



UNSW Health Translation Hub
Corner of Botany & High Streets, Kensington

CONSTRUCTION WASTE MANAGEMENT PLAN

2/03/2021
Revision E

Client

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SCOPE

A Waste Management Plan (WMP) is to be submitted with all development applications for new and change-of-use developments that will generate construction, demolition and operational waste.

This WMP applies only to the **construction** phase of the proposed development. As no demolition will be required, provisions for demolition waste have been omitted from this report. The requirements outlined in this WMP must be implemented on site during construction and may be subject to review upon any change to the design. Construction waste management requirements will also be subject to review as part of the Construction Management Plan.

The waste management for the **operational** phase of the development is not addressed in this report. An operational WMP has been provided separately by Elephants Foot Recycling Solutions (EFRS).

REVISION REFERENCE

Revision	Date	Prepared by	Reviewed by	Description	Signed
A	9/12/2020	J Parker	A Armstrong	Draft	
B	2/02/2021	J Parker	A Armstrong	Amendment	
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D	2/03/2021	J Parker	A Armstrong	Amendment	
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1 INTRODUCTION

1.1 Background

EFRS has been tasked to prepare the following waste management plan for UNSW for the management of construction waste generated by the UNSW Health Translation Hub development located on the corner of Botany and High Streets, Kensington.

Waste management strategies and auditing are a requirement on construction sites to promote strong sustainability outcomes. It is EFRS's belief that a successful waste management strategy contains three key objectives:

- i. **Promote responsible source separation** to reduce the amount of waste that goes to landfill, by implementing convenient and efficient waste management systems
- ii. **Ensure adequate waste provisions and robust procedures** that will cater for potential changes during the operational phase of the development
- iii. **Comply** with all relevant Australian Standards, council codes, policies, and guidelines.

Description of Proposed Development

This report supports a State Significant Development Application (SSDA) for the proposed UNSW Health Translation Hub (UNSW HTH) at the Randwick Hospitals Campus (RHC), which is submitted to the Department of Planning, Industry and Environment (DPIE) pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (the Act). Health Infrastructure on behalf of Health Administration Corporation (HAC) is the applicant for the UNSW HTH, which will be delivered with the University of New South Wales (UNSW).

The UNSW HTH forms an extension of the existing and proposed hospital facilities at the RHC, providing a specialist health-related research and education facility on the Campus.

A partnership agreement has been established between HAC and the UNSW to develop the UNSW HTH. This partnership will also allow UNSW to operate the building as well as manage its design and delivery.

The partnership will bring together educational and medical researchers, clinicians, educators and public health officials to drive excellence, and support the rapid translation of research, innovation and education into improved patient care. It will strengthen the symbiotic relationship between UNSW and the RHC and its research institutes and broader health partners which form part of the Randwick Health and Innovation Precinct (RHIP).

The UNSW HTH will build on the existing affiliation between UNSW and the Sydney Children's Hospital Network (SCHN); Health Infrastructure; and the South Eastern Sydney Local Health District, including Prince of Wales Hospital, The Royal Hospital for Women and Eastern Suburbs Mental Health Services.

Development Overview

The proposal involves the expansion of the existing and proposed hospital facilities at the RHC to provide ancillary health research and education uses. This will be in the form of a single building which will be physically connected (at podium level) to the neighbouring Sydney Children's Hospital Stage 1 and Children's Comprehensive Cancer Centre (SCH Stage 1 and the CCCC) redevelopment.

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Specifically, the SSDA seeks approval for:

- Relevant site preparation, excavation and enabling works.
- Construction and use of a new, 15-storey building accommodating research and health education uses, comprising:
 - One basement level; and
 - A total GFA of approximately 35,600sqm, including health-related research, education and administrative floor space.
- Pedestrian link bridges connecting the UNSW Kensington Campus to the RHC, via the Wallace Wurth Building to the UNSW HTH and through to the SCH Stage 1 and the CCCC.
- Landscaping and public domain works, including the creation of over 2,500 sqm of new publicly accessible open space within the eastern portion of the site, sitting between the UNSW HTH and the SCH Stage 1 and the CCCC redevelopment.
- Building signage.
- Stratum subdivision.
- Services and utilities augmentation as required.

Operation and Function of the UNSW HTH

The UNSW HTH will be an expansion of the RHC to accommodate new health related education, research, and administrative facilities. It will include:

- Purpose-built spaces for health educators and researchers to work alongside clinicians.
- Floor plates for health translation research focused work with physical connections to the SCH Stage1 and the CCCC and wider Randwick Hospitals Campus.
- Dedicated facilities for the CCCC directly linking the UNSW HTH with the SCH Stage 1 and the CCCC.
- An education hub, including education and training rooms allowing hospital staff to educate and train UNSW medical students.
- Facilities for education, training, research, seminars and industry events.
- Clinical schools for the Women's and Children's Health, Psychiatry and Prince of Wales Hospital.
- Ambulatory care clinics including in neurosciences, public and population health.
- Supporting facilities including retail premises.

1.2 Site Location

The site is located approximately 6 kilometres (km) from the Sydney Central Business District (CBD), within the Randwick Local Government Area (LGA). It is located approximately 4km from Sydney Airport. **Figure 1** provides a regional context map of the site showing its location in relation to the Sydney CBD and surrounding centres.

This block sits in between the existing Randwick Hospitals Campus and the UNSW Kensington Campus, and directly adjacent to the CBD and South East Light Rail service which runs along High Street (**Figure 2**). The site of the proposed UNSW HTH has an area of 8,897square metres (sqm).

The site has been subject to some site preparation and early works associated with the broader development of the block. Adjacent to the site, along the High Street and Botany Road frontages, runs a 6-metre (m) wide stormwater and sewage easement.

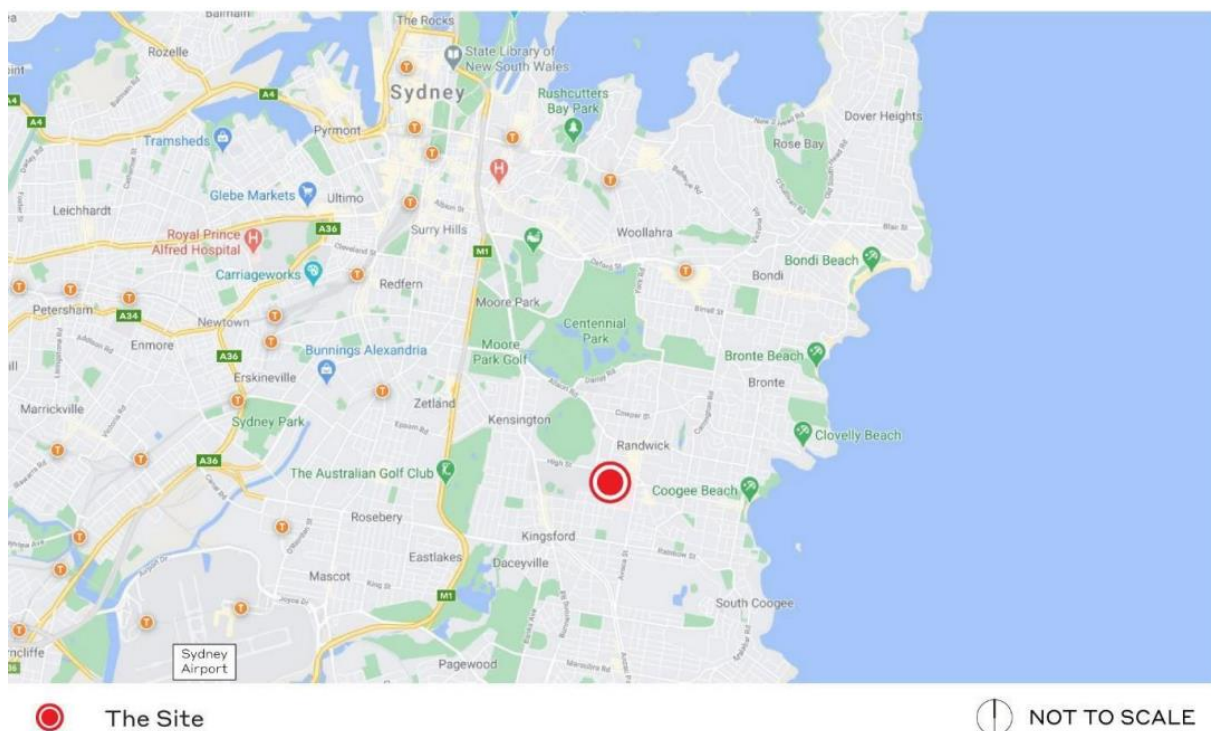


Figure 1 – Site context

Source: Google maps and Ethos Urban

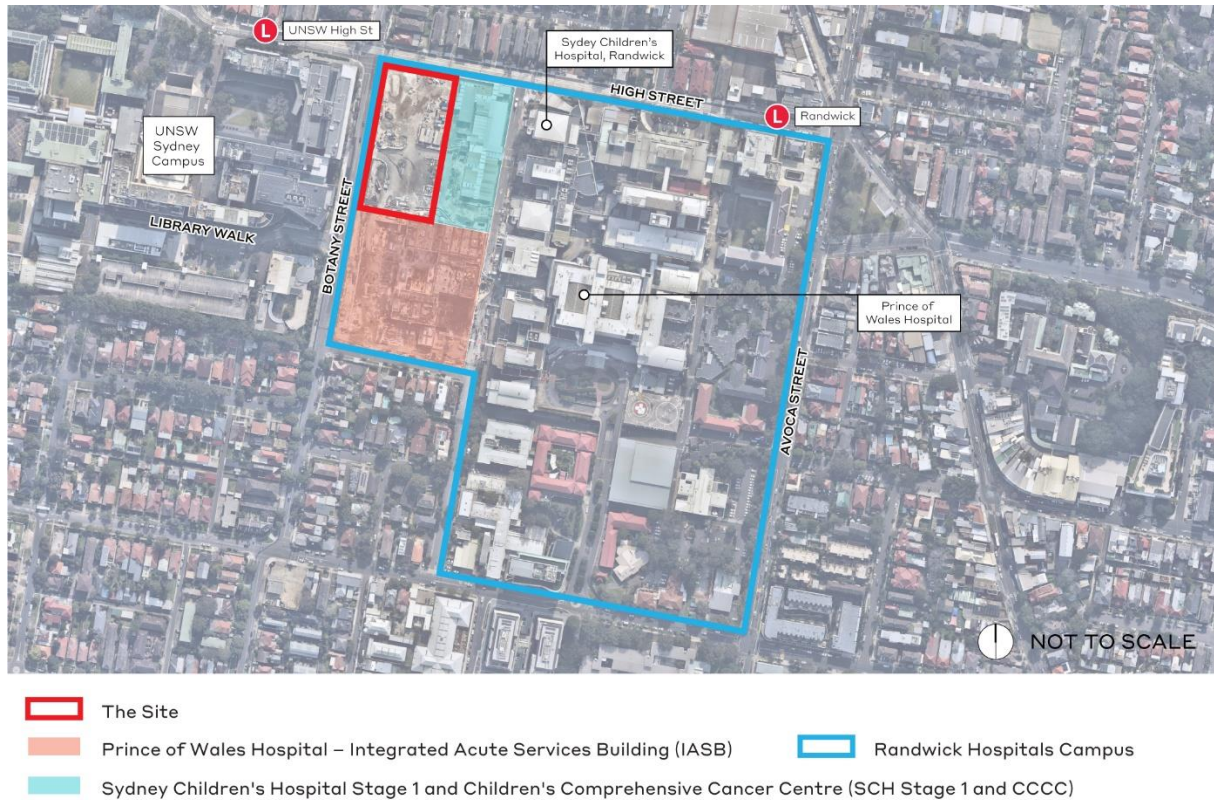


Figure 2 – Site aerial

Source: Nearmaps and Ethos Urban

1.3 Legislation and Guidance

Information provided in this WMP comes from a wide range of construction waste management guidance at the local, state, and federal levels. The primary sources of guidance include:

- Randwick City Council *Waste Management Guidelines for Proposed Developments*
- *Randwick Development Control Plan 2013*
- Australian Government, Department of Sustainability, Environment, Water, Population and Communities. *Construction and Demolition Waste Guide – Recycling and Re-use Across the Supply Chain*. (2014, November).
- NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014-2021
- NSW Waste Classification Guidelines 2014
- Australia's National Waste Policy 2018

1.4 Waste Diversion Targets

To quantify and measure this sustainable approach to waste management, the NSW WARR Strategy 2014-2021 outlines specific targets in order to clarify the state's long-term goals and priorities. These targets were supported by industry, community, state, and local governments during the Strategy's consultation phase, and include:

- Increasing construction and demolition recycling rates to 80%
- Increasing waste diverted from landfill to 75%
- Reducing litter by 40%

Reduce illegal dumping incidents by 30%

1.5 Report Objectives

Throughout this report, EFRS aims to encourage the following waste management practices for the duration of the construction stage of the development:

- Re-use of excavated material on-site and disposal of any excess to an approved site;
- Green waste mulched and re-used on-site as appropriate, or recycled off-site;
- Bricks, tiles and concrete re-used on-site as appropriate, or recycled off-site;
- Plasterboard waste returned to supplier for recycling;
- Framing timber re-used on site or recycled off-site;
- Windows, doors and joinery recycled off-site;
- All asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with WorkCover Authority and EPA requirements;
- Plumbing, fittings and metal elements recycled off site;
- Ordering accurate quantities of materials and prefabrication of materials where possible;
- Re-use of formwork;
- Careful source separation of off-cuts to facilitate re-use, resale or recycling.

1.6 Limitations

This report has been prepared by EFRS for the sole purpose of providing a Construction Waste Management Plan to support a development application. The report is provided with the following limitations:

- This report is for the sole use of UNSW including their officers, employees and advisers) and should not be used or relied upon by any other party without prior written consent from EFRS;
- Drawings, estimates and information contained in this report have been prepared by analysing information, plans and documents supplied by the client, or nominated third parties. Any assumptions based on the information contained in the report are outside the control of EFRS;
- The calculations presented in the report are estimates only. The amount of waste generated will be dependent on the approach taken by site management, including the levels of training and education offered to site staff and the actions and attitudes of staff themselves.
- The site manager will make adjustments as required based on actual waste volumes (e.g. if waste volumes are greater than estimated, then waste storage capacity and collection frequencies will increase accordingly) and increase the amount of waste storage and collection frequency accordingly;
- The report has been prepared with all due care and attention; however, no assurance or representation is made that the WMP reflects the actual outcome. EFRS will not be liable to for any plans or outcomes that are not suitable for purpose, whether as a result of incorrect or unsuitable information or otherwise;
- EFRS offer no warranty or representation of accuracy or reliability of the WMP unless specifically stated;
- Examples of equipment provided in this report should be reviewed by the appropriate equipment supplier who will assess the correct equipment for supply. Reference to any other business or product besides EFRS and EFRS equipment is for information purposes only, and is not officially endorsed or recommended by EFRS.

1.7 Randwick City Council

The garbage and recycling will be guided by the services and acceptance criteria of the Randwick City Council. All construction activities are to be conducted in compliance with Randwick City Council's *Waste Management Guidelines for Proposed Developments, Randwick Development Control Plan* (2013), Australian Standards and statutory requirements.

The information provided in this report will be assessed against the following Randwick City Council objectives regarding the management of waste from construction activities:

- Minimise resource requirement and construction waste through reuse and recycling and the efficient selection and use of resources.
- Minimise waste to landfill by promoting adaptability in building design and focusing upon end of life deconstruction.
- Encourage building design, construction techniques in general which minimise waste generation.

2 GENERAL WASTE MANAGEMENT PROVISIONS

2.1 Stakeholder Roles and Responsibilities

All stakeholders have a responsibility for their own environmental performance and compliance with all legislation.

The Construction Contractor will be responsible for implementing this WMP, although site staff have a responsibility to ensure their own compliance at all times. Where possible, an Environmental Management Representative (EMR) should also be appointed for the project to help ensure compliance. The following table demonstrates the primary roles and responsibilities of the respective stakeholders:

Table 1: Stakeholder Roles and Responsibilities

Roles	Responsibilities
Construction Site Management	<ul style="list-style-type: none"> • Organising waste collections as required; • Organising replacement or maintenance requirements for bins; • Investigating and ensuring prompt clean-up of illegally dumped waste materials; • Notify the Principal Certifying Authority (Council) of the appointment of waste removal, transport or disposal contractors for waste tracking purposes; • Ensuring waste related equipment is well maintained; • Accurate calculations ensuring only the required amount of materials are ordered; • Ensuring segregation of materials to maximise reuse and recycling; • Routine checking of waste sorting and storage areas for cleanliness, hygiene, contamination and OH&S issues; • Ensuring that all monitoring and audit results are well documented and carried out as specified in the WMP; • Ensuring effective signage, communication and education is provided to site staff/contractors; • Providing staff/contractors with equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities; • Assessing any manual handling risks and prepare a manual handling control plan for waste and bin transfers;
Site Staff/Contractors	<ul style="list-style-type: none"> • Ensuring adequate separation and disposal of waste streams in compliance with the WMP; • Abiding by all relevant OH&S legislation, regulations, and guidelines; • Attending training and inductions as required; • Cleaning and transporting of bins as required; • Daily visual inspections of waste storage areas; • Organising, maintaining and cleaning the waste storage areas;
Environmental Management Representative (EMR)	<ul style="list-style-type: none"> • Approaching and establishing the local commercial reuse of materials where reuse on-site is not practical; • Establishing separate skips and recycling bins for effective waste segregation and recycling purposes; • Ensuring staff and contractors are aware of site requirements; • Provision of training of the requirements of the WMP and specific waste management strategies adopted for the development; • Contaminated waste management and approval of off-site waste transport, disposal locations and checking licensing requirements; • Arranging assessment of suspicious potentially contaminated materials, hazardous materials and liquid waste; • Monitoring, inspection and reporting requirements.
Waste Collection Contractors	<ul style="list-style-type: none"> • Provide a reliable and appropriate waste collection service; • Provide feedback to construction site management regarding contamination of waste streams; • Work with construction site management to customise waste systems where possible.

2.2 Monitoring and Reporting

It is recommended that the following measures be taken to improve construction waste management in future and to provide more reliable waste generation figures:

- Compare projected waste quantities with actual waste quantities produced.
- Conduct waste audits of current projects (where feasible).
- Note waste generated and disposal methods.
- Look at past waste disposal receipts.
- Record this information to help in waste estimations for future waste management plans.

Records of waste volumes recycled, reused or contractor removed are to be maintained. Additionally, dockets/receipts verifying recycling/disposal in accordance with the WMP must be kept and presented to Council or the EPA if and when required.

Daily visual inspections of waste storage areas will be undertaken by site personnel and inspection checklists/logs recorded for reporting to the Site Manager on a weekly basis or as required. These inspections will be used to identify and rectify any resource and waste management issues.

Waste audits are to be carried out by the Building Contractor to gauge the effectiveness and efficiency of waste segregation procedures and recycling/reuse initiatives. Where audits show that the above procedures are not carried out effectively, additional staff training should be undertaken and signage re-examined.

All environmental incidents are to be dealt with promptly to minimise potential impacts. An incident register must be maintained on-site at all times and should include the contact details of the 24-hour EPA Pollution line. Likely incidents to occur during the construction stage of the development may involve fuel or chemical spills, seepage or mishandling of hazardous waste, or unlicensed discharge of pollutants to environment.

2.3 Opportunities for Reuse and Recycling

There are many opportunities to reduce the volume of waste generated during construction. Adaptive reuse of building materials should be encouraged, with significant consideration given to methods of reusing or recycling materials onsite as well as sourcing used or recycled materials from elsewhere to be used on site.

The site should facilitate reuse and recycling by 'deconstruction', whereby various materials are carefully dismantled and sorted. Any unwanted reusable materials can be taken to a second-hand building centre, reducing waste disposal costs.

Materials that are individually wrapped should also be avoided where possible, with preference given for materials that can be delivered in returnable packaging such as timber pallets.

The table below gives examples of potential reuse and recycling options for the materials likely to be used/generated in construction an at this development:

Table 2: Potential Reuse/Recycling Options for Construction Materials

Material	Reuse/Recycling Potential
Asphalt	Hot in-place recycling or reprocessed into Reclaimed Asphalt Pavement (RAP).
Bricks	Cleaned and/or rendered for reuse, crushed for fill, sold or provided to a recycled materials yard
Cardboard Packaging	Recycled at a paper/cardboard recycling facility
Carpet	Cleaned and reused for the same purpose, reused in landscaping or garages/sheds, recycled at an appropriate processing facility
Concrete, Masonry, Spoil	Reused on-site as fill, levelling or crushed for road base
Doors, Windows, Fittings	Reused in new or existing buildings or sent to second-hand supplier
Glass	Recycled at a glass recycling facility, aggregate for concrete production, crushed for termite barrier, reused as glazing
Green Waste (Organics)	Mulched, composted for reuse, trees chipped for use in landscaping or removed carefully and reused onsite or sold
Hardwood Beams	Reused as floorboards, fencing, furniture or sent to second-hand timber supplier
Insulation Material	Reprocessed to remove impurities and reused for the same purpose or as off-cuts, compressed for ceiling tile manufacture
Metal, Steel/Copper Pipe	Recycled at a metal recycling facility, melted into secondary materials for structural steel, roofing, piping etc. copper sold for re-use
Other Timber	Reused in formwork, ground into mulch for garden or sent to second-hand timber supplier
Plasterboard	Crushed for reuse in manufacture of new plasterboard, returned to supplier or used in landscaping
Plastics	Reused as secondary materials for playgrounds, park benches etc.
Roof Tiles	Cleaned and reused, crushed for reuse for landscaping and driveways or sold or provided to a recycled materials yard
Soil	Stockpiled onsite for reuse as fill
Synthetic & Recycled Rubber	Reused for the same purpose or reprocessed for use in manufacture/construction of safety barriers, speed humps
Topsoil	Stockpiled onsite for reuse in landscaped areas

2.4 Management of Hazardous Waste Materials

For the purpose of this report, hazardous waste materials include any waste that poses a hazard or potential harm to human health or the environment, particularly asbestos waste and asbestos containing material (ACM).

During the construction phase of the development, there must be a commitment to engage qualified and certified contractors to remove all contaminated/hazardous materials (e.g. asbestos) and dispose of all contaminated/hazardous waste at an appropriately licenced facility, where applicable.

In the event that any contaminated or hazardous materials are unexpectedly uncovered during excavation works, the Site Manager is to stop work immediately and contact the relevant hazardous waste contractor prior to further works being undertaken in the area.

The following general mitigation measures will apply:

- Contaminated material stockpiled on site will be minimised as far as possible and should be stored on HDPE liner, in a bunded location which is protected from inclement weather;
- Sediment fences should be installed around the base of stockpiles and the stockpiles should be covered. Where excavated material requires validations, samples should be taken for NATA laboratory testing as per the requirements of the contamination assessment prior to restoration works, backfilling exercises and disposal;
- Any trucks carrying contaminated materials should be securely and completely covered immediately after loading the materials (to prevent windblown emissions and spillage) and must be licensed by the NSW Environmental Protection Authority (EPA);
- Decontamination of all equipment prior to demobilisation from the site is important so that contaminated materials are not spread off-site.

2.5 Management of Excavation Waste

For the purpose of this report, excavation waste consists of any unwanted material generated from excavation activities such as a reduced level dig, site preparation and levelling and the excavation of foundations, basements, tunnels and service trenches. This will typically consist of soil and rock.

Excavated material generated on this site may be re-used in the landscaping or used on other sites as fill material, provided no contamination is present. If sandstone is found to be present, this may be sold or incorporated into the building design.

The following measures and safeguards will apply to the development for excavated material:

- Wherever practical, excavation material will be reused as part of the development;
- Excavation material that is not natural (virgin) material will be transported to an approved landfill site or off-site recycling depot;
- A waste classification assessment of the fill material should be undertaken prior to it being acceptable for waste disposal purposes;
- Transportation routes for excavation material removed from site will be identified and used.

3 SITE SPECIFIC WASTE MANAGEMENT PROVISIONS

3.1 CONSTRUCTION WASTE VOLUMES AND MANAGEMENT

Waste generated during the construction stage of the development will be managed by the principal contractor and sub-contractors, with materials being reused and recycled wherever possible. Where neither reuse nor recycling are possible, waste will be disposed of as general waste at a licensed landfill site.

Recyclable material generated during construction will largely consist of off-cuts and discarded bricks, timber, steel, concrete, tiles, plasterboard, and piping, as well as packaging materials.

It is important to note that source separation of waste on-site may offer cost savings when compared to the disposal of mixed waste at landfill sites. Further cost savings may be achieved through the use of reusable and recycled-content materials.

The table below illustrates the anticipated volumes of materials generated at this development during the construction stage. Volumes have been advised by our client.

Table 3: Construction Waste Conversion

Material	Volume (m3)	*Tonnes (t)	** Approx. Percentage Recovered
Excavation Material	11,400	11,400	99.8%
Green waste	N/A	N/A	80%
Bricks	49	58.8	100%
Tiles	6.5	6.5	100%
Concrete	1065	1,597.5	100%
Timber	383.6	72.9	33%
Plasterboard	134	26.8	50%
Metals	8.2	4.1	100%
Asbestos	N/A	N/A	0%
Other waste	14	4.2	0%
Totals	13,060.3	13,170.8	

* The conversion of materials from volume to tonnes is based on the information provided in a consultation paper published by WA Department of Water and Environmental Regulation
<https://www.der.wa.gov.au/images/documents/our-work/consultation/current-consultation/Consultation%20Sheet%20-Approved%20method%20for%20recyclers.pdf>

**The percentage of recycled waste is estimated by BINGO, and is based on the average quantities of materials received and recovered at their facilities.

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The table below illustrates how the construction materials will be managed and estimates percentage of materials diverted from landfill.

Table 4: Construction Waste Management

			How Waste will be Managed			
Type of Material	Less than 10m³	Estimated Tonnage	Reuse On-Site	Recycle	Landfill	Estimated Tonnage of Material Diverted from Landfill
Excavation Material	<input type="checkbox"/>	11,400	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	11,371.5
Green Waste	<input type="checkbox"/>	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Bricks	<input type="checkbox"/>	58.8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	58.8
Tiles	<input checked="" type="checkbox"/>	6.5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.5
Concrete	<input type="checkbox"/>	1,597.5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,597.5
Timber	<input type="checkbox"/>	72.9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	24.1
Plasterboard	<input type="checkbox"/>	26.8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	13.4
Metals	<input checked="" type="checkbox"/>	4.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4.1
Asbestos	<input type="checkbox"/>	N/A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Other	<input type="checkbox"/>	4.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0
Total		13,170.8	Total			13,075.9
Total Diversion of Waste from Landfill (Minimum 80%)						99.3%

3.2 Recycling Directory

Construction materials removed from site will need to be managed in accordance with the provisions of current legislation and may include segregation by material type classification in accordance with NSW EPA (2014) *Waste Classification Guidelines, Part 1: Classifying Waste* and disposal at facilities appropriately licensed to receive the particular materials.

Please find the below recommendations for recycling drop off locations for all materials likely to be generated at this development. Only the nearest locations are provided. See www.businessrecycling.com.au for additional locations:

	Business Name	Suburb	Distance (km)
Excavation Material	24/7 Rubbish Removal	Botany	6.1
	Bingo Recycling Centre	Banksmeadow	6.6
	Genesis Alexandria	Alexandria	6.7
Green waste	24/7 Rubbish Removal	Botany	6.1
	Bingo Recycling Centre	Banksmeadow	6.6
	Genesis Alexandria	Alexandria	6.7
Bricks	24/7 Rubbish Removal	Botany	6.1
	Bingo Recycling Centre	Banksmeadow	6.6
	Genesis Alexandria	Alexandria	6.7
Tiles	24/7 Rubbish Removal	Botany	6.1
	Bingo Recycling Centre	Banksmeadow	6.6
	Wanless Waste Management	Artarmon	13.1
Concrete	24/7 Rubbish Removal	Botany	6.1
	Bingo Recycling Centre	Banksmeadow	6.6
	Genesis Alexandria	Alexandria	6.7
Timber	24/7 Rubbish Removal	Botany	6.1
	Bingo Recycling Centre	Banksmeadow	6.6
	Genesis Alexandria	Alexandria	6.7
Plasterboard	24/7 Rubbish Removal	Botany	6.1
	Bingo Recycling Centre	Banksmeadow	6.6
	Wanless Waste Management	Artarmon	13.1
Metals	Sell and Parker Metal Recycling	Banksmeadow	5.6
	Australian Metal Co Pty Ltd	Alexandria	5.8
	24/7 Rubbish Removal	Botany	6.1

3.3 Site-Specific Operational Measures

Training/Site Inductions

All staff employed during the construction stage of the development must undertake site-specific induction training regarding the procedures for waste management. Employees of the head contractor will undertake a specific induction outlining their duties and how they are to enforce the waste management procedures.

Induction training will include the following at a minimum:

- Legal obligations;
- Emergency response procedures on site;
- Waste storage locations and separation of waste;
- Litter management in transit and on site;
- The implications of poor waste management practices;
- Correct use of general-purpose spill kits;
- Responsibility and reporting (including identification of personnel responsible for waste management and individual responsibilities).

Materials Selection and Ordering

- Selection of all materials will be undertaken by architectural designers;
- Prefabrication of materials off-site where possible;
- Materials requirements are to be accurately calculated to minimise waste from over-ordering;
- Materials ordering process is to aim at minimisation of materials packaging;
- Material Safety Data Sheets (MSDS) are to accompany all materials delivered to site, where required, to ensure that safe handling and storage procedures are implemented.

Waste Avoidance Opportunities

- Limiting unnecessary excavation;
- Selection of construction materials taking into consideration to their long lifespan and potential for reuse;
- Ordering materials to size and ordering pre-cut and prefabricated materials;
- Reuse of formwork;
- Planned work staging;
- Use of naturally ventilating buildings to reduce ductwork;
- Reducing packaging waste on-site by returning packaging to suppliers where possible, purchasing in bulk and requesting cardboard or metal drums rather than plastics;
- Requesting metal straps rather than shrink wrap and using returnable packaging such as pallets and reels;
- Reduction of PVC use;
- Use of low VOC (volatile organic compounds) paints, floor coverings and adhesives;
- Use of fittings and furnishings that have been recycled or incorporate recycled materials;
- the use of building materials, fittings and furnishings with consideration to their longevity, adaptation, disassembly, reuse and recycling potential.

Site Procedures

- Excavated materials will be used onsite where possible;
- Green waste will be mulched and reused in landscaping either onsite or offsite;
- Concrete, tiles and bricks will be reused or recycled offsite;
- Steel will be recycled offsite; all other metals will be recycled where economically viable;

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- Framing timber will be reused on-site or recycled off-site;
- Windows, doors and joinery will be recycled off-site where possible;
- Plumbing, fittings and joinery will be recycled off-site where possible;
- Plasterboard will be re-used in landscaping on-site or returned to the supplier for recycling where possible;
- All used crates will be stored for reuse unless damaged;
- All glass that can be economically recycling will be;
- All solid waste timber, brick, concrete, rock, plasterboard and other materials that cannot be reused or recycled will be taken to an appropriate facility for treatment to recover further resources or for disposal to landfill in an approved manner;
- All asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with WorkCover Authority and EPA requirements;
- Provision for the collection of batteries, fluorescent tubes, smoke detectors and other recyclable resources will be provided on site;
- Beverage container recycling will be provided on-site for employee use;
- All waste and recycling will be disposed of via council approved systems.

3.4 Location and Design of Waste Management Facilities

General Requirements

All waste management facilities onsite should:

- Be conveniently located to enable easy access for on-site movement and collection;
- Be incorporated with other loading/unloading facilities;
- Have sufficient space for the quantity of waste generated and careful source separation of recyclable materials;
- Have sufficient space to contain any on-site treatment facilities, such as compaction equipment;
- Have adequate weather protection and, where required, be enclosed or undercover;
- Be secure and lockable;
- Be well-ventilated and drained to the sewer;
- Be clearly sign-marked to ensure appropriate use.

Waste and Recycling Receptacles

A sufficient quantity of skip bins should be provided for the separate storage of each type of C&D material generated on site. This will assist in maximising source separation and resource recovery, while reducing the costs and quantity of materials disposed of at landfill.

The size of the receptacles should be appropriate to the nature of waste generated and the available storage area. In general, the following options would be acceptable:

Bin Size	Access	Dimensions
2.5m	Top loading	
3m	Drop door walk-in	
4m	Drop door walk-in	
5m	Drop door walk-in	
6m	Double doors walk-in	

Source: Aussie Bins

CONSTRUCTION & DEMOLITION WASTE MANAGEMENT PLAN

If the developer chooses to adopt a traditional waste management strategy, whereby waste is deposited into commingled skip bins to be sorted offsite, a pair of skip bins would be considered sufficient for purpose. However, if the site is to pursue source separation, dedicated skips for the following materials are recommended:

- Timber;
- Plasterboard;
- Concrete;
- Bricks;
- Scrap metal;
- General waste.

Separate receptacles for the safe disposal of hazardous waste types (i.e. light bulbs, batteries, etc) will also be provided where applicable. Where possible, additional bins will be provided in common areas for the collection of commingled recyclables such as beverage containers (glass, plastic, aluminium), paper products, recyclables food containers, etc.

Safety and Signage

The following safety measures should be considered for the waste storage area:

- Location should not interfere with sight lines of drivers entering or leaving the site;
- Skip bins should be clearly visible and located in well-lit areas;
- Safe paths of travel should be designated using reflective tape, barriers and cones;
- Skip bins must be secured and must not be over-filled to reduce risk of injury through bins moving and falling objects.

Standard signage will be installed in all waste areas, with all skip bins colour coded and labelled appropriately on all sides to allow clear identification of the type of waste to be deposited into each bin.

Refer to the EPA's website for standard construction waste and recycling signs:

www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm

Space and Siting Requirements

The waste storage areas will be located adjacent to the entrances to the site at the Northern and Southern boundaries to enable access and allow sufficient space for the required skip bins and servicing requirements. The storage area will also be flexible in order to cater for change of use throughout construction works.

Where space is restricted, dedicated stockpile areas will be allocated onsite, with regular transfers to the dedicated skip bins for sorting and collections.

The position of the designated waste holding area onsite may change according to building works and the progression of the development. Access, visual amenity and WHS will always be integral to the selection of waste storage area locations. Any stockpile locations will take into account slope and drainage factors to avoid contamination of stormwater drains during rain events.

Servicing and Transport

The frequency of waste removal from site will be determined by the volume of materials deposited into the dedicated skip bins. Skip bins will be monitored on a daily basis by the Construction Site Manager to ensure they do not overflow. If skip bins are reaching capacity, removal and replacement should be organised for within 24 hours.

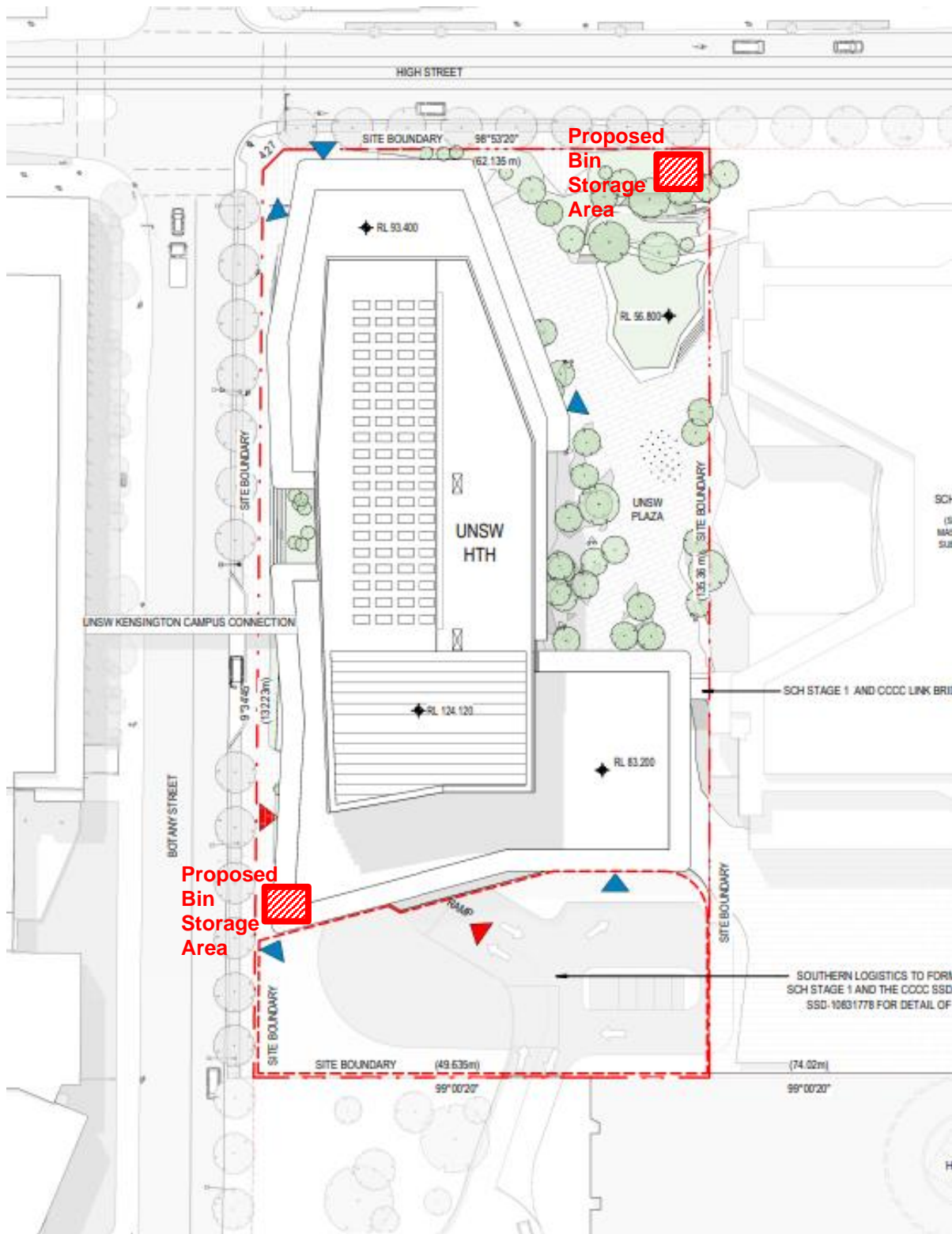
All skip bins leaving the site will be covered with a suitable tarpaulin to reduce spillage of waste while in transit.

All waste collection for construction works will be conducted between approved hours as per Council requirements (typically between 7am and 7pm Monday to Friday, and between 7am and 1pm on Saturdays). All waste generated on site will be transported to an approved and appropriately licensed resource recovery facility and/or landfill site.

CONSTRUCTION & DEMOLITION WASTE MANAGEMENT PLAN

3.5 Architectural Plans

Site Plan



Source: Architectus, Drawing No. DA0020, Iss.A, 18/02/21 – Site Plan