

Appendix M: Operational Waste Management



Design Brief

Byford Rail Extension

Rev_1

Project No. 23-1451
MetCONNx
20 June 2023





Encycle Consulting Pty Ltd

ABN 41 129 141 484

PO Box 6044

East Perth WA 6892

t: +61 8 9444 7668

www.encycle.com.au

KHowarth@encycle.com.au

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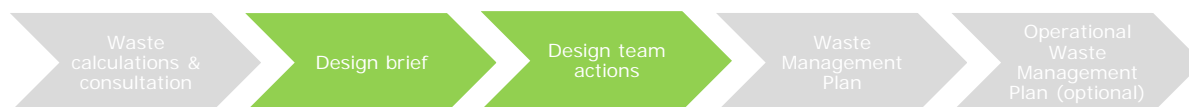
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1 Development details

This Design Brief has been prepared for the following project:

Project name	Byford Rail Extension
Client	MetCONNx
Architect	Hames Sharley
Main point of contact	Flavia Melo Tarmo, MetCONNx
Planning status	DA submission
Green rating / sustainability objectives	Armadale train station is expected to have a formal 5 star Green Star rating and Byford a 4 Star Green Star rating. Both stations are registered with the Green Building Council of Australia under the Railways tool v1.1.
Overview of development	<p>Rail extension project including 2 train stations:</p> <ol style="list-style-type: none">1. Armadale train station will be demolished and replaced with upgraded infrastructure2. The Armadale train line will be extended to include the new Byford train station and supporting infrastructure
Architectural plans / area schedule / development information	<ul style="list-style-type: none">• Architectural plans received from Hames Sharley on 30 May 2023• Area schedule received from Hames Sharley on 30 May 2023• Dynamic Pedestrian Analysis received from Hames Sharley on 30 May 2023
Local Government Authorities	<p>City of Armadale and Shire of Serpentine Jarrahdale have not indicated they require Waste Management Plans for each train station for DA. Encycle will confirm with each council whether a WMP is required for DA.</p> <p>City of Armadale and Shire of Serpentine Jarrahdale do not have clear waste guidelines and requirements in regards to train stations. Therefore details of waste services and considerations will need to be established through liaison with both local governments.</p>

2 Actions – design team



This report is not a Waste Management Plan (WMP) or an Operational Waste Management Plan (OWMP). The purpose of this report is to provide information to the design team so that compliant waste management and recycling systems can be incorporated into the architectural plans for each train station.

For Encycle to prepare and finalise the Operational Waste Management Plans for each Green Star submission, the actions in Table 1 are required to be carried out by the design team for each train station. The following actions are also required for the WMPs for each Development Application (if these documents are required by each council).

Allow up to two (2) weeks after completion of actions for Encycle to issue the Waste Management Plan.

Table 1: Action list

Action list	Document reference
<input type="checkbox"/> Check and confirm project parameters are correct <input type="checkbox"/> Check and confirm assumptions are correct <input type="checkbox"/> Confirm management assumptions are correct <input type="checkbox"/> Address design considerations	Section 3
Send to Encycle the final area schedule with: <ul style="list-style-type: none"> <input type="checkbox"/> commercial tenancy NLAs and uses (where relevant) 	Section 3
<input type="checkbox"/> Create and send to Encycle the swept path analysis drawings	Section 4
<input type="checkbox"/> Confirm collection point/s and method <input type="checkbox"/> Include waste collection access requirements in design	Section 4
<input type="checkbox"/> Incorporate number of bin stores and number of bins per bin store in design	Section 5
<input type="checkbox"/> Create and send to Encycle bin store plans including bins and equipment are marked up as outlined in 'Bin store design'	Section 5 and Section 6
<input type="checkbox"/> Interior designers to include waste streams/bin stations in interior design plans for those stations that have tenancies	Section 7

3 Project parameters, assumptions and design considerations

3.1 Project parameters

The train stations when operational will include the following areas:

Armadale

- Concourse 1,321 m²
- Platform 2,153 m²
- Kiosk 32 m²
- Staff crib facilities 31 m²
- Public amenities 54 m²
- Staff amenities 69 m²

Byford

- Platform 1,672 m²
- Concourse 250 m²
- Kiosk 67 m²
- Staff crib facilities 30 m²
- Public amenities 53 m²
- Staff amenities 68 m²

3.2 Assumptions

In calculating the waste generation for the development, the following assumptions have been made:

- The waste generation for both stations has been estimated utilising the current waste generation at Armadale station in line with the projected patron numbers until 2051. No grease trap or cooking oil storage will be required for the kiosk/takeaway tenancies.
- The kiosk tenancy will be occupied by only takeaway or retail businesses and will operate up to 7 days a week, unlicensed.
- As waste generation will be minimal, only commingled recycling will be segregated (including cardboard and paper).

The separation of waste streams relies on good internal and external infrastructure for bins and signage.

3.3 Management assumptions

It is assumed that the following management measures in Table 2 will be in place when the train stations become operational.

Table 2: Management assumptions

Management measure	Assumption
Maintenance of the bin stores – ensuring stores are clean and tidy	Public Transport Authority cleaners/facilities management
Setting bins out on the verge or in the bin store for collection (if required)	Public Transport Authority cleaners/facilities management
Communication with staff about source separation of waste streams	Public Transport Authority facilities management
Communication with staff about correct use of the waste and recycling systems/equipment	Public Transport Authority facilities management

3.4 Design considerations

Table 3 sets out the key design considerations for good waste management planning and a summary of the design approach for the stations which addresses these considerations.

Table 3: Design considerations

Design consideration	Current design approach
Bin store	Bin stores need to be provided for each station that are positioned in a location that is convenient to where waste will be generated and the vehicle collection point for servicing the bins (where possible).
Frequency of collections	General waste: three times weekly Commingled recycling: weekly
Waste service provider	Private service provider as per State Government procurement guidelines
Collection vehicle type/sizes	Rear-lift vehicle
Service vehicle access	4m height clearance is required Collection point should allow other vehicles to pass the stationery waste vehicle to avoid traffic obstructions

3.5 Local Government Guidelines

The following have been used in the development of this report:

- WALGA Commercial and Industrial Waste Management Plan Guidelines (2018)
- Green Star Railway Stations v1.1 – Credit 8 Operational Waste

3.6 Local Government requirements and discussions

- Encycle have contacted the local councils but have not been able to get direct feedback on their waste management policies. When the councils provide feedback we shall provide this information to the design team
- The design team has advised Waste Management Plans have not been required as part of the Development Application process

3.7 Green Star requirements

Armadale train station is expected to have a formal 5 star Green Star rating through the Green Building Council of Australia. Byford station is expected to achieve a 4 star Green Star equivalent rating. This Design Brief includes all requirements for each station to achieve the Operational Waste credit of the Green Star Railway Station v1.1 rating tool. The performance pathway of the credit (8A) is targeted, which is to develop an Operational Waste Management Plan that:

- Identifies the site boundary, the waste streams relevant to the project, and the individual roles responsible for delivering and reviewing the OWMP;
- Sets diversion from landfill targets and/or targets for reducing total materials generation (general waste materials and recyclable/reusable materials), as well as monitoring and measurement procedures for waste and recycling streams by weight
- Outlines methods for encouraging the separation of waste streams, such as bins, storage areas, or recycling facilities in public areas as required
- Identifies storage areas for all waste streams and outline best practice safety and access requirements for their collection
- Identify safe methods for vehicle access and transfer of waste
- Incorporate a review process to assess the success of the OWMP and make improvements based on operational experience

4 Vehicle access and collection

4.1 Service providers and vehicle types

A private service provider will service the general waste and recycling bins, including those from the kiosk tenancies. A range of rear-lift vehicles will require access to the bin store at each train station.

4.2 Collection point and method – Armadale

The recommended collection point for waste and recycling vehicles at Armadale train station is from the bin store adjacent to the drop off area (Kiss & Ride) at street level, provided vehicle access is adequate.

It is recommended that on collection days rear-lift vehicles for general waste and commingled recycling will enter the station drop off area from Commerce Avenue. The vehicles will drive in a forwards direction and stop outside the bin store at street level. The operatives will retrieve and service the bins, and then return the empty bins to the same location. The waste vehicle will then exit in a forwards direction back on to Commerce Avenue.

4.3 Collection point and method – Byford

The current architectural plans show a collection point for waste and recycling vehicles at the Byford train station within the bus interchange from the rubbish refuse collection bay.

Encycle support this location for the collection of waste and recycling however it is recommended that confirmation from the PTA is sought to use the bus interchange for waste collection as soon as possible.

On collection days rear-lift vehicles for general waste and commingled recycling, will enter the bus interchange from Evans Way. The vehicles will drive in a forwards direction and stop in the refuse bay. The operatives will retrieve and service the bins from the main bin store, and then return the empty bins to the same location. The waste vehicle will then exit in a forwards direction back on to Evans Way.

4.4 Swept path analysis

The vehicle sizes provided in Appendix B should be used to carry out a swept path analysis to determine accessibility of the rear-lift vehicles to the collection area for each station. Swept path analysis for the largest vehicle is required for the Waste Management Plan (WMP and OWMP). Accommodating the largest vehicle will enable the PTA facility management to have a wider choice of waste service providers in operation and may decrease service costs relative to relying on small (less efficient) vehicles. Vehicle access must comply with access requirements outlined in Table 4 below.

4.5 Vehicle access requirements

Access requirements are outlined in Table 4 below.

Table 4: Vehicle access requirements

Item	Requirement
Access for waste collection vehicles	<ul style="list-style-type: none">❑ Waste collection vehicles must be able to safely enter, operate and exit the collection points without or with minimal reversing or manoeuvring❑ Rear-lift vehicles will require the rear of the vehicle to be as close as possible to where the bins are stored/presented to minimise labour and time manually transferring bins
Vehicle head height clearance	<ul style="list-style-type: none">❑ Head height clearance required for waste and recycling collection vehicles where vehicles will enter a building or need to move under overhead restrictions❑ Additional space is required as a buffer between the ceiling, pipes, walls and duct work etc. and the vehicle and its operating components
Walkways	<ul style="list-style-type: none">❑ Provide safe access walkways to waste collection vehicle points to reduce the risk of accidents

5 Bin stores, bin numbers and equipment

5.1 Waste generation rates

WALGA waste generation rates are used as a guide for the Kiosk and staff facilities in addition to data from the existing Armadale train station to calculate the generation of waste and recyclables for both stations.

5.2 Number of bin stores required - Armadale

Three bin stores will be required to service the Armadale train station public and staff areas, and commercial tenancy of the development separately:

- i. Main bin store (for waste and recycling generated by the public)
- ii. Station bin store (a store room for storing bins for use by cleaners to service smaller bins and transfer to the main bin store)
- iii. Kiosk bin store

The main bin store could be used as the collection location for all bins on collection days to prevent kiosk bins being presented in an open location near where the service vehicle will park. The main bin store could also be used as the area for all bins to be washed.

The waste generation and bin numbers for both stations have been calculated by using the current volumes of waste produced at Armadale Station, increased in line with the projected 2051 patronage increases. A reduction of 25% of the total volume has been assumed to take into consideration the improvements in waste reduction through best practice waste management. If volumes continue to decrease, the collection frequency of bins can be reduced accordingly.

The bin numbers to be stored in each bin store are set out in Table 5, Table 6 and Table 7.

Table 5: Number of bins to be stored in the Armadale main bin store

Waste stream	Bin size (L)	Number of bins	Collection frequency	Colour code*
General waste	660	3	Three times weekly	W
Commingled recycling	660	3	Three times weekly	CM

*Note: colour codes should be used in the architectural plans to easily identify bin types

Table 6: Number of bins to be stored in the Armadale station cleaners bin store

Waste stream	Bin size (L)	Number of bins	Collection frequency	Colour code*
General waste	240	1	As required (into main bin store bins)	W

Commingled recycling	240	1	As required (into main bin store bins)	CM
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*Note: colour codes should be used in the architectural plans to easily identify bin types.

Table 7 Number of bins to be stored in the Armadale kiosk bin store

Waste stream	Bin size (L)	Number of bins	Collection frequency	Colour code*
General waste	240	1	Weekly	W
Commingled recycling	240	1	Fortnightly	CM

*Note: colour codes should be used in the architectural plans to easily identify bin types.

5.3 Number of bin stores required - Byford

Two bin stores will be required to service the Byford train station public and staff areas, and commercial tenancy of the development separately:

- i. Main bin store
- ii. Kiosk bin store

However the main bin store could be used as the collection location for all bins on collection days to prevent kiosk bins being presented in an open location near where the service vehicle will park. The main bin store could also be used as the area for all bins to be washed.

The waste generation and bin numbers for both stations have been calculated by using the current volumes of waste produced at Armadale Station (since Byford is a new station) increased in line with the projected patronage increases. A reduction of 25% of the total volume has been assumed to take into consideration the improvements in waste reduction through best practice waste management. If volumes continue to decrease, the collection frequency of bins can be reduced accordingly.

The bin numbers to be stored in each bin store are set out in Table 8 and Table 9.

Table 8: Number of bins to be stored in the Byford main bin store

Waste stream	Bin size (L)	Number of bins	Collection frequency	Colour code*
General waste	660	4	Three times weekly	W
Commingled recycling	660	4	Three times weekly	CM
Bins for cleaner use only				
General waste	240	1	N/A	W
Commingled recycling	240	1	N/A	CM

*Note: colour codes should be used in the architectural plans to easily identify bin types.

Table 9: Number of bins to be stored in the Byford kiosk bin store


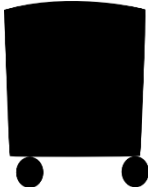
Waste stream	Bin size (L)	Number of bins	Collection frequency	Colour code*
General waste	240	1	Weekly	W
Commingled recycling	240	1	Fortnightly	CM

*Note: colour codes should be used in the architectural plans to easily identify bin types.

5.4 Dimensions – mobile garbage bins

Bin store layout must be designed to take into account the dimensions of the bins in Table 9. Please note that the dimensions of bins vary slightly between manufacturers and should be used as a guide only.

Table 9: Dimensions of mobile garbage bin

Volume	240L	660L
		
Height (mm)	1060	1200
Depth (mm)	730	780
Width (mm)	585	1260
Footprint (m ²)	0.43	0.98

6 Bin store design

Best practice bin store design is an essential component of waste management. See Table 10 below for a checklist of bin store design requirements.

Table 10: Bin store design requirements

Location	<ul style="list-style-type: none"> <input type="checkbox"/> On street level <input type="checkbox"/> On same level as collection point <input type="checkbox"/> Near to lifts and vehicle collection point <input type="checkbox"/> Show on plan – bin store location <input type="checkbox"/> Show on plan – finished floor level/relative level
Fully enclosed	<ul style="list-style-type: none"> <input type="checkbox"/> Bin stores fully enclosed and weatherproof <input type="checkbox"/> Only accessible by tenants, cleaners, PTA facility management and waste service provider
Spatial requirements	<ul style="list-style-type: none"> <input type="checkbox"/> Accommodate bins and equipment as set out above <input type="checkbox"/> Allow sufficient space to manoeuvre and wash the bins
Layout of bins	<ul style="list-style-type: none"> <input type="checkbox"/> Locate same waste stream bins together <input type="checkbox"/> Locate heavy/difficult to move streams near the door <input type="checkbox"/> Bins can go over bin wash area, ensuring there is space to move them when washing is in progress <input type="checkbox"/> Show on plan – bin store layout of bins (labelled with waste/recycling stream) and equipment
Bin wash	<ul style="list-style-type: none"> <input type="checkbox"/> Impermeable walls and floors grading to an industrial floor waste <input type="checkbox"/> Charged 'water-trap' connected to sewer or an approved septic system <input type="checkbox"/> Hose cock to enable bins and/or the bin store to be washed out <input type="checkbox"/> 100 mm floor waste gully to waste outlet <input type="checkbox"/> Cold running water available <input type="checkbox"/> Allow 2-3 m x 2-3 m depending upon the overall size of the bin store <input type="checkbox"/> Show on plan – cold taps and floor waste
Doors	<ul style="list-style-type: none"> <input type="checkbox"/> Ventilated internal and external doors <input type="checkbox"/> Self-closing doors to eliminate access to vermin <input type="checkbox"/> Openings (e.g. doors) should be able to be locked open <input type="checkbox"/> Widths of doors minimum 1100 mm to enable bins to be easily wheeled into and out <input type="checkbox"/> Show on plan – widths of doors/access to bin stores
Security	<ul style="list-style-type: none"> <input type="checkbox"/> Security measures installed to limit access to the bin stores, e.g. PIN code (not key cards as easy to lose) <input type="checkbox"/> Waste service providers allowed access to bin stores (to reduce operational costs of cleaning staff putting bins out for collection)
Walls and ceilings	<ul style="list-style-type: none"> <input type="checkbox"/> Internal walls to be cement rendered (solid and impervious) <input type="checkbox"/> Ceilings finished with a smooth faced, non-absorbent material <input type="checkbox"/> Walls and ceilings finished or painted in a light colour

Floors	<input type="checkbox"/> Floor constructed in concrete in accordance with AS 2870 <input type="checkbox"/> Floor evenly graded to an approved liquid refuse disposal system <input type="checkbox"/> Slab thickness minimum of 100 mm <input type="checkbox"/> Slab impervious and with a brush finish treatment
Ventilation and odour	<input type="checkbox"/> Provide adequate separate ventilation system that complies with Australian Standard 1668 (AS 1668) <input type="checkbox"/> Ventilation outlet not in the vicinity of windows or intake vents associated with other ventilation systems
Lighting	<input type="checkbox"/> Artificial lighting installed, with sensor or switch controls both internal and external to the bin stores <input type="checkbox"/> Artificial lighting provided in car parks, bus exchange and access walkways to bin stores, to ensure staff safety and decrease antisocial behaviour
Noise	<input type="checkbox"/> Noise minimised through considering the location of the bin stores and collection point and the timing of collections
Signage	<input type="checkbox"/> Visual aids and signage to be provided to ensure that the areas work as intended

7 Bin store locations and internal transfer

7.1 Bin store location

Currently there are bin stores included in the architectural plans at Armadale and Byford stations. It is recommended that both stations have a bin store to ensure PTA public litter bins from the platform, bus exchanges and car parks can be easily consolidated and waste and recycling bins stored and collected. The bin stores should be located in an area that is convenient for the PTA facilities manager and the waste collection staff to access. Please note the vehicle collection points shown in sections 7.1.1 to 7.1.3 are indicative only and will need to be confirmed by PTA and relevant traffic consultant.

7.1.1 Armadale Station

It is recommended that Armadale train station has three bin stores: one temporary bin store for the station area for the use by the cleaning contractor, one for the kiosk to store their waste and recycling directly at the tenancy, and a main bin store adjacent to the kiss & ride. The location for the main bin store, which would be allocated for bins to be transferred to for collection, is the store labelled 'bulk bin store' shown in Figure 1. Current architectural plans show a total of three stores, including one for the bus interchange. A bin store for the bus interchange is not essential, however could be included if required by PTA.

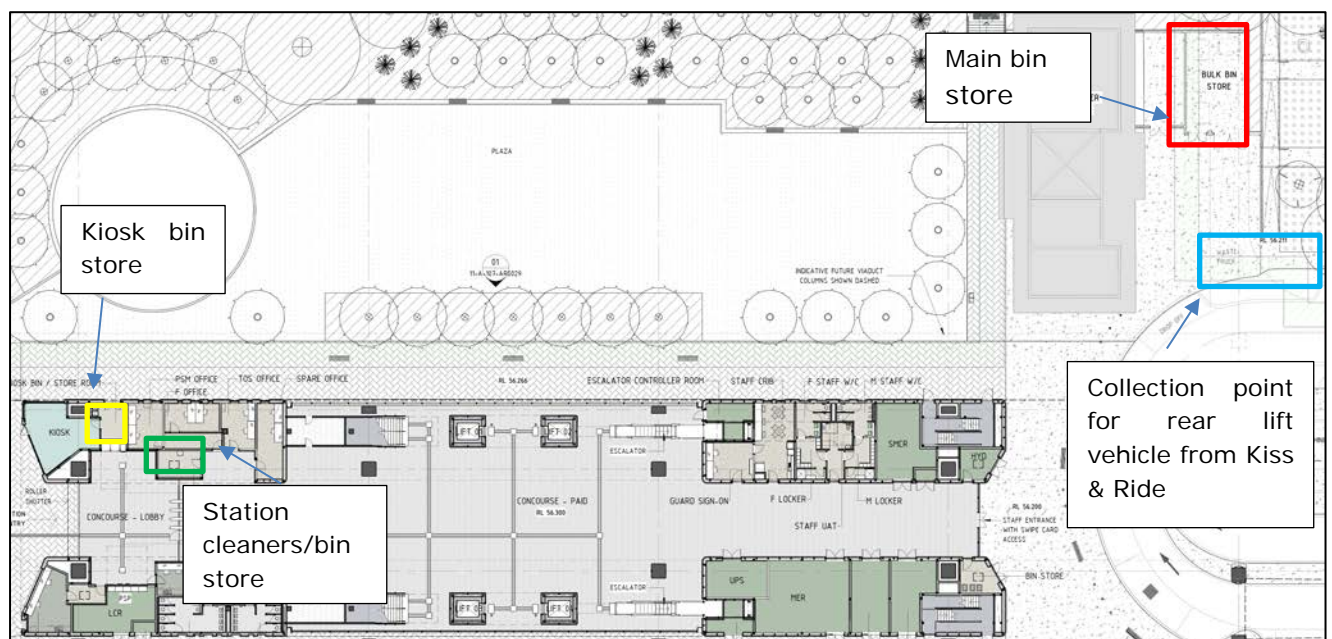


Figure 1: Armadale station potential bin store locations and collection point

7.1.2 Byford

Byford train station has three bin stores indicated on the current architectural plans: one bin store for the main station area, one for the kiosk and a bin store within the bus interchange island (refer Figure 2). A bin store for the bus interchange is not essential, however could be included if required by PTA. The waste collections should take place from

the bus interchange and it is recommended that waste service provider operatives service the bins directly from the main bin store so that the bins are not left out for collection and exposed (public interference or vandalised) whilst waiting for collection.

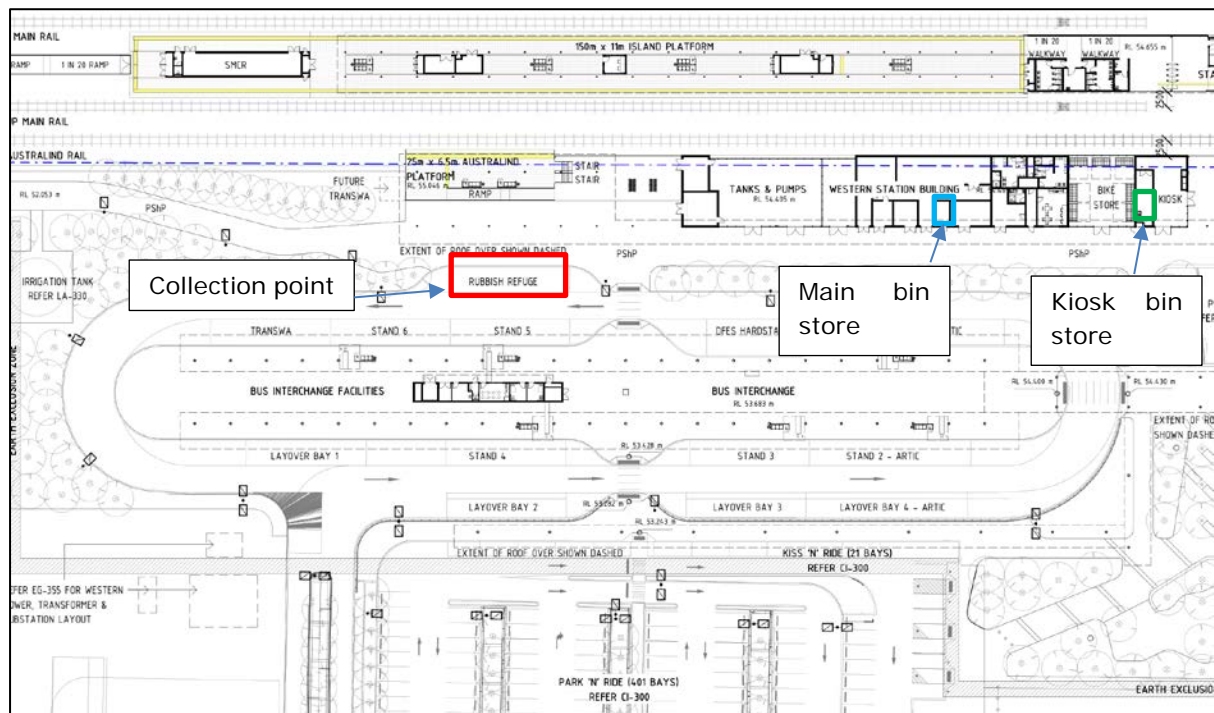


Figure 2: Byford station bin store locations and potential collection point

7.2 Internal transfer route

PTA facility managers will be responsible for arranging cleaners to empty all bins within the PTA offices and common use areas, including platforms, car parks and bus exchange areas daily or more frequently as required. It is assumed the cleaners will empty all waste and commingled recycling contained in litter bins (refer Section 9) into separate 240 L wheeled bins from the main or station cleaners bin stores, ensuring commingled recycling is kept segregated. The 240 L bins will be taken from the bin stores and transported via the lift to service the platform bins. The waste will be removed from the 60 L bins in bin bags, and transferred to the main bin store in 240 L bins to be consolidated into the larger 660 L bins. The cleaners will be responsible for ensuring the bins are available for collection within the main bin stores.

The kiosk tenants will be responsible for presenting their commercial bins for collection within the main bin store or a hardstand area, and returning them to the kiosk bin store on bin collection days. Clear, safe access between the kiosk bin store and the collection area must be provided.

7.3 Internal access requirements

Access requirements are outlined in Table 11 below.

Table 11: Internal access requirements

Item	Requirement
User access route	<ul style="list-style-type: none">❑ Avoid stairs/steps and steep ramps (grade of slope <1:14) and other potential hazards between points of waste generation, storage and collection❑ Avoid moving bins, particularly when full, over significant distances
Manual handling	<ul style="list-style-type: none">❑ Exclude manual handling of waste in garbage bags from the waste management systems wherever possible
Aisle door and lift width	<ul style="list-style-type: none">❑ All doors, corridors and lifts on the transfer route must fit the largest bin (i.e. be at least 1100 mm wide)
Walkways	<ul style="list-style-type: none">❑ Provide safe access walkway to bin store for cleaners/staff

8 Interior bins

For all office areas and staff crib areas, internal bins will be needed in bin stations located centrally for all users similar to those in Figure 2. Under desk bins should be avoided to encourage greater recycling segregation, cleaning efficiencies and encourage staff to move away from their desks.

The waste streams which will need separate bins are general waste and commingled recycling.

Figure 3 below shows example bin stations from a company called Method.¹



Figure 3: Example internal bin station set up

¹ [Method Recycling | Office Recycling Bins Made Beautiful NZ](#)

9 PTA Public litter bins

The main waste streams generated from the train station public areas are likely to be:

- Recyclable drinks containers. It is likely that the majority of the recyclable items in the public space will be beverage containers eligible under the Container Deposit Scheme (CDS), for example bottles and cans).
- General waste (other waste such as coffee cups, food packaging, food and dog waste bags)

Currently PTA provide 60 L steel bin enclosures in public areas within the train stations, bus exchanges and car parks for general waste collection only as shown in Figure 6.



Figure 6: Standard 60 L PTA public litter bin

Provision for public place recycling bins in the public areas of the stations are recommended, in line with Green Star requirements. As recycling bins in public place areas are often highly contaminated with non-recyclable items, it is recommended that public recycling bins target containers that are eligible under the CDS. Most aluminium, glass, plastic, steel and liquid paperboard drink containers between 150ml and 3L (excluding bottles for wine, spirits and milk) are eligible for a refund. By targeting only beverage containers, it will be easier to communicate what is and is not acceptable in the recycling bin. Excluding paper and cardboard will assist with reducing contamination levels as in a public place setting, these items are often contaminated with food.

9.1 Public Place recycling bin design considerations

The recommended approach is to have bins that are easy to use, maintain and service and that are clearly signed as to the items that can be recycled. The proposed approach is for

the contents of the bins to be contained in a clear bag or receptacle as this can be an additional security measure.

Standard design considerations for bins include:

- **Aesthetics** – in keeping with the ‘look’ and branding of the area
- Bins are **robust** (and weatherproof if placed outside)
- **Colours, shapes** or other means are used to clearly distinguish waste from recycling
- **Apertures** are shaped appropriate for the material accepted to reinforce the message (i.e. round holes for drinks containers, larger openings for general waste)
- **Rosettes or bristles** are in place on recycling bins to act as a deterrent to general waste (a barrier makes the bin user choose this option more carefully than the readily available general waste option adjacent to it)

Examples of dual public place waste and recycling bins provided on railway stations in other parts of Australia and the world are shown in Figure 7. Example specifications are provided in Appendix C.



Figure 7: Examples of bin infrastructure for train stations

9.2 Signage

Signage should be clear and simple, using the recycling symbol for recycling bins and avoiding the use of generic language such as ‘*recycling*’ but preferably stipulating exactly what is to be placed in the bin; e.g. “**bottles and cans only**”.

Signage should include CDS signage and clear indication about where any profits from the refunded deposits will go (e.g. a local charity).

General waste bin signage should reinforce that this is where non-recyclable contaminants should be disposed: e.g. “**Other waste, including coffee cups, food/food packaging and dog waste bags**”.

Both words and symbols should be used to describe what should be disposed of into each bin. Not all users of the bins will necessarily be able to read English and many English-speakers may have a preference for symbols over written language, making the use of simple symbols a powerful way to communicate.

Preferably, signage is at eye-level to enable users to very easily read/see the bin type without needing to bend down or search out the description of accepted material.

Signage needs to be consistent throughout the precinct and within the public areas of buildings and align with the branding and messaging of the stations.

- Signage at eye level is most effective if possible. Users of the bins do not always like to 'hunt' for the correct instructions for use
- Bins can be an opportunity for branding/communicating sustainability and ethos of the stations

Appendix A: Glossary of terms and acronyms

Collection point	The permitted area on a footpath, roadway or private property (where applicable) that waste, recyclables and bulky waste are loaded into collection vehicles.
Commingled recycling	Common recyclables such as glass, plastics, aluminium, steel, or liquid paper board (milk cartons). Commingled recycling may include paper but often, and particularly in offices, paper and cardboard are collected separately.
Container Deposit Scheme (CDS)	Also known as Containers for Change. In Western Australia 'eligible containers' (usually for soft and alcoholic drinks) have a 10 cent deposit which can be refunded when the container is redeemed at a refund facility.
General waste	Material that is intended for disposal to landfill (or in some States, incineration), normally what remains after the recyclables have been collected separately.
POS	Public open space
POS waste	Public open space waste refers to the waste created within the local council areas outside of PTA controlled areas.
PTA	Public Transport Authority
Public waste	Public waste refers to waste generated within PTA controlled areas including the train platform, bus exchanges, concourse, and carparks.
Recyclable	Material that can be collected separately from the general waste stream and sent for recycling. The precise definition will vary, depending upon location (i.e. systems exist for the recycling of some materials in some areas and not in others).
Recycling	Where a material or product undergoes a form of processing to produce a feedstock suitable for the manufacture of new products.

Appendix B: Vehicle dimensions

Rear-lift vehicles servicing bins

Dimension	Cleanaway	Veolia
Truck length – travel (m)	9.7	10.1
Truck – operation (m)	Allow 3 m to rear of vehicle for operative access	Allow 3 m to rear of vehicle for operative access
Truck width (m)	2.85	2.4
Vehicle height (travel) (m)	3.62	3.9
Vehicle height (during bin lifting) (m)	3.62	3.9
Turning Circle (m)	17.5	15.3
Axles	6 x 4	6 x 4
Max weight (t)	23	22.5

- **Please note that the figures provided are the dimensions of the vehicles only. Additional room is required to allow for a buffer between the ceiling, pipes, walls and duct work etc. and the vehicle and its operating components.**

Appendix C: Example bin specifications

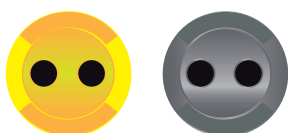


Nexus® C-Thru

This large capacity recycling unit provides a stylish solution to enhance efficiency in any environment. Colour-coded apertures and clear graphics make the units easily identifiable and assist in preventing cross contamination of different waste streams.

SELECT FROM YOUR APERTURE

Cans & bottles apertures



Open top apertures



SELECT FROM STANDARD GRAPHIC OPTIONS



750-752 Koorlong Ave
Irymple Vic 3498
Telephone: 0459 277 255
Email: rmsimms1@bigpond.com
www.bins4recycling.com.au



TECHNICAL INFORMATION

CAPACITY

Nexus C-Thru	180 Litres
Number of 330ml cans	210
Number of 500ml plastic bottles	185

WEIGHT

Body and aperture	8 kg
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DIMENSIONS

Height	978 mm
Depth	576 mm
Width	576 mm

APERTURE OPTIONS

Open top	Black, grey, red & blue
Cans & bottles	Grey & yellow



Oval shaped waste apertures



Keyed locking mechanism



Cans & bottles waste apertures



Orbis with free standing post

Orbis™ Sack Holder

DESIGN FEATURES

- Recycle Now graphic options.
- Choice of co-ordinating lid colours (can fit any colour body).
- Strong and robust moulding.
- Weather and vandal resistant – does not corrode.
- Neat, tidy and strong sack retention system.
- Robust two stop knuckle hinge.
- Available with or without lid.
- Anti-flyposting and easy graffiti removal finish.
- Fixing points for wall or post mounting.

OPTIONAL EXTRAS

- Surface mounting post.
- Free-standing post.
- Extended post.
- Mobile base kit.
- Mounting bracket (2, 3 or 4 units).
- Rail mounting bracket.
- Polycarbonate cage.
- Steel mesh cage with Armortec® coating for wall or post mounting.
- Sack retention bungee cord.
- Choice of fixing options.
- External ballast for free standing unit.
- Extended beach post kit.

MATERIALS

Body and lid: Durapol® material

SPECIFICATIONS

Height: (with lid): 184mm
 Height: (without lid): 135mm
 Overall depth: 456mm
 Capacity: 110 litres (depending on sack size)
 Diameter: 412mm

OPTIONAL EXTRAS



Mounting brackets for two, three or four units.



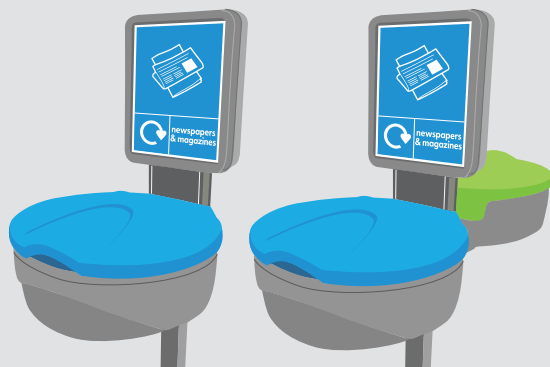
Orbis with free standing post, ideal for indoor environments.



Armortec coated steel mesh cage is available if required.



Transparent polycarbonate cage is also available.



A4 Sign Kit

Versatile A4 Sign Kit can be single or double sided. The Sign Kit helps to create a clearly identifiable recycling point in any location, as well as providing an easy and effective way of personalising the products.

LID COLOURS



Bright Red



Light Blue



Grey (RAL 7016)



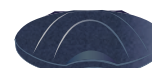
Light Green



Yellow



Black



Millstone



Sandstone

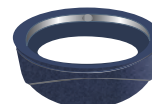
BODY COLOURS



Black



Grey (RAL 7016)



Millstone



Sandstone

STANDARD GRAPHICS*



EXAMPLE SIGN KITS⁺



*Price on application.

*Other options are available upon request.

External Recycling Bins Fixing Options

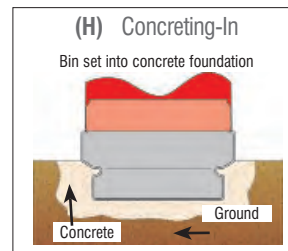
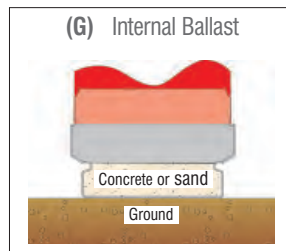
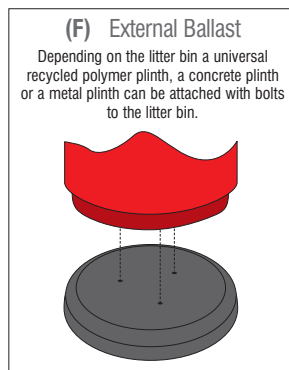
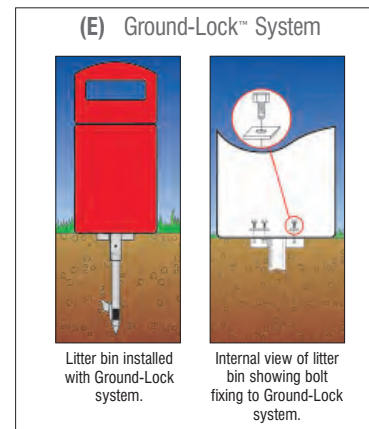
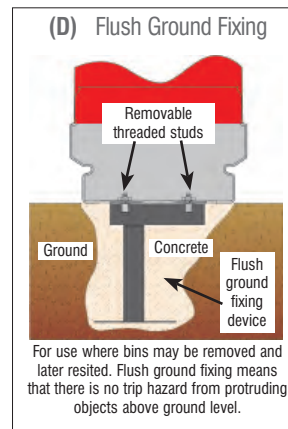
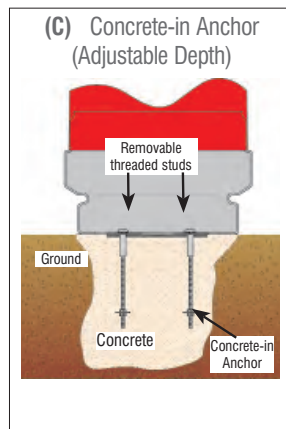
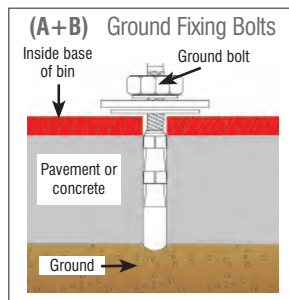
	Page Number	Paving Fixing Kit	Concrete Foundation Fixing Bolts	Concrete-in Anchor (Adjustable Depth)	Flush Ground Fixing	Ground Lock	External Ballast	Internal Ballast
		(A)	(B)	(C)	(D)	(E)	(F)	(G)
Please refer to the corresponding illustrations on the next page for more details on these fixing options.								
Electra Curve	56	✓	✓	✓	x	x	x	x
Gemini	62	✓ Incl.	✓ Incl.	✓	x	x	x	x
Glasdon Jubilee 110	58	✓	✓	✓	✓	✓*	x	✓
Glasdon Jubilee 240	58	✓	x	✓	x	x	x	✓
Modus	76	x	✓ Incl.	✓	x	x	x	x
Nexus City 140	64	x	✓	✓	x	x	x	✓
Nexus City 240	64	x	✓	✓	x	x	✓	✓
Nexus Evolution City	58	✓	✓	✓	x	x	x	x
Nexus 200	60	✓ Incl.	✓ Incl.	✓	x	x	x	✓
Nexus 360	68	✓ Incl.	✓ Incl.	✓	x	x	x	x
Streamline Jubilee	58	✓	✓	✓	x	x	x	✓
Visage	74	x	✓ Incl.	✓	x	x	x	x
Ground Surface		Concrete Paving Flagstone	Existing Concrete Foundation, or Concrete Pad Set in Soft Ground	New Concrete Foundation		Soft Earth	Suitable for Even Ground	

✓ Optional Extra

✓ Incl. Fixings are Free of Charge

X Not Available for this Recycling Bin

✓* Requires Reinforcing Plinth



Glasdon Ground-Lock system is a versatile fixing system for securing hooded, open-topped and post-mounted litter bins in 'soft' or unsurfaced ground. Quick and easy to install, without excavating or concreting, the system has a unique 'remove and resite' locking feature, so bins can be relocated. Ground-Lock system is also vandal-resistant, the secure siting keeps waste in its place. (Ground-Lock system fixing tool required. One tool supplied free with every 3 Ground-Lock systems ordered.) Please see above which bins require a reinforcing plinth with the Ground-Lock option.