Tyrecycle Erskine Park | Tyre recycling facility

OPERATIONAL PLAN OF MANAGEMENT

Prepared for Tyrecycle Pty Ltd | 7 December 2023

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TYRE RECYCLING FACILITY | OPERATIONAL PLAN OF MANAGEMENT

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PR230

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2	7 December 2023	Revised plan to account for revised fire mitigation measures	Element Environment	Tyrecycle Pty Ltd

Contents

Tables

1 INTRODUCTION

This operational plan of management (OPM) has been prepared on behalf of Tyrecycle Pty Ltd (Tyrecycle) to support the modification application for upscaled operations at their tyre recycling facility at 1-21 Grady Crescent, Erskine Park.

This OPM should be read in conjunction with the original OPM for the tyre recycling facility (September, 2020). The original OPM remains in effect, with this OPM providing additional management measures associated with the expansion to tyre processing at the site.

1.1 Purpose of operational plan of management

This OPM is a dynamic document which can be updated to respond to changing procedures and practices.

This OPM will be complied with by all operators on the site and should be read in conjunction with the Statement of Environmental Effects (SEE) and subsequent modification issued for the site.

The objectives of the OMP are to:

- Assist Council to understand all activities at the site to the fullest extent possible.
- Demonstrate the project commitment to the ongoing amenity of staff, and adjoining and nearby properties.
- Set out the specific operational process for the facility and activities on site.
- Detail times each activity is undertaken (in terms of 24 hour operations), including staff movements, deliveries, plant and machinery, vehicle movements and other specific project operations.
- Outline key mitigation measures and safeguards outlined within the SEE.
- Set out specific actions and procedures including how to remedy community complaints.

1.2 The site

The site is within an existing leased warehouse and distribution complex in the Erskine Business Park at 1-21 Grady Crescent, Erskine Park (Lot 4, DP 1253870). The site is approximately 10.8 kilometres (km) southwest of Blacktown and approximately 5.6 km southeast of St Marys. The project and site is further described within the SEE.

2 OPERATION

2.1 Proposed project

Tyrecycle is seeking approval to increase the quantity of tyres processed at their Erskine Park tyre recycling facility from 29,000 tonnes per annum (tpa) to 60,000 tpa (the project).

The primary operational activities of the project will remain the same in nature:

- receival and temporary storage of tyres;
- processing and shredding of tyres (up to 60,000 tonnes per annum); and
- dispatch of processed tyre derived fuel (TDF) and other tyre derived products (TDP).

2.2 Activities and operational process

The project will continue to be contained within the northern section of the existing warehouse building (covering a total floor space of 9,620 m^2), using the existing site infrastructure, plant and equipment.

The project will not result in changes to any of the following aspects:

- Operating methodology or site infrastructure.
- Building and infrastructure footprints.
- Vehicle parking requirements.
- Vehicle access and internal movement pathways.
- Hours of operation.
- Employment.
- Land ownership.
- Landscaping.
- Stormwater management.
- Utility services.
- Lighting, security and signage.

Existing mechanical processing plant and equipment within the warehouse building will remain the same, including a combination of the following:

- Weighbridge.
- Tyre receival and storage bay.
- Tyre feeder.
- Primary shredder – super chopper.
- Two secondary process – rasper.
- Primary granulator.
- Primary classifier – textile/fabric separation.
- Secondary granulation.
- Secondary classifier – textile/fibre separation.
- Aspirator – classification of granular product.
- Cracker mill.
- Sieve.
- Bulk bag stations.
- Steel cleaning plant.
- Two dust extraction and air filtration systems.
- Waste storage and collection areas.
- Conveyor.
- Forklift.
- Skidsteer loader.
- Front-end-loader.

Appendix D of the SEE for the original development consent, dated 16 September 2020 (Element, 2020) includes the existing architectural plan of the warehouse overlayed with a schematic (approximate location only not drawn to scale) of the existing operational plant, which will be located within the existing warehouse building. **Appendix D** of the SEE (Element, 2020) also shows the approximate location of waste bins for collection.

The project will continue to use the existing operational process, as outlined in Table 2.1.

Table 2.1: Operational process

Operational process	Operational detail
Receival and storage of tyres	Tyres are collected by the Tyrecycle truck fleet, weighed in over the weighbridge and then unloaded into dedicated storage areas in the warehouse, ready for processing. In the absence of a mechanical breakdown within the plant, it is anticipated that all feedstock collected will be processed within 24 hours of receipt.
Tyre feeding	Tyres are fed into the tyre feeder utilising mobile plant. The main purpose of the tyre feeder is to buffer the tyres to ensure automatic and continuous feeding to the super chopper.
Primary shredder – super chopper	The super chopper is fed by the tyre feeder. In the super chopper, the tyres are processed through a set of knives and reduced to a rubber chip of approximately 15.2 cm in size. The material from the super chopper is discharged through a disc screen that separates oversized material from material that is uniformly 15.2 cm in size. The oversized material is returned to the super chopper for further processing and the material that passes through the screen is the first product stream (15.2 cm TDF).
Secondary shredding – raspers	A reversible conveyer allows the 15.2 cm product from the super chopper to feed into two raspers. One of the raspers converts the 15.2 cm chips into 3.8 cm TDF, which is one of the final products. The second rasper is connected to the granulation line and material from the rasper is further reduced in size during the granulation process. During the rasping process, the steel reinforcement of the tyre is removed as a by-product for sale as recyclable steel.
Granulation	The granulation line consists of a primary and secondary granulator, each with a classifier, and a central aspirator. The granulators further reduce the size of the granules, and in the process liberates the fabric/textile and additional steel.
Fabric/textile separation	The new state of the art operational plant, includes a fabric separator, allowing processing of a combination of passenger and truck tyres into rubber crumb in the one facility. After liberation by the granulators, the classifiers remove the fabric/textile and any remaining steel as a by-product for sale as an alternate energy source and recyclable steel. The rubber product then passes through the aspirator where it is further classified and either bagged as granular product (third final product with some ‘work in progress’ for later processing in the cracker mill) or processed directly through the cracker mill.
Cracker mill	The cracker mill is fed with the granular product from the aspirator or WIP bulk bags. The energy efficient cracker mill utilises two large rolls,

Operational process	Operational detail
	rotating at different speeds. The granular rubber is forced through a small gap between the rolls, sheering the rubber, further reducing the size of the granules to 30 mesh[1] or 40 mesh crumbed rubber. The product from the cracker mill is passed over a screen with oversized material returned to the cracker mill for another pass through the mill. Material that meets the specification is conveyed to the bulk bagging area and placed into bulk bags as 30 or 40 mesh (final product).
Fabric separator	The fabric separator, allows processing of passenger and truck tyres in the one facility. During the process, the steel and textile (fibre from passenger/4WD tyres) are removed as by-products for sale as recyclable steel and textile.
Dispatch of processed tyres	The TDF is loaded into shipping containers, ready for export. Bulk bags (on standard pallets) of granular material and crumbed rubber is stored in pallet racking and delivered to customers utilising B-doubles.

2.3 Further detail on project operations

Table 2.2 provides further operational details of the project.

Table 2.2 Project operations

Operational aspect	Comment
Volume of material processed per annum	The project would process up to 60,000 tpa, recovering the following products: ▪ 30 Mesh – 9,397 tpa; ▪ 3.8 cm TDF – 12,620 tpa; ▪ 15.2 cm TDF – 29,000 tpa ▪ Steel – 4,344 tpa; and ▪ Fibre/Textile – 2,639 tpa.
Size and area of warehouse required.	9,620m^2 (9,300 m^2 warehouse and 320m^2 ancillary office).
Employment	The project will generally operate across three shifts as follows: ▪ Day shift (5 am to 1 pm) – 24 full time employees ▪ Afternoon shift (1 pm – 9 pm) – three full time employees. ▪ Night shift (9 pm to 5 am) – three full time employees. The operations would be supported by four full time management staff who will typically work from 8 am to 5 pm weekdays.
Hours of operation	24 hours per day, seven days a week.
Proposed operating hours per activity	▪ Trucks (collection): - Monday – Friday: > Day: 4 am to 6 pm. > Night: 5 pm to 1 am. - Saturday: 4 am to 6 pm (as required). ▪ Plant operation (shredding): Monday – Friday, 7 am start and Saturday, 7 am finish ▪ Plant operation (crumbing): 24 hours, seven days per week. ▪ Deliveries (containers): Monday – Friday 8 am to 5 pm and Saturday 8 am to 6 pm (as required)
Vehicle access and parking	Vehicle access is as per the existing arrangements specified in Error! Reference source not found..

[1] Mesh is the unit uses for sizing of the rubber crumb. 30 mesh is equivalent to 0.595 mm.

Operational aspect	Comment
	The maximum number of car spaces required at any one time is 28 (comprising employees for the day shift, and management personnel). The parking requirements for the project can be accommodated by existing parking available at the site. Heavy vehicles would be parked in the loading dock of the site when not in use.
Utilities and servicing	The project would not require the construction or upgrade of utility infrastructure and would continue to be serviced by existing utilities.
Traffic generation and internal movements	The project will not result in an increase to the number of light vehicles onsite. The shifts will change and the facility will operate 24 hours a day. Current peak hour light vehicle traffic movements will remain the same. Collection and drop-off trucks would increase from six to ten trucks per day and would enter and leave the site between 8pm and 4am. This is not within peak hour and will not have a significant impact on local roads. Heavy vehicles associated with the project would vary in size, with the most common vehicle type being rigid trucks, and largest a B-Double truck. A maximum of 100 pallets would be loaded and dispatched per day, equating to four B-double collections per day. These pallets would be loaded by Forklift and Bobcat (skid-steer loader) movements which will occur inside the warehouse during operational hours. Forklifts used as part of the operation would unload incoming tyres and load palletised crumbed and granule product into pallet racking for storage or onto outgoing B-Double trucks.
Lighting requirements	The project would utilise existing lighting at the warehouse during night operations. There is no requirement to upgrade existing lighting at the site.
Security requirements	▪ Security fencing: The existing security fencing for the site does not require upgrading for the project. ▪ On-site security system: The warehouse building is alarmed to prevent unauthorised access. ▪ Security lighting. ▪ CCTV. ▪ Security gates (gate to be left open during the day and shut overnight and on weekends).
Signage requirements	The project would utilise existing signage at the site, there is no requirement to upgrade signage.
Amenities	The project would be serviced by existing amenities within the administration office. Such amenities would include toilet and hand washing facilities, kitchen and break room. There will be no changes to the existing internal floor space of the office facility.
Capital investment value (CIV)	The project would utilise the existing warehouse, site infrastructure, equipment and plant. As such there is no capital investment required for the operation of the project.
Commencement of operations	The project is anticipated to commence following approval. All required plant and equipment is already established to service the existing operational needs of the site.
Landscaping	The project would retain existing landscaping around the warehouse facility. The existing landscaping includes a select range of Australian native ground covers, shrubs and non-deciduous trees to the local areas.
Waste management	Refer to section **Error! Reference source not found.** and **Appendix B** of the SEE.
Public safety management	Public safety risks may arise from un-authorised access of members of the public. All visitors to the site are required to report to the site administration office and register prior to gaining entry to the active areas of the site.
Work health and safety	Tyrecycle has a workplace health and safety policy, as required by the NSW *Work Health and Safety Act 2011* (WHS Act), whereby workers must conform to. All workers, contractors and visitors are inducted on safety protocols and procedures before entering active parts of the site. All personnel working on the site are trained in safety procedures (such as

Operational aspect	Comment
	LOTO[2]) and required to wear personal protective equipment (PPE) such as high visibility clothing, safety glasses, steel toe cap enclosed footwear and other task specific PPE such as gloves, hearing protection etc. Regular communication of safety requirements and initiatives is also undertaken on a regular basis. Provided the implementation of workplace health and safety protocols during operation of the project, as required by the WHS Act and other relevant regulations or standards, the potential for injuries or fatalities to workers, contractors or visitors to the site would be minimised. Designated first aid and emergency rescue facilities and equipment would be available at the site. Appropriately trained personnel will be on site throughout the life of the project and operation of the plant to provide first aid and respond to site emergencies. Any injuries incurred at the site would be reported and investigated in consultation with SafeWork NSW and other relevant authorities as required and as outlined in Tyrecycle's incident management procedure. Any recommendations or findings of investigation reports would be implemented by Tyrecycle where feasible and practical.
Environmental management and impacts	Refer to the SEE for key environmental risks and management measures. Table 2.3 provides a summary of mitigation measures/safeguards outlined in the SEE.

2.4 SEE safeguards

Table 2.3 lists additional mitigation measures required to reduce impacts from the modification, as outlined within the SEE.

Table 2.3: Summary of additional mitigation measures outlined within the SEE

Aspect	Mitigation measure
Hazardous substances and dangerous goods	▪ The Pollution and Incident Response Management Plan (PIRMP) will be updated as required by Tyrecycle to incorporate the modification.
Fire safety	▪ Site security measures to ensure that the facility remains enclosed and doors are locked during afterhours operations. ▪ Install additional thermal cameras alongside the three that are currently in place. ▪ Maintain stockpile configuration to ensure that the total tyre storage area of each pen is no greater than 30m^2 and stockpile height is no greater than 3.7 metres. ▪ Tyre stocks are monitored to ensure that no organic material builds anywhere in the facility. ▪ Thermal scans of all electrical wiring and major electrical systems to ensure thermal hot spots are detected. ▪ Ensure maintenance checklists are followed as per MEX system for all new and current equipment on-site. ▪ In addition to the existing emergency response plans on-site, Tyrecycle is to consider other approach to full extinguishment of burning tyres, how to separate potential sources of fuel in the case of ignition and staff training around early fire suppression tools. ▪ Granule product will be stored in the product storage racking. ▪ An additional fire extinguisher appropriate to addressing lead battery fires are to be provided adjacent to the battery storage cupboard.

[2] LOTO Lockout/Tagout, or Control of Hazardous Energy (29 CFR 1910.147), is an safety proecudre implemented to protect maintenance and service workers in the performance of their duties. It specifically addresses hazards that could inure employees from the unexpected energization or start up o machines or equipment, or when stored energy could be released, while servicing or maintain equipment. Employees are protected by LOTO to shut down the machine and ensure that it cannot activate while they are working on it.

Aspect	Mitigation measure
	▪ Each row of tyre crumb racks is to have a minimum of 6 m unobstructed access on each accessible side. ▪ Egress provisions are at minimum one metre width.

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