



St Joseph's College, Hunters Hill

Physical Education and Sports Precinct Project

Operational Waste Management Plan

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This report is based on information provided by Bloompark Consulting coupled with Foresight Environmental's knowledge of waste generated within the education and commercial sectors. To that extent this report relies on the accuracy of the information provided to the consultant. It has been compiled by Foresight Environmental on behalf of Bloompark Consulting.

This report is not a substitute for legal advice on the relevant environmental related legislation, which applies to businesses, contractors or other bodies. Accordingly, Foresight Environmental will not be liable for any loss or damage that may arise out of this project, other than loss or damage caused as a direct result of Foresight Environmental negligence.

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1. Introduction

This Operational Waste Management Plan has been prepared by Foresight Environmental on behalf of the St Joseph's College, Hunters Hill (the 'Applicant') as part of the Development Application for the Physical Education and Sports Precinct Project (PESP).

2. Overview of Development

1. **Demolition** of the following existing buildings (which are not heritage significant) near the intersection of Luke Street and Gladesville Road:
 - (a) College Shop
 - (b) Healy Gym and Maintenance Workshop
 - (c) Outdoor Sports Courts
 - (d) Workshop/Storage and Shed.
2. **Construction** of the Physical Education and Sports Precinct Project (PESPP) comprising the following facilities:
 - (a) Lower Ground Floor: New car parking, maintenance workshops, storage, offices, amenities etc. A net increase of 55 car parking spaces is proposed (85 new spaces to be provided in the SCP basement less 30 at grade spaces to be removed)
 - (b) Ground floor: Three indoor sports courts, amenities, kitchen and entry lobbies
 - (c) First Floor: Void over sports courts, bench seating (180 seats), staff facilities, two general learning areas and foyer
 - (d) Driveway entry to the PESPP (no new vehicular cross overs)
 - (e) Landscaping and tree removal/replacement.
3. **Construction** of a new single storey building to accommodate the relocated Healy Gym in the north-western corner of the site near the intersection of Mary Street and Mark Street.
4. **New kiosk substation** and landscaping in the north-eastern corner of the site
5. **Use** of the completed works as an educational establishment.
6. **Staging** which would facilitate completion of the SCP in up to two stages (noting that the entire project may be completed in one stage).

3. Waste Generation Estimate

The new facilities will have the ability to be configured in various ways for different uses i.e. normal use, sporting events, large assemblies/presentations etc. Therefore, two waste estimates have been generated for the purposes of demonstrating the capacity of the waste systems to manage standard usage (everyday school use), and full-capacity event usage (assuming open plan configuration and catering).

Based on the information provided and benchmark data from similar developments, the primary waste streams expected to be generated in the ongoing operation of the development would be:

- Comingled recycling (Cardboard/paper recycling will be combined with this stream due to the minimal amounts expected to be generated from these facilities)
- General waste

Food organics recycling will be combined with general waste, however there is the opportunity to separate the stream as described in section 6.

Additional smaller waste streams may include toner cartridge recycling, fluoro tube/globe recycling and battery recycling.

3.1 Estimated Waste Generation – Standard Usage

Based on industry averages and historical audit data, it is estimated that the proposed PESP for business as usual will generate a total of 42 kilograms and 387 litres of waste and recyclables per day. It should be noted that the following waste generation profiles are an estimation only, based on average teaching and office use – assuming full use during weekdays and Saturdays for sporting activities with the projected upper total student numbers of 200 and staff of 21.

Table 1: Waste generation estimate - BAU

Stream	kg/day	L/day	kg/wk	L/wk
Mixed recycling	11	174	59	957
General waste	31	213	171	1170
Total	42	387	230	2,127

3.2 Estimate Waste Generation – Full Capacity Events

At capacity during presentations or large sporting events the facility could potentially house up to 2,000 people from which 379 kilograms and 3,500 litres of waste and recyclables per day will be generated. As these events will most likely only be in operation for one day, daily waste estimates for such events only need to be considered **from a management perspective in order to determine the number of additional bins required to effectively manage the additional waste.** **Section 4 and 5 provide more details on bin numbers.**

Table 2: Waste generation estimate - Events

Stream	kg/day	L/day
Mixed recycling	97	1,575
General waste	282	1,925
Total	379	3,500

4. Waste Management Systems

4.1 Waste Systems

Based on the waste estimates detailed in tables 1 and 2, the bin choice and placement is less to do with capacity and more to do with convenient placement for users of the facility and nature of that use i.e. transient use – groups coming and going.

It is recommended that dual bin-hubs are implemented in central, high-traffic areas within the facility – bin hubs should house 1x240L General Waste bin and 1x240L Mixed recycling bin. Figure 1 provides an example of a housing for the 240L bins.

Figure 1: 240L Bin Housing



The supplier information for these bins can be found in the link below:

Throughout the various teaching and meeting rooms in the facility, it would be impractical and unnecessary to offer bins in every single room. Instead, it is recommended that smaller “Multi-sort” bin hubs be established throughout the floors in hallways and common spaces to service the smaller rooms as necessary. This encourages students/staff using the spaces to remove any waste they have and place it in the appropriate bin at the nearest hub – such a practice should promote recycling by giving users the choice of stream to dispose material into, and also reduce the time taken for cleaners to empty the bins. See figures below for an example of a waste/recycling hub.

Figure 2 depicts a bin hub that would be best suited for small staff rooms and classrooms, however, only the general waste and comingled streams will be needed.

Figure 2: Multi-sort bin hub



The supplier information for these bins can be found in the link below:

<https://www.sourceseparationsystems.com.au/recycling-products/multisort-recycling-bin.html>

The following figures identify potential Multi-sort bin hub (orange) and 240L bin hub (green) locations for the facility.

Figure 3: Recommended bin hub locations - First Floor

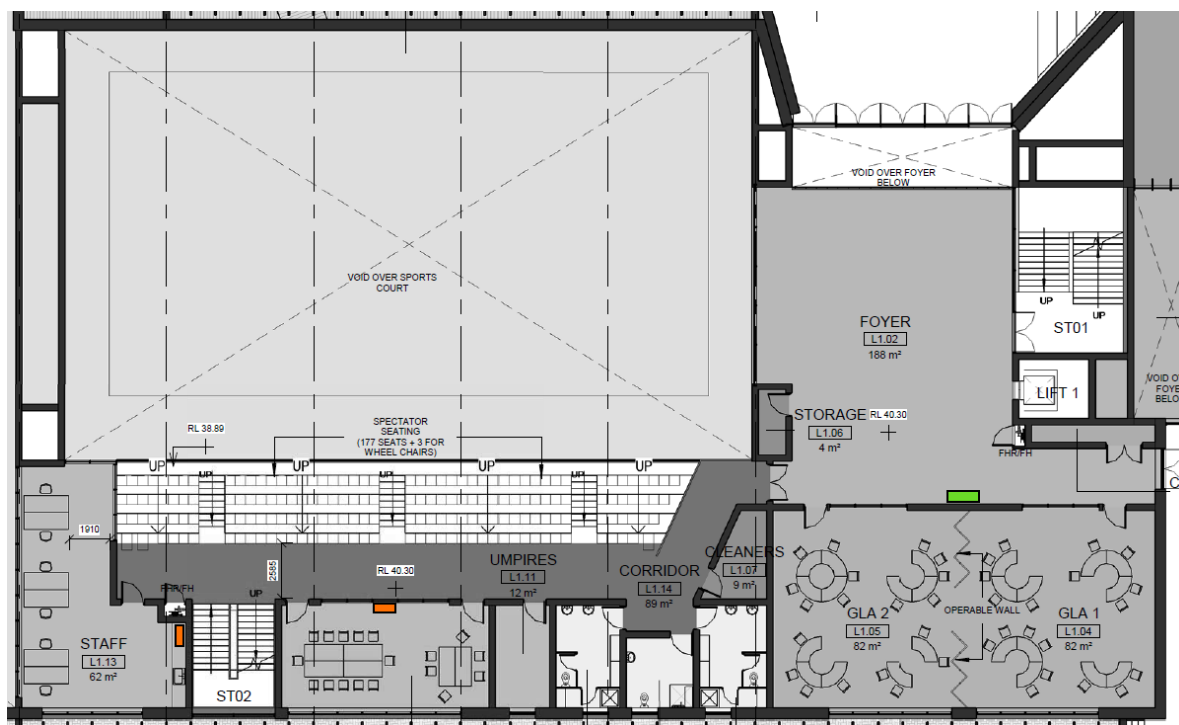
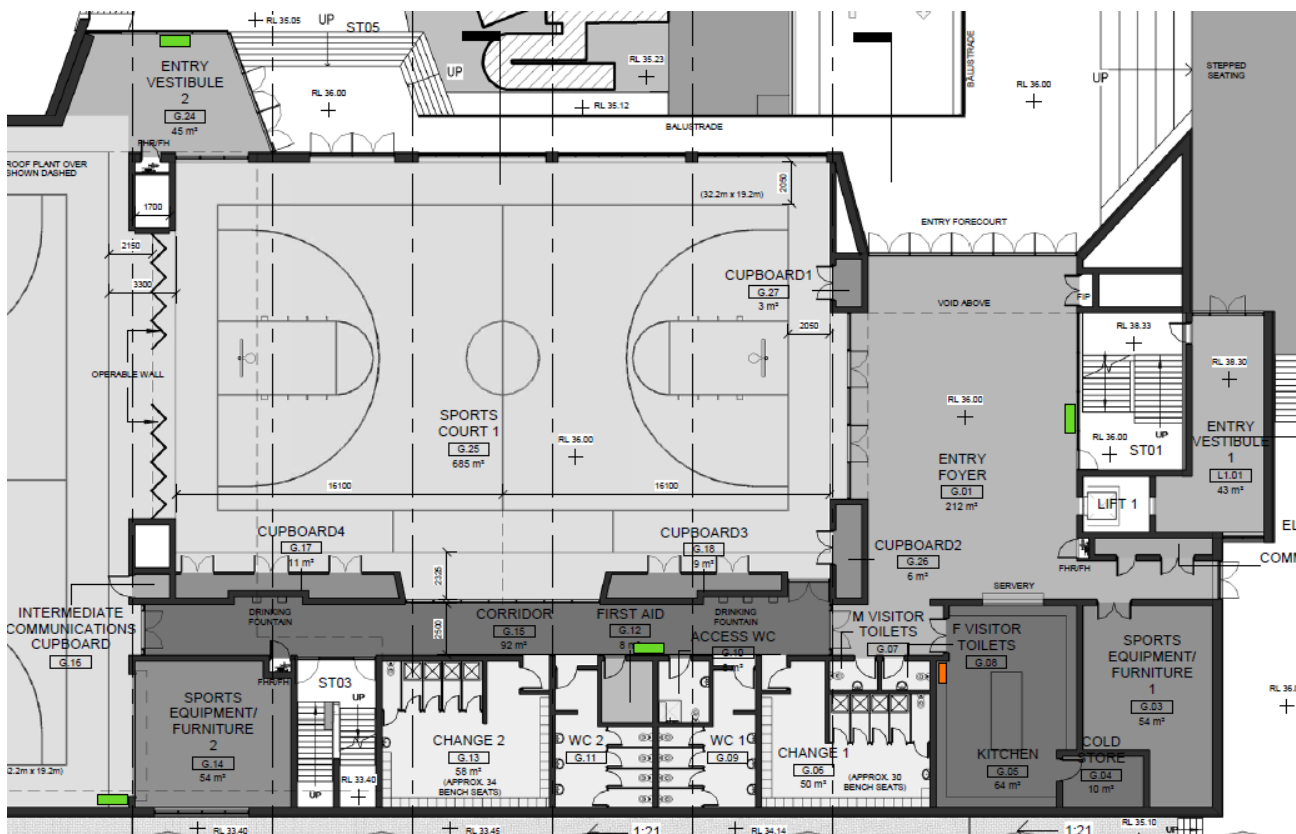
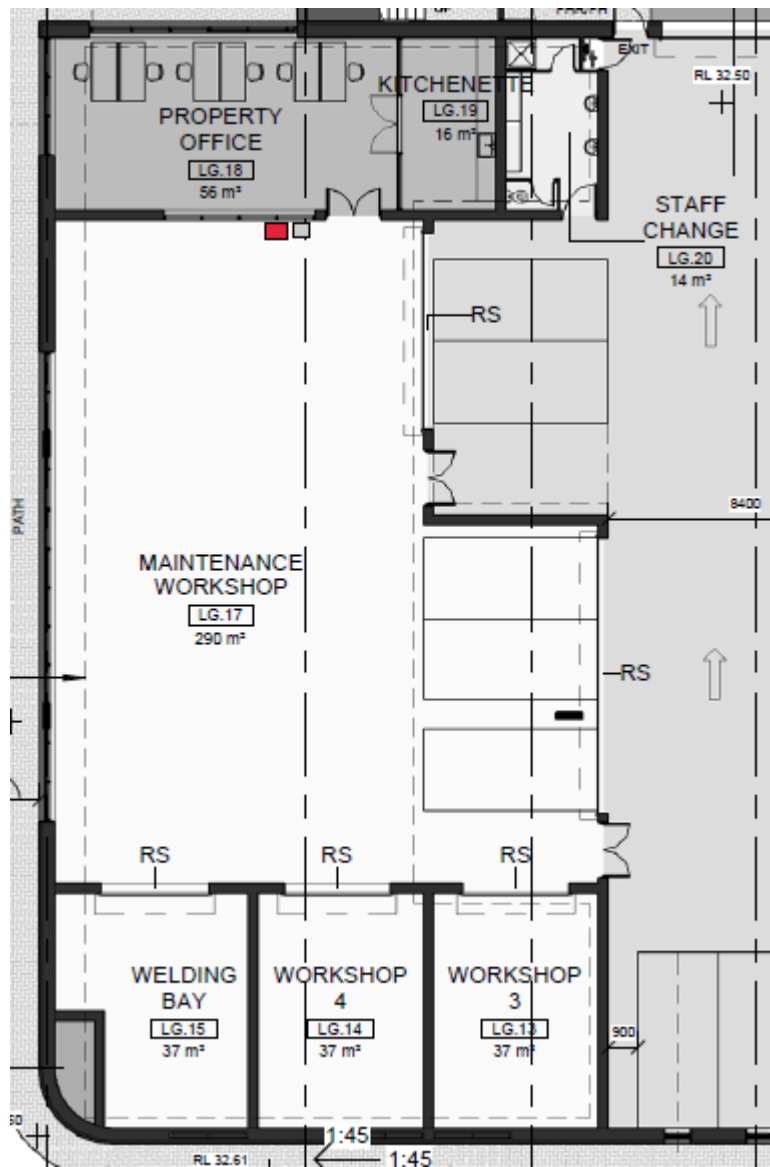


Figure 4: Recommended bin hub locations - Ground Floor



It is likely that the lower ground floor will only require one 240L general waste bin within the maintenance workshop along with the 120L scrap metal bin, as depicted in figure 6

Figure 5: Recommended bin hub locations - Lower Ground



During large events where additional bin will be required throughout the open plan configuration, bins will be brought up from the waste storage area on lower ground. It is recommended that a general waste and a mixed recycling bin are always positioned next to each other to maximise the diversion of recyclables from landfill. Lightweight event covers can be added to 240L MGBs to assist with the identification of the streams – shown in figure 5 below.

Figure 6: Bin hub cover example



The supplier information for these covers can be found in the link below:

<https://www.sourceseparationsystems.com.au/recycling-products/bin-covers.html>

Based on the proposed 240L bin hub locations shown in figure 3 and 4 above, table 3 demonstrates how the total capacity of these bins exceeds the estimated weekly waste profile for standard usage.

Table 3: Recommended equipment per week – STANDARD USAGE

Waste Stream	Bin Type	No. of Bins/units	Clearance Frequency per week	Capacity (L)	Estimated volume / week
Mixed recycling	MGB - 240L	5	1	1,200	957
General Waste	MGB - 240L	6	1	1,440	1,170

In addition to the systems recommended in table 3, during events the following bins will be required to manage the generated waste estimates when at capacity:

Table 4: Recommended equipment per day – EVENT USAGE

Waste Stream	Bin Type	No. of Bins/units	Clearance Frequency per day	Capacity (L)	Estimated volume / day
Mixed recycling	MGB - 240L	7	1	1,920	1,575
General Waste	MGB - 240L	9	1	2,400	1,925

These bins can be stored within the waste storage area when not needed and be distributed throughout the facility as required for large events.

Spare empty bins will be stored in the waste storage room on lower ground level to be swapped for full bins from the permanent bin housings or for additional capacity during events. An additional 10x240L for each stream (general waste and mixed recycling) has been allowed to ensure adequate capacity for all usage scenarios – the waste storage room provides ample space for the proposed number of bins.

A 120L bin may be required for the workshop located on the lower ground level to manage metal scraps. This can be monitored by staff and called for collection when needed.

4.2 Other waste/recycling

The following waste stream will be collected on call as needed:

- Green Waste/vegetation – vegetation generated from onsite maintenance activities will be managed by grounds staff. A bulk 3m³ front lift bin is recommended for the management of this stream which should be collected on request as required.
- Battery Recycling – Battery recycling boxes will be present where deemed necessary e.g. copy rooms, office/study common areas. These boxes will be collected when full by a dedicated contractor.
- Toner Cartridge Recycling – Used toners will be collected by administration staff and consolidated for collection by specialty cartridge recycler (usually provided by office supplier).

5. Waste and Recycling Storage Area

The waste storage area for the facility is to be located on the lower ground carpark at the base of the ramp and provides ample capacity for the required number of bins.

Figure 7: Waste storage area location on lower ground level

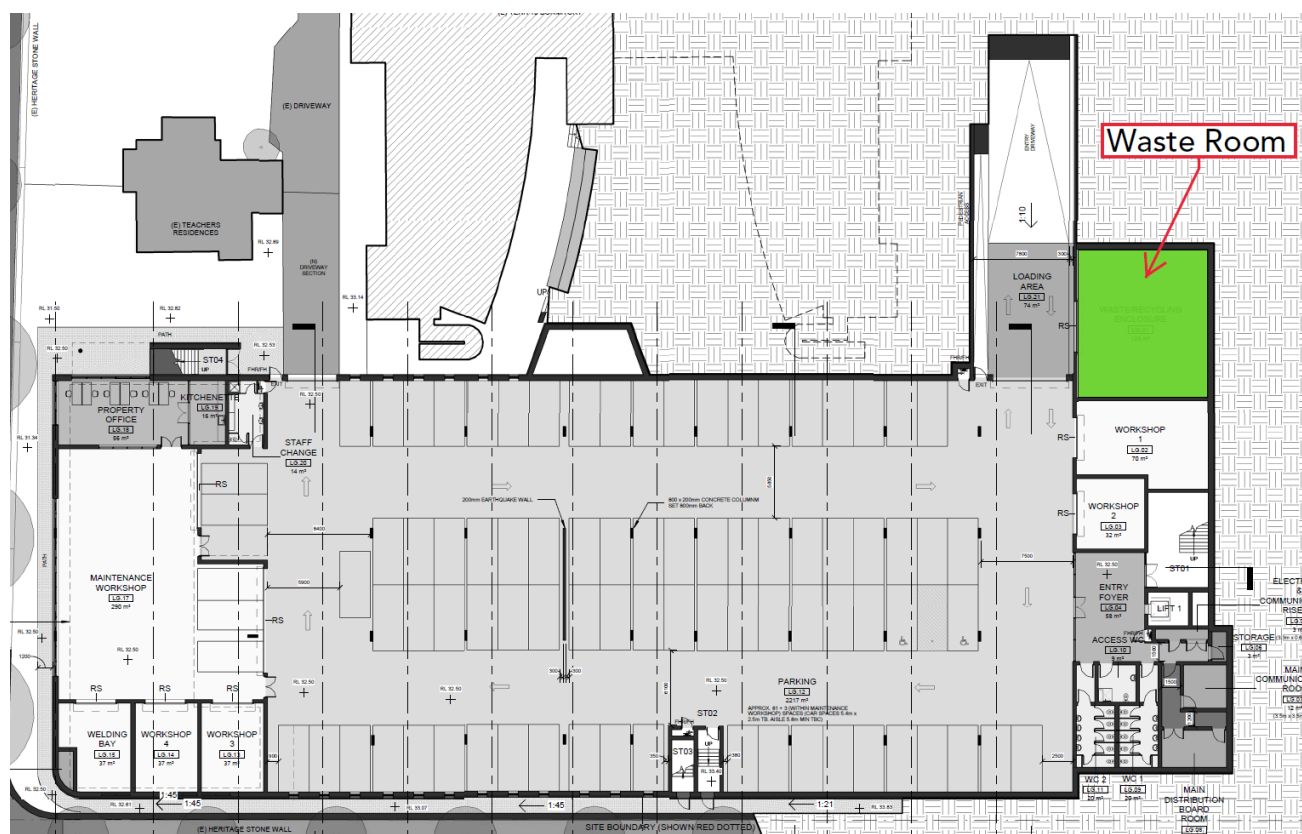
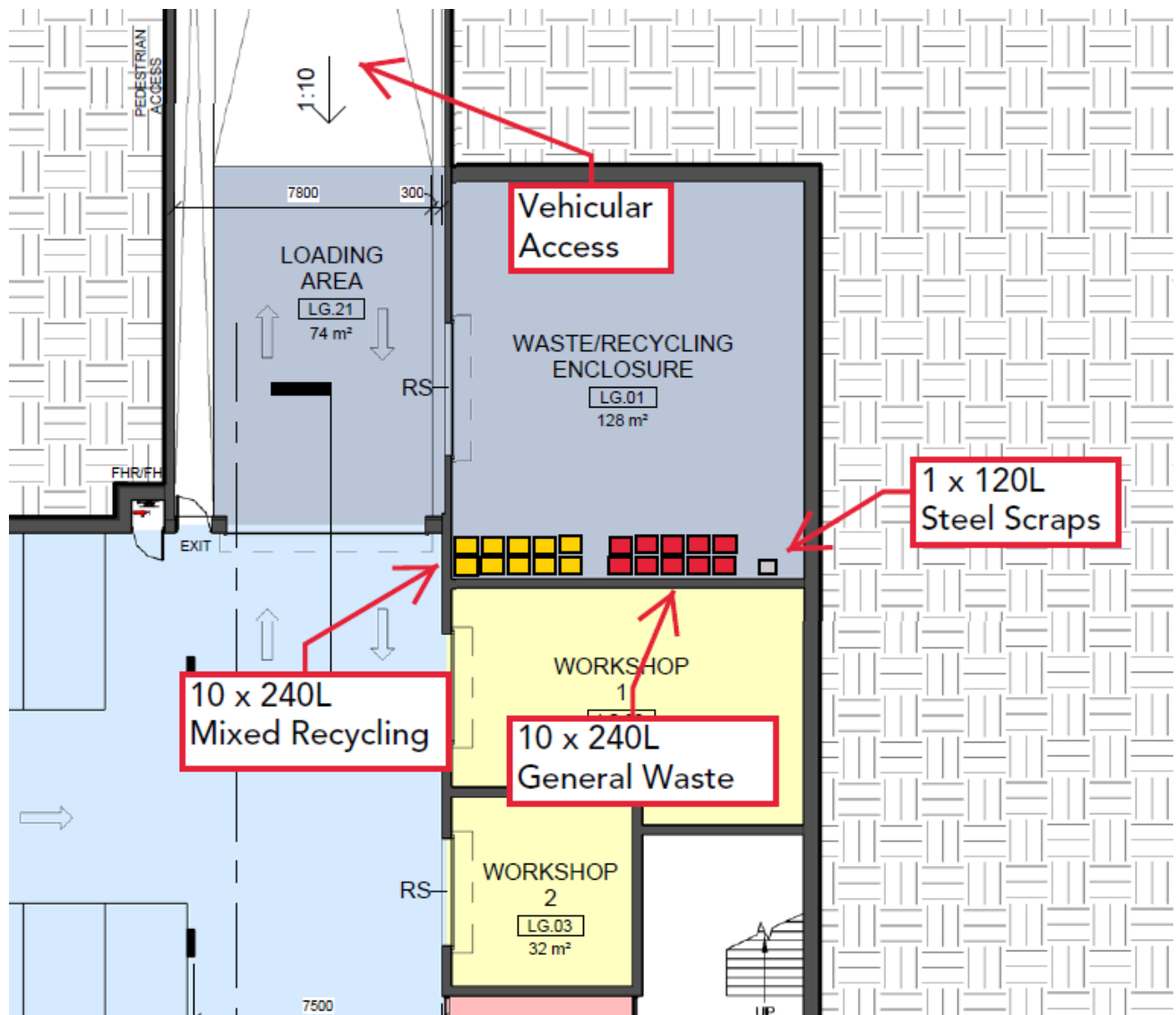


Figure 8: Waste storage area indicative layout



5.1 Signage and Colour-coding

All waste and recycling streams should be differentiated with clear signage and colour-coding on all bins and on walls within the waste storage area. Below are examples of appropriate signage incorporating textual information, pictures and colour-coding to communicate the message.

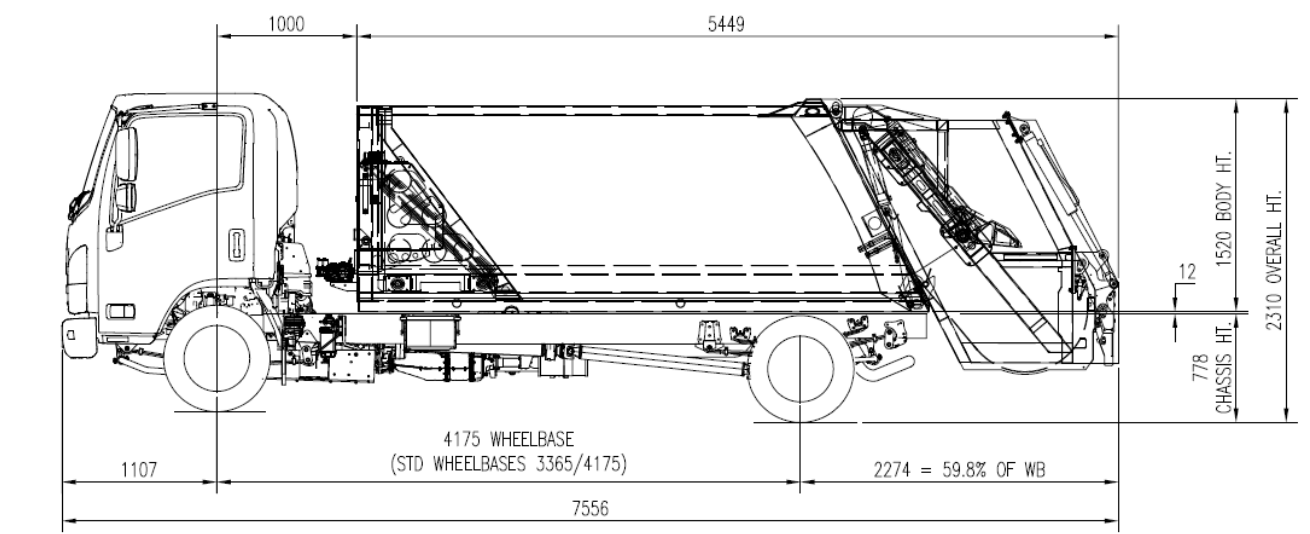


6. Collection

6.1 Waste Collection Vehicle

Waste truck specifications will vary slightly between contractors however as a guide, all streams and bins recommended in this report would typically be collected by a MRV rear lift waste truck – figure 10 details the indicative dimensions of a typical MRV rear-lift truck used by most commercial waste contractors.

Figure 9 - Medium rear-lift commercial waste truck specifications



6.2 Collection Access

The waste truck will access the storage area via Gladesville Rd as per figure 10. A swept path analysis has been produced which demonstrates that the MRV can adequately access the site, as can be seen from figure 11:

Figure 10 - Waste truck access path

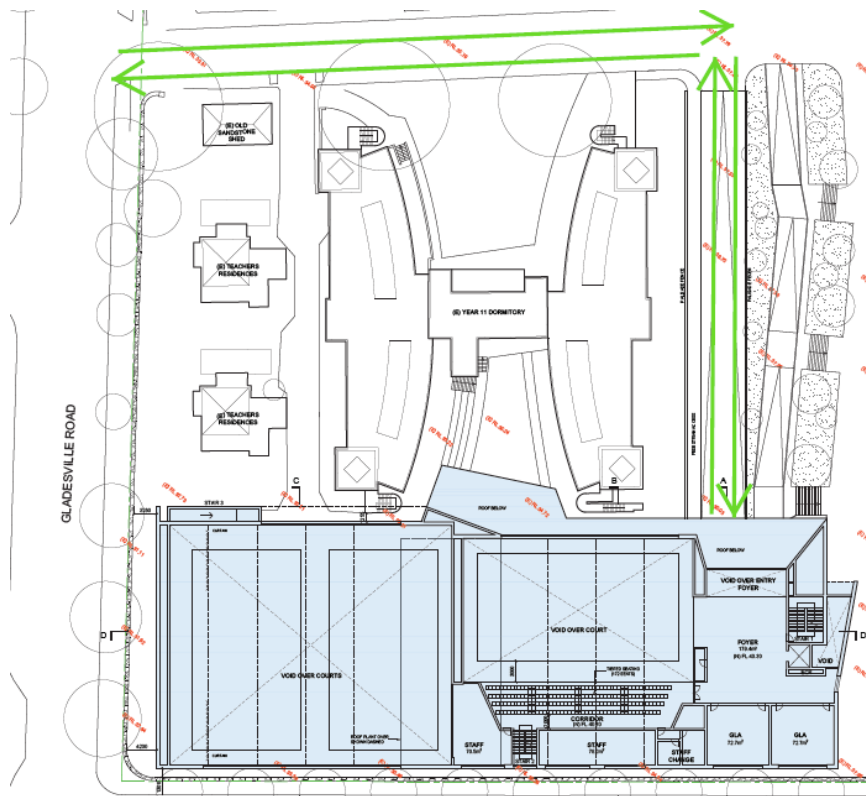
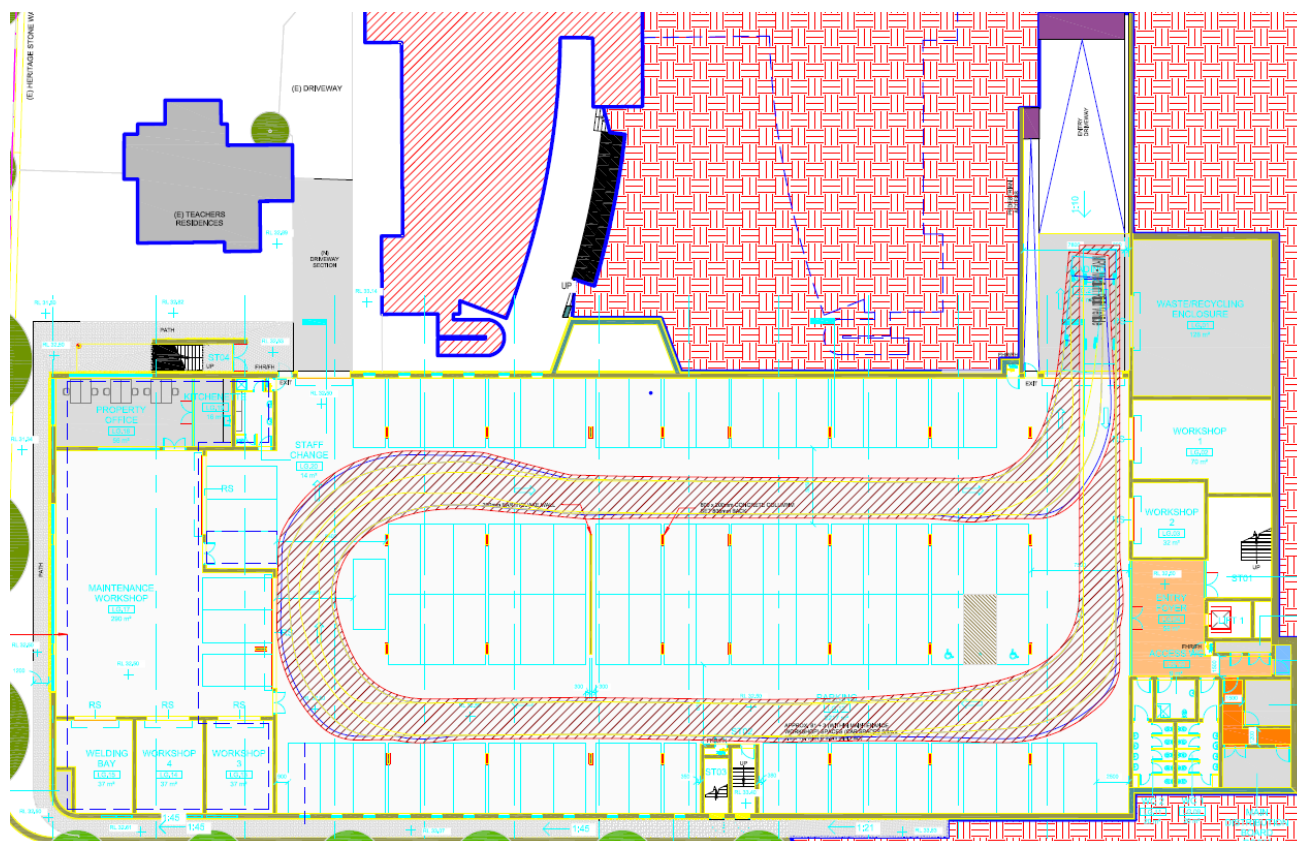


Figure 11 - MRV swept path



7. Additional Opportunities

7.1 Waste Diversion Opportunities

The following initiatives represent opportunities for St Joseph's College to explore in an effort to reduce total waste generation. These options are not a requirement however should be considered to move towards best practice waste management.

7.1.1. Organics Recovery/recycling

It should be noted that offering food/organic recycling throughout all areas of the school is not recommended due to the challenges of contamination, however options should be investigated for the kitchen facilities, particularly for use during large events where catering may be involved where there is more control over the type of materials being disposed ensuring that organics bins would remain free of contaminants.

The waste contractor should be consulted to explore the commercial options they offer for dedicated organics recycling. Alternatively, other onsite options should be investigated which would reduce the quantity of waste being taken offsite by waste contractors. An effective solution could incorporate one or all the following:

- Onsite compost bins
- Onsite worm farms

Figure 12: Example of compost set up



Figure 13: example of basic worm farm



8. Appendix

The following figures provide the approximate dimensions of the proposed bin systems.

Figure 14: 240L MGB Dimensions

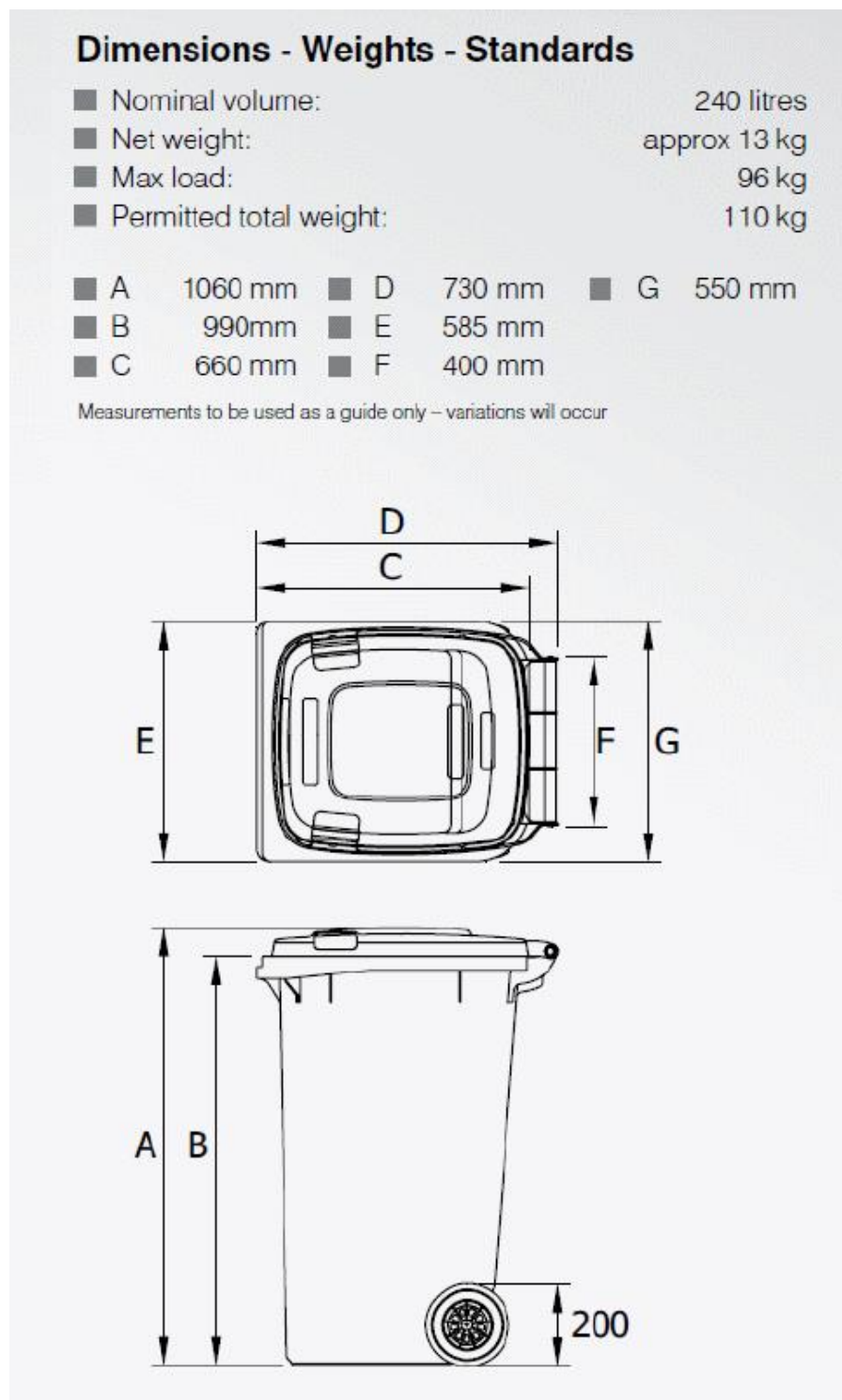


Figure 15: 120L MGB Dimensions

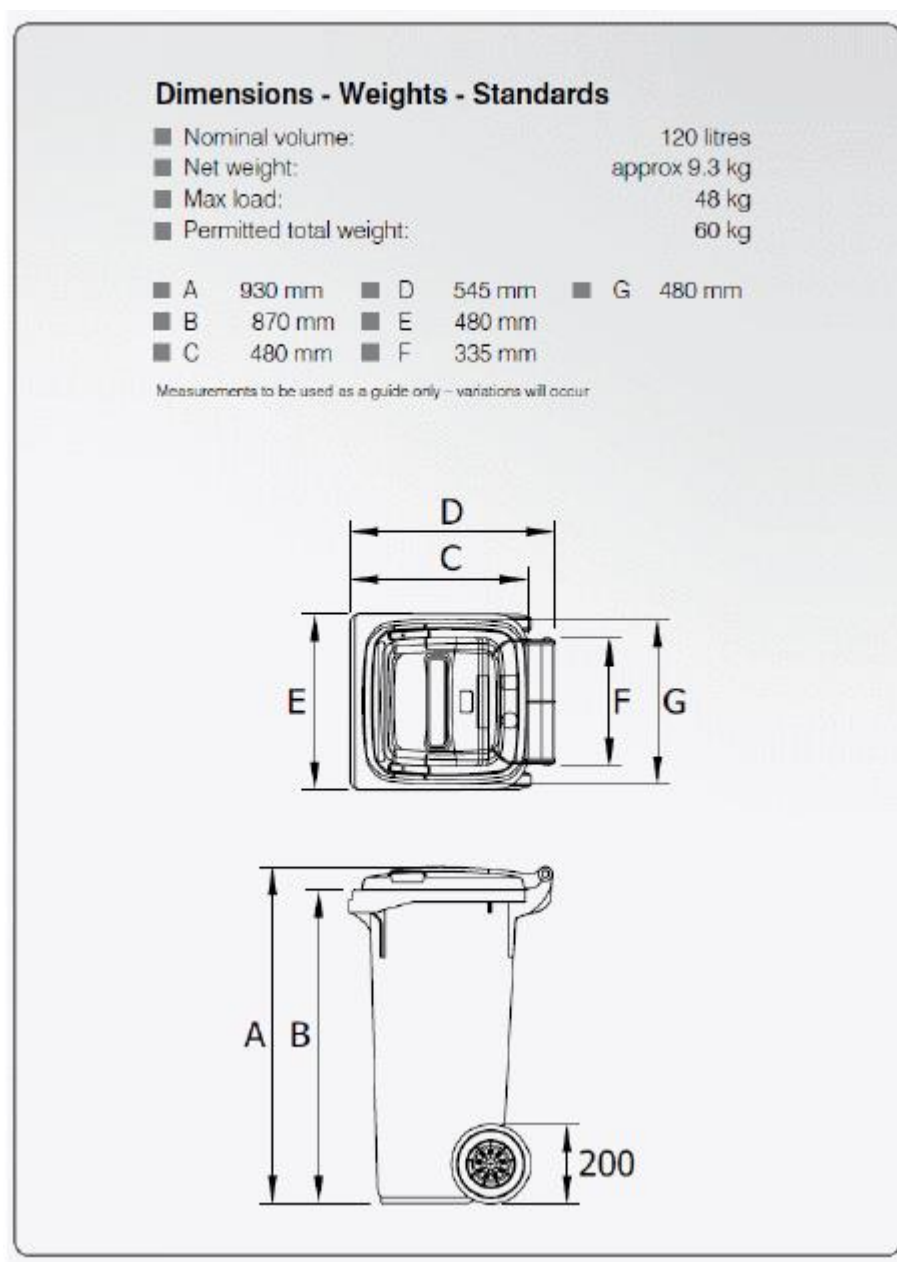


Figure 16: 240L MGB Bin Housing Dimensions

