

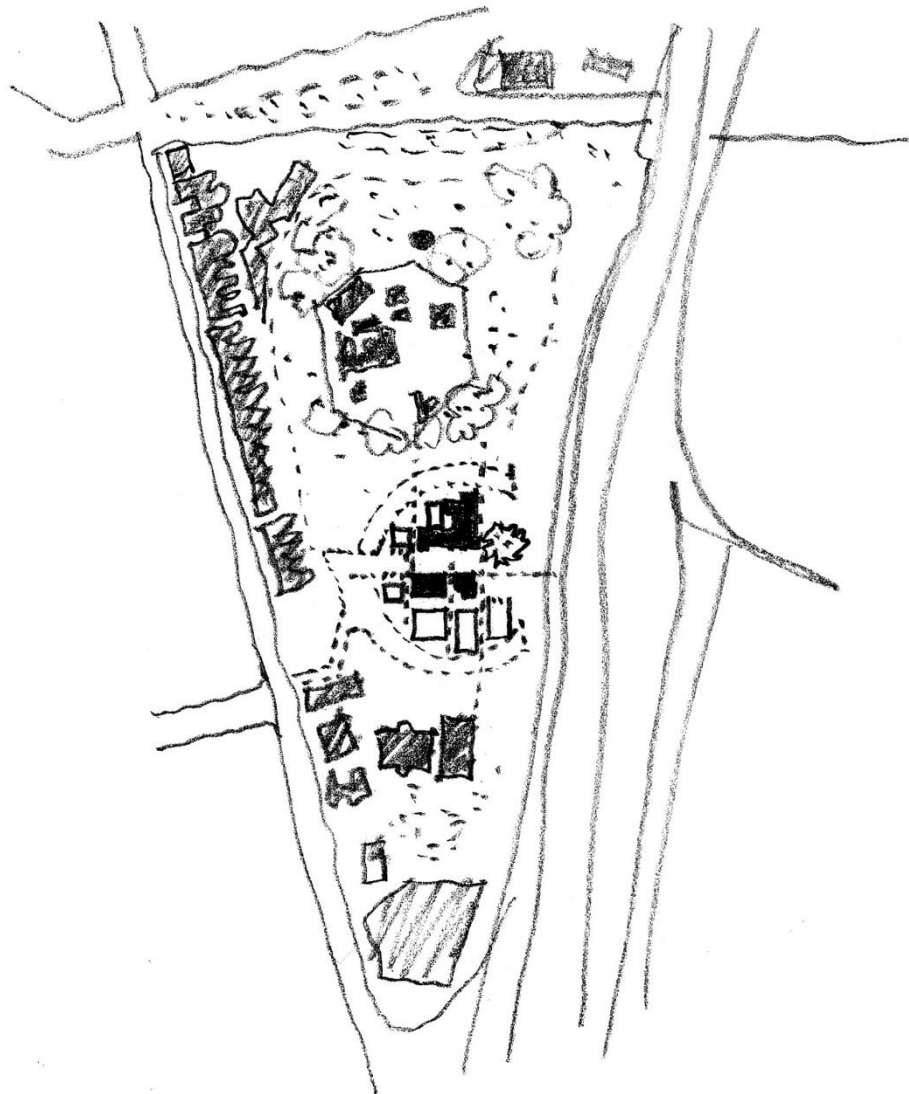
# Fort Street Public School Operational Waste Management Plan

SSD 10340

Prepared by Arup

For Schools Infrastructure NSW

10 January 2020



School Infrastructure NSW  
**Fort Street Public School**  
Operational Waste Management Plan

SSD 10340

Final | 10 January 2020

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.




Job number 2666969-00

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## Document Verification

<b>Job title</b>		Fort Street Public School		<b>Job number</b>		2666969-00	
<b>Document title</b>		Operational Waste Management Plan				<b>File reference</b>	
<b>Document ref</b>		SSD 10340					
<b>Revision</b>	<b>Date</b>	<b>Filename</b>	OWMP FSPS Draft 1 24102019.pdf				
Draft 1	24 Oct 2019	<b>Description</b>	Draft 1				
			Prepared by	Checked by	Approved by		
		Name	Lilli Thannhauser	Giles Prowse			
		Signature					
Draft 2	29 Oct 2019	<b>Filename</b>	OWMP FSPS Final 29102019.pdf				
		<b>Description</b>	Draft 2				
			Prepared by	Checked by	Approved by		
		Name	Lilli Thannhauser	Giles Prowse	Joyanne Manning		
Final	10 Jan 2020	<b>Filename</b>	OWMP FSPS Revised 06012020.pdf				
		<b>Description</b>	Final				
			Prepared by	Checked by	Approved by		
		Name	Lilli Thannhauser	Giles Prowse	Giles Prowse		
		Signature					
		<b>Filename</b>					
		<b>Description</b>					
			Prepared by	Checked by	Approved by		
		Name					
		Signature					
<div style="text-align: right;"> <b>Issue Document Verification with Document</b> <input checked="" type="checkbox"/> </div>							

# Contents

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	Page
<b>1 Introduction</b>	<b>1</b>
1.1 Overview	1
1.2 Project context	2
1.3 Site Constraints	4
1.4 Purpose	4
1.5 Secretary's Environment Assessment Requirements (SEARs)	5
<b>2 Legislative requirements</b>	<b>6</b>
2.1 NSW State legislation	6
2.2 Local Government Requirements	7
2.3 Green Star or Alternative Approach	9
<b>3 Targets, monitoring and measurement</b>	<b>10</b>
3.1 Target	10
3.2 Monitoring and measurement	10
3.3 Review of WMP	12
<b>4 Construction and demolition</b>	<b>13</b>
4.1 Waste streams	13
4.2 Management	13
<b>5 Operation</b>	<b>15</b>
5.1 Operational waste streams	15
5.2 Waste generation	15
<b>6 Systems</b>	<b>18</b>
<b>7 Storage</b>	<b>19</b>
7.1 Central storage room design	19
7.2 Location and access	21
7.3 Waste Receptacles and Signage	22
7.4 Amenity	23
<b>8 Collection Point</b>	<b>24</b>
8.1 Collection Point Requirements	24
8.2 Location and access	25
8.3 Frequency	26
8.4 Collection vehicles	27
<b>9 Opportunities</b>	<b>28</b>

9.1	Solar compactor bins	28
9.2	Composting	28
9.3	Reverse vending machines	28
9.4	Waste education	28
9.5	Nude food	28
9.6	Annual audit	28
9.7	Waste art	29
<b>10</b>	<b>Conclusion</b>	<b>30</b>

# 1 Introduction

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## 1.1 Overview

The NSW Department of Education School Infrastructure NSW (SINSW) is looking to redevelop the Fort Street Public School (FSPS) to provide increased student capacity. FSPS is located at the northern fringe of the Sydney CBD adjacent the Cahill Expressway on the western side of the Harbour Bridge at Observatory Hill.

The project includes the following activities:

### **Site preparation, demolition and excavation**

- Site remediation.
- Demolition of the southernmost school building, the garage and storage shed west and east of the Bureau of Meteorology Building (the Met/the Met Building), and the toilet block adjoining the main school building.
- Selective removal of various elements of the main school building, as well as minor and insignificant elements of the Met Building and the Messenger's Cottage to facilitate refurbishment and future use of these buildings.
- Bulk excavation works to facilitate the new southern buildings and onsite detention.
- Tree removal.
- Installation of hydraulic and electrical services.

### **Land use**

- Use of all buildings for the purpose of a school.

### **Existing buildings**

- Retention, refurbishment and extension of the existing Fort Street Public School, including construction of a new roof and rooftop additions.
- Retention and refurbishment of the Met Building and internal alterations and additions.
- Retention and minor alterations and additions to the Messenger's Cottage.

### **Construction of New buildings**

- Construction of one new building on the western part of the site for a staff room.
- Construction of two new, interconnected school buildings on the southern third of the site.
- Construction of a new communal hall and canteen building.

## Landscaping

- Retention of the existing large fig tree.
- Landscaping works throughout the site, including construction of a new amphitheatre, new central plaza, and a multi-purpose forecourt.
- Landscaping of roof gardens on top of the new southern buildings, the existing Bureau of Meteorology Building.

## Other works

- Works to the existing entrance road, including alterations to the Bradfield Tunnel Services Building;
- Modifications to existing pick-up / drop-off arrangements;
- Provision of signage zones; and
- Installation of on-site detention.

## 1.2 Project context

Fort Street Public School is located in the City of Sydney council area. The School site is bordered by the Cahill Expressway to the north and Upper Fort Street to the south and east. The site contains heritage items and is in a Heritage Conservation Area. A site boundary of the FSPS can be seen below in Figure 1.

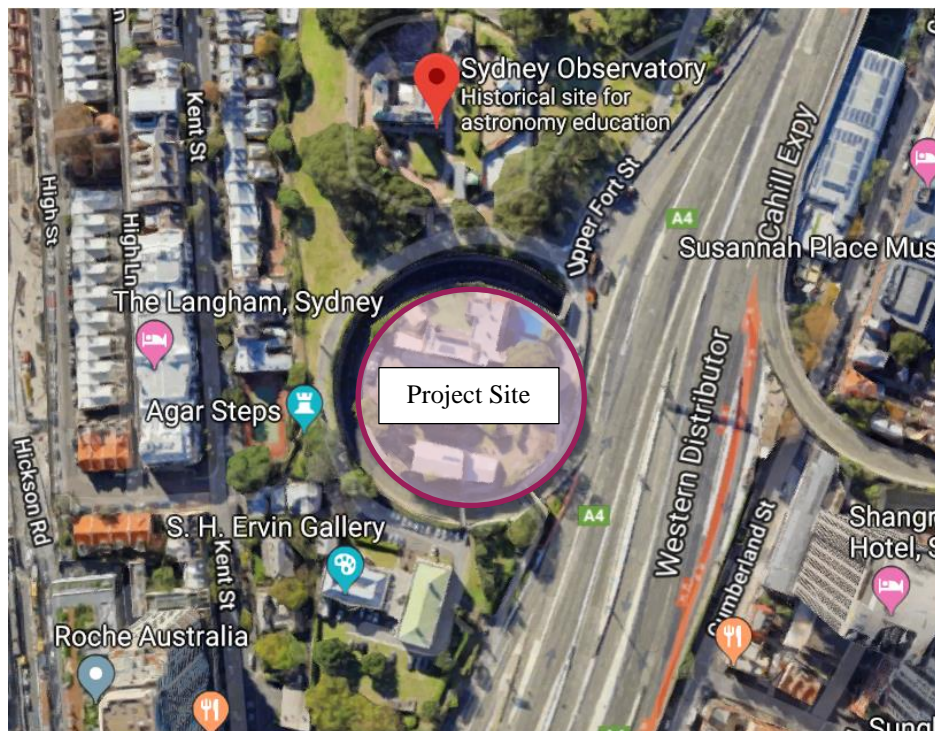


Figure 1 Site context of FSPS

Source: Google Earth

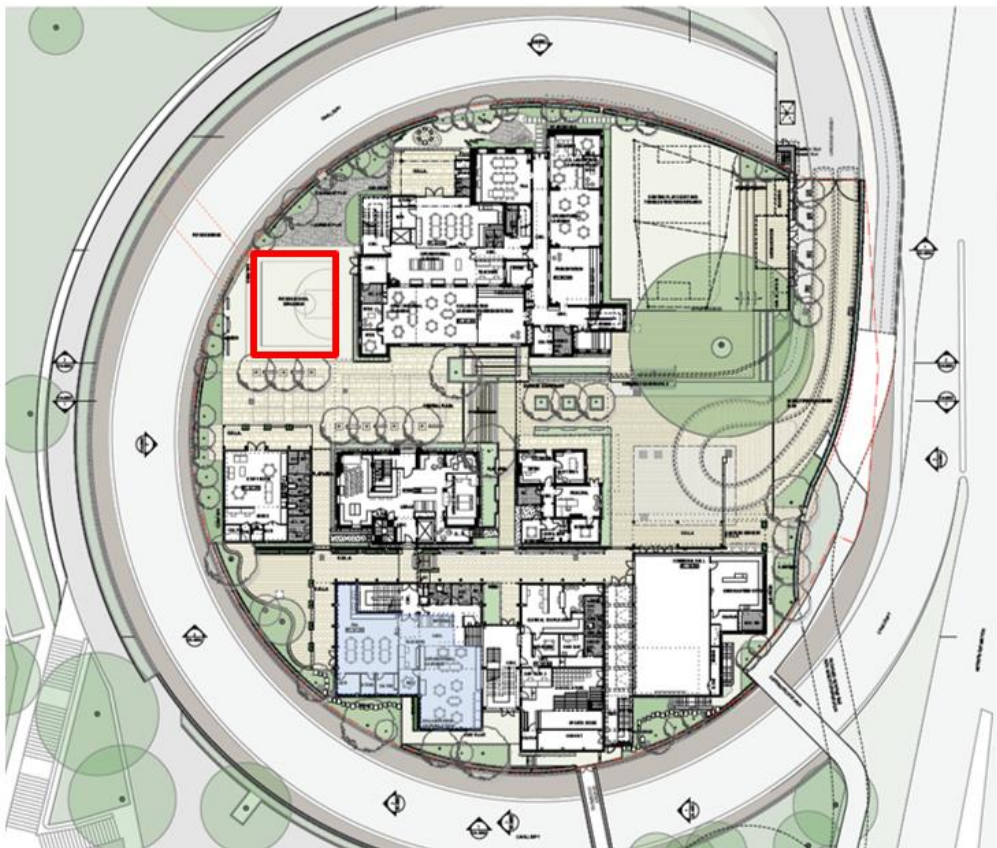


Figure 2 Proposed Site Plan

The proposed site plan consists of multiple buildings as shown in Figure 2. The site is surrounded by Cahill Express Way and the site access is from Upper Fort Street.

There is potential to add an additional building (outlined in red, refer to Figure 2) in the future, however this additional work is currently unfunded. This Waste Management Plan includes the future provision of this building however the building will be subject to separate planning approval.

There is a mixture of uses for the spaces within the buildings including:

- Special purpose learning spaces
- Adaptable learning spaces
- Multi-purpose learning spaces
- Wet areas for activities
- Multi-purpose hall
- Environmental Education centre
- Office space
- Staff rooms
- Canteen
- Storage areas
- Student and staff amenities



## 1.3 Site Constraints

The site has a number of constraints which has impacted the site formation, demolition and excavation, the building refurbishment and the new building's design and construction. The site constraints are summarised below:

- Existing heritage listed building locations on the site result in available land for development being restricted to the south and west;
- In-ground archaeological structures (early 1800s) prevent construction of below-ground rooms for a large portion of the southern part of the site;
- Internal refurbishment of existing heritage listed buildings is constricted due to existing walls, floors, stairs etc.;
- Only one access road (Upper Fort Street) available; and
- Due to the nature of the development (primary school) essential functional play spaces take priority in the north east and eastern parts of the site.

## 1.4 Purpose

This document addresses aspects of waste management relating to requirements of the SSD under the *NSW Environmental Planning and Assessment (EP&A) Act* (1979), City of Sydney Policy for Waste Minimisation in New Developments, and the project's objectives in terms of a Green Star or alternative approach.

This Waste Management Plan (WMP) identifies waste sources and proposes management measures for the project design, construction and operation. The format of this document can assist with the completion of a Construction Waste Management Plan (CWMP), which will be required by the contractor prior to the construction of the development. It may also assist with the development of a waste auditor report required as part of a submission for Green Star or alternate approach.

The key purposes of the WMP are to:

- Address the waste management requirements for the proposal to a standard suitable for approval under the EP&A Act;
- Provide guidance for the project for waste minimisation from construction activities;
- Increase economic feasibility of the project through effective waste separation, recycling and re-use measures; and
- Identify, quantify and classify the likely waste streams to be generated during construction and describe the measures to be implemented to safely manage this waste.

## 1.5 Secretary's Environment Assessment Requirements (SEARs)

The SEARs requirements for this project have been addressed in the sections identified below in Table 1.

Table 1 SEARs requirements and relevant sections

SEARs requirement	Relevant section
Identify, quantify and classify the likely waste streams to be generated during construction and operation	See Section 4 See Section 5
Describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste	See Section 4 See Section 5
Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.	See Section 6 See Section 7 See Section 8

## 2 Legislative requirements

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### 2.1 NSW State legislation

#### *Protection of the Environment Operations Act, 1997*

The *Protection of the Environment Operations Act (POEO Act)* 1997 covers the requirements for waste generators in terms of storage and correct disposal of waste. The POEO Act establishes the waste generator as having responsibility for the correct management of waste, including final disposal.

#### *Waste Avoidance and Resource Recovery Act, 2001*

Due to concerns about waste management practices and increasing volumes of waste, the NSW government introduced the Waste Avoidance and Resource Recovery Act (WARR Act) 2001, superseding the Waste Minimisation and Management Act 1995 following its five-year review.

The objectives of the WARR Act are as follows:

- 1) to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecologically sustainable development (ESD),
- 2) to ensure that resource management options are considered against a hierarchy of the following order:
  - i. avoidance of unnecessary resource consumption;
  - ii. resource recovery (including reuse, reprocessing, recycling and energy recovery); and
  - iii. disposal.
- 3) to provide for the continual reduction in waste generation
- 4) to minimise the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste,
- 5) to ensure that industry shares with the community the responsibility for reducing and dealing with waste,
- 6) to ensure the efficient funding of waste and resource management planning, programs and service delivery,
- 7) to achieve integrated waste and resource management planning, programs and service delivery on a State-wide basis, and
- 8) to assist in the achievement of the objectives of the Protection of the Environment Operations Act 1997.

A WMP is a requirement for new developments in NSW and must be written with reference to the NSW Waste Avoidance and Resource Recovery Strategy 2014-21, made under the Act.

### ***NSW Waste Reduction and Purchasing Policy, 2007 (WRAPP)***

The NSW Waste Reduction and Purchasing Policy (WRAPP) requires all state government agencies and state owned corporations to develop and implement a WRAPP plan to reduce waste in four scheduled waste sources:

- Paper products;
- Office equipment and components;
- Vegetation material; and
- Construction and demolition materials.

The NSW WRAPP is not directly applicable to the project but has been used as a guiding document for waste initiatives.

### ***NSW EPA, Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities, 2013***

These guidelines detail better waste management practices into the design, establishment, operation and ongoing management of waste services in commercial and industrial developments.

## **2.2 Local Government Requirements**

### ***Council of the City of Sydney The City's Sustainable Sydney 2030 - Community Strategic Plan 2017–2021***

Sustainable Sydney 2030 details the long-term program and commitment to achieving the vision and targets set out for a Green, Global, Connected City. The Community Strategic Plan builds on this Sustainable Sydney 2030 and details the strategic directions and objectives and actions for each direction. The key directions that relate to waste management include:

- Leading Environmental Performer: Waste from the city is managed as a valuable resource and the environmental impacts of its generation and disposal are minimised
- Sustainable Development, Renewal and Design: divert waste from landfill and increase resource recovery

### ***Council of the City of Sydney Environmental Action 2016–2021 – Strategy and Action Plan***

Sustainable Sydney 2030 outlined the aspiration to be a leading environmental performer. To guide the implementation of Sustainable Sydney 2030, the City developed a series of environmental master plans and strategies between 2008 and

2015. The plan outlines what actions will be undertaken by NSW to meet their long-term goal of zero waste to landfill.

### ***Council of the City of Sydney Leave nothing to waste – Managing resources in the City of Sydney area: Waste strategy and action plan 2017–2030***

This Plan focuses on managing Sydney's resources to 2030 by setting clear targets and recommendations to maximise diversion from landfill. It includes targets, priority areas, and actions to reach the zero-waste goal. The plan also sets out recommendations to accommodate future legislative requirements and advances in technology.

### ***Council of the City of Sydney Guidelines for Waste Management in New Developments***

The Council of the City of Guidelines for Waste Management in New Developments (the Guidelines) was developed in 2018 to promote the efficient storage, separation, collection and handling of waste to maximise resource recovery and provide safe and healthy spaces for people to live and work in. The Guidelines provide the minimum waste management requirements for all developments and for completing Waste and Recycling Management Plans for Development Applications (DAs). The Guidelines support the legislation and plans described above. The aim of this Guideline is to ensure the provision of safe and convenient facilities for residents and workers to store recyclables and unwanted waste items for collection and recovery.

The Guidelines is the guiding document for many of the waste initiatives and requirements for FSPS.

The specific sections pertaining to the proposed development include:

- Section A – General requirements;
- Section D – Non-residential developments<sup>1</sup>; and
- Section F – Construction and demolition waste requirements.

Key requirements of the Guidelines include:

- All non-residential premises must have a dedicated and enclosed waste and recycling storage area which has adequate storage to meet generation rates and is located in a position that is convenient for both users and waste collection staff and promotes source separation and reduces contamination;
- All non-residential premises must supply a dedicated space for the storage and collection of bulky, problem and food waste. Space should also be provided for the separate collection of beverage containers suitable for redemption under the NSW container deposit scheme.

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<sup>1</sup> The FSPS would be classed as a non-residential development under the Guidelines

- Businesses, commercial building tenants and building managers for non-residential buildings should have written evidence of a valid and current contract (held on-site) with a collector for waste and recycling collection for disposal or processing; and,
- All businesses and non-residential buildings should include provisions in their waste contracts that allow for the collection and recycling of high-grade and low-grade office paper, cardboard packaging, paper from secure document destruction, soft plastics, food waste and other recyclable resources from the waste stream.

Numerous other requirements are specified within the Guidelines. These have been addressed throughout this WMP where applicable.

## 2.3 Green Star or Alternative Approach

A Green Star or potentially an alternate assessment is being sought for this development. If the Green Star approach is selected the assessment will follow the Green Building Council of Australia (GBCA) Green Star Design and As Built v1.3 rating tool. The waste management facilities and procedures set out in this WMP align with the requirements of Credit 8A – Operational Waste.

The performance pathway relevant to the FSPS is the Specialist Pathway.

Table 2 outlines the requirements of Credit 8A.

Table 2 Performance Pathway: Specialist Plan Green Star credit overview

Option 8A	Criteria	Requirements
<b>Performance Pathway: Specialist Plan</b>	1 point is available where a qualified waste auditor prepares an Operational Waste Management Plan (OWMP) for the building in accordance with best practice approaches and this is reflected in the design of the facilities of the building.	<p>Identify the site boundary, the waste streams relevant to the project, and the individual roles responsible for delivering and reviewing the OWMP;</p> <p>Set diversion from landfill targets and/or targets for reducing total materials generation (general waste materials and recyclable/reusable materials), as well as monitoring and measurement procedures for waste and recycling streams by weight.</p> <p>Outline methods for encouraging the separation of waste streams, such as bins, storage areas or recycling facilities in public areas as required.</p> <p>Identify storage areas for all waste streams and outline best practice safety and access requirements for their collection.</p> <p>Identify safe methods for vehicle access and transfer of waste; and</p> <p>Incorporate a review process to assess the success of the OWMP and make improvements, based on operational experience.</p>

## 3 Targets, monitoring and measurement

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High quality waste data can improve the overall level of accuracy, transparency of, and confidence in, waste monitoring. It enables meaningful and accurate comparisons and benchmarking to be conducted both within portfolios and between waste contractors.

Good waste data informs strategic resource planning and provides insight into equipment/operational efficiency as well as ensuring accuracy of invoicing and fees. FSPS can achieve greater resource recovery by accurately measuring current and future waste performance.

### 3.1 Target

The waste related targets have been set to ensure ongoing improvement of waste segregation and recycling. The FSPS will adopt a proposed landfill diversion target of 70% for operational waste, in line with the CoS Waste strategy and action plan 2017–2030<sup>2</sup>. This target is also reflected in the Guidelines.

This target will be calculated as follows:

$$\frac{\text{total waste (kg)} - \text{landfill waste (kg)}}{\text{total waste (kg)}} \times 100\%$$

Given the lack of accurate diversion from landfill data, a modest target has been set until baseline data can be gathered and analysed. This target is based on the separation of recyclables (particularly paper and card) and food waste. The intention will be that this target will be reviewed regularly, and opportunities to increase diversion from landfill will be sought.

The baseline data for this target will be sourced from bin weight collected by the nominated waste service provider for the development. The building manager<sup>3</sup> onsite will calculate the diversion rate based on data provided by the waste service provider.

### 3.2 Monitoring and measurement

Data pertaining to waste generation at the FSPS will be collected, collated and recorded by the waste service provider to ensure best practice monitoring procedures for building management to help measure their progress towards achieving their waste targets.

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<sup>2</sup> The target in CoS Waste strategy and action plan 2017–2030 is to divert 70% of operational waste from City-managed properties away from landfill by June 2021

<sup>3</sup> The arrangement for the responsibility of waste data tracking and management on-site has not been confirmed. At this stage the term building manager will be used to describe the person responsible for waste data tracking and management on-site.

### 3.2.1 Operations and Management

The waste service provider for the FSPS must adhere to this WMP and comply with minimum operational safety standards.

The waste service provider must be able to attribute a weight to each bin collected, and mass must be measured according to the individual waste stream with evidence regarding the integrity of any scales/meters used. Masses must be recorded in an agreed format and forwarded on to the building manager at the close of each invoicing period.

Where the waste service provider observes contamination in a recycling bin, that bin must be weighed and added to the operational waste management report as a 'contamination incident'. The contents in the contaminated bin must then be disposed of as general waste and the incident reported to the building manager.

The waste service provider must supply equipment (bins, signage/stickers etc.) colour-coded in accordance with the Australian Standard 4123 and approved by the building manager.

The waste service provider must ensure that collecting services are done periodically and only when necessary to ensure the bins are not greater than three quarters full, and to maintain a hygienic and odour free environment.

As per the CoS Guidelines the following is also required to ensure proper management of the waste system;

- The building managers will have written evidence of a valid and current contract (held on-site) with a collector for waste and recycling collection for disposal or processing;
- Waste contracts will contain provisions that allow for the collection and recycling of high-grade and low-grade office paper, cardboard packaging, paper from secure document destruction, soft plastics, food waste and other recyclable resources from the waste stream; and
- Contracts with cleaners, building managers and tenants will clearly outline the waste management and collection system, and will clearly allocate responsibilities.

### 3.2.2 Contamination audit

A site specific contamination audit of each recycling stream is recommended annually. This audit is conducted internally and must be overseen by an independent and competent person.

For two consecutive collections, the contents of the sample are to be audited to determine the level of "non-acceptable" items. The sample will consist of all bins normally presented for collection and non-acceptable items must be as advised by the receiving facility.

Contamination rate is determined as the total mass of 'non-acceptable' items expressed as a percentage of the total mass of all bins in the sample.



Where contamination is deemed unacceptable, the building manager should seek to address this issue with the building tenants e.g. through educational or other means.

### **3.2.3 Reporting**

The waste service provider is to issue periodic operational waste management reports e.g. on a monthly or quarterly basis, to the building manager, including:

- A list quantifying the amount and types of waste generated at the FSPS;
- A list of contamination incidents including the masses of contaminated bins; and
- Records and evidence to substantiate data contained within reports to the nominated reporting standard.

### **3.3 Review of WMP**

The waste service provider and cleaning contractor will annually review the WMP with the building manager as well as any other relevant parties in FSPS to determine enhancements, sustainability initiatives and other waste management initiatives.

## 4 Construction and demolition

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The following section provides an overarching guideline for managing waste generation during the construction, demolition and excavation phase.

### 4.1 Waste streams

Construction, demolition and excavation works for this development are to take place with consideration of the project's Green Star (or alternate approach) pathway objectives, particularly in regards to use of recycled building materials and recycling of construction waste streams. The primary goal for waste management in the construction, demolition and excavation phase is to ensure the highest possible proportion of waste is recycled or reused. The target rate for construction, demolition and excavation waste diversion from landfill will be determined once the Green Star pathway or an alternative approach for this project has been finalised.

An overview of the major waste streams resulting from demolition and construction is provided in Figure 3. Waste streams that are generally predicted to generate the greatest volume are highlighted in pink.

### 4.2 Management

Waste generation and management during the construction, demolition and excavation phase will be the responsibility of the Principal Contractor and is to be handled in accordance with the approved Construction Waste Management Plan as it relates to materials procurement, handling, storage, and use. Waste generated during construction, demolition and excavation will be reused and recycled as a priority, and only disposed to landfill where unavoidable.

During construction, demolition and excavation, suitable areas on site (or off site, if necessary), will be allocated which provide adequate space and access for:

- Separated storage of building materials,
- Separated storage of construction, demolition and excavation waste,
- Separated sorting of construction, demolition and excavation waste, and
- Removal of construction, demolition and excavation waste for recycling, re-use or landfill.

Waste that is unable to be reused or recycled will be disposed of offsite at an EPA-approved waste management facility following classification. Details of waste types, volumes and destinations will be recorded in recording and tracking schedules. Prior to transporting waste materials to offsite facilities, it will be verified that the transporter and facility is licensed to handle the material it is designated to carry.

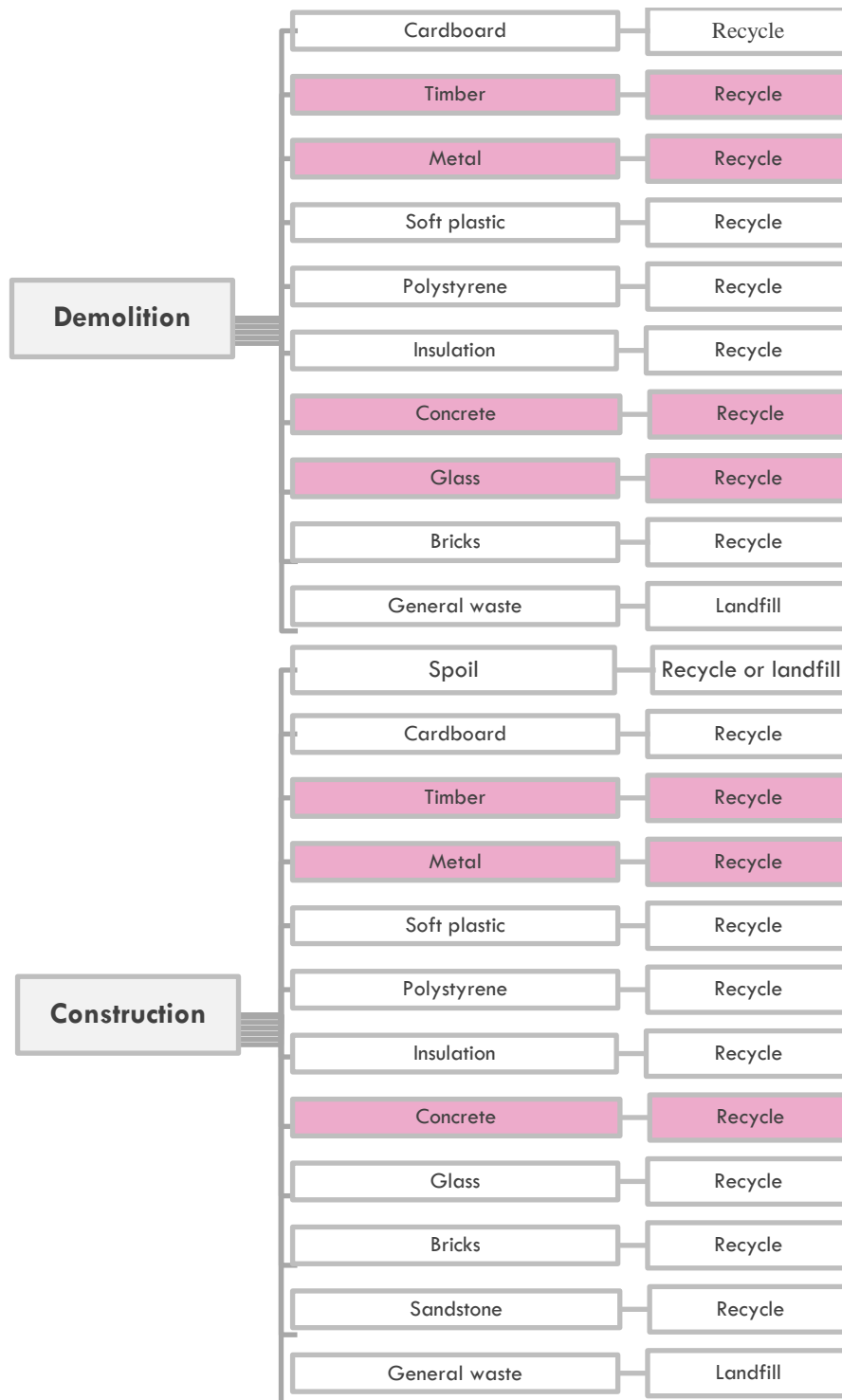


Figure 3 Overview of expected construction and demolition waste streams

## 5 Operation

This section includes an overview of waste streams that will likely to be generated during operation, details on their segregation, and their estimated volumes. Detailed functional area schedules for this development can be found in Appendix A.

### 5.1 Operational waste streams

The waste streams that will be generated during operation of the building are identified below in Table 3.

Table 3 Waste streams per operational area

Waste streams	Operational area / description
General waste	Entire building, outside circulation areas <sup>4</sup>
Food and garden organics	Entire building, outside circulation areas
Paper and cardboard	Entire building, outside circulation areas
Co-mingled recycling	Entire building, outside circulation areas
Secure documents	Office spaces
Hard / bulky items	Electronics, furniture, crates, pallets etc.
Electronic waste	Learning spaces, office spaces
Liquid waste	Canteen
Sanitary waste	Entire building

### 5.2 Waste generation

Weekly waste volumes for FSPS have been estimated using standard City of Sydney (CoS) waste generation rates and the area schedule to determine waste storage and collection requirements.

Weekly waste volumes are based on the assumption that all bins will be collected 5 x per week (every school day). Due to the space constraints of the central storage room there is currently no contingency for a day of missed collection.

Other key assumptions that have been made to inform waste generation include:

- 51% of the recycling stream from cafes and restaurants/eating comprises paper and card, while the remaining 49% is comprised of co-mingled recycling<sup>5</sup>.
- 96% of the recycling stream from offices comprises paper and card, while the remaining 4% is comprised of co-mingled recycling<sup>5</sup>.

<sup>4</sup> The outside circulation areas in this project include the assembly quadrangle, the outside amphitheatre, the central plaza, the cottage courtyard, the play court, the fig tree deck and the equipment play area.

<sup>5</sup> As per Encycle composition data for C&I sectors in Australia (Encycle, 2013).

### 5.2.1 Rates

For all spaces within the FSPS, the Guidelines generation rates in conjunction with the floor areas have been used to calculate daily waste volumes. The school will undergo significant changes with the refurbishment of old buildings and construction of new buildings resulting in a population increase of 400 students. Historical waste data has not been used to inform the waste generation rates, CoS Guidelines generation rates have been applied instead.

For waste and recycling generated in the circulation areas outside of buildings, best practice principles for litter management will be applied. A bin station should comprise of 1 x general waste receptacle, 1 x co-mingled recycling receptacle, and 1 x food waste organics receptacle to encourage source separation. The bin stations should be located in high traffic areas, in locations food is consumed and at the entry and exits to spaces. Based on these principles in total there will be eight bin stations comprising of general waste, co-mingled recycling, and food waste organics.

The allocation of bin stations in the spaces considered outside circulation areas has been summarised in Table 4.

Table 4 Summary of outside circulation areas bin allocation

Stream	Number of receptacles
General waste	8
Co-mingled recycling	8
Food waste organics	8

Table 5 identifies the appropriate generation rates for all spaces within the buildings.

Table 5 Applicable waste and recycling generation rates

Building space use	Applicable waste generation type	General waste generation rate	Recycling generation rate	Food waste generation rate
Office / learning spaces	Offices	15 L / 100 m <sup>2</sup> / day	25 L / 100 m <sup>2</sup> / day	5 L / 100 m <sup>2</sup> / day
Canteen	Restaurants / eating	100 L / 100 m <sup>2</sup> / day	500 L / 100 m <sup>2</sup> / day	100 L / 100 m <sup>2</sup> / day
Mobile stage / communal hall	Entertainment venues	100 L / 100m <sup>2</sup> / day	125 L / 100m <sup>2</sup> / day	30 L / 100 m <sup>2</sup> / day

The storage, loading and service areas of the buildings have been assumed to not generate any waste.

### 5.2.2 Volumes

Estimates of the waste segregation and daily waste generation for the FSPS are summarised below in Table 6.

Table 6 Estimated waste generation (volume)<sup>6</sup>

Source	FSPS measured area, m <sup>2</sup>	Waste and recycling volumes (L/day)			
		General waste	Co-mingled recycling	Paper and card recycling	Food waste recycling
Office / learning spaces <sup>7</sup>	3795	569	36	913	190
Canteen	64	64	157	163	64
Mobile stage / communal hall	300	300	40	334	90
<b>Total</b>	<b>4159 m<sup>2</sup></b>	<b>933 L</b>	<b>233 L</b>	<b>1410 L</b>	<b>344 L</b>

It should be noted that:

- waste generation estimates have not been provided for other waste streams (e.g. hard / bulky waste, e-waste, cooking oil, sanitary waste etc.) due to their anticipated small volumes and a lack of available estimation metrics.
- estimated waste generation is based on full site development and includes an additional building (not currently funded). Based on Table 6, waste collection has been forecast as a maximum, but the size of the development may be reduced to meet the areas built under the Development Approval (DA).

<sup>6</sup> Rounded to the nearest m<sup>2</sup> and L

<sup>7</sup> Waste generation figures for office / learning spaces includes the foyer and back of house areas.

## 6 Systems

The proposed Waste Management System (WMS) is summarised in Table 7. This summary identifies the reticulation from the point of disposal to the central storage room and collection point.

In addition, the responsibilities associated with waste management system are outlined below. All contracts with building managers, tenants and cleaners should clearly outline the waste management and collection system for allocating waste management responsibilities.

Table 7 Proposed operational waste management system

Space use	Local disposal	Transfer to central storage room	Central storage room	Transfer to collection point	Collection point
Office / learning	Bins / receptacles as needed in shared spaces	Cleaners (using trolleys)	Central storage room (general waste and recycling including food waste) on ground floor level.	Nominated cleaning staff/facilities management transfer waste receptacles from central storage room on ground floor level, to the collection point on Upper Fort Street in front of the central storage room.	Waste contractors collect waste from loading zone in waste collection vehicles. The collection point is located on ground level on Upper Fort Street. There are two routes available for the collection vehicles to access the collection point to allow for flexibility of collection (refer to Section 8.4)
Canteen	Bins / receptacles as needed in shared spaces	Cleaners (using trolleys)			
Mobile stage / communal hall	Bins / receptacles as needed in shared spaces	Cleaners (using trolleys)			
Outside Circulation Areas	Bins / receptacles as needed in public spaces	Cleaners (using trolleys)			

In addition, the following requirements from the CoS Guidelines will be adhered to during operation:

- The central storage room and access paths will be kept clean and free of obstructions at all times;
- All storage containers for waste and recycling will be in serviceable condition and at the agreed bin numbers at all times; and
- Bin cleaning will be conducted on a regular basis by the managing body.

## 7 Storage

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### 7.1 Central storage room design

The central storage room will be designed and constructed according to the provisions stipulated by the Guidelines. Refer to Appendix B for relevant guidelines. Requirements for the central storage room according to the Guidelines include:

- All waste and recycling is to be wholly located in a dedicated room or storage area;
- Waste and recycling areas are to be located in a position that is convenient for both users and waste collection staff and that promotes source separation and reduces contamination;
- Storage areas are not to be located adjacent to a habitable room;
- Storage areas are to be provided within the premises in reasonable proximity to the vehicle entrance, and no lower than one level below street level;
- Storage areas are to provide adequate capacity for storing all the waste and recycling likely to be generated between collection cycles, based on expected waste generation and selected bin types and accommodate likely peak demand for waste storage capacity;
- Dedicated space (in or attached to the waste and recycling storage area) is to be provided for the storage and recycling of food waste for collection;
- There is to be space dedicated for storing bulky waste and problem waste for recycling<sup>8</sup>;
- Food waste and compostable material management options can include composting & worm farming or an on-site food waste processing system
- Storage areas should reflect the equipment, infrastructure, manoeuvring space and potential future needs of the development;
- Layout of the storage area is to be designed to encourage easy recycling and separation of different waste types by all users; and
- The storage area(s) is to be detailed on DA plans and drawings submitted to Council.

Waste storage area requirements are calculated from the total volume of daily waste generation, collection frequencies, and Australian Standard mobile garbage bin sizes.

The recommended central storage room requirements are outlined in Table 8 below.

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<sup>8</sup> At least 4m<sup>2</sup> for developments between 100m<sup>2</sup> and 2,000m<sup>2</sup> and an additional 4m<sup>2</sup> is required for each retail, accommodation or entertainment development over 2,000 m<sup>2</sup> and for every 20,000 m<sup>2</sup> of office space.



Table 8 Recommended area requirements for central waste and recycling storage

Component	Waste stream	Bin Requirements	Area
<b>General waste storage</b>	General waste	2 x 660L general waste receptacles	2.0 m <sup>2</sup>
<b>Recycling storage</b>	Co-mingled	1 x 240L recycling receptacles	3.5 m <sup>2</sup>
	Paper/card <sup>9</sup>	3 x 660L recycling receptacles	
<b>Food waste storage</b>	Food waste	2 x 240L food waste receptacle	1.0 m <sup>2</sup>
<b>Bin scaling factor</b>			1.5
<b>Bulky and problem waste storage<sup>10</sup></b>	Bulky items	Caged section	4.0 m <sup>2</sup>
	E-waste	Small receptacle	
<b>Liquid Waste</b>			1.0m <sup>2</sup>
<b>Wash down area</b>			4.0 m <sup>2</sup>
<b>Total</b>			<b>18.8 m<sup>2</sup></b>

The general central storage room will host general waste and food / garden organic waste, co-mingled recycling, paper / cardboard recycling, hard / bulky and problem waste, and liquid waste. A bin scaling factor of 1.5 has been applied to account for receptacle manoeuvrability, accessibility and potential future needs of the development. Refer to Figure 4 for the configuration of the central storage room.

Space has been allocated for the storage of liquid waste as stipulated in the Guidelines. This area will be bunded, and drained to a grease trap, in accordance with legislation and the requirements of State government authorities and agencies. An area dedicated to bin wash down has also been allocated.

The indicative area required for the central storage room that will contain general waste, recycling and food waste storage is 18.8m<sup>2</sup>. The central storage room is currently 26.8m<sup>2</sup> and therefore the central storage room is of an adequate size. The remaining storage space in the room will be allocated to the collection of beverage containers suitable for redemption under the NSW Container Deposit Scheme (CDS), additional manoeuvring space and space to account for future developments to the waste system.

Due to space constraints of the site, it is recommended that the removal of old furniture and material is conducted by a professional stripout service or by the

<sup>9</sup> Due to space constraints and the lower volumes of cardboard/ paper waste balers/compactors will not be used. Due to the expected low volumes of glass, glass crushers will not be used.

<sup>10</sup> The space required for bulky and problem waste is 4m<sup>2</sup> for developments between 100m<sup>2</sup> and 2,000m<sup>2</sup> as required by the Guidelines. The FSPS measured area is 4159 m<sup>2</sup>, the majority of this area being designated as office space. An additional 4m<sup>2</sup> is required for every 20,000 m<sup>2</sup> of office space according to the Guidelines. As the measured area is less than 20,000m<sup>2</sup>, the bulky and problem waste storage area space required is 4m<sup>2</sup>.

company hired for installing new items<sup>11</sup>. Therefore no space will be allocated in the central storage room for strip out waste.

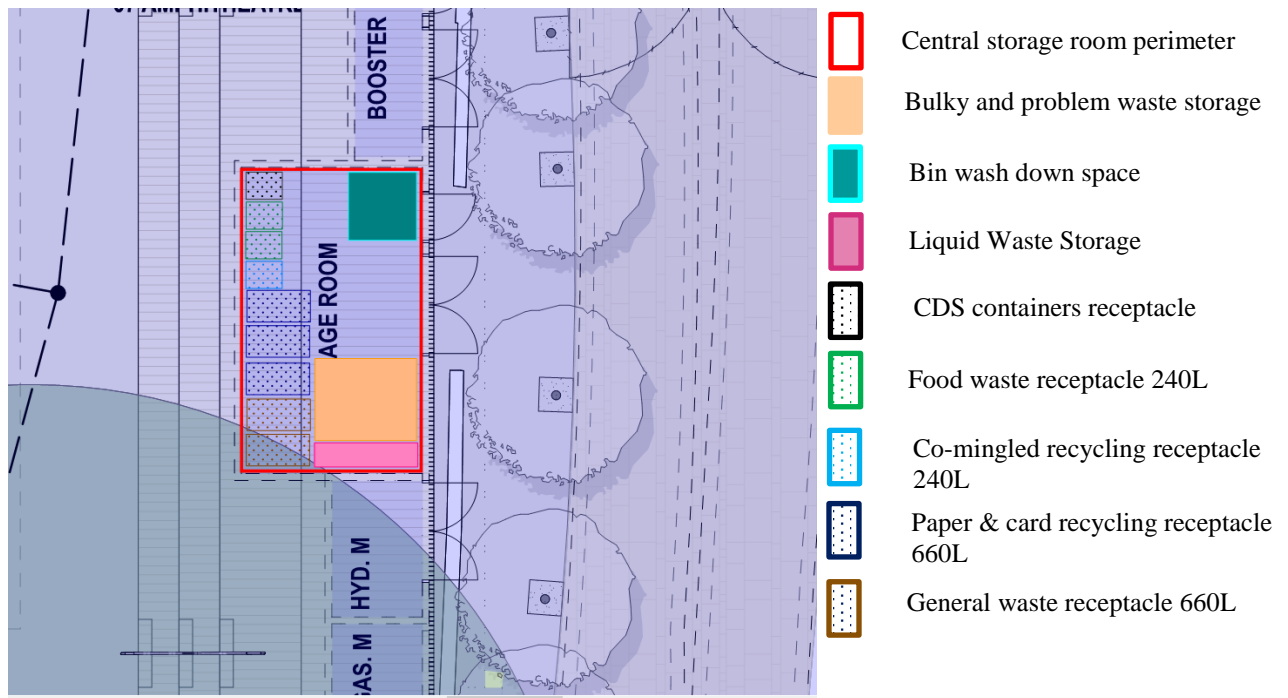


Figure 4 Configuration of central storage room

## 7.2 Location and access

The Guidelines state that the storage areas must:

- Be located in a position that is convenient for both users and waste collection staff;
- Be provided within the premises in reasonable proximity to the vehicle entrance, and no lower than one level below street level; and
- Storage areas are not to be located adjacent to a habitable room.

The central storage room will be located away from public access to minimise visual, odour, and safety impacts. The central storage room is located at the north east corner of the site under the Amphitheatre on ground level as illustrated in Figure 5. The central storage room is located in close proximity to the single vehicle access road, Upper Fort Street, and is not located adjacent to a habitable room. Due to the significant site constraints (refer to Section 1.3) the central storage room could not be located in a more convenient location for users and cleaning staff without being a significant distance from the access road or being adjacent to habitable rooms.

<sup>11</sup> Refer to Better Buildings Partnership, Stripout Waste Guidelines at: [www.betterbuildingspartnership.com.au](http://www.betterbuildingspartnership.com.au).

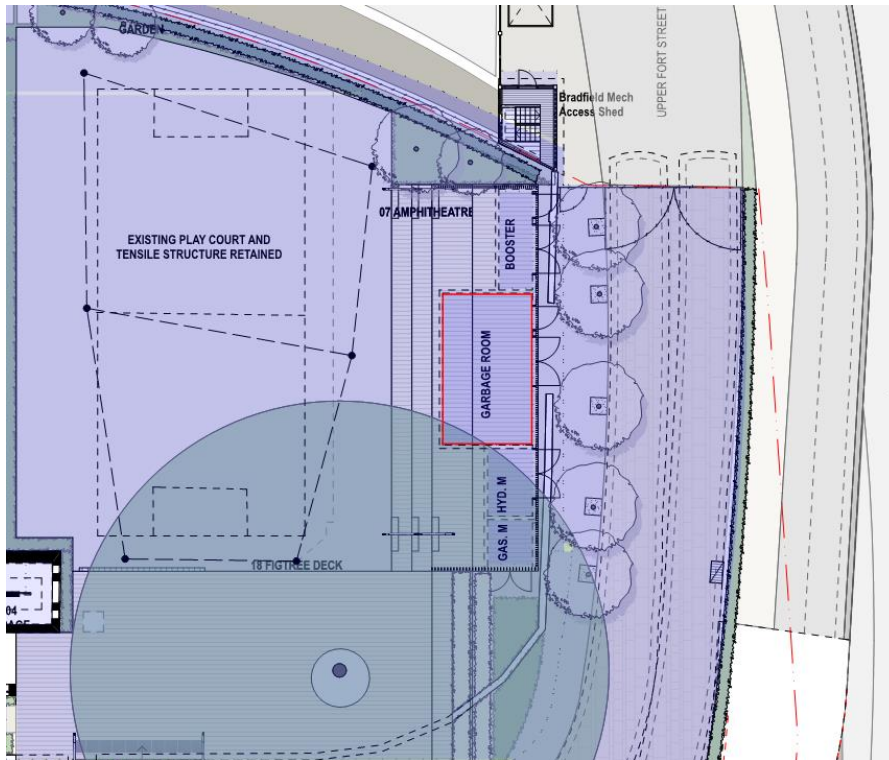


Figure 5 Location of central storage room (red)

### 7.3 Waste Receptacles and Signage

The Mobile Garbage Bins (MGBs) will be designed and colour-coded in accordance with the Australian Standard 4123: Mobile Garbage Containers as stated in the Guidelines. The waste collection containers are to display contractor information in accordance with the provisions in the Council's Waste Management Local Approvals Policy.

All waste and recycling containers will have a fixed tight fitting lid and a smooth, washable internal surface and all collection containers will display contractor information in accordance with the provisions in the Council's Waste Management Local Approvals Policy.

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. All waste streams will be stored in clearly labelled, colour coded bins as appropriate to ensure that waste streams are not inadvertently mixed.

These measures are necessary in order to encourage the appropriate separation of waste streams and the recovery of resources. In addition, clear Occupational Health and Safety (OHS) signage must be provided as appropriate. In particular, appropriate OHS must be provided within the central storage room.

## 7.4 Amenity

The management systems and constructed elements of this development will be designed and installed so as to enhance outcomes for building amenity. Any potential for noise and odour to arise will be minimised. Specifically:

- **Visual aspects:** Any facet of the waste management system that is visible from outside the building must be in keeping with the dominant design of the remainder of the development.
- **Noise:** The potential for noise must be minimised. Significant noise-generating waste management equipment will not be utilised in this development. However, Council may require waste storage to be refrigerated if sufficiently large quantities of food waste are generated on site and waste removal from this site is difficult due to location or long trading hours. Production of offensive noise will be avoided.
- **Odour:** The potential for odour must be minimised. Any putrescible waste awaiting collection will be stored in a Council approved container with permanently tight fitting lids and smooth, washable internal surfaces. All waste storage areas will be fitted with mechanical vertical ventilation systems. Adequate mechanical ventilation and regular collection of waste will eliminate the risk of odour to building inhabitants and neighbours.

## 8 Collection Point

### 8.1 Collection Point Requirements

The waste recycling collection point is the designated position or area where waste or recyclables are loaded onto the collection vehicle. The collection points must adhere to the following requirements according the CoS Guidelines shown in Table 9 below.

Table 9 Recommended Collection Point Requirements

Design aspect	Design provision
<b>Surfaces</b>	The collection point is to be level, free of obstructions and with sufficient height clearance to enable the safe mechanical pick up and set down of bins.
	The path for wheeling bins between a storage point and the collection point is not to exceed a grade of 1:14 at any point.
<b>Location</b>	All collection of waste is to be conducted on-site.
	Collection and vehicle access points are not to be located adjacent to a habitable room.
	The location of the proposed waste and recycling collection point(s) is to be detailed on the DA plans.
	Waste and recycling storage containers are to be stored at all times within the boundary of the development.
	Each collection point is to be easily accessible from the nominated waste and recycling storage area. The access pathway for wheeling bins between a storage point and the collection point is to be level and free of steps or kerbs. The maximum manual handling distance between the storage point and the collection point for bins is: <ul style="list-style-type: none"> <li>10m for bins including 120L, 240L, 660L and 1,100L Mobile Garbage Bins (MGBs)</li> <li>3m for 1,500L and 2,000L bulk bins</li> </ul> Any proposed variations require further assessment and discussion with relevant Council officers.
	The location of collection points for waste will be located wholly within the boundary of a development and in an area that minimises any noise or odour impacts on the amenity of nearby premises.
<b>Vehicle Access and Movements</b>	<p>The following allowances are to be made for the nominated collection point:</p> <ul style="list-style-type: none"> <li>Vehicle access for collection and loading will provide for a maximum grade of 1:20 for the first 6 metres from the street, then a maximum of 1:8 with a transition of 1:12 for 4 metres at the lower end</li> <li>A minimum vertical clearance of 4 metres, including clearances of all ducts, pipes and other services</li> <li>A minimum width of driveway of 3.6 metres</li> <li>A minimum turning circle radius of 10.5 metres or provision for changing the facing direction of a waste or recycling collection vehicle.</li> </ul>

Design aspect	Design provision
	The collection point is to be located where the waste or recycling collection vehicle(s) can stand safely
	Entry and exit of a collection vehicle from a site is to be in a forward direction. It is acceptable to use a vehicle turntable to accomplish this. If a vehicle turntable is used, it is to have a 30-tonne capacity.
	Collection vehicles are to be able to service the development with minimal reversing. If a collection vehicle needs to reverse to complete a collection run, this needs to be detailed in the development's traffic management plan.

## 8.2 Location and access

The central storage room for storing waste and recycling will be located on the Ground Level under the amphitheatre, adjacent to Upper Fort Street as shown in Figure 6. The waste receptacles will be located within 10 metres from the collection point. Refer to Figure 6 for the location of the collection point. This collection point is within the site boundary and the grade of the ramps from the central storage room to the collection point will be less than 1:14.

The nominated collection point where the waste loading operations occur will be on a level surface away from slopes or vehicle ramps. In addition to this, the path where the waste contractor will transport the bins from the central storage room to the collection vehicle will be free of steps, kerbs and other uneven surfaces. The driveway is greater than 3.6m and the distance for the waste contractor to transport the mobile garbage bins no larger than 1100L is less than 10 metres. The collection point is situated in an access road where the waste or recycling collection vehicle(s) can stand safely.

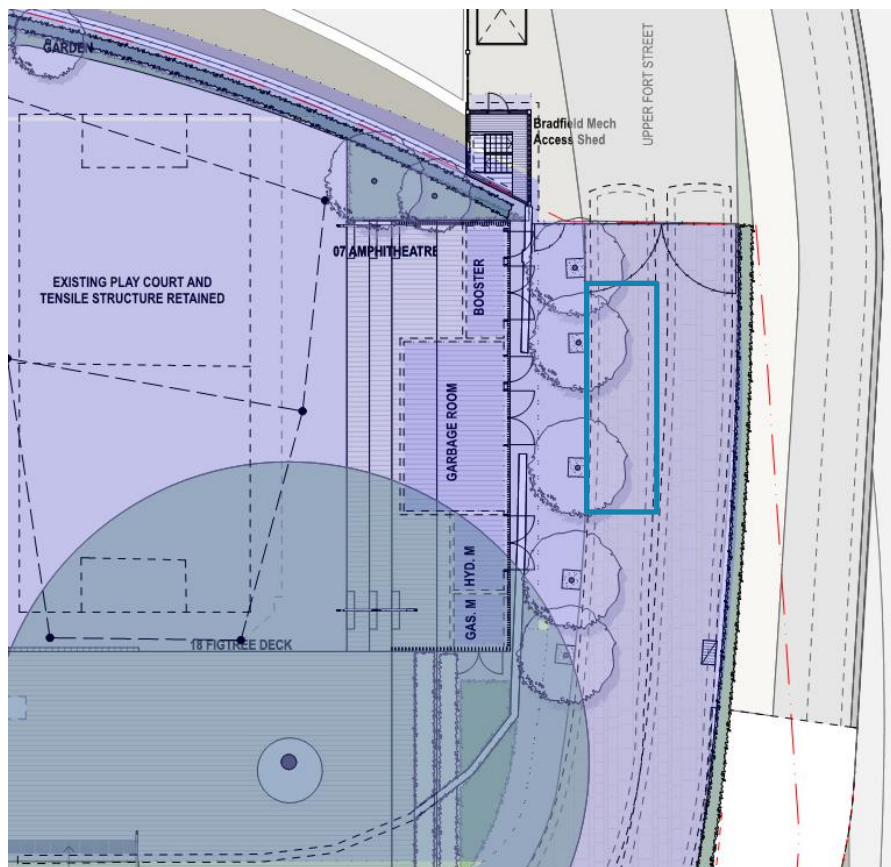


Figure 6 Location of collection point (blue)

### 8.3 Frequency

Waste collection services for each waste stream are yet to be confirmed. Written evidence will be provided and held on site at all times of the contractor's valid and current licence for waste and recycling collection and disposal.

Collection frequency assumptions are as follows:

- Collection of general waste, co-mingled recycling, paper/cardboard recycling, and food and garden organics is to occur 5 x per week (every school day).
- Collection of other waste streams (e.g. hard / bulky waste, e-waste, cooking oil etc.) would be less frequent, and arranged as required.

Collection frequency of hazardous waste, sanitary and liquid waste will be at the discretion of the separate waste service providers collecting and treating these waste streams, and can be arranged with facilities management as required. It should be noted that due to space constraints of the waste storage room there is no contingency for missed collection.

Note: The waste collection frequency is based on the full site development which includes an additional building not currently included in this Development Approval (DA). Currently waste collection is at a maximum but may be reduced



to meet the areas built under this DA. Waste collection frequencies can be adjusted once the building is in operation and actual waste generation rates can be observed.

## 8.4 Collection vehicles

There are two routes available for the collection vehicles to access the collection point to allow for flexibility of collection. The first route is to drive into Upper Fort Street, through the first school gate and through the second school gate where the vehicle will complete a three point turn at the dead end. Then the vehicle will exit the second gate and drive forward to stop at the collection point on Upper Fort Street before exiting the first gate.

For the second route the collection vehicle will complete a turning manoeuvre before the school gate outside of the site boundary and reverse into the collection point. Then the vehicle will exit driving forward.

The swept path for the vehicle movements can be found in Appendix C and is based on a rear loading vehicle for MGBs as specified in Table 10.

Reversing has been minimized as much as possible but was not avoidable due to site constraints (refer to Section 1.3). The traffic implications of the reversing of the MGB has been addressed in the Traffic Management Plan.

Table 10 Rear loading collection vehicle for MGBs

Vehicle Specification	Measurement
Length overall	9.25 m
Width overall	2.6 m
Operational height	4 m
Travel height	3.8 m
Weight (payload)	26 tonnes

All the waste collection vehicle specifications should be matched to Council waste collection vehicle specifications as set out in design requirements for collection vehicle access.



## **9 Opportunities**

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### **9.1 Solar compactor bins**

Solar Compactor bins are an innovative solution to maximise the economic efficiency of waste management on site. In addition to compacting all waste using energy derived from the sun, solar compactor bins inform management when they are 85% full to minimise human resources and to better inform collection routines. This would allow the school to rationalise its collection system and reduce the waste collection traffic movements into and out of the school.

### **9.2 Composting**

Composting food organics onsite will reduce the amount of waste going to landfill resulting in reduced methane emissions. Composting onsite provides an opportunity for students to learn about composting and its benefits. If there is a school garden, the composted soil could be used in the garden, otherwise it could be donated to local community groups, such as community gardens.

### **9.3 Reverse vending machines**

With the roll out of the Container Deposit Scheme in NSW having reverse vending machines on site provides the FSPS with the opportunity to generate revenue from recyclable cans and bottles. This revenue could be invested into the school or donated to charity.

### **9.4 Waste education**

Arup recommends hosting regular waste seminars to inform and motivate students and staff about waste management onsite and the importance this has on a local, national and global level. Student involvement will be invaluable to driving sustainable waste management onsite and can even extend to research, data analysis, and procurement.

### **9.5 Nude food**

Nude food is food without excess packaging. Holding nude food days is a great way to raise awareness and educate about waste, encourage waste minimisation behaviours among students, parents and staff and ultimately reduce waste. Schools all over Australia are holding nude food days to tackle single-use food packaging waste.

### **9.6 Annual audit**

Once operational, Arup suggests an annual audit and monitoring process of waste management at the primary school to collect data around the composition of waste, whether or not the bin infrastructure is adequate, and measure and track the

progress of targets for carbon emissions and diversion from landfill. This process allows waste management to be meaningful and valuable, both environmentally and economically, and can be reported as part of the Schools annual reporting.

## **9.7 Waste art**

Creating art with waste items provides an opportunity for teachers to educate students about waste and the related environmental and ecological impacts. There are economic benefits associated with making waste from art including reduced art supply expenses and waste disposal costs.

The FSPS school could hold a Waste to Art competition to encourage student participation and showcase the school's commitment to waste reuse.

## 10 Conclusion

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This WMP forms a framework to implement waste management measures across all design and planning stages. The waste management approach enhances outcomes for waste minimisation, reuse and recycling.

Modelling has been undertaken to determine the optimum waste storage areas required to meet both the central storage room requirements based on the school population and the aspired waste management strategy. Currently the area required for the central storage room that will contain general waste, recycling and food waste storage is 18.8m<sup>2</sup>. The storage space allocated for the central storage room currently exceeds the space required, therefore sufficient space has been allocated for the central storage room.

The collection point is located in close proximity to the central storage room and adheres to the CoS Guidelines. Two routes available for the collection vehicles to access the collection point to allow for flexibility of collection.

## Appendix A

### Functional area schedules



Functional Area Schedule

projectFort Street Public School

code	FSS
revision	02
date	08/01/20
doc number	9002

FUNCTIONAL CATEGORY	BUILDING	LOT NUMBER	BUILDING ID	LEVEL	PROPOSED AMS ID	CURRENT AMS ID	ROOM USAGE	EFSG REF CODE	ROOM DESC	MEASURED AREA	BRIEFED AREA	PREVIOUS ASPIRATIONAL AREA
Administration FCC												
	Building C (MC)	Merged	B00C	Ground Floor	C00C		INTERVIEW	PS601.15		7.2	13	7.2
	Building C (MC)	Merged	B00C	Ground Floor	CR0001		ENTRY	PS601.04	Reception entry vestibul	17.91	16	17.91
	Building C (MC)	Merged	B00C	Ground Floor	CR0002		DEP. TYPE 1	PS601.13	Deputy's Principal office	15.1	13	15.1
	Building C (MC)	Merged	B00C	Ground Floor	CR0003		PRINCIPAL	PS601.12	Principal's office	22.64	17	22.64
	Building C (MC)	Merged	B00C	Ground Floor	CR0004		INTERVIEW	PS601.16	Interview Room	11.23	17	11.23
	Building C (MC)	Merged	B00C	Ground Floor	CR0005		SEC STORE	PS601.41	Security store room	6.64	14	6.64
	Building H	Lot 5	B00H	Ground Floor	HR0001		CLERICAL / DUPLICATING	PS601.24	Clerical/Priniting/Workroom	55.73	60	57.58
	Building H	Lot 5	B00H	Ground Floor	HR0002		INTERVIEW	PS601.16	Interview room/Office	9.77	17	9.77
	Building H	Lot 5	B00H	Ground Floor	HR0003		SICK BAY	PS601.52	Sickbay	9.05	9	9.05
	Building H	Merged	B00C	Ground Floor	HR0013		DEP. TYPE 2	PS601.14		9.39	26	9.15
										164.66 m²		166.27 m²
Canteen												
	Building G			Ground Floor	Outdoor Space		C.O.L.A	PS604.21		51.54	24	18.26
	Building G	Lot 5	B00G	Ground Floor	GR0002		OSHS/CANTEEN KITCHEN	PS604.03	Preparation/Serving pre-prepared	49.74	44	47.52
										101.28 m²		65.78 m²
Circulation Core												
	Building A	Merged	B00A	Ground Floor	AR0005		CIRC.			28.51	0	31.42
	Building A	Merged	B00A	Ground Floor	AR0013	AR0010	CIRC.			10.79	0	10.78
	Building A	Merged	B00A	Ground Floor	AR0017		CIRC.			12.4	0	12.4
	Building A	Merged	B00A	Ground Floor	AR0026		CIRC.			23.96	0	24.02
	Building A	Merged	B00A	Level 1	AR1011		CIRC.			33.15	0	33.15
	Building A	Merged	B00A	Level 1	AR1022		CIRC.			12.92	0	14.58
	Building A	Merged	B00A	Level 1	AR1023		CIRC.			18.83	0	18.57
	Building A	Merged	B00A	Level 1	AR1023	AR1003	CIRC.			28.14	0	28.05
	Building A	Merged	B00E	Level 1	AR1017		CIRC.			9.4	0	11.64
	Building C (MC)	Merged	B00C	Ground Floor	CR0006		CIRC.			5.83	0	5.83
	Building D	Merged	B00A	Ground Floor	DR0005		CIRC.			7.81	0	8.76
	Building D	Merged	B00D	Ground Floor	DR0013		CIRC.			28.36	0	28.36
	Building D	Merged	B00D	Level 1	DR1012		CIRC.			30.44	0	25.87
	Building D	Merged	B00D	Level 2	DR2009		CIRC.			7.31	0	6.12
	Building D	Merged	B00D	Level 2	DR2010		CIRC.			36.33	0	37.74
	Building D	Merged	B00D	Level 2	DR2015		CIRC.			31.66	0	31.25
	Building G	Lot 5	B00F	Lower Ground	GR9010		CIRC.			76.32	0	76.22
	Building G	Lot 5	B00G	Ground Floor	GR0006		CIRC.			11.85	0	11.84
	Building H	Lot 5	B00F	Lower Ground	HR9010		CIRC.			7.25	0	8.53
	Building H	Lot 5	B00G	Level 2	HR2001		CIRC.			53.16	0	53.16
	Building H	Lot 5	B00H	Ground Floor	HR0007		CIRC.			19.3	0	19.01
	Building H	Lot 5	B00H	Ground Floor	HR0014		CIRC.			52.7	0	84.62
	Building H	Lot 5	B00H	Level 1	HR1005		CIRC.			35.48	0	36.81
	Building J	Lot 5	B00H	Level 1	JR1003		CIRC.			12.99	0	13.45
	Building J	Lot 5	B00H	Level 1	JR1008		CIRC.			10.42	0	15.79
	Building J	Lot 5	B00H	Level 1	JR1010		CIRC.			39.31	0	33.42
	Building J	Lot 5	B00J	Ground Floor	JR0007		CIRC.			18.52	0	19.54
	Building J	Lot 5	B00J	Ground Floor	JR0012		CIRC.			50.7	0	51.83
	Building J	Lot 5	B00J	Level 2	JR2001		CIRC.			39.35	0	38.13
	Building M (MET)	Merged	B00M	Ground Floor	MR0003		CIRC.			9.5	0	9.5
	Building M (MET)	Merged	B00M	Ground Floor	MR0004		CIRC.			22.61	0	22.25



Functional Area Schedule

project	Fort Street Public School	code	FSS
		revision	02
		date	08/01/20
		doc number	9002

FUNCTIONAL CATEGORY	BUILDING	LOT NUMBER	BUILDING ID	LEVEL	PROPOSED AMS ID	CURRENT AMS ID	ROOM USAGE	EFSG REF CODE	ROOM DESC	MEASURED AREA	BRIEFED AREA	PREVIOUS ASPIRATIONAL AREA
	Building M (MET)	Merged	B00M	Level 1	MR1003		CIRC.			10	0	10
	Building M (MET)	Merged	B00M	Level 1	MR1004		CIRC.			17.76	0	17.76
	Building M (MET)	Merged	B00M	Level 1	MR1005		CIRC.			7.14	0	7.14
	Building M (MET)	Merged	B00M	Level 2	MR2004		CIRC.			19.08	0	18.91
	Building M (MET)	Merged	B00M	Level 2	MR2005		CIRC.			7.72	0	7.72
	Building M (MET)	Merged	B00M	Level 2	MR2006		CIRC.			13.86	0	13.86
										860.86 m²		898.03 m²
Communal Hall												
	Building G	Lot 5	B00G	Ground Floor	GR000x		MOBILE STAGE			50.27	0	50.27
	Building G	Lot 5	B00G	Ground Floor	GR0001		COMMUNAL HALL	PS503.03		242.49	250	249.23
	Building G	Lot 5	B00G	Ground Floor	GR0007		SOUND	PS503.51		2.56	0	2.31
	Building H	Lot 5	B00H	Ground Floor	HR0004		UNISEX ACC. WC.	PS602.12		5.9	8	6.86
	Building H	Lot 5	B00H	Ground Floor	HR0005		AMB. WC	PS603.01		2.8	0	2.8
	Building H	Lot 5	B00H	Ground Floor	HR0006		AMB. WC	PS603.01		2.79	0	2.79
	Building H	Lot 5	B00H	Ground Floor	HR0007		UNISEX ACC. WC.	PS603.11		5.8	8	6.28
	Building H	Lot 5	B00H	Ground Floor	HR0010		SPORTS STORE	PS503.33		19.78	17	29.69
	Building H	Lot 5	B00H	Ground Floor	HR0012		SCHOOL STORE	PS503.13,PS503.23,P S503.43		50.49	11	41.84
										382.88 m²		392.07 m²
Home Base Unit												
	Building A	Merged	B00A	Ground Floor	AR0001	AR0001	COLLABORATION LEARNING STUDIO	PS401.01		26.91	0	35.2
	Building A	Merged	B00A	Ground Floor	AR0002	AR0002	OPEN/INFORMAL LEARNING	PS401.01		49.39	0	43.12
	Building A	Merged	B00A	Ground Floor	AR0003	AR0003	PRESENTATION	PS401.01		48.57	0	48.5
	Building A	Merged	B00A	Ground Floor	AR0009	AR0009	PRESENTATION	PS401.01		55.77	0	46.79
	Building A	Merged	B00A	Ground Floor	AR0009B	AR0009	COLLABORATION LEARNING STUDIO	PS401.01		49.65	0	44.25
	Building A	Merged	B00A	Ground Floor	AR0009B	AR0009	OPEN / INFORMAL LEARNING	PS401.01		30.01	0	41.53
	Building A	Merged	B00A	Level 1	AR1001		OPEN / INFORMAL LEARNING	PS401.01		26.18	0	26.18
	Building A	Merged	B00A	Level 1	AR1002	AR1002	COLLABORATION LEARNING STUDIO	PS401.01		50.07	0	50.19
	Building A	Merged	B00A	Level 1	AR1003	AR1003	PRESENTATION	PS401.01		48.76	0	48.89
	Building A	Merged	B00A	Level 1	AR1009		PAA	PS401.31		46.69	17	46.69
	Building A	Merged	B00D	Level 1	AR1010		PRESENTATION	PS401.01		50.04	0	50.45
	Building A	Merged	B00D	Level 1	AR1012		OPEN FLOOR SPACE	PS401.01		51.73	0	49.65
	Building A	Merged	B00D	Level 1	AR1013		OPEN / INFORMAL LEARNING	PS401.01		38.59	0	46.53
	Building D	Merged	B00A	Ground Floor	DR0007		OPEN/INFORMAL LEARNING	PS401.01		56.31	0	57.26
	Building D	Merged	B00A	Level 1	DR1015	AR1009	LEARNING STUDIO	PS401.01		60.25	0	47.54
	Building D	Merged	B00D	Level 1	DR1014		OPEN / INFORMAL LEARNING	PS401.01		40.74	0	51.1
	Building D	Merged	B00D	Level 1	DR1014		OPEN COLLABORATION	PS401.01		61.62	0	61.1
	Building D	Merged	B00D	Level 2	DR2001		OPEN/INFORMAL LEARNING	PS401.01		26.18	0	51.87
	Building D	Merged	B00D	Level 2	DR2002		COLLABORATION LEARNING STUDIO	PS401.01		55.08	0	55.86
	Building D	Merged	B00D	Level 2	DR2004		PRESENTATION	PS401.01		50.02	0	42.78
	Building D	Merged	B00D	Level 2	DR2006		OPEN/INFORMAL LEARNING	PS401.01		96.4	0	113.07
	Building D	Merged	B00D	Level 2	DR2010		OPEN COLLABORATION	PS401.01		60.23	0	51.86
	Building H	Lot 5	B00H	Level 1	HR1001		PRESENTATION	PS401.01		58.91	0	60.75



Functional Area Schedule

project	Fort Street Public School	code	FSS
		revision	02
		date	08/01/20
		doc number	9002

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	Building H	Lot 5	B00H	Level 1	HR1002		COLLABORATIVE LEARNING STUDIO	PS401.01		61.57	0	61.2
	Building H	Lot 5	B00H	Level 1	HR1003		OPEN / INFORMAL LEARNING	PS401.01		24.29	0	52.39
	Building H	Lot 5	B00J	Level 1	HR1005		WD	PS401.21		8.99	9	8.8
	Building H	Lot 5	B00J	Level 1	HR1006		WD	PS401.21		8.93	9	0
	Building J	Lot 5	B00J	Ground Floor	JR0001		OPEN/INFORMAL LEARNING	PS401.01		24.51	0	30.51
	Building J	Lot 5	B00J	Ground Floor	JR0005		COLLABORATION LEARNING STUDIO	PS401.01		61.93	0	50.08
	Building J	Lot 5	B00J	Ground Floor	JR0006		WD 7	PS401.21		9	9	9
	Building J	Lot 5	B00J	Ground Floor	JR0007		INFORMAL	PS401.01		5.69	0	0
	Building J	Lot 5	B00J	Level 1	JR1001		OPEN/INFORMAL LEARNING	PS401.01		39.97	0	64.89
	Building J	Lot 5	B00J	Level 1	JR1005		WD 17	PS401.21		9	9	9
	Building J	Lot 5	B00J	Level 1	JR1009		COLLABORATION LEARNING STUDIO	PS401.01		61.34	0	57.77
										1,453.32 m²		1,618.24 m²
Home Base Unit Store												Home Base Unit Store
	Building A	Merged	B00A	Ground Floor	AR0003B		STORE	PS401.11		11.06	6	11
	Building A	Merged	B00D	Level 1	AR1004		STORE	PS401.11		18.15	6	18.15
	Building D	Merged	B00A	Ground Floor	DR0007B		STORE			2.15	0	3.31
	Building D	Merged	B00A	Ground Floor	DR0007B		STORE	PS401.11		3.98	6	9.85
	Building D	Merged	B00A	Level 1	DR1009B		ST 10	PS401.11		3.36	0	3.47
	Building D	Merged	B00A	Level 1	DR1009B	AR1001	ST 9	PS401.11		4.8	0	14.6
	Building D	Merged	B00D	Level 2	DR2003B		STORE	PS401.11		15.1	6	8.02
	Building D	Merged	B00D	Level 2	DR2011B		STORE	PS401.11		7.52	6	0
	Building D	Merged	B00D	Level 2	DR2013B		STORE	PS401.11		8.02	0	2.64
	Building H	Lot 5	B00H	Level 1	JR1003B		ST 21	PS401.11		4.34	6	8.96
	Building J	Merged	B00A	Ground Floor	JR0005B		STORE	PS401.11		5.5	6	5.5
	Building J	Merged	B00A	Level 1	JR1011B		STORE	PS401.11		14.04	6	
										107.38 m²		104.88 m²
LIFTS												
	Building H	Lot 5	B00H	Lower Ground	HR0011		HOIST			2.37	0	2.13
	Building H	Lot 5	B00H	Ground Floor	HR0011		HOIST			1.92	0	2.13
										4.29 m²		4.26 m²
Library Learning Unit												
	Building M (MET)	Merged	B00M	Ground Floor	MR0001		LIBRARY	PS501.04		113.5	115	113.5
	Building M (MET)	Merged	B00M	Ground Floor	MR0002		OFFICE / WORKROOM	PS501.14		25.76	27	25.76
	Building M (MET)	Merged	B00M	Level 1	MR1001		LIBRARY	PS501.04		110.8	115	110.8
	Building M (MET)	Merged	B00M	Level 1	MR1002		KLA RESOURCE ST	PS501.34		20.13	20	20.13
										270.19 m²		270.19 m²
OSHC												
	Building H	Lot 5	B00H	Ground Floor	HR0011		OOSH ST.	PS604.11		23.87	30	33.15
										23.87 m²		33.15 m²
PAA												
	Building A	Merged	B00D	Ground Floor	AR0023	AR0023	PAA	PS401.31		46.53	17	46.04
	Building D	Merged	B00D	Ground Floor	DR0007		PAA	PS401.31		64.25	17	43.14
	Building D	Merged	B00D	Level 2	DR2003		PAA	PS401.31		60.32	17	39.29
	Building D	Merged	B00D	Level 2	DR2013		PAA	PS401.31		64.67	17	64.67
	Building H	Lot 5	B00J	Level 1	HR1004		PAA	PS401.31		64.19	17	37.01



Functional Area Schedule

project	Fort Street Public School	code	FSS
		revision	02
		date	08/01/20
		doc number	9002

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	Building J	Lot 5	B00J	Ground Floor	JR0009		PAA	PS401.31		70.99	17	37.2
	Building J	Lot 5	B00J	Level 1	JR1011		PAA	PS401.31		69.03	17	31.11
										439.98 m²		391.76 m²
STORAGE												
	Building A		B00A	Ground Floor	AR0004	AR0004	STORAGE	PS401.11		8.14	6	8.14
										8.14 m²		8.14 m²
Services - Bradfield Shed												
		Merged	B00A	Ground Floor			Bradfield Mech Access Shed			6.2	0	6.2
										6.20 m²		6.20 m²
Special Programs												
	Building M (MET)	Merged	B00M	Level 2	MR2001		PROGRAMS TYPE 2	PS502.01		41.95	32	41.95
	Building M (MET)	Merged	B00M	Level 2	MR2002		PROGRAMS TYPE 3	PS502.01		34.32	32	34.32
	Building M (MET)	Merged	B00M	Level 2	MR2003		PROGRAMS TYPE 1	PS502.01		33.35	32	33.35
	Building M (MET)	Merged	B00M	Level 2	MR2007		ST 2			5.97	0	5.97
	Building M (MET)	Merged	B00M	Level 2	MR2008		ST 1			4.93	0	4.93
										120.52 m²		120.52 m²
Staff Amenities												
	Building A	Merged	B00A	Ground Floor	AR0008		WC	PS603.01		5.54	0	5.54
	Building C (MC)	Merged	B00C	Ground Floor	CR0007		WC	PS602.11		7.09	0	7.09
	Building G	Lot 5	B00G	Ground Floor	GR0004		ACC. WC	PS602.12		6.87	8	6.87
										19.50 m²		19.50 m²
Staff Facilities												
	Building A	Merged	B00D	Ground Floor	AR1011		TEACHERS	PS401.01		8.54	0	6
	Building A	Merged	B00D	Level 1	AR1006		TEACHERS	PS401.01		10.49	0	10.49
	Building D	Merged	B00D	Ground Floor	DR1011		TEACHERS	PS401.01		10.78	0	11.14
	Building D	Merged	B00D	Level 1	DR1011		TEACHERS	PS401.01		10.34	0	10.34
	Building D	Merged	B00D	Level 2	DR2015		TEACHERS	PS401.01		20.74	0	22.6
	Building F	Merged	B00F	Ground Floor	FR0001		ANNEX	PS602.23		18.46	28	17.86
	Building F	Merged	B00F	Ground Floor	FR0001		STAFF ROOM	PS602.05		58.58	65	54.44
	Building F	Merged	B00F	Ground Floor	FR0002		WC	PS603.01		3.21	0	3.21
	Building F	Merged	B00F	Ground Floor	FR0003		ACC. WC	PS603.11		8.37	0	7.37
	Building F	Merged	B00F	Ground Floor	FR0004		WC	PS603.01		3.11	0	3.11
	Building F	Merged	B00F	Ground Floor	FR0005		WC	PS603.01		3.14	0	3.14
	Building F	Merged	B00F	Ground Floor	FR0006		WC	PS603.01		3.14	0	3.14
	Building F	Merged	B00F	Ground Floor	FR0007		WC	PS603.01		3.89	0	3.14
	Building F	Merged	B00F	Ground Floor	FR0008		ACC. WC	PS602.12		5.82	8	6.78
	Building H	Merged	B00D	Level 1	HR1006		TEACHERS	PS401.01		15.32	0	10.63
	Building J	Merged	B00D	Ground Floor	JR1011		TEACHERS	PS401.01		10.5	0	10.5
	Building J	Merged	B00D	Level 1	JR1011		TEACHERS	PS401.01		7.56	0	7.56
										201.99 m²		191.45 m²
Storage Facilities												
	Building G	Lot 5	B00F	Lower Ground	GR9005		GARDEN ST	PS605.01		16.01	13	16.01
	Building G	Lot 5	B00F	Lower Ground	GR9006		BULK STORE	PS605.11		20.44	16	20.44
	Building H	Lot 5	B00G	Lower Ground	HR9001		CL. ST SUPPLY	PS605.21		6.09	7	14
	Building H	Lot 5	B00G	Lower Ground	HR9002		STORE	PS605.21		7.7	7	0
	Building J			Level 2	JR2003		CL. S	PS605.31		2.67	3	2.7
	Building J	Lot 5	B00H	Level 1	JR1013		CL. S	PS605.31		2.73	3	2.73





Functional Area Schedule

project	Fort Street Public School	code	FSS
		revision	02
		date	08/01/20
		doc number	9002

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	Building J	Lot 5	B00J	Ground Floor	JR0014		CL. ST	PS605.31		2.98	3	2.98
	Building M (MET)	Merged	B00M	Ground Floor	MR0005		CL. S	PS605.31		9.22	3	9.56
	Building M (MET)	Merged	B00M	Level 1	MR1006		CL. S	PS605.31		2.13	3	2.13
										69.97 m²		70.55 m²
Student Amenities												
	Building A	Merged	B00A	Level 1	AR1005		ACC. WC	PS602.12		9.8	8	9.8
	Building A	Merged	B00D	Ground Floor	AR0006		UNISEX ACC. WC	PS602.12		8.26	8	8.26
	Building A	Merged	B00D	Ground Floor	AR0011		WC. ACC	PS603.11		6.79	8	6.79
	Building A	Merged	B00D	Level 1	AR0002		WC. ACC	PS603.11		6.82	8	6.82
	Building D	Merged	B00D	Ground Floor	DR0002		WC	PS603.01		9.68	0	12.32
	Building D	Merged	B00D	Level 1	DR0002		WC	PS603.01		7.92	0	7.92
	Building D	Merged	B00D	Level 2	DR2021		Acc. WC	PS603.11		6.11	8	6.11
	Building D	Merged	B00D	Level 2	DR2016		Acc. WC	PS602.12		6.04	8	6.04
	Building D	Merged	B00D	Level 2	DR2015		WC	PS602.11		2.64	0	0
	Building D	Merged	B00D	Level 2	DR2019		WC	PS603.01		3.36	0	3.36
	Building D	Merged	B00D	Level 2	DR2020		WC	PS603.01		3.36	0	3.36
	Building H	Merged	B00F	Lower Ground	HR0003		LAUNDRY	PS603.09		10.5	8	9.62
	Building J	Lot 5	B00J	Ground Floor	JR0014		WC	PS603.01		9.36	0	9.36
	Building J	Lot 5	B00J	Ground Floor	JR0016		ACC. WC	PS603.11		6.65	8	6.65
	Building J	Lot 5	B00J	Level 1	JR0008		ACC. WC	PS602.12		5.7	8	5.7
	Building J	Lot 5	B00J	Level 1	JR0014		WC	PS603.01		9.24	0	9.24
	Building J	Lot 5	B00J	Level 1	JR0016		ACC. WC	PS603.11		6.73	8	6.73
	Building J	Lot 5	B00J	Level 2	JR2002		ACC. WC	PS603.11		7.3	8	7.3
										116.90 m²		125.01 m²
Student Personal Effects												
	Building A	Merged	B00D	Ground Floor	AR1011		PE			6.21	0	8.93
	Building A	Merged	B00D	Level 1	AR1011		PE			3.15	0	1.07
	Building A	Merged	B00D	Level 2	AR1011		PE			3.32	0	2.83
	Building D	Merged	B00D	Ground Floor	DR1011		PE			1.05	0	5.66
	Building D	Merged	B00D	Level 1	DR1011		PE			4.59	0	2.68
	Building J	Merged	B00D	Ground Floor	JR1011		PE			6.17	0	6.32
	Building J	Merged	B00D	Level 1	JR1011		PE			2.48	0	2.48
										26.97 m²		29.97 m²
WD												
	Building A	Merged	B00A	Ground Floor	AR0005	AR0006	WD 3	PS401.21	Withdrawal Room	9.03	9	9.71
	Building A	Merged	B00A	Ground Floor	AR0007		WD 4	PS401.21	Withdrawal Room	9.14	9	9
	Building A	Merged	B00A	Ground Floor	AR0010	AR0010	WD 5	PS401.21	Withdrawal Room	9.43	9	10.48
	Building A	Merged	B00A	Ground Floor	AR0010A	AR0010	WD 6	PS401.21	Withdrawal Room	9.07	9	10.86
	Building A	Merged	B00D	Level 1	AR1001B		WD 10	PS401.21	Withdrawal Room	9.7	9	9.7
	Building A	Merged	B00D	Level 1	AR1003B		WD 11	PS401.21	Withdrawal Room	9	9	9
	Building D	Merged	B00D	Level 1	DR1011A		WD14	PS401.21	Withdrawal Room	9.77	9	11.39
	Building D	Merged	B00D	Level 1	DR1016		WD 13	PS401.21	Withdrawal Room	7	9	7.53
	Building D	Merged	B00D	Level 2	DR2007		WD 24	PS401.21	Withdrawal Room	9.07	9	9.07
	Building D	Merged	B00D	Level 2	DR2008		WD 25	PS401.21	Withdrawal Room	7.35	9	7.35
	Building D	Merged	B00D	Level 2	DR2009		WD 22	PS401.21	Withdrawal Room	8.71	9	9.01
										97.27 m²		112.11 m²
									Total	4,476.17 m²		



Functional Area Schedule

project	Fort Street Public School	code	FSS
		revision	02
		date	08/01/20
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EEC (Building Deleted)												EEC (Deleted)
	Building E	Merged	B00E	Ground Floor	ER0001		EEC HOME BASE UNIT	PS401.01				62.25
	Building E	Merged	B00E	Ground Floor	ER0002		EEC ADMIN + STAFF					20.27
	Building E	Merged	B00E	Ground Floor	ER0003		EEC ST.	PS401.11				14.55
	Building E	Merged	B00D	Level 1	ER1001		PAA	PS401.31				93.3
	Building E	Merged	B00D	Ground Floor	ER0006		UNISEX ACC. WC	PS602.12				6.35
	Building E	Merged	B00E	Level 1	ER1001B		ST 15	PS401.11				12.66
Other (Deleted)												Other (Deleted)
	Building J	Lot 5	B00J	Ground Floor	JR0008		WD 8	PS401.21	Withdrawal Room			9.01
	Building H	Lot 5	B00H	Ground Floor			CLERICAL / DUPLICATING		Room Reduction			13.88
	Building J		B00J	Ground Floor			CIRC		Stair Reduction			13.91
	Building J		B00J	Level 1			CIRC		Stair Reduction			9.31
												255.49
											Total	4,725.15 m²

## **Appendix B**

### **Central storage room design requirements**

# Reference D

## Waste and recycling storage area construction

### Construction

- 1.1 The floors, walls and ceilings of waste and recycling storage areas and chute room(s) are to be finished with a rigid, smooth-faced impermeable material capable of being easily cleaned.
- 1.2 The floors of waste and recycling storage areas are to be graded and drained to a Sydney Water approved drainage fitting. The floor is to be provided with a ramp to the doorway where necessary.
- 1.3 A close-fitting and self-closing door or gate operable from within the room is to be fitted to all waste and recycling storage areas.
- 1.4 Doors/gates to the waste and recycling storage rooms are to provide a minimum clearance width of 900 mm.
- 1.5 At least one door or gate to the waste and recycling storage area is to have sufficient dimensions to allow the entry and exit of waste containers of a capacity nominated for the development.
- 1.6 Lightweight roller shutter-type doors or grilles should be considered for access to waste and recycling storage areas, as these do not impact on the available storage space. If these types of doors or grilles are used, the requirement for a close-fitting and self-closing door remains, so that waste collectors can access the waste and recycling storage area other than through the roller door or grille.
- 1.7 The design shall restrict the entry of trespassers, vermin or other animals into the area.
- 1.8 The waste and recycling storage area is to be provided with an adequate supply of water for cleaning purposes with a hose cock. This does not include within chute rooms.
- 1.9 The waste and recycling storage area is to be adequately ventilated by either:
  - 1.9.1 Natural ventilation openings to external air. The dimension of the openings are not to be less than 5 per cent of the bin bay or bin room floor area.
  - 1.9.2 A mechanical exhaust ventilation system in accordance with relevant Australian standards.
- 1.10 Waste and recycling areas are to be provided with artificial light controlled by switches located both outside and inside the storage area.
- 1.11 Any compactors or mechanical devices, if permitted for the mechanical handling and storage of waste and recycling, are to be fitted with safety operating and cut-off systems.
- 1.12 Any facet of the waste and recycling management system that is visible from outside the building is to be in keeping with the dominant design of the remainder of the development.

### Refrigerated waste storage

- 2.1 In some instances, Council may require that waste storage be refrigerated. This is likely if large quantities of food waste are generated on-site and waste removal from this site is difficult due to its location or long trading hours. Where a waste room is refrigerated, the temperature is to be maintained at or below 5°C with all refrigeration equipment installed with sufficient space for cleaning.
- 2.2 The floor, walls and ceiling of the refrigerated waste room are to be constructed of a rigid, smooth-faced impermeable material capable of being easily cleaned.
- 2.3 The floor of the refrigerated waste room is to be graded to the doorway.
- 2.4 An adequate supply of hot and cold water is to be provided through a centralised mixing valve with the hose cock located as close as practicable to the doorway.
- 2.5 The refrigerated waste room is to comply with Section G.1 of the Building Code of Australia as well as being provided with artificial light controllable from within the room.
- 2.6 Noise from the use of the refrigeration equipment associated with the waste room is not to give rise to “offensive noise”, as defined under the *Protection of the Environment Operations Act 1997*.

## **Appendix C**

### **Swept Path Analysis**



Legend

Body Envelope

300mm Envelope

600mm Envelope

Wheel Envelope

New Fence & Property Boundary

Existing Fence

Design Vehicle(s)

CoS Garbage Vehicle\_9.25m

Overall Length

Overall Width

Overall Body Height

Min Body Ground Clearance

Track Width

Lock-to-lock time

Curb to Curb Turning Radius

9.250m

2.500m

3.800m

0.150m

2.500m

4.00s

10.500m

B	28/10/19	LK	AH	AH
A	25/10/19	LK	AH	AH
For information				
Issue	Date	By	Chkd	Appd

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Client

Schools Infrastructure

Job Title

Fort Street Public School

Drawing Title

Turning Paths

Cos Truck

Scale at A3

1:400

Discipline

Transport

Drawing Status

Draft

Job No	Drawing No	Issue
266969	SKT001	B