

# CLEANAWAY ROOTY HILL MRF

## Waste Management Plan

Prepared for:  
Project Strategy  
PO Box 271  
Sutherland NSW 1499

SLR Ref: 610.30682-R01  
Version No: -v6.0  
June 2022



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## BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Project Strategy (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

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## DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
610.30682-R01-v6.0	28 June 2022	Andrew Quinn	Chani Lokuge	Chani Lokuge
610.30682-R01-v5.0	20 June 2022	Andrew Quinn	Chani Lokuge	Chani Lokuge
610.30682-R01-v4.0	17 June 2022	Andrew Quinn	Chani Lokuge	Chani Lokuge
610.30682-R01-v3.1	31 May 2022	Andrew Quinn	Chani Lokuge	Chani Lokuge
610.30682-R01-v3.0	14 February 2022	Andrew Quinn	Chani Lokuge	Chani Lokuge

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# 1 Introduction

## 1.1 Overview

SLR Consulting Australia Pty Ltd (SLR) has been commissioned by Project Strategy, on behalf of Charter Hall (the Client) to prepare a waste management plan (WMP) in support of a development application for the construction of a materials recovery facility (MRF) to be operated by Cleanaway at Rooty Hill in western Sydney (the Project).

This WMP applies to the waste generated from the site preparation, construction and operational stages of the Project and has been prepared using documentation supplied by the Client.

The relevant requirements of the Secretary's Environmental Assessment Requirements (SEARs) issued for SSD-29999239 are addressed in this report as shown in the tables below.

**Table 1 SSD-29999239 General Conditions for Waste Management**

Key Issues	Relevant Sections in this WMP
4. Waste Management	
<ul style="list-style-type: none"> <li>a description of each of the waste streams that would be accepted at the facility including maximum daily, weekly, and annual throughputs and the maximum size and heights of individual stockpiles</li> </ul>	Please refer to Section 5.1 Waste stream description and Section 5.1.2 Maximum daily, weekly, and annual throughputs
<ul style="list-style-type: none"> <li>details of the source of the waste streams to justify the need for the proposed processing capacity</li> </ul>	Please refer to Section 5.2.1 Feedstock Sources
<ul style="list-style-type: none"> <li>a description of waste processing operations (including flow diagrams for each waste stream), including a description of the technology to be installed, resource outputs, and the quality control measures that would be implemented</li> </ul>	Section 5.2 MRF Processing Waste Management describes the waste processing system including feedstock sources, waste processing operations, technology used, outputs, quality control separation equipment, vehicles and mobile plant used, quality control resource outputs, storage of recyclables and the waste tracking system. Appendix B shows flow charts for the MRF process
<ul style="list-style-type: none"> <li>details of how waste would be stored (including the maximum daily storage capacity of the site) and handled on site, and transported to and from the site including details of how the receipt of non-conforming waste would be dealt with</li> </ul>	Please refer to Section 5.2.5 Storage of Recyclables. Section 5.2.55.2.3.3 Quality Control describes the procedure for checking, accepting or rejecting loads at the site including non-conforming loads.
<ul style="list-style-type: none"> <li>detail the facility's waste tracking system for incoming and outgoing waste</li> </ul>	Please refer to Section 5.2.6 Waste tracking system
<ul style="list-style-type: none"> <li>detail the quantity of each type of materials recovered from processing operations and final dispatch locations</li> </ul>	Please refer to Section 5.2.7 Quantities of Processed Materials. The proposed reuse, recycling, reprocessing or treatment of each waste type are shown in Table 23 Processed recyclable materials with possible destination and reuse
<ul style="list-style-type: none"> <li>detail the quantity of residual wastes from processing operations and final dispatch locations</li> </ul>	Section 5.2.7 Quantities of Processed Materials. Table 24 Waste streams for disposal shows that 91% of unrecyclable material will be baled and sent to ResourceCo's PEF plant while the balance will be landfilled at a site lawfully able to accept it. The precise location has not yet been determined.
<ul style="list-style-type: none"> <li>details of the waste management strategy for demolition, construction, and ongoing operational waste generated</li> </ul>	Please refer to Section 3 Demolition and Construction Waste and Recycling Management

Key Issues	Relevant Sections in this WMP
<ul style="list-style-type: none"> <li>the measures that would be implemented to ensure that the development is consistent with the aims, objectives, and guidance in the NSW Waste and Sustainable Materials Strategy 2041, Stage 1: 2021-2027.</li> </ul>	Please refer to Section 3.2 Targets for Resource Recovery, Section 4.2 Targets for Resource Recovery and Section 5.2.9 Consistent with NSW Strategy

**Table 2 SSD-29999239 Council Conditions for Waste Management**

Blacktown City Council	Relevant Sections in this WMP
2. Planning requirements f. Submission of a Waste Management Plan for the construction and use of the site	Please refer to Section 3 Demolition and Construction Waste and Recycling Management
6. Building requirements a. The details regarding the proposed demolition works will need to be provided in the EIS such as: <ul style="list-style-type: none"> <li>Waste management details</li> </ul>	Please refer to Section 3 Demolition and Construction Waste and Recycling Management

**Table 3 SSD-29999239 NSW EPA Conditions for Waste Management**

NSW EPA	Relevant Sections in this WMP
1. Matters to be addressed in addition to standard environmental assessment guidelines a. Waste management including the following details: <ul style="list-style-type: none"> <li>types and quantities of each type of waste to be received and a description of handling, processing and storage procedures for each waste type,</li> <li>maximum amount of waste to be stored at any one time and maximum annual throughput, and a description of how the Proponent will meet the EPA's record keeping and reporting requirements, including weighing material in and out of the Premises.</li> </ul>	Please refer to Section 5.1 Waste stream description and Section 5.2 MRF Processing Waste Management. Maximum annual throughput is dealt with in Section 5.1.2 Maximum daily, weekly, and annual throughputs. Record keeping and reporting are covered in Section 5.2.8 Record keeping and reporting
2. Standard Environmental Guidelines to be followed: a. Waste Generation and Management The waste transported, generated, or received as part of carrying out the activity should be minimised and managed in a way that protects all environmental values.	Please refer to Section 2 Better Practice for Waste Management and Recycling, Section 3.6 Waste Avoidance Strategies, Section 3.7 Re-use, Recycling and Disposal and Section 5.2.10 Waste Minimisation
Technical standards and guidelines include: <ul style="list-style-type: none"> <li>Waste guidelines and resources about legislation can be found at Waste Avoidance and Resource Recovery Strategy and Waste regulations in NSW</li> <li>EPA's Waste Classification Guidelines (DECC, 2009)</li> <li>Environmental Guidelines: Solid Waste Landfills (EPA, Second edition 2016)</li> <li>Environmental Guidelines: Use and Disposal of Biosolids Products (EPA, 1997)</li> <li>Environmental Guidelines: Composting and Related Organics Processing Facilities (EPA, 2004)</li> <li>NSW Energy from Waste Policy Statement (EPA, 2015)</li> <li>Standards for managing construction waste in NSW (EPA, 2018)</li> </ul>	Relevant legislation, guidelines and technical standards are listed in Section 7

Comments made by the Department of Planning, Industry and Environment (DPIE) on the environmental impact statement for this project have also been, or are, addressed in this document.

Those comments related to waste management are shown in Table 4 below.

Table 4 DPIE EIS Comments

NSW DPIE	Relevant Sections in this WMP
Include a clear flow chart of waste processing from receiving till dispatching	Section 5.2 MRF Processing Waste Management describes the waste processing system including feedstock sources, waste processing operations, technology used, outputs, quality control separation equipment, vehicles and mobile plant used, quality control resource outputs, storage of recyclables and the waste tracking system. Appendix B shows flow charts for the MRF process
Provide a breakdown of daily and annual quantities of each incoming waste type to be processed at the facility	This is addressed in Section 5.1.2 Maximum daily, weekly, and annual throughputs
Provide a detailed floor plan of the warehouse building, clearly showing each waste unloading, storing, processing, and loading areas.	Appendix A contains drawings of the site, the proposed building and the areas within it as well as the location, size and arrangement of the process plant and elements, storage areas and mobile plant proposed and access by heavy vehicles. Appendix C shows all the process elements labelled. Figure 5 shows the receipt bays and Figure 7 shows the product storage areas.
Clarify what procedures would be followed to process non-conforming waste	Section 5.2.55.2.3.3 Quality Control describes the procedure for checking, accepting or rejecting loads at the site including non-conforming loads.
Please clarify locations of receipt bays dedicated to glass, OCC, putrescible waste, and large articulated vehicles on a plan	Figure 5 shows the receipt bays Appendix C shows all the process elements labelled including receipt bays for glass and OCC. There are no receipt bays for putrescible waste. The MRF does not accept putrescible waste. How large articulated vehicles will use the site is shown in the drawings in Appendix A.

Comments made by the Environment Protection Authority (EPA) on the waste management plan for this project have also been, or are, addressed in this document.

Those comments related to waste management are shown in Table 5 below.

Table 5 EPA Comments

EPA Comments	Relevant Sections in this WMP
The EPA notes that the EIS describes incoming feedstock to be contained in six separate bunkers however the Waste Management Plan (WMP) prepared by SLR, dated February 2022 provided at Appendix L provides descriptions and diagrams indicating five receiving bunkers.	Five bunkers are proposed for mixed recyclables and one for a glass silo. Figure 4 shows the receipt bays. See also Section 0
The EPA requires the following to be addressed: a) The Applicant must provide a site plan identifying, at a minimum, the following areas: i. Haulage	i. How heavy vehicles move around the site is shown in one of the drawings in Appendix A
ii. Waste receipt, processing, storage and loading (for each waste type)	ii. Figure 5 shows the receipt bays. Section 5.2 MRF Processing Waste Management describes the waste processing system including feedstock sources, waste processing operations, technology used, outputs, quality control separation equipment, vehicles and mobile plant used, quality control resource outputs, storage of recyclables and the waste tracking system. Figure 7 shows the product storage areas.
iii. Quarantine	Section 5.2.55.2.3.3 Quality Control describes the procedure for checking, accepting or rejecting loads at the site including where non-conforming loads would be quarantined.

EPA Comments	Relevant Sections in this WMP
iv. Infrastructure for environmental controls including dust, noise, water and wheel wash	Section 6 Environmental Management deals with environmental controls
v. Weighbridge/s	Section 5.2.8.1 describes the proposed weighbridges including their location in Figure 8 Location of weighbridges Section 5.2.8.2 describes the weighbridge procedure for 12 m vehicles Section 5.2.8.3 describes the weighbridge procedure for B-doubles
vi. Site boundaries	The site boundaries are shown on the drawings in Appendix A
vii. Stormwater drainage areas	Section 6.1 deals with stormwater management. Appendix D shows the stormwater management plan
viii. Chemical and fuel storage areas	No chemicals or fuel are proposed to be stored on site
ix. Processing equipment and infrastructure	A description of the processing equipment can be found in Section 5.2.3.1 Separation equipment , Section 5.2.8.1 describes the proposed weighbridges
x. Machinery storage areas.	No designated area for parking mobile plant has been made although this will be subject to the final design by the design and construct tenderer. However, the front-end loader will be parked in one of the feedstock bunkers and the two gas powered forklifts will be parked in the bailed product area. See Section 5.2.3.2 Vehicles and Mobile Plant
b) The Applicant must clarify the receiving bay configuration and ensure that all documentation accurately reflects the proposed arrangement.	Five bunkers are proposed for mixed recyclables and one for a glass silo. Figure 4 shows the receival bays. See also Section 0
Identification and classification of waste streams	
Insufficient information has been provided regarding the incoming and outgoing waste streams at the Premises. The Applicant must clearly define all waste types in accordance with the Act and ensure they are classified according to the EPA's Waste Classification Guidelines 2014 (as amended from time to time). The EPA notes that Tables 18 and 19 of the Waste Management Plan list a product type as "waste"; this must be clarified as per (a) below. The EPA also notes that Table 21 of the Waste Management Plan identifies "dry" waste and "wet" waste as waste streams. The EPA does not recognise these classifications and requires the Applicant to include these waste streams in the assessment required in (a) below. For each waste type, the EIS must describe the physical and chemical content and types of pollution which may result from the handling, storage and processing of that waste	Table 18 has been amended to show the classification of each waste type according to the 2014 Waste Classification Guidelines and the PoEO Act Schedule 1. The waste and materials types classified in Table 18 align with those in Table 19.  References to 'dry' and 'wet' waste have been replaced with 'non-putrescible waste' and 'putrescible waste'.

EPA Comments	Relevant Sections in this WMP
For each waste type, the EIS must describe the physical and chemical content and types of pollution which may result from the handling, storage and processing of that waste. Detailed information regarding the source and quantity of each of the waste types to be received at the Premises is also lacking in the EIS. The Waste Management Plan states that material to be processed at the facility will be collected from kerbside recycling bins with yellow lids in Blacktown Council area. It also states that Cleanaway has the contract to collect and recycle materials collected under the NSW Container Deposit Scheme. No further information is provided as to the source of this material, specific waste classifications, source/s or quantities. Similarly, the Waste Management Plan states that the Premises will be designed to be able to accommodate additional cardboard and recyclables materials from Cleanaway's commercial customers. Again, no further information is provided as to the source of this material, specific waste classifications, source/s or quantities of this material.	Section 5.2.1 Feedstock Sources states that the sources of mixed recyclables will be from kerbside bins in Blacktown. It also states that the sources of clean cardboard will be from major retailers. No further detail on sources of cardboard is available. No CDS materials is proposed to be delivered to this MRF.
The EPA notes putrescible waste is mentioned in the Waste Management Plan. The Applicant should be aware the EPA will not permit the facility to receive putrescible waste as it would not be appropriate for this type of waste facility. The Applicant must provide detailed information regarding how any incidental putrescible waste will be managed. The EPA expects any incidental putrescible waste to be removed from the Premises as soon as practicable but within 48 hours at the latest as is provided within the recommended air quality conditions in Attachment A.	No putrescible waste is proposed to be received at the site. The only materials accepted at the site are mixed recyclables will be from kerbside bins in Blacktown and clean cardboard from major retailers. See Section 5.2.1 Feedstock Sources. If any putrescible waste is inadvertently delivered it will be dealt with as outlined in Section 5.2.3.3 Quality Control.
The EPA requires the following to be addressed: a) The Applicant must provide details on the transportation, assessment and handling of each waste type arriving and generated at the site	All loads entering the site will be processed as described in Section 5.2.8.2 12 m Rigid Truck Weighbridge Procedure and Section 5.2.8.3 B-doubles Weighbridge Procedure. All loads will be assessed and handled as described in Section 5.2.3.3 Quality Control.
b) The Applicant must provide details of any stockpiling of each waste type and each of the materials proposed to be recovered at the site including, but not limited to, sizes (dimensions and heights) and locations (capacity of storage area, dimensions of bays etc)	Please see Section 0 For further information on how to determine a waste's classification refer to the NSW EPA (2014) Waste Classification Guidelines. Maximum size and heights of individual stockpiles. Five receival bunkers are proposed for mixed recyclables and one for a glass silo. Figure 4 shows the receival bays. Figure 7 shows the product storage areas.
c) The Applicant must provide details of the maximum volume of waste to be stored for each individual waste type as well as at any one time overall	This is addressed in Section 5.1.3 Maximum amount stored on site, specifically in Table 21 Maximum quantity of product stored on site.
d) The Applicant must provide details of the maximum annual throughput of waste overall for each individual waste type	This is addressed in Section 5.1.2 Maximum daily, weekly, and annual throughputs
e) The Applicant must provide a description of waste processing procedures for each waste type	Section 5.2 MRF Processing Waste Management describes the waste processing system including feedstock sources, waste processing operations, technology used, outputs, quality control separation equipment, vehicles and mobile plant used, quality control resource outputs, storage of recyclables and the waste tracking system. Appendix B shows flow charts for the MRF process



EPA Comments	Relevant Sections in this WMP
f) The Applicant must provide details on the proposed reuse, recycling, reprocessing or treatment of each waste type	The proposed reuse, recycling, reprocessing or treatment of each waste type are shown in Table 23 Processed recyclable materials with possible destination and reuse
g) The Applicant must provide details of the intended fate of each waste type, including but not limited to, the specific licensed facility that each waste stream will be disposed of.	Table 24 Waste streams for disposal shows that 91% of unrecyclable material will be baled and sent to ResourceCo's PEF plant while the balance will be landfilled at a site lawfully able to accept it. The precise location has not yet been determined.
h) The Applicant must provide details of all materials produced under a Resource Recovery Order, and the controls in place for meeting the conditions of that order	No materials listed by the EPA under resource recovery orders <sup>1</sup> are likely to be produced from this facility.
i) The Applicant must clearly describe the process for management of contaminated and non-conforming waste, including, at a minimum, the following information: i. detailed information regarding the waste types and likely quantities of hazardous materials that may be received at the Premises	No hazardous materials will be received at the premises. All loads will be assessed and handled as described in Section 5.2.3.3 Quality Control.
ii. Methods for detection and removal of contaminated and non-conforming waste	Procedures for detecting and removing contaminated and non-conforming loads are described in Section 5.2.3.3 Quality Control.
iii. Locations and configurations of storage for contaminated and non-conforming waste, including demonstration that any proposed hazardous materials storage areas are in compliance with the Australian Standard AS 1940 – the storage and handling of flammable and combustible liquids.	Locations for storing contaminated and non-conforming waste are shown in Section 5.2.3.3 Quality Control, specifically Figure 4 Location of non-conforming loads. No hazardous materials will be received at the premises.
iv. Methods for and locations of disposal of contaminated and non-conforming waste	Procedures for detecting, removing and disposing of contaminated and non-conforming loads are described in Section 5.2.3.3 Quality Control.
The Protection of the Environment Operations (Waste) Regulation 2014 (the Regulation) and Waste Levy Guidelines require that an occupier of a scheduled waste facility to measure the quantity of waste that is transported into or out of the facility. Information including, but not limited to, the sources, types, volumes of waste must be identified and recorded, as outlined in Division 1 of the Regulation. The Waste Management Plan states that approved vehicles will be free to leave the site without crossing the weighbridge again. The EPA reiterates that all vehicles entering and leaving the site must be weighed, regardless of the load status of the vehicle.	Appropriate data on waste quantities will be recorded as required. See Section 5.2.8 Record keeping and reporting. No vehicles will be leaving the site without passing over a weighbridge as stated in Section 5.2.8.2 12 m Rigid Truck Weighbridge Procedure and Section 5.2.8.3 B-doubles Weighbridge Procedure

In order to address some of these requirements we have referred to Blacktown City Council's Development Control Plan 2015 and The Hills Development Control Plan.

Other documents referred to in this report, or consulted, with include:

- ATTACHMENT F - WSA-SK01(P1) Pavement Grading plan.pdf
- Australian Bale Press. Cleanaway MRF Plant Building Requirements. 22 TPH MRF Blacktown. 16 August 2021.
- Cleanaway Western Sydney 22 TPH MRF Mass Balance. DWG 10840-MRF-01 REV J. 18-5-2022

<sup>1</sup> <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/resource-recovery-framework/current-orders-and-exemption#:~:text=Current%20orders%20and%20exemptions%20for%20use%20by%20everyone,Exemption%20%28PDF%2055KB%29%20%2029%20more%20rows%20>

- Australian Bale Press. Blacktown MRF. SEARS – SLR. 12 January 2022
- Cleanaway. Commodities specifications: Fibre and Plastic
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- Drawings
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  - 10840-MRF-004 pres A.pdf
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  - 211274\_DAC04.02 [08].pdf
  - 211274\_DAC05.41 [03].pdf
  - 10840-MRF-001 WS pres Q DW IH Glass waste 240522.pdf
  - 10840-MRF-01\_Q - WS WOODSTOCK - 200522 Full site.pdf
  - 12272\_DA001-P7-Site & Ground Floor Plan.pdf
- Fire and Incident Management Report. Cleanaway Blacktown MRF. 600 Woodstock Ave, Rooty Hill, NSW, 2766. 08 December 2021, Final Issue, Report No F201590\_FSS\_01. Prepared by Core Engineering.
- Operational Summary Blacktown MRF. July 2021. Prepared by: Peter Nguyen. Version: Final – Approved.
- Proposal for the Design & Engineering, Equipment Supply and Integration of the Material Recycling Facility (MRF) at Blacktown, NSW Proposal No. ABP-CBP180621. Australian Bale Press.
- Request for Proposal. Proposed Cleanaway Depot. Western Sydney MRF. Blacktown Municipality. May 2021. Revision 2
- Site Plan, dated 9 April 2021
- State Environmental Planning Policy No. 33. 600 Woodstock Avenue, Glendenning. Cleanaway Pty Ltd. Document No. RCE-21217\_Cleanaway\_SEPP33\_Draft\_6Dec21\_Rev(A). Date 6/12/2021 prepared by Riskcon Engineering Pty Ltd
- CWY Blacktown 22 tph MRF projected output tonnes 11 Feb 2022.xlsx.
- Cleanaway Material Recycling Facility, Rooty Hill. Air Quality Impact Assessment. Report Reference: 21.1118.FR1V2, 9 February 2022
- Cleanaway Liquid and Solid Waste Storage Plan Rooty Hill (Western Sydney) Materials Recycling Facility, June 2022
- Urbis Materials Recycling Facility 600 Woodstock Avenue, Rooty Hill Environmental Impact Statement SSD-29999239 24 February 2022
- Cleanaway Operational Summary Blacktown MRF May 2021.

## 1.2 Site Description

A new MRF is planned for 600 Woodstock Avenue, Rooty Hill to be operated by Cleanaway. The legal description of the property is Lot 67 in DP804292. The site area is 1.97 ha. Currently a former insulation facility is on the site. This will be demolished and a new MRF constructed along with office space and facilities, on-site parking and associated works including excavation and landscaping. Some of the office areas will be refurbished and reused.

Site plans showing proposed MRF with the existing building outlined in orange can be found in Appendix A.

## 2 Better Practice for Waste Management and Recycling

### 2.1 Waste Management Hierarchy

This WMP has been prepared in line with the waste management hierarchy shown in Figure 1. The hierarchy summarises the objectives of the Waste Avoidance and Resource Recovery Act 2001.

The waste management hierarchy comprises the following principles, from most to least preferable:

- Waste avoidance, prevention or reduction of waste generation. Achievable through better design and purchasing choices.
- Waste reuse, reuse without substantially changing the form of the waste.
- Waste recycling, treatment of waste that is no longer usable in its current form to produce new products.
- Energy recovery, processing of residual waste materials to recover energy.
- Waste treatment, reduce potential environmental, health and safety risks.
- Waste disposal, in a manner that causes the least harm to the natural environment.

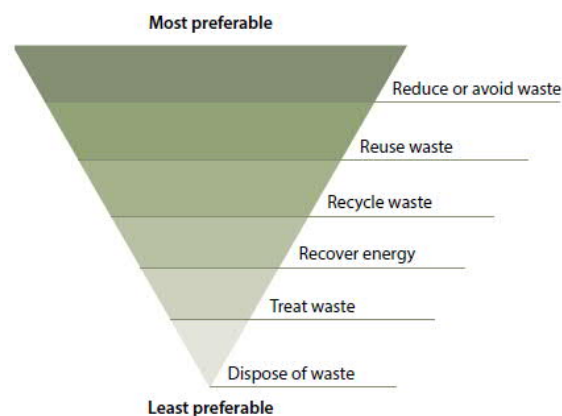


Figure 1 Waste management hierarchy

### 2.2 Benefits of Adopting Better Practice

Adopting better practice principles in waste minimisation offers significant benefits for organisations, stakeholders and the wider community. Benefits from better practice waste minimisation include:

- Improved reputation of an organisation due to social and environmental responsibility.

- Lowered consumption of non-renewable resources.
- Reduced environmental impact, for example, pollution from materials manufacturing and waste treatment.
- Reduced expenses from lower waste disposal.
- Providing opportunities for additional revenue streams through beneficial reuse.

## 3 Demolition and Construction Waste and Recycling Management

### 3.1 SEARs Requirements

This section addresses the following two SEARs requirements:

- Key Issues - Details of the waste management strategy for demolition, construction waste
- Blacktown City Council - Submission of a waste management plan for the construction and use of the site.

### 3.2 Targets for Resource Recovery

Targets for new development are expected to contribute to state specific targets. The NSW Waste and Sustainable Materials Strategy 2041 (DPIE, 2021) sets a target of 80% average recovery rate from all waste streams by 2030. Analysis by DPIE (2021) indicates that construction and demolition waste recovery rates in 2018-2019 were 77%.

It is anticipated that the waste minimisation measures in the following sections will assist the Cleanaway MRF to meet these targets. Waste reporting and audits can be used to determine the actual percentage of wastes that are being, or have been, recycled during the demolition and construction stages of the MRF development.

### 3.3 Waste Streams and Classifications

The demolition and construction activities are anticipated to generate the following broad waste streams:

- Demolition waste as outlined in Section 3.4
- Construction waste as outlined in Section 3.5
- Packaging waste, and
- Work compound waste from on-site employees.

A summary of likely waste types generated from demolition and construction activities, along with their waste classifications and proposed management methods are provided in Table 6. For further information on how to determine a waste's classification refer to the NSW EPA (2014) Waste Classification Guidelines<sup>2</sup>. Further information on managing site preparation, demolition and construction wastes is also available on the NSW EPA website<sup>3</sup> and the Western Sydney Recycling Directory – Construction and Demolition Waste 2017.<sup>4</sup> See Section 3.

**Table 6 Potential waste types, classifications and management methods for demolition and construction**

Waste Types	NSW EPA Waste Classification	Proposed Management Method
<b>Demolition and Construction</b>		
Sediment fencing, geotextile materials	General solid waste (non-putrescible)	Reuse at other sites where possible or disposal to landfill
Concrete	General solid waste (non-putrescible)	Off-site recycling for filling, levelling or road base
Bricks and pavers	General solid waste (non-putrescible)	Cleaned for reuse as footings, broken bricks for internal walls, crushed for landscaping or driveway use, off-site recycling
Gyprock or plasterboard	General solid waste (non-putrescible)	Off-site recycling or returned to supplier
Sand or soil	General solid waste (non-putrescible)	Off-site recycling
Metals such as fittings, appliances and bulk electrical cabling, including copper and aluminium	General solid waste (non-putrescible)	Off-site recycling at metal recycling compounds and remainder to landfill
Conduits and pipes	General solid waste (non-putrescible)	Off-site recycling
Timber	General solid waste (non-putrescible)	Off-site recycling, Chip for landscaping, Sell for firewood Treated: reused for formwork, bridging, blocking, propping or second-hand supplier Untreated: reused for floorboards, fencing, furniture, mulched second hand supplier, and remainder to landscape supplies.
Doors, windows, fittings	General solid waste (non-putrescible)	Off-site recycling at second hand supplier
Insulation material	General solid waste (non-putrescible)	Off-site disposal
Glass	General solid waste (non-putrescible)	Off-site recycling, glazing or aggregate for concrete production
Asbestos	Hazardous waste	Off-site disposal to a licensed landfill facility.

<sup>2</sup> Available online from <https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines>

<sup>3</sup> Available online from <http://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/construction-demolition>

<sup>4</sup> <https://www.blacktown.nsw.gov.au/files/content/public/services/waste/demolition-and-construction-waste/western-sydney-recycling-directory-cd-updated-nov-2017.pdf>

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Fluorescent light fittings and bulbs	Hazardous waste	Off-site recycling or disposal, contact FluoroCycle for more information <sup>5</sup>
Paint	Hazardous waste	Off-site recycling, Paintback collection <sup>6</sup> or disposal
Synthetic rubber or carpet underlay	General solid waste (non-putrescible)	Off-site recycling, reprocessed for other uses
Ceramics including tiles	General solid waste (non-putrescible)	Off-site recycling
Carpet	General solid waste (non-putrescible)	Off-site recycling, disposal or reuse
<b>Packaging</b>		
Packaging materials, including wood, plastic, including stretch wrap or LDPE, cardboard and metals	General solid waste (non-putrescible)	Off-site recycling
Wooden or plastic crates and pallets	General solid waste (non-putrescible)	Reused for similar projects, returned to suppliers, or off-site recycling. Contact Business Recycling for more information <sup>7</sup>
<b>Work Compound and Associated Offices</b>		
Food Waste	General solid (putrescible) waste	Dispose to landfill with general garbage
Recyclable beverage containers, such as glass and plastic bottles, aluminium cans and steel cans	General solid waste (non-putrescible)	Recycling at off-site licensed facility or at NSW container deposit scheme (CDS) 'Return and Earn' facility <sup>8</sup>
Clean paper and cardboard	General solid waste (non-putrescible)	Paper and cardboard recycling at off-site licensed facility
General domestic waste generated by workers such as soiled paper and cardboard, food and polystyrene	General solid waste (non-putrescible) mixed with putrescible waste	Disposal at landfill

### 3.4 Demolition Waste Types and Quantities

In the absence of demolition waste generation rates or guides in the Blacktown DCP, SLR has adopted the waste generation rates for 'factory' from The Hills' DCP Appendix A for estimating the type and quantities of waste generated for demolition of the existing building. These rates are shown in Table 7 below.

**Table 7 Waste generation rates applied to existing building**

Rate Type	Area (m <sup>2</sup> )	Waste types and quantities (m <sup>3</sup> )				
		Timber/Gyprock	Concrete	Bricks	Metal	Other
Factory	1,000	124	7,410	1,485	29	155

The area for demolition and estimates of the associated waste quantities are shown in Table 8 below.

<sup>5</sup> Available online from <http://www.fluorocycle.org.au/> or <http://www.environment.gov.au/settlements/waste/lamp-mercury.html>

<sup>6</sup> Available online from <https://www.paintback.com.au/>

<sup>7</sup> Available online from <https://businessrecycling.com.au/>

<sup>8</sup> Available online from <http://returnandearn.org.au/>

**Table 8 Existing building demolition areas and quantities**

Section	Area for Demolition (m <sup>2</sup> )	Timber/Gyprock	Concrete	Bricks	Metal	Other
MRF	11,878	48	5,321	2,435	273	214

In addition, quantities of excavated soil have been calculated and are shown in Table 9.

**Table 9 Cut and fill quantities<sup>9</sup>**

Excavation	Area (m <sup>2</sup> )	Depth (m)	Volume (m <sup>3</sup> )
Cut	8,000	2.0	16,000
Cut	3,500	0.8	2,800
Fill	1,800	3.5	6,300
Fill	1,000	1.8	1,750
Fill	2,000	2.0	4,000
Net			6,750

The table shows that a net 6,750 m<sup>3</sup> of soil will be removed from the site for reuse elsewhere or disposal.

## 3.5 Construction Waste Types and Quantities

In the absence of construction waste generation rates or guides in the Blacktown DCP, SLR has adopted the waste generation rates for 'factory' and 'offices' from The Hills' DCP Appendix A for estimating the type and quantities of waste generated for construction of the MRF. We have also modified the waste generation rates to estimate the quantity of waste from hardstand construction.

The waste generation rates used are shown in Table 10 below.

**Table 10 Waste generation rates applied to MRF construction**

Area	Floor Area (m <sup>2</sup> )	Waste types and quantities (m <sup>3</sup> )						
		Timber	Concrete	Bricks	Gyprock	Sand or Soil	Metal	Other
Office	1,000	5.1	18.8	8.5	8.6	8.8	2.75	5
Factory	1,000	0.25	2.1	1.65	0.45	4.8	0.6	0.5
Hardstand	1,000	0.25	2.1			4.8	0.6	0.5

The waste generation rates in Table 10 have been used to estimate the quantities of waste generated from construction of the MRF and which are provided in Table 11.

**Table 11 Estimated types and quantities of construction waste**

Development Component	Area (m <sup>2</sup> )	Waste types and quantities (m <sup>3</sup> )						
		Timber	Concrete	Bricks	Gyprock	Sand or Soil	Metal	Other
Office	10,575 <sup>10</sup>	3	22	17	5	51	6	5
Factory	6,211 <sup>11</sup>	2	13			30	4	3

<sup>9</sup> From drawing named Site Plan, dated 9 April 2021, drawing number WSA-SK01(P1). File name Earthworks.pdf

<sup>10</sup> Operational Summary Blacktown MRF. July 2021. Prepared by: Peter Nguyen. Version:Final – Approved. Page 6

<sup>11</sup> 211274\_SKC01.01 [2].pdf

Development Component	Area (m <sup>2</sup> )	Waste types and quantities (m <sup>3</sup> )						
		Timber	Concrete	Bricks	Gyprock	Sand or Soil	Metal	Other
Hardstand	730 <sup>12</sup>	4	14	6	6	6	2	4
Total	17,516	8	49	24	11	87	12	12

## 3.6 Waste Avoidance Strategies

The Building Contractor, Building Designer and/or those in equivalent roles, should follow better practice waste management and the principles of Ecologically Sustainable Development.

Recommendations for the Building Designer include:

- Using prefabricated components
- Using low formaldehyde wood products, post-consumer reused timber and/or Forest Stewardship Council certified timber
- Using fittings and furnishings that have been recycled, are made from or incorporate recycled materials and have been certified as sustainable or environmentally friendly by a recognised third-party certification scheme
- Preferentially using building materials, fittings and furnishings, including structural framing, roofing and façade cladding, that have longer life and better re-use and recycling potential
- Reducing the use of polyvinyl chloride products
- Preferentially using paints, floor coverings and adhesives with low VOC (volatile organic compound) content
- Avoiding unsustainable timber imports including western red cedar, oregon, meranti, luan or merbau
- Selecting materials based on low embodied energy properties that suit the Project, such as recycled materials including recycled steel and glass-wool insulation, or concrete with slag and fly ash content
- Centralising wet areas together to minimise piping, and
- Designing for deconstruction rather than demolition.

Recommendations for the Building Contractor include:

- Applying practical building designs and construction techniques
- Minimising excavation works
- Investigating leased equipment and machinery rather than purchase and disposal
- Sorting and segregating site preparation and construction wastes to ensure efficient recycling of wastes
- Preferentially selecting building materials, fittings and furnishings, including structural framing, roofing and façade cladding, that have longer life and better re-use and recycling potential
- Store wastes on-site appropriately to prevent cross-contamination and/or mixing of different waste types
- Reducing packaging waste by:

<sup>12</sup> ATTACHMENT F - WSA-SK01(P1) Pavement Grading plan.pdf



Returning packaging to suppliers where practicable to reduce waste further along the supply chain

- Purchasing in bulk
- Requesting cardboard or metal drums rather than plastics
- Requesting metal straps rather than shrink wrap, and
- Using returnable packaging such as pallets and reels.
- Arranging deliveries 'as needed' to mitigate degradation, weathering or moisture damage, and
- Ensure subcontractors are informed of and implement site waste minimisation and management procedures.

### 3.7 Re-use, Recycling and Disposal

Effective management of materials and construction and demolition waste, including options for reuse and recycling where applicable and practicable, will be conducted. Only wastes that cannot be cost effectively reused or recycled are to be sent to landfill or appropriate disposal facilities.

In accordance with the best practice waste management, the following specific procedures should be implemented:

- Facilitate on-site source separation to ensure efficient recycling
- Concrete, tiles and bricks will be reused or recycled off-site
- Steel will be recycled off-site, and all other metals will be recycled where economically viable
- Framing timber will be recycled off-site
- Windows, doors and joinery will be recycled off-site, where possible
- All glass that can be economically recycled will be recycled
- All solid waste timber, brick, concrete, rock that cannot be reused or recycled will be taken to an appropriate facility for treatment to recover further resources or for disposal to landfill in an approved manner
- Facilitate re-use of materials on-site
- Provide separate waste bins for recyclable and non-recyclable general wastes
- Assess excavation spoil for contamination status and beneficial re-use
- Retain used crates for storage purposes unless damaged
- Recycle cardboard, glass and metal wastes
- Provide sufficient space for storage of garden waste and other waste materials on-site
- Dispose of all asbestos, hazardous and/or intractable wastes in accordance with SafeWork NSW and NSW EPA requirements
- All used crates will be stored for reuse unless damaged
- Deliver batteries to drop off-site recycling facility, and
- Where source separation is utilised, materials are to be kept uncontaminated to guarantee the highest possible re-use value.

## 3.8 Waste Segregation, Storage and Servicing

### 3.8.1 Waste Segregation and Storage

Waste materials produced from site preparation and construction activities are to be separated at the source and stored separately on-site.

It is anticipated that the Project will provide enough space on-site for separate storage in, for example, separate skip bins or appropriately managed stockpiles, of the following waste types:

- Bricks, concrete and scrap metal
- Metal and steel, in a condition suitable for recycling at metal recycling facilities
- Timber
- Glass
- Hardstand rubble
- Uncontaminated excavation spoil, if present
- Contaminated excavation spoil, if present
- Hazardous waste, if present
- Paper and cardboard
- General co-mingled recycling waste, and
- Non-recyclable general waste.

If there is insufficient space on-site for full segregation of waste types, the site manager, or equivalent role, should consult with the waste and recycling collection contractor to confirm which waste types may be co-mingled prior to removal from the site.

### 3.8.2 Waste Storage Areas

Waste storage areas will be accessible and allow sufficient space for storage and servicing requirements. The storage areas will also be flexible in order to cater for change of use throughout the project. Where space is restricted, dedicated stockpile areas are to be delineated on the site, with regular transfers to dedicated skip bins for sorting.

All waste placed in skips or bins for disposal or recycling will be adequately contained to ensure that the waste does not fall, blow, wash or otherwise escape from the site. Waste containers and storage areas are to be kept clean and in a good state of repair.

Storage spaces should include consideration for applicable weather protection measures. Plans showing storage areas are currently unavailable at this time.

In accordance with better practice waste management, areas designated for waste storage should:

- Allow unimpeded access by site personnel and waste disposal contractors
- Take into account environmental factors which could potentially cause an impact to the waste storage, such as slope, drainage and the location of watercourses and native vegetation

- Allow sufficient space for the storage of garden waste and other waste materials on-site
- Employ adequate environmental management controls to prevent off-site migration of waste materials and contamination from the waste. For example, consideration of slope, drainage, proximity relative to waterways, stormwater outlets and vegetation
- Consider visual amenity, safety and accessibility in their selection, and
- Not present hazards to human health or the environment.

### 3.8.3 Waste Servicing and Record Keeping

The Site Manager or equivalent role is to:

- Arrange for suitable waste collection contractors to remove any construction waste from site
- Ensure waste bins are not filled beyond recommended filling levels
- Ensure that all bins and loads of waste materials leaving site are covered
- Maintain waste disposal documentation detailing, at a minimum:
  - Descriptions and estimated amounts of all waste materials removed from site
  - Details of the waste and recycling collection contractors and facilities receiving the waste and recyclables
  - Records of waste and recycling collection vehicle movements, for example, date and time of loads removed, licence plate of collection vehicles, tip dockets from receiving facility, and
  - Waste classification documentation for materials disposed to off-site recycling or landfill facilities.
- Ensure lawful waste disposal records are readily accessible for inspection by regulatory authorities such as Council, SafeWork NSW or NSW EPA.

If skips and bins are reaching capacity, removal and replacement should be organised as soon as possible. All site generated building waste collected in the skips and bins will leave the site and be deposited in the approved site lawfully able to accept them.

### 3.8.4 Waste Servicing and Transport

The frequency of the waste removal will, in most cases, be dictated by the volume of material being deposited into each of the dedicated skip bins. All skips leaving the site will be covered with a suitable tarpaulin to ensure that the spillage of wastes from the skips while in transit is eliminated.

All site generated building waste collected in the skip bins will leave the site and be deposited in the approved recycling centre, transfer station or landfill site.

## 3.9 Signage

For best practice, standard signage is to be posted in all waste storage and collection areas. All waste containers should be labelled correctly and clearly to identify stored materials.

Signs approved by the NSW EPA for labelling of waste materials are available online<sup>13</sup> and should be used where applicable. A selection of signs prepared by NSW EPA is provided in Figure 2.



Figure 2 Examples of NSW EPA labels for waste and skip bins

### 3.10 Site Inductions

All staff, including sub-contractors and labourers, employed during the site preparation and construction phases must undergo induction training regarding waste management.

Induction training is to cover, as a minimum, an outline of the WMP including:

- Legal obligations and targets
- Emergency response procedures on-site
- Waste priorities and opportunities for reduction, reuse and recycling
- Waste storage locations and separation of waste
- Procedures for suspected contaminated and hazardous wastes
- Waste related signage
- The implications of poor waste management practices, and
- Responsibilities and reporting, including identification of personnel responsible for waste management and individual responsibilities.

### 3.11 Monitoring and Reporting

During the demolition and construction phases, the following monitoring practices will be undertaken to improve demolition and construction waste management and to obtain accurate waste generation figures:

- Conduct waste audits of current projects where feasible.
- Note waste generated and disposal methods.

<sup>13</sup> NSW EPA approved waste materials signage <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/standard-recycling-signs>

- Look at past waste disposal receipts.
- Record this information to track waste avoidance, reuse and recycling performance and to help in waste estimations for future waste management plans.

Records of waste volumes that are recycled, reused or contractor removed are to be maintained. Additionally, SLR recommends that dockets or receipts verifying recycling and disposal in accordance with this WMP are kept and presented to regulatory bodies when required.

Daily visual inspections of waste storage areas will be undertaken by site personnel and inspection checklists and logs recorded for reporting to the site manager or equivalent role on a weekly basis or as required. These inspections will be used to identify and rectify any resource and waste management issues.

SLR recommends waste audits are carried out by the building contractor or equivalent role to gauge the effectiveness and efficiency of waste segregation procedures and recycling and reuse initiatives. Where audits show that the above procedures are not carried out effectively, additional staff training will be undertaken and signage will be re-examined.

### 3.12 Roles and Responsibilities

All personnel have a responsibility for their own environmental performance and compliance with all legislation. It will be the responsibility of the site manager, or equivalent role, to implement the WMP, and the responsibility of employees and subcontractors to ensure that they comply with the WMP at all times.

Suggested roles and responsibilities for waste management at the site are provided in Table 12. Where possible, a construction environmental manager, or equivalent role, should be appointed for the site preparation and construction work. An equivalent construction environmental manager role is defined to be a person dedicated to overseeing the environmental compliance and performance of a development. Where a construction environmental manager is not appointed, responsibilities in Table 12 for the construction environmental manager will become those of the site manager.

Table 12 Suggested roles and responsibilities for site preparation, demolition and construction waste management

Role	Responsibilities
Site Manager	<ul style="list-style-type: none"><li>• Ensuring plant and equipment are well maintained</li><li>• Ordering only the required amount of materials</li><li>• Keeping materials segregated to maximise reuse and recycling</li><li>• Ensuring that waste sorting and storage areas are maintained in a tidy and functional state and do not present hazards to human health or the environment</li><li>• Ensure hazardous or contaminated materials are appropriately managed and disposed</li><li>• Ensure site records and documentation is kept and is complete</li><li>• Ensure this WMP are implemented, and</li><li>• Liaise with Council and regulatory authorities as required.</li></ul>

Role	Responsibilities
Construction Environmental Manager or equivalent	<ul style="list-style-type: none"> <li>• Ensuring staff and contractors are aware of site requirements for waste management</li> <li>• Establishing separate skips and stockpiles and recycling bins for effective waste segregation and recycling purposes</li> <li>• Developing or identifying, and using, local commercial opportunities for re-use of materials where re-use on-site is impractical</li> <li>• Facilitate correct waste collection</li> <li>• Engage suitable waste collection and disposal contractors</li> <li>• Approval of off-site waste disposal locations and checking licensing requirements</li> <li>• Arranging for the assessment of potentially hazardous or contaminated materials</li> <li>• Arranging for appropriate contaminated waste management and approval of off-site waste transport, disposal locations and checking licensing requirements</li> <li>• Monitor and maintain site environmental controls and</li> <li>• Monitoring, inspection and reporting requirements.</li> </ul>

## 4 Ongoing Waste and Recycling Management

### 4.1 SEARs Requirement

This section addresses the following SEARs requirements:

- Key issue - details of the waste management strategy for ongoing operational waste generated.
- NSW EPA - The waste transported, generated, or received as part of carrying out the activity should be minimised and managed in a way that protects all environmental values.

Methods by which staff waste will be minimised and managed in a way that protects all environmental values is explained in Sections 2, 3.6 and 3.7.

### 4.2 Targets for Resource Recovery

Targets for new development are expected to contribute to state specific targets. The NSW Waste and Sustainable Materials Strategy 2041 (DPIE, 2021) sets a target of 80% average recovery rate from all waste streams by 2030. Analysis by DPIE (2021) indicates that commercial and industrial waste recovery rates in 2019 were 53%.

It is anticipated that the waste minimisation measures in the following sections will assist Cleanaway to achieve this recycling rate. Waste reporting and audits can be used to determine the actual percentage of wastes that are being or have been recycled during operation.

### 4.3 Waste Streams and Classifications

The operation of MRF is anticipated to generate the following broad waste streams:

- General waste and commingled recycling
- Food and organic waste
- Amenity wastes
- E-waste
- Bulky waste items such as furniture
- Plant and general maintenance wastes.

Potential waste types, their associated waste classifications, and management methods are provided in Table 13. For further information on how to determine a waste's classification, refer to the NSW EPA (2014) Waste Classification Guidelines.<sup>14</sup>

<sup>14</sup> Available online from <https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines>

Table 13 Potential waste types, classifications and management methods for operational waste

Waste Types	NSW EPA Classification	Proposed Management Method
Clean office paper	General solid (non-putrescible) waste	Paper recycling at off-site licensed facility
Cardboard including bulky cardboard boxes	General solid (non-putrescible) waste	Placed into the appropriate recycling stream on site
Recyclable beverage containers, glass and plastic bottles, aluminium cans, steel cans	General solid (non-putrescible) waste	Placed into the appropriate recycling stream on site
Food waste	General solid (putrescible) waste	Dispose to landfill with general garbage
Batteries	Hazardous waste	Off-site recycling, alternatively contact the Australian Battery Recycling Initiative for more information
Mobile Phones	Hazardous waste	Off-site recycling, can be taken to several locations through the Mobile Muster program. Contact Mobile Muster for more information
Bulky polystyrene	General solid (non-putrescible) waste	Off-site recycling or disposal at landfill
Furniture	General solid (non-putrescible) waste	Off-site reuse or disposal to landfill
E-waste	Hazardous waste	Off-site recycling
Printer toners and ink cartridges	Hazardous waste	Off-site recycling, free disposal box or bags and pickup service exists for printer toners and ink cartridges
Packaging materials, including wood, plastic, including stretch wrap or LDPE, cardboard and metals	General solid waste (non-putrescible)	Off-site recycling
Wooden or plastic crates and pallets	General solid waste (non-putrescible)	Reused for similar projects, returned to suppliers, or off-site recycling.
Sanitary waste	General solid (putrescible) waste	Contractor disposal at licensed facility
General garbage, including non-recyclable plastics	General solid (putrescible and non-putrescible) waste	Placed into the appropriate waste stream on site
Spent smoke detectors <sup>15</sup>	General solid (non-putrescible) waste, or Hazardous waste (some commercial varieties)	Disposal to landfill, or off-site disposal at licensed facility
Glass, other than containers	General solid (non-putrescible) waste	Placed into the appropriate recycling stream on site
Light bulbs and fluorescent tubes	Hazardous waste	Off-site recycling or disposal, contact FluoroCycle for more information
Cleaning chemicals, solvents, area wash downs, empty oil or paint drums, chemical containers	Hazardous waste if containers used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming. General solid (non-putrescible) waste if containers cleaned by washing or vacuuming.	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility. Discharge to sewer likely to be subject to Trade Waste Agreement with Sydney Water.

<sup>15</sup> The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) require that when more than 10 smoke alarms (particularly americium-241 sources) are collected for bulk disposal they must be treated as radioactive waste and the requirements of the National Health and Medical Research Council's Code of practice for the near-surface disposal of radioactive waste in Australia (1992) must be met.



Waste Types	NSW EPA Classification	Proposed Management Method
Garden organics - lawn mowing, tree branches, hedge cuttings, leaves	General solid (non-putrescible) waste	Reuse on-site or contractor removal for recycling at licenced facility

## 4.4 Waste Management System Overview

The WMP has been prepared based on the operational waste generated from staff activities and includes office and lunchroom waste. Waste and recyclables generated from MRF processing are dealt with in Section 5.2.

## 4.5 Estimated Quantities of Staff Waste

Staff waste is waste generated from the day to day operation of the MRF and not waste generated by the MRF processing of recyclables. Waste and recyclables generated from MRF processing is covered in Section 5.2.

In the absence of waste generation rates in the Blacktown DCP, SLR has adopted waste generation rates for 'offices' published in the NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial Facilities.

These have been used for estimating the type and quantities of waste generated from office activities. Lunchroom waste has been estimated on the assumption that each person will generate 0.5 L of waste and 0.5 L of recyclable containers per shift. These waste generation rates are shown in Table 14 below.

**Table 14 Waste generation rates applied to staff activities**

Type of Premises	Measure	Garbage Generation	Recycling Generation
Office	L/100 m <sup>2</sup> /day	6	8
Lunchroom	Per person per shift	0.5	0.5

Using the waste generation rates in Table 14 above, the approximate weekly waste quantities for staff activities at the MRF have been calculated. The operational waste quantities were also calculated based on the following assumptions:

- The office areas shown in the file ATTACHMENT F - WSA-SK01(P1) Pavement Grading plan.pdf
- Offices will operate five days per week
- The MRF will operate seven days per week so the lunchroom will be in use every day
- Two MRF operational shifts per day
- A maximum of 40 people on site per shift.
- There will be no separation of food for recovery
- The office recycling stream is comprised of 98% paper and cardboard and 2% recyclable containers
- The lunchroom recycling stream is 100% recyclable containers.

The estimated quantities of staff waste generated at the MRF are shown in Table 15 below.

Table 15 Estimates of staff waste quantities

Area	Measure	Number of Shifts	Number of Days Operation per Week	Quantities per week (L)		
				Garbage	Recyclable Containers	Paper and Cardboard
Offices	730 m <sup>2</sup>	1	5	29.1	7.1	285
Lunchroom	40 people	2	7	280	280	0
Total				499	287	285

## 4.6 Waste Storage Area Size

### 4.6.1 Bin numbers and space

Table 16 below shows the proposed number of bins for staff waste and the space required to store it.

Table 16 Bin numbers and storage area

Material Stream	Quantity per Week (L)	Bin Capacity (L)	Collection Frequency per Week	Number of Bins	Storage Space Required (m <sup>2</sup> )
Garbage	499	240	1	3	1.3
Recyclable Containers	287			2	0.85
Paper and Cardboard	285			2	0.85
Total				7	3.0
Total including space for access and manoeuvring					6.0

### 4.6.2 Additional Operational Waste

In addition to the estimated quantities of waste and recycling listed above, the MRF may also produce:

- Green waste from landscaping activities
- Confidential documents from staff and management activities
- Damaged and broken furniture
- E-waste.

Any garden organic landscaping waste will be taken by a landscaping contractor who will dispose of it at a garden organics processing facility.

Confidential documents will be disposed in 240 L bins in office areas. A private contractor will be responsible for the collection, shredding and recycling of secured documents, and will collect the bins as needed.

The MRF is likely to generate e-waste from computer parts, keyboards and other peripherals, and cabling. A waste contractor should be engaged to collect e-waste for recycling and ensure it is recycled responsibly. An arrangement could be made with the supplier of computer and electronic equipment. E-waste may be stored in the waste storage room or in another room for this material. Packaging waste for electronic products should be returned to the supplier.

## 4.7 Waste storage area features

In accordance with better practice waste management the following measures will be implemented for waste management:

- Residual waste will be disposed of through the garbage stream at the MRF
- Recyclable cardboard and containers will be disposed of through appropriate streams at the MRF
- A waste contractor may be engaged to remove high quality office paper if this material cannot be recycled at the MRF
- All practical measures are taken to ensure that the storage areas do not cause offensive odours.
- Doors and gates to the waste storage area will be able to be opened from both the inside and outside and wide enough to allow for easy passage of waste and recycling containers.
- Arrangements will be in place for the transfer of recyclable materials and general waste from the offices and lunchroom to the waste and recycling storage area.

## 4.8 Waste Avoidance, Reuse and Recycling

### 4.8.1 Waste avoidance

Waste avoidance measures include:

- Returning packaging materials like cardboard to the suppliers through the services of the supplier delivery trucks, allowing the reduction of waste further along the supply chain
- Providing ceramic cups, mugs, crockery and cutlery rather than disposable items
- Bulk purchasing and the purchasing of items that use minimal packaging
- Presenting all waste reduction initiatives to staff and tenants as part of their induction program, and
- Leasing equipment and machinery rather than outright purchase and disposal.

### 4.8.2 Re-use

Possible re-use opportunities include establishing systems with in-house and supply chain stakeholders to transport products in re-useable packaging where possible.

### 4.8.3 Recycling

Recycling opportunities include:

- Collecting and recycling e-wastes
- Printer toners and ink cartridges, if purchased, are collected in allocated bins for appropriate contractor recycling
- Paper recycling trays provided in communal and staff areas for scrap paper collection and recycling
- Providing separate receptacles for general waste, recycling and paper and cardboard throughout public areas, as well as within staff areas, to encourage source-separation of waste streams

- Work with tenants to investigate opportunities for the use of recycled paper bags or reusable bags in place of plastics bags
- Separating, by a reasonable distance, the storage areas for recyclables from the general waste storage areas to avoid cross contamination, and
- Development of 'buy recycled' purchasing policy.

## 4.9 Litter Management

For the health and safety of staff and visitors, careful consideration should be given to litter management. Good practice litter management is encouraged to reduce the impact of the Development on the surrounding environment, increase amenity for visitors, tenants and staff and minimise the likelihood of vermin and insects.

Good practice litter management controls include the following:

- The placement of general waste and comingled recycling bins in easily accessible areas including in offices and lunchrooms as well as walkways and aisles, inside kitchen areas and at pedestrian entry and exit points to the car parks
- The use of water refillers and bubblers to discourage the use of single use plastic water bottles
- The use of clear signage throughout the Development to label bins, direct visitors and staff to bin locations and encourage disposal of waste and recyclables in an appropriate way. Signage is further discussed in Section 4.11
- Training of staff, cleaners and contractors on litter management issues and controls
- Regular litter collections
- Cultivating a culture of positive attitudes towards litter reduction
- Using accessible communication platforms, including the distribution of e-newsletters, texts, messages on invoices or signage around the premises to inform staff of the MRF's commitment to the environment, and
- Promotion or sale of branded reusable items, such as Keep Cups and reusable bottles, to discourage the use of single-use plastic cups and bottles.

## 4.10 Communication Strategies

Education and communication on waste management initiatives and measures should be regularly and clearly conveyed to staff and visitors. This assists in overcoming the transient nature of staff and visitors. Benefits of providing this communication include:

- Increased ability and willingness to participate in recycling
- Improved amenity and safety
- Increased awareness or achievement of environmental goals and targets
- Reduced contamination of recyclables stream
- Increased recovery of recyclables and organic material, if implemented, and
- Greater contribution to state-wide targets for waste reduction and resource recovery.

To realise these benefits, the following communication strategies is recommended for the MRF Manager:

- Use consistent signage and colour coding throughout the MRF
- Ensure all staff are informed of correct waste separation and management procedures
- Provide directional signage to show locations and routes to waste storage areas
- Repair signs and labels promptly to avoid a breakdown in communication
- Clearly label general and comingled waste bins to ensure no cross contamination and to identify the types of waste that may be disposed of in each bin, and
- Educate all staff and contractors associated with the Development, ensuring they adhere to this WMP.

## 4.11 Signage

Signs which clearly identify waste management procedures and provisions to contractors, tenants and visitors should be distributed around the MRF.

The design and use of safety signs for waste rooms and enclosures should comply with Australian Standard AS 1319 Safety Signs for the Occupational Environment and clearly describe the types of materials designated for each bin.

Colour-coded and labelled bin lids are necessary for identifying bins and the Australian Standard AS 4123.7-2006 (R2017) Mobile waste containers Part 7: Colours, markings, and designation requirements provides recommendations for the designated colours for waste bins depending on the type of waste the bins are to receive. The colours anticipated to apply to ongoing waste generated by the Development are:

- Blue: Paper and cardboard
- Yellow: Recyclables (other than paper and cardboard)
- Red: General waste
- Green: Food waste and garden organics.

All bin signage should also follow the NSW EPA's standard signage.<sup>16</sup>

Other key signage considerations are:

- Clear and correct labelling on all waste and recycling bins, indicating the correct type or types of waste that can be placed into a given bin, as shown in Figure 3
- Signposts and directions to location of waste storage areas
- Clear signage in all waste storage areas to instruct users how to correctly separate waste and recycling
- Maintaining a consistent style colour scheme that complies with AS 4123, and a system for signs throughout the MRF, and
- Emergency contact information for reporting issues associated with waste or recycling management.

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<sup>16</sup> NSW EPA waste signs/posters <http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>



Figure 3 Example NSW EPA labels for ongoing waste

## 4.12 Monitoring and Reporting

Monitoring is recommended to ensure waste and recycling management arrangements and provisions for the Project are functional, practical and are maintained to the standard outlined in this plan, at a minimum.

During MRF operation, visual assessments of bins and bin storage areas should be conducted by the MRF Manager or their staff, at minimum:

- Weekly, in the first two months of operation to ensure the waste management system is sufficient for the operation, and
- Every six months, to ensure waste is being managed to the standards outlined in this document.

In addition, audits should be conducted regularly to ensure WMP provisions are maintained.

Any deficiencies identified in the waste management system, including, unexpected waste quantities, is to be rectified by the MRF Manager as soon as it is practical. Where audits show that recycling is not carried out effectively, management should carry out additional staff training, signage re-examination and reviews of the waste management system where the audit or other reviewing body has deemed necessary. If this waste management plan no longer sufficiently meets the needs of the MRF, review and updates to maintain suitability must be undertaken.

## 4.13 Roles and Responsibilities

It is the responsibility of the MRF Manager, or equivalent role, to implement this WMP and a responsibility of all staff and contractors to follow the waste management procedures set out by the WMP. All subcontractors should have the roles and responsibilities of all waste management personnel identified and the MRF's waste management system clearly explained. A summary of recommended roles and responsibilities are provided in Table 17.

Table 17 Suggested operational waste-related roles and responsibilities

Responsible Person	General Tasks
MRF Manager or equivalent role	Ensure the WMP is implemented throughout the life of the MRF.
	Update the WMP as needed to ensure the plan remains applicable to the site.
	Undertake liaison and management of contracted waste and recycling collections with Council, contractors and any relevant authorities.
	Regularly conduct waste audits to review system performance and identify any additional materials that could be recovered.
	Manage any complaints and non-compliances reported through waste audits and other sources.
	Ensure all monitoring and audit results are well documented and conducted as specified in this WMP.
	Conduct regular waste sorting, physical condition and cleanliness inspections of bins, waste storage rooms and all other waste management equipment for functionality, hygiene and safety.
	Organise cleaning and maintenance requirements for waste management equipment as required.
	Ensure waste and recycling storage rooms are kept tidy.
	Monitor bins to ensure no overfilling occurs and manage unexpected waste quantities to mitigate waste overflow in storage areas
	Ensure effective signage, communication and education is provided to alert visitors, employees, site management staff and cleaners about the provisions of this WMP and waste management equipment use requirements.
	Monitor and maintain signage to ensure it remains clean, clear and applicable.
	Manage ongoing education on correct source separation and waste management at least every three months.
	Ensure that regular cleaning and daily transfer of bins is correctly being undertaken by the cleaners.
	Ensure all waste bins and equipment are maintained and operational.
	Ultimately responsible for the management of all waste management equipment, cleaning requirements, waste transfer and collection arrangements.
Cleaners and caretakers	Transfer general waste, recyclables, cardboard and other waste from staff areas to the waste and recycling storage areas as required.
	Maintain bins and other equipment and ensure bins are not damaged or broken.
	Cleaning of all bins and waste and recycling rooms as required.
	Monitor bins to ensure no overfilling occurs.
	Ensure bins and waste storage areas are kept tidy and clean.
	Compliance with the provisions of this WMP.
Staff	Transfer general waste, recyclables, cardboard and other waste to allocated waste and recycling storage areas as required.
	Adhere to all waste management directions and comply with this WMP and other waste management provisions as specified by the MRF Manager.

## 5 SEARs Requirements

### 5.1 Waste stream description

The SEARs Key issues requirement is a description of each of the waste streams that would be accepted at the facility including maximum daily, weekly, and annual throughputs and the maximum size and heights of individual stockpiles and

The NSW EPA SEARs requirement is a maximum amount of waste to be stored at any one time and maximum annual throughput.

The material to be processed at the MRF will include, paper, cardboard, glass, aluminium, plastics, steel and other recyclables collected from kerbside recycling bins, those with yellow lids, in Blacktown Council area.<sup>17</sup>

Table 20 shows these materials are shown with their waste classifications under NSW EPA (2014) Waste Classification Guidelines<sup>18</sup> and Schedule 1 of the Protection of the Environment Operations Act 1997<sup>19</sup>.

**Table 18 Materials Feedstock Classifications**

Commodity	2014 Waste Classification Guidelines	PoEO Act Schedule 1 <sup>20</sup>
ONP	General solid waste (non-putrescible)	General solid waste (non-putrescible)
Mixed Paper	General solid waste (non-putrescible)	General solid waste (non-putrescible)
OCC	General solid waste (non-putrescible)	General solid waste (non-putrescible)
HDPE	General solid waste (non-putrescible)	General solid waste (non-putrescible)
PET Clear <sup>21</sup>	General solid waste (non-putrescible)	General solid waste (non-putrescible)
PET Colour <sup>22</sup>	General solid waste (non-putrescible)	General solid waste (non-putrescible)
LDPE	General solid waste (non-putrescible)	General solid waste (non-putrescible)
Mixed Plastics	General solid waste (non-putrescible)	General solid waste (non-putrescible)
Aluminium	General solid waste (non-putrescible)	General solid waste (non-putrescible)
Steel	General solid waste (non-putrescible)	General solid waste (non-putrescible)
Glass <sup>23</sup>	General solid waste (non-putrescible)	General solid waste (non-putrescible)
Waste	General solid (putrescible) waste	General solid (putrescible) waste
Polypropylene	General solid waste (non-putrescible)	General solid waste (non-putrescible)
Non-putrescible Waste	General solid waste (non-putrescible)	General solid waste (non-putrescible)
Putrescible Waste	General solid (putrescible) waste	General solid (putrescible) waste
Batteries	Hazardous waste	Hazardous waste
Paint	Hazardous waste	Hazardous waste
Oils and solvents	Hazardous waste	Hazardous waste
Gas cylinders	Hazardous waste	Hazardous waste
Fire extinguishers	Hazardous waste	Hazardous waste
Timber	General solid waste (non-putrescible)	General solid waste (non-putrescible)

<sup>17</sup> State Environmental Planning Policy No. 33. 600 Woodstock Avenue, Glendenning. Cleanaway Pty Ltd. Document No. RCE-21217\_Cleanaway\_SEPP33\_Draft\_6Dec21\_Rev(A). Date 6/12/2021 Prepared by Riskcon Engineering Pty Ltd page 5

<sup>18</sup> Available online from <https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines>

<sup>19</sup> Available online from <https://legislation.nsw.gov.au/view/whole/html/inforce/current/act-1997-156#sch.1>

<sup>20</sup> Part 3 Definitions. Division 1 Waste classifications

<sup>21</sup> Composition of NSW CDS may affect data

<sup>22</sup> Composition of NSW CDS may affect data

<sup>23</sup> Composition of NSW CDS may affect data



Commodity	2014 Waste Classification Guidelines	PoEO Act Schedule 1 <sup>20</sup>
Bricks, tiles, masonry, concrete	General solid waste (non-putrescible)	General solid waste (non-putrescible)
Liquid filled containers	General solid (putrescible) waste	General solid (putrescible) waste
Bulky plastics	General solid waste (non-putrescible)	General solid waste (non-putrescible)
Bulky metals	General solid waste (non-putrescible)	General solid waste (non-putrescible)
Plastic film	General solid waste (non-putrescible)	General solid waste (non-putrescible)
E-waste		
Hazardous waste	Hazardous waste	Hazardous waste
Inert heavy waste	General solid waste (non-putrescible)	General solid waste (non-putrescible)
Liquid waste (leachate)		
Spillage	General solid waste (non-putrescible)	General solid waste (non-putrescible)

For further information on how to determine a waste's classification refer to the NSW EPA (2014) Waste Classification Guidelines.<sup>24</sup>

### 5.1.1 Maximum size and heights of individual stockpiles

Incoming feedstock will be contained in six separate bunkers. Five bunkers for mixed recyclables and one for a glass silo. Bunkers will be divided by 5 m high masonry walls. No other stockpiles are proposed. The height of the feedstock stockpiles will not exceed 4 m.<sup>25,26</sup> Each mixed recyclables bunker will hold approximately 1,000 m<sup>3</sup> of feedstock. See Figure 5.

### 5.1.2 Maximum daily, weekly, and annual throughputs

Table 19 below shows the potential operating capacity of the MRF under four scenarios assuming 260 operating days per year:

- 288 t over 13.1 hours per day for a total of 75,000 t per year
- 327 t over 14.9 hours per day for a total of 85,000 t per year
- 365 t over 16.6 hours per day for a total of 95,000 t per year
- 404 t over 18.4 hours per day for a total of 105,000 t per year
- 462 t over 21.0 hours per day for a total of 120,000 t per year.

Table 19 Potential Operating Capacity<sup>27</sup>

Commingled Tonnes per Year			75,000	85,000	95,000	105,000	120,000
Product	Input %	Output %					
Cardboard	12.0%	11.6%	8,672	9,828	10,984	12,141	13,875
ONP (Old newspaper)	4.0%	0.0%	-	-	-	-	-
Mixed Paper	29.9%	33.9%	25,453	28,847	32,241	35,634	40,725
Pet Clear	1.5%	1.4%	1,065	1,206	1,348	1,490	1,703
Pet Colour	0.2%	0.0%	-	-	-	-	-
HDPE Natural	1.3%	1.2%	920	1,043	1,166	1,288	1,472

<sup>24</sup> Available online from <https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines>

<sup>25</sup> Operational Summary Blacktown MRF. July 2021. Prepared by: Peter Nguyen. Version: Final – Approved. Page 6

<sup>26</sup> Fire and Incident Management Report. Cleanaway Blacktown MRF. 600 Woodstock Ave, Rooty Hill, NSW, 2766. 08 December 2021 | Final Issue | Report No F201590\_FSS\_01. Prepared by Core Engineering. Page ii

<sup>27</sup> CWY Blacktown 22 tph MRF projected output tonnes 11 Feb 2022.xlsx

Commingled Tonnes per Year			75,000	85,000	95,000	105,000	120,000
Product	Input %	Output %					
HDPE Colour	0.8%	0.8%	588	666	745	823	940
Mixed Plastic	0.4%	0.8%	578	655	732	809	924
Polypropylene	0.8%	0.7%	552	626	699	773	883
PVC	0.0%	0.0%	-	-	-	-	-
Other	0.0%	0.0%	-	-	-	-	-
Ferrous Metal	2.1%	1.9%	1,437	1,628	1,820	2,011	2,299
Non-Ferrous Metal	0.4%	0.4%	280	317	355	392	448
Glass	24.5%	24.5%	18,365	20,814	23,263	25,711	29,384
Bulky Plastics	0.3%	0.3%	217	246	275	304	348
Bulky Metals	0.9%	0.9%	675	765	855	945	1,080
Film	1.25%	0.0%					-
Non-putrescible Waste	17.7%	19.6%	14,713	16,675	18,637	20,599	23,541
Putrescible Waste	2.0%	2.0%	1,485	1,683	1,881	2,079	2,376
Total	100.0%	100.0%	75,000	85,000	95,000	105,000	120,000

The figures above assume the feedstock composition shown in Table 20 below. The waste classifications are those shown in Table 18.

**Table 20 Materials Feedstock Composition**

Commodity	Feedstock Materials Composition as a Percent of Total Weight	Plus or minus
ONP	10%	5%
Mixed Paper	25%	5%
OCC	12%	5%
HDPE	1.6%	0.5%
PET Clear <sup>28</sup>	1.5%	0.5%
PET Colour <sup>29</sup>	0.2%	0.2%
LDPE	0.75%	0.5%
Mixed Plastics	1%	0.5%
Aluminium	1%	0.5%
Steel	3%	1%
Glass <sup>30</sup>	28%	5%
Waste	20%	5%
Polypropylene	0.5%	0.5%
Batteries		
Paint		
Oils and solvents		

### 5.1.3 Maximum amount stored on site

Table 21 below shows the maximum quantity of product material that is proposed to be stored on site at any one time.

<sup>28</sup> Composition of NSW CDS may affect data

<sup>29</sup> Composition of NSW CDS may affect data

<sup>30</sup> Composition of NSW CDS may affect data

Table 21 Maximum quantity of product stored on site<sup>31</sup>

Product Types	Bale Weight (kg)	Number of Bales	Total Weight (t)
Steel	450	108	48
Aluminium	250	96	24
OCC (oversize commercial cardboard)	1100	252	277
MXD Paper	1100	252	277
PET Clear	350	96	33
PET Colour	350	96	33
PVC	350	96	33
HDPE Natural	350	96	33
HDPE Colour	350	96	33
PP	350	96	33
Glass		Silo	150
Waste	1000	144	144
Total		1428	1122.6

In the main receival hall each bay holds approximately 1000 m<sup>3</sup> of material at a density of 100 kg/m<sup>3</sup>. Each bay therefore, will hold about 100 t of delivered material. There are five bays, so the total capacity is 500 t of material.

The total material that could be stored on site, including both unprocessed feedstock and processed, baled and stored product is approximately 1622 t.<sup>32</sup>

## 5.2 MRF Processing Waste Management

### 5.2.1 Feedstock Sources

The SEARs requirement is Key issue Details of the source of the feedstock streams to justify the need for the proposed processing capacity.

The material to be processed at the MRF originates primarily from the contents of the domestic kerbside recycling bins in Blacktown City Council area.<sup>33,34</sup> Council has awarded Cleanaway the contract for the development and operation of the new MRF for this purpose.

The MRF will also be designed to be able to accommodate additional cardboard from Cleanaway's commercial customers<sup>35</sup> increasing recycling processing capacity in Sydney. These customer will be producers of clean cardboard such as shopping centres and major retailers. Commercial agreements will be put into place to ensure cardboard quality with these suppliers.

<sup>31</sup> Australian Bale Press. Blacktown MRF. SEARS – SLR. 12 January 2022

<sup>32</sup> Australian Bale Press. Blacktown MRF. SEARS – SLR. 12 January 2022

<sup>33</sup> Request for Proposal. Proposed Cleanaway Depot. Western Sydney MRF. Blacktown Municipality. May 2021. Revision 2, page 3

<sup>34</sup> Fire and Incident Management Report. Cleanaway Blacktown MRF. 600 Woodstock Ave, Rooty Hill, NSW, 2766. 08 December 2021 | Final Issue | Report No F201590\_FSS\_01. Prepared by Core Engineering. Page ii

<sup>35</sup> Operational Summary Blacktown MRF. July 2021. Prepared by: Peter Nguyen. Version:Final – Approved. Page 6

### 5.2.2 Waste Processing Operations

The SEARs requirement is Key issue a description of waste processing operations, including flow diagrams for each waste stream.

The MRF will be designed to be capable of operating 24 hours per day, seven days per week.<sup>36</sup>

Co-mingled material will be delivered to site by Cleanaway's kerbside collection vehicles under contract to Blacktown City Council. The contents of the vehicles will be discharged into one of five mixed recyclables bunkers on the southern side of the facility. A grab arm will remove any hazardous or undesirable items before a wheeled loader pushes the stockpiles onto a conveyor that leads into the sorting and processing facility.

The recyclables will be divided into component materials using a combination of physical separation processes, including:

- Ballistic and bounce screens
- Magnetic separators
- Optical sorting units
- Air separators.

Solid waste materials that have no value will be separated, placed in a compactor and sent to landfill. Liquid filled containers will be drained into stainless steel tanks.

Valuable material such as paper, plastic, and metal will be stored in hoppers and then baled. Forklifts will transport bins and bales around the facility as required. Baled product will be sent to the storage warehouse from where it will be loaded into articulated heavy vehicles for transport to markets.<sup>37</sup> Recovered glass will be stored in a silo bunker.<sup>38</sup>

A piping and instrumentation diagram showing each element of the MRF, and a mass balance flow diagram, can be found in Appendix B.

### 5.2.3 Technology, outputs and quality control

The SEARs requirement is Key issue A description of the technology to be installed, resource outputs, and the quality control measures that would be implemented.

#### 5.2.3.1 Separation equipment<sup>39,40</sup>

The plant will consist of two independent 12 tonne per hour lines with the aim of processing up to 400 tonnes per day over two 8.5 hour shifts at 85% availability. Up to half an hour will be allowed for team plant cleaning.

<sup>36</sup> Request for Proposal. Proposed Cleanaway Depot. Western Sydney MRF. Blacktown Municipality. May 2021. Revision 2, page 6

<sup>37</sup> Fire and Incident Management Report. Cleanaway Blacktown MRF. 600 Woodstock Ave, Rooty Hill, NSW, 2766. 08 December 2021 | Final Issue | Report No F201590\_FSS\_01. Prepared by Core Engineering. Page 13

<sup>38</sup> Proposal for the Design & Engineering, Equipment Supply and Integration of the Material Recycling Facility (MRF) at Blacktown, NSW Proposal No. ABP-CBP180621. Australian Bale Press.

<sup>39</sup> Proposal for the Design & Engineering, Equipment Supply and Integration of the Material Recycling Facility (MRF) at Blacktown, NSW Proposal No. ABP-CBP180621. Australian Bale Press.

<sup>40</sup> Australian Bale Press. 16 August 2021. Cleanaway MRF Plant Building Requirements. 22 TPH MRF Blacktown.

Each processing line can run fully independently offering 50% redundancy for material delivery through the screening and optical lines and into the fibre (paper and cardboard) baling system. The container line is on the critical processing path and cannot be bypassed, so there is only one each of the mega bounce, ballistic screen and optic fibre quality control pairs of sorting units.

A list of the sorting equipment proposed for the facility is as follows:

- Full plastics optical sorting system
- Fibre and container baler
- Five fibre and four plastic optical sorting units
- Two ballistic separators
- Two air separators
- One OCC screen
- Two magnets
- Three air compressors dryers and receiver
- Primary vibratory louver screen
- Mega bounce network system
- Three-deck glass breaker screens
- 3 m glass breaker distribution screen feed to bounce network
- Commercial recyclables sorting conveyor system
- Plastic film venturi system
- SCADA electrical control system.

A key feature of the design is a move away from traditional high-maintenance rubber disc screens to the low maintenance, safe and easy to clean efficiency of ballistic separators. All conveyors are Australian Bale Press's generic design.

The plant is a 'glass clean-up plant' that produces finished glass cullet into an automated truck loading silo bunker fitted with hydraulic doors, shuttle transfer truck loading conveyors and auto bunker self-leveling transfer auger conveyors which keeps all finished glass material within the building.

Finished baled materials will be contained and separated by multiple concrete bunkers for fire containment product separation while providing vehicle drive-through access for internal material loading.

Fibre quality is managed by Australian Bale Press's mega bounce system, ballistic separators, optical sorters and final manual quality control multi sorting station. This produces two grades of fibre OCC and mixed paper. At the proposed 22 t/hour input material processing rate, fibre grades are expected to have less than 1% contamination before final manual quality control.

The system design and quality of the optical technology will ensure the finished product has less than 1% 'prohibitive' and less than 2% 'outthrows' before material presentation to the final manual quality control stations.

The ballistic screen offers a three-way separation with fines and small contaminants passing through, containers ejected of the end and fibre passing over the top. Australian Bale Press proposes a 4 m wide screening deck to primarily screen fibre to a high quality and great fibre singulation feeding onto the first fibre optical sorting units.

Optical units supplied by Tomra will have every sorting functional parameter currently available. Each machine has fibre, profile definition and metal recognition capability to target a range of materials, including black-coloured materials such as polystyrene food trays and black textiles. All optics are also capable of identifying liquidpaperboard and other foil-lined containers and removing them from both the fibre and container streams.

Plastics can be sorted into seven final products. These are:

- PET clear
- PET colour
- HDPE natural,
- HDPE colour
- Polypropylene
- PVC and
- Residual plastic.

The optical sorting units allow for the highest sorting quality and control diagnostics with dual eject functionality delivering two positive ejections of selected products quality controlled by one final negative ejection to exceed 99.5% finished plastic product quality. The plastics system design offers material return in a continuous loop to maximise recovery and secondary offer quality control system for exceptional high-quality finished product. Manual quality control is limited to the product inspection of the steel container stream to remove hazardous metal containers before baling.

Mega bounce and ballistic screens will be used for the following key reasons:

- To reduce the risk of fire
- Lower wear on the surface of the ballistic screen deck
- Quicker and easier cleaning
- Ease of access for service and maintenance
- Lower work health and safety risk.
- Constant deck and screening aperture
- Higher plant availability due to reduced wrapping and jamming issues.

To process large commercial recyclable materials and feedstock with waste proportions as high as 25%, the following systems are proposed:

- A pre-sort station before a louver sizing screen to remove bulky metals, bulk contaminants, hazardous waste materials and general waste.
- A louver screen to separate the majority of 80 mm minus glass initially, which is sent directly to the glass clean-up system. No metal disc screen required so there will be no blockages or material jams.

- The louver screen then separates a 300 mm minus fraction to present an 80-300 mm sized material to the second pre-sorting line. After waste and contaminants are removed the materials then flow onto the glass breaker screen to remove the remaining glass material. Sorting personnel can more effectively remove materials that could jam in the screen.
- The material that passes over the louver screen is principally 300 mm plus cardboard. Material passes on to oversize conveyors to the third pre-sorting line which remove gross contaminants, bulky metals bulky plastics and larger general waste materials.
- After the oversize sorting station, all material passes over a spiral screen to remove smaller recyclable materials that were not removed at the louver screen. This provides a quality screen sort for all OCC material. The spiral screen has a very low risk of blocking or jamming compared to conventional OCC disc screens. It is also low maintenance and has low cleaning requirements as the action of the spirals are self-cleaning.

The glass processing line focusses on the removal of contamination present in mixed glass. In the clean-up process, metals such as aluminium, steel, brass and copper are recovered. Contaminates such as plastics, fibre and organics are removed from the finished glass cullet.

Plastics, fibre and organics are removed and forwarded to the non-putrescible waste bunker. Using a trommel, glass is split into two size fractions, under 14 mm and 14-50 mm.

Air separators clean-up each fraction of glass and transfer the cullet to the holding silo. Over 50 mm material passes over an eddy current to remove aluminium with the balance of material transferring to the non-putrescible waste bunker for baling.

Containers are continuously removed throughout the plant's product separation process. As containers are removed, they are sent to the mega bounce system. The bounce network removes a clean stream of containers and recovers fibre to present to the mixed paper ballistic screens. Each of the two ballistic screens remove containers, the primary OCC spiral and glass breaker screens remove containers, each of the four main fibre optics eject containers and the final manual quality control personnel also remove containers to ensure optimised recovery of commodities.

The main container line passes through an extensive container clean-up and separation process for each of the container material fractions avoiding cross contamination and using an overband magnet, air separator, eddy current and an optical sorter to yield high quality steel and aluminium product.

A clean mixed plastic feed stock material is sent to the plastic optic sorting system.

The Container Quality Control Optic 6 unit ejects recoverable fibre as one stream and waste and outthrows together. This high-level optical sorting equipment enables removal of foil-lined containers which would otherwise contaminate both the aluminium and mixed paper final product streams. This machine can remove selected plastics such as food trays, plastic high thermal PET clam shells, drinking cups and packaging.

All containers travel past magnetic separation and are then sent to an air separator to remove heavy material and liquid-filled, or particularly liquid-filled, plastic bottles. This heavy fraction passes a manual sorting station to remove books and rolled newspapers, which are sent to a fibre return line, metals such as aluminium pots and pans, stainless and brass items along with bricks and wood.

The air system is very effective in removing nappies, cordless batteries, hard plastic toys and tools, shoes and other heavy, three-dimensional contaminants. The process allows waste to pass and positively sorts liquid-filled plastic bottles into a series of perforators that puncture and drain liquids into stainless tanks before returning these containers to the plastic optic sorting system. This system maximises the recovery of mostly PET, which has both commercial and CDS value, while containing liquids and managing both work, health and safety risks and cleanliness of the site.

A diagram of the process showing the location of these elements can be found in Appendix C.

#### 5.2.3.2 Vehicles and Mobile Plant

Vehicles proposed for the MRF include:

- One 26 m B-double for product storage and MRF glass outbound
- One 19 m articulated vehicle for product storage and MRF glass outbound
- One 12 m rigid vehicle for OCC receival, packer putrescible waste, bulky metal, comingled receival
- One Komatsu WA 480-6 wheel loader, or similar.<sup>41</sup>

A materials handling machine with a 14 m reach and grapple attachment will be used to remove hazardous or other undesirable contaminants from feedstock in the receival bunkers.

No designated area for parking mobile plant has been made although this will be subject to the final design by the design and construct tenderer. However, the front-end loader will be parked in one of the feedstock bunkers and the two gas powered forklifts will be parked in the bailed product area.

#### 5.2.3.3 Quality Control

Incoming materials will be inspected in the five bays in the main receival hall. Loads suspected to contain hazardous material will be isolated to a single receival bay until they can be inspected and photographed.

The inbound kerbside delivery and inspection process for non-conforming waste is described below.

All trucks delivering kerbside material to the main receival hall will be directed to unload at the front of the main pile of a specific bay no closer than 4 m. The loader driver will inspect the load once the truck has departed. The loader driver will look for the following:

1. Smoke or flames indicating a hot load. If smoke or flames are observed, Cleanaway fire procedures will be followed to isolate and contain the hot load.
2. Excessive contamination. If excessive contamination is observed Cleanaway's procedure for contaminated loads will be followed. The MRF Manager will be informed, photos taken, and the occurrence documented. The load will be removed from the main receival hall and disposed of appropriately.

Inbound commercial cardboard loads will be deposited at the commercial OCC receival area, well away from other cardboard, so the load can be inspected for contamination or signs of a hot load, prior to being pushed onto the baler feed conveyor. Cleanaway's policies for hot loads and contaminated loads will be followed if an incident occurs.

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<sup>41</sup> Request for Proposal. Proposed Cleanaway Depot. Western Sydney MRF. Blacktown Municipality. May 2021. Revision 2, page 7



Non-putrescible waste will be held in a bunker conveyor and baled for distribution to the PEF<sup>42</sup> Plant. Putrescible waste will be contained in sealed 30 m<sup>3</sup> compactor bin for delivery to landfill.

The procedure for loads not accepted at the site will be broadly as follows:<sup>43</sup>

- If waste is identified that is not allowed on site, such as putrescible waste, the loader driver will immediately contact weighbridge operator.
- If possible, the weighbridge operator will stop the vehicle that deposited the load and inform the driver that the load dropped is a material that is not accepted on the site. If the vehicle has already left the site, the vehicle's details will have been recorded in the weighbridge software
- In either case, the weighbridge operator will notify the Operations Manager that the incident has occurred, the Operations Supervisor will then contact the customer
- The details of the incident are entered into MyOSH<sup>44</sup> and written notification provided to the customer
- The loader driver will segregate any loads not accepted by the site and place them in the quarantine area
- Waste in the quarantine area will be disposed of appropriately within one week.
- Figure 4 below shows the waste receipt and storage locations for non-conforming material. The interim storage location for non-conforming wastes may be located in any of the receivals bay and will only be stored in empty bays.

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<sup>42</sup> Processed engineered fuel

<sup>43</sup> Liquid and Solid Waste Storage Plan - Rooty Hill (Western Sydney) Materials Recycling Facility - Appendix A – Waste Acceptance Procedure

<sup>44</sup> Safety management software - <https://myosh.com/>

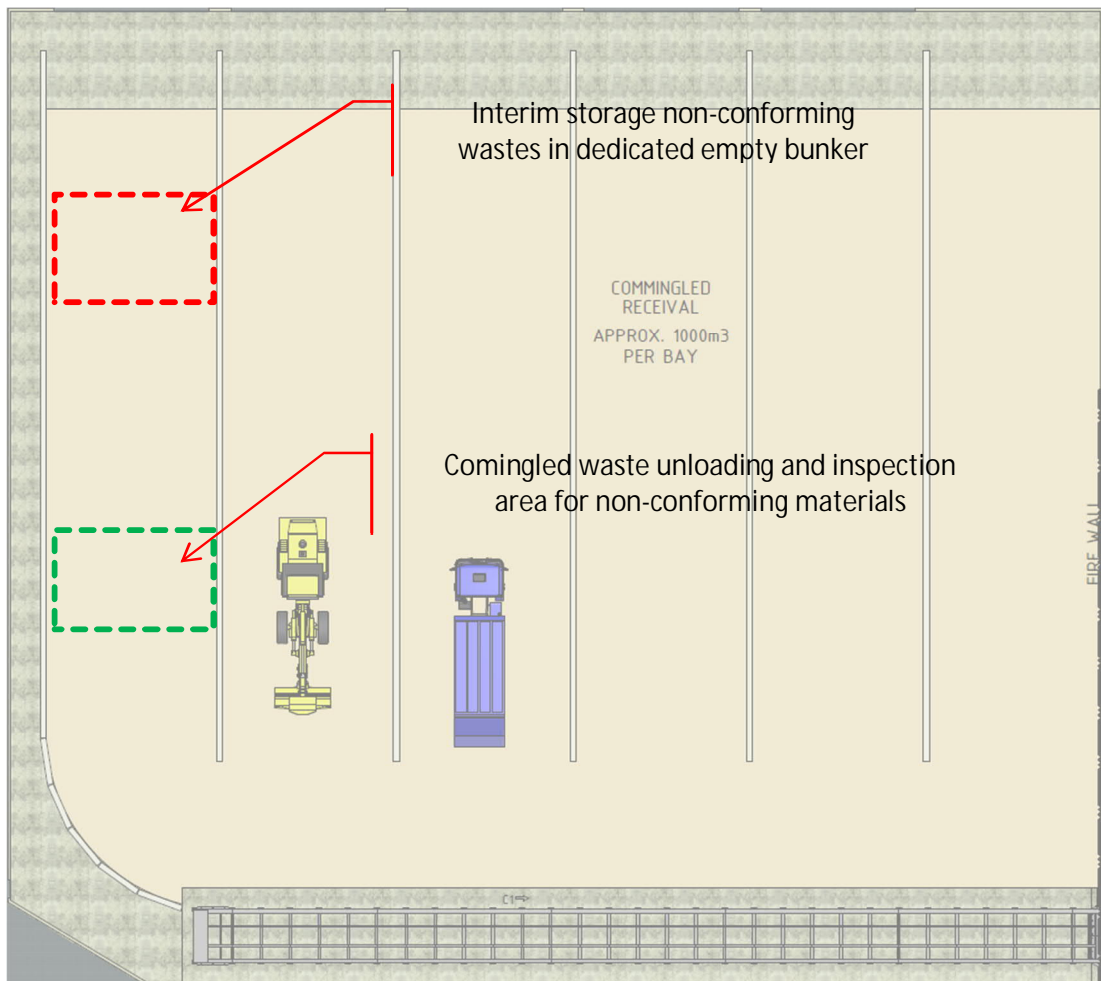


Figure 4 Location of non-conforming loads

#### 5.2.4 Resource outputs

The sections below provide descriptions of the resource outputs. The specifications for metals come from Cleanaway. Commodities specifications: Metals. Version: 3.0 – October 2020. The specifications for plastics and paper and cardboard come from Cleanaway. Commodities specifications: Fibre and Plastic.

##### 5.2.4.1 Steel

Steel will be free from dirt, non-ferrous metals and foreign materials of any kind. Scrap will also be free from excessive rust and corrosion.

Steel scrap will be considered free of alloys when the residual alloying elements do not exceed the following percentages:

- Nickel 0.45%
- Chromium 0.20%
- Molybdenum 0.10%

- Manganese 1.65%
- Combined residuals other than manganese 0.60%.

#### 5.2.4.2 Steel Tinplate (Post-Consumer)

This material consist of steel can scrap containers up to 20 L including baked bean cans, tinned fruit cans, baby formula, soup cans and others. It may include paper labels but will be free of other non-metallic materials. Other ferrous material and non-tinplate steel may be considered contamination depending on the composition and nature of the object.

This material will not include any hazardous waste, non-ferrous metals, plastic containers and other plastic material, glass, wood, timber, dirt, mud, grease and general waste or other foreign substances.

#### 5.2.4.3 Aluminium Used Beverage Containers

This materials consists of old aluminium food and/or beverage cans. The material will be magnetically separated and free of other scrap metals, foil, paper, glass and other non-metallic items, hazardous waste, lead, steel, any ferrous metals and bottle caps, plastic containers and other plastic material, wood, timber, dirt, mud, grease and general waste or other foreign substances.

#### 5.2.4.4 Plastics

Plastics processed for domestic consumption or export will have contamination limited to less than 2% by other plastic polymer types and 0% prohibited material such as medical waste, hazardous material, chemical residue.

Plastic shipments will also be free of any non-plastic material such as:

- Aluminium, steel cans and any other ferrous or non-ferrous metals
- Paper, cardboard, box board or other fibre products
- Cloth or textiles
- Timber, rocks, dirt
- Liquids including container residue, oil, grease and chemicals
- Woven plastic bags
- Organic or putrescible waste.

#### 5.2.4.5 PET Bottles

This stream consists of any whole PET (polyethylene terephthalate) bottles (labelled number 1) with a screw-neck top, including clear, transparent green and blue. Post-consumer bottles will be free of contents and free flowing liquids, but may include bottle caps, lids, bottle labels and pull-rings, if still attached to bottles. This stream will have less than 5% contamination by other plastic polymer types and PET thermoforms such as microwave trays, dishes, bakery trays, deli containers, clam shell containers and disposable drinking cups, as well as any aluminium, steel cans, other ferrous or non-ferrous metals, paper, cardboard or other fibre.

This stream will also have 0% hazardous waste, PVC, polystyrene, plastic bags and plastic films, bulka bags, timber, glass, cloth or textiles, rocks, stones, mud or dirt, liquid residue including chemicals, oil and grease and medical or hazardous waste.

#### 5.2.4.6 High-Density Polyethylene

This stream consists of any whole blow-moulded HDPE (labelled number 2) bottle that is pigmented or opaque (coloured) or unpigmented (natural). Post-consumer bottles will be free of contents and free flowing liquids, but may include bottle caps, lids, bottle labels and pull-rings, if still attached to bottles. The stream includes natural milk bottles, flavoured milk bottles, fruit juice bottles, vinegar or ammonia bottles and will have less than 2% contamination by other plastic polymer types such as PET, LDPE. It will have a maximum of 1% steel tinplate, aluminium, other ferrous or non-ferrous metals, 2% maximum of paper, cardboard, or other fibre and polypropylene. The HDPE natural stream will have 0% HDPE white or HDPE yellow.

All HDPE streams will have 0% hazardous waste, PVC, polystyrene, plastic bags and plastic films, bulka bags and mixed rigid containers, timber, glass, cloth or textiles, rocks, stones, mud or dirt, liquid residue including chemicals, motor oil or automotive fluids and grease and medical or hazardous waste. This means that any HDPE containers used for motor oil, automotive fluids, pesticides, chemicals, herbicides or flammables will not be accepted.

#### 5.2.4.7 PET Thermoforms

This stream consists of any whole PET thermoform packaging, commonly referred to as a PET tray. All packages will be free of contents or free flowing liquids and rinsed liquids, but may include lids, labels and pull-rings, if still attached to the packaging. This type of packing includes egg cartons, baskets, clamshell containers, cups, lids, cake domes, covers, blister pack without paperboard backing, tubs, deli containers, trays and folded PET sheet containers. It does not include bottles and jars.

This stream will have less than 5% contamination by other recyclables such as steel tinplate, aluminium, other ferrous or non-ferrous metals or paper, cardboard or other fibre. It will have 0% hazardous waste, HDPE, PET or polypropylene containers used for motor oil, automotive fluids, pesticides, chemicals, herbicides or flammables, PVC, polystyrene, plastic bags and plastic films, bulka bags and mixed rigid containers, timber, glass, cloth or textiles, rocks, stones, mud or dirt, liquid residue including chemicals, motor oil or automotive fluids and grease and medical or hazardous waste.

#### 5.2.4.8 4/4/2 Mixed Plastics

This stream consists of two possible combinations of plastics:

- 40% PET bottles and 40% HDPE bottles and small rigid plastic containers, and 20% other plastics, household plastics bottles and containers, such as polypropylene (yogurt tubs, ice cream containers), HDPE containers (shampoo bottles, cooking oil, laundry liquid bottles) and PET thermoform containers (fruit punnets, bakery containers and takeaway food containers)

or

- 80% mix of PET and HDPE and 20% other plastics and containers, such as polypropylene (yogurt tubs, ice cream containers), HDPE containers (shampoo bottles, cooking oil, laundry liquid bottles) and PET thermoform containers (fruit punnets, bakery containers and takeaway food containers).

This stream will have less than 2% contamination by other recyclables such as steel tins, aluminium, other ferrous or non-ferrous metals or paper, cardboard, or other fibre and 0% hazardous waste, any HDPE, PET or PP containers used for motor oil, automotive fluids, pesticides, chemicals, herbicides or flammables, PVC, polystyrene, plastic bags and plastic films, bulky bags and mixed rigid plastics, timber, glass, cloth or textiles, rocks, stones, mud or dirt, liquid residue including chemicals, motor oil or automotive fluids and grease and medical or hazardous waste.

#### 5.2.4.9 LDPE Clear

This stream consists of any mixture of natural translucent low density polyethylene film (labelled number 4). Limited label contamination is acceptable. Films may be coded with ASTM D7611 resin identification code #4, LDPE. All film bundles should be free of free-flowing liquids.

This stream will have less than 2% contamination by labels, water or condensation and any non-polyethylene plastics and 0% hazardous waste, multi-material or composite pouches, such as document pouches, medical or hazardous waste, timber, glass, cloth or textiles, rocks, stones, mud or dirt, liquid residue including chemicals, oils and grease or silicone coated films.

#### 5.2.4.10 LDPE Mixed/Colour

This stream consists of any mixture of natural translucent LDPE (labelled number 4) film and mixed colour film. Limited label contamination is acceptable. Films may be coded with ASTM D7611 resin identification code #4, LDPE. All film bundles will be free of free-flowing liquids.

This stream will have less than 2% contamination by labels, water or condensation and any non-polyethylene plastics and 0% hazardous waste, multi-material or composite pouches, such as document pouches, medical or hazardous waste, timber, glass, cloth or textiles, rocks, stones, mud or dirt, liquid residue including chemicals, oils and grease or silicone coated films.

#### 5.2.4.11 Polypropylene – All Rigid Plastic

This stream consists of any polypropylene (labelled number 5) whole bottle or container product, generated through a positive sort from kerbside, drop-off or other public or private recycling collection program. It includes prescription bottles, yogurt cups, margarine tubs, ice cream tubs, cold drink cups, microwaveable trays, tofu tubs, dishwasher safe storage containers, hangers, bottle cap enclosures, and others. Bulky polypropylene is classified as an item with a volume greater than 20 litres and includes buckets, crates, waste baskets, toys, and storage bins.

This stream will have a maximum of 2% contamination by metals, paper and cardboard, liquids and other residues, HDPE and any plastic containers or packaging container PET, PVC, polystyrene or other plastic polymer type and 0% hazardous waste, plastic bags, sheet or plastic film, any containers that held flammable, pesticides or herbicides, corrosive or reactive products, oil, grease, wood, glass, electronic scraps, rocks, stones, mud or dirt and medical or hazardous waste.

#### 5.2.4.12 Bulky Mixed Rigid Plastics

This stream consists of any large rigid HDPE (labelled number 2), and/or polypropylene (labelled number 5), plastic bulky item such as crates, buckets, baskets, totes, and lawn furniture. Metal such as axles and bolts will be removed. Buckets and pails with metal handles can be included.

The maximum contamination of 15% by weight will be comprised of the following:

- PET, PVC or other plastics - maximum 4%
- Metal - maximum 2%
- Liquid residue - maximum 2%
- Wood - maximum 2%
- Paper and cardboard - maximum 2%
- Glass - maximum 2%
- Plastic bags, sheet or film - maximum 2%.

This stream will contain 0% bottles or containers with identification codes 1 to 7, hazardous waste, any containers used for motor oil, automotive fluids, pesticides, chemicals, herbicides or flammables, electronic scraps or items with circuit boards or batteries, rocks, stones, mud or dirt, oil or grease, medical or hazardous waste and polystyrene foam or any other kind of foam.

#### 5.2.4.13 Bulka Bags with Liners

This stream consists of polypropylene bulka bags and polyethylene liners. Only bulka bags that are food grade and have not carried chemicals, fertilizers or other potentially hazardous material are acceptable.

This stream will have less than 2% contamination by other plastic polymer types and 0% hazardous waste, any bags used for pesticides, chemicals, herbicides, flammable or reactive compounds or powders, any hazardous liquid or solid residues including pesticides, chemicals, herbicides, flammable or reactive compounds or powders, PVC, polystyrene, plastic bags and plastic films, timber, glass, cloth or textiles, rocks, stones, mud or dirt, medical or other hazardous waste.

#### 5.2.4.14 OCC 95/5

This stream is old corrugated cardboard and consists of:

- 95% conforming material: corrugated cardboard boxes with liners of either test liner or Kraft
- No more than 0.5% of prohibited materials and
- No more than 5% of outthrows of other fibre materials, including prohibited materials.

Outthrows consist of newspapers, magazines, cartons board, office and stationary papers.

Prohibited materials are high wet strength and waxed cardboard and paper, telephone books, plastics, metals, glass, synthetics, timber, dirt or any other material damaging to equipment or machinery.

There will be 0% medical, organic, food waste, hazardous, poisonous, radioactive or toxic waste and other harmful substances or liquids such as tissues, nappies or sanitary items.

#### 5.2.4.15 OCC 90/10

This stream is old corrugated cardboard and consists of:

- 90% conforming material: corrugated cardboard boxes with liners of either test liner or Kraft
- No more than 1% of prohibited materials and
- No more than 10% of outthrows of other fibre materials, including prohibited materials.

Outthrows consist of newspapers, magazines, cartons board, office and stationary papers.

Prohibited materials are high wet strength and waxed cardboard and paper, telephone books, plastics, metals, glass, synthetics, timber, dirt or any other material damaging to equipment or machinery.

There will be 0% medical, organic, food waste, hazardous, poisonous, radioactive or toxic waste and other harmful substances or liquids such as tissues, nappies or sanitary items.

#### 5.2.4.16 ONP#6/SRPN

This stream is ISRI 2020 sorted residential papers and newspaper and consists of:

- 70% conforming material: Sorted newspapers with the normal amount of coloured advertising inserts
- 30% other papers, including prohibitive materials: consisting of junk mail, magazines, printing and writing papers, other acceptable paper white paper including office paper, letters and paper board
- 1-2% prohibited materials may not exceed 2% for export (ISRI) and 1% for domestic (ACOR)
- 3-5% outthrows of other fibre materials may not exceed 3% for export (ISRI) and 5% for domestic (ACOR).

Outthrows consist of cardboard, folding cartons and telephone books.

Prohibited materials are cardboard and brown grades (OCC, Kraft boxes, box board and cuttings, Kraft carrier board), high wet strength and waxed cardboard and paper, telephone books, plastics, metals, glass, synthetics, timber, dirt or any other material damaging to equipment or machinery.

There will be 0% medical, organic, food waste, hazardous, poisonous, radioactive or toxic waste and other harmful substances or liquids such as tissues, nappies or sanitary items.

#### 5.2.4.17 ONP#8

This stream is special newsprint, de-ink quality and consists of:

- 90% conforming material: sorted 'fresh' newsprint less than 12%
- 10% other papers, including prohibitive materials: consisting of the normal amount of coloured advertising inserts, printing and writing papers and other acceptable paper white paper including office paper, letters, paper board
- 0.25-0.5% prohibited materials may not exceed 0.5% export (ISRI) and 0.25% for domestic (ACOR)
- 0.5-1% outthrows of other fibre materials may not exceed 1% for export (ISRI) and 0.5% for domestic (ACOR).

Outthrows consists of brown grades including OCC cardboard and non-paper material, folding cartons and magazines.

Prohibited materials consist of Kraft boxes, box board and cuttings, Kraft carrier board, high wet strength and waxed cardboard and paper, telephone books, plastics, metals, glass, synthetics, timber, dirt or any other material damaging to equipment or machinery.

There will be 0% medical, organic, food waste, hazardous, poisonous, radioactive or toxic waste and other harmful substances or liquids such as tissues, nappies or sanitary items.



#### 5.2.4.18 OINP#9

This stream consists of over-issued newspaper and includes 100% conforming material: over-issued newspapers. There will be 0% outthrows, prohibited materials and hazardous waste.

#### 5.2.4.19 OMG

This stream is over-issued magazines (OMG) and consists of:

- 97% conforming material: coated magazines, catalogues and similar printed material. May contain a small percentage of uncoated news type paper
- 0.25-1% prohibited materials may not exceed 1% export (ISRI) and 0.25% for domestic (ACOR)
- 0.5-3% outthrows of other fibre materials may not exceed 3% export (ISRI) and 0.5% for domestic (ACOR).

Outthrows consists of OCC corrugated cardboard, high wet strength and waxed cardboard and paper, folding cartons, box board and cuttings, office and stationary papers and telephone books.

Prohibited materials consist of plastics, metals, glass, synthetics, timber, dirt or any other material damaging to equipment or machinery. Any magazines with imagery deemed offensive will be destroyed by shredding or removed before to export. This includes underwear catalogues and pornography.

There will be 0% medical, organic, food waste, hazardous, poisonous, radioactive or toxic waste and other harmful substances or liquids such as tissues, nappies or sanitary items.

#### 5.2.4.20 Soft mixed paper

This stream consists of:

- 93% conforming material: consisting of a mixture of various qualities of paper that contain a high percentage of old newspapers and coloured advertising inserts with no limits on other fibre content
- No more than 2% prohibited materials (ISRI and ACOR standard)
- No more than 5% outthrows of other fibre materials (ISRI and ACOR standard).

Outthrows consists of OCC, high wet strength papers and PLA coated liquid packing board.

Prohibited materials consist high wet strength and waxed cardboard, telephone books, plastics, metals, glass, synthetics, timber, dirt or any other material damaging to equipment or machinery.

There will be 0% medical, organic, food waste, hazardous, poisonous, radioactive or toxic waste and other harmful substances or liquids such as tissues, nappies or sanitary items.

#### 5.2.4.21 SOP

This stream is sorted office paper (SOP) and consists of:

- 95% conforming material: uncoated office papers typically computer printout and facsimile paper
- 0.5-1% prohibited materials may not exceed 1% for export (ISRI) and 0.5% for domestic (ACOR)



- 2-5% outthrows of other fibre materials may not exceed 5% for export (ISRI) including prohibited material and 2% for domestic (ACOR).

Outthrows consists of newspapers and magazines.

Prohibited materials consist of insoluble adhesives, OCC cardboard, Kraft boxes, box board and cuttings, Kraft carrier board, high wet strength and waxed cardboard, telephone books, plastics, metals, glass, synthetics, timber, dirt or any other material damaging to equipment or machinery.

There will be 0% medical, organic, food waste, hazardous, poisonous, radioactive or toxic waste and other harmful substances or liquids such as tissues, nappies or sanitary items.

#### 5.2.4.22 Fibre (Mixed) Cores – Loaded loose

This stream consists of:

- 95% conforming material consisting of paper cores made from recycled paperboard and linerboard, single or multiple plies. Paper around the core is acceptable. Metal or plastic ends caps, wood plugs and textile residues are not acceptable for this grade.
- No more than 1% prohibited materials for export (ISRI).

Prohibited materials consist of insoluble adhesives, OCC cardboard, Kraft boxes, box board and cuttings, Kraft carrier board, high wet strength and waxed cardboard, telephone books, plastics, metals, glass, synthetics, timber, dirt or any other material damaging to equipment or machinery.

There will be 0% medical, organic, food waste, hazardous, poisonous, radioactive or toxic waste and other harmful substances or liquids such as tissues, nappies or sanitary items.

#### 5.2.4.23 CBS

This stream is coated book stock (CBS) and consists of:

- 98% conforming material: coated groundwood-free paper, printed or unprinted in sheets, shavings, guillotined books and cuttings including a reasonable percentage of paper containing fine groundwood
- 0-0.5% prohibitive materials are not acceptable for export (ISRI) and 0.5% for domestic (ACOR)
- 2% outthrows of other fibre materials may not exceed 2% (ISRI and ACOR standard).

Outthrows consists of newspapers and magazines.

Prohibited materials consist insoluble adhesives, OCC cardboard, Kraft boxes, box board and cuttings, Kraft carrier board, high wet strength and waxed cardboard, telephone books, plastics, metals, glass, synthetics, timber, dirt or any other material damaging to equipment or machinery.

There will be 0% medical, organic, food waste, hazardous, poisonous, radioactive or toxic waste and other harmful substances or liquids such as tissues, nappies or sanitary items.

#### 5.2.4.24 PCCS

This stream is poly coated cup stock (PCCS) and consists of:

- 99% conforming material consisting of untreated cuttings or sheets of coated or uncoated cap base stock. Cuttings with a slight bleed may be included. Must be free of wax, polyethylene and other coatings that are insoluble.
- 1% outthrows may not exceed 1% for export (ISRI)
- 0% prohibitive materials are not acceptable for export (ISRI).

Outthrows consists of formed cups, cup die cuts and misprinted sheets.

Prohibited materials consist insoluble adhesives, OCC, Kraft boxes, box board and cuttings, Kraft carrier board, high wet strength and waxed cardboard, telephone books, plastics, metals, glass, synthetics, timber, dirt or any other material damaging to equipment or machinery.

There will be 0% medical, organic, food waste, hazardous, poisonous, radioactive or toxic waste and other harmful substances or liquids such as tissues, nappies or sanitary items.

#### 5.2.4.25 BBC

This stream is box board cuttings (BBC) and consists of:

- 98% conforming material consists of new cuttings of paperboard used in the manufacture of folding cartons, set-up boxes and similar box-board products
- No more than 2% outthrows plus prohibited material for export (ISRI)
- No more than 0.5% prohibitive materials for export (ISRI).

Outthrows consists of OCC, high wet strength and waxed cardboard and paper, office and stationary papers and telephone books.

Prohibited materials consist of insoluble adhesives, non-conforming duplex lamination (PE plastic coated) board, plastics, metals, glass, synthetics, timber, dirt or any other material damaging to equipment or machinery.

There will be 0% medical, organic, food waste, hazardous, poisonous, radioactive or toxic waste and other harmful substances or liquids such as tissues, nappies or sanitary items.

### 5.2.5 Storage of Recyclables

The SEARs requirement is Details of how waste would be stored, including the maximum daily storage capacity of the site, and handled on site, and transported to and from the site including details of how the receipt of non-conforming waste would be dealt with.

#### 5.2.5.1 Daily Storage Capacity

Kerbside recyclables will be delivered by collection vehicles and deposited in one of five commingled receival bays. Each of these has 1000 m<sup>3</sup> capacity. A materials handling machine will remove gross contamination and hazardous materials before a wheeled loader will move recyclables from these bays to a conveyor which will feed the material into the MRF separation equipment. This is shown in Figure 5 below.

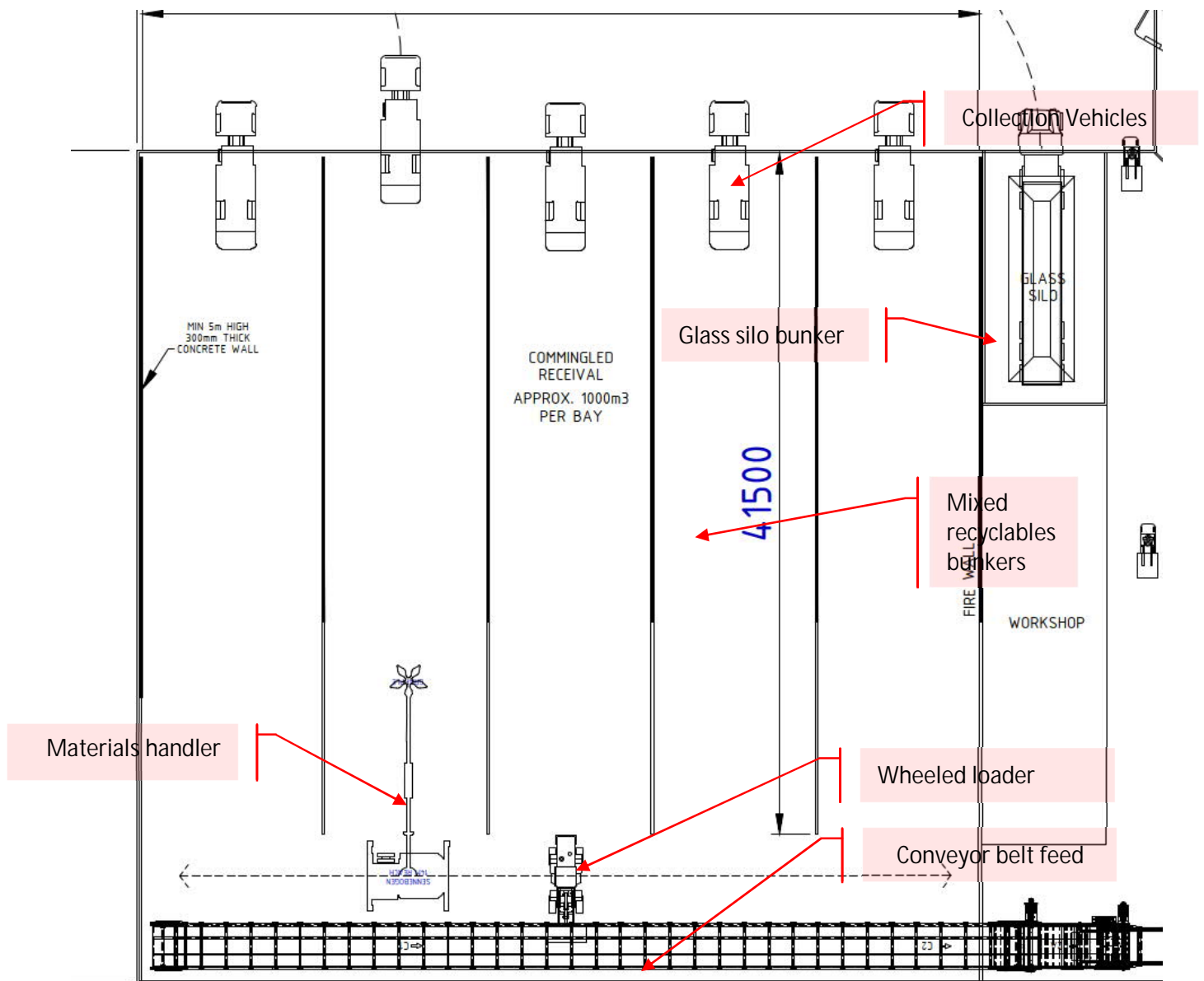


Figure 5 Kerbside receival bays

Table 22 below provides details of the quantities of each material recovered, the bins, bunkers and balers used to store them and their final dispatch locations.

Table 22 Materials quantities, dispatch locations and storage details

Material	Quantity Recovered	Storage Bin and Bunker Details		Balers
		Number	Capacity (m <sup>3</sup> ) <sup>45</sup>	
Bulky plastics				Two
Bulky metal		Two bins	Each 10	
Waste for landfilling		Two compactors	Each 30	
Steel		One bunker	138	One shared
Clear PET		One bunker	345	

<sup>45</sup> Fire and Incident Management Report. Cleanaway Blacktown MRF. 600 Woodstock Ave, Rooty Hill, NSW, 2766. 08 December 2021 | Final Issue | Report No F201590\_FSS\_01. Prepared by Core Engineering. Table 6-1 page 14

Material	Quantity Recovered	Storage Bin and Bunker Details		Balers
		Number	Capacity (m <sup>3</sup> ) <sup>45</sup>	
Natural HDPE		One bunker	186	
Coloured HDPE		One bunker	345	
Mixed plastics		One bunker	186	
Aluminium		One bunker	138	
Glass		Silo	138	Two shared
Mixed paper and cardboard			531	
Old corrugated cardboard			531	

The locations of these are also shown in Figure 6 below.

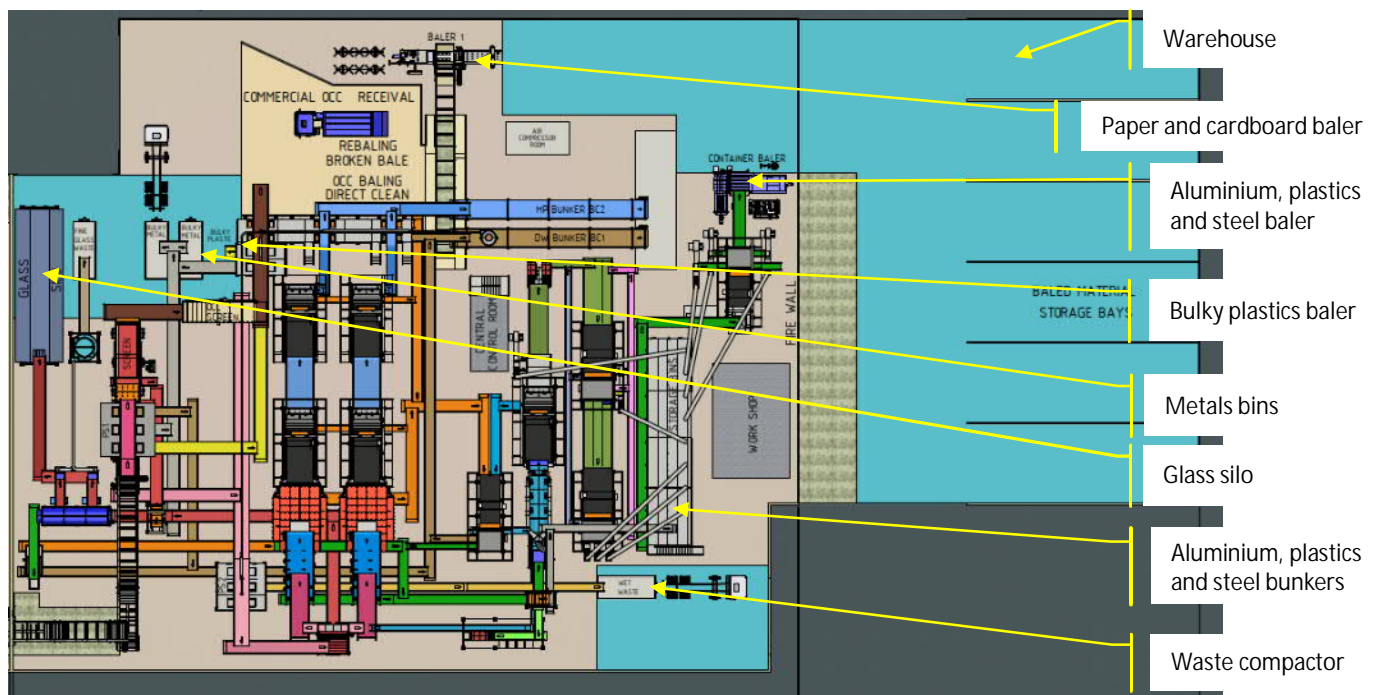


Figure 6 Location of bunkers, balers and storage areas

The maximum amount of material that can be stored on site, that is the maximum daily storage capacity, is also covered in Section 5.1.3 Maximum amount stored on site.

Figure 7 below shows the Storage location for processed and baled recyclable materials for transport offsite for further processing.

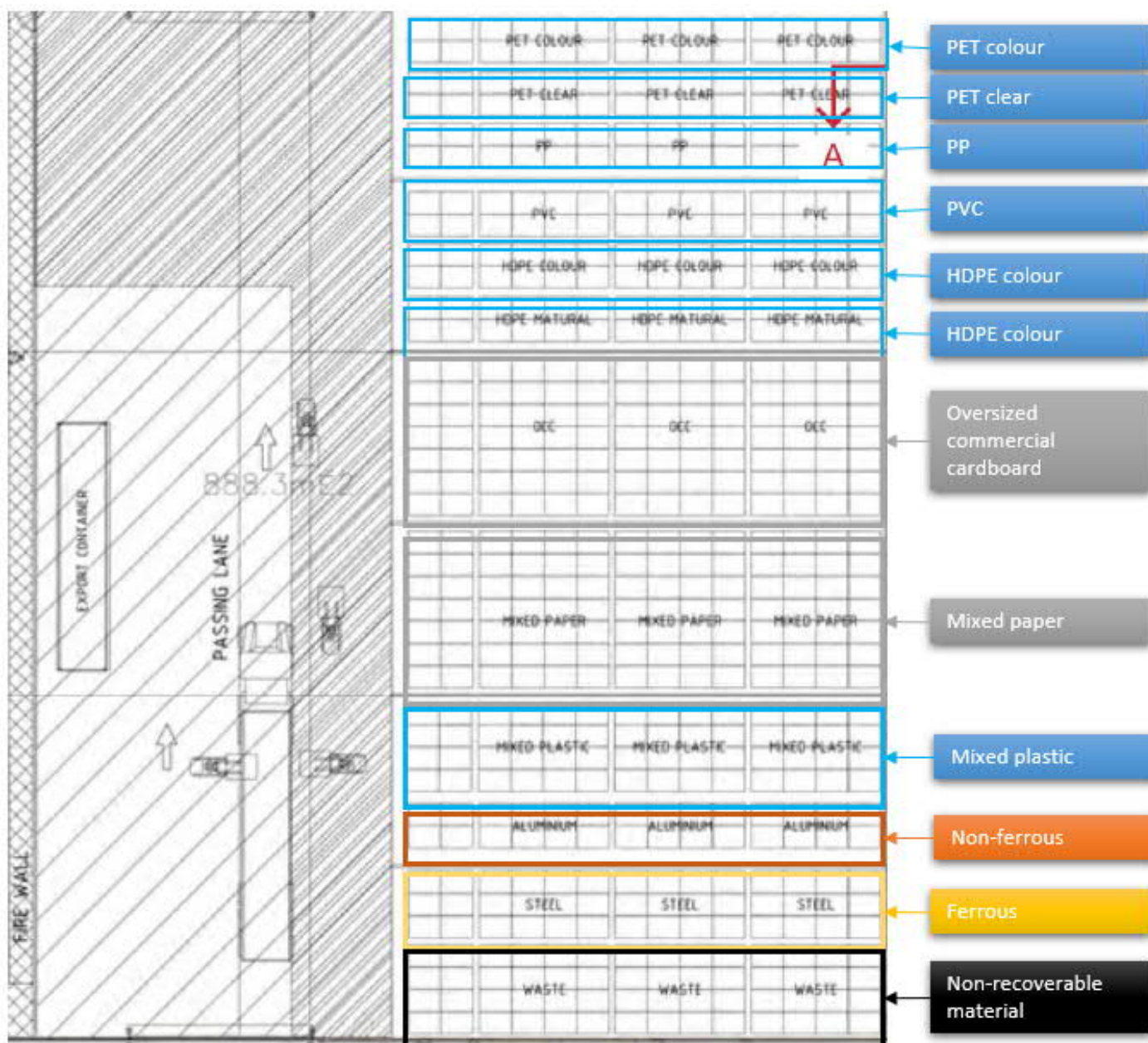


Figure 7 Storage location of processed and baled recyclable materials<sup>46</sup>

#### 5.2.5.2 Receipt of Non-Conforming Waste

Measures for dealing with non-conforming waste are detailed in Section 5.2.3.3 Quality Control.

#### 5.2.6 Waste tracking system

The SEARs Key Issue requirement is Detail the facility's waste tracking system for incoming and outgoing waste.

<sup>46</sup> Liquid and Solid Waste Storage Plan - Rooty Hill (Western Sydney) Materials Recycling Facility - Appendix A – Waste Acceptance Procedure



Section 5.2.8 below describes the methods by which data about vehicle and load weights will be recorded as they enter and leave the facility.

Because loads will be sorted into their components, it is not possible to track materials on a truck-in-truck-out basis. However, the recording of data in the weighbridge software, and associated databases, will allow reports to be produced that show a mass balance of material, net in and gross out, less contamination and losses such as fluid and water, by hour, by shift, by day or any other time period.

### 5.2.7 Quantities of Processed Materials

The SEARs Key issue requirement is Detail the quantity of each type of materials recovered from processing operations and final dispatch locations and Detail the quantity of residual wastes from processing operations and final dispatch locations.

Recovered commodities will go to other Cleanaway facilities or clients to be used to manufacture new products domestically and nationally.<sup>47</sup> Details are shown in Table 23 below.

Table 23 Processed recyclable materials with possible destination and reuse<sup>48</sup>

Recovered material	Reprocessing destination	Recycled raw material	Reuse product
PET clear	Circular Plastics Australia, Visy Plastics	rPET resin pelletisation	Production of beverage bottles
PET colour	Australian Recycled Plastics	rPET resin pelletisation	Commercial reuse
HDPE natural	Circular Plastics Australia, Visy Plastics	rHDPE flake and resin pelletisation	Production of beverage packaging
HDPE colour	PCP Global Recycling, Circular Plastics Australia	rHDPE flake and resin pelletisation	
OCC	Visy, Opal	Fibre pulp	Remanufacture paper and packaging products
Mixed paper	Visy, Fibrecycle	Fibre pulp	Remanufacture paper and commercial fibre products
Mixed plastic	Advanced Circular Polymers, Cleanaway Chemical Recycling	Mechanical recycling	Tacoil and base monomers
Non-ferrous metals	Pragmatic Metal		Remanufactured into automotive parts
Ferrous metals	Infrabuild	Blast furnace	Steel products

Waste produced on site will be separated into two streams, details of which are shown in Table 24.

Table 24 Waste streams for disposal<sup>49,50</sup>

Stream	Composition	Proportion	On-site Storage	Off-site Destination	Approximate Quantity per Day
Non-putrescible waste	Film, food trays, plastic bags, textiles, lost small recyclable fibre and plastics	91%	Baled	ResourceCo PEF <sup>51</sup> plant where Cleanaway is an invested partner	20.6 t

<sup>47</sup> Operational Summary Blacktown MRF. July 2021. Prepared by: Peter Nguyen. Version: Final – Approved. Page 6

<sup>48</sup> Liquid and Solid Waste Storage Plan - Rooty Hill (Western Sydney) Materials Recycling Facility - Appendix A – Waste Acceptance Procedure

<sup>49</sup> Operational Summary Blacktown MRF. July 2021. Prepared by: Peter Nguyen. Version: Final – Approved. Page 6

<sup>50</sup> CLEANAWAY BLACKTOWN 22 TPH MRF OUTPUTS (excluding Commercial OCC) in CWY Blacktown 22 tph MRF projected output tonnes 11 Feb 2022.xlsx

<sup>51</sup> Process engineered fuel

Stream	Composition	Proportion	On-site Storage	Off-site Destination	Approximate Quantity per Day
Putrescible waste	Nappies, organics and bags garbage	9%	Stored in compactors	Disposed of to landfill	2.1 t

## 5.2.8 Record keeping and reporting

The NSW EPA SEARs requirement is a description of how the Proponent will meet the EPA's record keeping and reporting requirements, including weighing material in and out of the Premises.

### 5.2.8.1 Weighbridges

Two weighbridges will be installed as follows:

- One<sup>52</sup> to accommodate B-double trucks – long weighbridge
- One to accommodate 12 m rigid trucks – short weighbridge.<sup>53</sup>

Weighbridges will include registration plate recognition software, keypad and ticket writer and camera and intercom facilities.<sup>54</sup>

Precise details of the equipment and software and their suppliers are not yet known. Suppliers have not yet been appointed and Cleanaway intends to select them through a tender process. Figure 8 below shows the locations of the weighbridges.

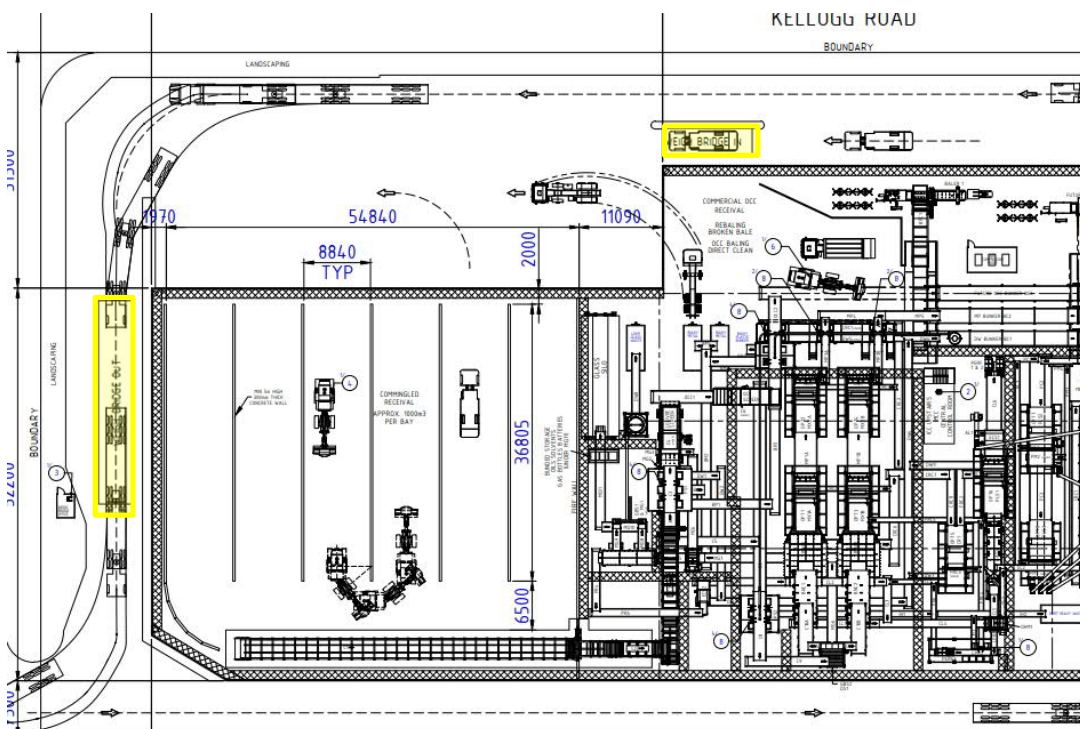


Figure 8 Location of weighbridges

<sup>52</sup> Only one shown on 12272\_DA001 - SITE & GROUND FLOOR PLAN.pdf

<sup>53</sup> Request for Proposal. Proposed Cleanaway Depot. Western Sydney MRF. Blacktown Municipality. May 2021. Revision 2, page 7

<sup>54</sup> Request for Proposal. Proposed Cleanaway Depot. Western Sydney MRF. Blacktown Municipality. May 2021. Revision 2, page 12

#### 5.2.8.2 12 m Rigid Truck Weighbridge Procedure

The short weighbridge will be 12 m long and will accommodate the kerbside collection vehicles from Blacktown City Council. The weighbridge will be operated remotely from inside the MRF offices.

The procedure for vehicles entering the site will be broadly as follows:

- Vehicles will enter the site from the Kellogg Road entrance to the west and will stop on the weighbridge located about 70 m from the entrance.
- On the weighbridge, vehicles will have their registration number identified by a camera linked to registration recognition software
- The weighbridge software will record the registration number and match it against a database of approved vehicles.
- Relevant data for that vehicle will be recorded in the weighbridge software and checked by the operator. This data will include the gross loaded weight of the vehicle, the account name and number and the date and time, along with anything else of relevance
- If the registration number matches that of an approved vehicle, the operator will allow it to enter the site.
- A stop light system or boom gate will regulate vehicle movements on and off the weighbridge
- The vehicle's unladen weight, the tare weight, will be stored in the database and when the gross weight is recorded, the net weight of the load will be calculated and recorded
- If the vehicle is not approved, the operator will contact the driver through an intercom and either instruct the vehicle to leave the site or enter the relevant data into the software. It is possible that if there a vehicle breakdowns, Cleanaway may use vehicles for the collection that have not previously been used on the contract and may not be recorded as approved vehicles
- The operator will instruct the driver where on site the vehicle should be taken to unload, including which bay in the receival hall the load is to be deposited

The procedure for vehicles leaving the site will be broadly as follows:

- Having deposited their loads, all vehicles will exit over the weighbridge where they will be re-weighed and the net weight recorded in the software
- Vehicles that are not approved will return to the small weighbridge, stop and have their registration number identified by a camera linked to registration recognition software
- The weighbridge software will match the registration number against those vehicles that have been recorded as entering the site.
- If the registration number matches that of a vehicle having entered the site, the unladen vehicle's tare weight will be recorded and the net weight of the load calculated and recorded.
- If there are any anomalies in the recorded data or with the deposited load, the operator will resolve these in communication with the driver
- The operator will check the data and allow the vehicle to leave
- All vehicles using the short weighbridge will exit the site through the western Kellogg Road exit.
- A stop light system or boom gate will regulate vehicle movements on and off the weighbridge.



### 5.2.8.3 B-doubles Weighbridge Procedure

The long weighbridge will be 27 m long and will accommodate semi-trailers and B-doubles that take product to markets. The weighbridge will be operated from an adjacent gatehouse.

The procedure for these vehicles entering the site will be broadly as follows:

- Vehicles will enter the site from Kellogg Road to the south and drive around the site to approach the weighbridge from the west.
- On the weighbridge they will and have their registration number recorded by the operator
- Other relevant data for that vehicle will be recorded in the weighbridge software including its tare weight. This data may also include any account names and numbers and the date and time along with anything else of relevance
- The operator will then instruct the driver where on site to take the vehicle
- A stop light system or boom gate will regulate vehicle movements on and off the weighbridge
- The vehicle will be loaded with product in the warehouse.

The procedure for vehicles leaving the site will be broadly as follows:

- Vehicles will stop on the weighbridge and have their registration number entered into the software by the operator
- The weighbridge software will match the registration number against vehicles that have been recorded as entering the site.
- If the registration number matches that of a vehicle having entered the site, the gross weight of the laden vehicle will be recorded, and the net weight of the load calculated and recorded along with the date and time.
- The operator will also record other data, such as the product details, and allow the vehicle to leave the site.
- A stop light system or boom gate will regulate vehicle movements on and off the weighbridge
- Vehicles using the long weighbridge will exit the site through the southern Kellogg Street entrance.

### 5.2.8.4 EPA Reporting

Data will be provided to Blacktown Council and to any other clients as necessary for them to report to the NSW EPA. Any data reporting required of Cleanaway to the EPA will be undertaken by the approved methods.

### 5.2.9 Consistent with NSW Strategy

The SEARs Key issue requirement is the measures that would be implemented to ensure that the development is consistent with the aims, objectives and guidance in the NSW Waste and Sustainable Materials Strategy 2041, Stage 1: 2021-2027.

Initially the MRF service Blacktown City Council's kerbside recyclables stream. The MRF has the capacity to service additional municipal contracts in the Sydney region. The MRF will also be designed to accommodate additional cardboard and recyclables materials from Cleanaway's commercial and industrial customers as well. Construction of the MRF adds to NSW's remanufacturing and recycling capacity.<sup>55</sup>

#### 5.2.10 Waste Minimisation

The NSW EPA's SEARs requirement is Details of how the waste transported, generated, or received as part of recyclables processing should be minimised and managed in a way that protects all environmental values.

Cleanaway will make use of its NSW Centre for Sustainability in minimising and managing recyclables materials transported, generated and received for processing.

##### 5.2.10.1 The NSW Centre for Sustainability

Incorporating its reuse, recycle and recover waste philosophy, and its mission to 'make a sustainable future possible', Cleanaway aims to separate, process and treat as much waste as possible through a variety of channels to provide the best outcome for our customers and the environment. As such it has invested in the development of the Centre for Sustainability (C4S). Effectively a specialised in-house waste consultancy, the C4S is a knowledge and resource centre that helps both businesses and organizations transform to enhance their sustainability goals.

##### 5.2.10.2 NSW Centre for Sustainability Experience

The C4S team possesses significant combined experience in a wide range of education and environmental fields and has achieved great success in developing and implementing effective education initiatives in schools, businesses and the wider community through innovative educational endeavours resulting from waste audit delivery (Figure 9).



Figure 9 Waste audit delivery

These include:

<sup>55</sup> Request for Proposal. Proposed Cleanaway Depot. Western Sydney MRF. Blacktown Municipality. May 2021. Revision 2, page 6

- An established team with significant waste industry experience
- Diverse and relevant qualifications in education and science fields
- Established education programs
- Experience with a variety of stakeholders and organisations.

#### 5.2.10.3 Why resource recovery?

Resource recovery involves the separation of waste materials for a specific next use, such as recycling, composting or energy generation. The benefits to customers include:

- Positive environmental benefits including reduced waste to landfill
- Decreased waste service costs
- Engaged residents and employees
- Contribution towards attaining environmental credentials such as Green Star rating
- Corporate social responsibility outcomes.

#### 5.2.10.4 Education and training programs

C4S is dedicated to the delivery of proven programs that develop awareness and promote behaviour change. Activities are centred on reducing contamination and increasing resource recovery through optimal use of the available waste and recycling services.

Our education programs range from self-learn education tools and signage developed in conjunction with Cleanaway's marketing team, through to face-to-face workshops and seminars designed to meet the needs of a variety of audiences including pre-schoolers, school students, and adults within a corporate work environment.



Figure 10 Waste education

The C4S Team is committed to providing new and innovative ways of educating, increasing awareness, and changing behaviours. The team creates bespoke training modules and education campaigns to service the needs of customers, councils, schools, and community groups. (Figure 10)

In response to the COVID-19 pandemic, the kNOw Waste Education Program expanded the online educational offerings continue to provide quality environmental education. The online webinar program now provides interactive and engaging workshops to schools and community groups.

Municipal education programs include:

- kNOw waste™ schools and community workshops
- Community engagement competitions
- Website content development
- Waste and recycling service guides
- Contamination management strategy development and delivery
- Multi-unit dwelling education and resource recovery programs (Figure 11)
- Cultural and linguistically diverse communities education programs.



Figure 11 MUD education programs

Commercial education programs include:

- Tailored face-to-face workshops and train-the-trainer programs
- Tenant engagement programs
- Contract commencement support
- Webinars
- Bin signage
- Greenius online learning platform
- Contamination management strategy development and delivery.

#### 5.2.10.5 Consulting and auditing

The C4S team is dedicated to resource recovery excellence and conducts activities to identify opportunities for contamination reduction and diversion of valuable resources from landfill. In 2014, 2015, 2018 and again in 2020 our capabilities were rewarded through the award of NSW EPA grants under the Waste Less, Recycle More funding program. Cleanaway, through the C4S, is the only major national waste and recycling contractor to be awarded these grants three times.

C4S has a breadth of experience delivering the following activities for our customers:

- Waste audit methodology and creation (Figure 12)
- Waste assessment and audit program delivery
- Waste audit reports and recommendation for improved resource recovery
- Statistical analysis of waste data to guide future education programs and improved service delivery
- NSW EPA grant submission and award
- NSW EPA program delivery
- Waste Management Plan development.

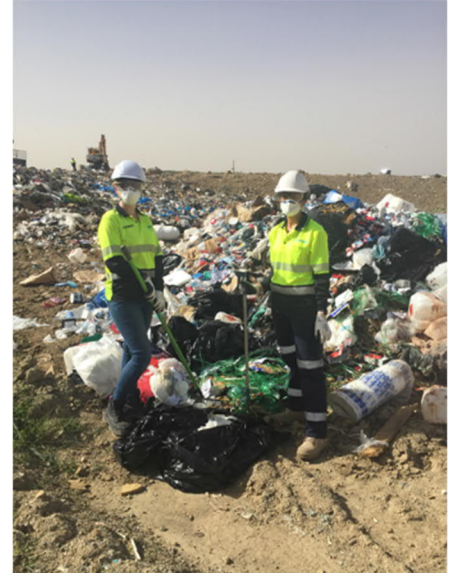


Figure 12 Waste Audit



#### 5.2.10.6 Recent Relevant Project Experience

Program	Year
<ul style="list-style-type: none"> <li>NSW EPA's Bin Trim Program delivery to our C&amp;I customers.</li> </ul> <p>Grant recipient. In Round Four we have a strong focus on implementing food organics in shopping centres and tenant engagement.</p>	<p>2014 – 2015 (Round 1)</p> <p>2015 – 2017 (Round 2)</p> <p>2018 – 2019 (Round 3)</p> <p>2020 – 2021 (Round 4 current)</p>
<ul style="list-style-type: none"> <li>City of Parramatta Council bin inspection program for Food Organics trial in MUDs</li> </ul> <p>Includes in-field data collection, analysis and reporting, distribution of bin bay signage, caddy liners, and printed collateral</p>	2021 (Current)
<ul style="list-style-type: none"> <li>NSW EPA's Love Food, Hate Waste Innovation Partners Program</li> </ul> <p>Grant recipient to develop of a Food Avoidance module to add to our kNOw Waste Schools Program offering. The module will support existing "Food Smart Schools" online resources for teachers</p>	2021 (Current)
<ul style="list-style-type: none"> <li>NSW EPA's Circulate Program</li> </ul> <p>Grant recipient to develop and pilot a hospital plastics recycling program</p>	2021 (Current)
<ul style="list-style-type: none"> <li>Resource Recovery Officer support for our municipal customers</li> </ul> <p>Includes Community Education and Contamination Management Strategies for councils including Randwick City Council, which introduced FOGO in the new contract</p>	Ongoing
<ul style="list-style-type: none"> <li>Sanitarium visual audit of compactor load at facility</li> </ul>	November 2019
<ul style="list-style-type: none"> <li>Physical audits for Coles, Ventia, Systems Connect, University of Canberra</li> </ul>	Ongoing

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## 6 Environmental Management

### 6.1 Stormwater Management

Drawings showing the site's stormwater catchment plan, siteworks and stormwater management plan can be found in Appendix D.

### 6.2 Dust, Noise and Water Control

Dust is controlled by a misting system integrated into the processing equipment.

Noise is mitigated by operating all plant and equipment within the building and keeping doors closed at all times. A noise modelling study has been undertaken by Northstar Air Quality Pty Ltd and is subject to a separate report.

Water from the site will drain to an on-site detention tank with emergency override in the event of a contamination spill. This is shown on drawing 211274\_DAC04.01 [08] in Appendix D.

### 6.3 Wheel wash

No wheel wash is proposed for the site. Wheel washes are typically installed at sites with unsealed roads where dust or mud could be tracked off-site by vehicles. In the case of this MRF, the site roads and surfaces are entirely sealed and dry. Contaminated water is not being through any on-site systems. A wheel wash therefore is not necessary due to the type of recyclable material being handled and the nature of the site's sealed surfaces.

### 6.4 Sediment Control

A drawing showing the site's concept sediment and soil erosion control plan can be found in Appendix E.

## 7 Waste Legislation, Technical Standards and Guidelines

The NSW EPA's SEARs requirement is a review of technical standards and guidelines including:

- Waste guidelines and resources about legislation can be found at Waste Avoidance and Resource Recovery Strategy and Waste regulations in NSW
- EPA's Waste Classification Guidelines (DECC, 2009)
- Environmental Guidelines: Solid Waste Landfills (EPA, Second edition 2016)
- Environmental Guidelines: Use and Disposal of Biosolids Products (EPA, 1997)
- Environmental Guidelines: Composting and Related Organics Processing Facilities (EPA, 2004)
- NSW Energy from Waste Policy Statement (EPA, 2015)
- Standards for managing construction waste in NSW (EPA, 2018).

These and other relevant waste legislation and guidance are outlined in Table 25 below.

Table 25 A list of legislation and guidance relevant to this report

Legislation and Guidance	Objectives
Local guidelines	
Western Sydney Regional Waste Avoidance and Resource Recovery Strategy 2017-2021 <sup>56</sup>	The Western Sydney Regional Waste Avoidance and Resource Recovery Strategy 2017-2021 focuses on managing waste and resources in the Western Sydney Region up to 2021. The strategy sets out pathway to achieving targets that are in accordance with the NSW Waste Avoidance and Resource Recovery Strategy 2014-21.
The Western Sydney Recycling Directory – Construction and Demolition Waste 2017 <sup>57</sup>	The Western Sydney Recycling Directory of Construction and Demolition Waste 2017 features disclosures on the recommended storage and separation techniques of wastes uncovered or generated during construction and demolition activities. It also includes descriptions of broad categories of waste and links and references to recycling directories and environmental and work safety guides. These recommendations are applicable to wider Western Sydney, including Council.
State and National legislation and guidelines	
Protection of the Environment Operations Act (POEO) 1997 and Amendment Act 2011	The POEO Act 1997 and POEO Amendment Act 2011 are administered by the NSW EPA to enable the NSW Government to establish instruments for setting environmental standards, goals, protocols and guidelines. They outline the regulatory requirements for lawful disposal of wastes generated during the demolition, construction and operational phases of a development, as well as the system for licencing waste transport and disposal.
Protection of the Environment Operations (Waste) Regulations 2014	The Waste Regulation 2014 replaced the Protection of the Environment Operations (Waste) Regulation 2005 (Waste Regulation 2005) and introduced a number of amendments to the waste and resource recovery regulatory framework in NSW. It contains provisions relating to the waste levy, waste tracking and management requirements for certain waste types, payment schemes for local Councils and consumer packaging recycling. Clause 6(b) contains a list of substances that are prescribed to be waste for the purposes of the POEO Act. This has the effect of clarifying and broadening the types of materials that are considered to be 'waste' for the purposes of the POEO Act. The Regulation specifies that, resource recovery, waste processing (non-thermal treatment) and waste storage activities require an environment protection licence (EPL), including resource recovery facilities. It also provides licensing thresholds for waste activities classified as resource recovery.
Waste Avoidance and Resource Recovery Act 2001	<p>The Act aims to promote waste avoidance and resource recovery and repeals the Waste Minimisation and Management Act 1995. Specific objectives of the Act 2001 include:</p> <ul style="list-style-type: none"> <li>• encouraging efficient use of resources</li> <li>• minimising the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste</li> <li>• ensuring industry and the community share responsibility in reducing and dealing with waste, and</li> <li>• efficiently funding of waste and resource management planning, programs, and service delivery.</li> </ul> <p>As of 2016, the addition to the Act of Part 5 defines the legislative framework for the 'Return and Earn Container Deposit Scheme' whereby selected beverage containers can be returned to State Government authorities for a refund.</p>

<sup>56</sup> [https://www.bmcc.nsw.gov.au/sites/default/files/docs/2018-05-29\\_Enclosure\\_Item11.PDF](https://www.bmcc.nsw.gov.au/sites/default/files/docs/2018-05-29_Enclosure_Item11.PDF)

<sup>57</sup> <https://www.blacktown.nsw.gov.au/files/content/public/services/waste/demolition-and-construction-waste/western-sydney-recycling-directory-cd-updated-nov-2017.pdf>



Legislation and Guidance	Objectives
The Work Health and Safety Regulation 2011	The Work Health and Safety Regulation 2011 provide detailed actions and guidance associated with the topics discussed in the Work Health and Safety Act 2011. The primary aim of the regulation is to protect the health and safety of workers and ensure that risks are minimised in work environments. Workplaces are to ensure that they are compliant with the requirements specified in the regulations. The regulations discuss items such as actions that are prohibited or obligated in work environments, the requirements for obtaining licences and registrations, and the roles and responsibilities of staff in workplaces.
Waste Avoidance and Resource Recovery (Container Deposit Scheme) Regulation 2017	This Regulation implements the Waste Avoidance and Resource Recovery Act 2007 by setting out procedures and requirements for applying for a waste collection permit and by providing for licence conditions. Division 3 of Part 2 clause 18 – specifies entitlement to processing refunds for material recovery facility operators and describes arrangement between a local council and a material recovery facility operator under which the operator agrees to process for reuse or recycling domestic waste designated for recycling and collected in the council's area. Under the container deposit scheme, a MRF operator needs to hold environmental protection licences or have approval in writing by the NSW EPA to be treated as a MRF.
Building Code of Australia (BCA) and relevant Australian Standards	The BCA has the aim of achieving nationally consistent, minimum necessary standards of relevant health and safety, amenity and sustainability objectives efficiently.
Council of Australian Governments National Construction Code 2016	The National Construction Code 2016 sets the minimum requirements for the design, construction and performance of buildings throughout Australia.
NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012	These better practice guidelines present information on waste minimisation and resource recovery as well as information on commonly used waste management provisions. The guidelines also provide benchmarks for assessing waste production rates in Australia.
NSW Waste and Sustainable Materials Strategy 2041: Stage 1 – 2021-2027	Replacing the NSW Waste Avoidance and Resource Recovery Strategy (2014-21), the NSW Waste and Sustainable Materials Strategy 2041 focuses on the transition of NSW to a circular economy. The strategy focuses on minimising what is thrown away, and to use and reuse resources more efficiently, making them as productive as possible. The strategy identifies the need to identify infrastructure needs, the mandating of separation of some organic waste streams, and incentivising biogas generation from waste materials. The strategy sets out targets for having an 80% average recovery rate from all waste streams by 2030, significantly increase the use of recycled content by governments and industry, Triple the plastics recycling rate by 2030. Development of proposed facility is going to comply and help to support list above targets.
NSW EPA Resource Recovery Orders and Resource Recovery Exemptions	<p>The NSW EPA has issued a number of resource recovery orders and resource recovery exemptions under the POEO (Waste) Regulation 2014 for a range of wastes that may be recovered for beneficial re-use. These wastes typically include those from demolition and construction works, as well as ongoing wastes such as food waste.</p> <ul style="list-style-type: none"> <li>• Resource recovery orders present conditions which generators and processors of waste must meet to supply the waste material for beneficial re-use.</li> <li>• Resource recovery exemptions contain the conditions which consumers must meet to use waste for beneficial re-use.</li> </ul>
NSW EPA's Waste Classification Guidelines 2014	The NSW EPA Waste Classification Guidelines assists waste generators to effectively manage, treat and dispose of waste to ensure the environmental and human health risks associated with waste are managed appropriately and in accordance with the POEO Act 1997 and is associated regulations. The Guidelines provide procedures for waste regulations and licensing. It applies to households, waste facilities (organic processing facilities, local council operations, landfill operations, energy recovery operations), and industrial waste. Generators and waste facilities must ensure they classify their waste in accordance with the procedures in the guidelines.

Legislation and Guidance	Objectives
Environmental Guidelines: Solid Waste Landfills (EPA, Second edition 2016)	The Guidelines incorporate legislation and policy changes along with emerging landfilling technologies and techniques. A series of 'Minimum Standards' are specified which are a mix of design and construction techniques, effective site operations, monitoring and reporting protocols, and post-closure management requirements. This is not applicable for this development
Environmental Guidelines: Use and Disposal of Biosolids Products (EPA, 1997)	This is not applicable for this development
Environmental Guidelines: Composting and Related Organics Processing Facilities (EPA, 2004)	This is not applicable for this development
NSW Energy from Waste Policy Statement (EPA, 2015)	This is not applicable for this development
Standards for managing construction waste in NSW (EPA, 2018)	This applies only to C&D facilities and is not applicable for this development

# APPENDIX A

## Site Plans











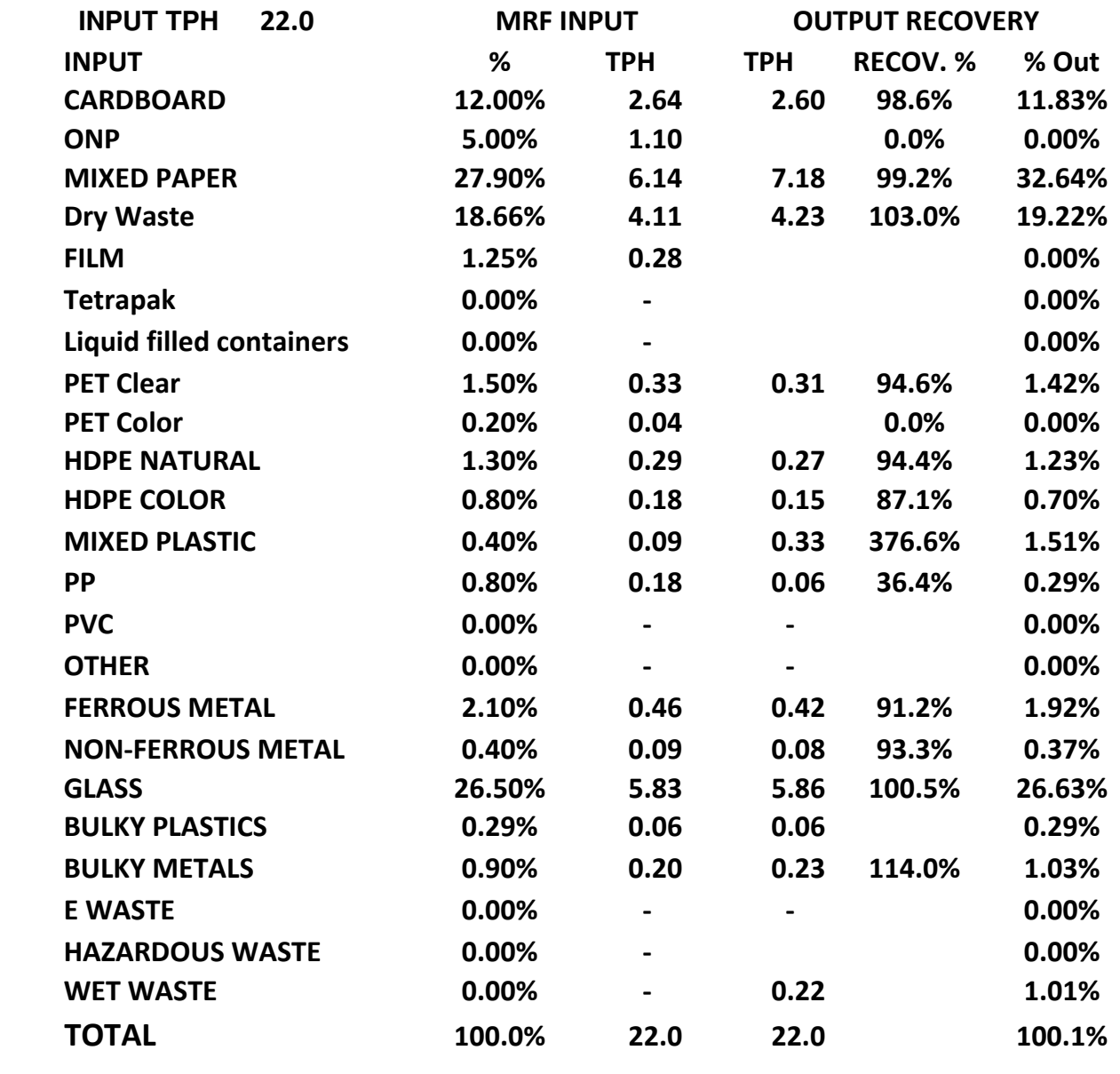


# APPENDIX B

## Piping and instrumentation diagram and mass balance



**Confidential Information**





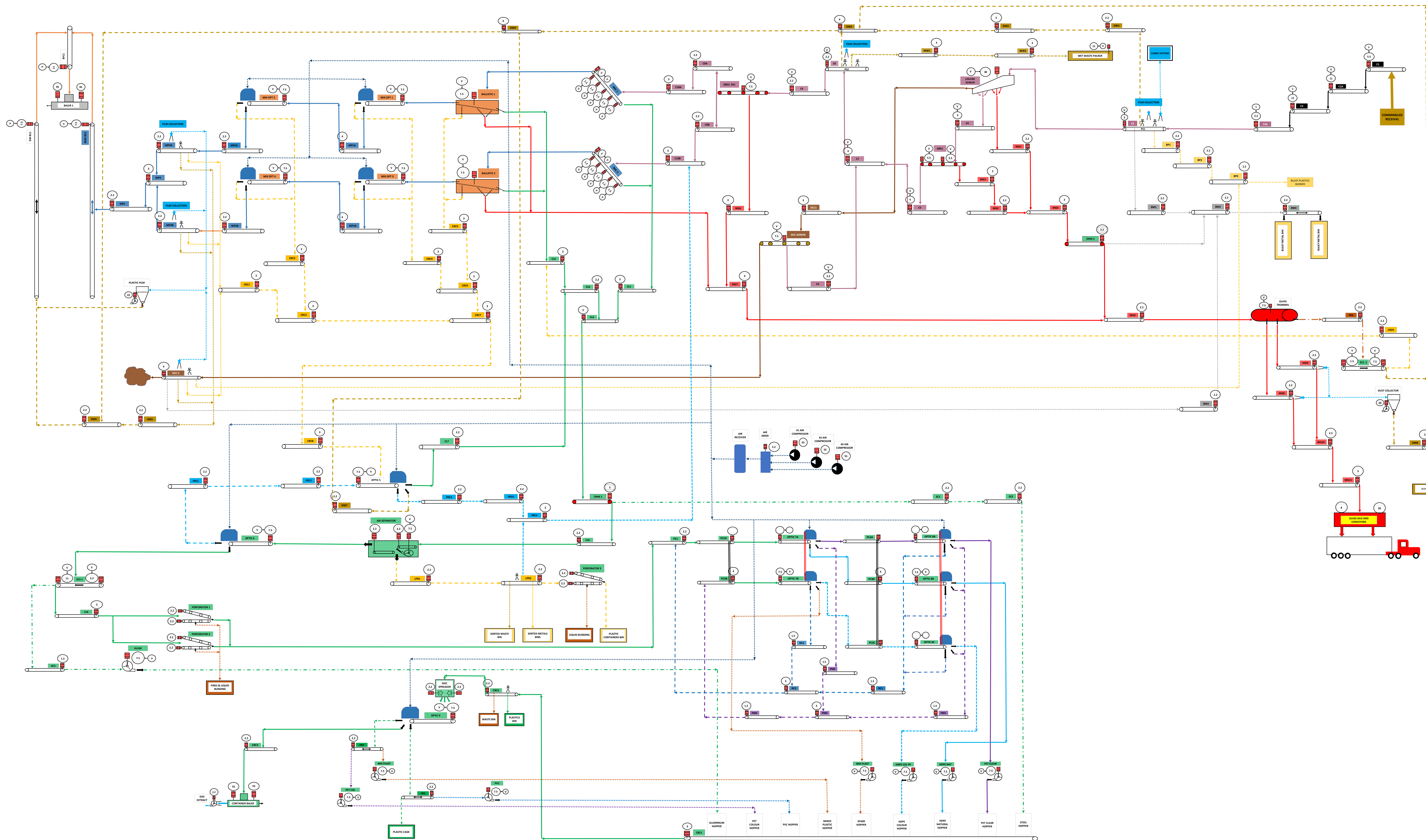
# CLEANAWAY BLACKTOWN 22 TPH COMMINGLED MRF WITH 9 OPTICS P&ID

DESIGNED BY AUSTRALIAN BALE PRESS COMPANY

DRAWING # 10840 MRF 01 Rev M

7/12/21

Confidential Information



# APPENDIX C

Process diagram showing fixed plant and equipment



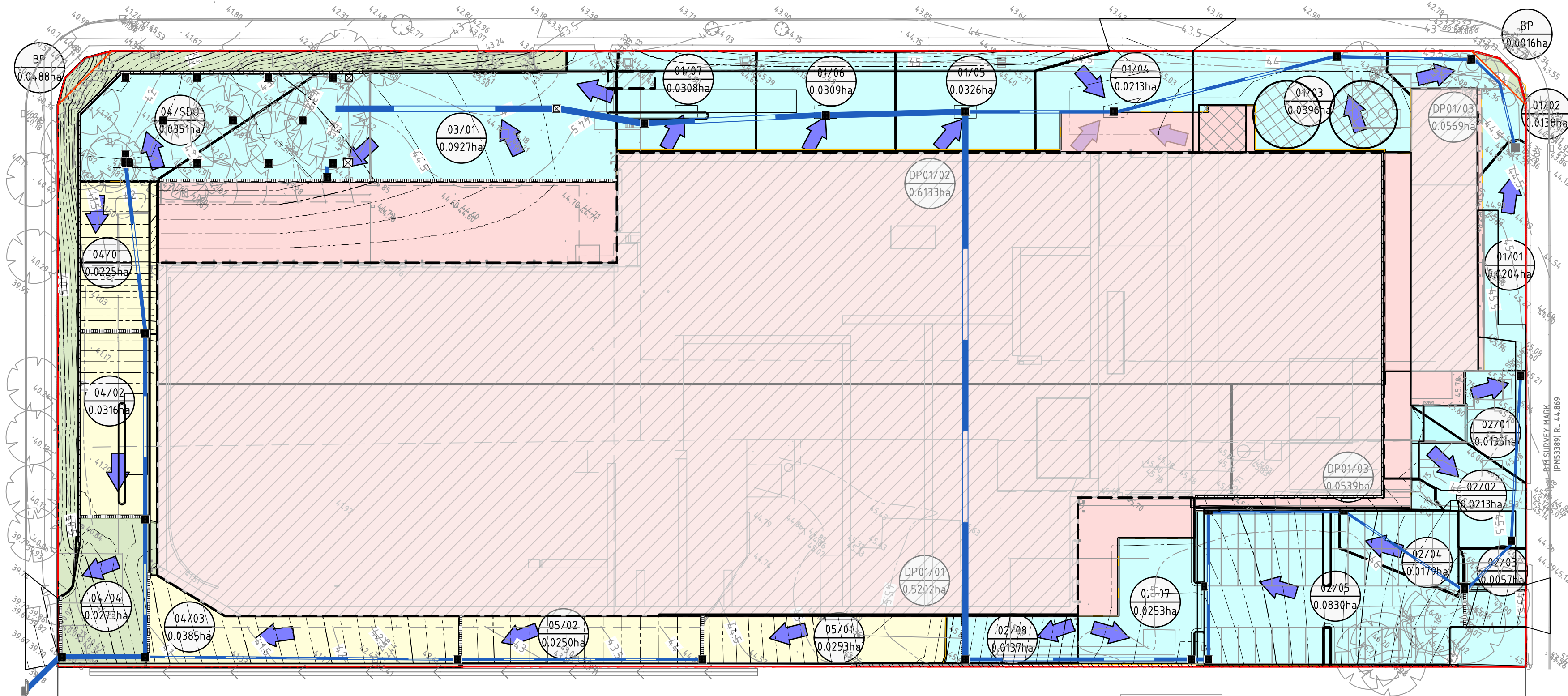


# APPENDIX D

## Stormwater Management Plan



DRAWN: E. EAGER  
DESIGNED: A. CARVALHAES  
JOB MANAGER: -  
VERIFIER: S. FRYER



LEGEND

PROPOSED BOUNDARY LINE

EXISTING BOUNDARY LINE

EXISTING CONTOURS

PROPOSED CONTOURS

CATCHMENT BOUNDARY

HARDSTAND AND LANDSCAPE  
CATCHMENT TO OSD TANK  
0.4984ha (25.3% OF THE SITE)

ROOF CATCHMENT TO OSD TANK  
1.2443ha (63.2% OF THE SITE)

OSD BYPASS CATCHMENT  
0.1469ha (7.5% OF THE SITE)

OSD AND GPT BYPASS CATCHMENT  
0.0777ha (4.0% OF THE SITE)

OVERLAND FLOW

STORMWATER PIT TAG  
CATCHMENT AREA (ha)

EXISTING DRAINAGE STRUCTURE

NEW DRAINAGE STRUCTURE

GENERAL NOTES:

1. REFER TO CIVIL DRAWINGS/ STORMWATER REPORT / DRAINS  
FILE FOR HYDROLOGICAL AND HYDRAULIC  
CALCULATIONS. CATCHMENTS INDICATED AND THEIR  
CORRESPONDING PITS ARE THOSE WHICH HAVE BEEN USED FOR  
MODELING PURPOSES.

2. REFER HYDRAULIC ENGINEERS CALCULATIONS FOR ROOF  
DRAINAGE.

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
01	ISSUED FOR INFORMATION	EE		AC	17.12.21
02	ISSUED FOR SSDA	MM		AC	19.01.22
03	ISSUED FOR INFORMATION	EE		AC	13.05.22

Charter Hall

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PROJECT

600 WOODSTOCK AVENUE,  
GLENDENNING

DRAWING TITLE

CIVIL ENGINEERING PACKAGE  
  
STORMWATER CATCHMENT PLAN

JOB NUMBER

211274

DRAWING NUMBER

DAC05.41

REVISION

03

DRAWING SHEET SIZE = A1

FORM 11 (02/21) 28082017 127-800 Woodstock Ave Glen Denning Drawing C:\Users\1514\OneDrive\Documents\1514\DAC05.41.dwg











# APPENDIX E

## Sediment and Erosion Control Plan







## ASIA PACIFIC OFFICES

### ADELAIDE

60 Halifax Street  
Adelaide SA 5000  
Australia  
T: +61 431 516 449

### BRISBANE

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