



**SKIP BIN
WASTE COMPOSITION AUDIT
AT
MUGGA LANE LANDFILL
on behalf of
ACT NOWASTE
May 2011**

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TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	4
1 BACKGROUND.....	6
2 INTRODUCTION.....	7
3 METHODOLOGY.....	7
4 DATA LIMITATIONS.....	9
4.1 TIMEFRAME	9
4.2 REPRESENTATIVE SAMPLE	9
4.3 VOLUME-BASED ANALYSIS.....	9
4.4 WEIGHT-BASED ANALYSIS	9
4.5 LIMITATIONS OF SAMPLE SIZE	9
5 RESULTS.....	10
5.1 TYPES OF WASTE IN DELIVERED LOADS.....	11
5.2 COMPOSITION BY LOAD TYPE	12
5.3 RECOVERY OPPORTUNITIES	13
5.4 DELIVERIES BY SKIP BIN SIZE.....	14
5.5 COMPOSITION BY SKIP BIN SIZE	15
5.6 OVERALL COMPOSITION BY VOLUME.....	16
5.7 OVERALL COMPOSITION BY ESTIMATED WEIGHT	17
5.8 COMPOSITION BY DAY - VOLUME - (GARBAGE BAGS NOT DISTRIBUTED)	18
5.9 COMPOSITION BY DAY - VOLUME – (GARBAGE BAGS DISTRIBUTED)	19
5.1 COMPOSITION BY DAY - ESTIMATED WEIGHT (TONNES) - GARBAGE BAGS NOT DISTRIBUTED	19
5.11 LOAD CONTAMINATION PROFILE	20
5.12 LOAD CONTAMINATION PROFILE - DETAILED.....	21
5.13 LOAD CONTAMINATION PROFILE BY BIN SIZE.....	22
5.14 COMPOSITION OF LOADS BY RECYCLABILITY.....	23
5.15 COUNT OF INDIVIDUAL ITEMS	24
5.16 VOLUME OF SKIP BINS AND TRASH PACKS DELIVERIES	25
5.17 COMPOSITION OF TRASH PACKS VS. SKIP BINS.....	25
5.18 VALIDATION OF THE ESTIMATED LOAD WEIGHTS TO ACTUAL WEIGHBRIDGE WEIGHTS	26
6 COMMENTS AND OBSERVATIONS.....	27
7 DISCUSSION	32
8 KEY FINDINGS.....	33
9 RECOMMENDATIONS	34
APPENDIX A - LANDFILL AUDIT - VISUAL DATA SHEET	35
APPENDIX B - NSW DECCW GUIDELINES MATERIAL CATEGORIES	36
APPENDIX C - DECCW VOLUME TO WEIGHT CONVERSION FACTORS (2010)	37
APPENDIX D - AGGREGATED CATEGORIES OF SKIP BIN DELIVERIES	38
APPENDIX E - RECYCLABLE OR NON-RECYCLABLE ITEMS.....	38
APPENDIX F - COMPOSITION BY DAY BY VOLUME (M³).....	40
APPENDIX F - COMPOSITION E BY DAY BY VOLUME (M³)	43
APPENDIX G - DETAILED COMPOSITION BY DAY BY WEIGHT (KG) ESTIMATED -	44
APPENDIX H - DETAILED COMPOSITION BY DAY WEIGHT (KG).....	47

INDEX OF TABLES

Table 1 - Types of waste in delivered loads	11
Table 2 - Load composition - volume (m ³), garbage bags not distributed	11
Table 3 - Volume delivered by skip bin size	14
Table 4- Composition of skip bins by skip bin size (m ³)	15
Table 5 - Overall composition of skip bins - garbage bags not distributed	16
Table 6 - Overall composition of skip bins by weight - garbage bags not distributed	17
Table 7 - Composition by day by volume (m ³) - (garbage bags not distributed)	18
Table 8 - Composition by day by volume (m ³) – (with garbage bags distributed)	19
Table 9 - Composition by day by estimated weight (tonnes)	19
Table 10 - Number of loads by level of contamination	20
Table 11 - Number of loads by level of contamination – detailed	21
Table 12 - Percentage of load size by level of contamination	22
Table 13 - Composition of skip waste by recyclable/non-recyclable	23
Table 14 - Individual item count	24
Table 15 - Skip bins and trash packs by volume	25
Table 16 - Aggregated composition - skip bins and trash packs	26
Table 17 - Percentage load size by level of contamination	26
Table 18 - Potential maximum diversion possible	32

INDEX OF CHARTS

Chart 1 - Types of waste in delivered loads	11
Chart 2 - Composition by load type	12
Chart 3 - Composition of loads by source – recyclable or non recyclable	13
Chart 4 - Detailed composition of loads by source – recyclable or non recyclable	13
Chart 5 - Volume delivered by skip bin size	14
Chart 6 - Composition of skip bins by skip bin size (m ³)	15
Chart 7 - Detailed composition of total skip waste by volume - (garbage bags not distributed)	16
Chart 8 - Detailed composition of total skip waste by weight in tonnes –(garbage bags not distributed)	17
Chart 9 - Composition by day by volume (m ³) - (garbage bags not distributed)	18
Chart 10 - Percentage of loads by level of contamination	20
Chart 11 - Percentage of loads by level of contamination – detailed	21
Chart 12 - Percentage of loads by bin size and level of contamination- garbage bags not distributed) ...	23
Chart 13 - Composition of skip waste by recyclable/non-recyclable	23
Chart 14 - Individual item count	24
Chart 15 - Aggregated composition of skip bins and trash packs	25
Chart 16 - Percentage of loads and variation to weighbridge records	26

EXECUTIVE SUMMARY

APrince Consulting trading as APC Environmental Management (APC) undertook a consecutive five-day visual audit from Monday 23 May, 2011 at Mugga Lane Landfill of all incoming skip bins and trash packs to determine composition. APC used the NSW Department of Environment, Climate Change and Water (DECCW) *Commercial and Industrial (C&I) Waste Audit Methodology 2008* to provide reliable and robust data.

The audit observed every load delivered during opening hours except for the first hour on the first day when site inductions and site preparation were being addressed by the contractor, Thiess Services.

Weighbridge records allowed a comparison to be made between the actual weighbridge records for 199 out of 210 deliveries, which were matched to the visual assessments. The total weighbridge weight of these 199 trucks was 237.4 tonnes. It was not possible within time and budget constraints to both do a volumetric estimate and weigh every item so the estimated weight of all items was made using the NSW DECCW volume-weight conversion data. The weight estimation of 204.6 tonnes resulted in an overall 14% lower weight estimate compared with actual total weighbridge weight. However, for this kind of survey performed using visual volume estimation methods and estimated weights, some inaccuracy must be expected.

In total, 210 skip bins were sampled delivering 1,358m³ and weighing an estimated 219 tonnes. The volume of daily deliveries ranged at a high of 330m³ and 54 tonnes on Friday to a low of 220m³ or 39 tonnes on Wednesday.

Trash packs account for 15% of all loads by volume and contain up to 70% organics materials including vegetation, paper/cardboard and wood.

The majority of loads are delivered in the 6 - 9m³ (41%) and > 10m³ (38%) skip bins with 2-5m³ accounting for just 21% of all loads delivered by volume. The opportunities to recover all recyclables increases with each increase in skip bin size, while the amount of non-recyclables diminishes with each increase in skip bin size.

The largest single categories in descending order and present in volumes greater than 85m³ were: vegetation, untreated timber, other plastic, plasterboard, wood - furniture, wood - chipboard, cardboard and carpet.

If all recyclable materials were recovered, the maximum diversion possible is 790m³ or 143 tonnes per week, which equates to 41,000m³ or 7,400 tonnes per year and represents 54% by volume of all incoming material. The greatest amount of recyclable materials is in the C&D (67%) and domestic loads (58%) and should be the focus of future efforts. The greatest opportunities are to divert timber/garden, paper and cardboard and metals which are present in C&D, C& I and domestically sourced loads and building waste which is significant in the C&D and domestic streams.

What is more practicable is to target, in the first instance, vegetation recovery, the largest single material category, delivered almost exclusively from trash packs and comprising 14.3% of all loads. Wood including stumps, logs, untreated timber and chipboard account for 15.6%. Together, these organic fractions represent 30%. In addition, we have been advised that plasterboard can potentially be crushed and reused as a soil conditioner to reduce soil acidity. This would increase possible organic diversion to composting by up to 37%. The organic stream holds the key to increased diversion and recovery.

A further 15% can be achieved by the recovery of cardboard, which represents 6.6% and metals 3.4%, and C&D materials comprise 5% by volume. The other significant single material deposited in reasonable quantities was carpet, which accounts for 6.3% by volume.

Most contractors have opportunities to divert between 55-66% of loads delivered if opportunities were provided or facilities put in place that were cost-effective to use.

The ACT Government has requested an analysis to be undertaken with each skip load aggregated into loads that are: 'completely recyclable' (< 2% non-recyclable), 'minor contamination' (< 30% non-recyclable) and 'significant non-recyclables' (all others) and provided a list of what was deemed 'recyclable' and 'non-recyclable'. Overall, nine loads (4%) were completely recyclable and 72 loads (34%) contained less than 30% contamination. Specifically, 41 loads (19%) had 14% or less contamination, 124 loads (59%) had less than 50% contamination and 41 loads (19.5%) had greater than 70% contamination.

A skip bin sorting area near the landfill face needs to be established to enable scavenging and recovery operated by the landfill contractor, and/or reuse centre operator or other third-party.

Based on the findings of this waste audit of the litter stream within the CBD area of Canberra, APC makes the following recommendations:

1. That the ACT Government establish, in consultation with the Mugga Lane Landfill contractors, a set down area for skip bins and trash pack deliveries to allow scavenging for recovery and resale by the reuse shop and to promote sorting and recovery of recyclable prior to landfilling. The key target materials should include vegetation, cardboard, metals, organics and C&D materials. Such a facility could be operated by the landfill contractor, reuse centre operator, both or other third-party.
2. That a briefing session be held with trash pack operators to discuss how to improve recovery from their operation and to educate users to ensure that only garden organic waste is placed in the containers and to determine what role government can play to assist in education outreach delivery.
3. That consideration be given to reviewing and implementing pricing policies that encourage source separation of clean stream organics from trash packs.
4. That a briefing session be held with skip bin operators to discuss how to improve recovery through identifying existing barriers and constraints in relation to their operations and to determine what role government can play to assist in education outreach delivery.
5. That the ACT Government conduct a feasibility study to determine the quantity of textiles and carpets that are currently landfilled with the view to attracting a textile reprocessing facility to the region.

1. BACKGROUND

The 1996 Waste Strategy 'No Waste by 2010' has been replaced by the draft *ACT Sustainable Waste Strategy 2010-2025*, released by the Department of the Environment, Climate Change, Energy and Water (DECCEW) for public comment in December 2010.

The draft Strategy aims for the ACT to lead innovation in the management of waste to achieve full resource recovery and a carbon neutral waste sector. The draft strategy recognises waste as a valuable resource which, when recovered (reused, recycled or processed), reduces the need for raw materials and can help to address climate change.

Waste management is an integrated system from collection, transport, sorting, processing to end markets, and there are a number of ways that waste can be managed and processed using a mix of facilities and technologies.

A key goal of the ACT Government is to increase resource recovery and reduce waste to landfill in the ACT. The draft strategy specifically contains a number of overarching targets for increasing resource recovery to more than 80% by 2015 and increasing to more than 90% by 2025.

To achieve these targets, the government is looking at all aspects of waste streams entering landfill with the view of identifying the best opportunities to improve diversion through policy intervention or pricing mechanisms.

Currently, it is estimated that about 9,000 skip truck transactions deliver about 10,000 tonnes of mixed waste to the Mugga Lane Landfill annually from approximately nine key skip bin businesses. APC found that on the week of the audit we assessed 210 deliveries equating to approximately 10,920 loads per year or 11,388 tonnes. Of these loads 70% were from delivered by seven contractors. In total 52% of waste conveyed was from domestic origins, 28% from construction and demolition (C&D) and 15% commercial and industrial (C&I) waste.

While a number of companies undertake sorting of skip bin material off site in order to minimise escalating waste disposal fees, observations indicate that the majority of skip bins delivered to landfill contain significant amounts of recyclable materials mixed with non-recyclable material and the entire loads are landfilled.

In order to increase diversion and target specific materials or sources, ACT NOWaste needs to gain a greater understanding of the composition and characterisation of the waste being disposed at landfill by skip bin operators. Reliable and current data on waste composition, source, transporter and quantity are essential to enable informed policy decisions to be made.

2. INTRODUCTION

The aim of this project is to identify the composition of the skip bin loads to identify resource recovery opportunities to increase diversion from landfill and prolong landfill life at the Mugga Lane Landfill and, in so doing, help government achieve its ambitious resource recovery targets.

The key deliverables of this project are:

- Undertake a visual audit at Mugga Lane Landfill of all skip bins during the defined timeframe;
- Identify the composition, origin and transporter of each load;
- Convert the estimated volume to weight using the NSW DECCW conversion data;
- Compare the converted weight with the weighbridge data;
- Based on the information collected, identify opportunities to increase diversion; and
- Identify major sources, skip bin sizes and transport companies where the greatest opportunities exist.

3. METHODOLOGY

In the absence of any other specified methodology, APC used the NSW Department of Environment, Climate Change and Water (DECCW) *Commercial and Industrial (C&I) Waste Audit Methodology 2008*. This methodology recommends that all targeted vehicles over the audit period be visually examined and that a physical composition analysis be conducted on any mixed C&I waste loads containing more than 10% plastic bags.

APC allocated one person to visually assess all loads due to the anticipated amount of loads to be assessed, budget constraints and to provide continuity in the project. Staff was in attendance from opening to closing time each weekday over one week except on the first day, when the first hour was missed due to site preparation being undertaken by the landfill organisation for the project. Weekdays were selected as indications from weighbridge data, industry and landfill operators indicated that very few, if any, skip bin transactions occurred on weekend days and observations from Monday to Friday would provide a robust sample.

APC staff worked with Thiess Services to minimise any disruption to normal operation of the facility, staff and procedures. Thiess Services provided a suitable area where the targeted loads could be directed, discharged, assessed and then moved and covered. APC staff members were provided with two-way radios and mobile phones to communicate with plant operators and wore high-visibility safety clothing. All data was manually recorded and all-weather clipboards were used.

APC undertook the following approach:

1. Record the following details for each load:
 - Date;
 - Time of entry;
 - Vehicle registration number; and
 - Company delivering the load.
2. Interview driver to ascertain:
 - Skip size;
 - Estimated skip bin volume;

- Type of waste - C&I, C&D or domestic;
 - Geographic source of the load;
 - Type of client - business or private; and
 - Nature of the activity generating the waste.
3. Visual assessment - Assess the contents of the skip at point of discharge.
4. Physical assessment - Where any load contained plastic bags and where it was safe and practicable to do so, staff examined the contents. This information was recorded separately to the overall volume of bags present in the load. While every effort was made to record details relevant to every load by talking to drivers, due to the timing of the multiple deliveries simultaneously, this was not always possible.

ACT specified 16 waste categories should be used; however, APC with ACT approval used the entire NSW DECCW categories for greater accuracy and to mirror the 2009 landfill assessment. These 36 categories can be aggregated to a lesser number as required.

The data collection and recording form developed by APC is provided in **Appendix A** and outlines the information to be recorded and waste categories all waste was assessed against. These are the same categories as used in the 2009 landfill assessment undertaken by APC and will provide complementary data to that study. A full description of each category is provided in **Appendix B**. Any other items found in significant quantities were recorded as appropriate. All data was recorded in litres of the load.

Data was transcribed from the data recording sheets to a Microsoft Excel spreadsheet for analysis. All volume data was converted to weight using the NSW DECCW conversion factors provided in **Appendix C**. In some cases, aggregated categories have been used and these are detailed in **Appendix D**.

4. DATA LIMITATIONS

The data for this study was collected and analysed using the best and most accurate methods available within the constraints of available time and budget. This study is a survey, which means that a relatively small amount of data has been collected and then treated as representative of the total. As in any survey, there are limitations to the accuracy of the data, as described below:

4.1 Timeframe

This audit was carried out over five days to represent weekday activity of loads delivered to the landfill from skip bins. It should be noted that seasonal and weather events may change waste generation over any defined time. Thus, the results of this audit should be treated with due caution when analysing this report or comparing it to reports based on data taken at different times of the year or from different areas.

4.2 Representative sample

The sample for this audit is necessarily small due to the high per capita cost and resource-intensive nature of waste auditing. There is always a small probability of inadvertently collecting data that is atypical, resulting in non-representative data.

4.3 Volume-based analysis

The collection of data for this audit was recorded by volume. This type of assessment is subjective and all assessments are based on un-compacted volume.

4.4 Weight-based analysis

The collection of data for this audit was recorded by volume and converted to weight using density ratios published by the NSW OE&H (formerly DECCW), which were devised from extensive disposal-based visual and physical audits carried out in NSW in 2003 and 2008. Results using this method should be treated with care as there are likely to be variations due to the unempirical nature of the volume estimation and the use of averages to calculate volume to weight conversion factors. The weight analysis may cause some materials to appear to be present in quite small proportions due to their comparatively low densities (eg. plastics, leaf litter). However, they can and do consume large amounts of volume. A weight-based analysis is the most accurate way to collect data on a number of different types of materials. However, due to budget constraints, weight-based analysis was not an option for this survey.

4.5 Limitations of sample size

All surveys carry an element of sampling error, which is the mathematical error associated with using a sample to represent a total population. Sampling error can be reduced by taking larger samples. In this survey, every effort was made to assess every load delivered over a sample period.

5. RESULTS

The following analysis has been undertaken and is presented in this section:

General

- Data relating to vehicles including number, type, organisations and size.

Composition

- Composition by skip bin size;
- Composition by organisations;
- Aggregated data to represent the total for the audit by both volume and weight;
- Detailed composition by day;
- Detailed composition - with plastic bags;
- Detailed composition - with plastic bags allocated to waste categories;
- Composition by load - completely recyclable, minor contamination, significant non-recyclables;
- Load contamination by profile, organisation and bin size;
- Loads by recyclability;
- Count by specified items;
- Volume and composition of skip bins vs. trash packs;
- Weight and volume per category; and
- Validation of the Estimated Load Weights to Actual Weighbridge Weights.

In addition to the APC analysis, the ACT Government has requested for analysis to be undertaken with each skip load aggregated into loads that are: 'completely recyclable', 'minor contamination' and 'significant non-recyclables'. APC sought guidance from the ACT Government on exactly what is deemed 'recyclable' and 'non-recyclable', (refer to the full list in *Appendix E*). APC also sought advice on the definition of 'minor' and 'significant' by per cent and was provided with the following advice:

- Completely recyclable: **< 2% non-recyclable**
- Minor contamination: **< 30% non-recyclable**
- Significant non-recyclables: **all others**.

In total, 210 skip bins were sampled over five consecutive days. It is estimated the total volume of waste assessed was 1,358m³ weighing approximately 219 tonnes.

APC matched each individual audited load volume data converted to weight using the conversion factors listed in the DECCW Guidelines with the corresponding weighbridge record for the nominated vehicle movement to provide some relativity.

The analysis undertaken is presented in charts and tables showing key results on the following pages.

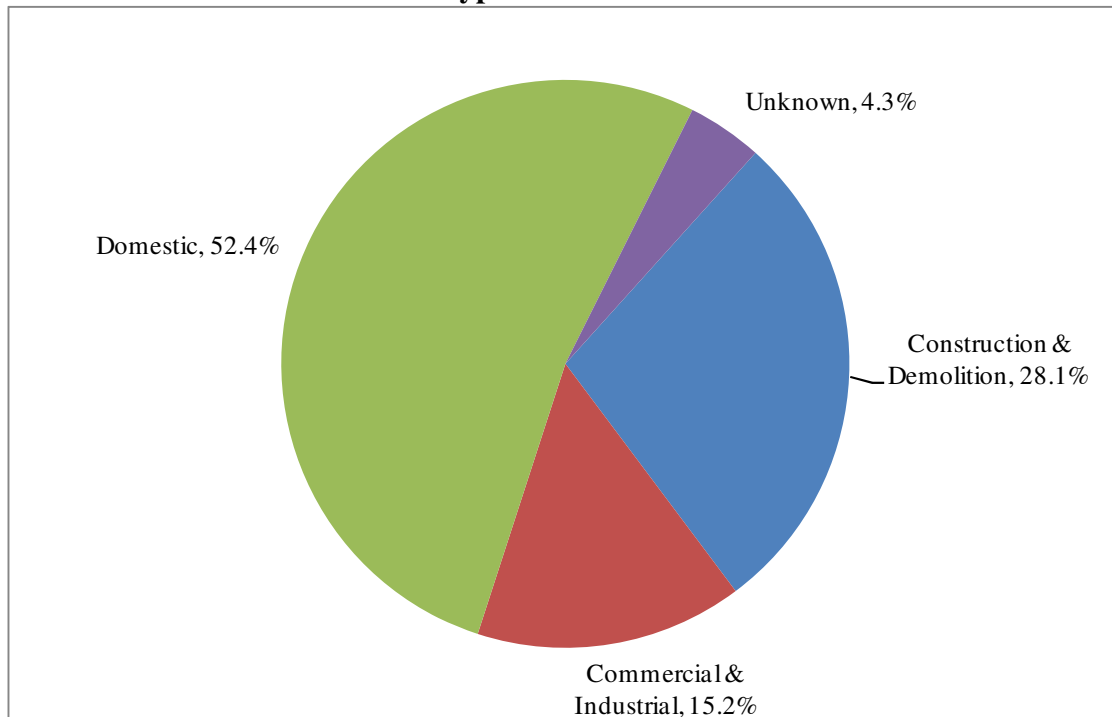
5.1 Types of waste in delivered loads

The table and chart below depict the types of loads evaluated over the survey period. In total, 210 loads were delivered over five consecutive days with the majority of loads (52%) containing waste from domestic origins. A further 28% of skips contained C&D waste and 15% C&I. Of all loads delivered, the origins of 4% were unknown.

Table 1 - Types of waste in delivered loads

Load type	Number
Construction & demolition	59
Commercial & industrial	32
Domestic	110
Unknown	9
Total	210

Chart 1 - Types of waste in delivered loads



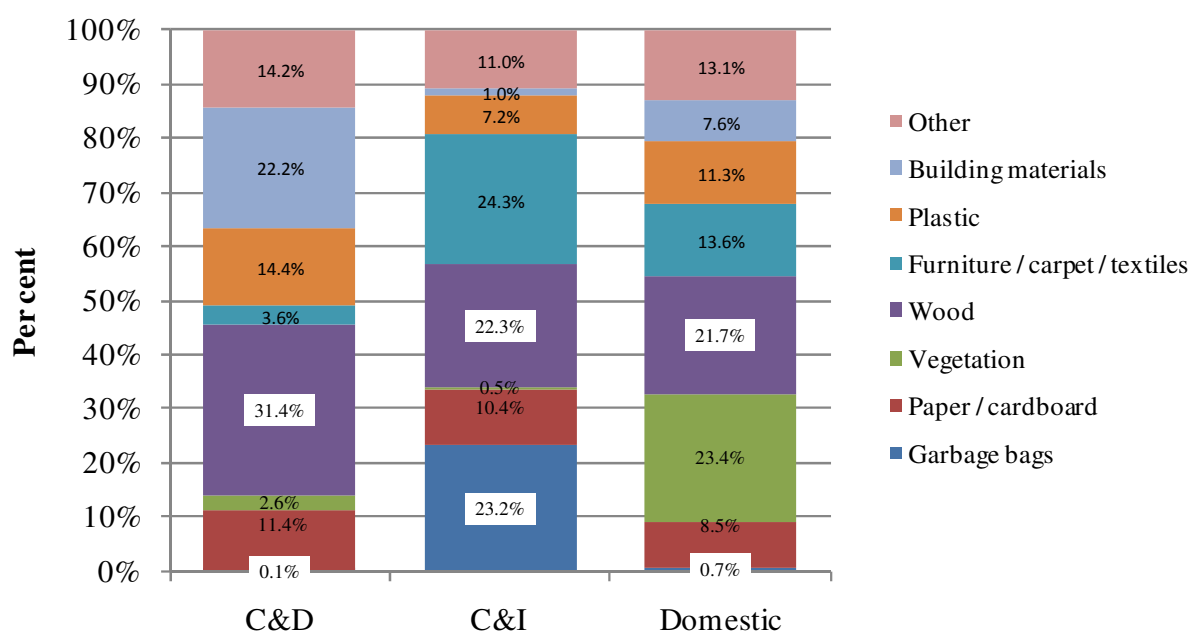
5.2 Composition by load type

The following table and chart shows the composition by load type of the material delivered in skip bins for this period. As is expected, the quantity of materials varies significantly by load type. However, paper and cardboard are relatively consistent in all streams ranging from 8.5%-11.4%, other materials ranged from 11%-14.2%. All other material categories had significant variation of up to 7-22% variation between the volumes recorded by load by material category.

Table 2 - Load composition - volume (m³), garbage bags not distributed

Item	C&D	C&I	Domestic
Garbage bags	0.1%		0.7%
Paper/cardboard	11.4%	10.4%	8.5%
Vegetation	2.6%	0.5%	23.4%
Wood	31.4%	22.3%	21.7%
Furniture/carpet/textiles	3.6%	24.3%	13.6%
Plastic	14.4%	7.2%	11.3%
Building materials	22.2%	1.0%	7.6%
Other	14.2%	11.0%	13.1%
Total	100.0%	100.0%	100.0%

Chart 2 - Composition by load type

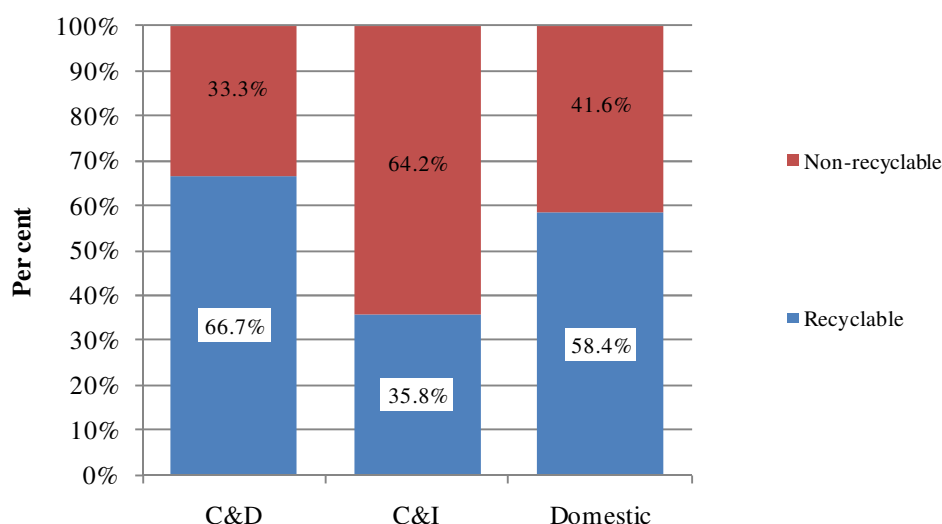


Of all loads delivered, approximately 34% contain non-recyclable materials and 66% are potentially recoverable. This equates to 4,000 tonnes per annum that require disposal compared to 7,500 tonnes per annum that could be potentially recovered. Greater detail on this analysis is provided in section 5.12.

5.3 Recovery opportunities

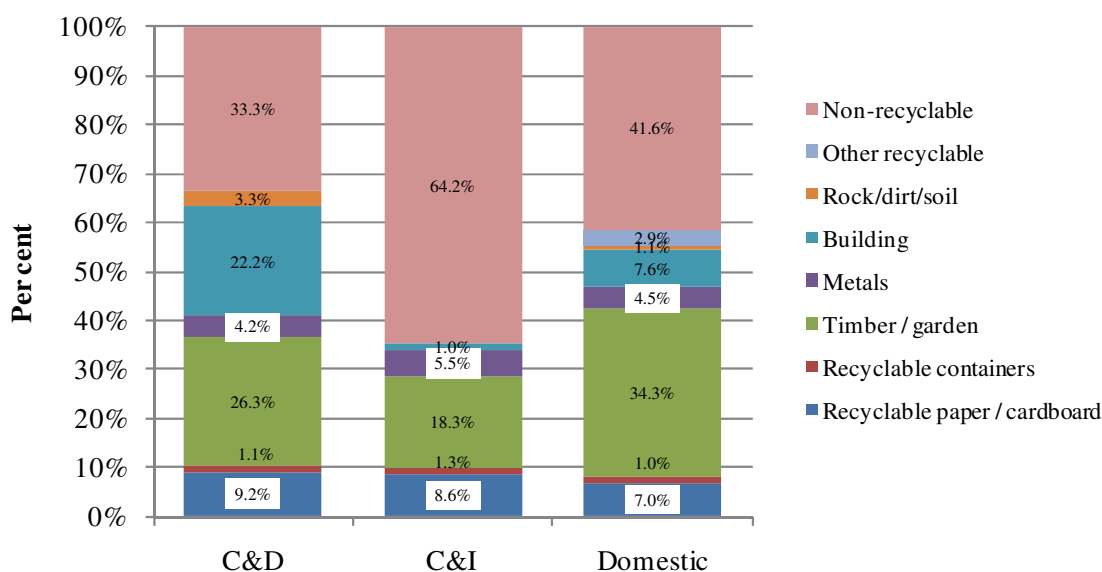
APC sought guidance from the ACT Government on what material categories should be classed 'recyclable' and 'non-recyclable'. These are detailed in *Appendix E* and based on the classification the chart below shows the proportion of material delivered by waste stream separated into recyclable and non recyclable categories. The greatest amount of recyclable materials are in the C&D (67%) and domestic loads (58%) and should be the focus of future efforts.

Chart 3 Composition of loads by source – recyclable or non recyclable



The greatest opportunities for all streams are timber/garden, paper and cardboard and metals. Building waste is significant in the C&D and domestic streams.

Chart 4 Detailed composition of loads by source – recyclable or non recyclable



5.4 Deliveries by skip bin size

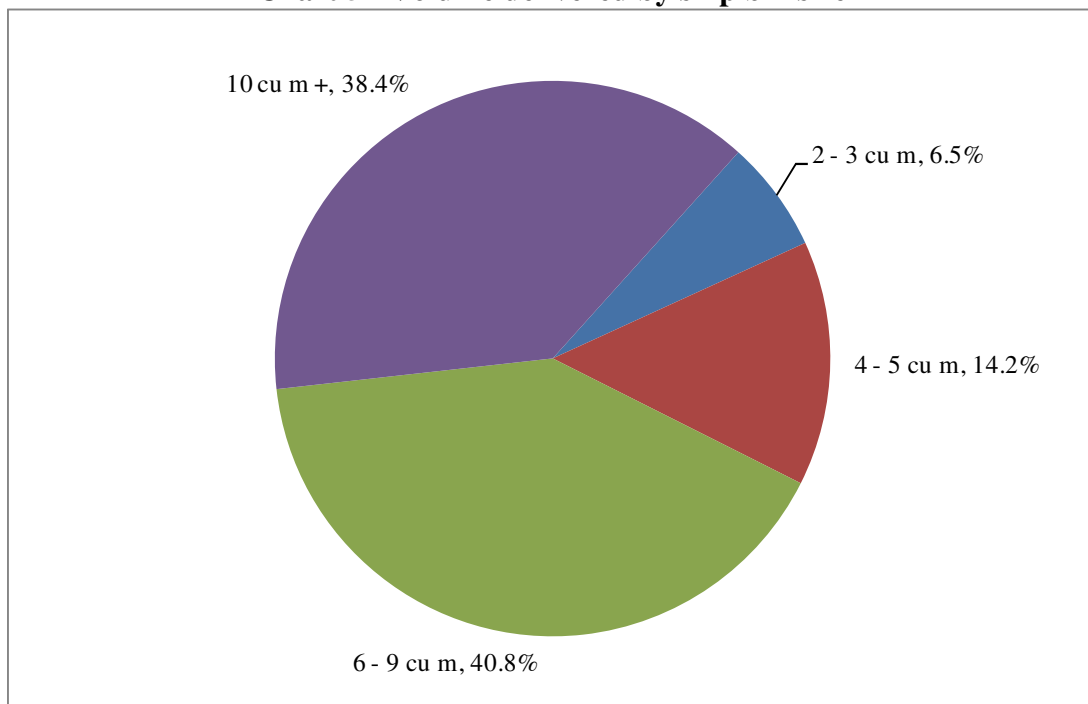
The table and chart below show the total volume of all loads delivered by skip bin size. The greatest volume of waste (554m^3) is delivered in the $6\text{-}9\text{m}^3$ bins. Not surprisingly, the smallest bins generate the smallest volume of waste received.

Table 3 - Volume delivered by skip bin size

Skip bin size	Total volume delivered
$2\text{-}3\text{m}^3$	88.3
$4\text{-}5\text{m}^3$	193.5
$6\text{-}9\text{m}^3$	554.8
$> 10\text{m}^3+$	521.9
Total	1,358.3

The majority of loads are delivered in the $6\text{-}9\text{m}^3$ (41%) and $> 10\text{m}^3$ (38%) skip bins. Small skips in the $2\text{-}5\text{m}^3$ range account for 21% of all loads delivered by volume.

Chart 5 - Volume delivered by skip bin size



5.5 Composition by skip bin size

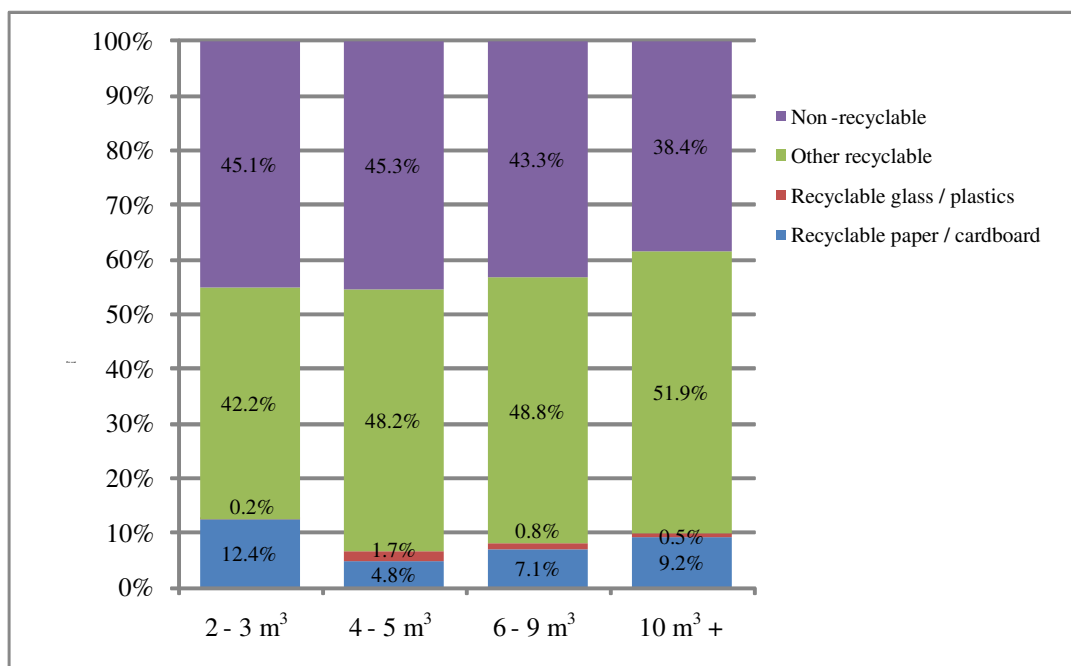
The table and chart below detail a breakdown of key materials by skip bin size. Interestingly, the greatest presence of cardboard is in the smallest skips (2-3m³) and the largest (10m³ plus) size. The opportunities to recover all recyclables increases with each increase in skip bin size while the amount of non-recyclables diminishes with each increase in skip bin size.

Table 4- Composition of skip bins by skip bin size (m³)

Item	2-3m ³	4-5m ³	6-9m ³	10m ³ +
Recyclable paper/cardboard	12.4%	4.8%	7.1%	9.2%
Recyclable glass/plastics	0.2%	1.7%	0.8%	0.5%
Other recyclable	42.2%	48.2%	48.8%	51.9%
Non-recyclable	45.1%	45.3%	43.3%	38.4%

NB: Garbage bags not distributed.

Chart 6 - Composition of skip bins by skip bin size (m³)



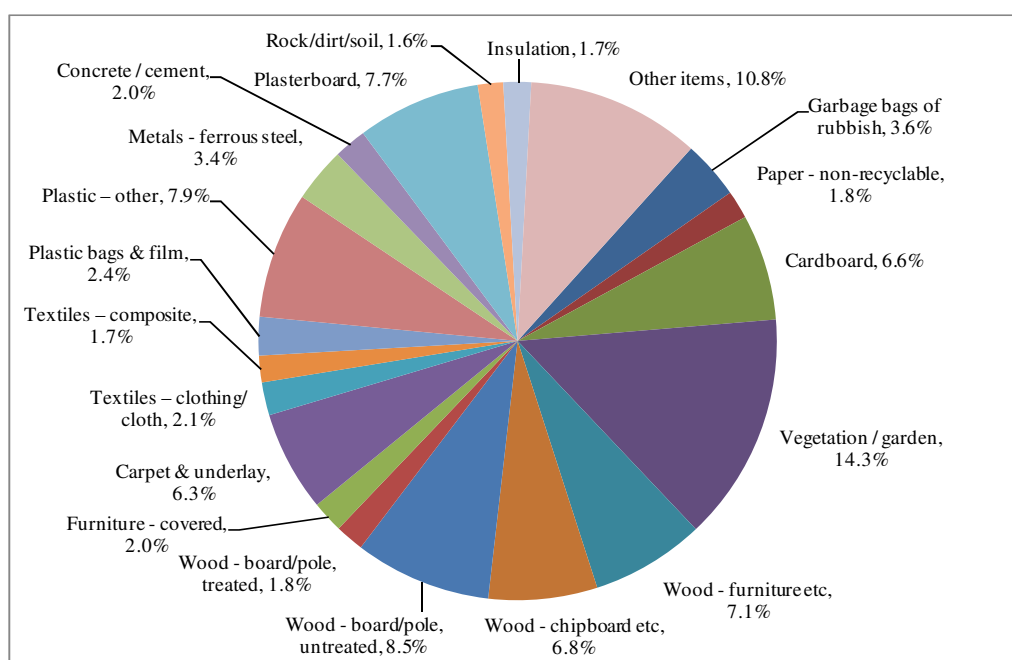
5.6 Overall composition by volume

The chart and table below detail the composition of the skip bins audited. The largest single categories in descending order and present in volumes greater than 85m³ are: vegetation, untreated timber, other plastic, plasterboard, wood - furniture, wood - chipboard, cardboard and carpet and underlay.

Table 5 - Overall composition of skip bins - garbage bags not distributed

Item	Total volume
Garbage bags of rubbish	49.4
Paper - non-recyclable	23.8
Cardboard	89.9
Vegetation/garden	193.7
Wood - furniture etc	96.5
Wood - chipboard etc	92.2
Wood - board/pole, untreated	115.9
Wood - board/pole, treated	24.2
Furniture - covered	26.7
Carpet & underlay	85.3
Textiles - clothing/ cloth	28.0
Textiles - composite	22.5
Plastic bags & film	32.6
Plastic - other	107.0
Metals - ferrous steel	46.5
Concrete/cement	27.5
Plasterboard	104.9
Rock/dirt/soil	21.4
Insulation	23.6
Other items	147.0
Total	1,358.3

Chart 7 - Detailed composition of total skip waste by volume - (garbage bags not distributed)



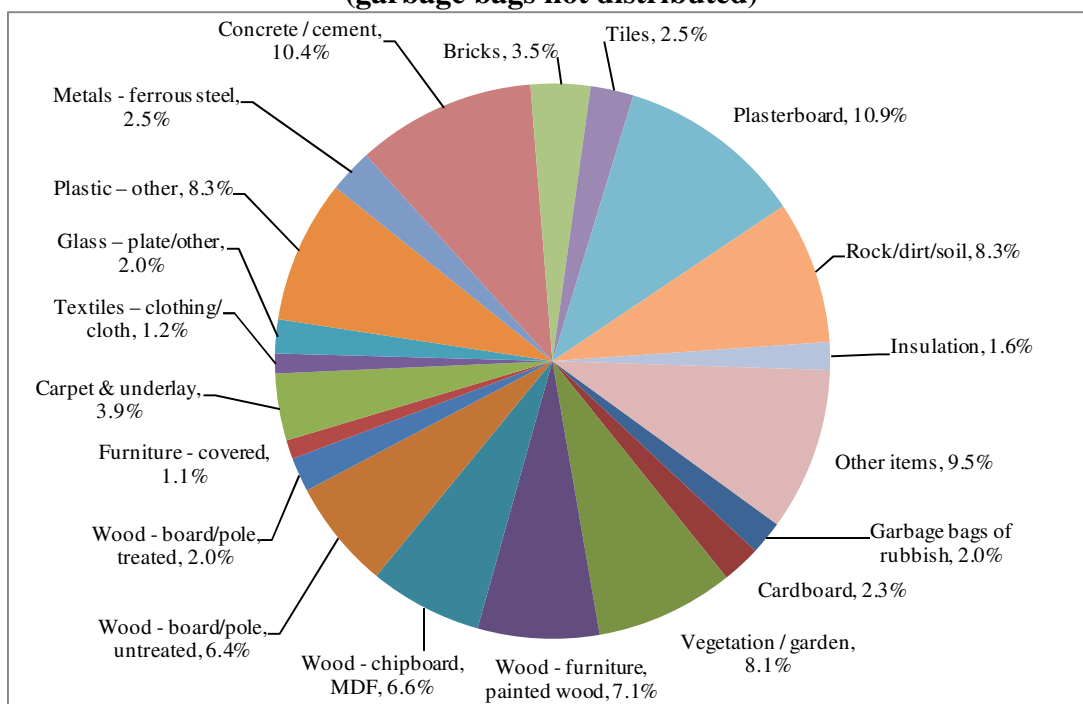
5.7 Overall composition by estimated weight

The chart and table below detail the composition of the skip bins audited by estimated weight. The largest 10 material categories in descending order are: plasterboard, concrete/cement, other items, rock/dirt/soil, plastic other, vegetation, wood - furniture, wood - chipboard, untreated timber.

Table 6 - Overall composition of skip bins by weight - garbage bags not distributed

Item	Kg
Garbage bags of rubbish	4,299.5
Cardboard	4,941.8
Vegetation/garden	17,627.2
Wood - furniture, painted wood	15,438.4
Wood - chipboard, MDF	14,385.5
Wood - board/pole, untreated	13,902.6
Wood - board/pole, treated	4,361.4
Furniture - covered	2,404.8
Carpet & underlay	8,528.5
Textiles - clothing/cloth	2,544.4
Glass - plate/other	4,327.8
Plastic - other	18,194.3
Metals - ferrous steel	5,574.6
Concrete/cement	22,816.7
Bricks	7,576.2
Tiles	5,483.0
Plasterboard	23,801.0
Rock/dirt/soil	1,8156.0
Insulation	3,540.0
Other items	2,0756.7
Total	218,660.3

Chart 8 - Detailed composition of total skip waste by weight in tonnes – (garbage bags not distributed)



5.8 Composition by day - volume - (garbage bags not distributed)

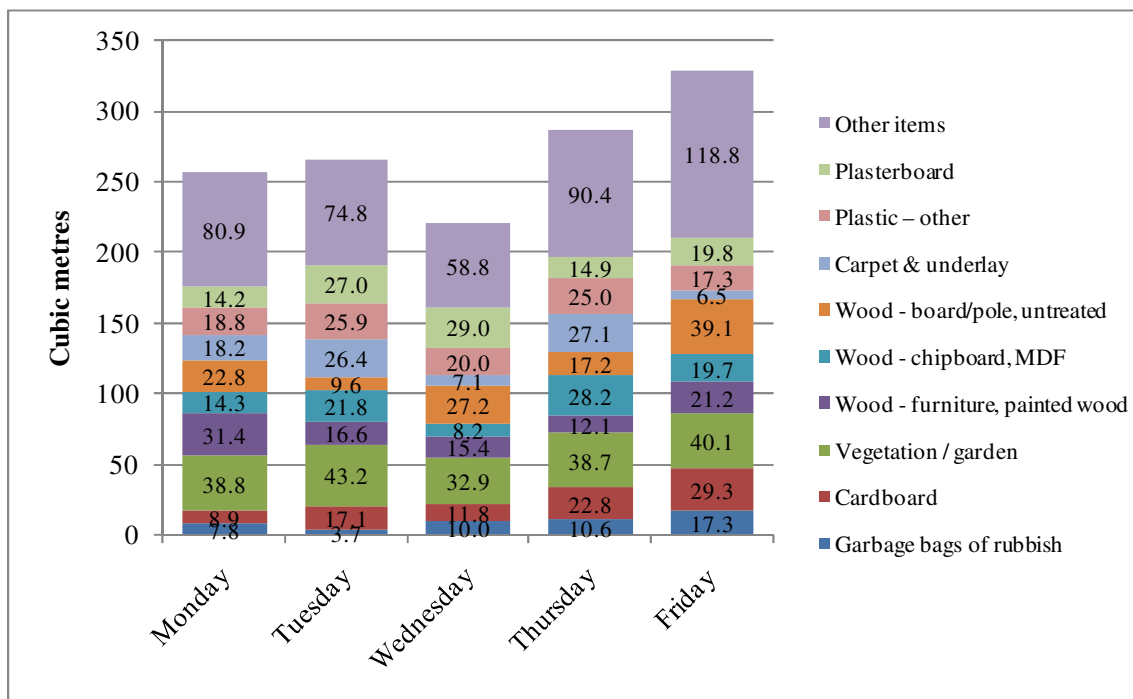
The table and chart below shows the composition by major category by day with bags of garbage as a separate category. Friday had the greatest volume of waste delivered at 330m³ compared to Wednesday with the lowest deliveries of 220m³, with Monday and Tuesday quite similar in volume at 256m³ and 266m³ respectively.

Table 7 - Composition by day by volume (m³) - (garbage bags not distributed)

Item	Monday	Tuesday	Wednesday	Thursday	Friday
Garbage bags of rubbish	7.8	3.7	10.0	10.6	17.3
Cardboard	8.9	17.1	11.8	22.8	29.3
Vegetation/garden	38.8	43.2	32.9	38.7	40.1
Wood - furniture, painted wood	31.4	16.6	15.4	12.1	21.2
Wood - chipboard, MDF	14.3	21.8	8.2	28.2	19.7
Wood - board/pole, untreated	22.8	9.6	27.2	17.2	39.1
Carpet & underlay	18.2	26.4	7.1	27.1	6.5
Plastic - other	18.8	25.9	20.0	25.0	17.3
Plasterboard	14.2	27.0	29.0	14.9	19.8
Other items	80.9	74.8	58.8	90.4	118.8
Total	256.1	266.1	220.2	286.9	329.0

The composition was very similar on each day with minor variations. After 'other items', the most consistently present materials in the skip bins were: vegetation ranging from 33-40m³ per day, untreated wood - 10-39m³, wooden furniture 12-31m³, cardboard ranged from 9-29m³, plasterboard from 14-29mm³ and carpet from 7-27m³. Garbage bags accounted for between 4-17m³.

Chart 9 - Composition by day by volume (m³) - (garbage bags not distributed)



5.9 Composition by day - volume – (garbage bags distributed)

The table and chart below show the composition by major category by day with garbage bags distributed based on visual assessment of the contents. As garbage bags accounted for between 4-17m³ of the entire load, the distribution of the contents makes negligible difference to the overall composition.

Table 8 - Composition by day by volume (m³) – (with garbage bags distributed)

Item	Monday	Tuesday	Wednesday	Thursday	Friday
Cardboard	9.0	17.1	12.2	23.0	30.0
Vegetation/garden	39.3	43.2	32.9	38.7	40.1
Wood - furniture, painted wood	31.4	16.6	15.4	12.1	21.2
Wood - chipboard, MDF	14.3	21.8	8.2	28.2	19.7
Wood - board/pole, untreated	22.8	9.6	27.2	17.2	39.1
Carpet & underlay	18.2	26.4	7.1	27.1	6.5
Plastic - other	19.0	26.0	21.0	25.7	17.8
Metals - ferrous steel	11.4	6.2	8.3	9.9	10.6
Plasterboard	14.2	27.0	29.0	14.9	19.8
Other items	76.6	72.1	59.0	90.2	124.4
Total	256.1	266.1	220.2	286.9	329.0

5.10 Composition by day - estimated weight (tonnes) - garbage bags not distributed

The table and chart below show the composition by major category by weight per day with bags of garbage as a separate category. Consistent with the volume data, Friday had the greatest weight of waste delivered at an estimated 54 tonnes compared to Tuesday with the lowest tonnage of 38 and Wednesday at 39 tonnes.

Table 9 - Composition by day by estimated weight (tonnes)

Item	Monday	Tuesday	Wednesday	Thursday	Friday
Vegetation/garden	3.53	3.93	2.99	3.52	3.65
Wood - furniture, painted wood	5.02	2.65	2.46	1.93	3.38
Wood - chipboard, MDF	2.24	3.40	1.28	4.39	3.08
Wood - board/pole, untreated	2.73	1.15	3.27	2.07	4.69
Carpet & underlay	1.82	2.64	0.71	2.71	0.65
Plastic - other	3.20	4.40	3.41	4.24	2.94
Concrete/cement	6.79	2.06	2.97	4.23	6.76
Plasterboard	3.22	6.14	6.58	3.38	4.48
Rock/dirt/soil	2.22	1.79	5.53	3.23	5.40
Other items	13.26	9.84	10.47	13.49	18.72
Total	44.03	38.00	39.67	43.19	53.75

5.11 Load contamination profile

In addition to the previous analysis, the ACT Government has requested an analysis to be undertaken of each skip load aggregated into loads that are: 'completely recyclable', 'minor contamination' and 'significant non-recyclables'. APC sought guidance from the ACT Government on exactly what is deemed 'recyclable' and 'non-recyclable' (refer to the full list in *Appendix D*). APC also sought advice on the definition of 'minor' and 'significant' by per cent and was provided with the following advice:

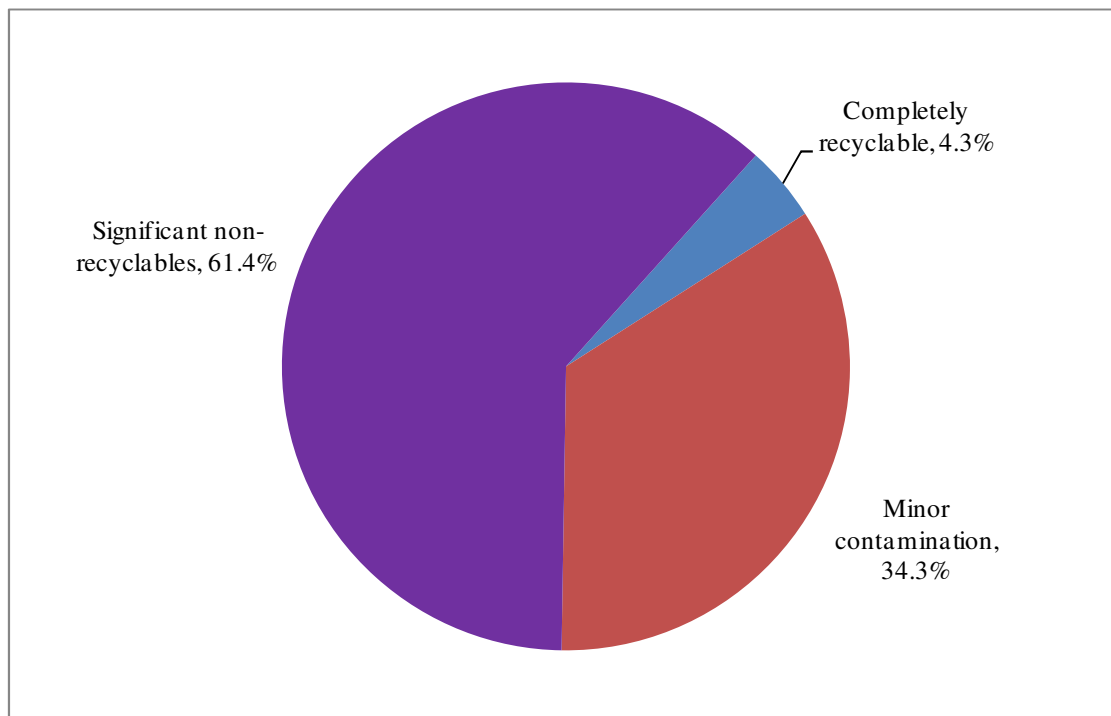
- Completely recyclable: < 2% non-recyclable
- Minor contamination: < 30% non-recyclable
- Significant non-recyclables: **all others**.

The table and charts below show the findings of this analysis calculated using volume (garbage bags not distributed). In total, nine loads (4%) were completely recyclable and 72 loads (34%) contained less than 30% contamination.

Table 10 - Number of loads by level of contamination

Profile	Number
Completely recyclable - < 2% non-recyclable	9
Minor contamination - < 30% non-recyclable	72
Significant non-recyclables	129
Total	210

Chart 10 - Percentage of loads by level of contamination



5.12 Load contamination profile - detailed

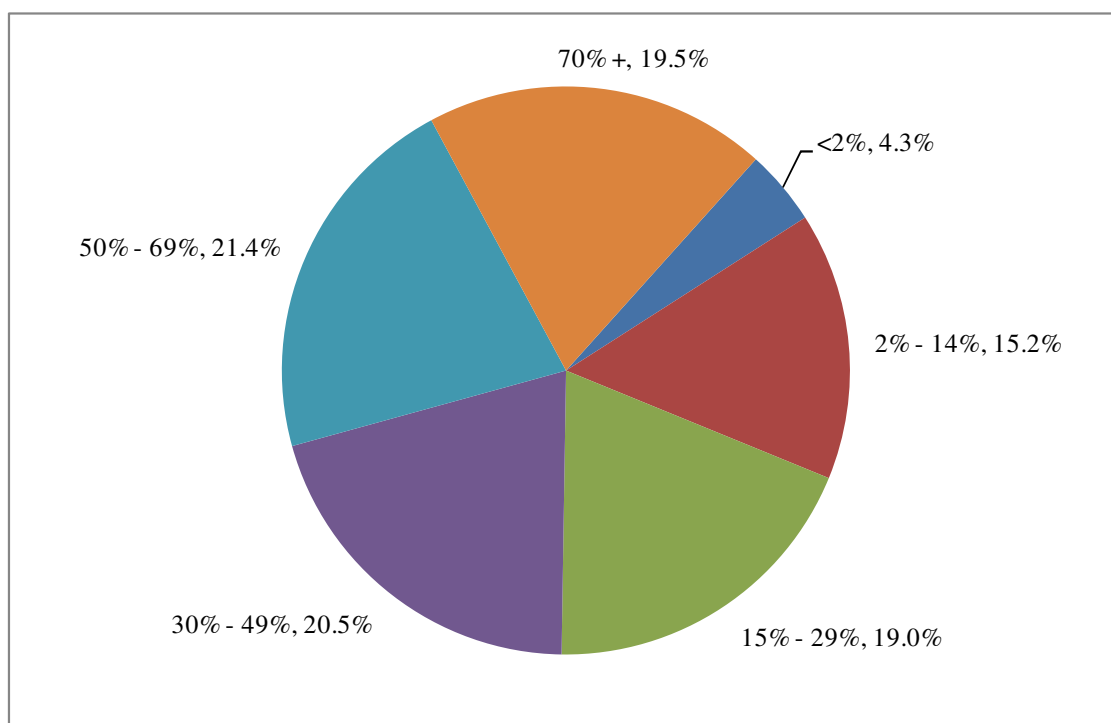
The loads by the amount of contamination are more detailed than section 5.11 to provide a further breakdown and therefore greater information for the reader.

The table and charts below show the findings of the detailed analysis calculated using volume (garbage bags not distributed). In total, 41 loads (19%) had 14% or less contamination, 124 loads (59%) had less than 50% contamination and 41 loads (19.5%) had greater than 70% contamination.

Table 11 - Number of loads by level of contamination – detailed

Per cent non-recyclable	Number
Completely recyclable <2%	9
Minor contamination - 2-14% non-recyclable	32
Minor contamination - 15-29% non-recyclable	40
Significant non-recyclables - 30-49%	43
Significant non-recyclables - 50-69%	45
Significant non-recyclables - 70% +	41

Chart 11 - Percentage of loads by level of contamination – detailed



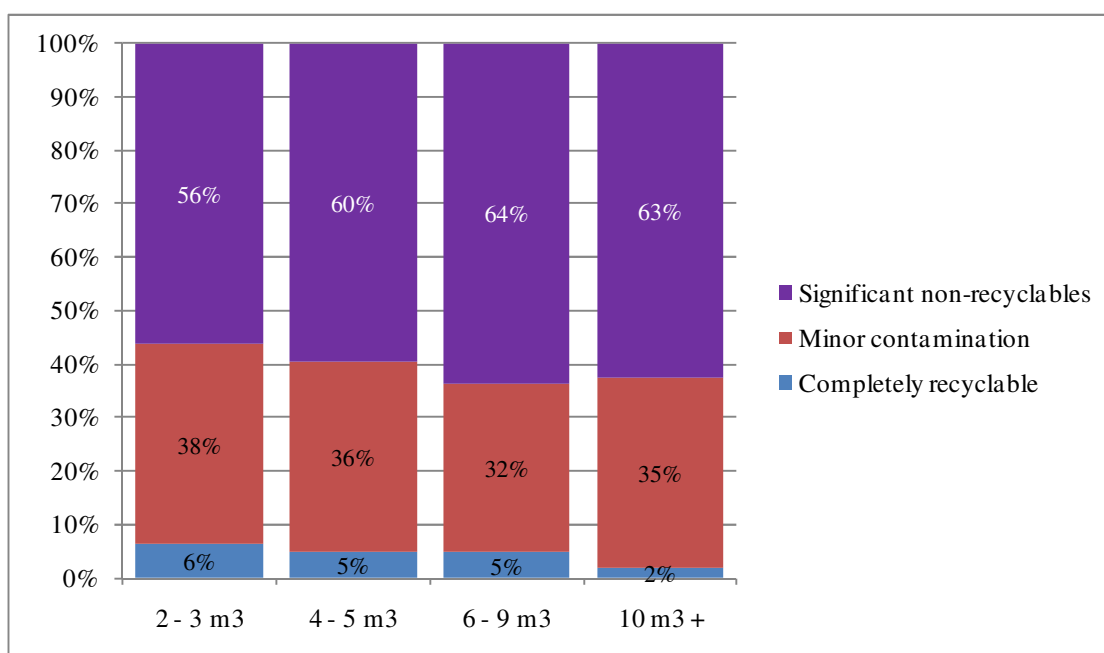
5.13 Load contamination profile by bin size

The load contamination by bin size analysis indicates that there is little variation between the level of contamination and bin size. Completely recyclable loads are present in all bin sizes with ranges from 2-6% of all load sizes. Minor contamination up to 30% is present in between 32-38% of loads in all bin sizes. This analysis shows that, irrespective of bin size, similar levels of contamination are present in all bins within a range of 6-8% per bin size.

Table 12 - Percentage of load size by level of contamination

Bin size	Completely recyclable < 2% non-recyclable	Minor contamination < 30% non-recyclable	Significant non-recyclables
2-3m ³	6%	38%	56%
4-5m ³	5%	36%	60%
6-9m ³	5%	32%	64%
10m ³ +	2%	35%	63%

Chart 12 - Percentage of loads by bin size and level of contamination



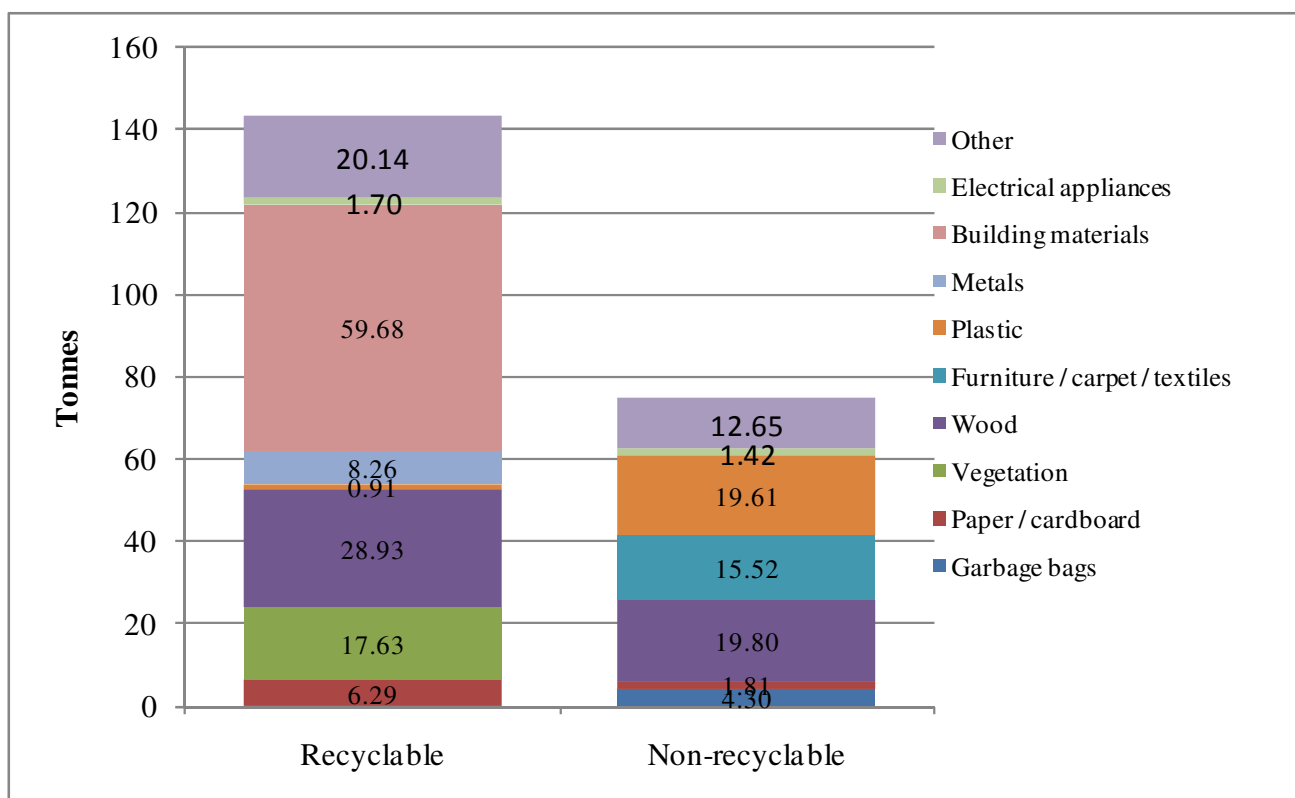
5.14 Composition of loads by recyclability

Of all loads delivered, approximately 34% contain non-recyclable materials equivalent to approximately 4,000 tonnes per annum compared to potential recovery of up to 7,500 tonnes per annum.

Table 13 - Composition of skip waste by recyclable/non-recyclable (estimated weight (tonnes) - garbage bags not distributed)

Material category	Recyclable	Non-recyclable
Garbage bags		4.30
Paper/cardboard	6.29	1.81
Vegetation	17.63	
Wood	28.93	19.80
Furniture/carpet/textiles		15.52
Plastic	0.91	19.61
Metals	8.26	
Building materials	59.68	
Electrical appliances	1.70	1.42
Other	20.14	12.65
Total	143.54	75.11

Chart 13 - Composition of skip waste by recyclable/non-recyclable



5.15 Count of individual items

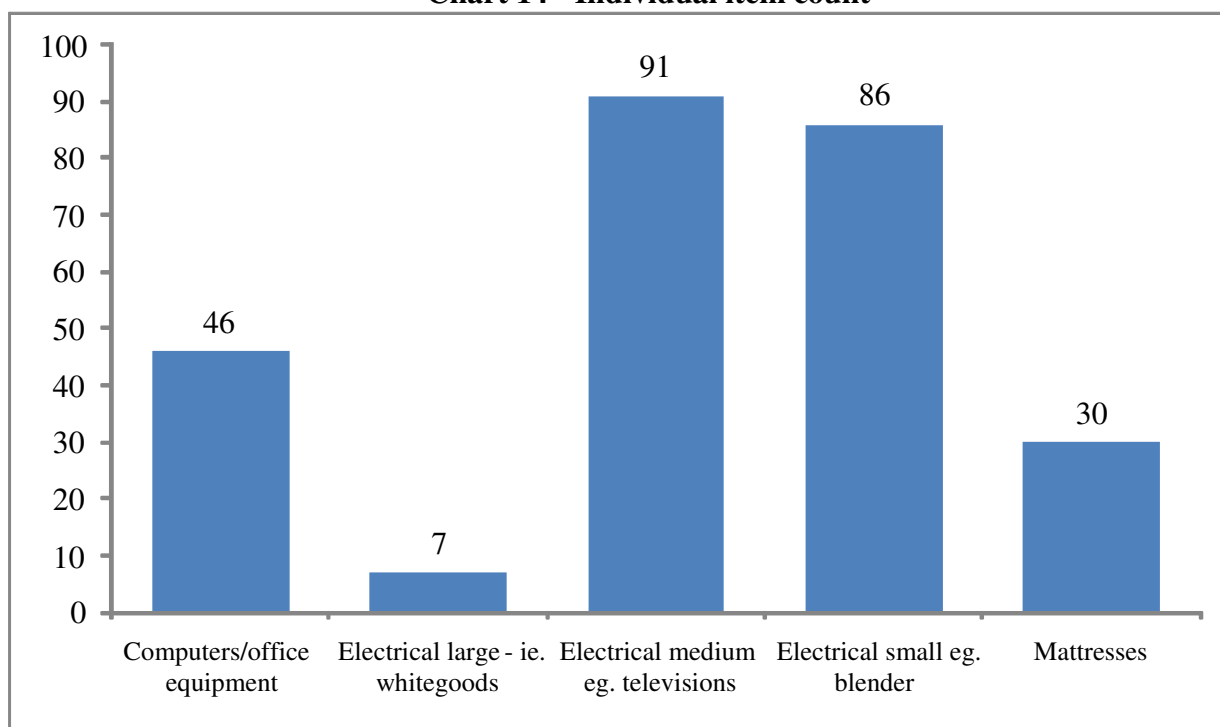
A number of items were recorded by number as well as volume. The table and chart below depict these items. In total, 260 items were individually recorded. The highest amount was medium and small electrical appliances.

Table 14 - Individual item count

Item	Count per week	Estimate per year
Computers/office equipment	46	2,392
Electrical large (i.e. whitegoods)	7	364
Electrical medium (eg. televisions)	91	4,732
Electrical small (eg. Blender)	86	4,472
Mattresses	30	1,560
Total items counted	260	13,520

Over a year, it is estimated based on this week that as many as 2,400 computers and office equipment, 4,732 TVs and similar medium sized electrical appliances, 4,472 small electrical appliances are discarded and up to 1,560 mattresses and 364 whitegoods.

Chart 14 - Individual item count



5.16 Volume of skip bins and trash packs deliveries

The table below shows that trash pack deliveries represent just 15% of all loads audited by volume.

Table 15 - Skip bins and trash packs by volume

Aggregated category	Skip bins	Trash packs	Total
	Volume (m ³)		
Garbage bags	48.4	1.0	49.4
Paper/cardboard	102.9	28.5	131.4
Vegetation	85.5	113.7	199.2
Wood	330.3	2.8	333.1
Furniture/carpet/textiles	143.1	20.0	163.1
Plastic	125.4	34.0	159.4
Building materials	153.0	0.2	153.2
Other	167.3	9.6	176.9
Total	1,155.9	209.8	1,365.7

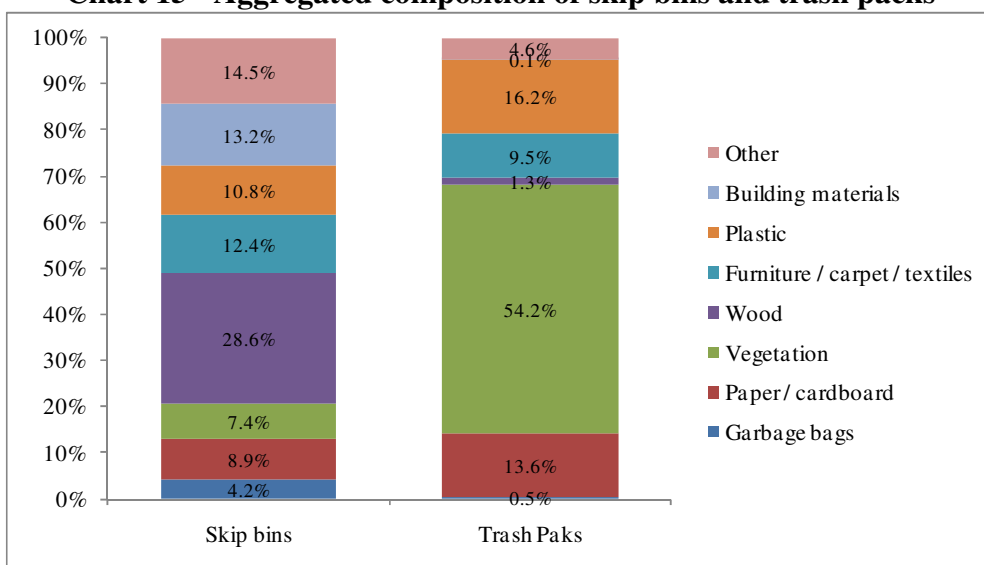
5.17 Composition of trash packs vs. skip bins

The table and chart below show the composition of two types of deliveries that were included in this study - skip bins and trash packs. Trash packs contain almost 70% organic materials comprising vegetation, paper/cardboard and wood, compared to just 45% found in skip bins. This separation of loads by types shows the opportunity to work with these companies and their clients in an effort to get clean green deliveries that can be recovered, processed and composted.

Table 16 - Aggregated composition - skip bins and trash packs

Category	Skip bins	Trash packs
Garbage bags	4.2%	0.5%
Paper/cardboard	8.9%	13.6%
Vegetation	7.4%	54.2%
Wood	28.6%	1.3%
Furniture/carpet/textiles	12.4%	9.5%
Plastic	10.8%	16.2%
Building materials	13.2%	0.1%
Other	14.5%	4.6%

Chart 15 - Aggregated composition of skip bins and trash packs



5.18 Validation of the estimated load weights to actual weighbridge weights

APC matched each individual audited load volume data converted to weight using the conversion factors listed in the DECCW Guidelines with the corresponding weighbridge record for the nominated vehicle movement for comparison purposes.

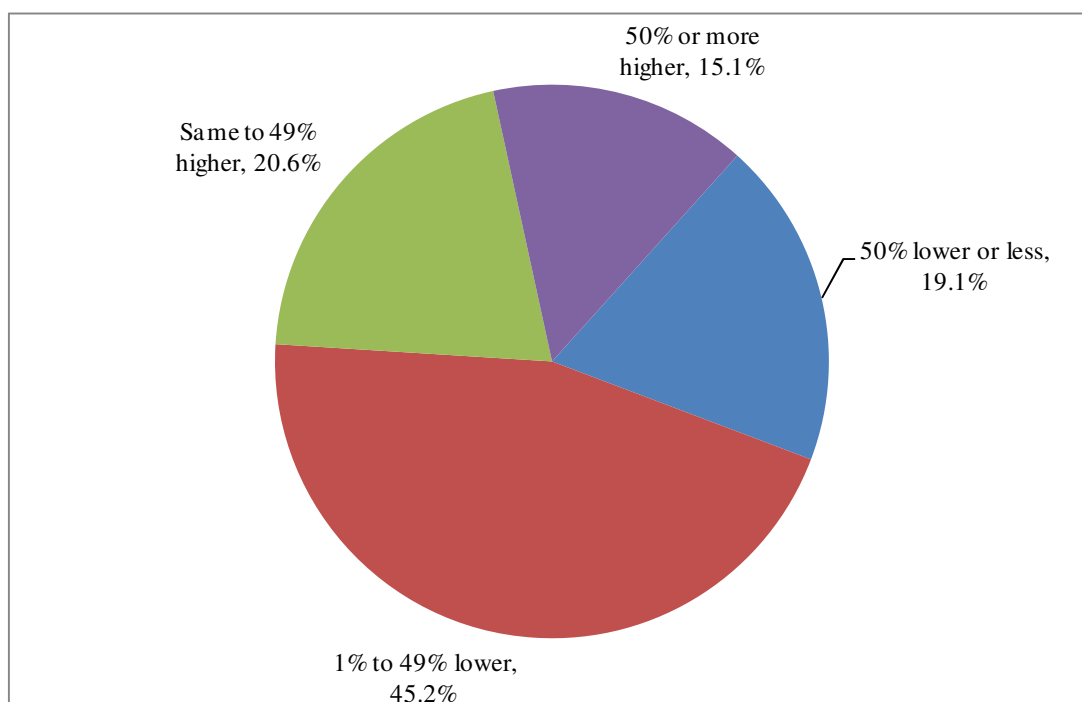
Weighbridge records allowed a comparison of actual weighbridge weights for 199 out of 210 trucks, which were able to be matched with survey records. The total weighbridge weight of these 199 trucks was 237.4 tonnes, while the estimated weight using the DECCW volume-weight conversion table was 204.6 tonnes. The weight estimation procedure resulted in an overall 14% lower weight estimate compared with actual weighbridge weight. For this kind of survey using visual volume estimation and estimated weight, some inaccuracy must be expected, while more than 10% should be judged to be reasonably close.

Regarding individual loads, for 131 of 199 (66%), the estimated weight was within plus or minus a 50% range of the true value, again a reasonable result for this kind of survey. However, this result does indicate that analysis on the basis of weight should be treated with some caution.

Table 17 - Percentage load size by level of contamination

Range of difference	Explanation	Number	%
50% lower or less	Estimated weight was 50% or more lower than actual weighbridge weight	38	19%
1-49% lower	Estimated weight was 1-49% lower than actual weighbridge weight	90	45%
Same to 49% higher	Estimated weight was equal to 49% higher than actual weighbridge weight	41	21%
50% or more higher	Estimated weight was 50% or more lower than actual weighbridge weight	30	15%

Chart 16 - Percentage of loads and variation to weighbridge records



6. COMMENTS AND OBSERVATIONS

The auditor recorded the following observations:

6.1 Recycling opportunities

A large number of skips contain predominantly one type of material with small amounts of other items. The photographs below show some of the current missed recycling opportunities:

Selected images of missed opportunities for recycling



Plasterboard load - 8% of total volume



Hot water heater and stove-- metals



Large amounts of timber and pallets, in single loads - volume 9%



Pallets and untreated timber - 9% by volume



Cardboard - 9% by volume





Example of trash pack deliveries



Vegetation - trash packs

Trash packs were added to the survey because they are a unique container similar to a skip and also due to the number of deliveries and the fact they service the domestic market almost exclusively. Council does not provide a garden organics service and prohibits garden waste to be placed in the household bins, so residents utilise trash packs as a convenient alternative to remove oversized materials but almost exclusively green waste. There was minimal garden waste present in the skip bins, however, the vast majority was contained in trash pack.

Trash pack operators do deliver the garden waste to a green waste processing facility, however, the auditor observed most trash packs delivered to the landfill had minimal contamination in the loads. While some loads may contain small amounts of contamination, the ACT Government needs to engage the operators to educate their clients through pricing policies to reduce contamination. Alternatively, the use of different colour coded bags could differentiate green waste only loads from other mixed waste loads.

We understand that plasterboard is suitable for adding to compost operations due to the gypsum content, which assists in soil productivity by reducing soil acidity. Plasterboard accounted for 8% by volume.

The auditor observed the plant operator opportunistically retrieving the larger and more obvious metal items for recovery, however, despite this, significant quantities (particularly smaller sized articles) of ferrous and non-ferrous metals were delivered to landfill and compacted.



Operator retrieving metals



Large amounts of paint tins that will not be recovered by the operator

6.2 Reuse opportunities

These items below - including the leadlight window - were undamaged in the skip and suffered little if any damage during the transport and unloading. All of these items are examples of resources that would probably be sought after by the reuse shop as they have significant resale value and broad appeal.

Selected images of missed opportunities for reuse



Leadlight window

Recliner lounge in perfect condition



Dining chairs in good condition

TV entertainment unit



Child's toy in good condition

As new suitcase



Rolls of power cords

We understand that scavenging by the reuse centre was ceased due to concerns about OH&S, however, many items were in excellent condition when loaded into the skip but are damaged during the unloading process at the tip face (eg. lead light windows).

Some of the greatest opportunities for reuse appear to be from government departments, with items such as office furniture, chairs and carpet - all of which were observed to be in good condition. These items are most likely the result of an office refit.

The auditor indicated a clear correlation between the quality of waste disposed, potential for reuse and the high socio demographic profile of the region. Any future audits should seek to quantify reuse opportunities, which are considerable. We were not able to estimate the amount of diversion that could be achieved through reuse.

Charities were observed disposing of large amounts of textiles and consideration of establishing a ragging facility that could reprocess textiles, carpets etc, should be considered. The Smith Family in Sydney has invested in such a facility.

6.3 On-site sorting

The skip bin operators advised the auditor that while facilities exist where skip bin companies can deliver loads for processing such facilities have very high standards and refuse to accept any skips with contamination present (eg. insulation and carpet). However, these facilities do take a wide range of mixed materials with recycling and reuse potential.

Some operators advised that planning approval for such sorting facilities was challenging and problematic, which restricts their own opportunities to develop their own sorting facilities.

Given this information and the high amount of recoverable and recyclable materials found in the skips, the ACT Government needs to consider establishing a skip bin sorting area near the landfill face to enable scavenging by the reuse centre and the extraction of vegetation, cardboard, metals, C&D materials prior to landfilling. Such a facility could be operated by the landfill contractor, reuse centre operator, both or other third-party.

7. DISCUSSION

If all recyclable materials as shown in the table below were recovered, the maximum diversion possible could be up to 790m³ or 143 tonnes per week, which equates to 41,000m³ or 7,400 tonnes per year and represents 54% by volume of all incoming material.

Table 18 - Potential maximum diversion possible

Category	Volume per week m ³	Weight per week kg
Paper - recyclable	17.7	1,345
Cardboard	89.9	4,942
Vegetation/garden	193.7	17,627
Stumps, logs (10cm diameter +)	4.3	645
Wood - chipboard, MDF	92.2	14,386
Wood - board/pole, untreated	115.9	13,903
Mattresses - spring	15.7	783
Glass - containers recyclable	2.5	697
Plastic - containers recyclable	5.3	378
Plastic - PVC piping	3.1	532
Metals - recyclable containers	4.4	532
Metals - ferrous steel	46.5	5,575
Metals - non-ferrous	15.5	2,153
Concrete/cement	27.5	22,817
Bricks	9.2	7,576
Tiles	11.7	5,483
Plasterboard	104.9	23,801
Rock/dirt/soil	21.4	18,156
Computers/office equipment	1.6	412
Toner cartridges	0.0	0
Electrical large – eg. whitegoods	0.7	68
Electrical medium eg. televisions	6.2	1,634
Paint (containing liquid)	0.8	96
Total	790.2	143,540

While the table above outlines the maximum diversion rate possible, what is more practicable is to target vegetation recovery, the largest single material category, delivered almost exclusively from trash packs and comprises 14.3% of all loads. Wood including: stumps, logs, untreated timber and chipboard accounts for 15.6%. Together these organic fractions represent 30% of the deliveries and we understand a composting facility is co-located at the landfill site. The transport cost is therefore minimal. In addition, we have been advised that plasterboard can be composted, which would increase possible organic diversion to composting by up to 37%. A further 15% can be achieved by the recovery of cardboard, which represents 6.6% and metals 3.4% and C&D materials comprise 5% by volume. The other significant single material deposited in reasonable quantities was carpet, which accounts for 6.3% by volume.

In our opinion, the ACT Government needs to consider establishing a skip bin sorting area near the landfill face to enable scavenging by the reuse centre and the extraction of cardboard, metals, organics and C&D materials prior to landfilling. Such a facility could be operated by the landfill contractor, reuse centre operator, both or other third-party.

8. KEY FINDINGS

In total, 210 skip bins were sampled throughout the five weekdays, delivering 1,358m³ and weighing an estimated 219 tonnes. The volume of daily deliveries ranged a high of 330m³ or 54 tonnes on Friday, to a low of 220m³ or 39 tonnes on Wednesday.

The majority of loads are delivered in the 6-9m³ (41%) and >10m³ (38%) skip bins with 2-5m³ accounting for 21% of all loads delivered by volume. The opportunities to recover all recyclables increases with each increase in skip bin size.

The largest single categories in descending order and present in volumes greater than 85m³ were: vegetation, untreated timber, other plastic, plasterboard, wood - furniture, wood - chipboard, cardboard and carpet.

If all recyclable materials were recovered, the maximum diversion possible is 790m³ or 143 tonnes per week, which equates to 41,000m³ or 7,400 tonnes per year and represents 54% by volume of all incoming material.

What is more practicable is to target vegetation recovery, the largest single material category, delivered almost exclusively from trash packs and comprising 14.3% of all loads. Wood including stumps, logs, untreated timber and chipboard account for 15.6%. Together, these organic fractions represent 30%. In addition, we have been advised that plasterboard can be composted, which would increase possible organic diversion to composting by up to 37%. The organic stream holds the key to increased diversion and recovery.

A further 15% can be achieved through the recovery of cardboard, which represents 6.6% and metals 3.4%, with C&D materials comprising 5% by volume. The other significant single material deposited is carpet, which accounts for 6.3% by volume.

As charities were observed disposing of large amounts of textiles, consideration should be given to exploring the opportunities of establishing a facility that could reprocess textiles and carpets locally. The Smith Family has invested in such a manufacturing facility at Villawood in Sydney's western suburbs, which produces a range of products used in the automotive industry.

9 RECOMMENDATIONS

Based on the findings of this waste audit of the litter stream within the CBD area of Canberra, APC makes the following recommendations:

1. That the ACT Government establishes in consultation with the Mugga Lane Landfill contractors a set down area for skip bins and trash pack deliveries to allow scavenging for recovery and resale by the reuse shop and to promote the sorting and recovery of recyclables prior to landfilling. The key target materials should include vegetation, cardboard, metals, organics and C&D materials. Such a facility could be operated by the landfill contractor, reuse centre operator, both or other third-party.
2. That a briefing session be held with trash pack operators to discuss how to improve recovery from their operation and to educate users to ensure that only garden organic waste is placed in the containers and to determine what role the government can play to assist in education outreach delivery.
3. That consideration be given to reviewing and implementing pricing policies that encourage the source separation of clean stream organics from trash packs.
4. That a briefing session be held with skip bin operators to discuss how to improve recovery through identifying existing barriers and constraints in relation to their operations and to determine what role government can play to assist in education outreach delivery.
5. That the ACT Government conduct a feasibility study to determine the quantity of textiles and carpets that is currently landfilled with the view to attracting a textile reprocessing facility to the region.

APPENDIX A - LANDFILL AUDIT - VISUAL DATA SHEET Date: ____ Auditor: ____ Sheet No: ____

Entry time						
Registration number						
Bin size						
Company						
Estimate load volume -m³						
Load type	C&I/Dom/C&D/			C&I/Dom/C&D		
Industry						
Suburb/Area load is from						
Compaction	H	M	L	H	M	L
Garbage bags of rubbish						
Paper - recyclable*						
Paper - non-recyclable						
Cardboard*						
Food/Kitchen						
Vegetation/garden*						
Stumps, logs (10cm diameter +)*						
Wood - furniture, painted wood						
Wood - chipboard, MDF*						
Wood - board/pole, untreated*						
Wood - board/pole, treated						
Furniture - covered						
Carpet & underlay						
Textiles - clothing/ cloth						
Textiles - composite (shoes, bags)						
Mattresses - spring*						
Rubber/foam						
Glass - containers recyclable*						
Glass - plate/other						
Plastic - containers recyclable*						
Plastic - plastic bags & film						
Plastic - polystyrene foam						
Plastic - other						
Plastic - PVC piping*						
Metals - recyclable containers*						
Metals - ferrous steel*						
Metals - non-ferrous*						
Concrete/cement*						
Bricks*						
Tiles*						
Plasterboard*						
Rock/dirt/soil*						
Asbestos						
Computers/office equipment*						
Toner cartridges*						
Electrical large – ie. whitegoods (no.)*						
Electrical medium ie. televisions (no.)*						
Electrical small ie. blender (no.)						
Insulation						
Paint (containing liquid)*						
Oil*						
Hazardous/special						
Bric-a-brac (describe)						
Other items						

APPENDIX B - NSW DECCW GUIDELINES MATERIAL CATEGORIES

Material Categories	Definitions
Office paper	
Paper - all other	Magazines, newspapers, brown craft paper, rolls of low-grade paper, hand towels
Dry cardboard	Dry cardboard boxes, cardboard rolls, clean dry cardboard
Wet cardboard	Wet cardboard, soiled cardboard
Food/Kitchen	Pre and post consumer fruit, vegetable, meat, fat, bone
Vegetation/garden	Plant material, leaves, grass, small branches
Wood - furniture, painted	Wardrobes, painted fence posts, varnished furniture, wooden chairs, doors, etc
Wood - chipboard, MDF	Any engineered timber products, old kitchen benches, chipboard
Wood - board/pole, untreated	Pieces of solid timber without any visible signs of treatment. May include timber off-cuts, pallets, posts
Wood - board/pole, treated	Pieces of solid timber with visible signs of chemical treatment. CCA treated timber
Textiles - carpet, underlay	Rolls of carpet ,carpet off-cuts, carpet tiles, felt underlay, synthetic underlay
Textiles - cloth	Clothes, rags, rolls of fabric, fabric off-cuts
Textiles - cloth- & leather-covered furniture	Materials/leather-covered chairs and couches, cloth mattresses. NB: if mattresses, make 'comments'
Textiles /leather other	Leather off-cuts
Rubber - tyres, tubes	All tyres and inner-tubes
Rubber other	Rubber mats, rubber tubes, rubber washers, foam rubber
Glass - containers	Glass bottles and jars
Glass - plate	Window glass, non-recyclable glass such as wine glasses
Plastic - containers recyclable	Plastic bottles and jars - food/beverage containers (PET & HDPE)
Plastic - film	Film wrap, plastic bags (not filled)
Plastic - polystyrene foam	Packaging foam
Plastic - other	All other plastics not elsewhere classified - include industrial plastic containers, plastic drums
Metals - ferrous steel	Any items that are mainly steel or iron
Metals - non-ferrous	Aluminium siding, aluminium foil, copper wire, any items that are mainly metal but not steel/iron
Concrete/cement	Any concrete, bags of cement dust, etc
Bricks	Full-bricks, broken bricks
Tiles	Roof tiles, whole or broken
Plasterboard	Plasterboard, gypsum
Rock/dirt/soil	Stones, uncontaminated soil, inert material not elsewhere classified
Asphalt	Asphalt, bitumen
Hazardous/special	Batteries, chemicals, clinical waste, contaminated material
Garbage bags of rubbish	Enclosed bags of garbage
Computers/office equipment	Computers, monitors, photocopiers, fax machines, printers
Toner cartridges	Toner cartridges from photocopiers, printers, etc
Other items	There is space on the form to record amounts of other items presenting in significant quantities
Clay tiles, ceramics	All ceramics and tiles

APPENDIX C - DECCW VOLUME TO WEIGHT CONVERSION FACTORS (2010)

Waste material	Density - kilograms per cubic metre		
	[L] Low	[M] Medium	[C] Compacted
Office - paper	76	152	228
Paper - all other	76	152	228
Compacted dry cardboard	130	130	130
Compacted dry cardboard production spoils	130	130	130
Compacted wet cardboard	260	260	260
Loose dry cardboard	55	55	55
Loose dry cardboard production spoils	55	55	55
Loose wet cardboard	190	190	190
Waxed cardboard	55	92	130
Food/kitchen	343	514	1,029
Food - dense	514	1,029	1,029
Vegetation - branches/grass clippings	91	227	445
Vegetation - tree stumps/logs	150	450	900
Wood - pallets/other	156	156	156
Wood - furniture	160	170	400
Wood - fencing/board/pole (treated)	180	220	260
Wood - fencing/board/pole (untreated)	120	160	360
Wood - MDF/chipboard	156	156	156
Textile - furniture	90	100	450
Textile - carpet/underlay	100	150	350
Textile - mattress	50	50	50
Textile - cloth	91	120	240
Textile - leather/other	91	120	240
Rubber - other	200	200	200
Rubber - tyres/tubes	200	200	200
Rubber - shredded tyres	200	200	400
Glass - containers/other	280	280	280
Glass - pane	411	411	411
Plastic - bags and film	39	78	156
Plastic - recyclable containers	72	72	72
Plastic - hard	170	170	360
Plastic - other	170	170	360
Polystyrene/foam	14	21	28
Garbage bags	87	170	348
Tiles	470	550	640
Metal - ferrous	120	120	120
Metal - non-ferrous	139	139	139
Soil/clean fill	922	922	922
Rock	818	828	828
Rubble >150mm	1,048	1,048	1,048
Clay	1,150	1,150	1,150
Concrete/cement	830	830	830
Bricks	828	828	828
Asphalt	680	680	680
Plasterboard	227	227	227
Hazardous/special - chemical/clinical	227	227	227
Hazardous/special - light globes	285	285	285
Whitegoods - washing machine/fridges	105	113	120
Electronics/electrical television etc.	265	265	265
Toner cartridges	188.5	188.5	188.5
Computer/office equipment	265	265	265
Electrical/electronic - Sydney	265	265	265
Other	87	170	348

APPENDIX D - AGGREGATED CATEGORIES OF SKIP BIN DELIVERIES

Item	Aggregated category
Garbage bags of rubbish	Garbage bags
Paper - recyclable	Paper/cardboard
Paper - non-recyclable	Paper/cardboard
Cardboard	Paper/cardboard
Food/Kitchen	Other
Vegetation/garden	Vegetation
Stumps, logs (10cm diameter +)	Wood
Wood - furniture, painted wood	Wood
Wood - chipboard, MDF	Wood
Wood - board/pole, untreated	Wood
Wood - board/pole, treated	Wood
Furniture - covered	Furniture/carpet/textiles
Carpet & underlay	Furniture/carpet/textiles
Textiles - clothing/ cloth	Furniture/carpet/textiles
Textiles - composite	Furniture/carpet/textiles
Mattresses - spring	Other
Rubber/foam	Other
Glass - containers recyclable	Other
Glass - plate/other	Other
Plastic - containers recyclable	Plastic
Plastic - plastic bags & film	Plastic
Plastic - polystyrene foam	Plastic
Plastic - other	Plastic
Plastic - PVC piping	Plastic
Metals - recyclable containers	Other
Metals - ferrous steel	Other
Metals - non-ferrous	Other
Concrete/cement	Building materials
Bricks	Building materials
Tiles	Building materials
Plasterboard	Building materials
Rock/dirt/soil	Other
Asbestos	Other
Computers/office equipment	Other
Toner cartridges	Other
Electrical large – eg. whitegoods	Other
Electrical medium eg. televisions	Other
Electrical small eg. blender	Other
Insulation	Other
Paint (containing liquid)	Other
Oil	Other
Hazardous/special	Other
Bric-a-brac	Other
Other items	Other

APPENDIX E - RECYCLABLE OR

NON-RECYCLABLE ITEMS

Item	Status
Garbage bags of rubbish	Not recyclable
Paper - recyclable	Recyclable
Paper - non-recyclable	Not recyclable
Cardboard	Recyclable
Food/Kitchen	Not recyclable
Vegetation/garden	Recyclable
Stumps, logs (10cm diameter +)	Recyclable
Wood - furniture, painted wood	Not recyclable
Wood - chipboard, MDF	Recyclable
Wood - board/pole, untreated	Recyclable
Wood - board/pole, treated	Not recyclable
Furniture - covered	Not recyclable
Carpet & underlay	Not recyclable
Textiles - clothing/ cloth	Not recyclable
Textiles - composite	Not recyclable
Mattresses - spring	Recyclable
Rubber/foam	Not recyclable
Glass - containers recyclable	Recyclable
Glass - plate/other	Not recyclable
Plastic - containers recyclable	Recyclable
Plastic - plastic bags & film	Not recyclable
Plastic - polystyrene foam	Not recyclable
Plastic - other	Not recyclable
Plastic - PVC piping	Recyclable
Metals - recyclable containers	Recyclable
Metals - ferrous steel	Recyclable
Metals - non-ferrous	Recyclable
Concrete/cement	Recyclable
Bricks	Recyclable
Tiles	Recyclable
Plasterboard	Recyclable
Rock/dirt/soil	Recyclable
Asbestos	Not recyclable
Computers/office equipment	Recyclable
Toner cartridges	Recyclable
Electrical large – eg. whitegoods	Recyclable
Electrical medium eg. televisions	Recyclable
Electrical small eg. blender	Not recyclable
Insulation	Not recyclable
Paint (containing liquid)	Recyclable
Oil	Recyclable
Hazardous/special	Not recyclable
Bric-a-brac	Not recyclable
Other items	Not recyclable

**APPENDIX F -
COMPOSITION OF SKIP WASTE BY DAY BY VOLUME (M³)
(Garbage bags not distributed)**

Item	23/05/2011	24/05/2011	25/05/2011	26/05/2011	27/05/2011	All days
Garbage bags of rubbish	7.8	3.7	10.0	10.6	17.3	49.4
Paper - recyclable	2.1	5.6	1.4	5.7	3.0	17.7
Paper - non-recyclable	3.2	10.0	2.7	1.3	6.6	23.8
Cardboard	8.9	17.1	11.8	22.8	29.3	89.9
Food/Kitchen	3.1	0.1	0.1	0.0	1.2	4.5
Vegetation/garden	38.8	43.2	32.9	38.7	40.1	193.7
Stumps, logs (10cm diameter +)	0.1	1.8	0.0	0.0	2.4	4.3
Wood - furniture, painted wood	31.4	16.6	15.4	12.1	21.2	96.5
Wood - chipboard, MDF	14.3	21.8	8.2	28.2	19.7	92.2
Wood - board/pole, untreated	22.8	9.6	27.2	17.2	39.1	115.9
Wood - board/pole, treated	4.6	1.9	1.1	7.7	9.0	24.2
Furniture - covered	4.6	4.0	0.3	8.4	9.5	26.7
Carpet & underlay	18.2	26.4	7.1	27.1	6.5	85.3
Textiles - clothing/ cloth	7.6	4.4	2.0	6.0	8.1	28.0
Textiles - composite	3.8	4.5	2.5	6.6	5.0	22.5
Mattresses - spring	2.0	3.4	0.0	6.7	3.6	15.7
Rubber/foam	1.6	0.8	1.5	0.1	2.8	6.7
Glass - containers recyclable	0.3	0.6	0.4	0.4	0.7	2.5
Glass - plate/other	1.5	2.5	2.9	1.3	2.4	10.5
Plastic - containers recyclable	0.2	0.6	1.1	2.3	1.1	5.3
Plastic - plastic bags & film	1.0	6.1	7.7	5.4	12.4	32.6
Plastic - polystyrene foam	0.9	3.0	1.3	1.7	3.7	10.6
Plastic - other	18.8	25.9	20.0	25.0	17.3	107.0
Plastic - PVC piping	0.6	1.1	0.4	0.3	0.7	3.1
Metals - recyclable containers	0.0	0.6	0.6	2.3	1.0	4.4
Metals - ferrous steel	11.4	6.2	8.3	9.9	10.6	46.5
Metals - non-ferrous	5.6	4.1	2.8	1.0	2.0	15.5
Concrete/cement	8.2	2.5	3.6	5.1	8.2	27.5
Bricks	1.3	0.4	2.0	2.5	3.0	9.2
Tiles	2.4	0.4	4.1	1.3	3.6	11.7
Plasterboard	14.2	27.0	29.0	14.9	19.8	104.9
Rock/dirt/soil	2.6	2.1	6.5	3.8	6.4	21.4
Asbestos	0.0	0.0	0.0	0.0	0.0	0.0
Computers/office equipment	0.3	0.5	0.3	0.2	0.4	1.6
Toner cartridges	0.0	0.0	0.0	0.0	0.0	0.0
Electrical large eg. whitegoods	0.5	0.1	0.1	0.0	0.0	0.7
Electrical medium eg. televisions	2.6	0.8	0.5	1.2	1.1	6.2
Electrical small eg. blender	3.7	0.6	0.1	0.4	0.6	5.4
Insulation	4.2	2.5	3.7	7.4	5.9	23.6
Paint (containing liquid)	0.0	0.0	0.0	0.0	0.8	0.8
Oil	0.0	0.0	0.0	0.0	0.0	0.0
Hazardous/special	0.0	0.0	0.0	0.0	0.0	0.0
Bric-a-brac	1.1	2.4	0.3	0.6	0.6	5.0
Other items	0.1	1.3	0.7	1.1	2.7	5.9
Total	256.1	266.1	220.2	286.9	329.0	1,358.3

COMPOSITION OF SKIP WASTE BY DAY BY PER CENT
(garbage bags not distributed)

Item	23/05/2011	24/05/2011	25/05/2011	26/05/2011	27/05/2011	All days
Garbage bags of rubbish	3.1%	1.4%	4.5%	3.7%	5.3%	3.6%
Paper - recyclable	0.8%	2.1%	0.6%	2.0%	0.9%	1.3%
Paper - non-recyclable	1.3%	3.8%	1.2%	0.4%	2.0%	1.8%
Cardboard	3.5%	6.4%	5.3%	8.0%	8.9%	6.6%
Food/Kitchen	1.2%	0.0%	0.0%	0.0%	0.4%	0.3%
Vegetation/garden	15.2%	16.2%	14.9%	13.5%	12.2%	14.3%
Stumps, logs (10cm diameter +)	0.0%	0.7%	0.0%	0.0%	0.7%	0.3%
Wood - furniture, painted wood	12.2%	6.2%	7.0%	4.2%	6.4%	7.1%
Wood - chipboard, MDF	5.6%	8.2%	3.7%	9.8%	6.0%	6.8%
Wood - board/pole, untreated	8.9%	3.6%	12.4%	6.0%	11.9%	8.5%
Wood - board/pole, treated	1.8%	0.7%	0.5%	2.7%	2.7%	1.8%
Furniture - covered	1.8%	1.5%	0.1%	2.9%	2.9%	2.0%
Carpet & underlay	7.1%	9.9%	3.2%	9.5%	2.0%	6.3%
Textiles - clothing/ cloth	2.9%	1.7%	0.9%	2.1%	2.5%	2.1%
Textiles - composite	1.5%	1.7%	1.2%	2.3%	1.5%	1.7%
Mattresses - spring	0.8%	1.3%	0.0%	2.3%	1.1%	1.2%
Rubber/foam	0.6%	0.3%	0.7%	0.0%	0.9%	0.5%
Glass - containers recyclable	0.1%	0.2%	0.2%	0.1%	0.2%	0.2%
Glass - plate/other	0.6%	0.9%	1.3%	0.4%	0.7%	0.8%
Plastic - containers recyclable	0.1%	0.2%	0.5%	0.8%	0.3%	0.4%
Plastic - plastic bags & film	0.4%	2.3%	3.5%	1.9%	3.8%	2.4%
Plastic - polystyrene foam	0.4%	1.1%	0.6%	0.6%	1.1%	0.8%
Plastic - other	7.4%	9.7%	9.1%	8.7%	5.3%	7.9%
Plastic - PVC piping	0.2%	0.4%	0.2%	0.1%	0.2%	0.2%
Metals - recyclable containers	0.0%	0.2%	0.3%	0.8%	0.3%	0.3%
Metals - ferrous steel	4.4%	2.3%	3.8%	3.5%	3.2%	3.4%
Metals - non-ferrous	2.2%	1.5%	1.3%	0.4%	0.6%	1.1%
Concrete/cement	3.2%	0.9%	1.6%	1.8%	2.5%	2.0%
Bricks	0.5%	0.2%	0.9%	0.9%	0.9%	0.7%
Tiles	0.9%	0.1%	1.8%	0.4%	1.1%	0.9%
Plasterboard	5.5%	10.2%	13.2%	5.2%	6.0%	7.7%
Rock/dirt/soil	1.0%	0.8%	3.0%	1.3%	1.9%	1.6%
Asbestos	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Computers/office equipment	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%
Toner cartridges	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Electrical large - eg. whitegoods	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Electrical medium eg. TV	1.0%	0.3%	0.2%	0.4%	0.3%	0.5%
Electrical small eg. blender	1.4%	0.2%	0.1%	0.1%	0.2%	0.4%
Insulation	1.6%	0.9%	1.7%	2.6%	1.8%	1.7%
Paint (containing liquid)	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%
Oil	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hazardous/special	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bric-a-brac	0.4%	0.9%	0.1%	0.2%	0.2%	0.4%
Other items	0.0%	0.5%	0.3%	0.4%	0.8%	0.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

APPENDIX F - COMPOSITION OF SKIP WASTE BY DAY BY VOLUME (M³) (garbage bags distributed)

Item	23/05/2011	24/05/2011	25/05/2011	26/05/2011	27/05/2011	All days
Paper - recyclable	2.3	5.8	2.0	5.7	4.3	20.1
Paper - non-recyclable	3.9	10.4	4.3	2.6	11.5	32.6
Cardboard	9.0	17.1	12.2	23.0	30.0	91.3
Food/Kitchen	5.8	1.7	0.9	2.4	4.0	14.8
Vegetation/garden	39.3	43.2	32.9	38.7	40.1	194.2
Stumps, logs (10cm diameter +)	0.1	1.8	0.0	0.0	2.4	4.3
Wood - furniture, painted wood	31.4	16.6	15.4	12.1	21.2	96.5
Wood - chipboard, MDF	14.3	21.8	8.2	28.2	19.7	92.2
Wood - board/pole, untreated	22.8	9.6	27.2	17.2	39.1	115.9
Wood - board/pole, treated	4.6	1.9	1.1	7.7	9.0	24.2
Furniture - covered	4.6	4.0	0.3	8.4	9.5	26.7
Carpet & underlay	18.2	26.4	7.1	27.1	6.5	85.3
Textiles - clothing/ cloth	7.6	4.4	2.3	6.0	8.1	28.3
Textiles - composite	3.8	4.5	2.6	6.6	5.0	22.6
Mattresses - spring	2.0	3.4	0.0	6.7	3.6	15.7
Rubber/foam	1.6	0.8	1.5	0.1	2.8	6.7
Glass - containers recyclable	0.5	0.9	0.9	0.9	1.7	4.8
Glass - plate/other	1.5	2.6	2.9	1.8	2.4	11.1
Plastic - containers recyclable	0.5	0.7	2.5	3.2	2.7	9.6
Plastic - plastic bags & film	1.3	6.6	8.2	7.2	13.7	37.0
Plastic - polystyrene foam	1.1	3.1	2.5	2.0	4.6	13.3
Plastic - other	19.0	26.0	21.0	25.7	17.8	109.5
Plastic - PVC piping	0.6	1.1	0.5	0.3	0.7	3.2
Metals - recyclable containers	0.2	0.7	1.8	3.0	1.6	7.2
Metals - ferrous steel	11.4	6.2	8.3	9.9	10.6	46.5
Metals - non-ferrous	5.6	4.1	3.2	1.3	2.0	16.2
Concrete/cement	8.2	2.5	3.6	5.1	8.2	27.5
Bricks	1.3	0.4	2.0	2.5	3.0	9.2
Tiles	2.4	0.4	4.1	1.3	3.6	11.7
Plasterboard	14.2	27.0	29.0	14.9	19.8	104.9
Rock/dirt/soil	2.6	2.1	6.5	3.8	6.4	21.4
Asbestos	0.0	0.0	0.0	0.0	0.0	0.0
Computers/office equipment	0.3	0.5	0.3	0.2	0.4	1.6
Toner cartridges	0.0	0.0	0.0	0.0	0.0	0.0
Electrical large - eg. whitegoods	0.5	0.1	0.1	0.0	0.0	0.7
Electrical medium eg. televisions	2.6	0.8	0.5	1.2	1.1	6.2
Electrical small eg. blender	3.7	0.6	0.1	0.4	0.6	5.4
Insulation	4.2	2.5	3.7	7.4	5.9	23.6
Paint (containing liquid)	0.0	0.0	0.0	0.0	0.8	0.8
Oil	0.0	0.0	0.0	0.0	0.0	0.0
Hazardous/special	0.0	0.0	0.0	0.6	0.0	0.6
Bric-a-brac	1.1	2.4	0.3	0.6	0.9	5.3
Other items	2.4	1.3	0.7	1.6	4.2	10.3
Total	256.1	266.1	220.2	286.9	329.0	1,358.3

**COMPOSITION OF SKIP WASTE BY DAY BY PER CENT (M³) -
(garbage bags distributed)**

Item	23/05/2011	24/05/2011	25/05/2011	26/05/2011	27/05/2011	All days
Paper - recyclable	0.9%	2.2%	0.9%	2.0%	1.3%	1.5%
Paper - non-recyclable	1.5%	3.9%	1.9%	0.9%	3.5%	2.4%
Cardboard	3.5%	6.4%	5.5%	8.0%	9.1%	6.7%
Food/Kitchen	2.3%	0.7%	0.4%	0.8%	1.2%	1.1%
Vegetation/garden	15.3%	16.2%	14.9%	13.5%	12.2%	14.3%
Stumps, logs (10cm diameter +)	0.0%	0.7%	0.0%	0.0%	0.7%	0.3%
Wood - furniture, painted wood	12.2%	6.2%	7.0%	4.2%	6.4%	7.1%
Wood - chipboard, MDF	5.6%	8.2%	3.7%	9.8%	6.0%	6.8%
Wood - board/pole, untreated	8.9%	3.6%	12.4%	6.0%	11.9%	8.5%
Wood - board/pole, treated	1.8%	0.7%	0.5%	2.7%	2.7%	1.8%
Furniture - covered	1.8%	1.5%	0.1%	2.9%	2.9%	2.0%
Carpet & underlay	7.1%	9.9%	3.2%	9.5%	2.0%	6.3%
Textiles - clothing/ cloth	2.9%	1.7%	1.0%	2.1%	2.5%	2.1%
Textiles - composite	1.5%	1.7%	1.2%	2.3%	1.5%	1.7%
Mattresses - spring	0.8%	1.3%	0.0%	2.3%	1.1%	1.2%
Rubber/foam	0.6%	0.3%	0.7%	0.0%	0.9%	0.5%
Glass - containers recyclable	0.2%	0.3%	0.4%	0.3%	0.5%	0.4%
Glass - plate/other	0.6%	1.0%	1.3%	0.6%	0.7%	0.8%
Plastic - containers recyclable	0.2%	0.3%	1.1%	1.1%	0.8%	0.7%
Plastic - plastic bags & film	0.5%	2.5%	3.7%	2.5%	4.2%	2.7%
Plastic - polystyrene foam	0.4%	1.2%	1.1%	0.7%	1.4%	1.0%
Plastic - other	7.4%	9.8%	9.5%	8.9%	5.4%	8.1%
Plastic - PVC piping	0.2%	0.4%	0.2%	0.1%	0.2%	0.2%
Metals - recyclable containers	0.1%	0.3%	0.8%	1.0%	0.5%	0.5%
Metals - ferrous steel	4.4%	2.3%	3.8%	3.5%	3.2%	3.4%
Metals - non-ferrous	2.2%	1.5%	1.4%	0.5%	0.6%	1.2%
Concrete/cement	3.2%	0.9%	1.6%	1.8%	2.5%	2.0%
Bricks	0.5%	0.2%	0.9%	0.9%	0.9%	0.7%
Tiles	0.9%	0.1%	1.8%	0.4%	1.1%	0.9%
Plasterboard	5.5%	10.2%	13.2%	5.2%	6.0%	7.7%
Rock/dirt/soil	1.0%	0.8%	3.0%	1.3%	1.9%	1.6%
Asbestos	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Computers/office equipment	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%
Toner cartridges	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Electrical large - eg. whitegoods	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Electrical medium eg. televisions	1.0%	0.3%	0.2%	0.4%	0.3%	0.5%
Electrical small eg. blender	1.4%	0.2%	0.1%	0.1%	0.2%	0.4%
Insulation	1.6%	0.9%	1.7%	2.6%	1.8%	1.7%
Paint (containing liquid)	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%
Oil	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hazardous/special	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
Bric-a-brac	0.4%	0.9%	0.1%	0.2%	0.3%	0.4%
Other items	0.9%	0.5%	0.3%	0.5%	1.3%	0.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

APPENDIX G - DETAILED COMPOSITION OF SKIP WASTE BY DAY BY WEIGHT (KG) ESTIMATED - (garbage bags not distributed)

Item: 1. Weight (kg)	23/05/2011	24/05/2011	25/05/2011	26/05/2011	27/05/2011	All days
Garbage bags of rubbish	680	322	870	922	1,505	4,300
Paper - recyclable	159	423	104	433	226	1,345
Paper - non-recyclable	245	763	203	97	503	1,812
Cardboard	487	942	646	1,255	1,612	4,942
Food/Kitchen	1,063	31	38	0	412	1,544
Vegetation/garden	3,534	3,933	2,989	3,522	3,649	17,627
Stumps, logs (10cm diameter +)	15	270	0	0	360	645
Wood - furniture, painted wood	5,016	2,652	2,456	1,930	3,384	15,438
Wood - chipboard, MDF	2,236	3,396	1,284	4,391	3,078	14,386
Wood - board/pole, untreated	2,734	1,152	3,265	2,065	4,686	13,903
Wood - board/pole, treated	824	342	198	1,386	1,611	4,361
Furniture - covered	418	356	27	754	851	2,405
Carpet & underlay	1,815	2,643	706	2,712	653	8,529
Textiles - clothing/ cloth	687	401	177	542	736	2,544
Textiles - composite	343	412	231	602	455	2,043
Mattresses - spring	98	170	0	335	180	783
Rubber/foam	310	160	290	20	560	1,340
Glass - containers recyclable	84	174	115	120	204	697
Glass - plate/other	604	1,028	1,171	526	999	4,328
Plastic - containers recyclable	13	42	81	164	79	378
Plastic - plastic bags & film	37	239	300	211	482	1,270
Plastic - polystyrene foam	13	42	18	23	52	148
Plastic - other	3,203	4,404	3,405	4,242	2,941	18,194
Plastic - PVC piping	109	187	68	49	119	532
Metals - recyclable containers	5	70	67	276	114	532
Metals - ferrous steel	1,363	749	1,001	1,193	1,270	5,575
Metals - non-ferrous	774	566	393	142	277	2,153
Concrete/cement	6,794	2,058	2,967	4,233	6,765	22,817
Bricks	1,085	339	1,615	2,053	2,484	7,576
Tiles	1,123	174	1,906	588	1,692	5,483
Plasterboard	3,223	6,136	6,576	3,382	4,483	23,801
Rock/dirt/soil	2,219	1,785	5,525	3,230	5,398	18,156
Asbestos	0	0	0	0	0	0
Computers/office equipment	72	123	74	40	103	412
Toner cartridges	0	0	0	0	0	0
Electrical large - eg. whitegoods	53	11	5	0	0	68
Electrical medium eg. TVs	692	201	144	305	292	1,634
Electrical small eg. blender	978	158	37	93	156	1,422
Insulation	630	375	548	1,110	878	3,540
Paint (containing liquid)	0	0	0	0	96	96
Oil	0	0	0	0	0	0
Hazardous/special	0	0	0	0	0	0
Bric-a-brac	308	672	78	165	168	1,392
Other items	8	111	63	92	237	511
Total	44,053	38,010	39,644	43,206	53,747	218,660

DETAILED COMPOSITION OF SKIP WASTE BY DAY BY WEIGHT (KG) ESTIMATED
(garbage bags not distributed)

Item	23/05/2011	24/05/2011	25/05/2011	26/05/2011	27/05/2011	All days
Garbage bags of rubbish	1.5%	0.8%	2.2%	2.1%	2.8%	2.0%
Paper - recyclable	0.4%	1.1%	0.3%	1.0%	0.4%	0.6%
Paper - non-recyclable	0.6%	2.0%	0.5%	0.2%	0.9%	0.8%
Cardboard	1.1%	2.5%	1.6%	2.9%	3.0%	2.3%
Food/Kitchen	2.4%	0.1%	0.1%	0.0%	0.8%	0.7%
Vegetation/garden	8.0%	10.3%	7.5%	8.2%	6.8%	8.1%
Stumps, logs (10cm diameter +)	0.0%	0.7%	0.0%	0.0%	0.7%	0.3%
Wood - furniture, painted wood	11.4%	7.0%	6.2%	4.5%	6.3%	7.1%
Wood - chipboard, MDF	5.1%	8.9%	3.2%	10.2%	5.7%	6.6%
Wood - board/pole, untreated	6.2%	3.0%	8.2%	4.8%	8.7%	6.4%
Wood - board/pole, treated	1.9%	0.9%	0.5%	3.2%	3.0%	2.0%
Furniture - covered	0.9%	0.9%	0.1%	1.7%	1.6%	1.1%
Carpet & underlay	4.1%	7.0%	1.8%	6.3%	1.2%	3.9%
Textiles - clothing/ cloth	1.6%	1.1%	0.4%	1.3%	1.4%	1.2%
Textiles - composite	0.8%	1.1%	0.6%	1.4%	0.8%	0.9%
Mattresses - spring	0.2%	0.4%	0.0%	0.8%	0.3%	0.4%
Rubber/foam	0.7%	0.4%	0.7%	0.0%	1.0%	0.6%
Glass - containers recyclable	0.2%	0.5%	0.3%	0.3%	0.4%	0.3%
Glass - plate/other	1.4%	2.7%	3.0%	1.2%	1.9%	2.0%
Plastic - containers recyclable	0.0%	0.1%	0.2%	0.4%	0.1%	0.2%
Plastic - plastic bags & film	0.1%	0.6%	0.8%	0.5%	0.9%	0.6%
Plastic - polystyrene foam	0.0%	0.1%	0.0%	0.1%	0.1%	0.1%
Plastic - other	7.3%	11.6%	8.6%	9.8%	5.5%	8.3%
Plastic - PVC piping	0.2%	0.5%	0.2%	0.1%	0.2%	0.2%
Metals - recyclable containers	0.0%	0.2%	0.2%	0.6%	0.2%	0.2%
Metals - ferrous steel	3.1%	2.0%	2.5%	2.8%	2.4%	2.5%
Metals - non-ferrous	1.8%	1.5%	1.0%	0.3%	0.5%	1.0%
Concrete/cement	15.4%	5.4%	7.5%	9.8%	12.6%	10.4%
Bricks	2.5%	0.9%	4.1%	4.8%	4.6%	3.5%
Tiles	2.5%	0.5%	4.8%	1.4%	3.1%	2.5%
Plasterboard	7.3%	16.1%	16.6%	7.8%	8.3%	10.9%
Rock/dirt/soil	5.0%	4.7%	13.9%	7.5%	10.0%	8.3%
Asbestos	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Computers/office equipment	0.2%	0.3%	0.2%	0.1%	0.2%	0.2%
Toner cartridges	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Electrical large - eg. whitegoods	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Electrical medium eg. TVs	1.6%	0.5%	0.4%	0.7%	0.5%	0.7%
Electrical small eg. blender	2.2%	0.4%	0.1%	0.2%	0.3%	0.7%
Insulation	1.4%	1.0%	1.4%	2.6%	1.6%	1.6%
Paint (containing liquid)	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%
Oil	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hazardous/special	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bric-a-brac	0.7%	1.8%	0.2%	0.4%	0.3%	0.6%
Other items	0.0%	0.3%	0.2%	0.2%	0.4%	0.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

APPENDIX H - DETAILED COMPOSITION OF SKIP WASTE BY DAY WEIGHT (KG) - (garbage bags distributed)

Item	23/05/2011	24/05/2011	25/05/2011	26/05/2011	27/05/2011	All days
Paper - recyclable	172	443	154	433	325	1,527
Paper - non-recyclable	297	789	325	195	876	2,480
Cardboard	497	943	668	1,266	1,647	5,021
Food/Kitchen	1,980	593	295	823	1,372	5,064
Vegetation/garden	3,575	3,933	2,989	3,522	3,649	17,668
Stumps, logs (10cm diameter +)	15	270	0	0	360	645
Wood - furniture, painted wood	5,016	2,652	2,456	1,930	3,384	15,438
Wood - chipboard, MDF	2,236	3,396	1,284	4,391	3,078	14,386
Wood - board/pole, untreated	2,734	1,152	3,265	2,065	4,686	13,903
Wood - board/pole, treated	824	342	198	1,386	1,611	4,361
Furniture - covered	418	356	27	754	851	2,405
Carpet & underlay	1,815	2,643	706	2,712	653	8,529
Textiles - clothing/ cloth	687	401	209	542	736	2,576
Textiles - composite	343	412	240	602	455	2,052
Mattresses - spring	98	170	0	335	180	783
Rubber/foam	310	160	290	20	560	1,340
Glass - containers recyclable	131	242	244	246	470	1,334
Glass - plate/other	604	1,069	1,171	727	999	4,570
Plastic - containers recyclable	37	53	181	228	191	690
Plastic - plastic bags & film	51	259	319	281	535	1,445
Plastic - polystyrene foam	15	44	35	28	65	186
Plastic - other	3,231	4,424	3,575	4,361	3,026	18,617
Plastic - PVC Piping	109	187	85	49	119	549
Metals - recyclable containers	25	84	211	354	186	860
Metals - ferrous steel	1,363	749	1,001	1,193	1,270	5,575
Metals - non-ferrous	774	571	442	184	277	2,248
Concrete/cement	6,794	2,058	2,967	4,233	6,765	22,817
Bricks	1,085	339	1,615	2,053	2,484	7,576
Tiles	1,123	174	1,906	588	1,692	5,483
Plasterboard	3,223	6,136	6,576	3,382	4,483	23,801
Rock/dirt/soil	2,219	1,785	5,525	3,230	5,398	18,156
Asbestos	0	0	0	0	0	0
Computers/office equipment	72	123	74	40	103	412
Toner cartridges	0	0	0	0	0	0
Electrical large - eg. whitegoods	53	11	5	0	0	68
Electrical medium eg. TVs	692	201	144	305	292	1,634
Electrical small eg. blender	978	158	37	93	156	1,422
Insulation	630	375	548	1,110	878	3,540
Paint (containing liquid)	0	0	0	0	96	96
Oil	0	0	0	0	0	0
Hazardous/special	0	0	0	52	0	52
Bric-a-brac	308	672	78	165	252	1,476
Other items	212	114	63	136	367	892
Total	44,743	38,483	39,910	44,015	54,524	221,675

**DETAILED COMPOSITION OF SKIP WASTE BY DAY WEIGHT (KG) -
(garbage bags distributed)**

Item	23/05/2011	24/05/2011	25/05/2011	26/05/2011	27/05/2011	All days
Paper - recyclable	0.4%	1.2%	0.4%	1.0%	0.6%	0.7%
Paper - non-recyclable	0.7%	2.0%	0.8%	0.4%	1.6%	1.1%
Cardboard	1.1%	2.4%	1.7%	2.9%	3.0%	2.3%
Food/Kitchen	4.4%	1.5%	0.7%	1.9%	2.5%	2.3%
Vegetation/garden	8.0%	10.2%	7.5%	8.0%	6.7%	8.0%
Stumps, logs (10cm diameter +)	0.0%	0.7%	0.0%	0.0%	0.7%	0.3%
Wood - furniture, painted wood	11.2%	6.9%	6.2%	4.4%	6.2%	7.0%
Wood - chipboard, MDF	5.0%	8.8%	3.2%	10.0%	5.6%	6.5%
Wood - board/pole, untreated	6.1%	3.0%	8.2%	4.7%	8.6%	6.3%
Wood - board/pole, treated	1.8%	0.9%	0.5%	3.1%	3.0%	2.0%
Furniture - covered	0.9%	0.9%	0.1%	1.7%	1.6%	1.1%
Carpet & underlay	4.1%	6.9%	1.8%	6.2%	1.2%	3.8%
Textiles - clothing/ cloth	1.5%	1.0%	0.5%	1.2%	1.4%	1.2%
Textiles - composite	0.8%	1.1%	0.6%	1.4%	0.8%	0.9%
Mattresses - spring	0.2%	0.4%	0.0%	0.8%	0.3%	0.4%
Rubber/foam	0.7%	0.4%	0.7%	0.0%	1.0%	0.6%
Glass - containers recyclable	0.3%	0.6%	0.6%	0.6%	0.9%	0.6%
Glass - plate/other	1.4%	2.8%	2.9%	1.7%	1.8%	2.1%
Plastic - containers recyclable	0.1%	0.1%	0.5%	0.5%	0.3%	0.3%
Plastic - plastic bags & film	0.1%	0.7%	0.8%	0.6%	1.0%	0.7%
Plastic - polystyrene foam	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%
Plastic - other	7.2%	11.5%	9.0%	9.9%	5.5%	8.4%
Plastic - PVC piping	0.2%	0.5%	0.2%	0.1%	0.2%	0.2%
Metals - recyclable containers	0.1%	0.2%	0.5%	0.8%	0.3%	0.4%
Metals - ferrous steel	3.0%	1.9%	2.5%	2.7%	2.3%	2.5%
Metals - non-ferrous	1.7%	1.5%	1.1%	0.4%	0.5%	1.0%
Concrete/cement	15.2%	5.3%	7.4%	9.6%	12.4%	10.3%
Bricks	2.4%	0.9%	4.0%	4.7%	4.6%	3.4%
Tiles	2.5%	0.5%	4.8%	1.3%	3.1%	2.5%
Plasterboard	7.2%	15.9%	16.5%	7.7%	8.2%	10.7%
Rock/dirt/soil	5.0%	4.6%	13.8%	7.3%	9.9%	8.2%
Asbestos	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Computers/office equipment	0.2%	0.3%	0.2%	0.1%	0.2%	0.2%
Toner cartridges	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Electrical large - eg. whitegoods	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Electrical medium eg. TVs	1.5%	0.5%	0.4%	0.7%	0.5%	0.7%
Electrical small eg. blender	2.2%	0.4%	0.1%	0.2%	0.3%	0.6%
Insulation	1.4%	1.0%	1.4%	2.5%	1.6%	1.6%
Paint (containing liquid)	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%
Oil	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hazardous/special	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Bric-a-brac	0.7%	1.7%	0.2%	0.4%	0.5%	0.7%
Other items	0.5%	0.3%	0.2%	0.3%	0.7%	0.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%