



Prestons Waste Treatment Facility
Amendment Report

Appendix B

Amended proposal description

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Acronyms and Abbreviations

Acronym	Definition
AC	Activated Carbon
ADGC or DG	Australian Dangerous Goods Code, or Dangerous Goods
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
AS	Australian Standard
ASS	Acid Sulfate Soil
BTEXN	Benzene, Toluene, Ethylbenzene, Xylenes and Napthalene
CA	Consignment authorisation
CCO	Chemical Control Orders
CEMP	Construction Environmental Management Plan
CIV	Capital Investment Value
COPC	Contaminants of Potential Concern
DAF	Dissolve Air Floatation
EIS	Environmental Impact Statement
EMS	Environmental Management System
EPL	Environment Protection Licence
FRNSW	Fire and Rescue NSW
FTE	Full Time Equivalent
GAC	Granular Activated Carbon
GGBFS	Ground Granulated Blast-furnace Slag
GIA	General Immobilisation Approval
HiQ	HiQ Waste Treatment Services Pty Ltd
HVAC	Heating Ventilation and Air Conditioning
IBC	Intermediate Bulk Container
LDCP	Liverpool Development Control Plan (2008)
LLEP	Liverpool Local Environmental Plan (2008)
LWTP	Liquid Waste Treatment Plant
NATA	National Association of Testing Authorities
NCC	National Construction Code
NEPM	National Environment Protection Measure
NSW EPA	NSW Environment Protection Authority

Acronym	Definition
OEMP	Draft Operational Environmental Management Plan
OPC	Ordinary Portland Cement
OWMP	Draft Operational Waste Management Plan
PAH	Polycyclic Aromatic Hydrocarbons
PASS	Potential Acid Sulfate Soil
PCB	Polychlorinated Biphenyls
PFAS	Perfluoroalkyl and Polyfluoroalkyl Substances
PIRMP	Pollution Incident Response Management Plan
PM	Particulate Matter
PMF	Probable Maximum Flood
POP	Persistent Organic Pollutants
RRE	Resource Recovery Exemption
RRO	Resource Recovery Order
SAQP	Sampling Analysis and Quality Plan
SIA	Specific Immobilisation Approval
The Applicant	HiQ Waste Treatment Services Pty Ltd
The Facility	The proposed building of which waste is received, treated, processed and disposed of at Prestons Waste Transfer Facility
The Proposal	Construction and operation of a Waste Treatment Facility for the receipt, treatment and storage of contaminated soils, water and sludges
The Site	9-13 Whyalla Place, Prestons NSW
TIA	Traffic Impact Assessment (prepared by PeopleTrans)
Tpa	Tonnes per annum
TPH	Total Petroleum Hydrocarbons
TRH	Total Recoverable Hydrocarbons
UIN	Unique Identification Number
VCZ	Volcanic Clinoptilolite Zeolite
VOC	Volatile Organic Compound

1 Proposal description

This section provides a summary of the existing and proposed development of the Prestons Waste Treatment Facility (the Facility), proposed at 9-13 Whyalla Place, Prestons NSW (the Proposal). This chapter includes a high-level overview of the proposed construction and operation of the Facility.

1.1 Proposal overview

HiQ Waste Treatment Services Pty Ltd (the Applicant / HiQ) are proposing to construct and operate a Waste Treatment Facility (the Facility) for the receipt, treatment and storage of contaminated soils, liquid waste and sludges at their site at 9-13 Whyalla Place, Prestons NSW (the Site). Waste received at the Site would include:

- Packaged waste
- Acid sulfate soil (ASS) and potential acid sulfate soil (PASS)
- Contaminated liquid and solid wastes.

These wastes would be classified, in accordance with the NSW EPA Waste Classification Guidelines (2014) as one of the following:

- Liquid waste
- General solid waste (non-putrescible),
- Restricted solid waste, or
- Hazardous waste

Treatment methodologies for wastes include:

- Physical screening
- Chemical separation
- Bioremediation
- Immobilisation.

The Applicant is proposing to undertake Site upgrade works to optimise the existing Site to allow the processing and treatment of the waste streams listed above, with a throughput capacity of up to 210,500 tonnes per annum (tpa). The Site would comprise three key compartments (refer Figure 1-1):

- Compartment 1 (existing): Waste treatment storage, transfer bays and treatment of soil, muds and sludges. Dewatering plant, water tanks, wheel wash, weighbridge, reagent storage and leachate collection pits.
- Compartment 2 (proposed): LWTP and reagent storage area. The flooring of Compartment 2 will include an epoxy lining to ensure the longevity of the warehouse floor after exposure to contaminants (notably PFAS).
- Compartment 3 (proposed): Mobile plant and equipment, cement silo, storage of packaged waste and resource recovery materials storage area.

Site upgrade works would include installation of weighbridges, extension of the existing building to establish Compartment 2 and Compartment 3, excavation of storage pits, construction of internal material storage bunkers, and installation of plant.

Construction would occur over approximately 12 months and works would include:

- Extension of the warehouse building
- Installation of weighbridges
- Internal fit out of the warehouse building, including installation of push walls and material bays

- Installation of liquid waste treatment plant (LWPT) including tanks, silos, filters, pumping and dosing systems.
- Installation of heating, ventilation and air conditioning (HVAC) and firefighting systems
- Reconfiguration of the office and amenities block to add staff decontamination facilities, laboratory and office spaces.
- Operations would include:
 - Storage, classification and transfer of contaminated soil, including ASS/PASS and Per- and polyfluoroalkyl substances (PFAS)
 - Storage, classification and transfer of packaged waste in intact containers
 - Storage, classification, transfer and treatment of contaminated liquids and sludges
 - Shredding of non-contaminated, inert packaged waste
 - Treatment of contaminated soil by bioremediation
 - Treatment of contaminated soil in accordance with both general and specific immobilisation approvals
 - Treatment of ASS
 - Operation of the LWTP.

Prestons Waste Treatment Facility – Proposal Description

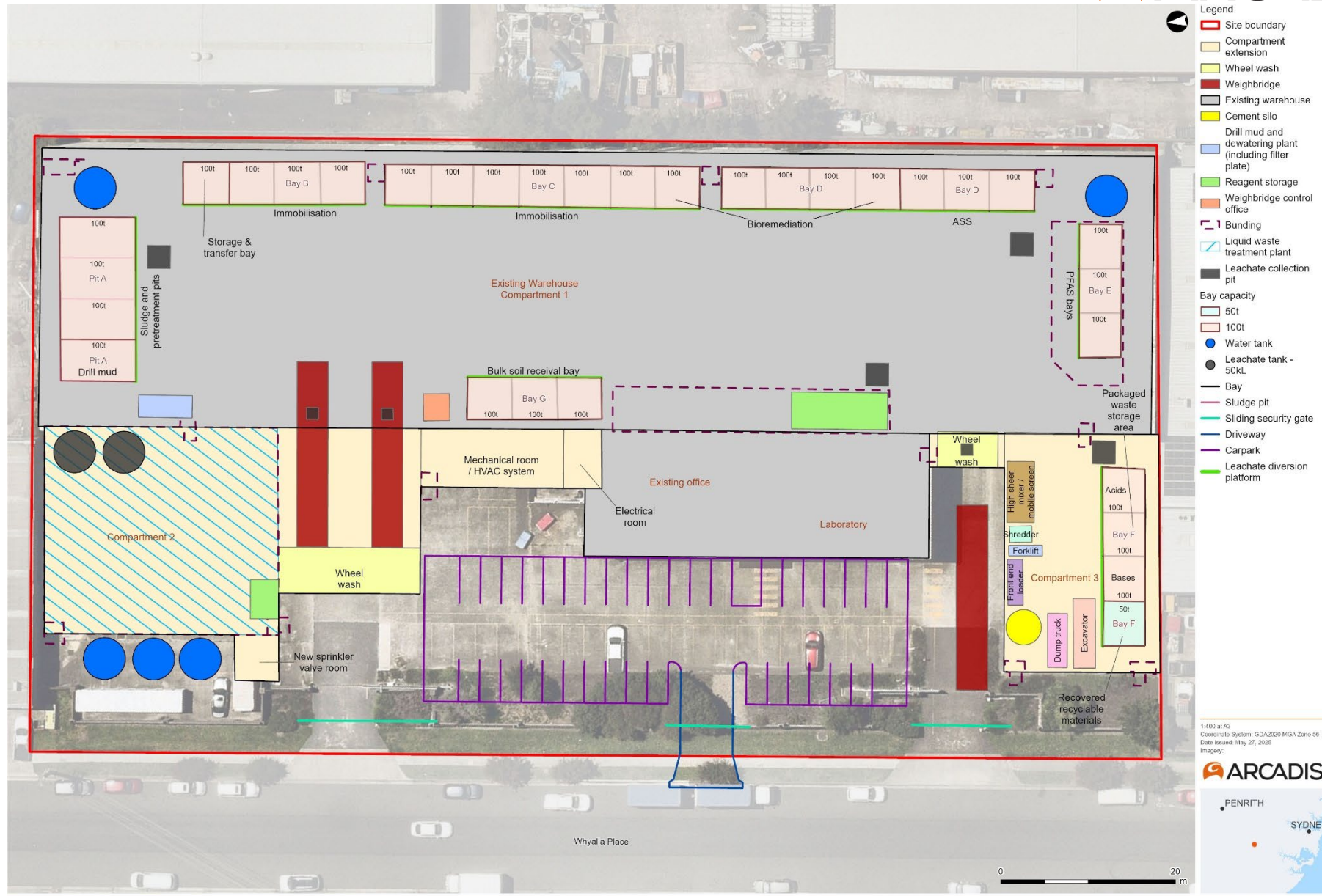


Figure 1-1 Proposed Site layout (indicative subject to detailed design)

1.1.1 Existing Site

The Site is located at 9-13 Whyalla Place, Prestons, and is legally identified as Lot 103 of DP 866530 in the Liverpool Local Environmental Plan (LLEP) 2008.

The Site is approximately 9,100 m² and consists of a single building structure with 4,100 square metres (m²) of warehouse floorspace and 650 m² of office facility. HiQ Group currently use part of the Site for office administration and there are no business activities within the existing warehouse.

The leasable floor area, as defined der the *Liverpool Development Control Plan 2008* (Liverpool DCP), of the office space is approximately 760 m². The Site features 2,850 m² of external hardstand, of which 348 m² is currently utilised for light vehicle parking (52 spaces) and 2,490 m² for circulation and storage. The spring height (intersection of wall plane and roof) of the building is 11.7 metres (m), and the ridge height (base of the building to the highest point of the roof) is 12.2 m. The building features two roller shutter doors at the northern end of the building and one roller shutter door at the southern end.

The Site frontage at Whyalla Place contains landscaped garden beds with a mixture of exotic and native plantings.

The Site features vehicle and pedestrian access from Whyalla Place and has two driveways. The existing Site layout is available in Figure 1-2.

The Site is located on IN3 Heavy Industrial Zone land in the Prestons industrial area; its context with surrounding land use is available in Figure 1-3.

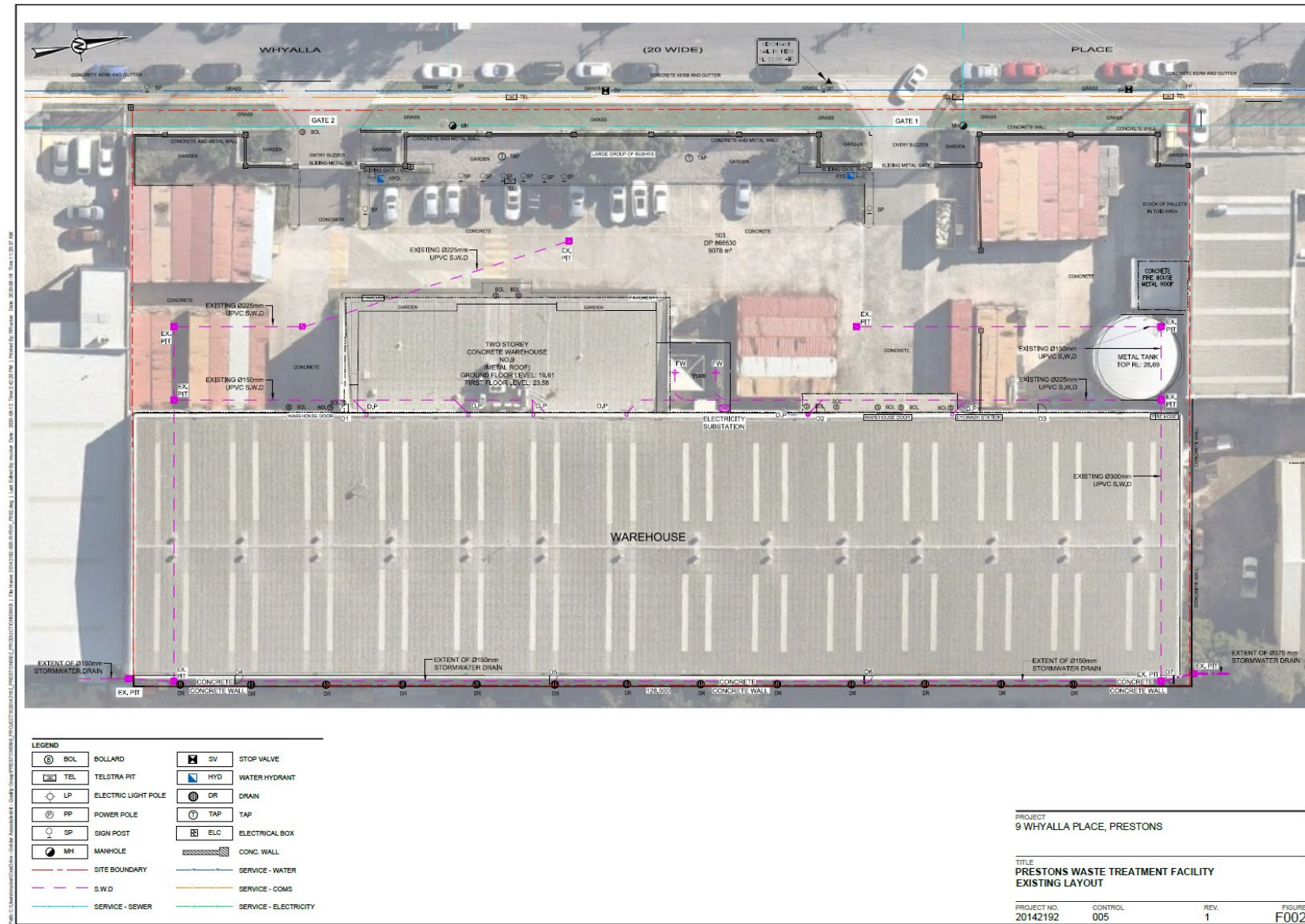


Figure 1-2: Existing Site layout (source: Golders Environmental Impact Statement)



Figure 1-3: Site in context with surrounding land use

1.1.2 Approvals, licences and permits

The following approvals, licences and permits would be obtained prior to construction and operation of the Site:

- Environment Protection Licence (EPL): As the proposed operations at the Site (contaminated soil treatment, resource recovery, waste storage and waste processing (non-thermal treatment)) involve scheduled activities under Schedule 1 of the *Protection of the Environment Operations Act 1997* (POEO Act) an EPL would be required from the NSW Environment Protection Authority (NSW EPA).
- General and Specific Immobilisation Approvals (GIA, SIA): In accordance with Part 10 of the *Protection of the Environment Operations (Waste) Regulation 2014*, HiQ will obtain and implement general and specific immobilisation approvals for the treatment, immobilisation, testing and validation, and disposal of waste streams where it is not possible to reuse, recycle or reprocess the waste (i.e. where there is no alternative to immobilisation).
- Trade wastewater approval: Liquid waste that has been treated to meet Sydney Water trade wastewater standards would be discharged to sewer. HiQ will apply for a trade wastewater approval from Sydney Water prior to any connection to sewer at the Site.
- Section 73 Compliance Certificate under the *Sydney Water Act 1994*: Sydney Water have advised that a compliance certificate will be required for the Proposal under Section 73 of the *Sydney Water Act 1994*. The compliance certificate will require the submission and approval of building plans for approval by Sydney Water.

1.1.3 Waste types and volumes

Wastes proposed to be accepted at the Site would be categorised by both its nature and waste classification, as well as by the treatment method that would be applied. Within these waste types there may be a high degree of variability in the specific waste received. All waste accepted on the Site would comply with the waste receipt procedure, outlined in Section 1.4.6, prior to acceptance on Site. Only wastes which are outlined within the EPL and meet the conditions of Approval would be accepted by the Facility. Approved waste types and annual throughput limits are summarised in Table 1-1.

As per clause 49 of Schedule 1 of the *Protection of the Environment Operations Act 1997* (POEO Act) and in accordance with the EPA *Waste Classification Guidelines Part 1: Classifying waste*, the Facility will be receiving waste classified as:

- Liquid
- General solid non-putrescible
- Restricted solid waste
- Hazardous
- Acid sulfate soils.

Table 1-1: Waste types proposed for the Site

Type of Waste	Waste classification	Management	Tonnes per Annum
Packaged waste – Liquid	Liquid waste	Contaminated packaged waste: no treatment, only storage	40,000t
Packaged waste – Solid	- General solid non-putrescible - Restricted solid waste	Non-contaminated waste: shredding and offtake for disposal	
PFAS contaminated soils	- General solid non-putrescible - Restricted solid waste	Storage only	7,500t
Bulk soils		Various methods:	58,000t
Contaminated soils	General solid waste (non-putrescible)	<i>Primarily immobilisation</i>	<i>50,000t</i>
Contaminated soils	- Restricted solid waste - Hazardous waste	<i>Primarily bioremediation</i>	<i>8,000t</i>
ASS	Acid sulfate soils	Acid neutralisation in batches	26,000t
Drill muds	- General solid waste (non-putrescible) - Liquid waste	Dewatering and liquid waste treatment	2,000t
Sediments and sludges	- Liquid waste - Restricted solid waste - Hazardous waste	Dependent on moisture content of sludges – dewatering, liquid waste treatment and soil decontamination	7,000t
Liquid waste	- Liquid waste - Restricted solid waste	Treated and validated in 50 kL batches through the LWTP	70 ML
Total			210,500

The following materials would not be received at the Site:

- No Polychlorinated biphenyl (PCB) contaminated waste will be accepted onsite above the scheduled chemical waste criteria
- Perfluoroalkyl and polyfluoroalkyl substances (PFAS) contaminated soil above the restricted solid waste criteria
- Asbestos containing material
- Wastes classified as Dangerous Goods, other than liquid waste or packaged waste classified as Class 8 PG II or III, and PFAS classified as Class 9 PG III.

In the unexpected event that materials received on Site meet the classification of Asbestos Containing Material, the material would be subject to an unexpected finds procedure within the draft Operational Environmental Management Plan (OEMP) and removed from the Site for appropriate disposal.

1.2 Built form and proposed works

The built form features of the Proposal include:

- Connection to Whyalla Place
- Installation of weighbridges and weighbridge control office
- Warehouse building extension
- Waste storage and treatment bays
- Internal trafficable area
- Internal staff and visitor parking
- Urban design and landscaping
- Air quality management infrastructure
- Fire infrastructure and management
- Utility connection.

These features are displayed in Figure 1-4, and described further in the following sections.

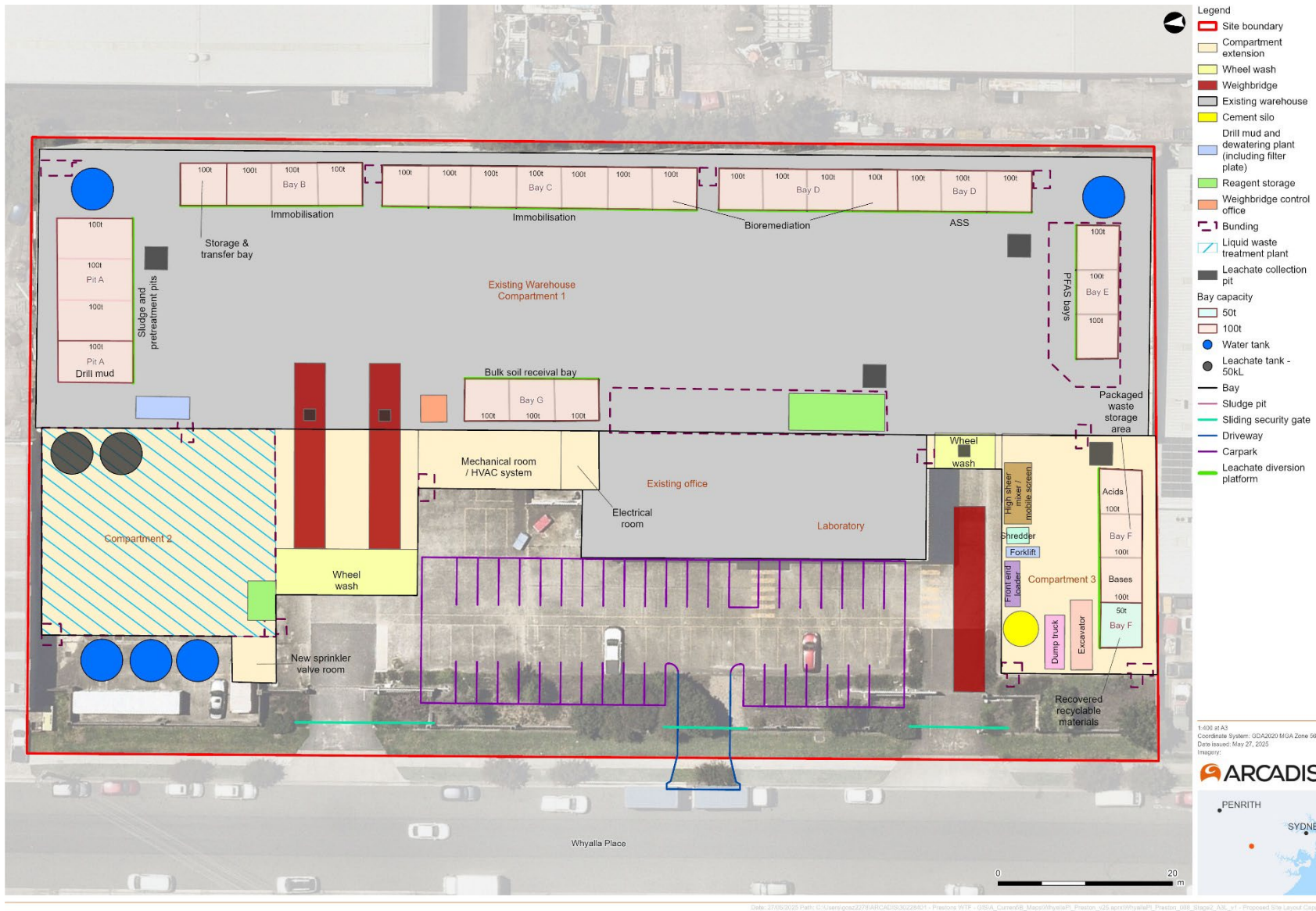


Figure 1-4 Proposed Site layout (indicative subject to detailed design)

1.2.1 Connection to Whyalla Place

The Site has two existing 8-metre-wide driveways to Whyalla Place which would be retained under the proposed Site layout. It is proposed that a third driveway would be constructed for light vehicles only, allowing for direct access to the carpark, separated from heavy vehicles. The existing two driveways would be retained for heavy vehicles only, to provide single direction traffic flow at the Site. Trucks would enter the Site at the northern driveway and exit the Site at the southern driveway.

1.2.2 Installation of weighbridges and weighbridge control office

Three weighbridges would be installed at the Site to facilitate a single-direction heavy vehicle flow of traffic. A dual-lane weighbridge would be installed within the warehouse building at the northern building access, and a single lane weighbridge would be installed exterior to the building at the southern roller shutter doors.

The weighbridges would be approximately 19 m long and controlled from a weighbridge control space located within the office and amenities building. The weighbridge control space is to be located adjacent to the manager's office. Weighbridges would feature boom gates and weight display.

Weighbridge construction would require minor ground-breaking, laying of hardstand, installation of weighbridge platforms and ancillary structures (boom gates and weight display).

The location of the weighbridges and the control office is identified in Figure 1-4.

1.2.3 Waste storage and treatment bay configuration

The Facility would have a total of 28 bays and 4 pits. Each bay and pit would be dedicated to a separate specific waste batch as it is managed and would not undergo mixing, as outlined in Section 1.4. Bays have each been allocated an identification letter. Between batches (with the exception of the PFAS bays), bays and pits are interchangeable for the respective type of waste management. Indicatively though, the following bay allocations have been identified for the operation for the Facility.

Table 1-2 Number and allocation of waste bays

Waste type	Bay allocation number	Indicative number of allocated bays	Interchangeable
Bulk soil receipt	Bay G	3	No
Storage and transfer	'Storage and transfer bay'	1	Yes
Immobilisation	Bay B/C	10	Yes (with other soil bays)
Bioremediation	Bay C/D	5	Yes (with other soil bays)
ASS	Bay D	3	Yes (with other soil bays)
PFAS	Bay E	3	No
Packaged waste	Bay F	3	Yes (with recovered recyclable material)
Recovered recyclable materials	Bay F	1	Yes (packaged waste)
Sludges	Pit A	3	Yes (with drill mud pit)
Drill mud	Pit A	1	Yes (with sludges pits)

1.2.4 Warehouse building extension

An extension to the western facade of the existing warehouse building is proposed to accommodate the LWTP, weighbridges, wheel wash, external electrical room, sprinkler room, and the soil treatment bays and pits. The Proposal would contain three distinct compartments, including:

- Compartment 1: Waste treatment storage and transfer bays, dewatering plant, water tanks, wheel wash, weighbridge, reagent storage and leachate collection pits
- Compartment 2: LWTP and reagent storage area
- Compartment 3: Mobile plant and equipment, cement silo and packaged waste and resource recovery materials storage area.

The building extension would occur during construction of the Proposal, and include extending the existing warehouse building (Compartment 1) from the existing northern roller shutter doors to the office and amenities block, and extending the northern (Compartment 2) and southern (Compartment 3) ends of the building, as illustrated in Figure 1-4.

The warehouse building extension would increase the internal floorspace of the Site by 1,300 m², to a total of 6,400 m². The roof height of the proposed building extensions would be 7.5 m. The Site would still maintain a setback of 10 m from Whyalla Place, in compliance with the Liverpool Development Control Plan (Liverpool DCP) 2008.

Office space and amenities within the existing office building would be utilised by the Proposal. Minor internal reconfiguration would occur to the existing ground floor office space to incorporate offices, staff decontamination facilities and laboratory. As part of the warehouse building extension works, the electrical control room would be relocated to the outside of the building.

Site survey information indicates the existing warehouse floor levels range from 23.5 to 23.6 m Australian Height Datum (AHD). The proposed redevelopment aims to maintain the existing building floor levels for the existing built form, and ensure any building extensions would be established above the one per cent Annual Exceedance Probability (AEP) flood level of 23.1 AHD. The minimum finished floor level for extensions to the existing building would be 23.6 m AHD, which is identified by Council as the maximum one per cent AEP flood level at the Site of 23.1 m AHD plus 0.5 m freeboard allowance. All reagents and packaged waste classed as Dangerous Goods Class 8 PG II and III would be stored above the probable maximum flood (PMF) level on elevated racking and be stored in accordance with the relevant Australian Standards. Any on-site parking will be located above the one per cent AEP flood level of 23.1 m AHD.

1.2.5 Internal trafficable area

On completion of construction, internal to the building would be approximately 3,000 m² of trafficable floorspace for vehicle loading, unloading and circulation. This area excludes the bays, office area and non-trafficable areas.

A wheel and truck wash would be installed adjacent to the southern roller shutter doors for vehicle cleaning prior to leaving the Site. Concrete in the wheel and truck wash would be treated with a performance-based sealant to prevent impregnation of contaminants into the concrete matrix.

Pedestrian walkways and shared spaces would be identified through floor markings in bright colours.

1.2.6 Internal staff and visitor parking

It is proposed that 36 spaces including one disabled parking space would be provided for light vehicles. Light vehicle parking and circulation at the Site would be separated from heavy vehicle movements by creating a third driveway for light vehicles only, minimising traffic conflicts at the Site.

1.2.7 Urban design and landscaping

In association with the upgraded light vehicle parking area, an additional area for landscaping would be installed at the northern frontage of the Site. Planting species would be chosen to be consistent with native vegetation in the local area. Existing plantings would be retained where feasible. A Landscape Plan will be prepared during the post approval phase.

1.2.8 Air quality management infrastructure

Particulate matter, Volatile Organic Compounds (VOCs) and odour emissions from the Proposal would be mitigated using both engineering controls and management controls. The HVAC system design has been based on the ultimate building configuration, required number of air exchanges to provide fresh air and for human comfort, as well as to maintain a negative air pressure within the building to minimise fugitive air emissions. The HVAC system would include:

- Smoke exhaust intakes
- Exhaust intakes above the material bays
- Outside air intakes, external to the building
- Installation of strobic air fans and ducting
- Fabric hoods / exhaust hoods above the material bays to be installed as the bays become operational
- Three-sided fabric curtains installed in relevant working areas to reduce the escape of fugitive dust and vapours during material handling and processing and to improve the collection efficiency of contaminated air by the HVAC system
- Exhaust inlets (internal) and air intakes (external) to the northern building extension (for the LWTP compartment)
- Raw water tanks fitted with screw lock (or similar) inlet fittings to reduce spillage. Tank relief vents will include vapour recovery systems ducted to the HVAC system during product loading/unloading. A high-pressure centrifugal fan mounted on top of a cyclone filter unit for Fire Compartment 1 within the existing warehouse building structure.

The HVAC system would feature Particulate Matter (PM) filters and Activated Carbon (AC) filters to remove VOCs and odours. Following filtration, air would be discharged from the Site using vertical strobic fans at 11.7 m above ground level.

During waste delivery, the fans would be turned off to manage air quality within the warehouse building. The fans would operate higher flow rates when dusty or volatile materials are being delivered, handled or treated. Water would be applied during loading and unloading of material and during treatment for dust suppression. Appendix B (Strobic Ventilation Fans) within Appendix E (Noise Impact Assessment) of the Environmental Impact Statement (EIS) and Appendix F (Air Quality Impact Assessment) of the EIS provide more detail on the proposed HVAC system.

Additional engineering controls to manage air emissions at the Facility would include:

- Overhead vents in Compartment 1 designed to draw contaminated air from near the emitting activities and route this air to the common inlet plenum for the air emissions control system
- Sealed LWTP vessels to capture potential VOC and odour emissions generated during treatment of hydrocarbon or solvent contaminated liquids. VOC and odour emissions captured in this area are routed directly to the common outlet plenum for the air emissions control system.
- Routing dust emissions from the high shear mixer to a dedicated cartridge based dust collector.
- Routing emissions collected from Compartments 1 and 2 to a common inlet plenum for the building's air emissions control system. This system includes the following components:
 - PM filter box
 - VOC and odour filter box
 - Common outlet plenum
 - Three strobic exhaust fans operating in parallel.
- Fresh air provided to each of the compartments by motorised dampers fitted behind weatherproof louvres located along the western wall of Compartment 1 and 2 and the northern wall of Compartment 3.

The following management controls designed to reduce the generation of PM and VOC emissions, will be considered:

- No idling of mobile plant and haul trucks when not in use
- Operation of emissions control devices according to their manufacturer's specifications
- Maintenance of the building compartments at > -5 Pascals (Pa) while in 'daily treatment mode'. Whilst in 'after hours mode', the building exhaust air system can be reduced and associated outside air inlet dampers closed off to maintain > -5 PA whilst saving energy.

1.2.9 Water management infrastructure

Stormwater and leachate management systems will be installed onsite. These systems would be separated to prevent the cross contamination of stormwater with leachate. Standard sediment and erosion controls would be implemented to minimise impacts to water quality during installation of the rainwater tank and leachate pits.

Stormwater

Rainwater tanks would be installed to collect and reuse rainwater onsite. The rainwater tanks would be located underneath the landscaped area which runs along the boundary of the Site with Whyalla Place. Measures to maintain water quality at the Site and at stormwater discharge points include:

- Waste unloading, treatment, and loading would be undertaken within the building. All compartments of the building are fully bunded
- Trucks would remain covered until being unloaded within the building
- The stormwater management system ensures complete segregation of stormwater runoff, leachate and treated water at the Site
- All stormwater collected from the Site's concrete hardstand is intended to run through an interceptor trap prior to leaving Site. The interceptor pit would have a valve that can be manually closed to prevent spills going offsite.
- Where feasible, rainwater to be harvested at the Site for irrigation and dust suppression purposes, reducing the requirement for potable water from utility connections.

Leachate

Leachate produced as a by-product of the treatment process or from stockpiling of the waste material is expected to be low. The majority of water used for dust suppression and/or during treatment would be absorbed into the soil. A description of how leachate would be managed by the Facility is provided below:

- Leachate collection pits would be installed within the building to a maximum depth of 1 m below the finished floor level; this would require ground-breaking internal to the warehouse building. Leachate would be pumped from leachate collection pits to a holding tank within the onsite LWTP until it is passed through the LWTP. A connection to sewer would be installed following successful application for a trade wastewater licence from Sydney Water. Following treatment, the leachate would be sampled to confirm it meets the Sydney Water Trade Wastewater standards, and would then be discharged to sewer or tankered offsite. No leachate would enter the stormwater or rainwater collection systems.
- Leachate would be pumped from the Drill Mud pits and Sludge and pretreatment pits to the LWTP
- Leachate controls:
 - To ensure capture of leachate, the design of the bays and pits incorporates a slope towards the back of each bay, directing any leachate to flow into the respective bay or pit. Additionally, a platform would be constructed in front of the bays and pits, sloping towards them, to guide the leachate into these areas. A cross section and plan view of the bays, showing the fall to the rear of the bays are shown in Figure 1-5 and Figure 1-6. The bays would primarily store dry and spadable material, with any leachate from the material being reintegrated during handling. Non-spadable material would be placed in the pits for appropriate handling and treatment.
 - Several leachate collection pits would be installed and constructed from concrete and waterproofed appropriately within the facility. Wastewater collection pits would be located under the in-coming weighbridges to capture wheel wash water. Submersible pumps would be located in each collection pit and leachate would be transferred to LWTP for treatment
- Bunding would be installed around the building at the entry and exit points to contain leachate, and as necessary, firefighting water, spills and other liquids in the event of a spill or emergency event (Figure 1-7). The bunding would consist predominantly of drive-over bunding at the driveway entries and step-over bunding at doorways, with sufficient capacity to contain one tanker load of liquid (20,000 L (20kL)). The total capacity of the bunding for each compartment and the building total has been calculated as approximately:
 - Compartment 1: 1,007kL
 - Compartment 2: 156kL
 - Compartment 3: 120kL
 - Total: 1,283kL
- Bunding for the facility has also been designed to capture the firewater requirements as prescribed in Australian Standard (AS) AS2419.1 Fire hydrant installations, which is:
 - Fire hydrant water supply of minimum 4 hours at 20L/s = 288 kL
 - Fire sprinkler water supply of minimum 2 hours at 96L/s (as per AS 2118.1-1999) = 691.2 kL.
- The primary containment bund of 250 mm height would be capable of containing hydrants operating at 20 L/s for a minimum of four hours, high hazard sprinklers operating for a minimum of two hours at 96 L/s in accordance with AS2419.1. This bunding height was determined to be sufficient based on the following equation:
 - Total hydrant and sprinkler water volume = $288 + 691.2 = 979.2 \text{ kL}$
 - Total floor area excluding office = 5580 m²
 - Bunding height = $979.2 \times 1000 / 5,580 \text{ m}^2 = 175.5\text{mm}$ (minimum)

- Bund provided = 250 mm (sufficiently greater than the minimum).
- Should a flood emergency become apparent, the Flood Emergency Response Plan will be implemented. This Plan, to be drafted prior to operation, would include controls to be undertaken prior to floodwater impacting the Site. This may include such controls as ceasing operations, removing hazardous soil from the Site, closing facility doors, pumping leachate pits to the temporary holding tank or LWTP, or to containers stored above the flood level.
- Compliance with Australian standards for firefighting water provision and bunding requirements, which aim to capture leachate and firefighting water, will be verified during the detailed design phase.
- Leachate volumes within the bays themselves are expected to be minimal and would largely be reabsorbed into the soil within the bay. Any leachate remaining in the rear of a bay after soil has been removed would generally be in minor enough quantities to be allowed to dry and any residual matter to be cleaned as part of the bay decontamination process using Decon 90 or Liquinox. Should larger quantities of leachate remain within the bay, this would be pumped via a mobile pump and transferred to the LWTP for treatment.

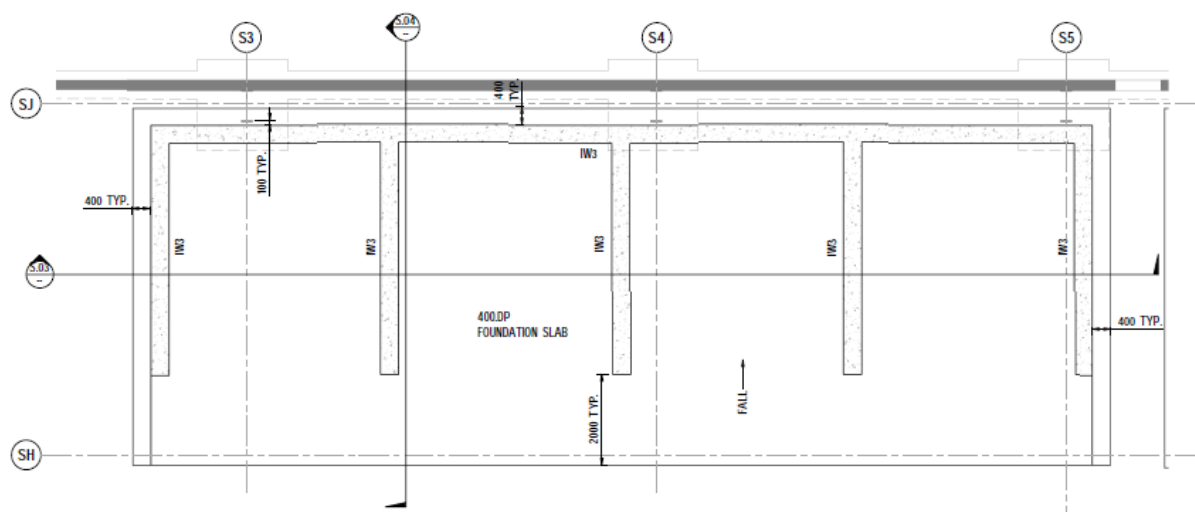


Figure 1-5: Layout plan of bays showing fall to rear

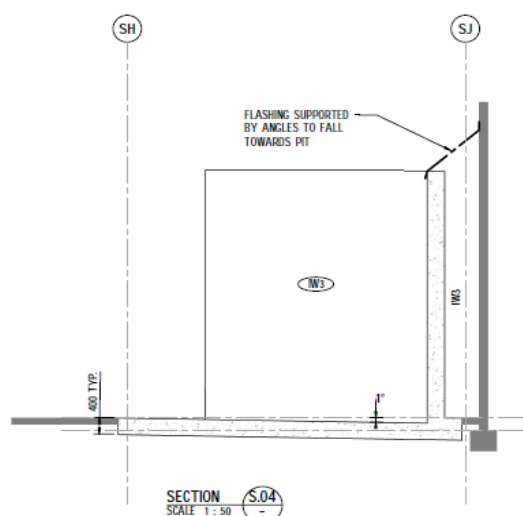


Figure 1-6: Cross section of bays showing fall to rear

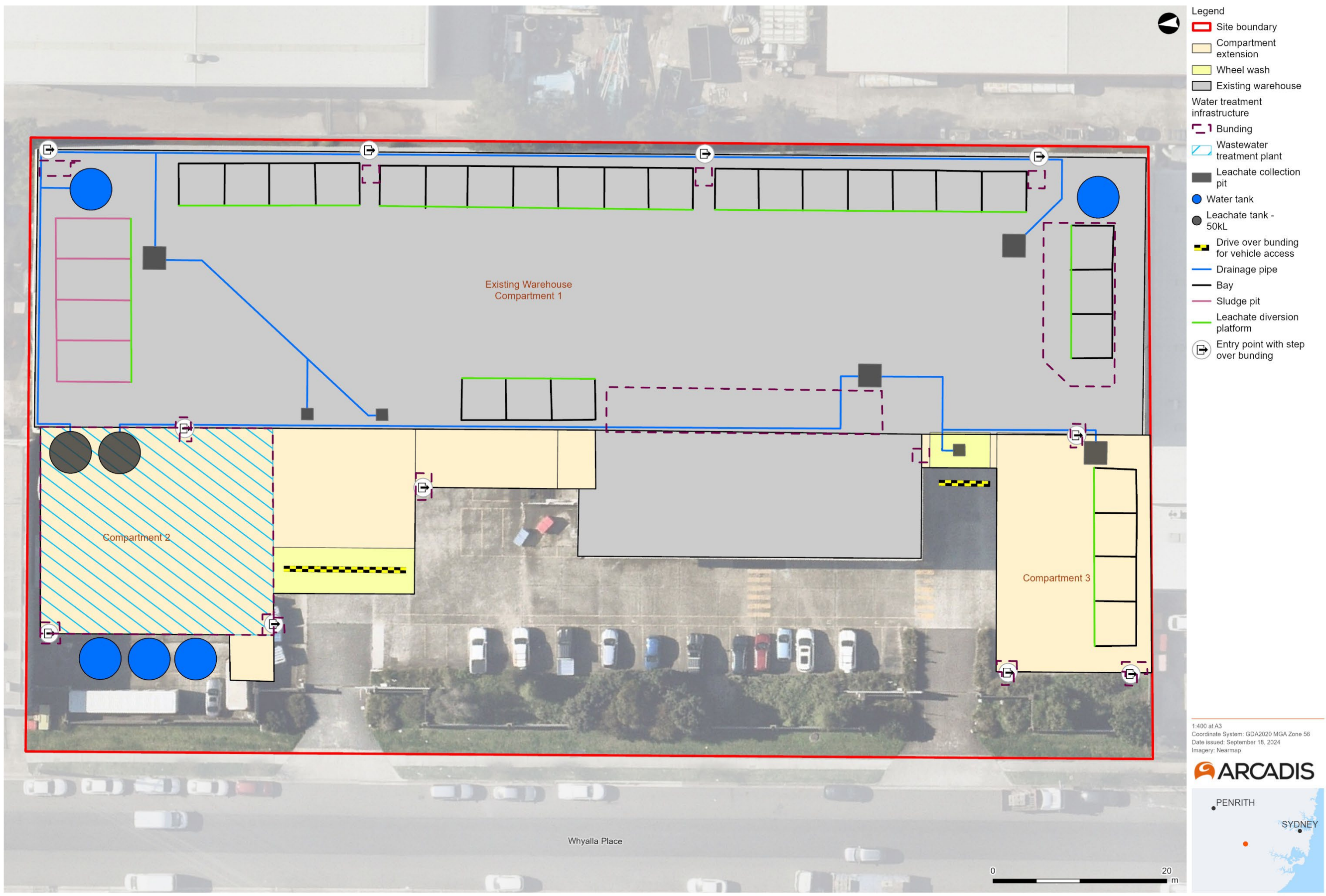


Figure 1-7: Site bunding and leachate treatment infrastructure (indicative subject to detailed design)

A truck wheel wash would be installed at the heavy vehicle exit at the southern roller shutter doors, internal to the warehouse building. The wheel wash would include concrete that has been treated with a performance-based sealant, to prevent impregnation of contaminants into the concrete matrix. Figure 1-8 provides an example of the type of wheel wash system that would be included in the Site design.

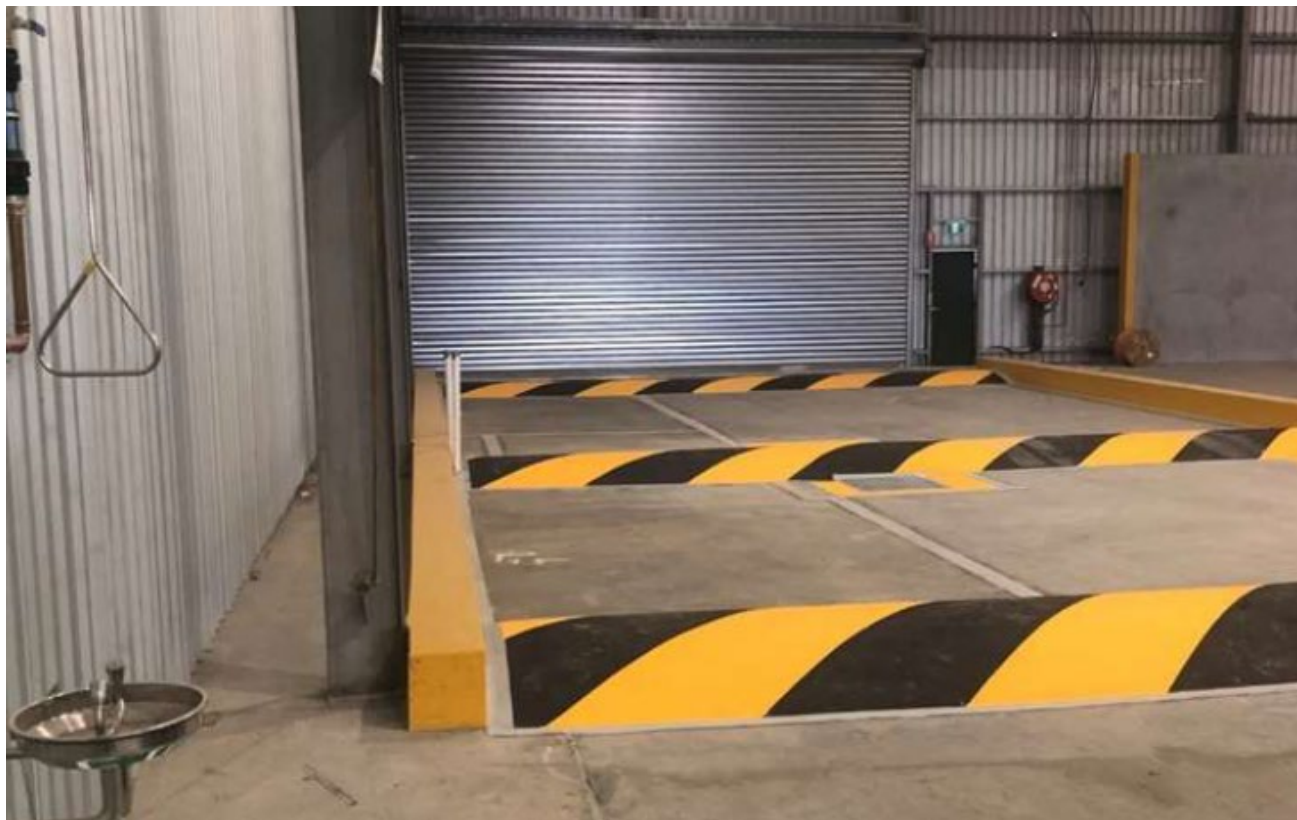


Figure 1-8: Example image of wheel wash configuration

1.2.10 Fire infrastructure and management

Fire protection and suppression infrastructure are integrated into the proposed building design in accordance with the *Fire Safety Guidelines: Fire safety in waste facilities* (Fire and Rescue, 2020) (Figure 1-9).

The system consists of the following measures:

- Portable fire extinguishers would be provided throughout the building (in accordance with the National Construction Code (NCC) and selected, located and distributed in accordance with AS 2444:2001)
- A Fire Indicator Panel would be located in the ground floor of the office building, in a fire separated compartment that is separated from the waste handling areas
- A dedicated smoke exhaust system in Compartment 1 (within the existing warehouse building) and Compartment 3 (the southern warehouse building extension) would be implemented to comply with the NCC
- Access for firefighters and emergency vehicles
- Sprinkler and Fire Hydrant System design (including appropriate water pressure)
- Fire detection and alarm system
- Fire Water Run-Off Containment
- Operational management processes that would include:
- Stockpile management in accordance with the Fire Rescue NSW (FRNSW) Fire Safety in Waste Facilities Guidelines

- Regular testing and maintenance of fire safety systems (in accordance with AS1851 Routine service of fire protection systems and equipment)
- Implementation of management plans for the Site detailed in the Operational Environmental Management Plan (OEMP) and sub-plans.

1.2.11 Utility connections

Existing connections to all other utilities (i.e. with the exception of the connection to Sydney Water’s sewer) would be maintained under the Proposal.

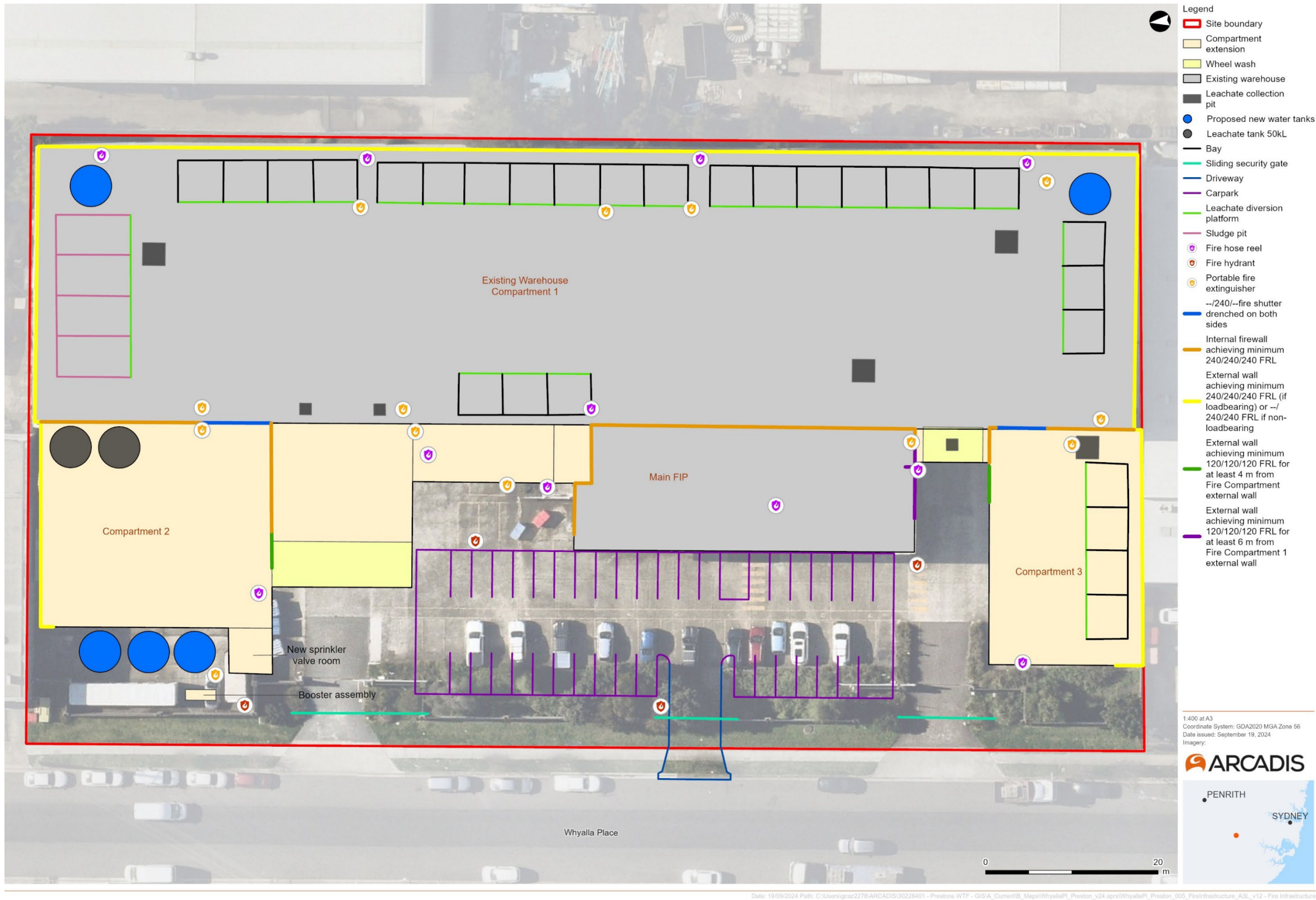


Figure 1-9: Proposed fire safety measures

1.3 Construction

1.3.1 Construction timing

Table 1-3 identifies the duration of key construction activities for the Proposal.

Table 1-3: Construction works and duration

Works	Duration (approx.)
Minor demolition of a portion of the existing slab in the carpark, minor demolition of portions of walls of the existing warehouse.	1 month
Construction works related to the light vehicle parking area would involve ground-breaking works, laying of hardstand and asphalt, ground marking, and landscaping works.	1 month
Minor earthworks for footings, slabs, drainage, landscaping etc.	1 month
Construction of the new weighbridges	1 month
Construction of a new driveway and gate, involving minor earthworks and concrete works	1 month
Extension of the warehouse building from the existing northern vehicle access to the office and staff amenities block. The building extension would be constructed from prefabricated concrete panels and would include: • Installation of a dual weighbridge at the vehicle access point to the building • Replacement of the existing two roller shutter doors with a single roller shutter door. • Building extension to the warehouse building at the northern and southern ends of the building to provide space for the LWTP (warehouse northern building extension) and truck wheel wash, soil treatment bays and sludge pits, shear mixer and cement silo (southern warehouse building extension). • Refer to Figure 1-3 for extent of the building extension.	2 months
HVAC system upgrade: A heating, ventilation and air conditioning system would be installed within the existing building. The HVAC system would include smoke exhaust intakes, exhaust intakes above materials bays, outside air intakes external to the building, installation of strobic air fans and ducting, and fabric hoods above the material bays (to be installed prior to operation of the bays) and a high-pressure centrifugal fan mounted on top of a cyclone filter unit for compartment 1 (main existing building structure).	2 months
Upgrade of the sprinklers, tanks and firefighting infrastructure on Site.	1 month

Works	Duration (approx.)
Internal fit out: Installation of push walls and material bays, sludge pits, internal leachate drainage, truck and wheel wash, office reconfigurations, staff decontamination facility and laboratory.	1 month
Installation of liquid waste treatment equipment including tanks, pits, silos, pumping and dosing systems, which would be installed in the northern warehouse building extension area. Establishment of connection to sewer (subject to approval of a trade waste agreement with Sydney Water)	4 months

1.3.2 Construction workforce and hours

The construction of the Proposal would employ up to 10 Full Time Equivalent (FTE) workers.

The duration of construction works is anticipated to be four months. Construction hours would be as follows:

- Monday to Friday: 7am to 6pm
- Saturdays: 8am to 1pm
- Sundays and Public Holidays: no work permitted.

1.3.3 Plant and equipment

Example equipment necessary for construction of the Proposal would include:

- Compaction equipment
- Backhoes
- Excavators
- Rollers
- Trucks
- Concrete pumping equipment
- Air compressors
- Concrete vibrators and saws
- Mobile cranes and
- Welders.

1.3.4 Construction ancillary facilities

No proposed ancillary facilities would be required for construction of the Proposal. The construction workforce would be able to utilise existing facilities in the office building.

1.3.5 Construction environmental management

Standard best practice construction environmental controls will be implemented during construction to manage and mitigate air quality, water quality, sediment and erosion, noise and vibration and soil and contamination impacts at the Site.

The environmental controls to be implemented will be detailed in a Construction Environmental Management Plan (CEMP). The CEMP will integrate the project conditions of consent following approval and will include sub-plans to address management of traffic, noise and vibration, air quality, water quality, and soil impacts.

The CEMP and sub-plans will be prepared by a suitably qualified and experienced person and will be implemented at the Site for the duration of construction works.

No waste material will be received at Site during construction, and as a result the risk of contamination of soils in and around the Site during construction is considered low

1.3.6 Construction traffic movements

Given the length of construction over a 12 month period, the generation of construction traffic at any one time is expected to be minor. Construction workforce passenger vehicles would be suitably accommodated within the existing on-site parking area. Heavy vehicles for deliveries of material would temporarily utilise the Site for loading and unloading, and heavy rigid vehicles or articulated vehicles would not park at the Site.

It is anticipated that trucks accessing the Site for construction works would utilise similar haulage routes to those utilised during Site operation, being via the M7 Motorway. Minimal impact to residential areas is expected as a result of construction works at the Site.

Construction related vehicle movements will be managed under the Traffic Management sub-plan of the CEMP, minimising the risk of impact to amenity to local businesses and road users.

1.4 Operations

1.4.1 Operations of the Facility

Operations of the Facility would comprise the following:

- Storage, classification and transfer of contaminated soil, including ASS/PASS
- Storage, classification and transfer of packaged waste in intact containers
- Storage, classification, transfer and treatment of contaminated liquids and sludges
- Shredding of non-contaminated, inert packaged waste
- Treatment of contaminated soil by bioremediation
- Treatment of ASS
- Treatment of contaminated soil in accordance with both general and specific immobilisation approvals
- Operation of the LWTP.

1.4.2 Waste types and classifications

Waste can be categorised in a number of different ways, depending on the purpose of the categorisation. Four primary forms of categorisation have been used, as required for different purposes, for the Proposal. :

- **The classification of the waste** in accordance with the NSW EPA Waste Classification Guidelines.
- **The nature/type of the waste being** it's general characteristics as either soil, liquid waste, packaged waste, drill muds and /or sludges
- **The waste code** for the purpose of tracking of waste for transportation
- **The Dangerous Goods classification** for any wastes that is deemed to be a Dangerous Good.

Waste coming into the Site may have a categorisation under all four of these methods. Each method serves a unique purpose and all require consideration for the Proposal. It is noted however that Waste Classification represents the foremost regulatory method for categorising waste and takes priority over all other methods of categorising waste.

1.4.2.1 Waste types and classifications

Wastes proposed to be accepted at the Site would first and foremost be categorised by its waste classification.

As per clause 49 of Schedule 1 of the *Protection of the Environment Operations Act 1997 (POEO Act)* and in accordance with the *EPA Waste Classification Guidelines Part 1: Classifying waste*, the Facility will be receiving waste classified as:

- **Liquid waste:** Being any waste, excluding special waste, that has an angle of repose less than 5 degrees above horizontal, becomes free flowing at or below 60 degrees Celsius or when it is transported, is generally not capable of being picked up by a shade or shovel and is classified as liquid waste under an EPA gazettal notice.
- **General solid waste (non-putrescible):** General solid waste (non-putrescible) refers to waste types that are not special, liquid, hazardous, restricted solid waste, or putrescible general solid waste. Non-putrescible materials typically do not readily decay under standard conditions, do not emit offensive odours, nor attract vermin or other vectors (such as flies, birds and rodents).

- **Restricted solid waste:** Waste is classified as restricted solid waste through chemical assessments to measure properties of waste. The SSC (specific contaminant concentration) and TCLP (toxicity characteristics leaching procedure) tests are used to determine whether the waste is classified as restricted solid waste. Waste is determined as restricted solid waste if any of the SCC or TCLP threshold values are exceeded for general solid waste, and if the values exceed the restricted solid waste thresholds than the waste is classified as hazardous (Table 3 EPA *Waste Classification Guidelines Part 1: Classifying waste*).
- **Hazardous waste.** Waste may be deemed to be hazardous waste if it has either been pre-classified as such (under the Waste Classification Guidelines) or because it possesses hazardous characteristics (typically determined by it being either a Dangerous Good or due to its specific contaminant concentration (SCC) and/or toxicity characteristics leaching procedure (TCLP) test values).

Table 1-4 provides an indicative breakdown of the tonnes per annum to be received at the Facility for each waste type by waste classification. It is noted that the proportion of waste volumes split between the different waste classifications may differ year on year, in response to market forces, however the total volumes for any waste type would not be exceeded.

Table 3 EPA *Waste Classification Guidelines Part 1: Classifying waste* provides contaminant concentrations that deem waste to be either restricted solid waste or hazardous waste, based on the specific contaminant types and its concentration. Annexure B provides a list of the contaminant concentrations for the hazardous waste proportion, as well as packaged waste portion of the waste, to be received at the Facility.

The Facility proposes to treat contaminated soil, ASS/PASS and liquid waste (refer Section 1.4.10). Where possible, waste classified as Hazardous waste would be treated until it meets the classification as Restricted solid waste. Restricted solid waste would be treated until it meets the classification as general solid waste (non-putrescible). Liquid waste is proposed to be treated (with the exception of packaged liquid waste) to meet the requirements as complaint trade wastewater suitable for discharge to sewer. Table 1-5 shows the intended volumes of treated waste following treatment.

Table 1-4 Waste type by classification – pre treatment

Type of Waste	Management	Acid Sulfate Soils (indicative tpa)	Liquid waste (indicative tpa)	General solid non-putrescible (indicative tpa)	Restricted solid waste (indicative tpa)	Hazardous waste (indicative tpa)	Total Tonnes per Annum
Packaged waste – Liquid	Contaminated packaged waste: no treatment, only storage		35,000				40,000t
Packaged waste – Solid	Non-contaminated waste: shredding and offtake for disposal			5,000			
PFAS contaminated soils	Storage only				7,500		7,500t
Bulk soils	Various methods:				34,800	23,200	58,000t
Contaminated soils	Primarily immobilisation				30,000	20,000	<i>50,000t</i>
Contaminated soils	Primarily bioremediation				4,800	3,200	<i>8,000t</i>
ASS	Acid neutralisation in batches	26,000					26,000t
Drill muds	Dewatering and liquid waste treatment		200	1800			2,000t
Sediments and sludges	Dependent on moisture content of sludges – dewatering, liquid waste treatment and soil decontamination		700	700	2,800	2,800	7,000t
Liquid waste	Treated and validated in 50 kL batches through the LWTP		70 ML				70 ML
Total							210,500

Table 1-5 Waste type by classification – post treatment

Type of Waste	Management	Acid Sulfate Soils (indicative tpa)	Compliant trade wastewater	Liquid waste (indicative tpa)	General solid non-putrescible (indicative tpa)	Restricted solid waste (indicative tpa)	Hazardous waste (indicative tpa)	Total Tonnes per Annum
Packaged waste – Liquid	Contaminated packaged waste: no treatment, only storage			35,000				40,000t
Packaged waste – Solid	Non-contaminated waste: shredding and offtake for disposal				5,000			
PFAS contaminated soils	Storage only					7,500		7,500t
Bulk soils	Various methods:				34,800	23,200		58,000t
<i>Contaminated soils</i>	<i>Primarily immobilisation</i>				30,000	20,000		<i>50,000t</i>
<i>Contaminated soils</i>	<i>Primarily bioremediation</i>				4,800	3,200		<i>8,000t</i>
ASS	Acid neutralisation in batches				26,000			26,000t
Drill muds	Dewatering and liquid waste treatment		200		1800			2,000t
Sediments and sludges	Dependent on moisture content of sludges – dewatering, liquid waste treatment and soil decontamination		700		3,500	2,800		7,000t
Liquid waste	Treated and validated in 50 kL batches through the LWTP		70 ML					70 ML
Total								210,500

1.4.3 Waste Codes

The waste codes proposed to be accepted at the Facility are outlined below in Table 1-6. The table has been structured to align the descriptions and limits as they would appear in the Facility's future EPL, with the activities as scheduled under the POEO Act. The bulk soils (which comprise the majority of the waste to be received by the Facility) would fall under the N120 waste code, the remaining waste codes proposed for receipt at the Facility would be in the form of liquid waste or packaged goods. The limits referred to below in Table 1-6 are not in reference to throughput limits (which are outlined in Section 1.1.3), but rather outline the requirements for the waste code to meet the criteria for acceptance onsite. A detailed description of each of the waste codes is provided in Annexure A.

Table 1-6 Waste codes proposed for receipt at the Facility

Waste Code	Waste Description	Activity by waste form		Other Limits
		Solid waste / packaged waste	Liquid waste	
J100	Mineral Oils	N/A	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
J160	Waste Tarry Residues	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
N120	Soils contaminated with a substance or waste referred to in Parts 1 or 2 of Schedule 1 of the <i>Protection of the Environment Operations (Waste) Regulation 2021</i>	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A	n/a
N190	Filter Cake	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A	n/a
N140	Fire debris and Wash Waters	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
N205	Residues from industrial waste treatment	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
D130	Arsenic; arsenic compounds	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
D290	Barium compounds (excluding barium sulphate)	Waste Storage	Waste Processing (Non-Thermal Treatment)	n/a

Waste Code	Waste Description	Activity by waste form		Other Limits
		Solid waste / packaged waste	Liquid waste	
			Waste Storage	
D160	Beryllium; beryllium compounds	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
D310	Boron compounds	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
D150	Cadmium; cadmium compounds	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
D140	Chromium compounds (hexavalent and trivalent)	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
D190	Copper compounds	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
N150	Fly Ash	Waste Storage	N/A	n/a
A100	Waste resulting from surface treatment of metals and plastics	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
D220	Lead; lead compounds	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a

Waste Code	Waste Description	Activity by waste form		Other Limits
		Solid waste / packaged waste	Liquid waste	
D120	Mercury; mercury compounds	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
D210	Nickel compounds	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
D300	Non-toxic salts	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
M250	Surface active agents (surfactants), containing principally organic constituents and which may contain metals and inorganic materials	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	Surface active agents that contain PFAS are permitted to be stored but not permitted to be processed at the premises.
D360	Phosphorus compounds excluding mineral phosphates	Waste Storage	N/A	n/a
H170	Waste from manufacture, formulation and use of wood preserving chemicals	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
D270	Vanadium compounds	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a

Waste Code	Waste Description	Activity by waste form		Other Limits
		Solid waste / packaged waste	Liquid waste	
D230	Zinc Compounds	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
C100	Basic solutions or bases in solid form	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
B100	Acidic solutions or acids in solid form	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
T100	Waste chemical substances arising from research and development or teaching activities, including those which are not identified and/or are new and whose effects on human health and/or the environment are not known	Waste Storage	Waste Storage	n/a
N160	Encapsulated, chemically-fixed, solidified or polymerised wastes that are referred to in this Part	Waste Storage	N/A	n/a
R120	Waste pharmaceuticals, drugs and medicines	Waste Storage	Waste Storage	n/a
J120	Waste oil/water, hydrocarbons/water mixtures or emulsions	N/A	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
M230	Triethylamine catalysts for setting foundry sands	Waste Storage	N/A	n/a
F100	Waste from the production, formulation and use of inks, dyes, pigments, paints, lacquers and varnish	Waste Storage	Waste Storage	n/a
T120	Waste from the production, formulation and use of photographic chemicals and processing materials	Waste Storage	Waste Storage	n/a

Waste Code	Waste Description	Activity by waste form		Other Limits
		Solid waste / packaged waste	Liquid waste	
F110	Waste from the production, formulation and use of resins, latex, plasticisers, glues and adhesives	Waste Storage	Waste Storage	n/a
R140	Waste from the production and preparation of pharmaceutical products	Waste Storage	Waste Storage	n/a
A100	Waste resulting from surface treatment of metals and plastics	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
A110	Waste from heat treatment and tempering operations containing cyanides	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
D110	Inorganic fluorine compounds excluding calcium fluoride	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	n/a
N100	Containers and drums that are contaminated with residues of waste referred to in this Table	Waste Storage	N/A	Limited to containers & drums contaminated with residues of waste referred to in this Table.
D330	Inorganic sulfides	Waste Storage	N/A	n/a
M150	Phenols, phenol compounds including chlorophenols	Waste Storage	N/A	n/a
M270	Per- and poly fluoroalkyl (PFAS) contaminated materials including waste PFAS containing products and contaminated containers (soils & liquid streams)	Waste Storage	Waste Processing (Non-Thermal Treatment) Waste Storage	PFAS contaminated soils are permitted to be stored but not permitted to be

Waste Code	Waste Description	Activity by waste form		Other Limits
		Solid waste / packaged waste	Liquid waste	
				processed at the premises.
A130	Cyanides (inorganic)	Waste Storage	N/A	n/a
M210	Cyanides (organic)	Waste Storage	N/A	n/a
M260	Highly odorous organic chemicals (including mercaptans and acrylates)	Waste Storage	N/A	n/a
M180	Polychlorinated dibenzo-p-dioxin (any congener) Reactive chemicals	Waste Storage	N/A	n/a

1.4.4 Dangerous Goods to be accepted onsite

1.4.4.1 Class 8 Dangerous Goods

Some liquid waste and packaged waste that may be brought to Site may meet the classification of Dangerous Goods Code Class 8, Packing Groups II and III. Liquid waste that meets this classification would be transported to the Site in accordance with the requirements of the Australian Dangerous Goods Code (ADG Code) (National Transport Commission, 2023). If brought to Site in a tanker the liquid waste would be transferred to a designated tank in the LWTP, or if packaged, it would be stored in a designated location within Compartment 3. Liquid waste classified as Code Class 8, Packing Groups II and III would be stored and handled in accordance with AS 3780-2008: *The storage and handling of corrosive substances*.

Table 1-7 sets out the limits that will apply to the storage of Class 8 Dangerous Goods at the facility and Table 1-8 sets out the transport limits that will apply to the transport of Class 8 Dangerous Goods to the facility.

Table 1-7: Storage limits for Class 8 Dangerous Goods

DG	PG	Form	Bulk, soil or packaged	Category	Storage (tonne equivalent (te))	Total for PG (te)	Applying SEPP 33 threshold (te)
8	II	Liquid	Packaged	Reagent	10	23	25
			Bulk	Waste	10		
		Liquid or solid	Packaged	Waste	3		
	III	Liquid	Bulk	Waste	40	45	50
		Liquid or solid	Packaged	Waste	5		

Table 1-8: Transport movements for 8 Dangerous Goods

DG Class/ Division	Form, bulk/package, load	Peak Weekly	Cumulative Annual
8	Liquid, bulk, load >2 te	30	500
	Liquid or solid, packaged, >5 te		

1.4.4.2 Class 9 Dangerous Goods

Additionally, PFAS contaminated materials may be classified as Dangerous Goods Class 9 Packing Group III due to its potential to be an “environmentally hazardous substance”. In accordance with “Applying SEPP 33”, Class 9 Dangerous Goods are not subject to the screening method to determine likelihood of significant off-site risk. Notwithstanding, WorkCover NSW would be notified, and appropriate manifests and emergency management plans would be prepared if the quantity of Class 9 material at the Facility exceeds the threshold of 10,000kg or L. Once the material is accepted onsite, appropriate environmental controls would be implemented to manage the storage of PFAS contaminated soils, and for treatment of PFAS contaminated liquid waste.

It is noted that the procedure for accepting waste on to the Site is described in the OWMP. This describes that the waste generator will classify the waste as part of the pre-screening process which will determine its dangerous goods class and packing code. Wastes that are classified as dangerous goods, other than solid and/or liquid

waste that is classified as Class 8, PG II and III, and PFAS classified as Class 9 PG III, would not be permitted on Site.

1.4.5 Plant and equipment

Plant and equipment required for Site operations include:

- Mobile soil screen
- Front end loader
- Excavator (12 tonne)
- Dump truck (6 to 8 tonne)
- Mobile high shear mixer
- Forklift
- Shredder
- Bioremediation equipment such as GORE (or similar material) covers, and aeration systems
- Drill mud dewatering plant (storage tanks, shaker sieve, desilter hydrocyclone, decanter centrifuge and holding tank)
- Liquid waste treatment equipment (holding and mixing tanks, clarifier, dissolved air flotation, filters, anion exchange resin, and plate and screw press)

Indicative locations for the storage of plant when not in use have been shown in Figure 1-4.

1.4.6 Key operation steps

Key operation steps would be followed for all materials received at the Site, both prior to receipt and following treatment. The key steps are summarised in Figure 1-10 and described in the following sections below.

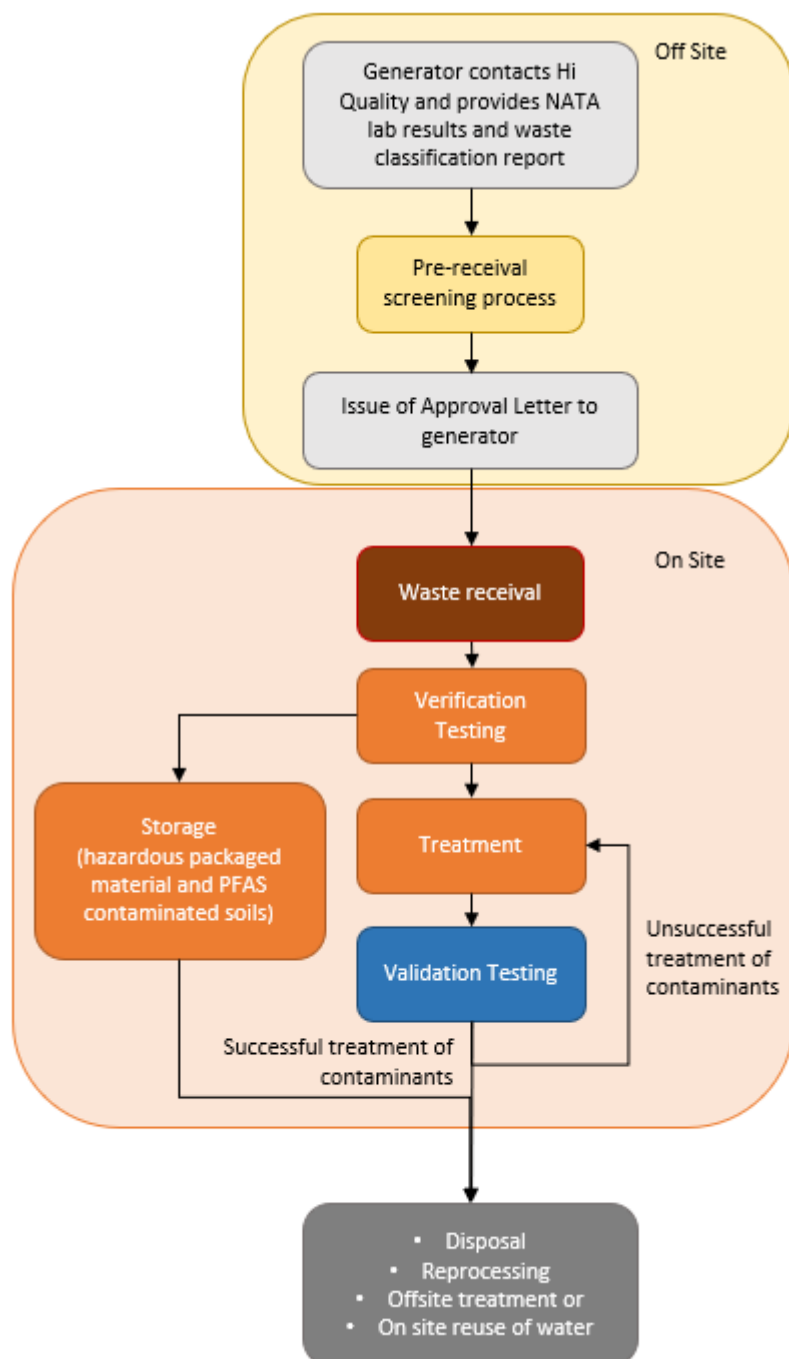


Figure 1-10: Key steps of operation

1.4.7 Waste classification and tracking

All wastes received at the Facility would be tracked from the waste generator through to destination facility (e.g. landfill), consistent with the Protection of the Environment Operations (Waste) Regulation 2014. All waste will be classified in accordance with the Waste Classification Guidelines (EPA, 2014).

The waste generator is responsible for generating and providing a Consignment Authorisation (CA), any UN Hazard Code (if applicable for dangerous goods) and waste form, in accordance with regulatory requirements. Tracking would be undertaken using the waste generators' CA, waste form and code and Unique Identification Number (UIN) allocated by HiQ (see further detail below). The UIN would be used to track the waste through the Facility and to its ultimate disposal.

Analytical data provided by the waste producer would be reviewed on arrival at the entry weighbridge to ensure the classifications provided are correct.

In accordance with the *Protection of Environment Operations (Waste) Regulations 2014*, the following records will be maintained on Site:

- The date and time of vehicle entry and exit from the Facility
- The EPL number of the Facility to which the transaction relates
- Waste type and stream
- Waste form and waste code (including CA Number) (see Section 1.4.3 for waste codes to be accepted for treatment on Site)
- Vehicle transport details
- Purpose of entry (waste delivery, service vehicle, visitor)
- Customer name, address and ABN
- Weighbridge details (waste in codes and consignment reference number and total tonnage)
- Contaminants of concern (COCs) or contaminants of potential concern (COPC)
- Waste destination and transporter details
- Documented limits for any wastes that are subject to Chemical Control Orders (CCOs), noting that the NSW EPA *Waste Classification Guidelines* provide criteria for the following:
 - Limits for Aluminium Smelter Wastes (Fluoride / Cyanide)
 - Limits for solids contaminated with PCBs
 - Organotins
 - Schedule wastes
 - Regulated wastes.

Wastes that do not match the description on the waste form and code and the UIN will not be accepted at the Facility.

1.4.8 Waste receipt

Prior to accepting wastes at the Facility, several general requirements would need to be met by the waste generator (source of waste stream) to ensure compliance with the NSW EPA *Waste Classification Guidelines* (EPA, 2014) requirements for handling and receiving wastes and the transport of goods. This will require demonstration of compliance with the physical and chemical test criteria or assessment against previous results for a similar waste batch and classification of the waste in accordance with the ADG Code (National Transport Commission, 2023).

1.4.8.1 Acceptance at Site

Only wastes that have undergone the Preliminary Waste Screening and received an ‘Acceptance Letter’ and a UIN for the batch of waste from HiQ would be accepted at the Site. Consignments that arrive without a valid ‘Acceptance Letter’ and UIN would be rejected at the weighbridge and not permitted to offload.

Waste material generators would be required to contact the Site to arrange consignment and delivery details. Once accepted on Site, waste would undergo verification sampling to confirm material properties and compliance with the waste acceptance criteria.

An on-site volume limit for each waste type would be implemented and waste would not be accepted at the Site if it cannot be adequately stored and segregated from other waste types. On-site volume limits are presented in Section 1.1.3.

This process is summarised in Figure 1-11 and detailed in Table 1-9.

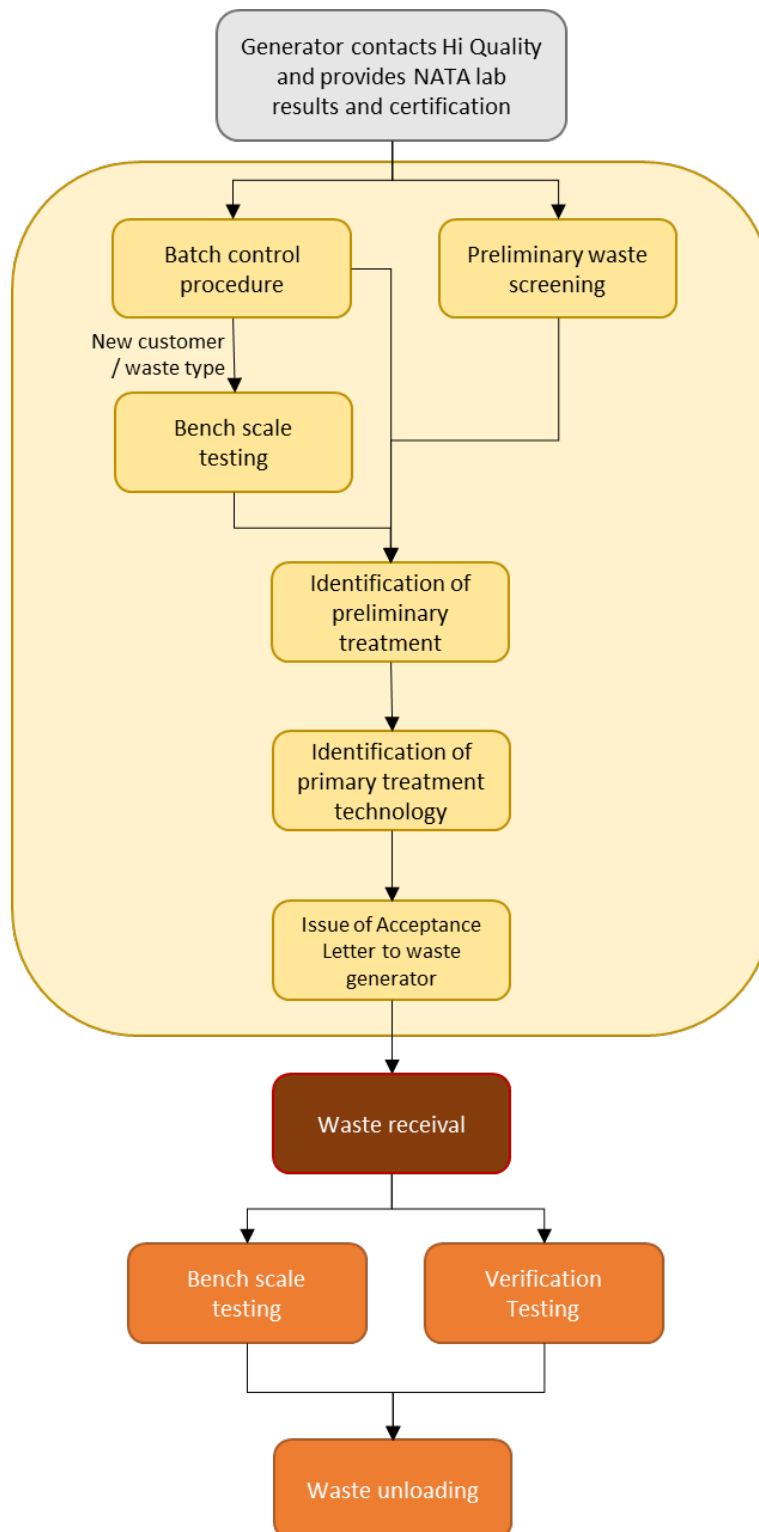


Figure 1-11: Waste receipt process

Table 1-9: Summary of waste receival process

Process	Screening
Batch control procedure	Establishment of waste tracking procedure through the Facility, including: • The NATA testing results from the preliminary waste screening are to be assigned a unique batch number (Unique Identifying Number, or UIN) – a six-digit code • Waste tracking number • Quantity of waste in the batch • Total number of sub-batches (based on volume/tonnage estimates) – individual sub batch numbers will be assigned and any analytical data referenced accordingly • Packing/delivery requirements • Assignment of NATA accredited laboratory certificates from the preliminary waste screening (supplied by others) to the UIN (to include chain of custody records). Alternatively, if this is a regular waste type, a comparison with previous analytical waste analysis results will be undertaken and confirmation of similar analysis results will be made; and • Selected treatment train based on the results of preliminary screening – multistage treatment process for each batch, e.g. acceptance, pre-screening, treatment, validation, and disposal.
Preliminary waste screening	The Preliminary waste screening must include the following information: • Source of waste • Waste type • COPCs summarised • Volumes • Physical & chemical criteria • Odour • Data interpretation • Review of analytical test data & frequencies • Preliminary appraisal against test history (if similar batches tested previously) • Summarise physical and chemical conditions • Identify primary contaminant of concern • Recommend scope of bench scale testing to be conducted at the onsite laboratory • Do the solid wastes contain PFAS substances? (Y/N) • ASS (Y/N) • Does the ASS contain anthropogenic materials? • Is the waste a Dangerous Goods Class 8 PG II or III (applicable waste codes: D120, C100, B100, D140) or Dangerous Goods Class 9 PG III (applicable waste code: M270)

Process	Screening
	Does the waste have potential to be classified as a Dangerous Good (Y/N). If Y, review of analytical test data to confirm it does not constitute a Dangerous Good and therefore is permitted to be accepted.
Identify Preliminary Treatment	A preliminary treatment method would be identified for waste batches. The treatment method would aim to: - Reduce contaminant mass by physical separation - Enhance the performance of destructive technologies by providing improvements via chemical separation - Improve mixability for immobilisation.
Identify Primary Treatment Technology	- Identify the principal contaminants of concern - Assign a contaminant group - Identify the preferred treatment technology - Summarises the optimum treatment technology and process requirements (e.g. review of previous results) - Identify preliminary dosage rates for solids / sludges - Identify mixing requirements and the need to add chemical separation agents (bioremediation) - Quantify preliminary dosage rate for liquids - Identify suitable treatment reagents and dosing rate - Summarise the target treatment criteria and validation parameters
Bench Scale Testing (conducted onsite)	- Select the test methods and standards to be adopted in demonstrating the treatability of the material in meeting the criteria - Summarise input parameters - Finalise reagent selection & dosage - In some cases pilot testing to determine suitability/efficacy of either immobilisation or bioremediation may also be required
Waste Receipt	- Issue batch number and sub batch number - Undertake verification testing to confirm material properties.

1.4.8.2 Preliminary Waste Screening Procedure

A preliminary waste screening assessment would be required to be undertaken, prior to HiQ issuing an 'Acceptance Letter' and waste being received at the Site.

The waste generator would be required to sample the waste stream and provide analytical results from a NATA-accredited laboratory to HiQ. Wastes received at the Site would be required to undergo physical and chemical characterisation in accordance with the NSW EPA *Waste Classification Guidelines* to determine the appropriate treatment technology and /or final disposal location prior to receipt on Site. Waste would also be required to be assessed against the ADG Code to determine whether it is classified as a Dangerous Good. Wastes that are classified as dangerous goods, other than liquid waste or packaged waste that is classified as Class 8, PG II and III, and Class 9 PG III would not be permitted on Site. HiQ would provide the generator with the required testing and characterisation requirements.

Once the characterisation and classification of the waste has been undertaken by the waste generator - and HiQ has found the waste to be suitable for acceptance on Site - HiQ would issue pre-approval of the waste batch through the issue of an 'Acceptance Letter'. The analytical results from the preliminary waste screening assessment must demonstrate that the waste is compliant with the criteria for the wastes approved for treatment or storage at the Site and identify whether the waste is classed as a Dangerous Good. This would require demonstration of compliance with the physical and chemical test criteria or assessment against previous results for a similar waste batch.

Where similar wastes have previously been received and successfully treated a reduced frequency of sub batch analysis may be appropriate, to demonstrate compliance with the waste batch control procedure and validation / reporting requirements.

HiQ would retain on file the NATA-registered laboratory analytical results for each consignment and would issue an 'Acceptance Letter' upon satisfaction of waste characterisation in line with accepted waste types at the Site (see Annexure A). The Acceptance Letter would include characterisation of the waste in accordance with the NSW EPA *Waste Classification Guidelines*. The CA and Acceptance Letter would be captured in the electronic data management system for the Facility.

1.4.8.3 Batch Control Procedure

The Batch Control Procedure would commence concurrently with the Preliminary Waste Screening Procedure and would be the mechanism for tracking the waste through the Facility. The procedure would include the establishment of the following for each batch of waste:

- Batch number (Unique Identifying Number, or UIN) – a six-digit code
- Waste tracking number/soil tracking number
- Date received
- Quantity of waste in the batch
- Waste type (packaged waste, soils, sediments and sludges or liquid waste)
- Analysis/Safety Data Sheet supplied by customer
- Analysis results of pre-treatment testing (if applicable)
- Treatment methodology (including reagent volumes and relevant treatment notes)
- Location of treatment (pit number for sludges, bay number for bulk soils)
- Storage/curing location
- Sampling details (including methodology, sampler and date)
- Results of analysis
- Date of offsite disposal
- Location of offsite disposal
- Waste tracking for offsite disposal (as appropriate).

The testing certificates from the Preliminary Waste Screening would be assigned to the UIN (to include chain of custody records). The Batch Control Procedure would also identify the selected treatment train for the batch of waste to be received.

1.4.8.4 Weighbridge operational requirements

The weighbridge office would be responsible for all waste acceptance on Site. The weighbridge operator would ensure that all incoming wastes are weighed, recorded and that waste delivery matches the waste classification and screening records as recorded on the batch number, Acceptance Letter and CA. If inconsistencies exist and/or the wastes are not consistent with the delivery expectations the waste load would be rejected.

Where waste deliveries match the Acceptance Letter, issued batch number and CA they would be directed by the weighbridge operator into the building and assigned an appropriate unloading area. Visual inspection of the load would be undertaken upon unloading. If inconsistencies exist and/or the wastes are not consistent with Acceptance Letter and delivery expectations the waste load would be rejected.

When loads of non-conforming waste are identified, the customer would be asked to leave the facility immediately with the load and the weighbridge operator would record the information in the 'Rejected Loads Register'.

1.4.9 Waste storage

Once a waste batch is accepted on Site it would be directed to an appropriate, designated bay or an unloading area. Each waste type would be stored according to guidelines issued by Fire Rescue NSW, the ADG Code, and best industry practice in dedicated storage bays as shown in Figure 1-4.

In accordance with the Fire and Rescue NSW *Fire Safety in Waste Facilities Guideline* (2020) recyclable material stockpile heights would not exceed four metres and would be maintained at a height 1 m lower than separating masonry walls. The bay used for storage of recovered recyclable materials would be marked on the floor and walls to indicate the maximum storage volume permissible within the bay to limit the storage volume to 50 m³. Dimensions are indicative and would be subject to further design development.

Table 1-10 indicates the upper storage limit (at any one time) for each of the waste types and treatments. This storage limit takes into account the potential to adjust the number of bays allocated to each waste type (with the exception of the PFAS bays which are fixed). The upper storage limit has been calculated on the assumption that all 20 bays (this number excludes the bulk soil receipt bays, recyclable material bay, and storage and transfer bay) would be in use for the identified waste type or treatment. Whilst it is unlikely that all the bays would be in use for one waste type or treatment at any one time, this number represents the upper storage limit.

Table 1-11 summarises the storage location and average capacity of each waste type that is received, stored, or treated at the Site, as well as the approximate residence time for each waste type based on the available storage on site and the proposed annual throughput of each waste type. Most bays have been assumed to store approximately 60 m³ of material based on the dimensions of the bays (length: 5 m, width: 5 m, height: 6 m) and the assumed slope of the waste material (45 degrees). The pits are assumed to store approximately 58 m³ of material based on the dimensions of the pits (length: 8.2 m, width: 4.2 m, maximum height: 2.07 m) and the slope of the pit being 11 degrees.

Annexure B provides indicative storage volumes proposed for hazardous waste.

Table 1-10: Upper storage limit at any one time

Waste Type	Indicative typical individual bay/pit capacity (m ³)	Maximum potential allocation of bays/pits	Upper storage limit at any one time (tonnes)
Packaged wastes – including Dangerous Goods Class 8 PG II and III and Class 9 PG III	Maximum of 48 IBC drums per bay (48 m ³)	3 bays for IBC storage 1 bay for shredded waste	400 t*
Packaged wastes – Non-Dangerous Goods	Shredded waste bay of 50m ³		
PFAS contaminated soils	60 m ³	3	300 t
Bulk Soils:			
<i>Bioremediation</i>	60 m ³	20	2,000 t
<i>Immobilisation</i>	60 m ³	20	2,000 t
ASS	60 m ³	20	2,000 t
Recovered recyclable materials	50 m ³	1	50 t
Drill muds	58 m ³	4	400 t
Sediments and sludges	58 m ³	4	400 t
Liquid waste	135 kL	4 storage tanks	540 kL

*No more than 50 m³ of combustible material

Note: the 'Upper storage limit at any one time (tonnes)' limit has been calculated by multiplying the indicative bay capacity by 1.7 to convert to tonnes

Table 1-11 Storage capacity and locations

Waste type	Applicable Waste Codes	Maximum any one time storage limit (tonnes)	Storage before treatment	Storage after treatment	Bay/ Pit No.#	Indicative allocated available bays	Approximate treatment time
Packaged wastes – including Dangerous Goods Class 8 PG II and III and Class 9	B100, C100, D120, D140, M270	400 t Note: no more than 50 m ³ of combustible material	Received and stored within containers – no treatment. Packaged waste classified as DG Class 8 PG II or PG III would be stored in a designated bay in compartment 3.	In Intermediate Bulk Containers (IBCs) or drums located adjacent to the office and amenities block, within the shed or within compartment 3.	Dangerous Goods would be stored in a designated bay within Bay F Packaged waste identified as having a low pH (Acidic) would be stored in a separate bay in Bay F to waste identified as having a high (alkaline) pH	1	~2-4 days
Packaged wastes – Non-Dangerous Goods	J160, N120, N190, N140, N205, D130, D290, D160, D310, D150, D140, D190, N150, A100, D220, D120, D210, D300, M250, D360, H170, D270, D230, C100, B100, T100,		In intact IBCs or drums located within Compartment 3.	In Intermediate Bulk Containers (IBCs) or drums located adjacent to the office and amenities block, within the shed or within compartment 3. Shredded waste stored in skip bins up to 10 m ³ in capacity,	F Packaged waste identified as having a low pH (Acidic) would be stored in a separate bay in Bay F to waste identified as having a high (alkaline) pH	2 (IBCs) 1 shredded waste	

Waste type	Applicable Waste Codes	Maximum any one time storage limit (tonnes)	Storage before treatment	Storage after treatment	Bay/ Pit No.#	Indicative allocated available bays	Approximate treatment time
	N160, R120, M230, F100, T120, F110, R140, A100, A110, D110, N100, D330, M150, A130, M210, M260, M180.			removed for disposal as required.			
PFAS contaminated soils	M270	300 t	N/A – no treatment	In designated bays – no treatment	E	3 (non-interchangeable)	Storage for up to 2 months
Bulk soils : 1,080 m ³ <i>Inclusive of dried drill muds</i>	N120, N190	Bioremediation: 2,000 t	Treated into specific, pre-allocated material bays, as identified in Figure 1-1.	Post treatment, each batch is unloaded into specific, pre-allocated bay. (refer to)	C/D	5	~3 weeks to 3 months Note maximum annual volumes have been calculated using lowest treatment time
	N120, N190	Immobilisation: 2,000 t			B/C	10	~1-3 weeks

Waste type	Applicable Waste Codes	Maximum any one time storage limit (tonnes)	Storage before treatment	Storage after treatment	Bay/ Pit No.#	Indicative allocated available bays	Approximate treatment time
Acid Sulfate Soils	N/A	2,000t	Treated in specific, pre-allocated material bays	Post treatment, each batch is unloaded into specific, pre-allocated bay.	D	3	~4 days
Recovered recyclable materials (byproduct of physical soil screening)	N/A	50m ³	N/A	Recovered recyclable materials will only be stored up to a maximum of 35t before removal. Bays within Compartment 3	F	1	~1-2 days
Drill muds	N120	400 t	Unloaded directly into drill mud plant	Sediments to be stored in specific soil bays Liquid to be stored in holding tanks in bunded LWTP area	Pit A	1	~2 weeks
Sediments and sludges	N120	400 t	Sediments and sludges to be pumped into one of the sediment and sludges pits and then pumped to the dewatering plant.	Liquid to be stored in holding tanks in bunded LWTP area	Pit A	3	~2 weeks

Waste type	Applicable Waste Codes	Maximum any one time storage limit (tonnes)	Storage before treatment	Storage after treatment	Bay/ Pit No.#	Indicative allocated available bays	Approximate treatment time
Liquid waste	N140, N205, D130, D290, D160, D310, D150, D140, D190, A100, D220, D120, D210, D300, M250, H170, D270, D230, C100, B100, A100, A110, D110, M270.	540 kL	Within holding tanks in bunded LWTP area Liquid waste classified as DG Class 8, PG II or PG III would be placed in a designated tank and transferred for immediate treatment.	Within holding tanks in bunded LWTP area	n/a	n/a	~2 days
Waste oils	J100, J120.	1 t	N/A	1,000 L IBC located in bunded LWTP area	n/a	n/a	

n/a – these waste types will not be stored in bays, therefore no bays have been allocated.

*The additional limits for Dangerous Goods Classes are prescribed in Table 1-7

Refer to Figure 1-4 for the storage locations for the various waste types

1.4.10 Waste treatment

Several different treatment methodologies would be applied to waste received at the Site depending on contaminants identified and the type of waste.

As described in Section 1.4.8 prior to materials being received at the Site, Preliminary Screening Analysis would be undertaken to categorise wastes, determine the best treatment or combination of treatments and calculate reagent dosages during the treatment process.

Typically, each material type would undergo a standard treatment methodology. Further detail on each of the treatment processes are provided in the OWMP.

Table 1-12 provides an overview of treatment options for each waste type.

Table 1-12: Waste treatment overview

Waste Type	Description	Treatment Methodology
Packaged Waste (solid, liquid, sludge)	Non-contaminated solid packaged waste for destruction	Shredding and storage
	Non-contaminated liquid packaged waste for storage	Storage only
	Packaged industrial chemical waste	- Characterisation of unknown wastes only - Storage
Sediments and Sludges	PFAS Contaminated Soil	Storage
	Total Petroleum Hydrocarbons (TPH)	- Physical separation/screening - Chemical separation - Bioremediation - Storage
	Soils containing Total Recoverable Hydrocarbons (TRH) and Benzene, Toluene, Ethylbenzene, Xylenes and Napthalene (BTEXN)	- Bioremediation - Storage
	Coal Tar Contaminated Soil from Former Gasworks Sites (less than 1% (by weight) of coal tar or coal tar pitch waste)	- Immobilisation - Storage
	Material containing heavy metals, e.g.: - Lead - Chrome	- Immobilisation - Storage

Waste Type	Description	Treatment Methodology
	• Copper • Arsenic • Nickel	
	Sludges	• Dewatering • Liquid waste treatment • Contaminated soil treatment
	ASSs	• Contaminated soil treatment (if required) • Acid neutralisation
Non-Contaminated Drill Muds	Non-contaminated soil and water slurry from hydro-excavation works	• Dewatering and separation into liquid waste (liquid waste treatment) and soils • Further treatment of water in LWTP • Testing against Treated Drilling Mud Resource Recovery Order / Resource Recovery Exemption (RRO/RRE) (2014)
Liquid Wastes	Contaminated liquid, water outputs of slurry and drill mud dewatering	• Liquid waste treatment

Further detail on the types of waste and treatment approaches is provided in the waste table in Annexure A to this Proposal description.

1.4.10.1 Packaged waste

Packaged waste would be received from sites within the Sydney region. Packaged wastes would fall within two broad categories:

1.4.10.1.1 Packaged waste for product destruction

This includes consumer products that do not pass quality control. Packaged waste received at the Site for destruction includes waste that is non-contaminated, inert, and pre-classified as general solid waste. Packaged waste for product destruction and empty packaging would undergo destruction via shredding for offsite disposal at an appropriately licensed facility.

1.4.10.1.2 Packaged chemical waste

Packaged chemical waste would be received at the Facility from industrial facilities within the Sydney region, or as illegally dumped material. Packaged chemical waste would be received at the Site in intact IBCs or drums. Verification testing would be carried out by the Facility chemist to confirm the substances present within the packaged waste. A sample will be taken from the IBC drum using a dip tube and tested onsite to confirm the expected physical and chemical properties of the material. If the material does not match the description provided by the waste generator the load would be rejected and recorded within the rejected loads register. These wastes would be stored in accordance with all relevant Australian Standards and the ADG Code. As noted above, wastes classified as Dangerous Goods, other than liquid waste or packaged waste classified as DG Class 8, PG II or PG III and Class 9, PG III, would not be accepted at the Site. Packaged wastes classified as Class 8 PG II or PG

III would be stored at a designated location for Class 8 Dangerous Goods and in accordance with AS 3780-2008: *The storage and handling of corrosive substances*.

Class 8 PG II and III Dangerous Goods would be stored at the Facility on raised platforms/shelving above the Probable Maximum Flood level, portable containment bunding would also be in place within each bay underneath storage shelving. Once an EPA approved facility has been identified to accept the packaged hazardous chemical waste, the material will be redirected to the approved facility.

1.4.10.2 Soils

Soils of varying moisture content and contaminant classification would be received at the Site from contaminated sites within the Sydney region. The soils would be subject to various processes to treat and decontaminate the material as far as practicable, prior to disposal at an appropriately licensed landfill or alternative treatment facility, or reuse at an offsite location for fill and other civil services.

The process flow for soils, sediments and sludges are detailed in Figure 1-12.

1.4.10.2.1 Bulk soils

Operations would include treatment of soils through screening, bioremediation and immobilisation methodologies.

Once an 'Acceptance Letter' and UIN for a consignment is issued by Hi-Q, incoming bulk soils would be delivered by tipper truck or truck and dog and unloaded into specific material bays via a front-end loader or excavator. Verification testing would be undertaken following receipt to ensure contaminants align with the characterisation provided by the waste generator.

Each load (meaning soils from a single batch / source location) would be assigned a separate bay, with no mixing of batches permitted. Dedicated bays would be allocated for storage, conditioning and final validation of materials. The following processes would be undertaken to treat soils:

1. **Physical screening:** Bulk soils would undergo physical separation to separate oversize and non-soil materials, such as plastics, metals, timber, concrete and aggregate, and cardboard and paper. This would be achieved through use of the mixing plant, a mobile screen, or an excavator with a screening bucket attachment. The soil would be transferred into the mixing plant via an excavator or a front-end loader. The mixing plant would also be utilised to break up clods in soils and clay, to improve the performance of further processing technologies. Recovered material from physical separation would be stored in dedicated recovered recyclable material bays or transfer and storage bays.
2. **Chemical separation:** chemical separation would be utilised in select instances where it would provide a beneficial addition to the treatment process, such as the application of surfactants where heavier tar / hydrocarbon fractions that are not conducive to bioremediation can be separated or as a pre-treatment.

Once physical screening and /or chemical separation is complete, the soils would be transferred into the relevant treatment bay via front-end loader or excavator and treated through one or more of the following treatment trains:

- **Bioremediation** would be used to treat soils contaminated by organic compounds (such as TPH) and would involve aerobic techniques such as manual turning using an excavator/ front end loader. Bioremediation would occur until the completion of treatment has been validated through laboratory testing to confirm suitable thresholds of contaminant load has been achieved. The timeframe for treatment would be dependent on the nature of the contamination, concentration of the contaminants and the type and volume of soil. The Site would manage wastes to be treated via bioremediation through onsite volume limits (Section 1.4.9). Bioremediation would be carried out in the bays identified for bioremediation in Figure 1-4. The bioremediation treatment procedure is detailed in the OWMP.

- **Immobilisation** would be used to treat soils where there is no alternative treatment available, such as soils contaminated by coal tar material from former gasworks sites containing less than 1% by weight of coal tar or coal tar pitch waste, and heavy metals. Immobilisation would involve mixing soil with cement, lime, or other reagents, and would be undertaken in accordance with the NSW EPA general immobilisation approval or specific immobilisation approval. The facility would reflect standard immobilisation technologies used in Australia and globally that have demonstrated scientific basis for immobilisation. Immobilisation would be carried out within the high shear mixer prior to being transferred to the bays identified for immobilisation in Figure 1-4. The material would be transferred to and from the high shear mixer via a front-end loader or excavator. The immobilisation treatment procedures are outlined in the OWMP.

The bulk soils processing methodology would also be used to decontaminate ASS and the dewatered soils output from sludges.

Validation testing would occur following the processes described above to determine the next treatment process for the soils (if required), or to assess if the contaminant levels fall within the thresholds for landfill acceptance.

Recovered material from physical separation (plastics, concrete and aggregate, timber, paper and cardboard, and metals) would be transferred to a third party for reprocessing or disposal.

The majority of soil outputs from these processes would be transferred to a licenced landfill for disposal.

1.4.10.2.2 Acid Sulfate Soils

ASS would be stored separate to other bulk soils, as identified in Figure 1-4. As with bulk soils, each soil batch would be assigned a separate bay. ASS would be transferred to the Site by truck and dogs. Water would be used for dust suppression during loading, unloading and treatment of material.

Verification of ASS would be undertaken to classify any contaminants and the presence of ASS. Contaminated ASS would be treated using the bulk soils methodology above to reduce contaminant load.

The treatment of ASS would be through neutralisation by applying aglime using a mobile high shear mixer. Aglime would be automatically dosed, based on characterisation and verification test results. The ASS treatment would be carried out in a dedicated bay (Figure 1-4).

Cross-contamination would be minimised by the wash down of the high shear mixer following each batch. Run-off from the washdown would be captured by the leachate diversion platforms and treated as liquid waste.

Neutralised ASS would be transferred to a suitably licenced landfill for disposal.

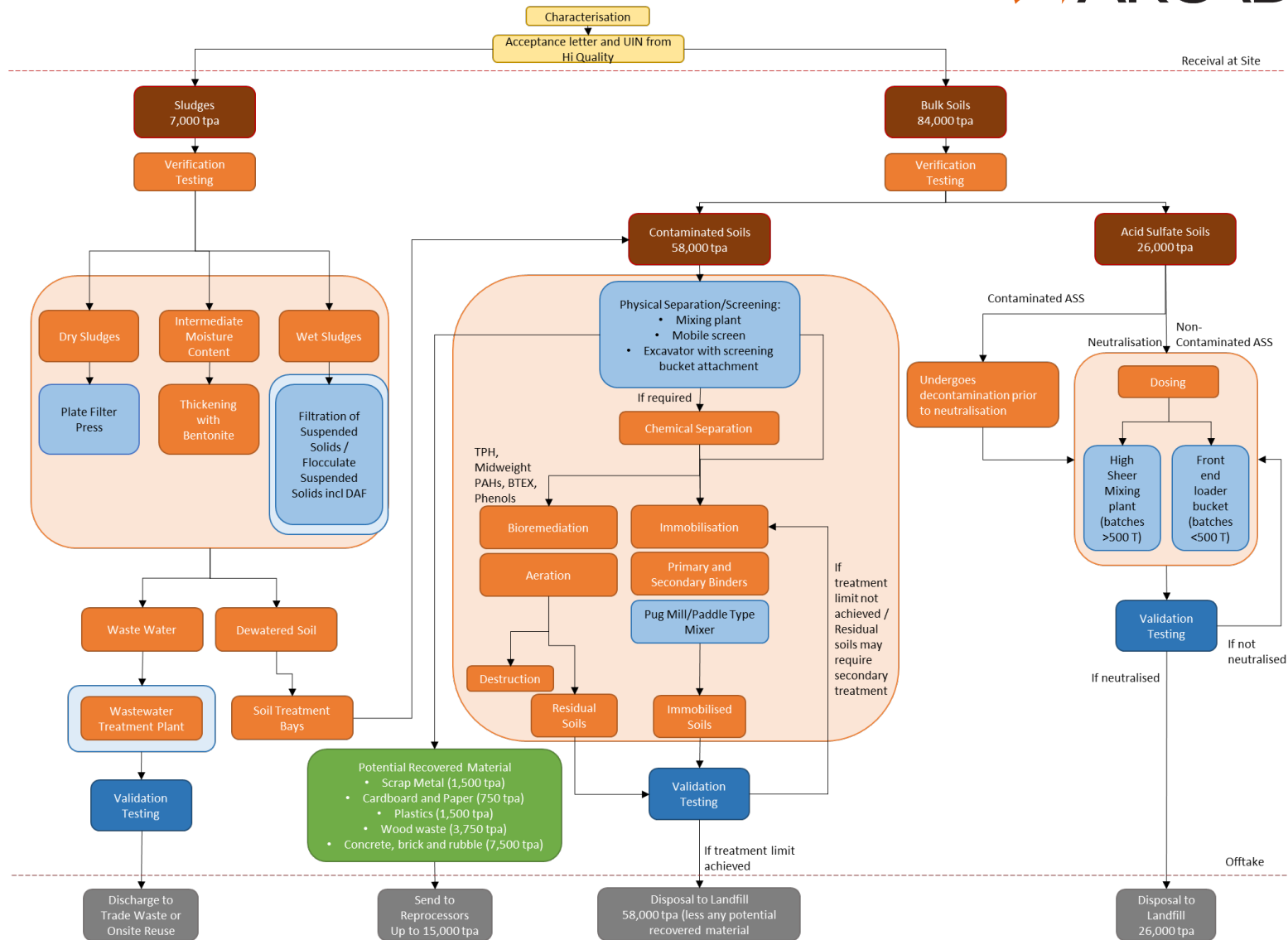


Figure 1-12: Soils, sediments and sludges process flow

1.4.10.3 Sediments and Sludges

1.4.10.3.1 Sludges

Sludges would be received from contaminated sites within the Sydney region.

Sludges would be delivered to the Site by tankers ranging in capacity from 2,000 L to 20,000 L. Tankers would unload sludge directly into designated containment bays or pits. Each batch of sludge would be unloaded in a pre-allocated pit, with no mixing of batches permitted.

Verification testing would be undertaken following receipt to ensure contaminants align with the characterisation provided by the waste generator.

Sludges would be pre-treated based on moisture content:

- Drier sludges would be deposited directly into the LWTP to undergo dewatering via a plate filter press to reduce the moisture content to less than 20%
- Sludges with intermediate moisture content will be pressed to remove excess moisture prior to being deposited directly into the sludge pit where they would undergo thickening using bentonite. An excavator would be used to mix and incorporate the bentonite with the sludge within the pit
- Wet sludges would be deposited directly into the LWTP where they would undergo filtration or flocculation to separate suspended solids, prior to being transferred to the sludge.

The products of these processes would be:

- Liquid waste – this would undergo further treatment in the LWTP (refer to Section 1.4.10.4), and
- Dewatered soils – these would be transferred to the soil treatment bays to undergo decontamination (as described in the Bulk Soils Section, (Section 1.4.10.2.1).

1.4.10.3.2 Drill mud

Drill muds would be received from contaminated sites within the Sydney region.

Drill muds are generated as a by-product of hydro excavation activities, such as non-destructive digging for the purposes of asset location. Only non-contaminated drill muds would be accepted at the Site. Drill muds to be brought to the Site would be subject to the Preliminary Waste Screening and Batch Control Procedures outlined in Section 1.4.8.

Drill muds would be delivered to the Site in vacuum tanker trucks of various capacities and unloaded directly to the Drill Mud Plant for treatment. The drill mud plant (dewatering plant) is located next to the treatment pits adjacent to the LWTP wall, as identified in Figure 1-4.

Drill muds would be treated at the Site using a shaker sieve, desilter hydrocyclone and decanter centrifuge. By-products of this process are separated solids (rock and aggregate, coarse sands, and finer silt pressed into a filter cake) and liquid waste.

The separated solids output would undergo testing to determine compliance with the NSW EPA Resource Recovery Order (RRO) and Resource Recovery Exemption (RRE) *The treated drill mud order 2014*. Compliant material would be transferred offsite for use in civil applications such as fill material. Material that doesn't meet the RRO/RRE specification would be transferred to a licenced landfill for disposal or would undergo further treatment at the Facility.

Liquid waste from the process would be treated using the LWTP system and would be tested to ensure compliance with Sydney Water trade wastewater specifications. Treated liquid waste would either be reused on site for dust suppression or would be discharged to sewer.

The process is illustrated in a process flow diagram in Figure 1-13.

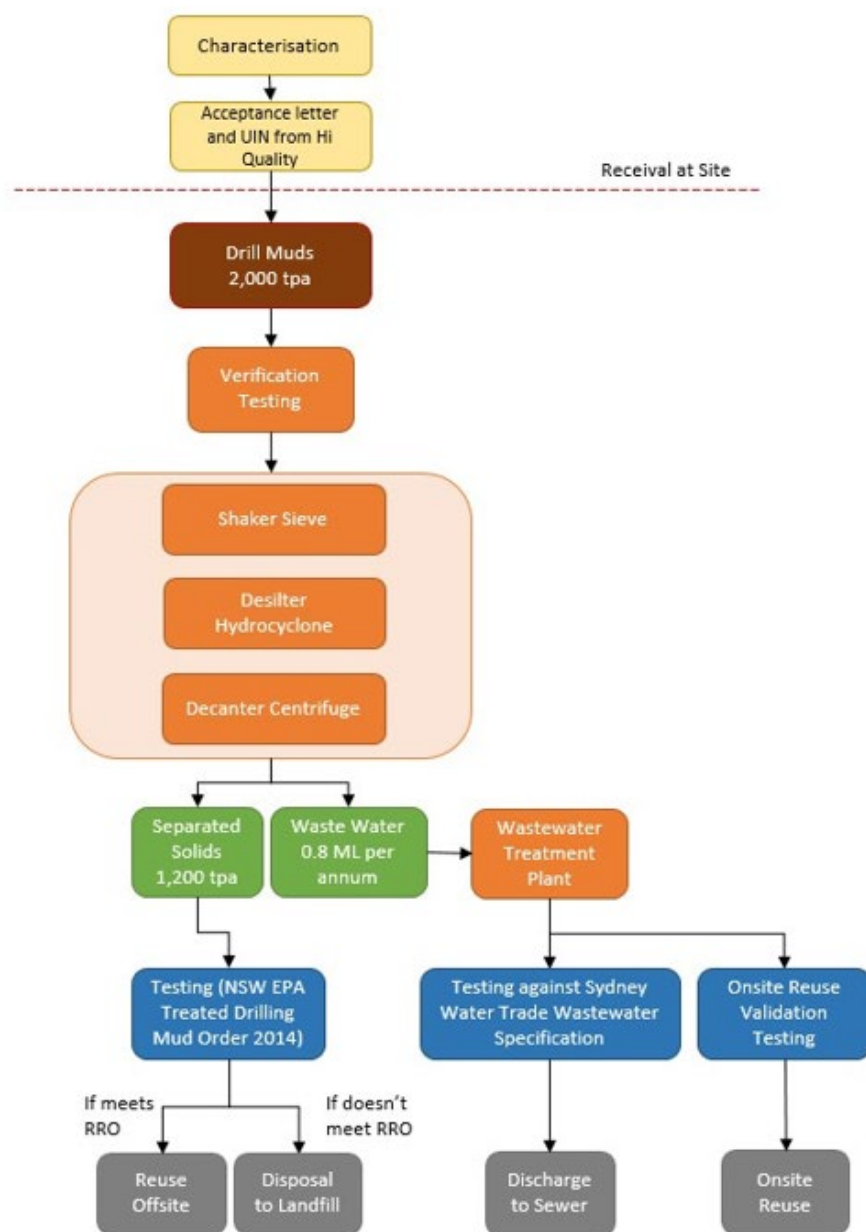


Figure 1-13: Drill mud process flow

1.4.10.4 Liquid waste

Liquid waste would be received at the Site from industrial uses or internal Site uses (i.e. as a by-product of other material processing methods, truck wheel wash and dewatering) and would largely involve liquids contaminated by organics, acidity and alkalinity (pH), heavy metals, nutrients, PFAS and suspended solids. Liquid wastes to be brought to the Site would be subject to the Preliminary Waste Screening and Batch Control Procedures outlined in Section 1.4.8.

Liquid wastes would be delivered to the Site in tanker trucks and directly unloaded into the LWTP, as identified in Figure 1-4, further detail is shown in Figure 1-14. Liquid waste classified as DG Class 8, PG II or PG III would be placed in designated tanks and transferred for immediate treatment.

The LWTP would be used to treat contaminated liquids. A custom designed and built liquid waste plant is proposed for the treatment of liquid waste, with a separate storage tank and LWTP used for PFAS contaminated water.

The Site would have its own laboratory and a dedicated chemist to oversee the entire treatment process. The Site Chemist would conduct all pre-treatment testing in the laboratory before approving batches to be treated on a commercial scale. The Site Chemist would be responsible for the overall performance of the liquid waste treatment process and the compliance with trade waste discharge. The Site would also employ a Chemical Engineer to oversee the process and compliance.

The treatment processes and technologies being used are well defined and understood industry standard water treatment methodologies.

Figure 1-15 and Figure 1-16 show the process flow chart for non-PFAS and PFAS contaminated liquid waste respectively.

1.4.10.4.1 Non-PFAS contaminated liquid waste treatment

The following steps identify the treatment process of liquid wastes in the LWTP that do not contain PFAS:

Step 1 - Holding tank

Liquid waste is received into the holding / equalisation tanks from either:

- Bulk Tanker Deliveries (10 KL or 20 KL) - External
- Decanting water from settling pits, wheel wash, soil washing - Internal

The holding tanks for each treatment train would have a combined capacity of 540 KL and would consist of 4 x 135 KL (or similar sized) tanks. An additional four tanks would be designated for the storage of liquid waste classified as DG Class 8, PG II or PG III. The holding tanks also act as equalisation tanks and provide a buffer for any potentially highly contaminated loads that are received, providing a relatively stable / uniform contaminant feed for the downstream treatment process.

Step 2 – Coalescing plate oil separator

The coalescing plate oil separator is specially designed to treat oily water and trap grease. The system would also have capability to treat other organics such as TPH and PAHs. The size of the coalescing plate filter would be approximately 6 KL, and this equipment would be used where oily water separation would be required, depending on the composition of the incoming liquid waste.

Coalescing plate oil separators work by forcing oil droplets to impinge on surface area and create larger oil droplets, which rise to the surface of liquid waste, where they can be removed via a gravity skimming process. A gravity (or coalescing) plate separator contains a series of plates through which the contaminated oily water flows. The objective of the design is to allow oil droplets in the water to coalesce on the underside of the plate

eventually forming larger oil droplets which floats off the plates and accumulates at the top of the chamber. The larger droplets of oil become, the more buoyant they become. Eventually, the droplets reach a mass that is big enough to break free from the media packs. At this point, they rise to the surface of the liquid waste, where they can be easily skimmed off and delivered to the waste oil chamber.

The oil accumulating at the top would then be removed / transferred with some entrained water to a waste oil tank. The waste oil tank would be a 1,000L IBC, which can be removed and replaced when full. Waste oil generated from this process would be sent to appropriately licenced oil recyclers for further treatment and refining. The coalescing plate filter would also have a bottom discharge point for the removal of large grit. Grit will then be tested and classified, depending on the waste classification grit would be treated on-site or removed for off-site disposal (refer to Step 8, below).

Oil particles that are 50-60 microns in size or smaller do not get separated (i.e. emulsions). The variety of oily wastes in the liquid waste can limit removal efficiency especially when very dense and highly viscous oils such as bunker oil are present. Plates would be maintained by regular cleaning, ensuring optimum efficiency of removal.

Step 3 – Chemical dosing system for oil separator

The coalescing plate separator by itself is adequate to treat the oily water and maintain regulatory compliance of treated water discharged to trade waste. However, if emulsions or oily waters with high amounts of dissolved oil are to be treated, then chemical dosing will be necessary to spilt or coagulate the emulsion prior to further separation.

The chemical dosing system will consist of both acids and coagulants, with both of these dosing systems used as required to treat the varying incoming liquid waste. The chemical reagents will be pumped from 1000L IBC's using small chemical dosing pumps. The plant operator will determine when to use the coagulants, which would typically be a result of bench scale testing to determine the need for a coagulant to be used.

Step 4 – Mixing tank (neutralisation tanks/precipitation tank)

Treatment reagents (refer to Step 5) are pumped into a 50 KL mixing tank where they are mixed with the liquid waste using a mechanical mixer. The primary purpose of the mixing tank is to keep solids and precipitates in suspension and to ensure that treatment reagents have enough contact or reaction time with the contaminants in the liquid waste to either:

- neutralise acidity or alkalinity,
- precipitate heavy metals, or
- adsorb organics.

The principal technology to remove heavy metal pollutants from liquid waste is by chemical precipitation. Chemical precipitation includes two secondary removal mechanisms: coprecipitation and adsorption. Precipitation processes are characterised by the solubility of the metal to be removed. They are generally designed to precipitate trace metals to their solubility limits and obtain additional removal by coprecipitation and adsorption during the precipitation reaction.

There are many different treatment variables that affect these processes. They include the optimum pH, the type of chemical treatments used, and the number of treatment stages, as well as the temperature and volume of wastewater, and the chemical properties of the pollutants to be removed. Each of these variables directly influences treatment objectives and costs. Treatability studies will be performed by an onsite Chemist to optimise the relevant variables, so that trade waste discharge goals are met.

The mixing tank is 50 KL and will be operated as a batch process. The mixing tank is fed by supply pumps from the storage and equalisation tanks, via the oil water separator, and the output of the mixing is pumped to the primary clarifier.

Step 5 – Chemical dosing system for mixing/neutralisation/precipitation tank

Various chemicals would be used to treat liquid waste. Due to the variability of the incoming liquid waste, a variety of chemical reagents would likely need to be used to provide effective treatment and maintain compliance to trade waste discharge. All reagents proposed to be used are considered industry standard liquid waste treatment reagents. All reagents used in the chemical dosing system would be pumped to the mixing tank.

The following is a summary of reagents to be used in the LWTP, also detailed the purpose of each reagent:

- Hydrochloric Acid (37% w/w) - precipitation of heavy metals and neutralising alkalinity.
- Caustic soda (30% w/w) - precipitation of heavy metals and neutralising acidity.
- Aluminium Sulphate Solution (28% w/w, or powdered) - coagulating agent, precipitation of phosphate.
- Polymer (liquid or powdered) - coagulating agent.
- Activated Carbon (powdered) - adsorption of organics, PFAS, elimination of odour.
- Magnesium Oxide (powdered) - precipitation of heavy metals, neutralising acidity.
- Ferrous Sulphate (powdered) - reducing agent for metals.

All reagents used in powdered form would be mixed with water in the dosing system prior to pumping to the mixing tank.

Step 6 – Clarifier

The clarifier is used to separate solids from liquids using gravity separation. After the mixing tank process, heavy metal precipitates and adsorbed organics are suspended and require separation prior to discharge to trade waste. The primary clarifier would be a 50 KL lamella coalescing plate type with a conical base vessel to allow solids to be collected. Solids would then be tested and classified, depending on the waste classification solids would be treated on-site or removed for off-site disposal (Refer to Step 8, below).

Step 7 – Sand & Carbon (Multi Media Filters) filtration

After the primary clarifier, a series of sand and carbon filters (also known as Multi Media Filters (MMF)) will be used to “polish” the treated water prior to disposal to trade waste. Sand filtration effectively removes particles down to 20 microns that have not been separated in the primary clarification stage. Activated carbon adsorption effectively removes colour and organics that have not been separated in the primary clarification.

Although sand and carbon filtration is not likely to be essential to meet trade waste discharge criteria, it is seen as an added layer of protection and additional treatment.

The sand and carbon filtration system will need backwashing periodically. The backwashed solids will be fed back into the storage and equalisation tanks. When the activated carbon and/or sand material is spent the material will be containerised, transferred to the ‘packaged waste storage area’ and transferred offsite to an appropriately licensed disposal facility.

Step 8 – Dewatering

The solids produced from the primary clarifier will be high in moisture content and require dewatering. This will be accomplished through a plate filter press. The filter press will take high moisture solids and dewater to less than 20% moisture and produce a filter cake.

The filter cake produced from the filter press will be variable in composition due to the variability of the liquid waste to be treated. The filter cake will be classified as a restricted solid waste due to being a by-product from a treatment process. Each batch of filter cake will be analysed to determine if it can be accepted at a restricted solid waste landfill. Typically, filter cake will meet landfill acceptance criteria as General Solid Waste or

Restricted Solid Waste allowing landfill disposal. However, if the filter cake is hazardous, the filter cake will be treated and immobilised/stabilised according to the contaminants present before offsite landfill disposal.

Step 9 – Trade Waste Discharge

The trade waste discharge would have provisions for flow monitoring and sampling, both of which would be required by Sydney Water. An inline flow meter will be installed to allow for real time monitoring and recording of flow rates as well as cumulative flow measurements. The trade waste discharge would also have a suitable sampling point for periodic sampling by the regulator.

1.4.10.4.2 PFAS contaminated liquid waste treatment

The LWTP for treatment of liquid wastes containing PFAS is similar to that described above (Section 1.4.10.4.1) with additional steps, highlighted in bold:

1. A holding tank
2. A chemical dosing and mixing tank
3. A clarifier to remove sludges and other solids. Primary chemical treatment with anionic and cationic coagulation, flocculation, chlorination, pH adjustment, settlement, and clarification with addition of powdered activated carbon and zeolite
4. Secondary treatment through Volcanic Clinoptilolite Zeolite (VCZ) mechanical and ion exchange media filtration
5. Tertiary treatment through coal granular activated carbon (GAC) adsorption
6. Quaternary treatment through coconut-shell, catalytic microporous GAC adsorption
7. Quinary treatment through a weak base anion exchange resin adsorption
8. Senary treatment through ultra-high activity enhanced kinetic mesoporous GAC adsorption media filtration; and finally,
9. A holding tank for storage and testing prior to discharge.

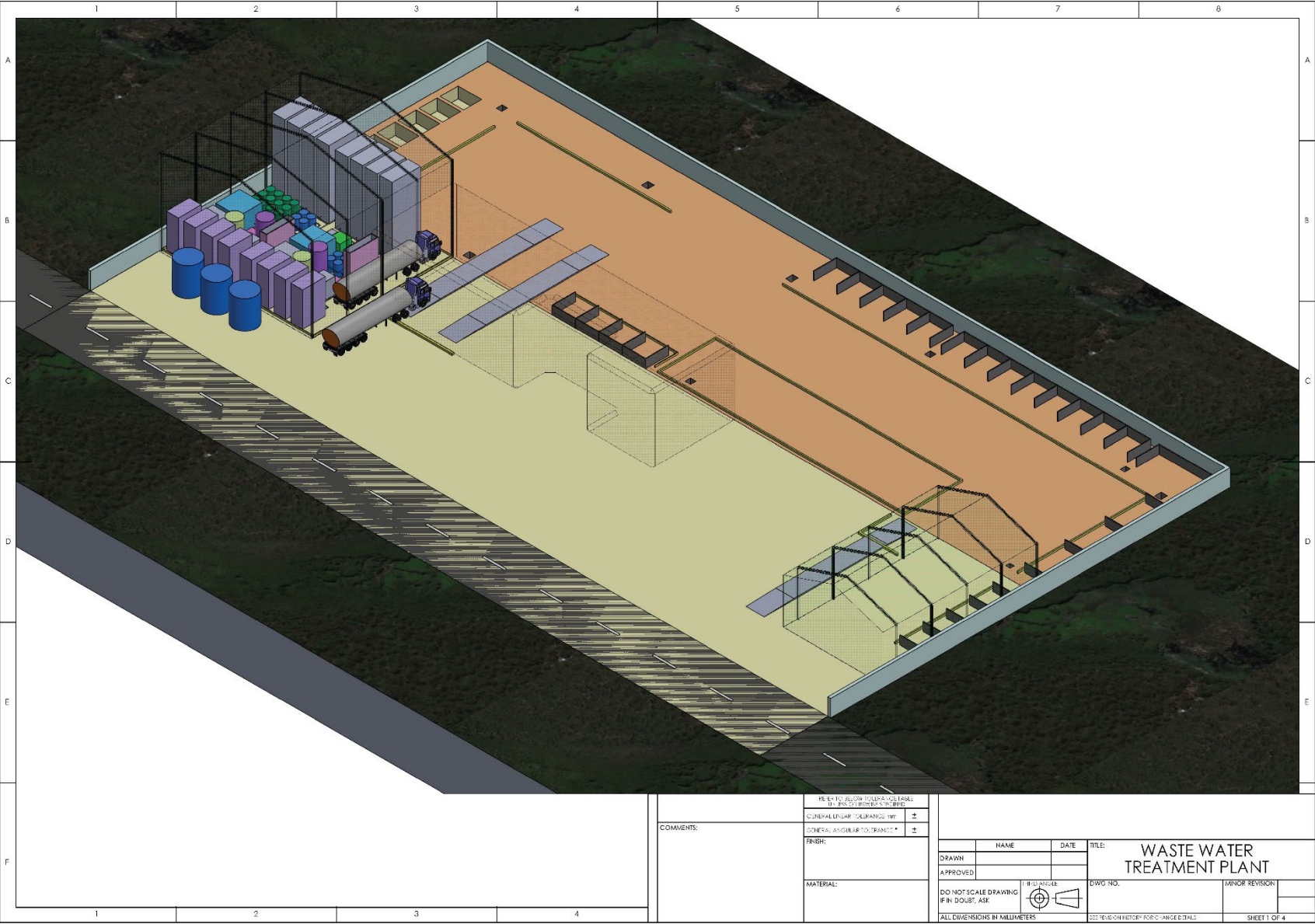
1.4.10.4.3 Sampling and disposal of treated liquid waste

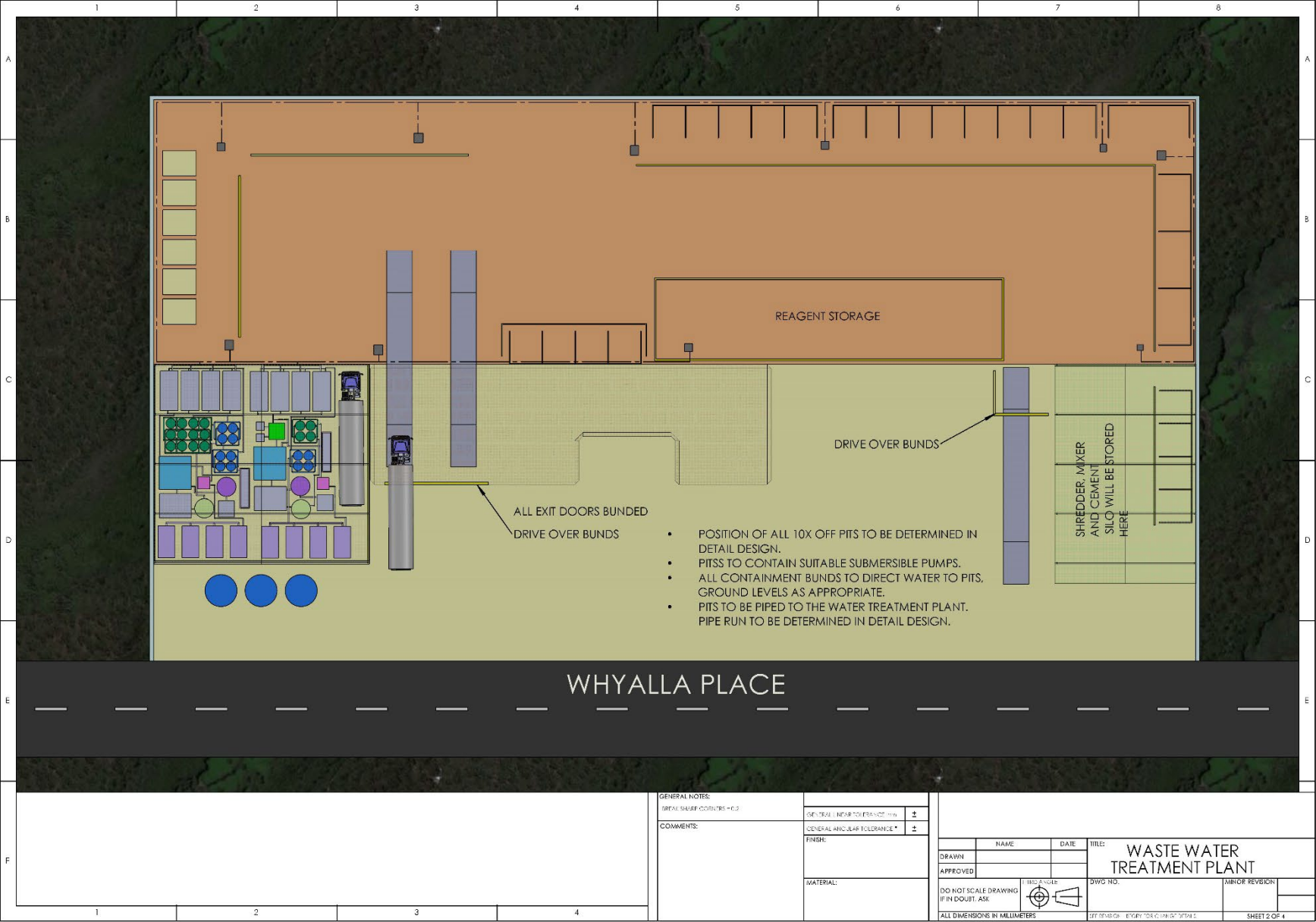
Liquid waste would be sampled at several points through the treatment train to confirm the effectiveness of treatment, and prior to disposal. Treated liquid waste would be tested for compliance with Sydney Water's trade wastewater specification prior to discharge to sewer. Some treated liquid waste that meets re-use criteria may be reused on site for dust suppression. Treated PFAS contaminated liquid waste would not be reused onsite under any circumstances.

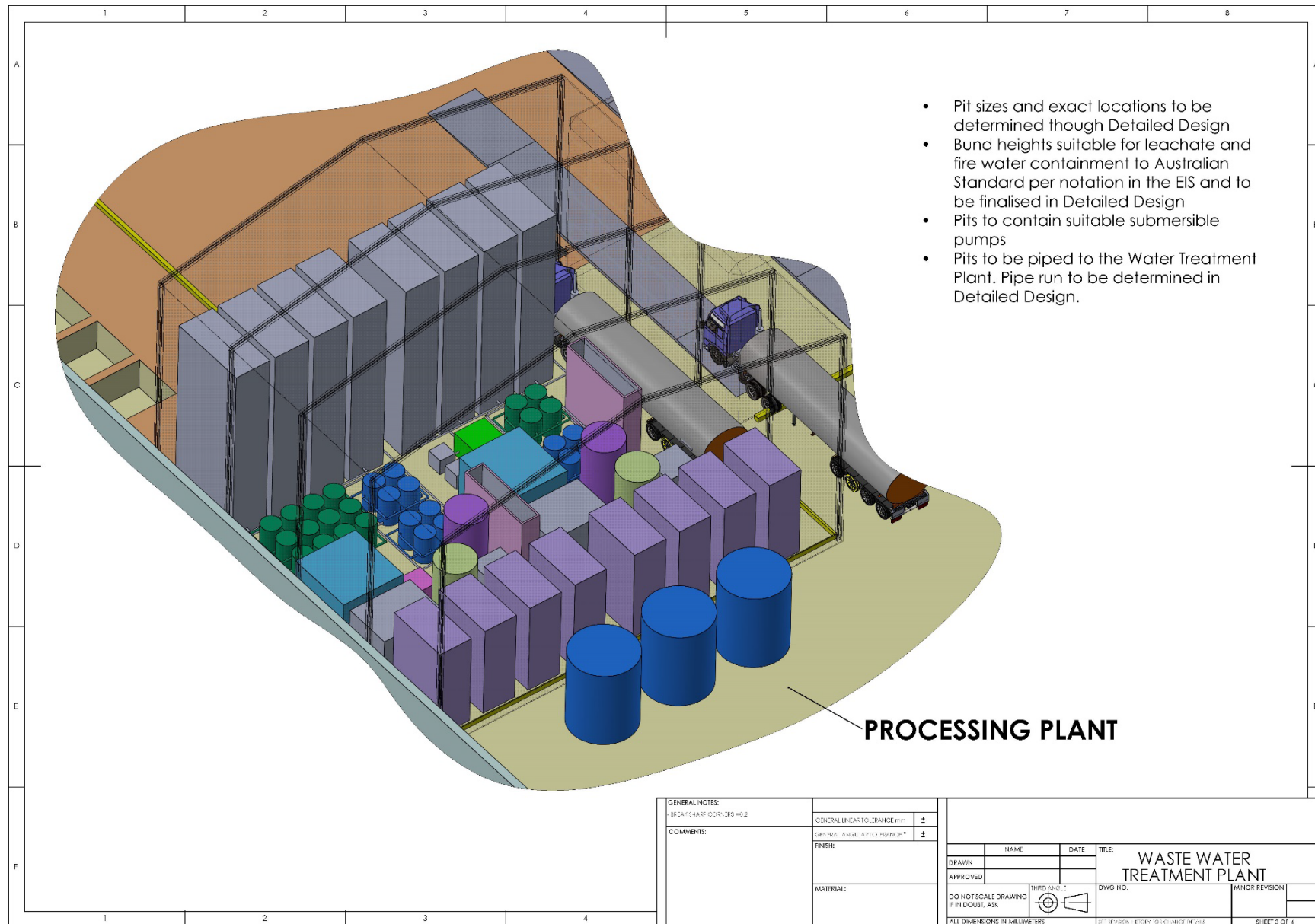
By-products of these processes include sludge which would undergo further dewatering via a screw press, with the dewatered material tested and either disposed to landfill or treated further using bulk soil methodologies described in Section 1.4.10. The spent VCZ and GAC would be stored in self-bunded and labelled IBC tanks and would be transferred to the packaged waste storage area (Compartment 3) before being disposed of at an appropriately licensed landfill or interstate licenced thermal treatment facility.

Waste oil may also be generated as a by-product and would be stored in 1 kL IBCs and would be taken to a suitably licenced oil recycling facility for further treatment. The LWTPs would be bunded in accordance with relevant Australian Standards.

Once the filtration media within the LWTP has been used it would be removed and stored within IBC drums labelled 'spent filtration media', prior to being disposed of to a Facility that can lawfully accept the material.







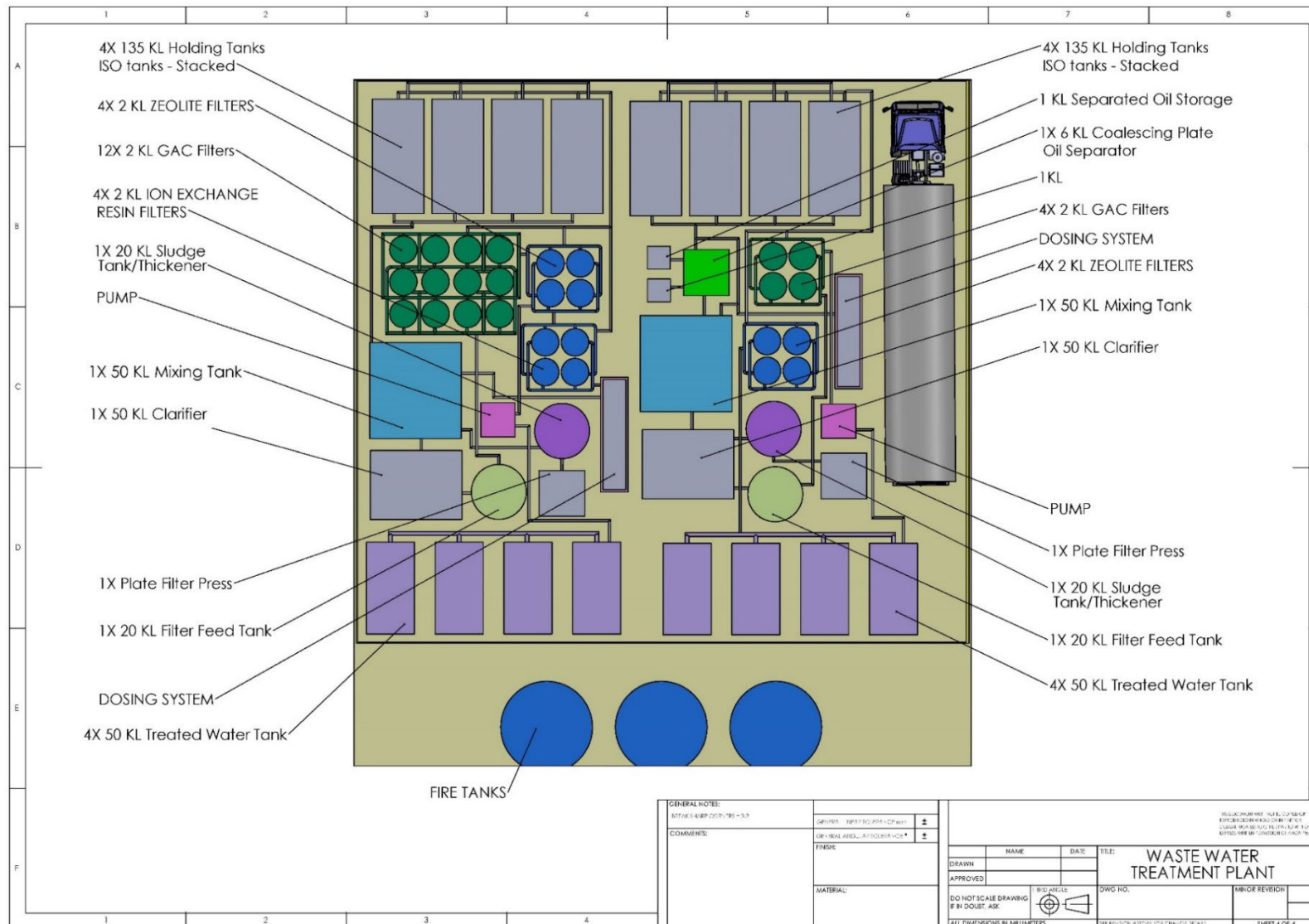


Figure 1-14 Liquid waste treatment plant schematics (indicative subject to detailed design)

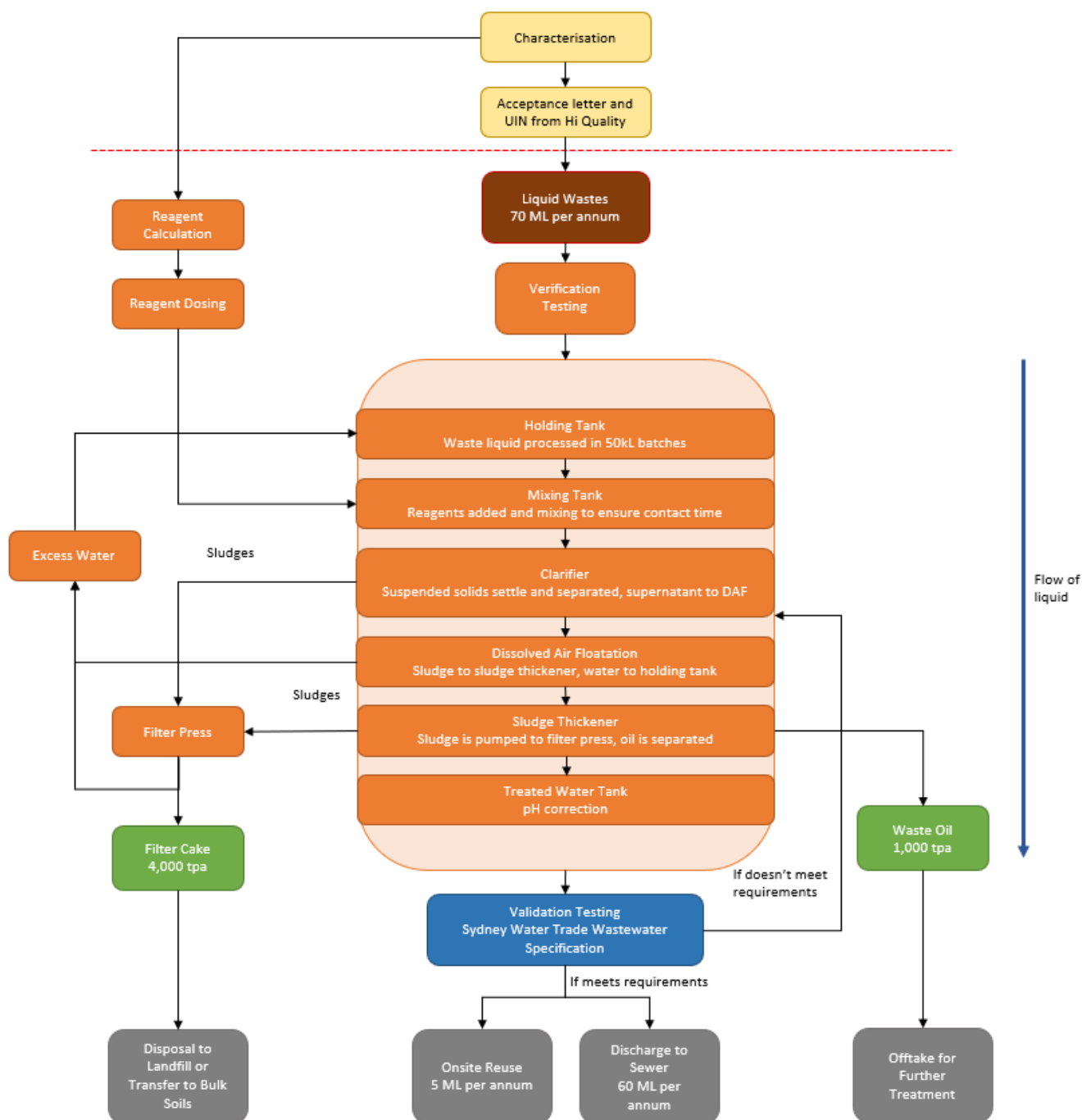


Figure 1-15: Non-PFAS liquid waste process flow

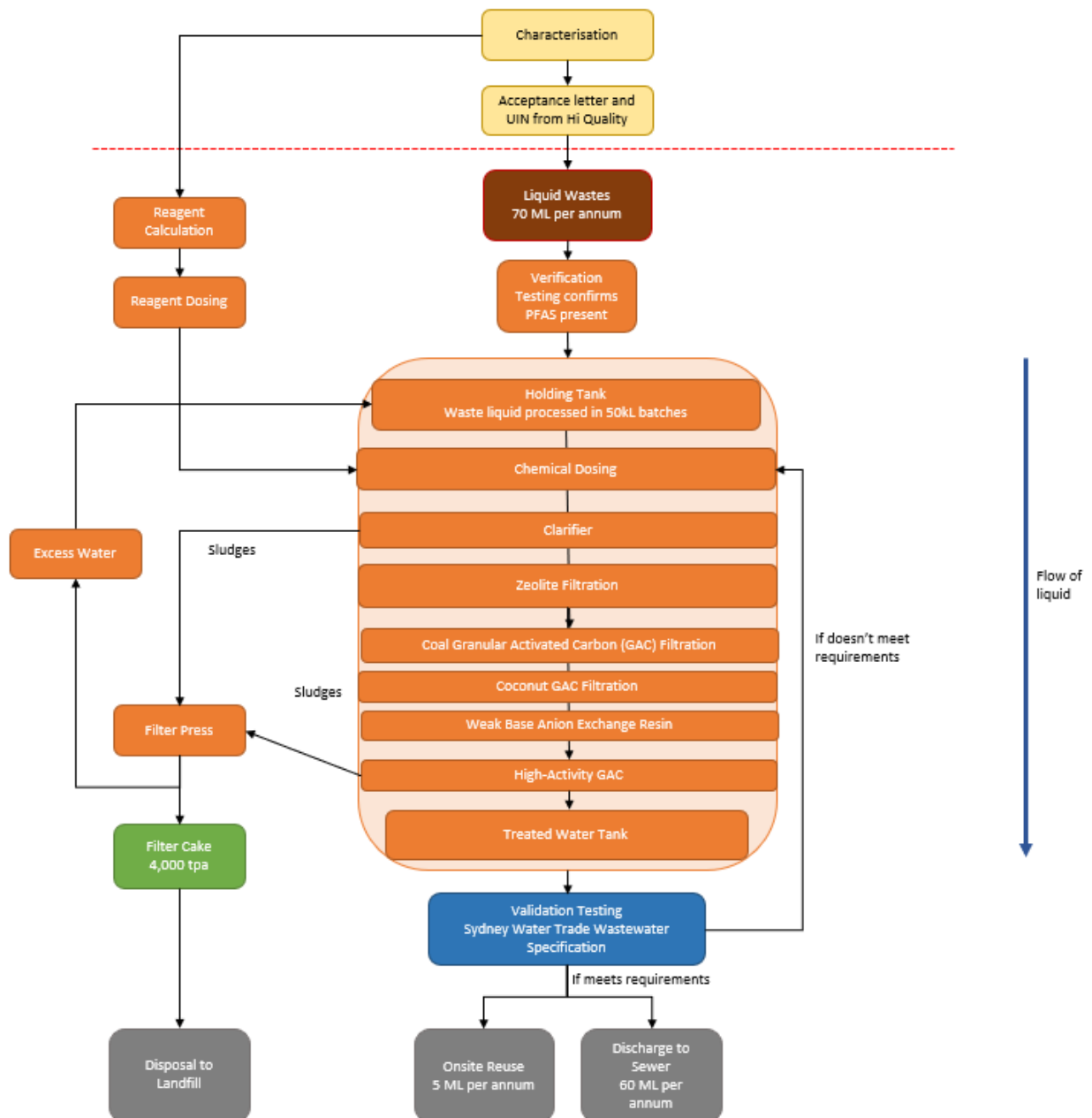


Figure 1-16 PFAS containing liquid waste process flow

1.4.10.5 Sampling, analysis and quality plans

A Sampling and Analysis Quality Plan (SAQP) will be developed for each of the waste treatment processes, prior to operation commencing, and will address:

- Waste characterisation
- Waste acceptance
- Bench scale treatment and testing
- Batch scale treatment and testing
- Validation processes for each treatment batch.

The SAQPs will be reviewed annually or more frequently on an 'as need' basis should there be a change in risk, legislative requirements or an identified non-compliance.

1.4.11 Offtake of waste

Following treatment, wastes processed at the Facility would undergo validation testing and final waste classification and reporting to determine if wastes destined for landfill are compliant with chemical composition acceptance criteria in accordance with NSW EPA *Waste Classification Guidelines*.

The final test of materials prior to offtake would be summarised in a report that includes:

- Analytical results
- A summary of NATA accredited lab reports against batch records
- A validation report for waste supplier and landfill
- Compilation of waste disposal facility documentation, including field testing (where applicable).

Offtake would occur between 7 am and 6 pm Monday to Saturday and 8 am to 6 pm Sundays and Public Holidays.

Treated or stored materials at the Site would be reprocessed, reused or disposed of, as described below. Materials would be loaded onto trucks via a front-end loader.

Reprocessing

Recovered recyclable materials from physical screening such as timber, brick, plastics and metals would be suitable for further reprocessing and recycling. Following testing, these materials would be delivered to a third-party resource recovery facility for recycling.

Reuse

Treated water and some soils, following treatment and validation, would be suitable for on and offsite reuse. On site reuse of water would include dust suppression and irrigation. Offsite soil reuse would include fill and other civil uses.

Disposal

A majority of treated and stored wastes would be destined for landfill or disposal to sewer. Materials (aside from packaged waste) must be treated to meet landfill acceptance criteria for solid waste or trade wastewater criteria (as defined by Sydney Water) for liquid waste.

In the event that a Trade Waste Agreement cannot be obtained (either for part or all of the proposed discharge volumes), treated liquid waste would be collected in tankers and transported offsite for disposal at a Sewage Treatment Plant (STP) or Liquid Waste Treatment Plant. Table 1-13 identifies STPs surrounding the Facility that would be suitable for disposal of treated liquid waste.

Materials used in the LWTP, including GAC and VCZ, would be stored in self-bunded and labelled IBC tanks. The self-bunded containers would be filled in Compartment 2 where the LWTP will be located. This compartment is bunded at all entrances to contain any potential spillage and is lined with epoxy to ensure the longevity of the floor after exposure to contaminants.

These containers would be transferred to the packaged waste storage area (Compartment 3) before being disposed of at an appropriately licensed landfill or interstate licenced thermal treatment facility.

1.4.11.1 Potential landfill facilities and sewage treatment plants

The following facilities are licensed to accept the treated waste and liquid waste from the Prestons Facility (Table1-13).

Table 1-13 Indicative licensed landfill facilities and sewage treatment plants

Unique ID #	Facility Name	Owner	Management Type	Facility Street Address	Facility Suburb/Locality	State	Post-code	Authority	Licence Number	Throughput	Type of Waste Processed
Landfill Facilities											
NSW00133	Castlereagh Waste Management Centre	Waste Assets Management Corporation	Disposal	The Northern Road	Berkshire Park	NSW	2765	EPA NSW	4601	TBC	TBC
NSW00507	Glenfield Waste Services Resource Recovery Facility	Glenfield Waste Services	Disposal	Cambridge Ave	Glenfield	NSW	2167	EPA NSW	4614	450,000 tpa	Non-putrescible
NSW00699	Breen Recycling Facility	Breen Holdings Pty Ltd	Disposal	260B Captain Cook Drive	Kurnell	NSW	2231	-	-	TBC	TBC
NSW00700	Breen Resources	Breen Resources Pty Ltd	Disposal	330 Captain Cook Drive	Kurnell	NSW	2231	EPA NSW	20697	750,000 tpa	Non-putrescible
NSW00878	Penrith Waste Services Pty Ltd	Penrith Waste Services Pty Ltd	Disposal	842 Mulgoa Road	Mulgoa	NSW	2745	EPA NSW	3438	Proposed 180,000 tpa	Non-putrescible
NSW00976	Patons Lane RRC and Landfill	SRC Operations Pty Ltd	Disposal	123-129 Patons Lane	Orchard Hills	NSW	2748	EPA NSW	20814	750,000 tpa	Non-putrescible
-	Brandown Quarries	Brandown	Hazardous	90 Range Road	Cecil Park	NSW	2178	EPA NSW POEO Licence	5186 12618	Proposed 250,000 tpa	Non-putrescible

Unique ID #	Facility Name	Owner	Management Type	Facility Street Address	Facility Suburb/Locality	State	Post-code	Authority	Licence Number	Throughput	Type of Waste Processed
-	Cleanaway St Marys Liquid Waste Services	Cleanaway	Hazardous	40 Christie Street	St Marys	NSW	2760	EPA NSW	12628	TBC	TBC
Sewage Treatment Plants											
-	St Marys Sewage Treatment System	Sydney Water	Sewage treatment	Off Links Road	St Marys	NSW	2760	EPA NSW POEO Licence	1729	> 10,000 – 20,000 ML (annual discharge)	Sewage
-	Quakers Hill Sewage Treatment System	Sydney Water	Sewage treatment	Quakers Road near Melrose Avenue	Quakers Hill	NSW	2763	EPA NSW POEO Licence	1724	> 10,000 – 20,000 ML (annual discharge)	Sewage
-	Malabar	Sydney Water	Sewage treatment	Fishermans Road	Malabar	NSW	2036	EPA NSW POEO Licence	372	> 30,000 ML (annual discharge)	Sewage

1.4.12 Mass balance

The flow of materials through the Site is summarised in Figure 1-17, which also shows an approximate mass balance of waste materials to be treated and stored at the Site.

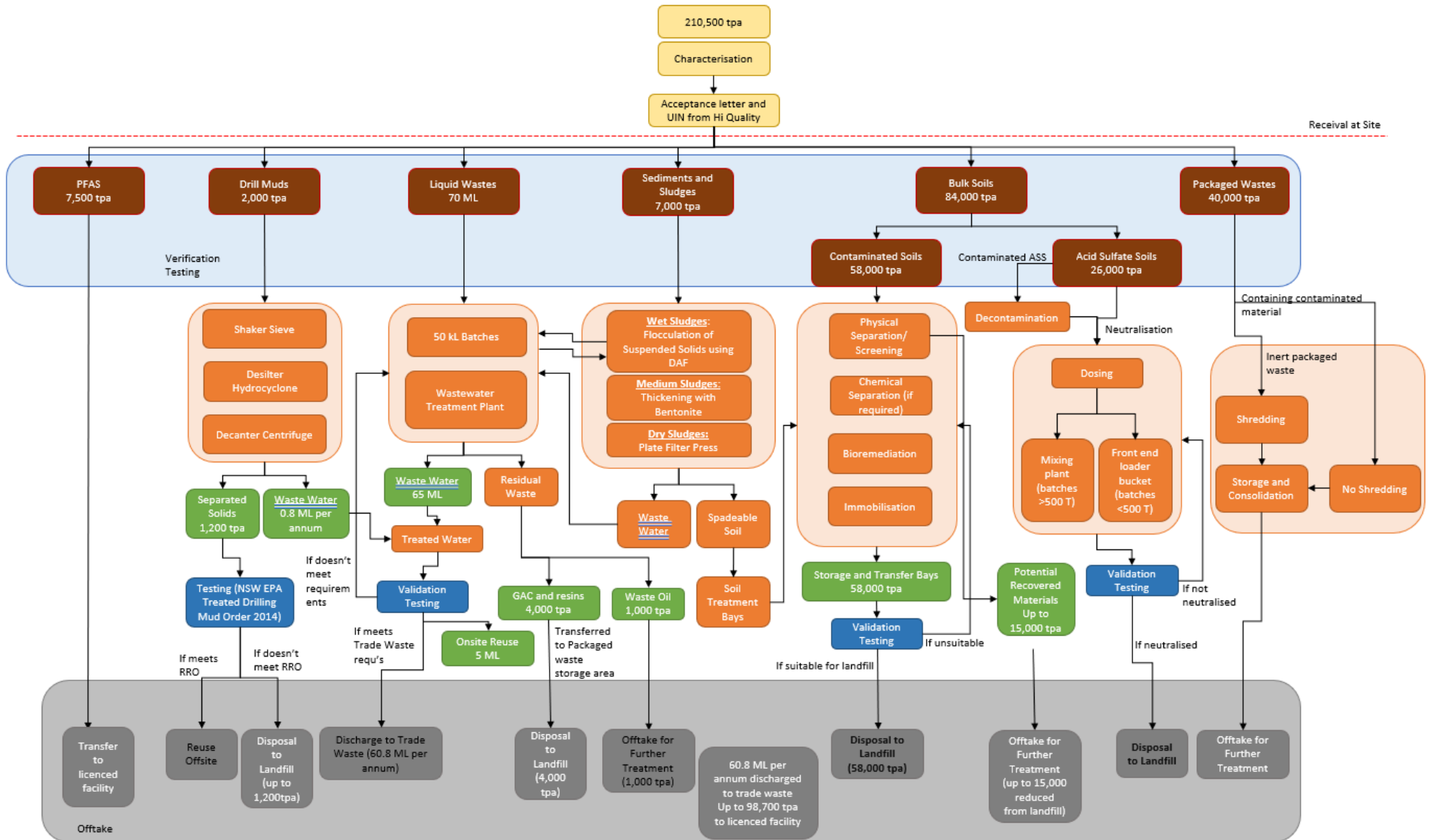


Figure 1-17: Site mass balance and process flow

1.4.13 Water balance

The water requirements for the Site are summarised in Table 1-14.

Table 1-14: Water requirement at full site operations

Source	Usage	kL/year
Staff amenities		
Potable water	Toilet	68
	Wash basins and kitchen sinks	49
	Dishwasher	9
	Shower	4
	Total water usage for staff amenities	130
Process application and dust suppression		
Rainwater re-use and potable water	Dust suppression and moisture conditioning (all activities)	1,000
	Wheel wash and truck wash	2,500
	Bioremediation	500
	Total process application and dust suppression	4,000
Total water requirement at the Site		4,130

Water collected through the rainwater tanks at the Site could feasibly supply up to 2,000 kL per annum. Opportunities for rainwater collection and reuse would be investigated during detailed design.

Where treated liquid waste meets the relevant criteria it may be re-used on site for dust suppression and irrigation.

1.4.14 Contingencies

The Site would operate based on a maximum volume of waste material on site at any one time (Section 1.4.9). The Site would not rely on frequent or ongoing deliveries and would accept waste materials on a case-by-case basis.

As a result, additional space provision for contingency would not be required. In the event of machinery downtime, HiQ would cease to accept any new waste loads until operational capacity has been restored.

A bay has been identified on the Site plan as a ‘transfer and storage’ bay (see Figure 1-4). This bay could be used to provide additional storage capacity in the unlikely event that it is required.

Specific waste type related contingencies are detailed in the following sections.

1.4.14.1 Packaged wastes

Packaged chemical waste and packaged waste for destruction would be limited to a maximum of 1,000 tonnes or material onsite at any one time. This volume of material can be appropriately stored in the designated holding area until the backlog of material is removed.

1.4.14.2 Bulk soils and sludges

The on-site storage of bulk soils would consist of a combined on-Site storage total of all soils received for treatment (across all treatment categories), dried drillers mud and dried slurries awaiting treatment and/or assessment. All bulk soils and sludges would not exceed 1,080 m³ at any one time on Site, excluding dried drill muds.

1.4.14.3 Acid sulfate soils

ASS would not be stored on Site for extended periods and would be delivered to Site for prompt treatment only. In the event that treatment by the primary method, i.e. high shear mixing is not possible, no additional soils would be accepted at the Site and exportation from the source site for transport for treatment at the Facility would cease. Material on Site would be treated by neutralisation using alternate means (e.g. physical mixing with excavator and neutralising agent) and validated against the verification criteria for the soil treatment procedure.

Treated material would be removed from Site, and no additional material would be imported until the primary treatment method is re-established.

1.4.14.4 Drill muds

Untreated drill mud would be limited to 58 m³ storage capacity of dedicated on site uncontaminated detention tanks. No additional portable storage vessels would be permitted to be used on Site for the purpose of storing untreated drill muds.

Liquid waste generated as a result of on-site treatment would be handled in accordance with liquid waste storage and treatment requirements.

Slurries that are free of excess water content will be considered classified as “bulk soil” and storage capacity will be combined with that of bulk soil. The total storage volume of dry drill mud and bulk soils will not exceed 1,080 m³ on Site at any one time.

1.4.14.5 Liquid waste

On site storage of liquid waste would be limited by the available storage capacity of approved permanent onsite detention tanks with a maximum storage capacity of two megalitres. Liquid waste above this volume would not be accepted on Site.

During operation of the Facility, treated liquid waste is planned to be discharged to sewer under a Trade Waste Agreement. However, in the event that a Trade Waste Agreement cannot be obtained (either for part or all of the proposed discharge volumes) treated liquid waste would be collected in tankers and removed offsite for disposal at a Sewage Treatment Plant (STP) or Waste Water Treatment Plant. Table 1-13 identifies potential STPs that are nearby to the Proposal that would be suitable for offtake if required.

1.4.15 Non-conforming waste

As described above in Section 1.4.8, prior to scheduling the receipt of any waste types, an Acceptance Letter and UIN must be prepared by HiQ and submitted to the waste generator. The Acceptance Letter would be contingent upon receipt of NATA laboratory testing results for the waste material, ensuring that only wastes covered by the Site EPL and suitable for treatment at the Site are accepted.

Upon arrival at the Site, delivery drivers would be required to provide the Acceptance Letter and UIN to the weighbridge operator, who would confirm the consignment details of the load. Any deliveries that fail to produce the Acceptance Letter and UIN or whose load does not match the consignment details would be rejected from the Site.

Examples of non-conforming waste may include:

- Waste that does not meet the description and the paperwork accompanying the delivery
- Waste not conforming to pre-acceptance criteria (i.e. that waste type permitted as per Table 1-4)
- Waste containers (notably for packaged waste) are damaged or poorly stowed on a vehicle
- Waste loads are not suitably covered or secured
- Loads/drivers that do not have the correct paperwork or documentation with them
- Loads that arrive on site unscheduled.

Non-conforming waste types and the procedures for managing non-conforming waste are in the OWMP.

The following materials will not be received at the Facility and would be automatically rejected:

- Scheduled PCB contaminated material as defined by the Polychlorinated biphenyl chemical control order (1997)
- PFAS contaminated soil above the restricted solid waste criteria
- Asbestos containing material (ACM)
- Wastes classified as Dangerous Goods, other than liquid waste and packaged waste classified as Class 8 PG II or III, and PFAS classified as Class 9 PG III.

Each waste batch would be stored separately and would not be mixed with any other waste batch. Any waste batch that is unloaded and does not match the description and testing results would be re-loaded and removed from Site.

A procedure for the management and rejection of non-conforming waste is provided in the OWMP.

1.4.16 Testing and validation

Following treatment, final treated process streams would be tested to estimate post-treatment contaminant loads and confirm success of the treatment methodology. Only waste streams that meet landfill acceptance criteria would be disposed of at an appropriately licenced landfill. Any waste intended for landfill that does not meet landfill acceptance criteria would undergo further treatment or be disposed of at an alternative appropriately licenced facility. Assessment and characterisation of the material for offsite disposal would be undertaken in accordance with the requirements outlined in the NSW EPA 2014 *Waste Classification Guidelines*.

Samples for testing would be sent to a NATA-accredited laboratory.

Further detail of testing and validation protocols would be developed in accordance with EPA requirements and industry best practice and documented in the SAQP for the relevant waste treatment process.

1.4.17 Traffic and access

Site access and egress

Site access would be from Whyalla Place. Heavy vehicles would utilise separate Site access from light vehicles. Heavy vehicles would access the Site from Whyalla Place via the northern heavy vehicle driveway, proceed over the weighbridge to weigh in and confirm approval of consignment, and proceed into the building for unloading or loading. Heavy vehicles would then proceed to weigh out and exit the Site via the southern heavy vehicle driveway onto Whyalla Place.

Light vehicles would enter and exit the Site onto Whyalla Place from the new driveway between the two heavy vehicle access and egress driveways.

Weighbridges

A dual-lane 19 metre weighbridge would be located internal to the warehouse at the northern roller shutter doors. Heavy vehicles would utilise the weighbridge to weigh in, and the weighbridge operator would be responsible for verifying that consignments have prior approval.

1.4.18 Vehicle movements associated with delivery and offtake

The annual incoming and outgoing vehicle movements associated with each of the waste streams have been summarised below in Table 1-15. The peak daily traffic volumes have been calculated based on a peak day scenario (Mondays are anticipated to be the busiest day, potentially accounting for a maximum of 19 per cent of weekly traffic movements under a peak daily scenario). Based on this assumption, a total of 66 heavy vehicles would be anticipated under peak day standard operational conditions (Table 1-15).

Section 1.4.14 outlines contingency measures for the operation of the Facility should it not be possible to discharge treated liquid waste to sewer under a Trade Waste Agreement. Rather than discharge to sewer, it would instead be proposed to tanker treated water offsite for disposal at a nearby Sewerage Treatment Plant. If this contingency option is required, additional outbound vehicles would be needed to remove the treated water from the site. This would be considered to be the 'worst case operational scenario' as shown in Table 1-15.

Traffic movements will be managed in accordance with the Operational Traffic Management Plan (OTMP). Liquid waste and packaged waste classified as DG Class 8, PG II or PG III, DG Class 9, PGIII, and reagents would be transported in accordance with the requirements of the ADG Code.

Table 1-15: Summary of heavy vehicle types and movements at the Facility at full operational capacity

Waste Type	Vehicle Type	Standard operational scenario			Worst case operational scenario		
		Incoming vehicle movements (annual)	Outgoing vehicle movements (annual)	Peak number of vehicles per day (365 days)	Incoming vehicle movements (annual)	Outgoing vehicle movements (annual)	Peak number of vehicles per day (365 days)
Bulk Soil and ASS	Tipper truck or Truck and dog	3,000	3,537*	24	3,000	3,537*	24
Sludges	Vacuum tanker (various capacity and length)	500		<2	500		<2
Drill Muds	Vacuum tanker (various capacity and length)	58	32	<1	58	32	<1
Packaged Waste	Flatbed trucks	2,000	1,429	13	2,000	1,429	13
Liquid Waste	Vacuum tanker or bulk liquid tanker (various capacity and length)	7,000	179	27	7,000	6,679	45
PFAS	Tipper truck or Truck and dog	268	268	<2	268	268	<2
Peak number of trucks per day				66	Peak number of trucks per day		84

Note: The total trucks per day in the above and the count identified in the Traffic Impact Assessment prepared by People

Trans has a discrepancy of two trucks per day – the TIA combines all trucks incoming and outgoing across all waste streams, whereas the summary above divides it by waste stream. As a result, there is a rounding difference between the two summaries.

*The outgoing truck volumes are inclusive of immobilisation, of which dewatered sediment and sludges would form part of.

1.4.19 Hours of operation

The Site would receive waste 24 hours a day, while processing and dispatch operations would be undertaken between 7 am and 6 pm Monday to Saturday and 8 am to 6 pm Sundays and Public Holidays.

1.4.20 Workforce

A total of up to 10 personnel is estimated for the operation of the Facility, whilst four people would be required outside of operational hours for receipt of material. Up to 21 personnel would use the office on any day.

Staff per shift and shift times for operations are as follows:

- Day Shift (7 am-3pm) 10 staff maximum;
- Afternoon Shift (3 pm-11 pm) 4 staff maximum;
- Night Shift (11 pm-7am) 4 staff maximum;
- Up to a maximum of 21 employees utilising the office space.

In total, 39 staff would be employed at the Site, however due to shift times all employees would not access or be on the Site at the same time..

1.5 Storage of reagents

Reagents would be used to treat soil and liquid waste. Reagents would be stored internal to the building and used in treatment processes described in Section 1.4.10. Where required, storage solutions would be used for stacking of reagents on a platform, be bunded and buffer distances would be maintained as appropriate. The following materials would be stored on site (Table 1-16).

Table 1-16: Storage of reagents and other substances at the Site

Material	Quantity
Cement (stored within cement silo)	50 t
Reagents	
Ferrous sulphate (powdered)	5 t
Bacteria (stored in liquid form)	1 t
Urea	5 t
Super phosphate (powdered)	5 t
Biodegradable surfactant	2 t
Polymer (powder or liquid)	2 t
Finely crushed limestone or 'aglime'	20 t
Primary cementitious stabilising agents (Ordinary Portland Cement (OPC), Ground Granulated Blast-furnace Slag (GGBFS), pulverised fuel ash, cement kiln dust)	50 t
Secondary stabilising agents (Lime, sodium silicate, carbons, organophilic clays, natural pozzolans, bentonites)	50 t
Aluminium sulphate (28% w/w or powdered)	5 t
Hydrochloric acid (37% w/w) (DG Class 8)	5 t*

Material	Quantity
Magnesium oxide (powdered)	5 t
Decon 90	1 t
Liquinox	1 t
In addition, the following reagents and volumes would be stored at the LWTP compartment within the bunded chemical dosing area:	
Caustic soda (30% w/w) (DG Class 8)	5 t*
Aluminium sulfate	2 t
Polymer	2 t
Activated Carbon	2 t
Magnesium Oxide	2 t
Ferrous sulfate	2 t

* A combined total of no more than 10 t of Hydrochloric Acid and Caustic Soda will be stored onsite at any given time

The onsite storage requirements for other reagents would be as follows:

- Hydrochloric acid would be stored in a safety cabinet within Compartment 1 and caustic soda would be stored in Compartment 2
- Cement would be stored in a cement silo located in Compartment 3. The silos would be fitted with overflow protection including a high-level alarm.
- Corrosive substances (Class 8) would be stored and handled by following the methods outlined in AS 3780-2008 The storage and handling of corrosive substances. These materials would be stored on elevated racking, above the PMF level.
- Liquids would be stored in IBC's located in a storage area adjacent to the office and amenities block internal to the shed.
- Powders would be stored in bags located in a storage area adjacent to the office and amenities block internal to the shed.

The application of these treatment chemicals would be via enclosed automated dosing systems minimising the potential for worker exposure to the reagents.

1.6 Capital investment value

The Proposal would have a Capital Investment Value (CIV) of approximately \$6,376,000 (excl GST). Refer to Appendix P of the EIS for detailed calculation of the CIV for the Proposal.

1.7 Comparison to similar facility

HiQ own and operate a similar facility in Yatala, Queensland, in which 350,000 tpa of contaminated soils, sludges and liquids are received, treated, and sent for disposal following validation. The Yatala facility is located at 12 Byte Street, Yatala QLD, and is formed of three adjacent sheds with an adjoining office and amenity block, with approximately 3,400 m² of floorspace utilised for operations. In comparison, the Prestons facility would receive 210,500 tpa and has an existing warehouse of approximately 4,100 m² of warehouse and 650 m² office facilities. The Proposal would expand the existing warehouse area by 1,300m² to a total of 6,400 m² and utilise the existing office space for the Proposal.

The Yatala facility commenced operating in September 2021 and holds an Environmental Authority (EA0002264) to conduct the following activities:

- Operating a facility for receiving and mechanically reprocessing, in a year of more than 10,000t of category 1 and 2 regulated waste and general waste
- Operating a facility for receiving and either reprocessing or treating, in a year of more than 10,000t of category 1 and 2 regulated waste
- Transporting of regulated waste
- Operating a facility for receiving and sorting, dismantling, baling or temporarily storing general waste and category 1 and 2 regulated waste

No enforcement actions have been recorded against the Environmental Authority for the Yatala facility. The closest residential receiver to the Yatala facility is approximately 800 metres to the southwest.

The types of waste received at the Yatala facility are comparable to those proposed to be received at the Prestons facility. The Yatala facility undertakes the same waste treatment activities, with the exception of accepting Asbestos waste, as has been described in this Project Description.

Annexure A. Waste Type and Treatment Table

Waste codes proposed to be accepted on Site

Where Waste Processing has been nominated for a waste type / code, the waste will be treated in accordance with the waste treatment processes in the Proposal Description. Hi-Quality are proposing to only treat wastes using proven technologies, processes and reagents.

Any waste that is not suitable for treatment will be stored and sent off-site to a suitably licensed treatment facility.

Table 1 Waste codes proposed to be accepted on Site

Waste Code	Waste Description	Activity	Other Limits
J100	Mineral Oils	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
J160	Waste Tarry Residues	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
N120	Soils contaminated with a substance or waste referred to in Parts 1 or 2 of Schedule 1 of the <i>Protection of the Environment Operations (Waste) Regulation 2021</i>	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
N190	Filter Cake	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
N140	Fire debris and Wash Waters	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
N205	Residues from industrial waste treatment	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
D130	Arsenic; arsenic compounds	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
D290	Barium compounds (excluding barium sulphate)	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
D160	Beryllium; beryllium compounds	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
D310	Boron compounds	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
D150	Cadmium; cadmium compounds	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
D140	Chromium compounds (hexavalent and trivalent)	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
D190	Copper compounds	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
N150	Fly Ash	Waste Storage	N/A
A100	Waste resulting from surface treatment of metals and plastics	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
D220	Lead; lead compounds	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
D120	Mercury; mercury compounds	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
D210	Nickel compounds	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
D300	Non-toxic salts	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
M250	Surface active agents (surfactants), containing	Waste Processing (Non-Thermal Treatment) Waste Storage	Surface active agents that contain PFAS are permitted to be stored but not permitted to be processed at the premises.

Waste Code	Waste Description	Activity	Other Limits
	principally organic constituents and which may contain metals and inorganic materials		
D360	Phosphorus compounds excluding mineral phosphates	Waste Storage	N/A
H170	Waste from manufacture, formulation and use of wood preserving chemicals	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
D270	Vanadium compounds	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
D230	Zinc Compounds	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
C100	Basic solutions or bases in solid form	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
B100	Acidic solutions or acids in solid form	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
T100	Waste chemical substances arising from research and development or teaching activities, including those which are not identified and/or are new and whose effects on human health and/or the environment are not known	Waste Storage	N/A
N160	Encapsulated, chemically-fixed, solidified or polymerised wastes that are referred to in this Part	Waste Storage	N/A
R120	Waste pharmaceuticals, drugs and medicines	Waste Storage	N/A
J120	Waste oil/water, hydrocarbons/water mixtures or emulsions	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
M230	Triethylamine catalysts for setting foundry sands	Waste Storage	N/A
F100	Waste from the production, formulation and use of inks, dyes, pigments, paints, lacquers and varnish	Waste Storage	N/A
T120	Waste from the production, formulation and use of photographic chemicals and processing materials	Waste Storage	N/A
F110	Waste from the production,	Waste Storage	N/A

Waste Code	Waste Description	Activity	Other Limits
	formulation and use of resins, latex, plasticisers, glues and adhesives		
R140	Waste from the production and preparation of pharmaceutical products	Waste Storage	N/A
A100	Waste resulting from surface treatment of metals and plastics	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
A110	Waste from heat treatment and tempering operations containing cyanides	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
D110	Inorganic fluorine compounds excluding calcium fluoride	Waste Processing (Non-Thermal Treatment) Waste Storage	N/A
N100	Containers and drums that are contaminated with residues of waste referred to in this Table	Waste Processing (Non-Thermal Treatment) Waste Storage	Limited to containers & drums contaminated with residues of waste referred to in this Table.
D330	Inorganic sulfides	Waste Storage	N/A
M150	Phenols, phenol compounds including chlorophenols	Waste Storage	N/A
M270	Per- and poly fluoroalkyl (PFAS) contaminated materials including waste PFAS containing products and contaminated containers (soils & liquid streams)	Waste Storage	Permitted to be stored but not permitted to be processed at the premises.
A130	Cyanides (inorganic)	Waste Storage	N/A
M210	Cyanides (organic)	Waste Storage	N/A
M260	Highly odorous organic chemicals (including mercaptans and acrylates)	Waste Storage	N/A
M180	Polychlorinated dibenzo-p-dioxin (any congener) Reactive chemicals	Waste Storage	N/A

Updated waste table

Table 2 contains an outline of the waste type, facility tonnage limits, a description of the delivery method and overview of treatment methodology, as well as the acceptance and treatment limits and ultimate disposal location for each waste type proposed to be handled at the facility. It is noted that waste streams will undergo classification against the Australian Dangerous Good Code prior to acceptance on Site and wastes classified as Dangerous Goods, other than liquid waste or packaged waste classified as Class 8 PG II or III or PFAS classified as Clas 9 PG III will not be accepted on Site.

Table 2 Waste acceptance, treatment and tonnages overview

Waste Type	Sub-Process	Potential contaminants	Volume	Description	Delivery method	Treatment procedure	Acceptance limit(s)	Treatment Limit	Disposal
Packaged Waste - (in intact drums or IBCs) comprising various waste code types; hazardous, restricted and non-hazardous			40,000 tpa	Several different types of packaged waste are proposed to be accepted at the facility for the purpose of storage and offsite disposal at a licensed facility. Processes for handling and management of the material will depend on the material type, as described below	Packaged waste would be delivered to the Site on flatbed trucks		N/A		
	Packaged Waste for processing / shredding E.g.: - Faulty clothes - Off spec consumables	Nil		• Material received to site will be non-contaminated, inert, and pre-classified GSW • Material to be accepted for the purpose of destruction and offsite disposal. • Material consists generally of consumer items that are off specification, rejects or past expiration dates. • Processing will include shredding.		• Material to be fed through a shredder • Processed material to be stored in stackable containers • Processed material to be relocated to material storage bays • Material will be loaded to vehicles and transported offsite for disposal in accordance with waste classification under the <i>Protection of the Environment Operations Act 1997</i>	Refer Contaminant Concentration Tables (Annexure B to the Amended Proposal Description)	N/A	Offsite to a licensed landfill facility, as General Solid Waste (GSW).
	Packaged Waste – assorted industrial chemicals	• Cyanides (inorganic) • Cyanides (organic) • Material containing PCBs, PCs and / or PBBs • Highly odorous organic chemicals • Polychlorinated dibenzo-p-dioxin (any congener) • Reactive chemicals		Known received chemicals • Material to be accepted, consolidated and stored in specified and suitable onsite storage locations prior to offsite disposal • For known materials documentation for MSDS, storage and handling received prior to receipt onsite. • Containers are to remain sealed for known materials.		Nil. Material proposed for storage prior to offsite disposal only.	Refer Contaminant Concentration Tables (Annexure B to the Amended Proposal Description)	N/A	Various offsite facilities licensed to accept the waste type.
Acid Sulfate Soils			26,000 tpa	Receipt of pre-assessed ASS/PASS for onsite treatment and neutralisation. The treatment methodologies have been divided into management of potentially contaminated ASS/PASS and “VENM” ASS/PASS as the	Tipper truck or truck and dog		N/A		

Waste Type	Sub-Process	Potential contaminants	Volume	Description	Delivery method	Treatment procedure	Acceptance limit(s)	Treatment Limit	Disposal
				treatment and disposal procedures will differ.					
	“VENM” Acid Sulfate Soils or Potential Acid Sulfate Soils	PASS / Actual acid sulfate soils		- Material consisting of ASS/PASS which are defined as VENM in accordance with <i>Protection of the Environment Operations Act</i>. - Receipt both PASS and ASS that has been pre characterised and classified with dosing rates. - Soil to be received onsite for immediate treatment. - Material to be validated for neutralisation. - Treated soils placed for storage awaiting offsite disposal. - No Acid Sulfate Rock is to be received onsite.	Tipper truck or truck and dog	- On receipt to site, material to be offloaded and stockpiled in prepared storage bay for immediate treatment - Soils to be loaded directly into mobile high sheer mixer for treatment - Mobile high sheer mixer contains automatic reagent (Aglime) dosing based on requirement for each load. - Treated soils to be transferred to storage bays for validation of neutralisation process - Validated material to be disposed of offsite	N/A	Complete neutralised acid generating potential	- Offsite to a licensed landfill facility. - Brandown (EPL 5186) in Kemps Creek and Hi-Quality’s licensed landfill in Windellama (EPL 10398) is licensed to accept General Solid Waste (GSW)
	Contaminated Acid Sulfate Soils or Potential Acid Sulfate Soils			- Receipt both PASS and ASS that has been pre characterised and classified with treatment rates. - Contamination status of the soils will be documented in the classification prior to acceptance to site to enable a treatment methodology to be developed. - Treatment procedure will be customised to reflect the requirements for the material depending on the chemical contaminants. - Bench testing to be undertaken to prove viability in instances where non standard contaminants of concern (COCs) are present. - No Acid Sulfate Rock is to be received onsite.	Tipper truck or truck and dog	Treatment process will be developed specifically for the material based on the specific contaminates of concern present in the soils and proven by bench testing prior to receipt onsite. - If anthropogenic material is present, physical screening using appropriate screen. - Screened soils to be loaded directly into mobile high sheer mixer for treatment - ASS/PASS to be limed prior to next step treatment - Soils to be classified under Waste Classification Guidelines 2014.	No limit for ASS / PASS – see individual contaminants listed below	Complete neutralized acid generating potential + Stabilisation of specific COC to Restricted Solid Waste (RSW) or GSW concentration levels	Offsite to a licensed landfill facility licensed to accept RSW or GSW (as appropriate) based on revised waste classification report post treatment
Bulk soils			84,000 tpa total (including ASS)	This category relates to all soils and dried sludges that require treatment onsite.	Tipper truck or truck and dog	Depending on the contaminants present in the soils, different strategies will be applied to the waste, however a summary of		--	--

Waste Type	Sub-Process	Potential contaminants	Volume	Description	Delivery method	Treatment procedure	Acceptance limit(s)	Treatment Limit	Disposal
						the processes that could be applied are below.			
	PFAS contaminated soil (below RSW criteria)	PFAS	7,500t	- PFAS soils to be accepted onsite following classification and characterisation. - Storage in dedicated PFAS Soil storage area. - Soils to be held onsite pending redirection for offsite disposal to NSW or interstate licensed disposal facilities	Tipper truck or truck and dog	Nil Proposed	Restricted solid waste limits for PFAS under the Addendum to the Waste Classification Guidelines (2014) – Part 1: classifying waste	N/A	NSW licensed disposal facility or Interstate licensed treatment and disposal facility
	Separation – Screening		--	Screening is a process that will be applied to soils to help maximise the amount of resource recovery. This process is targeted to at the removal of inert waste such as concrete, brick, timber, tile from soils prior to treatment will minimise waste generation and optimise the treatment processes. Residual soils will continue down the treatment process.	Tipper truck or truck and dog	Three different processes can be applied depending on the primary treatment process and include: - Physical screen attached to mobile high sheer mixer, to remove oversize material during the loading process - Mobile screen - Excavator with screen/sieve bucket The processes can be applied in a variety of combination due to the modular state of the equipment to effectively sort material to maximise treatments. Recovered inert waste will be stockpiled in storage bays awaiting offsite removal.		Material to be pre-classified under waste classification guidelines 2014, or comply with acceptable description for recycling.	- Pre-classified waste to be disposed of as per requirements (likely GSW) to a licensed landfill facility - Recyclable material to be taken to a recycling facility with an EPL licensed to accept that type of waste.
	Bioremediation	- Hydrocarbon - Some PAH impacted material	8,000 tpa	Only certain soils will be identified as suitable for bioremediation. The main considerations being contamination concentration, contaminant of concern and soil type. Where soils contain organic compounds are present that have an opportunity to destroy contaminate mass are identified for candidates for bioremediation. Screening and suitability bench testing to be conducted to determine final processes. Soil types are to be assessed on case-by-case basis to determine suitability for bioremediation.	Tipper truck or truck and dog	Processes include - Treatment to be undertaken in batches. - Reagents will be dosed via an enclosed automated liquid dosing system and mixed to increase contact - Materials to be sorted into biopiles. - Soils will be cured in biopiles with GORE cover system (or similar) with air sparging or turning for aeration - Gas collection system (part of the HVAC system onsite) will be used and gasses passed through an activated carbon scrubber. - Post treatment, validation of soils to be undertaken to	Refer Contaminant Concentration Tables (Annexure B to the Amended Proposal Description)	Minimum treatment to levels below Restricted Solid Waste Levels in 2014 WC G/L (for Hazardous Waste) and below General Solid Waste (non-Putrescible) criteria for Restricted Solid Waste	Offsite to licensed landfill for Restricted or GSW Waste as determined by the characterisation testing during validation

Waste Type	Sub-Process	Potential contaminants	Volume	Description	Delivery method	Treatment procedure	Acceptance limit(s)	Treatment Limit	Disposal
				- Aerobic techniques to be used include: - Biopiles - Land farming - Composting - A designated maximum volume of onsite bioremediation volume will be set for any material onsite at any one time.		confirm completed bioremediation process			
	Immobilisation		50,000 tpa						
	Immobilisation under SIA	Metals Metalloids Some PAH impacted material Some heavier coal tar		- Aim to treat under an SIA using chemical immobilisation and micro encapsulation principles. - Immobilisation to be achieved through the addition of cementitious or pozzolanic binders - Only proven immobilisation technologies previously approved by NSW EPA under an SIA will be used.	Tipper truck or truck and dog	Specific processes will be developed and outlined as part of the application for specific immobilisation exceptions. Refer to specific exemptions for details of proposed works. Basic processes for material handling and mixing are: - On receipt to site, material to be stockpiled in prepared storage bay in batches - Batches to be loaded into mobile high sheer mixer for treatment - Binders (such as cement, ground granulated blast furnace slag or cement kiln dust) to be automatically dosed based on requirement for each load. - Treated soils to be transferred to storage bays and left to cure - After curing, batches to be validated and classified for offsite disposal.	Refer Contaminant Concentration Tables (Annexure B to the Amended Proposal Description)	Minimum treatment to levels below Restricted Solid Waste Levels in 2014 WC G/L (for Hazardous Waste) and below General Solid Waste (non-Putrescible) criteria for Restricted Solid Waste	Offsite to licensed landfill for Restricted or GSW Waste as determined by the characterisation testing during immobilisation validation
General Immobilisation Waste Approvals				Material to be received and treated onsite as per the enforced General Approval relating to that specific waste type					
	Cattle dip contaminated soil Approval No. 1999/03	Arsenic		Soils to be accepted onsite following classification and characterisation	Tipper truck or truck and dog	N/A – assessed as per General Exemption	N/A	TCLP2 20-mg/L	As per general immobilisation approvals - offsite to a licensed landfill facility legally licensed to receive that waste.

Waste Type	Sub-Process	Potential contaminants	Volume	Description	Delivery method	Treatment procedure	Acceptance limit(s)	Treatment Limit	Disposal
				- Storage in dedicated soil storage area. - Soils to be held onsite pending redirection for offsite disposal to licensed disposal facility - Collection of all permits, authorisations and travel approvals prior to removal offsite for disposal.					
	Ash, ash contaminated natural excavated materials or coal contaminated natural excavated materials Approval No. 1999/05	Benzo(a)pyrene (BaP) and Polycyclic aromatic hydrocarbons (PAHs)		- Soils to be accepted onsite following classification and characterisation. - Storage in dedicated soil storage area. - Soils to be held onsite pending redirection for offsite disposal to licensed disposal facility - Collection of all permits, authorisations and travel approvals prior to removal offsite for disposal.	Tipper truck or truck and dog or bagged as per GIA requirements	N/A – assessed as per General Exemption	Refer Contaminant Concentration Tables (Annexure B to the Amended Proposal Description)	TCLP2 limits as per Table 2 of the Waste Classification Guidelines for Restricted Solid Waste	As per general immobilisation approvals - offsite to a licensed landfill facility legally licensed to receive that waste.
	Used oil absorbent materials Approval No. 1999/06	Total petroleum hydrocarbons C ₁₀ - C ₃₆		- Waste to be accepted onsite following classification and characterisation. - Storage in dedicated soil storage area. - Waste to be held onsite pending redirection for offsite disposal to licensed disposal facility - Collection of all permits, authorisations and travel approvals prior to removal offsite for disposal.	Tipper truck or truck and dog or bagged / placed in a drum as per GIA requirements	N/A – assessed as per General Exemption	Up to 50,000mg/kg contaminated material would be treated.	TCLP2 limits as per Table 2 of the Waste Classification Guidelines for Restricted Solid Waste	As per general immobilisation approvals - offsite to a licensed landfill facility legally licensed to receive that waste.
	Copper-Chrome-Arsenate (CCA) treated timber waste Approval No. 2001/11	Chromium (VI), Arsenic and C ₁₀ - C ₃₆ petroleum hydrocarbons		- Waste to be accepted onsite following classification and characterisation - Storage in dedicated soil storage area. - Waste to be held onsite pending redirection for offsite disposal to licensed disposal facility - Collection of all permits, authorisations and travel approvals	Tipper truck or truck and dog	N/A – assessed as per General Exemption	N/A	TCLP2 limits as per Table 2 of the Waste Classification Guidelines for Restricted Solid Waste	As per general immobilisation approvals - offsite to a licensed landfill facility legally licensed to receive that waste.

Waste Type	Sub-Process	Potential contaminants	Volume	Description	Delivery method	Treatment procedure	Acceptance limit(s)	Treatment Limit	Disposal
	Coal tar contaminated soil from former gasworks sites General Approval Number: 2005/14	Polycyclic aromatic hydrocarbons (PAHs)		- Waste identified as coal tar contaminated soil from former gasworks sites is to be classified and characterised prior to receipt to Site. - Material to be accepted onsite and placed for storage in prepared storage bay.		- Treatment as per General Approval 2005/14 through the addition of calcium or magnesium oxide based cement. - Soils to be loaded into mobile high sheer mixer for treatment - Reagent to be automatically dosed based on requirement for each load not exceeding 2:1 ratio reagent to waste. - Treated material to be stockpiled in prepared areas for validation of treatment process - Validated material to be disposed of offsite	13,000 mg/kg	SCC not to exceed the requirements outlined in Section D of the 2005/14 General Approval.	Offsite to a licensed landfill facility, licensed to accept treated Coal tar contaminated soil from former gasworks sites waste subject to the immobilisation approvals
		Benzo(a)pyrene (BaP)					500 mg/kg		
		Non-halogenated phenols					2,000 mg/kg		
		Total cyanide					4,000 mg/kg		
Liquid Waste - industrial wastewater - internally generated liquid waste including leachate, runoff for treatment areas, water from truck and wheel wash - decanted water settled sludge			70 ML per annum	- Liquid waste to be received with laboratory analysis prior to acceptance and organised drop off - All liquids to be flash tested prior to offloading from tanker - Liquid waste to be received via tanker and pumped to a designated holding tank. - Each load to have a consignment number - Each holding tank will store like materials and formed into batches of 50 kL for treatment through to validation . e.g. oily water etc and will be use to collect like waste - Treatment of liquid waste will be customised for each batch depending on the waste type and identified COCs.	Vacuum tanker or bulk liquid tanker	Due to the variable nature of different water treatment options and processes, details of each process are provided in the Environmental Management Plan (EMP). In cases where a liquid waste has different waste types included, a hierarchy of treatment is to be applied including: - Oil/water separation - Chemical treatment/dosing - Precipitation / flocking General pre-treatment of liquid waste would consist of: - Transfer from holding tank to mixing tank where reagents (acid/caustic, coagulant or polymer) are added and the liquid mechanically mixed, to prepare wastewater for gravity separation - Pre-treated liquid then pumped to conical clarifier to allow suspended solids to settle and oils to be removed via Dissolved air flotation. - Solid waste to be removed for treatment as sludge - Remaining liquid is pumped through multi media filtration, e.g. sand filter or suitable alternative for particulate removal.		Below trade waste agreement values	- Validated liquid waste will be discharged to sewer under Trade Waste Agreement. - Separated phase liquids (e.g. hydrocarbon) will be disposed for to a licensed liquid waste facility for recycling. - Collected solids to be transferred for onsite treatment as per bulk soils

Waste Type	Sub-Process	Potential contaminants	Volume	Description	Delivery method	Treatment procedure	Acceptance limit(s)	Treatment Limit	Disposal
						Liquids are then treated as per the remaining chemical requirements based on the identified contaminants of concern.			
	Liquid Waste: Hydrocarbons (including TPH and PAH)	PAH		Water contaminated with hydrocarbons that has resulted in formation of NAPL. This is generally used as a pre-filter undertaken prior to the commencement of the treatment process.	Vacuum tanker or bulk liquid tanker	- Liquid to be run through a coalescing plate oil separator to remove separate phase hydrocarbons - Collected hydrocarbons will be remove to a waste oil tank - Remaining liquid pumped for additional treatment based on COCs.	50% w/w hydrocarbons	Below trade waste agreement values	- Waste oil – to a licensed facility for oil recycling - Treated wastewater – further treatment or disposal to sewer under Trade Waste Agreement
		TPH					50% w/w hydrocarbons	Or Treated liquid waste to be sent back for additional treatment and polishing using activated carbon	
	Liquid Waste: Suspended solids very wet sludge	N/A		Dirty water (chemically contaminated or not) containing suspended soils		- Transfer of batch to mixing tank where reagents (acid/caustic, coagulant or polymer) are added and the liquid mechanically mixed, to prepare wastewater for gravity separation - Water to be placed into conical based storage tank to allow solids to be collected; - Turbid water can be pumped through a Lamella Plate Clarifier and flocked to remove TSS. - Collected soils from conical settler and Clarifier to be transferred to “Sludge treatment” - Remaining liquid pumped for additional treatment based on COCs.	N/A		N/A

Waste Type	Sub-Process	Potential contaminants	Volume	Description	Delivery method	Treatment procedure	Acceptance limit(s)	Treatment Limit	Disposal
	Liquid Waste:	Organics		Treatment method designed for extraction of organic compounds in water		Granular activated carbon filtration for hydrocarbon adsorption	TOC 100mg/L	Below trade waste agreement values	- Validated liquid waste will be discharged to sewer under Trade Waste Agreement. - Classification and disposal as per General Exception for activated carbon.
	Liquid Waste:	Acidity and alkalinity		Adjustment of pH of the liquid will occur at the completion of the treatment process throughout the addition of acidic or alkaline compounds as required.		Liquid paced into a mixing tank and dosed with acid or base to achieve required pH levels at preliminary mixing stage.	pH 0-14	Inside trade waste agreement values	Validated liquid waste will be discharged to sewer under Trade Waste Agreement.
	Liquid Waste:	Heavy metals		Principal method will be the removal of heavy metals from dissolved phase via chemical precipitation		Transfer of batch to mixing tank where reagents (Acid/caustic, coagulant, polymer, magnesium Oxide as required) are added and the liquid mechanically mixed	5% metals w/w	Inside trade waste agreement values	Validated liquid waste will be discharged to sewer under Trade Waste Agreement.
	Liquid Waste: Nutrients	Nitrates Phosphates – chemically precipitates				Granular activated carbon filtration for nitrates adsorption	Case by Case	Inside trade waste agreement values	Validated liquid waste will be discharged to sewer under Trade Waste Agreement.
	Liquid Waste: PFAS	PFAS				- Granular activated carbon filtration for hydrocarbon and PFAS adsorption - Ion exchange filtration for PFAS adsorption and final polishing	50ug/L	Inside trade waste agreement values	Validated liquid waste will be discharged to sewer under Trade Waste Agreement. Spent activated carbon and ion exchange resins to be transferred to pre-packaged waste stage area awaiting disposal offsite to interstate licensed treatment and disposal facility
Muds and Slurries	Level 1	N/A		Different types of mud and slurries are proposed for acceptance onsite. Procedures for the treatment of Drillers mud received from non-contaminated sites and can be assessed under RRO/RRE have been separated from potentially contaminated mud/slurries from other sources	Vacuum tanker				
	Drill Mud	N/A	2,000 tpa	- Drillers Mud to be received onsite for treatment into prepared storage tanks. - Drillers Mud would be dewatered, separated into the liquid and solid waste using a self	Vacuum tanker	- Material separation of solids from liquids - Treatment to be undertaken dependent on the liquid content of the sludge and could include: - Plate filter pressing;		Soils: No treatment proposed. Soils to be tested against Table 1 of Treated Drillers Mud RRO 2014 Liquid Waste – as per liquid waste processing/treatment.	Solid Waste - To a facility compliant with the requirements of the RRO/RRE Or Licensed landfill facility based on 2014 waste classification assessment.

Waste Type	Sub-Process	Potential contaminants	Volume	Description	Delivery method	Treatment procedure	Acceptance limit(s)	Treatment Limit	Disposal
				contained Dewatering Plant. • Liquid to be treated in the onsite water treatment system • Mud to be sampled and assessed allowing characterization with the RRO/RRE for Treated Drilling Mud 2014		• Thickening by addition of bentonite • Liquid to be treated as per “Liquid Waste” Waste type • Separated solids to be transferred for storage and assessment against the requirements outlined in RRO/RRE for Treated Drilling Mud 2014 or Waste Classification Guidelines. • Validated material to be disposed of offsite.			Liquid Waste – onsite dust suppression Or Discharge to sewer under Trade Waste
	Sediments, slurries and sludges (e.g. from non-destructive digging)	N/A	7,000 tpa	• Waste to be received onsite for treatment into prepared storage tanks. • Waste would be dewatered, separated into the liquid and solid waste. • Waste water to be treated in the onsite water treatment system • Solid waste to be sampled and assessed allowing characterisation and the appropriate management approach to be determined	Vacuum tanker	Treatment to be undertaken dependent on the liquid content of the sludge and could include: • Water to be placed into conical based storage tank to allow solids to be collected; • Plate filter pressing; • Thickening by addition of bentonite Material will then be transferred to treatment and assessment as solid waste. Liquid to be managed as per “Liquid Waste” Waste type”		No proposed treatment of contaminated proposed. Soils to be classified for offsite disposal. If soils not suitable for disposal as GSW or RSW, soils are to be transferred and treated as per “bulk soils” procedures. Liquid– Refer to Liquid Waste	Offsite to licensed landfill for Restricted or GSW Waste as determined by the characterisation testing during validation Liquid to be transferred to liquid waste processing and disposed of as per “liquid Waste”.

Annexure B. Contaminant Concentrations and Treatment Table

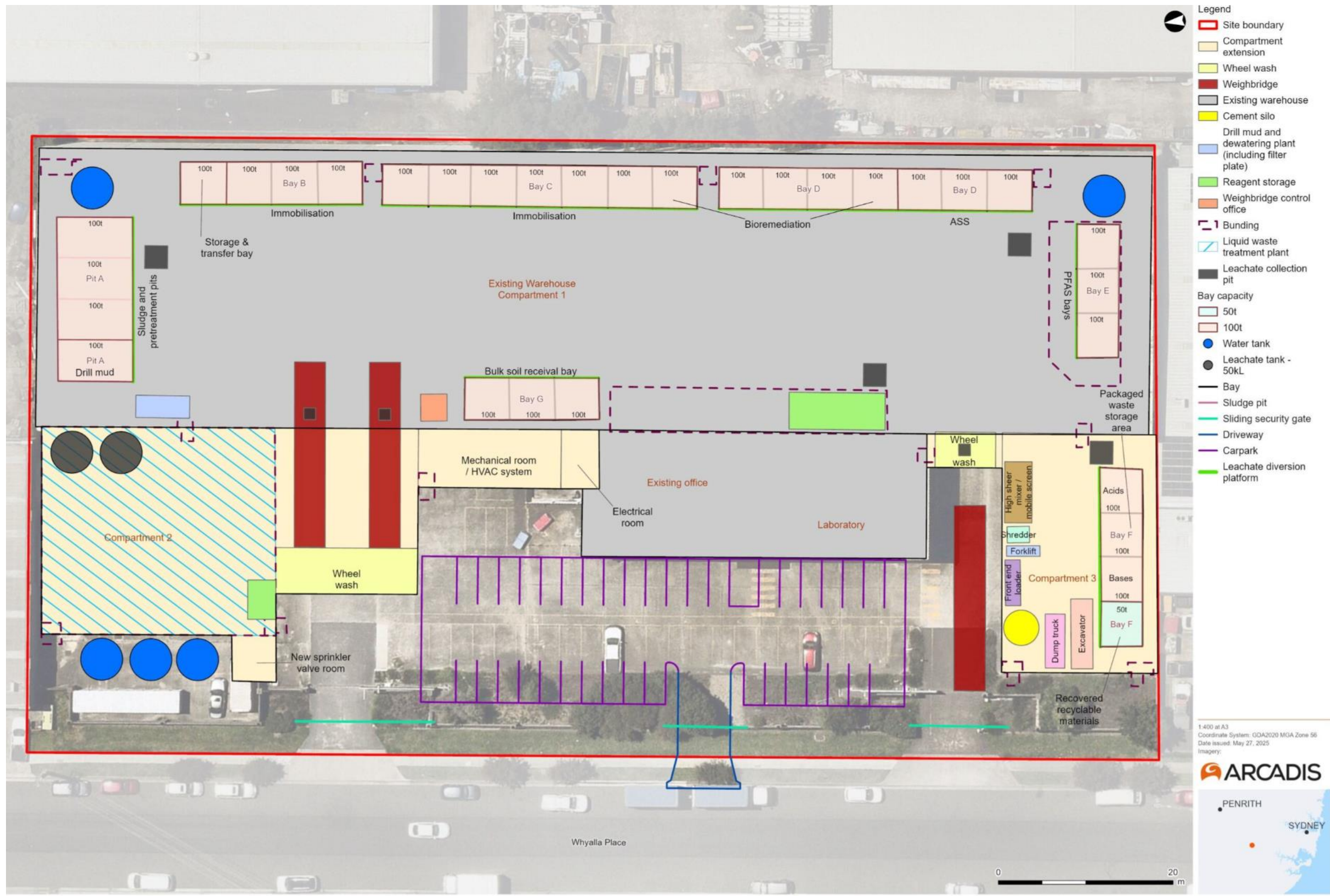
PRESTONS WTF CONTAMINANT CONCENTRATION TABLES

All waste to be received at the Prestons WTF will be classified in accordance with the *NSW EPA Waste Classification Guidelines* (2014) prior to receipt at the Facility, and again prior to dispatch for reuse or disposal from the Facility. Table 1 and Table 2 of the Guidelines outline the contaminant concentrations, leachable concentrations and specific contaminant concentrations for a range of contaminants that determine whether waste is classified as General Solid Waste, Restricted Solid Waste or, if above the prescribed thresholds, Hazardous Waste. The Facility will only accept waste that is contaminated by specific contaminants of concern, up to specific concentration limits. This document outlines the contaminant concentration levels for soil and packaged (liquid) waste. The below sections outline:

- Contaminants of concern
- Maximum concentration limits for each contaminant type
- The maximum annual throughput for each contaminant type
- The storage location for each contaminant type
- The maximum any one time limit for each contaminant

As noted above, the sections below outline the bays and location for the stroage and/or treatment of wastes based on their contaminants. These bays (and the individual bay anticipated capacity) is shown in the Figure overpage.

The annual total tonnages of each of the waste classification types, and the specific contaminants within the waste batches, will vary year on year and are determined by market demand. Accurately predicting the exact quantities is therefore not possible. Notwithstanding this, indicative tonnage throughputs for waste have been identified. These tonnages reflect the potential variability in annual and market conditions by representing the upper limit of likely received tonnages for each contaminant. Not all contaminants would be expected to be received in their likely maximum quantities every single year. Similarly, upper limits for storage have been provided accounting for periods where a high proportion of the waste stored at Site is of a similar nature (highly possible for example if many batches of soil come from a single construction site and are contaminated with a similar profile of contaminants). Further, it is noted that a single batch of soil may have more than one contaminant present. Despite annual fluctuations of the breakdown of waste type and characteristics, the Facility would not exceed its total licensed annual throughput.



Contaminated soils

The below table provides the maximum contaminant concentration limits for bulk soils and sludges proposed to be received at the Facility. It is noted that the below table outlines only the proportion of bulk soils waste that would be classified as ‘Hazardous Waste’. No Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) contaminated soils will be received above the Restricted solid waste thresholds.

Individual contaminant in soil (name)	Maximum contaminant level in soil (mg/kg)	Quantity to be received and processed at the facility per annum (tonnes)	Onsite treatment method (descriptive) – also describe end waste product use, destination, and waste classification	Onsite treatment location	Onsite storage location (before treatment) – also describe containment/ bunding and other environmental controls	Onsite storage location (after treatment) - also describe containment/bunding and other environmental controls	Maximum quantity to be stored at any one time – untreated soil (tonnes)	Maximum quantity to be stored at any one time – treated soil (tonnes)
Bulk soils sediments and sludges								
Refer to individual contaminant below	Refer to individual contaminant below	Hazardous bulk soil ~ 23,200 tpa Hazardous sediments and sludges ~ 2,800 tpa	Hazardous waste would all be treated with the intention achieving contaminant levels below the ‘restricted solid waste’ threshold. It has been assumed all waste originally classified as hazardous, would have a final classification therefore of restricted waste. In some cases it may not be possible to treat to this level, meaning some waste may remain as ‘hazardous waste’. All waste treated down to meet ‘restricted’ contaminant levels would be disposed of to landfill. Waste that is classified as ‘hazardous’ after treatment would either be re-treated or transferred to a facility that is licensed to accept it. Any waste that cannot achieve ‘restricted’ waste contaminant thresholds would be sent interstate for	Bulk soils - Bays B, C and D Sludges - Pit A	The pre and post storage locations are the same. Once designated a treatment bay soil is moved directly to its own individual bay where it will remain until collected for offsite disposal. Treatment and storage occur within the one bay. No two batches are mixed together, and batches are not moved between locations. The Facility design and the OWMP have been prepared with best practice design features incorporated (as identified for example through the Guidance for the liquid waste industry (EPA)). Containment / management features include: - Waste batches are never mixed, and are treated within individual bays separated by concrete push walls - Compartment 1 is fully impervious with rollover bunding (250mm); bunded with >1000 kL of bunding capacity - Bays and pits have been designed to slope to the back, directing leachate to rear of bay - Fixed leachate collection pipes and tank system in place, with leachate treated within the Liquid Waste Treatment Plant (LWTP) - Additional leachate collection pits are located within Compartment 1 outside of the bays - Spill kits located throughout the WTF - Scrubber / HVAC system to be operated in accordance with the OAQMP - Emergency wash shower provided throughout the WTF - Mandatory minimum training and PPE requirements - All wastes received at the Facility are to be tracked from the waste generator through to destination facility (e.g. landfill), consistent with the Protection of the Environment Operations (Waste) Regulation 2014. - Prior to receipt at the Facility, the Facility chemist will verify the waste material to be received via bench scale testing. - When loads of non-conforming waste are identified, the customer will be asked to leave the	Bulk soils maximum any one time storage limit for both untreated and treated – 2,000 t Sediments and sludges are received in Pit A. Following dewatering the soil would be relocated to Bay B, C or D for treatment (depending on treatment type), where it would remain until removal offsite. After initial receipt in Bay G for bulk soils, individual batches would be transferred to either Bay B, C or D (depending on treatment type) where it would undergo treatment and storage prior to removal offsite.	Soil is not stored for significant periods as either ‘untreated’ or ‘treated’. The majority of time spent stored on site is while undergoing treatment. Once received, bulk soils will be moved to their designated treatment bay and treatment will commence typically within 24 hours of receipt. For waste to be treated via immobilisation this will take 1-3 weeks. For soil treated via bioremediation this will take approximately 3 weeks – 3 months. Once treated, soil will be removed offsite for disposal, again typically within 24 hours following treatment and will not be stored on site for long periods of time. Total storage volumes therefore have been provided for total soil (treated and untreated) combined: Bulk soils maximum any one time storage limit for both untreated and treated – 2,000 t Sediments and sludges upper storage limit for both untreated and treated - 400 t	

Individual contaminant in soil (name)	Maximum contaminant level in soil (mg/kg)	Quantity to be received and processed at the facility per annum (tonnes)	Onsite treatment method (descriptive) – also describe end waste product use, destination, and waste classification	Onsite treatment location	Onsite storage location (before treatment) – also describe containment/bunding and other environmental controls	Onsite storage location (after treatment) - also describe containment/bunding and other environmental controls	Maximum quantity to be stored at any one time – untreated soil (tonnes)	Maximum quantity to be stored at any one time – treated soil (tonnes)
			further treatment or disposal.		facility immediately with the load. The event is then recorded within the Facility’s “Rejected loads register”. Application of water via a hose system for dust suppression during loading and unloading of the material and during treatment, if visibly dry			
By individual contaminant								
Arsenic	Up to 50,000 mg/kg	Up to 2,750 tpa	Immobilisation		Soil - Bays B, & C		Up to 500 t	Up to 500 t
Benzene	Up to 50,000 mg/kg	Up to 340 tpa	Bioremediation		Soil - Bays C & D		Up to 150 t	Up to 150 t
Benzo(a)pyrene³	UP to 500mg/kg	Up to 2,750 tpa	Immobilisation		Soil - Bays B, & C		Up to 500 t	Up to 500 t
Beryllium	Up to 50,000 mg/kg	Up to 550 tpa	Immobilisation		Soil - Bays B, & C		Up to 100 t	Up to 100 t
Cadmium	Up to 50,000 mg/kg	Up to 550 tpa	Immobilisation		Soil - Bays B, & C		Up to 100 t	Up to 100 t
Chromium (VI)⁶	Up to 50,000 mg/kg	Up to 2,750 tpa	Immobilisation		Soil - Bays B, & C		Up to 500 t	Up to 500 t
m-Cresol	Up to 50,000 mg/kg	Up to 275 tpa	Bioremediation		Soil - Bays C & D		Up to 50 t	Up to 50 t
o-Cresol	Up to 50,000 mg/kg	Up to 275 tpa	Bioremediation		Soil - Bays C & D		Up to 50 t	Up to 50 t
p-Cresol	Up to 50,000 mg/kg	Up to 275 tpa	Bioremediation		Soil - Bays C & D		Up to 50 t	Up to 50 t
Cresol(total)	Up to 50,000 mg/kg	Up to 825 tpa	Bioremediation		Soil - Bays C & D		Up to 150 t	Up to 150 t
Cyanide (amenable)^{7,8}	Up to 4,000 mg/kg	Up to 550 tpa	Immobilisation		Soil - Bays B, & C		Up to 100 t	Up to 100 t
Cyanide (total)⁷	Up to 4,000 mg/kg	Up to 2,750 tpa	Immobilisation		Soil - Bays B, & C		Up to 500 t	Up to 500 t
Ethylbenzene	Up to 50,000 mg/kg	Up to 2,750 tpa	Bioremediation		Soil - Bays C & D		Up to 500 t	Up to 500 t
Fluoride	Up to 50,000 mg/kg	Up to 2,750 tpa	Immobilisation		Soil - Bays B, & C		Up to 500 t	Up to 500 t

Individual contaminant in soil (name)	Maximum contaminant level in soil (mg/kg)	Quantity to be received and processed at the facility per annum (tonnes)	Onsite treatment method (descriptive) – also describe end waste product use, destination, and waste classification	Onsite treatment location	Onsite storage location (before treatment) – also describe containment/ bunding and other environmental controls	Onsite storage location (after treatment) - also describe containment/bunding and other environmental controls	Maximum quantity to be stored at any one time – untreated soil (tonnes)	Maximum quantity to be stored at any one time – treated soil (tonnes)
Lead	Up to 50,000 mg/kg	Up to 2,750 tpa	Immobilisation	Soil - Bays B, & C			Up to 500 t	Up to 500 t
Mercury	Up to 50,000 mg/kg	Up to 550 tpa	Immobilisation	Soil - Bays B, & C			Up to 100 t	Up to 100 t
Nickel	Up to 50,000 mg/kg	Up to 5,500 tpa	Immobilisation	Soil - Bays B, & C			Up to 1,000 t	Up to 1,000 t
C6–C9petroleum hydrocarbons ¹³	Up to 50,000 mg/kg TRH w/w for soils	Up to 5,500 tpa	Bioremediation	Soil - Bays C & D			Up to 1,000 t	Up to 1,000 t
C10–C36 petroleum hydrocarbons ¹³	Up to 50,000 mg/kg	Up to 5,500 tpa	Immobilisation	Soil - Bays B, & C			Up to 1,000 t	Up to 1,000 t
Phenol(non-halogenated)	2,000 mg/kg	Up to 550 tpa	Immobilisation	Soil - Bays B, & C			Up to 100 t	Up to 100 t
Polychlorinated biphenyls ¹²	50 mg/kg (as potential co-contaminant in soils) Storage only for soil	Up to 500 tpa	Storage only (if received as a co-contaminant in soil – no treatment)	Bays B, & C			Up to 50 t	Up to 50 t
Polycyclic aromatic hydrocarbons (total) ¹⁶	13,000mg/kg	Up to 2,750 tpa	Bioremediation Immobilisation	Soil - Bays B, & C			Up to 500 t	Up to 500 t
Toluene	Up to 50,000 mg/kg	Up to 2,750 tpa	Bioremediation	Soil - Bays C & D			Up to 500 t	Up to 500 t
Xylenes (total)	Up to 50,000 mg/kg	Up to 550 tpa	Bioremediation	Soil - Bays C & D			Up to 100 t	Up to 100 t
Other contaminants								
Aluminium	Up to 50,000 mg/kg	Up to 550 tpa	Storage only (if received as a co-contaminant in soil – no treatment)	Soils Bays B, & C			Up to 100 t	Up to 100 t
Boron	Up to 50,000 mg/kg	Up to 275 tpa	Immobilisation	Soil - Bays B, & C			Up to 100 t	Up to 100 t
Chromium (0 and III oxidation states)	Up to 50,000 mg/kg	Up to 1,650 tpa	Immobilisation	Soil - Bays B, & C			Up to 300 t	Up to 300 t
Copper	Up to 50,000 mg/kg	Up to 2,750 tpa	Immobilisation	Soil - Bays B, & C			Up to 500 t	Up to 500 t

Individual contaminant in soil (name)	Maximum contaminant level in soil (mg/kg)	Quantity to be received and processed at the facility per annum (tonnes)	Onsite treatment method (descriptive) – also describe end waste product use, destination, and waste classification	Onsite treatment location	Onsite storage location (before treatment) – also describe containment/bunding and other environmental controls	Onsite storage location (after treatment) - also describe containment/bunding and other environmental controls	Maximum quantity to be stored at any one time – untreated soil (tonnes)	Maximum quantity to be stored at any one time – treated soil (tonnes)
Vanadium	Up to 50,000 mg/kg	Up to 550 tpa	Immobilisation	Soil - Bays B, & C			Up to 100 t	Up to 100 t
Zinc	Up to 50,000 mg/kg	Up to 1,650 tpa	Immobilisation	Soil - Bays B, & C			Up to 300 t	Up to 300 t

Packaged waste

Packaged waste would primarily be classified as Liquid Waste under the waste classification guidelines. Notwithstanding this, contaminant concentration limits have been nominated for packaged waste. Packaged waste would be stored only onsite, with no treatment proposed for packaged waste. All packaged waste would be stored in Bay F within Compartment 3. Packaged waste that is identified as having a low (acidic) pH would stored in separate bay to waste identified as having a high (alkaline) pH.

Individual contaminant in packaged waste	Maximum contaminant level in packaged waste (mg/kg)	Quantity to be received and processed at the facility per annum (tonnes)	Onsite treatment method (descriptive) – also describe end waste product use, destination, and waste classification	Onsite treatment location	Onsite storage location (before treatment) – also describe containment/bunding and other environmental controls	Onsite storage location (after treatment) - also describe containment/bunding and other environmental controls	Maximum quantity to be stored at any one time – untreated (tonnes)	Maximum quantity to be stored at any one time – treated (tonnes)
Packaged waste								
Refer to individual contaminant below	Refer to individual contaminant below	Total liquid packaged waste – 35,000 tpa	Packaged waste would be received at the Facility in intact IBCs or drums. These wastes would be stored at the Facility on raised platforms/shelving until a suitable treatment or destruction facility is able to accept the material within NSW or interstate. No treatment of packaged waste is proposed. The waste classification for packaged waste would therefore remain consistent once leaving the	Packaged waste Bay F (storage only – no treatment)	The following environmental controls are in place for the management of packaged hazardous soils: • All wastes received at the Facility are to be tracked from the waste generator through to destination facility (e.g. landfill), consistent with the Protection of the Environment Operations (Waste) Regulation 2014. • Prior to acceptance at the Facility, the Facility chemist will verify the waste material to be received via bench scale testing. • When loads of non-conforming waste are identified, the customer will be asked to leave the facility immediately with the load. The event is then recorded within the • Facility’s “Rejected loads register”. • Packaged waste will be stored on shelving above the Probable Maximum Flood (PMF) • Leachate collection pit located within Compartment 3 for collection of any accidental spills or leaks. • Spill kits and emergency wash showers provided throughout the Facility. • Fully impervious surfaces provided within the		Up to 400 t of packaged waste to be stored at any one time. No treatment.	N/A (no treatment proposed)

Individual contaminant in packaged waste	Maximum contaminant level in packaged waste (mg/kg)	Quantity to be received and processed at the facility per annum (tonnes)	Onsite treatment method (descriptive) – also describe end waste product use, destination, and waste classification	Onsite treatment location	Onsite storage location (before treatment) – also describe containment/bunding and other environmental controls	Onsite storage location (after treatment) - also describe containment/bunding and other environmental controls	Maximum quantity to be stored at any one time – untreated (tonnes)	Maximum quantity to be stored at any one time – treated (tonnes)
			Facility.		Facility with rollover bunding (250mm) of the entirety of area to contain 110% of the largest tank capacity and in compliance with AS 3780 for the storage and handling of Class 8 liquids to prevent any spills exiting the Facility. Total capacity of containment within Compartment 3 is 120kL. - Individual temporary bunding provided within the acid's and bases bays each. - The emergency response procedure is detailed in the OEMP - Staff training and inductions will be provided for all staff working onsite as outlined in the OEMP - Mandatory minimum PPE requirements for all staff are prescribed in the Operational Waste Management Plan (OWMP) including eyewear, protective clothing and covered footwear			
By individual contaminant								
Arsenic	Up to 50,000 mg/kg	Up to 4,500 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Benzene	Up to 50,000 mg/kg	Up to 3,000 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Benzo(a)pyrene³	Up to 500mg/kg	Up to 4,500 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Beryllium	Up to 50,000 mg/kg	Up to 900 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Cadmium	Up to 50,000 mg/kg	Up to 900 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Chlorobenzene	Up to 50,000 mg/kg	Up to 2,000 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Chromium (VI)⁶	Up to 50,000 mg/kg	Up to 4,500 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA

Individual contaminant in packaged waste	Maximum contaminant level in packaged waste (mg/kg)	Quantity to be received and processed at the facility per annum (tonnes)	Onsite treatment method (descriptive) – also describe end waste product use, destination, and waste classification	Onsite treatment location	Onsite storage location (before treatment) – also describe containment/bunding and other environmental controls	Onsite storage location (after treatment) - also describe containment/bunding and other environmental controls	Maximum quantity to be stored at any one time – untreated (tonnes)	Maximum quantity to be stored at any one time – treated (tonnes)
m-Cresol	Up to 50,000 mg/kg	Up to 500 tpa	Packaged waste (storage only)			Packaged waste Bay F	Up to 400 t	NA
o-Cresol	Up to 50,000 mg/kg	Up to 500 tpa	Packaged waste (storage only)			Packaged waste Bay F	Up to 400 t	NA
p-Cresol	Up to 50,000 mg/kg	Up to 500 tpa	Packaged waste (storage only)			Packaged waste Bay F	Up to 400 t	NA
Cresol(total)	Up to 50,000 mg/kg	Up to 1500 tpa	Packaged waste (storage only)			Packaged waste Bay F	Up to 400 t	NA
Cyanide (amenable)^{7,8}	Up to 4,000 mg/kg	Up to 900 tpa	Packaged waste (storage only)			Packaged waste Bay F	Up to 400 t	NA
Cyanide (total)⁷	Up to 4,000 mg/kg	Up to 4,500 tpa	Packaged waste (storage only)			Packaged waste Bay F	Up to 400 t	NA
1,2-Dichloroethane	Up to 50,000 mg/kg	Up to 2,000 tpa	Packaged waste (storage only)			Packaged waste Bay F	Up to 400 t	NA
1,1-Dichloroethylene	Up to 50,000 mg/kg	Up to 2,000 tpa	Packaged waste (storage only)			Packaged waste Bay F	Up to 400 t	NA
Ethylbenzene	Up to 50,000 mg/kg	Up to 4,500 tpa	Packaged waste (storage only)			Packaged waste Bay F	Up to 400 t	NA
Fluoride	Up to 50,000 mg/kg	Up to 4,500 tpa	Packaged waste (storage only)			Packaged waste Bay F	Up to 400 t	NA
Lead	Up to 50,000 mg/kg	Up to 4,500 tpa	Packaged waste (storage only)			Packaged waste Bay F	Up to 400 t	NA
Mercury	Up to 50,000 mg/kg	Up to 900 tpa	Packaged waste (storage only)			Packaged waste Bay F	Up to 400 t	NA
Methyl ethyl ketone	5 Up to 50,000 mg/kg (note would not be taken	Up to 2,000 tpa	Packaged waste (storage only)			Packaged waste Bay F	Up to 400 t	NA

Individual contaminant in packaged waste	Maximum contaminant level in packaged waste (mg/kg)	Quantity to be received and processed at the facility per annum (tonnes)	Onsite treatment method (descriptive) – also describe end waste product use, destination, and waste classification	Onsite treatment location	Onsite storage location (before treatment) – also describe containment/bunding and other environmental controls	Onsite storage location (after treatment) - also describe containment/bunding and other environmental controls	Maximum quantity to be stored at any one time – untreated (tonnes)	Maximum quantity to be stored at any one time – treated (tonnes)
	in flammable form)							
Molybdenum	Up to 50,000 mg/kg	Up to 2,000 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Nickel	Up to 50,000 mg/kg	Up to 9,000 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
C6–C9 petroleum hydrocarbons¹³	Up to 50,000 mg/kg (only to be accepted if non-flammable)	Up to 9,000 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
C10–C36 petroleum hydrocarbons¹³	Up to 50,000 mg/kg	Up to 9,000 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Phenol (non-halogenated)	Up to 2,000 mg/kg	Up to 900 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Plasticiser compounds¹⁵	Up to 50,000 mg/kg	Up to 2,000 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Polycyclic aromatic hydrocarbons (total)¹⁶	Up to 13,000mg/kg	Up to 4,500 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Scheduled chemicals¹⁷	Vvariable limits pending on chemical	Up to 2,000 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Styrene (vinyl benzene)	Up to 50,000 mg/kg	Up to 1,000 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Toluene	Up to 50,000 mg/kg	Up to 4,500 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Vinyl chloride	Up to 50,000 mg/kg	Up to 2,000 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA

Individual contaminant in packaged waste	Maximum contaminant level in packaged waste (mg/kg)	Quantity to be received and processed at the facility per annum (tonnes)	Onsite treatment method (descriptive) – also describe end waste product use, destination, and waste classification	Onsite treatment location	Onsite storage location (before treatment) – also describe containment/bunding and other environmental controls	Onsite storage location (after treatment) - also describe containment/bunding and other environmental controls	Maximum quantity to be stored at any one time – untreated (tonnes)	Maximum quantity to be stored at any one time – treated (tonnes)
Xylenes (total)	Up to 50,000 mg/kg	Up to 900 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
PFOS + PFHxS	Up to 50,000 mg/kg	Up to 2,000 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
PFOA	Up to 50,000 mg/kg	Up to 2,000 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Other contaminants								
Aluminium	Up to 50,000 mg/kg	Up to 900 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Barium	Up to 50,000 mg/kg	Up to 100 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Boron	Up to 50,000 mg/kg	Up to 500 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Chromium (0 and III oxidation states)	Up to 50,000 mg/kg	Up to 2,500 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Copper	Up to 50,000 mg/kg	Up to 4,500 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Iron	Up to 50,000 mg/kg	Up to 2,000 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Manganese	Up to 50,000 mg/kg	Up to 2,000 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Vanadium	Up to 50,000 mg/kg	Up to 900 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA
Zinc	Up to 50,000 mg/kg	Up to 2,500 tpa	Packaged waste (storage only)		Packaged waste Bay F		Up to 400 t	NA