

North Sydney Public School

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**Operational and Construction
Waste Management Plan**



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1 Introduction

1.1 Overview

This Operational and Construction Waste Management Plan has been prepared on behalf of Taylor Construction Group to accompany a Development Application for the North Sydney Public School Development.

The current student population is 869. However, it is proposed to have this increase to 1,012 students.

The Plan has been developed with consideration of the North Sydney Council's and other Authority's requirements. It is intended to inform the design of the waste services by identifying the estimated waste profile for the development and providing the total area required by the recommended equipment/systems.

In doing so this Plan, which includes waste estimates and related management requirements, has been developed in accordance with the North Sydney Council's *North Sydney Development Control Plan 2013*.

These sources have been referred to in the development of the waste estimates and related requirements. They are intended to inform the design of the waste services by identifying the estimated waste profile for the development and providing the total area required by the recommended equipment/systems.

Waste audit and management strategies are recommended for new developments to provide support for the building design and promote strong sustainability outcomes for the building. All recommended waste management plans will comply with council codes and any statutory requirements. The waste management plan has three key objectives:

1. **Ensure waste is managed to reduce the amount of waste and recyclables to land fill** by assisting staff to segregate appropriate materials that can be recycled; displaying signage to remind and encourage recycling practices; and through placement of recycling and waste bins to reinforce these messages.
2. **Recover, reuse and recycle** generated waste wherever possible.
3. **Compliance** with all relevant legislation, codes and policies.

Management strategies reflect current best-practice requirements, and relevant Sections of the *Protection of the Environment Operations Act 1997* and the NSW Environment Protection Authority *Waste Classification Guidelines, Part 1: Classifying Waste*, as well as consideration of industry best practice for this type of development.

Other legislation and policies referred to for the development of this Waste Management Plan included:

- Protection of the Environment Operations (Waste) Regulation 2014
- Waste Avoidance and Resource Recovery Act 2007

- Waste Avoidance and Resource Recovery Strategy 2014-2021

1.2 SEARs Requirements

This report has been prepared having regard to the Secretary's Environmental Assessment Requirements issued for the project by DPIE, ref no SSD-11869481 issued on the 24th December 2020.

Preparation of this Operational Waste Management Plan has been undertaken with reference to the relevant SEARs requirement 20. *Waste* below, as well as industry best practices.

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.

2 Waste Management

2.1 Waste Streams

Based on the development profile (as per Section 1), the following are the waste streams that would be expected on a regular basis:

- Comingled recycling (eg., cardboard/paper, glass and plastic containers);
- General waste; and

All garden waste will be managed by the School gardener. There will be a requirement that this waste be either used on site, or disposed of at a composting facility. Disposal to landfill will not be a permitted option.

2.2 Waste Generation Estimates

Calculations for the types and quantities of waste that will be generated have been based on current waste generation for the School and comparisons with similar size schools as determined by audits conducted by Waste Audit.

Based on 869 students, it is estimated that the School generates a total of approximately **1.74 m³** of waste/recyclables per day (approximately **8.7 m³** per week). Note that this is not all increased volumes as it is essentially the number of students/staff that determine the volume of wastes and recyclables generated.

The increase to 1,012 students will increase the waste/recyclables per day to approximately **2.03 m³** (approximately **10.12 m³** per week)

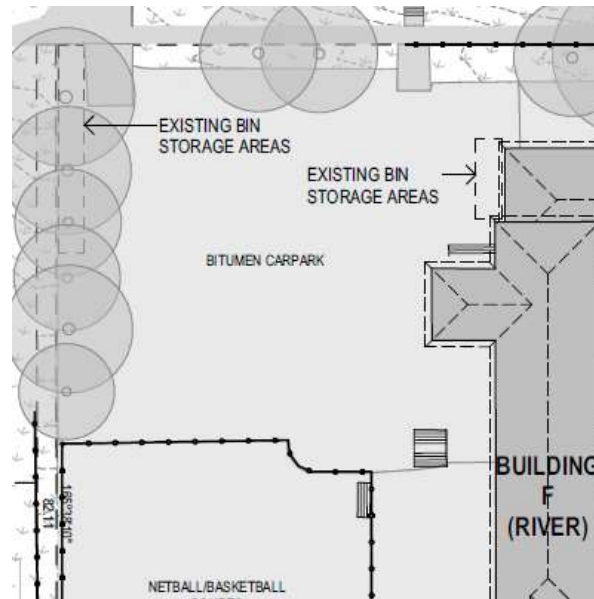
There will be seasonality – in that wastes/recyclables will be reduced significantly during non-teaching periods (with other issues such as commingled recyclables generated more in the warmer times, than the cooler ones). In addition, at the end of terms (and particularly end of year, there will be increases in waste and recyclables generated due to “clean-ups”.

2.3 Waste Management Servicing

A private contractor is used for the collection of wastes and recyclables. This is a five times per week service for general waste and commingled recycling. However, additional services can be arranged as required.

To manage the volumes, the School has a number of 120/240 litre mobile garbage bins that are used for both general waste and commingled recycling. In addition, there are a number of 1100 litre mobile garbage bins for general waste and 600 litre bins for recyclables that are serviced five times per week.

These bins are serviced from their storage areas as per the figures below:



2.4 Operational Procedures

The following summarises the recommended waste and recycling systems that will be implemented.

- MGB for waste and recyclables are located around School grounds for use by staff and students.
- All MGB and bins are managed by School cleaning staff.
- All MGB are transported to the collection area from their locations on the School grounds by cleaning staff with the contents emptied into the larger (1100 and 660 litre MGB).

Other aspects for the management of wastes/recyclables include:

- Relevant rooms within the classrooms, office area and laboratories will be provided with small (15 litre) bins for both waste and recyclables in each room.
- Staff and students will be provided with information on the proper use of the waste management system and all will be encouraged to maximise the separation of general waste and mixed recyclables to aid the proper disposal of all materials.
- Cleaners will be responsible for emptying bins into the 240 litre MGB's.
- It will be the responsibility of School staff to ensure that waste areas remain clean.

Signage will be a crucial element of the waste management system. Appendix A contains examples of signage. These are the type of signs that should be used throughout the buildings. Other signs can be accessed from the NSW EPA website at: <http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>.

It is recommended that all signs should;

- Clearly identify the waste/recycling stream;
- Use correct waste/recycling stream colour coding;
- Identify what can and cannot be disposed of in the receptacle; and
- Include highly visual elements to accommodate for individuals with inadequate English literacy.
- As part of the staff induction process, a waste and recycling toolkit will be provided. This toolkit will include the details of each of the systems in place; acceptance criteria for each stream and how each stream is managed.

2.5 Education

Staff and students will be advised as to correct segregation by information conveyed via newsletters, signage and staff advising students, regarding the waste management systems including how to use the system, which items are appropriate for each stream and collection regimes.

3 Construction Waste Management Principles

3.1 Waste Management Principles

The following waste hierarchy will be used as a guiding principle:



Avoid and Reduce

Minimise the production of waste materials in the construction process by:

- Assessing and taking into consideration the resultant waste from different design and construction options
- Purchasing materials that will result in less waste, which have minimal packaging, are pre-cut or fabricated.
- Not over ordering products and materials

Reuse

Ensure that where ever possible, materials are reused either on site or offsite.

- Identify all waste products that can be reused
- Put systems in place to separate and store reusable items
- Identify the potential applications for reuse both onsite and offsite and facilitate reuse

Recycling

Identify all recyclable waste products to be produced on site.

- Provide systems for separating and stockpiling of recyclables
- Provide clear signage to ensure recyclable materials are separated

- Process the material for recycling either onsite or offsite

Note: In some cases, it may be more economical to send the unsorted waste to specialised waste contractors who will separate and recycle materials at an offsite location.

Disposal

Waste products which cannot be reused or recycled will be removed and disposed of. The following will need to be considered:

- Ensure the chosen waste disposal contractor complies with regulatory requirements
- Implement regular collection of bins

Section 143 of the Protection of the Environment Operations Act 1997 requires waste to be transported to a place that can lawfully accept it. It will be the responsibility of the site developers to ensure all contractors clearly specify where all wastes are to be transported, the capacity of the nominated facilities to receive/manage the waste and to ensure that reports on management aspects (types, quantities and disposal pathways) are provided.

3.2 Liquid Waste

Liquid waste may be produced on site for environmental control measures such as:

- Site and vehicle cleaning
- Dust control waste

The following measures will be taken to minimise the impact of liquid waste:

- Ensure water is used in moderation and no taps are left continuously running
- Use any grey water produced on site for irrigation or for dust suppression
- Only discharge clean water into storm water

3.3 Stormwater Pollution Prevention

All actions will be undertaken to avoid pollution entering stormwater drains and for litter generation. The following will be initiated:

- i. Prior to commencement of any works a Safe Work Method Statement will be completed and reviewed to determine potential for stormwater pollution and/or litter generation
- ii. The proponent (contractor), will need to develop a management strategy to manage the potential for these issues to be realised

- iii. Site inspections will be conducted during the working day to monitor potential for stormwater pollution generation and where identified, works will cease until appropriate controls are implemented
- iv. Waste water and storm water will be managed and disposed of in accordance with Water Authority requirements.

3.4 Litter Management

- i. Daily site inspections will be conducted to identify litter, remedy the situation and investigate the cause so as to reduce the potential for the issue to occur in the future.
- ii. Sufficient quantities of bins (and/or bin space), will be made available so as to avoid dumping of materials outside bins
- iii. All waste/recycling bins will have covers so as to ensure that wastes cannot be blown out during windy conditions. This will also apply to relevant stocks of materials to be used in construction.
- iv. Personnel will be allocated the role of litter management in that they will periodically inspect the site and surrounds for litter and if identified collect and dispose of it.

3.5 Records

Records will be kept of all wastes and recyclables generated and either used on site, or transported off-site during the construction stages of the development.

It will be a condition of appointment that all waste/recycling contractors involved in the construction stages provide these records, and that they also contain details of the facilities that the materials are transported to.

These records will be made available to Council on request.

3.6 Waste/recyclables storage (on-site)

All waste and recycling materials will be stored in bins provided by the appointed contractor(s). These bins will be appropriately coloured and signed to indicate what materials are to be deposited into them and located so as to maximise the recovery of reusable/recyclable materials.

As construction activities progress, the designated bins will be moved so as to maximise the collection of materials that will be diverted from landfill. This will also involve relocating signage advising as to correct waste management.

3.7 Waste/recyclables treatment (on-site)

There will be no treatment of wastes or recyclables on-site except for possible removal of contaminants prior to forwarding to off-site recyclers.

4 Construction Materials

4.1 Overview

The following summarises the types, quantities and management systems for construction materials that may be generated during construction (of the new three storey building).

Finalisation of the system(s) that will be implemented for the recovery of materials and for disposal of others to landfill will occur following appointment of contractor(s). A component of the appointment will be that contactors will be required to provide data as to the disposal pathway (eg., materials, volumes and final disposal site), as well as a validation process for this information.

The appointed contractor(s) will also be responsible for sourcing speciality recycling facilities for the materials that cannot be reused on site

4.2 Estimated Volumes

The following table details the estimated composition by m² of construction waste to be generated for the total site.

The quantity of waste materials to be generated onsite are estimates and therefore the systems that will be put in place need to incorporate flexibility to allow for variation in the total quantities generated. Active site management during the construction phase will ensure all waste/recyclable materials are disposed of appropriately and that all waste receptacles are of sufficient capacity to manage onsite activities.

Composition and Management of Construction waste by m²

Materials on site		Destination		
Type of material	Estimated volume (m ³)	On-site (Reuse or recycle)	Off-site	Disposal
Excavation material	30m ³	Will either be stockpiled for use during construction if required and if not disposed off-site.	Collected and used as clean fill by the appointed contractor and/or forwarded to various facilities such as garden landscapers, or roadworks.	Facility TBA upon appointment of contractor.

Materials on site			Destination	
Type of material	Estimated volume (m ³)	On-site (Reuse or recycle)	Off-site	Disposal
Concrete	2m ³	Separated on site and crushed for use in pavement construction where possible	Collected by contractor and disposed at concrete recycling facility	Facility TBA upon appointment of contractor
Mixed plastics	8m ³	No on-site reuse	Collected by contractor for recycling. Facility TBA upon appointment of contractor.	Minimise disposal to landfill
Timber	10m ³	Separated and where feasible, reused for further formwork	Unused material separate and stockpiled onsite. Collected by specialist timber subcontractor for recycling	Facility TBA upon appointment of contractor
Plasterboard	5m ³	Unused material taken back by supplier for reuse where possible	Material to be separated and stockpiled onsite. Collected by the waste subcontractor on a weekly basis (or as required) for recycling.	Facility TBA upon appointment of contractor
Metal	3m ³	No on-site reuse	Collected by specialist metal subcontractor for recycling	Facility TBA upon appointment of contractor

Materials on site			Destination	
Type of material	Estimated volume (m ³)	On-site (Reuse or recycle)	Off-site	Disposal
Bricks	1m ³	Bricks will be stockpiled and reused wherever possible.	Acceptable quality bricks collected by a contractor and sold for reuse. Unusable bricks will be collected and recycled at an appropriate facility.	Facility TBA upon appointment of contractor. Minimise disposal to landfill.
Soil/Sand/Gravel	0.5m ³	Will be stockpiled for reuse.	Excavation materials will be collected and used as clean fill by the waste contractor with appropriate notification as to location	All remaining material will be disposed at landfill – facility (or other sites as fill), TBA upon appointment of contractor
Glazing	0.2m ³	No on-site reuse	Recyclers consulted as to potential for recycling and if suitable separated for recycling.	Facility TBA upon appointment of contractor. Minimise disposal to landfill.
Mixed Recyclables	15m ³	No on-site reuse	Contractor appointed to collect and recycle	Minimise disposal to landfill
General waste	45m ³	No on-site reuse	No recycling or reuse	Facility TBA upon appointment of contractor

4.3 Other Materials

A range of other materials may be present on the site once the construction activities commence.

All potentially recyclable materials are to be separated and stored on-site for an appointed waste/recycling contractor to inspect and to determine the suitability of the material for recycling (or even reuse). If approved for either action, then the contractor can then remove the items.

For materials that are not designated as potentially able to be reused or recycled, then they are to be disposed of at a landfill licenced to receive those specific materials.

4.4 Hazardous Waste Materials - Construction

If needed to be used, contractors employed to manage any identified hazardous wastes will be required (prior to appointment), to demonstrate their compliance with NSW EPA and WorkCover requirements for management of the specific materials they are contracted to manage.

The following are the recommended approaches for managing the wastes and other materials that were identified during the site analysis.

The key principles that need to be adhered to are¹:

1. All hazardous wastes need to be correctly identified and managed in accord with all relevant legislation and Codes of Practices.
2. Hazardous materials need to be separated into their individual categories and not mixed with any other materials

Any identified hazardous materials will be transported by vehicles permitted to do so and disposed at sites licenced to receive the specific hazardous material(s). Records of all loads leaving the site will be maintained and made available to any relevant personnel/organisation.

Any identified hazardous wastes will be managed in accord with the *Protection of the Environment Operations Act 1997* and *Protection of the Environment Operations (Waste) Regulation 2014*.

¹ Reference should be made to the NSW EPA publication, Waste Classification Guidelines Part 1: Classifying Waste.

5 Contracts and purchasing

Each subcontractor working on the site will be required to adhere to this Waste Management Plan.

The Head Contractor will ensure each subcontractor:

- Takes practical measures to prevent waste being generated from their work
- Implements procedures to ensure waste resulting from their work will be actively managed and where possible recycled, as part of the overall site recycling strategy or separately as appropriate
- Ensures that the right quantities of materials are ordered, minimally packaged and where practical pre-fabricated. Any oversupplied materials are returned to the supplier
- Implements source separation of off cuts to facilitate reuse, resale or recycling.

The Site Manager will be responsible for:

- Ensuring there is a secure location for on-site storage of materials to be reused on site, and for separated materials for recycling off site.
- Engaging appropriate waste and recycling contractors to remove waste and recycling materials from the site
- Co-coordinating between subcontractors, to maximise on site reuse of materials
- Monitoring of bins on a regular basis by site supervisors to detect any contamination or leakage
- Ensuring the site has clear signs directing staff to the appropriate location for recycling and stockpiling station/s. And that each bin/skip/stockpile is clearly sign posted
- Providing training to all site employees and subcontractors in regards to the WMP as detailed in section 6 below.

Should a subcontractor cause a bin to be significantly contaminated, the Site Manager will be advised by a non-conformance report procedure. The offending subcontractor will then be required to take corrective action, at their own cost. The non-conformance process would be managed by the Head Contractors' Quality Management Systems

6 Training and Education

All site employees and sub-contractors will be required to attend a site specific induction that will outline the components of the WMP and explain the site specific practicalities of the waste reduction and recycling strategies outlined in the WMP.

All employees are to have a clear understanding of which products are being reused/recycled on site and where they are stockpiled. They are also to be made aware of waste reduction efforts in regards to packaging.

The site manager will post educational signage in relation the recycling activities on site in breakout areas, lunch rooms etc.

Appendix A – Example Signage



Example wall posters



Example bin lid stickers

