



J A C K S O N
ENVIRONMENT AND PLANNING
STRATEGY | INFRASTRUCTURE | COMPLIANCE | PROCUREMENT



Waste Management Plan

ReDirect Recycling Pty Ltd Timber and Plasterboard
Recycling Facility

25 Dunheven Circuit, St Marys

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

This Waste Management Plan has been prepared by Jackson Environment and Planning Pty Ltd, Suite 102, Level 1, 25-29 Berry St, North Sydney NSW 2060.

Author 1: Dr Mark Jackson, Director and Principal Consultant, B.Sc (Hons), PhD, Grad. Cert. Mgmt., Exec. Masters Public Admin.

Author 2: Dr Jill Lethlean, Senior Consultant, B. Chem. Eng., Masters App. Sc., PhD, Grad. Dip. Comp., Grad. Cert. Mgmt.

We declare that:

The plan contains all available information that is relevant to the environmental assessment of the development, activity or infrastructure to which the statement relates, and the information contained in the statement is neither false nor misleading.

Report version	Authors	Date	Reviewer	Approved for issue	Date
v1.0	Dr J.Lethlean	12/10/2020	Dr M.Jackson	Dr M.Jackson	15/10/20
V2.0					
FINAL					

Executive Summary

ReDirect Recycling Pty Ltd is proposing to increase the throughput/volume of the existing resource recovery and recycling facility at 25 Dunheved Circuit, St Marys, (Lot 143 / DP 1013185).

The proposal is establish a wood and plasterboard recycling facility to receive and process up to 150,000 tonnes per annum of dry waste, consisting of 110,000 tonnes per annum wood/timber waste, 30,000 tonnes per annum of plasterboard and up to 10,000 tonnes per annum of scrap metal.

No works are proposed to the existing buildings. A wheel wash will be installed in the existing driveway. Other works during the construction phase will be installation of processing equipment within the main warehouse building.

Wood waste, consisting of timber offcuts and wooden pallets, will be inspected, sorted and shredded. Any metals will be removed via magnets on a sorting line. The majority of the processed wood waste will be transferred to the Borg Manufacturing site in Oberon, NSW to be used in the manufacture of particle board and MDF products, or to be used as fuel for dryers in accordance with existing approvals. The types of wood waste received for processing will include clean pallets, unlaminated particle board, MDF, LOSP pine and laminated MDF with coatings, along with other urban and raw wood materials deemed suitable. These waste materials will come from a number of sources including Borg Panels customers, framing and truss builders, freight companies, waste facilities and other timber companies.

Plasterboard will be ground in a turbo separator, with paper removed during the separation process. The gypsum generated by processing will be used for agricultural soil conditioning or re-used in plasterboard production. The recovered paper will be recycled by a third party recycler.

Waste metals, including those recovered during the timber processing will be manually sorted and separated, and then taken off-site to other waste facilities to be processed by a licensed metal recycler.

Residual waste, consisting of small quantities of non-recyclable waste extracted from incoming waste streams, will be aggregated in skip bins and periodically removed from site by a licensed contractor for disposal in a licensed landfill.

A waste/recycling contractor will be engaged to provide a MGB waste and recycling service for the employee waste.

The overall recovery rate for the facility will be approximately 95%.

The proposed development will seek to expand the current facility into a best-practice recycling plant that will assist in achieving the NSW Government's target of an 80% recycling rate for construction and demolition waste by 2021.

CONTENTS

1	Introduction	1
1.1	Background	1
1.2	Objectives.....	1
1.3	Legislative requirements and related documentation	2
1.4	SEAR requirements for waste management (SSD 10474)	3
2	Project Description.....	5
2.1	Demolition and construction phase.....	5
2.2	Operational phase.....	5
2.2.1	Plant and equipment.....	5
2.2.2	Timber processing.....	7
2.2.3	Plasterboard processing.....	8
2.2.4	Metals collection	9
3	Waste Management	10
3.1	Demolition and construction phase.....	10
3.1.1	Waste generation during construction phase	10
3.1.2	Waste management measures during construction phase	10
3.2	Operational phase.....	11
3.2.1	Waste generation and products from recycling	11
3.2.2	Waste inspection, acceptance and non-conforming waste.....	13
3.2.3	Waste management measures	15
3.2.4	Stockpile heights and management.....	16
3.2.5	Authorised amounts.....	16
3.2.6	Record keeping and data reporting	18
4	Management of hazardous, toxic and liquid waste.....	18
5	Incident management.....	18
6	Impact assessment and mitigation measures.....	18
7	Conclusion	19

Appendices

Appendix A – Non-conforming waste procedure

1 Introduction

1.1 Background

The proposed site is identified as being 25 Dunheved Circuit, St Marys, Lot 143 in DP 1013185. An existing approved Resource Recovery Facility is currently located on site (DA15/1042). The subject site is situated 45 kilometres (km) west of the Sydney central business district (CBD). The site is located within the City of Penrith Local Government Area (LGA), within the electoral district of Londonderry and the federal Division of Lindsay. The proposed site is located approximately 6.5 km from Penrith CBD.

The subject site is located within an established industrial precinct that covers an area of approximately 1,000 hectares (ha) and comprises a mix of general, light and storage based industries; including steel and sheet metal fabrication workshops, oil and lubricant storage facilities, transport depots, plant and equipment hire facilities and mechanical repair workshops. The industrial precinct also has several existing waste management and resource recovery facilities and other similar activities licensed under the *Protection of the Environment Operations Act 1997* (POEO Act).

ReDirect Recycling Pty Ltd is proposing to increase the approved annual capacity of the existing recycling facility at 25 Dunheved Circuit, St Marys, Lot 143 in DP 1013185.

The site currently has approval for the sorting and processing of 18,000 tonnes of waste per annum (DA01/1034 Penrith Council). It is proposed to increase this throughput to 150,000 tonnes per annum, consisting of 110,000 tonnes wood/timber waste and 30,000 tonnes of plasterboard. As a result of processing the timber materials, waste metals (approx. 10,000 tonnes per annum) will also be collected on site and transferred elsewhere for processing. No works are proposed to the existing site or buildings. The existing site was purpose built for resource recovery.

Wood waste, consisting of timber offcuts and wooden pallets, will be inspected, sorted and shredded. Any metals will be removed via magnets on a sorting line. The majority of the processed wood waste will be transferred to the Borg Manufacturing site in Oberon, NSW to be used in the manufacture of particle board and MDF products, or to be used as fuel for dryers in accordance with existing approvals. The typical types of wood waste include clean pallets, unlaminated particle board, MDF, LOSP pine and laminated MDF with coatings, along with other urban and raw wood materials deemed suitable. These waste materials will come from a number of sources including Borg Panels customers, framing and truss builders, freight companies, waste facilities and other timber companies.

Plasterboard will be inspected, sorted and shredded in a turbo separator, with paper removed during the separation process. The gypsum generated by processing will be used for agricultural soil conditioning or re-used in plasterboard production.

Waste metals, including those recovered during the timber processing will be manually sorted and separated, and then taken off-site to other recycling facilities for processing.

The proposal varies from other resource recovery facilities as both the recovery facility and end user for the bulk of the processed materials are owned by the same company. Borg Manufacturing Pty Ltd owns ReDirect Recycling Pty Ltd. The purpose of this business is to source and recover maximum value from engineered timber resources and reducing waste after product has reached the market.

1.2 Objectives

The key objectives of the Waste Management Plan for commercial and industrial developments as stated in the *Penrith Development Control Plan 2014* (the DCP) are as follows:

- Site planning of the development accommodates on-site waste collection and allows the waste collection vehicle to enter/exit, manoeuvre within the site and access the nominated collection point in a safe and efficient manner;
- Site planning of the development ensures amenity and safety of all users (tenants, caretakers, cleaners and waste collection staff) at all stages of the waste management process;
- Waste management system selection ensures that it is safe and convenient for tenant use; and
- Adequate waste storage area(s) are provided within the development to store all required waste bins.

1.3 Legislative requirements and related documentation

In NSW, a series of laws, policy and guidelines exist to guide the management of waste materials to ensure that human health and the environment are protected at all times. Management of waste materials is guided by the *Protection of Environment Operations Act 1997 (POEO Act)* and the NSW EPA's *Waste Classification Guidelines*. The POEO Act and the Waste Classification Guideline set out how waste needs to be classified, stored, handled, treated and disposal. Wastes also need to be taken to a lawful place for processing, treatment or disposal.

Other relevant legislation and publications that relate to the management of waste include:

- *Environmental Planning and Assessment Act 1979*;
- *Waste Avoidance and Resource Recovery Act 2001*;
- *Protection of the Environment Operations (Waste) Regulation 2014*;
- *Work Health and Safety Act 2011* and the *Work Health and Safety Regulations 2011*;
- *Penrith Development Control Plan 2014 – C5 Waste Management*;
- *Recovered Plasterboard Order 2014* and *Recovered Plasterboard Exemption 2014*;
- *The Mulch Order 2016* and *The Mulch Exemption 2016*;
- *Borg specific Urban Wood Residues Resource Recovery Order and Exemption*
- NSW EPA (2014) *Draft Protocol for managing asbestos during resource recovery of construction and demolition waste*;
- NSW EPA (2019) *Standards for Managing Construction Waste in NSW*;
- NSW Fire and Rescue (2020). *Fire Safety Guideline – Fire Safety in Waste Facilities*.

The *Waste Avoidance and Resource Recovery Strategy 2014-21* has the following objectives:

- Waste Avoidance;
- Increase recycling rate of Construction and Demolition waste to 80%;
- Divert 75% waste from landfill;
- Manage problem wastes better;
- Reduce Litter; and
- Reduce Illegal Dumping.

The manner in which waste is to be managed is driven by the Ecologically Sustainable Development principles. Guidance in managing waste has been provided by the hierarchical chart below.

Figure 1.1. The waste hierarchy as published in the NSW Waste Avoidance and Resource Recovery Strategy 2014-21.



1.4 SEAR requirements for waste management (SSD 10474)

The Secretary's Environmental Assessment Requirements (SEARs) for the project was issued on 16 July 2020 (SSD 10474). Table 1.1 provides a summary of the requirements in the SEARs that relate to waste management. All issues raised have been addressed in the Waste Management Plan. Some of the information has also been included in various sections of the Environmental Impact Statement.

Table 1.1. Summary of waste management requirements in the SEARs (SSD 10474).

Agency	Requirement	Report / section
SEARs covering requirements	a description of each of the waste streams that would be accepted at the site including maximum daily, weekly and annual throughputs and the maximum size for stockpiles	Section 3.2.1
	details of the source of the waste streams to justify the need for the proposed processing capacity	Section 3.2.1
	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	Chapter 2
	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	Section 2.2 Section 3.2.4 Section 3.2.5
	detail the developments waste tracking system for incoming and outgoing waste	Section 3.2.6
	detail the quality of waste produced and final dispatch locations	Section 3.2.1 Section 3.2.3
	details of the waste management strategy for construction and ongoing operational waste generated	Chapter 2
	the measures that would be implemented to ensure that the development is consistent with the	Chapter 3

Agency	Requirement	Report / section
	aims, objectives and guidance in the NSW Waste Avoidance and Resource Recovery Strategy 2014-2021 and	
	details of consistency with the EPA's Standards for Managing Construction Waste in NSW.	Section 3.2.2
NSW EPA	The EIS must include a detailed assessment of the waste management processes to be undertaken at the Premises. This includes but is not limited to:	Chapter 2
	details of the sources of waste to be received at the Premises;	
	details of the types and quantities of each type of waste to be received at the Premises;	Section 3.2.1
	details of the maximum volume of waste to be stored on the Premises at any one time;	Section 3.2.5
	details of the maximum annual throughput of waste for be processed at the Premises;	Section 3.2.1
	a description of waste processing procedures for each waste type;	Chapter 2
	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 (refer to the EPA's Waste Levy Guidelines for more information – available at http://www.epa.nsw.gov.au/your-environment/waste/waste-levy);	Section 3.2.6
	a detailed site plan(s) identifying areas for: <ul style="list-style-type: none"> o haulage; o waste receipt, processing, storage and loading (for each waste type) o quarantine; o infrastructure for environmental controls including dust, noise, water and wheel wash; o weighbridge; o site boundaries; o stormwater drainage areas; and o unused stabilised areas; 	Chapter 2
	details of the type and quantities of materials to be produced and their intended fate;	Section 3.2.1
	details of any materials produced under a Resource Recovery Order, and the controls in place for meeting the conditions of that order;	Section 3.2.3
	a description of procedures for dealing with non-conforming waste (i.e. waste not permitted to be received at the Premises).	Section 3.2.2 Attachment 1

2 Project Description

2.1 Demolition and construction phase

The site has an existing warehouse building, weighbridge and water tanks at the site. No demolition is necessary for the development. The construction phase will consist of installing concrete bunkers and installing equipment to upgrade the facility for its new purpose.

2.2 Operational phase

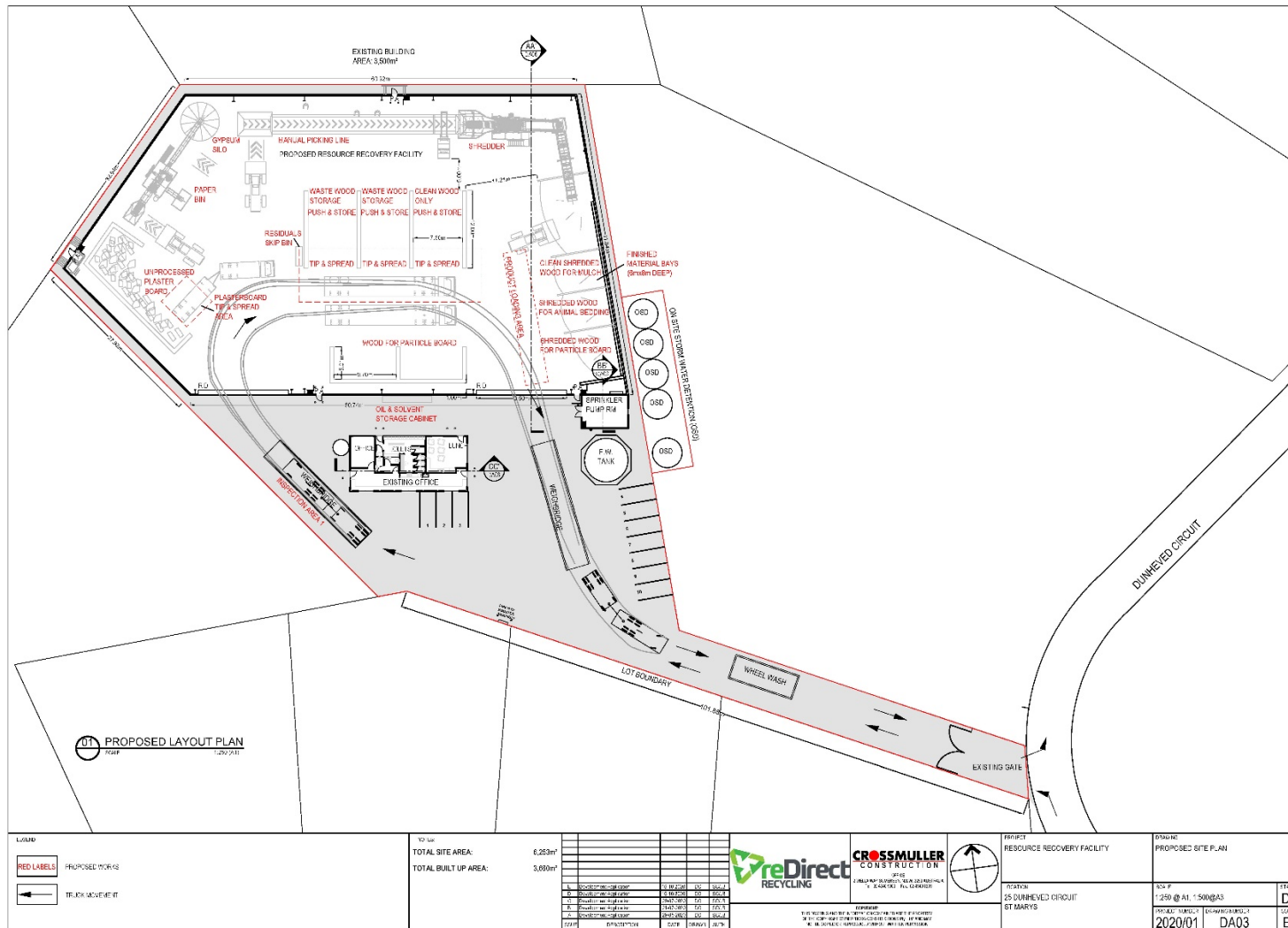
The operational phase will consist of aggregating and processing up to 150,000 tpa timber/wood, plasterboard and metal waste for recycling off-site.

2.2.1 Plant and equipment

The equipment to be used in the facility will include the following:

- Loaders and excavators for moving material around the facility;
- Wheel wash;
- Two existing 20 metre weighbridges for recording weights of material received at the site and weights of products leaving the site;
- Industrial woodchipper/shredder/grinder for size reduction of wood waste. A magnet is attached to the shredder to remove ferrous metal (e.g. nails and staples) from the wood;
- Manual picking station for removing contaminants from the shredded wood stream; and
- Turbo Separator for processing plasterboard; the turbo separator separates the paper from the gypsum.

Figure 2.1. Site layout showing processing areas within the facility.



2.2.2 Timber processing

The facility will receive suitable timber waste and used pallets from a variety of sources around Sydney and NSW, further details about waste streams is in Section 3.2. The operational phase of the project consists of receiving, inspecting, sorting and processing waste materials from off-site. The resulting products will be stored and transported off-site for re-use or further processing at lawful facilities.

All material received and leaving the site will be weighed on the weighbridge. Amounts of waste received, processed and removed from site will be reported via the New South Wales Waste and Resource Reporting Portal (WARRP).

The waste receiving and inspection procedures will conform to the NSW EPA's *Standards for Managing Construction Waste in NSW*. Loads will be visually inspected at the incoming weighbridge, as the incoming loads are being weighed. Incoming loads will be tipped in dedicated waste unloading areas at the front half of concrete bunkers, which will be on the concrete hardstand floor within the building. Material will be spread to a depth of 100mm via excavator and inspected. The load will be inspected to ensure no unacceptable materials are in the load. Loads with unacceptable material (such as hazardous materials, treated timber, asbestos etc.) will be re-loaded and removed from site. Any small quantities of non-conforming material that can easily be removed will be separated and set aside for later disposal.

Accepted wood and timber waste is pushed to the storage half of the concrete storage bunker to await processing. Generally, larger pieces of timber and board will be minimised using the teeth of the excavator, breaking boards and other timbers to a manageable size to enter the manual picking line. Material to be processed will be loaded from the waste storage bunkers into the picking line hopper using an excavator. The waste will then flow along a conveyor where any contaminants are removed, and the waste will be sorted into type and size by way of separate bins below the picking station. This done to maximise efficiency of the processing, as not all waste wood materials will be shredded on site, with suitably sized and type of woods, once sorted, will be transferred directly to the Borg Oberon site for processing. This will also be utilised when material stores have reached their limit, and room is needed to be made onsite. The Borg Oberon site has ample overflow storage areas to accommodate a large amount of timber. This availability of storage space assures that the site in St Marys is able to always manage the amount of materials on-site and operate efficiently.

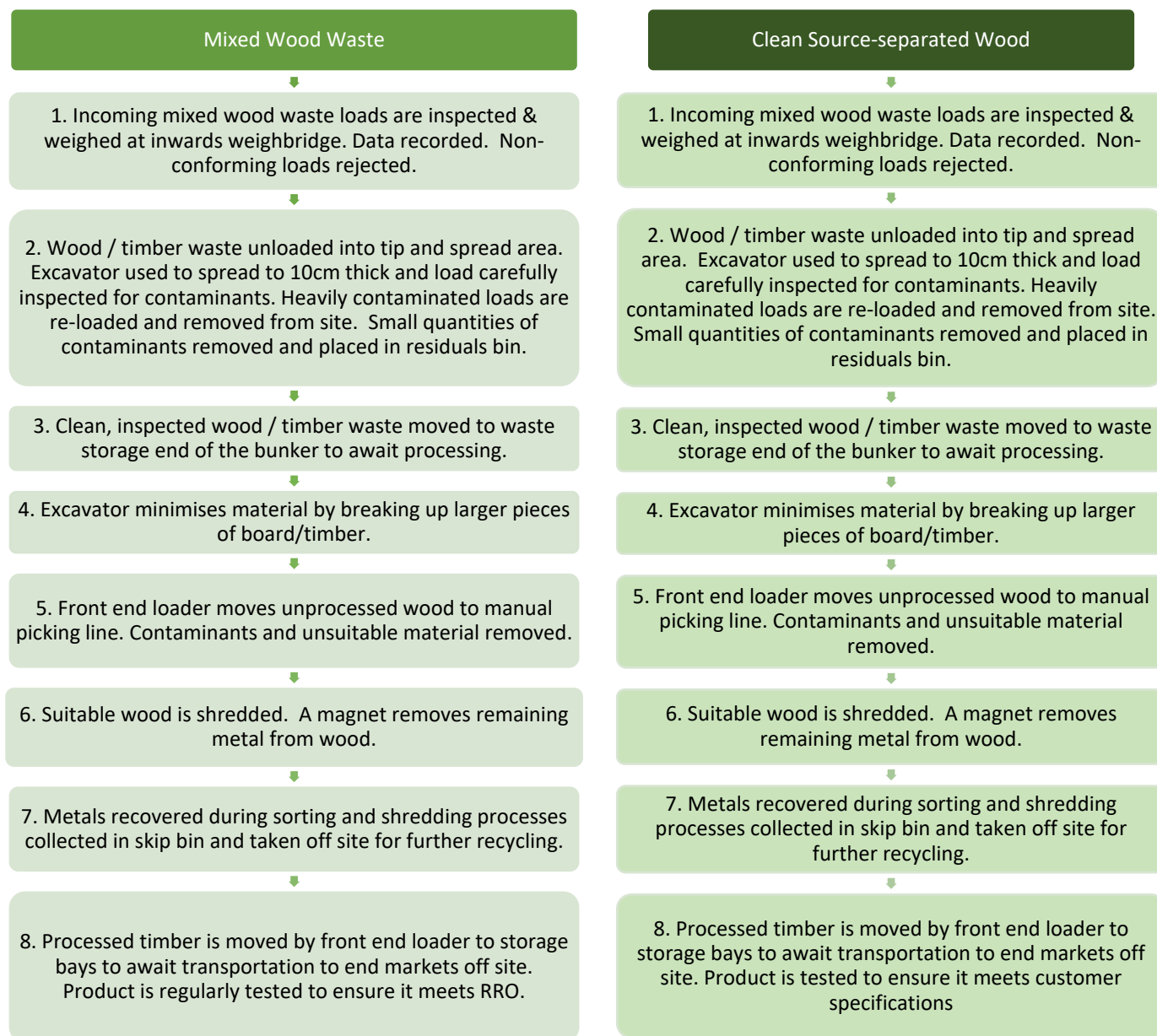
Suitable wood waste is then put through the shredder for size reduction. Dust control equipment will operate as part of the shredder. Importantly, all shredding and processing will occur within the building to control noise and air quality impacts on the surrounding areas. The shredder minimises timber to approximately 100-150mm in size.

The shredder also contains magnets to capture any metals, mainly nails and bracing from pallets, that are then added to the metal sorting area. The shredded waste is discharged from the shredder onto another conveyor and is transferred to storage and dispatch bunkers. Product is sampled and tested to confirm compliance with the Borg Panels Urban Wood Residue Specific Resource Recovery Order.

Compliant shredded wood waste is loaded onto transport vehicles for transfer to Borg's Oberon Panel board production plant for re-use in the manufacturing process of particle board. Borg have approval for one third of production to utilise waste timbers in manufacturing particle board. This recycling facility will help Borg achieve this outcome, and if successful will potentially lead to an increase in the use of waste wood as an ongoing resource for the production of particle board.

The Figure 2.2 below outlines the flow chart for processing of waste wood/timber, with Figure 2.1 aligning the flow chart with the numbered site plan.

Figure 2.2. Wood/Timber processing flow chart.



2.2.3 Plasterboard processing

The facility will receive suitable plasterboard waste primarily consisting of offcuts and deconstruction materials from construction sites, the facility will not accept co-mingled demolition waste. The waste receiving and inspection procedures will conform to the NSW EPA's *Standards for Managing Construction Waste in NSW*. Loads will be inspected at the incoming weighbridge, as the incoming loads are being weighed. Incoming loads will be tipped in a dedicated waste unloading area, which will be on the concrete hardstand floor within the building and spread to a depth of 100mm deep with an excavator. Any small quantities of non-conforming material that can easily be removed will be separated and set aside for later disposal. Highly contaminated loads will be re-loaded and removed from the site. Inspected and cleared waste will be transferred to a concrete bunker until ready for processing.

Plasterboard will be minimised in the same way that timber waste will be, using the teeth of the excavator, it will then be placed in a specialty turbo separator that removes the paper from the plasterboard and reduces the plaster into

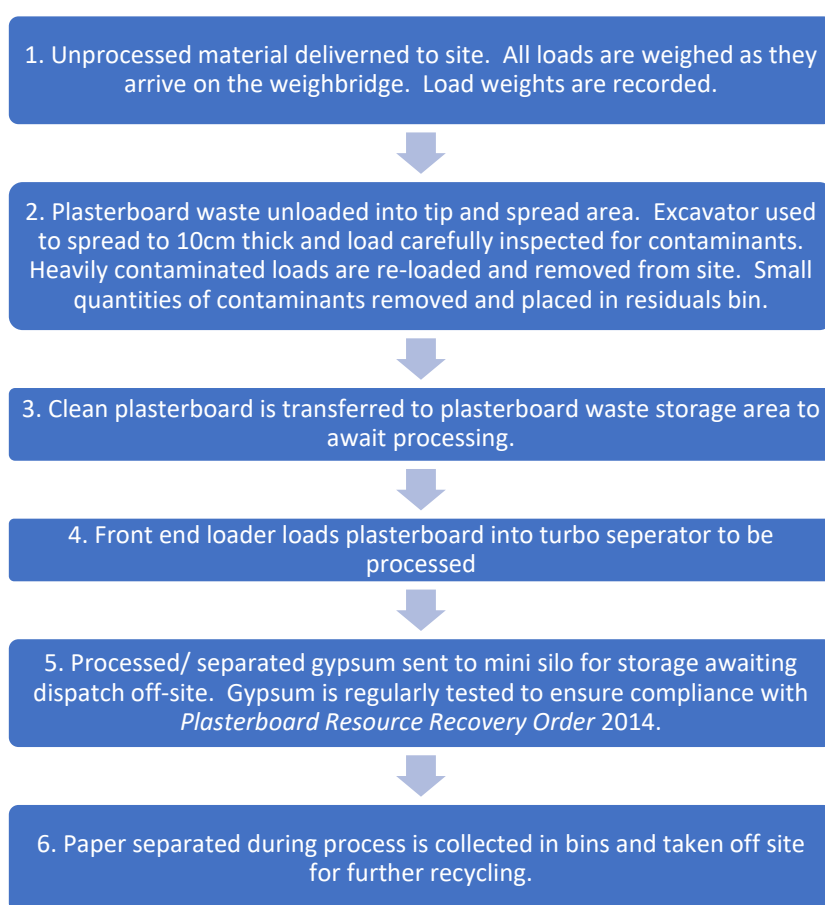
gypsum. The paper will be removed off-site for further recycling. The gypsum material is transferred into a storage silo, tested for compliance with the *Recovered Plasterboard Resource Recovery Order 2014*, then is dispatched.

The gypsum is loaded into bulk tanker truck by way of vacuum pump, to eliminate any potential fugitive dust. The gypsum will be provided to plasterboard manufacturers mainly CSR at Wetherill Park for re-use in new plasterboard production or used in agricultural applications for soil conditioning.

Paper extracted from the plasterboard by the turbo separator is collected in a skip bin. The recovered paper is removed from site periodically. It is delivered to a third party recycler for recycling.

Figure 2.3 below outline the process flow chart for plasterboard, with Figure 2.1 aligning the flow chart with the numbered site plan.

Figure 2.3. Plasterboard processing flow chart.



2.2.4 Metals collection

A portion of the metals will be extracted during the timber processing, and include nails, steel strapping, brackets which are removed during the process. Some general waste steel and metal will be received onsite from customers.

Metals, including those removed during the timber processing, will be placed into a metal collection bin and periodically taken to a licensed metal recycling facility. Metal will be stored in a separate storage area in appropriately sized bins to be taken off site.

3 Waste Management

3.1 Demolition and construction phase

No alterations are required to the building. There will be no demolition at the site. The construction phase will consist of installing concrete bunkers and installing the processing equipment. A wheel wash will also be constructed in the driveway.

3.1.1 Waste generation during construction phase

The amount of waste generated during the construction phase will be minimal. The waste will consist primarily of packaging waste and employee waste. A small amount of construction waste (concrete, rubble) will be generated to construct the wheel wash facility.

The estimated quantities are listed in Table 3.1.

Table 3.1. Estimated waste generation during demolition and construction phase.

Source	Material	Description	Estimated amount (total)
Construction waste from wheel wash construction	Concrete	Waste concrete from cutting out driveway slab.	3m ³
	Soil (ENM)	Soil excavated from under the concrete to allow for installation of the wheel wash	10m ³
Equipment delivery and installation	Mixed packaging waste	Plastic, cardboard, paper, strapping, metal wire.	3m ³
Employee waste	MSW	Small amounts of packaging waste and other MSW will be generated by employees on site conducting the development project.	2x240L per week for 8 weeks (up to 3.84 m ³)

3.1.2 Waste management measures during construction phase

The small amount of waste generated during the construction phase of the project will be collected in a skip bin for disposal. Employee waste will be collected in 240L MGBs (one general waste, one recycling). Where possible, packaging waste from the equipment installation will be collected separately and recycled (e.g. cardboard).

Table 3.2. Waste management measures during demolition and construction phase.

Material	Treatment / destination	Estimated recovery rate
Concrete / rubble	Collection in a skip bin and removed from site for recycling.	100%
Soil (ENM)	Collection in a skip bin and removed from site for re-used or recycling.	100%
Mixed packaging waste	Collection in skip bins and removed from site for disposal.	90%
General waste and recycling	MSW will be collected in a MGB and removed weekly by a licensed waste removal contractor, and disposed at a licensed landfill.	70%

The overall waste recovery rate for the demolition / construction phase will approximately 90-95%. The majority of the waste will be inert waste, as a result of installing the wheel wash in the existing driveway. The inert waste will be collected in a skip bin and transferred to a C&D recycling facility for recycling.

Employee waste will utilise existing waste and recycling collection systems on the site.

3.2 Operational phase

At full capacity, the facility will accept and process up to 150,000 tpa of material for recycling.

3.2.1 Waste generation and products from recycling

The waste streams to be accepted at the site are;

- 110,000 tonnes of Urban and Natural Wood wastes (MDF off-cuts, raw wood offcuts, clean pallets, LOSP pine, engineered wood products, particleboard, some laminated MDF with paint);
 - Offcuts of particleboard (raw and melamine coated) produced by Borg;
 - Clean wood pallets and crates;
 - Softwood offcuts (untreated, treated bluepine, LOSP) from businesses such as frame and truss manufacturers;
 - LVL and glulam offcuts from businesses such as frame and truss manufacturers;
 - Pre-sorted suitable wood waste from Waste Facilities.
- 30,000 tonnes of plasterboard waste, primarily offcuts and de-construction materials from construction sites.
- Approximately 10,000 tonnes of ferrous and non-ferrous metals. This will be made up of steel, and steel components removed from the processing of pallets i.e. nails, strapping etc. waste metals will be sorted and dispatched off-site. Some metal independent of the recovered materials will also be brought to be site.

There will be up to 15 staff employed onsite in processing, stockpiling, receiving, dispatch and office related work. There will be 3 shifts, with 5-6 staff per shift depending on operations running. Shifts will be 6:30am-2:30pm, 2:30pm-10:30pm, 10:30pm-6:30am. There will be some instances where there will be 10 staff on site during the day if there is an abundance of material to process. The site will operate seven (7) days per week.

Table 3.3. Summary of incoming waste.

Incoming waste stream	Description	Estimated annual amount (tonnes per annum)	Estimated recovery rate
Wood / timber waste	Offcuts of particleboard (raw and melamine coated) produced by Borg; Clean wood pallets and crates; Softwood offcuts (untreated, treated bluepine, LOSP) from businesses such as frame and truss manufacturers; LVL and glulam offcuts from businesses such as frame and truss manufacturers; Pre-sorted suitable wood waste from Waste Facilities	110,000	At least 95%

Incoming waste stream	Description	Estimated annual amount (tonnes per annum)	Estimated recovery rate
Plasterboard	Plasterboard off cuts Sorted recovered plasterboard from demolition	30,000	At least 95%
Scrap metal (ferrous & non-ferrous)	Recovered metals or delivered directly by customers	Up to 10,000	At least 95%
TOTAL (tonnes per annum)		150,000	

The waste received on a daily or weekly basis will be pro rata of the above amounts. As most of the material will be sourced from Borg's manufacturing operations, it is anticipated that the incoming amounts will be relatively steady, compared to other recycling facilities.

It should be noted that the timber / wood waste stream is likely to contain some metal, which is recovered during the sorting process. It is estimated that approximately 2% incoming wood waste stream will be metal, which is recovered during the sorting and separation process.

Approximately 90% recovered wood will be ground to a fine particle size to make it suitable for manufacturing particleboard. Approximately 10% will be shredded and sold as a mulch product.

Table 3.4 provides a summary of the outgoing products from the summary on an annual basis. The facility will operate every day. Therefore, the outgoing products can be pro rata for daily and weekly amounts.

Table 3.4. Summary of outgoing products.

Product stream	Description	Estimated annual amount (tonnes per annum)	Destination	Standards / specifications
Shredded / ground wood	Wood waste shredded then ground to a fine particle size	94,050	Used to manufacture particleboard	Borg specific Urban Wood Residues RRO
Shredded high quality wood mulch	High quality, clean timber shredded	10,450	Used as feedstock for mulch manufacture	Mulch RRO 2016
Gypsum	Powdered gypsum	25,500	Used as feedstock for plasterboard manufacture	Recovered Plasterboard RRO 2014
Paper	Waste paper from turbo separator	3,000	Paper recycler	Recycler's specifications
Scrap metal (ferrous & non-ferrous)	Recovered mixed scrap metals	11,700	Metal recycler	Recycler's specifications
Residual waste (non-recyclable)	Non-recyclable contaminants removed from incoming waste streams	5,300	Removed by licensed waste contractor and disposed at a licensed landfill.	Not applicable.
TOTAL (tonnes per annum)		150,000		

3.2.2 Waste inspection, acceptance and non-conforming waste

All regular customers will be informed of which wastes are acceptable at the site, and which are not. In addition, a sign will be erected at the entrance to the site clearly stating which materials are not accepted at the site, including asbestos.

The incoming waste inspection and management of non-conforming loads will conform to the standards in the NSW EPA's *Standards for managing construction waste in NSW*¹. Appendix A provides a detailed protocol for the inspection and acceptance of waste materials at the recycling facility. These are summarised below.

Standard 1 Inspection requirements

At the verified weighbridge on entry into the facility (inspection point 1), trained personnel must:

1. Inspect the entire top of each load from an elevated inspection point or by using a video camera connected to a monitor and determine whether or not the load contains any asbestos waste and any other unpermitted waste;
2. Where the load is identified as containing, or is reasonably suspected to contain, any asbestos waste, reject the entire load of waste by directing the driver to immediately leave the facility and record the information required by Standard 1.4 into the C&D waste facility's rejected loads register; and
3. Where the load is not rejected, record the details as required by clause 27 of the Waste Regulation and direct the driver and the load of waste to proceed directly to inspection point 2.

At the tip and spread inspection area (inspection point 2), trained personnel must:

1. Direct the driver of the vehicle to tip the entire load on the tip and spread inspection area;
2. Spread the entire load and inspect the visible surface area for any asbestos waste and any other unpermitted waste. Tipped loads must not come into contact with any other waste materials;
3. Manually turn, or direct a plant operator to turn, the entire load and inspect the entire load for any asbestos waste and any other unpermitted waste on or beneath the visible surface;
4. Where any asbestos waste is identified, reject the entire load of waste.
5. Where any other unpermitted waste is identified, remove that waste from the load or reject the entire load of waste.
6. Where a load is rejected, ensure that the entire load is immediately reloaded onto the vehicle in which it arrived or onto another vehicle and ensure that the vehicle with the rejected load leaves the C&D waste facility on the same business day and then immediately record the information required by Standard 1.4 into the C&D facility's rejected loads register; and
7. Ensure that all waste that may lawfully be received at the C&D waste facility proceeds to be sorted and stored in accordance with Standards 2, 3 and 4.

Standard 1.2 does not apply to a load of construction waste received at the C&D waste facility that, upon receipt, only contains waste that meets the requirements of a resource recovery order, as evidenced by a statement of compliance for that waste which has been provided and kept in accordance with the applicable resource recovery order and is

¹ NSW EPA (2018), Standards for managing construction waste in NSW, internet: <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/wasteregulation/18p1270-standards-for-managing-construction-waste-in-nsw.pdf> ; accessed 4/12/2018.

current at the time of receipt. The statement of compliance must be made available for inspection to an authorised officer of the EPA if requested. This load of waste must be immediately transferred to the appropriate waste storage area referred to in Standard 4.

To assist in identifying acceptable waste streams, a visual aid has been developed for customers and staff.

Figure 3.1. Acceptable waste streams for facility – timber offcuts and plasterboard.

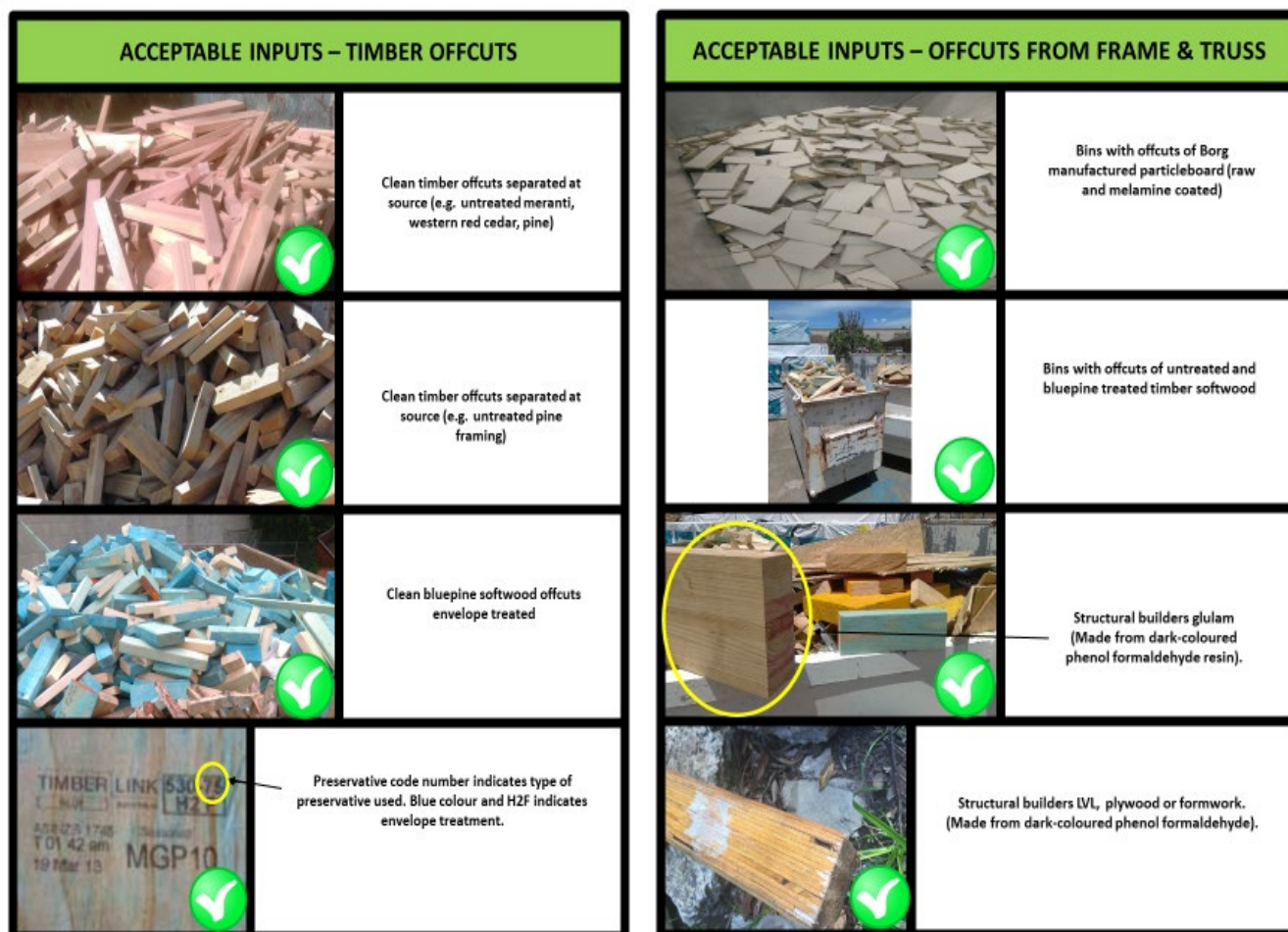


Figure 3.2. Acceptable waste streams for facility – waste wood and pallets.

ACCEPTABLE INPUTS – PALLETS/CRATES/WASTE FACILITY	
	Clean timber pallets, crates fumigated with IPPC symbol and MB indicating fumigation with methyl bromide
	Clean timber pallets, crates and dunnage fumigated with IPPC symbol and HT indicating sterilisation with heat treatment
	Loscam painted pallet components
	Painted pallet components
	Suitable demolition wood offcuts from waste facility that have been pre-sorted and are consistent with the timbers outlined in Quality Control Plan
ACCEPTABLE INPUTS – PALLETS & CRATES	
	Clean sawn timber pallets, crates and dunnage separated at source not suitable for reuse
	Structural builders OSB. (Made from isocyanate resin)
	Clean pallets not suitable for reuse made with particleboard blocks made from light coloured resins only (e.g. urea formaldehyde)
	Clean pallets not suitable for reuse made with engineered wood products (EWPs) made from light coloured resins only (e.g. urea formaldehyde)

3.2.3 Waste management measures

Table 3.5 provides a summary of the waste treatment and end destination for incoming waste streams and waste generated on-site. It is estimated that the overall recovery rate for the site will be approximately 95%.

Table 3.5. Waste Management during the operational phase.

Incoming Material	Description	Processing / treatment	Destination	Resource Recovery Order for Products	Expected recovery rate (wt%)
Wood / timber	Timber offcuts Waste pallets Recovered timber	Waste wood is crudely broken up with an excavator. Wood is shredded in a slow shredder with a magnet attachment for extracting metal components (e.g. nails).	Approx.. 90% recovered wood will be used to make particleboard. Approx. 10% recovered wood will be used to make mulch.	<i>Borg specific Urban Wood Residues Resource Recovery Order</i> <i>Mulch Resource Recovery Order 2016.</i>	95%

Incoming Material	Description	Processing / treatment	Destination	Resource Recovery Order for Products	Expected recovery rate (wt%)
Plasterboard offcuts	Clean plasterboard off cuts	Plasterboard is shredded, then paper is separated from gypsum in a turbo separator. The paper is collected in a skip bin and sent off-site for recycling	Gypsum is sold as a product. Paper is sent to a paper recycler.	<i>Recovered Plasterboard Resource Recovery Order 2014.</i>	95%
Metal	Scrap metal recovered from timber products (e.g. pallets) and scrap metal received from customers	Scrap metal received from customers is inspected, with contaminants removed. Scrap metal is stored in a skip bin and removed periodically from the site to a third party for recycling.	Scrap metal recycler	N/A	95%
Residual waste	Contaminants extracted from incoming waste streams – mixed paper, plastic, etc.	Residual waste is stored in a skip bin and removed from site periodically for disposal	Residual waste will be removed from site by a suitably licensed waste contractor and disposed at a licensed landfill	N/A	0%
Employee waste	Municipal solid waste and office waste generated by employees	The site will have one 240L MGB for general waste, a 240L Paper/ Cardboard MGB and one 240L MGB for co-mingled recycling.	MSW will be regularly (weekly) removed from site by a licensed commercial waste and recycling collection contractor.	N/A	70%

3.2.4 Stockpile heights and management

The stockpiles will be managed in accordance with FRNSW's *Fire Safety Guidelines: Fire safety in waste facilities*.² All stockpiles will be indoors, within the warehouse building. Stockpiles will be:

- A maximum of 3m in height. Height guidance will be provided by the 3m height of the concrete bunkers;
- Contained within 3-sided concrete bunkers with walls that extend 1m above the pile height (to 4m);
- Material will be regularly removed from site;
- Dust will be contained using a misting system within the warehouse building;
- The building is fully sprinklered;
- Individual stockpiles within the building will be kept below 1,000m³.

3.2.5 Authorised amounts

Under Clause 10B of the *Protection of the Environment Operations (Waste) Regulation 2014*, operators of licensed resource recovery facilities are required to not exceed the storage of a certain amount of waste and processed products (from waste) on site at any one point in time. This is referred to the 'Authorised Amount'. Exceedance of the Authorised Amount triggers the requirement for payment of the Waste and Environment Levy for tonnages of waste and product held on site (above the Authorised Amount). This regulatory measure encourages operators of resource

² FRNSW (2020). *Fire Safety Guidelines: Fire safety in waste facilities*. Internet publication:

recovery facilities to manage the inventory of waste and products held on site to avoid potential risks and hazards to the environment, public safety and human health.

An assessment of the storage capacity of the site based on designated areas for waste storage, processing, blending and product storage is provided in Table 3.6.

Table 3.6. Analysis of the storage capacity of the site for waste materials and processed products.

Waste or product storage area	Waste material or product storage	Bay or pile dimensions (m)	Volume stored (maximum) (m ³)	Bulk density (t/m ³)	Maximum storage capacity (tonnes)
Tip and spread area	Tip and spread area 1 - wood	No storage	0	-	0
Tip and spread area	Tip and spread area 2 - plasterboard	No storage	0	-	0
Tip and spread area residual waste storage	Tip and spread area residual waste	1 x 20 m ³ skip bin	20 m ³	1.1	22
Wood waste storage bays	Wood waste	3 x storage bays of 12m long x 7.6m wide x 4m high	547.2 m ³	0.25	136.8
Plasterboard waste storage bay	Plasterboard	1 x storage bay with an area of volume of approx. 456 m ³	456 m ³	0.25	114
Product storage	Processed timber	3 x storage bays of 8m long x 6m wide x 4m high	576 m ³	0.35	201.6
	Processed gypsum	1 x storage silo of 6m diameter x 8m high	205 m ³	0.4	82
Scrap metal bin	Metal recovered from processing wood and other metal from customers	1 x 20 m ³ skip bin	20 m ³	0.12	2.4
Recovered paper bin	Paper bin in plasterboard processing area	1 x 20 m ³ skip bin	20 m ³	0.15	3
Spare wood storage	Wood	1 x storage bays of 9.7m long x 5.01m wide x 4m high	388.77	0.25	97.2
Office building	MSW waste generated by employees	3 x 240L bins	0.72 m ³	0.3	0.216
Total estimated site storage capacity			2,234		659

The analysis in Table 3.6 suggests that operationally, the site can store up to 2,201 m³ of wastes and processed products, equivalent to an estimated 659 tonnes of materials.

As a consequence, the total amount of waste and products derived from waste that can be safely stored on the site is estimated to be 659 tonnes at any one point in time. Given this, the proponent will seek to apply for an Authorised

Amount of 659 tonnes at any one point in time under Clause 10B of the *Protection of the Environment Operations (Waste) Regulation 2014*.

3.2.6 Record keeping and data reporting

Waste received and leaving the facility will be weighed on the weighbridges, with data recorded according to the NSW Waste Levy Guidelines³. A Waste Contributions Monthly Report will be submitted via the Waste and Resource Reporting Portal (WARRP).

4 Management of hazardous, toxic and liquid waste

As far as possible, no hazardous, toxic or liquid waste will be accepted at the site. Where such material is delivered, but not detected at arrival, it will be removed and stored in a designated area awaiting removal by a licensed waste contractor. The procedure for detecting and managing unacceptable waste is provided at Attachment 1. This procedure is consistent with the NSW EPA guidelines. Chemical, flammable and radioactive wastes will be managed using the same procedures.

5 Incident management

Spills on-site during the demolition and construction and operational phases likely to occur are oils, fuel, paints and primers.

To better manage a spill incident, Spill Response Kits will be kept on-site at various clearly identified locations in easily accessible areas.

The MSDS will be placed within sight and near spill kits. The MSDS has clear instructions on spill response management – cleanup and disposal.

6 Impact assessment and mitigation measures

To help in waste management planning during each stage of the project, an estimate of the types and quantities of waste to be generated during the demolition / construction and operational phases has been prepared. This analysis is given in Table 3.1 and Table 3.6.

It is noted that the majority of materials to be generated through the demolition and construction phase is inert material, mainly concrete, rubble, soil and packaging waste. All waste will be collected in containers, prior to being removed by a licensed contractor for appropriate disposal or recycling.

The overall recovery rate during the operational phase is expected to be very high (approximately 95%). It is anticipated that a maximum approximately 5,300 tpa of residual waste requiring off-site disposal will be generated at the site. This will be regularly removed from site and disposed in a licensed landfill.

Overall the waste impacts of the facility are believed to be positive, with wastes being recovered and recycled, instead of being sent to landfill.

³ NSW EPA (2015). *Waste Levy Guidelines*

7 Conclusion

ReDirect Recycling Pty Ltd is proposing to increase the throughput/volume of the existing resource recovery and recycling facility at 25 Dunheved Circuit, St Marys, (Lot 143 / DP 1013185).

The proposal is establish a wood and plasterboard recycling facility to receive and process up to 150,000 tonnes per annum of dry waste, consisting of 110,000 tonnes per annum wood/timber waste, 30,000 tonnes per annum of plasterboard and up to 10,000 tonnes per annum of scrap metal.

No works are proposed to the existing buildings. A wheel wash will be installed in the existing driveway. Other works during the construction phase will be installation of processing equipment within the main warehouse building.

Wood waste, consisting of timber offcuts and wooden pallets, will be inspected, sorted and shredded. Any metals will be removed via magnets on a sorting line. The majority of the processed wood waste will be transferred to the Borg Manufacturing site in Oberon, NSW to be used in the manufacture of particle board and MDF products, or to be used as fuel for dryers in accordance with existing approvals. The types of wood waste received for processing will include clean pallets, unlaminated particle board, MDF, LOSP pine and laminated MDF with coatings, along with other urban and raw wood materials deemed suitable. These waste materials will come from a number of sources including Borg Panels customers, framing and truss builders, freight companies, waste facilities and other timber companies.

Plasterboard will be ground in a turbo separator, with paper removed during the separation process. The gypsum generated by processing will be used for agricultural soil conditioning or re-used in plasterboard production. The recovered paper will be recycled by a third party recycler.

Waste metals, including those recovered during the timber processing will be manually sorted and separated, and then taken off-site to other waste facilities to be processed by a licensed metal recycler.

Residual waste, consisting of small quantities of non-recyclable waste extracted from incoming waste streams, will be aggregated in skip bins and periodically removed from site by a licensed contractor for disposal in a licensed landfill.

A waste/recycling contractor will be engaged to provide a MGB waste and recycling service for the employee waste.

The overall recovery rate for the facility will be approximately 95%.

The proposed development will seek to expand the current facility into a best-practice recycling plant that will assist in achieving the NSW Government's target of an 80% recycling rate for construction and demolition waste by 2021.

Appendix A – Non-conforming waste procedure

NON-CONFORMING WASTE PROCEDURE

ReDirect Recycling Pty Ltd

Timber and Plasterboard Recycling Facility

25 Dunheven Circuit, St Marys, NSW

1. Purpose of This Procedure

To ensure that non-conforming waste (waste that does not meet the NSW EPA classification of *General waste – non putrescible*) is not received at the site



If non-conforming waste is found on the site, to ensure it is managed in a way that minimises harm to human health and the environment.

2. Responsible Person

Operations Manager

3. Associated Internal Documents

Rejected Load Register and Rejected Load Certificate



Asbestos Inspection Register



Pollution Incident Response Management Plan

4. External Reference Documents

NSW EPA Waste Classification Guidelines 2014



NSW EPA Draft Protocol for managing asbestos during resource recovery of construction and demolition waste 2014

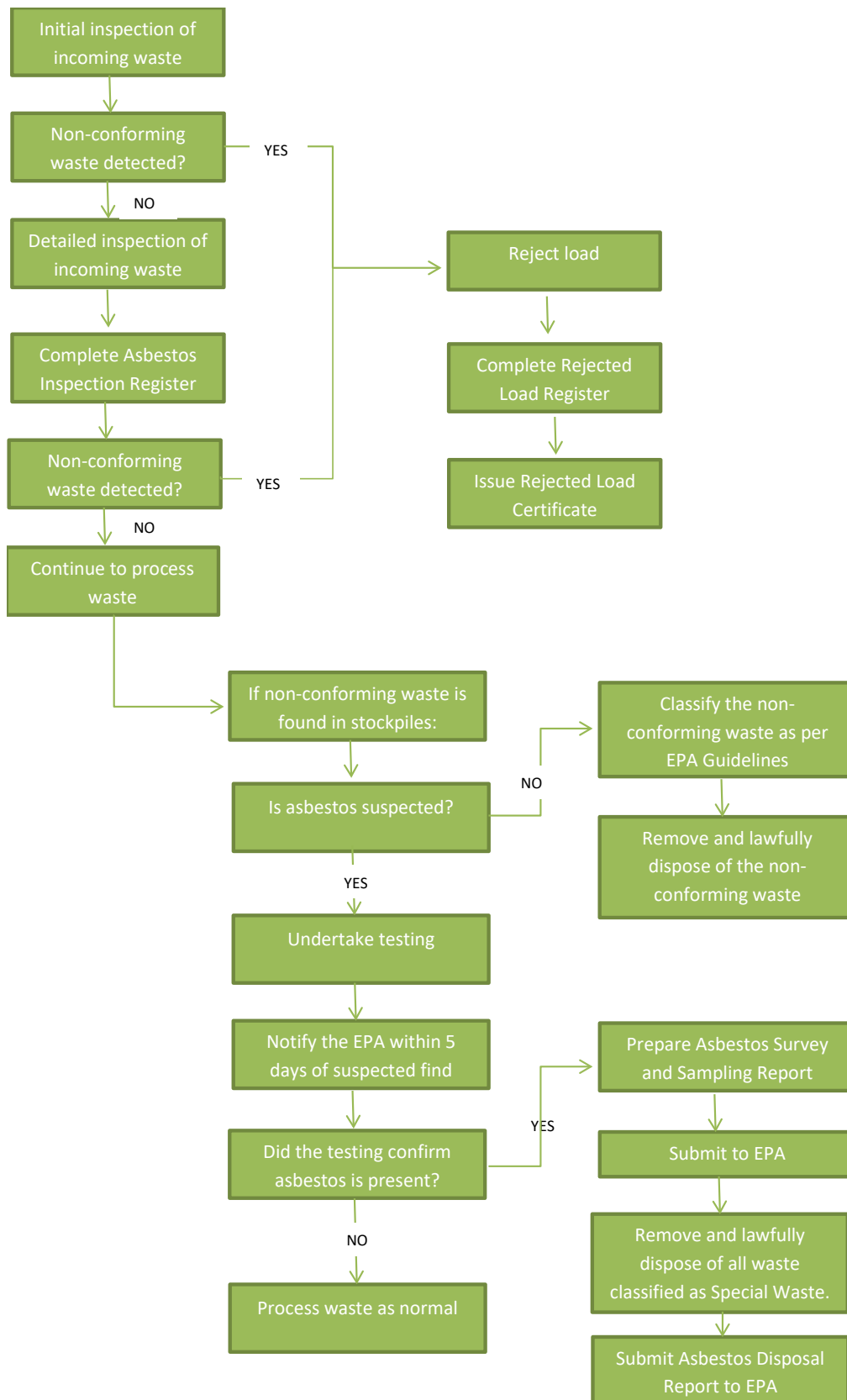


NSW EPA (2019) Standards for Managing Construction Waste in NSW



NSW Protection of the Environment Operations Act 1997

5. Steps to be undertaken for all incoming waste loads



6. Detail of Each Step in the Procedure

6.1 Initial inspection of incoming waste

When a load arrives at the gate, check the top of the load to see if non-conforming waste is visible. Also check for smell of putrescible waste.



If non-conforming waste is visible or you can smell putrescible waste, reject the load (see *Rejection of non-conforming loads*)



If non-conforming waste is not suspected, allow provisional acceptance of the waste

6.2 Detailed inspection of incoming waste, and Asbestos Inspection Register

Once the waste is tipped, spread and visually inspect the waste again for non-conforming materials.



If non-conforming waste is visible, reject the load (see *Rejection of non-conforming loads* below)



If asbestos is suspected, wet down the load immediately.



For each load that underwent a detailed inspection, fill out the Asbestos Inspection Register.



If non-conforming waste is not suspected, process the waste as normal.

6.3 Rejection of non-conforming loads

Inform driver that load is being rejected due to presence of non-conforming waste.



Record details of the rejected load in the Rejected Load Register.



Issue the driver with a Rejected Load Certificate and keep a copy on file.

6.4 Non-conforming waste suspected in stockpiles

If non-conforming material other than asbestos is found, don appropriate PPE and remove it from the stockpile, to a bunded area if necessary. Arrange lawful disposal based on classification in accordance with EPA Guidelines.



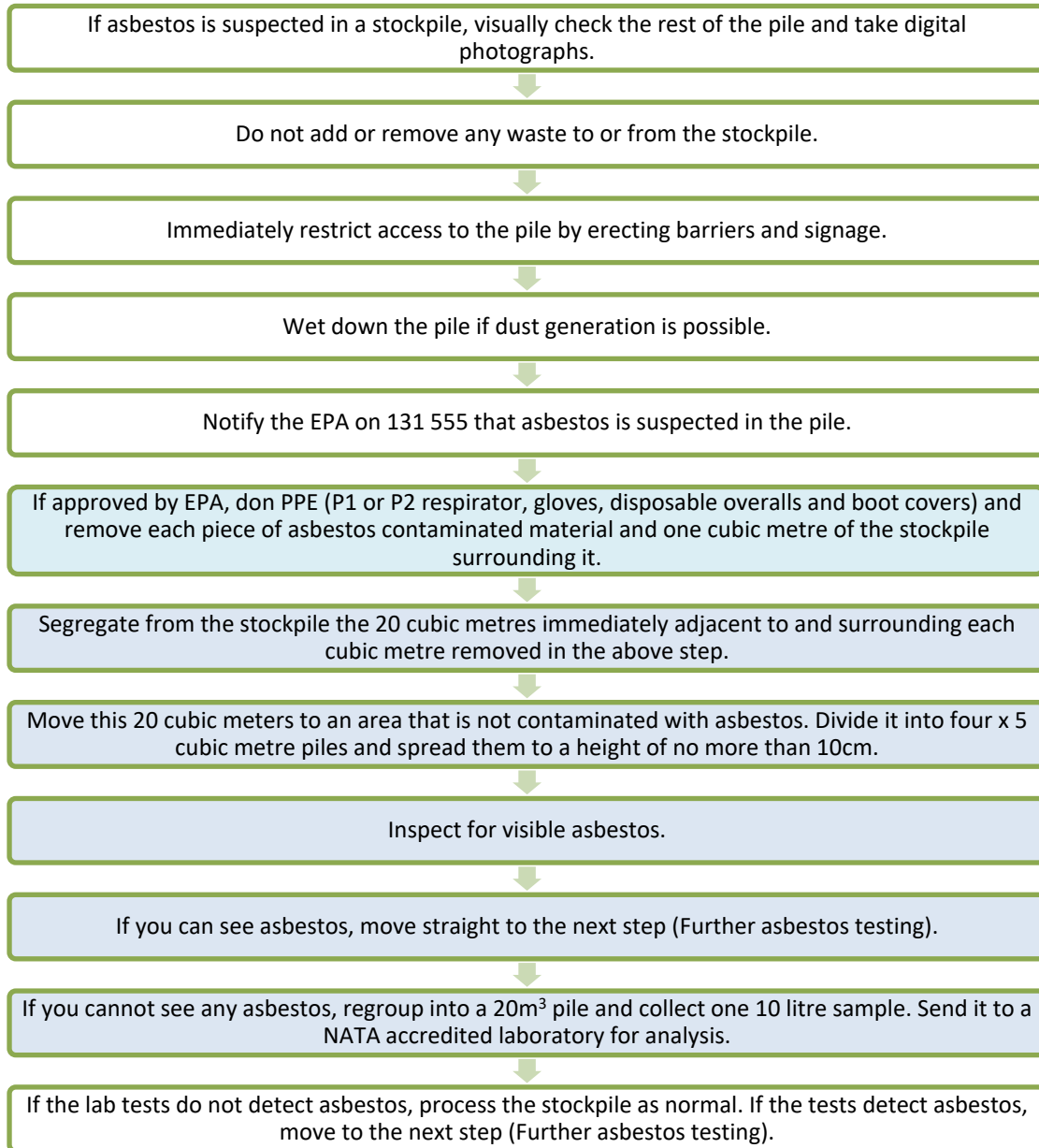
If asbestos is suspected in a stockpile, DO NOT attempt to pick it out either manually or with equipment.



If asbestos is suspected, implement the next steps below.

6.5 Asbestos testing and notification

NOTE: all blue steps must be undertaken by a suitably qualified expert who has previous experience in classifying waste in accordance with the NSW Guidelines.



6.6 Further asbestos testing

NOTE: all blue steps must be undertaken by a suitably qualified expert who has previous experience in classifying waste in accordance with the NSW Guidelines.

If asbestos is found in the above step by visual inspection or by lab analysis, the 40m³ surrounding each 20m³ sampled above must be tested using the same procedures as the above step.



If asbestos is found in the 40m³ tested above, the step must be repeated on more adjacent 40m³ samples until it can be demonstrated that the waste material is free of asbestos.

6.7 Asbestos survey and sampling report

NOTE: all blue steps must be undertaken by a suitably qualified expert who has previous experience in classifying waste in accordance with the NSW Guidelines.

Once sampling and testing are finished, prepare an Asbestos Survey and Sampling Report.



Include a volumetric survey of the pile, indicating observed locations of asbestos.



Include all digital photographs taken.



Include details of all waste sources, and the name and contact details of known or possible generators and transporters of the waste in the pile.



Include details of any blending, processing or movement of the waste in the pile.



Include contact details of anyone who may have received waste from the pile



Include details of how the waste has been sampled.



Include waste classification reports and amount in m³ and tonnes of each waste type identified in the pile.



Include the current locations of the separated contaminated waste and other waste.



Include a proposed timeline for removal of the contaminated waste.



Include a list of steps will be taken to minimise future risk of asbestos contamination in stockpiles.



Submit the report to the EPA.

6.8 Removal of asbestos-contaminated waste

Once permission is granted by the EPA, arrange for lawful transport and disposal of all waste now classified as Special Waste (and any other waste identified to be removed) by trained personnel in accordance with the timelines in the Asbestos survey and sampling report.

6.9 Asbestos Disposal Report

Prepare an Asbestos Disposal Report

Include a signed, dated statement from Site Representative saying that you complied with the requirements of the NSW Draft Protocol for Managing Asbestos During Resource Recovery of Construction and Demolition Waste.

Include all the weighbridge dockets showing that the Special Waste (and any other waste required to be removed) was disposed to a facility that can lawfully receive it.

Include a signed and dated statement from the landfill that received the waste, confirming dates of receipt of waste, amounts received each day, and total amount received.

Provide the report to the EPA within 7 days of final disposal of Special Waste, or if removal takes more than a month, within 7 days after every month that waste is being disposed.