

# DEVELOPMENT CONTROL CODE

FOR  
BEST PRACTICE  
WASTE MANAGEMENT  
IN THE ACT



SEPTEMBER 1999

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**Waste Management Plan and Fact Sheets:** located in pocket on the back cover



In 1996 the ACT Government adopted a No Waste by 2010 strategy. It encourages the community to reduce waste generation by:

- avoidance;
- reduction;
- reuse on site or elsewhere; and
- by recovery and recycling.

This booklet directs professionals such as engineers, architects, planners and developers on how to ensure their applications comply with the best practice waste management requirements applicable for the demolition, refurbishment, construction and operational phases of projects.



The Development Control Code for Best Practice Waste Management in the ACT has been developed to support the No Waste by 2010 Strategy. It replaces the *Waste Management Design Guide for Site Storage and Handling of Waste and Recyclables in the ACT*.

The *Building (Amendment) Act 1999*, and regulations under that Act, require a Waste Management Plan to be incorporated into the approval process for:

- building work that involves either demolition of any building, or
- alteration/refurbishment of a building other than a Class 1, 2 or 10a building (refer to Section 5.1).

The Waste Management Plan included in the new code addresses in addition, the waste associated in the operational phase of all classes of buildings.

Information to be provided as part of the Waste Management Plan includes:

- (a) the extent of demolition work to be undertaken;
- (b) the nature and amount of waste which will be generated by demolition;
- (c) the location to which each type of waste will be taken by the builder, or their agent for reuse, recycling and/or disposal;
- (d) containment of waste and recyclables within the property; and
- (e) providing safe and easy access for collection trucks.

By adopting the Development Control Code for Best Practice Waste Management in the ACT (hereinafter referred to as “the code”) you will help minimise waste in the demolition phase and, through good design, ensure effective on-site management of waste and recyclables.

## **2.1 PERFORMANCE-BASED APPROACH**

The intent of the code is to offer a performance-based approach to meeting waste management requirements by using performance criteria and measurable standards.

Compliance with the performance criteria will be the primary consideration when assessing applications. Where measurable standards are included it is possible to vary them, where the applicant can demonstrate that the intent of the standard and the performance criteria are achieved. In assessing applications, details provided in the Waste Management Plan and on the plan drawings, will be checked for compliance with the performance criteria for the proposed use (eg. multi-unit housing, demolition) and against the general aims and objectives of the code.

## **2.2 AIMS AND OBJECTIVES**

**The code:**

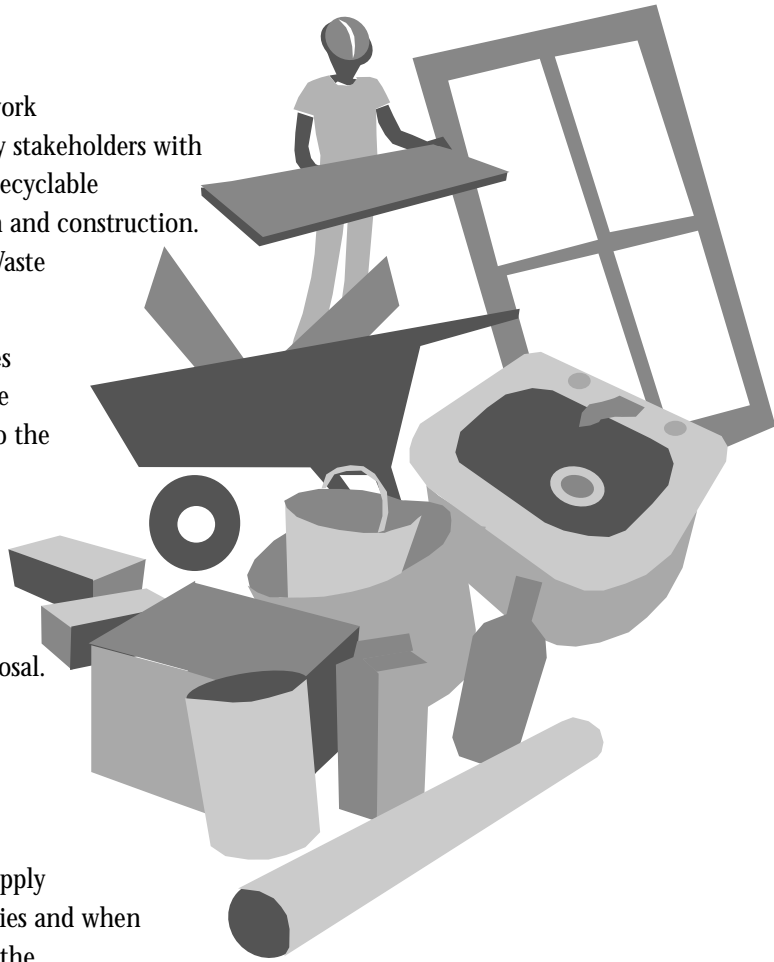
- encourages best practice approaches to minimising construction and demolition waste;
- encourages building designs and construction techniques that minimise waste generation through cleaner production;
- encourages smart planning choices and decisions to maximise reuse and recycling of materials from demolition and construction sites;
- identifies performance criteria and acceptable solutions to effectively manage multi unit residential and non-residential generated waste and recyclables within developments;
- helps achieve the Federal Government's target of a 50% reduction in waste by the year 2000 and the ACT Government's No Waste by 2010 Strategy;
- ensures that public safety, access and amenity associated with storing and removing of wastes are satisfactorily addressed; and
- facilitates the waste audits required by the No Waste by 2010 strategy.

## **Transfer of Recycled Materials**

The Australian Reusable Resources Network (ARRnetwork) provides building industry stakeholders with a mechanism by which they can market recyclable materials generated from both demolition and construction. This will assist them in preparing their Waste Management Plan.

In addition, ARRnetwork helps businesses access unwanted materials. An interactive database and registration form is linked to the ACT Government Homepage [www.act.gov.au/nowaste](http://www.act.gov.au/nowaste) and lists the potential suppliers, purchasers and types of materials available. The network was established in 1999 and is intended as an alternative to landfill disposal. ARRnetwork is promoting markets for recovered products and will be developed progressively as waste amounts, types and generators are identified.

When using ARRnetwork you need to supply information about material types, quantities and when they will be available for collection from the demolition/refurbishment site.



### ***Listing on ARRnetwork is free***

#### ***See Fact Sheet 1 on how to register***

Fact Sheet 1 of the code also shows examples of potential use for construction and demolition material. Fact Sheet 2 lists the names and details of waste minimisation and recycling organisations.







Every application for **lease variation, demolition, refurbishment and other construction activity** must include a Waste Management Plan. The applicant must complete the relevant parts of the Waste Management Plan *proforma* provided. The categories of applications and the corresponding requirements are tabulated below.

TABLE 1

Type of Application	Part/s of Waste Management Plans to be completed	Notes and details to be provided
<b>Development Application (DA) Lease Variation</b> (without immediate building activity) eg. office building to retail activity	Parts 1, 2, 6, 7 & Waste Audit	<ul style="list-style-type: none"> <li>If the current provisions do not comply with the code, a written undertaking that the arrangement will be upgraded within a stipulated time (eg. within six months and/or before Building Application submittal).</li> <li>Unauthorised use of public land for storage of waste/recyclables is unacceptable.</li> </ul>
<b>Redevelopment of blocks for residential units</b> eg. multi-unit residential (up to 10 units), dual occupancies and single dwelling except the alteration of a Class 1, 2 and 10a building		<ul style="list-style-type: none"> <li>Unauthorised use of public land for storage of waste/recyclables is unacceptable.</li> </ul>
– with demolition	Parts 1, 2 and 3	
– without demolition	None	
<b>New or redevelopment of blocks for non-residential (eg. office, community centre, hotel), or multi-unit residential purpose (eg. Blocks of units/townhouses)</b>		<ul style="list-style-type: none"> <li>Sketches showing the layout of the residential units or the non-residential buildings, location and dimensions (including typical sections) of the proposed waste and recyclables storage facilities and collection truck access/turning provisions including pavement strength. Refer to page 10 of the Waste Management Plan.</li> <li>For major projects such as redevelopment of city centres, a Waste Management Strategy Report should be submitted.</li> <li>Unauthorised use of public land for storage of waste/recyclables is unacceptable.</li> <li>Parts 3 &amp; 4 of the Waste Management Plan need not be completed if there is less than 5m<sup>3</sup> (loose) of demolition and/or construction waste material generated. This needs to be supported by a statement from the applicant.</li> </ul>
– with demolition	Parts 1 – 7 for all,	
– without demolition	Parts 1, 2, 4 – 7	

**TABLE 1** *continued*

Type of Application	Part/s of Waste Management Plans to be completed	Notes and details to be provided
<p><b>Building Approvals (BA) for multi-unit residential or non-residential blocks</b></p> <p>– with prior DA approval given</p> <p>– with no DA approval given (fit-out, refurbishment etc.)</p>	<p>None</p> <p>Parts 1 – 7 and Waste Audit for fitout/refurbishment applications</p>	<ul style="list-style-type: none"> <li>• Detailed drawings showing the location and dimensions of waste and recyclable storage facilities and the collection truck access/turning provisions should be submitted. These should include engineer’s details of the collection pad area, driveway access and the internal road (geometry and the pavement design). Please refer to page 10 of the Waste Management Plan.</li> <li>• Prior to the issuing of a Certificate of Occupancy, a Certificate of Compliance from the Structural Engineer is to be submitted certifying that the pavement was constructed as per the approved plans.</li> </ul>
<p><b>Estate Development Projects (ie. Suburban developments)</b></p> <p>– Implementation Plan</p>	<p>Parts 1 – 4 (if demolition or removal of clean fill is envisaged)</p>	<ul style="list-style-type: none"> <li>• A Waste Collection Plan in accordance with Section 8.5, Figures 2a, 2b, 2c, 3 &amp; 4 and the Infrastructure Policy document on Implementation Plans for Land Development Projects.</li> </ul>
<p>– Design Drawings</p>	<p>None</p>	<ul style="list-style-type: none"> <li>• Detailed drawings of the road layout (geometry and pavement design) in 1:200 scale. The access places that cannot be used and the slow points needing to be driven through by typical collection trucks should be clearly identified.</li> </ul>
<p>– Lease and Development Conditions</p>	<p>None</p>	<ul style="list-style-type: none"> <li>• Documentation should accurately reflect special garbage and recyclable collection provisions identified in the Waste Collection Plan and design drawings.</li> </ul>



The format of this code offers a performance-based approach with performance criteria as well as measurable standards. Plans will be assessed against these performance criteria and standards.

Each performance criteria, identified as (a), (b), (c) etc., has its own corresponding acceptable solution.

### 5.1 DEMOLITION AND REFURBISHMENT PHASE

Demolition waste accounts for about 40% of waste going to landfill in the ACT.

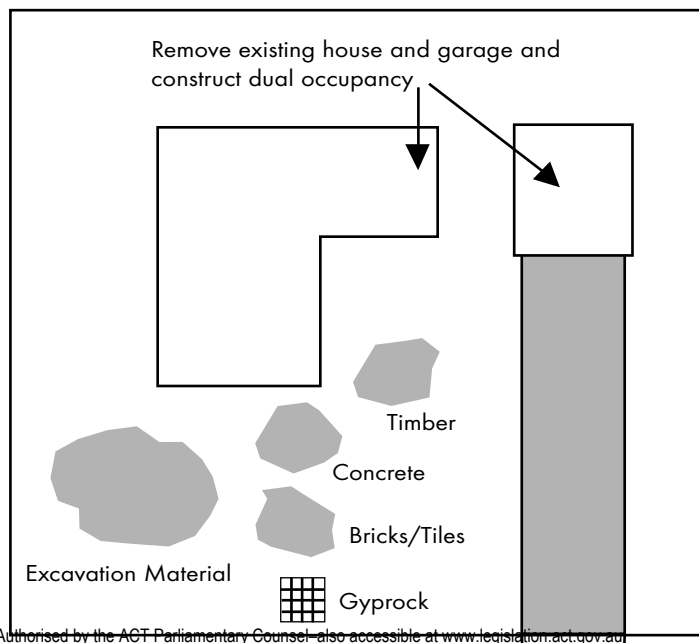
The *Building Regulations 1998* require that a Waste Management Plan be included as part of the building approvals process involving the demolition of any building, or alteration/refurbishment of a building other than a class 1, 2 or 10a building.

A Waste Management Plan must include information about the:

- extent of the demolition work to be undertaken;
- the type and amount of waste that will be generated by the demolition; and
- the location to which the waste will be taken for reuse, recycling or disposal.

Building designs and construction techniques which minimise waste generation are encouraged. Designers and developers need to focus on how to avoid waste in the first place. This could include the reuse of existing buildings and materials rather than the predominant use of virgin materials. Waste minimisation and reuse/recycling of materials by separation at source can result in substantial savings on disposal costs and also has environmental benefits (see Diagram A).

**Diagram A**  
**Typical Demolition**  
**Sketch Plan for a**  
**Single Dwelling**



## **INTENT**

To minimise disposal of demolition materials at landfill by maximising reuse and recycling of materials.

## **PERFORMANCE CRITERIA**

The intent may be achieved where you:

- a) identify the type and volume/tonnage of the materials to be reused or recycled on-site and off-site, if more than 5m<sup>3</sup> (loose) of demolition material generated;
- b) provide best practice storage and collection of materials on site; and
- c) maximise recycling of materials and minimise waste disposal.

## **ACCEPTABLE SOLUTIONS**

- a) by identifying use of Australian Reusable Network (ARRnetwork), recycling opportunities and using Fact Sheets 1 and 2.
- b) separating material streams and meeting requisite environmental standards (eg. air, water, noise).
- c) recycling ability will be enhanced and cross-contamination reduced with appropriate material separation.

## **SUBMISSION REQUIREMENTS**

If more than 5m<sup>3</sup> (loose) of demolition material is generated, your application should include:

- Completed Parts 1 – 3 of the Waste Management Plan; and

Applicants are encouraged to incorporate the completed Part 3 of the Waste Management Plan (See Table 2) into the demolition site plan via a CAD package (or similar software application).

If less than 5m<sup>3</sup> (loose) of demolition material is generated, your application should include:

- Completed Parts 1 & 2 of the Waste Management Plan.

**TABLE 2**

**WASTE MANAGEMENT PLAN — PART 3  
DEMOLITION WASTE PROFORMA**

Unit No: ..... Block: 17 & Section: 6 Suburb: Sometown Date: 1 / 8 / 99  
 Applicant's Name: John Applicant's Signature: ..... Date: 1 / 8 / 99  
 Demolisher Assigned: I. M. Good Demolisher's Signature: ..... Date: 1 / 8 / 99  
 ACT Builder's Licence No: A.2.3

Type Of Material Generated	Estimated Volume Of Material Generated (m <sup>3</sup> )	REUSE/RECYCLING OF DEMOLITION WASTE			DISPOSAL AT LANDFILL	
		ON-SITE	OFF-SITE	Estimated Volume (m <sup>3</sup> )	Specify name of receiving recycling outlet(s) and/or reuse site(s)	Estimated Volume (m <sup>3</sup> )
Excavation Material	130	55 Stockpiled and reused in landscaping Ripper Demolitions"	and taken			75 Aussie to "SomeTown Landfill"
Green Waste	15	15 Chipped on site and used as mulch				
Bricks	60	60 "Aussie Ripper Demolitions" and taken to "SomeTown Concrete Recyclers"				
Concrete	85	80 "Aussie Ripper Demolitions" and taken to "Aussie Ripper Demolitions" and taken to "Johnston Concrete Recyclers"				5 to "SomeTown Landfill"
Timber (Please Specify)	4	4 Collected by "Splinter's Timber Recyclers" to their depot in SomeTown				
Plasterboard/Gyprock	10	and taken			10	"Aussie Ripper Demolitions" to "SomeTown Landfill"
Metals (Please Specify)						
Other	Fixtures,	Unsold goods taken to recycling shop	Advertised in weekly trading paper			

## 5.2 CONSTRUCTION STAGE PHASE

Recent research by environment protection agencies suggests that almost all of construction waste is recyclable if properly separated at source and kept uncontaminated (eg. steel, non-ferrous metals, glass, paper, concrete, and cardboard packaging materials).

Diagram B shows a simplified construction site plan that identifies separated construction waste streams to be taken away for reuse/recycling. Table 3 shows a typical completed construction proforma that identifies volume of construction waste generated and its potential reuse off-site or disposal.

One of the specific objectives of this code is to encourage building designs and construction techniques that minimise waste generation. Cost savings may be achieved at the construction phase by purchasing reusable and recycled content materials and by reusing materials salvaged at demolition.

You can list waste available and expected to be generated on ARRnetwork as well as gaining access to recyclable materials which could be used during construction.

*See Fact Sheet 1 for how to register on ARRnetwork and examples of potential use for construction and demolition materials.*

Savings can also be achieved by adapting a sound purchasing policy, ordering the correct quantities of materials, ordering prefabricated materials where possible, modular construction and by using basic designs that reduce the need for off-cuts. The Federal Government's WasteWise Construction Program handbook offers techniques for reducing construction waste backed with case studies. This handbook is available free from the Federal Government's Natural Heritage Trust Waste Management Awareness Program, through

- Environment Australia – (02) 6274 1700;
- E-mail [wastewise@ea.au.gov.au](mailto:wastewise@ea.au.gov.au); or by
- Down-loading the documentation from the Internet on [www.environment.gov.au/epg/wastewise/pdf.html](http://www.environment.gov.au/epg/wastewise/pdf.html)

**Diagram B**  
**Typical Construction Site Plan showing separation of construction waste streams**

1. Construction materials stacked away from waste streams to ensure easy access by recycling organisations, builders and sub-contractors.
2. Construction waste segregated into separate streams (and stored in hoppers) should result in
  - increased recyclability of materials due to less chance of contamination;
  - reduction in clean-up and waste disposal costs.

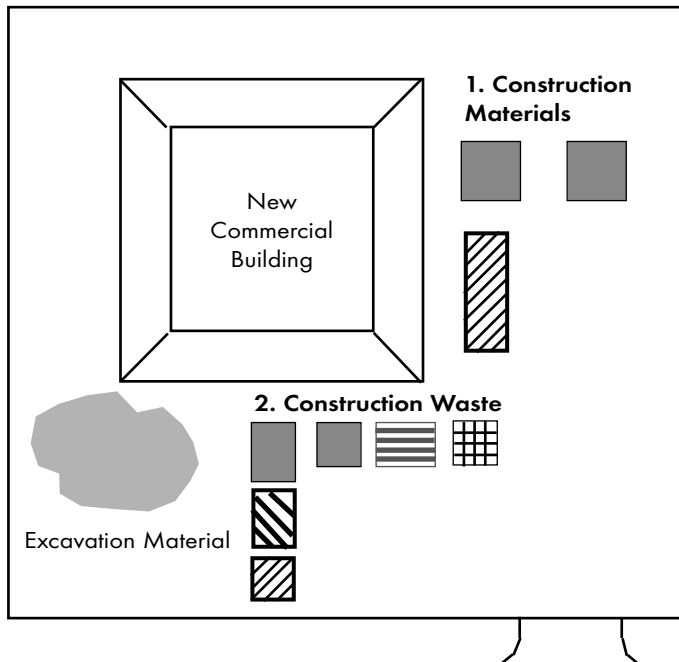
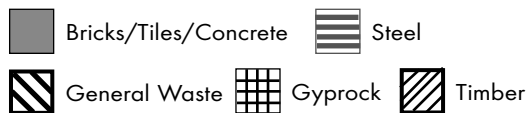


TABLE 3

WASTE MANAGEMENT PLAN — PART 4  
CONSTRUCTION WASTE PROFORMA

Unit No: ..... Block: 2 Section: 145 Suburb: New Date: 8 / 1 / .....  
 Applicant's Name: Paul Applicant's Signature: .....

Type Of Material Generated	Estimated Volume Of Waste* Material Generated (m <sup>3</sup> )	OFF-SITE REUSE/RECYCLING OF CONSTRUCTION WASTE		DISPOSAL AT LANDFILL	
		Estimated Volume of Construction Waste (m <sup>3</sup> )	Specify name of receiving recycling outlet(s) and/or reuse site(s)	Estimated Volume of Construction Waste (m <sup>3</sup> )	Specify landfill site(s)
Excavation Material	54	30	Stockpiled and reused in landscaping taken to	24	"You Beaut Demolitions" and "Buryit Landfill"
Green Waste					
Bricks	2	2	"You Beaut Demolitions" and taken to "Buryit concrete Recyclers"		
Concrete	5	5	"You Beaut Demolitions" and taken to "Buryit Concrete Recyclers"		
Timber (Please Specify)	1	1	Collected by "Hayes Timber Recyclers" to their depot in Buryit		
Plasterboard/Gyprock	3		taken to	3	"You Beaut Demolitions" and "Buryit Landfill"
Metals (Please Specify)					
Other (Please Specify)	Tiles - 1	1	"You Beaut Demolitions" and taken to "Buryit Concrete Recyclers"		
<b>TOTAL</b>	<b>66</b>	<b>39</b>		<b>27</b>	

## **INTENT**

To encourage best practice solid waste management design, minimise waste generation and maximise reuse and recycling of materials.

## **PERFORMANCE CRITERIA**

The intent may be achieved where you:

- a) design best practice storage and collection of material on site.
- b) identify the type and tonnage of material to be reused/recycled during the construction phase.

## **ACCEPTABLE SOLUTIONS**

- a) using cleaner production techniques (eg. standardised construction and sizes).
- b) identifying use of ARRnetwork and recycling opportunities and information Fact Sheets 1 and 2.

## **SUBMISSION REQUIREMENTS**

Your application should include

- Completed Parts 1, 2 and 4 and other relevant parts of the Waste Management Plan.  
See Section 4, Table 1.

Applicants are encouraged to incorporate the completed Part 4 of the Waste Management Plan (see Table 3) into the construction site plan via a CAD package (or similar software application).



### 5.3 RESIDENTIAL — Multi unit developments and cluster developments up to and including 10 units

#### INTENT

To implement best practice solid waste management (source separation, reuse and recycling) and use of wheeled bins for a safe and convenient kerbside collection by government contractors.

#### PERFORMANCE CRITERIA

The intent may be achieved where:

- a) sufficient space is provided within each unit for temporary storage of recyclables and garbage;
- b) there is sufficient space to store the garbage and the divided recycling bins between collections within the curtilage of each unit;
- c) convenient bin carting distance is maintained;
- d) the bins can be placed on the nature strip on the block frontage and along the kerbside of gazetted roads for convenient mechanical collection while ensuring minimal disruption to the traffic flow; and
- e) adequate space is provided for individuals to have either home or communal composting.

#### ACCEPTABLE SOLUTIONS

- a) use of separate storage containers for garbage and recyclables.
- b) bins should be stored in a screened, cool area in carport, garage or backyard.
- c) the maximum bin carting distance should not exceed 75.0m. For the aged and persons with disabilities this distance should be limited to 50.0m. Bin carting grade should not exceed 10%.
- d) bins should be placed along straight sections of the road or a cul-de-sac head suited for mechanical side loading operation.  
If adequate space cannot be found to accommodate all bins within the nature strip on the block frontage (typically at cul-de-sac heads), provision for bins to be picked from inside the block should be made addressing the following (See Diagram C):
  - the driveway entry and an adequate length of the internal road should be of industrial strength;
  - adequate hardstand should be provided for placing bins along the internal road for collection;
  - the government contractor should be indemnified against potential injury to the public and damage to the internal road, under ground services or driveway entry; and
  - wheeled bins should not be placed near intersections, roundabouts, slow points and along busy arterial roads (See Diagram D).
- e) See Fact Sheet 3 on composting.

#### SUBMISSION REQUIREMENTS

Your application should include:

- For redevelopments requiring demolition — Parts 1 to 4 of the Waste Management Plan and the drawings as described below.
- If there is no demolition — submit the drawings as described below:
  - layout of the residential units and the internal road in the block with the street(s) nominated for bin collection;
  - bin location proposed for collection along the kerbside;
  - location for bin storage between collections; and
  - the location of communal composting areas (if any).

Diagram C: Less than 10 units

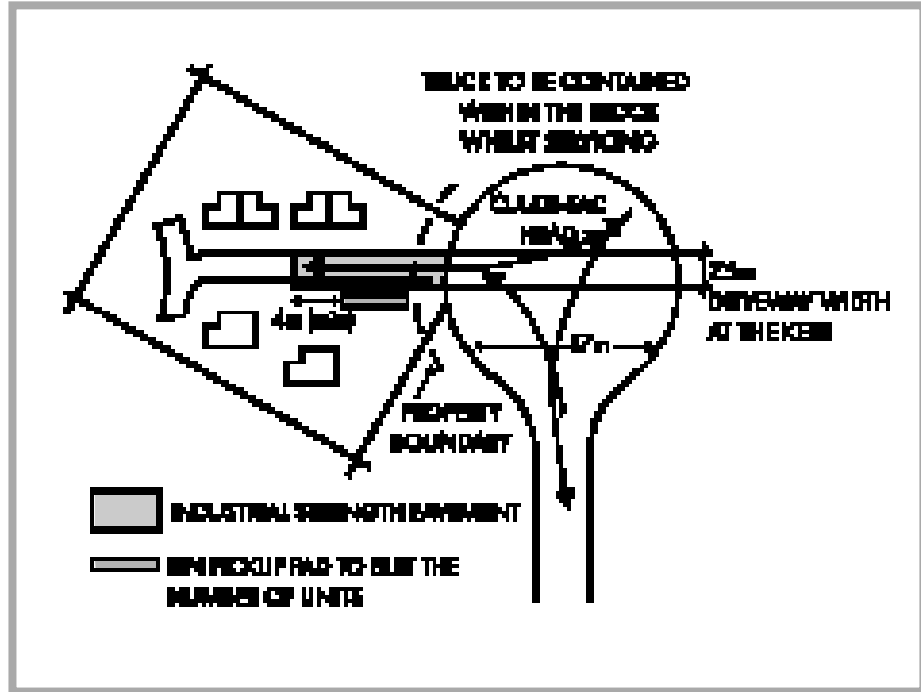
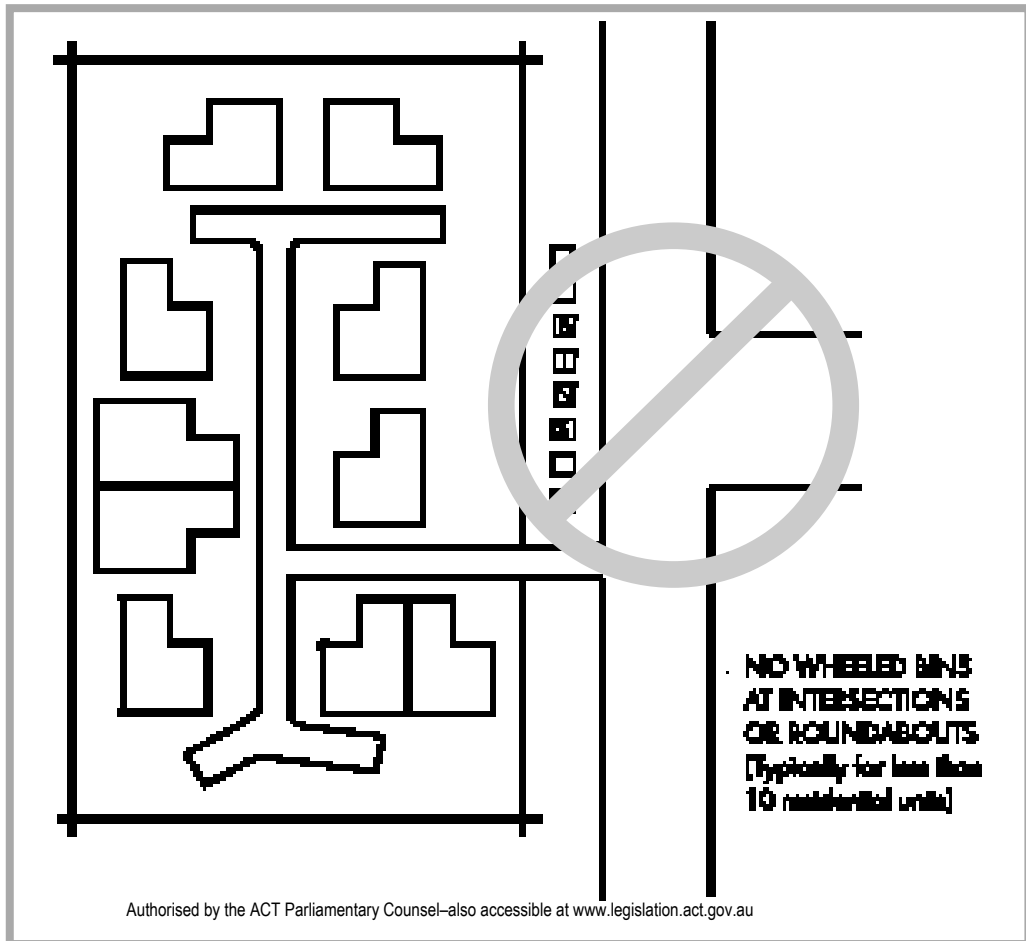


Diagram D: Less than 10 units



## 5.4 RESIDENTIAL — Multi-unit Developments and Cluster Developments with more than 10 units

### INTENT

To implement best practice solid waste management (source separation, reuse and recycling) and ensure quality and effective design of storage facilities addressing waste generation volumes, frequency of collection, public amenity, and safe and convenient collection.

### PERFORMANCE CRITERIA

The intent may be achieved where:

- a) sufficient space is provided within each unit for temporary storage of recyclables and garbage;
- b) best practice communal facilities taking into account future needs;
- c) ensure safe and convenient use of the storage area;
- d) best practice collection is followed – See Section 8 of the code.
  - trucks should move in and out in a forward motion.
  - siting of the waste storage area where ever possible should suit mechanical pick up of waste hoppers by front-end loading trucks.
  - hopper servicing should occur with the truck contained within the leased boundaries of the block.
  - sections of the internal road that need to be used by the collection truck should be of industrial type pavement.
- e) adequate space has been provided for individual composting or communal composting where layout allows for it.
- f) there are washdown provisions – assessment based on the type of waste handled.

### ACCEPTABLE SOLUTIONS

- a) use of separate storage containers for garbage and recyclables.
  - b) storage areas should meet requirements of Sections 7.3 and 8.4 of the code and design and siting of facilities should comply with Sections 6, 7 and 8 of the code.
  - c) user convenience – maximum carting distance should be 75m. For aged persons or persons with a disability this distance should be limited to 50m (see Diagram E). Bin carting grade should not exceed 10%.  
Every enclosure or room should be provided with a ‘user’ access.
    - the gates or the roller shutters should be kept closed except when the hoppers need to be accessed by the truck.
    - co-location of the waste storage containers and recyclable containers is preferred.
  - d) reversing of trucks onto a public road will be considered, only if the applicant can demonstrate that reversing is essential and approval is given by the Manager, Traffic Infrastructure Policy addressing traffic and public safety issues.
    - hopper service area should be of industrial strength pavement to take up front-end loading and be clear of structures for a height of 6.1m.
    - location of hopper service area should allow truck to be parked safely within the premises whilst servicing.
    - industrial strength pavement should be provided on the section of the internal road used by the collection trucks (See Diagram F).
    - basement for storage/collection of waste/recyclables. Proposal should comply with Section 8.7.
  - e) communal composting area should be suitably located.  
See Fact Sheet 3 on composting.
- NOTE. If a private waste operator is used, the lessee should confirm this in writing. A letter from a waste operator confirming the viability of collection should also be submitted to ACT Waste.
- f) washdown provisions – see Section 7.7.

## **SUBMISSION REQUIREMENTS**

Your application should include:

- Completed parts of the Waste Management Plan as per Section 4, Table 1;
- Drawings showing the following details should be submitted at DA and BA stages:
  - layout of the residential units and internal road with the access off the public street;
  - location(s) of the waste enclosure(s) with plans and elevations (dimensions);
  - hopper service area (collection pad) and visitor car-parking layout;
  - collection truck turning manoeuvre and pavement details, such as thickness, reinforcement and grade of concrete; and
  - spot levels along the roll out pad and truck service area at 1 m intervals.

Applicants are encouraged to incorporate the completed Part 4 of the Waste Management Plan (see Table 3) into the construction site plan via a CAD package (or similar software application).

Diagram E: Typical multi unit residential block with more than 10 units

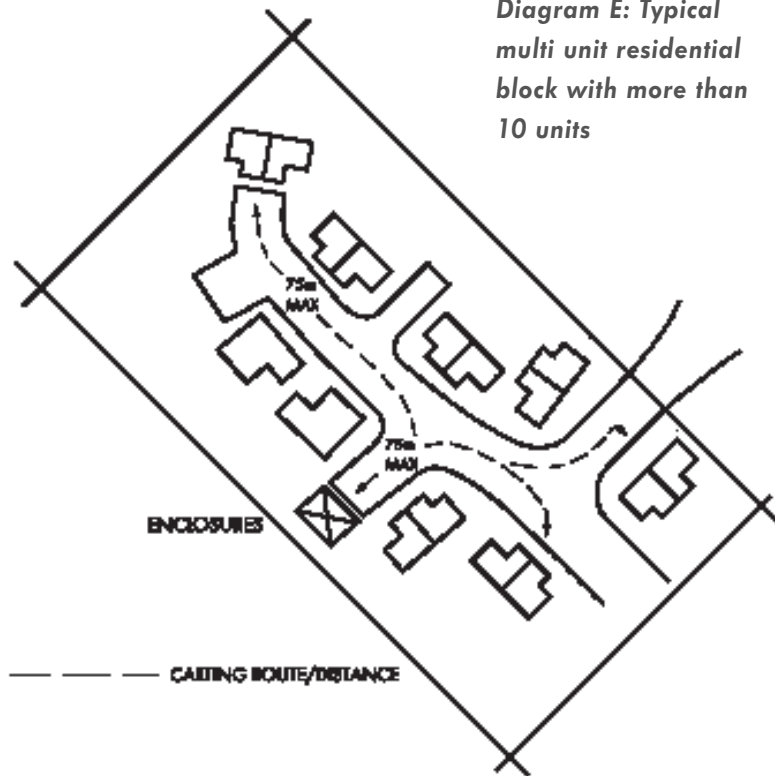
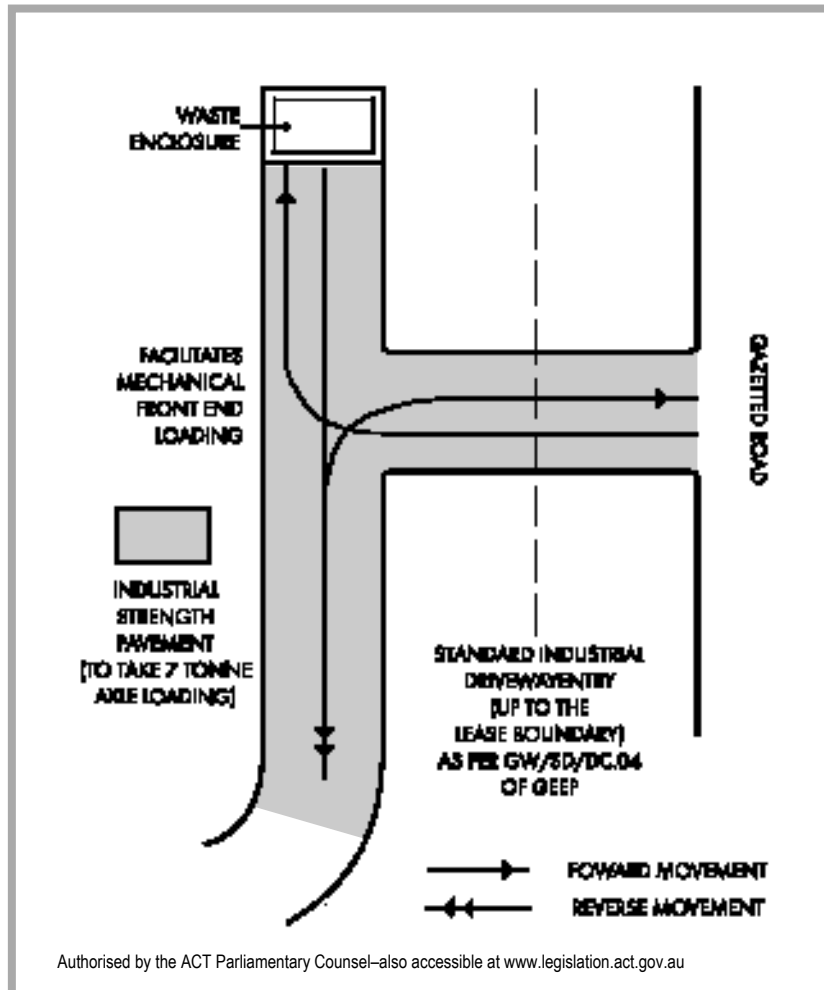


Diagram F: For non-residential and more than 10 residential units



## 5.5 OFFICES AND RETAIL (NON-FOOD) — Professional suites e.g. real estate, solicitors, banks, medical centres, clothing shops, bookstores, newsagencies, warehouses , factories.

### INTENT

To encourage best practice solid waste management with particular focus on separating the dry waste at source for reuse/recycling and to ensure quality and effective design of storage facilities located within lease boundaries.

### PERFORMANCE CRITERIA

The intent may be achieved where:

- a) dry and recyclable waste streams are separated at source and stored separately;
- b) a suitably designed and well located waste and recycling storage area is provided within the property line;
- c) there is user convenience – convenient access to waste and recycling containers;
- d) best practice collection is followed – See Section 8 of the code;
  - trucks should move in and out in a forward motion.
  - siting of the waste storage area where ever possible should suit mechanical pick up of waste hoppers by front-end loading trucks.
  - hopper servicing should occur with the truck contained within the leased boundaries of the block.
  - sections of the internal road that need to be used by the collection truck should be of industrial type pavement.
- e) there are washdown provisions – assessment based on the type of waste handled; and
- f) separate storage and collection arrangements are made for clinical waste.

### ACCEPTABLE SOLUTIONS

- a) provisions are made for separating dry waste and storing paper for recycling.  
Use of paper/cardboard balers is recommended. Confidential papers can also be recycled. See Fact Sheet 2 for recycling operators. Other recyclables include toners, machines, furniture, and carpets.
- b) waste storage area is provided within the property line as per Sections 6, 7 and 8 of this code (see Diagrams G & H).  
Table 4 of the code and Parts 5, 6 and 7 of the Waste Management Plan provides guidance in the estimation of volumes and corresponding container requirements for recyclables and non-recyclables.
- c) user convenience – provide paper collection in bins at each floor and boxes at each work station.
- d) reversing of trucks onto a public road will be considered, only if the applicant can demonstrate that reversing is essential and approval is given by the Manager, Traffic Infrastructure Policy addressing traffic and public safety issues.
  - hopper service area should be of industrial strength pavement to take up front-end loading and be clear of structures for a height of 6.1m.
  - location of hopper service area should allow truck to be parked safely within the premises whilst servicing.
  - industrial strength pavement should be provided on the section of the internal road used by the collection trucks (See Diagram F).
  - basement for storage/collection of waste/recyclables. Proposal should comply with Section 8.7.
- e) washdown provisions – see Section 7.7. Any written confirmation in support of alternatives to washdown provisions proposed. If the office building includes food preparation activity (takeaway or canteen), requirements of restaurants, takeaways and cafes should be met as outlined elsewhere.
- f) clinical waste please contact appropriate agencies. See

## **SUBMISSION REQUIREMENTS**

Your application should include:

- Completed parts of the Waste Management Plan as per Section 4, Table 1;
- Drawings showing the following details should be submitted at DA and BA stages:
  - location of the office building, waste enclosure(s)/room, driveway access off the public street, envisaged collection truck manoeuvre in relation to vehicle parking;
  - plan view and elevations/sections with dimensions;
  - service area grades and pavement details of the internal road to be used by the collection truck(s);
  - adequate screening and collection times to minimise the impact on nearby residents; and
  - spot levels along the roll out pad and truck service area of 1 m intervals.

Applicants are encouraged to incorporate the completed Part 4 of the Waste Management Plan (see Table 3) into the construction site plan via a CAD package (or similar software application).

Diagram G

Typical shared  
recyclable  
waste/storage  
facility

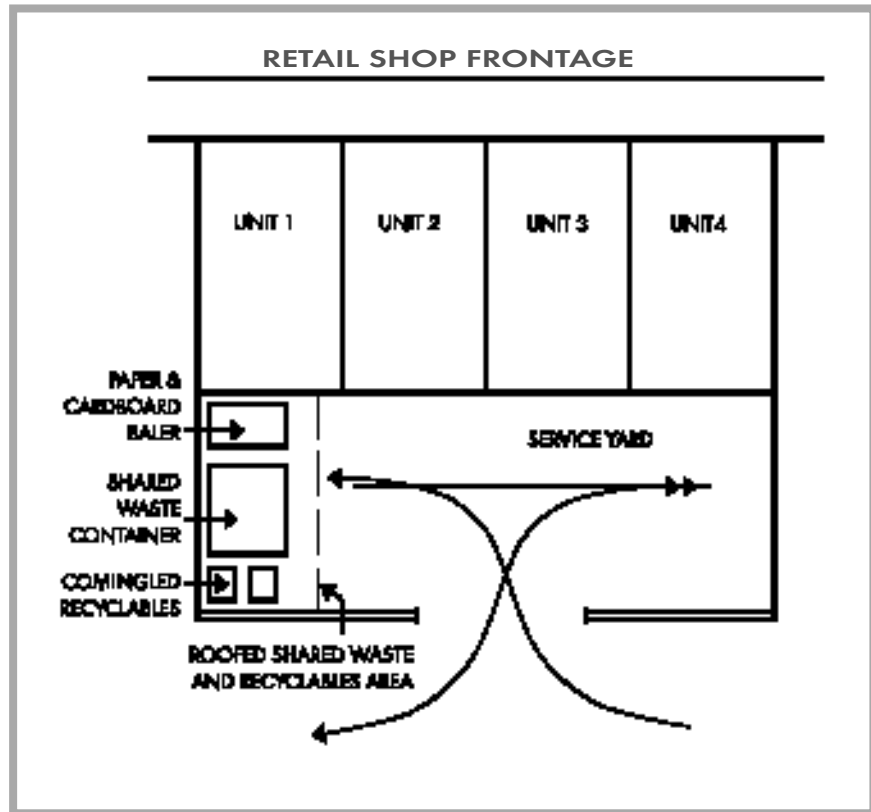
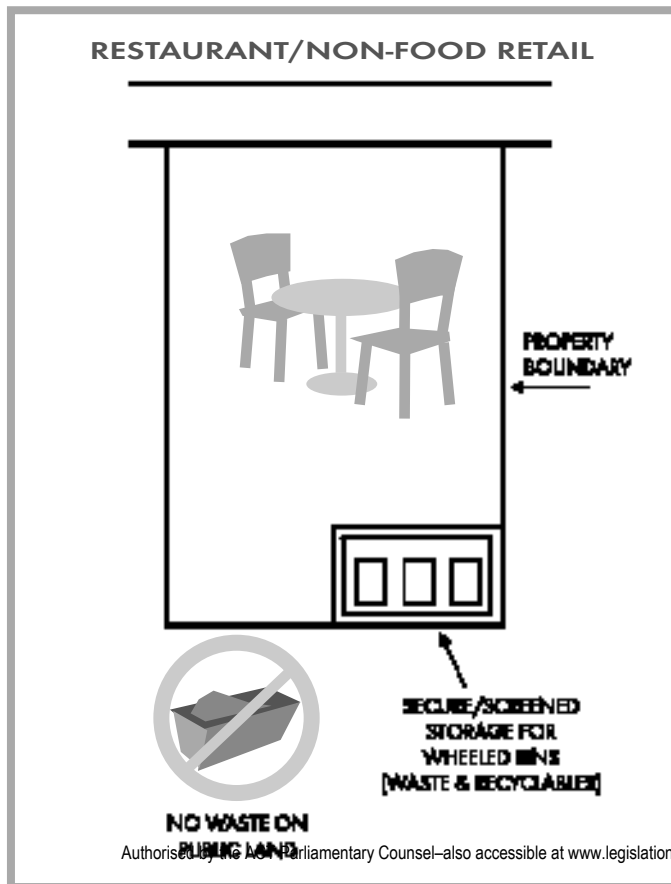


Diagram H

Recommended  
waste/recyclable  
storage facility for  
individual tenancy  
within the property  
boundary





## 5.6 RETAIL FOOD (eg.: suburban shops, service stations, bakeries, stalls in a market place) AND CAFES, CLUBS, RESTAURANTS and TAKEAWAYS

### INTENT

To encourage best practice solid waste management (source separation, reuse and recycling) and ensure quality and effective design of storage facilities located within the lease boundaries, addressing public amenity and safe and convenient collection requirements.

### PERFORMANCE CRITERIA

The intent may be achieved where:

- a) non-recyclables are separated at source from different streams of recyclables;
- b) storage and collection of recyclables are sought;
- c) a suitably designed and well located waste and recycling storage area is provided within the property line;
- d) best practice collection is followed – as per 5.4(d)
- e) attempts are made to set up composting solutions;
- f) there is user convenience – convenient access to waste and recycling containers; and
- g) there are washdown provisions – assessed on the type of waste handled.

### ACCEPTABLE SOLUTIONS

- a) provisions are made for separating non-recyclables from the different streams of recyclables at source;
- b) separate provisions are made for storage and collection of recyclables (paper, glass and plastics). Use of shredders or paper/cardboard balers is recommended;
- c) waste storage area is provided within the property line as per Sections 6, 7 and 8 of this code (see Diagrams G & H).  
Table 4 of the code and Parts 5, 6 and 7 of the Waste Management Plan provides guidance in the estimation of volumes of and corresponding container requirements for recyclables and non-recyclables.  
d) reversing of trucks onto a public road will be considered, only if the applicant can demonstrate that reversing is essential and approval is given by the Manager, Traffic Infrastructure Policy addressing traffic and public safety issues.
  - hopper service area should be of industrial strength pavement to take up front-end loading and be clear of structures for a height of 6.1 m.
  - location of hopper service area should allow truck to be parked safely within the premises whilst servicing.
  - industrial strength pavement should be provided on the section of the internal road used by the collection trucks (See Diagram F).
  - basement for storage/collection of waste/recyclables (See Diagram I). Proposal should comply with Section 8.7.
- e) communal composting should be considered particularly at suburban shopping centres and market places. Find markets for organic waste. See Fact Sheet 3;
- f) convenient access to recycling bins will maximise recycling; and
- g) see Section 7.7 for information about washdown provisions.

## **SUBMISSION REQUIREMENTS**

Your application should include:

- Completed parts of the Waste Management Plan as per Section 4, Table 1;
- Drawings showing the following details should be submitted at DA and BA stages:
  - location of the retail facility, waste enclosure(s)/room, driveway access off the public street, envisaged collection truck manoeuvre in relation to vehicle parking;
  - plan view and elevations/sections with dimensions;
  - service area grades and pavement details of the internal road to be used by the collection truck(s);
  - adequate screening and collection times to minimise the impact on nearby residents; and
  - spot levels along the roll out pad and truck service area at 1m intervals.

Applicants are encouraged to incorporate the completed Part 4 of the Waste Management Plan (see Table 3) into the construction site plan via a CAD package (or similar software application)

## 5.7 TOWN CENTRE AND GROUP CENTRE SUPERMARKETS, SHOPPING MALLS, HOSTELS, HOTELS, MOTELS, SERVICED APARTMENTS AND INSTITUTIONAL PREMISES

### INTENT

To encourage best practice solid waste management (source separation, reuse and recycling), and ensure quality and effective design of storage facilities located within either lease boundaries or precinct, addressing public amenity and safe and convenient user collection requirements.

### PERFORMANCE CRITERIA

The intent may be achieved where a comprehensive waste plan addressing the following is submitted:

- a) non-recyclables are separated from different streams of recyclables at source;
- b) storage and collection of recyclables is sought;
- c) a suitably designed and well located waste and recycling storage area is provided within the property line;
- d) best practice collection is followed as per 5.4(d);
- e) attempts are made to set up composting;
- f) user convenience;
- g) washdown provisions – see Section 7.7; and
- h) if clinical waste/hazardous wastes – separate storage and collection should be made.

### ACCEPTABLE SOLUTIONS

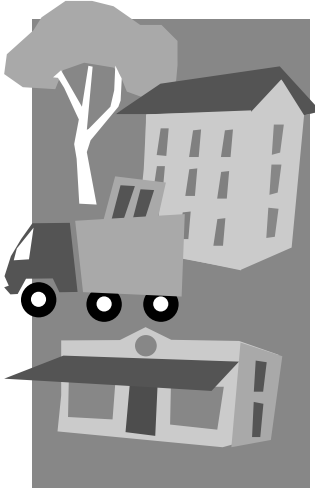
- a) provisions are made for the separation of non-recyclables from the different streams of recyclables at source;
- b) separate provisions are made for storing and collecting recyclables (paper, glass, plastics and organics);
- c) waste storage area is provided within the property line as per Sections 6, 7 and 8 of this code.  
Table 4 of the code and Parts 5, 6 and 7 of the Waste Management Plan provides guidance in the estimation of volumes of and corresponding container requirements for recyclables and non-recyclables.
- d) reversing of trucks onto a public road will be considered, only if the applicant can demonstrate that reversing is essential and approval is given by the Manager, Traffic Infrastructure Policy addressing traffic and public safety issues.
  - hopper service area should be of industrial strength pavement to take up front-end loading and be clear of structures for a height of 6.1m.
  - location of hopper service area should allow truck to be parked safely within the premises whilst servicing
  - industrial strength pavement should be provided on the section of the internal road used by the collection trucks (See Diagram F).
  - basement for storage/collection of waste/recyclables (See Diagram I). Proposal should comply with Section 8.7.
- e) composting facilities are used see Fact Sheet 3;
- f) convenient access to recycling bins will maximise recycling – shared use of storage facilities and financial incentives to encourage waste minimisation should be considered by the property managers (See Diagram G);
- g) assessed on the type of waste handled; and
- h) clinical and hazardous wastes are handled in accordance with Environment ACT requirements, tel 6207 2151.

## **SUBMISSION REQUIREMENTS**

Your application should include:

- Completed parts of the Waste Management Plan as per Section 4, Table 1;
- Drawings showing the following details should be submitted at DA and BA stages:
  - location of the retail facility, waste enclosure(s)/room, driveway access off the public street, envisaged collection truck manoeuvre in relation to vehicle parking;
  - plan view and elevations/sections with dimensions;
  - service area grades and pavement details of the internal road to be used by the collection truck(s);
  - adequate screening and collection times to minimise the impact on nearby residents; and
  - spot levels along the roll out pad and truck service area at 1 m intervals.

Applicants are encouraged to incorporate the completed Part 4 of the Waste Management Plan (see Table 3) into the construction plan via a CAD package (or similar software application).



### 6.1 DESIGN ELEMENTS

The key design elements of a waste storage enclosure are:

- (a) waste and recyclables generated from different types of developments;
- (b) storage capacity needs;
- (c) size, location and other design features of the waste/recyclable storage facilities;
- (d) associated hydraulics where required; and
- (e) safe and convenient collection vehicle access and turning provisions.

### 6.2 WASTE AND RECYCLABLES GENERATION

Use the generation figures in Table 4 to determine expected volumes of waste and recyclables generated by the development. This information should be used as a guide to complete Parts 5, 6 and 7 of the Waste Management Plan.

### 6.3 STORAGE CAPACITY MULTI-UNIT RESIDENTIAL DEVELOPMENT

These guidelines apply to all multi-unit residential developments other than dual occupancy developments.

Where there are more than 10 dwellings in a development, provide hoppers for waste instead of separate mobile garbage bins (MGBs). This overcomes the problem of handling a large number of wheeled bins. Similarly, provide red and blue 240L MGBs for recycling instead of individual yellow top MGBs where there are more than 10 and less than 31 dwellings in the development.

If the number of dwellings exceed 30, a suitable number of 1100L hoppers should be provided for recyclables. One pair of 1100L hoppers is equivalent to 2.2m<sup>3</sup>.

**Collection frequencies are:**

**Waste hoppers** Once a week (minimum) or twice a week (maximum)

**Recyclables** Once a fortnight (minimum) or once a week (maximum)

Complete Parts 5, 6 and 7 of the Waste Management Plan to estimate waste and the recyclable generation volumes and required storage capacity.

**TABLE 4**

Types of Premises	† Typical Waste Generation Rate	† Typical Recyclables Generation Rate	Notes on the use of container type
Multi-unit developments and cluster developments up to and including 10 units	140L/unit/week	240L (total)/unit/fortnight for paper and other recyclables	One 140L mobile garbage bin (MGB) per unit for waste and one divided 240L MGB (yellow top) per unit for recycling*
Multi-unit developments and cluster developments of 11 and above	140L/unit/week	240L of paper and 240L of other recyclables/6 units/fortnight	Hopper/s of suitable size for waste; and MGBs or hoppers for recyclables as per Sections 7.3 and 7.4*
Retail Trading Shops (Food shops)	0.1 to 0.2m <sup>3</sup> /100m <sup>2</sup> gross floor area/day	Discretionary	Hoppers or wheeled bins*
Retail Trading Shops (Non-food shops)	50L/100m <sup>2</sup> floor area/day	< 100m <sup>2</sup> : 25L/100m <sup>2</sup> /day > 100m <sup>2</sup> : 50L/100m <sup>2</sup> /day	Hoppers or wheeled bins
Showrooms	40L/100m <sup>2</sup> /day	10L/100m <sup>2</sup> /day	
Large Supermarkets and Community Centres	0.1 to 0.3m <sup>3</sup> /100m <sup>2</sup> gross floor area/day	240L/100m <sup>2</sup> /day	Allow for baling of paper and cardboard*
Greengrocers	0.2 to 0.4m <sup>3</sup> /100m <sup>2</sup> gross floor area/day	120L/100m <sup>2</sup> /day	Allow for composting*
Shopping Malls	Combination to suit development		Allow for baling of paper and cardboard*
Restaurants, Cafes, Takeaways and Clubs	0.3 to 0.6m <sup>3</sup> /100 meals	Additional 0.15m <sup>3</sup> of glass/100 meals	At least two waste collections per week are desirable*
Hostels, Hotels and Motel Serviced Apartments	0.005 to 0.01m <sup>3</sup> /bed/day	Hostels: 20L/person/week Hotels: 50L/100m <sup>2</sup> /bar/day Motels: 1L/bed/day	Wastes from restaurant are additional*
Office Buildings	0.01 to 0.03m <sup>3</sup> /100m <sup>2</sup> gross floor area/day	Waste paper 0.005m <sup>3</sup> /100m <sup>2</sup> /day. Glass and plastics, 0.001 to 0.003m <sup>3</sup> /100m <sup>2</sup> /day	Wastes from café/canteen are additional*
Industrial Premises	Dependent on industry type	Waste paper 0.001m <sup>3</sup> /person/day. Other recyclables a lesser amount	Hoppers or wheeled bins

\* Consider allowing additional space for the storage of organic waste and other organic waste or other recyclables, in the future.

† Typical waste generation rates and corresponding container types may change.

#### **6.4 STORAGE CAPACITY — Non residential (Commercial and Industrial) Developments**

Provide for adequate siting of at least one 1.5m<sup>3</sup> waste hopper and a pair of 240L MGBs for recycling, irrespective of how low the waste generation rates of the initial proposed use of the site are.

**An allowance of at least two days storage of waste** should be provided for.

Complete Parts 5, 6 and 7 of the Waste Management Plan.

Typical waste and recyclable generation volumes given in Table 4 can be used as a guide.

Completing a Waste Audit Questionnaire (Fact Sheet No. 5) of existing facilities can also provide useful baseline information.

#### **6.5 SPECIAL CIRCUMSTANCES**

For office and warehouse type buildings with gross floor areas of up to 1000m<sup>2</sup>, the use of 240L MGBs in lieu of hoppers is permitted (for waste and recyclables). This does not negate the need to provide room for a waste hopper as per Section 6.4. If the lessee intends to use 240L MGBs in lieu of hoppers, the viability of a collection service should be confirmed by a waste operator. This should be conveyed to the certifying agent in writing with a drawing showing the enclosure provisions.

The approval of kerbside collection of MGBs is subject to traffic, parking, noise and public safety issues being addressed to the satisfaction of ACT Waste and other relevant Department of Urban Services agencies.

The need for washdown provisions and a roof may be waived if the waste operator gives an assurance to either replace bins with clean ones as required, or have a raised gully trap which drains in to the sewer.

For large developments such as shopping malls, hotels etc. where large volumes of waste are generated, the use of sealed compactors is recommended.



## 7.1 GENERAL CONSIDERATIONS

### *Public Land*

It is not permitted to store waste and recyclable containers on public land.

### *Screening from View*

Planning considerations often dictate that waste storage be screened from public view.

Screening should include the view from ground level and elevated positions (eg. from multi-storey developments).

### *Ease of Use for Waste Generators*

The design of the storage enclosures should be in accordance with best practice waste management design allowing convenient user access. The maximum waste carrying or bin carting distances from a unit to a waste enclosure or kerbside is 75 metres. For steep areas, aged persons units, or units for persons with disabilities the distance should be limited to 50 metres. Bin carting grade should not exceed 10%.

### *Ease of Use for Waste Collectors*

Provide easy access for the mechanical pick up of waste hoppers by front-end loading trucks and recycling hoppers by rear end loading trucks.

### *Public Safety*

Waste containers and their lids can present a hazard if incorrectly sited. Many containers have lids that open 180 degrees or more and present a hazard if lids can be opened into the path of pedestrians.

Containers either located on slopes or that have to be manoeuvred across a slope for emptying, can roll away and cause severe damage/injuries. Designs for waste storage sites and enclosures should take into account that containers larger than 240 litres should not be manoeuvred across kerbs, because of Occupational Health and Safety implications.

### *Sewerage*

Any connection to a sewer shall be in accordance with the “Canberra Water Supply and Sewerage Regulations” and with the requirements and approval of the sewerage network utility (i.e. ACTEW)

### *Noise*

Noise generated by collecting waste and recyclables should be considered when locating waste storage sites and enclosures.

To maintain the amenity of residents in multi-unit developments, waste and recyclables enclosures should be located as far as possible from residential accommodation and comply with the constraints detailed elsewhere in this code.

### *Fire Risk*

There is always a risk that the contents of containers can be set alight by either vandals or by residents inadvertently emptying hot ash and/or other burning material into containers. It is therefore recommended that enclosures be isolated from other buildings on the site to minimise risk. Use of building materials that are not flammable should be considered.



### ***Shade/Ventilation/Weather Protection***

Exposing the waste to excessive heat increases the rate of microbial decomposition and hence the generation of odours. There are considerable benefits in shielding wastes from the sun by either awnings or roofs or by locating the enclosure on the south side of a wall. As these measures will not totally overcome odour problems, waste enclosures should be ventilated.

Water encourages the decomposition of wastes and the generation of odours. In many instances the lids of containers are left open for ease of use and are not closed during wet weather. This problem arises particularly where there are many waste container users in multi-unit developments. Therefore, there are additional benefits in providing a roof for putrescible waste containers.

If the enclosure is to be drained to the sewer then it is necessary to exclude rainwater from entering the sewerage system by providing roofing and protection against windblown rain and by diverting runoff.

### ***Shared Facilities – Management Responsibilities***

In commercial developments there are advantages in providing a waste storage facility for the shared use of all waste generators on the site. The containers used range from simple waste hoppers to recycling bins, garbage compactors and paper/cardboard balers.

The successful operation of a shared facility is dependent on effective means of controlling their use with a nominated person responsible for overseeing that they are maintained and used correctly.

## **7.2 ENCLOSURES**

Waste enclosures are often provided for hoppers ranging from 1.5m<sup>3</sup> to 4.5m<sup>3</sup> capacity. These containers can weigh more than two tonnes when full and are usually emptied by vehicles with large tare weights. Enclosures should be designed to minimise any damage to them as a result of mechanical pickups.

Design elements that should be considered in the construction of waste enclosures are:

- **strength of doors and hinges;**
- **locking of doors in open position to facilitate collection;**
- **protecting roller door guides with wooden strips;**
- **locating services such as water and gas pipes clear of possible damage if these services have to be located within the enclosure;**
- **protecting walls with buffers or plinths;**
- **use of a roll-stop to prevent containers moving down slopes;**
- **tap protector collar; and**
- **service access doors opening outwards.**

### 7.3 WASTE AND RECYCLING STORAGE — Multi-Unit Residential Blocks

#### *Up to 10 Residential Units*

Allocate a pair of 140L waste and 240L recycling MGBs to a unit where it is one of a group of 10 or fewer units.

It is the responsibility of residents to ensure that the MGBs are stored in a suitable location adjacent to, and within the curtilage, of the unit between collections. These MGBs will need to be placed along the kerbside of the gazetted road on collection days.

#### *From 11 to 30 Residential Units*

Provide an enclosure for waste hoppers and dedicated space for blue and red 240L MGBs for recyclables. The enclosure size should be determined as per Section 7.4, Table 5, based on the storage entitlement as described in Table 1. A pair of red and blue MGBs for recyclables should be provided for every six residential units (see Section 6, Table 4). These MGBs should be located either inside the waste hopper enclosure or adjacent to it to ensure collection truck access.

#### *Above 30 Residential Units*

Provide enclosures for waste hoppers and dedicated storage space for recyclables. The waste storage entitlements should be based on Section 6, Table 4, and the enclosure size should be as per Section 7.3. The storage needs for recyclables are as follows:

For storing recyclables, provide 1100L red (paper) and blue (other recyclables) top hoppers.

The following recommended combinations should be considered for the varying range of residential units:

- 
- 1 pair of 1100L hoppers emptied **fortnightly** — 31 to 40 residential units in a block
  - 1 pair of 1100L hoppers emptied **weekly** — 41 to 75 residential units in a block
  - 2 pairs of 1100L hoppers emptied **weekly** — 76 to 150 residential units in a block
  - 3 pairs of 1100L hoppers emptied **weekly** — 151 to 200 residential units in a block
  - 4 pairs of 1100L hoppers emptied **weekly** — 201 to 260 residential units in a block

The required size of the dedicated concrete pad with gentle (max. 3 %) roll out provisions for each 1100L hopper is:

**1500 mm wide X 1200 mm deep**

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The storage pad(s) should be located adjacent to the hopper enclosure(s) to ensure access by collection vehicles. Neither washdown nor drainage to sewer provisions are required for these pads. Alternatively, the recycling hoppers can be placed in the waste enclosure.

## 7.4 SIZE OF HOPPERS

	RECYCLING	WASTE		
	1100L	1.5m <sup>2</sup>	3.0m <sup>3</sup>	4.5m <sup>3</sup>
WIDTH	1200mm	2050mm	2050mm	2050mm
DEPTH	1000mm	910mm	1350mm	1600mm
HEIGHT	1350mm	910mm	1220mm	1520mm

## 7.5 SIZE OF ENCLOSURES

The size of an enclosure will depend on the anticipated waste quantity generated from the site, the size of hopper(s) chosen and the collection frequency.

Where it is proposed that the waste hopper be loaded directly from the enclosure without manual handling, the enclosure shall be designed to ensure adequate visibility for front-end loading vehicle drivers, assuming an eye height of 2.45m.

If a roof is provided, the roof design should ensure a clear height of 2.4m minimum to the underside of roller shutters. The typical hopper sizes and corresponding enclosure dimensions should be as per Table 5, and the notes accompanying it.

### TYPICAL ENCLOSURE DIMENSIONS

TABLE 5

Typical Hopper Sizes	Roofed Enclosure Dimensions (Internal)
1.5m <sup>3</sup> – One container	3.0m (long) x 2.4m (deep) x 2.4m (high)
– Two containers – side by side	5.0m x 2.4m x 2.4m
3.0m <sup>3</sup> – One container	3.0 x 2.4 x 2.4m
– Two containers – side by side	5.0 x 2.4 x 2.4m
4.5m <sup>3</sup> – One container	3.0 x 2.4 x 2.4m

#### Note 1

If a roof is not required (ie. for storage of dry waste), a screened wall height of 1.8m should be provided.

#### Note 2

If the recycling MGBs (240 litre) or hoppers (1100 litre) are to be accommodated within the waste enclosure, additional floor area of 1.0m<sup>2</sup> for each 240L bin and 1500mm x 1200mm for each 1100L hopper should be provided. The design should take into account of the user access and container servicing needs.

#### Note 3

Circulation space of 0.6m should be provided between hoppers to ensure convenient user access.

## 7.6 LOCATION OF ENCLOSURE(S)

All waste storage enclosures must be constructed within the property boundaries to ensure the emptying operation takes place with the trucks contained fully within the property line. Where sites are being redeveloped with service lanes, ACT Roads and Stormwater approval will be required to service waste containers along the laneway.

The enclosure should be positioned so that the maximum roll out distance for collection of the waste hopper is limited to 4 metres. A concrete roll out apron with a gradient of 3% or less is to be provided from the enclosure to the point of loading. It is not permitted to construct a lay-by on public roads to restrict the roll out distance. If the front wheels of the front-end loading truck are required to drive on to the apron, it should be of industrial strength.

**Note: Hoppers larger than 1.5m<sup>3</sup> should not be rolled out manually because of occupational health and safety risks.**

## 7.7 WASH DOWN PROVISIONS

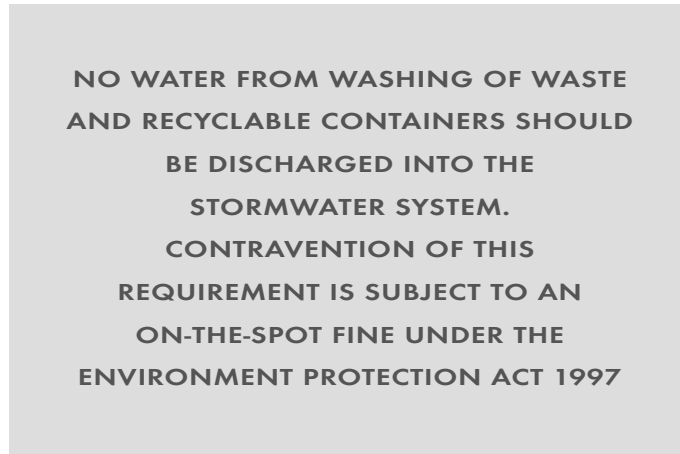
Where wet wastes (including food preparations) are generated, the waste enclosure(s) should have either a concrete or paved floor graded to a silt trap with the trap connected to sewer. The design should be in accordance with the "Canberra Water Supply and Sewerage Regulations". The maximum floor gradient is 2%. A cold water tap should be provided either in or adjacent to the enclosure so that the waste container can be cleaned. If a cold water tap is provided in the enclosure a tap protector collar should be provided.

Areas outside the waste enclosure should drain away from the enclosure. Figure 1 shows a typical waste enclosure arrangement.

If it can be demonstrated that the use of MGBs will be adequate for waste storage, provisions as per Section 6.5 may be favourably considered.

## 7.8 ENVIRONMENTAL PROTECTION SIGN

If silt trap or sewer connections are not provided, a sign must be erected within the enclosure stating that:



The sign shall be at least 750 mm x 500 mm with letters at least 20 mm high and be maintained in good order.

## 7.9 PUBLIC AND ENVIRONMENTAL HEALTH

Best practice storage provisions apply. Hoppers and bins should be frequently washed to maintain public environmental health standards. Table 6 below is intended as a guide for washdown/replacement frequencies for MGBs and hoppers. For further information contact the ACT Health Protection Service Unit on Telephone (02) 6205 1700.

**TABLE 6**

Business Type	Issue of Concern	Best Practice	Washdown frequency of Containers <sup>1</sup>	
			Summer	Winter
Restaurant	Sanitation	Lids kept closed Waste double bagged	Once/month	Once/3 months
	Weather	Roofed storage area		
Supermarket	Sanitation	Lids kept closed Waste double bagged	Once/3 months	Once/3 months
	Weather	Roofed storage area		
Offices (mixed waste) <sup>2</sup>	Weather	Roofed storage area	Once/year	Once/year
Dry Waste/Recyclables	Weather	Roofed storage area or material stored in containers	Once/year	Once/year

<sup>1</sup> The storage area however should be connected to sewer and hosed down as required

<sup>2</sup> If the waste is exclusively dry, the need for washdown provisions and roof could be waived



In this section, kerbside placement of MGBs means within 1.5m of the kerb of a gazetted road.

### 8.1 MULTI-UNIT RESIDENTIAL DEVELOPMENTS

Depending on the size of the development there are two possible methods of waste storage and collection applying to multi-unit residential developments.

#### METHOD 1 (Developments of 10 and fewer units)

**Waste** — Use of individual 140L MGBs placed at the kerbside by the resident on collection day (one collection per week).

**Recycling** — Use of a single divided 240L yellow top MGB for each dwelling. MGBs placed at kerbside for collection (one collection per fortnight).

Where recyclables storage is shared with blue and red 240L MGBs for paper and other recyclables, provide for collection from the waste storage area within the site. Allow adequate pavement strength and vehicle access.

#### METHOD 2 (Developments of more than 10 units)

**Waste** — Use of one or more waste hoppers in a suitably designed waste enclosure(s).

**Recycling** — Use either 1100L blue and red top hoppers or blue and red 240L MGBs. Provide for collection from the waste storage area located within the site. Ensure that provision of industrial strength pavement (See Section 8.6) and truck access is ample for turning.

### 8.2 WASTE/RECYCLABLES COLLECTION AND TRANSPORT

#### *Ease of use and safety for waste collectors*

Waste and recyclables hoppers can be very heavy when filled. The density of waste in a hopper may be as much as 250kg/m<sup>3</sup> which means a 4.5m<sup>3</sup> hopper can weigh more than two tonnes. In many instances the waste operator has to manually shift the hopper to a position from which it can be mechanically emptied.

Steeper slopes must be avoided. Therefore the concrete loading pad must be of sufficient size and strength to take the front wheels of the collection vehicle as the vehicle lines up to empty the hopper.

For Occupational Health and Safety reasons, hoppers with greater than 1.5m<sup>3</sup> capacity must not be manoeuvred manually. Do not locate hoppers in enclosures where roof overhang prevents the operator from seeing into the enclosure from the cabin of the collection truck (See Section 7.4).

#### **Note**

Best Practice Waste Collection is to facilitate front end loading of hoppers without requiring the truck operator to leave the vehicle and manually manoeuvre the bins.

The provisions for truck movements should be based on the AUSTRROADS DESIGN SINGLE UNIT TRUCK/BUS (12.5m) turning templates as shown in Figure 4. However, performance-based design on actual garbage truck characteristics is also acceptable. Relevant consideration for such performance-based design are noted below.

### 8.3 COLLECTION VEHICLE CHARACTERISTICS AND OPERATIONS LIMITATIONS

Waste collection vehicles may be side loading (single operator for 140L waste and 240L divided recycling MGBs), rear end loading (recycling hoppers and non-divided 240L recycling MGBs) or front end loading (waste hoppers). The size of vehicle varies according to the collection service. Note, garbage vehicles axle configurations range from one front and one rear axle (4 x 2) to two rear axles and two front axles (8 x 4).

The axle configuration, wheelbase and maximum turning angle of the front wheels affect the vehicle turning circle and swept path. Thus it is impossible to specify what constitutes the definitive garbage truck. Vehicles used in Canberra may have turning circles as tight as 16.5m kerb-to-kerb (or 17.9m wall to wall) for the 4 x 2 vehicles used for collections of household garbage and recyclables to about 22.1m for larger hopper collection vehicles (8x4).

Any turning circle considerations must also include allowances for driver steering error and overhangs. The steering error allowance should be at least 0.6 metres (absolute minimum) on both sides of the theoretical wheel path and 1m as a desirable minimum.

In developing a design, the type of collection service and overall development of the area shall be considered when making provision for typical three-point turn of collection trucks within a site.

**All commercial developments and multi-unit residential developments of more than 10 units shall be designed for a front-loading collection vehicle. Where multi-unit residential developments of more than 10 units are in a cul-de-sac, turning provision for a front-loading collection vehicle shall be made either on the multi-unit site or within the cul-de-sac head.**

#### Characteristics of typical collection vehicles:

Side-loading Collection Vehicle for MGBs

	Garbage truck	Recycling Truck
Length overall	8.70m	9.90m
Front overhang	1.42m	0.85m
Wheelbase	5.00m	5.30m
Rear overhang	2.30m	2.65m
Turning circle kerb to kerb	16.40m	18.70m
Turning circle wall to wall	18.14m	19.20m
Front of vehicle to collection arm	2.70m	3.30m
Maximum reach of side arm	2.00m	1.70m
Travel height	3.65m	3.80m
Clearance height for loading	4.00m	3.80m

## Front-loading Collection Vehicle for Hoppers

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Length overall	9.90m
Front overhang	1.42m
Wheelbase	5.84m
Rear overhang	2.64m
Turning circle kerb to kerb	22.10m
Turning circle wall to wall	23.66m
Travel height	3.64m
Clearance height for loading	6.1m (front loading of hoppers)

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All commercial developments shall make provision for a front-loading collection vehicle.

### IMPORTANT NOTES

Computer-generated vehicle paths may be used to check vehicle swept paths using the criteria set out in this section. Under such circumstances, drawings clearly showing the swept paths within the road layout should be submitted to ACT Waste.

Applicants who cannot generate swept paths using the given characteristics should use the standard AUSTROADS turning template as shown in Figure 4.

## 8.4 WASTE COLLECTION VEHICLE ACCESS AND TURNING PROVISIONS

### Multi-unit residential (above 10 units) and non-residential premises

The waste collection vehicle should be able to access the development in forward motion and, after emptying either the waste hopper or MGB, be able to leave in forward motion.

Reversing of trucks onto a public road will be considered, only if the applicant can demonstrate that reversing is essential and approval is given by the Manager, Traffic Infrastructure Policy.

### Cul de sac Heads (Public Roads) or Turning area within a block

Where there is a requirement for collection vehicles to turn at a cul-de-sac head or within a block, the design should incorporate either a bowl, 'T' or 'Y' shaped arrangement.

The site characteristics that will influence the design need to address the following:

- residents should be able to place their MGBs outside their homes and the truck should be able to pick up mechanically without the need to relocate the bins;
- parked cars greatly impair turning of vehicles;
- provision of driveway access to blocks off the T or Y legs of the cul-de-sac will deter cars from obstructing collection vehicles;
- trucks should only be expected to make a three-point turn to complete a U-turn;
- allow for collection vehicle overhang and possible interference with bins and road furniture (see figure 4); and consider set-down points for truck to pick up from when making a three-point turn.



## 8.5 KERBSIDE COLLECTION - Estate Development Proposals

Residents of streets that cannot be reached by a collection vehicle will have to place their MGBs for waste and recyclables on common collection points outside properties other than their own. This arises where criteria for any of the following cannot be met:

- road gradient;
- road width;
- provision for turning at cul-de-sac head;
- garbage vehicle side-lift arm cannot reach the bin at the kerbside as the road does not extend far enough (situation may arise at Ts and Ys); and
- pavement strength.

In such cases, affected properties should be identified with the locations of the waste and recyclable common collection points in a waste collection plan as part of the Implementation Plan stage. Where a common collection point is to be located on land required for a footpath, the footpath shall be maintained at the design width behind the pad with a change in the footpath alignment. (Sample attached as Figure 3, page 38). The kerbside collection point shall be a concrete pad with a kerbside length of 1200mm per pair of bins (waste plus recycling) and a depth of 800mm. The length constructed shall include provision for bins from the houses in front of the pad. Kerbside collection points shall have a slope of less than 15% in any direction.

Three sets of endorsed waste collection plans should be submitted to ACT Waste so that ACT Waste can retain a copy and issue copies to the garbage and recyclables collection contractors.

Overhead clearance of 4.2m shall be provided alongside all streets and to a distance of 1.0m back from the kerb to allow for emptying MGBs without damage to collection vehicles.

## 8.6 ROAD GEOMETRY FOR VEHICLE MOVEMENTS

The design parameters that need to be complied with are:

- a desirable maximum gradient of 10% for turning heads;
- maximum longitudinal road gradient – 15%;
- minimum kerb radius at outside of turn where there is to be no kerbside collection 8.5m;
- minimum kerb radius at outside of turn if there is to be kerbside collection – 10.0m;
- minimum pavement width – 5.0m if less than 24 car-parking spaces are required;
- minimum pavement width – 6.5m if 25 or more car-parking spaces are required; (use of passing bays is acceptable); and
- industrial-type strength pavement should be designed for a maximum wheel loading of 7 tonnes per axle in order to accommodate waste and recycling collection trucks (The standard road pavement design specifications for an industrial driveway entry on public land is 150mm thick concrete, 20MPa concrete with F82 mesh).

## 8.7 BASEMENT/STORAGE COLLECTION

Waste collection from basements of buildings for both commercial and residential apartment buildings is permissible provided the following collection vehicle operational requirements are met:

- gradient of the ramp access to basement does not exceed 1:8;
- height to the structural members and upper floor ceiling should allow for a typical collection vehicle travel height requirement of at least 4.0m and an operational height of 6.1m;
- space clear of structural members or vehicle parking spaces adequate to allow typical three-point turn of collection vehicles.
- Basement floor should be of industrial-type strength pavement and designed for a maximum wheel loading of 7 tonnes per axle in order to accommodate waste and recycling collection trucks (The standard road pavement design specifications for an industrial driveway entry on public land is 150mm thick concrete, 20MPa concrete with F82 mesh).

*Diagram 1: Basement storage*

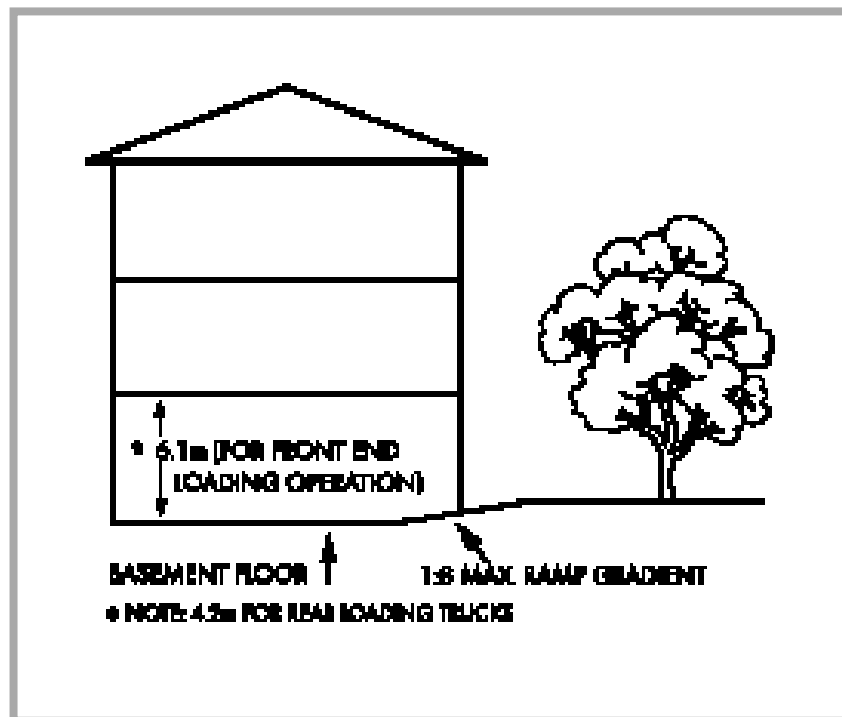


Figure 1: Typical Enclosure

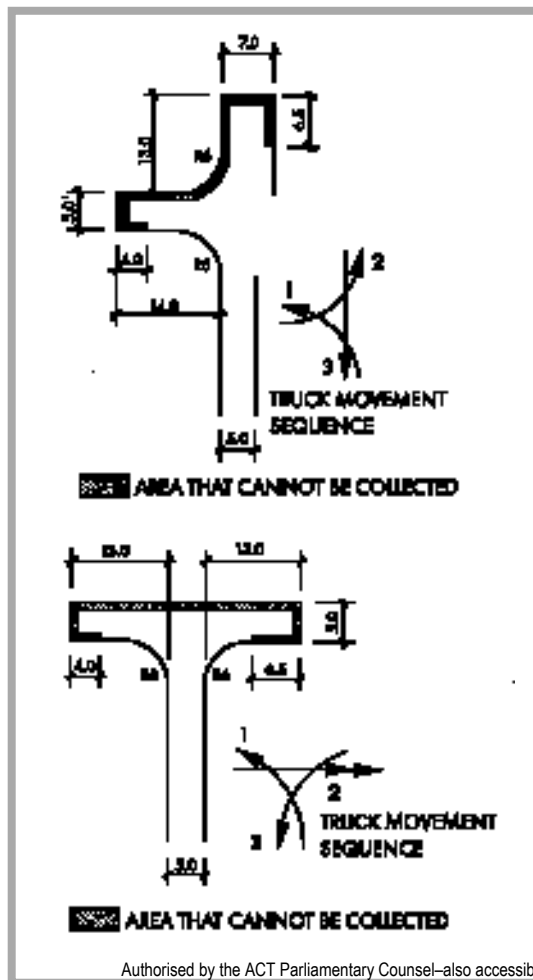
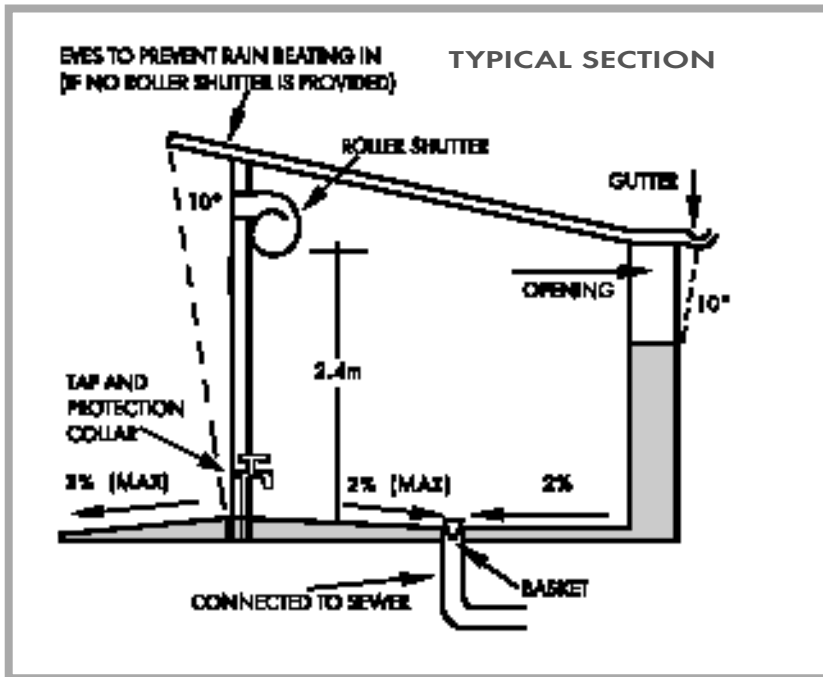


Figure 2a: Garbage truck clearance requirements

Figure 2b: Garbage truck clearance requirements

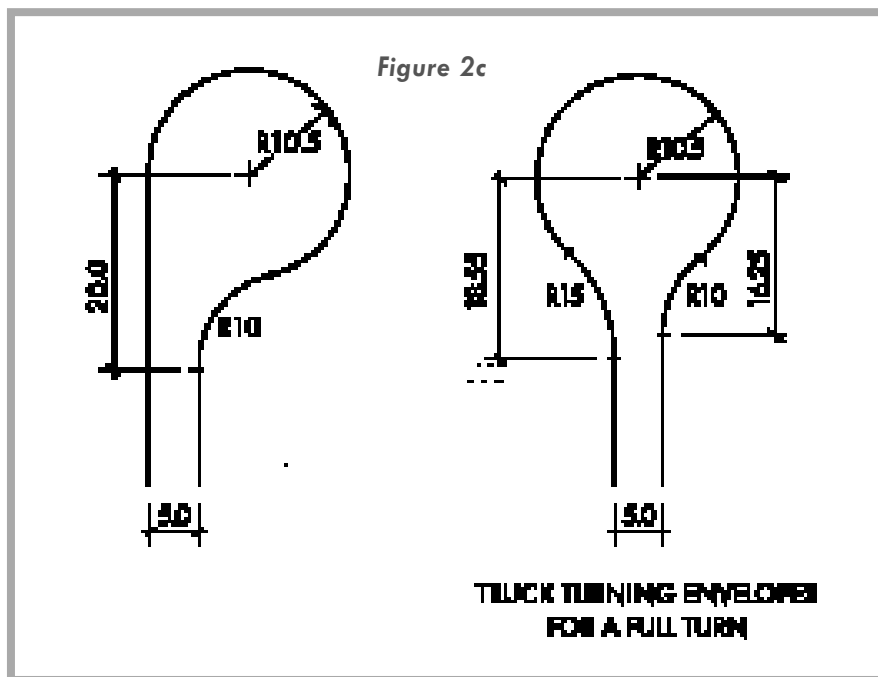
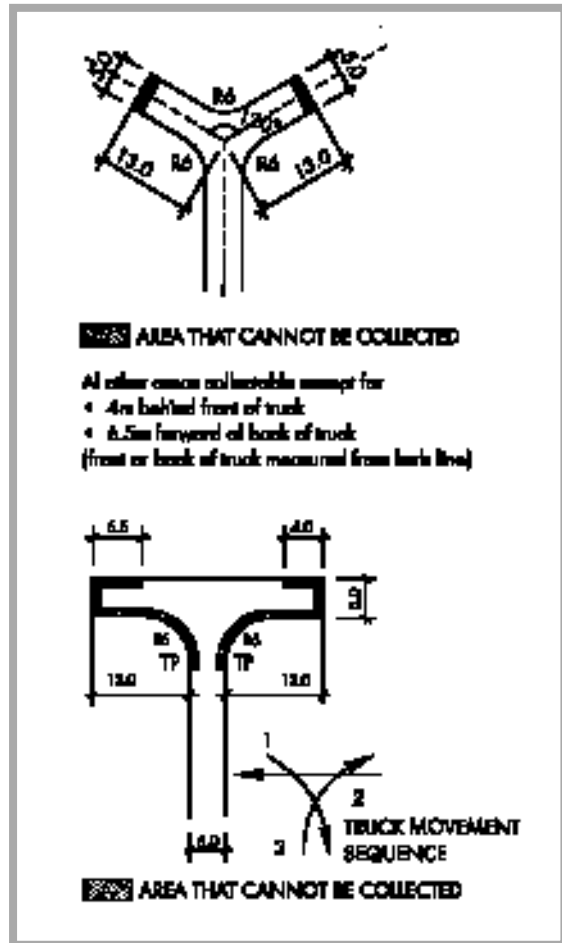
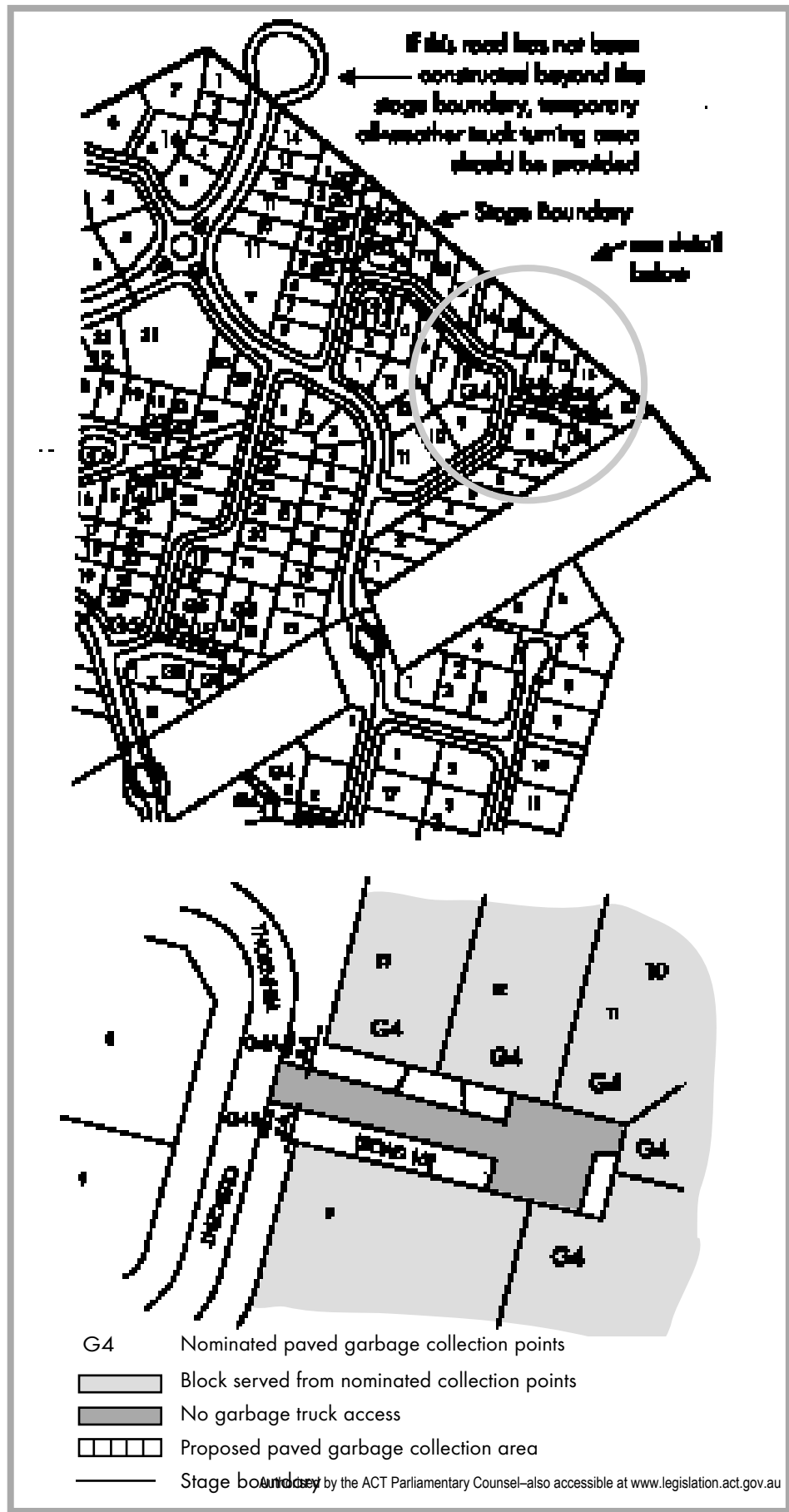


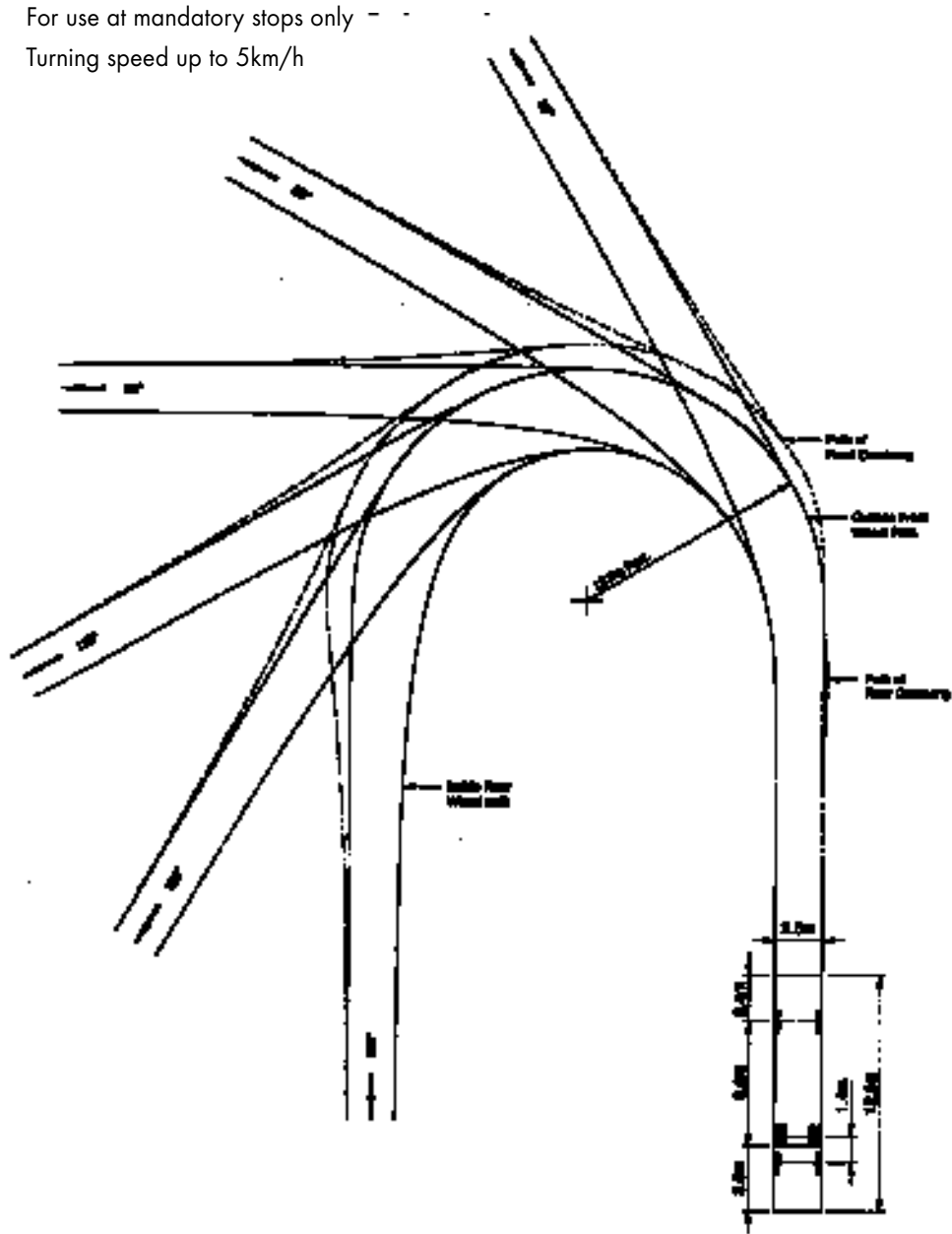
Figure 3: sample waste collection plan showing areas not serviced by garbage trucks and kerbside collection pads



**Figure 4: AUSTRROADS Design Single Unit Truck/Bus (12.5m)**

AUSTRROADS  
 DESIGN SINGLE UNIT TRUCK/BUS (12.5m)  
 SCALE 1 : 400  
ABSOLUTE MINIMUM RADIUS

For use at mandatory stops only - - -  
 Turning speed up to 5km/h



- Notes:
1. Locate face of kerbs at least 0.6m clear of wheel paths
  2. Allow 0.6m clearance outside path of overhang and ensure that this area is kept free of road furniture