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Waste Minimisation and Management Plan – Alterations and Additions to an Existing Tyre Recycling Facility

BSV Tyre Recycling Australia Pty Ltd

Prepared for BSV Tyre Recycling Australia Pty Ltd

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We declare that
The report contains all available information that is relevant to the assessment of the Site and proposed development, activity or infrastructure to which the report relates, and the information contained in the report is neither false nor misleading.

Version	Authors	Date	Reviewer	Approved for issue	Date
Draft	J.Tanana, Dr M. Jackson	03/10/2024	Dr M.Jackson	Dr M.Jackson	07/10/2024
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1. Introduction

1.1. Background

BSV Tyre Recycling Australia Pty Ltd (BSV Tyre Recycling) operates an EPA-licensed facility at 30 Daisy Street, Revesby NSW, accredited by Tyre Stewardship Australia (TSA). The site, covering 4,000m², features an industrial building for tyre shredding and crumbing, a weighbridge and a covered outdoor area for tyre storage and baling.

With development consent under DA843/2013, BSV Tyre Recycling processes used car and truck tyres into various products. Following the 2021 Council of Australian Government (COAG) ban on exporting whole tyres, the facility shifted to shredding tyres for exportation and the use as tyre derived fuel (TDF)

Due to the growing export market for TDF and low domestic demand for crumb rubber, BSV seeks approval to increase TDF production. This includes:

- Increasing receival limit from 14,000 tonnes to 29,900 tonnes per year;
- Decommissioning of the tyre baling machines located under the rear awning of the site;
- Amending location of existing shipping containers for storage of rubber products (whole tyres and TDF);
- Installation of two mobile diesel shredding units to increase the production of TDF on the rear hardstand of the site, to be located under the rear awning with local exhaust ventilation;
- Establishment of a dedicated area for tyre unloading and temporary storage prior to processing;
- Installation of a pre-cast concrete panel wall along the southern boundary of the site to improve fire safety and noise attenuation;
- Replace the single head fire hydrants with dual fire hydrants near the tyre storage area, including provision of fire extinguishers, fire hose reels and provision for at least 108m^3 of fire water containment bunding;
- Installation of a new firewater isolation valve to the north-eastern side of the site; and
- Inclusion of a dedicated bicycle space.

No change in operating hours is proposed, and will remain as 6am to 11pm on weekdays, 8am to 5pm on Saturdays and 9am to 4pm on Sundays as per DA843/2013. Two additional staff members will be employed, bringing the total staff from fifteen (15) to seventeen (17). Also, a maximum of nine (9) staff members will be on-site at any given time which ensures compliance with available parking spaces. Two recycling shifts will occur on a Monday to Friday (6am to 3pm and 3pm to 11pm), and one shift on Saturdays and Sundays.

This Waste Minimisation and Management Plan supports the development application for proposed alterations and additions of the existing tyre recycling facility and increase the tyre processing capacity at 30 Daisy Street, Revesby.

1.1.1. Scope and Objectives

This Waste Minimisation and Management Plan (WMMP) outlines the strategies and procedures to manage waste at the BSV Tyre Recycling facility in the most environmentally sustainable manner. The WMMP set out measures for the management of waste during demolition, construction and operations. The WMMP includes the following key components:

- Relevant Legislation and Guidelines: Adherence to all applicable waste management legislation and guidelines specific to the facility;
- Systems, Procedures, and Initiatives: Implementation of robust systems and innovative procedures to manage waste materials generated during the facility's operation;
- Safeguards and Mitigation Measures: Effective safeguards and mitigation strategies to manage and minimise waste impacts during both the construction and operational phases;
- Roles and Responsibilities: Clear delineation of roles and responsibilities for all personnel involved in the design and implementation of waste management controls; and
- Monitoring, Auditing, and Reporting: A comprehensive framework for monitoring, auditing, and reporting to assess the effectiveness of implemented waste management controls.

The Proposal aims to enhance environmental sustainability, waste avoidance, and reduction practices. By expanding its recycling infrastructure and increasing processing capacity, BSV Tyre Recycling will better meet the waste management needs of the Sydney Metropolitan Area and support the NSW Government's *NSW Waste and Sustainable Materials Strategy 2041*.

This WMMP will integrate into the overall Environmental Management System (EMS) for the facility, ensuring a holistic approach to environmental management and compliance.

1.2. The Site

The Site is located at 30 Daisy Street, Revesby (Lot 198, DP 7866) within the heavily industrialised and populated City of Canterbury Bankstown local government area (Figure 1.1). The site is a single lot located entirely within land use zone IN1 General Industrial with an area of approximately 4,000 m² (Figure 1.2). An aerial view of the Site is shown in Figure 1.3.

The industrial estate is bounded to the north by Milperra Road, and the south by the M5 Motorway. The Bankstown Airport is located on the northern side of Milperra Road, just over 1km northwest of the Site.

Figure 1.1. Aerial view of the nearby region. Approximate site boundaries are shown in yellow.

Date	Revision	Drawn By	Site description	JEP Environment & Planning		Client	BSV Tyre Recycling Australia Pty Ltd
18/07/2024	Revision A	J.Tanana	30 Daisy Street, Revesby (Lot 198, DP 7866)	**Strategy | Approvals | Compliance | Licensing** **A: Suite 102, Level 1, 25-29 Berry St, North Sydney NSW 2060** **E:** admin@jacksonenvironment.com.au **T: 02 8056 1849** **W:** http://www.jacksonenvironment.com.au	JEP ENVIRONMENT & PLANNING	Project	Tyre Recycling Facility Alteration and Additions
						Title	General Locality
						Scale	Not to Scale
						Source	Nearmap

Figure 1.2. Aerial view of the site and immediate surrounds. Approximate site boundaries are shown in yellow.

Date	Revision	Drawn By	Site description
18/07/2024	Revision A	J.Tanana	30 Daisy Street, Revesby (Lot 198, DP 7866)

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Client	BSV Tyre Recycling Australia Pty Ltd
Project	Tyre Recycling Facility Alteration and Additions
Title	Site and immediate Surroundings
Scale	Not to Scale
Source	Nearmap

2. Planning and Legislative Requirements

2.1. State Legislative Requirements

The key sources of waste management regulation in New South Wales include:

- The *Protection of the Environment Operations Act* 1997, which provides enforcement provisions, a licensing framework and other tools to protect human health and environment from the inappropriate use of waste;
- The *Protection of the Environment Operations (Waste) Regulation* 2014, which includes thresholds for environment protection licences, and outlines the waste levy system;
- The *Protection of the Environment Operations (Clean Air) Regulation* 2022, which provides regulatory measures to control emissions from various sources including industry;
- The *Waste Avoidance and Resource Recovery Act* 2001, which sets the waste hierarchy and the NSW Waste Avoidance and Resource Recovery Strategy;

The requirements for classifying, handling and disposing of particular types of wastes is defined in the EPA's *Waste Classification Guidelines.*

2.1.1. *Protection of the Environment Operations Act* 1997

The *Protection of the Environment Operation Act* 1997 (POEO Act) prohibits any person from causing pollution of waters, or air and provides penalties for air, water and noise pollution offences. Section 48 of the Act requires a person to obtain an Environment Protection Licence from the NSW Environment Protection Authority before carrying out any of the premise-based activities described in Schedule 1 of the Act.

Schedule 1, Part 1 (34) of the Act lists 'Resource recovery' including 'recovery of waste tyres' as an activity. 'Recovery of waste tyres' means the receiving of waste tyres from off site and their processing, otherwise than for the recovery of energy.

A Resource Recovery activity is declared to be a scheduled activity if it meets the following criteria:

> *"…if the premises are in the regulated area—*
>
> *(a) involves having on site at any time more than 1,000 tonnes or 1,000 cubic metres of waste, or*
>
> *(b) involves processing more than 6,000 tonnes of waste per year if the premises are outside the regulated area-*
>
> > *(a) involves having on site at any time more than 2,500 tonnes or 2,500 cubic metres of waste, or*
> >
> > *(b) involves processing more than 12,000 tonnes of waste per year."*

Schedule 1 of the Act (Clause 42) details 'Waste Storage' as an activity. Waste storage means the receiving from off site and storing (including storage for transfer) of waste.

A waste storage activity is declared to be a scheduled activity if it meets the following criteria:

> *(c) more than 5 tonnes of waste tyres or 500 waste tyres is stored on the premises at any time (other than in or on a vehicle used to transport the tyres to or from the premises);*

The Proposal will continue to trigger the requirement for an EPA license because Resource Recovery and Waste Storage activities exceed the above thresholds. A variation to the existing EPA licence (EPL 20387) will be required after development approval to note the proposed yearly processing limit.

2.1.2. *Protection of the Environment Operations (Waste) Regulation* 2014

During 2013-14 the EPA carried out an extensive review and consultation process on NSW's waste regulatory framework. The result was the *Protection of the Environment Operations (Waste) Regulation* 2014 (the Waste Regulation).

The Waste Regulation improves the EPA's ability to protect human health and the environment and paves the way for a modern and fair waste industry in NSW. The EPA rolled out the new rules stipulated under the Waste Regulation in stages over 2014-2017.

These changes include amended thresholds for environment protection licences and reforms to the waste levy system.

The Waste Regulation is supported by the Waste Levy Guidelines. These guidelines specify how to measure waste to calculate waste levy liability, the deductions waste operators can claim, and the EPA's requirements for records, surveys and reports. All licensed processing, disposal, recycling and storage facilities within the metropolitan levy area or regional levy area are subject to the levy system.

As the Proposal is considered a scheduled waste facility, a weighbridge is required under Clause 36 of the Waste Regulation. A certified weighbridge is already in place.

Integrated Waste Tracking Solution

It is a requirement of the NSW Environment Protection Authority that all waste tyres are to be tracked when they are transported. A new tracking system was introduced on 19 September 2023, with the Integrated Waste Tracking Solution replacing the previous WasteLocate system. Clauses 76 and 79 of the *Protection of the Environment Operations (Waste) Regulation* 2014 states that the information must be provided to the EPA when consigning, transporting or accepting tyres with a total weight of more than 200 kilograms, or 20 or more tyres, in any single load.

The Integrated Waste Tracking Solution is already in place at the Proposal site. This system will continue to be operated post-approval.

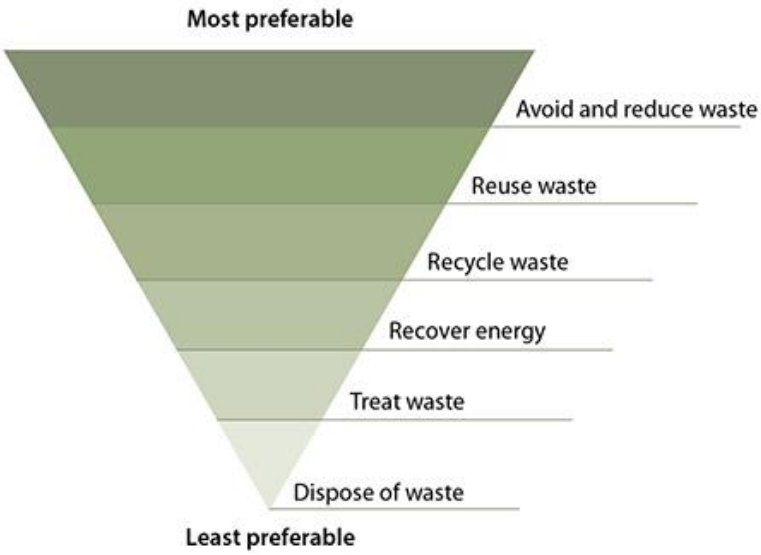
2.1.3. *Waste Avoidance and Resource Recovery Act* 2001

To support the efficient use of resources in NSW, a waste hierarchy has been established by the NSW Government in the *Waste Avoidance and Resource Recovery Act* 2001. The waste hierarchy sets out preferred actions in a 'hierarchy' from most preferred to least preferred to minimise the impact of waste on the environment and public health. The waste hierarchy actions (from most preferred to least preferred) are outlined as follows:

1. Avoidance including action to reduce the amount of waste generated by households, industry and all levels of government;
2. Resource recovery including re-use, recycling, reprocessing and energy recovery, consistent with the most efficient use of the recovered resources; and
3. Disposal including management of all disposal options in the most environmentally responsible manner.

The waste hierarchy has been established to guide the appropriate management of waste in NSW by the community, councils, businesses and the NSW Government. The waste hierarchy is underpinned by Ecologically Sustainable Development principles as defined in the *Protection of the Environment Operations Act* 1997. The waste hierarchy is summarised in Figure 2.1.

Figure 2.1. The waste hierarchy as published in the *NSW Waste Avoidance and Resource Recovery Strategy* 2014-2021.



The waste hierarchy has guided the development of this plan.

2.2. Local Environmental Planning Instruments

2.2.1. Canterbury-Bankstown DCP Guidelines

Table 2.1 provides an overview of the waste management requirements outlined in the *Canterbury-Bankstown DCP* 2023, with the relevant sections within this WMMP mentioned:

Table 2.1. *Canterbury-Bankstown Development Control Plan* 2023 waste management requirements.

Chapter	Canterbury-Bankstown DCP Requirement	WMMP Section where this requirement is addressed
Chapter 3 – Waste Management		
Section 5 – Industrial development	5.1 Development must provide bin storage and separation facilities within each tenancy and within the communal bin room.	Yes, there is adequate bin storage areas withing the office space.
	5.2 Development must provide an appropriate and efficient waste storage system that considers: (a) the type of business; (b) the volume of waste generated on-site; (c) the number of bins required for the development and their size; (d) additional recycling needs e.g., cardboard, pallets, and milk crates; (e) waste and recycling collection frequencies.	There will be three bins, 1 x 240L MGB for general waste, 1 x 240L MGB for co-mingled recycling and 1 x 240L MGB bin for FOGO for collection by a commercial contractor. See Table 4.4 and Figure 4.4. Collection points for the bins.
	5.3 Development is to consider potential future uses, particularly where separate waste containers may be required for industrial process type waste and bunding of bin storage areas.	See Figure 4.4.
	5.4 Where development involves multiple tenancies, the design of development must ensure each tenancy will be able to obtain a Trade Waste Licence.	N/A
	5.5 Bin storage areas are to integrate with the overall design and functionality of development and are to locate within the building envelope to enable these areas to be screened from view from the public domain.	See Figure 4.4.
	5.6 The design of the bin storage area must comply with the requirements of the applicable Waste Design for New Developments Guide.	Yes, waste storage area will be secure and easily accessible. See Figure 4.4.
	5.7 An on-site collection point is to be nominated for development. The location of the collection point must allow collection vehicles to enter and exit the site in a forward direction and allow all vehicle movements to comply with the Australian Standard AS 2890.2. The location of the collection point must ensure waste servicing does not impact on any access points, internal roads and car parking areas.	Swept Path Analysis shows the travel path for the truck pickup/drop-off of the tyres. Other waste bins to be collected via the rear yard by an MRV or HRV.
	5.8 Waste collection frequency is to be a minimum of once per week. Higher collection frequency may be required for development with larger waste generation rates and to ensure bin storage areas are kept clean, hygienic, and free from odours. Higher collection frequencies must not impact on neighbouring residents in relation to noise, odour, and traffic.	Collection of waste bins will be done weekly or as required by a commercial contactor.

2.3. Strategic Drivers

2.3.1. *NSW Waste and Sustainable Materials Strategy* 2041

NSW Waste and Sustainable Materials Strategy 2041: Stage 1 – 2021-2027 outlines the actions NSW will take over the next six years – the first phase of the strategy – to deliver on a set of long-term objectives. The strategy involves $356 million in funding to help deliver priority programs and policy reforms, including:

- Phasing out problematic single-use plastic items;
- Financial incentives for manufacturers and producers to design out problematic plastics;
- Having government agencies preference recycled content and invest in research and pilots for recycling innovation;
- Introducing tighter environmental controls for energy from waste in NSW, with further consideration of planning and infrastructure needs underway;
- Mandating the source separation of food and garden organics for households and selected businesses; and
- Incentivising biogas generation from waste materials.

Specific targets focus on the environmental benefits and economic opportunities in how we manage our waste, and includes the following:

- Reduce total waste generated by 10% per person by 2030;
- Have an 80% average recovery rate from all waste streams by 2030;
- Significantly increase the use of recycled content by governments and industry;
- Phase out problematic and unnecessary plastics by 2025;
- Halve the amount of organic waste sent to landfill by 2030;
- Reduce litter by 60% by 2030 and plastics litter by 30% by 2025; and
- Triple the plastics recycling rate by 2030.

To complement this strategy, NSW also released the following plans:

- *NSW Plastics Action Plan*, which sets out how we will phase out problematic plastics, tackle litter from plastic items like cigarette butts, and support innovation and research; and
- *NSW Waste and Sustainable Materials Strategy: A guide to future infrastructure needs*, which sets out the investment pathway required for NSW to meet future demand for residual waste management and recycling.

BSV Tyre Recycling proposes to undertake alterations and additions its existing approved recycling facility to increase tyre recycling capacity and improve the efficiency of its operations to better support tyre recycling in Sydney. The Proposal is strongly aligned with the *NSW Waste and Sustainable Materials* Strategy and will contribute to maximising the use of current infrastructure for additional recycling capacity.

2.3.2. NSW Waste and Sustainable Materials Strategy: A guide to future infrastructure needs

The *NSW Waste and Sustainable Materials Strategy: A guide to future infrastructure needs*, is a supplement to the *NSW Waste and Sustainable Materials Strategy* 2041. The guide outlines the emerging needs in NSW's waste and circular economy infrastructure network. The needs have been grouped by material types with a focus on materials commonly found in municipal solid waste (MSW) and commercial and industrial (C&I) waste streams. Significant gaps exist in our system for the reprocessing of some of these materials that have historically been exported for processing.

The guide sets out how the NSW Government will support the development of new infrastructure through facilitating infrastructure, e.g., through planning activities; investing in high priority projects; strategically planning for infrastructure with local communities; and aligning policy and regulation with the Strategy. The three key areas of focus, based on extensive analysis of material flows, current and planned capacity and proposed policy changes, are residual waste, organics and plastics.

The guide specifically addresses the current market, processing capacity, throughput and future needs, and the opportunities and challenges associated with processing of plastics, organics, glass, paper and cardboard, and tyres. The guide identifies a deficit of approximately 85,000 to 100,000 tonnes per annum in the State's current tyre processing capacity, with a lack of local markets for tyre-derived products being a major challenge for the industry. The ban on export of whole tyres came into effect in December 2021, making it more critical than ever to address the significant processing deficit. The proposed alterations and additions to BSV Tyre Recycling's existing facility will directly support the objectives of the *NSW Waste and Sustainable Materials Strategy: A guide to future infrastructure needs.*

2.3.3. 2018 National Waste Policy: Less Waste, More Resources

The 2018 *National Waste Policy* was developed to provide a framework for a national approach to waste management, recycling and resource recovery, helping the country move towards a circular economy. The five overarching principles for waste management set out in the policy are:

- Avoid waste;
- Improve resource recovery;
- Increase use of recycled material and build demand and markets for recycled products;
- Better manage material flows to benefit human health, the environment and the economy; and
- Improve information to support innovation, guide investment and enable informed consumer decisions.

Supporting the policy is the *National Waste Policy Action Plan* 2019 (the Plan). The Plan recognises the need to build a local market for the processing and reuse of problem wastes, ensuring Australia takes responsibility for its' waste production and moving toward a circular economy. Transforming problem wastes into high value materials will support job creation, build a more sophisticated industry, and provide positive environmental and community wellbeing outcomes. The Plan presents the targets and actions to implement the policy and aims to address impediments to a circular economy in Australia. The targets are:

- Ban the export of waste plastic, paper, glass and tyres commencing in the second half of 2020;
- Reduce total waste generated in Australia by 10% per person by 2030;
- 80% average resource recovery rate from all waste streams following the waste hierarchy by 2030;
- Significantly increase the use of recycled content by governments and industry;
- Phase out problematic and unnecessary plastics by 2025;
- Halve the amount of organic waste sent to landfill by 2030; and
- Make comprehensive, economy-wide and timely data publicly available to support better consumer, investment and policy decision.

From 1 December 2021 significant changes to the export of waste tyres were implemented. Under the Plan, the export of whole baled tyres was banned with the exception of bus, truck and aviation tyres being exported to verified facilities for re-treading. Export of processed tyre products including crumbs, buffings, granules, shreds and tyre derived fuels (TDF) is still be permitted.

This Proposal seeks approval to implement alterations and additions to the existing recycling facility to increase TDF production, with a maximum output of 81.92 tonnes per day. The new plant will be in addition to an existing crumb rubber production plant with a maximum output of 3 tonnes per day, and will help boost local tyre recycling infrastructure. It will also help in the diversion of tyres from landfill in accordance with the objectives of the *National Waste Policy.*

2.3.4. Fire & Rescue NSW – Guideline for Bulk Storage of Rubber Tyres

The *Fire & Rescue NSW – Guideline for Bulk Storage of Rubber Tyres* (NSW Fire & Rescue, 2014) provides guidelines for managers of any new facility which intends to store new or used tyres and related subsidiary products. It is a requirement that all facilities storing more than 5 tonnes or 500 waste tyres or processing more than 5,000 tonnes of waste tyres per year, are required to hold an environment protection licence issued by the NSW Environment Protection Authority.

The Proposal will continue to trigger the requirement for an EPA license because the Waste Storage activity will exceed 5 tonnes of waste tyres stored on the premises at any time and more than 6,000 tonnes of tyres will be processed on an annual basis.

All tyres will be temporary stored only in two designated locations at the rear of the site. All tyres will be processed by the end of the day and containerised (including crumb rubber) prior to cessation of daily operations. This will avoid the need for outdoor storage of whole or processed rubber tyres, significantly reducing the fire risk associated with operations.

A Fire Impact Management Plan has been prepared to consider fire safety and fire service upgrades to ensure that the Proposal fully complies with the *Fire & Rescue NSW – Guideline for Bulk Storage of Rubber Tyres.*

3. Proposal Description

3.1. Summary of the Proposal

BSV Tyre Recycling Australia Pty Ltd operates an EPA licenced resource recovery facility for used tyres at 30 Daisy Street, Revesby NSW (EPL 20387). The company is accredited by Tyre Stewardship Australia (TSA), the peak industry body established to ensure the sustainable management of used tyres in Australia.

The site contains a single storey industrial building with associated mezzanine office level. The factory environment within this building is used for tyre shredding and crumbing with mechanical plant and equipment. A weighbridge is located on the southern boundary of the site. A large outdoor covered area at the rear eastern side of the site is used for tyre storage, baling and containerisation. The lot has a total area of approximately 4,000m^2.

BSV has development consent under DA843/2013 for the receipt, processing and production of various tyre derived products from used car and truck tyres received. The site has historically relied on the baling and export of used tyres. In 2019, the Council of Australian Governments (COAG) agreed to ban the export of a range of waste types including whole tyres (except truck, bus and aviation tyres being exported for re-treading), which commenced on 1 December 2021. Since this date, the facility has focused on crumb rubber production for use in asphalt making and sustainable children playground surfaces, and the production of a tyre chip which is exported as a coal replacement (referred to as a Tyre Derived Fuel or TDF).

Over the past two years, export markets have been growing rapidly for TDF, as countries look for fossil fuel replacements to support the energy transition and reduce greenhouse gas emissions. The use of TDF as a coal replacement can assist industries like the cement and steel industry lower their emissions. At the same time, demand for crumb rubber domestically has been very low. As a consequence, the company has been directing all tyres into TDF for export as a fuel replacement.

BSV Tyre Recycling Australia Pty Ltd is now seeking approval for alterations and additions to its development consent to increase the production of TDF. The Proposal will increase the receival limit of tyres from 14,600 tonnes per year to 29,900 tonnes per year, whilst retaining the ability to manufacture rubber crumb when demand is displayed by the domestic market. Crumb rubber production capability will remain as approved in the shed under DA843/2013.

The proposal includes the following components:

- Decommissioning of the tyre baling machines located under the rear awning of the site;
- Amending location of existing shipping containers for storage of rubber products (whole tyres and TDF);
- Installation of two mobile diesel shredding units to increase the production of TDF on the rear hardstand of the site, to be located under the rear awning with local exhaust ventilation;
- Establishment of a dedicated area for tyre unloading and temporary storage prior to processing;
- Installation of a pre-cast concrete panel wall along the southern boundary of the site to improve fire safety and noise attenuation;
- Replace the single head fire hydrants with dual fire hydrants near the tyre storage area, including provision of fire extinguishers, fire hose reels and provision for at least 108m3 of fire water containment bunding;
- Installation of a new firewater isolation valve to the north-eastern side of the site; and
- Inclusion of a dedicated bicycle space.

No change in operating hours is proposed, and will remain as 6am to 11pm on weekdays, 8am to 5pm on Saturdays and 9am to 4pm on Sundays as per DA843/2013. Two additional staff members will be employed, bringing the total staff from fifteen (15) to seventeen (17). Also, a maximum of nine (9) staff members will be on-site at any given time which ensures compliance with available parking spaces. Two recycling shifts will occur on a Monday to Friday (6am to 3pm and 3pm to 11pm), and one shift on Saturdays and Sundays.

Tyres will be transported to the facility in medium rigid vehicles (MRV's) and in forty cubic foot shipping containers transported by side loading semi-trailers. All vehicles will enter the site in a forward direction over the weighbridge on the southern side of the site, and will exit in the forward direction over the weighbridge and out of the site. All product hauled off-site will be containerised in forty cubic foot shipping containers for transport via semi-trailers to Port Botany for export.

The alterations and additions to the existing tyre recycling facility will help improve operational efficiency, reduce the need for tyre stockpiling outside and will help the facility to better support the tyre recycling needs on the Sydney Metropolitan Area. The Proposal is compliant with the requirements of NSW Fire & Rescue (2014) *Fire Safety Guideline – Guideline for Bulk Storage of Rubber Tyres.*

Additional tyre recycling infrastructure is identified as a need under the *NSW Waste and Sustainable Materials Strategy – A Guide to Future Infrastructure Needs* . By 2030, the shortfall in infrastructure capacity of tyre recycling is projected to increase to 100,000 tonnes of tyres per annum. Deployment of additional infrastructure such as that outlined in this Proposal is critical to ensure that tyres continue to be managed in a sustainable manner at the end of life in Sydney.

3.2. Waste Processing Operations

The Consent approved operating hours are 6am to 11pm on weekdays, 8am to 5pm on Saturdays and 9am to 4pm on Sundays. A breakdown of the weekday operation is as follows:

- Main Office: 9:00am - 6:00pm;
- Tyre Recycling: Shift 1: 6:00am - 3:00pm;
- Tyre Recycling: Shift 2: 3:00pm - 11:00pm;
- Cleaning, packaging and maintenance: 6:00pm - 11:00pm; and
- Delivery Hours: 6.00am – 11.00pm.

Waste tyres are delivered to the site in Medium Rigid Vehicles, and semi-trailers carrying 40ft^3 containers, from tyre retailers in the Sydney region. All incoming tyres are tracked via the EPA's Integrated Waste Tracking System (IWTS). No other waste types are accepted onsite. Due to the method of collection of waste tyres, there is virtually no contamination in the received loads. Any rubbish that may be contained within a load is easily identified and manually removed.

The revised site layout arrangements will result in all vehicles accessing and exiting the site from Daisy Street via the southern driveway. Vehicles proceed through onto the weighbridge and then proceed to the tipping/processing area, where tyres are unloaded and stored accordingly. Once unloaded, trucks proceed to the weighbridge again before exiting the site in the forward direction through the dedicated exit on the southern side of the site. Tyres are manually sorted for the following streams:

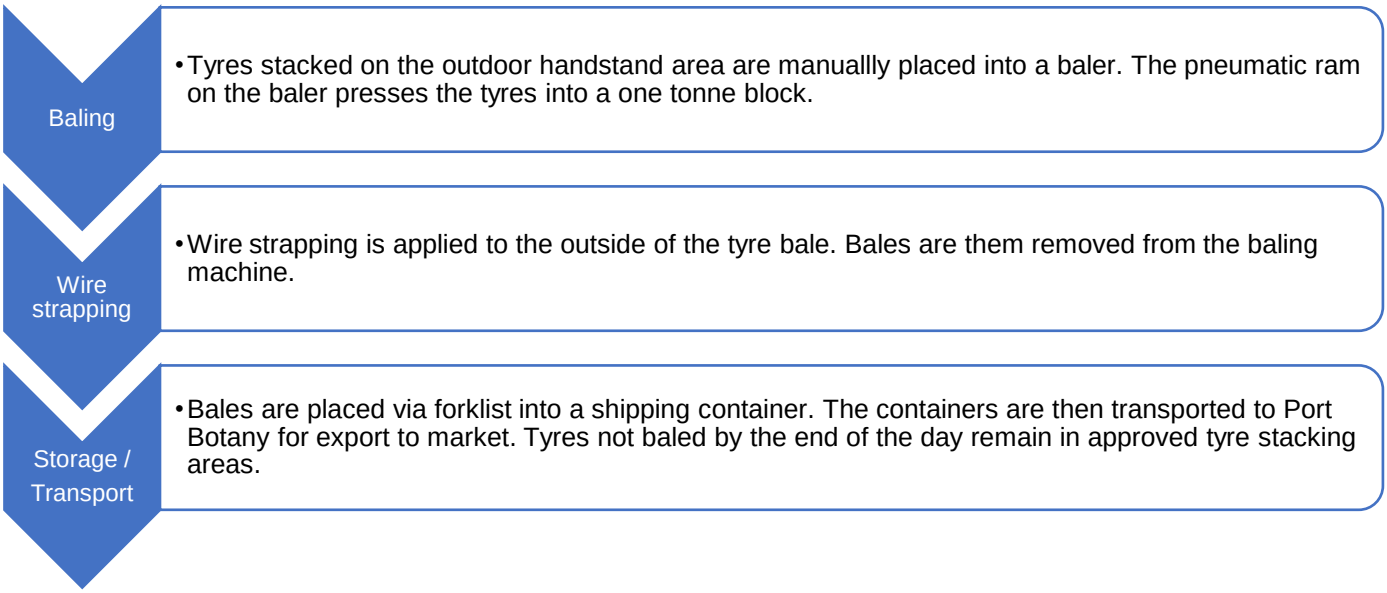
- Shredding for use in energy recovery (tyre derived fuel); and
- Crumb rubber production.

Shredded tyres are transferred directly into shipping containers via a conveyor belt. Crumb rubber is transferred to bulk packaging bags which are stored in airtight shipping containers prior to leaving the site.

A flow chart providing and overview of the existing tyre recycling operations as approved under DA893/203 is provided in Figure 3.1. An overview of the operations following the implementation of the alterations and additions is shown in Figure 3.2. A site plan showing the proposed alterations and additions is provided in Figure 3.3. Truck turning paths are shown in in Figure 3.4.

Figure 3.1. Overview of the site's existing tyre recycling process as approved under DA893/2013.

a) Balling of Tyres, maximum processing tonnage of 13,547 tonnes per year.



b) Crumb Rubber Production, maximum processing tonnage of 1,053 tonnes per year.

Figure 3.2. Overview of proposed operations following completion of the alterations an additions.

Crumb Rubber Production, maximum processing tonnage of 1,053 tonnes per year.

Debeading	• Tyres are moved from the temporary storage areas on the outdoor handstand and moved into the shed building. Tyres are first debeaded, removing the wires and metal from the tyres.
Shredding	• Tyres are loaded into a receival hopper, then shredded to large chips. Chips are screened for size separation with oversized chips being returned to the shredder.
Grinding	• Tyre chips are ground to separate rubber from metal and fabric (cotton). Ground rubber is passed through screens for size separation with oversized pieces being returned to the grinder.
Metal Removal	• Magnets are used to remove metal (and placed into a metal bin), and fabric (cotton) is removed by air separators and stored in bulka bags.
Screening	• Rubber is passed through a cracker mill and screened for sizing into different particle size fractions to produce the final crumb product.
Storage	• Product is transferred to bulk packaging bags under the rear awning prior to being loaded onto MRV's for delivery to customers. Cotton is collected in bulka bags in the awning. Wire is baled into blocks and stored under the awning awaiting collection.

TDF Production, Maximum processing tonnage of 28,847 tonnes per year.

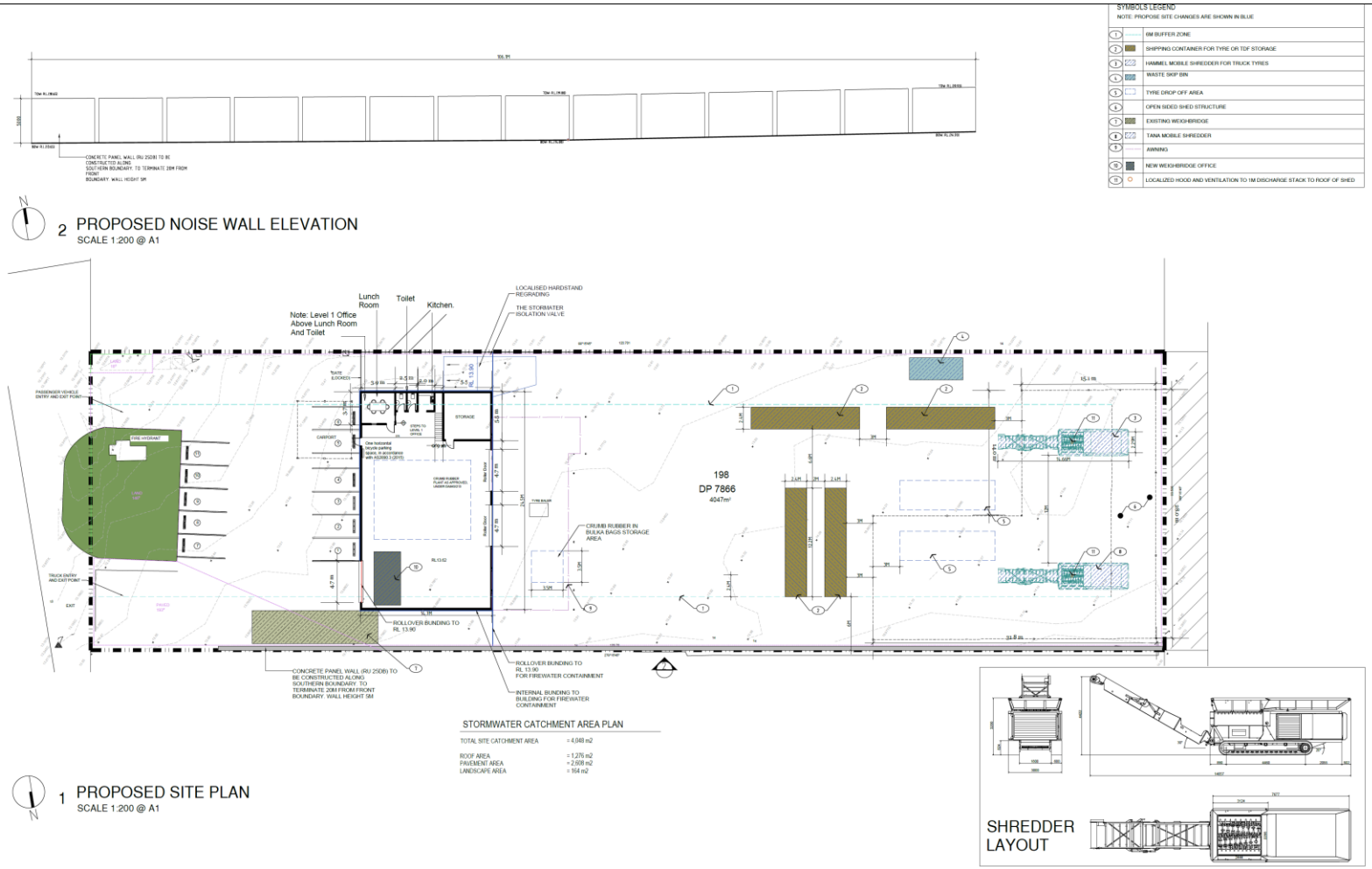
Shredding	• Whole tyres from the temporary storage areas are loaded into the shredder.
Storage/ Transport	• Tyre chips are screened. Appropriately sized chips are transferred to a 40 ft^3 shipping container via a Bobcat. Oversized chips are returned to the shredder for further processing. • No tyres are left outdoors at the end of the day. All tyres are moved and contained in sealed shipping containers at the end of the day.

Processed and recovered products will be collected and transported as required for off-site use. Tyre chips are stored and transported in airtight shipping containers. Crumb rubber and cotton are stored and transported in 1 tonne bulka bags, and are collected from under the awning of the shed building. Baled wire is collected in one tonne blocks from under the shed building awning. Crumb rubber, cotton and baled wire will be loaded onto medium rigid

trucks (MRV's) via forklift or temporarily stored in shipping containers. Shipping containers will be loaded directly onto 19m semi-trailers. Trucks will exit the site, passing over the weighbridge on exit.

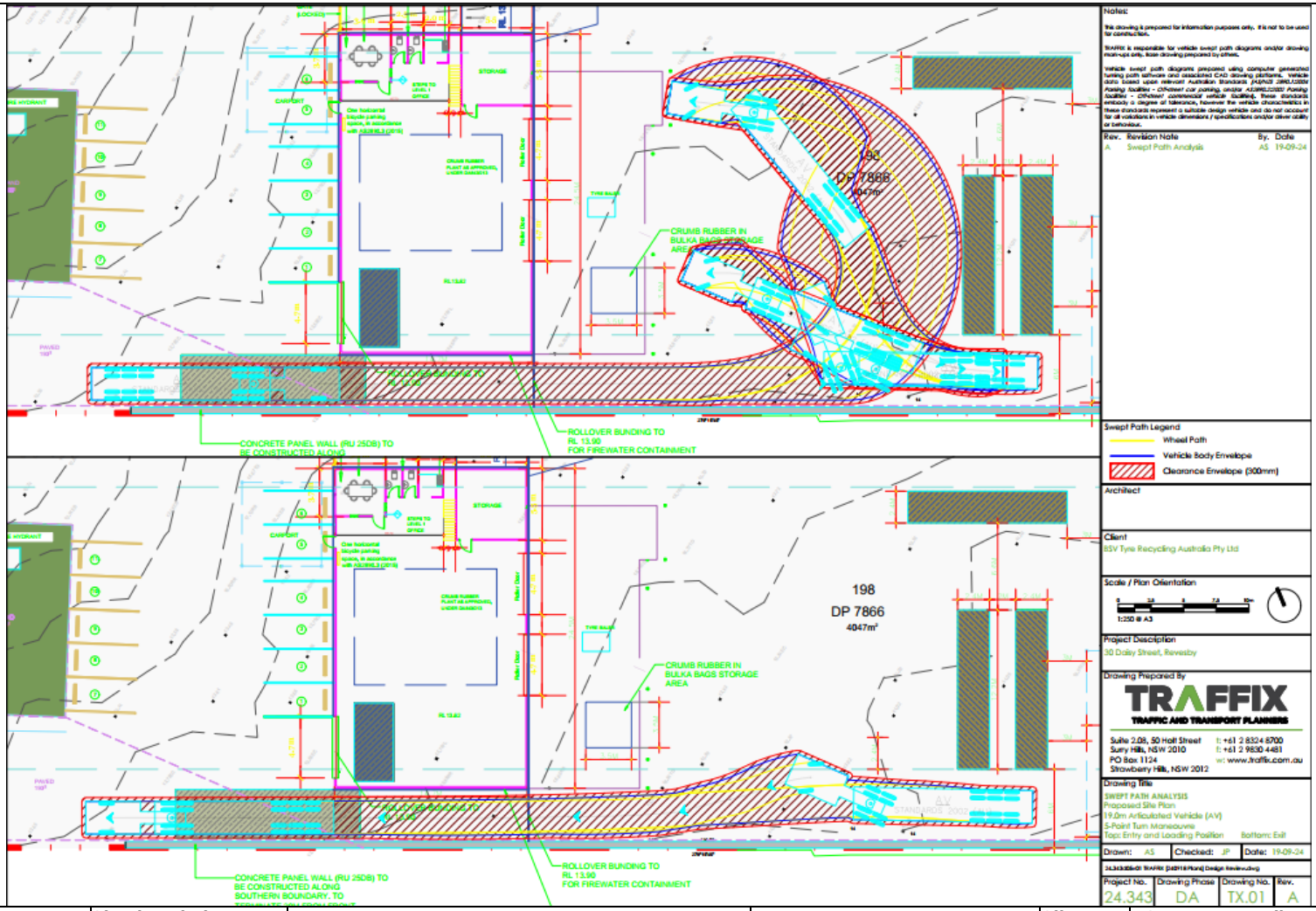
Other waste on site results from employee personal waste, co-mingled recycling, food organics from staff lunches, garden organics from garden maintenance activities and minor contamination in incoming tyre loads (e.g. plastic packaging materials). All residual waste from tyre recycling is collected in a skip bin and periodically removed to a licensed waste disposal facility as required. The small amount of residual waste from office operations, co-mingled recycling and FOGO are collected by a commercial contactor via a MRV or HRV from the rear yard and recycled or disposed at licensed facilities.

Figure 3.3. Site plan showing the proposed alterations an additions to the existing tyre recycling facility.



Date	Revision	Drawn By	Site description	JEP Environment & Planning	Client	BSV Tyre Recycling Australia Pty Ltd
07/10/2024	Revision A	M.Jackson	30 Daisy Street, Revesby (Lot 198, DP 7866)	**Strategy | Approvals | Compliance | Licensing** **A: Suite 102, Level 1, 25-29 Berry St, North Sydney NSW 2060** **E:** admin@jacksonenvironment.com.au **T: 02 8056 1849** **W:** http://www.jacksonenvironment.com.au	Project	Tyre Recycling Facility Alteration and Additions
					Title	Proposed Site Plan
					Scale	As shown
					Source	JEP Environment & Planning

Figure 3.4. Truck turning paths for the delivery of tyres and pick up of shipping containers. Largest vehicle to enter the site is a 19m semi-trailer.



Date	Revision	Drawn By	Site description
07/10/2024	Revision A	M.Jackson	30 Daisy Street, Revesby (Lot 198, DP 7866)

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Client	**BSV Tyre Recycling Australia Pty Ltd**
Project	Tyre Recycling Facility Alteration and Additions
Title	Truck Turning Paths
Scale	As shown
Source	Traffix

4. Waste Management

Waste management practices outlined below address the economic, environmental and safety imperatives during the operational phase of the facility. These enhanced management practices also produce triple bottom line benefits including financial efficiencies, and a safe work site.

The benefits of the management practices outlined in the plans will be realised from the outset by both the business and the broader community in the form of reduced costs of disposal, reduced costs of legal liability and common good through:

- Maximising recovery of resources;
- Exercising due diligence for safe disposal of waste; and
- Providing a safe worksite.

A plan for the management of waste during the demolition, construction and operational phases of the Proposal is provided below.

4.1. Demolition Phase

The Proposal will require minor demolition works to remove the existing chain-link fence along the southern boundary to allow construction of the concrete wall. Waste will consist of concrete post footings, steel fencing wire and steel fence posts. Table 4.1 details the estimated volume of each waste type to be generated. All waste will be placed directly into skip bins and taken for off-site recycling at an appropriate licensed facility. The storage location for these bins is provided in Figure 4.3.

Table 4.1. Breakdown of the waste from the demolition phase.

Waste Type	Waste Identified	Waste Description	Disposal Method	Suggest Receiving Facility	Tonnes	Recycling rate
General Solid Waste (non-putrescible)	Concrete	Concrete footings from existing fence posts	Off-site recycling	Bingo Industries 37-51 Violet St, Revesby Environment Protection Licence 20607	2	100%
	Steel	Chain-link fence and steel fence posts	Off-site recycling		1	100%
TOTAL Amount of waste generated (tonnes)					3	
TOTAL Amount of waste recycled (tonnes)					3	
Overall recycling rate (%)					100%	

4.2. Construction Phase

No major construction works construction works are required. However, the Proposal includes the installation of the local exhaust vents to the roof of the rear awning to provide ventilation for the mobile shredders to mitigate air and odour emissions to ensure there are no air and odour impacts on the site during operation of the two new mobile shredders. Also, the construction of a lightweight pre-cast concrete panel wall along most of the southern boundary of the site, will be done. This wall is essential to mitigate noise impacts from the operation of the shredders and the existing crumb rubber plant on neighbouring properties. Additionally, the concrete panel wall will provide flame inhibition in the event of a fire.

The proposed wall will be constructed to 5m high and will extend approximately 100m from the rear boundary, terminating approximately 20m from the front boundary of the site. In additional, a stormwater pit with an isolation valve will need to be installed in the rear yard, together with rollover bunding to contain firewater in the unlikely event of a fire.

Fence posts will need to be installed to support the fence posts. Each post hole is expected to extend to a depth of approximately 1.7m and require the excavation of approximately 0.5m^3 of soil. The total number of post holes will be dependent on the width of the pre-cast panels to be used, but it is anticipated that approximately 40 post holes will be required, with a total excavation volume of 20m^3 of soil. A further 1m^3 of soil will be excavated for the construction

of the stormwater pit for the stormwater isolation valve. All excavated material will be transported to an appropriate licensed facility for recycling or disposal.

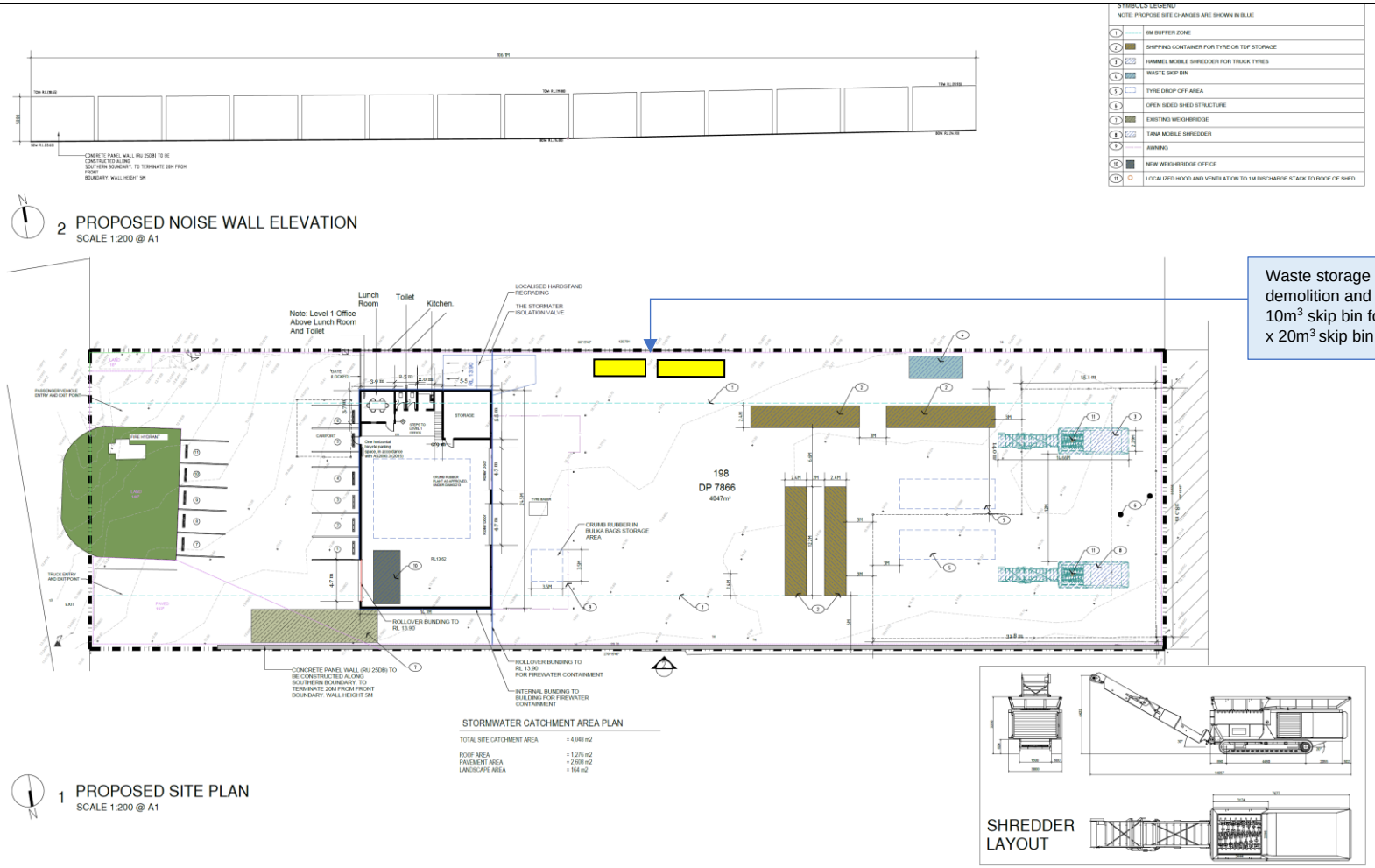
The materials used in the construction of the concrete wall and local exhaust vents are modular and are delivered to site pre-measured and cut which reduces construction time, costs and minimises waste. Bunding to be installed will be constructed on the concrete handstand. This will be ordered based on requirements to avoid waste.

All waste will be placed directly into skip bins and taken for off-site recycling at an appropriate licensed facility. The storage location for these bins is provided in Figure 4.3.

Table 4.2. Breakdown of the waste from the construction phase.

Waste Type	Waste Identified	Waste Description	Disposal Method	Suggest Receiving Facility	Tonnes	Recycling rate
General Solid Waste (non-putrescible)	Concrete	Fence post and stormwater pit	Off-site recycling	Bingo Industries 37-51 Violet St, Revesby Environment Protection Licence 20607	2	100%
	Soil	Fence post holes and stormwater pit	Reuse on site where possible or off-site recycling		21	100%
TOTAL Amount of waste generated (tonnes)					23	
TOTAL Amount of waste recycled (tonnes)					23	
Overall recycling rate (%)					100%	

Figure 4.3. Site waste management and bin storage area during the demolition and construction phase (skip bins shown in yellow).



Waste storage and bin placement during demolition and construction phase. 1 x 10m^3 skip bin for concrete and steel and 1 x 20m^3 skip bin for soil.

Date	Revision	Drawn By	Site description	JEP Environment & Planning	Client	BSV Tyre Recycling Australia Pty Ltd
08/10/2024	Revision A	J.Tanana	30 Daisy Street, Revesby (Lot 198, DP 7866)	**Strategy | Approvals | Compliance | Licensing** **A: Suite 102, Level 1, 25-29 Berry St, North Sydney NSW 2060** **E:** admin@jacksonenvironment.com.au **T: 02 8056 1849** **W:** http://www.jacksonenvironment.com.au	Project	Tyre Recycling Facility Alteration and Additions
					Title	Proposed bin location
					Scale	As shown
					Source	JEP Environment & Planning

4.3. Operational Phase

The site operations generate little waste. Whole waste tyres are the only form of waste brought to the site and are received directly from tyre retailers. As the tyres are separated from other waste types at the source, there is virtually no contamination in the loads brought to site.

The processing of waste tyres generates very small amounts of residual waste. The shredding of tyres does not produce any residual waste. Crumb rubber production can recover and recycle 100% of the tyre (including crumb rubber, cotton and steel wire).

Other waste generated onsite is related to office and garden maintenance operations.

The facility will be expanding its processing capacity to 29,900 tonnes per annum of waste tyres. The existing crumb rubber plant will have the same processing capacity at 1,053 tonnes per year, and the new mobile shredders for TDF, will have a processing capacity of 28,847 tonnes per year.

4.3.1. Materials Received On Site

The site operations will generate minimal waste. The only form of waste brought to the site is whole waste truck and car tyres. Since these tyres are separated from other waste types at the source, the loads brought to the site have virtually no contamination. This ensures a clean and efficient recycling process, focusing solely on the processing of used tyres into crumb rubber and Tyre Derived Fuel (TDF).

All tyres that are received during the day will be processed and stored in containers, meaning no tyres will be stockpiled outdoors. This reduces the risks involved with tyre storage.

4.3.2. Products Recovered

Under the proposed expansion, BSV anticipates recycling approximately 100% of all incoming waste tyres, equating to around 29,900 tonnes per annum. The following products are produced through the recycling process:

- Tyre Derived Fuel (TDF): Shredded tyres, or tyre chips, used as a fuel alternative, primarily in industries such as cement kilns;
- Crumb Rubber: Rubber crumbs produced in various sizes for different applications, including playground soft-fall surfaces and asphalt production;
- Cotton: Cotton fibres extracted from tyres during the processing stage, typically from the fabric layers within the tyres. The extracted cotton can be recycled or repurposed for various applications; and
- Steel: Steel is extracted from tyres using bead removal machines or during the crumb rubber process; and the recovered steel is then sent to steel manufacturers for recycling.

The facility's enhanced focus on TDF and crumb rubber production aims to maximise the value recovered from waste tyres and support environmental sustainability through effective recycling practices.

4.3.3. Quality Specifications and Standards for Manufactured Products

Manufacturing products to meet the EPA's Resource Recovery Orders under the *Protection of the Environment Operations (Waste) Regulation* 2014 is critical to ensure all products can be used in a manner lawfully that protects human health and the environment. Supply of recovered tyres for the application to land for use in civil engineering structures and road making activities is subject to the requirements of *The Recovered Tyres Order* 2014 and *The Recovered Tyres Exemption* 2014. Cotton and steel wire will be directly used in manufacturing.

4.3.4. Tyre Storage and Proposed Authorised Amount

Under Clause 10B of the *Protection of the Environment Operations (Waste) Regulation* 2014, operators of licensed resource recovery facilities are required to manage the storage of waste and processed products to not exceed the 'Authorised Amount' at any one time. Exceeding the Authorised Amount triggers the requirement for payment of the Waste and Environment Levy for the excess tonnage. This regulatory measure encourages operators to manage their inventory effectively to avoid environmental, public safety, and health risks.

The BSV Tyre Recycling facility is currently licensed to store up to 150 tonnes of waste tyres at any one time. No changes to the storage capacity are proposed. The following measures and areas are designated for waste storage:

- Dedicated Unloading Area: A specific area is established for the unloading of tyres, at the rear end of the site ensuring a streamlined process and minimising handling time;
- Shipping Containers: Repositioned shipping containers are used for the storage of rubber products, ensuring secure and organised storage;
- Mobile Shredding Units: Two mobile diesel shredding units are installed on the rear hardstand of the site, equipped with conveyors to manage the increased production of Tyre Derived Fuel (TDF). The shredder tyre rubber will then be stored inside the shipping containers;
- Crumb Rubber Storage: An area under the shed building's rear awning is designated for storing crumb rubber in bulka bags, ensuring it is kept in optimal conditions until it is ready for transport or further use;
- Steel Storage: An area under the shed building's rear awning is designated for storing baled steel wire, until it is ready for transport or further use;
- Cotton Storage: An area under the shed building's rear awning is designated for storing cotton in bulka bags, ensuring it is kept in optimal conditions until it is ready for transport or further use; and
- Tyre Storage Requirements: All tyres received during the day will be processed and contained in shipping containers, so no outdoor storage of whole tyres overnight is required.

These storage measures are designed to support the facility's operations, ensuring the efficient and safe management of waste materials, maintaining compliance with all relevant regulations and guidelines, and preventing potential environmental and safety hazards.

Table 4.3. Locations for storage of whole tyres and processed tyre products, including estimates of the maximum quantity to be stored at any one point in time.

Flow of material	Materials	Type of material	Waste Classification	Estimated tonnes per annum	Maximum storage at any one point in time (tonnes)	Storage Area	Type of storage
Input	Whole Tyres	Input material	Special Waste	29,900	40	Whole Tyre Storage Area Awaiting Processing	Temporary storage in two designed areas in rear yard only. No tyres to be stored unprocessed and left outdoors overnight
Output	Crumb Rubber	Output material	Not applicable	947.7	10	Underneath the Awning of the Shed Building	1 tonne bulka bags (or in shipping containers at night)
Output	Baled Steel (Wire)	Output Material	Not applicable	73.71		Underneath the Awning of the Shed Building	1 tonne blocks
Output	Cotton	Output Material	Not applicable	31.59		Underneath the Awning of the Shed Building	1 tonne bulka bags (or in shipping containers at night)
Output	Shredded Tyres - Tyre Derived Fuel (TDF)	Output material	Not applicable	28,847	100	Shipping containers in rear yard	40ft^3 Containers

Flow of material	Materials	Type of material	Waste Classification	Estimated tonnes per annum	Maximum storage at any one point in time (tonnes)	Storage Area	Type of storage
Total (tonnes)				**29,900**	**150**		

4.3.5. Waste and Recycling Measures - Office and Garden

The office operations associated with the Facility will generate waste from office administration and personnel activities (e.g., staff meals). Whilst waste generation from these activities is considered minor, they need to be appropriately managed to ensure that waste is minimised and recycled in accordance with the waste hierarchy in the *NSW Government's Waste Avoidance and Resource Recovery Act* 2001.

The operation will generate minimal waste as part of the office operations. However, a co-mingled recycling system is used to separate waste. Co-mingled recycling and general waste is stored in 240 L wheelie bins under the awning of the shed building. It is proposed that a 240L food organics / garden organics (FOGO) bin will be provided, for collection and recycling of any food from staff lunches, and garden organics from garden maintenance activities. Residual waste, co-mingled recycling and FOGO is to be collected by a commercial contractor.

An overview of waste generation and recycling estimates as part of the office operations is provided in Table 4.4. Waste generation and recycling estimates are from *Multi-unit and Commercial Development Waste and Recycling Generation Rates Calculator*[1]. Overall, it is estimated that the office and garden operations will recycle approximately 78% of all waste generated.

4.3.6. Incident management – spills

The spills most likely to occur onsite are oils and fuel. To better manage a spill incident, Spill Response Kits will be kept on-site at various clearly identified locations in easily accessible areas. The SDS will be placed within sight and near spill kits. The SDS has clear instructions on spill response management – clean up and disposal.

A Pollution Incident Response Management Plan has been developed for the site (part of the site Operational Environmental Management Plan) and should be followed in the event of a large spill.

4.3.7. Non-conforming waste

Due to the nature of the waste received on site, non-conforming waste types are rarely brought to site and generally involve very minor contamination within acceptable waste tyre loads.

Tyres are stacked by hand into trucks (flatbed trucks with metal cage sides) at tyre retail outlets then brought directly to the Site. Tyres are then unloaded by hand and stacked on the hardstand areas. Minor contamination, such as packaging materials, may be caught between tyres and can easily be removed by hand during unloading and disposed of in the Site's residual waste skip bin.

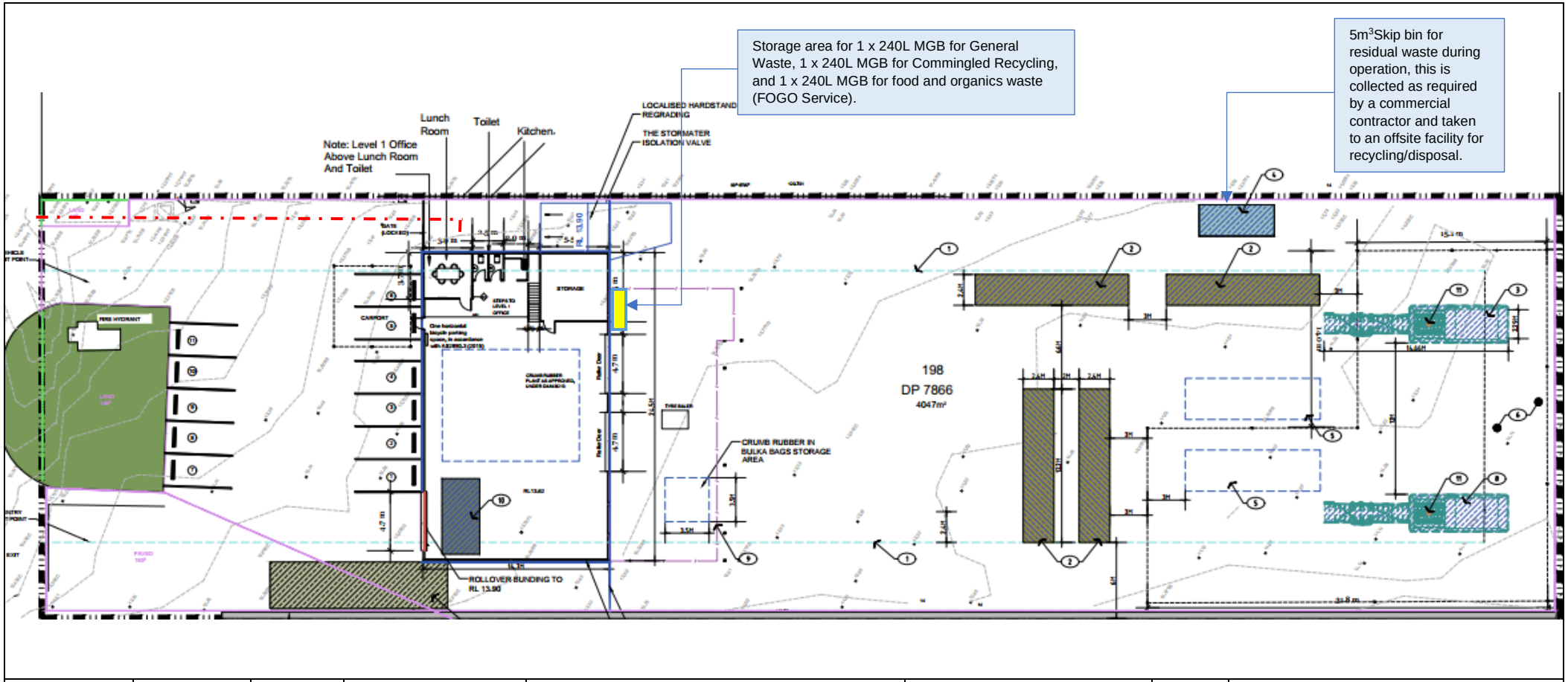
In the event a load of waste tyres with significant contamination is brought to the site, the Procedure for non-conforming waste (part of the site Operational Environmental Management Plan) will be followed.

[1] Sustainability Victoria (2019), Better Multi-unit and Commercial Development Waste and Recycling Generation Rates Calculator; https://calculators.sustainability.vic.gov.au/mud-waste-management/

Table 4.4. Waste and recycling measures for waste generated by office and garden maintenance operations.

Key Waste Stream	Volume of waste generated per day per 100m^2 floor area (for offices) (L)	Weekly waste generation (based on a 7-day working week and office floor area of 100m^2) (L)	Segregation Areas / Containers	Reuse / Recycling / Disposal Method	Waste Type (NSW EPA Pre-classified Waste)	Suggested Receiving Facility	Recycling rate (%)
Co-mingled recycling: plastic / glass containers / metal cans / paper and cardboard	1.15	8.05	240L recycling bin (serviced fortnightly)	Off-site recycling	General waste (non-putrescible)	Visy Smithfield (EPL20752)	100%
FOGO	3.4	20.8	240L recycling bin (serviced fortnightly or as required)	Off-site recycling	General waste (non-putrescible)	Cleanaway Kemps Creek – Advanced Resource Recovery Technology (ARRT) (EPL 12889)	100%
General waste (non recyclable residual waste)	1.15	8.05	240L general waste bin (serviced weekly)	Off-site disposal	General waste (non-putrescible)	Cleanaway Kemps Creek Landfill – (EPL4068)	0%
Waste generated (Litres per week)		36.9					
Waste recycled (Litres per week)		28.85					
Overall recycling rate (%)		78.2%					

Figure 4.4. Site Plan showing bin storage locations during the operational phase.



Date	Revision	Drawn By	Site description
18/07/2024	Revision A	J.Tanana	30 Daisy Street, Revesby (Lot 198, DP 7866)

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Strategy | Approvals | Compliance | Licensing
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Client	BSV Tyre Recycling Australia Pty Ltd
Project	Tyre Recycling Facility Alteration and Additions
Title	Proposed Site Plan
Scale	As shown
Source	Site Plan

5. Environmental Risk Assessment

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

The following points summarise the key activities identified in the risk assessment relevant to waste management for operation of the Facility:

- Litter (e.g. food waste, packaging) from site amenities reaching local waterways;
- Dust from crumb rubber production leaving the site;
- Leakage of effluent from site amenities;
- Leakage of vehicles duration loading and unloading;
- Fuel and oil spills during operational plant and equipment maintenance; and
- The location and storage of waste on site prior to reuse or disposal.

5.1. Environmental Control Measures

Table 5.1 provides the environmental control measures and safeguards implemented to minimise waste generated operation of the facility.

Table 5.1. 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 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
Clearly assign and communicate responsibilities to ensure that all personnel are aware of their responsibilities in relation to the waste management plan	Prior to starting on site / Ongoing	Operations Manager
Engage and educate personnel on how the various elements of the waste management plan will be implemented	Prior to starting on site / Ongoing	Operations Manager
Specific locations for waste management (e.g., recycling bin locations, stockpile locations) to be signposted appropriately.	Weekly checks	Operations Manager
Processing and hardstand areas will be adequately managed to prevent sediment runoff and dust generation.	Daily	Operations Manager
Spill kit to be present on site in the case of any fuel leaks of plant and equipment	Ongoing	Operations Manager
Segregated waste disposal containers for the collection and recycling/disposal of all waste streams generated during operations 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.	Daily	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.	Daily	Operations Manager
All whole tyres and processed tyre products (TDF, crumb rubber and cotton) are to be placed in sealed shipping containers at the end of the day. No outdoor storage of whole tyres or tyre products will be performed overnight.	Daily	Operations Manager

Control Measures and Safeguards	Timing	Responsibility
All waste being transported off site must be covered. The transportation must be appropriately licensed to carry that material.	Daily	Operations Manager
Storage of all tyres and tyre products will be stores in line with requirements of the Fire & Rescue NSW – Guideline for bulk storage of rubber tyres.	Daily	Operations Manager
Any hazardous materials will be managed and handled by an appropriately licensed contractor and transported for disposal to a licensed facility approved site.	As required	Operations Manager
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.	Daily	Operations Manager
Incompatible wastes will not be mixed.	Daily	Operations Manager
Storage areas would be located away from waterways and the stormwater system.	Daily	Operations Manager
Biodegradable products will be used wherever practicable.	Daily	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.	Daily	Operations Manager
Conduct regular litter patrols to ensure litter is effectively controlled on site.	Daily	Operations Manager
Daily housekeeping to include sweeping and dust removal around crumb rubber plant to minimise offsite movement of dust	Daily	Operations Manager

6. Training

All employees, contractors and other 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 minimisation 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.

7. Monitoring and Review

7.1. Inspection 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, refer to Table 7.1 for additional information.

Table 7.1. Waste monitoring and review schedule.

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

7.2. 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.

7.3. Environmental Management Review

The effectiveness and proper implementation of the WMMP will be reviewed 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 WMMP.

7.4. Continual Improvement

Continual improvement of this WMMP 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 and
    - Verify the effectiveness of the corrective and preventative actions.

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

8. Conclusion

BSV Tyre Recycling Australia Pty Ltd operates an EPA licenced resource recovery facility for used tyres at 30 Daisy Street, Revesby NSW (EPL 20387). The company is accredited by Tyre Stewardship Australia (TSA), the peak industry body established to ensure the sustainable management of used tyres in Australia.

The site contains a single storey industrial building with associated mezzanine office level. The factory environment within this building is used for tyre shredding and crumbing with mechanical plant and equipment. A weighbridge is located on the southern boundary of the site. A large outdoor covered area at the rear eastern side of the site is used for tyre storage, baling and containerisation. The lot has a total area of approximately 4,000m^2.

BSV has development consent under DA843/2013 for the receipt, processing and production of various tyre derived products from used car and truck tyres received. The site has historically relied on the baling and export of used tyres. In 2019, the Council of Australian Governments (COAG) agreed to ban the export of a range of waste types including whole tyres (except truck, bus and aviation tyres being exported for re-treading), which commenced on 1 December 2021. Since this date, the facility has focused on crumb rubber production for use in asphalt making and sustainable children playground surfaces, and the production of a tyre chip which is exported as a coal replacement (referred to as a Tyre Derived Fuel or TDF).

Over the past two years, export markets have been growing rapidly for TDF, as countries look for fossil fuel replacements to support the energy transition and reduce greenhouse gas emissions. The use of TDF as a coal replacement can assist industries like the cement and steel industry lower their emissions. At the same time, demand for crumb rubber domestically has been very low. As a consequence, the company has been directing all tyres into TDF for export as a fuel replacement.

BSV Tyre Recycling Australia Pty Ltd is now seeking approval for alterations and additions to its development consent to increase the production of TDF. The Proposal will increase the receival limit of tyres from 14,600 tonnes per year to 29,900 tonnes per year, whilst retaining the ability to manufacture rubber crumb when demand is displayed by the domestic market. Crumb rubber production capability will remain as approved in the shed under DA843/2013.

The proposal includes the following components:

- Decommissioning of the tyre baling machines located under the rear awning of the site;
- Amending location of existing shipping containers for storage of rubber products (whole tyres and TDF);
- Installation of two mobile diesel shredding units to increase the production of TDF on the rear hardstand of the site, to be located under the rear awning with local exhaust ventilation;
- Establishment of a dedicated area for tyre unloading and temporary storage prior to processing;
- Installation of a pre-cast concrete panel wall along the southern boundary of the site to improve fire safety and noise attenuation;
- Replace the single head fire hydrants with dual fire hydrants near the tyre storage area, including provision of fire extinguishers, fire hose reels and provision for at least 108m3 of fire water containment bunding;
- Installation of a new firewater isolation valve to the north-eastern side of the site; and
- Inclusion of a dedicated bicycle space.

This Waste Minimisation and Management Plan has been prepared to support the development application for the proposed alterations and additions to the site. The Plan for management of demolition and construction waste include - source separation, reuse, recovery and recycling of materials. 100% of materials will be recovered and reused/recycled on-site or at lawful facilities during demolition and construction.

Management will utilise best contemporary waste management practices to ensure that waste is minimised during operation of the facility. A recycling rate of 78% is expected during operations.

The alterations and additions to the existing tyre recycling facility will help improve operational efficiency, reduce the need for tyre stockpiling outside and will help the facility to better support the tyre recycling needs on the Sydney Metropolitan Area. The Proposal is compliant with the requirements of NSW Fire & Rescue (2014) *Fire Safety Guideline – Guideline for Bulk Storage of Rubber Tyres.*

Additional tyre recycling infrastructure is identified as a need under the *NSW Waste and Sustainable Materials Strategy – A Guide to Future Infrastructure Needs* . By 2030, the shortfall in infrastructure capacity of tyre recycling is projected to increase to 100,000 tonnes of tyres per annum. Deployment of additional infrastructure such as that

outlined in this Proposal is critical to ensure that tyres continue to be managed in a sustainable manner at the end of life in Sydney.