



Waste Management

Proposed Residential Development

At 30-38 Ironbark Avenue, Casula

On Behalf of SGCH Sustainability Limited



About TTM

For 30 years, we've been at the centre of the Australian development and infrastructure industry. Our unique combination of acoustics, data, traffic and waste services is fundamental to the success of any architectural or development project.

We have over 50 staff, with an unrivalled depth of experience. Our industry knowledge, technical expertise and commercial insight allow us to deliver an exceptional and reliable service.

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Revision Record

No.	Author	Reviewed/Approved	Description	Date
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GLOSSARY OF TERMS

In this waste management plan unless the subject matter otherwise indicates, a term or abbreviation has the following meaning:

TERM	DEFINITION
Bin Storage Area	An enclosed area designated for storing on-site refuse bins or a refuse compactor within the property.
Bulk Bin	A galvanized or steel bin receptacle that is greater than 360L in capacity generally ranging from 1.0m ³ to 4.50m ³ used for the storage of refuse that is used for on-site refuse collection.
Bulk MGB	A plastic (polypropylene) receptacle that is greater than 360L in capacity generally ranging from 0.66m ³ to 1.10m ³ used for the storage of refuse.
Collection Point	The identified position where refuse bins are stored for collection and emptying. The collection point can also be the bin storage area for bulk bins.
Composter	A container/machine used for composting specific food scraps and/or organic materials.
Green Waste	All vegetated organic material such as small branches, leaves and grass clippings, tree and shrub pruning, plants and flowers.
L	Litre(s) related to refuse volumes
Liquid Waste	Non-hazardous liquid waste generated by commercial premises that should be connected to sewer or collected for treatment and disposal by a liquid waste contractor (including grease trap waste).
m ²	Square Metre(s) related to refuse areas
m ³	Cubic capacity related to refuse areas or equipment
Mobile Garbage Bins	Plastic (polypropylene) bin or bins used for the temporary storage of refuse that is up to 360L in capacity and may be used in kerbside refuse collection or on-site collection.
Putrescible Waste	The component of the waste stream liable to become putrid and usually breaks down in a landfill to create landfill gases and leachate. Typically applies to food, animal and organic products.
Recycling	All material suitable for re-manufacture or re-use eg glass bottles and jars – PET, HDPE and PVC plastics; aluminium aerosol and steel cans and lids; milk and juice cartons; soft drink, milk and shampoo containers; paper, cardboard, junk mail, newspapers and magazines.
Refuse	Material generated and discarded from residential and commercial buildings including general waste, recyclables, green waste and bulky items.
Refuse Bin	A receptacle (mobile garbage (wheelie) bin, bulk MGB or bulk bin) used for the storage of refuse.
Refuse Collection Vehicle (RCV)	A vehicle that is specifically designed for collecting and emptying refuse bins and refuse compactors.
Refuse Storage Room	An area identified for storing on-site mobile garbage bins or bulk bins within the property.
Regulated Waste	Waste prescribed under legislation as regulated waste.
Transfer (Manual Transfer)	Physical transfer of refuse material and associated bulk bins or trolleys without assistance
Waste	Refuse material with the exclusion of recycling, green waste, hazardous waste special waste, liquid waste and restricted solid waste.
Waste (General Waste)	Generally material free of any actual or apparent contamination (pathological/infectious, radioactive and/ or hazardous chemical). Reporting use is for material considered to be free of food waste.
Collection Vehicles	
Rear-loading RCV	A truck specially designed to collect municipal solid waste and recycling, typically 240L wheelie bins to 1100L bulk bins from rear loading mechanism and haul the collected waste to a solid waste treatment facility.

1. Executive Summary

The proposed residential development at 30-38 Ironbark Avenue, Casula contains 63 residential units built over 5 levels.

On servicing days, all waste and recyclables will be collected by Council via on-street kerbside collection. Waste arrangements are proposed as 7x 660L bulk bins collected twice a week and recycling arrangements are proposed as 12x 660L bulk bins collected once a week.

TTM have referred to the SEPP Low Rise Medium Density Housing Code Design Guide and have outlined the compliance checklist in the table below.

Table 1.1: Planning for Waste Minimisation and Management- Compliance checklist

Objectives	Criteria	Compliance	Comments
Waste storage facilities meet the needs of the residents, are easy to use and access, and enable efficient collection of waste.	64. Provide storage space for the type and number of bins designated in council's waste policy.	✓	The refuse rooms provide storage space for the required number of bins designated in Council's waste policy.
	65. Where waste storage is provided in a communal area, access to this waste area is to be provided for all residents without crossing a private lot.	✓	All residents are provided with ground floor refuse room access without crossing a private lot.
	66. Where waste storage is provided in the basement car park, a maximum ramp gradient of 1:6 is to be provided to the waste collection point.	✓	The maximum gradient of the ramp is provided at 1:20 (5%).
	67. Where a rear lane has provision for waste collection trucks used by council, the collection point is to be from the rear lane.	✓	No rear lane access. Servicing is provided on the lowest order road and main frontage.
	68. Any communal waste area is to: - provide for water supply for cleaning, - have a solid floor grated to a floor waste (connected to a sewer), and - be designed to meet the requirements of council's waste policy.	✓	The refuse room will be provided with a water supply for cleaning, solid floor grated to a floor waste (connected to a sewer) and designed in accordance with Council's waste policy.
	69. Despite any requirements in council's waste policy, on-site waste vehicle access and collection is not required where: - there are less than 20 dwellings, or - the development is Torrens title subdivided.	✓	On-site waste collection is not proposed due to geometry of site and limited turn around opportunities. Servicing will be via kerbside collection.
	70. A communal onsite waste collection point is to be provided where: - there are 20 or more dwellings and - the development is strata title subdivided.	✓	A refuse room provided on-site for kerbside collection. The development proposed 660L bulk bins.
	71. Where vehicle access is not provided to the site, any communal on-site collection point is	✓	Bins will be serviced along the kerbside, consistent with servicing in

	to: – be less than 10m from the street boundary, – be located on a surface with a gradient less than 1:20 – not require access through a security door or gate (unless this is permitted by council waste policy). – have path that connects the collection area to the street boundary with a gradient less than 1:8 and free of steps for the transfer of bins to the collection vehicle		the residential area and will: – be located on a surface with a gradient less than 1:20; – not require access through a security door or gate; and – have path that connects the collection area to the street boundary with a gradient less than 1:8 and free of steps for the transfer of bins to the collection vehicle.
	72. If the waste collection point (including any communal waste collection point) is used for permanent storage of bins, it is to be screened from view from the public domain and is to have a height no greater than 1.3m, if forward of the building line.	✓	• A permanent waste storage area is provided within the refuse room, with temporary storage along the kerbside for bulk bins.
Waste storage facilities are designed to minimise impacts on the streetscape, building entry and amenity of residents	73. Storage areas for rubbish and recycling bins should be provided – within garages; – in a screened enclosure that is part of the overall building design; or – in the basement car park.	✓	• A refuse room is provided in a screened enclosure that is part of the overall building design via the ground floor refuse rooms.
	74. Communal waste areas are to be located at least 3m from any bedroom or living room window.	✓	• Refuse room is located more than 15m from any bedroom or living room window.

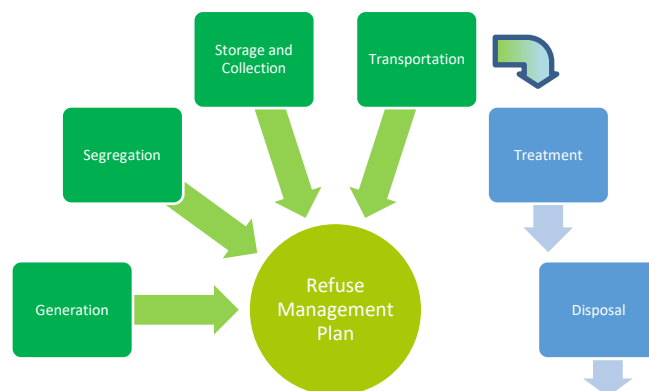
2. Introduction

2.1. Background

TTM Consulting has been engaged by SGCH Sustainability Limited to prepare a refuse management plan to support the proposed residential flat development located at 30-38 Ironbark Avenue, Casula. The assessment and associated recommendations include:

- Identification and appropriate segregation for refuse streams produced within the development;
- Estimated volumes generated;
- Internal systems and equipment requirements;
- Refuse storage facilities design;
- Refuse collection room, area or loading bay designs;
- Refuse collection vehicle (RCV) access and manoeuvrability;
- Safety;
- Waste minimisation and pollution prevention;
- Owner and tenant education; and
- Operational requirements.

Refuse Life Cycle



The report takes into consideration the associated workplace health and safety issues and cost implications of waste management processes and equipment to ensure safe and cost-effective solutions are in place for long term property management. Recommendations also ensure that noise and odour nuisances are mitigated and visual amenity is maintained and does not adversely affect the surrounding properties.

The recommendations for refuse collection relate to the operational phase of the development only and do not include additional requirements during or after demolition or construction phases, which requires its own separate plan.

Information contained within the report is based on local government authority requirements related to the Liverpool City Council (LCC) and the associated waste services department. The recommendations provided are designed to comply with:

- LCC's Development Control Plan 2008 – Part 1 General Controls for all Development; and
- LCC's Fact Sheet- Waste Management Services for Residential Flat Buildings and Multi Dwelling Housing.

Council's waste services department has been contacted to provide additional feedback, information or policy updates with relation to refuse management of the development.

2.2. Site Location

The site is located at 30-38 Ironbark Avenue, Casula, as shown in Figure 2.1. The site has a road frontage to Ironbark Avenue, which will be utilised as the servicing road.

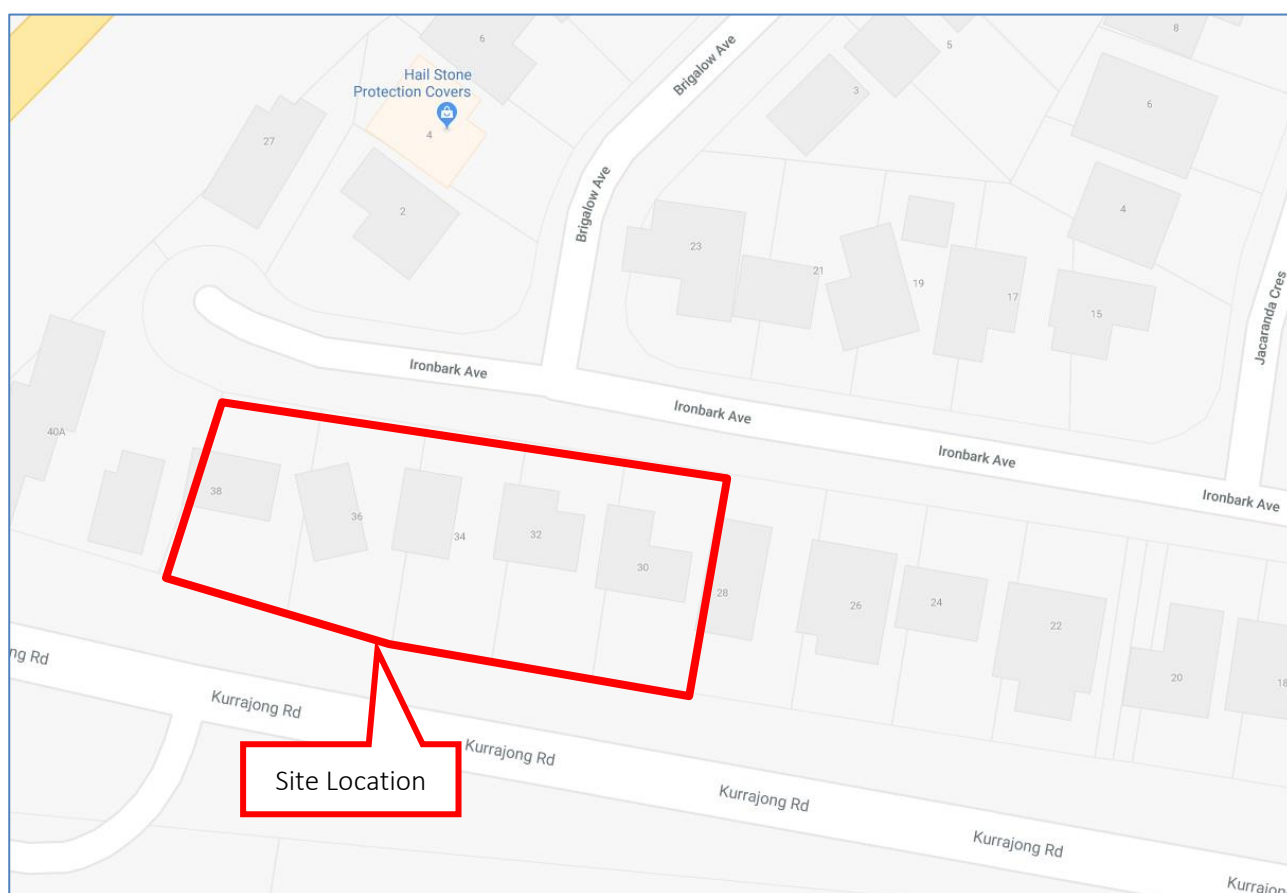


Figure 2.1: Site location



Figure 2.2: Site overhead

2.3. Development Summary

The development consists of 63 SGCH residential apartments (with a mix of one (1) and two (2) bedroom units) over five (5) residential levels.

2.4. Development Refuse Profile

The table below summarises the residential refuse profile.

Table 2.1: Residential Refuse Summary

<i>Description</i>	<i># Units</i>	<i>Generated Waste (L/week)</i>	<i>Generated Recycling (L/week)</i>
1 bedroom	15	1,800	1,800
2 bedroom	48	5,760	5,760
Total	63	7,560	7,560

Section 5 of the report summarises the operational requirements for the entire development. All calculations and equipment requirements are based on the unit schedules and associated waste generation rates as outlined in the detailed information in Appendix A.1. Site drawings can be found in Appendix A.2 and Appendix A.3.

3. Residential Refuse

The building size and associated quantity of refuse produced determines that no refuse chutes are required. The residential apartments waste streams may consist of the following:

Table 3.1: Generated Residential Waste Streams

Frequently Generated Waste Streams	
General waste	General waste should be collected in a dedicated receptacle within the allotted space and bagged or wrapped prior to disposal. Operationally, general waste should be bagged and weigh approximately 3kg or less and not exceed the dimensions of the waste receptacles.
Recycling (glass, aluminium and steel cans/tins/lids, paper/cardboard, semi rigid plastics)	Recycling should be collected in a dedicated receptacle to ensure separation from the waste material and must not be bagged. Where applicable, other materials such as cardboard and plastics should be separated.
Infrequently Generated Waste Streams	
Green waste	Green waste is not typically produced from residential flat buildings other than from surrounding building landscaped areas and is removed by a designated maintenance contractor.
Hard waste/bulky goods	Hard waste will be collected on designated days during the year. Further information can be found on Council's website. Approximately 10m ² space is allocated in the ground floor refuse room, separate to the bin storage, for storage and collection of bulky goods. Residents must coordinate all bulky goods movements and storage with the building manager/s. It is prohibited for residents to stack or pile bulky goods items on the footpaths, in driveways, or in carparks. Unless otherwise instructed by council, charitable organisations may be contacted by the building manager/s as a mode for collections.
Hazardous waste (paints, batteries and cartridges) and E-waste	The building manager will assist in the coordination of disposal of specialised / hazardous waste and e-waste such as recycling of electronic, liquid waste and paint/chemicals where required, due to safety and environmental reasons. Residents should be directed to Council's website for more details for appropriate waste and disposal.

3.1. Apartment Level Disposal

Residents will be supplied with adequate space for storage of one full day accumulation of refuse within each apartment (typically under sink compartments or utility cupboards- see Appendix B.1 for typical apartment bins).

3.2. Transferal and Storage Process

Once receptacles are filled within each apartment, residents will dispose of their refuse directly to the ground floor refuse room in proximity to the stairs and lifts into the appropriate bulk bins for waste and recycling (refer to Appendix A.3 for refuse rooms and B.2 for bin sizes).

On collection day, building management will transfer the bins to the kerbside temporarily via the hardstand car park area directly from the refuse room, and return them once serviced.

4. Refuse Collections

4.1. Residential Servicing

Residential refuse will be collected from Ironbark Avenue by Council. Refuse bins will be serviced by means of a rear-lift refuse collection vehicle (RCV).

On or before the day of service, all bulk bins will be transferred to the kerbside for temporary storage by building management from the refuse room.

Depending on how frequently vehicles are parked in the parking lane along the property frontage on Ironbark Avenue, Council may need to consider parking restrictions on designated collection days to ensure sufficient space for bin collections.

Refuse bin quantities have been calculated on collection cycles of two days per week for waste and one day per week for recycling.

The building manager will consult with Council to finalise service days and frequency prior to the time of occupancy.

5. Recommended Operational Requirements

5.1. On-going Management

All refuse equipment movements are to be managed by the building manager at all times. The building manager duties include, but are not limited to the following:

- Organising, maintaining and cleaning the general and recycled waste holding areas (frequency will depend on waste generation and will be determined based upon building operation);
- Organising both garbage and recycled waste pick-ups as required;
- Cleaning all bins;
- Organising and coordinating bulky goods collections;
- Ensuring site safety for residents, children, visitors, staff and contractors;
- Abiding by all relevant OH&S legislation, regulations, and guidelines;
- Assessing any manual handling risks and preparing a manual handling control plan for waste and bin transfers;
- Providing to staff/contractors equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities; and
- Continual monitoring of equipment uses and scheduling to ensure best operational outcomes.

Note: As waste volumes may vary according to the development occupants' attitudes to waste disposal and recycling, bin numbers and sizes may need to be altered to suit the building operation.

5.2. Waste Minimisation

Waste minimisation is an important part of any site operation. At a minimum, the following should be implemented.

5.2.1. Education

On-going education is important to ensure people continue to use the facilities as originally intended. All body corporate and leasing contracts should contain clauses pertaining to waste management arrangements and use of any associated equipment.

5.2.2. Monitoring and Review

Regular monitoring and inspections of waste and related equipment and facilities from the development should be conducted by building management/designated staff for maintenance and sustainability, including but not limited to bin volumes, refuse storage areas and stormwater management.

Waste minimisation requires regular reviewing to ensure operational sustainability of refuse volumes and equipment and economic feasibility. It is recommended that refuse weights and movements are recorded and reviewed. An external review is usually conducted 12 to 18 months after the implementation of the plan.

5.2.3. Signage

All receptacles and bins should have adequate signage, with appropriate labelling, which is clear and easy to read. Standard signage should be provided in and around waste collection and storage areas (see Appendix C).

5.3. Safety

Note that transferring refuse bins is considered a hazardous manual task and therefore contractors must ensure a full risk assessment of equipment, surfaces and related gradients is complete. The contractor must provide procedural documentation to appropriate personnel prior to delivery of equipment and occupancy of the development.

5.4. Operational Summary

Equipment required or suitable for use as part of the operational phase of the development is outlined below.

Note: all collection receptacles and bins should be branded with the appropriate stickers.

Table 5.1: Operations Equipment

Component	Description	Quantity	Notes
SGCH Apartments	Recycling Bins	12	660L bins See Appendix B.2
	Waste Bins	7	
		Green Waste	Subject to final operational requirements

5.5. Controls

5.5.1. Refuse Room

The refuse rooms will have the following features in order to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area:

- Enclosed rooms will be fire rated and ventilated in accordance with the National Construction Code-Building Code of Australia;
- Doors must be wide enough to allow for the easy removal of the largest container to be stored;
- The walls, ceilings, floors and equipment are to be designed and constructed of impervious material with a smooth finish to allow for easy cleaning;

- Door frames are metal, hardwood or metal clad softwood, situated in an external wall;
- Door frames are rebated with a lock capable of being activated from within the room without a key at all times;
- Rainfall and other surface water cannot flow into the waste rooms;
- The floors are to be graded to fall to a drainage point;
- Drainage points connected to sewer in accordance with trade waste requirements;
- A hose cock must be provided directly outside the rooms for cleaning bins and the room;
- Adequate artificial lighting;
- Not located adjacent to or within any habitable portion of a building or place used in connection with food preparation (including food storage);
- Permit unobstructed access for removal of the containers to the service point; and
- Will be attractively designed to minimise their visual impact on the surrounding areas.

5.5.2. Kerbside Collection

The kerbside collection will have the following features:

- Does not have any steps or lips;
- Is located at least 5m from any door, window or fresh air intake of the development or adjoining sites;
- Of sufficient size to accommodate the bins;
- Positioned on a level surface with the kerbside;
- Does not block the entry and exit to the property;
- Connected to the frontage by a paved path so that the bin can be manoeuvred for servicing without lifting the bin over raised surfaces; and
- Is not on a graded surface.

5.5.3. Bin carting route

The bin carting route (from both the refuse room to the kerbside service point) has the following features:

- Is via the hard stand driveway;
- Does not have any lips, stairs or steps; and
- Transfer path does not have a steep slope (maximum 1:20 (5%)) and therefore does not require mechanical assistance to manoeuvre bins.

5.5.4. Bin wash

A bin wash will be provided within the refuse room and will have the following design elements:

- Constructed hardstand area with a solid concrete base;
- Graded to fall to a drainage point within the storage point;
- Drainage point connected to sewer in accordance with trade waste requirements;
- Provided with a hosecock for cleaning;
- Is in a purpose-built storage area which is air locked, fly and vermin proofed, and used solely for the storage of waste; and
- Is in a well-ventilated portion of the basement and not within thirty (30) metres of an opening to a food premises or food handling area.

5.5.5. Storm Water Prevention and Litter Reduction

Designated personnel/ cleaners are responsible for on-site storm water pollution and litter reduction. To limit the impact on the environment and site, the following measures should be taken into account:

- Providing adequate signage to promote litter control;
- Providing sufficient refuse bins in appropriate areas;
- Preventing unauthorised entry to waste areas;
- Monitoring waste and prevent waste overflow;
- Promoting best practices for waste minimisation; and
- Installing litter traps in car parks for any unwanted discharge.

5.5.6. Ventilation

Natural (unobstructed, permanent openings direct to external air no less than one-twentieth (1/20) of floor area) or mechanical ventilation (minimum rate of 100 L/s and 5L/m² exhausting rate) must be provided to waste storage areas unless refrigerated below four degrees Celsius.

Appendix A Detailed Information

A.1 – Residential Refuse Calculations

The generation rates used for the calculation of refuse produced uses rates recommended by Council's Waste Management Services for Residential Flat Buildings and Multi Dwelling Housing Fact Sheet.

Waste and recycling volumes indicated do not include compaction.

Table A.1: Residential Generation Rates

Type	Waste	Recycling
Residential flat buildings	120 L / unit / week	120 L / unit / week

Table A.2: Residential Refuse Calculations

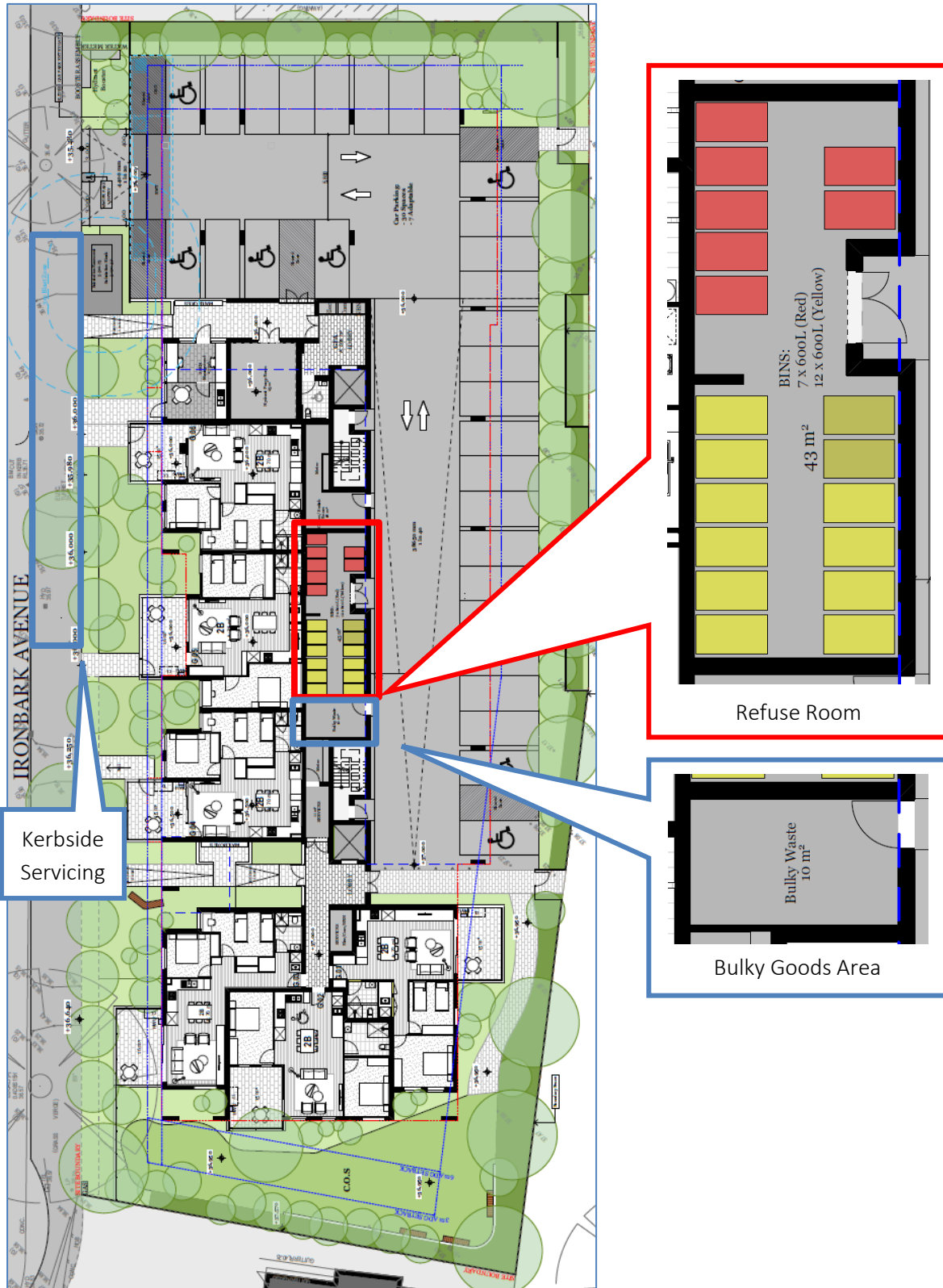
Description	# Units	Generated Waste (L/week)	Generated Recycling (L/week)
1 Bedroom	15	1,800	1,800
2 Bedroom	48	5,760	5,760
Total	63	7,560	7,560
Refuse per day	-	1,080	1,080
Refuse per collection	-	4,320	7,560
Collections and Equipment	Bin Size (L)	660	660
	Collections per Week	2	1
	No Bins Required	7	12
Refuse Room	Raw Bin Space	21 m ²	
	Bulky Goods Area Provided	10 m ²	
	Refuse Room	44 m ²	

A.2 – Typical Floor Plan



Source: DKO Architects- drawing no DA200, rev A, dated 16/08/18- Level 01-03

A.3 – Ground Floor Plan



Source: DKO Architects- drawing no DA200, rev A, dated 16/08/18- Ground Level

Appendix B Systems and Specifications

B.1 – Apartment Bins

Typical apartment/unit receptacles for refuse storage



B.2 – Collection Bins

Bulk Bins



Bin Receptacle	Length (mm)	Width (mm)	Height (mm)	Bin Footprint (m ² /bin)
140L	640	535	920	0.27
240L	730	580	1060	0.42
360L	865	650	1100	0.42
660L	1420	780	1210	1.16
1100L	1420	1100	1270	1.71
1m ³	1740	1100	1100	0.99
1.5m ³	2040	1250	1220	1.46
3m ³	2040	1650	1590	2.10
4.5m ³	2040	1995	1830	3.20

Appendix C Refuse Signage

Refuse Signage Resource

Waste signs

Signs for garbage, recycling and organics bins should comply with the standard signs promoted by the DECC.

Standard wall posters and bin lid stickers are available for download and printing from the Local Government section of the DECC website www.environment.nsw.gov.au, in black and white and appropriate coloured versions where applicable.

Example wall posters



Example bin lid stickers



Example Safety Signage

Safety Signs are required for refuse discharge and storage rooms / areas and must comply with Australian standards "AS 1319 Safety signs for the occupational environment". Additional state or local government requirements may also apply. Following are examples of typical signs used around a waste storage area. It should be noted however that an assessment must be completed by a qualified fire and safety consultant, prior to occupancy, to determine the correct signage to be used.

Fire Management



Refuse Room Management

Do not overfill bin



Lid must be closed





Demolition and Construction Waste Management Plan

Proposed Residential Flat Building
At 30-38 Ironbark Avenue, Casula
On Behalf of SGCH Sustainability Limited



About TTM

For 30 years, we've been at the centre of the Australian development and infrastructure industry. Our unique combination of acoustics, data, traffic and waste services is fundamental to the success of any architectural or development project.

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Acoustics



Data



Traffic



Waste

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1.	E. Atkins	A. Stamatou	Draft	13/08/18
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1. Introduction

1.1. Background

TTM Consulting has been engaged by SGCH Sustainability Limited to prepare a demolition and construction waste management plan for the proposed residential flat development located at 30-38 Ironbark Avenue, Casula. Five single residential dwellings will need to be demolished to make way for this development which will generate large volumes of waste, most of which can be reused onsite or recycled offsite. Significant waste volumes can also be generated during the construction phase and as such, this plan will assist to guide in reducing wastage and reusing materials.

Construction and demolition wastes can include excavated materials such as soil, rocks, vegetation, building materials such as bricks, concrete, timber, fittings, plasterboard and also contaminated or dangerous materials such as asbestos and contaminated soils. Some of these wastes have particular handling, transport and disposal requirements, and all wastes have been identified by the NSW State government as having significant potential to contribute to the circular economy – recovering and recycling materials and reducing the need for virgin materials. As such, best practice waste management is required to not only comply with laws and guidelines, but also to contribute to improved environmental performance and also to reduce waste disposal costs.

The Liverpool City Council (LCC) Development Control Plan (DCP) also identifies the importance of minimising waste to landfill and maximising recovery of resources from wastes from construction and demolition activities. As such, it is a requirement of LCC to develop and submit a waste management plan that discusses waste minimisation, reuse, recycling and disposal options for all types of waste, and that the WMP must be implemented throughout the development process. During demolition and construction, the WMP and proof of lawful waste disposal/recycling, must be retained on site in a Waste Data File. Proof is to include a log book with associated receipts/invoices, waste classification and site validation certificates.

This demolition and construction waste management analysis of the project has been undertaken to meet the requirements of the Liverpool Council DCP 2008. The goal of this document is in line with the DCP as well as the waste hierarchy (avoid, reduce, reuse, recycle, recover (energy), treat and dispose), shown in Figure 1.1, and aims to:

- Minimise the amount of waste generated;
- Maximise the reuse, recycling and reprocessing of demolition and construction waste materials; and
- Minimise the volume of material disposed to landfill.

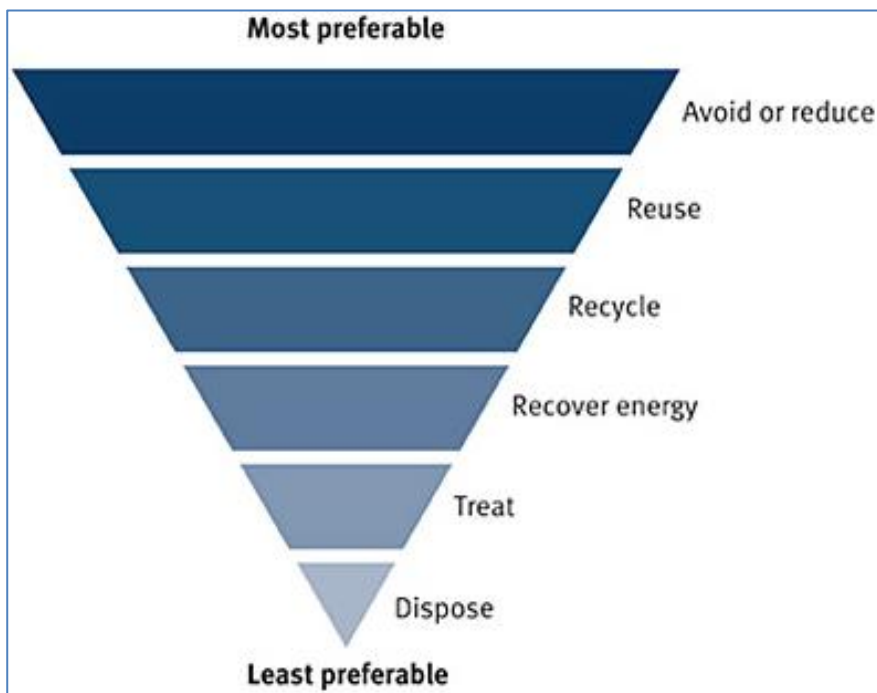


Figure 1.1 Waste Hierarchy

This report will provide guidance on activities and design before works on site commence, and will also outline the requirements to comply with Council and State legislation, and actions required during demolition, excavation and construction phases.

Information contained within the report is based on local government authority requirements related to the LCC and the associated waste services department. The recommendations provided are designed to comply with:

- LCC's Development Control Plan 2008 – Part 1 General Controls for all Development;
- NSW Waste Avoidance and Resource Recovery Act 2001 and Strategy 2014-2021.
- Australian Standard AS2601 – 1991 The Demolition of Structures;
- Any asbestos removal must be removed and disposed of in accordance with the requirements of Work Cover;
- All lead contaminated materials must be handled and disposed of in accordance with the NSW Environment Protection Authority's requirements; and

This waste management plan relates to the demolition or construction phases only and does not include additional requirements during the operational phase of the development, which requires its own separate plan.

1.2. Site Location

The site is located at 30-38 Ironbark Avenue, Casula, as shown in Figure 1.2 and Figure 1.3. The site has a road frontage to Ironbark Avenue, which will be utilised as the servicing road.

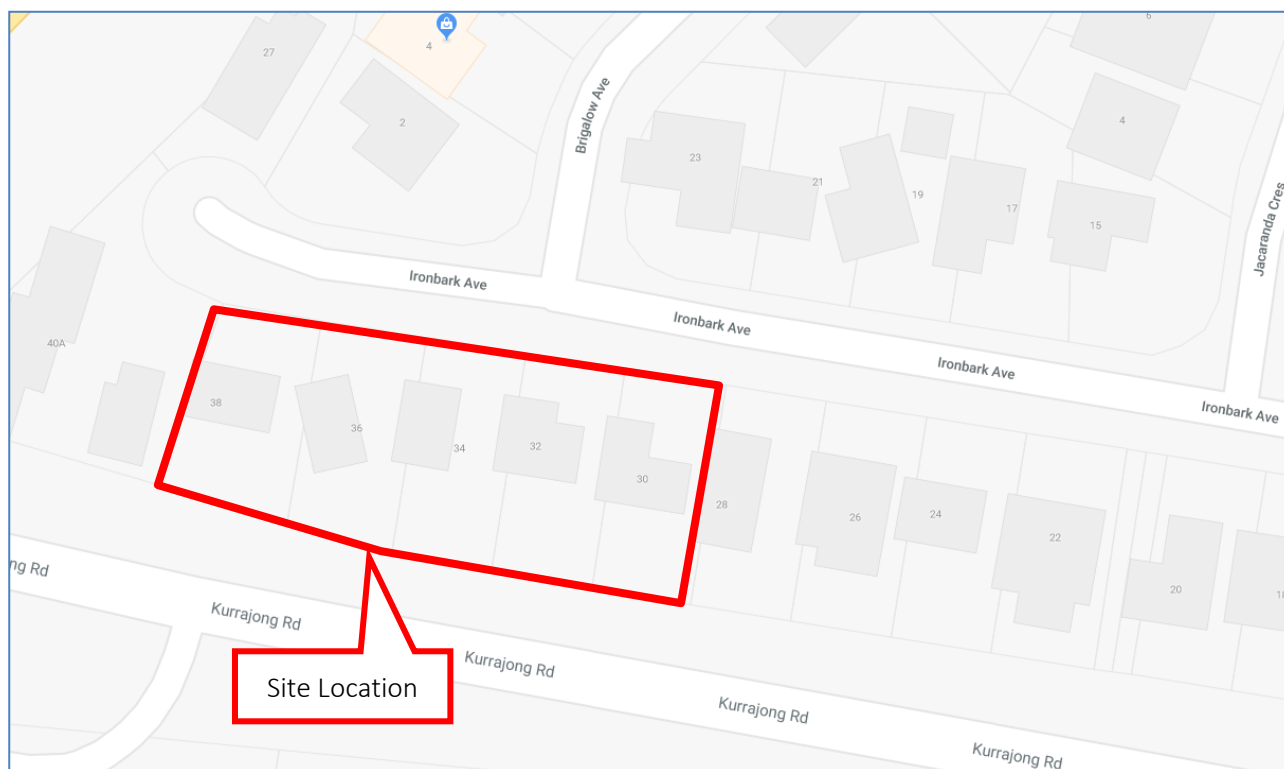


Figure 1.2: Site location

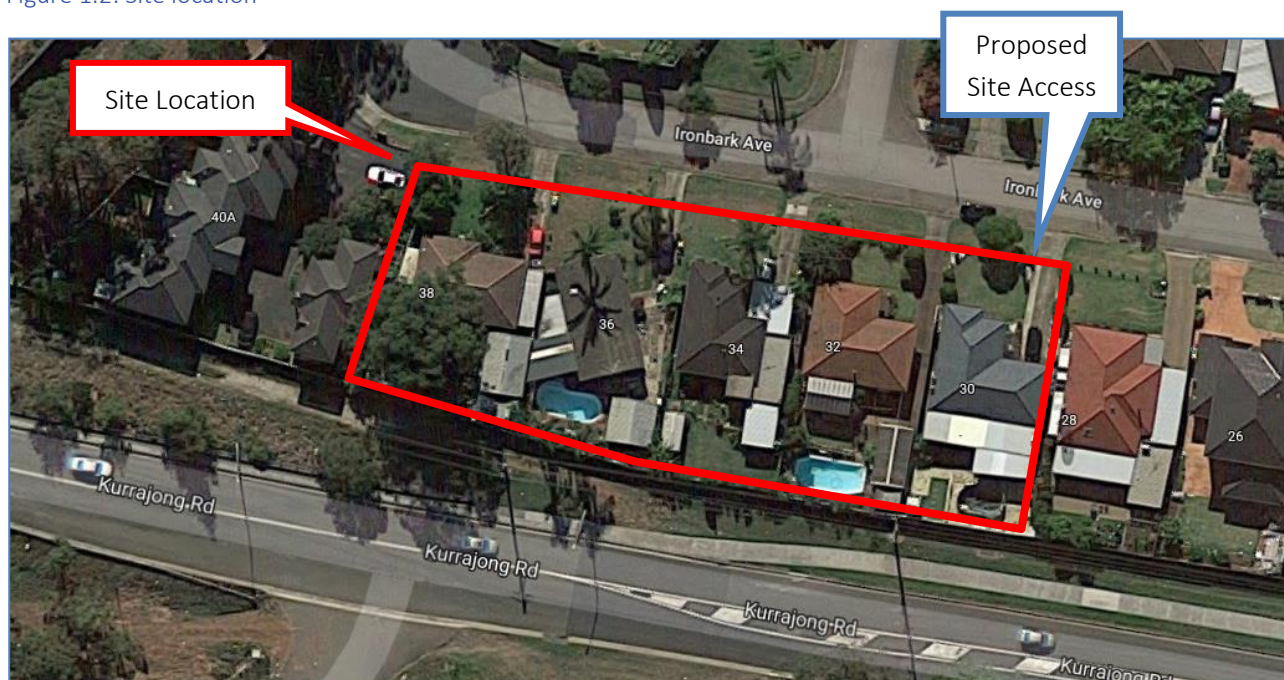


Figure 1.3: Site overhead

1.3. Existing Buildings

The existing developments located on the proposed site accommodates five single storey residential dwellings, and associated outbuildings, pools and landscaping on relatively flat ground.

These dwellings are considered lightweight timber framed buildings with a brick exterior and concrete slab on ground and tiled roof. It is unknown as to whether any of the buildings contain asbestos, and as such, an independent asbestos consultant should be engaged to determine whether the presence of asbestos is likely and therefore whether onsite asbestos testing / investigations are warranted.



Figure 1.4 Properties to be demolished

1.4. Proposed Development

The development consists of 63 residential apartments (with a mix of one (1) and two (2) bedroom units) over five (5) residential levels.

2. Construction and Demolition Waste Legislation

The transfer, transport and disposal of particular wastes have a range of legislative requirements that will need to be adhered to during the life of the project. This legislation has bearing on both the owner of the waste and the transporter.

Under Section 143 of the *Protection of the Environment Operations Act 1997*, waste can only be transported to a place that can lawfully accept it. If wastes are transported to a place that cannot lawfully accept the material, both the owner of the waste and the transporter can be held liable for clean up costs and for subsequent lawful disposal. Therefore, it is essential for the project managers/owners to ensure that due diligence is undertaken prior to transportation of waste materials. Additional measures owners of waste can protect themselves from fines and penalties are outlined at <https://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/construction-demolition>.

As part of the Development Approval issues by Liverpool City Council, it will be a requirement to keep a copy of this WMP along with proof of lawful disposal for all waste that is disposed of, or otherwise recycled from the site must be retained on site in a Waste Data File. Proof is to include a log book with associated receipt/invoices, waste classification, and site validation certificate. All entries must include:

- Time and date;
- Description and size of waste;
- Waste facility used;
- Vehicle registration and company name.

Both the logbook and associated receipts must be made available for inspection by authorised Council Officers at any time during site works and at the conclusion of works should be retained by the person responsible and made available for inspection by authorised Council Officers.

2.1. Asbestos

Houses built or renovated in NSW prior to 1987 are likely to contain asbestos. There are specific laws relating to working with or around asbestos (*Work Health and Safety Regulation 2017*). If the houses that are to be demolished were built prior to 1987, an asbestos specialist should be engaged to identify if asbestos containing materials (ACM) are present and an appropriate removal process be undertaken. For more information, visit <http://www.safework.nsw.gov.au/health-and-safety/safety-topics-a-z/asbestos/asbestos-at-work>. Asbestos may be found in cement sheet walls and sheet roofing, backing to floor tiles, external cladding, switchboard backings and lagging insulation for water pipes.

Details of removal procedures and risk management will be detailed in the Hazardous Building Materials Assessment Report. All works should be halted if unidentified materials are suspected. Additional sampling may be required to areas that were not accessible at the time the report was undertaken.

2.2. Contaminated Land

Any contaminated soil identified after demolition and excavation has commenced is to be remediated and disposed of to an approved contaminated/remediated soil facility as per the *Contaminated Land Management Act 1997* as required by NSW EPA. If during the course of demolition or excavation and activities lead to the contamination of land, or once a person becomes aware that there is evidence of previous contamination, there is a legal obligation to notify the EPA. Further information on requirements can be found at the following guideline <https://www.epa.nsw.gov.au/-/media/09353B1ABE5C431BAE803A0BCE72510C.ashx?la=en>.

3. Planning for Demolition and Construction

In order to achieve effective waste reduction during the demolition and construction phases, there are a number of measures that should be undertaken by the project manager, demolition and construction contractors, and site staff. A commitment to reducing waste sent to landfill will need to be agreed by all stakeholders and actions coordinated early in the planning phases, in order to achieve best practice diversion rates. These measures are discussed in the following sections.

3.1. Contractor Selection

The projects site performance relies on the attitudes of the chosen contractors (demolition, excavation and construction), which will ultimately have a significant impact on waste performance of the site. Contractor tendering should include a requirement for all contractors to identify their waste minimisation strategies and actions, and outline the materials that they are likely to reuse on site, recycle through the supply of bins, or recycle themselves through product stewardship arrangements for specialty wastes, and those items that they regularly dispose of to landfill. Contractors supply goods and equipment should also document within the tender submission the methods they undertake to reduce overordering, the anticipated/known wastage, and other waste minimisation actions. As a minimum, all contractors should follow the intent of this WMP, and where not achievable, discussions with the Site Manager/Foreman must be undertaken and recycling contractors engaged to provide consultation on alternative solutions.

3.2. Material Identification

Prior to demolition, it is recommended that construction contractors meet with demolition contractors and site managers to identify those materials or items that are to be salvaged or reused during the demolition or construction stages. All other materials should then be categorised based on acceptance criteria for available recyclers (see Table 3.1 and Appendix B). This presents a clear idea of those materials that are to be excluded from being sent offsite for recycling/reprocessing or for disposal to landfill.

Key principles to be followed during demolition, in order of preference and generally in accordance with the waste hierarchy, include:

- Manual deconstruction of the following:
 - Materials that can be reused on site during further demolition and/or construction stages;
 - Materials of high cost to dispose/treat. This material should not be mixed with other generic building materials, as the entire load will be deemed as contaminated, and therefore the entire load will be charged at the higher rate;
 - High risk/dangerous materials (e.g. asbestos) by a licensed contractor or suitably qualified person; and
 - Items that will attract a high rebate (e.g. copper pipe).

- Segregation of like materials (e.g. timber) and separate storage on site in bins, depending on market availability of recycling agents (see further discussion in Section 3.3).
- Materials that cannot be reused or recycled are to be disposed of to landfill.

Volumes will also be dependent upon the method of demolition, and greater recovery rates will be achieved with dismantling of building structures by hand rather than with heavy machinery however this can also:

- Be time consuming;
- Have greater workplace health and safety risk; and
- Have significantly higher labour costs for little recompense for the level of segregation of materials (as it is more labour intensive).

Therefore, it is recommended that those items of high costs to dispose, high rebate value (e.g. copper pipe), or have special handling requirements (e.g. lead pipe, asbestos and plasterboard) should be deconstructed by hand in the appropriate stages where possible, and segregated and disposed of accordingly. The remainder of materials may then be deconstructed either in phases to maximise segregation, or if a recycling disposal point accepts mixed materials and sorts at their processing plant, only then should materials be placed into mixed material bins.

3.3. Anticipated Volumes

The following table demonstrates the estimated volumes of demolition materials for the existing dwellings.

Table 3.1: Anticipated Demolition Waste Volumes

Material	Full Brick House (t)	Tonnes/m ²	Estimated Material for Demolition (m ²)
Timber	6.9	0.5	17.3
Plasterboard	1	2.4	12
Concrete	180	1.0	900
Bricks	180	0.75	675
Tiles	8	2.4	96
Fittings	1.5	3*	22.5
Green Waste material	10**	0.15	7.5
Total	387.4	10.05	1730.3

*In the absence of readily available data, TTM have assumed this number to be slightly higher than the plasterboard and tiles materials.

**In the absence of readily available data, TTM have assumed this number

Without knowing quantities of materials that will be bought on to site, it is to accurately estimate volumes of materials that will require recycling or landfilling. Therefore, without this information, TTM have provided industry knowledge on wastage percentages of materials ordered, of regularly used construction materials in the table below.

Table 3.2: Anticipated Construction Waste Volumes (% of total material)

Material	Waste as a percentage of the total amount of material ordered
Timber	5-7%
Plasterboard	5-20%
Concrete	3-5%
Bricks	5-10%
Tiles	2-5%

Source: http://www.wastenet.net.au/Profiles/wastenet/Assets/ClientData/Document-Centre/WAL2708_Construction_waste_A4_v2_singles.pdf

To convert volumes to tonnages for these materials, use the following table.

Table 3.3: Construction Waste Volumes (Tonnes/m²)

Material	Tonnes/m ²
Timber	0.5
Plasterboard	2.4
Concrete	1.0
Bricks	0.75
Tiles	2.4

Source: http://www.wastenet.net.au/Profiles/wastenet/Assets/ClientData/Document-Centre/WAL2708_Construction_waste_A4_v2_singles.pdf

As anticipated volumes are currently unknown, it is essential that the construction contractor complete the table in Appendix B as soon as known quantities of materials are calculated. An estimation of volumes has been provided below, but is indicative only.

Table 3.4: Anticipated Construction Waste Volumes

Material	Estimated Qty – to be updated by construction contractor
Timber	2t
Plasterboard	10m ³
Concrete	10m ³
Bricks	10m ³
Tiles	5m ³

4. Demolition

The general methodology to be followed for completing the demolition stage is as follows:

- Sourcing of recycling agents/contractors and transportation – gain an understanding of their site access requirements and bin choices;
- Installation of any barrier fencing to protect pedestrian safety, access pathways, and items to be protected/retained;
- Identification of best bin storage areas for the number of material streams and collection vehicle access, ensuring unimpeded access for users and waste collection contractors;
- Installation of recycling bins;
- Preparation of access points and installation of safety and educational signage at waste storage areas;
- Site induction for all staff to include discussion on commitment to reuse and recycling, how to use bins appropriately, and who to contact if there are any issues;
- If houses are built prior to 1987, a licensed asbestos contractor should be engaged to identify and remove asbestos. Any other hazardous materials should also be removed at this stage;
- Services disconnected;
- Demolition of existing dwellings – materials to be segregated into appropriately labelled bins in waste storage area. The method of deconstruction to achieve maximum resource recovery is also listed.

Demolition / Dismantle and Removal Item	Method
Bricks and concrete	Machine
Fixtures & fittings	Hand
Plasterboard	Hand
Roof timbers, floor & wall framing	Hand / Machine
Roof sheeting / tiling	Hand
Trees and vegetation	Machine
Windows and glass panels to be removed separately	Hand

- Regular checks on bin capacity and scheduling of removal contractors
- Waste Data File maintained and updated with each collection.

5. Construction

5.1. Construction Objectives

The key objectives for reducing total waste to landfill during the construction phase should be to:

- Minimise the amount of waste generated for the project – this should be the primary focus “waste avoidance”;
- Maximise the amount of materials reused/salvaged, sent for reuse or recycling; and
- Minimise the amount of waste sent to landfill.

These goals can be achieved with the right planning, commitment, infrastructure and site preparation. The site foreman, and contractor representatives should be engaged early and clear guidelines on the expectations to minimise waste to landfill communicated.

5.1.1. Waste Avoidance

- Plan to use building materials with low wastage rates such as prefabricated or modular materials;
- Design using standard material sizes, reducing off-cuts and time and labour saving;
- Store materials appropriate from weather, accidents, machinery and theft;
- Regularly undertake stocktake checks to ascertain available resources;
- Check all goods upon delivery for defects and return to supplier – do not accept oversupply as compensation;
- Purchase materials or request materials to have no packaging where appropriate; and
- Support the purchase of recycled content materials.

5.1.2. Reuse

- Reuse materials identified in the pre-planning consultation with the Site Foreman and demolition contractor;
- Identify and source other salvaged materials from salvage yards or look for bespoke items on for sale websites/pages; and
- Stockpile materials that can be reused in future stages or projects.

5.1.3. Recycle

- Provide bins for each material stream based on acceptance criteria from recycling contractors/s;

- Some contractors will provide mixed bins and they will undertake the sorting process within their facility – this may be particularly useful where available space or access is limited; and
- Remember to provide a comingled (mixed) recycling bin for staff to dispose of recyclables from lunches and packaging.

5.1.4. Contaminated Items

- Must go to appropriately licensed facility, with appropriately licensed transporter.

5.1.5. Landfill

- This should be a last resort option for those items that cannot be readily reused, recycled or reprocessed.

6. Recycled Materials

All demolition materials (listed above) suitable for recycling must be transported to an appropriately registered and accredited business to the satisfaction of the Principal Certifying Authority.

7. Waste Bin Guidelines

All waste containers / skip bins are to be positioned within the property boundary. Bins outside of the property boundary such as the roadway or nature strip may require a permit application to Council. Storage of skip bins / containers should be placed in a suitable location as to not cause disturbance to normal stormwater flow.

All bins should be appropriately labelled, clearly visible to and from the property, easily accessible and stored in a well-lit area. Under no circumstances should hazardous, flammable or explosive materials be disposed of within skip bins.

8. Recycling Contractors

8.1. Recycling, Reuse and Recovery Guiding Principles

Reducing waste generation and keeping materials circulating within the economy are priorities for NSW. Through Waste Less, Recycle More funding, programs and services, the EPA is working hard to make it easier for businesses and communities to become better recyclers and reduce waste sent to landfill.

Resource recovery orders and resource recovery exemptions allow some wastes to be beneficially and safely re-used independent of the usual NSW laws that control waste. On-site separation can reduce recycling costs and simplifies the sorting process.

8.2. Contractors and Services

The following is an indicative only list of Sydney based contractors that provide various services for handling the recycling, reuse and disposal of demolition and construction waste from the proposed project. This list has been assembled not in recommendation of any particular contractor but to demonstrate the general availability of recycling services around Sydney. The following larger waste transporters and operators are recommended:

Table 8.1: Recycling, Reuse and Recovery Services Contractors

Waste Material	Company	Description	Contact / Location Details
Concrete, blockwork, Bricks, Porcelain, Bitumen / Asphalt -	Benedict Industries	Primarily a rubble recycling company but manage a wider waste streams per below. Benedict will separate loads by hand or machine, screen some loads and crush masonry products. Non-recyclable elements will go to landfill. - Clean concrete, blockwork, brick, mortar (masonry), porcelain - Rubble+ soil – concrete/masonry and dirt mix - Mixed load – concrete rubble and mixed in non-recyclables (incl mixed demolition waste, vegetation, timber, plastics) Steel loads – not mixed with other materials that requires sorting. - Electrical cable – not mixed with other materials that requires sorting. - Cardboard – not mixed with other materials that requires sorting. - Clean timber – pine or hardwood. Can contain nails or nail plates (no engineered timber such as laminated products, or MDR; no treated timber; no stumps). Timber is mulched at the Benedict Menangle plant. - Green waste – bushes, branches, ground covers, some soil (vegetation but no manmade material or tree stumps) is mulched at the Benedict Menangle plant.	A: Chipping Norton, Belrose and Banksmeadow W: www.benedict.com.au Matthew Rooke E: matthew.rooke@benedict.com.au Ph. 02 9986 3500. M: 0431 737 444

		• Clean and laminated MDF, laminated timbers, stumps and plastics will generally go to landfill at • Do not accept paints, liquids or food waste. Food waste on site should go into separate bins with lids. Delivery of any of these or other non-recyclable materials will ensure a load is considered a mixed load of potentially rejected. Benedict Industries do not provide a bin collection service. Materials need to be delivered to Benedict Industries. Benedict are regularly serviced by good (smaller) bin suppliers and transporters such as: • Onesteel • Remondis • Reliance Skip Bins • Workhorse Waste and Recycling • Jims Skip bins • Vina Skip Bins • Brown Bros	
	Bingo Industries	Primarily a rubble recycling service similar to Benedict however they also provide their own bins.	A: 305 Parramatta Rd, Auburn W: www.bingoindustries.com.au Ph: 02 9737 0351
	Boral Recycling	Provides concrete, asphalt, roof tiles, bricks and masonry blocks removal and disposal.	A: Wetherill Park W: https://www.boral.com.au/locations/boral-recycling-wetherill-park Ph. (02) 9604 9101
	Concrete Recyclers	Provides concrete, brick, asphalt waste removal.	A: 14 Thackeray St, Camellia W: www.concreterecyclers.com.au Ph: (02) 8832 7400
	Dial a Dump	Provides waste removal, waste management and waste transfer service.	A: 84-88 Burrows Rd, Alexandria W: http://www.dadi.com.au/recycling-landfill/genesis-eastern-creek
	Hi Quality	Resource recovery and recycling facility licensed to accept: • VENM; • Blast furnace slag; • Building and demolition wastes; and • Soils (CT1 thresholds); and • Organic wastes (mill wastes, green waste and wood waste).	A: Elizabeth Dr & Mamre Road, Kemps Creek W: http://www.hiquality.com.au/resource-recovery/company-overview Ph: 02 9826 1666
	M&K Demolition Group	Demolition, asbestos removal, strip outs and any other earthmoving service.	W: http://www.mkdemogroup.com.au/ Ph: Karl: 0404 429 995 Michael: 0404 222 995
Plasterboard / Gypsum	Bin only company	Rubbish removal (waste and recycling) from residential and commercial buildings, construction sites and deceased and hoarding affected estates.	W: www.1300rubbish.com.au Ph: 1300 78 22 47

	Gyprock	Only new, clean Gyprock product plasterboard waste is accepted. They do not provide bins.	A: Wetherill Park W: www.gyprock.com.au/Pages/About-us/Recycling.aspx , Ph. 131744
	ReGyp	Regyp provide and collect their own bins for new and old plasterboard per below: • Plasterboard and cornice off-cuts • Plasterboard with paint or wallpaper • Non-laminated plasterboard tiles • Gypsum blocks, gypsum prefab wall panels eg RFC rapid wall • Chemical precipitate gypsum (eg FGD) • Suitable industrial gypsum waste	A: Kurnell W: http://www.regyp.com.au/ Ph: 1300 473 497
	Remondis	Sustainability for recycling, across the following areas: • Chemical & FGD gypsum • Scrap metal, • Organic waste, • Paper • Glass • Plastics	A: 32-36 Christie Street, St. Marys W: remondis.com.au Ph: +61 2 96234733 E: info@remondis.com.au
	Sydney Rubbish Services	Collection and removal of plasterboard and gyprock for delivery to recycling centre.	W: http://sydneyrubbishservices.com.au/plasterboard-gyprock-waste-removal/ Ph: 02 9785 5526
Paints	paintback	Taking unwanted paint and packaging for innovative reuse and responsible disposal. Further information regarding acceptable paints can be found on the website.	W: www.paintback.com.au P: 1300 390 380
Green waste	Australian Native Landscapes	Green waste off-site composting.	A: Seven Hills, Terrey Hills, North Ryde W: www.anlscape.com.au Ph. 131458
	Benedict Industries	As above.	As above.
	Hi Quality	A above.	As above.
	Liverpool City Council	The center accepts materials such as: • Cardboard • Polystyrene • Paints • Fluorescent globes and tubes • Greenwaste	A: 99 Rose Street, Liverpool W: https://www.liverpool.nsw.gov.au/ Ph: 1300 362 170
Metal - Metal recycling generally falls into ferrous and non-ferrous metal categories numerous recyclers exist to handle both types in mixed	Benedict Industries	As above.	As above.
	Liverpool Scrap Metal – Moorebank	Removal and disposal of scrap metal.	W: http://www.liverpoolscrapmetal.com.au Ph. (02) 9602 4330
	North Shore Metal Recyclers	Wire, copper pipe, plumbing fixtures, steel	A: Artarmon W: www.nsmr.com.au

and separated loads			Ph. 02 9436 3000
	Onesteel Recycling	Mixed metals recycling, full site clean-up and bin services	A: Chipping North, Wetherill Park W: www.onesteel.com
	Remondis	As above.	As above.
	Veolia	All waste metal in large volumes.	W: https://www.veolia.com/anz/our-services/our-services/recycling-waste-services/construction-demolition-waste Ph. 132 955
Timber	Benedict Industries	As above.	As above.
Carboard + Polystyrene	Brandown	Privately owned and operated Resource Recovery Centre, General Solid Waste (Non-Putrescible) Landfill and Quarry	A: Lot 90 Elizabeth Drive, Kemps Creek W: http://www.brandown.com.au/ Ph. - General Enquiries - 02 9826 1256
	Cleanaway	Sustainability for recycling, reuse, repurposing, treating or shredding across the following areas: • General Waste • Recycling • Industrial Services • Hazardous Chemical Waste Disposal Services • Used Oil and Oily Water • Construction and Demolition Waste • Document Destruction • Medical Waste • Bathroom Hygiene Services • Grease Trap Cleaning • Wastewater Management	A: Multiple Locations throughout Australia W: https://www.cleanaway.com.au/our-services/building-construction-scrap-metal-and-timber-waste/ Ph. - General Customer Enquiries - 13 13 39
	Liverpool City Council	As above.	As above.
	Remondis	As above.	As above.
Soft plastics from packaging	Cleanaway	As above.	As above.
	Remondis	As above.	As above.
	Suez	Sustainability across the following areas: • Commercial Waste Management – Waste Removal & Disposal – General Waste Management – Commercial Waste Recycling – Advanced Resource Recovery Technology – Diversion Solutions • Households & Small Business – Collection & Disposal – General Waste Management – Skip Bins	W: http://www.sita.com.au/commercial-solutions/resource-recovery-recycling/construction-demolition/

Appendix A Demolition and Construction Site Plans

GENERAL NOTES:
All works to be in accordance with Authority Approvals and statutory regulations.

All Boundary information to be confirmed by Registered Surveyor before commencing works on site.

Refer to Site Survey for all information relating to existing site data.

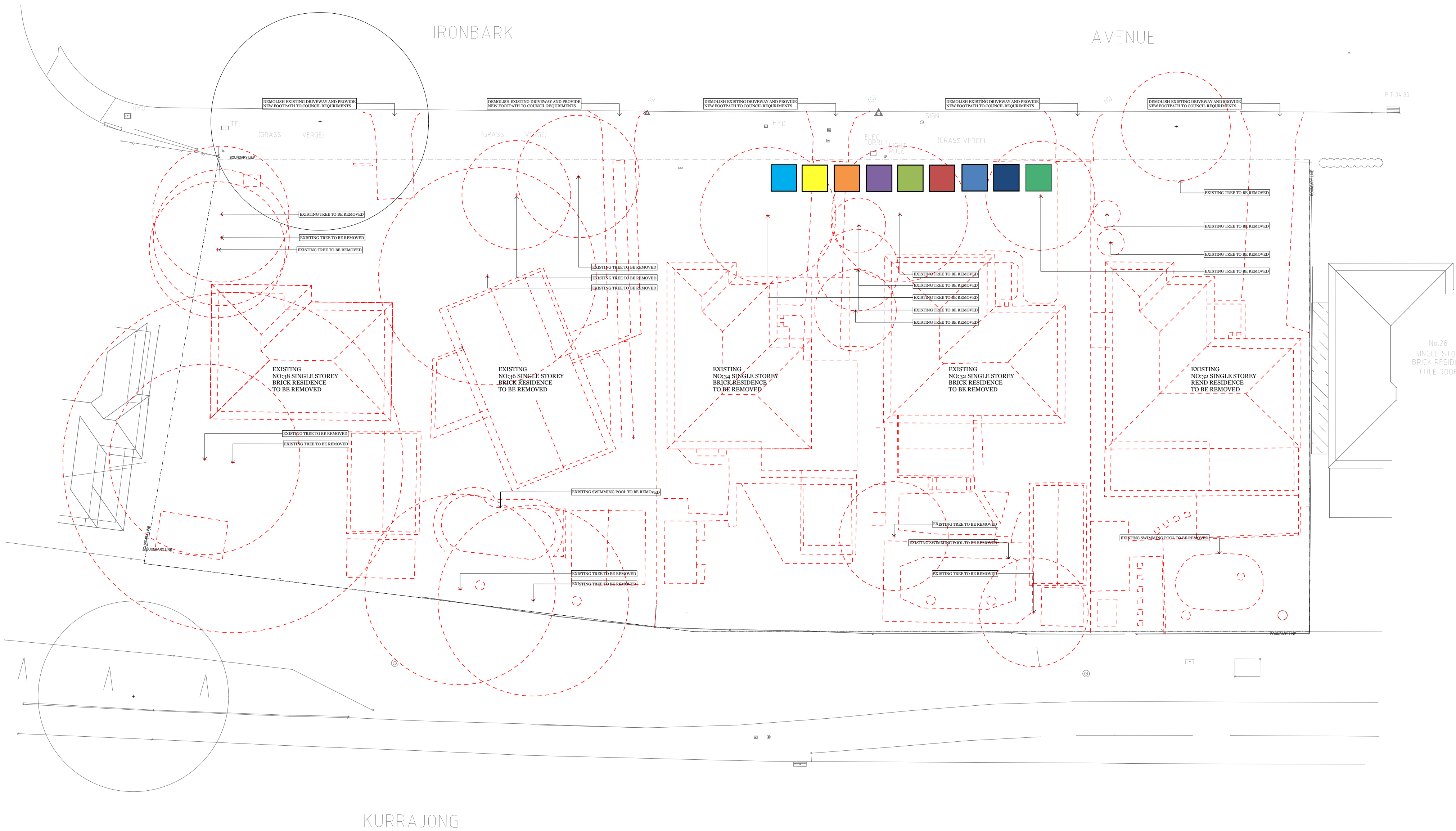
All drawings to be read in conjunction with documentation by DKO Architecture:
- Exterior Finishes Schedule
- Interior Finishes Schedule
- Fixtures, Fittings & Equipment (FFE) Schedule
- Door Schedule

All drawings to be read in conjunction with documentation by specialist consultants for:

- Electrical
- Fire
- Hydraulic
- Landscape
- Mechanical
- Structure

Refer to and comply with specialist reports by:

- Accessibility Consultant
- Acoustic Consultant
- BASIX and NatHERS Certificates
- BCA Assessment
- Flood Engineer
- Geotechnical Consultant



Demolition Plan

Rev.	Date	By	Ckd	Description
A	20/07/18	OS	IL	Issued for DA

DKO Architecture (NSW) Pty Ltd
119 Redfern Street
Redfern, NSW 2016
T +61 2 8346 4500
info@dko.com.au
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ABN: 81956706590

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NSW: Nominated Architects
Knox de Keljeet 3767 | David Randerson 8542

DKO

Project Name
Project Address
Ironbark Avenue Casula
30-38 Ironbark
Avenue,
Casula, NSW 2170

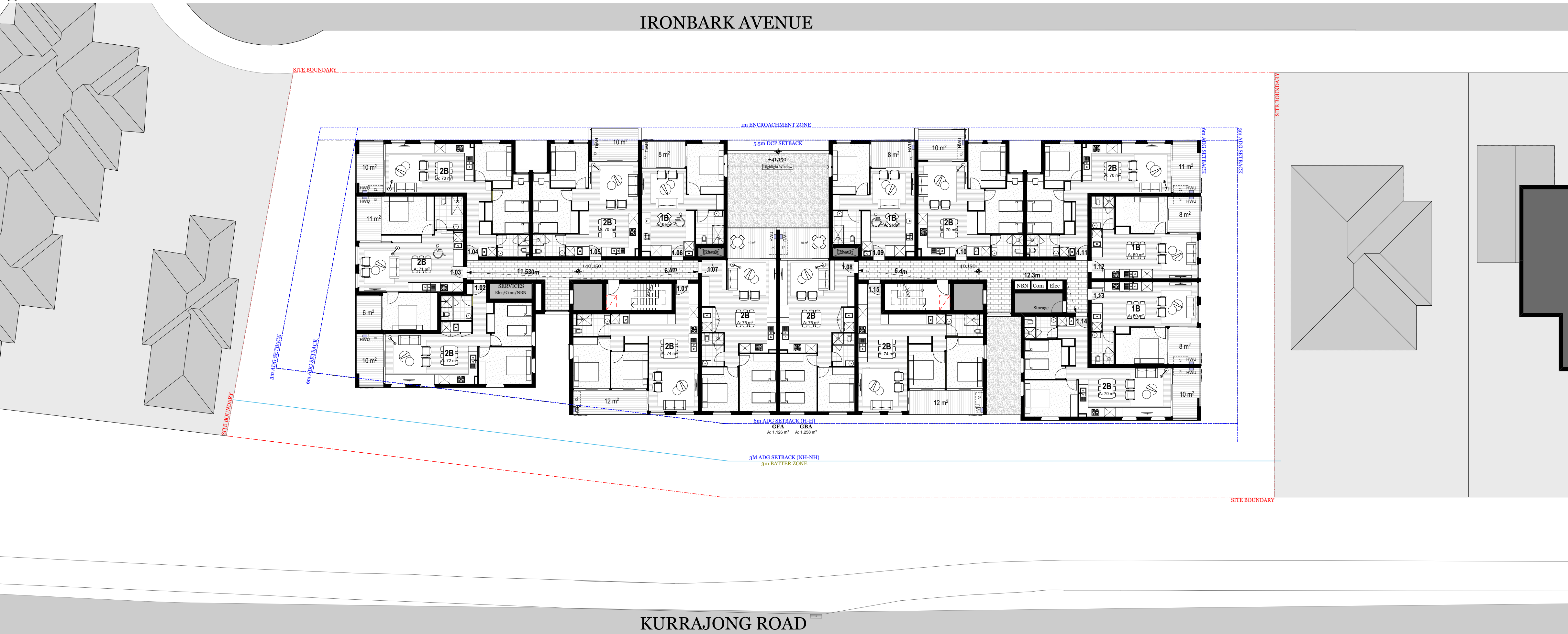
Project Number
Drawing Name
Scale
Date
11863
Demolition Plan
1:200@A1
July 2018

Client
SGCH
St George Community Housing
T +61 2 9585 1499
E: office@sgch.com.au

Drawing Number
Revision
DA102
A



Ground Level



Level 01-03

GENERAL NOTES:
All works to be in accordance with Authority Approvals and statutory regulations.

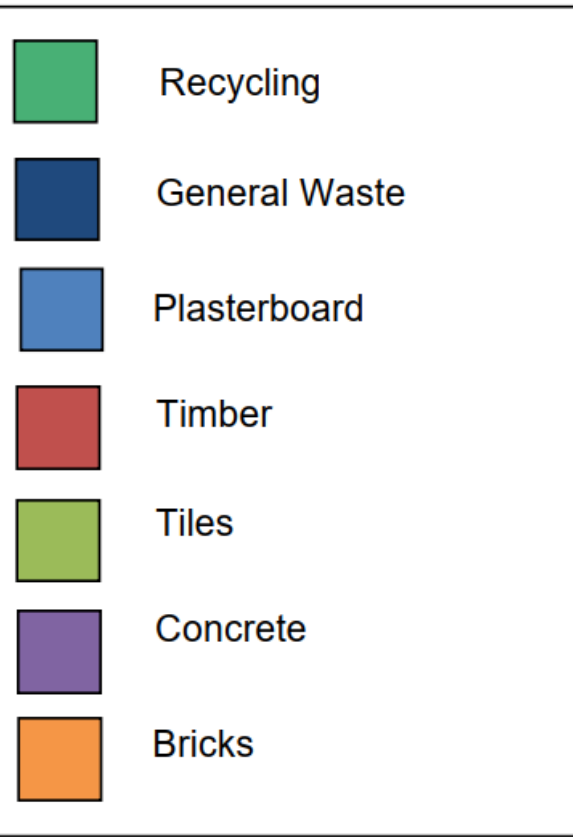
All Boundary information to be confirmed by Registered Surveyor before commencing works on site.

Refer to Site Survey for all information relating to existing site data.

All drawings to be read in conjunction with documentation by DKO Architecture:
- Exterior Finishes Schedule
- Interior Finishes Schedule
- Fixtures, Fittings & Equipment (FFE) Schedule
- Door Schedule

All drawings to be read in conjunction with documentation by specialist consultants for:
- Electrical
- Fire
- Hydraulic
- Landscape
- Mechanical
- Structure

Refer to and comply with specialist reports by:
- Accessibility Consultant
- Acoustic Consultant
- BASIX and NatHERS Certificates
- BCA Assessment
- Flood Engineer
- Geotechnical Consultant



Rev.	Date	By	Ckd	Description
A	20/07/18	OS	IL	Issued for DA

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DKO

Project Name
Project Address

Ironbark Avenue Casula
30-38 Ironbark Avenue,
Casula, NSW 2170

Project Number
Drawing Name
Scale
Date

11863
Ground & Typical Levels
1:200@A1
July 2018

Client

SCGH
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T +61 2 9585 1499
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Drawing Number
Revision

DA200
A

Appendix B Demolition and Construction Checklist

[illegible]

Appendix C Action and Responsibilities During Demolition and Construction Stages

Stage	Action	Responsibility	Checklist
Pre-demolition	Appointment of site manager/foreman with clear responsibilities on reduction of waste to landfill.	Project manager	
	Review construction and demolition targets set by State government.	Project manager and site manager	
	Review legislated documentation requirements.	Project manager and site manager	
	Appoint demolition contractor who is committed to manual demolition/deconstruction and salvage of materials	Project manager and site manager	
	Selection of appropriate recycling contractors and analysis of site access requirements and constraints.	Project manager, site manager and possibly demolition contractor	
Demolition	Sourcing of recycling agents/contractors and transportation – gain an understanding of their site access requirements and bin choices.	Site manager, demolition contractor	
	Installation of any barrier fencing to protect pedestrian safety, access pathways, and items to be protected/retained.	Site manager and demolition contractor	
	Identification of best bin storage areas for the number of material streams and collection vehicle access, ensuring unimpeded access for users and waste collection contractors.	Project manager, site manager and possibly demolition contractor	
	Installation of recycling bins.	Project / Site manager	
	Preparation of access points and installation of safety and educational signage at waste storage areas.	Site manager, demolition contractor	
	Site induction for all staff to include discussion on commitment to reuse and recycling, how to use bins appropriately, and who to contact if there are any issues.	Site manager	
	If houses are built prior to 1987, a licensed asbestos contractor should be engaged to identify and remove asbestos. Any other hazardous materials should also be removed at this stage.	Project manager, site manager and demolition contractor	
	Services disconnected.	Site manager	
	Demolition of existing dwellings – materials to be segregated into appropriately labelled bins in waste storage area. The method of deconstruction to achieve maximum resource recovery is also listed.	Project manager, site manager and possibly demolition contractor	
Construction	Sourcing of recycling agents/contractors and transportation – gain an understanding of their site access requirements and bin choices.	Project / Site manager	
	Installation of any barrier fencing to protect pedestrian safety, access pathways, and stockpiles to be protected/retained.	Project manager, site manager and construction contractor	
	Identification of best bin storage areas for the number of material streams and collection vehicle access, ensuring unimpeded access for users and waste collection contractors.	Project / Site manager	
	Installation of recycling bins.	Project / Site manager	
	Preparation of access points and installation of safety and educational signage at waste storage areas.	Project / Site manager	
	Site induction for all staff to include discussion on commitment to waste minimisation, reuse and recycling, available stockpiles of salvaged materials, how to use bins appropriately, and who to contact for any issues.	Site manager	
	Regular checks on bin capacity and scheduling of removal contractors.	Site manager	
	Waste Data File maintained and updated with each collection.	Site manager and construction contractor	