JACKSON
ENVIRONMENT AND PLANNING
STRATEGY | INFRASTRUCTURE | COMPLIANCE | PROCUREMENT

Waste Management Plan
5R Solutions Ltd Glass Recycling Facility
2115-2131 Castlereagh Road, Penrith

Jackson Environment and Planning Pty Ltd
Suite 102, Level 1, 25-29 Berry St, North Sydney NSW 2060
T: 02 8056 1849 | M: 0411 060 478 | E: admin@jacksonenvironment.com.au
W: www.jacksonenvironment.com.au

CONTENTS

1. Introduction

The *Waste Avoidance and Resource Recovery Act* 2001 (WARR Act) and the *Protection of the Environmental Operations Act* 1997 (POEO Act) govern the issues of waste generation, reuse, recycling, transport and disposal and prioritise waste solutions according to how successfully they conserve natural resources. The first priority is given to reducing the overall amount of waste, followed by the reuse and then recycling of any wastes that are unavoidably created, with disposal as a last resort. The aim is to extract the maximum practical benefits from the products and to manage waste in the best possible way.

This Waste Management Plan (WMP) has been developed to outline how waste will be avoided or minimized, reused, recycled and disposed lawfully during the construction and operational phases of the 25,000 tonne per annum glass recycling facility proposed by 5R Solutions Ltd at 2115-2131 Castlereagh Road, Penrith (the Facility). Note that no demolition works are proposed as part of the site development. This plan has been prepared to meet the requirements of Chapter C5 - Waste Management of the *Penrith Development Control Plan* 2014.

1.1. Scope and Objectives

This plan assesses how the waste will be dealt with in the most environmentally sustainable way. This WMP contains the following information:

- Relevant legislation and guidelines for waste management for the Facility;
- The systems, procedures and initiatives proposed to address the management of waste materials generated during the construction and operation phases of the Facility;
- Safeguards, mitigation measures and monitoring to manage waste impacts during construction and operation;
- Roles and responsibilities of those involved in the design and implementation of waste management controls and
- An effective monitoring, auditing and reporting framework to assess the effectiveness of the controls implemented.

This WMP is a sub plan to the overall Environmental Management System (EMS) for the Facility.

5R Solutions Ltd is committed to environmental sustainability through waste avoidance and reduction as well as increased recycling. To that extent, under the waste management procedures and this WMP, it is anticipated that the facility will achieve a landfill diversion rate of at least 95%. The facility will offer glass and glazing businesses across the Sydney region with recycling services which will assist them to increase their recycling rate to assist in meeting the 70% recycling target for commercial and industrial waste under the NSW Government's *Waste Avoidance and Resource Recovery Strategy 2014-2021*.

1.2. The Site

5R Solution's glass recycling facility is located in the Penrith City Council area. The facility is located at 2115-2131 Castlereagh Road [Lot 2 / DP787827], Penrith, NSW 2750, within an existing industrial factory warehouse. This warehouse is located in the eastern part of the lot. The northern part of the lot is developed for industrial warehousing and parking and is occupied by Crane Copper Tube, a copper tube manufacturing company.

A mix of laminated, plate and double glazed glass packaging will be sourced and processed at the Facility. Only dry, non-putrescible, source separated glass offcuts will be recycled at the facility, meeting the definition of General Waste (Non-putrescible) in the NSW EPA's *Waste Classification Guidelines*[1].

[1] NSW EPA (2014). Waste Classification Guidelines – Part 1: Classifying Waste. Published November 2014. Internet publication: http://www.epa.nsw.gov.au/resources/wasteregulation/140796-classify-waste.pdf

2. Legislative and Regulatory Compliance

2.1. Relevant Legislation

Key environmental legislation relating to waste management includes the following:

- *Waste Avoidance and Resource Recovery Act* 2001 (WARR Act)
- *Contaminated Land Management Act* 1997 (CLM Act)
- *Protection of the Environmental Operations Act* 1997 (POEO Act)
- *Protection of the Environment Operations (Waste) Regulation* 2014
- *Commonwealth Hazardous Wastes (Regulation of Exports and Imports) Act* 1989
- *Environmentally Hazardous Chemicals Act* 1985.

2.2. Conditions of Approval

This WMP has been prepared as per the pre-lodgement advice meeting recommendations made by Penrith City Council on 9 August 2017 and in compliance with Chapter C5 - Waste Management in the *Penrith Development Control Plan* 2014.

2.3. *Penrith Development Control Plan* 2014 (Chapter C5 – Waste Management) Requirements

Under Section 5.1(a), Chapter C5 – Waste Management of the *Penrith Development Control Plan* 2014, the following controls need to be addressed in the waste management plan accompanying the development application for a commercial or industrial development, including a change of use of an existing development.

The Waste Management Plan enables Council (or the Certifying Authority) to assess the waste likely to be generated by the development and ensure that appropriate actions are taken so as to properly manage the generation, storage and disposal of wastes.

The Waste Management Plan must be supported by scaled waste management drawings that are to assist in demonstrating compliance with the provisions of this Plan. The Waste Management Plan must include details of:

a) The types and volumes of wastes and recyclables likely to be generated as a result of the development;
b) How waste and recyclables will be stored and treated on site;
c) How the residual non-reusable or non-recyclable wastes and recyclables are to be disposed of; and
d) How ongoing waste management will operate once the development is complete (for the life of the development).

Under Section 5.2.4 of the *Penrith Development Control Plan* 2014, Chapter C5 – Waste Management, the following additional controls apply to the waste storage and collection areas. These areas should be:

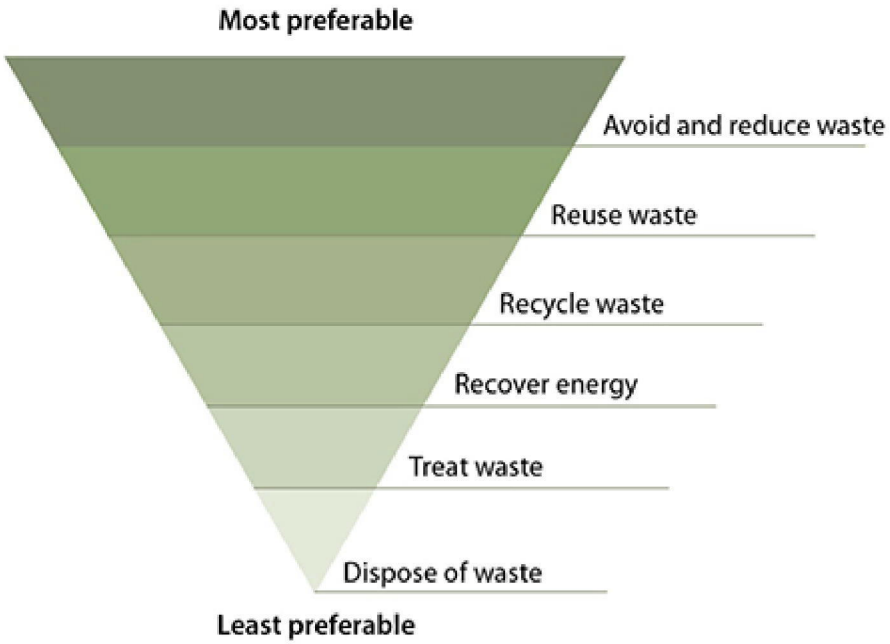
a) Flexible in their design so as to allow for future changes in the operation, tenancies and uses;
b) Located away from primary street frontages, where applicable;
c) Suitably screened from public areas so as to reduce the impacts of noise, odour and visual amenity; and
d) Designed and located to consider possible traffic hazards (pedestrian/vehicular) likely to be caused by the storage and collection of waste.

Other requirements for separation and recycling of certain waste streams are provided in Section 5.2.4(4) of the *Penrith Development Control Plan* 2014, Chapter C5 – Waste Management.

3. Environmental Aspects, Impacts and Risks

3.1. Waste Hierarchy

The waste hierarchy is a set of priorities for the efficient use of resources; this underpins the objectives of the *Waste Avoidance and Resource Recovery Act* 2001.



- **Avoid**: Waste avoidance by reducing the quantity of waste being generated. This is the simplest and most cost-effective way to minimise waste. It is the most preferred option in the Waste Management Hierarchy and is therefore ranked first.
- **Reuse**: Reuse occurs when a product is used again for the same or similar use with no reprocessing. Reusing a product more than once in its original form reduces the waste generated and the energy consumed, which would have been required to recycle.
- **Recycle and Reprocess**: Recycling involves the processing waste into a similar non-waste product consuming less energy than production from raw materials. Recycling spares the environment from further degradation, saves landfill space and saves resources.
- **Dispose**: Removing waste from worksites, compounds and offices and disposal in a licensed landfill site, or other appropriately licensed facility.

3.2. Environmental Aspects – Major Waste Streams

The environmental aspects are those operations that may result in an environmental impact. Only a small number of waste streams will be produced during the construction and operation phases of the Project, these are summarised in Table 2 and include potential reuse options for each.

3.3. Classification of Waste Streams

Classifying waste into groups that pose similar risks to the environment and human health facilitates their management and appropriate disposal.

The following classes of waste are defined in clause 49 of Schedule 1 of the *Protection of the Environment Operations Act* 1997 (POEO Act) and the NSW EPA's *Waste Classification Guidelines:*

- Special waste
- Liquid waste
- Hazardous waste
- Restricted solid waste
- General solid waste (putrescible)
- General solid waste (non-putrescible)

Where waste cannot be avoided, reused or recycled it will be classified and appropriately disposed of. The classification of waste is based on the *Waste Classification Guidelines* (NSW EPA, 2014). The guideline outlines how to assess waste, waste classification and sets out management options for the disposal of classified waste.

Waste classification will involve one or more of the following steps:

1. Establish if the waste should be classified as special waste.
2. If not special waste, establish whether the waste should be classified as liquid waste.
3. If not special waste or liquid waste, establish whether the waste is of a type that has already been pre-classified.
4. If the waste is not special waste, liquid waste or pre-classified, establish if it has certain hazardous characteristics and can therefore be classified as hazardous waste.
5. If the waste does not possess hazardous characteristics, it needs to be chemically assessed to determine what class of waste it is. If the waste is not chemically assessed, you must manage the waste as if it were hazardous waste.
6. If the waste is chemically assessed as general solid waste, a further test is available to determine whether the waste is putrescible or non-putrescible. This test determines whether the waste is capable of significant biological transformation. If you do not wish to undertake this test, you must manage the waste as if it were general solid waste (putrescible).

3.4. Reuse, Recycling and Disposal Arrangements

The waste streams that are likely to be produced during the construction and operations phases of the Project as well as the potential reuse options for each stream are summarised in Table 1 and Table 2. Figure 1 provides a general site layout including the location of waste storage areas, recycling bins and truck access.

Note that during the construction phase of the project, this will be limited to unpacking and assembly of glass processing mobile plant and equipment in the existing factory warehouse. Waste materials generated which will be fully recycled includes timber pallets, timber packing materials, steel and plastic film. Some consumer packaging and residual waste will be generated by contractors on site during the plant installation process. No building works will occur on site. An overall recycling rate of 97% is expected during construction works.

During the operational phase of the development, source separated glass from glass and glazing businesses will be received and processed at the facility into a fine glass product suitable for insulation production by CSR. Co-mingled recycling will be produced on-site by staff, and a separate 240L recycling collection bin will be provided in the warehouse. Food will be separated in the office and will be placed in a sealed 10L bucket, and loaded into two on-site worm farms (adjacent to the office in the warehouse). Residual, non-recyclable waste from glass processing (mainly plastic film) will be disposed into the on-site skip bin in the factory warehouse and disposed to landfill on an as needed basis. Used oil / grease will be separated on-site and stored in bunded containers, and will be removed and recycled off-site. Overall, during operations, a recycling rate of 95% will be achieved.

Also note that bins during the construction and operational phase of the development will be located in a fixed position along the northern side of the factory warehouse. The position of the bins inside the warehouse will also avoid possible traffic hazards (pedestrian/vehicular) likely to be caused by the storage and collection of waste.

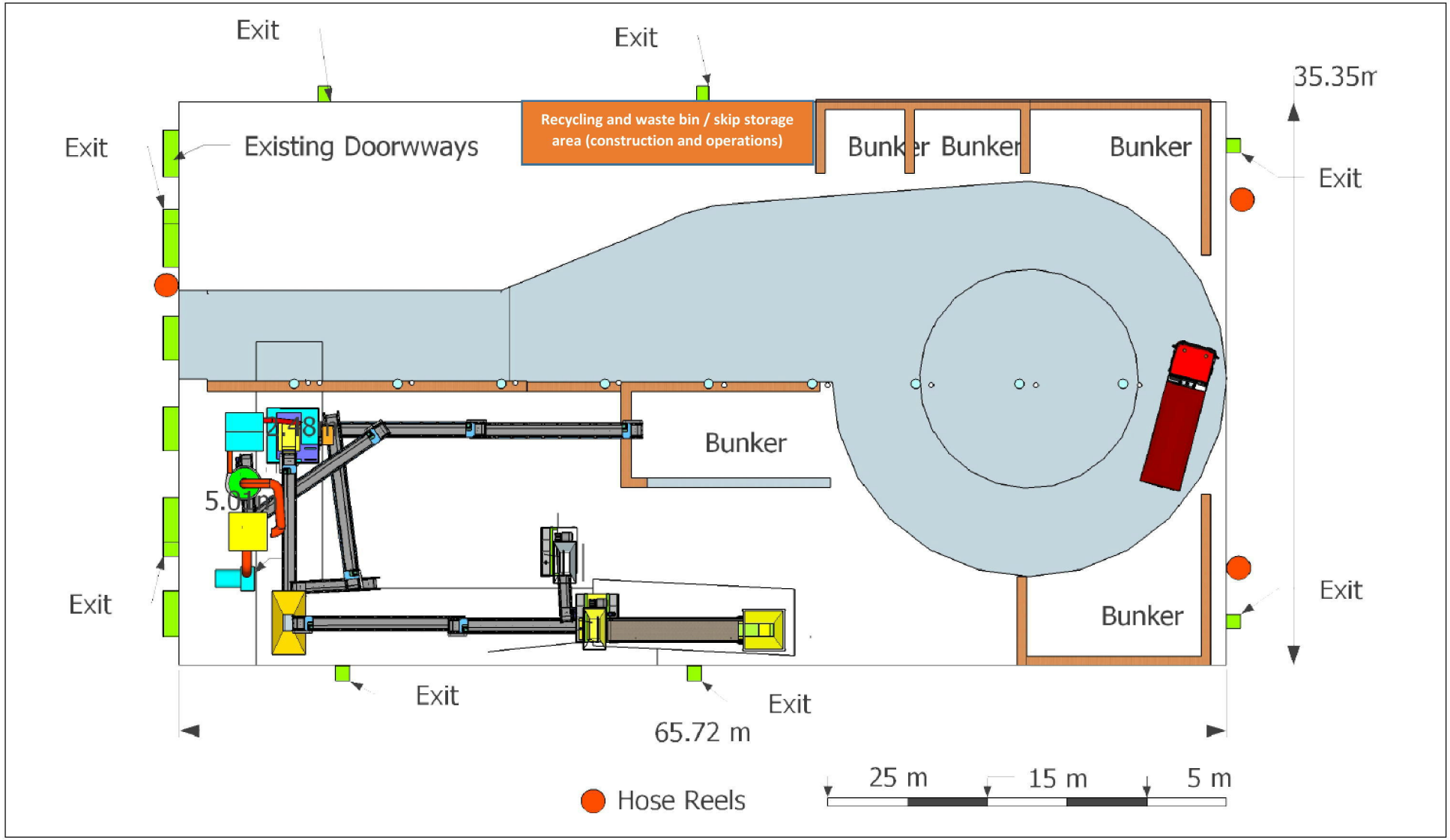
Table 1. Management of construction waste – during construction phase only.

Key Waste Stream	Approximate Amount	Segregation Areas / Containers	Reuse / Recycling / Disposal Method	Waste Type (NSW EPA Pre-classified Waste)	Suggest Receiving Facility	Recycling rate
Timber (pallets and packaging materials)	5 tonnes	5m^3 skip bin in factory warehouse	Off-site recycling	General waste (non-putrescible)	Bin to be collected by Direct Pallets and recycled into poultry bedding, Ingleburn (EPL 20637)	100%
Steel	0.5 tonnes	2 m3 skip bin in factory warehouse	Off-site recycling	General waste (non-putrescible)	Bin to be collected and sorted / recycled by Sims Wetherill Park (EPL 2950)	100%
Co-mingled recycling: paper / cardboard / plastic / glass containers / metal cans	0.2 tonnes	660L co-mingled recycling bin in factory warehouse	Off-site recycling	General waste (non-putrescible)	Bin to be collected and sorted / recycled by Suez at Seven Hills (EPL 7246)	100%
Hydrocarbons (oils / grease)	100 L (89kg)	Sealed drums / containers, bunded area	Off-site recycling	Non-aqueous liquid waste	Oil to be collected and recycled by Suez at Seven Hills (EPL 7246)	100%
General waste (non recyclable residual waste)	0.2 tonnes	660L general waste bin in factory warehouse	Off-site disposal	General waste (putrescible)		0%
Overall recycling rate						97%

Table 2. Management of operational waste streams. Waste generation is estimated on an annual basis (tonnes per year).

Key Waste Stream	Approximate Amount	Segregation Areas / Containers	Reuse / Recycling / Disposal Method	Waste Type (NSW EPA Pre-classified Waste)	Suggest Receiving Facility	Recycling rate
Glass	25,000 tonnes per year	30 m^3 glass receival bunker (source separated plate, laminated and doubled glazed glass)	Glass wool insulation production – off site recycling	General waste (non-putrescible)	Bulka bags of crushed and graded glass to be transported to CSR Viridian, Ingleburn (EPL 2692)	95%
Co-mingled recycling: paper / cardboard / plastic / glass containers / metal cans	1.2 tonnes per year	240L MGB emptied weekly	Off-site recycling	General waste (non-putrescible)	Bin to be collected and sorted / recycled by Suez at Seven Hills (EPL 7246)	100%
Food waste	260 kg per year	Two on-site domestic worm farms	On-site recycling	General waste (putrescible)	On-site worm farm	100%
Hydrocarbons (oils / grease)	500 L (445kg) per year	Sealed drums / containers, bunded area	Off-site recycling	Non-aqueous liquid waste	Oil to be collected and recycled by Suez at Seven Hills (EPL 7246)	100%
General waste (non recyclable residual waste from processing of glass and office waste)	1,250 tonnes per year	3 m^3 general waste bin in factory warehouse	Off-site disposal	General waste (non-putrescible)	Suez Kemps Creek landfill (EPL 20647)	0%
Overall recycling rate						95%

Figure 1. Waste Management Plan for 5R Solutions Ltd glass recycling facility at 2115 Castlereagh Rd, Penrith (Lot 2, DP 787827).



3.5. Environmental Risk Assessment

A risk assessment has been undertaken to identify the level of risk that construction and operations activities may present to waste management.

The following points summarise the key activities identified in the risk assessment relevant to waste management for construction works and operation of the Facility.

- Litter (e.g. food waste, packaging) from site amenities reaching local waterways;
- Leakage of effluent from site amenities;
- Excessive use of water resources;
- Excess packaging material deliveries increasing waste generated;
- Inappropriate reuse or disposal of waste items which may be hazardous;
- Fuel and oil spills during plant and equipment maintenance; and
- The location and storage of waste on site prior to reuse or disposal.

3.6. Environmental Control Measures

Table 3 provides the environmental control measures and safeguards that will be implemented in order to minimise waste generated during the construction and operation phases of the Facility.

Table 3. Environmental control measures.

Control Measures and Safeguards	Timing	Responsibility
Waste management and minimisation will form part of the induction program (which includes environmental due diligence training). All Project and site personnel will be trained in the requirements of this document including minimising wastes, recognising which types of materials are recyclable and their obligations to use recycling facilities provided on site.	Prior to starting on site / Ongoing	Operations Manager
Specific locations for waste management (e.g. sorting area locations, recycling bin locations, material stockpile locations) will be established on site and signposted appropriately.	Ongoing	Operations Manager
Waste management areas will be adequately managed to prevent sediment runoff and dust generation.	Ongoing	Operations Manager
Construction Method Statements (CMS) will include practices to minimise waste generation and to maximise recycling and reuse of materials including oils, greases, lubricants, timber, glass, and metal.	Prior to start of construction and ongoing	Operations Manager
Packaging minimisation and reuse initiatives will be implemented as part of the procurement.	Ongoing	Operations Manager
Segregated waste disposal containers for the collection and recycling/disposal of all waste streams generated during the construction and operation phases will be provided onsite. Waste disposal containers will have clear signage and instructions for use to avoid cross-contamination. No rubbish shall be disposed of on site.	Ongoing	Operations Manager
Waste will be disposed to an appropriate licensed facility. A Waste Management Register of all waste collected for disposal and / recycling, including amounts, data and time and details and location of disposal will be maintained at all times.	Ongoing	Operations Manager
All waste being transported off site must be covered. The transportation must be appropriately licensed to carry that material.	Ongoing	Operations Manager
Storage of all hazardous substances and dangerous goods will be in accordance with SDS requirements in a bunded area. Solid and hazardous wastes will be contained and separated from inert waste.	Ongoing	Operations Manager
Any hazardous waste (e.g. asbestos) will be managed and handled by an appropriately licensed contractor and transported for disposal to a licensed facility approved site	Ongoing	Operations Manager

Control Measures and Safeguards	Timing	Responsibility
Any material contaminated by spills i.e. fuel, oil, lubricants etc., including empty fuel, oil and chemical containers, will be stored in a sealed secure container within a bunded area and will be transported to a waste disposal site approved by the NSW EPA to accept such material.	Ongoing	Operations Manager
Incompatible wastes will not be mixed.	Ongoing	Operations Manager
Storage areas would be located away from waterways and the stormwater system.	Ongoing	Operations Manager
Biodegradable products will be used wherever practicable.	Ongoing	Operations Manager
Regular collection of wastes will ensure air emissions are at a satisfactory level. Inappropriate waste and wastewater management systems will be regularly inspected and audited.	Ongoing	Operations Manager
Conduct regular litter patrols to ensure litter is effectively controlled on site.	Ongoing	Operations Manager

4. Training

All employees, contractors and utility staff working on site will undergo site induction training (which includes environmental due diligence training) and environmental training in relation to waste management issues. The induction will address:

- This management plan;
- Relevant legislation;
- Waste minimization strategies;
- Waste recognition and recycling;
- Available recycling facilities; and
- Energy and water minimisation measures.

Records would be kept of all personnel undertaking the site induction and training, including the contents of the training, date and name of trainer/s.

Key staff will undertake more comprehensive training relevant to their position and/or responsibility. This training may be provided as “toolbox” training or specific training tailored by the Operation Manager.

5. Monitoring and Review

5.1. Inspections and Monitoring

Regular monitoring will be undertaken to track waste management on site. This will be through a series of formal and informal inspections at regular intervals.

Activity	Resources	Responsibility	Frequency
Daily Site inspections (work area)	Site Diary	Operations Manager	Daily Issues recorded in Site Diary (by exception)
Weekly Environmental Inspection	Environmental Site Inspection Checklist	Operations Manager	Weekly
Waste removal activities off site	Monthly Register for Waste Materials	Operations Manager	Monthly

5.2. Auditing

Audits will be undertaken to assess the effectiveness of environmental controls and compliance with this plan and other relevant guidelines.

A schedule for internal audits providing frequencies and responsibilities is to be determine by the Operations Manager as appropriate.

5.3. Environmental Management Review

The effectiveness and proper implementation of the WMP will be reviewed by 5R Solutions Ltd every twelve months or sooner as necessary. Review will be undertaken by the management team. The review will comprise:

- Reviewing the results of audits;
- Evaluation of the system, which improvements and corrective actions will be sought; and
- Evaluation of the operation of the WMP.

5.4. Continual Improvement

Continual improvement of this WMP will be achieved by the continual evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement. The continual improvement process will:

- At least monthly (or as incidents / non-conformances occur):
    - Determine the root cause or causes of non-conformances and deficiencies.
    - Develop and implement a plan of corrective and preventative action to address non-conformances and deficiencies.
    - Verify the effectiveness of the corrective and preventative actions.

Outcomes of these reviews shall be documented and retained for the duration of the projec