



Prestons Waste Treatment Facility
Amendment Report

Appendix C

Revised environmental management measures

Revised Environmental mitigation measures

ID	Mitigation Measure	Timing
General		
G1	<p>A Construction Environmental Management Plan (CEMP) will be prepared and implemented to guide environmental management and monitoring activities during construction. The CEMP would include specific environmental issue sub-plans to reduce potential impacts and in accordance with relevant commitments identified within the Environmental Impact Statement (EIS) and within this table. A monitoring program shall be conducted throughout the construction period to monitor compliance with the CEMP. Sub-plans to be prepared as part of the CEMP will include:</p> <ul style="list-style-type: none"> • Construction Waste Management Plan • Construction Traffic Management Plan • Construction Noise and Vibration Management Plan • Construction Air Quality Management Plan • Erosion and Sediment Control Plan 	Construction
G2	<p>An Operational Environmental Management Plan (OEMP) will be prepared and implemented to guide environmental management and monitoring activities during operation as identified within the EIS in addition to further specific issues identified within the Table. Also refer to Section 16.2 of the EIS. Sub-plans to be prepared as part of the OEMP will include :</p> <ul style="list-style-type: none"> • Operational Waste Management Plan • Operational Traffic Management Plan • Operational Noise and Vibration Management Plan • Operational Air Quality Management Plan • Stormwater and Leachate Management Plan • Emergency Response Management Plan <p>The OEMP will be reviewed annually or more frequently on an as needed basis should there be a change in risk, legislative requirements, or non-compliance.</p>	Operation
G3	A Landscape Plan will be prepared for the Proposal.	Operation

ID	Mitigation Measure	Timing
Stakeholder Consultation		
SC1	The Stakeholder Engagement Strategy will be updated to provide procedures for communication with stakeholders, procedures for the dissemination of information to the community, identification of the communication channels available for the community and stakeholders to provide feedback on the Project, a protocol for the Project to respond to any enquires or feedback and for managing site visits and property inspections during both construction and operation.	Construction/Operation
Materials and Waste		
MW1	<p>The Operational Waste Management Plan will include specific details on waste management practices on site, including:</p> <ul style="list-style-type: none"> • Stockpile handling and management • Details of soil and sludge handling procedures (e.g. details on how often bioremediated soils will be mixed) • Sampling and analysis programs for each of the waste streams, including the remediation target levels and monitoring requirements during treatment • Contingency measures where materials do not respond to treatment methods • Weighbridge waste acceptance procedure • Non-confirming waste procedure • Waste screening procedure • Batch control procedure • Material handling procedures – unloading and loading • Maintenance procedures • Verify licenses and permits for the handling, transportation, and disposal of waste • Inspection, monitoring, review and auditing • Site induction and training 	Operation
MW2	Waste Management will be included in the Site Induction.	Construction/operation
MW3	Signs will be erected around the Site providing direction for waste management and adopting the waste management hierarchy.	Construction/operation
MW4	Waste storage areas will be located within the building and as per the Liverpool City Council DCP Requirements.	Operation

ID	Mitigation Measure	Timing
MW5	Operations on the Site will be planned to efficiently manage delivery and storage of materials, reduce waste and spoilage.	Operation
MW6	Agreements with suppliers for 'take back' to be arranged where possible.	Operation
MW7	General Waste and recycling skips will be made available and emptied regularly so as not to overflow.	Construction/operation
MW8	All wastes will be managed and properly disposed of in accordance with an appropriately licensed contractor.	Construction/operation
MW9	<p>The following measures will be implemented to prevent waste spreading from the Site:</p> <ul style="list-style-type: none"> • Loads covered until inside the building and before leaving the building. • A truck and wheel wash will be installed for trucks prior to exiting the building. • Entry and exit signage to advise transport operators of covering and loading and unloading procedures. • Unloading and loading of waste material will occur within the building. 	Operation
MW10	Sampling and Analysis Quality Plans (SAQPs) will be prepared for the treatment of soils and liquid waste at the Site. The SAQPs will be reviewed annually, or more frequently, on an as needed basis should there be a change in risk, legislative requirements, or non-compliance.	Operation
MW11	A feasibility application will be lodged with Sydney Water during detailed design that will detail the indicative water usage and liquid waste discharge for the Proposal.	Detailed design
Traffic and Transport		
TT1	Construction and operation traffic management plans would be prepared prior to construction and operation of the Project, which will be included within the CEMP and OEMP. These plans will include standard traffic management measures including hours of access, vehicle circulation and parking.	Construction/Operation
Noise and Vibration		
NV1	<p>A Noise Management Plan will be completed for construction and operation and include:</p> <ul style="list-style-type: none"> • Identification of the surrounding noise-sensitive land use. • A description of working hours and practices to minimise noise. • A list of high noise equipment or processes along with mitigation / minimising measures where possible. • A community complaints register and written process for handling complaints. • A description of noise generating activities will be discussed in the morning toolbox with opportunities to minimise noise impacts identified and implemented where possible. 	Construction/Operation

ID	Mitigation Measure	Timing
NV2	Proposed plant and equipment will be selected and maintained to achieve the sound power levels outlined in the Noise Assessment (Appendix F of the RtS).	Operation
NV3	Plant and equipment will be maintained and not generate excessive noise.	Operation
NV4	Broadband reversing alarms will be utilised in place of traditional beeper reversing alarms.	Operation
NV5	Machinery will be operated in a manner that reduces maximum noise level events.	Operation
NV6	Site awareness training / environmental inductions will include a section on noise mitigation techniques / measures to be implemented when on the Site.	Operation
NV7	While vibration from construction and operation are not predicted to cause offsite impacts. The Construction Noise and Vibration Management Plan will review potential vibration impacts and prescribe vibration monitoring, if vibration impacts are predicted.	Construction
Air Quality, Odour and Greenhouse Gases		
AQ1	<p>A Construction Air Quality Management Plan (CAQMP) to be included in the CEMP. The CAQMP will include:</p> <ul style="list-style-type: none"> • Identification of the surrounding land use and local stakeholders • Displaying the name and contact details of person(s) responsible for air quality at the Site boundary • Recording all air quality complaints, identify causes and incorporating measures to reduce emissions in a timely manner • Include all Site staff at the morning toolbox in a discussion for planning the workday around dust suppression and minimisation • Structure high dust generating activities (earthworks and demolition) around days with low windspeed and stop or pause these activities during dry and windy conditions • Loads shall be covered on trucks transporting material to and from the construction Site • Spray the Site regularly to suppress dust and use water-associated sweeper to reduce the potential for material to be tracked offsite • Cover and weight stockpiles to prevent wind erosion when they are inactive. 	Construction
AQ2	<p>An Operational Air Quality Management (OAQMP) plan will be developed for the Proposal. The OAQMP will:</p> <ul style="list-style-type: none"> • Establish procedures to routinely maintain and test operation of the Heating Ventilation and Air Conditioning (HVAC) and emissions control systems • Procedures for air quality monitoring • Minimise the fugitive emissions from the Site 	Operation

ID	Mitigation Measure	Timing
	<ul style="list-style-type: none"> Identify contingency measures to minimise air quality impacts in the event of failure of the HVAC and emissions control systems Prevent idling of mobile plant and haul trucks when not in use Material loading / unloading and handling procedures designed to reduce fugitive dust emissions, e.g. high-speed roller-doors required to be closed during material loading / unloading and handling. 	
AQ3	Emissions control devices will be operated according to their manufacture's specifications.	Operation
AQ4	Regular preventative maintenance of emissions control devices according to their manufacture's specifications will be carried out.	Operation
AQ5	A truck and wheel wash station at the Waste Treatment Facility exit will be installed to reduce soil track-out and generation of fugitive dust outside the building envelope.	Operation
AQ6	The need for fogging suppression systems, where deemed necessary, will be determined during detailed design. This potentially includes Compartment 3 Treatment Bays and other areas as needed.	Operation
AQ7	Compartment 3 on/off switches will be used to focus air collections in the active 1 of 5 Treatment Bays being used for stockpile bay hood to collect, and send for treatment, approximately 95% of the total air flow through the space.	Operation
AQ8	Fabric side curtains and front drop curtain to 4 m will be installed on the Bioremediation Bays and will be used to contain minor contaminant generation from handling and turning process.	Operation
AQ9	The building compartments will be maintained at > -5 Pascals (Pa) while in 'daily treatment mode'. When in 'after hours mode', the building can exhaust air system from each compartment shall be reduced and associated outside air inlet dampers closed off to maintain > -5 Pa whilst saving energy.	Operation
AQ10	<p>To validate the model predictions from the AAQIA (Appendix E of the RtS), it is proposed that post-commissioning stack testing be undertaken during the first year of operation. This post-commissioning testing will include:</p> <ul style="list-style-type: none"> Stack testing upstream and downstream of the air emissions control system to validate the manufactures-stated Particulate Matter (PM) and Volatile Organic Compounds (VOC) removal efficiencies. Stack testing for size resolved PM (PM_{2.5} and PM₁₀) and a metals in PM assay while treating bulk soils or wastes containing heavy metals. Stack testing for VOCs or odour while treating wastes containing hydrocarbons, industrial solvents and/or odorous wastes. <p>If post-commissioning stack testing indicates the model predictions are conservative, then stack testing will be repeated on a once-in-three years basis.</p>	Operation

ID	Mitigation Measure	Timing
AQ11	<p>If post-commissioning testing indicates that there is the potential for air impacts, then fenceline or local air quality monitoring is proposed to be undertaken. This air quality monitoring could include, but may not be limited to, the following:</p> <ul style="list-style-type: none"> • Size resolved fenceline particulate matter monitoring (PM2.5 and PM10) • Dust deposition gauge monitoring; • Hydrocarbon or VOC monitoring or; • Total reduced sulphur compound or odour monitoring. 	Operation
AQ12	<p>Energy consumption associated with the generation of greenhouse gas emissions for the Project will be limited by the following mitigation measures:</p> <ul style="list-style-type: none"> • Use of fuel-efficient machinery, equipment, and plant • Consider energy rating when purchasing new machinery and equipment • Implementing a maintenance plan for fuel and electricity powered machinery and equipment • Training to and implementing energy conservation practices by all staff • Consider use of solar energy where feasible. 	Operation
Soil and Water		
SW1	<p>The CEMP will include an Erosion and Sediment Control Plan that will be prepared in accordance with <i>Managing Urban Stormwater: Soils and Construction</i> (Landcom, 2004).</p>	Construction
SW2	<p>The OEMP will outline environmental procedures during operation including development and implementation of a Stormwater and Leachate Management Plan Operational Site Water Management Plan that will include the following measures:</p> <ul style="list-style-type: none"> • Implementation of the proposed post-development stormwater management strategy and plan • Recycle and reuse the rainwater for the Site's activities to reduce the portable water use • Allow no process water mix into the Site's stormwater system through: <ul style="list-style-type: none"> – All storage and handling of materials undertaken inside the Waste Treatment Facility – Bunding the doorways of the Waste Treatment Facility with drive over bunding – Undertake wheel and truck wash down inside the build prior to exit with water collected and directed to the liquid waste treatment plants – Leachate collection within the Waste Treatment Facility – Overflow protection on all tanks – Bunding of the liquid waste treatment plants in accordance with Australian Standards 	Operation

ID	Mitigation Measure	Timing
	<ul style="list-style-type: none"> - Storage of reagents classed as dangerous goods above the PMF in accordance with relevant Australian Standards - No delivery truck wash down inside the Waste Treatment Facility - Material Safety data sheets maintained onsite for all chemicals - Bunds water-proof tested on a regular basis and repair implement as needed and procedures documented in the OEMP - Appropriately lined Pre-Treatment Pits and regularly inspected and epoxy liner and concrete repairs implement as needed and procedures documented on the OEMP - Spill kits located adjacent to potentially contaminating activities and procedures would be in place for Spill Management and documented in the OEMP. • Installation of water efficient fixtures to conform to Council requirements. • No use of groundwater by the Project. • Quarterly monitoring of the groundwater and surface water quality. 	
SW3	<p>The minimum finished floor level for the Project be 23.6 m AHD (Australian Height Datum), which is identified by Council as the maximum 1% AEP (Annual Exceedance Probability) flood level at the Site of 23.1 m AHD plus 0.5 freeboard allowance.</p> <p>Any onsite parking will be located above the 1% AEP flood level of 23.1m AHD.</p>	Operation
SW4	<p>Extension to the existing buildings or modifications of the exterior walls will be constructed with flood-compatible building components below the probably maximum flood (PMF) level. Material selection will be confirmed by an engineer's report that demonstrates it can withstand the forces of floodwater, debris and buoyancy.</p>	Construction
SW5	<p>A structural assessment will be undertaken during design development to determine the suitability of the existing and proposed fences/exterior walls during PMF conditions at the Site.</p>	Construction
Hazards and Risk		
HR1	<p>A Pollution Incident Response Management Plan (PIRMP) will outline procedures to minimise the risk of a pollution incident on the premises and notification, action, and communication procedures to ensure the incident is dealt with safely, and all relevant people and authorities are notified, and kept informed throughout the incident. The PIRMP will be reviewed annually or more frequently on an as needed basis should there be a change in risk, legislative requirements, or non-compliance.</p>	Construction/operation

ID	Mitigation Measure	Timing
HR2	<p>The storage and handling of dangerous goods would be as per the Dangerous Goods EPL for the Site and be banded and stored in accordance with the relevant Australian Standards including:</p> <ul style="list-style-type: none"> Corrosive substances (Class 8) to be stored and handled by following the methods outlined in AS 3780-2008, The storage and handling of corrosive substances. Storage and handling of Class 5.1 oxidizing substances to be undertaken in accordance with AS 4326-2008, The storage and handling of oxidizing agents. 	Operation
HR3	All actions from the Hazard Identification Report to be reviewed as part of the detailed design development	Detailed design
HR4	A Hazard and Operability Study (HAZOP) to be undertaken informed by the Hazard Identification Report.	Detailed design
Human Health		
HH1	Quarterly personal and ambient monitoring will be conducted to verify that engineering controls outlined above are effective in controlling worker exposure to contaminants.	Operation
HH2	Dermal contact and ingestion will be managed through standard personal hygiene practices, personal protective equipment, clothes change policy and the use of containerised plant, mobile plant and enclosed systems to minimise physical contact with the waste streams.	Operation
HH3	Emergency showers and eyewash stations will be installed and maintained in accordance with AS4775 Emergency eyewash and shower equipment.	Operation
HH4	A structured, pre-employment medical and risk-based health surveillance program will be implemented for the Project.	Operation
HH5	During the first year of operation a competent, independent occupational hygienist will design and conduct quarterly personal and ambient monitoring for silica dust, dust and vapours. The program will be reviewed at the end of the first year and adjusted based on the outcome of the results and Site observations.	Operation
HH6	<p>All employees will be required to complete the Proponent's onboarding and induction system that includes health and safety training. The induction will be Site-specific and developed as part of the OEMP for the Project, including the key hazards within each area of the Waste Treatment Facility and critical controls. This induction will include the following key related elements:</p> <ul style="list-style-type: none"> Dangerous goods (storage, handling and use) Contaminants (e.g. asbestos, PAHs, dust, vapours) Use and maintenance of personal protective equipment 	Operation

ID	Mitigation Measure	Timing
	<ul style="list-style-type: none"> ● Personal hygiene and clothes change policy ● Incidents and first response ● Personal decontamination (safety showers) ● Spill response ● Site critical controls ● Workplace monitoring 	
HH7	Signage will be provided within the Waste Treatment Facility that identifies process areas, key hazards and protective equipment requirements.	Operation
HH8	Task based training will be provided and include a competency assessment process with personnel not being permitted to work unsupervised until deemed competent.	Operation
HH9	Ongoing education and awareness will be provided through the health & safety alerts and toolbox meetings.	Operation
HH10	The Proponent will maintain their health and safety management system developed to align with AS/NZS ISO 45001:2018 Occupational Health and Safety Management Systems – Requirements with Guidance for use.	Operation
Fire and Incident Management		
FIM1	All aspects of the Fire Safety Strategy as identified within Appendix K (of the EIS) will be adopted and proposed fire safety measures will meet the relevant Performance Requirements of the National Construction Code (NCC) .	Operation
FIM2	<p>The Project will be consistent with Fire and Rescue NSW Guidelines including:</p> <ul style="list-style-type: none"> ● Access for firefighters and emergency vehicles. ● Building design. ● Sprinkler and Fire Hydrant System design (including appropriate water pressure). ● Fire detection and alarm system. ● Smoke Hazard Management. ● Fire Water Run-Off Containment. ● Stockpile location and size. 	Operation
FIM3	An Emergency Response Plan will be developed in accordance with Hazardous Industry Planning Advisory Paper No 1: Emergency Planning (DPIE, 2011), and all staff will receive training in emergency procedures including the Emergency Response Procedures and delegated fire wardens, the evacuation routes, and the procedures to follow in a fire event. Flood emergency management will be incorporated into the plan with a shelter-in-place strategy adopted for the Site during any flood events. The Flood Emergency Response Plan may include such controls as ceasing operations, removing hazardous soil from the Site and transferring to HiQ's Yatala Facility,	Operation

ID	Mitigation Measure	Timing
	<p>closing facility doors, pumping leachate pits to the temporary holding tank or LWTP, or to containers stored above the flood level. This will be documented within an Emergency Response Plan (ERP) as part of the OEMP for the Project and be in accordance with Work Health and Safety (WHS) legislation and AS3745:2010.</p>	
FIM4	<p>Portable fire extinguishers will be provided throughout the building in accordance with the NCC and selected, located, and distributed in accordance with AS2444:2001.</p>	Operation
FIM5	<p>A dedicated smoke exhaust system in Fire Compartment 1 and 3 will be implemented to comply with the requirements of Clause 3 of Specification E2.2b of the NCC with a minimum operating duration of at least 2 hours. The exact smoke exhaust rates shall be determined through detailed design.</p>	Operation
FIM6	<p>Primary firewater containment will be from process bunding pits and main floorplate within the Waste Treatment Facility building. This shall be achieved by bunding entry points with drive-over bunding at the truck entry and exits. This primary containment must be capable of containing:</p> <ul style="list-style-type: none"> • Hydrants operating at 30 L/s for a minimum of 4 hours and • High hazard sprinklers operating for a minimum of 2 hours – flowrate to be advised by fire services engineer and • Drenchers operating for a minimum of 2 hours – flowrate to be advised by fire services engineer. 	Operation
FIM7	<p>Stockpiles will not exceed 4 m in height. Fire separating masonry walls shall extend at least 1 m above the top of a stockpile and at least 2 m beyond the outermost stockpile edge. The boundary limits of stockpiles will be permanently marked. It is noted for fire purposes these requirements shall only apply to each 100 m³ stockpile. Internal partitioning proposed for operational purposes need not comply with these requirements.</p>	Operation
FIM8	<p>Each accessible side of a stockpile will have at least 6 m of clear unobstructed space to reduce the risk of fire spread.</p>	Operation
FIM9	<p>Internal stockpiles will not impede access to exits and a minimum 1 m path must be maintained past stockpiles to ensure requires paths of travel are accessible.</p>	Operation
FIM10	<p>The fire safety systems will be tested and maintained in accordance with Australian Standard AS1851 or other relevant testing regime.</p>	Operation
FIM11	<p>The ERP and Operational Waste Management Plan will be developed by the Site operator as per Section 8.6 of FRNSWs Guideline – Fire Safety in Waste Facilities.</p>	Operation

ID	Mitigation Measure	Timing
FIM12	An Emergency Services Information Package will be provided to emergency service personnel in accordance with Section 9.4.2 of FRNSWs Guideline – Fire Safety in Waste Facilities.	Operation
FIM13	A Fire Safety Study prepared in accordance with Hazardous Industry Planning Advisory Paper No 2 Fire Safety Study Guidelines (DPIE, 2011).	Detailed design
Other: Heritage		
H1	In the unlikely event that Aboriginal or suspected Aboriginal archaeological material is uncovered during the development, then works in that area are to stop and the area cordoned off. The project manager will contact DPHI or other regulatory body to make an assessment as to whether the material is classed as Aboriginal object/s under the <i>National Parks and Wildlife Act 1974</i> and advise on the required management and mitigation measures. Works are not re-commenced in the cordoned area until heritage clearance has been given and/or the required management and mitigation measures have been implemented.	Construction/Operation