

WASTE MANAGEMENT PLAN

DEMOLITION, CONSTRUCTION AND USE OF PREMISES

If space is insufficient in the table please provide attachments.

Outline of Proposal

Site Address: 53, 53A and 53B Warriewood Road, Warriewood.

Applicant's name and address:

Merrin Developments Pty Ltd
155 Regent Street
Riverstone 2765

Phone: 9627 3888 **Fax:** 9627 4203 **Mob :** 0412 038547 **Email :** len@intercapital.ws

Buildings and other structures currently on the site :

None at time for construction. Refer to related Council DA N/0350-14 and N/0477-14.

Brief Description of Proposal:

Construction of 10-unit residential apartment building on new Lot 213 in Stage 2 of DA N/0350-14.

The details provided on this form are the intentions for managing waste relating to this project

Signature of Applicant :



Date : 21-3-16

Estimating Waste Quantities

In order to develop an effective waste management plan it is necessary to determine how much waste will be involved. Excavation material and green waste need only be estimated once in either the demolition or the construction section.

If both demolition and construction is occurring then estimates for building waste such as bricks, roof tiles, timber etc must be given separate estimates in each section.

The tables below can be used as guides to assist in making estimations based on the size and type of building.

A close study of waste expectations may assist in reducing the amount of waste created through careful purchasing of materials.

DEMOLITION (tonnes)

Building Type	Sandstone	Concrete	Bricks	Timber/ Gyprock	Steel	Roof Tiles	Other
2 B/room Town House (100m ²)	67	4	3	18	0.7	N/A	3
3 B/room brick house (120m ²)	90	4	123	13	0.7	9	0
Blocks of flats 1000m ²	N/A	813	655	22	9	33	26
Factory 1000m ² per	N/A	448	205	4	23	N/A	18
Office Block per 1000m ²	N/A	7410	1485	124	29	N/A	155

CONSTRUCTION (tonnes)

Building Type	Timber	Concrete	Bricks	Gyprock	Sand/ Soil	Metal	Other
2 B/room	0.25	0.35	0.55	0.20	1.30	0.05	0.30
3 B/room brick house 120m ³	0.35	0.40	0.75	0.20	2.50	0.10	0.44
Block of Flats Per 1000m ²	0.70	6.70	3.20	1.30	28.70	1.30	0.60
Factory 1000m ² per	0.25	2.10	1.65	0.45	4.80	0.60	0.50
Office Block per 1000m ²	5.10	18.8	8.50	8.60	8.80	2.75	5.0

(Source: McGregor Environmental Services (2000) Predicting C&D waste quantities in the Inner Sydney Waste Board)

The above tables should be used as a guide only. The waste generated depends on the type of building being demolished or constructed, the materials present and the company employed to conduct works.

STAGE ONE – DEMOLITION

This is the stage with the greatest potential for waste minimisation, particularly in Sydney where there are high levels of development, relatively high tipping charges and where alternative quarry materials are located on the outskirts.

Applicants should consider whether it is possible to re-use existing buildings, or parts thereof, for the proposed use.

With careful onsite sorting and storage and by staging work programs it is possible to re-use many materials, either on-site or off-site.

Council is seeking to move from the attitude of straight demolition to a process of selected deconstruction i.e. from “trashing the building” to “total reuse and recycling both off-site and on-site”. This could require a number of colour-coded or clearly labelled bins onsite (rather than one size fits all).

Applicants should demonstrate project management which seeks to:

- re-use of excavated material on-site and disposal of any excess to an approved site;
- green waste mulched and re-used in landscaping either on-site or off-site;
- bricks, tiles and concrete re-used on-site as appropriate, or recycled off-site;
- plasterboard re-used in landscaping on-site, or returned to supplier for recycling;
- framing timber re-used on-site or recycled elsewhere;
- windows, doors and joinery recycled off site;
- plumbing, fittings and metal elements recycled off site;
- All Asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with the Workcover Authority and EPA requirements
- location of on-site storage facilities for material to be reused on-site, or separated for recycling off-site; and
- destination and transportation routes of all materials to be either recycled or disposed of off-site.

The following table should be completed by applicants proposing any demolition work. The following details should be shown on your plans

location of on-site storage space for materials (for re-use) and containers for recycling and disposal.
vehicle access to the site and to storage and container areas

Demolition Stage One – To be completed for proposals involving demolition

Materials On-Site		DESTINATION		
		REUSE & RECYCLING		DISPOSAL
Type of Material	Estimated Volume (m ³) or Area (m ²) or weight (t)	ON-SITE specify how materials will be reused or recycled on-site	OFF-SITE specify the <u>contractor</u> and <u>recycling outlet</u>	specify the <u>contractor</u> and <u>landfill site</u>
*EXAMPLE				
*e.g. bricks	*e.g. 2m3	*e.g. clean & reuse for footings and broken bricks behind retaining walls	*e.g. sent by <u>XYZ Demolishers to ABC Recycling Company</u>	*e.g. nil to landfill
Excavation Material	1,000m3	Used as fill on-site	Nil	Nil
Green Waste	20m3	Stored on-site and re-used as landscaping material	Nil	Nil
Bricks/Pavers	Nil	Nil	Nil	Nil
Tiles	Nil			
Concrete	Nil	Nil	Nil	Nil
Timber - please specify	Nil			
Plasterboard	Nil			
Metals	Nil	Nil	Nil	Nil
Asbestos	Nil			
Other Waste	Nil			

Materials On-Site		DESTINATION		
		REUSE & RECYCLING		DISPOSAL
Type of Material	Estimated Volume (m ³) or Area (m ²) or weight (t)	ON-SITE specify how materials will be reused or recycled on-site	OFF-SITE specify the <u>contractor</u> and <u>recycling outlet</u>	specify the <u>contractor</u> and <u>landfill site</u>
plastics, PVC tubing, cardboard.	Nil			

Please explain how waste will be separated and/or stored onsite for reuse and recycling? How will site operations be managed to ensure minimal waste creation and maximum reuse and recycling?

{ e.g. Staff training, selected deconstruction v. straight demolition, waste management requirements stipulated in contracts with sub-contractors, on-going checks by site supervisors, separate area set aside for sorted wastes, clear signage of waste areas etc }.

Stipulated in contracts with specialist sub-contractors

Note: Details of the site area to be used for on-site separation, treatment and storage (including weather protection) should be provided on plan drawings accompanying your application.

STAGE TWO - CONSTRUCTION

Stage Two – Potential for Waste Minimisation During Construction Stage

Consider the following measures that may also save resources and minimise waste at the construction stage.

Purchasing Policy – considering measures such as ordering the right quantities of materials and prefabrication of materials where possible;

Reusing formwork;

Minimising site disturbance, limiting unnecessary excavation;

Careful source separation of off-cuts to facilitate re-use, resale or efficient recycling; Co-ordination/sequencing of various trades.

How to Estimate Quantities of Waste

There are many simple techniques to estimate volumes of construction and demolition waste. The information below can be used as a guide by builders, developers & homeowners when completing a waste management plan:

To Estimate Your Waste:

- ii. Quantify materials for the project
- iii. Use margin normally allowed in ordering
- iv. Copy these amount of waste into you waste management plan

When estimating waste the following percentages are building “rule of thumb” and relate to renovations and small home building:

Material	Waste as a Percent of the Total Material Ordered
Timber	5-7%
Plasterboard	5-20%
Concrete	3-5%
Bricks	5-10%
Tiles	2-5%

Converting Volume into Tonnes : A Guide for Conversion

Timber = 1.1 tonne per m³
Concrete = 1.1 tonne per m³
Bricks = 1.3 tonne per m³
Tiles = 1.3 tonne per m³
Steel = 2-4 tonne per m³
Plaster board = 0.8 tonne per m³
Fill = 1.3 tonne per m³
Mixed C&D Waste = 1 tonne per m³
Green Waste = 1 tonne per m³

To provide more reliable figures:

Compare your projected waste quantities with actual waste produced;

Conduct waste audits of current projects;

Note waste generated and disposal methods;

Look at past waste disposal receipts;

Record this information to help estimate future waste management plans.

On a waste management plan amounts of waste may be stated in - m² or m³ or tonnes (t).

Construction Stage Two – For Proposals Involving Construction

Materials On-Site		DESTINATION		
		REUSE & RECYCLING		DISPOSAL
Type of Material	Estimated Volume (m ³) or Area (m ²) or weight (t)	ON-SITE specify how materials will be reused or recycled on-site	OFF-SITE specify the <u>contractor</u> and <u>recycling outlet</u>	specify the <u>contractor</u> and <u>landfill site</u>
*EXAMPLE				
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Excavation Material	Nil			
Green Waste	Nil			
Bricks	5,000		Waste re-cycler	TBA
Tiles	1 t		Waste re-cycler	TBA
Concrete	5m3		Waste re-cycler	TBA
Timber - please specify	2t		Waste re-cycler	TBA
Plasterboard	2t		Waste disposal	TBA
Metals	Nil			
Other Waste e.g. ceramic tiles, paints,	3t		Waste Disposal	TBA

Materials On-Site		DESTINATION		
		REUSE & RECYCLING		DISPOSAL
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plastics, PVC tubing, cardboard.	1 t		Waste Disposal	TBA

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{ e.g. Staff training, recycled materials used in construction, waste management requirements stipulated in contracts with sub-contractors, on-going checks by site supervisors, separate area set aside for sorted wastes, clear signage of waste areas etc }.

Note: Details of site area to be used for on-site separation, treatment and storage (including weather protection) must be provided on plan drawings accompanying your application.

STAGE THREE – DESIGN OF FACILITIES

The following details should be shown on your plans:

- Location of temporary storage space within each dwelling unit;
- Location of Waste Storage and recycling Area(s), per dwelling unit or located communally onsite. In the latter case this could be a Garbage and Recycling room;
- Details of design for Waste Storage and Recycling Area(s) or Garbage and Recycling Room(s) and any conveyance or volume reduction equipment; and
- Location of communal composting area. Access for vehicles.

Every building shall be provided with a Waste Storage and recycling Area which is flexible in size and layout to cater for future changes in use. The size is to be calculated on the basis of waste generation rates and proposed bin sizes.

Stage 3 - Design of Facilities – To be completed if designing waste facilities for the proposed development

TYPE OF WASTE TO BE GENERATED	EXPECTED VOLUME PER WEEK	PROPOSED ON-SITE STORAGE AND TREATMENT FACILITIES	DESTINATION
Please specify. For example: glass, paper food waste, offcuts etc.	Litre or m3	For example: waste storage & recycling area garbage chute on-site composting compaction equipment	recycling disposal specify contractor
NOT APPLICABLE			

Note: Details of on-site waste management facilities should be provided on the plan drawings accompanying your application.

ON-GOING MANAGEMENT

This section will enable you to describe how you intend to ensure on-going management of waste on-site (eg. lease conditions, care-taker/manager on site).

Describe how you intend to ensure on-going management of waste on-site (eg. lease conditions, caretaker/manager on-site).

NOT APPLICABLE
