



# WMAA

## CONSTRUCTION & DEMOLITION SECTOR



## RESOURCE RECOVERY INDUSTRY SURVEY

FOR THE FINANCIAL YEAR ENDING  
30 JUNE 2007



## TABLE OF CONTENTS

<b>INTRODUCTION</b> .....	<b>1</b>
PURPOSE.....	1
SCOPE.....	1
RESPONSE.....	2
<b>METHODOLOGY</b> .....	<b>3</b>
DATA COLLECTED.....	4
<b>MATERIALS RECEIVED</b> .....	<b>9</b>
TOTAL MATERIALS RECEIVED FOR REPROCESSING OR REUSE .....	9
QUANTITY OF MATERIALS REPROCESSED AND/OR REUSED .....	13
QUANTITY OF MATERIALS REUSED.....	14
REPROCESSING METHODS .....	15
<b>STOCKPILES</b> .....	<b>17</b>
QUANTITY OF MATERIAL STOCKPILED.....	17
REPROCESSING STOCKPILE.....	19
REUSE STOCKPILE .....	19
SALE STOCKPILE .....	20
<b>END-PRODUCTS, MARKETS AND PRODUCT DESTINATION</b> .....	<b>21</b>

## Introduction

The survey of the Construction & Demolition Sector of the Resource Recovery Industry was funded by and undertaken on behalf of the Department of Environment and Climate Change NSW (DECC). The survey was undertaken by the Waste Management Association of Australia (WMAA) between January and May 2008.

The data in this report is used with the permission of DECC. The report has been prepared by WMAA.

## Purpose

The primary purpose of the survey and associated report is to inform DECC on the progress of existing projects to develop markets and increase the recovery of resources from the Construction and Demolition (C&D) waste stream. The survey also gathers information critical to informing industry development activities, establishing supportive government policies and preparing industry based applications for grant funding.

## Scope

The survey gathers data from businesses that recover resources from the C&D waste stream in the state of New South Wales (NSW). Recovery data was collected for the 2006/07 financial year and was self-reported by industry. Neither WMAA or DECC is able to verify the accuracy of the information provided. The survey achieved a 74% response rate.

**An annual survey of the construction and demolition sector of the resource recovery industry was previously undertaken by the Department of Environment and Climate Change NSW (DECC). The results of previous surveys can be found in the following reports:**

- **Department of Environment and Climate Change NSW 2008. *NSW Resource Recovery Industries Survey 2005-06***
- **Department of Environment and Conservation NSW 2006. *NSW Reprocessing Industries Survey 2003-04.***

**These reports are located on the Department of Environment & Climate Change NSW website at:**

**<http://www.environment.nsw.gov.au/sustainbus/SustainabilityData.htm>.**

**References made to previous results throughout this report refer to survey data collected through the 2005-06 survey.**

**Note: In April 2007, the name of the Department of Environment and Conservation NSW changed to the Department of Environment and Climate Change NSW.**

The structure of the survey has changed from previous years as the categories of material types for data collection and the reporting methodology have been refined. For these reasons this report presents minimal analysis of multi-year trends and concentrates on reporting and the interpretation of 2006/07 data.

## ***Response***

A total of 81 companies were identified as potentially involved in C&D resource recovery activities. Of those 19 either:

- No longer exist as separate entities
- Are no longer involved in reprocessing or reusing C&D waste;
- Are not contactable, after exploring all possible avenues to make contact;
- Are subsidiaries of other companies.

Only 11 businesses contacted formally declined to respond to the survey. A further 5 businesses simply 'did not find the time' to complete the survey prior to analysis of the survey data.

There are approximately 62 businesses in NSW operating in the construction and demolition sector of the resource recovery industry. All operational businesses were surveyed to ascertain the material flows for the 2006/07 financial year. Of these, 46 businesses responded, representing a 74% response rate for the sector.

Resource recovery is not the primary business activity of many of these businesses and in some cases the resource recovery activities they undertake are as a response to dealing with the by-products of their core business activities. Of the 46 respondents, 40 are involved in the reprocessing of materials and 24 are involved in the reuse of materials. Seventeen of the respondents are involved in both reprocessing and reuse.

Notably two (and part of a third) large C&D resource recovery businesses did not respond to the survey. The data from these businesses significantly affects the reported quantities of resources recovered from this sector.

## Methodology

NSW businesses involved in C&D resource recovery were identified using three sources of information:

- A list of previously surveyed/contacted businesses provided by DECC;
- The WMAA membership database;
- Additional web and phone based research.

The data collected through this survey was self reported using a purpose designed, web based survey form. To achieve confidentiality respondents were given a username and password to enter data into a form that only they could access. In many cases respondents were guided through the survey over the phone, both to facilitate a response and to increase the accuracy of the survey.

The form consisted of four pages:

1. Contact details (already in place but editable by the user);
2. Materials received (allow multiple materials to be entered);
3. Stockpiles;
4. Product destination (allowing multiple products to be entered).

Respondents were able to create a print version of the data they provided and could also return to view their survey data online at any time (using their username and password).



## ***Data Collected***

The survey collected data about reprocessing and reuse activities in the Construction and Demolition Sector for the 2006/2007 financial year. The survey aimed to:


1. Estimate material flows (tonnes) during reprocessing and reuse including:
  - a. Unprocessed material received for reprocessing and/or reuse;
  - b. Material reprocessed and/or reused;
  - c. Material disposed of due to contamination or as residual waste after processing (i.e. reprocessing or reuse);
  - d. Unprocessed material sent interstate for reprocessing and/or reuse;
  - e. Unprocessed material exported (or sent overseas) for reprocessing and/or reuse.
2. Estimate stockpiles (tonnes) at the beginning and end of 2006-07 of:
  - a. Materials awaiting reprocessing;
  - b. Materials awaiting reuse;
  - c. Reprocessed and reused materials awaiting sale.
3. Identify the product market and the destination of reprocessed, reused materials and/or recycled content products and the relative proportion of these materials and products to the total markets.

The following pages contain screen shots from the online survey instrument.

## Page 1: Company Information and Login Details

	<b>WASTE MANAGEMENT ASSOCIATION OF AUSTRALIA</b>	<b>Resource Recovery</b>	Department of Environment & Climate Change NSW
		<b>Industries Survey</b>	
Logged in as: WMAA - <a href="#">Logout</a>			
<p>The Waste Management Association of Australia (WMAA) and the Department of Environment and Climate Change (DECC) are working together to collect key information on the Resource Recovery Industries in New South Wales for the 2006/07 period. The Survey gathers information critical to informing industry development activities, establishing supportive government policies and the preparation of applications for grant funding that will benefit the entire industry. The data also informs the DECC and WMAA on the progress of existing projects to develop markets and increase resource recovery.</p> <p>The raw data that you provide through this Survey will be kept confidential. Only data aggregated on a state basis, which does not reveal data from individual Processors, will be made publicly available. Only WMAA staff (not committee members) will have access to the raw data. Copies of the aggregated data will be provided to every business which completes the Survey. Neither will the DECC (including the EPA) be able to access the raw data.</p> <p>Businesses which complete this survey on-line prior to 25 February 2008 will go into the draw for a free registration to the 2008 NSW Waste Management Conference: Resource Recovery for Climate Recovery (16-18 September, Luna Park, Sydney). The registration includes a ticket to the conference dinner.</p> <p><a href="#">Click here</a> to see the full WMAA Privacy Statement.</p>			
<b>Company Information</b>		Page 1 of 4	
What is the name of your company?	<input type="text" value="WMAA"/>	What position do you hold in the company?	<input type="text" value="CEO"/>
What is your name?	<input type="text" value="Val Southam"/>	Suburb/City:	<input type="text" value="Burwood"/>
Address:	<input type="text" value="4D/5 Belmore Street"/>	Postcode:	<input type="text" value="2141"/>
State:	<input type="text" value="NSW"/>	Fax:	<input type="text"/>
Phone:	<input type="text" value="0287465000"/>	Username:	<input type="text" value="wmaa105"/>
Email:	<input type="text" value="vsoutham@wmaa.asn.au"/>	Password:	<input type="text" value="E5Z7LP"/>
Please indicate the financial year you are filling this survey out for.	<input type="text" value="2006/2007"/> ▼		
<input type="button" value="Continue"/>			

Page 2: Materials Recovered




**WASTE  
MANAGEMENT  
ASSOCIATION  
OF AUSTRALIA**

**Resource Recovery**

Department of Environment & Climate Change NSW

**Industries Survey**



Logged in as: WMAA - [Logout](#)

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**Materials Received for 2006/2007**

Please fill out the form below for each material you received. After you enter each material hit the 'Add' button. The material will appear in the table below. Materials can be added more than once if they were reprocessed or reused in several ways. To change the details of a material you have already entered hit the pen symbol under 'View/Edit'.

Page 2 of 4

**What type of material did you receive?** Brick

[Click here for Cubic Meters to Tonnes Conversion](#)

**A. How many tonnes of this material were reprocessed within NSW?**  Tonnes

**B. How many tonnes of this material were reused within NSW?**  Tonnes

**C. How many tonnes of this material were disposed to landfill?**  Tonnes

**D. How many tonnes of this material were reprocessed or reused interstate?**  Tonnes

**E. How many tonnes of this material were exported overseas?**  Tonnes

**Total input material:**

**Where did you obtain this material from?** Waste transporter

**If some of this material was reprocessed please select the reprocessing method(s) used.**

Reprocessing: changing the physical structure and properties of a waste material that otherwise would have been sent to landfill.

- Crushed
- Screened
- Blended
- Chipped
- Cleaned
- Shredded

Other:

**If some of this material was reused please select the reuse application(s).**



Reuse: using material that has been recovered from the waste stream without changing the physical structure or property of the material.

- Road-base
- Aggregate
- Drainage
- Bedding
- Decoration
- Re-sale
- Turf underlay
- Power generation


Other:

Material	Material	Material	Material	A	B	C	D	E	Total (tonnes)	view/edit
Brick	Crushed	Decoration	Waste trans	1200	500	0	0	0	1700	
Sleepers		Landscapin	State Rail	0	35	0	0	0	35	
Brick				0	0	0	0	0	0	
Concrete										
<b>TOTAL</b>				<b>1200</b>	<b>535</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1735</b>	

Page 3: Stockpiles

	<b>WASTE MANAGEMENT ASSOCIATION OF AUSTRALIA</b>	<b>Resource Recovery</b> Department of Environment & Climate Change NSW
<b>Industries Survey</b>		
Logged in as: WMAA - <a href="#">Logout</a>		
<b>Stockpiles for 2006/2007</b> <span style="float: right;">Page 3 of 4</span>		
<b>Reprocessed Stockpile</b>		
How many tonnes of material were on-site waiting to be reprocessed at the beginning of the financial year?	<input type="text" value="0"/>	Tonnes
How many tonnes of material were on-site waiting to be reprocessed at the end of the financial year?	<input type="text" value="0"/>	Tonnes
Why do you have a stockpile waiting for reprocessing? If there are several factors involved please select the primary reason.	<input type="text" value="-"/> ▼	
<b>Reused Stockpile</b>		
How many tonnes of material were on-site waiting to be reused at the beginning of the financial year?	<input type="text" value="0"/>	Tonnes
How many tonnes of material were on-site waiting to be reused at the end of the financial year?	<input type="text" value="0"/>	Tonnes
Why do you have a stockpile waiting for reuse? If there are several factors involved please select the primary reason.	<input type="text" value="-"/> ▼	
<b>Sale Stockpile</b>		
How many tonnes of material were on-site waiting to be sold at the beginning of the financial year?	<input type="text" value="0"/>	Tonnes
How many tonnes of material were on-site waiting to be sold at the end of the financial year?	<input type="text" value="0"/>	Tonnes
Why do you have a stockpile waiting for sale? If there are several factors involved please select the primary reason.	<input type="text" value="-"/> ▼	
<input type="button" value="Back"/>	<input type="button" value="Continue"/>	

Page 4: Product Destination




**WASTE MANAGEMENT ASSOCIATION OF AUSTRALIA**

**Resource Recovery**

Department of Environment & Climate Change NSW

**Industries Survey**





Logged in as: WMAA - [Logout](#)


**Product Destination for 2006/2007**

To start click the 'Add Product' button. Enter each recycled product you sold and its destination. To change the details of products you have already entered hit the pen symbol under 'View/Edit'.

Page 4 of 4

Product	View/Edit
Bedding material	
Whole timber	

[Click here to print out a copy of the survey data](#)




**WASTE MANAGEMENT ASSOCIATION OF AUSTRALIA**

**Resource Recovery**

Department of Environment & Climate Change NSW

**Industries Survey**



Logged in as: WMAA - [Logout](#)

**Product Destination for 2006/2007**

Please complete the below grid with the tonnage of product sold to the market segment and location shown. If you don't know which state please select 'Australia'. If none was sold to a certain market segment and state just leave blank.

Page 4 of 4

What type of product did you sell? Bedding material ▼

	NSW	Interstate	Overseas	Australia
Residential building	<input type="text"/> t	<input type="text"/> t	<input type="text"/> t	<input type="text"/> t
Commercial building	<input type="text"/> t	<input type="text"/> t	<input type="text"/> t	<input type="text"/> t
Landscaping	<input type="text"/> t	<input type="text"/> t	<input type="text"/> t	<input type="text"/> t
Civil/road construction	<input type="text"/> t	400 t 100%	<input type="text"/> t	<input type="text"/> t
Government	<input type="text"/> t	<input type="text"/> t	<input type="text"/> t	<input type="text"/> t
Landfill operator	<input type="text"/> t	<input type="text"/> t	<input type="text"/> t	<input type="text"/> t
Other Please specify: <input style="width: 100%;" type="text"/>	<input type="text"/> t	<input type="text"/> t	<input type="text"/> t	<input type="text"/> t

Prepared by the Waste Management Association of Australia  
August 2008

8

## Materials Received

This section presents and discusses the survey results relating to the C&D material received for reprocessing and/or reuse.

### ***Total Materials Received for Reprocessing or Reuse***

The quantity of construction and demolition resource recovery materials reported to have been received for reprocessing or reuse in NSW during the 2006/07 financial year was 4,422,515 tonnes (Table 1). Compared to the 4,484,767 tonnes reported for the 2005/06 financial year. While this represents a decrease in total materials received (by 1.4%), the variation can largely be attributed to variations in the number and size of businesses that participated in the survey.

The estimated total quantity of construction and demolition resource recovery materials received for reprocessing or reuse in NSW during the 2006/07 financial year was 5.96 million tonnes with a standard error of 1.46 million tonnes at an 80% ( $\alpha=0.2$ ) confidence interval. The large error range was due to the high variability in the tonnes processed by each company. This conclusion is based on the assumption that the 46 respondents represent a random sample of the 62 resource recovery businesses known to be operating in NSW.

Figure 1 shows that almost 3,772,000 tonnes (85%) of this material was diverted from landfill for **reprocessing** (3,296,252 tonnes ~ 74.5%), or for **reuse** (475,475 tonnes ~ 10.8%). Very little of this material (13,272 tonnes ~ 0.3%) was transported outside of NSW. The quantities of material reported as being **disposed** of to landfill (637,516 tonnes ~ 14.4%) largely consists of the residual waste after reprocessing and the contaminated mixed waste that is unprofitable.

Although the total quantities of materials reported to have been received represent a small decrease of 1.4%, this figure disguises a significant shift in the destination of the materials within NSW. Compared to the reported quantities of material received for the financial year 2005/06, the total of materials reprocessed have decreased by 153,373 tonnes (~5%) and the total of materials reused has almost halved (~46%), decreased by 403,043 tonnes. There has been a corresponding increase of materials being disposed of to landfill, increasing by 484,892 tonnes. The majority of this material being disposed to landfill consists of building/furniture construction waste 242,288 tonnes and soil & rubble 228,790 tonnes.

The material categories in the 2006/07 survey were grouped to better reflect the way in which businesses audit their own throughput.

Reported quantities for some material categories have increased or decreased significantly from the 2005/06 survey. This may be explained partially by the self-reporting methodology of the survey and partially as a consequence of the change in categories and/or the descriptive terminology for some categories. Notable developments are:

Reported quantities of concrete and brick received decreased by around 445,000 tonnes (-21%) and 443,000 tonnes (-35%) over the 2007 financial year. This may be

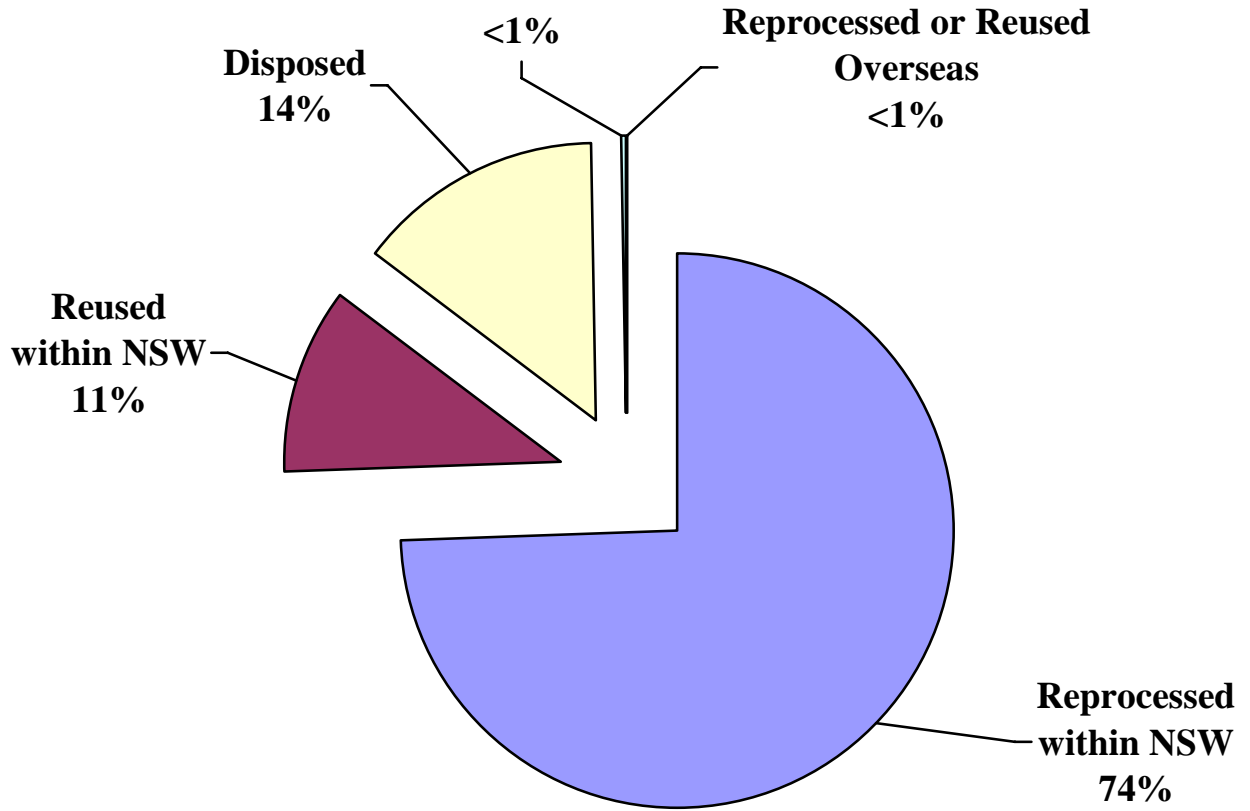
partially due to these materials being reported as building/furniture construction waste, or in the soil & rubble category.

Reported quantities of building/furniture construction waste received increased by around 628,000 tonnes (+1180%) over the 2007 financial year. This is a massive increase in reported quantities and may be due in large part to the rewording of this category to include 'construction waste'. This may have inadvertently encouraged respondents to include plasterboard, concrete, brick and second hand timber materials which have all been reported in decreased quantities, as well as capturing the mixed demolition category which no longer is available as a reportable material.

Reported quantities of soil & rubble and asphalt received increased by around 100,000 tonnes (+19%) and 88,000 tonnes (+33%) respectively over the 2007 financial year. This increase for soil & rubble may explain in part the decrease in reported quantities for concrete and brick.

Reported quantities of sand and packing cases, pallets & recycled timber received increased by around 87,000 tonnes (+619%) and 87,000 tonnes (+1880%) respectively over the 2007 financial year.

**Figure 1: Building material reprocessed and reused by location, NSW 2006/07**



**Table 1: Composition by weight of building material recovered in 2006/07**

Material by Category	Quantity Received								
	Reprocessing		Reuse		Disposed	Interstate	Exported	Total	
	tonnes	%	tonnes	%	tonnes	tonnes	tonnes	tonnes	%
<b>Concrete</b>	<b>1,583,583</b>	<b>48.04</b>	<b>12,027</b>	<b>2.53</b>	<b>60,121</b>	<b>7,000</b>	<b>3,200</b>	<b>1,665,932</b>	<b>37.67</b>
<b>Brick</b>	<b>794,441</b>	<b>24.10</b>	<b>4,302</b>	<b>0.90</b>	<b>24,110</b>	<b>20</b>	<b>2</b>	<b>822,875</b>	<b>18.61</b>
<b>Soil &amp; Rubble</b>	<b>218,137</b>	<b>6.62</b>	<b>175,860</b>	<b>36.99</b>	<b>228,790</b>	<b>-</b>	<b>-</b>	<b>622,788</b>	<b>14.08</b>
<b>Building/furniture construction waste</b>	<b>200,544</b>	<b>6.08</b>	<b>238,831</b>	<b>50.23</b>	<b>242,288</b>	<b>-</b>	<b>-</b>	<b>681,664</b>	<b>15.41</b>
<b>Sand</b>	<b>67,943</b>	<b>2.06</b>	<b>11,700</b>	<b>2.46</b>	<b>21,952</b>	<b>-</b>	<b>-</b>	<b>101,595</b>	<b>2.30</b>
<b>Packing cases, pallets, recycled timber</b>	<b>40,810</b>	<b>1.24</b>	<b>1,180</b>	<b>0.25</b>	<b>50,000</b>	<b>-</b>	<b>-</b>	<b>91,990</b>	<b>2.08</b>
<b>Organics (tree limbs, stumps, grass clippings)</b>	<b>24,053</b>	<b>0.73</b>	<b>5,400</b>	<b>1.14</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>29,453</b>	<b>0.67</b>
<b>Asphalt</b>	<b>328,892</b>	<b>9.98</b>	<b>11,187</b>	<b>2.35</b>	<b>9,900</b>	<b>3,000</b>	<b>-</b>	<b>352,979</b>	<b>7.98</b>
Road excavations asphalt	261,762	7.94	11,080	2.33	4,900	-	-	277,742	6.28
Profilings asphalt	67,130	2.04	107	0.02	5,000	3,000	-	75,237	1.70
<b>Other wood products</b>	<b>14,988</b>	<b>0.45</b>	<b>14,135</b>	<b>2.97</b>	<b>152</b>	<b>-</b>	<b>50</b>	<b>29,325</b>	<b>0.66</b>
Second hand timber	14,700	0.45	1,020	0.21	152	-	50	15,922	0.36
Sleepers	-	-	12,075	2.54	-	-	-	12,075	0.27
Panel board	288	0.01	1,040	0.22	-	-	-	1,328	0.03
<b>Other general products</b>	<b>22,861</b>	<b>0.69</b>	<b>853</b>	<b>0.18</b>	<b>203</b>	<b>-</b>	<b>-</b>	<b>23,916</b>	<b>0.54</b>
Terracotta roof tile & pipe	11,613	0.35	527	0.11	3	-	-	12,143	0.27
Cement roof tile	8,401	0.25	326	0.07	200	-	-	8,926	0.20
Plasterboard construction waste	2,847	0.09	-	-	-	-	-	2,847	0.06
<b>Total</b>	<b>3,296,252</b>		<b>475,475</b>		<b>637,516</b>	<b>10,020</b>	<b>3,252</b>	<b>4,422,515</b>	
<b>%</b>	<b>74.5%</b>		<b>10.8%</b>		<b>14.4%</b>	<b>0.2%</b>	<b>0.1%</b>		

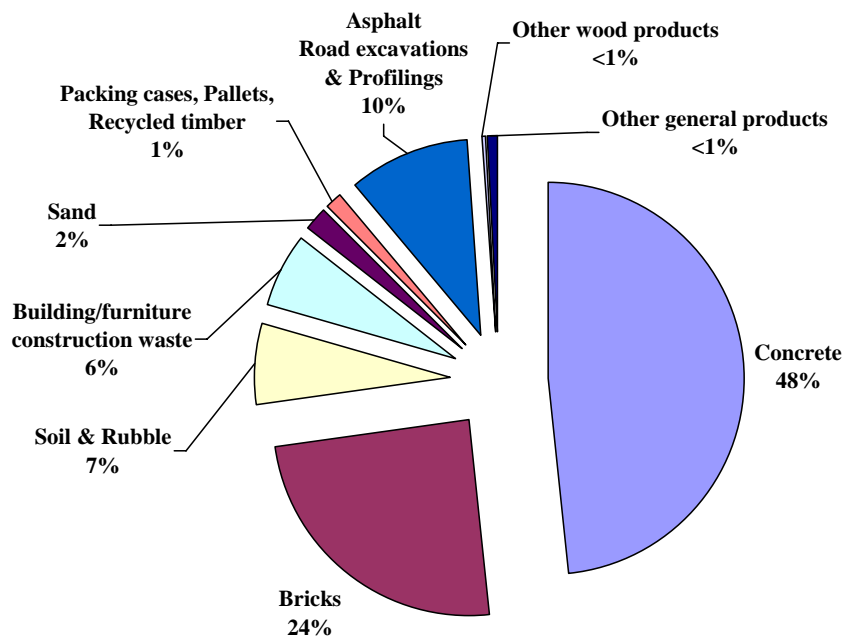
## Quantity of Materials Reprocessed and/or Reused

The total quantity of construction and demolition resource recovery materials reported to have been received for *reprocessing* during the 2006/07 financial year was 3,296,252 tonnes (Table 1). This represents 74.5% of the total materials received by the sector and being diverted from landfill for additional uses.

The majority of the material received and diverted from the waste stream for reprocessing into recycled products during the 2006/07 financial year was reported as concrete around 1,583,000 tonnes (~48%) and brick around 795,000 tonnes (~24%). These proportions are consistent with the 2005/06 financial year.

Other significant reported quantities of material include asphalt around 329,000 tonnes (~10%), soil & rubble around 218,000 tonnes (~7%) and building/furniture construction waste around 200,000 tonnes (~6%) were diverted from the waste stream for reprocessing into recycled products for the 2006/07 financial year.

**Figure 2: Composition of building material recovered by reprocessing, NSW 2006/07**



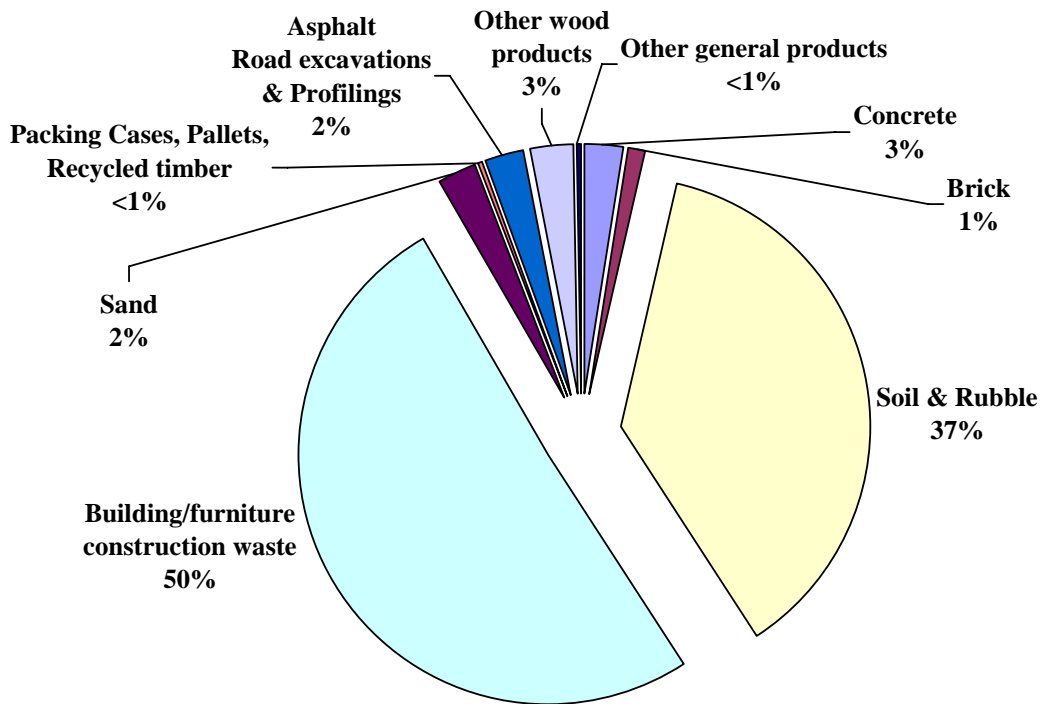
### Quantity of Materials Reused

The total quantity of construction and demolition resource recovery materials reported to have been received for reuse during the 2006/07 financial year was 475,475 tonnes (Table 1). This represents 10.8% of the total materials received by the sector and being diverted from landfill for reuse.

The majority of the material received and diverted from the waste stream for reuse during the 2006/07 financial year was reported as building/furniture construction waste around 239,000 tonnes (~50%) and soil & rubble around 176,000 tonnes (~37%).

Other significant reported quantities of material received and diverted from the waste stream for reuse during the 2006/07 financial year include concrete around 12,000 tonnes (~2.5%), sleepers around 12,000 tonnes (~2.5%), sand around 12,000 tonnes (~2.5%) and asphalt around 11,000 tonnes (~2.4%).

Figure 3: Composition of building material received for reuse, NSW 2006/07



### ***Reprocessing Methods***

Approximately 64% (40) of the businesses surveyed responded that they received construction & demolition material for reprocessing into reprocessed products. The bulk of this material was size reduced by a range of methods. The method or combination of methods used to reprocess materials depends wholly upon what the material is and what the material is being reprocessed for. The market pull for a specific product will determine the methods used to reprocess the material into a specific end product within the constraints of the materials potential product range.

**Table 2: Methods of reprocessing & reuse of building materials 2006/2007**

<b>Material by Category</b>	<b>Reprocessing method</b>	<b>Number of responses</b>	<b>Reuse method</b>	<b>Number of responses</b>
<b>Concrete</b>	Cleaned	1	Resale	4
	Crushed	32	Landscaping	1
	Screened	7	Decoration	1
	Blended	1	Bedding Drainage Aggregate	1 1 1
<b>Brick</b>	Cleaned	3	Resale	5
	Crushed	21		
	Screened	5		
	Blended	2		
<b>Soil &amp; Rubble</b>	Cleaned	1	Resale	3
	Crushed	3	Road base	1
	Screened	9	Bedding	2
	Blended	1	Drainage Aggregate	1 1
<b>Building/furniture construction waste</b>	Cleaned	3	Resale	4
	Crushed	2	Recycled	2
	Screened	3	Power generation	1
	Shredded	2	Turf underlay	1
	Chipped	1		
	Blended	1		
<b>Sand</b>	Cleaned	1	Resale	2
	Crushed	1	Rehabilitation	1
	Screened	4		
	Blended	1		
<b>Packing cases, pallets, recycled timber</b>	Crushed	1	Resale	2
	Screened	2	Power generation	1
	Shredded	2		
	Chipped	2		
	Blended	1		
<b>Road excavations asphalt</b>	Crushed	12	Resale	1
	Screened	5	Road base	1
	Blended	2	Aggregate Asphalt production	1 1
<b>Profilings asphalt</b>	Crushed	1	Resale	1
	Screened	2	Road base	1
<b>Second hand timber</b>	Cleaned	7	Resale	4
	Screened	1		
	Shredded	1		
	Chipped	1		
<b>Sleepers</b>			Resale	2
<b>Panel board</b>	Chipped	1	Resale	1
<b>Terracotta roof tile &amp; pipe</b>	Crushed	7	Resale	4
<b>Cement roof tile</b>	Crushed	3	Resale	2
<b>Plasterboard construc waste</b>	Crushed	2		
	Shredded	1		

## **Stockpiles**

This section presents and discusses the survey results relating to the C&D material stockpiled prior to reprocessing, reuse and sale.

### ***Quantity of Material Stockpiled***

Table 3 presents a comparison of the total amount of stockpiled materials at the end of the 2006 and 2007 financial years. These stockpiles include unprocessed material waiting reprocessing, material waiting reuse and reprocessed material waiting sale.

It is difficult to draw any notable conclusions from the “Reasons” data (Table 4). However, there is some perceived ‘lack of sales/demand’ driving up stockpiles which was identified by 26% of all the respondents. The ‘reasons for stockpiles’ data set will become increasingly useful when it can be compared from year to year in order to make good sense of the response.

**Table 3: Stockpiles at 30<sup>th</sup> June 2006 compared with stockpiles at 30<sup>th</sup> June 2007**

Stockpiles	2006	2007	Change	Change in %
	(1 <sup>st</sup> July)	(1 <sup>st</sup> July)		
Waiting Reprocessing (tonnes)	1,026,172	1,212,072	+ 175,900	+ 17.2
Proportion of stockpile to reprocessing throughput (%)	29.5	36.8	+ 7.3	
Waiting Reuse (tonnes)	190,531	173,478	- 17,053	- 9.0
Proportion of stockpile to reuse throughput (%)	21.7	36.5	+ 14.8	
Waiting Sale (tonnes)	364,364	271,292	- 93,072	- 25.5
Proportion of stockpile to product sold (%)	25.7	9.1	- 16.6	

**Table 4: Reasons for Stockpiles at 30<sup>th</sup> June 2007**

Reason for Stockpile	Processing		Reuse		Sale	
	response	%	response	%	response	%
Unplanned processing delay	2	6.3%	2	12.5%	2	5.2%
Developing processing capacity	3	9.4%	2	12.5%	-	0.0%
Required to produce target products	4	12.5%	4	25.0%	6	16.7%
Other planned stock increase	1	3.1%	1	6.3%	1	2.8%
Lack of sales/demand	6	18.8%	3	18.8%	12	33.3%
Inherited from business acquisition	-	0.0%	1	6.3%	-	0.0%
Fluctuations in supply	8	25.0%	-	0.0%	3	8.3%
Specific business opportunity	2	6.3%	2	12.5%	4	11.1%
Normal stockpile	3	9.4%	1	6.3%	4	11.1%
Other: Waiting for material to dry out	1	3.1%	-	0.0%	-	0.0%
Other: Surplus built up over a number of years	1	3.1%	-	0.0%	-	0.0%
Other: Space restriction	1	3.1%	-	0.0%	1	2.8%
Other: High sales demand	-	0.0%	-	0.0%	1	2.8%
Other: Like to process in advance	-	0.0%	-	0.0%	1	2.8%
Other: Various	-	0.0%	-	0.0%	1	2.8%
<b>Total</b>	<b>32</b>	<b>100.0%</b>	<b>16</b>	<b>100.0%</b>	<b>36</b>	<b>100.0%</b>

## ***Reprocessing Stockpile***

Contrary to the decrease in throughput of materials received for reprocessing, the reported stockpiles waiting to be reprocessed at the end of the financial year 2007 had increased by 175,900 tonnes (17.2%) to 1,212,072 tonnes in comparison to the stockpiles reported at the end of the financial year 2006. This represents a 7.3% increase in the quantity of material waiting to be reprocessed in stockpiles as a proportion of the throughput of material received for reprocessing compared with the previous financial year.

There were 32 responses that provided reasons for the quantities of material that they reported awaiting reprocessing from a reprocessing stockpile. This represented 80% of the 40 respondents conducting reprocessing. The top 5 notable responses were:

- 8 respondents reported: Fluctuations in supply;
- 6 respondents reported: Lack of sales/demand;
- 4 respondents reported: Required to produce target products;
- 3 respondents reported: Normal stockpile; and
- 3 respondents reported: Developing processing capacity.

## ***Reuse Stockpile***

Supporting the reported decrease of throughput materials received for reuse, the reported stockpiles waiting to be reused at the end of the financial year 2007 had also decreased by around 17,000 tonnes (- 9.0%) to 173,478 tonnes in comparison to the stockpiles reported at the end of the financial year 2006. However, this relatively small decrease was not consistent with the substantial decrease of around 46% reported for reuse materials received. This discrepancy represents a 14.8% increase in the quantity of material waiting to be reused in stockpiles as a proportion of the throughput of material received for reuse compared with the previous financial year.

There were 16 responses that provided reasons for the quantities of material that they reported awaiting reuse from a reuse stockpile. This represented 67% of the 24 respondents receiving materials for reuse. The top 2 notable responses were:

- 4 respondents reported: Required to produce target products; and
- 3 respondents reported: Lack of sales/demand.

## ***Sale Stockpile***

Complimentary to the quantity of reprocessed product sold increasing, the reported stockpiles waiting to be sold at the end of the financial year 2007 had decreased by around 93,000 tonnes (- 16.6%) to 271,292 tonnes in comparison to the stockpiles reported at the end of the financial year 2006. The reported quantity of product sold has increased substantially from the previous financial year and a subsequent decrease in stockpiles for sale is consistent with this statistic represented by a 25.5% decrease in the quantity of material waiting to be sold in stockpiles as a proportion of the total reprocessed product sold compared with the previous financial year.

There were 36 responses that provided reasons for the quantities of material that they reported awaiting sale from a sale stockpile. This represented 58% of the 62 respondents receiving materials for sale. Note that not all businesses sell a product. Some businesses maintain a reuse stockpile as their sale stockpile and some businesses reprocess and reuse material for use in their own business or for internal product development. The top 5 notable responses were:

- 12 respondents reported: Lack of sales/demand;
- 6 respondents reported: Required to produce target products;
- 4 respondents reported: Specific business opportunity;
- 4 respondents reported: Normal stockpile; and
- 3 respondents reported: Fluctuations in supply.

## **End-products, markets and product destination**

The reported sales of reprocessed products has increased significantly for the 2006/07 financial year, up by 115% to 3,115,680 tonnes. The notable developments are:

Reported sales of road base has increased by around 1,042,000 for the 2006/07 financial year. Road base now represents almost half ~48% of the reprocessed products market. This could only be explained as the capture of new data.

Reported sales of crushed brick has increased by 100,000 tonnes whereas sales of bricks has decreased by around 340,000 tonnes 2006/07 for the financial year, leaving bricks with a market share of around 6%, previously occupying 38% of the reprocessed product market.

Reported sales of select fill has decreased by around 108,000 tonnes and soil, drainage medium and bedding material have all increased by around 352,000, 203,000 and 209,000 tonnes respectively for the 2006/07 financial year.

Reported sales of concrete aggregate has increased by around 213,000 tonnes for the 2006/07 financial year.

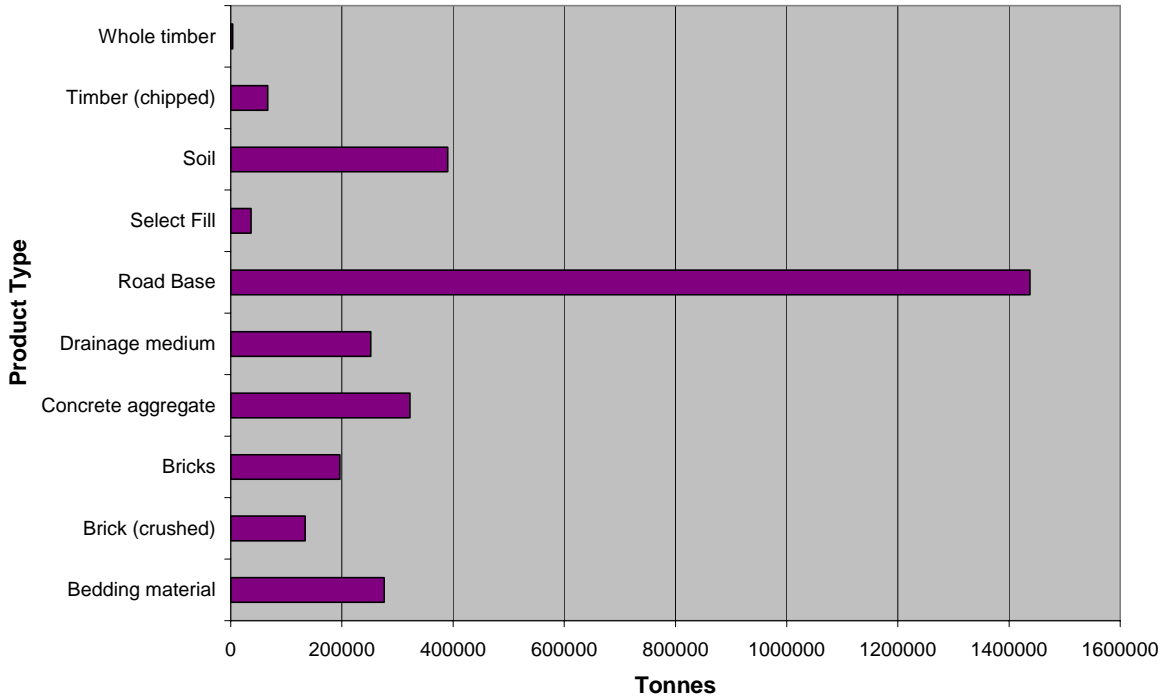
The civil/road construction market segment purchased around 31% of reprocessed products in the 2006/07 financial year. This is unsurprising considering the large quantity of reprocessed product sold as road base. Other significant market segment purchasing reprocessed products include commercial building (12.4%) and landscaping (19.7%). A large quantity (19.2%) of product sold was to unspecified market segments. This is a reflection that many businesses selling reprocessed products do not keep records on what part of the market their clients operate in and much of the market segment data is an estimate, rather than exact figures.

**Table 5: End products and market segment for 2006/07 financial year.**

<b>Products</b>	<b>Tonnes Sold</b>	<b>% Sold</b>
Bedding material	276,077	8.9%
Brick (crushed)	133,887	4.3%
Bricks	196,267	6.3%
Concrete aggregate	322,403	10.3%
Drainage medium	252,110	8.1%
Gypsum	650	0.0%
Road Base	1,437,521	46.1%
Select Fill	36,441	1.2%
Soil	390,026	12.5%
Timber (chipped)	66,749	2.1%
Whole timber	3549	0.1%
<b>Total</b>	<b>3,115,680</b>	

<b>Market Segment</b>	<b>Tonnes Sold</b>	<b>% Sold</b>
Agricultural	500	0.0%
Asphalt Production	63,480	2.1%
Civil/road construction	926,386	30.9%
Commercial building	381,451	12.4%
Construction Industry	48,623	1.6%
Government	140,099	4.6%
Landfill operator	100	0.0%
Landscaping	605,078	19.7%
Manufacturing	1288	0.0%
Residential building	224,991	7.3%
Unspecified	588,323	19.2%
Plasterboard manufacture	150	0.0%
Reseller	65,200	2.1%
<b>Total</b>	<b>3,065,669</b>	

**Figure 4 End products of reprocessed building materials 2006/07**



**Figure 5 Market segments for reprocessed building materials 2006/2007**

