

Appendix R

Waste Management Plan

PROJECT BOOST

Penrith HV BESS – Waste Management Report

AUSCONNEX

Reference: 527164-PEN-400-REP-ED-0012

Revision: C

2025-10-16



Executive summary

Aurecon has been engaged by Ausconnex to develop a waste management plan (WMP) for the proposed Penrith high voltage (HV) battery energy storage system (BESS), aimed at addressing the growing energy needs of the local Penrith community. This WMP has been prepared to identify the types and quantities of potential waste streams and establish management measures in accordance with the Secretary's Environmental Assessment Requirements (SEARs) issued by the NSW Department of Planning and Environment.

The Penrith HV BESS project entails the development, construction, operation and ultimately the decommissioning of a HV BESS comprised of 48 lithium-ion phosphate battery containers, designed to deliver 100MW of power and store 200MWh of energy. The facility will be located next to the existing Penrith Substation, with a project footprint of approximately 0.9ha, which includes temporary construction facilities as well as a 33kV grid connection.

Most infrastructure will be manufactured off site, so waste generated during construction will be minimal. It is anticipated that soil will be the main source of waste, with other expected waste types including concrete, rock and excavated stone, metals, green waste, plastics, BESS-scale batteries, and general waste. These waste streams are anticipated to be generated through excavation, packaging, worker activity, and any batteries failing.

Once operational, there will be no permanent workers on site (up to 2 staff per month for maintenance), and the batteries would be managed remotely. Waste service providers Bingo Industries and Cooper's Environmental have confirmed they can accept the required waste streams. Further, Endeavour Energy has an existing waste management agreement with Bingo Industries that covers related entities, including Ausconnex. A third waste provider was approached for soil waste and recovery (Benedict Recycling), however the company has not provided confirmation of acceptance of this waste stream. Benedict Recycling's website has publicly available documentation, which identifies the site would accept this expected waste stream for the Project. Evidence of waste consultation to date is provided in Appendix A.

The proposed BESS facility is designed for a lifespan of 20 years. Upon decommissioning, all above-ground infrastructure, including fencing and the control room will be removed, along with concrete foundations. Land will be rehabilitated to a suitable condition as agreed with the landowner. Internal cabling to the substation will also be eliminated, though some below-ground elements may remain by agreement. Most materials will be recycled or repurposed where practical and in accordance with relevant regulatory guidelines. A specific WMP will be prepared ahead of decommissioning.

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Waste consultation

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Glossary

Term	Description
AC	Alternating current
BCA	Building Code of Australia
BESS	Battery Energy Storage System
CCO	Chemical Control Order
CEMP	Construction Environmental Management Plan
EPA	Environment Protection Authority
ha	Hectare
HDPE	High density polyethylene
HV	High voltage
HVAC	Heating, ventilation and cooling
kV	Kilovolt
LV	Low voltage
m	Metre
MV	Medium voltage
MW	Megawatt
MWh	Megawatt-hour
NSW	New South Wales
O&M	Operation and Maintenance
OEM	Original Equipment Manufacturer
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
PVC	Polyvinyl chloride
RMU	Ring Main Unit
SEARs	Secretary's Environmental Assessment Requirements
SSD	State Significant Development application
VENM	Virgin excavated natural material
WARR Act	<i>Waste Avoidance and Resource Recovery Act 2001</i>
WMP	Waste management plan
WSM	Waste and Sustainable Materials

1 Introduction

1.1 Project background

Aurecon was engaged by Ausconnex to prepare a waste management plan (WMP) for the proposed Penrith high-voltage (HV) battery energy storage system (BESS), covering construction, operation and decommissioning. The project seeks to deliver a grid-scale HV BESS to meet the increasing energy needs of the region. The Penrith HV BESS facility will be located adjacent to the existing Penrith Substation.

Ausconnex is currently preparing the development application for the proposed BESS. This is under a State Significant Development application (SSD-78368474). The application seeks consent for construction of the Penrith HV BESS, which includes:

- construction and operation of a BESS with an estimated capacity of up to 100MW / 200MWh; and
- associated infrastructure.

1.2 Scope

This WMP has been developed to address the Secretary's Environmental Assessment Requirements (SEARs) issued by the NSW Department of Planning and Environment as part of SSD-78368474. The waste requirements from the SEARs are presented below in Table 1-1.

Table 1-1: Relevant SEARs

Key Issue	Requirement
Waste	■ identify, quantify and classify the likely waste stream to be generated during construction, operation, and decommissioning, and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste (in consultation with waste facilities, including Council); and ■ provide a waste management plan (as appropriate).

In accordance with the SEARs listed above, this WMP is to address likely waste streams generated during the works as well as proposes management, reuse, recycling and disposal procedures during the construction, operational and decommissioning phases for the proposed BESS.

1.3 Objectives

The key objective of this WMP is to support Ausconnex in their project through identifying the types and quantities of potential waste streams and to establish management measures to prevent environmental harm, minimise waste, maximise resource preservation and to assess the impact for the purpose of the EIS.

This WMP specifically aims to:

- address the SEARs for waste as required by legislation;
- promote waste minimisation through avoiding and reducing waste generation;
- promote the recycling of materials;
- comply with legislative criteria and adhere to waste minimisation guidance and standards;
- apply the waste management hierarchy (refer to Section 3.3) throughout construction; and
- specify safe and appropriate management of potentially contaminated wastes.

Prior to commencement of construction, a Construction Environmental Management Plan (CEMP) will be developed. This WMP will form a sub-plan of the CEMP for the redevelopment works. It is recommended the CEMP include a soil management plan which includes erosion and sediment controls.

2 Project description

The Penrith HV BESS Project involves the development, construction, operation, and decommissioning of a grid-scale HV BESS with a capacity to supply up to 100MW of power and the ability to store up to 200MWh of energy adjacent to the existing Penrith Substation to meet the growing demands of the local Penrith community.

The Penrith HV BESS Project (0.9ha in area) includes the following key components:

- Electrical infrastructure including:
 - a 100MW/200MWh BESS comprised of 48 battery containers installed in enclosures (thermal cabinet) and associated ancillary infrastructure. Lithium-ion phosphate is the preferred Lithium-ion battery chemistry for reasons of safety and widespread availability from BESS Original Equipment Manufacturers (OEM). The battery container includes an integrated AC power inverter;
 - step up transformers, auxiliary transformer and ring main units (RMUs);
 - 33kV switch room and control room;
 - installation of one (1) x 33kV underground cables and entry point for HV BESS cabling to connect the Project to the Penrith Substation via new and existing conduits; and
 - two harmonic filters.
- Other permanent ancillary infrastructure including:
 - earth grading and levelling works to allow for installation of concrete pads for the BESS modules and associated infrastructure;
 - Operation and Maintenance (O&M) building;
 - car parking;
 - security fencing, lighting, signage and lightning protection;
 - fire detection and suppression equipment;
 - internal access road (about 6m wide) and driveway access off Thornton Drive;
 - formalised underground stormwater network, and provision for water detention (for water quality and fire water purposes);
 - vegetation clearance of non-native vegetation; and
 - noise attenuation walls (7m high).
- Temporary construction facilities including:
 - site office;
 - construction compounds and laydown areas; and
 - stormwater and sediment controls for the project site.

During construction and operation of the Penrith HV BESS, vehicular access to the Penrith site would likely be from the north via Thornton Drive.

Figure 2-1 shows the concept design for the Penrith HV BESS project. The final Penrith HV BESS project configuration would be confirmed pending detailed design.

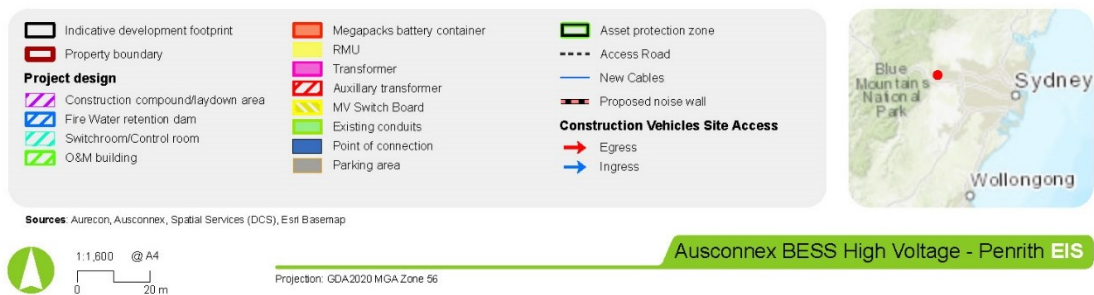


Figure 2-1: Proposed Penrith HV BESS project layout

3 Legislative requirements and guidelines

3.1 Legislation

This WMP has been prepared in accordance with the requirements of the NSW *Waste Avoidance and Resource Recovery Act 2001* (WARR Act), and the NSW *Protection of the Environment Operations Act 1997* (POEO Act). These and other key legislation relevant to waste management at the site are provided in Table 3-1.

Table 3-1: NSW waste legislation summary

Legislation	Purpose	Relevance
<i>Protection of the Environment Operations Act 1997</i> (POEO Act) Protection of the Environment Operations (Waste) Regulation 2014 Protection of the Environment Operations (General) Regulation 2009	The POEO Act is the key piece of environment protection legislation administered by the NSW Environment Protection Authority (EPA). The object of the Act is to achieve the protection, restoration and enhancement of the quality of the NSW environment. The POEO Act enables the Government to establish policy instruments for setting environmental standards, goals, protocols and guidelines.	Pollution and basic waste management framework. Details: ■ Licensing of waste facilities ■ Waste classification ■ Environmental protection ■ Pollution control ■ Monitoring The waste classifications and management standards are relevant during construction, operation and decommissioning.
<i>Waste Avoidance and Resource Recovery Act 2001</i> (WARR Act)	The WARR Act promotes waste avoidance and resource recovery to achieve a continual reduction in waste generation, provides for development of a state-wide Waste Strategy, and introduces a scheme to promote extended producer responsibility for the life cycle of a product. Objectives of the Act include: ■ to encourage the most efficient use of resources and to reduce environmental harm; ■ options are considered against a hierarchy (refer to Section 3.3); ■ provide for the continual reduction in waste generation; ■ to minimise the consumption of natural resources and the final disposal of waste; ■ to ensure that industry shares with the community the responsibility for reducing and dealing with waste; and ■ to assist in the achievement of the objectives of the POEO Act.	Provides waste reduction and recovery targets and guidelines for construction, operation and decommissioning. Details: ■ Waste hierarchy ■ Waste avoidance ■ Regulation framework Waste hierarchy and waste avoidance have been applied where possible in this report in accordance with this act.

Legislation	Purpose	Relevance
<i>Environmental Planning and Assessment Act 1979</i> Environmental Planning and Assessment Regulation 2000	This Act and its Regulation provide the overarching structure for planning in NSW. They provide for a number of other statutory documents to support the planning structure, including State Environmental Planning Policies and Local Environmental Plans. The objectives include: ■ The proper management, development and conservation of natural and artificial resources; and ■ To encourage ecologically sustainable development.	Framework for the assessment and regulation of development and environmental impacts across the state. This act details: ■ land use; ■ environmental impact assessments; ■ Development assessments; and ■ State Significant Developments. As a SSD this act must be considered during the creation of the waste management report.
<i>Environmentally Hazardous Chemicals Act 1985</i>	This Act provides for control of the effect on the environment of chemicals and chemical wastes. The EPA is responsible for administering this legislation, in partnership with other state government agencies. It is the primary legislation for specifically regulating environmentally hazardous chemicals throughout their life cycle. The Act sets out requirements for: ■ Chemical Control Orders (CCOs) which are used to manage specified hazardous chemicals and chemical wastes; ■ technology assessments, which ensure that premises treating or destroying chemicals are safe and appropriate for their purpose; and ■ Licensing of individuals or industries who manage chemicals that are subject to a CCO.	Regulation for the management of hazardous chemicals. Lithium-ion batteries contain a range of material that can be considered hazardous. This act contains the below details which may be relevant during battery maintenance: ■ regulation of hazardous chemicals; ■ licensing requirements; and ■ standards for handling and disposal.
<i>Contaminated Land Management Act 1997</i> Contaminated Land Management Regulation 2013	This Act establishes a process for investigating and (where appropriate) remediating land that the EPA considers to be contaminated significantly enough to require regulation.	This act manages the: ■ identification ■ management and; ■ remediation of contaminated land.

3.2 Guidelines

Guidance documents and policies considered in the preparation of this WMP are included in Table 3-2.

A Detailed Site Investigation (DSI) has been completed for this project and contains the results of site condition testing.

Table 3-2: NSW Guidance Summary

Guideline	Purpose	Relevance	Additional reading
NSW Environment Protection Authority (EPA) Waste Classification Guidelines 2014 (EPA 2014)	The Waste Classification Guidelines have been established by the NSW EPA to assist waste generators to classify wastes. Wastes are classified into groups that pose similar risks to environment and human health. Waste classifications are discussed further in Section 4.1 and Section 5.1.	The waste classification guidelines are used to identify waste types, including radioactive waste and acid sulphate soils. These guidelines also detail how to immobilise contamination in waste.	See the DSI, page 12 for more details.
Building Code of Australia (BCA)	The BCA contains technical provisions for the design and construction of buildings and other structures, covering such matters as structure, fire resistance, access and egress, services and equipment, and energy efficiency as well as certain aspects of health and amenity.	The BCA sets out minimum standards for design and waste during construction in Australia.	
NSW EPA's Waste and Sustainable Materials (WSM) Strategy 2041, Stage 1: 2021-2027	The WSM strategy aims to continually improve the state's policies and targets for waste reduction and landfill diversion. Stage 1 of the strategy sets the following targets: ■ reduce total waste generated by 10% per person by 2030; ■ have an 80% average recovery rate from all waste streams by 2030; ■ significantly increase the use of recycled content by governments and industry; ■ phase out problematic and unnecessary plastics by 2025; and ■ halve the amount of organic waste sent to landfill by 2030.	The WSM Strategy sets targets to be applied construction and operation.	

Guideline	Purpose	Relevance	Additional reading
NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012	The guide provides advice to assist architects, developers, council staff and building managers to incorporate better waste management practice into the design, establishment, operation and ongoing management of waste services in commercial and industrial developments.	Provides further guidelines to: ■ increase the consideration of waste management early in the building design process; ■ make collection of recyclables more efficient and effective; ■ improve waste minimisation and collection; ■ increase convenience for occupants and building managers; ■ increase the yield and quality of recyclable material; and ■ reduce contamination in recyclable material.	
How to manage and control asbestos in the workplace, SafeWork NSW Code of Practice, 2016 (NSW Government)	The Code of Practice is an approved code of practice under the <i>Work Health and Safety Act 2011</i> . The code provides guidance on how to manage risks associated with asbestos and asbestos containing material at the workplace and thereby minimise the incidence of asbestos-related diseases such as mesothelioma, asbestosis and lung cancer.	Management, transportation and disposal of asbestos, should it be found on site.	See the DSI for further discussion of asbestos sampling.
How to safely remove asbestos, SafeWork NSW Code of Practice 2016 (NSW Government)	The Code of Practice is an approved code of practice under the <i>Work Health and Safety Act 2011</i> . The code provides practical guidance on how to safely remove asbestos from all workplaces including structures, plant and equipment and is to be read in conjunction with <i>How to manage and control asbestos in the workplace</i> Code of Practice.	Management, transportation and disposal of asbestos, should it be found on site.	See the DSI for further discussion of asbestos sampling.
Australian Government Construction and Demolition Waste Guide, 2011	The aim of the guide is to help develop effective markets for materials diverted or derived from the construction waste stream.	Provides case studies that highlight how construction and demolition waste is generated and can be captured and recycled or reused rather than sent to landfill.	

Guideline	Purpose	Relevance	Additional reading
Australian Government Sustainable Procurement Guide, 2024	The Sustainable Procurement Guide provides the steps for embedding environmental sustainability within procurements. From planning through to reporting, the procurement process can include environmentally sustainable opportunities. The guide is flexible so it can be applied within departmental procurement frameworks.	This guide provides government employees with advice on procuring goods and services. The advice recommends seeking not only value for money but high performance in: ■ energy consumption; ■ greenhouse gas emissions; ■ waste reduction; ■ recycled material; ■ reduction of harmful substances; ■ packaging; and; ■ end of life recycling. The advice is relevant to private procurement as well.	
Sampling Design Guidelines – Contaminated Sites. NSW EPA, 1995	The Sampling Design Guidelines were established by the NSW EPA to: ■ Encourage the use of a statistically based approach to the design and sampling for contaminated sites and the interpretation of these samples for assessing and validating contaminated sites; and ■ Provide a convenient summary of statistical methods.	These guidelines provide details and advice on safe, onsite sampling for correct and applicable statistical results.	See the DSI, page 35 for more details and results of soil sampling.

3.3 Waste hierarchy

Waste management for the project will be undertaken in accordance with the waste hierarchy, which underpins the objectives of the *Waste Avoidance and Resource Recovery Act 2001*. The waste hierarchy shown below demonstrates preferred approaches to waste management to ensure sustainable development and use of resources.

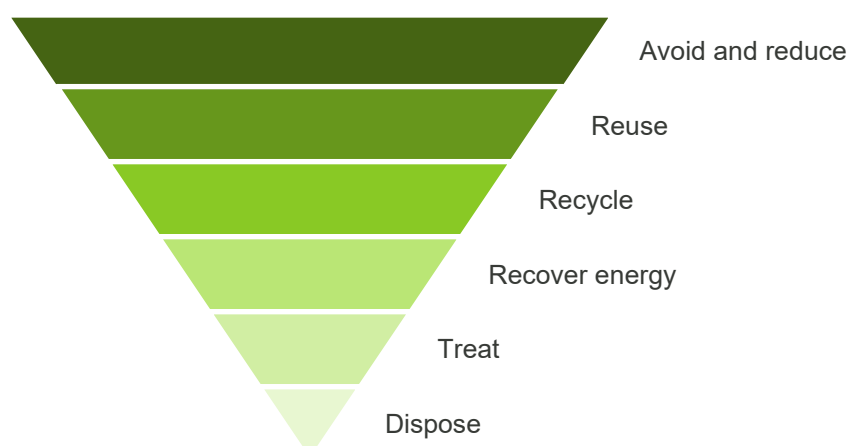


Figure 3-1: The Waste Hierarchy, from most to least preferable

The hierarchy also aims to maximise efficiency and avoid unnecessary consumption of resources. This WMP seeks to implement the waste hierarchy to minimise waste disposal and promote waste reduction in order of preference:

- reduce or avoid waste through selection of items and design;
- reuse materials without further processing;
- recycle and process waste for reuse as a new product;
- recover energy through combustion of materials where acceptable and in accordance EPA regulations;
- treat waste to stabilise the waste product for disposal or reuse; and
- dispose of waste when no other management options are appropriate.

4 Construction

4.1 Waste streams and classification

4.1.1 EPA Waste Classification

The NSW EPA Waste Classification Guidelines (EPA 2014) provides for the classification of wastes into groups that pose similar risks to the environment and human health, which are defined in the POEO Act. Classes of waste described in the guideline are described in Table 4-1.

Table 4-1: Summary of NSW EPA Waste classifications

Waste classification	Description	Additional reading
Special waste	Special wastes are wastes that pose specific regulatory requirements due to the risks of harm to the environment and human health. These wastes include clinical and related waste, asbestos waste, waste tyres, and anything classified as special waste under an EPA gazettal notice.	See the DSI for further discussion of special waste.
Liquid waste	Liquid waste is classified as any waste (other than special waste) that meets the following criteria: ■ has an angle of repose of 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 spade or shovel; and/or ■ is classified as liquid waste under an EPA gazettal notice.	
Pre-classified waste: ■ hazardous waste; ■ restricted solid waste; ■ general solid waste (putrescible); and ■ general solid waste (non-putrescible).	Where the waste is neither liquid nor special waste; the EPA has pre-classified other commonly generated waste types, as defined in Schedule 1 of the POEO Act. This includes hazardous waste, restricted solid waste, general solid (putrescible) and general solid (non-putrescible) waste. Putrescible waste is the component of the waste stream that is liable to become putrid, and usually refers to vegetative, food and animal products. A list of all currently gazetted waste classifications is provided on the EPA website . Where material is classified as hazardous waste, it is noted that such materials cannot be directly disposed of and must be treated prior to disposal by an appropriately licensed facility/operator.	See the DSI for further discussion of classified waste. Page 36 provides the results of soil sampling.
Wastes classified via chemical assessment: ■ Hazardous waste; ■ Restricted solid waste; ■ General solid waste (putrescible); and ■ General solid waste (non-putrescible).	Where the waste does not fall into one of the above categories, chemical assessment of the material is required to finalise a waste classification as per the procedures outlined in detail in EPA (2014) and/or consideration of General or Specific Waste immobilisation approvals as approved under the Protection of the Environmental Operations (Waste) Regulation 2014.	See the DSI for further discussion of classified waste. Page 36 provides the results of soil sampling.

4.1.2 Potential waste streams and classification

It is understood that the batteries, inverters and transformers (which form the majority of the infrastructure to be installed on site) will be manufactured off site. This means the waste generated during the construction phase will be minimal.

Even though a majority of the site infrastructure will be manufactured off site, a variety of waste types are still expected to be generated during the site preparation and construction parts of the project as summarised in Table 4-2. In the instance of BESS or HV equipment waste being generated during construction, these categories will be transported offsite for management.

Table 4-2: Potential Waste Types and Classification – Construction

Waste type	EPA Classification	Generated	Project phase
Excavated soil	Subject to Waste Classification as per EPA 2014 following excavation	Potential	Excavation and Construction
Rock and excavated stone	General solid waste (non-putrescible)	Potential	Excavation and Construction
Green waste (Garden Organics)	General solid waste (non-putrescible)	Potential	Excavation (site preparation)
Metals (including roofing)	General solid waste (non-putrescible)	Potential	Excavation and Construction
Concrete	General solid waste (non-putrescible)	Potential. See DSI, page 21.	Excavation and Construction
Wood waste	General solid waste (non-putrescible)	Potential	Construction
Blockwork	General solid waste (non-putrescible)	Potential	Construction
Glazed bricks	General solid waste (non-putrescible)	Potential	Construction
Concrete (Building frames, cores and roof; external works; slab)	General solid waste (non-putrescible)	Confirmed	Construction
Glass	General solid waste (non-putrescible)	Potential	Construction
Plastic (non-packaging)	General solid waste (non-putrescible)	Confirmed	Construction
Plastic and foam packaging	General solid waste (non-putrescible)	Confirmed	Construction
General refuse	General solid waste (putrescible), and General solid waste (non-putrescible)	Confirmed	Excavation and Construction
Electrical (HV and LV)	General solid waste (non-putrescible)	Confirmed	Construction
Optic fibre wiring	General solid waste (non-putrescible)	Potential	Construction
Light bulbs	Hazardous waste	Potential	Construction
PVC pipes (stormwater, electrical, optic fibre, sewer)	General solid waste (non-putrescible)	Potential	Construction
Sewage	Liquid waste	Potential	Construction
BESS-scale batteries	Hazardous waste	Potential	Construction

4.1.3 Waste quantities

As the requirements for filling soil are higher than the volume of soil to be removed by cutting, there is unlikely to be a significant amount of waste generated during the clearing process.

Early indications show that the amount of soil to be used for fill on site, is higher than the intended cutting rate. This should allow for the cut soil to be almost entirely used as filling material. However, if the cut material is deemed unsuitable as fill due to structure (soil composition) or contamination, then up to 249 cubic meters of spoil may be required to be classified and disposed of offsite. All opportunities would be taken to ensure reuse on site where feasible. These figures are shown below in Table 4-3.

The DSI has undertaken a soil sample of the site and concluded that “Soils need only be classified for disposal should they be surplus and require removal from the site.”

Table 4-3: Cut and fill volumes during construction

Cut volume	Fill volume
248.7m ³	1,924.5m ³

As previously identified, a majority of the site infrastructure (batteries, inverters and transformers) are prefabricated off site and are unlikely to produce waste beyond packaging.

The confirmed waste streams identified in Table 4-2 are unlikely to produce significant volumes of waste and have not been estimated in quantities for this reason. The table below expands on the confirmed waste types, examples of what will be found on site and general advice on how they should be managed.

Table 4-4 Confirmed waste type examples

Waste type	Example	Management
Excavated soil	Cleared soil, vegetation, small rocks	Reused on site, or transported off site
Green waste	Trees, shrubs, grass	Mulched on site
Concrete waste	Cutoffs	Captured, recycled offsite
Plastic (non-packaging)	Plastic sheeting, conduit	Captured, recycled if able or sent to landfill
Plastic and foam packaging	Packaging from tools and materials, foam insulation scraps, and plastic film	Captured for recycling
General refuse	Food wrappers, drink containers, and miscellaneous packing materials	Captured on site, sent to landfill or recycling
Electrical (HV and LV)	Cut off or damaged equipment material from HV/LV works	Sorted for scrap metal, recycling and landfill onsite
Sewage	Wastewater from site facilities	Managed through standard sewage practices
BESS-scale batteries and other electrical infrastructure	Decommissioned battery cells, either from maintenance or end of life Transformers/Switch gear, either from maintenance or end of life	Handled as hazardous waste, sent to specialised facilities

Therefore, waste production during construction will also be low.

Table 4-5 provides a summary of potential waste streams during construction and how they should be managed.

4.2 Waste management during construction

Site specific waste management measures have been developed in line with the waste hierarchy outlined in Section 3.3 and in accordance with the relevant legislative requirements and guidelines. These measures are applicable to the construction phase of the project.

4.3 Noise wall

A noise wall is planned for installation onsite. The construction of a noise wall is not expected to generate significant amounts of waste.

4.3.1 Avoidance and reduction of waste

The excavation and construction contractor will be required to avoid waste generation, and endeavour to reuse materials where possible, thereby minimising waste generation.

During the construction phase, waste generation will be avoided through strategic selection of materials during design and purchasing, considering options to reduce waste generation for the project. This includes consideration of procurement of materials which are prefabricated, use minimal packaging, and are suitable for reuse across the site. Selection of construction materials will also consider the use of recycled items where practicable.

Opportunities to avoid wastes generated by construction include:

- develop a procurement policy which considers waste avoidance measures such as:
 - order site specific or prefabricated items where practicable to minimise surplus material;
 - consider packaging material provided by suppliers during purchasing and reduce this requirement where possible, or consider returnable packaging; and
 - material selection to consider recycled items;
- refine waste stream estimates to ensure adequate on-site storage and segregation; and
- refine estimated volumes of materials for construction.

4.3.2 Reuse and recycling

For waste materials onsite, measures to separate waste streams will be implemented. This includes segregating waste into appropriate dedicated bins, or areas for reclamation on site, or transportation to a designated recycling facility.

Concrete

Concrete is not to be disposed of at the site. Concrete waste should be captured, sorted and managed through an appropriate waste provider.

Waste rinse water

Waste rinse water is not to be disposed of at the site, and rinse waters are required to be prevented from entering surface waters, including natural and artificial watercourses. Appropriate controls will be implemented during construction to contain, collect, and dispose of rinse water offsite at a licensed facility.

Asbestos

If material containing asbestos is identified and cannot be safely removed/encapsulated, off-site disposal is the most appropriate option. The construction contractor will then liaise with a licensed asbestos removalist to determine a suitable disposal facility. Measures for dealing with hazardous waste (asbestos) are discussed in Table 4-5.

The DSI found one instance of asbestos containing materials (ACM) in surface soil. Locations containing ACM are required to be disposed of as Special (Asbestos) general solid waste.

Procedures to manage the reuse and recycling of waste materials during construction include:

- Incorporation of waste management into development staging to promote reuse of materials across the site;
- Ensure areas for waste segregation are easily accessible and clearly defined;
- Ensure contractors are familiar with onsite waste storage areas for appropriate waste segregation; and
- Consider opportunities for materials reuse in areas in proximity to the site or local construction activities where practicable.

4.3.3 Treatment and disposal

Project wastes may require treatment to stabilise them for appropriate disposal to reduce the risk of harm to human health or the environment. These materials are not suitable for reuse or recycling and must be segregated and disposed of via a suitably qualified contractor.

Wastes will only be sent to landfill or disposal facilities where the prioritised management methods in the hierarchy cannot be effectively implemented. The construction contractor will liaise with the local council to determine appropriate disposal locations for potential waste streams.

Measures to manage the treatment and disposal of waste materials during construction include:

- Ensure wastes which cannot be reused or recycled and require disposal are clearly segregated from those which have the potential to be reused.
- Provide segregated bins for subcontractors to dispose of construction waste (i.e., metal, plastics and cardboard).
- Contractors and staff to be inducted into site waste management practices.
- Hazardous materials including asbestos (if identified) to be disposed of in accordance with the handling and disposal requirements of SafeWork NSW and NSW EPA.
- General wastes to be disposed of in accordance with NSW EPA/local council requirements.
- Toilet facilities must be regularly serviced and emptied by a licensed contractor.

4.3.4 Waste stream management options

The waste management measures outlined in Table 4-5 will be implemented for each waste stream generated as part of the project. Key waste streams identified for this project have been discussed in more detail in this section to ensure appropriate waste handling for each type of waste.

Each waste stream will be separated and stored appropriately to ensure each type of waste is handled in the most appropriate and efficient way. The numbers and size of waste storage bins, containers, stockpile areas and loading zones on site will be determined by the excavation and construction contractor.

The Principal Contractor appointed by the client will implement its own waste management systems in accordance with this plan to ensure any existing waste management systems are not impacted by the redevelopment works.

4.3.5 Other considerations

To ensure waste is not unintentionally tracked off-site, the vehicles or trailers used to transport waste or excavated spoil from the site will be covered before leaving the subject site, to prevent spillage or escape of dust, waste or spoil from the vehicle or trailer. Any mud, splatter, dust and other material that is likely to be released from the wheels, underside or body of vehicles, or plant leaving the site will also be removed through a shaker bay or wash down area prior to leaving the subject site.

Table 4-5: Construction waste stream management

Waste stream	Project phase	Management	Nearby locations for processing waste
Concrete	Construction	Concrete waste is likely to be generated either during site preparation that uncover concrete from prior construction or during the construction of the new BESS and associated facilities. There is also a possibility that concrete waste may be generated from excess concrete poured during construction, although this will be minimised wherever possible using the methods outlined in Section 4.3.1. Concrete can be reprocessed and may, in some instances, be reused across the subject site, however, the general practice is to break up/crush the concrete and arrange for disposal to a recycling facility or disposal offsite. Wet supply may be placed back into supply trucks to return to the producer.	REMONDIS Resource Recovery Facility, Seven Hills Approx. 40 minutes from site.
Soil	Excavation and Construction	Soil is likely to be generated during establishment activities, during the removal of trees, potential excavation to establish required site levels and other construction activities. Soil surplus to the site requirements will be sampled, analysed and classified in accordance with NSW EPA Waste Classification Guidelines (EPA 2014) prior to for offsite disposal at a facility that is licensed to accept that class of waste. It is anticipated that the excavated materials that meet the relevant site reuse criteria will, where possible be reused to establish the required site levels during construction works. A soil management plan (as part of a Construction Environmental Management Plan) is recommended to be developed to provide guidance for all soil testing, excavation, reuse and disposal works. In general, it is expected that assessment of relevant material will identify that undisturbed natural soil and bedrock at the site will meet the definition of VENM for off-site disposal or re-use purposes. VENM is considered suitable for re-use on-site, or alternatively, may be suitable for beneficial reuse at another site as fill material. In accordance with Part 1 of the Waste Classification Guidelines (EPA 2014), the VENM is pre-classified as general solid waste and may also be disposed of accordingly to a facility that is licensed to accept it. Where stockpiling is required prior to redistribution, control measures to avoid sediment and erosion will be implemented where appropriate. This may include establishing a bund or lining of the base with an impermeable HDPE plastic liner. Where excess soil cannot be redistributed or has been situated in proximity to asbestos containing materials, the soil is required to be treated and/or disposed of, potentially as low-level contaminated waste via a licensed removalist to a disposal facility. The DSI contains further results of soil testing under section 9, <i>Investigation Results</i>.	Breen Resources, Kurnell. Approx. 1.5 hours from site.
Rock and excavated stone/concrete	Excavation and Construction	Rock and excavated stone/concrete may be generated during potential excavation and construction of new structures for footing and foundation construction. Depending upon the quantities and properties of the materials generated, materials may be used as aggregate or sub-base for other works across the site as described in the Soil section above.	Breen Resources, Kurnell. Approx. 1.5 hours from site.

Waste stream	Project phase	Management	Nearby locations for processing waste
Metals	Excavation and Construction	The DSI found instances of scrap metal under the surface. There is also a possibility that metal waste may be generated from excess materials purchased for the site as part of construction work, although this will be minimised wherever possible using the methods outlined in Section 4.3.1. The Principal Contractor appointed by the client will investigate and determine appropriate storage and recycling of metals to reduce waste, including location and signage of skip bins onsite. Captured metal can be sold to a salvage yard for recycling or reuse. Where recycling of metal is not feasible the contractor will organise disposal of the metal to a licensed waste facility.	REMONDIS Resource Recovery Facility, Seven Hills Approx. 40 minutes from site.
Green Waste/Wood Waste	Construction	It is likely that wood waste (timber) may be generated from excess materials purchased as part of building construction works, although this will be minimised wherever possible using the methods outlined in Section 4.3.1. Wood or timber may also be found in small amounts during the process of preparing the site for construction. Principal Contractor appointed by the client will investigate and determine appropriate storage and recycling of timber to reduce waste, including location and signage of skip bins onsite. Green/wood waste will be generated during removal of trees within the development footprint and excavation of topsoil (mulch) for site grading purposes. Though both include wood, green waste and wooden pallets from packaging must be separated and managed differently. Green waste should be processed onsite by a portable mulching equipment and then either reused onsite or transported off site. If portable mulching equipment is not available, green waste should be sent to a licensed waste facility for shredding/chipping.	REMONDIS Resource Recovery Facility, Seven Hills Approx. 40 minutes from site.
Plastics	Excavation and Construction	Plastic wastes associated with packaging for construction materials can be recycled or in some cases returned to the supplier of the materials, for reuse. Where possible, plastic (non-durable) wastes will be reduced using the methods outlined in Section 4.3.1.	REMONDIS Resource Recovery Facility, Seven Hills Approx. 40 minutes from site.
BESS-scale Batteries	Construction	There is the possibility that some of the batteries that make up the BESS may fail during commissioning. Any failed batteries will be returned to the supplier for maintenance, recycling and/or disposal. All possible care will be taken during the transportation of the batteries to ensure the chance of battery failure is as low as possible prior to and during BESS construction. The Contractor appointed by the client will ensure failed batteries are returned to the supplier and not directed to nearby waste facilities.	At time of writing, there is limited lithium-ion battery recycling available in New South Wales. Early adopters such as <i>Livium</i>, located in Victoria, may be considered for recycling for individual cells or packs but may not be suitable for decommissioning.

Waste stream	Project phase	Management	Nearby locations for processing waste
General Waste	Excavation and Construction	Wastes such as food waste, organics and biodegradable material will be created as a result of worker activity on site. Non-putrescible wastes are generally inert, or solid, and are not able to be composted, recycled, reprocessed or reused. The Principal Contractor appointed by the client will ensure adequate bins are provided on site for putrescible waste. This is particularly important around site office areas and toilet facilities. It is likely that general waste will increase at times of internal and service fit out during construction, primarily associated with excess packaging materials and workers on site. The Principal Contractor will determine the location of skip bins and specify waste stream separation measures across the site. Where possible, co-mingled recycling bins will be provided in common areas at work sites for plastic and glass bottles, soft drink cans, aluminium and tin cans to avoid these items being disposed to landfill. Specialised bins for cigarette butts will also be provided in designated smoking areas.	REMONDIS Resource Recovery Facility, Seven Hills Approx. 40 minutes from site.

4.4 Roles and responsibilities during construction

This WMP forms the basis of waste management on site for the excavation and construction phase of the Penrith HV BESS development works.

It is expected that all construction personnel will commit to the WMP and be responsible for their own actions in adhering to the waste management objectives. Waste management criteria (such as those contained in this report) is to be contractually binding for all contractors working on the site.

A Construction Site Manager will be the key person responsible for implementation of the WMP and adherence to applicable legislation, guidelines, licensing and project conditions outlined herein.

Table 4-6 presents suggested responsibilities for waste management during construction.

Table 4-6: Roles and Responsibilities

Role	Responsibility
Environmental Management Representative	- Compliance with applicable environmental licences, legislation and project conditions. Ensure environmental management plan(s) across the site are adhered to and accurate to site conditions. - Undertake inspections to ensure compliance.
Construction Site Manager	- Ensuring workers and subcontractors are inducted into the WMP along with other applicable management plans. - Responsible for undertaking procurement of construction materials in accordance with the waste management hierarchy. - Segregation of waste streams where required to ensure appropriate use, treatment and/or disposal.
Health and Safety Manager	- Safety inductions for all staff, workers and visitors. - Work with Construction Site Manager to determine safe handling of asbestos waste in compliance with regulatory requirements.
Site Workers	- Responsible for acting in accordance with the WMP and site inductions. - Informing the Construction Site Manager of any waste management incidences and Health and Safety Manager of any safety issues associated with on-site activities.

4.5 Training and awareness

Staff present on site during the construction stage of the project will be required to undertake induction and awareness training inclusive of the WMP and site-specific waste management. This includes:

- induction to the waste management hierarchy and use across the site;
- details of responsibilities for waste management and key personnel;
- site specific waste management practices relevant to the project stage such as:
 - waste storage and stockpiling locations;
 - waste disposal requirements;
 - hazardous or special wastes;
 - record of waste disposal details and receipts; and
- knowledge of emergency response procedures and contacts; and
- Asbestos Awareness Training.

Signage will be provided on site to ensure waste management measures are communicated across the subject site, particularly for contractors and visitors who are not regularly on site. Signage will highlight correct procedures for separating wastes where required, locations of bins and waste storage areas, labelling of designated bins, potential hazards associated with the waste streams and handling, and contact details should any issues be encountered.

Signage will be prepared and located on site in accordance with the Australian Standard (AS 1319) for safety signs, and the NSW EPA and Australian Standard for recycling signage

4.6 Monitoring and reporting

The following activities will be undertaken to inform future onsite waste management and to determine the success of the WMP:

- Ensure waste quantities generated are recorded, including tracking of receipts from waste recycling or disposal via the appointed waste contractor;
- Record waste classification and testing results;
- Review the WMP in light of any changes to construction activities or further information which may alter waste management practices;
- Undertake auditing of waste management across the site as a component of broader environmental site audits;
- Undertake visual inspections daily to ensure waste management controls are implemented and maintained across site; and
- Undertake final review of the WMP upon project completion to ensure information accurately reflects site activities, and to assist future waste management.

Outcomes of audits and waste tracking will be reported to the client or the Principal Contractor, potentially through weekly or monthly reporting to ensure waste management objectives are adhered to.

4.7 Corrective action

Where formal auditing, daily visual inspections or incident reporting identify incorrect storage or disposal procedures, or maintenance or waste management issues, observations will be promptly reported to the Construction Site Manager and recorded. The Construction Site Manager will determine appropriate measures to rectify the issues in a timely manner in consultation with the Environmental Management Representative and Health and Safety Manager where required.

5 Operation

5.1 Potential waste stream and classification

Potential waste types and corresponding EPA classifications for the operation of facilities constructed on the site are summarised in Table 5-1.

Table 5-1: Potential waste types and classifications – operation

Waste type	Epa classification	Waste stream
Cardboard, excluding waxed cardboard.	General solid waste (non-putrescible)	Cardboard recycling
Metals (steel, aluminium, stainless steel, and copper piping or wire)	General solid waste (non-putrescible)	Co-mingled recycling, specific recycling or general waste
Wood (timber, wooden pallets)	General solid waste (non-putrescible)	Specific recycling or general waste
Plastics (recyclables)	General solid waste (non-putrescible)	Co-mingled recycling
Plastics (non-recyclables)	General solid waste (non-putrescible)	General waste
Light bulbs, batteries, e-waste	Potentially hazardous waste	Specific recycling
BESS scale batteries	Hazardous waste	Specific recycling
Contaminated wastewater	Hazardous waste	Contaminated waste disposal

5.2 Estimated waste quantities generated during operation

As no staff will be present onsite full-time during the operation of the BESS, there are minimal staff facilities included in the design. It is likely that a portable toilet and an emergency eye basin are present on Site and will be serviced by a contractor. If on-site toilets are proposed, wastewater will be plumbed into the sewer system to manage wastewater generated by the bathroom. General operational waste produced by staff would be limited to a small number of operational staff undertaking routine maintenance of the Project and would largely include general solid waste, food waste, paper waste, etc.

Waste expected to be produced during the operational life of the BESS is limited to materials required in the upkeep and maintenance of the BESS components. These materials will be transported to site by outside contractors and any waste produced during the maintenance of the BESS components will be removed from site by the contractors on completion of their task.

Any batteries removed from the site will be returned to the supplier for reuse or recycling.

Since all waste will be removed from the site as it is generated there is unlikely to be waste captured on site. However, a red lid bin, for general waste capture should be present on site for ad-hoc capture and collection.

5.3 Waste management during operation

Section 5.2 identified that no full-time staff (up to 2 staff per month) are planned to occupy the site during occupation, therefore the amount of waste generation will be negligible and the only waste likely to be generated will be from maintenance activities. As there are no defined waste storage areas, all site users (operational staff and contractors) are to remove their waste at the end of each day.

In general, site users should consider the principles of the waste hierarchy (outlined in Section 3.3) during operation which is summarised in the following sections.

There is no expected dismantling or repurposing of BESS components or equipment on site. If required, BESS component waste will be safely transported from the site to a licensed facility in response to warranty requirements.

5.3.1 Avoidance and reduction of waste

The ongoing site users (operational staff and contractors) will be required to minimise waste generation, and endeavour to reuse waste where available.

Waste should be avoided through strategic selection of materials during purchasing which takes into account options which may reduce waste generation during ongoing operation of the site. This includes considering procurement of materials which use minimal packaging and are suitable for reuse. Selection of operational materials will also consider the use of recycled items where practicable.

Opportunities to avoid waste generated by operation include:

- develop a procurement policy which considers waste avoidance measures such as:
 - order site specific or prefabricated items where practicable to minimise surplus material;
 - consider packaging material provided by suppliers during purchasing and reduce this requirement where possible or consider returnable packaging; and
 - material selection to consider recycled items.

5.3.2 Reuse and recycling

Measures to separate waste streams should be implemented off site to maximise re-use and recycling.

Procedures to manage the reuse and recycling of waste materials during operation include:

- incorporate waste management into site management procedures to promote reuse and/or recycling of materials; and
- consider opportunities for materials reuse and/or recycling where practicable.

5.3.3 Treatment and disposal

Operational wastes may require treatment to stabilise them for appropriate disposal to reduce the risk of harm to human health or the environment (for example chemicals). These materials may not be suitable for reuse or recycling and will be segregated and disposed of via a suitably qualified contractor off site.

Waste will only be sent to landfill or disposal facilities where the prioritised management methods in the hierarchy cannot be implemented in a cost effective or practical manner.

In the event of a fire, contaminated wastewater would be collected within the fire retention basin. Contaminated wastewater would be classified and disposed of in accordance with relevant legislation.

Measures to manage the treatment and disposal of waste materials during operation include:

- ensure waste which cannot be reused or recycled and require disposal are clearly segregated from those which have the potential to be reused;
- maintenance staff to be inducted into site waste management practices;
- hazardous materials to be disposed of in accordance with the handling and disposal requirements of SafeWork NSW and NSW EPA; and
- general wastes to be disposed of in accordance with local council requirements.

The tenant is responsible for certifying waste is disposed of correctly.

5.4 Waste storage systems and waste collection

There is no designated waste storage area located onsite. Any waste produced by maintenance activities associated with the BESS will be removed from site by the maintenance worker(s).

Therefore, there is no need for waste collection from site by a waste contractor.

5.5 Ongoing management

Having suitable waste management systems in place requires compliance by staff to ensure the efficacy of the system. As such roles and responsibilities should be defined.

5.5.1 Roles and responsibilities

It is expected that all personnel attending the site (operational staff and contractors) will commit to the WMP and be responsible for their own actions in adhering to the waste management objectives. Operation of the BESS will not require any staff to be a constant presence at the BESS location. As the site will be largely unattended, implementation of this WMP will be managed by the site asset managers.

Table 5-2 presents suggested responsibilities for waste management.

Table 5-2: Roles and responsibilities

Role	Responsibility
Asset Managers	Implement the WMP during operation and update as needed. Review WMP procedures regularly and incorporate improvements when identified.
Contractors	Adhere to the WMP. Inform Ausconnex contacts of any waste management incidences.
Staff	Adhere to the WMP. Inform Ausconnex management of any waste management incidences.

5.5.2 Training and awareness

All staff and contractors will undertake awareness training of the WMP and site-specific waste management. This includes:

- induction to the waste management hierarchy and use across the site.
- details of responsibilities for waste management and key personnel.
- site specific waste management practices such as:
 - waste disposal requirements, such as failed BESS components
 - hazardous or special wastes; and
 - record of waste disposal details and receipts.
- knowledge of emergency response procedures and contacts.

5.6 Monitoring and reporting

The following activities will be undertaken to inform future onsite waste management and to improve the efficiency in achieving the outcomes of the WMP:

- Review the WMP in light of any changes to operational activities or further information which may alter waste management practices.
- Undertake auditing of waste management across the site as a component of broader environmental site audits;
- Undertake visual inspections to ensure waste management controls are implemented and maintained across site; and
- Undertake annual review of the WMP to ensure information accurately reflects site activities, and to assist future waste management.

5.7 Corrective action

Where formal auditing, general inspections or incident reporting identify incorrect storage or disposal procedures, or maintenance or waste management issues, observations will be promptly reported to Ausconnex management and recorded. Ausconnex management will determine appropriate measures to rectify the issues in a timely manner.

6 Decommissioning

At the end of life of the proposed facility, the BESS and site will be decommissioned. The BESS lifespan is currently calculated to be approximately 20 years. During decommissioning, all infrastructure will be removed including:

- The BESS units would be disconnected from transmission and HV equipment, unsecured from the concrete foundations and loaded on to flatbed trucks for transport to a licenced recycling facility or back to the OEM;
- Removal of all above-ground BESS site infrastructure, including the perimeter fencing, noise attenuation walls and control room;
- Removal of concrete foundations with rehabilitation of the land suitable condition, as agreed with the landowner; and
- Internal cabling and connection to the nearby substation will be removed, although some infrastructure below ground may be left in place subject to agreement with the landowner.

Most infrastructure removed during decommissioning is expected to be able to be recycled.

The site will be returned to its original state which will include repurposing or recycling of:

- bricks;
- concrete;
- plasterboard;
- excavated soil;
- rock; and
- metals.

A specific WMP must be prepared prior to the commencement of the BESS decommissioning.

6.1 Circular economy

Each charge-discharge cycle of a lithium-ion battery causes minor degradation, reducing the overall capacity of the battery. At around 70 to 80% capacity, commercial BESS reach the end of their usefulness as grid storage.

At this stage BESS are often recycled or returned to the original manufacturer who then recycles or refurbishes the units. Through application of the circular economy, a systems process that aims to design out waste, maintain material values, and regenerate the natural environment, batteries may instead be repurposed to maintain the materials within at a higher value for a longer time.

Though the storage capacity of older batteries is no longer sufficient for grid storage there is potential for second life applications such as:

- community scale storage;
- large retail infrastructure storage, for example airports or shopping centres;
- remote community storage;
- industrial storage, for example manufacturing facilities; and
- education campuses.

Repurposing grid-based battery storage for smaller capacity requirements could help to extend the lifespan of batteries in a circular economy, reducing the impact of extracting raw materials over time.

7 Consultation

Waste volumes for both construction and operation are expected to be minimal. Low quantities of waste expected during construction and operation are unlikely to present a noticeable increase in waste volume at local waste and recovery facilities. This is due to the prefabricated nature of the BESS and the intention for remote operation.

The cut and fill volumes during construction would be 248.7m³ and 1,924.5m³, respectively, as shown in Table 4-3. The waste volumes fall within the normal range handled for standard waste service providers. The Project is expected to generate waste types during construction, maintenance and operation as provided in Table 4-4.

Preliminary consultation with waste service providers, selected based on their experience servicing the Endeavour Energy Group, including Ausconnex, have included:

- Bingo Industries (currently servicing the Site);
- Cooper's Environmental; and
- Benedict Recycling (previously supported Ausconnex for soil recovery).

Bingo Industries and Cooper's Environmental have both confirmed their ability to accept the required waste streams. Endeavour Energy has an existing Agreement with Bingo Industries for the provision of Waste and Sustainable Materials Management. This Agreement extends to Endeavour Energy's related entities, which includes Ausconnex. While Benedict Recycling has not yet provided confirmation, publicly available documentation on their website aligns with the necessary waste requirements.

The waste service providers are able to manage disposal or recycling of all construction and operational waste streams except electrical infrastructure and batteries, which will be managed by the original supplier. No dismantling or repurposing of BESS modules or associated infrastructure is expected on Site. If needed, BESS components would be transported to a licence facility for any warranty-related processing.

Waste consultation with Bingo Industries, Cooper's Environmental and Benedict Recycling is provided in Appendix A.

8 Conclusion

This report is a WMP for the proposed Penrith High Voltage BESS. The WMP identifies potential waste streams and establishes management measures compliant with the SEARs.

With minimal waste anticipated during construction due to off-site manufacturing and effective management during operational and decommissioning phases is key to meeting these results. The BESS facility is designed for a lifespan of around 20 years and a specific WMP is to be prepared in advance to manage decommissioning waste. The report recommends exploring practices such as repurposing batteries for lower capacity applications, which could enhance the longevity of material value.

Appendix A

Waste consultation

From: Albert Sunga <Albert.Sunga@endeavourenergy.com.au>
Sent: Tuesday, 7 October 2025 5:34 PM
To: Pilar Aberasturi
Cc: Kirsty Brabin; Susan Parratt
Subject: RE: Penrith HV BESS Owners Consent

Hi Pilar,

I can confirm that Endeavour Energy has an existing Agreement with Bingo Commercial Pty Ltd for the provision of Waste and Sustainable Materials Management Services. This Agreement extends to Endeavour Energy's related entities, including Ausconnex Management Pty Ltd (ACN 622 089 632). The contract includes a benefits clause that applies to the broader Endeavour Group, of which Ausconnex is a part.

Hope this addresses your queries. Please let me know if you need further information.

Planned Leave:

Regards,

Albert Sunga | Procurement & Supply Chain
Portfolio Manager – Technology & Corp Services
[REDACTED] | E: albert.sunga@endeavourenergy.com.au

endeavourenergy.com.au



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Endeavour Energy acknowledges the traditional owners of country where we work and recognises their continuing connection to the land, waters and community. We pay our respects to the people, the cultures, and to the elders both past, present and emerging.

From: Josh MacKenzie
Sent: Thursday, 2 October 2025 10:48 AM
To: Cameron Stewart
Subject: FW: Waste consultation from Aurecon

Hi Cameron,

Just checking in, I was hoping to get a confirmation for the below chain. I am just acting on behalf of a client who have nominated Bingo as a preferred waste supplier. As the work they're doing has government approval they just need to show proof of consultation and that their identified waste streams are accepted by Bingo.

Hoping to get this tidied up today as submission is up coming.

Please let me know if I can provide more information or if you need anything else.

Thanks,

Josh MacKenzie (he/him)
Senior Consultant, Sustainability and Climate Change, Aurecon

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DISCLAIMER

From: Josh MacKenzie
Sent: Wednesday, 17 September 2025 2:30 PM
To: Cameron.Stewart@bingoindustries.com.au
Subject: Waste consultation from Aurecon

Hi Cameron,

My name is Josh, I have been provided your details from Pilar Aberasturi at Endeavour Energy. I work for Aurecon and we are working with them on some projects in NSW. Your details were passed to me as I had been trying to confirm some details but without a contact it was a bit hard to do.

As you can see in the chain below, I am just trying to confirm the waste streams in NSW that Bingo is able to manage, so we can include your response as consultation in a waste document I am working on for Pilar and Endeavour.

Your colleague below, Rafael, has actually confirmed what I needed but as I was given your name after I just want to do my due diligence and check with you.

So if you could confirm for me that Bingo can accept the below waste streams, noting only Eastern Creek can take asbestos, that should give me what I need. Assume that when collecting/receiving the waste all the correct management, separation, handling steps have been taken.

- Green
- Asbestos
- Organics
- Dry waste (including concrete, wood)
- Metal (copper, aluminium)
- Lights (flourescent)
- Oily waste

Please let me know if anything isn't clear, and thanks for your help.

Josh MacKenzie (he/him)

Senior Consultant, Sustainability and Climate Change, Aurecon

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From: Enquiries <EnquiriesNew@bingoindustries.com.au>

Sent: Wednesday, 17 September 2025 6:58 AM

To: Josh MacKenzie <Joshua.MacKenzie@aurecongroup.com>

Subject: RE: BINGO General Enquiry

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Hello Joshua.

Yes our facilities in Sydney can take the materials listed. However only our Eastern Creek Facility can take Asbestos waste.

Kind Regards,

Rafael Tordilla

Digital Customer Service Representative

1300 424 646



From: Josh MacKenzie <Joshua.MacKenzie@aurecongroup.com>

Sent: Tuesday, 16 September 2025 4:39 PM

To: Enquiries <EnquiriesNew@bingoindustries.com.au>

Subject: RE: BINGO General Enquiry

Hi Kelly,

Neither! I understand it's out of left field, but for my clients project I just need to confirm that their preferred supplier, Bingo, are able to take the below waste streams. Not stressed about prices, but simply written confirmation that Bingo are able to take those streams, under the assumption that all the typical requirements for contamination, separation, storage and everything else are met.

Normally in this situation our client would have a direct contact or similar that I'd go to, but in an odd situation where they done. So I just need someone to confirm the above.

Hope that makes sense,

Josh MacKenzie (he/him)

Senior Consultant, Sustainability and Climate Change, Aurecon

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From: Enquiries <EnquiriesNew@bingoindustries.com.au>

Sent: Tuesday, 16 September 2025 2:31 PM

To: Josh MacKenzie <Joshua.MacKenzie@aurecongroup.com>

Subject: Re: BINGO General Enquiry

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Good afternoon,

Thank you for your enquiry.

Are you after tipping prices or skip bins?

Kind regards,

Kelly Metcalfe

Digital Customer Service Representative



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Australia Head Office 305 Parramatta Rd, Auburn,

Victoria Office 372-374 Dynon Rd, West Melbourne

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From: Josh MacKenzie <Joshua.MacKenzie@aurecongroup.com>

Sent: Tuesday, September 16, 2025 2:55 PM

To: Enquiries <EnquiriesNew@bingoindustries.com.au>

Subject: RE: BINGO General Enquiry

Hi Ana, thanks for your reply.

I am enquiring on behalf of a client, who are operating in NSW, and looking to understand if Bingo can take:

- Green
- Asbestos
- Organics
- Dry waste (including concrete, wood)
- Metal (copper, aluminium)
- Lights (flourescent)
- Oily waste

Assuming all the relevant controls and separation takes place, and volumes are minor.

Thanks again!

Josh MacKenzie (he/him)

Senior Consultant, Sustainability and Climate Change, Aurecon

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From: Enquiries <EnquiriesNew@bingoindustries.com.au>

Sent: Tuesday, 16 September 2025 12:11 PM

To: Josh MacKenzie <Joshua.MacKenzie@aurecongroup.com>

Subject: RE: BINGO General Enquiry

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Hi Josh,

Thank you for your query today,

At this moment in time, we do not offer services in Western Australia.

Kind Regards,

Ana Ali

Online Digital Representative

Ph: 1300 424 646

Email: ana.ali@bingoindustries.com.au



From: no-reply@bingoindustries.com.au <no-reply@bingoindustries.com.au>

Sent: Tuesday, 16 September 2025 12:47 PM

To: Enquiries Mail <enquiries@bingoindustries.com.au>

Subject: BINGO General Enquiry

bingoindustries.com.au [1300 424 646](tel:1300424646)



New BINGO general enquiry:

Fullname:	Josh MacKenzie
Phone:	[REDACTED]
Email:	joshua.mackenzie@aurecongroup.com
Company Name:	Aurecon
State:	Western Australia
Address:	-
What would you like to enquire about?	General Enquiry Hi team, My name is Josh, I am a waste consultant for Aurecon and supporting on a project in NSW for a new battery energy storage system. As part of the work, I just need to confirm that Bingo is comfortable handling the below waste streams, at a minimal volume: Green Asbestos Organics Dry waste (including concrete, wood) Metal (copper, aluminium) Lights (flourescent) Oily waste The confirmation is just part of an approvals process that shows we have consulted with a preferred waste provider. I understand this is a bit of a strange method to confirm, but I unfortunately haven't been given a direct contact from our client. Please feel free to email/call me back so I can explain further. Thanks,
Submitted on:	9/16/2025 12:46:58 PM

Australia Head Office	Victoria Office
Australia Head Office	Victoria Office
305 Parramatta Rd, Auburn NSW 2144	372-374 Dynon Rd, West Melbourne VIC 3003
PO BOX 7535, Silverwater NSW 2128	

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From: Admin Officer <OfficeAdmin@coopersenviro.com.au>
Sent: Thursday, 2 October 2025 11:06 AM
To: Josh MacKenzie
Subject: RE: DMARC ViolationCooper's Environmental - Enquiry from website contact form

[External email] This email was sent from outside Aurecon. Do not click links or open attachments unless you were expecting the email and know that the content is safe.

Hi Josh

My apologies for the delayed response, please see below;

- SP6 – Is this meant to be SF6? If so, yes we can accept
- Oily Water – Yes we can accept
- Carbonised Oil – Yes but must be transformer oil only. PCB tests to be provided (or we can test). All other oil can be collected by JJ Richards, Glendenning.

Kind Regards

Cheryl Pruss

Administration Officer

Cooper's Environmental



Ph: 1300 791 977 / (02) 9673 6653

Email: officeadmin@coopersenviro.com.au



COOPER'S

ENVIRONMENTAL WASTE RECYCLING PTY LTD

ABN 49 978 633 182

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From: Josh MacKenzie <Joshua.MacKenzie@aurecongroup.com>
Sent: Thursday, 2 October 2025 10:52 AM
To: Admin Officer <OfficeAdmin@coopersenviro.com.au>
Subject: FW: DMARC ViolationCooper's Environmental - Enquiry from website contact form

Hi Cheryl, I hope you're well.

Apologies for any confusion but I am trying to confirm the waste types Coopers can take on behalf of my client Ausconnex who have passed on this email to me. We just have to show confirmation of waste stream and consultation

with yourself for a planning submission, so I am hoping to get a response to the question below so we can wrap it up.

Please let me know if you need any further information, I'm happy to give you a call if you prefer too.

Thanks,

Josh MacKenzie (he/him)

Senior Consultant, Sustainability and Climate Change, Aurecon

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From: Josh MacKenzie

Sent: Tuesday, 16 September 2025 12:59 PM

To: 'Cooper's Environmental - Info' <info@coopersenviro.com.au>

Subject: RE: DMARC ViolationCooper's Environmental - Enquiry from website contact form

Hi Cheryl, you caught me. I copy and pasted my text from an enquiry to Bingo that I had to make as well but aside from that the question was correct!

I am in a funny spot where the client I am working for has identified Coopers as their preferred provider for the below waste streams but as part of the approvals process I need to confirm that Coopers can take the below waste streams.

If you're able to confirm that Coopers can take the below stream, assuming it's all separated, controlled, managed correctly and the volumes are quite minor, that should be all I need.

- SP6
- Oily Water
- Carbonised Oil

Hope that makes sense, sorry this is a bit of a funny one.

Josh MacKenzie (he/him)

Senior Consultant, Sustainability and Climate Change, Aurecon

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From: Cooper's Environmental - Info <info@coopersenviro.com.au>

Sent: Tuesday, 16 September 2025 12:15 PM

To: Josh MacKenzie <Joshua.MacKenzie@aurecongroup.com>

Subject: RE: DMARC ViolationCooper's Environmental - Enquiry from website contact form

You don't often get email from info@coopersenviro.com.au. [Learn why this is important](#)

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Hi Josh

You have made reference to Bingo, our company is Cooper's Environmental Waste, did you mean to send to us?

Kind Regards

Cheryl Pruss

Administration Officer

Cooper's Environmental



Ph: 1300 791 977 / (02) 9673 6653

Email: officeadmin@coopersenviro.com.au



COOPER'S

ENVIRONMENTAL WASTE RECYCLING PTY LTD

ABN 49 978 633 182

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-----Original Message-----

From: coopersenviroweb@gmail.com@coopersenviro.com.au <coopersenviroweb@gmail.com@coopersenviro.com.au>

On Behalf Of Coopers Environmental

Sent: Tuesday, 16 September 2025 12:57 PM

To: Cooper's Environmental - Info <info@coopersenviro.com.au>

Subject: DMARC ViolationCooper's Environmental - Enquiry from website contact form

From: Josh <joshua.mackenzie@aurecongroup.com>

First Name: Josh

Last Name: MacKenzie



Email: joshua.mackenzie@aurecongroup.com

Company: Aurecon

Message:

Hi team,

My name is Josh, I am a waste consultant for Aurecon and supporting on a project in NSW for a new battery energy storage system.

As part of the work, I just need to confirm that Bingo is comfortable handling the below waste streams, at a minimal volume:

SP6

Oily Water

Carbonised Oil

The confirmation is just part of an approvals process that shows we have consulted with a preferred waste provider.

I understand this is a bit of a strange method to confirm, but I unfortunately haven't been given a direct contact from our client. Please feel free to email/call me back so I can explain further.

Thanks,

--

This e-mail was sent from a contact form on Cooper's Environmental (<https://coopersenviro.com.au>)

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From: Josh MacKenzie
Sent: Friday, 3 October 2025 11:19 AM
To: Daniel.balcombe@benedict.com.au
Subject: FW: Confirming waste streams

Hi Daniel, as discussed

Josh MacKenzie (he/him)
Senior Consultant, Sustainability and Climate Change, Aurecon

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DISCLAIMER

From: Josh MacKenzie
Sent: Thursday, 2 October 2025 9:07 AM
To: sales@benedict.com.au
Subject: Confirming waste streams

Hi team, my name is Josh and I work for Aurecon and engineering and advisory firm.

We're working with a client, who have nominated Benedict recycling to support with waste soils during construction. I understand this is all a bit vague but I don't want to break any confidentiality.

Simply put, as part of their submission to the NSW government they must show consultation with waste providers to prove they are able to manage their nominated waste streams. Thankfully you have a wonderful guide on your website, but I still need to make contact and confirm the below.

Are Benedict able to take:

- Virgin and non-virgin excavated natural material?
- Soils contaminated with brick, rubble, light rubbish and other non-hazardous or special wastes?

When answering, please assume all volumes will be standard, all requirements for separation, testing or anything else will be met. We simply need to show that we have confirmed our nominated waste provider can take the waste streams required. No need for pricing or anything else, very much just us following the process.

Hope that makes sense, please reach out if not.

Thanks,

Josh MacKenzie (he/him)
Senior Consultant, Sustainability and Climate Change, Aurecon

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Whadjuk Country
Level 5, 863 Hay Street, Perth Australia 6000

aurecongroup.com



DISCLAIMER

ACCEPTED WASTE STREAMS

PO Box 10 Moorebank NSW 1875 T: 02 8761 0000 recycling@benedict.com.au

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www.benedictrecycling.com.au

Waste Accepted	Product Code	Belrose	Chipping Norton	Newcastle	Smeaton Grange	Wollongong
Mixed Building & Demolition Waste May contain man made rubbish such as plastic, paper/cardboard, cloth, metal, brick & concrete, timber, etc.	DEMO	✓	✓	✓	✓	✓
General Solid Waste Recyclable Soils/Wastes from Infrastructure projects. Tipping subject to test reports being supplied and approved.	GSREC	✓	✓	✓	✓	✓
Rubble - Soil / Clay Based Building & Demolition Waste consisting of a mixture of soil / clay, brick, concrete, asphalt. Must not contain any other material incl. light rubbish.	RUBBL	✓	✓	✓	✓	✓
Clean Segregated Concrete Clean Straight Concrete - Building & Demolition Waste - must not contain any other material. Less than 700mm x 700mm in size.	CONCC	✓	✓	✓	✓	✓
Clean Segregated Concrete - Large Clean Straight Concrete - Building & Demolition Waste - must not contain any other material. Greater than 700mm x 700mm in size.	CONCCL	✓	✓	✓	✓	✓
Mixed Brick & Concrete Mixed Brick & Concrete - must not contain any other material.	CONBK	✓	✓	✓	✓	✓
Clean Segregated Brick Clean Straight Brick - must not contain any other material.	BRICC	✓	✓	✓	✓	✓
Asphalt Clean segregated asphalt - must not contain any other material.	ASPHA	✓	✓	✓	✓	✓
VENM (Certified) Certified only - Virgin Excavated Natural Material Soil, clay, shale, sandstone, sand - must not contain any other material.	VENM	✓	✓	✓	✓	✓
ENM Excavated Natural Material - Must contain 98% (by weight) natural occurring materials. Tipping subject to test reports being supplied and approved.	ENM	✗	✗	✓	✓	✓
Timber Must not contain chemically treated timber - must not contain any other material.	TIMBE	✗	✓	✓	✓	✓
Vegetation Full Loads – Garden/Green Waste Only – No Stumps.	VEGET	✗	✗	✓	✓	✓
Gyprock Clean Gyprock - must not contain any other material.	GYPROCK	✓	✓	✓	✓	✓
Non-recyclable Waste Loads which contain 50% or more by volume of carpet/underlay, vegetation, astro turf, kopper logs, MDF, glass, horsehair plaster, heavy clay with rubbish.	NRECW	✓	✓	✓	✓	✓
Non-recyclable Waste - Light Polystyrene, plastics, insulation, foam packaging. Loads that contain 50% or more by volume of one or a mixture of any of the listed wastes.	NRECWL	✓	✓	✓	✓	✓
Cardboard Clean segregated loads of cardboard and paper - must not contain any other material.	CBOARD IN	✓	✓	✓	✓	✓

IMPORTANT! WE DO NOT ACCEPT

ASBESTOS, LIQUID WASTE, RADIOACTIVE WASTE, FOOD WASTE, FLAMMABLE MATERIAL, MEDICAL WASTE, HAZARDOUS MATERIALS

Note: Should any fire extinguishers or gas bottles be found in the tipped waste, charges will apply per item if the customer chooses not to reload.

ACCEPTED WASTE STREAMS

PO Box 10 Moorebank NSW 1875 T: 02 8761 0000 recycling@benedict.com.au

BENEDICT
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RECYCLING

www.benedictrecycling.com.au

Waste Accepted	Product Code	Belrose	Chipping Norton	Newcastle	Smeaton Grange	Wollongong
Car Tyres	TYREC	Call us to find your nearest available site.				
Truck Tyres	TYRET					
Stumps (exceeding 500mm diameter)	STUMP					
Mattresses	MATTR					

WASTE ACCEPTED



CLEAN SEGREGATED CONCRETE CONCC

Contains no other waste streams (including fines) but may contain a small amount of reinforcing steel or steel mesh. The concrete pieces should be no larger than 700mm x 700mm. If the concrete pieces exceed this size, then they are classified as CONCL – concrete large.



CLEAN SEGREGATED CONCRETE BRICC

Brick classified loads can contain clay, terracotta or concrete brick and roof tiles with minimal fines. Brick classified loads should not contain soil, clay, timber, paper, plastic, vegetation or other manmade refuse.



MIXED BRICK & CONCRETE CONBK

The classification will contain mostly concrete and brick however can also contain some tile, asphalt and other hard durable materials (less than 700mm in size). CONBK can contain some fines however, it should not contain soil, clay, timber, paper, plastic, vegetation or other manmade refuse in the loads.



ASPHALT ASPHA

This usually comes to us in the form of reclaimed roads, pavements or parking lot surfaces. In some cases Asphalt may contain a small amount of concrete however, it should not contain other manmade materials.



VIRGIN EXCAVATED NATURAL MATERIAL VENM

VENM can be classified as sand, soil, shale, sandstone or rock. VENM material must not contain any manmade materials whatsoever.



TIMBER TIMBE

This waste product may consist of any type of clean timber, such as pallets or hardwood and may also consist of engineered timbers and residues derived from building, construction and demolition works.

IMPORTANT! WE DO NOT ACCEPT

ASBESTOS, LIQUID WASTE, RADIOACTIVE WASTE, FOOD WASTE, FLAMMABLE MATERIAL, MEDICAL WASTE, HAZARDOUS MATERIALS

Note: Should any fire extinguishers or gas bottles be found in the tipped waste, charges will apply per item if the customer chooses not to reload.

ACCEPTED WASTE STREAMS

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WASTE ACCEPTED



RUBBLE RUBBL

Loads that mostly contain brick, tile, concrete, asphalt and natural rock. This stream will have some fines either natural or recycled, but must not contain any other wastes such as timber, plastic, paper, vegetation or other manmade refuse in the loads.



VEGETATION - GREEN WASTE VEGE

This should be garden green waste only and this waste should not contain any manmade material or tree stumps.



MIXED LIGHT DEMOLITION WASTE

This waste has a lighter density and is quite aerated. In many cases there will be no soil and few recoverables. The waste will consist of manmade products such as plastics, timber, glass, metal, cloth, etc. Much of this waste will go to landfill.



MIXED HEAVY DEMOLITION WASTE

This waste stream usually has a heavy density to the product. This product will not be aerated and recoverables when screened can be soils, aggregates for crushing, steel and timber.



NON-RECYCLABLE WASTE NRECW

Loads which contain 50% or more by volume of carpet/underlay, vegetation, astro turf, kopper logs, MDF, glass, horsehair plaster, heavy clay with rubbish.



NON-RECYCLABLE WASTE - LIGHT NRECWL

Polystyrene, plastics, insulation, foam packaging. Loads that contain 50% or more by volume of one or a mixture of any of the listed wastes.



CARDBOARD CBOARD IN

Clean segregated loads of cardboard and paper - must not contain any other material.

IMPORTANT! WE DO NOT ACCEPT

ASBESTOS, LIQUID WASTE, RADIOACTIVE WASTE, FOOD WASTE, FLAMMABLE MATERIAL, MEDICAL WASTE, HAZARDOUS MATERIALS

Note: Should any fire extinguishers or gas bottles be found in the tipped waste, charges will apply per item if the customer chooses not to reload.

Document prepared by

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