SMEC

Member of the Surbana Jurong Group

local people
global experience

Waste Management Plan

The New Primary School at Warnervale

Prepared for Billard Leece Partnership
6 August 2019

SMEC INTERNAL REF. 30012657

Document Control

Document:	Waste Management Plan
File Location:	https://one.smecnet.com/sites/projects/30012657
Project Name:	The New Primary School at Warnervale
Project Number:	30012657
Revision Number:	Final V1

Revision History

Revision No.	Date	Prepared by	Reviewed by	Approved for Issue by
1.	17 May 2019	M.Wigley/S.Shaw	D.Saunders	D.Saunders
Final	4 June 2019	M.Wigley/S.Shaw	D.Saunders	D.Saunders
Final V1	6 August 2019	M.Wigley	D.Saunders	D.Saunders

Issue Register

Distribution List	Date Issued	Number of Copies
Billard Leece Partnership	6 August 2019	1

SMEC Company Details

Approved by:	Daniel Saunders		
Address:	Level 5, 20 Berry Street, North Sydney, NSW, 2060, Australia		
Signature:			
Tel:	+61 2 9925 5650	Fax:	
Email:	Daniel.saunders@smec.com	Website:	www.smec.com

Important Notice

This report is confidential and is provided solely for the purposes of supporting the SSD assessment process. This report is provided pursuant to a Consultancy Agreement between SMEC Australia Pty Limited ("SMEC") and Billard Leece Partnership, under which SMEC undertook to perform a specific and limited task for Billard Leece Partnership. This report is strictly limited to the matters stated in it and subject to the various assumptions, qualifications and limitations in it and does not apply by implication to other matters. SMEC makes no representation that the scope, assumptions, qualifications and exclusions set out in this report will be suitable or sufficient for other purposes nor that the content of the report covers all matters which you may regard as material for your purposes.

This report must be read as a whole. The executive summary is not a substitute for this. Any subsequent report must be read in conjunction with this report.

The report supersedes all previous draft or interim reports, whether written or presented orally, before the date of this report. This report has not and will not be updated for events or transactions occurring after the date of the report or any other matters which might have a material effect on its contents or which come to light after the date of the report. SMEC is not obliged to inform you of any such event, transaction or matter nor to update the report for anything that occurs, or of which SMEC becomes aware, after the date of this report.

Unless expressly agreed otherwise in writing, SMEC does not accept a duty of care or any other legal responsibility whatsoever in relation to this report, or any related enquiries, advice or other work, nor does SMEC make any representation in connection with this report, to any person other than Billard Leece Partnership. Any other person who receives a draft or a copy of this report (or any part of it) or discusses it (or any part of it) or any related matter with SMEC, does so on the basis that he or she acknowledges and accepts that he or she may not rely on this report nor on any related information or advice given by SMEC for any purpose whatsoever.

Table of Contents

Appendices

List of Tables

List of Figures

1 Introduction

1.1 Context

SMEC Australia Pty Ltd (SMEC) were engaged by Billard Leece Partnership Pty Ltd (BLP) on behalf of New South Wales (NSW) Department of Education (DoE) (the client) to develop a Waste Management Plan (WMP) for the demolition, construction and operations for The New Primary School at, located at 75 Warnervale Road, Warnervale, NSW 2259 (the Project). This WMP forms part of the technical inputs to the Environmental Impact Statement (EIS) for the Project. The Project has been deemed State Significant Development (SSD 9439).

This WMP has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) and relevant legislation, policies and guidelines.

1.2 Site Description

The original Warnervale Public School was opened on this site in 1958 and was in continuous use through to 2008 when the school moved to its current school on the corner of Warnervale and Minnesota Road.

The proposed Stage 1 development comprises demolition of all existing structures and construction of a new school accommodating 460 students and 32 staff. The school is to include

- New Core 35 Hall
- New Core 21 Administration & Staff Building
- New Core 21 OOSH
- New Core 21 Canteen
- New Core 21 Library
- New Core 21 (2x) Special Programs
- New Teaching Spaces 20 (Includes 2 Special Education Teaching Spaces)
- New Core 21 Student Amenities
- New Core 21 COLA
- Considerations for Future Expansion
- Staff Carpark 21 Spaces
- Visitor 5 Spaces
- Accessible 2 Spaces
- Related Road Works & Drop off/pick up Zone
- New Games Court

The design is intended to account for the possibility of future expansion of teaching and core facilities for up to 1,000 students.

The Project is situated on a 4.56-hectare allotment, which is legally described as Lot 71 DP 7091 and is surrounded by a large area of bushland which contains a small number of residential properties and is opposite a well-established suburban area to the north-east of the site. On the opposite side of Warnervale Road to the north-east of the Project is Warnervale Oval, which contains playing fields and a 400 metre running track.

Numerous buildings (Figure 1-1) will be demolished to facilitate the redevelopment of the site.

Figure 1-1 Buildings to be Demolished

1.3 Background

The SEARs for the Project were issued on 26 July 2018. The SEARs outline the requirements for waste management for the Project.

The WMP must provide information on the following:

- Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste
- Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.

1.4 Environmental management systems overview

The Project's Construction Environmental Management Plan (CEMP) describes in detail the overall system for the project's environmental management during construction. That system forms part of the environmental management framework being delivered by NSW Department of Environment and Planning.

Relevant management measures identified in this plan will be incorporated into site or activity specific Safe Work Method Statements (SWMS).

Contractor SWMS will be developed and approved by the DoE Environment Manager (or delegate) prior to commencement of works and demolition personnel will be required to undertake works in accordance with the identified mitigation and management measures.

Used together, the CEMP, strategies, procedures and SWMS form management guides that clearly identify required environmental management actions for reference by contractor personnel.

The review and document control processes for this plan are described in Section 10 of this WMP.

1.5 Hazardous Building Materials

A hazardous materials survey conducted by Hazmat Services Pty Ltd (Hazmat Services) in September 2018 identified the following (but not limited to) in relation to hazardous materials onsite:

- Asbestos Containing Materials (ACM) in the form of asbestos containing eaves, ceiling linings and gable verge linings, pipework in ceiling cavities, vinyl floor tiles, fibre cement debris in subfloor/ceiling voids and fibre cement packing materials in subfloor voids
- Synthetic Mineral Fibre (SMF) insulation materials in the form of loose fill and preformed batt insulation to cavities and roof/walls, suspended ceiling tiles, insulation to hot water pipes and various hot/boiling water units, insulation to air handling duct work and air conditioning plant
- Polychlorinated Biphenyls (PCBs) in the capacitors of fluorescent light/fan fittings
- Lead paints
- Elevated concentration of lead in dust in the older buildings (constructed around 1958) onsite
- Inaccessible areas should be assumed to contain hazardous building materials unless confirmed otherwise by a Competent Person

Hazmat Services recommended that an Asbestos Removal Control Plan (ARCP) is to be developed by the licenced asbestos removalist.

2 Purpose and Objectives

2.1 Purpose

The purpose of this plan is to describe how the client proposes to minimise the generation of waste, reduce the amount of waste for disposal, appropriately manage waste streams in accordance with legislation, policies and guidelines, and best practice during the proposed demolition, construction phases and ongoing operations at the site.

2.2 Objectives

The key objective of the WMP is to ensure that waste is minimised. To achieve this objective, the following will be undertaken:

- Ensure measures are identified and implemented to minimise and manage waste throughout the demolition, construction and operational phases of the project
- Ensure the preferred waste management hierarchy of avoidance, minimisation, reuse, recycling and finally disposal is followed
- Provide staff with an increased level of understanding and awareness of waste and resource use management issues
- Ensure appropriate measures are implemented to comply with relevant legislation and other requirements as described in Section 3.1 of this plan.

2.3 Targets

The following targets have been established for the management of waste during the project:

- Avoid the unnecessary production of waste where practical to do so
- Dispose of waste materials in accordance with legislative requirements
- Achieve the waste re-use / recycling targets specified in Appendix B for each waste stream.

3 Environmental Requirements

This chapter describes legislative, regulatory and guidance framework that applies to the Project.

3.1 Relevant Legislation and Guidelines

3.1.1 Legislation

Table 3-1 lists the principal legislation and regulations relevant to waste management.

Table 3-1 Principal legislation and regulation relevant to waste management

Legislation and regulation	Waste management Legislation and regulation
Environmental Planning and Assessment Act (Section 78A(8A)) Environmental Planning and Assessment Regulation 2000 (Schedule 2)	Secretary's Environmental Assessment Requirements have been prepared for the Project. The requirements outline the key issues that must be included in the EIS including waste management. Specifically, 17. Waste Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.
Protection of the Environment Operations Act 1997 (PEO Act)	Aims to reduce pollution and manage the storage, treatment and disposal of waste
Protection of the Environment Operations (General) Regulation 2009	Contains penalty notice provisions for infringements of the Protection of the Environment Operations (Waste) Regulation 2005 (as amended) and the NSW PEO Act.
Protection of the Environment Operations (Waste) Regulation 2017	Provides regulations for the storage, management and transport of waste.
Waste Avoidance and Resource Recovery Act 2001 (WARR Act)	Supplementary legislation aimed at reducing waste and resource consumption, defining the waste hierarchy and promoting its adoption across NSW.
Environmentally Hazardous Chemicals Act 1985	Controls the movement, storage, and disposal of chemical waste. Administered by EPA and the Hazardous Chemicals Advisory Committee.

3.1.2 Policy/Strategy

Refer to Table 3-2 below for the list of policies and strategies relevant to waste management.

Table 3-2. Policies and strategies relevant to waste and energy management.

Strategy	Relevance
Waste Avoidance and Resource Recovery Strategy (EPA, 2014)	Seeks to pave the way towards the targets waste reduction and materials reuse.

3.1.3 Guidelines and Standards

The main non-statutory guidelines, specifications and policy documents relevant to this plan include:

- Waste Classification Guidelines 2014 (NSW EPA Publication)
- Best Practice Waste Reduction Guidelines for the Demolition and Demolition Industry (tools for Practice), Natural Heritage Trust, 2000
- Waste Reduction and Purchasing Policy 2011-2014 (WRAPP), NSW Government
- Code of Practice for the Management and Control of Asbestos in Workplaces [NOHSC: 2018 (2005)]
- Code of Practice for the Safe Removal of Asbestos [NOHSC: 2002(2005)]
- Code of Practice for Synthetic Mineral Fibres [NOHSC: 2004(1990)]
- Code of Practice for the Safe Use of Synthetic Mineral Fibres [NOHSC: 2006 (1990)]
- Guidelines for Consultants Reporting on Contaminated Sites (NSW EPA, 2000)
- Australian Standard, Guide to Lead Paint Management, Part 2: Residential and Commercial Buildings (AS 4361.2 - 1998)
- Identification of PCB-Containing Capacitors (ANZECC 1997)
- Guidelines on Resource Recovery Exemptions - Land Application of Waste Materials as Fill (2011, DECCW)
- Storing and Handling Liquids, Environmental Protection: Participants Manual (NSW DECC, 2007)
- Excavated Natural Material orders and resource recovery exemptions 2014 (NSW EPA, 2014)
- Excavated Public Road Material orders and resource recovery exemptions 2014 (NSW EPA, 2014)
- Raw Mulch orders and resource recovery exemptions 2014 (NSW EPA, 2014)
- Reclaimed Asphalt Pavement orders and resource recovery exemptions 2014 (NSW EPA, 2014).

4 Environmental Aspects and Impacts

4.1 Waste throughout Phases

4.1.1 Demolition

Refer to Table 4-1 for the outline of the major waste streams expected to be generated from the Project.

Table 4-1. Demolition waste streams

Demolition activity	Waste type
Demolition	Existing structures – bricks, tiles and porcelain, concrete and masonry, scrap metal, timber, wood waste, plasterboard, glass, plastics, wiring, cardboard and paper. Existing structures – hazardous materials: ACM, synthetic mineral fibres (SMF), lead contaminated waste (including lead paint systems and dust), light/fan fittings containing PCB capacitors (if any) Road/driveway pavement – concrete, asphalt, gravel and road base Redundant utilities
Excavation and earthworks	Top soil –uncontaminated and contaminated with weeds VENM/ENM Unsuitable spoil Potentially contaminated fill soils
Clearing and grubbing	Green waste – timber, vegetation and weeds

4.1.2 Construction

- Packaging materials associated with items delivered to site such as pallets, crates, cartons, plastics and wrapping materials
- Wastes produced from the maintenance of various heavy construction equipment including liquid hazardous wastes from cleaning, repairing and maintenance
- Non-hazardous wastes would be generated through the use of worker's facilities such as toilets
- General wastes including office wastes, scrap materials and biodegradable wastes.

4.1.3 Operational

The general principles of the WMP for the operational phase are described below. The strategy aims to provide a waste management system that:

- Minimises the generation of waste through avoid-reduce-reuse-recycle education policies
- Will provide the opportunity to educate staff/students in waste management and resource recovery processes
- Meets regulatory and best practice requirement and guidelines
- Is 'hands on' but safe. Students/staff segregate their wastes into different receptacles at source (i.e. where it is generated: yard, inside, office, workshops, canteens etc.) and then transferred to the waste collect area by cleaning staff.
- Provides flexibility to be adapted to future site development (dedicated spaces rather than built in fixtures)
- Is cost effective.

System Components:

- Purchasing policies, recycling education programs for staff/students
- Internal dedicated bins (e.g. 30L) at source (two or three bin system for most areas, potentially more bins in canteen and office areas)
- External Bins (240L) per area(s), inside Bin Enclosures
- Special Bins for special purposes (e.g. workshop, canteen etc.)

- Bin Holding Areas, for the storage of full bins and “Stand-by Bins”
- Bin Collection Areas, where bins are collected during non-student times.

The Segregation and Collection Process:

Waste is placed by staff/students into separate Internal Bins (paper/cardboard, mixed (cans, bottles, plastics) and general waste). Food waste may be collected separately and either composted or disposed of once a separate food waste collection service is in place.

Bin sizes and enclosure areas to be further developed during detailed design phases.

The actual filling rates for all collection containers will be monitored on a monthly basis, and appropriate bin numbers, volumes and collection frequencies will be adopted and/or adjusted. It may be necessary to initiate additional, extraordinary collections to service extraordinary events held at the site.

Note: access to the collection areas should be designed to allow commercial collection vehicles to enter and exit safely from the site. It has been assumed that garbage collection would occur via the proposed new service deliveriy access road off Warnervale Road where a loading bay and waste bin area is proposed adjacent to the canteen facility.

Further information in relation to the Operational Waste Management Plan and provided within Appendix F.

4.2 Impacts

4.2.1 Demolition

The potential environmental impacts associated with demolition waste generation include:

- Generation of large volumes of building materials
- Inappropriate disposal of wastes
- Litter from work related activities and inappropriate disposal of domestic waste from demolition personnel
- Water pollution due to sediment runoff from soil excavation and excess spoil storage
- The mismanagement of waste streams has the potential to result in the following impacts
- Excessive waste being directed to landfill
- Various type of waste being generated and stored onsite, with the potential for misclassification
- Water pollution
- Land contamination
- Health risks to site personnel and future site users.

A full list of management measures is included in Section 6 of this Plan.

4.2.2 Construction

The potential environmental impacts associated with construction waste generation include:

- Generation of construction waste, such as excavated soil and rock
- Generation of vegetation waste from corridor clearing
- Generation of domestic waste from construction personnel
- Inappropriate disposal of hazardous waste
- Generation or spread of contaminated waste/soils, e.g. groundwater, used or expired chemicals, or construction materials
- Water pollution due to sediment runoff from soil excavation and excess spoil storage
- Weed infestation from dispersion of seeds and so forth during clearing and access upgrading activities.

4.2.3 Operational

The potential environmental impacts associated with operational waste generation include:

- Litter and waste spillage due to undersized bin infrastructure
- Poor recycle rates
- Cross contamination of recycled materials and non-recyclable wastes
- Waste services infrastructure not being compatible with waste vessels.

5 Waste Management

5.1 Classification of Waste Streams

Figure 5-1 illustrates the waste hierarchy that should be followed to reduce the generation of waste and limit the amount of waste to disposal. Where waste cannot be avoided, reused or recycled it will be classified and appropriate disposal will then occur.

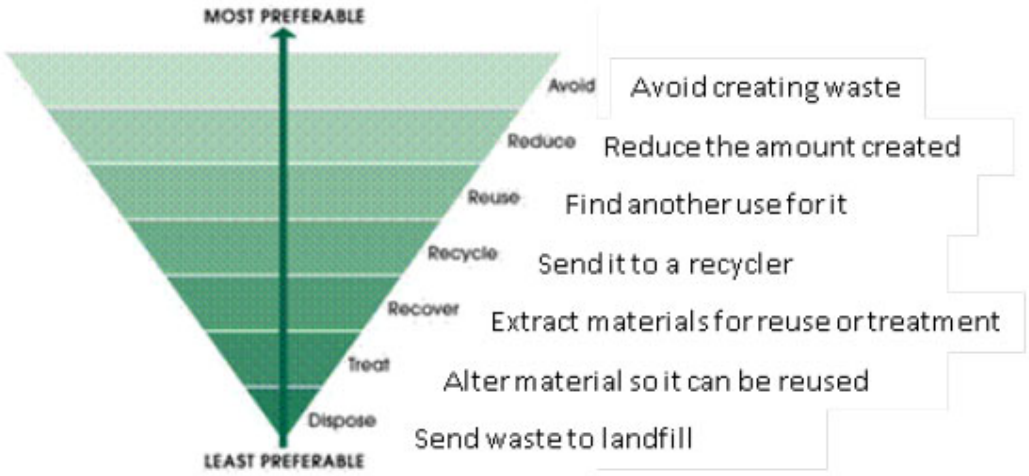


Figure 5-1. Waste hierarchy.

The classification of waste is undertaken in accordance with the NSW EPA, Waste Classification Guidelines Part 1: Classifying Waste (2014). This document identifies six classes of waste: Special, Liquid, Hazardous, Restricted Solid, General Solid (putrescible) and General Solid (non-putrescible), and describes a six step process to classifying waste. That process is described below:

Step 1: Is it 'special waste'?

Establish if the waste should be classified as special waste. Special wastes are clinical and related, asbestos, waste tyres. Definitions are provided in the guidelines.

Asbestos and clinical wastes must be managed in accordance with the requirements of Clauses 42 and 43 of the Protection of the Environment Operations (Waste) Regulation 2014.

Step 2: If not special, is it 'liquid waste'?

If it is established that the waste is not special waste, it must be decided whether it is 'liquid waste'. Liquid waste means any waste that: has an angle of repose of less than 5° above horizontal becomes free-flowing at or below 60° Celsius or when it is transported is generally not capable of being picked up by a spade or shovel.

Liquid wastes are sub-classified into:

- Sewer and stormwater effluent

Trackable liquid waste according to Protection of the Environment Operations (Waste) Regulation 2005 Schedule 1 Waste to which waste tracking requirements apply

- Non-trackable liquid waste.

Step 3: If not liquid, has the waste already been pre-classified by the NSW EPA?

The EPA has pre-classified several commonly generated wastes in the categories of hazardous, general solid waste (putrescibles) and general solid waste (non-putrescibles). If a waste is listed as 'pre-classified', no further assessment is required.

Step 4: If not pre-classified, is the waste hazardous?

If the waste is not special waste (other than asbestos waste), liquid waste or pre-classified, establish if it has certain hazardous characteristics and can therefore be classified as hazardous waste.

Hazardous waste includes items such as explosives, flammable solids, and substances liable to spontaneous combustion, oxidizing agents, toxic substances and corrosive substances.

Step 5: If the waste does not have hazardous characteristics, undertake chemical assessment to determine classification.

If the waste does not possess hazardous characteristics, it needs to be chemically assessed to determine whether it is hazardous, restricted solid or general solid waste (putrescible and nonputrescible). If the waste is not chemically assessed, it must be treated as hazardous.

Waste is assessed by comparing Specific Contaminant Concentrations (SCC) of each chemical contaminant, and where required the leachable concentration using the Toxicity Characteristics Leaching Procedure (TCLP), against Contaminant Thresholds (CT).

Step 6: Is the general solid waste putrescible or non-putrescible?

If the waste is chemically assessed as general solid waste, a further assessment is available to determine whether the waste is putrescible or non-putrescible. The assessment determines whether the waste is capable of significant biological transformation. If this assessment is not undertaken, the waste must be managed as general solid waste (putrescible).

5.2 Resource recovery orders and exemptions

Resource recovery orders include conditions which generators and processors of waste must meet to supply the waste material for the purposes described above. These conditions may include material specifications, processing specifications, record-keeping, reporting and other requirements.

Resource recovery exemptions contain the conditions which consumers must meet to use waste for the purposes described above. These conditions may include requirements on how to re-use or apply the waste, as well as record-keeping, reporting and other requirements.

The EPA has issued general exemptions for a range of commonly recovered, high volume and well characterised waste materials that allow their use as fill or fertiliser at unlicensed, off-site facilities. The general 'Resource Recovery Exemptions may be applicable to this work are defined in

Table 5-1 below. These are general gazette exemptions that do not require approval. A specific exemption may be granted where an application is made to the EPA.

Table 5-1. Resource recovery exemptions.

Exemption	General conditions
Excavated Natural Material Exemption 2014	At the time the excavated natural material is received at the premises, the material must meet all chemical and other material requirements for excavated natural material which are required on or before the supply of excavated natural material under 'the excavated natural material order 2014'. The excavated natural material can only be applied to land as engineering fill or for use in earthworks. The consumer must keep a written record of the following for a period of six years: • the quantity of any excavated natural material received • the name and address of the supplier of the excavated natural material received. The consumer must make any records required to be kept under this exemption available to authorised officers of the EPA on request. The consumer must ensure that any application of excavated natural material to land must occur within a reasonable period of time after its receipt.
Excavated Public Road Material Exemption 2014	The excavated public road material can only be applied to land within the road corridor for public related activities including road demolition, maintenance and installation of road infrastructure facilities. The excavated public road material can only be stored within the road corridor at the site where it is to be applied to land. The excavated public road material cannot be applied to private land. The consumer must ensure that any application of excavated public road material to land must occur within a reasonable period of time after its receipt
The recovered aggregate exemption 2014	This exemption applies to recovered aggregate that is, or is intended to be, applied to land for road making activities, building, landscaping and construction works. Recovered aggregate is a material comprising of concrete, brick, ceramics, natural rock and asphalt processed into an engineered material. This does not include refractory bricks or associated refractory materials, or asphalt that contains coal tar. The recovered aggregate can only be applied to land in road making activities, building, landscaping and construction works.

5.3 Classification of Potential Waste Streams

The demolition aspects and types of wastes that may be generated during demolition, are outlined and classified in Appendix B.

5.4 Reuse and Recycling

Waste separation and segregation will be promoted on-site to facilitate reuse and recycling as a priority of the waste management program as follows:

Waste segregation onsite – Waste materials, including demolition waste and spoil, will be separated onsite into dedicated areas for collection by a waste contractor and transport to offsite facilities

Waste separation offsite – where space is not available for separation onsite, the waste is to be sorted at a suitable offsite location by the waste contractor.

Where sections of the existing local roads are excavated, this material will be reused in accordance with the conditions attached to the general resource recovery exemption, Excavated Public Road Material Exemption 2014 (EPA, 2014). Where this material has not been subjected to potentially contaminating sources, it can be reused within

the road corridor without further testing or any specific licensing requirements. Where this material is suspected of being subject to contamination, testing and classification of this material will be undertaken.

Where materials cannot be reused and recycled, all waste would be handled and disposed in accordance with the PEO Act.

5.5 Waste Handling and Storage

Where waste is required to be handled and stored onsite prior to onsite reuse or offsite recycling/disposal, the following measures apply:

All recyclable or non-recyclable wastes are to be suitably stockpiled in appropriate locations onsite and contractors commissioned to regularly remove the waste to approved disposal or recycling facilities.

Spoil, topsoil and mulch are to be stockpiled onsite in allocated areas, where appropriate, and mitigation measures for dust control and surface water management will be implemented, including the Stockpile Management Protocol

Liquid wastes are to be stored in appropriate containers in bunded areas until transported offsite. Bunded areas will have the capacity to hold 110 per cent of the liquid waste volume for bulk storage or 120 per cent of the volume of the largest container for smaller packaged storage

Hazardous waste will be managed by appropriately qualified and licensed contractors, in accordance with the requirements of the Environmentally Hazardous Chemicals Act 1985, EPA waste disposal guidelines.

5.6 Waste Disposal

Waste (and spoil) disposal is to be in accordance with the PEO Act and the WARR Act. Wastes that are unable to be reused or recycled will be disposed of offsite to an EPA approved waste management facility following classification (refer to Section 5.1). Example locations of waste management / disposal facilities are included in Appendix A.

Details of waste types, volumes and destinations are to be recorded in the Waste Management Register (Appendix D).

Where possible wastes will be removed off-site to a recycling facility or will be disposed of at a licensed waste facility.

5.7 Vegetation Waste

Vegetation clearing that occurs during demolition works may generate a large amount of green waste, especially in areas where the establish trees encroach on the demolitions zones required. Large trees would be felled and mulched and where possible reused on site or transported to other sections of the Project. DoE will manage the quantities and reuse requirements of vegetation waste.

A hierarchy will be used to identify the most appropriate use for vegetation waste and reduce the need for transportation:

- Vegetation would be mulched and re-used for revegetation and landscaping
- Transported to nearby approved environmental recovery projects
- Given to local councils and businesses.

6 Environmental Mitigation and Management Measures

A range of environmental requirements are identified in the various environmental documents, including the Local Environment Plan and from recent experience on similar residential and commercial demolition projects. Specific measures and requirements to address waste management and energy use issues are outlined in Table 6-1

The responsibilities of the roles identified in Table 6-1 would be detailed in the Project CEMP.

Table 6-1. Waste management and mitigation measures

ID	Measure / Requirement	When to Implement	Responsibility
GENERAL			
G1	The NSW Governments Waste Management Hierarchy of "avoid-reduce-reuse- recycle- dispose" would be followed as the framework of waste management throughout the project. The reuse and/or recycling of waste materials generated on site shall be maximised as far as practicable, to minimise the need for treatment or disposal of those materials off site.	Pre-demolition Demolition	DoE Environment Manager Project Contractor's Environmental Representative Project Contractor Project Engineer
G2	Relevant waste management measures from this WMP would be included in relevant Environmental Work Method Statements to be developed prior to the commencement of specific activities	Pre-demolition / Demolition	DoE Environment Manager Project Contractor's Environmental Representative
G3	All staff and subcontractors would undergo a site induction and ongoing toolbox talks that will detail waste minimisation and reuse management measures, including the requirements of the waste management hierarchy.	Demolition	DoE Environment Manager Project Contractor's Environmental Representative
G4	Sediment recovered from erosion and sediment control devices would be reused on site as general fill material or it will be incorporated within landscaping materials where possible and stabilised.	Demolition	DoE Supervisor Project Contractors Project Engineer/Foreman
G5	All waste material generated on-site (including chemical, fuel and lubricant containers, and solid and liquid waste) would be classified and disposed of in accordance with the Protection of the Environment Operations Act 1997 and Waste Classification Guidelines Part 1: Classifying Waste (DECCW, 2009), or any superseding document. Waste generated outside the site shall not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence or waste exemption under the Protection of the Environment Operations Act 1997, if such a licence is required in relation to that waste.	Demolition	DoE Supervisor Project Contractors Project Engineer Project Contractor's Environmental Representative

ID	Measure / Requirement	When to Implement	Responsibility
G6	Waste minimisation and management measures would be developed based on the principles in the Waste Avoidance and Resource Recovery Act 2001, the NSW Government's Waste Reduction and Purchasing Policy, and waste exemptions including: Excavated Natural Material Exemption (EPA, 2014)). Excavated Public Road Material Exemption (EPA, 2014)) Raw Mulch Exemption (EPA, 2014) Reclaimed Asphalt Pavement Exemption (EPA, 2014) Recovered Aggregate Exemption (EPA, 2014) Stormwater Exemption (EPA, 2014) Recycled material would be considered for use in all aspects of the project where feasible and reasonable and measures will seek to avoid, minimise, re-use, recycle, treat or dispose of waste streams during demolition and address transport and disposal arrangements.	Pre-demolition / Demolition	DoE Environment Manager Project Contractors Project Engineer Project Contractor's Environmental Representative
G7	Regular visual inspections would be conducted to ensure that work sites are kept tidy and to identify opportunities for reuse and recycling	Demolition	DoE Supervisor Project Contractor's Environmental Representative Project Contractor Project Engineer/Foreman
G8	Water captured in excavations would be required to be either: Managed in accordance with the demolition Soil and Water Management Plan Transferred to a licensed sediment basin, treated and discharged in accordance with any licence conditions that apply to the discharge of water, or Re-used for demolition water or dust suppression.	Demolition	DoE Supervisor Project Contractor's Environmental Representative Project Contractor Project Engineer
G9	Topsoil (weed free) would be stockpiled in accordance with RMS criteria in allocated areas and reused for landscaping.	Demolition	Project Contractor's Environmental Representative

ID	Measure / Requirement	When to Implement	Responsibility
			Project Contractor Project Engineer/Foreman in consultation with DoE Package Engineer
G10	Any contaminated waste would be handled, separated, contained, managed and disposed of to prevent migration and further contamination.	Demolition	DoE Supervisor Project Contractor Project Engineer/Foreman Waste Contractor
G11	A waste register would be maintained, detailing types of waste collected, amounts, date/time and details of disposal.	Demolition	DoE Environment Manager Project Contractor Project Engineer/ Project Contractor's Environmental Representative Waste Contractor
G12	Waste would be managed and disposed of in accordance with the PoEO Act and the WRAPP. Wastes that are unable to be reused or recycled would be disposed of offsite at a licensed waste management facility, or premises lawfully permitted to accept the materials following classification	Demolition	DoE Environment Manager Project Contractor Project Engineer/ Project Contractor's Environmental Representative Waste Contractor
G13	Oils and other hazardous liquids would be labelled and stored in a sealed container within a bunded area. Material collected from within bunded areas will be disposed of offsite at an appropriately licenced waste facility	Demolition	DoE Environment Manager Project Contractor Project Engineer/ Project Contractor's Environmental Representative Waste Contractor
G14	The relevant licences of waste facilities utilised for the disposal of project waste would be obtained (on a regular basis if necessary) to ensure they are legally able to accept that waste.	Pre-demolition / Demolition	DoE Environment Manager

ID	Measure / Requirement	When to Implement	Responsibility
			Project Contractor Project Engineer/Project Contractor's Environmental Representative
G15	The disposal of chemical, fuel and lubricant containers, solid and liquid wastes must be in accordance with the requirements of the local Council or the EPA.	Demolition	DoE Planning and Approvals Leader Waste Contractor
G16	All trucks transporting wastes off site would be appropriately licensed to carry the materials to appropriately licensed waste facilities.	Demolition	DoE Planning and Approvals Leader Waste Contractor
G17	Procurement of materials will be planned and managed to avoid the over-ordering of products and minimise excess packaging is to be carried out.	Construction	Project Contractor Foreman
G18	Cleared vegetation will be reused or recycled to the greatest extent practicable for example: Mulching of vegetation for use in landscaping Spreading of vegetation for fauna habitat in suitable areas where agreements are made for this (eg mulch, small timber, hollow logs) Donation of other timber to community or environmental groups	Construction	Project Contractor Environmental Representative
G19	Weeds will be managed, handled and disposed of in accordance to The Weed Management Strategy (refer to the FFMP). If disposal is appropriate, the weed material will be transferred to a licensed waste facility.	Construction	Project Contractor Foreman
G20	Concrete, asphalt, bricks/masonry and steel products are to be reused on site where possible. Alternatively, they will be sent off-site for recycling	Construction	Project Contractor Foreman
G21	All trucks transporting wastes off site will be appropriately licensed to carry the materials to appropriately licensed waste facilities.	Construction	Project Contractor Foreman

7 Record Keeping Requirements

7.1 Asbestos Register

Any person with management or control of a facility/workplace must ensure an asbestos register is prepared and kept at the facility/workplace. The asbestos register must be maintained, to ensure the information in the register is up-to-date.

The Asbestos Register is a summary of the visual inspection carried out on a property. The register should contain the following information as a minimum:

- Section 1 – Working documents including a drawing, detailed location schedules with specific and general notes.
- Section 2 – Work Access Procedures – management forms which need to be completed when working with or exposed to Asbestos.
- Section 3 – A Hazard Management Plan.
- Section 4 – Asbestos training information.
- Section 5 – Reference to any applicable NSW state legislation and glossary of terms.
- Section 6 – Information on any sampling process, criteria and limitations of sampling and laboratory analysis.

Contractors should be aware that previously unidentified Asbestos Containing Materials (ACM) may be encountered in the building when carrying out demolition, excavation, building works, or accessing ceiling, confined spaces in inaccessible or inconspicuous areas.

Prior to demolition work starting, contractors must review the asbestos register for the site and ensure all asbestos that is likely to be disturbed is identified and removed so far as is reasonably practicable.

7.2 Offsite Waste Disposal Documentation

In accordance with the Protection of the Environment Operations (Waste) Regulation 2005 the following records must be kept in relation to offsite waste disposal:

- A consignor of waste must keep copies of each waste transport certificate, required to be completed by the consignor, for a period of at least 4 years.
- A transporter of waste must retain copies of each waste transport certificate, required to be completed by the transporter, for a period of at least 6 years.
- Each waste classification and authorised waste receiver document should also be retained as proof of appropriate offsite disposal of any waste from the site.

7.3 Hazardous Materials Register

Hazardous materials are not expected to remain onsite after the demolition works. However, if hazardous materials do remain onsite following the building demolition works, a hazardous materials register should be developed and maintained for the site. The register should detail the location and condition of all hazardous materials remaining at the site. Inspections should be conducted on a regular basis and the hazardous materials register updated accordingly.

Any works identified/required as a result of the inspections should be undertaken immediately. The hazardous materials register should be made available to any site occupant or contractor that may come into contact with hazardous materials remaining onsite.

8 Compliance Management

DoE will manage the environmental performance and compliance of the work by undertaking independent waste inspections and audits, and reviewing reports submitted by both the demolition contractors and waste contractors. DoE will report relevant government bodies as required, to provide evidence of the works compliance with legislative requirements, conditions of approval and standards and guidelines.

8.1 Roles and Responsibilities

The organisational structure and overall roles and responsibilities for DoE would be outlined in relevant sections of the project CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Chapter 6 of this plan.

8.2 Procurement of Waste Contractors

DoE will engage waste contractors to manage the collection, recycling or disposal of waste that cannot be reused onsite. A number of different waste contractors will be required to appropriately manage the different waste streams generated onsite. To ensure the selection of reliable and experienced contractors, DoE will request the following information that will be included in any contract information:

- Experience
- Historical performance with each waste stream and similar projects
- Any non-conformance notices or environmental offences, penalties or notices
- Copies of licenses and permits for handling, transporting and disposing waste
- Management systems and policies (health and safety, environment and sustainability)
- Proof of compliance with legislation and guidelines
- Cost for collection, processing and recycling/disposal
- Destination of each waste stream
- Processing techniques
- Expected recovery rates of each waste streams.

Project Contractors will be required to submit their own Environmental Management Plan (Project Contractors EMP) which will be required to include waste, resource and energy management and mitigation measures for their works. They will only be required to submit a plan tailored to their works that will include specific mitigations from this management plan pertinent to the subset of works that they will be carrying out for the project.

The submission of the Project Contractors EMP will be a hold point prior to the commencement of any works onsite.

8.3 Timing

The Project Contractors will carry out regular monitoring and inspections. DoE will also conduct independent inspections to confirm the contractor's compliance with waste management requirements.

Table 8-1 outlines the monitoring and inspection activities that will be undertaken during demolition by waste contractors, demolition contractors and DoE.

Table 8-1. Program for monitoring and inspections during construction.

Item	Frequency
DoE	
Undertake weekly waste inspections and record on the environment checklist	Weekly
Carry out waste management audits to assess extent of waste hierarchy. This should be undertaken at fortnightly intervals during the demolition stage of the work and will be used to assess compliance with waste targets / performance criteria	Fortnightly
Keep records of waste contractors and landfill facilities used to ensure waste management can be traced from cradle to grave	Monthly
Verify licences and permits for handling, transporting and disposal of wastes	Provision of waste contractor agreement
Collate Project Contractor waste disposal data and maintain the project waste register.	Report monthly
Project Contractor	
Undertake weekly waste inspections and record on the environment checklist	Weekly
Maintain and document the types and volumes of wastes generated, re-used, recycled and disposed of	Daily/ as required
Document the locations of stockpiled and stored waste	Daily/ as required
A Waste Management Register of all waste collected for disposal and/or recycling will be maintained on a monthly basis until final completion	Monthly
Waste Contractor	
Maintain and document the types and volumes of wastes collected recycled and disposed of. Provide monthly reports on waste removal and disposal activities.	When waste is collected and report on a monthly basis

8.4 Auditing

Audits will be undertaken by DoE and third party external auditors to assess the effectiveness of environmental mitigation and management measures, compliance with this plan, and other relevant approvals, licenses and guidelines.

8.5 Reporting

Waste contractors and demolition contractors will report regularly to DoE on their waste management practices. DoE will review these reports; compare results between the various entities, and any data collected by DoE personnel. DoE will then relay the required information in the form of regular reporting to stakeholders as required.

Table 8-2 outlines the reporting requirements for waste contractors, demolition contractors and DoE.

Table 8-2 Reporting requirements for waste contractors, demolition contractors and DoE

Item	Frequency
Demolition Contractor	
Monthly waste register provided to DoE (Appendix D)	Monthly
Waste Contractor	
Monthly service provider waste reports provided to DoE (Appendix C)	Monthly

9 Contingency Planning

9.1 Handling of Unexpected Finds

Appropriate professional advice should be sought immediately, should previously unidentified waste/materials of a suspected harmful or contaminating nature be identified during site demolition and/or construction works.

10 Review and Improvement

10.1 Continuous Improvement

DoE will review waste reports submitted by the demolition contractor and waste contractors and identify areas for improvement. DoE, in consultation with contractors, will evaluate the project's environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any nonconformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from process improvement
- Make comparisons with objectives and targets.

Appendix A Example Locations of Waste Facilities

Local Government Area	Facility Name	Waste Type	Contact Details
Central Coast Council	Woy Woy Waste Management Facility	lead acid car, marine and household batteries car bodies, whitegoods, car tyres on rims and other metals motor oil (maximum 20 litres) fluorescent lights (household quantities only) cardboard (up to 200kg) glass bottles/jars (no flat glass) PET/HDPE plastic bottles and milk/juice cartons aluminium and tin cans/foil, tins and empty aerosol spray cans computer items including: desktops, laptops, monitors, modems, keyboards, cables, drives and related accessories, printers and scanners electronic devices, such as televisions, kitchen appliances, cooling and heating devices, audio equipment, electronic tools, electronic garden equipment and mobile phones mixed waste (food waste not accepted at Kincumber Facility) garden organics cardboard - over 200kg bricks, roof tiles, pavers and concrete special wastes (not accepted at Kincumber Facility) virgin excavated natural material (VENM) and excavated natural material (ENM) (not accepted at Kincumber Facility) mattresses LPG gas cylinders (maximum 9kg) and fire extinguishers	Location: Nagari Rd, Woy Woy Telephone: 4342 5255 Hours of operation: 7.00 am – 5.00 pm Monday to Friday 8.00 am – 4.00 pm Saturday and Sunday
	Kincumber Waste Management Facility	Kincumber Waste Transfer Facility operates as a recycling and processing facility for all dry inert and green waste. Putrescible waste (food, deceased animals), special waste (pharmaceuticals, security waste and asbestos), contaminated waste that requires burial and general household garbage are not accepted at this facility. Asbestos is not available at this facility	Location: Cullens Rd, Kincumber Telephone: 4368 1229 Hours of operation: 8.00 am – 4.00 pm daily
	Buttonderry Waste Management Facility	lead acid car, marine and household batteries car bodies, whitegoods, car tyres on rims and other metals motor oil (maximum 20 litres) fluorescent lights (household quantities only) cardboard (up to 200kg) glass bottles/jars (no flat glass) PET/HDPE plastic bottles and milk/juice cartons aluminium and tin cans/foil, tins and empty aerosol spray cans computer items including: desktops, laptops, monitors, modems, keyboards, cables, drives and related accessories, printers and scanners electronic devices, such as televisions, kitchen appliances, cooling and heating devices, audio equipment, electronic tools, electronic garden equipment and mobile phones mixed waste (food waste not accepted at Kincumber Facility) garden organics cardboard - over 200kg bricks, roof tiles, pavers and concrete special wastes (not accepted at Kincumber Facility) virgin excavated natural material (VENM) and excavated natural material (ENM) (not accepted at Kincumber Facility) mattresses LPG gas cylinders (maximum 9kg) and fire extinguishers	Location: Hue Hue Rd, Jilliby Telephone: 4350 1320 Hours of operation: 7.00 am – 5.00 pm Monday to Friday 8.00 am – 4.00 pm on Saturday, Sunday and public holidays.

Appendix B Demolition Waste Management Strategy

Materials On site		Waste Classification	Destination		
Indicative total only			Reuse and Recycling		Disposal
Type of Material	**Estimated Qty [m^2]**		**ON-SITE**	**OFF-SITE**	
Bricks (external and internal)	TBC (by Quantity Surveyor / Demolition contractor)	General solid waste (non-putrescible)	NA	Bricks would be recycled offsite Contractor: TBA Facility: TBA	Nil to landfill
Tiles and Porcelain (toilets, urinals, sinks, walls and other various tiled areas)	TBC (by Quantity Surveyor / Demolition contractor)	General solid waste (non-putrescible)	NA	Concrete that cannot be reused on site will be recycled off-site. Contractor: TBA Facility: TBA	Nil to landfill
Concrete, Masonry (Internal walls, stairs, and other concreted areas)	TBC (by Quantity Surveyor / Demolition contractor)	General solid waste (non-putrescible)	Concrete may be re-used as drainage fill on site where possible	Concrete that cannot be reused on site will be recycled off-site. Contractor: TBA Facility: TBA	Nil to landfill
Timber - plywood, stud walls, battens, skirting, doors, stairs etc.	TBC (by Quantity Surveyor / Demolition contractor)	General solid waste (non-putrescible)	NA	Timber will be transported to a timber recycling yard where possible. Contractor: TBA Facility: TBA	Timber that cannot be recycled will be disposed at an appropriate waste facility Contractor: TBA Facility: TBA
Plasterboard (Various internal areas)	TBC (by Quantity Surveyor / Demolition contractor)	General solid waste (non-putrescible)	NA	Clean plaster board will be transported to a soil conditioning yard where possible. Contractor: TBA Facility: TBA	Plaster Board that cannot be recycled will be disposed at an appropriate waste facility Contractor: TBA Facility: TBA

Materials On site		Waste Classification	Destination		
Metals	TBC (by Quantity Surveyor / Demolition contractor)	General solid waste (non-putrescible)	NA	All steel materials will be separated transported to a metal recycling yard Contractor: TBA Facility: TBA	Nil to landfill
Asbestos Containing Material (ACM)	TBC (by Quantity Surveyor / Demolition contractor)	Special Waste	NA	NA	To be disposed of at appropriate licensed waste facility Contractor: TBA Facility: TBA
Lead Contaminated Wastes (including lead paint)	TBC (by Quantity Surveyor / Demolition contractor)	Special Waste	NA	NA	To be disposed of at appropriate licenced waste facility. Contractor: TBA Facility: TBA
Light fittings containing PCB capacitors (if any)	TBC (by Quantity Surveyor / Demolition contractor)	Special Waste	NA	NA	To be disposed of at appropriate licensed waste facility Contractor: TBA Facility: TBA
Synthetic Mineral Fibres (SMF)	TBC (by Quantity Surveyor / Demolition contractor)		NA	NA	To be disposed of at appropriate licensed waste facility Contractor: TBA Facility: TBA
Glass	TBC (by Quantity Surveyor / Demolition contractor)	General solid waste (non-putrescible)	NA	Glass will be segregated from other material where possible and recycled. Contractor: TBA	Nil to landfill

Materials On site		Waste Classification	Destination		
				Facility: TBA	
Plastics, PVC tubing, electrical wiring etc.	TBC (by Quantity Surveyor / Demolition contractor)	General solid waste (non-putrescible)	NA	Such materials will be segregated from other material where possible and recycled. Contractor: TBA Facility: TBA	Material that cannot be recycled will be disposed at an appropriate waste facility Contractor: TBA Facility: TBA
Cardboard/Paper	TBC (by Quantity Surveyor / Demolition contractor)	General solid waste (non-putrescible)	NA	Cardboard will be segregated from other material and recycled where possible. Contractor: TBA Facility: TBA	Cardboard that cannot be recycled will be disposed at an appropriate waste facility Contractor: TBA Facility: TBA

Appendix C Example Waste Service Provider Report

Monthly waste service provider report										
Waste Service Provider Name:										
Reporting Period:										
Report Prepared By:										
Date / Time	Description of waste (e.g. concrete, asphalt, vegetation)	Waste Classification	Type (skip, front lift, wheelie bin, pump out)	Container Size (M3 or Lt)	Number of containers	Amount of spoil or waste collected		Quantity to be recycled	Quantity to be sent to landfill for disposal	Facility to receive
						Weight (tonnes)	Total Volume (m3)			

Appendix D Example Waste Management Register for Demolition Contractor

Appendix D Example Waste Management Register for Demolition Contractor

Waste management register for demolition contractor

Date / Time	Description of waste (e.g. concrete, asphalt, vegetation)	Waste Classification	Type (skip, front lift, wheelie bin, pump out)	Container Size (m^3 or Lt)	Number of containers	Amount of spoil or waste collected		Quantity reuse on site	Quantity sent for recycling	Quantity sent to landfill for disposal	Transporter	Facility to receive	Invoice No / Tip Docket Ref
						Weight (tonnes)	Volume (m^3)						

Appendix E Construction Waste Management Strategy

To be provided with Main Works Construction Environmental Management Plan (CEMP)

Appendix F Waste Management Operational Phase

The general principles of the WMP for the operational phase (OWMP) are described below. The strategy aims to provide a waste management system that:

- Minimises the generation of waste through avoid-reduce-reuse-recycle initiatives and education policies
- Will provide the opportunity to educate staff/students in waste management and resource recovery processes
- Meets regulatory and best practice requirement and guidelines
- Is 'hands on' but safe. Students/staff segregate their wastes into different receptacles at source (i.e. where it is generated: yard, inside, office, workshops, canteens etc.) and then transferred to the waste collect area by cleaning staff.
- Provides flexibility to be adapted to future site development (dedicated spaces rather than built in fixtures)
- Is cost effective.

System Components:

- Ongoing waste reduction/avoidance and recycling education programs for staff/students
- Internal dedicated bins (e.g. 30L) at source (two or three bin system for most areas, potentially more bins in canteen and office areas)
- External dedicated bins (120L), within dedicated bin area(s)
- Special bins for special purposes (e.g. food waste in canteen etc.)
- Bin Holding Areas, for the storage of full bins and "Stand-by Bins"
- Bin Collection Areas, where bins are collected by waste vehicles during non-student times.

The Segregation and Collection Process:

The operational waste streams can be expected to include:

- General Waste
- Recycling waste (paper/cardboard, mixed waste - cans, bottles, plastics)
- Food waste
- Green waste

Waste is placed by staff/students into dedicated 'marked' bins (paper/cardboard, mixed (cans, bottles, plastics) and general waste) within internal and external areas. Food waste may be collected separately and either composted or disposed of once a separate food waste collection service is in place.

From the dedicated internal bins, waste(s) would be transferred to the appropriate external 120L bins (within various marked enclosure(s) (locations TBD)) around the site by cleaning staff. Once full, the 120L bins would be emptied into larger dedicated bins (exact size TBD based on site access) within the Waste Bin Collection Area adjacent to the canteen by school caretaker and/or cleaning staff. The larger bins would be emptied by a suitable vehicle (TBD based on preferred bin size), outside student attendance times.

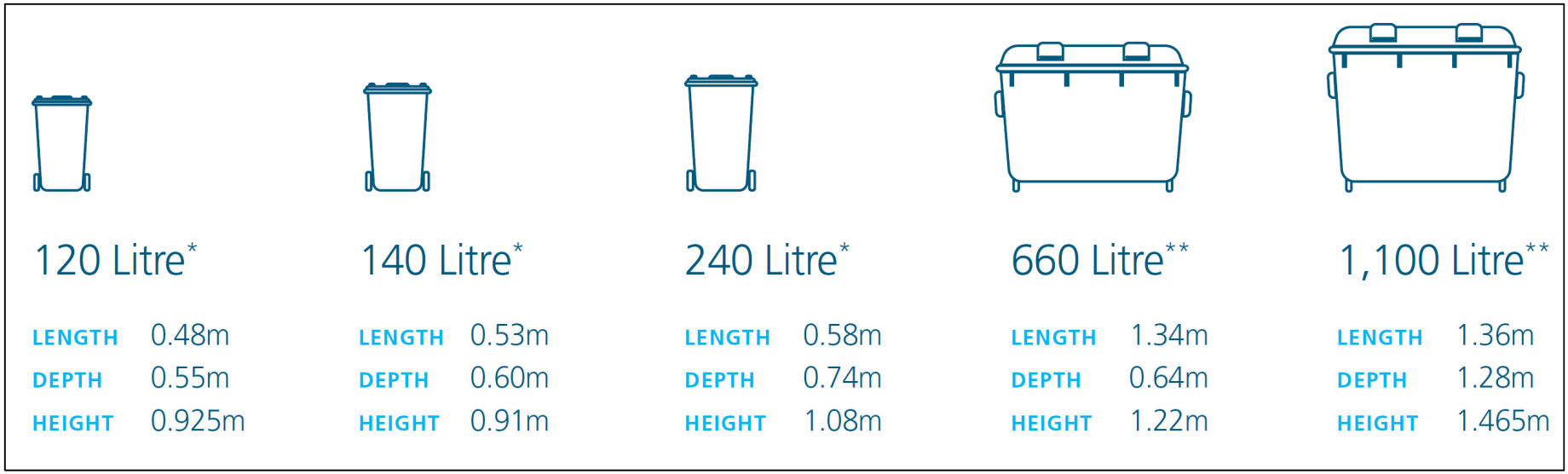
Note: safe access to the collection areas should be designed to allow commercial collection vehicles to enter and exit safely from the site. It has been assumed that garbage collection would occur via the proposed new service delivery access road off Warnervale Road, where a loading bay and Waste Bin Area is proposed adjacent to the canteen facility.

Bin Size and Vehicle Requirements

The various commonly used bin sizes and associated waste vehicle requirements are identified below.

Appendix F Waste Management Operational Phase

Wheelie Bins



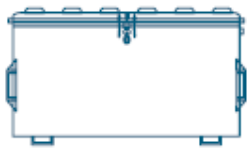
Vehicle Site Requirements – Rear Lift Bins

- Vehicle clearance required - 3.5m (H) x 3m (W) x 8m (L)
- Vehicle height in operation - 3.4m
- Vehicle turning circle - 17.7m

Vehicle Site Requirements – Rear Lift Bins

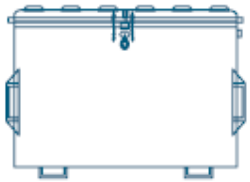
- Vehicle clearance required - 3.8m (H) x 3m (W) x 9.5m (L)
- Vehicle height in operation - 4.2m
- Vehicle turning circle - 21.4m
- Bin lifter reach - 3.2m

Steel Bins



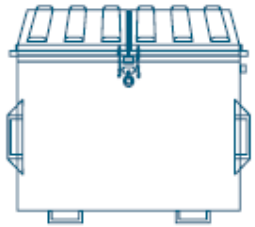
1.5m³

LENGTH	2.02m
DEPTH	0.95m
HEIGHT	1.15m



3m³

LENGTH	2.02m
DEPTH	1.45m
HEIGHT	1.46m



4.5m³

LENGTH	2.02m
DEPTH	1.80m
HEIGHT	1.80m

Vehicle Requirements

- Vehicle length in operation - 16.5m
- Vehicle turning circle - 22.1m
- Vehicle clearance required - 3.8m (H) x 2.5m (W) x 10m (L)
- Vehicle height in operation - 5.5m

Review of OWMP

An appointed member of the school staff will be responsible for monitoring, reviewing and implementing changes to the OWMP. The process should include as a minimum:

- Measurement of annual waste generation by documenting the filling rates of collection containers on a weekly/monthly basis (either by weight or volume)
- Refinement of bin numbers and/or collection frequencies based on operational experience
- A Review of waste disposal costs in conjunction with appointed waste contractor to ensure cost efficiencies
- Review of waste educational programs adopted at the site
- Set waste reduction targets and/or diversion from landfill targets by employing best practice waste reduction, recycling and composting initiatives
- Initiation of additional collections to service extraordinary events.

Estimated Bin Numbers

Indicative bin number quantities for general waste and recycling (paper/cardboard, cans, bottles, plastics etc.) that would service the various areas of the school are presented below. Additional Bins would be required for green waste, however, the exact number should be determined once site volumes are better understood based on operational experience.

Bin numbers have been estimate based on floor areas provided in The New Primary School at Warnervale, State Significant Development Application (sheet numbers AA10-0001 to AA10-0005), Billard Leece Partnership Pty Ltd, 16 February 2018.

It is noted that the estimated bin quantities below do include the proposed future development of the site. However, as the future proposed development allows for a general doubling in size of the site (460 students to 1,000) it would not be unreasonable to assume, at this stage, that the bin quantities identified below would also double.

0

Drawing No.	Area description and code	M^2	General Waste Volumes per day (Calculation rates as per colour code below)	General Waste Volumes per week (5 days)	No. Bins (240L) General Waste	No. Bins (660L) General Waste	No. Bins (1100L) General Waste	No. Bins (3000L) General Waste	Recycling Waste Volumes per day (Calculation rates as per colour code below)	Recycling Waste Volumes per week (5 days)	No. Bins (240L) Recycling Waste	No. Bins (660L) General Waste	No. Bins (1100L) General Waste	No. Bins (3000L) General Waste	Green Waste
AA10-0001	**COLA**	210	31.5	157.5	0.656	0.239	0.143	0.053	52.5	262.5	1.094	0.398	0.239	0.088	
	Communal Space (B1.001)	370	55.5	277.5	1.156	0.420	0.252	0.093	92.5	462.5	1.927	0.701	0.420	0.154	
	Canteen (B1.021 and B1.022)	55	27.5	137.5	0.573	0.208	0.125	0.046	27.5	137.5	0.573	0.208	0.125	0.046	
	PE & Chair Store (B1.009)	32	4.8	24.0	0.100	0.036	0.022	0.008	8.0	40.0	0.167	0.061	0.036	0.013	
	Bulk Store (B1.008)	32	4.8	24.0	0.100	0.036	0.022	0.008	8.0	40.0	0.167	0.061	0.036	0.013	
	Perf Store (B1.010)	17	2.6	12.8	0.053	0.019	0.012	0.004	4.3	21.3	0.089	0.032	0.019	0.007	
	Garden Store (B1.007)	13	2.0	9.8	0.041	0.015	0.009	0.003	3.3	16.3	0.068	0.025	0.015	0.005	
	Sound and Comms (B1.013 and B10.15)	11	1.7	8.3	0.034	0.013	0.008	0.003	2.8	13.8	0.057	0.021	0.013	0.005	
	WC (B1.014, B1.006 and B1.005)	35	5.3	26.3	0.109	0.040	0.024	0.009	8.8	43.8	0.182	0.066	0.040	0.015	
	OSHC - Kitchen, Store and Office (B1.003, B1.004 and B1.002)	63	9.5	47.3	0.197	0.072	0.043	0.016	15.8	78.8	0.328	0.119	0.072	0.026	
	MSB (B1.018)	12	1.8	9.0	0.038	0.014	0.008	0.003	3.0	15.0	0.063	0.023	0.014	0.005	
			Estimated No. of bins		**3.1**	**1.1**	**0.7**	**0.2**			**4.7**	**1.7**	**1.0**	**0.4**	**TBD**
AA10-0002	**Staff Courtyard (A1.021)**	128	19.2	96.0	0.400	0.145	0.087	0.032	32.0	160.0	0.667	0.242	0.145	0.053	
	Staff room and Annex (A1.017 and A1.018)	93	14.0	69.8	0.291	0.106	0.063	0.023	23.3	116.3	0.484	0.176	0.106	0.039	
	Comms (A1.016)	9	1.4	6.8	0.028	0.010	0.006	0.002	2.3	11.3	0.047	0.017	0.010	0.004	
	Security Store (A1.020)	14	2.1	10.5	0.044	0.016	0.010	0.004	3.5	17.5	0.073	0.027	0.016	0.006	
	Deputy Offices (A1.019 and A1.013))	39	5.9	29.3	0.122	0.044	0.027	0.010	9.8	48.8	0.203	0.074	0.044	0.016	
	WCs (A1.015 and A1.010)	16	2.4	12.0	0.050	0.018	0.011	0.004	4.0	20.0	0.083	0.030	0.018	0.007	
	Sick Bay (A1.011)	9	1.4	6.8	0.028	0.010	0.006	0.002	2.3	11.3	0.047	0.017	0.010	0.004	
	Principal (A1.007)	17	2.6	12.8	0.053	0.019	0.012	0.004	4.3	21.3	0.089	0.032	0.019	0.007	
	CDS (A1.014)	3	0.5	2.3	0.009	0.003	0.002	0.001	0.8	3.8	0.016	0.006	0.003	0.001	
	Clerical (A1.009)	60	9.0	45.0	0.188	0.068	0.041	0.015	15.0	75.0	0.313	0.114	0.068	0.025	
	Interview (A1.005 and A1.006)	30	4.5	22.5	0.094	0.034	0.020	0.008	7.5	37.5	0.156	0.057	0.034	0.013	

Drawing No.	Area description and code	M²	General Waste Volumes per day (Calculation rates as per colour code below)	General Waste Volumes per week (5 days)	No. Bins (240L) General Waste	No. Bins (660L) General Waste	No. Bins (1100L) General Waste	No. Bins (3000L) General Waste	Recycling Waste Volumes per day (Calculation rates as per colour code below)	Recycling Waste Volumes per week (5 days)	No. Bins (240L) Recycling Waste	No. Bins (660L) General Waste	No. Bins (1100L) General Waste	No. Bins (3000L) General Waste	Green Waste
	Student and Public Reception (A1.001 and A1.002)	26	3.9	19.5	0.081	0.030	0.018	0.007	6.5	32.5	0.135	0.049	0.030	0.011	
			Estimated No. of bins		**1.4**	**0.5**	**0.3**	**0.1**			**2.3**	**0.8**	**0.5**	**0.2**	
AA10-0003	**Meeting (C1.003 and C1.004)**	18	2.7	13.5	0.056	0.020	0.012	0.005	4.5	22.5	0.094	0.034	0.020	0.008	
	PAA (C1.005 and C1.006)	34	5.1	25.5	0.106	0.039	0.023	0.009	8.5	42.5	0.177	0.064	0.039	0.014	
	Shower/WC/Change (C1.009)	20	3.0	15.0	0.063	0.023	0.014	0.005	5.0	25.0	0.104	0.038	0.023	0.008	
	Home Base (C1.001 and C1.002)	120	18.0	90.0	0.375	0.136	0.082	0.030	30.0	150.0	0.625	0.227	0.136	0.050	
	Teaching Spaces 1 to 4 (D1.001, D1.002, D1.003 and D1.004)	240	36.0	180.0	0.750	0.273	0.164	0.060	60.0	300.0	1.250	0.455	0.273	0.100	
	Circulation (D1.009)	114	17.1	85.5	0.356	0.130	0.078	0.029	28.5	142.5	0.594	0.216	0.130	0.048	
	PAA (D1.005)	60	9.0	45.0	0.188	0.068	0.041	0.015	15.0	75.0	0.313	0.114	0.068	0.025	
	Meeting room 1 and 2 (D1.006 and D1.007)	24	3.6	18.0	0.075	0.027	0.016	0.006	6.0	30.0	0.125	0.045	0.027	0.010	
	Comms (D1.008)	10	1.5	7.5	0.031	0.011	0.007	0.003	2.5	12.5	0.052	0.019	0.011	0.004	
	Teaching Spaces 1 to 4 (E1.001, E1.002, E1.003 and E1.004)	240	36.0	180.0	0.750	0.273	0.164	0.060	60.0	300.0	1.250	0.455	0.273	0.100	
	Circulation (E1.008)	114	17.1	85.5	0.356	0.130	0.078	0.029	28.5	142.5	0.594	0.216	0.130	0.048	
	PAA (E1.005)	60	9.0	45.0	0.188	0.068	0.041	0.015	15.0	75.0	0.313	0.114	0.068	0.025	
	Meeting room 1 and 2 (E1.006 and E1.007)	24	3.6	18.0	0.075	0.027	0.016	0.006	6.0	30.0	0.125	0.045	0.027	0.010	
	WCs (E1.010 and E1.011)	11	1.7	8.3	0.034	0.013	0.008	0.003	2.8	13.8	0.057	0.021	0.013	0.005	
			Estimated No. of bins		**3.4**	**1.2**	**0.7**	**0.3**			**5.7**	**2.1**	**1.2**	**0.5**	
AA10-0004	**Teaching Spaces 1 to 3 (C2.001, C2.002 and C1.003)**	180	27.0	135.0	0.563	0.205	0.123	0.045	45.0	225.0	0.938	0.341	0.205	0.075	
	Circulation (C2.007)	61	9.2	45.8	0.191	0.069	0.042	0.015	15.3	76.3	0.318	0.116	0.069	0.025	
	PAA (C2.004)	60	9.0	45.0	0.188	0.068	0.041	0.015	15.0	75.0	0.313	0.114	0.068	0.025	
	Meeting room 1 and 2 (C2.005 and C2.006)	24	3.6	18.0	0.075	0.027	0.016	0.006	6.0	30.0	0.125	0.045	0.027	0.010	
	Teaching Spaces 1 to 3 (D2.001, D2.002 and D2.003)	180	27.0	135.0	0.563	0.205	0.123	0.045	45.0	225.0	0.938	0.341	0.205	0.075	

0

Drawing No.	Area description and code	M^2	General Waste Volumes per day (Calculation rates as per colour code below)	General Waste Volumes per week (5 days)	No. Bins (240L) General Waste	No. Bins (660L) General Waste	No. Bins (1100L) General Waste	No. Bins (3000L) General Waste	Recycling Waste Volumes per day (Calculation rates as per colour code below)	Recycling Waste Volumes per week (5 days)	No. Bins (240L) Recycling Waste	No. Bins (660L) General Waste	No. Bins (1100L) General Waste	No. Bins (3000L) General Waste	Green Waste
	Circulation (D2.007)	66	9.9	49.5	0.206	0.075	0.045	0.017	16.5	82.5	0.344	0.125	0.075	0.028	
	PAA (D2.004)	60	9.0	45.0	0.188	0.068	0.041	0.015	15.0	75.0	0.313	0.114	0.068	0.025	
	Meeting room 1 and 2 (D2.005 and D2.006)	24	3.6	18.0	0.075	0.027	0.016	0.006	6.0	30.0	0.125	0.045	0.027	0.010	
	Comms (D2.008)	9	1.4	6.8	0.028	0.010	0.006	0.002	2.3	11.3	0.047	0.017	0.010	0.004	
	Teaching Spaces 1 to 4 (E2.001, E2.002, E2.003 and E2.004)	240	36.0	180.0	0.750	0.273	0.164	0.060	60.0	300.0	1.250	0.455	0.273	0.100	
	Circulation (E2.009)	114	17.1	85.5	0.356	0.130	0.078	0.029	28.5	142.5	0.594	0.216	0.130	0.048	
	PAA (E2.005)	60	9.0	45.0	0.188	0.068	0.041	0.015	15.0	75.0	0.313	0.114	0.068	0.025	
	Meeting room 1 and 2 (E2.007 and E2.008)	24	3.6	18.0	0.075	0.027	0.016	0.006	6.0	30.0	0.125	0.045	0.027	0.010	
	WCs (E2.005 and E2.006)	11	1.7	8.3	0.034	0.013	0.008	0.003	2.8	13.8	0.057	0.021	0.013	0.005	
			Estimated No. of bins		**3.5**	**1.3**	**0.8**	**0.3**			**5.8**	**2.1**	**1.3**	**0.5**	
AA10-0005	**WCs (lower ground)**	50	7.5	37.5	0.156	0.057	0.034	0.013	12.5	62.5	0.260	0.095	0.057	0.021	
	SP Store (F1.005 and F1.006)	12	1.8	9.0	0.038	0.014	0.008	0.003	3.0	15.0	0.063	0.023	0.014	0.005	
	Special Program (F1.002 and F1.003)	64	9.6	48.0	0.200	0.073	0.044	0.016	16.0	80.0	0.333	0.121	0.073	0.027	
	Sport Store (F1.007)	17	2.6	12.8	0.053	0.019	0.012	0.004	4.3	21.3	0.089	0.032	0.019	0.007	
	Workroom (F2.004)	27	4.1	20.3	0.084	0.031	0.018	0.007	6.8	33.8	0.141	0.051	0.031	0.011	
	Comms (F2.003)	16	2.4	12.0	0.050	0.018	0.011	0.004	4.0	20.0	0.083	0.030	0.018	0.007	
	KLA store room (F2.002	20	3.0	15.0	0.063	0.023	0.014	0.005	5.0	25.0	0.104	0.038	0.023	0.008	
	Library (F2.001)	230	46.0	230.0	0.958	0.348	0.209	0.077	115.0	575.0	2.396	0.871	0.523	0.192	
	WCs (F2.0068, F2.007, F2.008 and ACC WC)	50	7.5	37.5	0.156	0.057	0.034	0.013	12.5	62.5	0.260	0.095	0.057	0.021	
			Estimated No. of bins		**1.8**	**0.6**	**0.4**	**0.1**			**3.7**	**1.4**	**0.8**	**0.3**	
			Future Expansion		**TBD**	**TBD**	**TBD**	**TBD**			**TBD**	**TBD**	**TBD**	**TBD**	
			Grand Totals Stage 1		**13.1**	**4.8**	**2.9**	**1.0**			**22.2**	**8.1**	**4.8**	**1.8**	

Notes

Waste generation volumes based on - *Guidelines for Waste Management In new developments, Reference A: waste generation rates, City of Sydney Council, August 2018*

15L/100 m^2 for General Waste and 25L/100 m^2 for Recycling waste in commercial office space

50L/100 m^2 for both general and recycling waste in Canteens

20L/100 m^2 for General waste and 50L/100 m^2 for recycling waste in Libraries

Corridor circulation spaces, lobby and breakout space m^2 not included as not considered waste generating spaces

Bin number estimates based on 240L bin volumes and 5 day collection cycle

Future Expansion - Operational waste generation rates TBD

Dimensions of Standard Mobile Garbage Bins (MBGs)

240L = H1080mm x W580 x L735mm - Minimum area required based on 35 240L bins = 14.9 m^2

660L = H1250mm x W1370 x L850mm - Minimum area required based on 13 660L bins = 15.2 m^2

1100L = H1470mm x W1370 x L1245mm - Minimum area required based on 8 1100L bins = 13.6 m^2

3000L = H1460mm x W1450 x L2020mm - Minimum area required based on 3 3000L bins = 8.8 m^2

local people
global experience

SMEC is recognised for providing technical excellence and consultancy expertise in urban, infrastructure and management advisory. From concept to completion, our core service offering covers the life-cycle of a project and maximises value to our clients and communities. We align global expertise with local knowledge and state-of-the-art processes and systems to deliver innovative solutions to a range of industry sectors.

www.smec.com