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Waste Management Plan Report – Final

Mosman High School- SSD-10465

Report for Schools Infrastructure NSW

Waste Management Plan for Schools Infrastructure NSW

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Contents

1. Glossary

Abbreviation	Definition
CWMP	Construction Site Waste Management and Minimisation Plan
DPIE	Department of Planning, Industry and Investment
DSWMMP	Demolition Site Waste Management and Minimisation Plan
DoE	The Department of Education
WMP	Waste Management Plan
SWMMP	Site Waste Management and Minimisation Plan

Important note about your report

The sole purpose of this Report and the associated services performed by Ricardo Energy, Environment and Planning (Ricardo) is to identify a suitable waste management solution for the School Infrastructure NSW development in accordance with the scope of services set out in the contract between Ricardo and the Department of Education (DoE).

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This report outlines the anticipated construction, demolition and operational waste management at the site. Ricardo derived the data in this Report from information sourced from the Client (if any) and/or available in the public domain at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the project and subsequent data analysis, and re-evaluation of the data, findings, observations and conclusions expressed in this Report. Ricardo has prepared this Report in accordance with reasonable skill and care of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this Report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this Report, to the extent permitted by law.

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1. Background

Ricardo Energy Environment and Planning was engaged by the Department of Education to prepare a Waste Management Plan (WMP) for the proposed upgrade at Mosman High School, 745 Military Road LOT: 1 DP:1268793, Mosman, NSW, 2088, which is located in the Mosman Council area. The proposed upgrade is in the Master Planning phase and the WMP has been developed to detail the generation and management of demolition, construction and operational waste that would occur as a result of the proposed redevelopment.

The proposed development has been deemed to be a State Significant Development and as such making the relevant consent Authority the Department of Planning, Industry and Environment (DPIE). As such, this WMP complies with the waste management requirements specified in the *Secretary's Environmental Assessment Requirements (SEARs)* issued by DPIE which detail that the WMP is to:

- Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures implemented to manage, reuse, recycle and safely dispose of this waste.

Additionally, this WMP also considers the demolition, construction and operation waste management requirements of the *Mosman Council Open Space and Infrastructure Development Control Plan 2012* (DCP) and the *Mosman Waste Minimisation Policy 2012.* Because of its more detailed requirements, the *Mosman Waste Minimisation Policy 2012* was used as a guideline to address the waste requirements listed in the issued SEARs. The Mosman Waste Minimisation Policy objectives which underpin the WMP are:

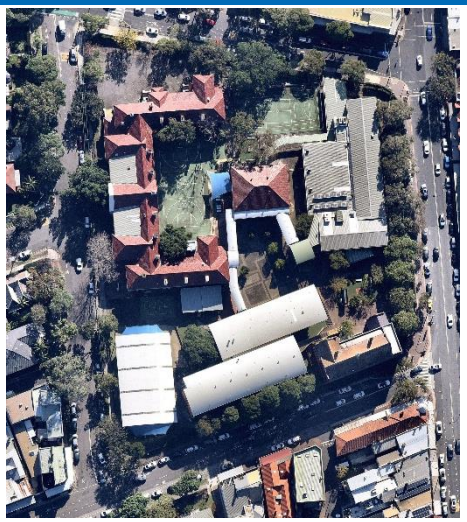
- Ensure appropriate waste storage and collection facilities;
- Maximise source separation and recovery of recyclables;
- Ensure waste management systems are as intuitive for occupants as possible and readily accessible to occupants and service providers;
- Ensure appropriate resourcing of waste management systems including servicing;
- Minimise risk to health and safety associated with handling and disposal of waste and recycled material to ensure optimum hygiene;
- Minimise adverse environmental impacts associated with waste management; and
- Discourage illegal dumping by providing on site storage and removal services.

This WMP addresses the requirements of the SEARs issued by DPIE and was guided by the requirements listed in the *Mosman Waste Minimisation Policy 2012*.

2. Overview of development

The site is an active education establishment and will continue to operate throughout the upgrade. Details of the site to be developed are detailed in Table 1.

Table 1 Site Details

Site details		Map
Site address	745 Military Road LOT: 1 DP:1268793	 Source: nearmap
Local Government Area	Mosman Council	
Applicants name	Schools Infrastructure NSW	
Existing buildings	Educational Establishment	

The proposed upgrade at Mosman High School is in the master planning phase and the preferred option for the development will see the following major works:

- Demolition of Building B, Building C and part Building E;
- Removal of existing sports court and surrounding retaining walls and nominated trees;
- Construction of a new part 3 / part 4 storey building plus lift overrun and net enclosure to rooftop multi-court (Building G) on the corner of Military Road and Belmont Road providing:
    - administration and staff facilities;
    - multipurpose gym/hall;
    - library;
    - canteen facilities;
    - general and senior learning units;
    - science learning unit;
    - health / PE and performing arts unit; and
    - learning and admin support unit.
- Associated landscaping works including new outdoor play areas, a rooftop play space and rooftop multi-purpose court; and
- Relocation of the main pedestrian entrance from Military Road to Belmont Road.

This Waste Management Plan does not include future proposed Stage 2 works.

3. Legislative and Guidance Information

The objectives of implementing an effective WMP include:

- To minimise adverse environmental impacts associated with waste management;
- To discourage illegal dumping of waste
- To minimise resource consumption and waste production throughout the lifecycle of the building or premises;
- To minimise resource use and construction waste through reuse and recycling and to encourage the efficient selection and use of resources;
- To minimise demolition waste by promoting adaptability in building design and focusing upon the deconstruction of the building at the end of its life;
- To encourage building design, and construction and demolition techniques which minimise waste generation;
- To maximise reuse and recycling of industrial/commercial waste and to minimise waste generation from the ongoing use of the site or premises.
- To assist applicants to develop systems for waste management that ensure waste is transported and disposed of in a lawful manner;
- To provide guidance in regard to space, storage, amenity and management of waste management facilities;
- To ensure waste management systems are compatible with building type and collection services;
- To minimise risks associated with waste management at all stages of development and
- To maximise reuse and recycling of waste from the ongoing use of the site or premises.

Waste legislation and guidance applicable to the development is outlined in Table 2.

Table 2 Legislative Guidance

Name of Legislation/ Guidance	Authority	Notes
Waste Avoidance and Resource Recovery (WARR) Act 2001	NSW Environment Protection Authority (EPA)	The WARR Act promotes extended producer responsibility of waste and resources through minimised consumption of natural resources, efficient use of natural resources, and minimised disposal of waste through waste avoidance, reuse and recycling. It promotes industry and community participation and responsibility for reducing and managing waste
Protection of the Environment Operations (POEO) Act 1997 & Amendment Act 2011	NSW EPA	The POEO Act enables the Government to establish legislative instruments and regulation for setting environmental standards, goals, protocols and guidelines.
POEO (Waste) Regulation 2014	NSW EPA	The Waste Regulation sets out legislation relating to the waste levy in NSW, waste tracking and management requirements for dangerous goods / hazardous wastes, resource recovery exemptions, and pollution offences.
Waste Classification Guidelines (Part 1) 2014	NSW EPA	The Guidelines provide information on how to classify, manage, treat and dispose of different classifications of waste to ensure risks to the environment and human health due to inappropriate management of waste are minimised.
Waste Avoidance and Resource Recovery	NSW EPA	The WARR Strategy outlines the State Government's long-term targets for waste avoidance, resource recovery, and litter and illegal dumping for the domestic, construction and demolition, commercial and industrial sectors which are

Name of Legislation/ Guidance	Authority	Notes
(WARR) Strategy 2014-2021		necessary for the environmental and economic future of the State.
Better Practice Guideline for Waste Management in Commercial and Industrial (C&I) Facilities 2012	NSW EPA	The Guidelines have been generated as a handy reference and resource for contractors, architects, designers, consultants, developers, building owners and managers.
Building Code of Australia (BCA)	Australian Building Codes Board	The BCA have the aim of achieving nationally consistent and minimum standards of relevant health and safety, amenity and sustainability objectives. The BCA is a set of technical provisions for the design and construction of buildings and other structures.
Relevant Australian Standards (AS)	Standards Australia	The Standards are specifications, procedures and guidelines which ensure products, services and systems are safe, reliable and consistent. Australian Standards which apply to waste management include AS 2890.2 (parking facilities for off-street commercial vehicles), AS1319 (safety signs) and AS4123.7-2006 (mobile waste containers and colour coding requirements).
Mosman Open Space and Infrastructure Development Control Plan (DCP) 2012. As amended June 2018	Mosman Council	The aim of this Plan is to support the provisions of the LEP by way of more detailed planning and design guidelines for development in open space, environment and infrastructure zones. The particular aims of this Plan are to: (a) protect and conserve the natural and built heritage of Mosman; (b) enhance and protect the scenic amenity of Sydney and Middle Harbours; (c) manage change in a way that ensures an ecologically and economically sustainable urban environment in which the needs and aspirations of the community are recognised; (d) ensure development minimises any adverse effect on surrounding land; (e) ensure that the character of an area is a key consideration in the preparation and assessment of development proposals; and (f) set out specific requirements for notifying proposed development and tree removal.
Mosman Waste Minimisation Policy 2012	Mosman Council	The Mosman Waste Minimisation Policy 2012 aims to reduce the amount of waste produced and to maximise the percentage that is recycled and reused, during the demolition and construction process and ongoing life of the development. It also aims to ensure that waste and recycling facilities within new developments are suitably located and designed in relation to accessibility, hygiene, flexibility, size and amenity. All applications for development, including demolition, construction and change of use, will be assessed against the relevant controls in the Mosman Waste Minimisation Policy.

4. Demolition and Construction Waste Management

The *Mosman Waste Minimisation Policy 2012* aims to reduce the amount of waste produced and to maximise the percentage that is recycled and reused, during the demolition and construction process and ongoing life of the development.

4.1 Site Demolition

The demolition stage provides great scope for waste minimisation and the principal aim of managing this activity is to maximise resource recovery and minimise residual waste from demolition activities. The *Mosman Waste Minimisation Policy 2012* details that objectives of managing waste during demolition are to:

- Optimise adaptive reuse opportunities of existing building/structures;
- Maximise reuse and recycling of materials;
- Minimise waste generation;
- Ensure appropriate storage and collection of waste;
- Minimise the environmental impacts associated with waste management;
- Avoid illegal dumping and
- Promote improved project management.

At this stage of the development, DoE has not yet decided upon a demolition contractor for detailed planning of demolition waste management. The management of wastes from demolition activities will be organised by the demolition company. The contractor engaged for demolition work will be responsible for completing a Site Waste Minimisation and Management Plan (SWMMP) with all information relating to demolition to accompany the demolition application at the Construction Certificate stage using a Site Waste Minimisation and Management Plan Template[1]'.

As part of the SWMMP drawings are to be submitted to scale, clearly indicating the location of and provisions for the storage and collection of waste and recyclables during demolition. The site plans submitted along with the SWMMP, prior to construction, will also detail the following during demolition activities:

- Size and location(s) of waste storage area(s)
- Access for waste collection vehicles
- Areas to be excavated
- Types and numbers of storage bins likely to be required
- Signage required to facilitate correct use of storage facilities

The application for demolition must:

- Pursue adaptive reuse opportunities of buildings/structures;
- Identify all waste likely to result from the demolition, and opportunities for reuse of materials. Refer to Table 3 for common waste materials and reuse and recycling potential;
- Facilitate reuse/recycling by using the process of 'deconstruction', where various materials are carefully dismantled and sorted;
- Reuse or recycle salvaged materials onsite where possible;
- Allocate an area for the storage of materials for use, recycling and disposal (giving consideration to slope, drainage, location of waterways, stormwater outlets, vegetation, and access and handling requirements);
- Provide separate collection bins or areas for the storage of residual waste;
- Clearly 'signpost' the purpose and content of the bins and storage areas;
- Implement measures to prevent damage by the elements, odour and health risks, and windborne litter and Minimise site disturbance, limiting unnecessary excavation.

[1] See Appendix A of the Mosman Waste Minimisation Policy 2012

When implementing the SWMMP the applicant must ensure:

- Footpaths, public reserves, street gutters are not used as places to store demolition waste or materials of any kind without Council approval;
- Any material moved offsite is transported in accordance with the requirements of the *Protection of the Environment Operations Act (1997);*
- Waste is only transported to a place that can lawfully be used as a waste facility;
- Generation, storage, treatment and disposal of hazardous waste and special waste (including asbestos) is conducted in accordance with relevant waste legislation administered by the DECC and relevant Work Health and Safety legislation administered by WorkCover NSW and
- Evidence such as weighbridge dockets and invoices for waste disposal or recycling services are retained on site and kept readily accessible for inspection by regulatory authorities such as Council, DECC or Workcover NSW.

Common waste streams that could be generated from the project and opportunities for reuse or recycling are outlined in Table 3.

Table 3 Common Demolition Waste Types

Material	Reuse/ Recycling potential
Concrete	Reused for filling, levelling or road base
Bricks and Pavers	Can be cleaned for reuse or rendered over or crushed for use in landscaping and driveways
Roof Tiles	Can be cleaned and reused or crushed for use in landscaping and driveways
Untreated Timber	Reused as floorboards, fencing, furniture, mulched or sent to second-hand timber suppliers
Treated Timber	Reused as formwork, bridging, blocking and propping, or sent to second-hand timber suppliers
Doors, Windows, Fittings	Sent to second-hand suppliers
Glass	Reused as glazing or aggregate for concrete production
Metals (fittings, appliances and wiring)	Removed for recycling
Synthetic Rubber (carpet underlay)	Reprocessed for use in safety devices and speed humps
Significant Trees	Relocated either onsite or offsite
Overburden	Power screened and used as topsoil
Garden Waste	Mulched, composted
Carpet	Can be sent to recyclers or reused in landscaping
Plasterboard	Removed for recycling, returned to supplier

4.2 Construction

At this stage of the development, DoE, has not yet decided upon a construction contractor for detailed planning of construction waste management. A detailed SWMMP outlining the management of wastes during the construction works will be provided by the construction contractor once appointed. The construction contractor will be responsible for completing all aspects relating to construction activities in the Site Waste Minimisation and Management Plan Template[2].

[2] See Appendix A of the Mosman Waste Minimisation Policy 2012

It will outline how the construction contractor will maximise resource recovery and minimise residual waste from construction activities. In completing the SWMP the Construction contractor will:

- Estimate volumes of materials to be used and incorporate these volumes into a purchasing policy so that the correct quantities are purchased;
- Identify potential reuse/recycling opportunities of excess construction materials;
- Incorporate the use of prefabricated components and recycled materials;
- Arrange for the delivery of materials so that materials are delivered 'as needed' to prevent the degradation of materials through weathering and moisture damage;
- Consider organising the return of excess materials to the supplier or manufacturer;
- Allocate an area for the storage of materials for use, recycling and disposal (considering slope, drainage, location of waterways, stormwater outlets and vegetation);
- Arrange contractors for the transport, processing and disposal of waste and recycling;
- Ensure that all contractors are aware of the legal requirements for disposing of waste;
- Promote separate collection bins or areas for the storage of residual waste;
- Clearly 'signpost' the purpose and content of the bins and storage areas;
- Implement measures to prevent damage by the elements, odour and health risks, and windborne litter;
- Minimise site disturbance and limit unnecessary excavation;
- Ensure that all waste is transported to a place that can lawfully be used as a waste facility;
- Retain all records demonstrating lawful disposal of waste and keep them readily accessible for inspection by regulatory authorities such as Council, DECC or WorkCover NSW; and
- Submit a short report demonstrating compliance with the requirements of the SWMMP for construction and demolition which will detail the type and volume of material recycled and the location/company engaged to recycle the material.

The Site Waste Minimisation Management Plan will detail construction design measures including

- how measures for waste avoidance have been incorporated into the design, material purchasing and construction techniques for development for lifecycle and materials.

The site plans submitted along with the SWMMP, prior to construction, will also detail the following during construction activities:

- Size and location(s) of waste storage area(s)
- Access for waste collection vehicles
- Areas to be excavated
- Types and numbers of storage bins likely to be required
- Signage required to facilitate correct use of storage facilities

4.3 Waste Avoidance and Reuse Measures During Demolition and Construction

The following measures will be investigated and implemented (where economically feasible) to work towards maximising resource recovery and minimise residual waste from demolition and construction activities:

- During demolition activities, materials will be carefully dismantled and sorted for reuse and recycling where applicable.
- Framing timber, windows, doors and joinery will be reused on site or recycled off site where feasible.
- Plumbing, fittings and metal elements will be recycled off site where feasible.
- Formwork (temporary or permanent moulds) will be reused where possible.
- Appropriate sorting and segregation of wastes will be undertaken to ensure efficient reuse and recycling of materials throughout construction and demolition activities.
- Site disturbance will be minimised to limit unnecessary excavation and excavated material will be reused on site where possible.

- Green waste (i.e. garden organics) will be mulched and reused in landscaping.
- Construction materials will be selected taking into consideration their long lifespan and potential for reuse at the end of their initial use.
- Pre-cut and prefabricated materials will be carefully ordered to size, and prefabricated components will be used for internal fit outs where possible.
- Materials will be delivered on an 'as needed' basis to prevent degradation of materials through weathering and moisture damage.
- Materials, including reuse and recycling materials, will be stored and kept in good condition.
- Trade work on site will be coordinated and appropriately sequenced to increase efficiency and reduce waste materials.
- Packaging waste will be reduced by the return of packaging to suppliers where possible, use of returnable bulk packaging, through bulk purchasing and requesting cardboard or metal drums, and metal straps, in place of plastics that can't be recycled.
- Staff/subcontractors will be informed of waste and resource management procedures and resource recovery targets.
- Contractors will be made aware of the legal requirements for disposing of waste in NSW.
- Contracts will include measures which reinforce the requirement to sort wastes effectively for reuse and recycling.

4.4 Submission Requirements for Construction and Demolition Works

At the time of reporting, a Building Contractor has not been decided upon for detailed planning of construction and demolition waste and resource management. Council will be notified prior to demolition work commencing. The Demolition and Construction Contractor(s) will complete the SWMMP Template with all aspects relating to construction and demolition waste management.

The demolition contractor will complete all aspects of the SWMMP Template relating to demolition waste management including:

- The Volume of Waste Table for Demolition to be completed with construction certificate
- Submit site drawings to scale, clearly indicating the location of and provisions for the storage and collection of waste and recyclables during demolition detailing:
    - Size and location(s) of waste storage area(s)
    - Access for waste collection vehicles
    - Areas to be excavated
    - Types and numbers of storage bins likely to be required
    - Signage required to facilitate correct use of storage facilities

The construction contractor will complete all aspects of the SWMMP Template relating to construction waste management including:

- The Volume of Waste Table for Construction to be completed with construction certificate
- Construction Design requirements of the SWMMP Template
- Submit site drawings to scale, clearly indicating the location of and provisions for the storage and collection of waste and recyclables during demolition detailing:
    - Size and location(s) of waste storage area(s)
    - Access for waste collection vehicles
    - Areas to be excavated
    - Types and numbers of storage bins likely to be required
    - Signage required to facilitate correct use of storage facilities

5. Operational Waste Management

This section provides a summary of the expected volumes of waste and recyclables that will be generated at the proposed development during the operational phase. It also provides details on the proposed on-site storage of the materials, the bin infrastructure and the anticipated frequency of collection.

Privately licensed waste and recycling contractors will be used for collections of the separated materials and will be chosen in line with current waste service procurement frameworks currently being used by the School at the site.

This report outlines the operational waste requirements detailed in the *Mosman Council Waste Management and Minimisation Policy 2012.*

5.1 Management of Wastes

Based on conversations with the Mosman High School Principal (dated 13 July 2020) it was indicated that the following waste streams are separately collected and drop off points are located outside the School Office or within the school grounds for:

- General Waste
- Co-mingled Recycling
- Paper Recycling
- Shredded paper
- E-waste
- Batteries
- Printer cartridges
- Containers eligible for container return scheme

The waste streams that will likely be generated during operation of the school are identified in Table 4 below.

Table 4 Waste Streams and Operational Areas

Waste Stream	Operational Area
General Waste	Across site buildings, Public areas, Canteen
Food and Garden Organics	Across site buildings, Public areas, Canteen
Paper and Cardboard	Across site buildings, Public areas
Co-mingled Recycling	Across site buildings
Secure Documents	Administration area
Electronic Waste	Learning areas, Administration area
Bulky Waste	Learning Areas, specialist subject areas (design and technology/ woodwork, metal work)

5.2 Estimated Waste Generation

The *Mosman Waste Minimisation Policy 2012* outlines operational waste generation by premises type. With various operational areas of the school, the following applicable waste generation types and assumed rates in Table 5 for operational waste generation estimates.

Table 5 Waste Generation Assumptions by Operational Area

Operational Area	Applicable waste generation type	General waste Generation rate	Recycling Generation rate
Administration and learning spaces Covered outdoor learning area (COLA), rooftop play/ gymnasium	Office	10L/100m² floor area/ day	10L/ 100m² floor area/ day
Canteen	Cafe	10L/1.5m2 floor area/day	2/L/1.5m² floor area/ day

The Floor Area estimates of the buildings on site is outlined in Table 6 and represent the site once the Stage 1 development is complete. These figures were provided by Woods Bagot architecture.

Table 6 Floor Area Estimates

Operational Area	Building A	Building D	Building E	Building G	Site Total
Administration and Learning Space	706 m²	3113 m²	1909 m²	4708 m²	**10,436 m²**
Canteen	0	0	0	81 m²	**81 m²**
COLA, Rooftop play / Gymnasium	0	0	0	2601 m²	**2,601 m²**

Average dimensions of bin sizes and footprints used for waste storage area requirements are provided in Table 7 below.

Table 7 Bin size and footprint areas

Bin Size (L)	Height (mm)	Depth (mm)	Width (mm)	Approximate footprint (m²)	Source
80	870	530	450	0.24	Mosman Waste Minimisation Policy 2012, NSW EPA Better Practice Guide for resource Recovery in Residential Developments 2019
240	1,080	735	585	0.41-0.43	Mosman Waste Minimisation Policy 2012, NSW EPA Better Practice Guide for Resource Recovery in Residential Developments 2019
660	1250	850	1370	0.86-1.16	NSW EPA Better Practice Guide for Resource Recovery in Residential Developments 2019
1,100	1470	1245	1370	1.33-1.74	NSW EPA Better Practice Guide for Resource Recovery in Residential Developments 2019

Waste generation volumes have been estimated based on waste generation rates published in the *Mosman Waste Minimisation Policy 2012*. Table 8 outlines the daily waste generation estimated for the site broken down into General Waste and Recycling Streams as per the policy guidance.

Table 8 Daily Waste Generation for Site

Waste Stream	Administration/ Learning Spaces (L/day)	Canteen (L/day)	COLA, Rooftop Play and Gymnasium (L/day)	Total (L/day)
General Waste	1,044	540	260	1,844
Recycling	1.044	108	260	1,412

5.3 Waste Store Area

For the Waste Storage Area to provide suitable and adequate waste storage for the development it is proposed that the following bins are collected daily on operational school days:

- 2 x 1100L General Waste bins
- 2 x 1100L Recycling bins

A summary of the waste generation, waste collection frequency and total bin footprint requirements are outlined in Table 9.

Table 9 Total Waste Generation and proposed bin sizes, numbers, footprint required and collection frequencies for the Site

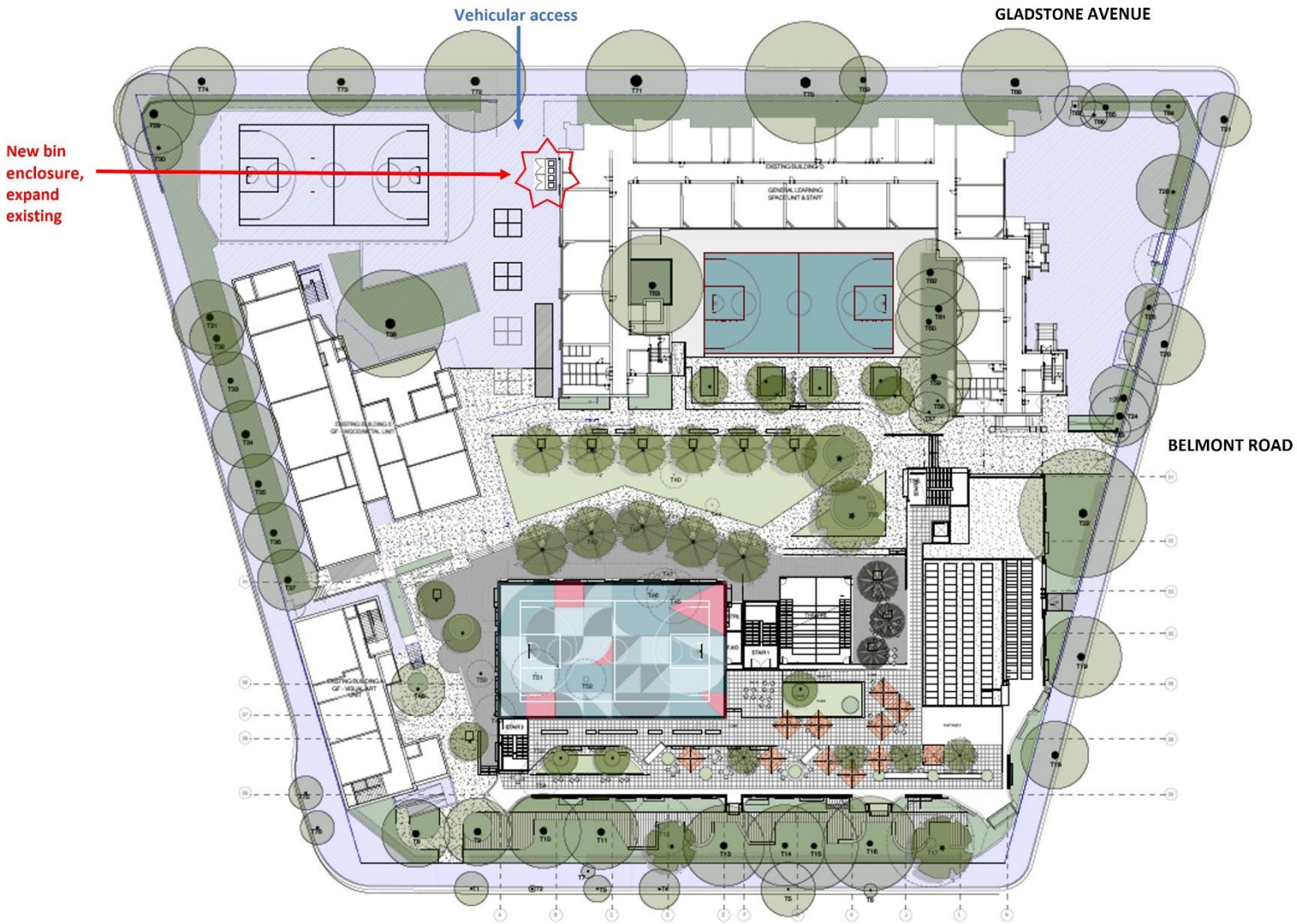
Waste Stream	Generation Per Day (L)	Bin Type (L)	Collection Frequency/ Week	Bins required	Bin Footprint (m^2)
General Waste	1,844	1,100	5	2	4
Recycling	1,412	1,100	5	2	4
Total					8

Please note calculations for the numbers of bins required are rounded up to the nearest whole number.

The estimation of the bin footprint includes a 15% contingency for manoeuvrability and a 10% capacity adjustment to accommodate fluctuations in the generation of all waste streams.

The current and proposed waste storage area is detailed in Figure 1. The bin storage area is located outside Building D at the Gladstone Road entrance, shown circled in red.

Figure 1 Proposed Bin Storage Area



5.4 Specification for Waste Store

The Mosman Waste Minimisation Policy 2012 outlines development specific assessment criteria for commercial developments, of which the following apply to educational establishments. Section 4.3 of the Policy details the requirements that waste and recycling storage areas of commercial properties, including Schools, must comply. The bin storage area will be designed according to the provisions stipulated in *The Mosman Waste Minimisation Policy 2012.*

Table 1Table 10 below details the requirements for the bin storage area and details how they will be addressed.

Table 10 Bin Storage Requirements

The Mosman Waste Minimisation Policy 2012 Requirements	Comment
Waste/recycling storage areas must be constructed in accordance with the requirements of the Building Code of Australia (BCA).	• Any construction of a bin storage area will be compliant with requirements of the BCA and shown at detailed design stage.
Waste/recycling storage areas must be integrated into the design of the overall development. Materials and finishes that are visible from outside should be similar in style and quality to the external materials used in the rest of the development.	• To be incorporated at detailed design stage
Waste/recycling storage areas must be located and designed in a manner that reduces adverse impacts upon neighbouring properties and the streetscape. The location and design of the areas should minimise adverse impacts associated with: • the proximity of the area to dwellings • the visibility of the area • noise generated by any equipment located within the area • noise generated by the movement of bins into and out of the area • noise generated by collection vehicles accessing the site; and • odours emanating from the area.	• Current proposed location does not impact on neighbouring properties and is contained within the site. • Proposed location is set back from the street and does not impact visibility of the area. • Proposed storage area is contained within the site boundary and noise impacts of equipment would be minimal as there is no machinery located in bin storage area. • Noise generated from the movement of bins into and out of the area would be minimal and only during collection. • Collection vehicles are accessing the site through existing delivery pathways • Bin storage area will be serviced daily and regularly monitored by school staff for overfullness.
Waste/recycling storage areas must be of adequate size to comfortably accommodate all waste and recycling bins associated with the development.	Recommended waste storage area of 8m^2 includes provision for 15% increase in space for manoeuvrability of receptable
Waste/recycling storage areas must be able to accommodate separate general waste bins and recycling bins which are of sufficient volume to contain the quantity of waste generated (at the rate described in Appendix B of the Policy) between collections.	Recommended waste storage area of 8m^2 would accommodate general waste and recycling bins based on the quantity generated at the rates described in Appendix B of the Policy
The gradient of waste/recycling storage area floors and the gradient of any associated access ramps must be sufficiently level so that access for the purpose of emptying containers can occur in accordance with WorkCover NSW Work Health and Safety requirements.	The current proposed location suitably has no step or ramp access.

The Mosman Waste Minimisation Policy 2012 Requirements	Comment
Within waste/recycling storage areas, containers used for the storage of recyclable materials should be kept separate from (but close to) general waste containers — so that the potential for contamination of recyclable materials is minimised.	Like bins be arranged and grouped together in the bin store area with general waste and recycling bins to be separated where possible to reduce potential of contamination.
The development must be designed to allow access by collection vehicles used by the nominated waste contractor. Wherever possible, the site must be configured to allow collection vehicles to enter and exit the site in a forward direction and so collection vehicles do not impede general access to, from and within the site. Access driveways to be used by collection vehicles must be of sufficient strength to support such vehicles.	• The location of the proposed bin storage area is the same as currently being serviced at the site. • The waste will be serviced by a private contractor.
Servicing arrangements for the emptying of bins must be compatible with the operation of any other loading/unloading facilities on-site.	• Current proposed location is at one of several delivery points to site. • Current and proposed collection and servicing schedule is outside of school operational hours and reduces the impact on any other deliveries and loading/unloading on site.
Access for the purpose of emptying waste/recycling storage containers must be able to occur in accordance with WorkCover NSW Work Health and Safety requirements.	• Proposed location is free of any gradient. • Proposed location of collection is at the bin storage area minimising the amount of manual handling and risk. • Collection contractor to have procedures for safe handling.
In commercial development, public buildings and industrial development, there must be convenient access from each tenancy to the waste/recycling storage area(s). There must be step-free access between the point at which bins are collected/emptied and the waste/recycling storage area(s).	One tenancy on site with access. Step free access between bin storage area and collection point.
Arrangements must be in place so that the waste/recycling storage area is not accessible to the general public.	Proposed location is within fenced School property boundary.
Vermin must be prevented from entering the waste/recycling storage area.	To be considered at detailed design stage
Waste/recycling storage areas must have a smooth, durable floor and must be enclosed with durable walls/fences that extend to the height of any containers which are kept within.	To be considered at detailed design stage
Doors/gates to waste/recycling storage areas must be durable. There must be a sign adjacent to the door/gate that indicates that the door/gate is to remain closed when not in use. All doors/gates are to be openable from both inside and outside the storage area and must be wide enough to allow for the easy passage of waste/recycling containers.	To be considered at detailed design stage
Waste/recycling storage areas must be serviced by hot and cold water provided through a centralised mixing valve. The hose cock must be protected from the waste containers and must be located in a	To be considered at detailed design stage

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position that is easily accessible when the area is filled with waste containers.	
The floor must be graded so that any water is directed to a sewer authority approved drainage connection located upon the site. In the SMA this is Sydney Water.	To be considered at detailed design stage
Waste/recycling storage areas must include signage that clearly describes the types of materials that can be deposited into recycling bins and general garbage bins.	To be considered at detailed design stage
Arrangements must be in place for the regular maintenance and cleaning of waste/recycling storage areas. Waste/recycling containers must only be washed in an area which drains to a sewer authority approved drainage connection. In the SMA this is Sydney Water.	To be considered at detailed design stage

5.5 Waste Transfer

Transfer of waste and recycling from point of generation to the Bin storage area is outlined in smaller receptacles to collect waste which is transferred directly to the bin storage area by staff and students as required. Staff will be responsible for the transfer of waste from smaller waste and recycling receptacles in the canteen and COLA/ Rooftop and public areas to the bin storage area. Waste at the site is currently managed in this way. ‘

Table 11 outlines the operational waste management transfer systems throughout the key areas of the school. Classrooms and Administration areas have smaller receptacles to collect waste which is transferred directly to the bin storage area by staff and students as required. Staff will be responsible for the transfer of waste from smaller waste and recycling receptacles in the canteen and COLA/ Rooftop and public areas to the bin storage area. Waste at the site is currently managed in this way. ‘

Table 11 Operational Waste Management Transfer System

Space/ Use	Local Disposal	Transfer to Bin Storage Area	Bin storage Area to Collection Point
Administration and Learning Spaces	Bins/ Receptacles as need in shared spaces for General waste and Recycling	Cleaners, Facility Management, Students on occasion, transfer waste from small receptacles to collection point	Waste contractors collect waste from Waste storage area. Loading zone is located next to the waste storage area.
Canteen	Bins/ Receptacles as need in shared spaces for General waste and Recycling	Cleaners transfer waste from smaller receptacles to bin storage area	
Covered outdoor learning area, rooftop play/ gymnasium/ public space	Bins/ Receptacles as need in shared spaces for General waste and Recycling	Cleaners, Facilities Management transfer receptacles to bin storage area	

5.6 Access

5.6.1 Staff Access during operations

Staff will have easy access to the following separated materials bins located in the communal areas:

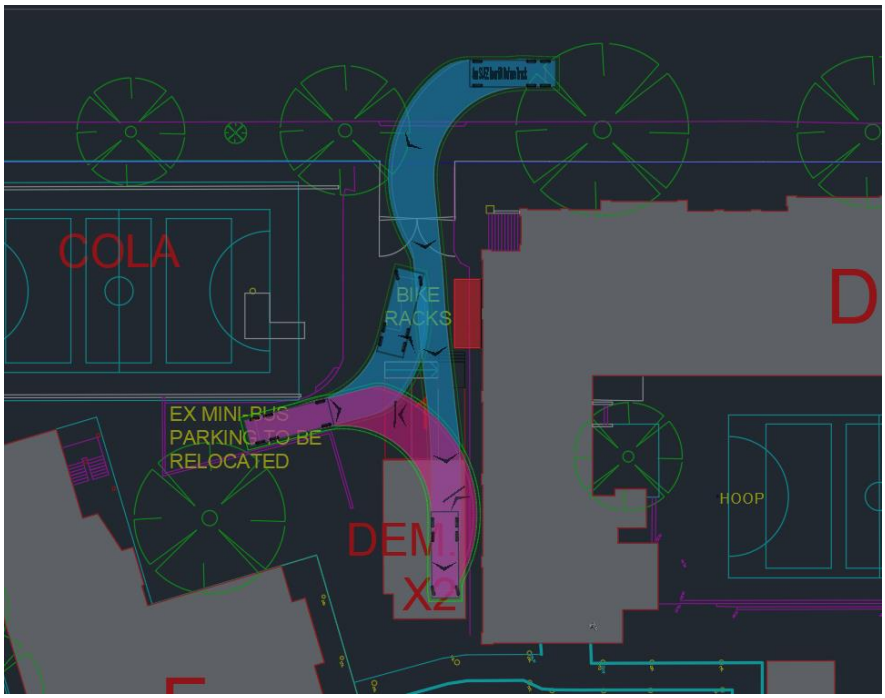
- Co-mingled container recycling.
- General waste.

Staff and collection contractors will have access to the waste storage area and will have and will have the opportunity, in collaboration with facilities management, to amend the collection equipment and system be under-utilised.

5.6.2 Vehicle Access for collection

The route for waste contractor access to the collection area is via the designated delivery driveway that is currently being used on site to empty to the bins. The driveway entrance is along Gladstone Road and the driveway and waste collection loading zone of Mosman High School must cater for the size of the waste service provider collection vehicles. The preferred collection option is to ensure forward access for the vehicle when leaving the site as outlined in Figure 2.

Figure 2 Swept Path Diagram for Waste Collection Vehicle



For guidance, any changes to the vehicle access for the waste collection point will be designed with consideration to the vehicle specifications outlined in the Waste Minimisation Policy 2012 included in Table 12 below.

Table 12 Typical Collection Vehicle Specifications

Typical Council Garbage Truck used for Domestic Waste Collection	
Length Overall	8.0 metres
Width Overall	2.5 metres
Operational Height	4.3 metres
Travel Height	4.3 metres
Weight (vehicle and load)	22.5 tonnes
Weight (vehicle only)	13 tonnes
Turning Circle	25.0 metres

5.6.3 Signage

Signage will be provided in all waste disposal, storage and collection areas demonstrating how to use the waste management system, including what materials are acceptable in each recycling bins. In the bin storage area, all waste streams will be stored in clearly labelled, colour coded bins as appropriate to ensure that waste streams are not inadvertently mixed. Additional signage adjacent to the bin store area door/ gate will outline that the door/gate is to remain closed when not in use. Signage, like shown in Figure 3, should be displayed at eye level above waste and recycling bins, bin stickers should also be attached to each bin to inform staff and students which materials they can place in each bin.

Figure 3 Bin Storage and Collection Area signage - example posters

Source: http://businessrecycling.com.au/research/signage.cfm

6. Conclusion

This WMP forms a framework to implement waste management measures across all design and planning stages. Waste generation estimates have been undertaken to determine the optimum waste storage areas required to meet the waste storage requirements based on the generation estimates outlined in the Mosman Waste Minimisation Policy 2012. The waste storage area of 8m2 will provide sufficient onsite storage area based on the daily collection service.

Once planning approval is granted for the proposed development, this WMP will:

1. Inform the development of a detailed SWMMP for the Construction Certificate application, which is to include details regarding disposal and recycling of different materials expected from demolition, construction, and the transport and destinations of these materials.
2. Provide guidance that detailed design and fit-out of the building is consistent with best practice standards and plans for waste management, and
3. Inform all plans and procedures for operational waste management.