WASTE MANAGEMENT PLAN for SSDA 1

Sydney International Convention, Exhibition & Entertainment Precinct

MARCH 2013

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1. Overview

This report supports a State Significant Development Application (SSD 12_5752) submitted to the Minister for Planning and Infrastructure pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The Application seeks approval for construction of the Public Private Partnership (PPP) component of the Sydney International Convention, Exhibition and Entertainment Precinct (SICEEP) Project at Darling Harbour.

The SICEEP Project will deliver Australia's global city with world class convention, exhibition and entertainment facilities that can compete effectively in the national and international events markets. The SICEEP Project importantly forms a critical element of the NSW Government's aspiration to "make NSW number one again".

The proposed development involves construction of the PPP component of the SICEEP Project, comprising new, integrated and world-class convention, exhibition and entertainment facilities with associated retail and public domain upgrades.

This waste management plan provides direction for the ongoing management of waste generated by the Public Private Partnership (PPP) component of the Sydney International Convention, Exhibition and Entertainment Precinct development, (SICEEP).

This document addresses opportunities to reduce and avoid waste as well as the most effective systems to capture recyclable materials for recovery throughout each sector of the precinct. The plan has been prepared in accordance with DECCW Waste Classification Guidleines 2008.

This Plan has been prepared based on the following specific waste objectives:

- Reduce overall generation of waste;
- Maximise resource recovery (through source separation and recycling) to meet aspirational recycling target of 80% diversion from landfill;
- To encourage source separation of waste, reuse, and recycling by ensuring appropriate systems are provided; and
- To ensure appropriate, well-designed waste systems are provided and are accessible to all front-of-house (FOH) and back-of-house (BOH) users

2. Waste Generation and Systems

The waste generation estimates and waste profile for the precinct have been broken down into the relevant sectors – Convention Centre, Exhibition Centre and Theatre (waste from public realm within each sector has also been considered). The waste estimates have been made using Waste Audit and Consultancy Services' (WACS) waste models in conjunction with information provided by Lend Lease and AEG Ogden detailing event-specific projections regarding patronage and food preparation/wasteage. The estimates below are based on an individual event day within each sector assuming a maximum capacity scenario in each case.

It should be noted that the catering preparation for such large scale events will be conducted over a number of days leading up to the event day. Therefore, whilst the figures below represent the estimated total waste expected for an event, it can be assumed that portions of this total would be generated over the days leading up to the event. Because of this, the collection frequencies detailed below should be considered a guide only as collection requirements are likely to vary depending on onsite activities and thus will need to be actively managed by event/facilities management staff accordingly.

In addition to the waste estimates associated with event day activities, the estimates below also include waste generated by the various retail outlets within each of the sectors. The final retail mix has not been finalised and so for the purposes of this report, it has been assumed that the retail outlets will be occupied by food and beverage/café-style tenants.

2.1 Convention Centre

Table 1 shows the estimated waste generation from the Convention Centre assuming an event day serving 7000 people simultaneously throughout the various function areas within the centre. These estimates incorporate BOH preparation waste and packaging from deliveries as well as FOH waste from public circulation areas and post-consumer wastage (i.e. food waste from function)

Table 1 – Convention Centre waste estimates

	kg/event	L/event
Cardboard/Paper	733	13,048
Food organics	1,210	5,508
Comingled recycling	355	7,445
General waste	438	9,211
Cooking Oil	200	220
Total	**2,936**	**35,431**

2.1.1 Convention Centre waste management systems

Table 2 shows the recommended systems required for the management of the estimated waste profile shown above in table 1. Please see appendix A for a markup of the recommended systems.

Table 2 – Convention Centre waste management systems

Waste Stream	Bin Type	No. of Bins	Clearance Frequency	Capacity	Estimated volume / event	Foot-print per bin (m2)	Total bin Footprint
Cardboard /Paper Recycling	Compactor /baler	1	As required	Adequate	13,048	20.00 or 4	20.00 or 4
	660L MGB	20	Transfer only	N/A		0.98	19.60
Food Organics	Organics processing unit	1	N/A	1,500L/ day	5,508	13.50	13.50
	120L MGB	30	Transfer only	N/A		0.27	8.15
Comingle Recycling	240L MGB	20	3 x weekly	14,400L	7,445	0.43	8.53
	Bottle crusher	1	N/A			1.50	1.50
General Waste	660L MGB	8	3 x weekly	15,840L	9,211	0.98	7.84
	240L MGB	20	3 x weekly	14,400L		0.43	8.53
Metal Recycling	120L MGB	1	As required	120L	ad hoc	0.27	0.27
Soft Plastics	$1m^3$ Bale Frame	2	As required	2,000L	Varies depending on deliveries	1.5	3
Oil Recycling	Oil Silo	1	As required	Adequate	220	2.00	2.00
Electronics storage cage	$3m^3$	1	As required	Adequate	N/A	2.00	2.00
TOTAL		**104**			**35,431**		**94.91***

*Note: this represents the total footprint of the recommended bins/equipment only, it does not include circulation space. As a guide, a ratio of between 2:1 to 3:1 should be allowed for area:bin footprint to ensure adequate space is provided for manuoevrability. **The current space allowance in the waste management complex on the lobby level of the convention centre of 247m^2 is appropriate for the required systems.**

Cardboard/Paper Recycling

A cardboard compactor is recommended to effectively manage the volume of cardboard packaging material expected from deliveries and other onsite activities. A compactor would need to be located in loading area of the dock (refer to appendix A) to ensure accessibility for the waste contractor.

660L Mobile Garbage Bins (MGBs) willl be used for interim storage of cardboard material as well as internal movement of cardboard material from point of generation back to the waste room (i.e. from kitchen or store room back to waste room). Cleaning staff would be responsible for emptying the 660L MGBs into the compactor as required throughout the day to ensure there is always a bin available for users to dispose cardboard into. This also restricts compactor operation only to trained cleaning staff.

If there is limited scope to locate a compactor in the dock area, an autobaler would be recommended to be located within the waste management room. This would function the same way as a compactor in that 660L MGBs would be used for interim storage and transfer of cardboard material and cleaning staff would then empty material into the autobaler for baling. Complete bales would then be transferred to the dock area at the time of collection by cleaning staff.

Food Organics

To achieve the target of 80% diversion from landfill it will be essential to divert organic material. An onsite processing unit is recommended (refer to appendix I) to reduce the volume of organic material prior to disposal.

The operational process would be similar to that of the cardboard stream in that 120L MGBs would be utilised throughout the convention centre in the production kitchen and finishing kitchens by catering staff and cleaners to separate the organic material at the point of generation. These bins would then be brought to the waste management room and cleaners would be responsible for decanting the organic material from the bins into the organics unit utilising a bin lifter built into the unit. Once full, the unit would then be run through the night to process the material. At the completion of the cycle, the residual organic material is then emptied into a 120L organic bin for collection by the waste contractor (assuming the availability of a commercial organic collection). In the absence of a commercial organic collection, the residual could be disposed through the general waste stream.

An approximate reduction in volume of 80% is achieved through this process and by collecting the residual material through a commercial organics collection complete organics diversion can be achieved.

Comingled Recycling

The comingled recycling stream will be comprised primarily of glass bottles and mixed plastics. 240L MGBs will be used in BOH areas i.e. kitchens, bars etc and returned to the waste room once full. It is anticipated that a glass/bottle crusher would be located in the waste room to reduce the volume of glass material – cleaners/catering staff would be responsible for feeding the bottles through the crusher. A 60L MGB is placed under the crusher and removed when full.

Alternatively, there may be scope to implement glass crushers in appropriate bar/kitchen areas to enable glass crushing at the point of generation to save double handling in the waste room.

The comingled bins will be transferred to the loading dock for collection using a rear-lift truck. If glass is separated and crushed, this will be collected by a dedicated glass recycler in a separate truck from the comingled stream.

Soft Plastics Recycling

Two $1m^3$ bale frames will be located in the waste management complex for the separation of soft plastic wrap and soft plastic packagaing material. It is likely that the majority of material will be generated when deliveries are received and unpacked – depending where deliveries are unpacked, it may be benefical to utilise smaller, portable bag frames in store rooms which can then be transferred to the larger bale frames in the waste storage area when full (refer to appendix F).

Full bales will be collected by the contractor as required for recycling.

Oil Recycling

Kitchen users will transfer used cooking oil from kitchens and food outlets to the waste management complex using oil caddies (see appendix G) where it will be vacuumed into the oil silo. The silo will be serviced periodically as required by a specialist oil recycler.

Metal and E-waste Recycling

A storage cage will be located in the waste management complex for ad-hoc items such as e-waste and scrap metal – a 120L bin willl be located within the cage for metal scraps.

Given the ad-hoc nature of these materials, they will be stored until there is enough to warrant a collection by a specialty contractor for recycling at an appropriate facility.

General Waste

660L and 240L MGBs have been commended for the general waste stream. The 660L MGBs are likely to remain in the waste management complex for cleaners and other staff to dispose of bagged waste directly.

The 240L MGBs are likely to be utilised by kitchen and catering staff at the point of generation i.e. kitchens, appropriate BOH areas. Once full, the bins will be transferred to the waste management complex to be stored prior to collection where empty bins will be available to take back to the desired location.

The waste contractor will wheel all bins out to the loading dock for collection using a rear-lift truck.

Clearance Heights

All MGBs will be collected by a rear-lift truck from the dock area which provides ample clearance for this type of service. The cardboard compactor (if implemented) may vary

in size depending on the contractor however a clearance of 4m would be sufficient for the operating height of compactor collection.

2.2 Exhibition Centre

Tables 3 and 4 show the estimated waste generation from the Exhibition Centre assuming a full capacity exhibition event i.e. Motor Show or trade show. These estimates incorporate BOH preparation waste from outlets, packaging from deliveries as well as FOH waste from public areas. Two waste areas have been provided to manage the waste generated from both the lower exhibition levels and upper exhibition levels. Therefore the tables below show the estimated waste generation of the relevant areas that feed into each waste area.

Bulky hard waste such as timber, pallets, metals etc may be generated through the deconstruction of exhibit stands, displays and structures. However these materials have not been included in the waste estimates below due to the variability in their generation. Provision has been made in tabel 3 for an open skip bin to be utilised for these materials as required – more details below.

Table 3 – Lower Exhibition Centre waste estimates

	kg/event	L/event
Cardboard/Paper	141	2,327
Food organics	188	888
Comingled recycling	55	1,155
General waste	74	1,602
Total	**458**	**5,972**

Table 4 - Upper Exhibition Centre waste estimates

	kg/day	L/day
Cardboard/Paper	130	2,165
Food organics	182	858
Comingled recycling	54	1,126
General waste	71	1,529
Total	**436**	**5,678**

2.2.1 Exhibition Centre waste management systems

Tables 5 and 6 show the recommended systems required for the management of the estimated waste profiles shown above in the tables above. Please see appendix B for a markup of the recommended systems.

Table 5 – Lower Exhibition Centre waste management systems

Waste Stream	Bin Type	No. of Bins	Clearance Frequency	Capacity	Estimated volume / event	Foot-print per bin (m2)	Total Foot-print
Cardboard/ Paper Recycling	Baler*	1	As required	Adequate	2,327	4	4
	660L MGB	6	Transfer only	3,960L		0.98	5.88
Food Organics	120L MGB	10	Transfer only	1,200L	888	0.27	2.72
Comingle Recycling	660L MGB	3	3 x weekly	1,980L	1,155	0.98	2.94
General Waste	660L MGB	3	3 x weekly	1,980	1,602	0.98	2.94
Soft Plastics	$1m^3$ Bale Frame	2	As required	2,000L	Varies depending on deliveries	1.5	3
Bulky hard waste (timber, metal etc)	15m Skip	1	As required	15,000	ad hoc	8.00	8.00
TOTAL		**24**			**5,972**		**29.48**

*Baler is optional but not required

Table 6 - Upper Exhibition Centre waste management systems

Waste Stream	Bin Type	No. of Bins	Clearance Frequency	Capacity	Estimated volume / event	Foot-print per bin (m2)	Total Foot-print
Cardboard/ Paper Recycling	Baler*	1	As required	Adequate	2,165	4	4
	660L MGB	6	Transfer only	3,960L		0.98	5.88
Food Organics	120L MGB	8	Transfer only	960L	858	0.27	2.17
Comingle Recycling	660L MGB	3	3 x weekly	1,980L	1,126	0.98	2.94
General Waste	660L MGB	3	3 x weekly	1,980	1,529	0.98	2.94
Soft Plastics	$1m^3$ Bale Frame	2	As required	2,000L	Varies depending on deliveries	1.5	3
Bulky hard waste (timber, metal etc)	15m Skip	1	As required	15,000	ad hoc	8.00	8.00
TOTAL		**21**			**5,678**		**28.93**

*Baler is optional but not required

Cardboard/Paper Recycling

A cardboard baler is recommended at each dock to effectively manage the volume of cardboard packaging material expected from deliveries and other onsite activities. Baled material attracts a rebate which in some cases can offset the rental paid on the baler.

660L MGBs willl be used for interim storage of cardboard material as well as internal movement of cardboard material from point of generation back to the waste room (i.e. from stalls or store room back to loading area). Cleaning staff would be responsible for emptying the 660L MGBs into the baler as required throughout the day to ensure there is always a bin available for users to dispose cardboard into. This also restricts baler operation only to trained cleaning staff.

If balers are not installed, the number of 660L MGBs suggested would be sufficient provided collection frequencies were adjusted to manage the expected quantities –

depending on event activity collections are likely to be required on a daily basis (or every second day).

Food Organics

Food waste will be generated primarily from the kiosk outlets and hospitality suites. 120L MGBs would be available for staff to utilise a bin at the point of generation which would then be taken back to the waste storage areas in the loading docks for collection – available empty bins could be taken back by the user to the desired location if required.

The estimated quantity of organic material generated at the exhibition centre does not warrant the implementation of an organics processing unit so there are two options for the disposal of the organics generated from the exhibition centre:

1. If available, the waste contractor could provide a dedicated organics collection; or
2. Full organics bins could be transferred to the organics processing unit at the either the convention centre or theatre by cleaners at the end of the day or as required.

Comingled Recycling

660L MGBs will be located in the storage areas in the docks for staff and cleaners to dispose comingled material into. It is anticipated that the kiosk outlets and hospitality suites will be equiped with smaller bins (i.e. 60L multisort – see appendix D) which can be taken to the storage area in the dock by staff or cleaners as required.

The waste contractor will collect these bins from the dock using a rear-lift service.

Soft Plastics Recycling

Two $1m^3$ bale frames will be located in the waste storage areas in the docks for the separation of soft plastic wrap and soft plastic packagaing material. It is likely that the majority of material will be generated when deliveries are received and unpacked – depending where deliveries are unpacked, it may be benefical to utilise smaller, portable bag frames in store rooms which can then be transferred to the larger bale frames in the waste storage area when full (refer to appendix F).

Full bales will be collected by the contractor as required for recycling.

General Waste

660L MGBs will be located in the storage areas in the docks for staff and cleaners to use to dispose of any bagged general waste – again, it is anticipated that the kiosks and hospitality suites will have smaller bins which will be emptied as required and transferred to the 660L MGBs in the waste storage area.

660L MGBs may also be moved into the exhibition halls during bump-out times to provide greater convenience for users.

The waste contractor will collect these bins from the dock using a rear-lift service.

Bulky Hard Waste

It is likely that bulky materials such as pallets, timber, metals etc will be generated through exhibition deconstruction operations. It is recommended that these materials be kept separate from the general waste stream wherever possible and be disposed into a bulk skip bin located in the waste storage area in the lower dock and at an appropriate location within the upper loading dock to be determined by operations staff (these bins may not be permanently stored in the waste area but rather ordered in as required by event management). These materials should be taken to an appropriate construction/demolition disposal yard where they will be separated for recycling and/or reuse.

Clearance Heights

All MGBs will be collected by a rear-lift truck and the cardboard bales (if implemented) and soft plastic bags will be collected by flat-bed style truck – the clearance of 4.5m in the lower exhibition loading dock is ample for these systems and the upper exhibition loading dock has no height restrictions as it is open.

2.3 Theatre

Table 5 shows the estimated waste generation from the Theatre assuming a full capacity concert event of 8000 people. These estiamtes incorporate BOH preparation waste from outlets, wastage from finishing kitchens, packaging from deliveries as well as FOH waste from public areas.

Table 7 – Theatre waste estimates

	kg/event	L/event
Cardboard/Paper	169	2,905
Food organics	444	2,108
Comingled recycling	134	3,020
General waste	175	3,783
Oil Recycling	100	110
Total	**1,022**	**11,926**

2.3.1 Theatre waste management systems

Table 6 shows the recommended systems required for the management of the estimated waste profile shown above in table 5. Please see appendix C for a markup of the recommended systems.

Table 8 – Theatre waste management systems

Waste Stream	Bin Type	No. of Bins	Clearance Frequency	Capacity	Estimated volume / event	Footprint per bin (m2)	Total Foot-print
Cardboard /Paper Recycling	Baler*	1	As required	Adequate	2,905L	4	4
	660L MGB	8	Transfer only	5,280L		0.98	7.84
Food Organics	Organics Processing Unit*	1	N/A	1,500/day	2,108L	13.50	13.50
	120L MGB	18	Transfer only	2,160L		0.27	4.86
Comingle Recycling	240L MGB	20	2 x weekly	4,800L	3,020L	0.43	8.53
	Bottle Crusher	1	N/A			1.50	1.50
General Waste	660L MGB	4	3 x weekly	2,640L	3,783L	0.98	3.92
	240L MGB	15	3 x weekly	3,600L		0.43	6.45
Oil Recycling	Oil Silo	1	As required	Adequate	110L	2.00	2.00
Soft Plastics	$1m^3$ Bale Frame	1	As required	2,000L	Varies depending on deliveries	1.5	1.5
Metal Recycling	120L MGB	1	As required	120L	ad hoc	0.27	0.27
Electronics storage cage	3m3	1	As required	Adequate	N/A	2.00	2.00
TOTAL		**73**			**11,926**		**54.41**

*Baler and organics processor optional but not required

Cardboard/Paper Recycling

A cardboard baler is recommended to effectively manage the volume of cardboard packaging material expected from deliveries and other onsite activities. The compactor/baler would need to be located at a point in the waste room to ensure accessibility for the waste contractor (refer to appendix C). The current floor-to-ceiling clearance of 3.4m is sufficient for baler operation.

If a baler is not installed, the number of 660L MGBs suggested would be sufficient provided collection frequencies were adjusted to manage the expected quantities – depending on event activity collections are likely to be required on a daily basis (or every second day).

Food Organics

Food waste will be generated primarily from the catering outlets and finishing kitchens. 120L MGBs would be available for staff to utilise a bin at the point of generation which would then be taken back to the waste storage area in the loading dock for collection – available empty bins could be taken back by the user to the desired location if required. Cleaners would then be responsible for decanting the organic material from the bins into the organics unit utilising a bin lifter built into the unit. Once full, the unit would then be run through the night to process the material. At the completion of the cycle, the residual organic material is then emptied into a 120L organic bin for collection by the waste contractor (assuming the availability of a commercial organic collection). In the absence of a commercial organic collection, the residual could be disposed through the general waste stream.

Comingled Recycling

The comingled recycling stream will be comprised primarily of glass bottles and mixed plastics. 240L MGBs will be used in BOH areas i.e. kitchens, bars etc and returned to the waste room once full. It is anticipated that a glass/bottle crusher would be located in the waste room to reduce the volume of glass material – cleaners/catering staff would be responsible for feeding the bottles through the crusher. A 240L MGB is placed under the crusher and removed when full.

Alternatively, there may be scope to implement glass crushers in appropriate bar/kitchen areas to enable glass crushing at the point of generation to save double handling in the waste room.

The waste contractor will collect all bins directly from the waste storage room using a rear-lift truck. If glass is separated and crushed, this will be collected by a dedicated glass recycler in a separate truck from the comingled stream.

Soft Plastics Recycling

A $1m^3$ bale frame will be located in the waste management complex for the separation of soft plastic wrap and soft plastic packagaing material. It is likely that the majority of material will be generated when deliveries are received and unpacked – depending where deliveries are unpacked, it may be benefical to utilise smaller, portable bag frames in store rooms which can then be transferred to the larger bale frames in the waste storage area when full (refer to appendix F).

Full bales will be collected by the contractor as required for recycling.

Oil Recycling

Kitchen users will transfer used cooking oil from kitchens and food outlets to the waste management complex using oil caddies (see appendix G) where it will be vacuumed into the oil silo. The silo will be serviced periodically as required by a specialist oil recycler.

Metal and E-waste Recycling

A storage cage will be located in the waste management complex for ad-hoc items such as e-waste and scrap metal – a 120L bin willl be located within the cage for metal scraps.

Given the ad-hoc nature of these materials, they will be stored until there is enough to warrant a collection by a specialty contractor for recycling at an appropriate facility.

General Waste

660L and 240L MGBs have been commended for the general waste stream. The 660L MGBs are likely to remain in the waste management complex for cleaners and other staff to dispose of bagged waste directly.

The 240L MGBs are likely to be utilised by kitchen and catering staff at the point of generation i.e. kitchens, appropriate BOH areas. Once full, the bins will be transferred to the waste management complex to be stored prior to collection where empty bins will be available to take back to the desired location.

The waste contractor will collect all bins directly from the waste storage room using a rear-lift truck.

Clearance Heights

All MGBs will be collected by a rear-lift truck and the cardboard bales (if implemented) and soft plastic bags will be collected by flat-bed style truck – the clearance of 3.4m is sufficient for these systems.

2.4 Construction Waste

The management of waste generated during the construction of the Core Facilities and Public Realm has been addressed in the Construction Waste Management Plan prepared by Lend Lease date March 2013.

3. Public Realm Waste and Recycling

As per the SICEEP Sustainability Plan, general waste and recycling facilities should be provided in public realm areas throughout the precinct.

It is recomended that bin hubs provide for general waste, cardboard/paper and comingled recycling streams.

The implementation of organics recycling bins is not recommended in public places due to the high levels of contamination commonly observed in such systems. It should be noted that the majority of all organic material produced onsite will be generated through BOH catering operations – these operations are much easier to control and the material produced is typically much cleaner than the mixed material generated by the general public. For this reason, the focus should be placed on BOH operations rather than FOH public place areas.

The different streams should be clearly differentiated with signage and colour coding – refer to section 5.

Further design input regarding style and positioning of the public place bin hubs will follow with consultation with INSW and SHFA.

Ad hoc Waste Streams

Alternate waste streams that may be required on an ad-hoc basis include:

- Additional event-based bins i.e. bulk bins;
- Chemical disposal – chemicals related to cleaning, maintenance should be managed and collected by specialist contractor or taken back by supplier;
- Fluro-tube recycling – boxes supplied by waste contractor and located in service area to be utilised by maintenance staff and collected as required;
- E-waste Recycling – ad-hoc collections by specialist contractor as required; and
- Office furniture Recycling – collections arranged as required.

4. Signage and Colour-coding

Signage and colour coding each waste stream play an important role in achieving maximum diversion of recyclables from landfill and minimal contamination in recycling streams. Signage should be erected in all BOH applications and on public place bin hubs.

We recommend the following for consideration for signage of systems :

- Signs should be highly visible and recognisable from a distance, usually achieved through colour coding (consult the Australian Standard).
- Visual imagery should be clear and unambiguous.
- Keep signs clean looking and simple do not clutter.
- Signs should be able to be updated and replaced.
- Where possible signs should be at eye level and on the opening to the bin.
- To avoid confusion, language and terms should be kept simple.

Image 1 – Examples of appropriate signage

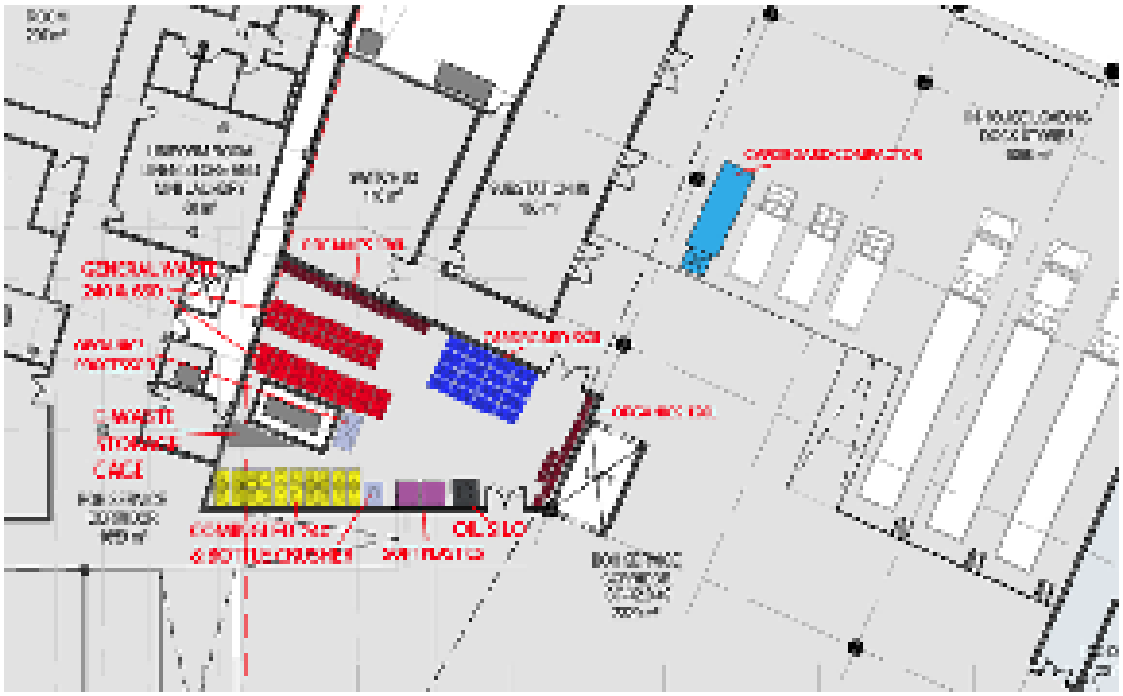

CARDBOARD BALER
Newspaper, junk mail & magazines
Office, computer paper & envelopes
Cereal & food boxes
Telephone books
Cardboard
NO WAXED CARDBOARD
NO PLASTIC FILM
Please cut oversized boxes into smaller pieces before placed in the recycling bin


SOFT PLASTICS
Plastic Bags
Bubble wrap
Stretch wrap
Plastic film
NO PLASTIC STRAPS
NO POLYSTYRENE
Please do not place plastic that has excessive tap into the soft plastic baler


OIL RECYCLING
Cooking Oil

5. Appendices

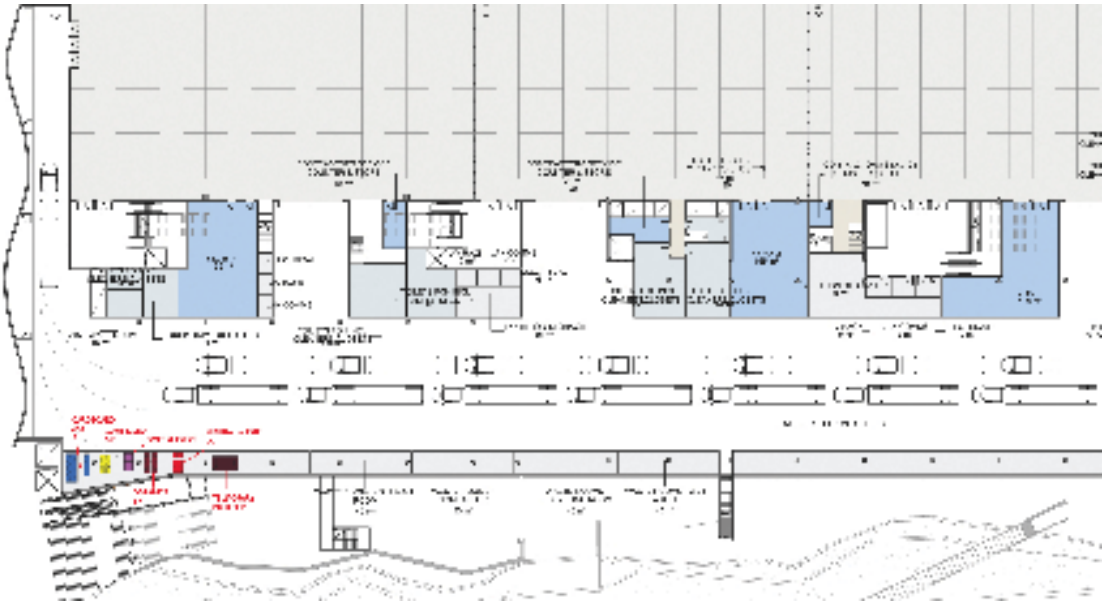
Appendix A – Concention Centre waste storage room layout



See attached pdf for more detail

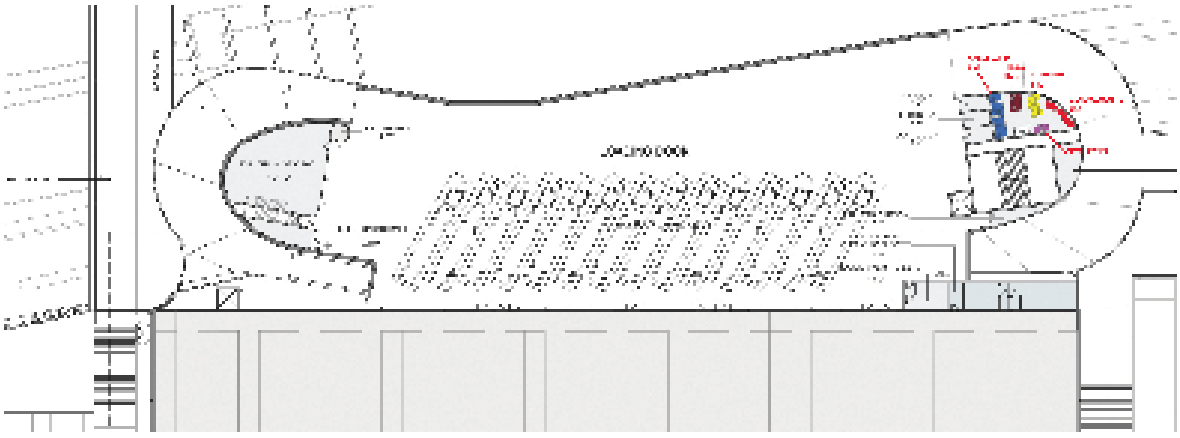
Appendix B – Exhibition Centre waste storage layout

Lower exhibition waste area



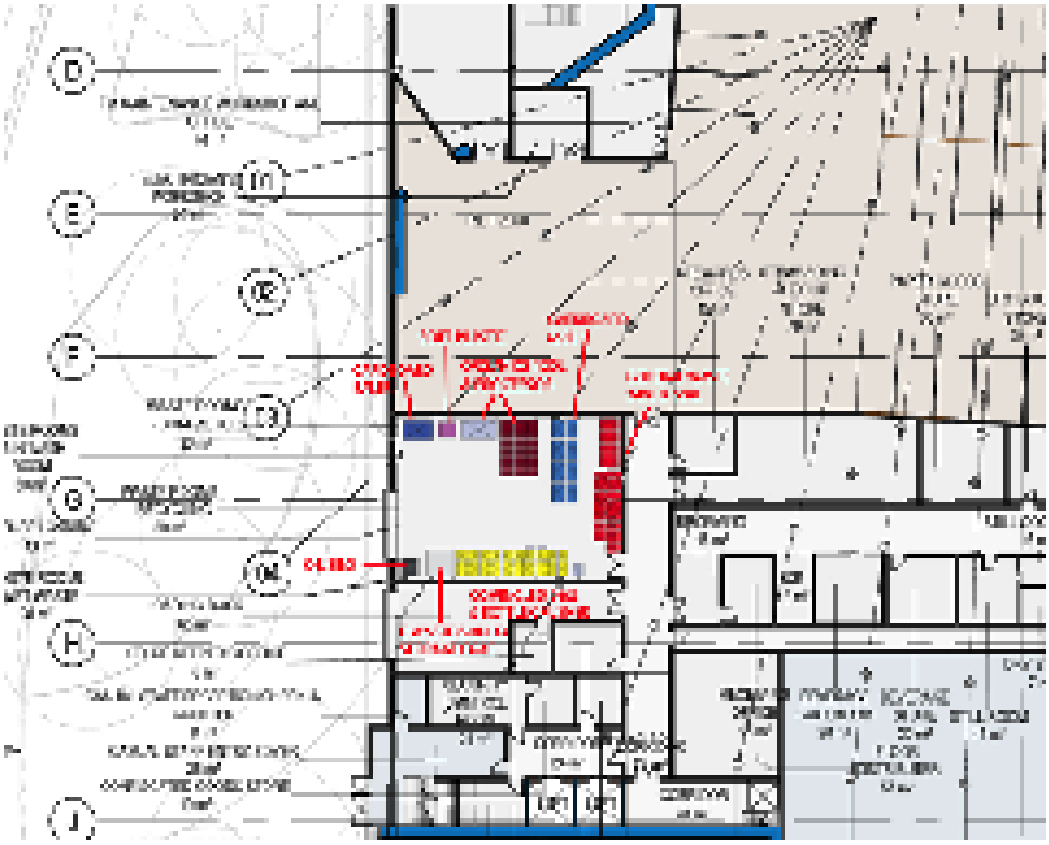
See attached pdf for more detail

Upper exhibition waste area



See attached pdf for more detail

Appendix C – Theatre waste room layout



See attached pdf for more detail

Appendix D – Alternative BOH bins

Where it may not be possible or practical to utilise a 120L or 240L MGB from the waste room at the point of generation, the following alternative bin options may be suitable. Waste captured in these bins would then be decanted into the relevant bin within the waste storage area by the user or cleaner.

Moveable kitchen bins.

Example of 60L multi-sort bins that could be located within kitchen areas and office/admin areas

Kitchen awer option – note configuration shown is forindication only, any combination of bins could be specified – recommended one for general waste, one for organics and one for mixed containers.

Appendix E – Example of proposed cardboard baler

EXSL100

Feature & Benefits:

* Open top for continuous feed
* Automatic
* Cardboard & Shrink wrap
* Ease of use for operators
* Medium density bales
* Affordable
* Convenient & Cost Effective payment
* *Rent-Lease-Buy*
* Compliant with all national and international Safety Requirements.

Optional Accessories include:

- Upper Mesh Hopper
- Overhead canopy Frame

SPECIFICATIONS:	
Bale Weights	100-140Kg
Bale Size	750x750x1000
Cycle Time	30 seconds
Unit Weight	1050Kg
Thrust Load	6000kg
Power	2.2kW 3-phase
Plug Required	20 Amp 4 Pin
	Clipsal Compatible
Height	2050mm
Width	1950mm
Depth	900mm
Baler Capacity	2 bales per hour
Bale Transport trolley	

Baler specifications and Prices are subject to change without notice. For up to date information call Trethewey industries on 1800 888 403

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Appendix F – Example of soft plastic bag frames

Example of small soft plastics bag frame for retail BOH

Example of larger bale frame stored in waste storage areas

Appendix G – Oil recycling unit and transport caddy

The Direct-Connect™ Recycler

Tenants drain oil from the fryer into the Oil Kaddy transporter then wheel the transporter to the main oil unit in the dock, connect the hose and run the cycle – thus avoiding the need for lifting oil containers and reducing the chance of spills and slips.

Appendix H – MGB transfer trailer and powered assist tug

Example of trailer that could be used to transfer organics bins from exhibition centre to the organics processing unit in either conventino centre or theatre waste rooms.

Alternative option for transferring organics bins would be a powered tug such as the one shown above.

Appendix I – Organics Processing Unit

Below are two examples of the type of onsite organics processor that is proposed for the SICEEP precinct.

The Closed Loop Organics Unit - Specifications*

The Closed Loop Organics Unit is an organic waste composter capable of breaking down material by up to 90% within 24 hours. The unit naturally decomposes material using a combination of an organic starter, airflow, heat and agitation. All units conform to Australian standards, EPA and Worksafe legislation. Each Closed Loop organics unit and its accessories, is recommended with full consideration and Closed Loop understanding of your business' specific waste stream, volume, path and proposed location of install.

CLO2 Organics Unit (Domestic)
Capacity: 4-5kgs per day
Electricity usage: 60-80kWh/month
Requires AC 240V
Dimensions (mm): 400(w)x 400(d)x 780(h)
Unit weight: 27kgs
Footprint (mm): 400(w) x 400(d)

CLO30 Organics Unit
Capacity: 70-100kgs per day
Electricity usage: 720-1095kWh/month
Requires AC 3-phase
Unit dimensions (mm): 1745(w) x 740(l) x 1230(h)
Unit weight: 665kgs
Deodoriser dimensions: 555(w) x 920(d) x 1270(h)
Deodoriser weight: 70kgs
Overall Footprint (mm): 2400(w) x 1420(d)

CLO200 Organics Unit
COMING SOON
Capacity: 400-450kgs per day

CLO500 Organics Unit
MADE TO ORDER
Capacity: 1300-1500kgs per day

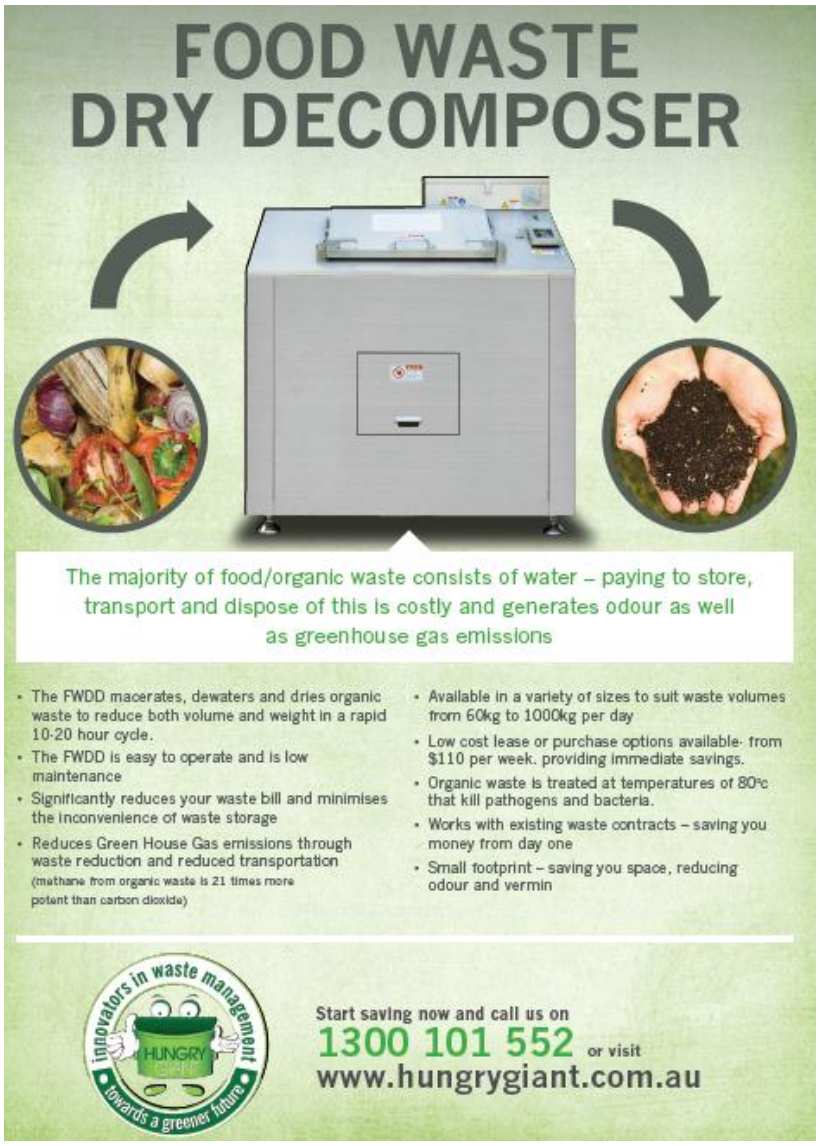
CLO5 Organics Unit
Capacity: 10-15kgs per day
Electricity usage: 120- 150kWh/month
Requires AC 240V
Dimensions (mm): 770(w) x 390(d) x 700(h)
Unit weight: 90kgs
Deodoriser dimensions (mm): 184(w) x 481(d) x 672(h)
Deodoriser weight: 15kgs
Overall footprint (mm): 1054(w) x 981(d)

CLO50 Organics Unit
Capacity: 130-150kgs per day
Electricity usage: 1200-1825kWh/month
Requires AC 3-phase
Unit dimensions (mm): 1870(w) x 920(d) x 1300(h)
Unit weight: 900kgs
Deodoriser dimensions: 545(w) x 920(d) x 1735(h)
Deodoriser weight: 90kgs
Overal Footprint (mm): 2515(w) x 1420(d)

CLO10 Organics Unit
Capacity: 20-30kgs per day
Electricity usage: 350-400kWh/month
Requires AC 240V
Unit dimensions (mm): 1100(w) x 530(d) x 945(h)
Unit weight: 190kgs
Deodoriser dimensions (mm): 450(w) x 635(d) x 1150(h)
Deodoriser weight: 30kgs
Overall footprint (mm): 1650(w) x 1185(d)

CLO100 Organics Unit
Capacity: 250-300kgs per day
Electricity usage: 2400-3550kWh/month
Requires AC 3-phase
Unit dimensions (mm): 2320(w) x 1185(d) x 1555(h)
Unit weight: 1450kgs
Deodoriser dimensions: 545(w) x 920(d) x 1735(h) x 2 units
Deodoriser weight: 90kgs x 2 units
Overall Footprint (mm): 3610(w) x 1685(d)

*Specifications subject to change


FOOD WASTE
DRY DECOMPOSER
The majority of food/organic waste consists of water – paying to store, transport and dispose of this is costly and generates odour as well as greenhouse gas emissions
• The FWDD macerates, dewaters and dries organic waste to reduce both volume and weight in a rapid 10-20 hour cycle.
• The FWDD is easy to operate and is low maintenance
• Significantly reduces your waste bill and minimises the inconvenience of waste storage
• Reduces Green House Gas emissions through waste reduction and reduced transportation
(methane from organic waste is 21 times more potent than carbon dioxide)
• Available in a variety of sizes to suit waste volumes from 60kg to 1000kg per day
• Low cost lease or purchase options available· from $110 per week. providing immediate savings.
• Organic waste is treated at temperatures of 80°c that kill pathogens and bacteria.
• Works with existing waste contracts – saving you money from day one
• Small footprint – saving you space, reducing odour and vermin
innovators in waste management
towards a greener future
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