# Notice of information required for an annual return of non-metropolitan landfills

Waste Avoidance and Resource Recovery Regulations 2008 (Regulation 18D)

# Person who describes information required for an annual return

I, Alistair Jones, in my capacity as the Chief Executive Officer of the department principally assisting the Minister for Environment in the administration of the *Waste Avoidance and Resource Recovery Act 2007*<sup>1</sup> (CEO) hereby describes in this notice the information relating to reportable waste<sup>2</sup> or recycling of reportable waste that is required to be provided in an annual return and the procedures to be followed to record and calculate or estimate that information pursuant to regulations 18C and 18D(1) of the Waste Avoidance and Resource Recovery Regulations 2008.

# Person required to provide and use information in this notice

In this notice, a person is a *liable person* as described under regulations 18B(1) and 18B(4) of the Waste Avoidance and Resource Recovery Regulations 2008 if they are a licensee, or a person who is the occupier of premises that would, if the person held a licence in respect of the relevant premises, be a licensed landfill —

- a) if at least 20,000 tonnes of reportable waste is received in a financial year at the licensed landfill or the relevant premises; and
- b) if the licensed landfill is, or the relevant premises are, outside the metropolitan region.

For the purpose of this notice, these persons will be hereafter referred to as 'liable non-metropolitan landfills'.

A licensed landfill premises is a premises specified in category 63, 64 or 65 of the Environmental Protection Regulations 1987, Schedule 1, in respect of which a licence is held.

<sup>&</sup>lt;sup>1</sup> The 'department principally assisting the Minister for Environment in the administration of the *Waste Avoidance and Resource Recovery Act 2007*' is currently the Department of Water and Environmental Regulation.

<sup>&</sup>lt;sup>2</sup> Regulation 18A of the Waste Avoidance and Resource Recovery Regulations 2008 defines **reportable waste** to mean waste that is solid matter.

A liable non-metropolitan landfill is subject to Part 3A of the Waste Avoidance and Resource Recovery Regulations 2008 pursuant to regulation 18B(1). Under regulation 18C of Part 3A, a liable non-metropolitan landfill is required to make and lodge an annual return relating to reportable waste or the recycling of reportable waste containing information as required by this notice under regulation 18D.

## Premises or licensed landfill

The liable non-metropolitan landfill must inform the CEO in a form approved in writing by the CEO<sup>3</sup> of the premises or the licensed landfill in respect of which the person is a liable person pursuant to regulation 18B(5)(b) of the Waste Avoidance and Resource Recovery Regulations 2008.

# Information required for the annual return - regulations 18C and 18D

For the purposes of making an annual return under regulation 18C of the Waste Avoidance and Resource Recovery Regulations 2008, the liable non-metropolitan landfill must include the following information in that annual return, and record that information pursuant to regulations 18D(1)(b)(i) and 18D(5).

- 1. All liable non-metropolitan landfills must record and report the following data against the approved waste material categories, in tonnes:
  - · total weight of waste received
  - total weight of waste received from each waste source sector (municipal; commercial and industrial; or construction and demolition)
  - total weight of waste disposed to landfill
  - · total weight of waste removed from the site
  - the destination of material removed from site (recycling; waste-to-energy; or disposal to landfill)
  - total weight received by defined regions (received from the metropolitan region but to which
    are exempt from the levy under the Waste Avoidance and Resource Recovery Levy
    Regulations 2008; received from the Perth metropolitan region and subject to the levy,
    received from Peel region, received from other regions)
  - total weight of stockpiled processed waste at the start and end of the financial year
  - total weight of stockpiled unprocessed waste at the start and end of the financial year.
- 2. Liable non-metropolitan landfills must calculate or estimate the information by virtue of regulation 18D(1)(b)(ii) of the Waste Avoidance and Resource Recovery Regulations 2008

<sup>&</sup>lt;sup>3</sup> The term 'approved' is defined in regulation 3 of the Waste Avoidance and Resource Recovery Regulations 2008 to mean approved by the CEO in writing.

required in item 1 using the Approved procedure for estimation/calculation of annual return information for non-metropolitan landfills receiving more than 20,000 tonnes of waste per annum required under the Waste Avoidance and Resource Recovery Regulations 2008 at Attachment 1 of this notice, which forms part of this notice.

- 3. Liable non-metropolitan landfills must make and submit their return in the approved<sup>4</sup> form.
- 4. Liable non-metropolitan landfills must, by virtue of regulation 18D(1)(b)(i) of the Waste Avoidance and Resource Recovery Regulations 2008, keep and record relevant to the calculation, estimation and/or verification of the information reported in its annual return in a legible written form, or so as to be readily convertible into such a form, for a period of not less than five years from the day on which the record was made.

## Current reporting and liability

The liable non-metropolitan landfill must make an annual return in the approved<sup>5</sup> form and lodge it with the CEO on or before 1 October each year. The annual return must contain the information required under this notice for the most recently completed financial year relating to reportable waste<sup>6</sup> or recycling of reportable waste.

This CEO notice replaces all previous CEO notices issued to liable non-metropolitan landfills under regulation 18D(1) of the Waste Avoidance and Resource Recovery Regulations 2008.

There are a number of offences provided for under regulation 18E of the Waste Avoidance and Resource Recovery Regulations 2008 for breaches by liable non-metropolitan landfills under regulations 18B, 18C and 18D, carrying a fine of \$10,000.

Alistair Jones
Chief Executive Officer
Department of Water and Environmental Regulation
<DATE>

<sup>&</sup>lt;sup>4</sup> The term 'approved' is defined in regulation 3 of the Waste Avoidance and Resource Recovery Regulations 2008 to mean approved by the CEO in writing.

<sup>&</sup>lt;sup>5</sup> See footnote 4 above.

<sup>&</sup>lt;sup>6</sup> Regulation 18A of the Waste Avoidance and Resource Recovery Regulations 2008 defines **reportable waste** to mean waste that is solid matter.

## Attachment 1

Approved procedure for estimation/calculation of annual return information for non-metropolitan landfills receiving more than 20,000 tonnes of waste per annum required under the Waste Avoidance and Resource Recovery Regulations 2008

Approved procedure of the CEO of the department principally assisting the Minister for Environment in the administration of the *Waste Avoidance and Resource Recovery Act 2007* as required under regulation 18D of the Waste Avoidance and Resource Recovery Regulations 2008

## Contents

1.	Objective	. 5
2.	Background	. 5
3.	CEO-approved methods	. 5
4.	Reportable waste material categories	. 6
5.	Measuring waste	. 6
6.	Source of waste	. 7
7.	Destination/fate of waste removed from site	. 7
8.	Alternative methods	. 8
9.	Definitions	. 8
App	endices	10
Refe	erences	17

## 1. Objective

To establish the procedure of the Chief Executive Officer of the department principally assisting the Minister for Environment in the administration of the *Waste Avoidance and Resource Recovery Act* 2007<sup>7</sup> (CEO) for estimating and calculating information to be reported in an annual return under regulations 18C and 18D(1) of the Waste Avoidance and Resource Recovery Regulations 2008 (WARR Regulations).

This document is intended for liable persons, as defined by regulation 18B(4) of the WARR Regulations, who are licensees, or persons who are the occupiers of premises (the relevant premises) that would, if the person held a licence in respect of the relevant premises, be a licensed landfill —

- a) if at least 20,000 tonnes of reportable waste is received in a financial year at the licensed landfill or the relevant premises
- b) if the licensed landfill is, or the relevant premises are, outside the metropolitan region.

A licensed landfill premises is a premises specified in category 63, 64 or 65 of the Environmental Protection Regulations 1987, Schedule 1, in respect of which a licence is held.

For the purpose of this document, these persons will be hereafter referred to as liable non-metropolitan landfills.

## 2. Background

The WARR Regulations require liable persons to make and lodge annual returns with the CEO on or before 1 October in each year. The annual returns must contain information for the most recently completed financial year relating to reportable waste or the recycling of reportable waste,<sup>8</sup> as required by the notice under regulation 18D(1) (notice).

The WARR Regulations require annual returns to be prepared using procedures for the purposes of calculation or estimation methods described and approved by the CEO in the notice.

## 3. CEO-approved methods

This document provides the procedure to be followed by liable non-metropolitan landfills for the purposes of the calculation or estimation methods that liable non-metropolitan landfills are required to use to prepare their annual returns under regulation 18C of the WARR Regulations.

This document forms a part of the notice approved by the CEO.

Department of Water and Environmental Regulation

<sup>&</sup>lt;sup>7</sup> The 'department principally assisting the Minister for Environment in the administration of the *Waste Avoidance and Resource Recovery Act 2007*' is currently the Department of Water and Environmental Regulation

<sup>&</sup>lt;sup>8</sup> Regulation 18A of the Waste Avoidance and Resource Recovery Regulations 2008 defines **reportable waste** to mean waste that is solid matter.

## 4. Reportable waste material categories

Liable non-metropolitan landfills must categorise and report waste information using the approved reportable waste material categories provided in Appendix A.

## 5. Measuring waste

#### Note for liable landfills that receive waste from the waste levy region.

Liable landfills that receive waste that is subject to the waste levy, must measure waste in a manner that is consistent with the requirements under the Waste Avoidance and Resource Recovery Levy Regulations 2008. The methods below apply to all other liable landfills.

#### 5.1 Waste received and removed from site

#### 5.1.1 Weighing

The preferred method for estimating the quantity of reportable waste received, disposed of and leaving the facility is for the reportable waste to be weighed at the point of entry or departure on a calibrated weighbridge at the facility.

#### 5.1.2 Volume assessment

Where weighing reportable waste is not possible, the volume of each load entering and leaving the facility must be assessed. Approved default values for vehicle volumes are provided in Section 13. Volume of each load is assessed as the volume of the vehicle or container multiplied by the percentage fullness of the vehicle or container.

## 5.2 Stockpiles

#### 5.2.1 Mass balance

The weight or volume of a stockpile is determined by adding net movement of materials to the original weight or volume of the stockpile. This method is only suitable for non-degradable material, such as masonry materials, dry recyclables, etc.

## 5.2.2 Volumetric survey

A volumetric survey may be used to estimate the volume of a stockpile. Volumetric surveys are not required to be conducted by a qualified surveyor but should be conducted as close to the end of the reporting period as possible.

## 5.2.3 Physical measurement

Physical measurement can be used where materials are stored in baled cubes or regular shaped windrows and will be calculated from measurements of the height, length and width of the stored waste.

Where only a small amount of material is stored on-site (<200 m<sup>3</sup>), the stockpile volume may be estimated by measurements of the circumference and height of a stockpile.

## 5.3 Estimating the amount of waste disposed of at landfill

For reportable waste received that is disposed of directly to landfill on entering the facility, the relevant approved methods for estimating weight set out in Clause 5.1 must be used.

Where reportable waste is stored for recycling or reuse, with some of the load removed and disposed of to landfill (e.g. contamination is removed from organic wastes), the following methods for estimating reportable waste disposed of to landfill may be used:

- weighed over the weighbridge
- · a mass balance of reportable waste entering and leaving the facility
- · volume assessment method.

## 5.4 Converting volumes to tonnes

If all reportable waste is volume assessed at a facility, then the liable landfill may use cubic metres to prepare the annual return.

#### Alternatively:

- liable landfills may convert measured volumes to tonnes using site-specific material density factors. The density factors used in the preparation of the return must be submitted to the department at <a href="mailto:waste.data@dwer.wa.gov.au">waste.data@dwer.wa.gov.au</a> at the time of lodging the return.
- Default density factors provided under Appendix B Default factors may also be used to prepare the return.

## 6. Source of waste

The source of each load entering or leaving the facility must be recorded by waste stream:

- municipal solid waste (MSW)
- commercial and industrial waste (C&I) waste
- construction and demolition waste (C&D) waste

and by geographic source:

- Perth metropolitan region
- Peel region
- · other regions.

Where possible, the waste stream in which the waste was generated should be recorded; otherwise, it is recorded as the waste stream in which the waste was collected.

## 7. Destination/fate of waste removed from site

Liable non-metropolitan landfills are required to report what happens to the reportable waste received at the facility. The options for the fate of reportable waste removed from site are disposal, recycled or waste-to-energy material.

### 8. Alternative methods

Liable non-metropolitan landfills may propose alternative methods for the following if these are more accurate than the methods set out above:

- estimating the amount of reportable waste received, removed and disposed of
- estimating the bulk density
- estimating the reportable waste composition
- estimating the source waste stream.

Any alternative methods proposed must be accurate, repeatable and consistent.

Liable non-metropolitan landfills may also propose alternative default values to those listed in Appendix B. Liable non-metropolitan landfills must submit alternative methods or default values, with relevant substantiating information, to the department at <a href="mailto:waste.data@dwer.wa.gov.au">waste.data@dwer.wa.gov.au</a> for consideration and approval prior to use in the annual return.

#### 9. Definitions

Term	Definition
Commercial and Industrial waste (C&I)	Solid waste generated by the business sector, State and Australian Government entities, schools and tertiary institutions.
Construction and demolition waste (C&D)	Waste produced by demolition and building activities, including road and rail construction and maintenance, and excavation of land associated with construction activities.
DWER (the department)	Department of Water and Environmental Regulation
Energy recovery	Processes through which wastes are collected, sorted and processed to recover energy in usable form, for example process heat, steam or in electricity generation.
	For data reporting purposes, the quantity of waste allocated to the fate 'energy recovery' excludes residuals from energy from waste facilities that are recycled or sent to landfill or otherwise disposed of.
	Energy recovery is reported as the wet weight of the waste received and converted to energy.
Further processing	A waste destination for recovered waste that has been sent to another facility in WA or interstate for further reprocessing prior to becoming a final product or production input or exported.

Material density factors	Tonnes per cubic metre. A property of a material. Can be used to estimate the weight of a particular material from a measure of its volume.	
Municipal solid waste (MSW)	Solid waste generated from domestic (residential) premises and local government activities.	
Peel region	The Peel region is the area defined by the Peel Region Scheme (May 2013).	
Perth Metropolitan Region	The Perth region, or Perth Metropolitan Region, is the area defined by the Metropolitan Region Scheme (June 2014).	
Recycling	Activities that culminate in the reprocessing of wastes into products or secondary materials that are returned to productive use (excluding for energy). May include collection, sorting and/or reprocessing. For data reporting purposes, recycling:	
	<ul> <li>includes all materials received by a reprocessing facility that are processed to the point of being suitable for manufacturing or return to productive use, whether immediately used or stored for later sale or use</li> <li>includes weight losses to the atmosphere during the processing of wastes (for example, moisture, carbon dioxide from organics degradation)</li> <li>excludes residuals that are sent to landfill or otherwise disposed of</li> <li>excludes materials received at a recycling facility but not yet processed</li> <li>is reported as wet weight.</li> </ul>	
Reportable waste	Means waste that is solid matter under regulation 18A of the Waste Avoidance and Resource Recovery Regulations 2008.	
Reprocessing	Transformation of recovered materials to make raw materials for use in making new products or direct use. May include cleaning, fractionation, crushing, shredding, dissolution, composting or other transformative processes.	
Stockpiling	Temporary storage of waste or waste products for future sale, resource recovery or disposal.	
Used on site	A waste destination where recovered waste is put to beneficial use at the liable persons facility such as recovered C&D materials used to construct roads at the facility.	

## **Appendices**

# Appendix A Approved reportable waste material categories and types

Category (Tier 1)	Subcategory (Tier 2)	Subcategory description
Paper and cardboard	White office paper	High-quality white office paper
	Old Newsprint (ONP)	Newspapers
	Magazines	Magazines and booklets
	Liquid paperboard	Milk and juice cartons made from liquid paperboard
	Paper – mixed	Combination of the above categories
	Cardboard	Corrugated and flat cardboard. Excludes non-recyclable wasted and coated cardboard.
	Mixed paper/cardboard	Paper and cardboard collected together.
Glass	Glass packaging – mixed	Glass jars and bottles
	Glass – construction	Glass windows and tiles
	Glass – other	Wine glasses, etc.
Plastic	PET (1)	Polyethylene terephthalate
	HDPE (2)	High-density polyethylene
	PVC (3)	Poly-vinyl chloride
	PE-LD/LLD (4)	Low-density polyethylene
	PP (5)	Polypropylene
	PS (6)	Polystyrene (hard form)
	PS-E (6)	Polystyrene (expanded form / foam)
	ABS/SAN/ASA (7)	Acrylonitrile butadiene styrene / styrene acrylonitrile / acrylonitrile styrene acrylate
	PUR/PIR (7)	Polyurethanes and polyisocyanurates
	Polyamides (PA) (nylons)	Nylon
	Bioplastics	
	Mixed plastic packaging	Recyclable plastic packaging (PET, HDPE, PVC, etc.)
	Hard plastic (not packaging)	Mixed hard plastics
	Other aggregated polymer types	
	Unknown polymer	
Metals	Metals – ferrous steel – packaging	Cans

Combined food and garden waste collected in kerbside collections (FOGO)   Barks and sawdust (from forestry activities)   Includes animal bedding, animal mortalities, paunch astraw   Manures   Raw, untreated animal manumature)   Solid organic outputs from processing sewage   Sawdust			
aluminium – packaging  Metals – non-ferrous – aluminium – non-packaging  Metals – von-ferrous – other metals  Copper, zinc, etc.  Copper, zinc, etc.  Kitchen scraps, unsold food products (unpackaged)  Vegetation  Leaves, branches, logs, gras clippings, flowers  Combined food and garden waste collected in kerbside collections (FOGO)  Barks and sawdust (from forestry waste  Agricultural waste (excluding manure)  Manures  Agricultural waste (excluding manure)  Biosolids  Sawdust  Urban wood and timber (also C&D waste)  Urban de			Bars, pipes, etc.
aluminium – non-packaging  Metals – von-ferrous – other metals  Food waste  Food waste  Vegetation  Food and garden organics (FOGO)  Forestry waste  Agricultural waste (excluding manure)  Manures  Faw, untreated animal manure  Solid organic outputs from processing sewage  Sawdust  Wood / timber from commerce and industrial activities or construction and demolition activities  Fats and grease Other organic  All rubber tyres. Does not			Cans and foil
Organics  Food waste  Food waste  Vegetation  Vegetation  Leaves, branches, logs, gras clippings, flowers  Combined food and garden waste collected in kerbside collections (FOGO)  Forestry waste  Agricultural waste (excluding manure)  Manures  Manures  Raw, untreated animal manure  Biosolids  Sawdust  Urban wood and timber (also C&D waste)  Urban grease  Combined food and garden waste collected in kerbside collections (FOGO)  Barks and sawdust (from forestry activities)  Includes animal bedding, animal mortalities, paunch as straw  Solid organic outputs from processing sewage  Wood / timber from commercand industrial activities or construction and demolition activities  Waste fats, grease, grease to sludge, biodegradable sludg waste cooking oil, etc.  Other organic			Bars, tubes, etc.
Vegetation  Vegetation  Leaves, branches, logs, gras clippings, flowers  Combined food and garden waste collected in kerbside collections (FOGO)  Barks and sawdust (from forestry activities)  Agricultural waste (excluding manure)  Manures  Manures  Raw, untreated animal manuscultural waste (excluding animal mortalities, paunch a straw  Manures  Solid organic outputs from processing sewage  Sawdust  Urban wood and timber (also C&D waste)  Wood / timber from commercand industrial activities or construction and demolition activities or solutions activities or construction and demolition activities activities or construction and demolition activities			Copper, zinc, etc.
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Forestry waste forestry activities)  Agricultural waste (excluding manure)  Manures  Biosolids  Sawdust  Urban wood and timber (also C&D waste)  Waste fats, grease, grease t sludge, biodegradable sludg waste cooking oil, etc.  Pubber  Reference forestry activities)  Includes animal bedding, animal mortalities, paunch at straw  Raw, untreated animal manu Solid organic outputs from processing sewage  Wood / timber from commerce and industrial activities or construction and demolition activities  Waste fats, grease, grease t sludge, biodegradable sludg waste cooking oil, etc.			waste collected in kerbside
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Solid organic outputs from processing sewage  Sawdust  Wood / timber from commerce and industrial activities or construction and demolition activities  Waste fats, grease, grease to sludge, biodegradable sludge, biodegra		` `	animal mortalities, paunch and
Biosolids processing sewage  Sawdust  Wood / timber from commerce and industrial activities or construction and demolition activities  Waste fats, grease, grease to sludge, biodegradable sludge, bio		Manures	Raw, untreated animal manure
Wood / timber from commerce and industrial activities or construction and demolition activities  Waste fats, grease, grease to sludge, biodegradable sludge, biodegradable sludge, waste cooking oil, etc.  Other organic  All rubber tyres. Does not see to sludge to see the sludge to see the sludge to see the sludge.		Biosolids	
Urban wood and timber (also C&D waste)  Waste fats, grease, grease t sludge, biodegradable sludg waste cooking oil, etc.  Other organic  All rubber tyres. Does not		Sawdust	
Fats and grease sludge, biodegradable sludg waste cooking oil, etc.  Other organic  All rubber tyres. Does not			construction and demolition
Rubber All rubber tyres. Does not		Fats and grease	Waste fats, grease, grease trap sludge, biodegradable sludges, waste cooking oil, etc.
Rubber All rubber tyres. Does not		Other organic	
IIVΓΔS	Rubber	Tyres	All rubber tyres. Does not include metal rim or hubcaps
Other rubber, including conveyor belts  All other rubber			All other rubber
C&D waste Sand/soil Uncontaminated sand or soil	C&D waste	Sand/soil	Uncontaminated sand or soil
		Clean fill	material such as clay, gravel, sand, soil or rock fines sourced from land that has not been used for any potentially
Rubble/aggregate Stones, etc. also includes clean, processed C&D recycle		Rubble/aggregate	Stones, etc. also includes clean, processed C&D recycled
		Bricks	Whole or broken bricks
Bricks Whole or broken bricks		Concrete	Concrete or cement

	Asphalt	Waste bitumen or asphalt
	Plasterboard and cement sheeting	Plasterboard and cement sheeting
	Masonry material	Mixed concrete, brick, tiles etc.
	Mixed C&D waste	Mixed construction and demolition waste
	Mixed inert waste	Other C&D waste meeting the Type 1 inert waste definition in the Landfill Waste Classification and Waste Definitions 1996 (as amended 2018)
Textiles	Mixed textiles	Cloth, rags, clothes
	Leather	Items mainly leather
	Foam rubber	Includes polyurethane or latex
	Carpets	Carpets
	Mattresses	Mattresses
Mixed putrescible waste	Mixed domestic kerbside residuals (no organics service)	Waste from mixed residual kerbside bin with no separate FOGO or GO collection
	Mixed domestic kerbside residuals (organics service)	Waste from mixed residual kerbside bin with no separate FOGO or GO collection
	Mixed putrescible waste – C&I	Includes putrescible waste from retail, service and manufacturing industries
	Residuals from biodigestion	
	Mixed putrescible – other	Putrescible waste as defined in Landfill Waste Classification and Waste Definitions 1996 (as amended 2018)
Mixed dry recyclables	Co-mingled recycling	Containers, paper and cardboard collected from households and commercial premises.
	Co-mingled recyclables (glass separate)	Containers, paper and cardboard with glass separated
	Co-mingled recyclables (paper and cardboard separate)	Containers, including glass with paper and cardboard separated
	Mixed industrial recyclables	Dry recyclable material collected from commercial and industrial premises. Includes mixed cardboard/plastic film collections. Includes mixed timber/steel/cardboard collections
E-waste	Screens, information technology and telecommunications	Regulated e-waste-category

	Lighting and lamps	Regulated e-waste-category
	Large appliances	Regulated e-waste-category
	Batteries	Regulated e-waste-category
	Temperature exchange equipment	Regulated e-waste-category
	Medical devices	Regulated e-waste-category
	Solar panels	
Bulky wastes	Mattresses	Mixed steel, foam and cloth mattresses
	Furniture	Mixed material furniture, e.g. lounge chairs
Hazardous	Household chemicals	Household chemicals recovered through Household Hazardous Waste collections
	Waste oil	Waste oil collected through waste oil collections and through Household Hazardous Waste collections, such lubricating oil, mechanical oil
	Asbestos	Asbestos containing material. Includes asbestos fencing, pipes, insulation
	Clinical waste	Includes all medical and veterinary waste
Contaminated soil	Contaminated soil	Soil from a contaminated site, as defined by the <i>Contaminated Sites Act 2003</i>
Other	Fly ash	Ash produced by burning of coal
	Residuals from waste to energy facilities	Ash produced by burning of waste to produce energy
	Residuals from metals recovery facilities	Shredder floc
	Residuals from materials recovery facilities (MRFs)	Residual fines which consist of mostly broken glass, some shredded paper and some small plastic pieces (e.g. lids)
	Disaster waste	Where not readily reportable by material type
	Other	Waste not otherwise specified (please specify)

## Appendix B Default values

Note: Liable non-metropolitan landfills must use facility-specific values where this information is available. The default values provided can be used where facility-specific data is not available.

**Table 1 Default vehicle volumes** 

Vehicle type	Assumed volume (m³)
Small vehicle (car, utility, van, trailer)	1
Open truck – small, 2 axles	3
Open truck – large 2 axles	6
Open truck – 3 axles	10
Open truck – 4 axles	12
Open truck – 5 axles	18
Open truck – 6 axles	20
Open truck – 8 axles	20
Open truck – 9 axles	32
Open truck – 11 axles	40
Compactor truck – volume unknown	10

Source: DWER (2018) Approved manner for estimating the volume or weight of waste received at and disposed of to landfills Waste Avoidance and Resource Recovery Levy Regulations 2008

Table 2 Default bulk densities

Waste material c	Default bulk density (t/m³)
Paper	0.2
Cardboard	0.1
Plastics (baled)	0.14
Plastic containers (loose)	0.01
Metals – ferrous – mixed	0.35
Metals – non-ferrous	0.14
Glass (whole)	0.347
Glass (ex-MRF)	1
Concrete	1.5
Bricks	1.2
Soil, sand, clean fill	1.3
Organics – garden organics	0.15
Organics – food organics	0.5
Organics – timber/wood	0.19
Organics – timber/wood (packaging and pallets)	0.156
Organics – other organics	0.3
Rubber/tyres	0.3
Textiles	0.15

Hazardous – asbestos	0.31
Hazardous – other	0.2
Plaster board/cement sheeting	0.5
Mixed waste material	Default bulk density (t/m³)
Mixed building waste in skip bins	0.7
Domestic co-mingled recyclables	0.06
Mixed domestic MSW kerbside residuals	0.14
Mixed domestic hard waste	0.11
Street cleaning waste	0.7
Residuals from materials recovery facilities	0.31
Residuals from metals recycling facilities (shredder floc)	0.2
Disaster waste	0.72
Quarantine waste	0.3
Other / mixed – putrescible	0.3
Other /mixed – inert	1.1

## Table 3 Weight (kg) per item of product wastes

Туре	Weight (kg)
Mattress	35
Tyre	8
E-waste	
Dishwashers	43.3
Kitchen (e.g. large furnaces, ovens, cooking equipment)	47.66
Washing machines (incl. combined dryers)	72.54
Dryers (wash dryers, centrifuges)	45.98
Lamps (e.g. pocket, Christmas, excl. LED and incandescent)	0.09
Compact fluorescent lamps (incl. retrofit and non-retrofit)	0.08
Straight tube fluorescent lamps	0.11
Special lamps (e.g. professional mercury, high- and low-pressure sodium)	0.08
LED lamps (incl. retrofit LED lamps and household LED luminaires)	0.08
Household luminaires (incl. household incandescent fittings)	0.45
Professional luminaires (offices, public space, industry)	2.67

67.04
0.48
0.4
8.77
1.26
10.32
0.45
0.09
40
22
5.5
33.2
10.2
30.85
124.61
12.14
40.79
44.09
26.7
41.7
110.1
92.22
0.220
0.027
0.014
0.030
0.020

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Zero Waste SA, Solid Waste and Recycling Reporting Template.