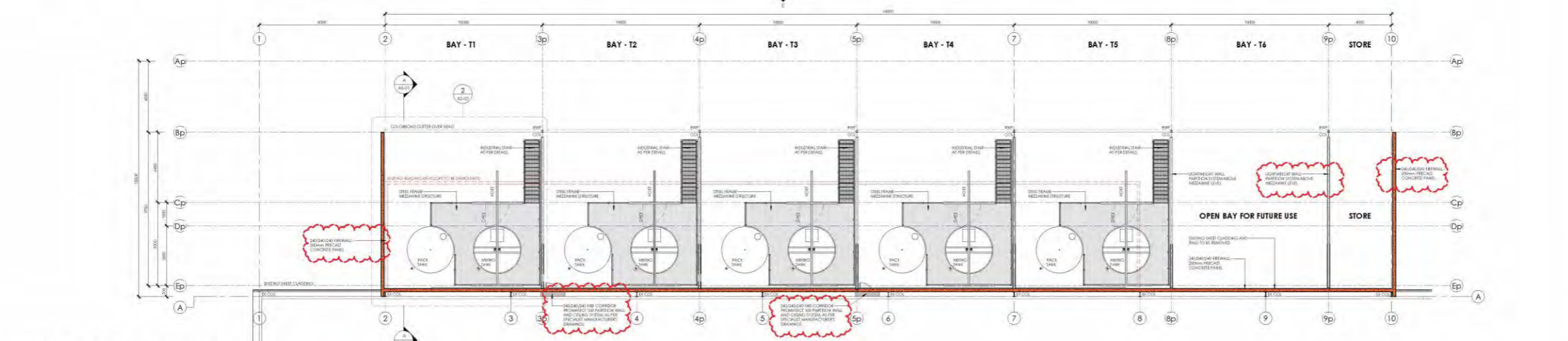
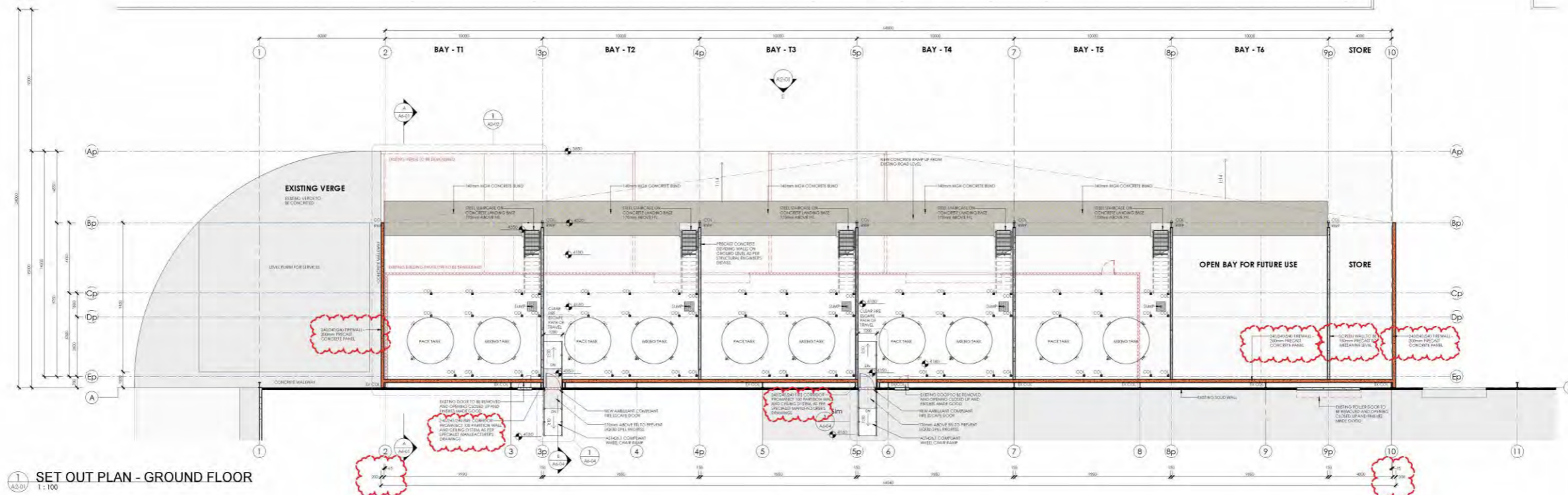
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APPENDICES

Appendix 3: Formulation Tanks Plans



GENERAL NOTES:

- THE ARCHITECTURAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIAL CONDITIONS DRAWINGS.
- THE CONTRACTOR IS TO CONSULT WITH THE ARCHITECT REGARDING ANY WORK TO BE DONE OUTSIDE THE BOUNDARY OF THE PROJECT.
- ALL DESIGN LEVELS ABOVE THE GROUND LEVEL ARE TO BE IN ACCORDANCE WITH THE PROJECT GENERAL CONDITIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL GOVERNMENT AND OTHER RELEVANT AUTHORITIES.
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No.	DATE	AMENDMENT	BY
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PHASE 3 - CO-ORDINATION

Elders

KPA Architects

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 E info@kpa.com.au
 W kpa.com.au

ALL INFORMATION CONTAINED HEREIN IS TO BE USED ONLY FOR THE PROJECT SPECIFICALLY IDENTIFIED AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF THE ARCHITECTS.

ARCHITECTURAL
ELDERS ROCKINGHAM

4 LODGE DRIVE, EAST ROCKINGHAM WA 6148

GENERAL ARRANGEMENT

SCALE: 1:1000 AD 25/01/2013

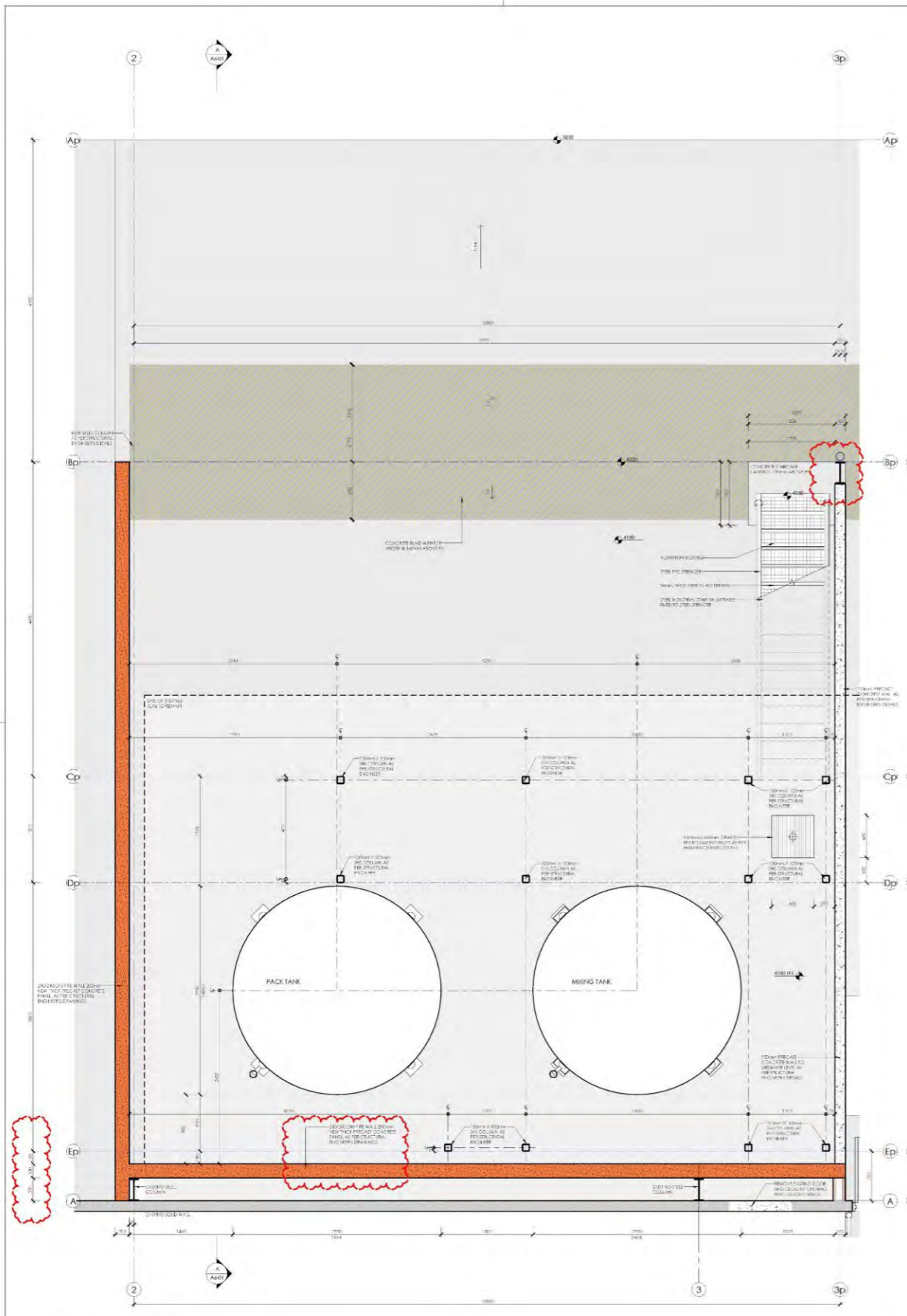
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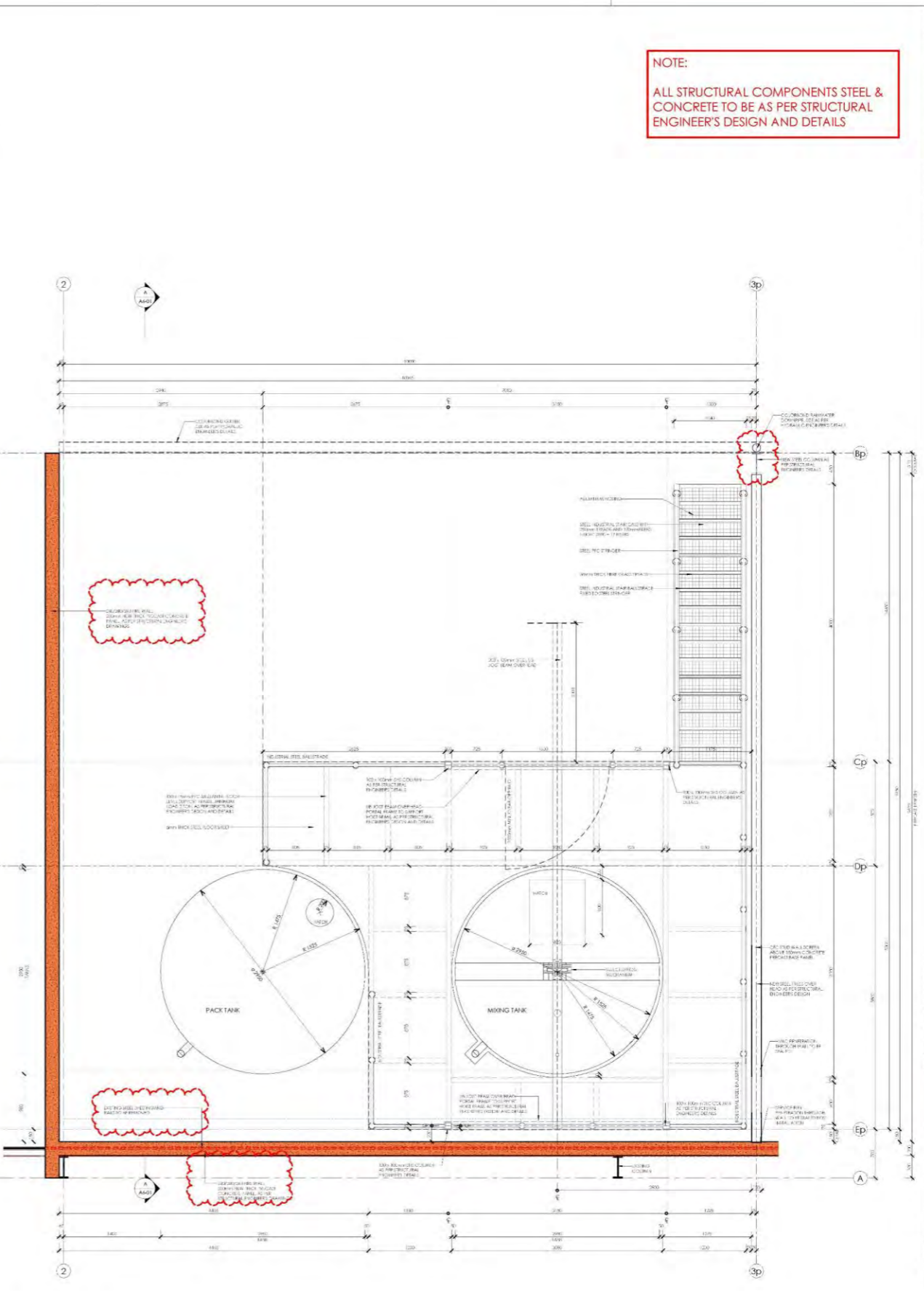
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NOTE:
ALL STRUCTURAL COMPONENTS STEEL & CONCRETE TO BE AS PER STRUCTURAL ENGINEER'S DESIGN AND DETAILS

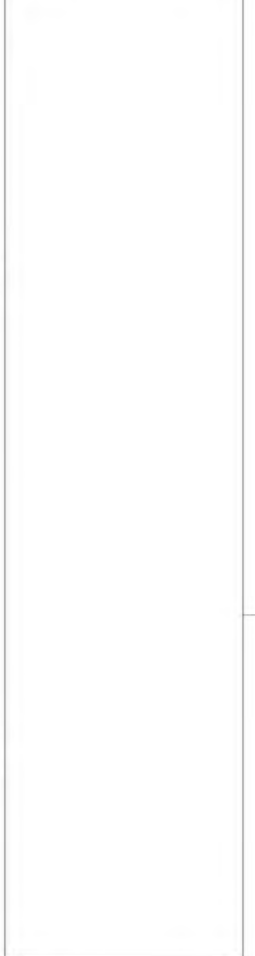


1 GFL - SET OUT PLAN
1:25



2 MEZANINE - SET OUT PLAN
1:25

GENERAL NOTES:
1. ALL WORK TO BE DONE IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NATIONAL BUILDING REGULATIONS AND THE NATIONAL CONSTRUCTION REGULATIONS.
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No.	DATE	AMENDMENT	BY
1	2024-08-20	ISSUE FOR PERMIT	KL
2	2024-08-20	ISSUE FOR PERMIT	KL
3	2024-08-20	ISSUE FOR PERMIT	KL
4	2024-08-20	ISSUE FOR PERMIT	KL

PHASE 3 - CO-ORDINATION

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ARCHITECTURAL
ELDERS ROCKINGHAM

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FLOOR PLANS - SET OUT DETAILS

SCALE	1:25W A0	REVISION	23/013	DATE	11/08/24
DESIGN	KL	DRAWN	KL	CHECKED	KL
DATE	11/08/24	SCALE	A2-02	PROJECT NO.	E



Appendix 5: Emission Monitoring Plan (Ektimo)

Reference: R016621

Page 1 of 4

6 March 2024

Elders Toll Formulation Pty Ltd
4 Lodge Drive
East Rockingham, 6168

ELDERS TOLL FORMULATION PTY LTD EMISSION MONITORING PLAN

INTRODUCTION

This Emission Monitoring plan has been prepared by Ektimo for Elders Toll Formulation Pty Ltd.

The purpose of this monitoring plan is to:

Provide an outline of the strategy, actions and monitoring taken to manage air emissions in accordance with the DWER works approval and licensing requirements once issued.

To identify the discharge point (stack exhaust) sampled at the East Rockingham site.

To outline the sampling methodologies used and protocols used onsite.

INSTITUTIONAL FRAMEWORK

In Western Australia the Environmental Protection Authority and Department of Water and Environmental Regulation are the responsible authorities to prevent and control pollution and environmental harm, protect and care for and improve the environment using two key pieces of legislature, these being:

Environment Protection Act 1986 and Environmental Protection Regulations 1987. These documents aim to apply a sustainable and holistic approach to environmental management. The Act and Regulation provides framework for regulation, issuing of works approvals, licences, and permits.

MONITORING FREQUENCY & SAMPLING PROTOCOL

The emission testing program will be conducted in accordance with monitoring frequencies outlined in DWER works approval and/or DWER licensing documents. Sampling for target compounds in the exhaust gases will be conducted following sampling protocols outlined in DWER documents.

The emission testing program will be designed to measure concentrations of target compounds entering the environment from specific sources, and where required to measure the efficiency of pollution control equipment which allow process operators to control their processes within prescribed limits and to achieve optimum process efficiency.

The program will be coordinated by the Ektimo client manager liaising with Clarke Lindbeck, and Elders site contacts. Sampling programs are generally booked at least one month in advance.

Ektimo personnel are highly trained to perform stack emission testing using the latest available emission testing equipment and NATA approved methods for stationary air emission sources.

All personnel must be safety inducted to perform air emission testing from stationary sources at the Elders site. Upon entering the site an initial meeting with the site environmental officer is required in order to finalise the testing schedule. (i.e.: products being manufactured and target compounds to be measured.)

REPORTING

Ektimo will provide a NATA approved report including but not limited to the following parameters.

- start time of emission testing
- end time of emission testing
- concentration of target compounds
- mass rate of target compounds
- moisture content
- temperature of gas stream
- volumetric flow rate
- velocity at the sampling plane
- velocity at the exit plane if different from the sampling plane

SAMPLING LOCATIONS

The following extract is from AS 4323.1 – 2021. The sampling points (or sampling plane) should be located in a straight, preferably vertical section of stack away from any flow obstructions which may cause a disturbance or other instability to the gas flow, e.g. a bend, fan, partially closed damper, silencers, flow straighteners and the stack exit. The junction of two ducts whether gases are flowing through both or not, shall also be treated as a flow disturbance.

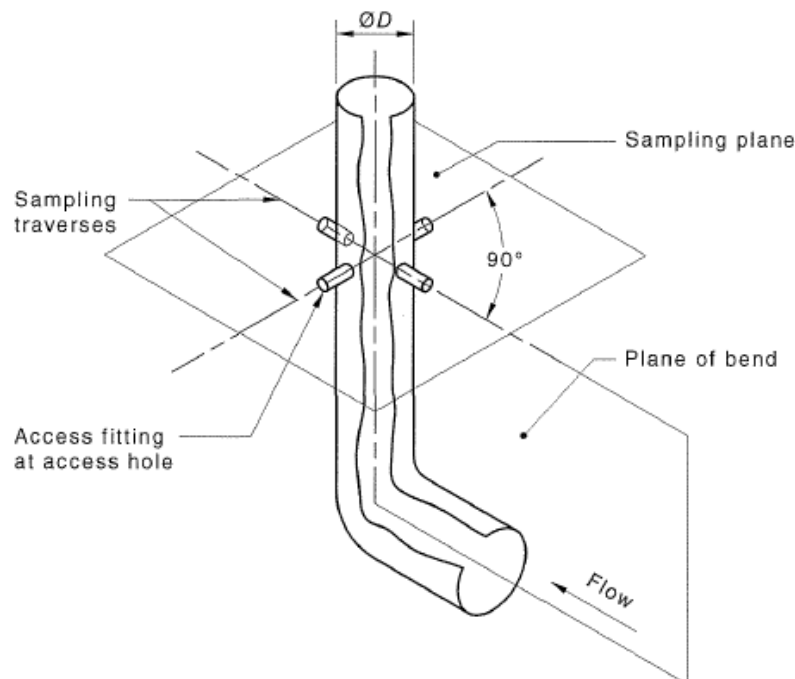


Figure 1 — Illustration of definitions in relation to a circular stack (sectioned through and at right angles to the sampling plane)

AS4323.1 – SELECTION OF STACK SAMPLING LOCATION.

Table 1 — Criteria for selection of sampling planes

Type of flow disturbance	Minimum distance upstream from disturbance, diameters (D)	Minimum distance downstream from disturbance, diameters (D)
Bend, connection, junction, direction change, stack silencer, flow straightener, stack exit	> 2	> 6
Louvre, butterfly damper (partially closed or closed)	> 3	> 6
Axial fan	> 3	> 8 ^a
Centrifugal fan	> 3	> 6

^a The plane should be selected as far as practicable from an axial fan. Flow straighteners may still be required to ensure that the selected position meets the criteria listed in Items (a) to (e) below.

A temperature and velocity survey (see [Clause 8](#)) shall be undertaken at sampling points located in accordance with [Table 3](#) (circular sampling plane) or [Table 4](#) (rectangular sampling plane) to inform the sampling plane classification.

An ideal sampling plane shall meet criteria contained in Items (a) to (e) as follows:

- (a) The gas flow shall be in the same direction at all points along each sampling traverse.
- (b) The gas flow profile at the sampling plane shall be steady, evenly distributed and not have a cyclonic or swirl component which exceeds an angle of 15° to the duct axis, when measured near the periphery of a circular sampling plane, see [Clause 8.4\(h\)](#).
- (c) The temperature difference between adjacent points of the survey along each sampling traverse shall be less than 10 % of the absolute temperature in kelvin, with the temperature at any point differing by less than 10 % from the mean.
- (d) The ratio of the highest to lowest pitot tube differential pressure across the sampling plane shall not exceed 9:1. The ratio of highest to lowest gas velocities shall also not exceed 3:1. For isokinetic testing with the use of impingers, the gas velocity ratio across the sampling plane should not exceed 1.6:1.
- (e) The differential pressure at all sampling points shall be greater than or equal to 5 Pa. Sampling planes with differential pressures less than 5 Pa do not conform with this document, see [Clause 4.2.4](#).

In addition, the gas temperature at the sampling plane should be above the dewpoint.

AIR EMISSION TESTING PARAMETERS.

The parameters listed below are expected to be completed at the Elders facility. Exact sampling frequency and target compounds will be established once DWER works approval documentation has been issued.

FLOW/ VELOCITY MEASUREMENTS

Flow measurements are to be taken prior to sampling commencing and after sampling. The total test time including velocity measurements should be approximately 70-minutes per compound.

COMBUSTION GAS TESTING

Stack gases are extracted via a stainless-steel probe fitted with an in-stack filter to remove potential particulate matter. The gas is then delivered to a Peltier gas conditioner via a Teflon sample line. Following moisture removal, the gas is then delivered to the individual sensors for analysis. A minimum instrumental sampling time of 60 minutes is employed. Data is logged at 30 second average intervals.

VOLATILE ORGANIC COMPOUNDS

Stack sampling (sorbent tube)

Samples are collected into a sample train consisting of an activated carbon tube (ambient dry stacks) or a moisture drop out followed by an activated carbon tube (hot and/or wet stacks). A known volume of stack gas is sampled. The sample volume is measured by a dry gas meter.

Analysis

Samples are desorbed into an appropriate desorption solvent (generally carbon disulphide) to extract the volatile organic compounds. Laboratory analysis of the extract is conducted by either:

- GCMS: Analytes are quantified against calibration curves produced for each analyte. Verification is by MS ion fragmentation library matching.
- GCFID: Analytes are quantified against calibration curves produced for each analyte. Verification is using two capillary columns of opposite polarity or single column via GC-MS.

Total Volatile Organic Compounds can be determined by this method using a timed group during the data processing.

TRIFLURALIN

Sampling will be collected by utilising a modified USEPA 26 method sampling train. Sampling will be conducted non-isokinetically using midjet impingers and a calibrated gas meter system. Sample gases will be passed through a toluene solution to absorb trifluralin in the gas stream.

Analysis for this method covers analytical procedures for the analysis of semi-volatile organic compounds (SVOC) including most neutral, acidic, and basic organic compounds based on the USEPA method 8270D. Samples are extracted into a solvent appropriate to the matrix and analysed using a gas chromatograph – mass spectrometer (GC–MS).

METHODOLOGY

All target compounds and stack gas parameters will be measured in accordance with the reference methods in Table 1.

NO_x will be conducted following USEPA 7E.

CO will be conducted following USEPA 10.

SO₂ will be conducted following USEPA 6C.

O₂ and CO₂ will be conducted following USEPA 3A.

VOCs will be conducted following USEPA 18.

Trifluralin will be sampled for by a modified method 26 sampling train with 0.1N H₂SO₄ being substituted with toluene to absorb trifluralin.

Moisture will be determined gravimetrically, and the analysis will be determined on site. Sampling will be conducted following USEPA 4.

Stack gas velocity and volumetric flow rate will be determined in accordance with US EPA Method 2 using a "S Type" pitot tube. Velocity measurements will be made by measuring differential pressure using a digital manometer.

Velocity measurements and flue gas temperature will be measured simultaneously. Flue gas temperature will be made by utilising a Type K thermocouple.

Appendix 6: Waste Management Plan

Purpose

The purpose of this plan is to ensure that all waste generated or accumulated at the Elders Toll Formulation East Rockingham facility is:

- a) stored and disposed of appropriately in accordance with Local, State and Federal Acts, Regulations, Standards and Codes of Practice;
- b) stored and disposed of in a manner so the impact to people, property and the environment is reduced to as low as reasonably practicable;
- c) Where possible, reduced, reused and recycled to minimise the volume of waste products ending up in landfill, thus reducing our carbon footprint and impact on the environment.

Scope

This Waste Management Plan is applicable to the Elders Toll Formulation East Rockingham facility, located at T3, 4 Lodge Drive, East Rockingham, WA, 6168.

Key Legislation and Responsible Bodies

The principal legislation governing Waste and Resource Recovery in Western Australia (WA) is The Waste Avoidance and Resource Recovery Act 2007, which is supported by The Waste Avoidance and Resource Recovery Regulations 2008.

Other Authorities that have a role in waste management in WA and work with the Waste Authority to do this are Local Government, Regional Councils and the Municipal Waste Advisory Council (a standing committee of the WALGA).

A Dangerous Goods Consultant has been engaged in the early stages of the project to ensure the effective planning of Waste Management.

General

Overview of site

As a toll formulation facility, no chemicals will be manufactured on site. All raw materials shall be outsourced by third parties and couriered to site where they will be stored and used. As a formulation facility, the volume of generated chemical waste is minimal.

Types of waste

The types of waste generated at the site include:

Waste type	Examples	Dangerous Goods classes	Method of storage	Method of disposal
Contaminated Solid Waste	<ul style="list-style-type: none"> • Waste packaging • Process filters • Rags (that may contain toxic / corrosive / combustible / Class 9 Miscellaneous Goods residues). 	<ul style="list-style-type: none"> • 6.1 (Toxic) • 8 (Corrosive) • 9 (Miscellaneous Goods) • C1 Combustibles 	Contaminated Skip bin (positioned in the dedicated Waste Storage area)	Third-party Waste Contractor
Liquid Waste	<ul style="list-style-type: none"> • Contaminated product • Expired Product (out of date) • Wash Out Liquid • Laboratory Waste 	<ul style="list-style-type: none"> • 6.1 (Toxic) • 8 (Corrosive) • 9 (Miscellaneous Goods) • C1 Combustibles 	Individual drum or IBC per DG Class (positioned in the dedicated Waste Storage area)	Remondis or other Third Party Waste Contractor in accordance with Environmental Plan



Waste type	Examples	Dangerous Goods classes	Method of storage	Method of disposal
	<ul style="list-style-type: none"> Waste Oil 			
General waste	<ul style="list-style-type: none"> Paper Plastics Cardboard Pallets 	<ul style="list-style-type: none"> None 	Commercial waste bin with lid	Third-party Waste contractor
Empty drums and containers	<ul style="list-style-type: none"> Contaminated IBC (1,000l) plastic tanks Steel drums (205l) containing chemical residue Steel drums (50kg) Plastic drums (20l) Cardboard drums 	<ul style="list-style-type: none"> 6.1 (Toxic) 8 (Corrosive) 9 (Miscellaneous Goods) C1 Combustibles 	Segregated storage area (positioned in the dedicated Waste Storage area)	Third-party Waste contractor <ul style="list-style-type: none"> Clean Drum Co (WA) Pty Ltd Schutz Australia

Elders shall ensure all waste materials shall be stored and disposed of:

- in accordance with Local, State and Federal Regulations and Codes of Practice, and
- in accordance with relevant Australian Standards, including DG Storage Segregation, and
- a safe distance away from protected places in a well-ventilated area external to the main building.

Waste Management Contractors

Elders shall engage one or more of the following waste management contractors for the disposal of waste products, depending on the waste type:

Cleanaway Perth MRF

72 Hyne Rd
Guildford WA 6055
PH: 13 13 19

Remondis Australia

3 Madison Street
Canning Vale WA 6155
PH: 13 73 73

Veolia Welshpool Resource Recovery Centre

116 Kurnall Rd
Welshpool WA 6106
PH: 13 13 25

Clean Drum Co (WA) Pty Ltd

5 Pusey Rd
Cockburn Central WA 6164
PH: (08) 9414 7244

Schutz Australia Pty Ltd

152 Cockburn Rd
North Coogee WA 6163
PH: (08) 9336 2688

If required, Elders shall provide the waste management company a manifest for any chemicals for disposal.



Manifests shall include, but not be limited to:

- Name of chemical;
- Volume/weight for disposal;
- Any other relevant documents or information (such as Safety Data Sheets (SDS)) as requested by the service provider.

Spill containment and response

Dedicated spill kits will be located at designated points throughout the site as shown on the Dangerous Goods Plan. These will be available to staff at all times. Spill kits shall contain, but not be limited to:

- Tyvek coveralls
- PVC gloves
- A full-face Respirator
- Rubber boots
- Absorbent pads/Diatomaceous Earth or other absorbent material
- Contaminated waste bags
- Pan, brush and broom
- Drain covers

Contaminated waste shall be disposed of appropriately in accordance with the relevant SDS. All staff shall be trained on the correct procedure for controlling and cleaning spills as prescribed in the WA Toll Formulation Spill Management Plan.

In the event of an emergency, the following spill response company shall be contacted:

Cleanaway Perth

PH: 1800 774 557

Reporting of spills

Any loss of containment of Dangerous Goods that has the potential to impact on the health and safety of people, property or environment shall be reported to the relevant authorities within 24 hours of the spill occurring.

Dangerous Goods	Government of Western Australia - Department of Mines and Industry Resources	PH: (08) 9222 3333 Email: online@dmirs.wa.gov.au
Poisons	Government of Western Australia - Department of Health	PH: (08) 9222 4222

Appendix 7: GHG emission estimate

FACILITY ENERGY & EMISSIONS CALCULATOR

Facility name (optional)	Elders Chemical Mixing Facility	Operational Control	Full year	365
--------------------------	---------------------------------	---------------------	-----------	-----

TRANSPORT FUEL COMBUSTION	Amount	Unit	Greenhouse gases			Total scope 1 emissions (t CO ₂ -e)	Total energy (GJ) (Gigajoules)
			CO ₂	CH ₄	N ₂ O		
Select fuels below	Enter amount below						
-		-					
-		-					
-		-					
-		-					
-		-					
-		-					
-		-					
-		-					
Total Scope 1 transport emissions (t CO ₂ -e) and energy consumed (GJ)						#N/A	#N/A

NON-TRANSPORT FUEL COMBUSTION	Amount	Unit	Greenhouse gasses			Total scope 1 emissions (t CO ₂ -e)	Total energy (GJ) (Gigajoules)
			CO ₂	CH ₄	N ₂ O		
Select fuels below	Enter amount below						
-		-					
-		-					
-		-					
-		-					
-		-					
-		-					
-		-					
-		-					
Total Scope 1 non-transport emissions (t CO ₂ -e) and energy consumed (GJ)						0	0

PURCHASED ELECTRICITY	Amount	Unit	Emission factor (EF)	Total scope 2 emissions (t CO ₂ -e)	Total energy (GJ) (Gigajoules)
South West Western Australia	407000.000	kWh	0.510	208	1,465
-		kWh			
Total Scope 2 emissions (t CO ₂ -e) and energy consumed (GJ)					208 1,465

CONSUMED WITHOUT COMBUSTION	Amount	Unit	Total energy (GJ) (Gigajoules)
Select energy source below	Enter amount below		
-		-	
-		-	
-		-	
Total energy consumed (GJ)			0

ELECTRICITY/ENERGY PRODUCED	Amount	Unit	Total energy (GJ) (Gigajoules)
Select energy product below	Enter amount below		
-		-	
-		-	
-		-	
Total energy produced (GJ)			0

FUGITIVE EMISSIONS (DIRECT ENTRY)	Greenhouse gasses (t CO ₂ -e)			Total scope 1 emissions (t CO ₂ -e)
	CO ₂	CH ₄	N ₂ O	
Enter gas below				
	0.000	0.000	0.000	0
	0.000	0.000	0.000	0
Total Scope 1 emissions (t CO ₂ -e)				0

FACILITY SUMMARY	Reported emissions		Calculated full-year emissions	
Total Scope 1 emissions	#N/A	t CO ₂ -e	0	t CO ₂ -e
Total Scope 2 emissions	208	t CO ₂ -e	208	t CO ₂ -e
TOTAL EMISSIONS	#N/A	t CO₂-e	0	t CO₂-e
TOTAL ENERGY CONSUMED	#N/A	GJ	0	GJ
TOTAL ENERGY PRODUCED	0	GJ	0	GJ

ANNUAL FACILITY REPORTING THRESHOLDS		
Total emissions threshold	0 t CO ₂ -e	25,000 t CO ₂ -e
Energy consumption threshold	0 GJ	100,000 GJ
Energy production threshold	0 GJ	100,000 GJ

Appendix 8: Odour Screening Analysis



Reporting template

Screening analysis

Instructions

Applicants undertake a screening analysis to assess whether further detailed analysis of odour emissions and impacts is required.

The analysis primarily involves comparison of the **screening distance** (*Appendix 2*), with the **sensitive receptor distance** (*Appendix 3*), together with consideration of other information.

Screening distances are not provided for some activities. In these instances, applicants are generally required to undertake a detailed analysis.

Applicants are required to provide sufficient information with their application to enable the Department to substantiate the screening analysis.

Separate screening procedures are provided for applications for new or existing premises.

The Screening analysis comprises three steps:

Step 1: Complete the questionnaire relevant to the application (for new or existing premises)

Step 2: Use the flowchart and questionnaire responses to determine whether a Detailed analysis is required

Step 3: Compile information to support the Screening analysis. This can include maps of sources and receptors, topographical maps, specifications for proposed emissions controls and details of **screening distance** calculations.

If an industry category is not listed in Appendix 2 and the odour risk is considered to be low by the applicant, an exemption from the requirement for Detailed analysis may be granted by the Department. In these cases, the Department can be contacted before commencing preparation of an application.

Questionnaires and flowcharts for new or existing premises are shown below.

An electronic version of the questionnaire for new or existing premises is available on the Department website.



Screening analysis for new premises

Step 1: Questionnaire

Q1. Description of odour emissions	
Use the table below to provide brief information about activities and sources that emit odour.	
Activity / odour source	Description, including proposed controls
Chemical mixing facility to produce herbicides, insecticides and adjuvants.	Water scrubber to be installed to remove odour.
Q2. Screening distance	
<p>Screening distances for categories of odour-generating activities are listed in Appendix 2.</p> <p>Select the appropriate option from the list below.</p>	
<p>Option 1:</p> <p>The screening distance is listed in Appendix 2 for this industry category and throughput level.</p> <p>Screening distance (A) = 500_m</p> <p>Sensitive receptor distance (B) = 675___m</p> <p>OR</p> <p>Option 2:</p> <p>The screening distance for this industry category and throughput level is specified as 'case-by-case' in Appendix 2.</p> <p>OR</p> <p>Option 3:</p> <p>There is no entry for this industry category in Appendix 2.</p>	<p><input type="checkbox"/> B < A: Go to flowchart.</p> <p><input checked="" type="checkbox"/> B ≥ A: Go to Question 3.</p> <p><input type="checkbox"/> Case-by-case: Go to flowchart.</p> <p><input type="checkbox"/> Industry category is not listed: Go to flowchart.</p>



Q3. Special case factors

Are there special case factors that might increase odour impacts beyond the **screening distance** shown in Question 2?

Please tick all applicable special case factors:

- Odour impacts from nearby sources
- Presence of an existing elevated odour background
- Complex terrain
- Unusually large and / or complex facility when compared with other Australian operations
- Unusual configuration of odour sources or technology compared with other Australian operations
- The proposal is located in a Strategic Industrial Area (SIA)
- Multiple industry categories that emit odour are present on the same site

YES or **Can't determine:** Go to flowchart.

OR

NO: Go to flowchart.

Justification should be provided to support a 'NO' response.

Special case factors – justification for 'NO' response.

Water Corporation wastewater treatment plant is located >500m north of the proposed facility.

The proposed facility does not meet any of the criteria listed above that would warrant a detailed assessment.

Products that have the potential to emit odour emissions are expected to comprise a small volume of the total annual production. Potential odour emissions will be contained via the wet Scrubber System.

Based on the size and scale of the facility, there are not expected to be any significant odour emissions warranting a detailed assessment.

Additional comments.



Step 2: Flowchart – new premises

The Screening analysis result is determined using the flowchart below and responses to the questionnaire overleaf.

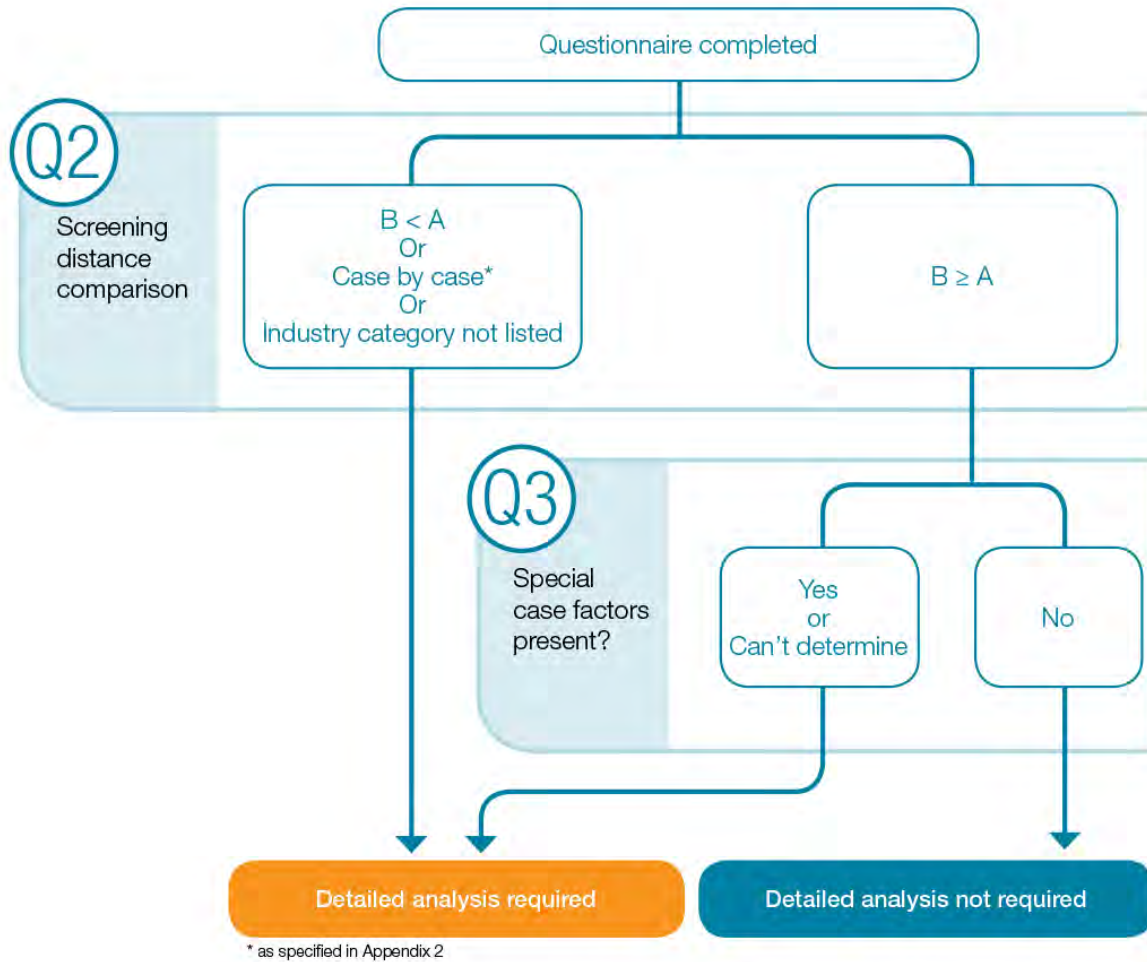


Figure 1: Screening analysis for new premises

Appendix 9: Noise Screening Analysis



Appendix A - Screening form

The General screening section of this form is the first step. Sections 1–4 of the form are activity specific. If any questions in the Screening form are answered Yes/Unsure, a detailed noise emission report is required in relation to that question.

General screening – separation distances		
Separation distance for identified industry in <i>Guidance for Assessment of Environmental Factors – Separation Distances between Industrial and Sensitive Land Uses</i> , or department agreed alternative ¹	_300-500 m (A)	
Distance to nearest noise sensitive receiver/premises	_675 m (B)	
Please tick the appropriate box	Yes/Unsure	No
Is the distance (B) less than the separation distance (A)?	<input type="checkbox"/> Continue straight to section 10, Detailed noise emission assessment	<input checked="" type="checkbox"/>
Distance to nearest commercial receiver	_600__m (C)	
Distance to nearest industrial receiver	_100_m (D)	
Tick if receiver is within the Kwinana Industrial Area	<input type="checkbox"/>	

Note 1: Where the separation distance for the industry category listed as ‘case-by-case’ or there is no entry in *Guidance for Assessment of Environmental Factors – Separation Distances between Industrial and Sensitive Land Uses* for the activity the applicant may consider comparison with published separation distances for similar activities or contact the department for further advice.

The screening process continues below. The screening process uses a comparison of separation distances and sound power levels, presented in Plate 1, below, to screen out noise emissions not requiring a detailed noise emission assessment.

For simplicity, the screening process defines:

- ‘day’ as 7am–7pm (Monday–Saturday)
- ‘night’ as any other time.

These definitions cover the extreme assigned level values for noise sensitive receivers only and are not consistent with the time periods specified in Table 1 of the Noise Regulations.



1. Operational noise		
Estimated sound power for all operational noise sources ¹	Day hours	__ <85 __ dB(A) (E)
	Night hours	__ 0 __ dB(A) (F)
Please tick the appropriate box	Yes/Unsure	No
Plot the day (E) and night (F) values against the distance (B) on Plate 1 Is the operational noise above either relevant line in Plate 1?	Day hours <input type="checkbox"/> Night hours <input type="checkbox"/>	Day hours <input checked="" type="checkbox"/> Night hours <input checked="" type="checkbox"/>
Plot both values (E) and (F) against distance (C) on Plate 1 Is the operational noise above the relevant line in Plate 1 for either time period?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Plot both values (E) and (F) against distance (D) on Plate 1 Is the operational noise above the relevant line in Plate 1 for either time period?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Construction noise		
Estimated sound power for construction noise sources ¹	Day hours	__ <85 __ dB(A) (G)
	Night hours	__ 0 __ dB(A) (H)
Please tick the appropriate box	Yes/Unsure	No
Plot day (G) and night (H) values against distance (B) on Plate 1 Is construction noise more than 10 dB above either relevant line in Figure 1?	Day hours <input type="checkbox"/> Night hours <input type="checkbox"/>	Day hours <input checked="" type="checkbox"/> Night hours <input checked="" type="checkbox"/>
Plot both values for (G) and (H) against distance (C) on Plate 1 Is construction noise more than 10 dB above the relevant line in Plate 1 for either time period?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Plot both values (G) and (H) against distance (D) on Plate 1 Is construction noise more than 10 dB above the relevant line in Plate 1 for either time period?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Note 1: sound power levels for various generic construction items can be found in AS 2436-2010 *Guide to noise and vibration control on construction, demolition and maintenance sites* (refer to Table A1 and Table B1).



3. Blasting		
Please tick the appropriate box	Yes/Unsure	No
Is the blasting source from a prescribed premises with a definition that includes mining and is the nearest sensitive receiver (B) within 1500 m?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Vibration, aircraft or amenity issues		
Please tick the appropriate box	Yes/Unsure	No
Is the prescribed premises potentially going to create any: <ul style="list-style-type: none"> • Emissions of vibration; • Emissions from aircraft; and/or • Impacts to any special amenity or naturally quiet areas? 	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Instructions for indicative noise prediction using Screening Plate 1
<ol style="list-style-type: none"> 1. Identify a concentration point of noise emissions on the proposed site. 2. Estimate total A-weighted sound power level for all noise sources on site: <ol style="list-style-type: none"> a) Separate levels for noise sources operating during daytime and night time may be required. b) Estimation of sound power levels may require the assistance of an acoustic consultant. c) Estimations do not include noise control measures. 3. Identify all nearby premises not owned by the applicant and estimate their distance to the source point on site. 4. Plot distance to the nearest premises against sound power level (day and night time) on Plate 1. 5. If plotted points are below the relevant line on Plate 1 for the type of receiver, noise is likely to be low level. If plotted points are on or above lines, a Detailed noise emission assessment is required (refer to section 10)

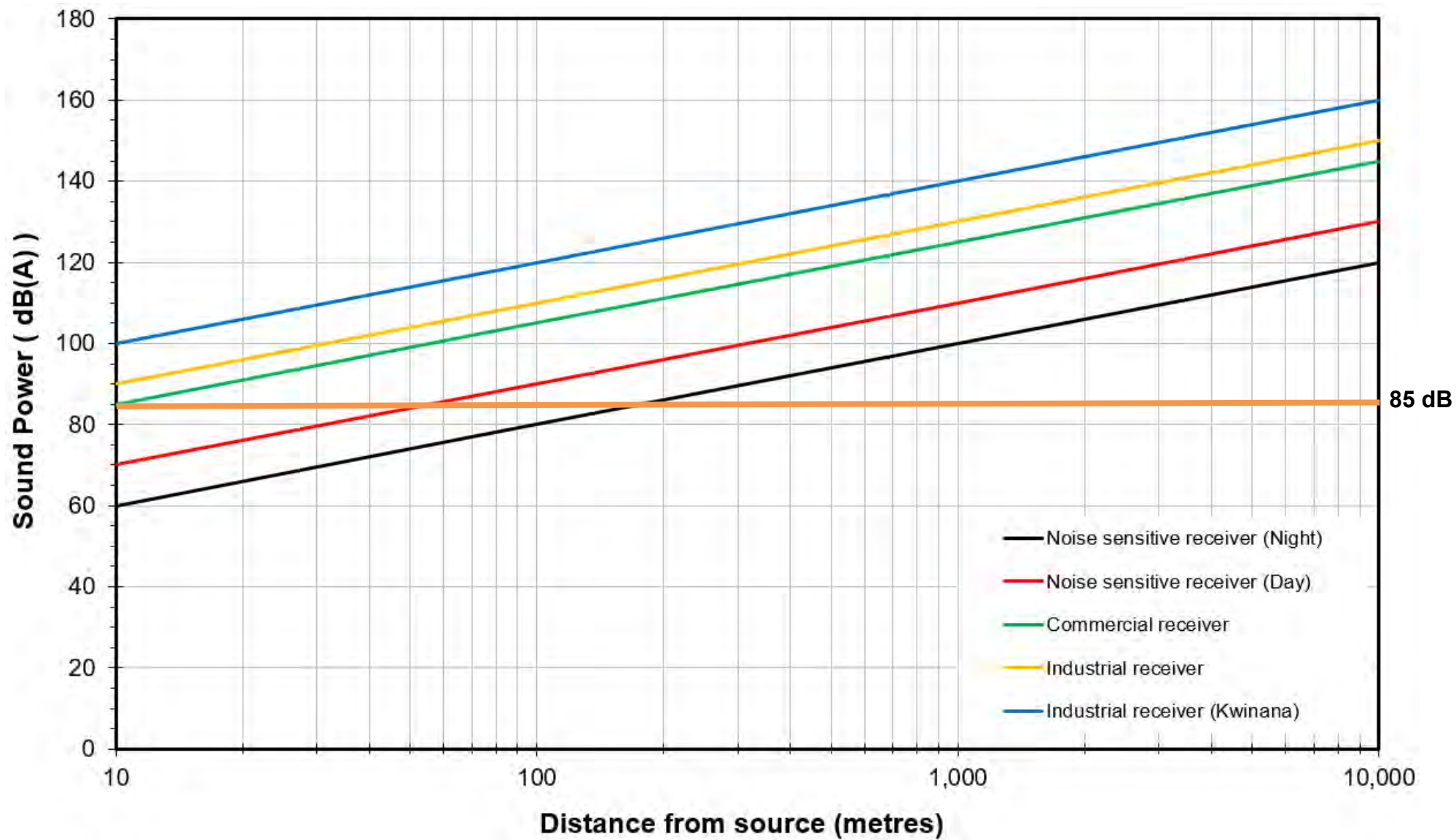


Plate 1: Screening criteria for sound power levels

**Appendix 10: COA for Results of Groundwater Analyses
(from Tetra Tech Coffey 2023)**

CERTIFICATE OF ANALYSIS

Work Order	: EP2217230	Page	: 1 of 15
Client	: Tetra Tech Coffey Pty Ltd	Laboratory	: Environmental Division Perth
Contact	: Bernie Weekes	Contact	: REBECCA OWEN
Address	: Level 1, Bishop See 235 St Georges Terrace Perth WA, AUSTRALIA 6000	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: 08 6218 2161	Telephone	: +61-8-9406 1301
Project	: 754-PEREN308780 Lodge Dr Baseline	Date Samples Received	: 14-Dec-2022 16:10
Order number	: ----	Date Analysis Commenced	: 20-Dec-2022
C-O-C number	: ----	Issue Date	: 05-Jan-2023 11:09
Sampler	: RILEY PRENTICE		
Site	: ----		
Quote number	: EPBQ/007/21		
No. of samples received	: 21		
No. of samples analysed	: 13		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
Thomas Donovan	Senior Organic Chemist	Perth Organics, Wangara, WA



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP068: High LCS recovery deemed acceptable as all associated analyte results are less than LOR.
- EG005T: Metal results for EP2217230-007 and 008 confirmed by re-digestion and re-analysis.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TBS500	QC01	SB01_0.0	SB01_0.5	SB02_0.0
Sampling date / time				12-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	
Compound	CAS Number	LOR	Unit	EP2217230-006	EP2217230-007	EP2217230-008	EP2217230-009	EP2217230-013	
				Result	Result	Result	Result	Result	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%	<1.0	2.4	2.5	8.0	8.4	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	<5	
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	<1	
Chromium	7440-47-3	2	mg/kg	<2	28	29	----	9	
Copper	7440-50-8	5	mg/kg	<5	<5	<5	----	6	
Lead	7439-92-1	5	mg/kg	<5	<5	<5	----	<5	
Nickel	7440-02-0	2	mg/kg	<2	7	7	----	3	
Zinc	7440-66-6	5	mg/kg	<5	646	618	----	42	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	<0.1	
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg	<0.1	<0.1	<0.1	----	<0.1	
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
gamma-BHC	58-89-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Heptachlor	76-44-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Aldrin	309-00-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Dieldrin	60-57-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
4,4'-DDE	72-55-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Endrin	72-20-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
4,4'-DDD	72-54-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TBS500	QC01	SB01_0.0	SB01_0.5	SB02_0.0
Sampling date / time				12-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	
Compound	CAS Number	LOR	Unit	EP2217230-006	EP2217230-007	EP2217230-008	EP2217230-009	EP2217230-013	
				Result	Result	Result	Result	Result	
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4'-DDT	50-29-3	0.2	mg/kg	----	----	<0.2	<0.2	<0.2	
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Methoxychlor	72-43-5	0.2	mg/kg	----	----	<0.2	<0.2	<0.2	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Monocrotophos	6923-22-4	0.2	mg/kg	----	----	<0.2	<0.2	<0.2	
Dimethoate	60-51-5	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Diazinon	333-41-5	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	<0.2	<0.2	<0.2	
Malathion	121-75-5	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Fenthion	55-38-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Parathion	56-38-2	0.2	mg/kg	----	----	<0.2	<0.2	<0.2	
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Fenamiphos	22224-92-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Prothiofos	34643-46-4	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Ethion	563-12-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Carbophenothion	786-19-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
Azinphos Methyl	86-50-0	0.05	mg/kg	----	----	<0.05	<0.05	<0.05	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TBS500	QC01	SB01_0.0	SB01_0.5	SB02_0.0
Sampling date / time					12-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00
Compound	CAS Number	LOR	Unit	EP2217230-006	EP2217230-007	EP2217230-008	EP2217230-009	EP2217230-013	
				Result	Result	Result	Result	Result	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	----	0.6	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	----	1.2	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	<10	
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	<50	
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	<100	
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	<100	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	<50	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	<10	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	<10	
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	----	<50	
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	<100	
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	<100	
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	<50	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	<50	
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2	
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	TBS500	QC01	SB01_0.0	SB01_0.5	SB02_0.0
Sampling date / time				12-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	
Compound	CAS Number	LOR	Unit	EP2217230-006	EP2217230-007	EP2217230-008	EP2217230-009	EP2217230-013	
				Result	Result	Result	Result	Result	
EP080: BTEXN - Continued									
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	<0.2	
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	<0.5	
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	<1	
EP201: Carbamate Pesticides by LCMS									
Oxamyl	23135-22-0	0.02	mg/kg	----	----	<0.02	<0.02	<0.02	
Methomyl	16752-77-5	0.02	mg/kg	----	----	<0.02	<0.02	<0.02	
3-Hydroxy Carbofuran	16655-82-6	0.02	mg/kg	----	----	<0.02	<0.02	<0.02	
Aldicarb	116-06-3	0.02	mg/kg	----	----	<0.02	<0.02	<0.02	
Bendiocarb	22781-23-3	0.02	mg/kg	----	----	<0.02	<0.02	<0.02	
Thiodicarb	59669-26-0	0.02	mg/kg	----	----	<0.02	<0.02	<0.02	
Carbofuran	1563-66-2	0.02	mg/kg	----	----	<0.02	<0.02	<0.02	
Carbaryl	63-25-2	0.02	mg/kg	----	----	<0.02	<0.02	<0.02	
Methiocarb	2032-65-7	0.02	mg/kg	----	----	<0.02	<0.02	<0.02	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%	64.2	84.5	78.7	----	70.6	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	----	----	113	123	104	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	----	----	122	108	87.7	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	84.3	84.7	82.1	----	75.9	
2-Chlorophenol-D4	93951-73-6	0.5	%	89.2	90.7	88.3	----	83.2	
2,4,6-Tribromophenol	118-79-6	0.5	%	42.1	43.1	51.6	----	47.2	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	96.7	98.8	96.4	----	91.9	
Anthracene-d10	1719-06-8	0.5	%	104	108	103	----	105	
4-Terphenyl-d14	1718-51-0	0.5	%	85.9	88.4	86.4	----	82.5	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	105	73.7	91.9	----	89.6	
Toluene-D8	2037-26-5	0.2	%	99.3	81.2	85.2	----	79.6	
4-Bromofluorobenzene	460-00-4	0.2	%	92.8	87.1	80.3	----	81.2	
EP201S: Carbamate Surrogate									
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	0.02	%	----	----	107	108	104	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB02_1.0	SB03_0.0	SB03_1.0	----	----
Sampling date / time				13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	EP2217230-015	EP2217230-018	EP2217230-020	-----	-----	
				Result	Result	Result	----	----	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%	6.8	10.3	11.0	----	----	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	----	<5	----	----	----	
Cadmium	7440-43-9	1	mg/kg	----	<1	----	----	----	
Chromium	7440-47-3	2	mg/kg	----	12	----	----	----	
Copper	7440-50-8	5	mg/kg	----	<5	----	----	----	
Lead	7439-92-1	5	mg/kg	----	<5	----	----	----	
Nickel	7440-02-0	2	mg/kg	----	<2	----	----	----	
Zinc	7440-66-6	5	mg/kg	----	<5	----	----	----	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	----	<0.1	----	----	----	
EP066: Polychlorinated Biphenyls (PCB)									
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	<0.1	----	----	----	
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB02_1.0	SB03_0.0	SB03_1.0	----	----
Sampling date / time				13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	EP2217230-015	EP2217230-018	EP2217230-020	-----	-----	
				Result	Result	Result	----	----	
EP068A: Organochlorine Pesticides (OC) - Continued									
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg	----	<0.5	----	----	----	
Acenaphthylene	208-96-8	0.5	mg/kg	----	<0.5	----	----	----	
Acenaphthene	83-32-9	0.5	mg/kg	----	<0.5	----	----	----	
Fluorene	86-73-7	0.5	mg/kg	----	<0.5	----	----	----	
Phenanthrene	85-01-8	0.5	mg/kg	----	<0.5	----	----	----	
Anthracene	120-12-7	0.5	mg/kg	----	<0.5	----	----	----	
Fluoranthene	206-44-0	0.5	mg/kg	----	<0.5	----	----	----	
Pyrene	129-00-0	0.5	mg/kg	----	<0.5	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB02_1.0	SB03_0.0	SB03_1.0	----	----
Sampling date / time				13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	EP2217230-015	EP2217230-018	EP2217230-020	-----	-----	
				Result	Result	Result	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	<0.5	----	----	----	
Chrysene	218-01-9	0.5	mg/kg	----	<0.5	----	----	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	<0.5	----	----	----	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	<0.5	----	----	----	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	<0.5	----	----	----	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	<0.5	----	----	----	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	<0.5	----	----	----	
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	<0.5	----	----	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	<0.5	----	----	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	<0.5	----	----	----	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	0.6	----	----	----	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	1.2	----	----	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	----	<10	----	----	----	
C10 - C14 Fraction	----	50	mg/kg	----	<50	----	----	----	
C15 - C28 Fraction	----	100	mg/kg	----	<100	----	----	----	
C29 - C36 Fraction	----	100	mg/kg	----	<100	----	----	----	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	<50	----	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg	----	<10	----	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	<10	----	----	----	
>C10 - C16 Fraction	----	50	mg/kg	----	<50	----	----	----	
>C16 - C34 Fraction	----	100	mg/kg	----	<100	----	----	----	
>C34 - C40 Fraction	----	100	mg/kg	----	<100	----	----	----	
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	<50	----	----	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	<50	----	----	----	
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	----	<0.2	----	----	----	
Toluene	108-88-3	0.5	mg/kg	----	<0.5	----	----	----	
Ethylbenzene	100-41-4	0.5	mg/kg	----	<0.5	----	----	----	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	<0.5	----	----	----	
ortho-Xylene	95-47-6	0.5	mg/kg	----	<0.5	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	SB02_1.0	SB03_0.0	SB03_1.0	----	----
Sampling date / time				13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	EP2217230-015	EP2217230-018	EP2217230-020	-----	-----	
				Result	Result	Result	----	----	
EP080: BTEXN - Continued									
^ Sum of BTEX	----	0.2	mg/kg	----	<0.2	----	----	----	
^ Total Xylenes	----	0.5	mg/kg	----	<0.5	----	----	----	
Naphthalene	91-20-3	1	mg/kg	----	<1	----	----	----	
EP201: Carbamate Pesticides by LCMS									
Oxamyl	23135-22-0	0.02	mg/kg	<0.02	<0.02	<0.02	----	----	
Methomyl	16752-77-5	0.02	mg/kg	<0.02	<0.02	<0.02	----	----	
3-Hydroxy Carbofuran	16655-82-6	0.02	mg/kg	<0.02	<0.02	<0.02	----	----	
Aldicarb	116-06-3	0.02	mg/kg	<0.02	<0.02	<0.02	----	----	
Bendiocarb	22781-23-3	0.02	mg/kg	<0.02	<0.02	<0.02	----	----	
Thiodicarb	59669-26-0	0.02	mg/kg	<0.02	<0.02	<0.02	----	----	
Carbofuran	1563-66-2	0.02	mg/kg	<0.02	<0.02	<0.02	----	----	
Carbaryl	63-25-2	0.02	mg/kg	<0.02	<0.02	<0.02	----	----	
Methiocarb	2032-65-7	0.02	mg/kg	<0.02	<0.02	<0.02	----	----	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%	----	73.6	----	----	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	98.5	96.0	108	----	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	96.4	124	104	----	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	----	79.9	----	----	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	----	86.7	----	----	----	
2,4,6-Tribromophenol	118-79-6	0.5	%	----	44.7	----	----	----	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	----	94.8	----	----	----	
Anthracene-d10	1719-06-8	0.5	%	----	109	----	----	----	
4-Terphenyl-d14	1718-51-0	0.5	%	----	85.1	----	----	----	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	----	92.0	----	----	----	
Toluene-D8	2037-26-5	0.2	%	----	78.4	----	----	----	
4-Bromofluorobenzene	460-00-4	0.2	%	----	76.5	----	----	----	
EP201S: Carbamate Surrogate									
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	0.02	%	106	101	110	----	----	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW1	MW3	QC03	QC05	QC06
Sampling date / time				13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	
Compound	CAS Number	LOR	Unit	EP2217230-001	EP2217230-002	EP2217230-003	EP2217230-004	EP2217230-005	
				Result	Result	Result	Result	Result	
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L	0.033	0.081	0.034	----	----	
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----	
Chromium	7440-47-3	0.001	mg/L	<0.001	0.022	<0.001	----	----	
Copper	7440-50-8	0.001	mg/L	<0.001	0.004	<0.001	----	----	
Lead	7439-92-1	0.001	mg/L	<0.001	0.003	<0.001	----	----	
Nickel	7440-02-0	0.001	mg/L	<0.001	0.004	<0.001	----	----	
Zinc	7440-66-6	0.005	mg/L	<0.005	0.015	<0.005	----	----	
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	mg/L	----	----	----	<0.001	<0.001	
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	<0.0001	<0.0001	
Chromium	7440-47-3	0.001	mg/L	----	----	----	<0.001	<0.001	
Copper	7440-50-8	0.001	mg/L	----	----	----	<0.001	<0.001	
Lead	7439-92-1	0.001	mg/L	----	----	----	<0.001	<0.001	
Nickel	7440-02-0	0.001	mg/L	----	----	----	<0.001	<0.001	
Zinc	7440-66-6	0.005	mg/L	----	----	----	<0.005	<0.005	
EG035F: Dissolved Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.0001	mg/L	----	----	----	<0.0001	<0.0001	
EP066: Polychlorinated Biphenyls (PCB)									
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	<1	<1	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Acenaphthylene	208-96-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Acenaphthene	83-32-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Fluorene	86-73-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Phenanthrene	85-01-8	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Anthracene	120-12-7	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Fluoranthene	206-44-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Pyrene	129-00-0	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Benz(a)anthracene	56-55-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Chrysene	218-01-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW1	MW3	QC03	QC05	QC06
Sampling date / time					13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00
Compound	CAS Number	LOR	Unit		EP2217230-001	EP2217230-002	EP2217230-003	EP2217230-004	EP2217230-005
					Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibenz(a,h)anthracene	53-70-3	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5	<5
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	1	%	64.0	64.2	60.5	55.9	58.2	
EP075(SIM)S: Phenolic Compound Surrogates									



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW1	MW3	QC03	QC05	QC06
Sampling date / time				13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	13-Dec-2022 00:00	
Compound	CAS Number	LOR	Unit	EP2217230-001	EP2217230-002	EP2217230-003	EP2217230-004	EP2217230-005	
				Result	Result	Result	Result	Result	
EP075(SIM)S: Phenolic Compound Surrogates - Continued									
Phenol-d6	13127-88-3	1.0	%	21.3	18.1	17.1	18.6	17.0	
2-Chlorophenol-D4	93951-73-6	1.0	%	55.0	47.2	42.7	48.5	44.6	
2,4,6-Tribromophenol	118-79-6	1.0	%	27.8	21.7	20.7	29.1	24.0	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	1.0	%	66.0	58.2	52.4	57.6	54.3	
Anthracene-d10	1719-06-8	1.0	%	68.6	60.6	57.6	57.8	58.2	
4-Terphenyl-d14	1718-51-0	1.0	%	46.4	42.3	42.2	42.0	42.1	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%	100	101	98.8	103	95.2	
Toluene-D8	2037-26-5	2	%	103	99.2	100	105	101	
4-Bromofluorobenzene	460-00-4	2	%	95.4	97.1	75.6	120	116	



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	43	119
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	53	152
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	28	152
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	57	119
2-Chlorophenol-D4	93951-73-6	52	130
2,4,6-Tribromophenol	118-79-6	40	132
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	53	139
Anthracene-d10	1719-06-8	68	124
4-Terphenyl-d14	1718-51-0	66	132
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	63	132
Toluene-D8	2037-26-5	66	125
4-Bromofluorobenzene	460-00-4	60	124
EP201S: Carbamate Surrogate			
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	672-99-1	59	137

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	27	136
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	67
2-Chlorophenol-D4	93951-73-6	29	120
2,4,6-Tribromophenol	118-79-6	10	131
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	34	131
Anthracene-d10	1719-06-8	43	126
4-Terphenyl-d14	1718-51-0	41	142
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125

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Work Order : EP2217230
Client : Tetra Tech Coffey Pty Ltd
Project : 754-PEREN308780 Lodge Dr Baseline



Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry) 14913 (Biology).

(SOIL) EP201: Carbamate Pesticides by LCMS

(SOIL) EP201S: Carbamate Surrogate
