
GOTERRA

# ENVIRONMENTAL IMPACT STATEMENT

July 2023

Unit 3, 132-136 Newton Rd, Wetherill Park, NSW 2164

## Acknowledgement of Country

Goterra acknowledges the Cabrogal of the Darug Nation, the first inhabitants of the lands now known as Fairfield City Council. We also acknowledge the Ngunnawal people, the traditional custodians of the lands on which Goterra is headquartered, and this EIS was prepared. We recognise the intimate relationship between First Nations peoples and the lands and waters of this country since time immemorial and believe that we have much to learn from their ways and wisdom. We pay our respects to elders past and present.

# About this Document

This document has been prepared by Saakshi Sharma and Michael Brewer and reviewed by Volant Wills. It has been drafted and updated in accordance with advice provided by the Fairfield City Council at a Pre-Lodgement Advisory Meeting on 16 February 2023 and a SEARs provided electronically on 21 March 2023.

# Executive Summary

This EIS has been developed for a Change of Use Development Application which is required to be approved by the Fairfield City Council before the project can commence. No permanent or structural changes are being made to the nominated property to facilitate this project.

Goterra is recognised as a leading start-up, headquartered in Canberra. Using larvae of the black soldier fly, *Hermetia illucens*, Goterra diverts up to 45,000t of organic food waste from Canberra's landfills at their existing resource recovery facility, located at 12 – 14 Arnott Street, Hume, ACT. Goterra will be diverting 6000t of organic food waste from Woolworths and Cleanaway that would otherwise end up in landfills. Valuable commodities such as frass (Insect Fertiliser) and animal protein (Dried BSF) will be created in the process.

This proposal is justifiable by its direct links to achieving the aims of the NSW State Government, as outlined in the *NSW Waste and Sustainable Materials Strategy 2041*. The proposal will substantially contribute to successfully meeting the targets to:

- Halve the amount of organic food waste sent to landfill by 2030
- Significantly increase the use of recycled content by government and industry.

It will do this by diverting organics from landfill and recycle the otherwise waste nutrients into protein and frass for application in primary industry.

Goterra is required to produce an EIS Report to operate their facility in accordance with Fairfield City Council's Development Application for a Designated Development . According to Schedule 1, Part 1, Section 41 of POEO Act 1997, the facility falls under Waste Processing (non-thermal treatment).
According to the clause, "non-thermal treatment of general waste, meaning the receiving of waste (other than hazardous waste, restricted solid waste, liquid waste or special waste) from off site and its processing otherwise than by thermal treatment."
In alignment with the Land Use Table and dictionary contained within the Fairfield City LEP 2013, resource recovery facilities (as defined under waste or resource management facilities) are permissible in E4 General Industrial (formerly IN1 General Industrial) zones with consent.
This EIS has been undertaken to show due diligence and best practice management of organic food waste in NSW. It has been developed in accordance with the following Development Control Plans to meet Fairfield City Council and NSW State planning aims.

- *Fairfield Citywide Development Control Plan (2013)* - with particular reference to:
    - *Chapter 3 - Environmental Management and Constraints*
    - *Chapter 9 - Industrial Development*
    - *Chapter 11 - Flood Risk Management*
    - *Chapter 12 - Car Parking and Vehicle Access Management*
- *Fairfield Local Environment Plan (LEP) (2013)*

- *EP&A Act (1978)*
- *POEO Act (1997)*
- *SEPP Resilience and Hazards 2021*
- *SEPP Transport and Infrastructure 2021*
- *SEPP (Precincts - Western Parkland City) 2021* - with particular reference to:
    - *Chapter 4 Western Sydney Aerotropolis*
- *SEPP (Planning Systems) 2021*
- *NSW Waste and Sustainable Materials Strategy - A guide to future infrastructure needs*

No further approvals are necessary before the commencement of this development, as confirmed by the SEARs prepared by NSW Planning (Appendix A). The NSW EPA does not require a licence to be obtained for the site prior to development as the waste processed on-site (6000T) is below the threshold for licensing under the POEO Act (1997). As a result, the development is not considered integrated development for the purpose of Division 4.8 of the EP&A Act (1979).

The EIS outlines the potential negative impacts to the environment and human health from activities related to and undertaken at the Facility and controls which mitigate these impacts. It also outlines how Goterra operates in accordance with NSW environmental legislation and regulations where relevant.

Due to Goterra's organic food resource recovery process, leachate and waste water, hazards commonly associated with organic food waste facilities, are not considered hazards at the Facility. Instead, key hazards are considered to be odour and noise, with these relating to machinery and waste processing. Odour is managed through same-day processing of waste, hygienic environments, enclosed aerobic and lacto-fermentation processing of waste, and charcoal biofilters were needed. Noise is managed through detailed engineering design and ensuring any and all equipment noise generation is contained within the building or enclosure within the building. Noise and odour assessments have been recommended to identify any additional specific hazards and controls post commissioning as every effort to ensure these offensive environmental factors have been considered in design and installation. With all controls in place, the risk of negative impacts to human health and the environment are mitigated to negligible levels.

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# 1. Introduction

Goterra is recognised as a leading entrepreneurial start-up in Canberra. Using the larvae of the black soldier fly, *Hermetia illucens*, to convert organic food waste into high-value animal protein, Goterra's work sees 400 kg of dried insect protein and 1000 kg of fertiliser (Frass) ingredients produced for every 5 tonnes of organic food waste diverted from Canberra's landfills. Goterra uses a unique modular facility based on shipping containers to process food organic waste and grow the soldier fly larvae. This conversion process uses less than 1 L of water per kilo of insect protein, and creates a meal or dried larvae that is fed to chickens, fish, and other non-ruminants requiring animal protein in their diet. Soldier fly meal is estimated to the animal feed sector is estimated to have a combined value of 800 million dollars to the animal feed sector.

Organic food waste in Trays

Maggots Post-Processing


Pellet Frass Product

Goterra is aiming to commission a new facility in NSW to process organic waste. The Goterra process meets the requirements of the NSW Governments "Composting and Related Organics Processing Facilities Environmental Guidelines" (NSW EPA, 2003) by:

- Describing the proposed activity at the Site (Sections 1)
- Describing the existing activity at the Site (Section 2)
- Describing the receiving environment and preliminary assessments (Section 2 & 4)
- Describing the environmental factors and objectives (Section 4.1)
- Presenting an assessment of the risks related to the Site, and activities which occur there, on human health and the environment (Section 5)
- Identifying management strategies which minimise the potential risks to human health and the environment (Section 6)
- Identifying benchmarks for measuring and monitoring performance, including documentation and categorisation of organics (Section 7)
- Demonstrating the proposed activity meets minimum design requirements (Section 7)

This document will now present a background to Goterra's organic food resource recovery facility at Wetherill Park and the process for organic food waste conversion to commodities (Section 1), as well as provide details on the Wetherill Park site itself (Section 2). The legislative requirements Goterra should adhere to as part of best practice are then presented, with specific regulations outlined for parts of the environment — including noise, odours, and water — known to be impacted by organic food waste resource recovery facilities such as Goterra's (Section 3). How these parts of the environment, termed environmental factors, will be protected is then the subject of Section 3.1. Hazard preliminary assessments are included in Section 4. An evaluation of the hazards presented to the environment by

Goterra's operations and the likelihood that these cause harm — that is the risk — is presented in Section 5, along with the specific regulations which are used by State and
Territory governments to manage these risks. Finally, the actions Goterra should undertake to
ensure they exercise best practise at their Wetherill Park Facility are outlined (Section 6). The limitations of this EIS are presented in Section 8, however, and followed by recommendations, conclusions, and acknowledgements.

# 2. Background

Goterra has operated a pilot resource recovery facility at 12 – 14 Arnott Street, a 8,663 m2 site in Hume, ACT and now plans to have a resource recovery facility for New South Whales in Unit 3, 132 Newton Road, Wetherill Park, NSW. The locality plan for Wetherill Park is attached below. The Hume facility houses the black soldier flies —Hermetia illucens —the eco-engineers that do the work of converting organic food waste into valuable products at Goterra. It addresses the high food-waste loads that were previously being disposed of in Canberran landfills that cause the creation of methane, instead the Black Soldier Fly Larvae which converts this organic food waste to animal feed and compost ingredients.

In addition, the process Goterra has employed is a partially automated and mostly enclosed system, with only three aspects of the resource recovery requiring human intervention. Some of the unique automated systems include Modular Infrastructure of Biological services (MIBs) that are self-contained and automated for specific waste biological conversion processes. This reduces risks to human health and the environment, and minimises emissions of odour, gases, other aerosols, and waste water.


Figure 1: Locality Plan for Site

This development has been proposed in consideration to the *NSW Waste and Sustainable Materials Strategy 2041*. This development will directly contribute to NSW industries meeting the stated targets of:

- Halve the amount of organic food waste sent to landfill by 2030;
- And significantly increase the use of recycled content by governments and industry.

Goterra's facility is aimed at providing a sustainable, long term solution for organic food waste created in Sydney, with a focus on key tenets of sustainability, including to:

- Minimise the distance which organic food waste or its decomposition products travel
- Create a valuable product from food waste, placing Sydney's organic food waste back into the circular economy
- Minimise impacts to the environment as a result of any part of the process of converting organic food waste to a valuable product
- Minimise energy inputs into the production system
- Avoid the production of greenhouse gases

The first product generated by the Goterra resource recovery facility is frass, which is simply the high-nutrient excreta of the soldier fly larvae. Frass contains microbes; chitin, which is a type of linear polysaccharide of the amino sugar N-acetyl glucosamine (sugar) formed through the breakdown of the larvae's skin; and uneaten food (Schmitt & de Vries, 2020). Its high nitrogen content (approximately 3.4% as a proportion of dry matter, depending on the food substrate and environmental condition) means that of the commercially available fertilisers, it is most similar to chicken manure.

Frass is a highly valuable ingredient for composting as it both increases the nitrogen:phosphorus:potassium (N:P:K) nutrient ratio and increases plant growth as a result of its beneficial, fermenting bacteria. It differs from compost as it is not created by microbes, and does not self-sterilise via thermogenic bacteria. For the frass to be used as a fertiliser, it needs to be pasteurised to kill pathogenic bacteria, any residual larvae or eggs in the process. Whilst Goterra does not undertake pasteurisation or composting of their frass, they only sell to commercial composters who comply to the Australian Standards for Composting (AS4454-2003) and state regulatory requirements, including the need to pasteurise, the frass at the beginning of the composting process. Frass is also considered by NSW EPA as manure, and is an allowed input under the Compost Order 2016, provided it has a 15-day pasteurisation process.

The second product generated by Goterra's ecological engineers is the soldier fly larvae themselves. These larvae are a concentrated form of protein, and therefore a highly valuable commodity in today's market. After converting organic food waste to frass, the larvae at Goterra's facility will be converted to feed for omnivorous or insectivorous animals such as fish, pigs and chickens in the livestock industry. The dried larvae sold as animal feed and is labelled as Restricted Animal Material, which cannot be ingested by ruminants in accordance with state and Federal legislation.

Goterra has invested substantially in designing a process which minimises the potential for harm to the environment and has maximum environmental benefits. This process, the pollution control measures and business plan will now be described.

**Table 1: Waste Intake at Site:**

| Variables | Units | Average Daily | Peak Daily | Annual |
|---|---|---|---|---|
| **Incoming waste (tonnes)** | tonnes | 19.17 | 50.00 | 6000.00 |
| **Packaging %** | % | 0.30 | 0.20 | 0.25 |
| **Contaminants %** | % | 0.10 | 0.10 | 0.10 |
| **Packaging** | tonnes | 5.75 | 10.00 | |
| **Contaminants** | tonnes | 1.92 | 5.00 | |
| **MIB feed/tray** | kg | 3.50 | 3.50 | |
| **Oil content** | % | 0.20 | 0.30 | |
| **Moisture content** | % | 0.80 | 0.95 | |
| **Bulk density** | t/m3 | 0.70 | 0.85 | |
| **Number of MIBS** | | 9.00 | 9.00 | |
| **Daily availability** | Hours | 8.00 | 9.00 | |
| **Operational uptime** | Days | 355.00 | 365.00 | |
| **Availability** | % | 0.90 | 0.95 | |
| **Equipment Operating time** | hours | 6.50 | 6.50 | |
| **Daily input** | Units | Minimum | Maximum | |
| **Packaged waste** | Tonnes | 10.00 | 50.00 | |
| **Contaminants** | Tonnes | 0.10 | 7.50 | |
| **Packaging** | Tonnes | 2.00 | 20.00 | |
| **Particle size** | 1m3 | Liquid | 1.00 | |
| **Bulk density** | kg/m3 | 700.00 | 850.00 | |
| **Moisture content** | % | 0.80 | 0.95 | |
| **Plastics waste bulk density** | kg/m3 | 450.00 | 550.00 | |
| **Daily output** | Units | Minimum | Maximum | |
| **Packaged waste** | Tonnes | 2.00 | 15.00 | |
| **Contaminants** | % | 0.01 | 0.05 | |
| **Organics** | | | | |
| **Particle size** | mm3 | 7.00 | 9.00 | |
| **Bulk density** | kg/m3 | 850.00 | 950.00 | |
| **Moisture content** | % | 70 | 90 | |

Table 1: Waste Intake at site

## 2.1 The Food Conversion Process

The process includes waste receival, non-organics/organics sorting/separation, maceration and Fermentation, Feeding and organic conversion to frass and live larvae(MIBs) and processing (drying of larvae to insect protein) to final product storage.

A summary of the key statistics relating to Goterra's organic food waste process including those related to waste receival, bin use, frass and protein production, waste generation, and operation hours are listed in Table below.

**Table 2: Key Statistics**

| Subject | Detail |
|---|---|
| Max. volume of organic food waste to be received per day | 50T |
| Max. volume of organic food waste to be received per year | 6000T |
| Number of organic food waste bins in use at any one time | 0 – organic food waste goes directly into conversion process |
| Number of larvae trays used in whole of production cycle | 340 Trays per MIB<br>9 units total |
| Number of larvae trays used in the Facility at any one<br>time | 3060 |
| Waste delivery vehicles | Rear end Tipper trucks and skips |
| Waste for landfill disposal produced per annum | Between 1200 -1800 T |
| Frass production (p.a) | Approx 960 T |
| Protein production (p.a) | Approx 384 T |
| Water use | 800 - 1000KL / Month<br>5 kL / day - screw press and washdown<br>XX kL / day - wash baths |
| Delivery hours | 11am - 10pm (Monday-Friday)<br>2pm - 8pm (Saturday)<br>5am - 12pm (Sunday) |
| Office Hours | 8am - 4pm (Monday-Friday) |

Table 2: Key Statistics

**Table 3: NSW Stack Process Flow :**

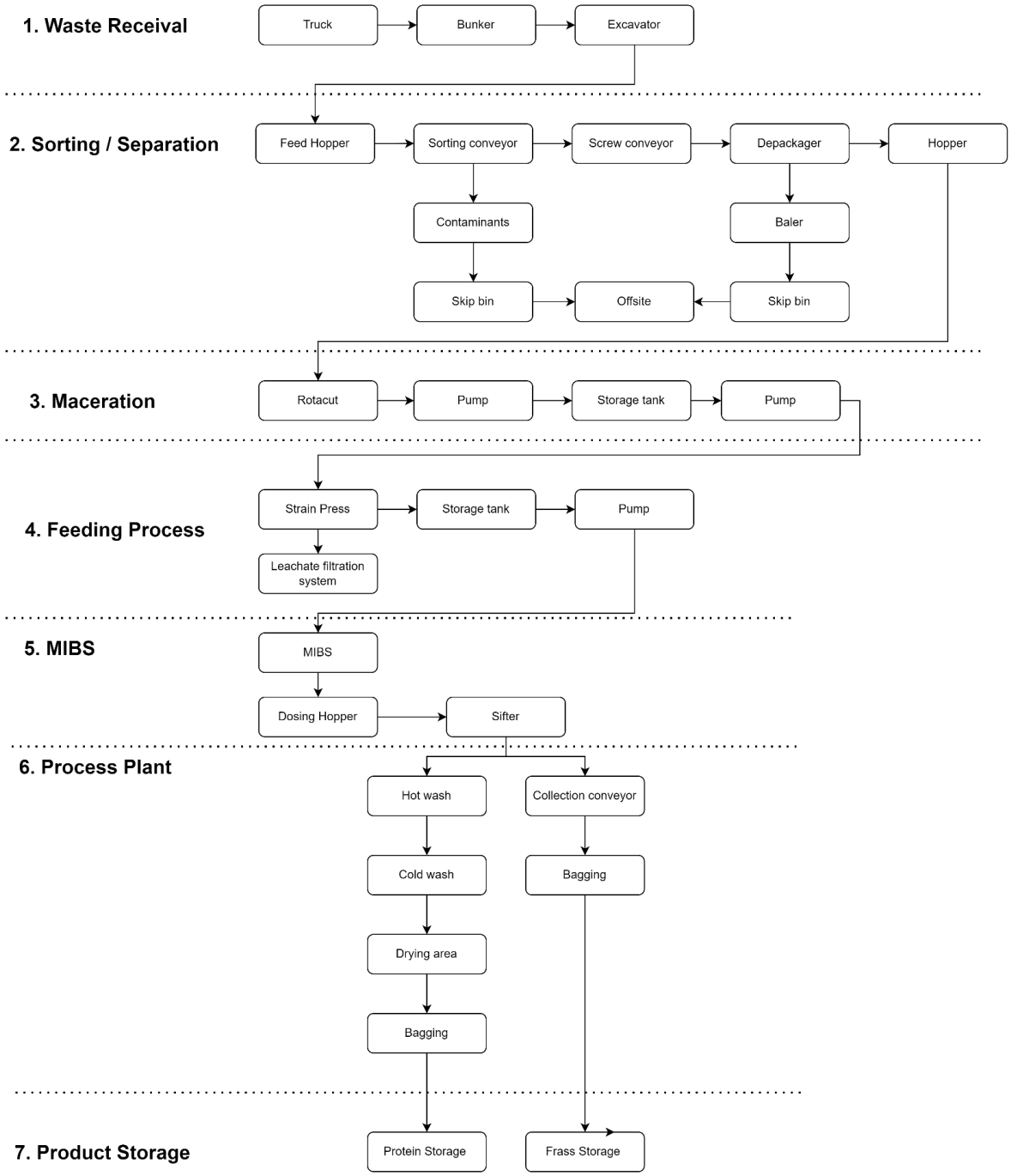



Table 3: Process Flow

**Step 1 : organic food waste Receival**

Organic food waste will be received at Goterra's NSW facility (Wetherill Park) Monday to Saturdays within the scheduled operating hours with scheduling outside peak business hours. The waste will be transported to the Facility by Cleanaway Waste Management services utilising their rear end dump trucks (REL), driving through the facility Receival area. As at the Hume facility, trucks will not be permitted to tip without a weighbridge docket presented and recorded by the waste team. The area which is dedicated for offloading will be bunded to a height of 100mm , to prevent the spills of both organic food waste and leachate, and prevent the contamination of the truck tyres with waste by acting as a speed-breaker. The waste receival area itself will be a sealed concrete stone hard-stand area for ease of truck tipping and food containment. As the truck tips waste into the bay at the Waste Receival area, it moves away from the waste thus reducing organic contamination of the truck wheels. Careful consideration between the distance of organic food waste discharge and the truck rear wheels have been considered to ensure no contamination outside of the bunded area. Trucks will be present in the Waste Receival area for no longer than 15 minutes per tipping.

After receival of the food waste, the product is immediately moved onto the conveyor using excavators. Waste will be processed indoors, with any offensive odours from the organic food waste in area contained and vented through odour control within the enclosed are, as outlined in the odour risk assessment in Section 6. The receival area has been specifically designed to ensure that food is readily collected from the tipping area to reduce and in many cases eliminate debris.

After the excavator tips the organic food waste it will be moved onto chevron conveyor belts within the receival area and move slowly for sorting and manual screening.

Cleaning of this area will be carried out using high pressure washers and wash water will be pumped into leachate tanks via vacuum transfer. Leachate water discharge will be trucked away from premises as a safe by-product to be utilised in agriculture in designated trucks suited for this transport. Note, in accordance with NSW EPA this liquid is not classified as hazardous and is classified as liquid waste per the NSW EPA Waste Classification Guidelines.

**Step 2 : Sorting & Separation System**

All organic food waste received at Goterra's Wetherill Park facility will be screened and moved onto a chevron conveyor belt for sorting and processing within four hours of receival. This is undertaken in the Waste Receival area. On this conveyor belt, contamination and any excess plastics will be identified and removed by hand. In this context contamination is classed as any item that is not a by-product of food or food waste that cannot be processed by our depackaging equipment. Contaminants will be placed into recycling bins where reasonably possible, with only non-recyclable material being sent to landfill, in line with the *NSW Waste and Sustainable Materials Strategy 2041*. The belt conveyor has a drip-trough to prevent leachate movement. The area around the conveyor is bunded and any excess water collection is sucked up using the vacuum system. Staff will screen the waste from a catwalk to ensure that any waste that accidentally slips through the conveyor or catwalk is not moved with foot traffic.

Leachate in the sump will be returned to the holding tanks to continue to be utilised in the insect feeding process via a positive displacement pump.
Product moves to the depackaging machine which separates all organics from non organics within an enclosed system. Organics is then transferred via gravity feed to a hopper where it is mechanically moved to the particle sizing and pumping process. Packaging discharged from the depackaging process moves to a baler(Compactor). This packaging is transferred via skips to landfill due to it being a mixed plastic stream and not suitable for recycling. Skip bins are collected via a contracted agreement with Cleanaway Waste management company.

Aerosol emissions, including dust and bioaerosols, are unlikely to occur during moving and sorting of the waste, as the organic food waste is at 50 to 70% moisture.

**Step 3 : Maceration**

After separation of packaging and all contaminants have been removed from the food waste, it will be moved through a conveyor into a mechanical macerator(Rotacut). This macerator ensures particle sizing correction applicable for the pumping process and sits in the receival area, away from the waste unloading area, and is fully bunded. Leachate in the sump and in the drip-trough will be returned to the process at Step 4 via a positive displacement pump.

Organics now macerated is pumped into 6 dedicated Storage tanks. This organic matter will be stored for min. period of 3 days to ensure enzyme availability through natural fermentation. The storage tanks are fitted with vent valves and filtration systems to mitigate any odour discharge. Organics within the storage tanks are managed through a PLC automation system to ensure rotation between tanks.
A minimum of 10 000 litres of organics is pumped daily to the Modular Biological infrastructure systems ( MIB's).

Aerosol emissions, including dust and bioaerosols, are unlikely to result from the macerator process due to the high moisture content of the food waste and indicated sealed vessel application.

**Step 4 : Feeding Process (organic food waste Conversion)**

After storage and natural fermentation, organic food waste is moved using the positive displacement pump from the Waste Block / Storage tanks. The organics undergoes inline moisture testing and passes through a screw press / strain press. The strain press ensures that the organic material is reduced to a specific moisture which is suitable for organic food waste conversion. The three pumps will now push organic matter through pipelines into the area that houses the Modular Infrastructure Biological Services (MIBS) where the soldier fly larvae are added.
The excess water which is removed during the strain press operation is placed directly into storage tanks where it will be transported to an alternate location in licensed transport to be processed into a stable material hydrolysate. As such it will then be transferred offsite as an offtake.
The organics which flows from the strain press falls into a small receival hopper before being pumped to the MIBS system.

**Step 5 : Modular Infrastructure for Biological Services (organic food waste Conversion)**

There are 9 MIBS placed onsite. Each unit operates independently however controlled from a central distribution system. These units are constructed from 20ft Shipping containers and designed to control an environment suitable for organic food waste Conversion using the Black Soldier Fly.
A complete Food conversion cycle takes approx 10 days per unit for the soldier fly larvae to complete their feed ration within the MIBS.

Each MIBS is serviced every 10 days. This is due to food conversion being completed and the tray system inside the units having the larvae excretion (Frass) and live larvae remaining. Servicing involves removing the old larvae and their frass and replacing them with young larvae.
Digestion of the waste by the larvae will emit natural respiratory gases which includes carbon dioxide as part of the aerobic process. No methane or other greenhouse gases will be emitted. (An air odour assessment is attached for a further breakdown of respiratory gas discharge).

The MIBS is designed to ensure high air exchanges within the units to prevent any build up of respiratory gases. The extraction system built into the roof of the MIBS has a charcoal biofilter for odour absorption, which will be serviced monthly. The intake fans deliver air to the MIBS to ensure the environment remains aerobic and to supply oxygen to the larvae. No leachate is emitted as part of the conversion process.

On a service day, the trays inside each unit are emptied via vacuum system to a dosing hopper. The frass and live larvae are transported via closed conveyor methods to a vibratory sifter. The sifter is used to screen and separate the frass and live larvae.
The food conversion process commences again with the MIB unit receiving young Black soldier fly larvae of a particular age. The larvae are manually placed inside each tray within the MIB.

The mechanical Sifter separates the Larvae and Frass -
The Frass is now bagged at this stage into 1000Kg Bulk Bags and ready for distribution.

The Larvae will flow into the following process.

**Step 6. Process Plant**

After the sifting step - the larvae are held for a period of 2 hours to naturally discharge any remaining frass within their gut system, to meet Feedsafe manufacturing standards. After this holding period the larvae which have been placed into pallet bins are tipped using a forklift into a hopper / conveyor system. This conveyor system feeds the larvae into a hot wash, the duration and temperature of which are regulated by Feedsafe requirements. The hot wash ensures the larvae are euthanized to meet best ethical practices.
After the hot wash the larvae is sent through a cold wash to ensure any external contaminants are removed like frass caught within the creases / folds of its exoskeleton.
The larvae moves through an air blower to remove any trapped water between the larvae being discharged from the wash conveyor.
The larvae now enter the continuous microwave drying process. This system is designed for maximum throughput. The operator switches on sections of the system as per the volume ratio of larvae units required to be dried.
The dried larvae leaves the microwave system below 10% moisture content to meet product standards to ensure no microbial and or pathogen growth post process.
The larvae is bagged using an automated weighing scale system directly after cooling to package sizing of 10Kg and 1000Kg. These products are packed into polywoven packaging for distribution.

**7. Product Storage & Distribution**

Frass is stored on pallets in 1000cm$^3$ Bulk Bags (approx 400 - 500Kg) per bag. These are closed bags. Popped Larvae is stored on Pallets with packaging size of 10 kg per bag max 250 Kg per pallet. The Bulk Bags will be packed on pallets and weighs (approx 200 - 300Kg) per bag. This information is presented in accordance with requirements to disclose stockpiles for the purpose of fire safety.

**Table 4: Maximum Product On Hand**

| Product | Bulk Bags | Mass (T) |
|---|---|---|
| Frass | 35 | 15 |
| Protein | 35 | 7 |

Table 4: Maximum Product on Hand

Product is stored on-site for no longer than a week. This forms part of the contractual sales agreements as offtakes are contracted to Feed mills, Farmers and Composters alike. For frass and protein collections, the trucks will not be on-site for longer than 30 minutes at a time.

The loading dock is dedicated to the distribution of final product and will not form part of the receival area. (FeedSafe Certification - process flows). This lower loading dock is separate from the receival ramp, and constitutes the only stepped loading dock in the facility.

**3rd Party Services**

- Waste Disposal - All mixed waste disposal to the facility will be contracted by Cleanaway Waste management company.
- All General waste collection services from the facility is contracted to Cleanaway waste management company

## 2.2 Summary Business Plan

**Table 5: Market Assessment Strategy and TAM**

| **The size of the opportunity** | | |
|---|---|---|
| **Available supply of waste** | **Price** | **Existing opportunities** |
| Considers available volumes of organic food waste in state (i.e. volumes produced & recycling rate). E.g. NSW high volume of waste, concentrated in Sydney. SA low volume of waste and high recycling rates | Typical price per tonne for organic food waste management. We are competitive against traditional landfill rates (ACT, NSW), more expensive in others (VIC, QLD) | Existing pipeline in states through 3rd Party Waste Management Operations. E.g. plenty of interest in NSW & VIC. Very little interest in SA. Deployed MIBs more likely in QLD, plant & deployed MIBs in Sydney/Melbourne |
| **Support and context** | | |
| **Government policy** | **Existing Infrastructure** | **OpEx** |

| | | |
|---|---|---|
| State targets, support infrastructure and level of ambition. E.g. VIC has strong support (SV, CEBIC); QLD wants a waste revolution. | How sophisticated are organics options in the state. Some are well developed (VIC), others under-developed (QLD) | Expected operational costs in state. E.g. Costs are higher in VIC & NSW than QLD. |

Table 5: Market Assessment Strategy and TAM

**Table 6: TAM by Market Segment**

| Customer Type | Tonnage | Nature of sale | TAM ($150/t) |
|---|---|---|---|
| Australia | 7.6m | Specific Target Segments for Goterra | $1,140m |
| Retail, hospitality & institutions | 1.5m | Plants, Stacks & Deployed MIBS. Our primary target. | $225m |
| Waste Distributors* | 0.75m** | Our relationship is with the Waste Distributor. Managing 3rd party waste. | $112.5m** |
| Local councils MUDs | 0.45m | Long process, council tenders, no precedent, preference for FOGO | $67.5m |
| Food producers | 3m | Majority goes to higher value applications. Assumed 25% relevant | $112.5m |
| Biosolids | 1.3m | Longer timeframe. More testing needed. | $195m |

Table 6 TAM by Market Segment

**Table 7: Comparison to Competitors**

| | GOTERRA | LANDFILL | ANAEROBIC DIGESTER | COMPOSTER | SEWAGE | CONVENTIONAL INSECT FARM |
|---|---|---|---|---|---|---|
| **WHERE organic food waste GOES TODAY** | | **90%** | **<5%** | **<5%** | **Kitchen sink waste +** | **<1%** |
| **organic food waste EMISSIONS** | **NEAR ZERO**<br>**<50Kg Co2 eq** | HIGH<br>1700 $CO_2$ eq per ton | LOW<br>-81 and 251 $CO_2$ eq per ton | LOW<br>115 $CO_2$ eq per ton | AWFUL<br>Equivalent to Landfill | +100kg $CO_2$ eq<br>(Centralised transport) |
| **CAPITAL EXPENDITURE PER UNIT** | **LOW**<br>**US$66K/MIB** | HIGH<br>US$9M to $26M<br>US$300K to $800K/acre | HIGH<br>US$5M to $40M<br>US$1-2MM for farms | HIGH<br>US$1M<br>Few industrial options | HIGH | HIGH<br>Upwards of $7M per site |
| **LAND REQUIRED (FOOTPRINT)** | **< 1 acre** | 33 acres | 15-25 acres | 27 acres | N/A | +2 acres |
| **CONTAMINATION TOLERANCE (I.E. PLASTIC PKG)** | **HIGH TOLERANCE** | N/A | NONE, breaks machine | LOW | LOW | Depending on site/ but similar to Goterra |

| | | | | | | |
|---|---|---|---|---|---|---|
| **RESIDUAL CONTAMINATION - PFAS, MICROPLASTICS** | **PFAS becomes locked into BSF Oil. Initial success with plastics consumption** | No processing of either | Increasing issues with PFAS and microplastics in residual sludge post AD | Microplastics and PFAS not addressed in this process | Microplastics and PFAS not addressed in this process | PFAS locked into BSF oil |
| **MONETIZABLE BY-PRODUCTS** | **HIGH VALUE** | NONE | MODERATE VALUE | MODERATE VALUE | NONE | High Value |
| **COST OF PAYBACK** | **8 months** | Negative return | 10 years | 10 years | N/A | +5 - 7 years |

Table 7 Comparison to Competitors

**Table 8: Unit Economics**

| UNIT ECONOMICS | Deployed Unit | Sydney (Wetherill Park) |
|---|---|---|
| **Cost to Manufacture** | AUD $110,000 | AUD $1,240,000 |
| **CAPEX Payback - Depending on Substrate** | 5 months | 20 months |
| **Monthly Revenue** (Waste, By-Product and Lease Fees) | $41k | $263k |
| **Monthly Cost** (Delivering Insects, Servicing MIB, Reselling By Products, People Costs) | $22k | $194k |

Table 8: Unit Economics

**Table 9: Facility Staffing Plan**

| Role | Name | Department | Location | Salary |
|---|---|---|---|---|
| Service Tech 1 | Juan | Facilities & Waste | Sydney | 80,000 |
| Service Tech 2 | TBC | Facilities & Waste | Sydney | 70,000 |
| Service Tech 3 | TBC | Facilities & Waste | Sydney | 70,000 |
| Waste Sorter 1 | TBC | Facilities & Waste | Sydney | 60,000 |
| Waste Sorter 2 | TBC | Facilities & Waste | Sydney | 60,000 |
| Processing Operator 1 | TBC | Production | Sydney | 70,000 |
| Processing Operator 2 | TBC | Production | Sydney | 70,000 |
| Site Manager | TBC | Management | Sydney | 100,000 |

Table 9: Facility Staffing Plan

A cost report has been attached with the application. The cost report details out the cost of equipment and temporary structures being installed on site.

## 2.3 Key Social Impacts and Benefits of the Facility

As an employer in the area, we will provide six jobs initially. We pride ourselves on being an inclusive organisation and encourage applications from people with a disability; of mature age, Aboriginal and Torres Strait Islander peoples, the LGBTIQ+ community, and people from culturally and linguistically diverse backgrounds. All Goterra job advertisements include this text to promote inclusivity both in our organisation and in the community. As a company it's important to note that Goterra's team is

| **People and Culture Key Metrics - 1 July to 30 September 2022** | |
|---|---|
| **Women**<br>Women in management | 25%<br>58% |
| **Disability** | 30% |
| **CALD** (Culturally and Linguistically Diverse) | 30% |
| **LGBTQIA+** | 8% |
| **Labour Force Insight - Working Age Population at Goterra:**<br>Baby Boomers (1946-64)<br>Gen X (1965-80)<br>Millennials (1981-96)<br>Gen Z (1997-) | <br>5%<br>25%<br>45%<br>25% |

The facility is designed in a way that it is aligned with the aims of the Fairfield Local Environment Plan 2013. The development specifically meets 1.2 (d), ensuring development "...assists with improving Fairfield's public services, infrastructure, and amenities." Specifically, it aligns with the objectives of E4 General Industrial zoned land by its efficient use of land for industrial purposes, minimal impact on other land uses, and encouraging employment.

Goterra is committed to best-practice corporate citizenship and engaging meaningfully with the local community. We look forward to bringing employment to the local community of Wetherill Park and participating in the *Fairfield City Plan 2022-2032* by providing opportunities to educate members of the public on best recycling practice with regards to food organics recycling.

Goterra is committed to utilising regional based suppliers and OEM and has prioritised the use of local suppliers of goods and services. Further Goterra has recommended the project workforce, particularly during the installation phase, to support and contribute to the local and regional community through local spending.

## 2.4 Site Details

The site, Unit 3, 132-136 Newton Road, Wetherill Park, NSW 2164, is an industrial E4 General Industrial zoned warehouse unit in a complex of several similar warehouses. It is noted that Amendment No 37 (2023) to the LEP has come into effect at the date of writing, however, updated maps are yet to be provided publicly. This EIS has been written to align to the new E4 General Industrial zone in the *Fairfield LEP 2013*. In alignment with the Land Use Table contained within the *Fairfield City LEP 2013*, waste facilities are permissible in General Industrial E4 zones with consent. The zoning plan according to Fairfield City LEP 2013 (prior to Amendment No 37) is attached below, the E4 (IN1) Zone is marked in purple and the site is marked in red.

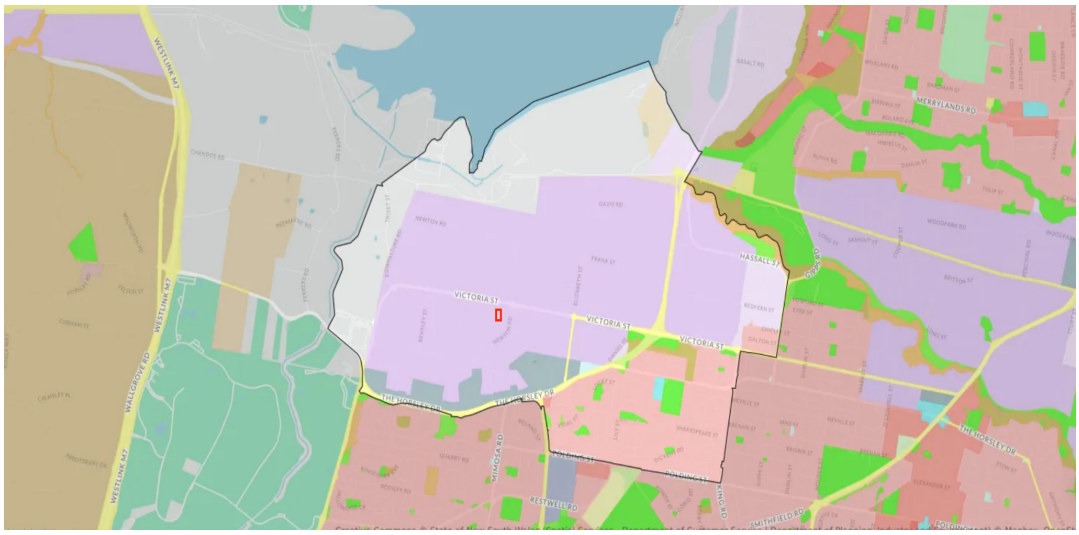



Figure 2 : Zoning Plan according to Fairfield Local Environment Plan 2013. Purple colour shows E4 (IN1) Zoned areas.

This section describes the suitability in relation to the receiving environment for any potentially negative impacts which might occur as a result of Goterra's activities. The maximum amount of waste receival in accordance with POEO Act (1997) is 6000T an year and Goterra will be monitoring the incoming waste to make sure we don't exceed this as mentioned in Section 6.2 Waste Management.

Goterra's facility, processes, and operations fit into legislative hierarchies which are guided by the different laws and requirements of the NSW government and considered in Section 3 below. Environmental factors are aspects of the environment which can be negatively impacted by a development or a premises operation. Legislation outlined in Section 3 that requires environmental factors to be assessed in new developments or premises have been discussed in Section 4 below. A detailed risk assessment based on the scope of operations and the environmental impacts of it has been carried out in Section 6 Risk Assessment. The mitigations for the risk identified through section 6 have been listed in Section 7 Monitoring, evaluation and adaptive management.
Specific details on the site are mentioned in the table below:

**Table 10: Site Details**

| Item | Description |
|---|---|
| Site Owner | Rupert Smoker |

| | |
|---|---|
| Site Operator | Goterra Pty Ltd |
| Company Owner | Olympia Yarger |
| Australian Business Number (ABN) | 97 612 974 688 |
| Correspondence Address | 14 Arnott St, Hume, ACT 2620 |
| Address | Unit 3, 132-136 Newton Road, Wetherill Park, NSW 2164 |
| Council | Fairfield City Council |
| Area | 2750 $m^2$ |
| Land Use Zone | E4 General Industrial |

Table 10 Site Details

### 2.4.1. Land use zoning and surrounding land use

Goterra's planned and permitted land uses is presented in this section, with information presented which allows for an assessment as to whether Goterra's Wetherill Park facility meets or exceeds government and societal expectations.

In consultation with Fairfield City Council in the Pre-Lodgement session, a number of potential land uses were identified as applying to this proposal. The proponent believes that the most appropriate land use from the Fairfield City Council LEP 2013 is *resource recovery facility*. This land use is characterised as activities which include "separating and sorting, processing or treating, composting" waste to produce resources for sale. It excludes re-manufacturing, however, as the process which will be employed creates new products, of greater value of the input feedstock, this process should not be considered re-manufacture.

With respect to the designated development provisions of the EP&A Regulation (2021) several land uses were identified as potentially relevant to the development. Considerations for the applicability of these provisions is considered below. Composting and resource recovery were found to be applicable, however the proposal only meets the threshold for designated development for composting.

**Section 12 Chemical Industrial Facilities and Works**
Section 12.1 (a) identifies "an agriculture fertiliser facility or works that manufactures inorganic plant fertilisers in quantities of more than 20,000 tonnes per year" as designated development. As demonstrated in our process flow diagrams, no greater than 1,000 tonnes of organic frass will be produced per annum. No inorganic fertilisers will be produced in the facility.
Section 12.1 (h) identifies "a facility for pharmaceutical or veterinary products that uses or produces toxic substances in quantities of more than 1 tonne per year". Whilst the protein produced by this process may be sold as a veterinary product, no toxic substances of any quantity will be produced or used in the facility, meaning this section does not apply.
Goterra does not produce any chemical products and hence does not fit in the definition of chemical industrial facility or works. Therefore the floodplain restriction (12.3 (e)) does not apply.

**Section 13 Chemical Storage Facilities**

As above, Goterra will not be a facility which produces chemical products. Hence the restriction of 13.3 (e) does not apply.

**Section 16 Composting Facilities or Works**
This proposal meets designated development requirements under 16.2 (e). The total amount processed of organics will be less than 5,000 tonnes as shown in the process flow diagrams, due to plastic packaging. To respond to this designated development classification, a SEARs has been sourced from the NSW Planning Department and submitted with this EIS. Goterra's process fits within the definition 16.3 (a) as bioconversion of organics.

**Section 31 Livestock Processing Industry**
"Animal" is not a defined term in the Regulations, however, applying the definition provided in the Prevention of Cruelty to Animals Act (1979), invertebrates, such as Black Soldier Fly, are not considered animals. Additionally, Black Soldier Fly larvae are not included in the NSW Food Authority's definition of livestock processing facility, and the LEP is silent on a definition. The maximum live weight processing capacity per annum of the site is 384T. Pursuant to 31.3 c., less than 5000 tonnes of product, including pet feed, will be produced at the site.

**Section 45 Waste Management Facilities or Works**
Our process is not designated development as the site will fall under the 10,000 tonne threshold in 45.2 (b) (ii) for waste including food. Additionally, this section does not cover composting, which is the more accurate definition since it accounts for bioconversion - as discussed above in the compost section.

**Zoning**
E4 General Industrial zoning is appropriate for this type of resource recovery facility. Under the Fairfield City LEP, offensive industry is defined as that which will have significant adverse impact on the locality, existing or future development in the area, even with the controls in place. Hazardous industry is defined as that which pose a significant risk in the locality to human health, life or property or the biophysical environment. The control measures outlined in this document and the Plan of Management will successfully allow the site to avoid classification as offensive or hazardous as no emissions will be released and no activities will be of significant risk to health in the facility or locality. As this site will not be offensive or hazardous, it will not be deemed "*heavy industry*", within the meaning of the Fairfield City LEP (2013), hence E4 will remain an appropriate planning zone for this use.
There are several relevant sections of the Fairfield City Development Control Plan (2013). These chapters have been used to inform this EIS. A summary is provided here of their applications.

**Chapter 3: Environmental Management and Constraints**
With regard to 3.2 and 3.3, no works are planned outside of the internal space of the unit, hence there will be no impact on existing trees or biodiversity corridors. With regard to biodiversity, there are no significant flora or fauna within the bounds of the site. There is a nature strip with some trees along the edges of the site. They will remain unaffected by the activities inside the closed warehouse.

Special consideration has been given to Chapter 3.4 and 3.5, as outlined in the Flood Assessment Report. The Report has been prepared in alignment with this and Chapter 11.

SEPP (Hazards and Resilience) 2021 is addressed separately in this EIS, meeting the requirements under Section 3.7.

As outlined in the Section 10.7(2) Certificate obtained for the site, there are no risk considerations relating to sections 3.6 or 3.8 through 3.12 for the site.

**Chapter 9: Industrial Development**

With regards to parking arrangements outlined in 9.2 of Industrial Development staffing has been clearly prepared to avoid overuse of the allotted parking provided for the unit. The spaces are existing and provide a safe pedestrian walkway that does not impede the travel of trucks or other vehicles. The spaces are dedicated to Unit 3; they are not shared amongst all of the tenants, hence, no permissions are required from any affected owners or occupiers.

There are no requests for signage made under 9.3.

No other sections directly relate to this change of use application.

**Chapter 9.10.1 :General Design Requirements**

The built units are constructed with full height concrete panel walls. Its high ceilings allow ample space for the proponents' machinery. The floor also provides an appropriately stable footing for the machinery and allows for easy and sanitary wash-down.

The site is currently being used as a distribution warehouse. The proponents are unaware of any contamination events that have occurred on the site previously.

The exterior to the warehouse is laid with concrete and in some areas covered with gravel.

As a part of the Building Compliance report, under Clause D2D8, it was recommended that equipment is generally positioned to allow for a minimum clear pathway of 1000mm. This has been taken into consideration and as demonstrated in Figure 4 : Floor Plan, the equipment is positioned in a way that there is a clear pathway of 1000mm.

It was also recommended that the warehouse portion of the premises gains an exemption under clause D4D5 and in this regard there is no trigger for upgrade to achieve compliance with the Accessibility requirements of Part D4 of the BCA and AS 1428.1 - 2009.

Since the office position of the premises has no proposed changes and in this regard the Access to Premises requirement for compliant "New Part" and "Affected Part" do not apply, as mentioned in clause D4D2 of the Building Compliance report.

Wind direction at the nearest measuring station to the site (Horsley Park Wetherill) tends South West, albeit with low strength. Winds in the afternoon tend stronger, becoming easterly in warmer months. (BOM http://www.bom.gov.au/places/nsw/wetherill-park)

Rainfall is more frequent and of greater volume in February, becoming more infrequent in the winter months. There is no significant grade on the site, however rainwater will run along the drainage on site.

**Chapter 11: Flood Risk Management**

As part of this development application, a Flood Risk Assessment has been conducted by a suitably qualified engineer.

**Chapter 12: Car Parking and Vehicle Access Management**

Swept path diagrams have been provided to demonstrate the ability of the site to service the trucks that are proposed to use the site.

As outlined above with regards to section 9, considerations for staffing have been made with respect to the number of allotted car spaces attached to the property. There will not be any greater than six staff members on the premises at any one time.

**SEPP (Transport and Infrastructure) 2021**
Resource recovery facilities are permitted with consent under Division 23 (Waste or Resource Management Facilities) within E4 General Industrial zoning.
This proposal meets the determination guidelines provided by 2.157 by suitably recovering waste that would otherwise go to landfill (1) (a) and reducing the long-term impacts of disposal of waste (1) (b) (ii).

**SEPP (Planning Systems) 2021**
This development does not meet any thresholds for state significant or regional significant development under the Planning Systems SEPP.

**Water Management Act (2000)**
No approvals under s. 89, 90, or 91 are required for this project. The applicant acknowledges the requirement for drainage approvals,3 should the water be required to be discharged to sewer. Our process will create further valorisation from the waste water and therefore we determined that further approvals are not required. As outlined in the site plan, water used in the processing of waste will be collected via a wet vacuum and stored in sealed tanks, before being transported from site as a by-product to be further valorised in an additional process. No alterations to the drainage of the site are required, and no leachate or water involved in resource recovery will be released into the municipal water system.

### 2.4.2. Site History

Goterra's new facility, like all locations in Australia, occurs within land once cared for and managed solely by Aboriginal peoples, for whom little history has been recorded in written form. The environment at the Site was almost certainly shaped through this activity, as described in books such as "Dark Emu", by Bruce Pascoe, before these people were forced from their land without ceding sovereignty. Any negative impacts to the environment by Aboriginal peoples as a result of their activity is outside the scope of works of this report. Goterra Pty Ltd acknowledges the role of Aboriginal peoples in shaping the landscape, and its flora and fauna in the area of the Facility, and the important contribution Aboriginal people have and had in sustainably managing Australian landscapes.

The site is currently being used as a distribution warehouse. The proponents are unaware of any contamination events that have occurred on the site previously.

### 2.4.3 Contamination

By identifying the potentially contaminating activities which might have occurred at the Facility prior to its operation by Goterra, an understanding of the potential hazards presented to human health and environment by toxic chemicals and substances emitted during past site operations can be identified. State and Territory governments keep records of contamination incidents and potentially contaminating activities at sites and issue authorisations and agreements for activities which have the potential to cause harm to human health or the environment. No such reports have been discovered for this site and no evidence of contamination is apparent at the site. This is confirmed by the Section 10.7 PIC Report.

### 2.5.3 Locality and Site Plan

Goterra's new facility in Fairfield City municipality resides within an area of pre-existing warehousing, with an open- air carpark at the rear. The internal layout of the Facility is depicted in **Figures 3 and 4**.

Organic food waste processing begins in the Waste Receival area, which includes Step 2-3 of the process. The Waste Receival area is characterised as a bunded hardstand area at the top of an entry ramp to the facility. This ramp acts as a loading bay for the purpose of unloading ("tipping") waste. Organic food waste arrives on tipper trucks or in skips on the back of trucks, with trucks driving through the Facility's hardstand area and tipping organic food waste into a concrete bund and apron immediately outside the Waste Receival area in the South-West of the Site. This allows trucks to tip organic food waste into a contained area which is easily accessible from inside.

This will allow the installation of temporary skids on which the requisite machinery will be securely mounted. The internal site plan attached demonstrates the material flow for the waste.

Waste will be tipped into a bunded concrete bunker which will be made from temporary concrete 'L' Blocks. It will be collected by excavator and conveyed to a depackager unit. This unit separates plastic from organic material, ready for the plastic to be collected as general waste.

From the depackager, the organics are pumped into storage vats before being fed into the MIBS, where it will be consumed by black soldier fly larvae.

The MIBS are emptied every 10 days, or earlier, and the larvae and remaining frass are sifted on-site into their respective products.

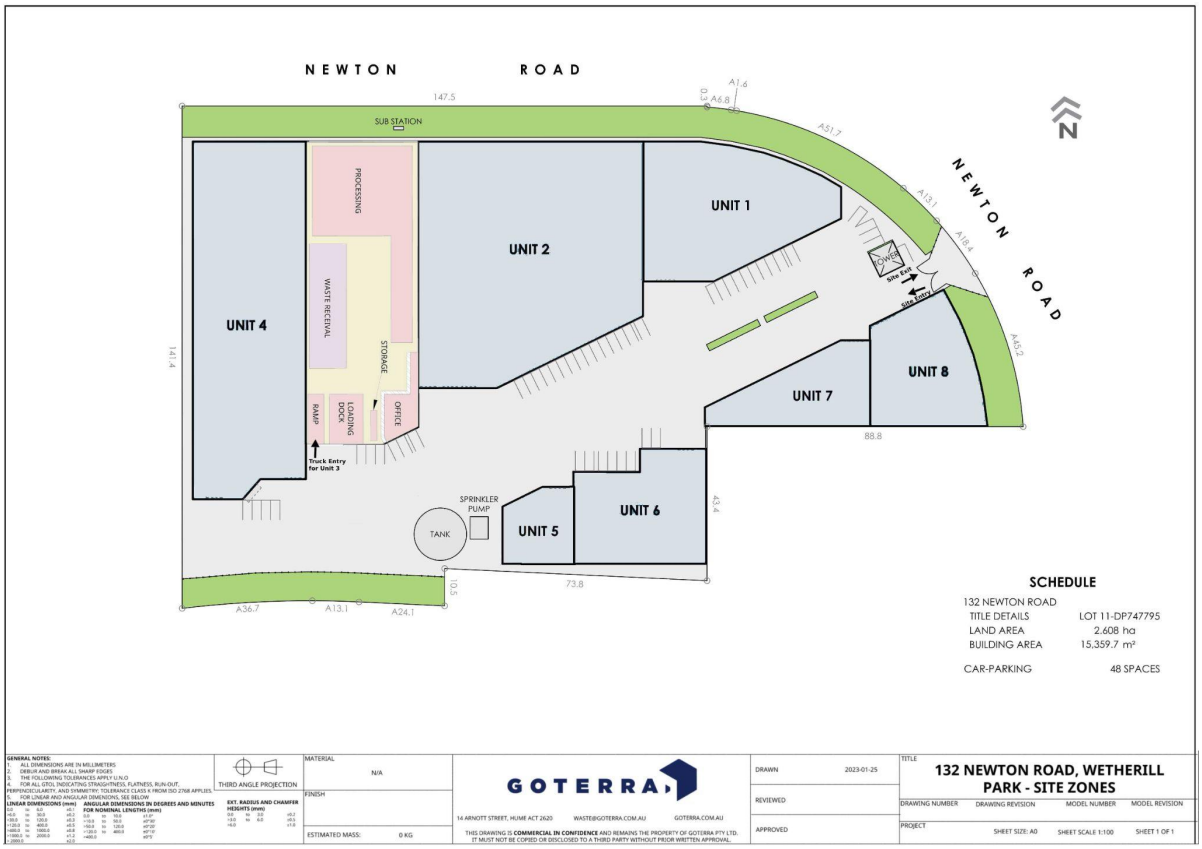



Figure 3 : Site Zoning

### 2.5.4 Floor Plan

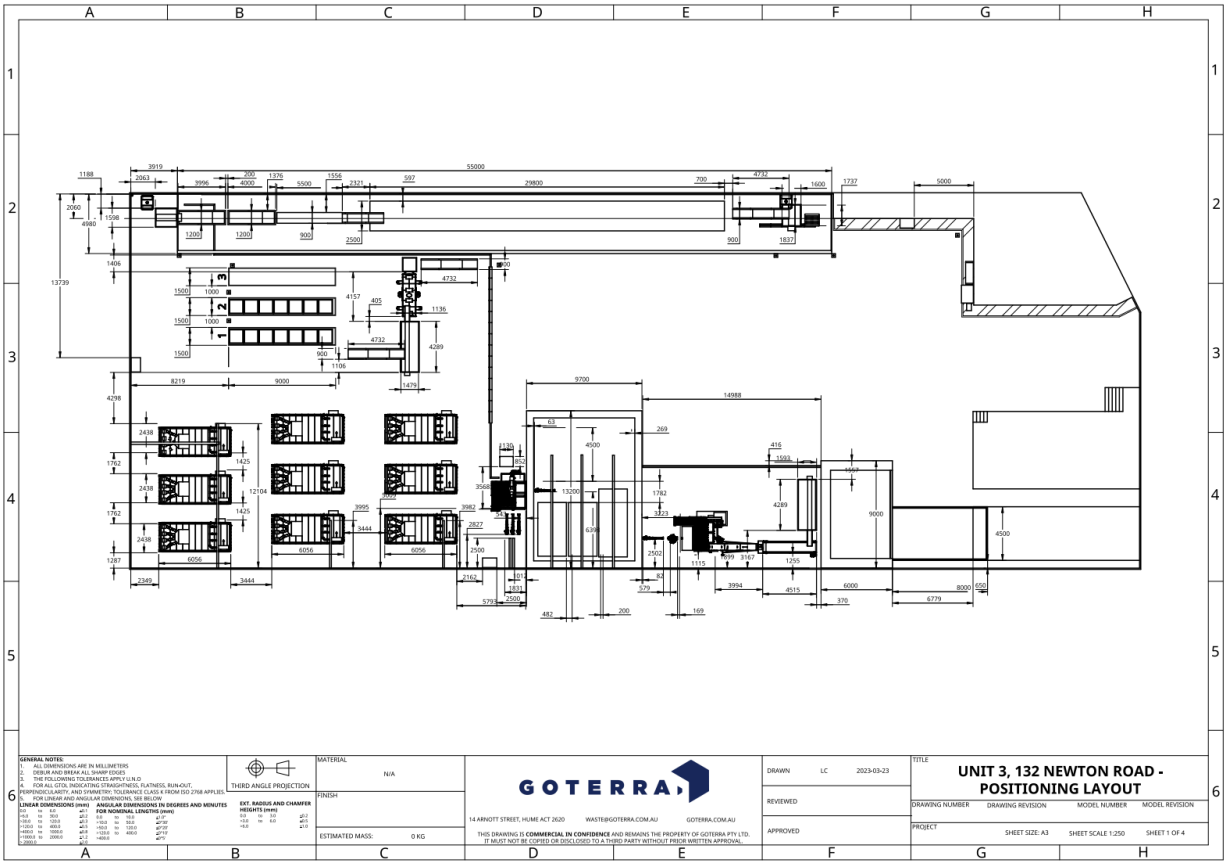



Figure 4 : Floor Layout

### 2.5.5 Natural Characteristics of Site

This section discusses the Site features, otherwise known as the natural characteristics of a site, at and surrounding 136-132 Newton Road, Wetherill Park, NSW. Meteorology features are all discussed, as these features have the potential to affect the way any impacts from Goterra's operations manifest in the environment.

The Wetherill Park Drain running across the southern boundary has been constructed within the general vicinity of the original creek bed draining this area. The 'Wetherill Park Drain' drains flat areas around the Western Sydney Regional Park and away from the Sydney Water Supply Channel (which flows north directly into Prospect Dam). The Wetherill Park Drain travels east through the newer industrial complexes, across the southern boundary of the block in question and onward (north east) toward Prospect Creek.

There is no immediate or secondary interaction with this drain by our activities and no risk to this Natural Characteristic are evident from the activities of the site.

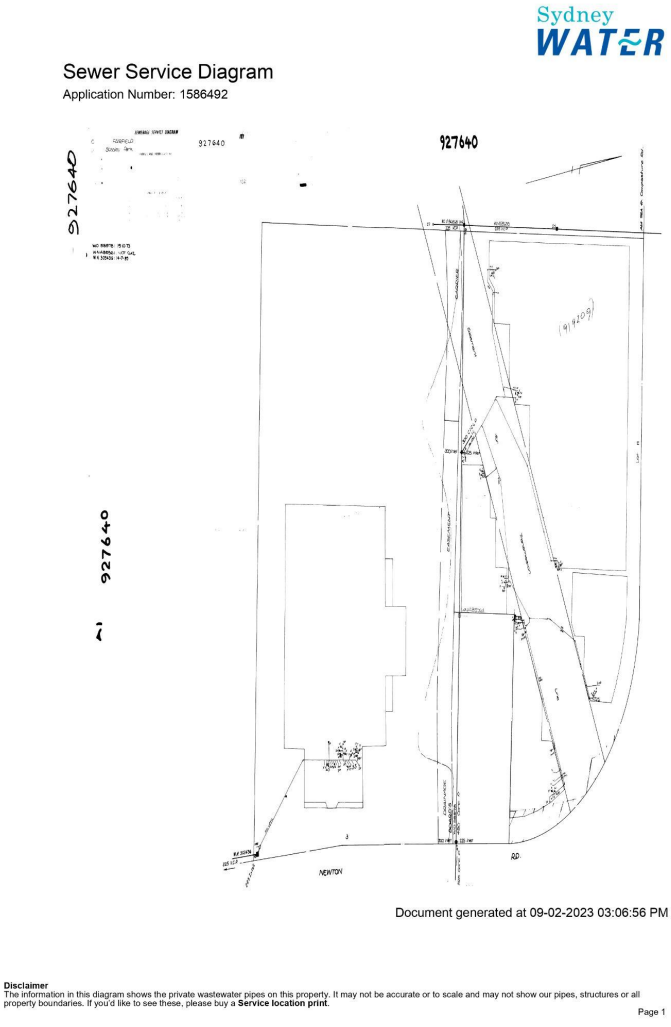



Figure 5 : Sewer Service Diagram

### 2.5.6 Topography

Please see below for the survey plan. The survey plan was prepared by Real Serve.

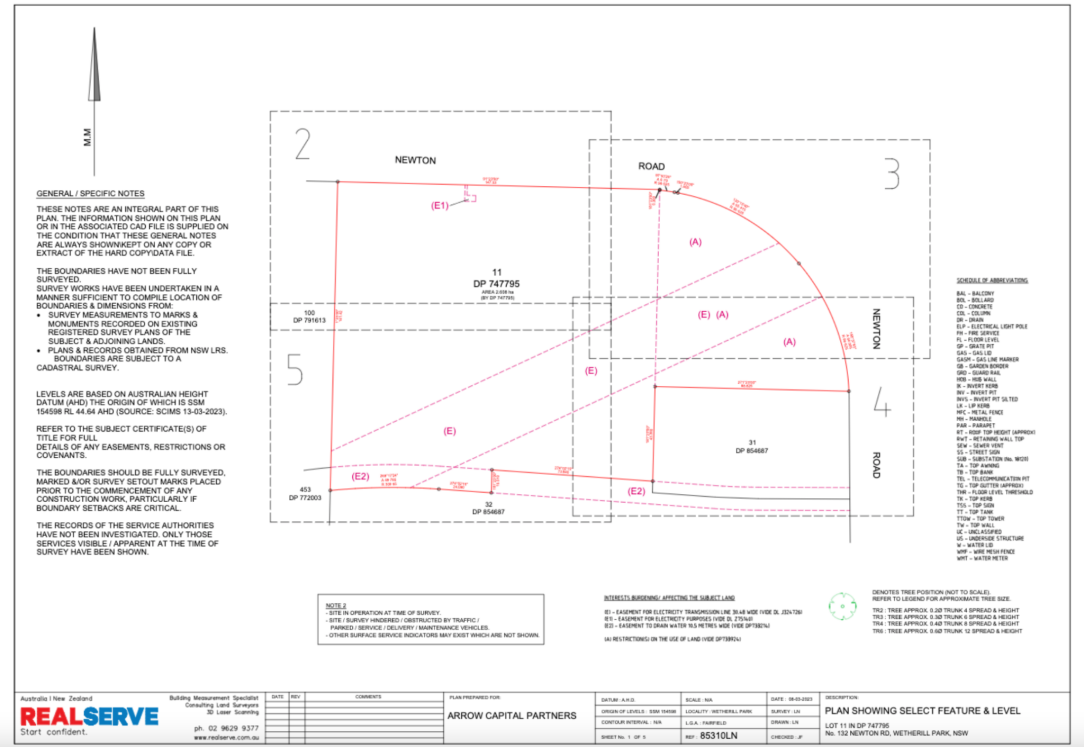



Figure 6 : Plan showing survey plan

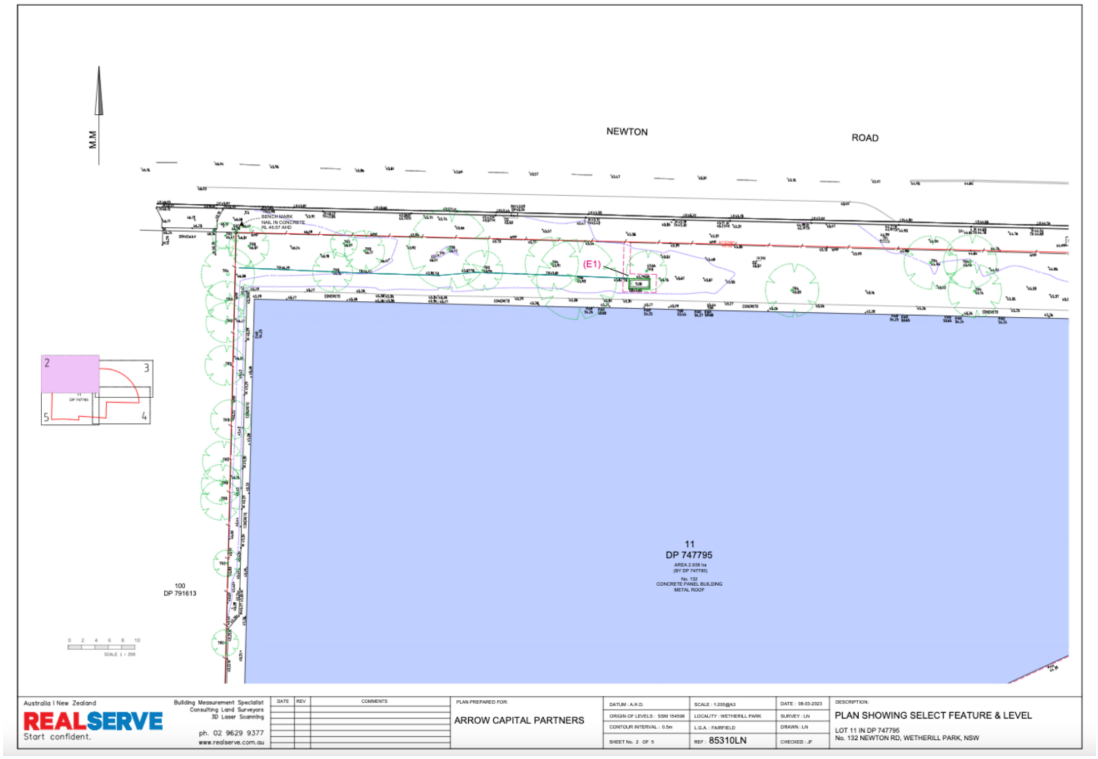



Figure 7 : Plan showing select feature & level

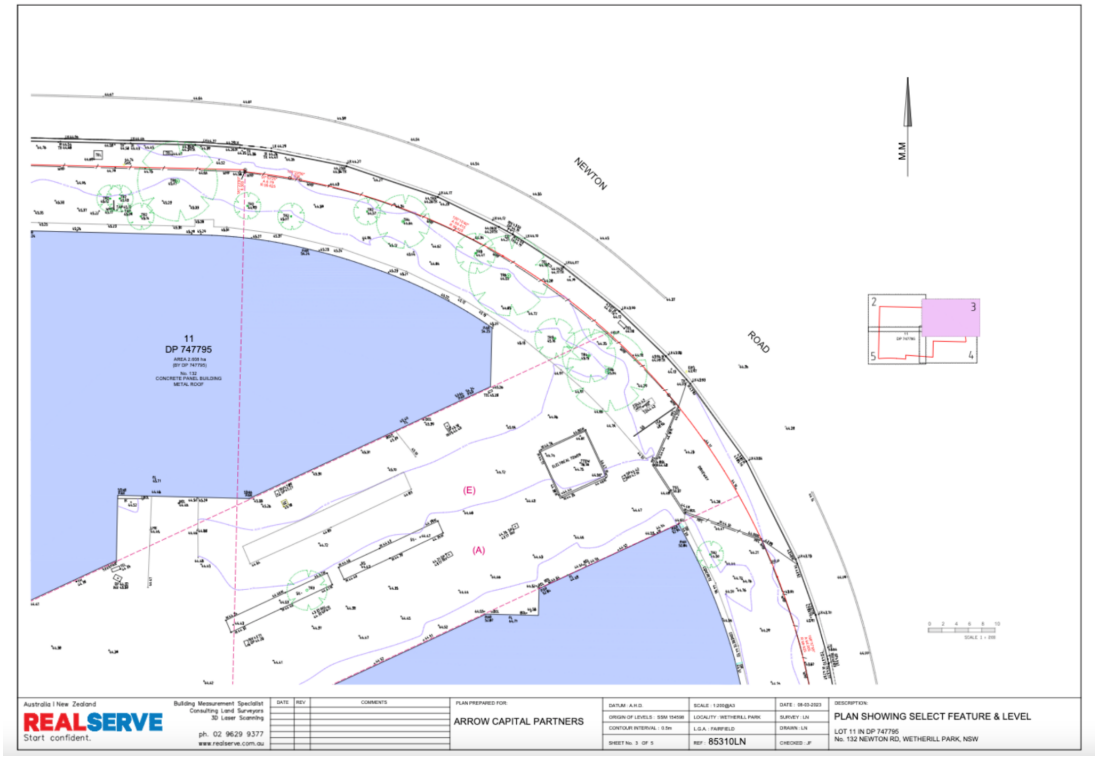



Figure 8 : Plan showing select feature & level

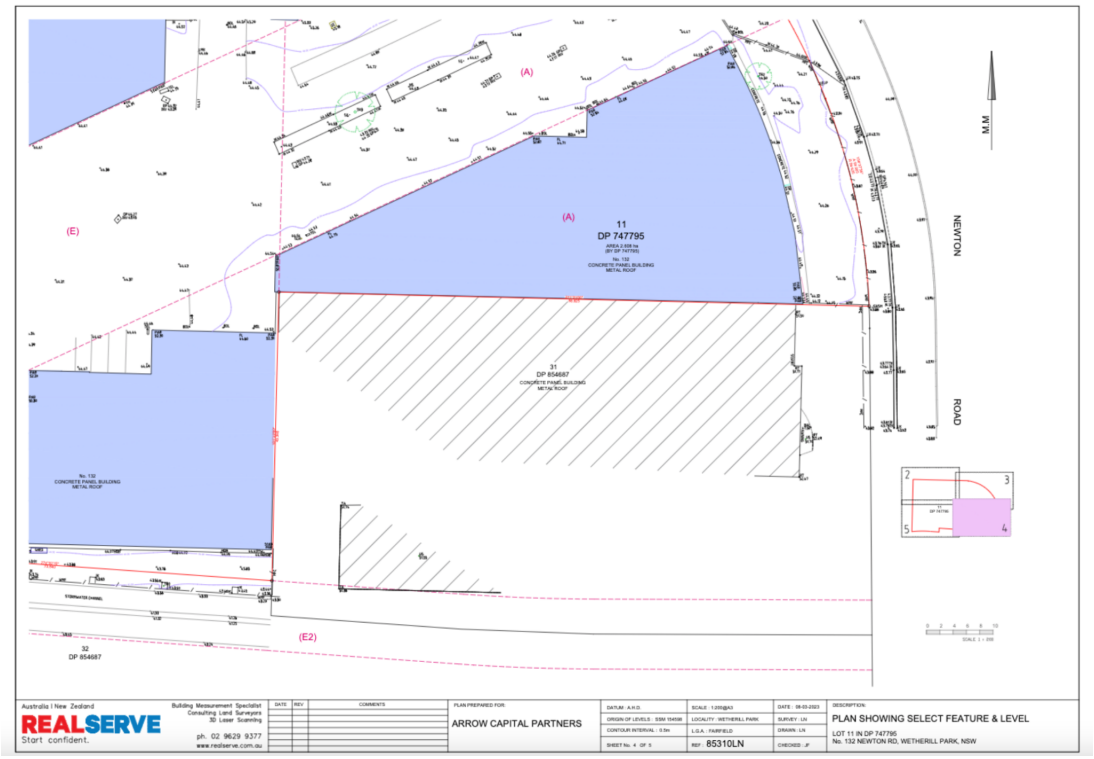



Figure 9 : Plan showing select feature & level

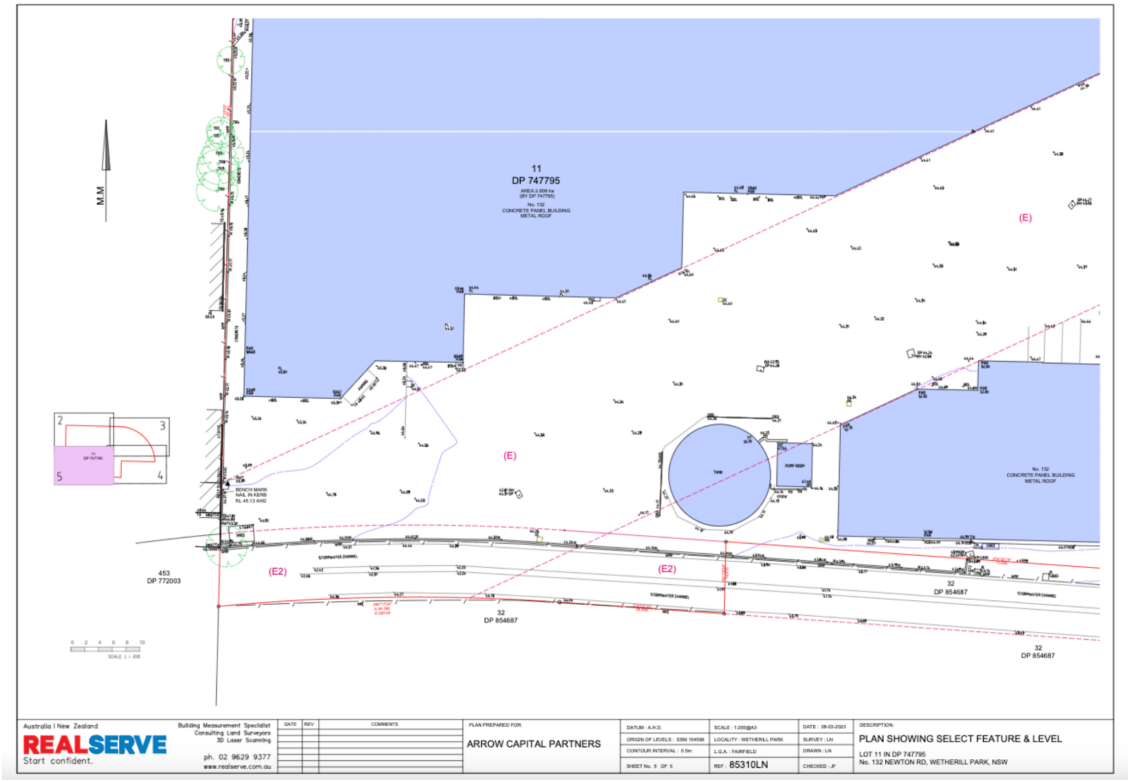



Figure 10: Plan showing select feature & level

### 2.5.8 Meteorology

The average annual rainfall at the Facility is 1211 mm, based on the Bureau of Meteorology Sydney Airport Comparison station.

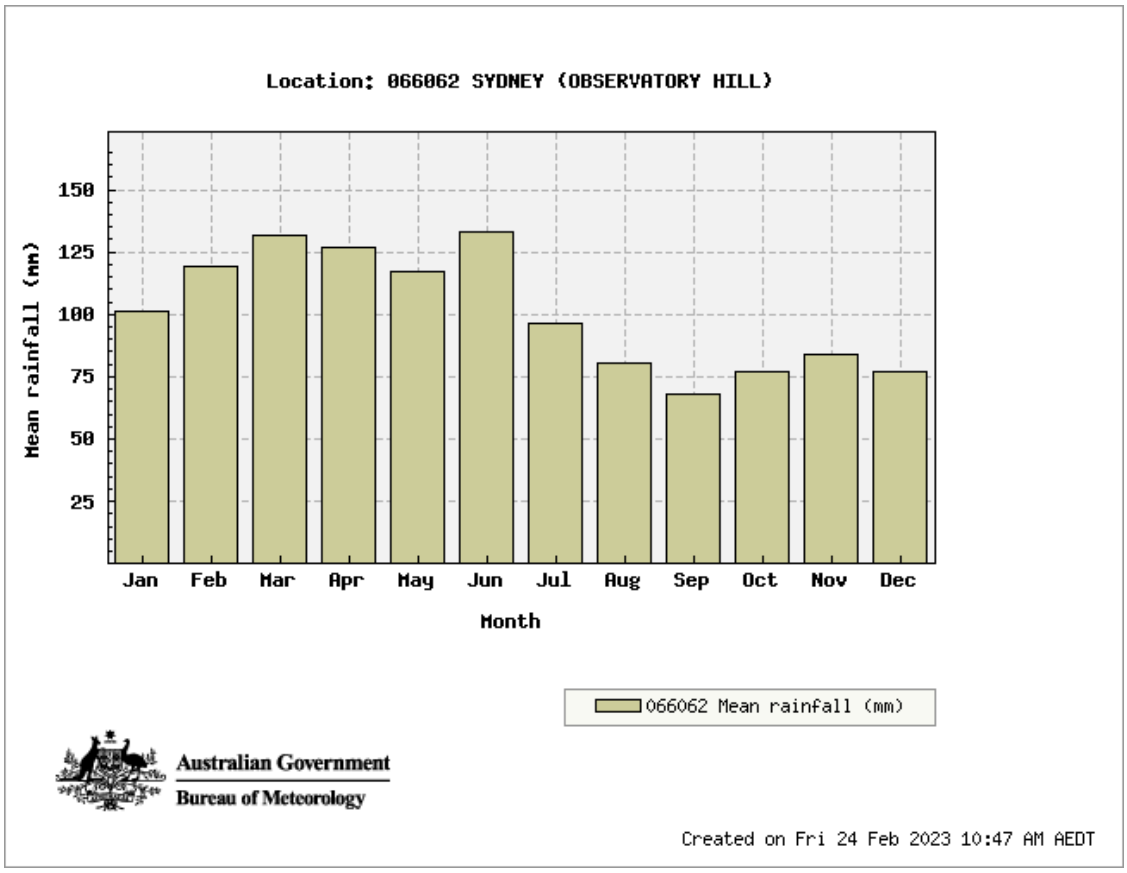



Figure 15: Annual Average Rainfall

The average annual wind speed at Sydney airport does not vary significantly over the course of the year, remaining within 0.5 km per hour of 7.8 km per hour throughout. The average Wind speed and Direction Rose for Sydney Airport is attached below.

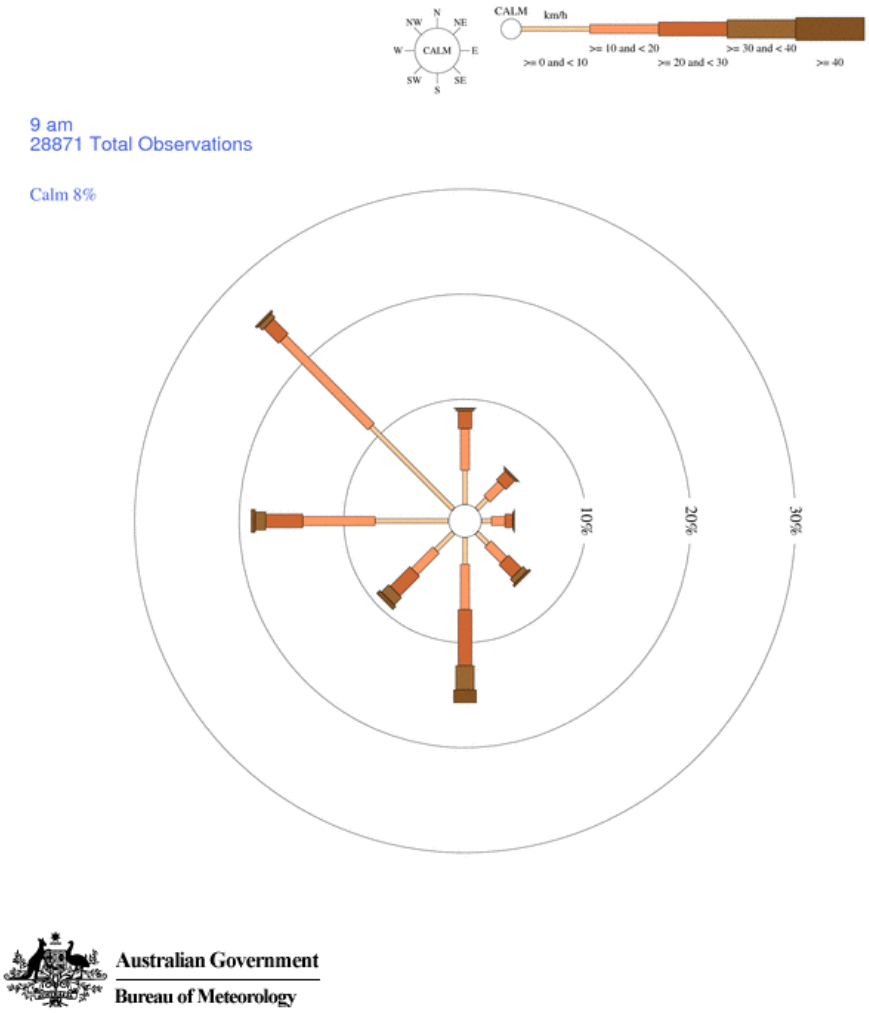



Figure 16 : Rose of wind direction at Sydney Airport at (a) 9 am; and (b) 3 pm; with data collected between 1 March 1939 and 15 September 2016

# 3. Legislative Framework

The facility, process and operations have been designed to meet the requirements of the NSW State Government and Fairfield City Council for designated development according to designated provisions of Schedule 3 of the Environmental Planning & Assessment (EP&A) Regulation 2021. The EIS has been developed in accordance with the following legislation:

The legislation drawn upon to inform best practice for this EIS includes, but is not limited to:

- Protection of the Environment Operations Act 1997 (NSW) (p. 35)
- Protection of the Environment Administration Act 1991 (NSW) (p. 36 - Table 11)
- Protection of the Environment Legislation Amendment Act 2011 (NSW) (Plan of Management refers to the Act)
- Waste Avoidance and Resource Recovery Act 2001 (NSW) (p. 44 & p. 59)
- Protection of the Environment Operations (Waste) Regulation 2014 (NSW) (p. 39 and p. 42)
- Environmental Guidelines: Composting and related organics processing facilities 2003 (NSW) (p. 7)
- Guide to licensing 2016 (NSW)
- EPA licensing guideline: Environmental risk levels 2016 (NSW) (p. 36)
- NSW Waste Avoidance and Sustainable Materials Strategy 2041 (2021) (p. 14)
- Environmental Planning and Assessment Act 1979 and Environmental Planning and Assessment Regulations 2021
- Fairfield Local Environmental Plan 2013. (p. 20)
- SEPP (Precincts-Western Parkland City) 2021. (p. 40)
- Fairfield City Wide Development Control Plan 2013. (p. 20)

Guidelines are issued by governments to outline how people and organisations can undertake activities in accordance with acts and regulations. Acts and regulations being legally binding, and policies and guidelines being a suggested means of compliance.

# 4. Environmental Factors

Environmental factors are aspects of the environment which can be negatively impacted by a development or a premises operation. Legislation outlined in Section 3 requires environmental factors be assessed in new developments or premises in terms of:

- The objective for protection and by describing the environmental outcome
- Design requirements
- Performance requirements
- Performance measurements

**Table 11 Environmental Factors and their Objectives** below contains a comprehensive list of the environmental factors and objectives outlined within the NSW EPA Composting guidelines (EPA NSW, 2003). The environmental factors which are required to be assessed and addressed as part of the EIS for an organic food waste processing facility in NSW. In NSW the type of assessment that needs to be undertaken is different for each factor and objective, as per the composting guidelines (EPA NSW, 2003) and may include a preliminary site assessment in addition to risk assessment.

Where environmental factors are not present at the site, this is noted in the table and no further assessment made. These environmental factors are then discussed in terms of preliminary site assessment in Section 4 (where required in NSW), risk and management in Section 5 below, and will include design and performance requirements in terms of management. Performance measurements will be discussed in Section 6, also regarding monitoring, evaluation and adaptive management.

## State Environmental Planning Policy - Resilience and Hazards

The proponent has considered the relevancy of the State Environmental Planning Policy (Resilience and Hazards) 2021 in preparing the Application. As stated in Chapter 3, Part 3.1, Section 3.3, Offensive Industry means a “development for the purposes of an industry which, when the development is in operation and when all measures proposed to reduce or minimise its impact on the locality have been employed (including, for example, measures to isolate the development from existing or likely future development on other land in the locality), would emit a polluting discharge (including, for example, noise) in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land in the locality”. This definition is functionally identical to the definition of offensive industry provided in the Fairfield LEP. In Table 11, the environmental factors to be considered under this offensiveness test, and the site’s mitigations. . The proposed capacity of the site will not exceed the licensing requirements for a waste disposal facility, under the POEO Act (1997), hence a licence is not currently being pursued.

To address the potential offensiveness of the usage, the site layout has included odour management in section 6.2.3. These measures will reduce the offensiveness of the development to a level that is insignificant to neighbouring sites.

In regards to the potentially offensive industrial use, the proponent intends to maintain the facility in accordance with best practice. Successfully managing this facility in accordance with best practice will by necessity reduce and remove all issues that would contribute to potential offensiveness of the activities at the site. .

The proponent has considered if the development would constitute potentially offensive development under State Environmental Planning Policy (Resilience and Hazards) 2021, Chapter 3, Part 3.1, Section 3.2. With consideration for the control measures outlined in the Plan of Management, and described below in Table 11, especially with reference to odour control, the consent authority should be confident this development does not constitute offensive industry. The proponent has uploaded a copy of the EMP in use at their existing Hume site, which was written to the standard required by the NSW EPA for waste management facilities. This document is included to demonstrate the manner in which Goterra operates sites to minimise environmental impact.

A qualitative preliminary risk assessment of chemicals on-site has been conducted. There are no materials to be stored on site which constitute a potential hazard under the Resilience and Hazards SEPP. The frass produced is an organic fertiliser which does not meet the definition of a hazardous chemical according to the SEPP, which specifies inorganic fertilisers only as potentially hazardous chemicals. Domestic cleaning chemicals will be used on-site in the kitchen and bathroom facilities provided. Commercially available detergents which are not listed as hazardous on the ADG will be used during the wash-down of the facility, in domestic quantities (<5L containers). Commercially available degreasers and lubricants, such as WD-40, will be available on-site in domestic quantities (<1L containers) and stored within a chemical cabinet appropriate for their code. A proposed chemical register is included as Table 14 which demonstrates the low quantity and low hazard nature of the proposed chemicals to be used. The bunding of the facility required to control waste will further prevent any spills impacting outside the facility. Hence no further risk assessments against the Applying SEPP 33 guidelines have been undertaken at this point.

**Table 11: Environmental Factors and their Objectives**

| **Environmental Factor** | **Objective** |
|---|---|
| **Noise Management** | |
| Noise/Vibration | Minimise noise emissions through design |
| **Water Management** | |
| Surface water quality | Not relevant — direct water management not involved. See below for discharges. |
| Groundwater quality | Not relevant — direct water management not involved. See below for discharges. |
| **Wastewater Management** | |
| Wastewater Reuse / Discharge | No Wastewater Reuse on site. Discharge water will be transferred to alternate facilities to be processed into hydrolysate |
| **Air Management** | |
| Air — methane and greenhouse gases | Minimise emissions of methane to air and diffusion through soil strata such that the risk to humans in confined spaces (such as explosions and suffocation) is minimal.<br>No gas flare or electricity generating |

| | |
|---|---|
| | equipment will be used on site. |
| Dust/Particulates/Bioaerosols | Minimise particulate matter emissions from the Facility. |
| Odour | No emissions of offensive odours outside the boundaries of the premises. |
| **Waste Management** | |
| List of incoming waste (NSW EPA Classification) | • FOOD<br>• MIX (Mixed Waste)<br>• PL (Plastic)<br>• PAPER (Paper or Cardboard)<br>• VEG (Vegetation and garden) |
| Special waste | Will not be present on the Site. |
| **Contaminated Land** | |
| Land | Not Included in NSW Objectives |
| Surface Water | Prevent water pollution. Surface or underground discharges of leachate and water from the Facility must not pollute groundwater or surface waters. |
| Ground Water | Prevent water pollution. Surface or underground discharges of leachate and water from the Facility must not pollute groundwater or surface waters. |
| **Hazardous Materials Management** | |
| Scheduled Waste | Will not be present on the Site |
| Resource Storage | Will not be present on the Site |
| **Others** | |
| Pest control, pathogens, plant propagules | Managed to not impede local amenity through certification bodies guidelines |
| Litter | The local amenity must not be degraded by litter emanating from the composting and related organics processing facility. |
| Household Chemicals | Managed to not impede local amenity through correct dosing Procedures |
| Compressed/liquid gas | Managed to not impede local amenity. Single use equipment purchased to meet AS/NZS 3788:2006 |

| | |
|---|---|
| Underground/above ground storage tanks | Will not be present on the Site |
| Discharges to land | Will not be present on the Site |
| Discharges to surface water | Will not be present on the Site |
| Discharges to groundwater | Will not be present on the Site |
| Fire Management | To ensure that the Facility is not a fire risk and that the Facility is adequately prepared in the event of fire |
| Security on premises | Ensure that the premises are secure. |
| Closure of premises | To ensure that, after closure, the composting and related organics processing facility does not cause environmental harm. |

Table 11: Environmental Factors and their objectives

# 5. Preliminary Site Assessment

In this section, the impacts Goterra's waste facility might have on the environment is assessed as part of the EIS required under NSW Planning and Fairfield City Council regulations. Noise, odour, water, greenhouse gases, particulates, and bioaerosols are all considered. Impact assessments for particulates, bioaerosols, and gas emissions are not likely to be required by NSW EIS. This is because organic food waste has a high moisture content and internalised waste processing systems are unlikely to cause dust or bioaerosol emissions. Homolactic fermentation and aerobic waste conversion generate only small amounts of carbon dioxide.

# 6. Risk Assessment

The processes created by Goterra to convert organic food waste to valuable products at their Fairfield facility may present potential risks to human health and the environment. These risks may never be realised, if exposure to these risks is appropriately controlled or there is no receptor which can be harmed. An assessment of the potential for a risk to cause harm, taking exposure and receptors into account, is expressed as risk. An assessment of environmental or human health risks related to a Site and its activities are a requirement in NSW under Schedule 1 of the Protection of the Environment Operations Act 1997 and EPA licensing guideline: Environmental risk levels 2016 (NSW). Goterra has assessed this risk in our own Environment Management Plan

Hazards identified in Section 6 are summarised in Table 13 below using the environmental factors in Table 11 above and considering the design and performance requirements for NSW. This is then followed by a discussion of any identified risks and controls using a risk assessment procedure and management procedure for EIS (EPA NSW, 2016 a, b), including use of site-specific risk assessment tools, and then a monitoring strategy in Section 6. All management controls put in place will follow the NSW EPA Composting guidelines (EPA NSW, 2003). The applicable environmental factors and objectives in Section 4 are considered in the risk assessment and our Environmental Management Plan.

Risks have been assessed using the 3x3 method. Risks were rated for their severity and likelihood on a scale of Low, Medium, and High. These were scored as 1, 2, and 3 respectively. The severity and likelihood scores were multiplied together to get a risk score. For risks with a score higher than 3 (ie. Medium or High risk), mitigations have been developed and outlined in this section.

## 6.1 Noise Management

Noise is assessed and managed in accordance with Protection of the Environment Operations (Noise Control) Regulation 2017
Sources of noise will include trucks entering and leaving the Facility with waste, excavators moving the waste onto the conveyor, the macerator, conveyor and triple deck sifter. None of these will be in operation at the same time.

In order to stay within acceptable levels, only one piece of machinery or truck will be operating at the Facility at any given time, the facility is designed specifically to this use case. Noise will be assessed at the Site by a suitably qualified professional post commissioning to verify the designed parameters using the NSW EPA framework (NSW EPA, 2003) to demonstrate that they comply with 65 and 55 dB noise limits. If these levels are exceeded, site activities will be adjusted and will adjust accordingly based on the data received. All equipment used will be maintained and operated in accordance with manufacturer's instructions, and noise requirements.

## 6.2 Air Management

This section identifies sources and estimates emissions (project wide) for greenhouse gases, particulates and bioaerosols, and odour.

### 6.2.1 Air

New South Wales requires that methane emissions in aerobic and anaerobic processes for organic food waste processing facilities are considered (EPA NSW, 2003). However, as discussed above, there will be no methane emissions from this facility due to the processes chosen for waste conversion. Management of methane emissions are therefore not applicable to the Goterra facility in Wetherill Park.

The NSW guidelines (NSW EPA, 2003) for air emissions are directed at electricity generation from organic food waste processing. No gas flare or electricity generating equipment will be used in the Goterra facility, so issues addressed by the NSW guidelines regarding emissions of nitrogen oxides ($NO_2$ and NO), sulfuric acid mist ($H_2SO_4$), sulphur oxides ($SO_3$ and $SO_2$) and non-methane volatile organic compounds (NMVOC) do not apply. No further action in regards to gas flare or electricity generating equipment is required by Goterra.

### 6.2.2. Particulates, dust and aerosols

As the moisture content of the organic food waste is high (50 to 70%) dust and bioaerosols are considered highly unlikely to be emitted. Therefore, the process at the Facility is being undertaken with all reasonable and practicable measures to avoid particulate, dust and aerosol emissions. The odour controls outlined in the next section will also filter any dust which may be emitted during the sifting process. Additionally, Feedsafe requirements mean that any potentially dust-producing activities must be undertaken in an enclosed area, which has been accounted for.

The Development site falls within the prescribed airspace outlined in Part 4.2, Section 4.22 of Chapter 4 *Western Sydney Aerotropolis* of the *SEPP (Precincts - Western Parkland City) 2021*. No particulate or dust emissions will be able to escape the building or enter into the prescribed airspace. Additionally, there is no risk of black soldier flies entering the atmosphere as no adults will be able to establish themselves at the facility - flies will be devitalised before pupating.

Further, no steam will be able to enter the atmosphere from the process. The hot wash component of the processing plant will be operated at temperatures of 100°C, in accordance with the safety requirements for feed described below. It will be contained within the processing line to ensure no steam is evaporated into the facility or the atmosphere.

**Table 12: Safe Processing Requirements**

| Source | Post harvest Treatment | Compositional properties | Chemical Safety | Microbial Safety | Vibrational Spectroscopy and predictive modelling |
|---|---|---|---|---|---|
| Waste Mixture<br>Supermarket waste<br>Child care centre | • Blanching- 100°C for 5 minutes<br>• Drying- Blanched BSFL dried for 12 hrs at 70°C | • Proximate analysis<br>• Mineral analysis<br>• Amino acid and fatty acid analysis | • Heavy metal analysis<br>• Mycotoxin analysis | Detection and quantification:<br>• Yeast and moulds<br>• *Staphylococcus aureus*<br>• *Bacillus cereus*<br>• *Listeria monocytogenes*<br>• *Clostridium perfringens* | • PLS models for predicting proximate composition<br>• PLS and PLS-DA models for predicting microbial quality (yeast and moulds) |
| Spent Brewers grains | • Blanched-100°C for 40s + drying 100°C for 2 hrs<br>• Blanched-100°C for 40s + drying 100°C for 12 hrs<br>• Blanched-100°C for 5 mins + drying 100°C for 2 hrs<br>• Blanched-100°C for 5 mins + drying 100°C for 12 hrs | | Heavy metal analysis | Detection and quantification:<br>• Yeast and moulds<br>• Salmonella sp.<br>• Coliforms | • NIR and MIR for monitoring compositional changes in post processed BSFL |

Table 12: Safe Processing Requirements

### 6.2.3 Odour

In this case, NSW requirements regarding odour in organic processing facilities are adhered to (EPA NSW, 2003).

Odours at the Facility are likely to be generated at receival, screening, maceration, conversion of the waste in MIBs, and at the point of frass production. All other stages along the conversion of the waste are completely enclosed and gases are not vented to the building or environment. The MIBs used for conversion of the waste have carbon biofilters to capture odours, and an air intake to provide oxygen for larvae and to ensure aerobic decomposition. The biofilters are serviced monthly. No other points along the process have odour filters.
As identified in the odour assessment a slight odour is detectable from packaged frass when in close proximity. This frass is therefore stored into a ventilated controlled space within the building.
Goterra has undertaken odour assessments through a suitably qualified professional. The assessment was performed using information from its Canberra based facility in accordance with NSW EPA methods. See attached report Odour and Air Quality Impact Assessment (Appendix D) at 3/132 Newton Street, Wetherill Park NSW. The report focused on odour as impacts to air quality are negligible as no particulate matter will be generated during the process.
Any odour issues have been identified and associated adaptive management will be used to ensure NSW odour requirements are met accordingly.

Managing load times in accordance with off-peak traffic requirements will also minimise the likelihood that a queue of waste trucks will ever form. This eliminates the risk of uncontained odour arising from waste trucks in the vicinity of the facility.

## 6.2 Waste Management

The thresholds for activities which require an Environment Protection Licence (EPL) are contained in Schedule 1 of the Protection of the Environment Operations Act (the POEO Act)
Waste accepted at the Facility is outlined in Table 1 and 2 above , with a maximum of 6000T mixed organic food waste accepted at the Facility within a calendar year.

The definition under the act defines our processes as follows:
*Waste processing (non thermal treatment)*

Definition - "non-thermal treatment of general waste" means the receiving of waste (other than hazardous waste, restricted solid waste, liquid waste or special waste) from off site and its processing otherwise than by thermal treatment.

For the purposes of the POEO Act (1997), discussed below, the facility will fall within the regulated area (which includes all of Greater Sydney). Only the legislation pertaining to the regulated area has been included for discussion.

*Threshold for licensing*

Regulated area - if the premise is in the regulated area - involves having on site at any time more than 1,000 tonnes or 1,000 cubic metres of waste,

*Waste Storage*

Definition - "waste storage" means the receiving from off site and storing (including storage for transfer) of waste. Waste is taken to be stored at premises for the purposes of this clause (POEO Act Section 319) even if the waste is only being transferred at those premises between units of rolling stock, motor vehicles or trailers.

*Threshold for licensing*

- more than the following amounts of waste are stored on the premises at any time:

  (i) in the case of premises in the regulated area--more than 1,000 tonnes or 1,000 cubic metres,

  , **or**

- more than the following amounts of waste (other than waste referred to in paragraph (a) or (b)) is received per year from off site:

  (i) in the case of premises in the regulated area--6,000 tonnes,

With the above guideline in place the Facility has been designed to take no more than the threshold limits.
These limits in relation to waste receival is controlled by the following conditions.

- Contracted Maximum site receival quantities with Cleanaway, an established waste management company.
- All waste disposal trucks producing incoming load weights for the purpose of invoicing and site waste load management
- All trucks having calibrated load scale systems or providing the onsite operations team with a weight scale delivery document prior to waste accepted for receival.

.
This information is captured electronically into the Goterra Manufacturing execution system called MagOps and is provided as required to all government and stakeholders as part of our monthly and quarterly reporting.

All non-organics unrelated to food packaging are considered contaminants within the receivable waste loads; nominally plastics or other co-mingled recyclables or general waste. These contaminants will be screened out of the organic food waste upon receival and prior to processing. Non - organics discharged from the premises are contracted and managed by Cleanaway management company or any other waste distributor.

Waste at the Facility will be received into a sealed concrete bunker, screened using both manual and mechanical methods and macerated within areas of concrete hardstand, aprons, and bunds. All leachate or water used in washdown will enter a grease trap before being pumped into storage tanks (IBCs),or be captured in the conveyor and macerator drip tray before re- entering the organic food waste process.
Unprocessed Waste will not be stored on the premises, instead receiving waste will be immediately processed for pasteurisation and fermentation prior to conversion. All fermentation, and conversion steps of the process will be undertaken within enclosed equipment to a maximum weight of 50 tons daily with the waste moved between each stage of the process by an automated positive displacement pump to avoid spills and losses. Storage tanks for the separated, macerated organics are contained within a bunker system to a tank storage system equal to 60 000 litres.

All non organic food waste will be discharged using the services of Cleanaway Waste Management company through a contracted agreement of collection and disposal. This non organic food waste will be sent to landfill for disposal as it contains mixed plastic and traces of organic materials. Trucks will be on-site for no longer than 15 minutes per collection as these are automated front lift bin systems.
Non organics discharged from the depackaging system will be transferred to a baler onsite to reduce physical volume which will enable reduced load collection.
All non organics will be treated as general waste and inserted into seal front lift tip bins which will be supplied by Cleanaway Waste Management company.
Collections of waste will be 3 times weekly and ramp up alongside the receival waste quantities to the facility.

Goterra's system closes the loop on the organic food waste stream, which is in harmony with the objectives of the Waste Avoidance and Resource Recovery Act 2001 in NSW. The objects of the act are to use resources and reduce ecological harm, avoid resource consumption, recover resources and have appropriate disposal where necessary. The two main outputs of Goterra's organic food waste conversion process include frass and protein, which are both on-sold for composting and non-ruminant animal feed. This creates circularity and promotes the use of recycled materials in industrial applications, in alignment with the *NSW Waste and Sustainable Materials Strategy 2041*.

## 6.3 Land and Water

All waste processing is undertaken in covered or enclosed, and concrete environments. The conveyor and macerator are on concrete bunded areas designed for all machinery and structure use. Any leachate or waste water that makes it to the ground will be managed through bunded areas and sucked up using a vacuum system and discharged through the leachate recovery plan. The macerator and conveyor also have a drip tray that will catch any leachate, and this leachate is returned to the waste processing system via the positive displacement pump. After maceration, organic food waste will be in water-tight storage tanks for the remainder of processing, and automatically moved between processes using a positive displacement pump. The use of the automated pump and water-tight storage tanks reduces the likelihood of any spills to negligible. Should any spills occur, these will be inside a bunded area which would be contained and transferred to the IBC's maintained onsight.
The organic food waste conversion process discharges minimal moisture into the atmosphere, as the soldier fly larvae receive the organic food waste substrate at an acceptable moisture content to grow. The design of the process, therefore, has maximised maintaining moisture within the sealed environment of the Modular infrastructure system for both the process and its environmental control.

No work, within the meaning of the *EP&A Act* (1979) and the *Water Management Act* (2000) or their subsequent regulation, is proposed to be completed in relation to this change of use. Pursuant to the definition, no activities will be applied to land, as the process is entirely enclosed within the bunded concrete sections of the Waste Receival area; and no waste water will be expelled onto land. Hence, no controlled activity under the *Water Management Act* (2000) will be undertaken, and thus the change of use will not be considered designated development.

As part of the processing step 6 in Table 3 a water balance on first commissioning will be established to determine the rate of water usage and the requirement for additional water filtration systems.

No direct discharges to land or water will be undertaken at this facility. As the Facility is in an enclosed environment, and is separated from stormwater, surface and groundwater, risks of contamination are very low. No ongoing monitoring of water at the Site is recommended, based on the information in this section.

A description of the local soil and topography is detailed out through Survey plans by a qualified surveyor in Section 2.5.6 Topography.

## 6.5 Pest control, pathogens, plant propagules

As organic food waste will begin processing immediately, and enter enclosed spaces on the same day, the likelihood of the Facility attracting pests is very low. Furthermore, the waste receival area is washed down daily, reducing the likelihood of pests. A pest Control plan will be in place as the facility will be certified for Feed manufacturing and this is a prerequisite for certification.

Rodent pests will be minimised and monitored by Flick Pest Control with electric traps The traps and cleaning processes outlined in the POM will remove the potential for a population to become entrenched.

Black soldier flies and other flying insects should not be present at the facility. A contact spray will be applied to the MIB exteriors and any storage tanks twice per week. Flying insect spray will be available for incidental use

As no green waste or plant waste will be accepted at the Facility, plant propagules will not be present in any waste entering or exiting the Facility. The homolactic fermentation process also results in a displacement of any pathogens that may remain. Any residual pathogens in frass will be treated via composting in accordance with the NSW compost order prior to being applied to land. This composting process as detailed in section 2 will be conducted at our clients' sites, before being used in their final products.

## 6.6 Litter

Any waste generated at the Site through organic food waste screening or staff activities, will be placed into the appropriate general or recycling bins for collection. food, organic waste for processing and other waste will not be outside for any periods of time that will allow them to be bourne by wind. Any other waste and recyclables will be placed into closed bins and skips within the premises. Furthermore, with the entrances to the facility only open during a truck unloading waste, any incidental litter will be contained within the facility and cleaned at the end of a shift.

The tyres of vehicles can be washed in the bunded waste receival area should there be any accidental adherence of waste to tyres.

## 6.7 Chemicals

Commercial degreasers and bleach will be used on site for cleaning the waste facility. Basic chemicals for maintenance of machinery will be used. No other chemicals will be stored or used. All cleaning chemicals will be stored in chemical storage cabinets within the bunded and roofed areas of the waste receival area. In the event of a spill, spill kits will be used to absorb and dispose of the chemicals safely. Common domestic cleaning agents will be provided to staff for the sanitation of the office space.

| Brand Name | Manufacturer | Quantity (L) | Storage Location | Hazardous Substance | Dangerous Good | Dangerous Goods Class |
|---|---|---|---|---|---|---|
| Ditrac Rodenticide | Bell Laboratories | 8 | | No | No | N/A |
| Detergent Degreaser | Sydney Solvents | 20 | | Yes | No | 8 |
| Bleach 12.5% | Sydney Solvents | 40 | | Yes | Yes | 8 |
| Powerguard Indoor & Outdoor | Mortein | 1 | | No | No | N/A |
| Fast Knockdown Flying Insect | Mortein | 1 | | Yes | Yes | 2.1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| WD-40 Specialist Degreaser | WD-40 | 0.4 | | Yes | Yes | 2.1 |
| PVC Cement | Protek | 0.125 | | Yes | Yes | 3 |
| Hose Lubricant (Apex 35 Pump) | Bredel | 10 | | No | No | N/A |
| Hose Lubricant (Dura 55 Pump) | Global Pumps | 20 | | No | No | N/A |
| Ensnare Pro Insecticide | Sundew | 2 | | Yes | No | N/A |

Table 14: Proposed Chemical Register

## 6.8 Fire Management

The requirements to maintain fire protection and safety during and after the change of use, in alignment with s. 142 of the *EP&A Regulation 2021* will be met throughout the occupation of the site.

Consideration has been given to the *NSW Fire Safety in Waste Facilities Guidelines*, identified in the SEARs provided for this EIS. The guidelines are not relevant for this facility as it will fall below the threshold of 50m$^3$ of stored combustible material, as outlined in Table 1.

The Evacuation Diagram attached as Appendix M outlines the positioning of the fire hoses in the building. The building is also fitted with an overhead sprinkler system.

No windrow or in-vessel composting is undertaken at the Facility, and thus the normal composting process which generates heat through decomposition of sugars in food and plant waste does not take place. Instead, these sugars are converted using fermentation and also used as a source of nutrition for soldier fly larvae (bioconversion). There is no potential for fire to occur at the Facility as a result of the waste process which occurs. Stockpiles of waste will be limited to minimise the fire risk.

Loads of food waste in plastic packaging (approx. 60:40 ratio) will be tipped in loads no greater than 6.5T and processed immediately. Food waste, with a consistency and approximate moisture content of a sludge will be stored in six tanks of capacity no greater than 12kL and a total capacity of 50kL at the product density of 900kg/m3. The layout of the tanks is demonstrated in Appendix H. As described in the process flow, food waste is pumped into plastic trays of max 21L capacity held within the MIBS. Each MIBS contains 340 trays of this type. There is no waste loose or stored in the MIBS at any point during the process.

General waste (depackaged plastic mixed with residual organics) will be stored near the entrance to the premises in 3x3m metal skip bins. These bins will be emptied thrice-weekly by Cleanaway. This waste will be collected from underneath the depackager in a 1x1x1m plastic bin (no more than a weight of approx. 400kg).

There will be no activities likely to contribute to a fire undertaken within the building. Smoking is prohibited inside all Goterra facilities and staff members will be instructed to smoke in designated areas outside of the facility. As a sustainable business, we will also place strong requirements on staff that cigarette butts are disposed of appropriately. Additionally, works generating sparks, such as cutting, welding, and grinding, will not be undertaken at the facility on a regular basis.
In the event they are required for maintenance, safety protocols to mitigate fire risk will be undertaken via Hot Work Permits, including all electrical isolation controls, and the area cleared of potentially flammable material.

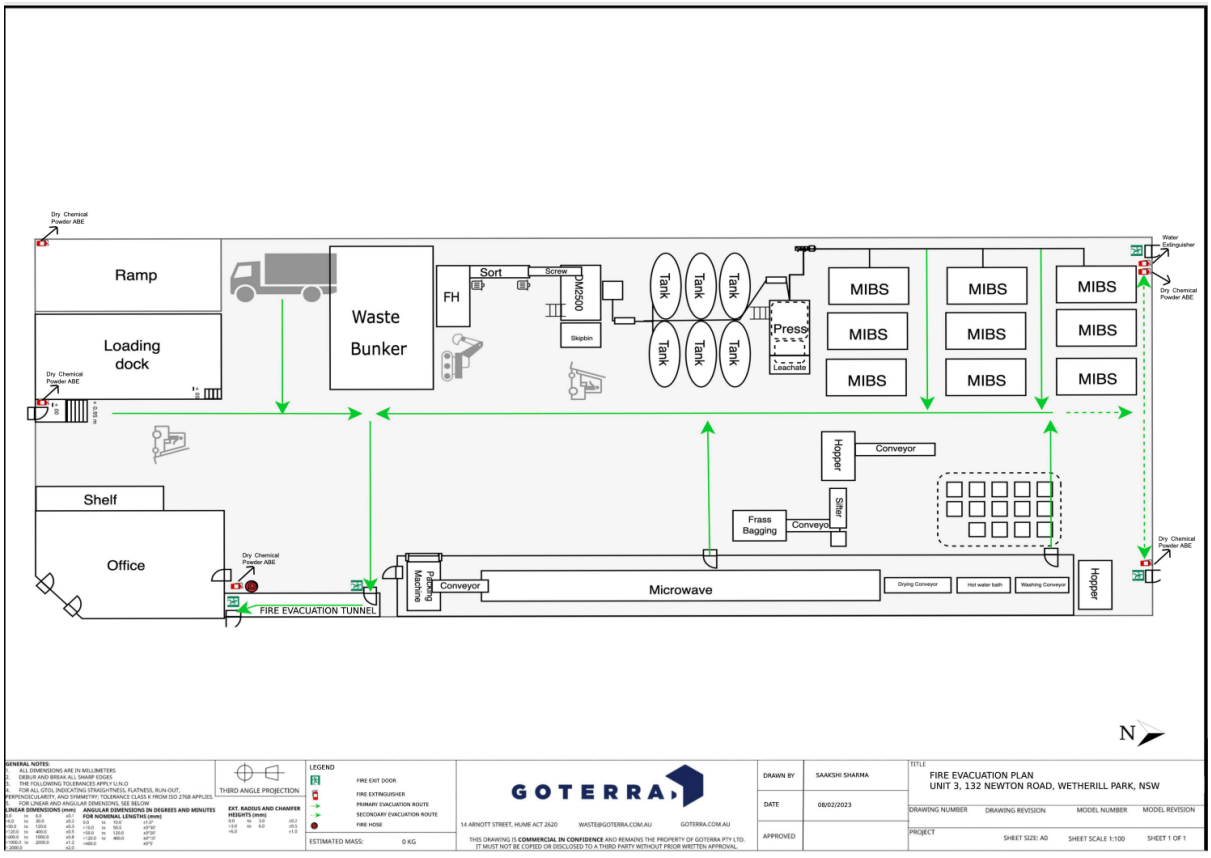


Figure 17 : Emergency Evacuation Plan

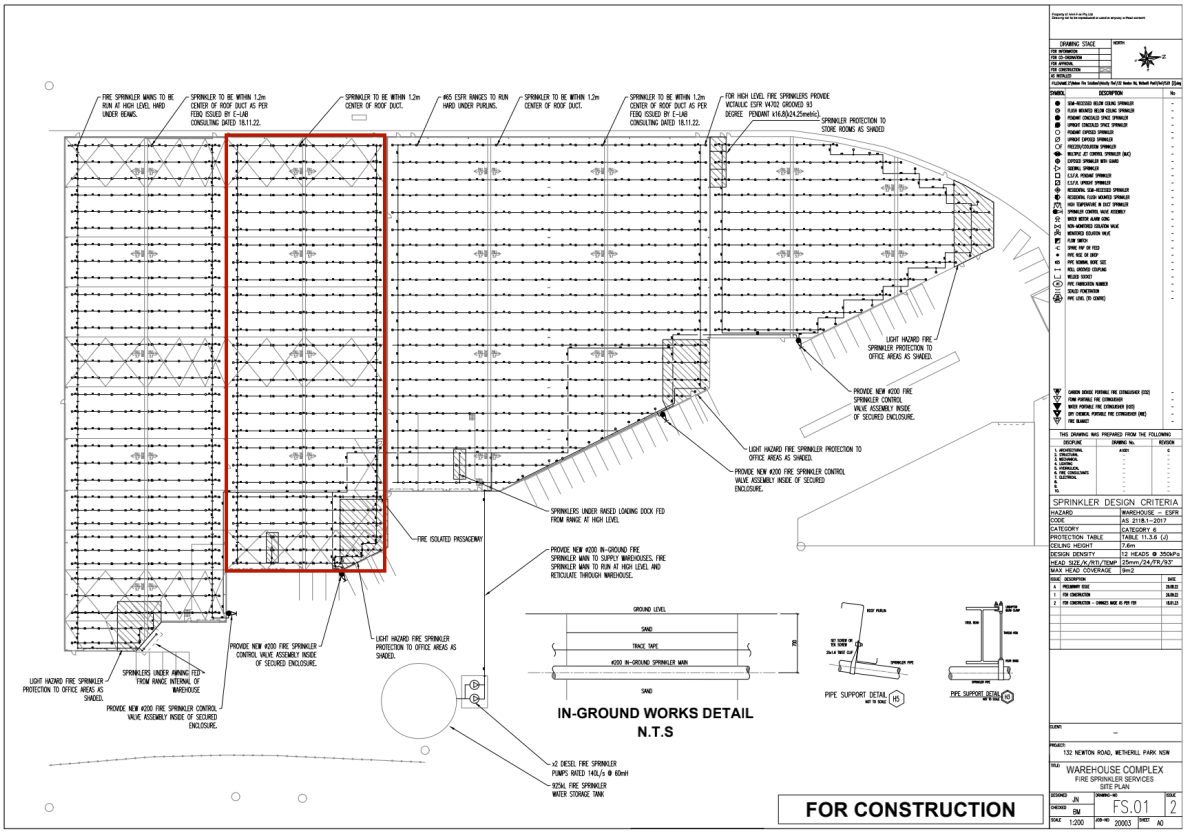



Figure 18: Fire Sprinkler Plan

The information on environmental protection equipment to be installed on the premises for incidents like spill have been detailed out in Table 13.

The premises are not identified as Bushfire Prone in Fairfield City Council's Bushfire Prone Map.

## 6.9 Security on Premises

In NSW, organic processing facilities need to consider security. Goterra will apply security policies at the Wetherill site inline with its ACT based facility. This includes signs, locks on the Facility at closure times and remote camera footage monitoring. As there are strict procedures for hygiene between the waste receival areas and the processing and production areas, only authorised and trained staff will be allowed on site. The complex is fenced and locked with access via key for tenants to access after hours if required.

All waste receival will be undertaken using Cleanaway waste management company who will be inducted in the Goterra contractor safety management program, and will therefore not enter the processing facility.

All Visitors reporting to this facility are required to perform an online visitors induction procedure. Visitor details are stored in the company's central database.

## 6.10 Closure of Premises

In NSW, before closure of a facility there must be a closure plan (NSW EPA, 2003). A closure plan will be undertaken when the facility is due for closure. However, it is noted that a modular organic food waste

processing system enclosed within shipping containers will be deployed in NSW. This allows for the immediate closure of the modular systems when desired, their removal, and redeployment elsewhere.

Sterilisation of the enclosed bunded area where waste is present during operation will be required at the time of plant closure. No other areas within the facility or any adjacent building would require any form of sterilisation. The cleaning of the bunded are will be conducted with appropriate disinfectant chemicals, and waste water will be collected and disposed of in the same manner as water used for cleaning during the operation of the site. There will be no egress of waste products into other units on-site due to the bunding and control measures to encapsulate waste.

No sterilisation for the continued safe operation of neighbouring units will be required during the operation or closure of the Goterra facility.

## 6.11 Flood Risk

As identified in the Wetherill Park Overland Flood Study 2015, 132 Newton Road may be impacted in a PMF (Probable Maximum Flood) event, constituting a Low Risk Precinct. A reproduction of the map from that study with the site outline overlaid is presented below. The approximate extent of such a flood has the potential to ingress upon the site. As demonstrated in the Survey Plan, the floor level of the site is 44.51m, compared to the 44.42m invert kerb perpendicular to the site at the stormwater channel.

The existing concrete floor is levelled with the floor height at the rear of the building (45.29m). An additional 100mm will be added with the bunding to contain the waste, making the effective height, relative to the surveyed ground level 45.39m. No waste will be below this level within the facility. A PMF of 0.95m or greater above the floor level would egress into the site - this level is at the very highest level of the once-in-a-century flood level. To mitigate this risk, end products; frass and protein, will be stored on shelving which is raised no less than 50mm from the floor level at its lowest shelving, and sandbags will be held on site to act as emergency bunding to increase the height of the existing bunding and prevent egress in waste receival. No equipment, product, or waste will be stored at the lower loading dock.

The impact of the development on flood behaviour of the site is non-existent. The impact of a 100mm bunding on the swell of water will not significantly impact the water level across the site in the highly unlikely event of a PMF. Additionally, no modification to the draining or course of potential flood water will be made under this change of use development.

With respect to safety and evacuation in the event of a flood, the height of the PMF and its spread does not cover the entire facility. Egress via the rear emergency exits will be unimpeded in the event of a PMF and occupants will be able to safely evacuate in that direction to higher ground.

The proposed development complies with all flood controls in the Fairfield City Wide DCP 2013: Chapter 11 Flooding. In accordance with Section 11.11, documentation from a registered surveyor has been provided confirming the existing floor levels. This development constitutes a concessional development in a floodplain, as a change of use which does not change the risk to property damage or personal safety.

A Flood Risk Assessment Report has been produced by Neilly Davies & Partners (Appendix P). It advises that all of the floor space, save for the loading dock area, are above the 1% AEP overland flooding. Only the entrance and the loading dock are affected by PMF. The flood control measures will be implemented according to the report. They align directly with the Plan of Management.

In accordance with the Report, all storage will be above the PMF. All chemicals will similarly be stored away from the dock and in a suitable chemical storage cabinet. Evacuation plans will be prepared and displayed, as will relevant signage of the affected areas with flood level indicators.

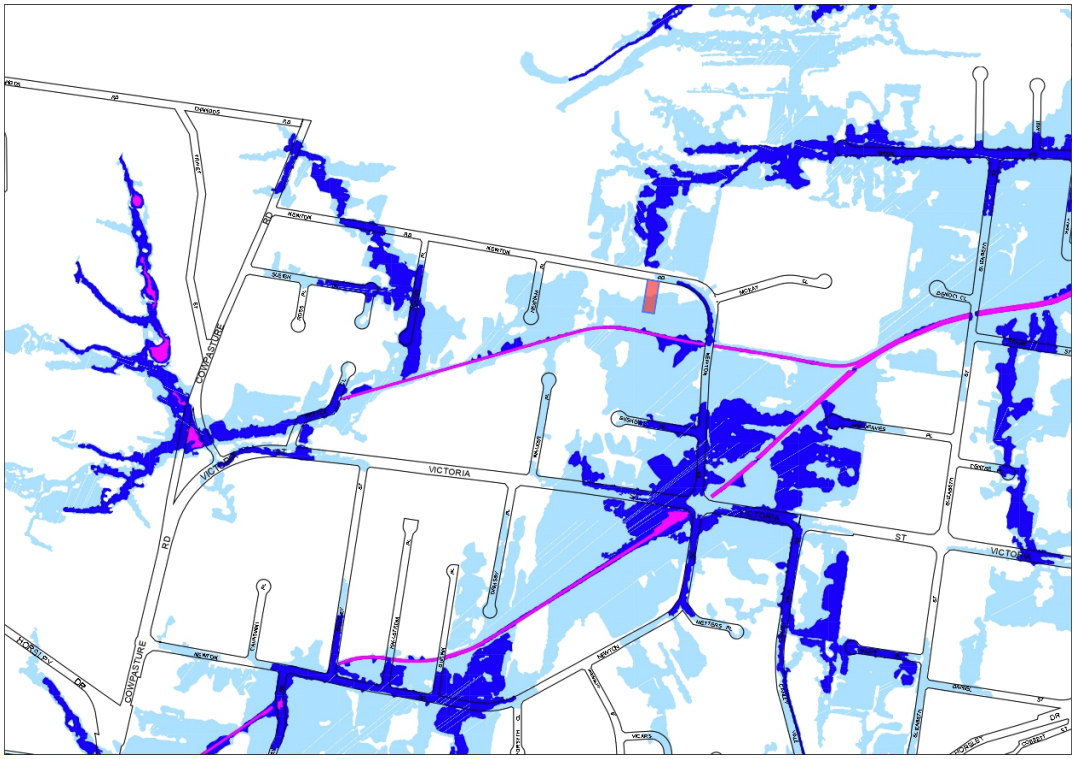



Figure 19 Approximate location of Unit 3 132 Newton Rd within an excerpt of Wetherill Park Flood Risk Precincts, Wetherill Park Flood Overland Report 2015. Legend: pale blue - Low Risk Precinct, dark blue - Medium Risk Precinct, pink - High Risk Precinct

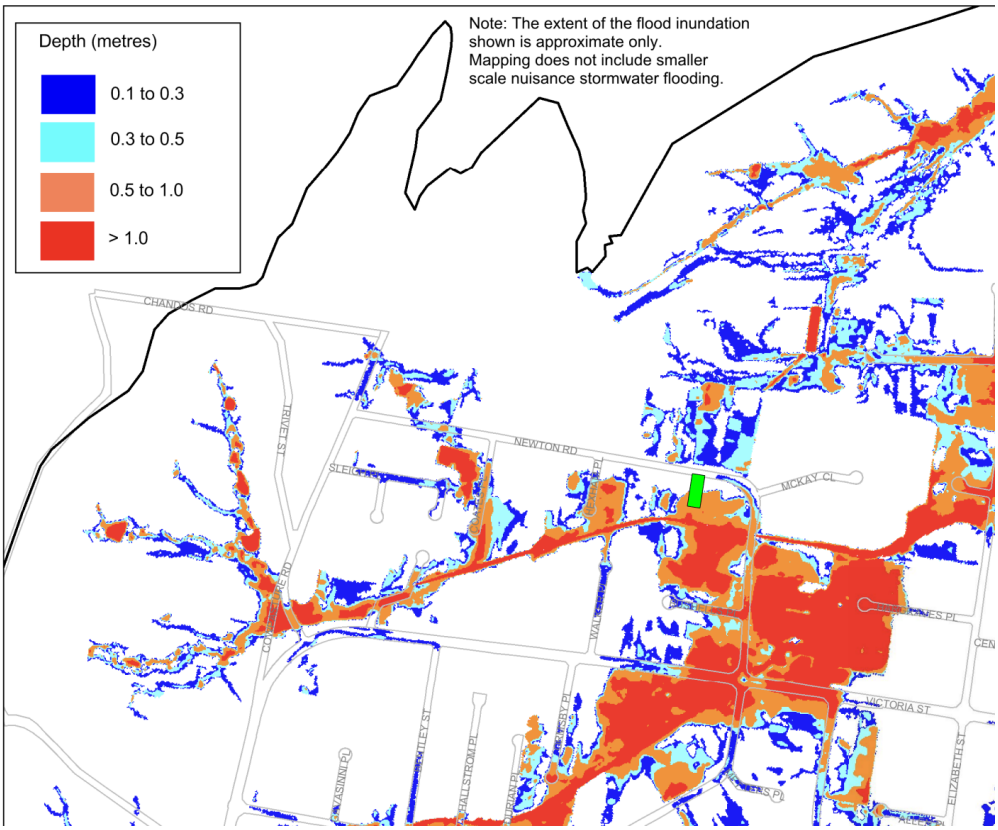



Figure 20 Approximate location of Unit 3 132 Newton Rd, Wetherill Park in excerpt of Probable Maximum Flood Map, Wetherill Park Flood Overland Report 2015.

## 6.12 Hazard Risk Assessment

The key hazards which can present risks — that is the potential to cause harm — to human health or the environment as a result of activities at Goterra's Fairfield facility are summarised in Table 13 Risk assessment of key characteristics (from section 3) using the method described in Section 6 . The method used to undertake this assessment is discussed in Section 5 and follows the NSW EPA guidelines.

**Table 13 - Risk assessment of key characteristics (from section 3 ) using the method described in Section 6**

| Item | Hazard/s | Receptor | Drivers and exposure pathways | Management | Risk |
|---|---|---|---|---|---|
| Garbage trucks<br>Bobcats<br>Macerate or<br>Conveyor and sifter | Noise/vibration | Site workers and workers on neighbouring properties | Number of trucks and/or machinery operating at any given time.<br>Time of day<br>Noise from all equipment<br>Site zoning | Facility situated within appropriately zoned land (E4 General Industrial).<br>Standard operational hours between 6am and 6pm, with collection times as per the Commercial Waste Industry Code of Practice.<br>Noise assessment to be undertaken for adaptive management.<br>Only one piece of machinery operated at any time and all machinery to be maintained in accordance with instructions. | Low |
| Air inc.: dust, bio-aerosols, methane, odour and green-house gases | Odour, bioaerosols, dust, methane, or greenhouse gases | Site workers and workers on neighbouring properties<br>People visiting nearby nature parks | Time from receival to processing of waste<br>Temperature and wind direction<br>Type of waste when received<br>Site zoning | Facility situated within appropriately zoned land (IZ1: General industry).<br>Odour assessment to be undertaken for adaptive management.<br>Waste is processed as soon as it is received at the Facility, and enters enclosed spaces on the same day.<br>Processes are mostly enclosed and aerobic, thus do not emit odour.<br>Biofilter use on conversion MIBs, with air intake for oxygen, and are serviced monthly<br>Frass has a mild odour, and is stored in a separate enclosed area. | Low |
| Pest control: Blow flies, rats and mice | Pathogens, plant propagules | Soldier flies Site workers | Waste processing providing opportunities for pathogen transmission<br>Poorly managed site hygiene | Same day processing of waste, including enclosed vessel processing after maceration<br>Wash down of waste area daily to remove waste | Low |
| Land | Waste entering land | Land immediately outside facility | Waste on truck wheels or wastewater | Bunding around all waste areas, with sumps to avoid connection to land.<br>Tyres of vehicles will be washed in a bunded area should any waste accidentally adhere. | Low |

| Item | Hazard/s | Receptor | Drivers and exposure pathways | Management | Risk |
|---|---|---|---|---|---|
| Food waste<br>Municipal and recycle- ables<br>Frass<br>Waste water | Waste | Site workers Surface water Land | Time from receival to processing of waste<br>Screening procedure<br>Waste storage<br>Waste water management | Waste manually screened when received via conveyor. All contaminants removed and placed in recyclable or municipal waste bins with lids undercover.<br>Waste volumes captured electronically and recorded.<br>Waste water caught in bunded areas, enters the sump prior to discharge. Recycling of non contaminated streams.<br>organic food waste is not stored on site, but immediately processed. After maceration, organic food waste is placed in enclosed storage tanks .<br>Frass is considered manure as per Compost Order 2016 (NSW EPA) and is sent to composters for full processing including 15-day pasteurisation. | Low |
| Litter: organic food waste screening or staff | Pollution | Surface water | Stormwater, via wind | Waste manually screened when received via conveyor, all contaminants removed and placed in recyclable or municipal waste bins with lids undercover. Site cleaned from any incidental litter. All organic food waste processed immediately and vehicles tyres washed in bunded area as needed | Low |
| Water – surface and groundwater | Leachate Waste water | Surface water<br>Groundwater | Stormwater connection to surface water<br>Exposed land connected to groundwater | Bunding around all waste areas, with sumps to avoid connection between leachate or wastewater source and stormwater<br>Tyres of vehicles will be washed in bunded area should any waste accidentally adhere<br>Leachate collection systems and reintegration into process along conveyor and macerator<br>After maceration, all waste is placed in enclosed storage tanks with positive displacement pumps moving waste throughout the process<br>Hardstand, bunds, and aprons used in areas where trucks in- and egress, receiving areas and throughout process areas, including areas surrounding sumps for discharge. | Low |
| Household chemicals: bleach, vinegar, Agar HC-90 | Chemical burns | Site workers Soldier flies Surface water, land | Spills | Stored and used in a bundled and undercover area, with sump. Chemicals used will be done so in accordance with the label. | Low |

| | | | | | |
|---|---|---|---|---|---|
| Fire Management | Fire caused by organics | Air, water, land Site workers | Fire caused by spontaneous combustion | Processing of waste through fermentation and nutrition for soldier flies means that there is no composting being undertaken at the Facility that could cause a fire. Fire management plan to be followed. | Low |

| Item | Hazard/s | Receptor | Drivers and exposure pathways | Management | Risk |
|---|---|---|---|---|---|
| Pollution incident from unplanned event (NSW EPA Only) | Leachate spills, unusual odour, methane | Workers<br>Neighbouring workers<br>Surface water<br>Land<br>Groundwater | Uncontrolled event or spills exiting bunded/controlled areas<br>Conversion process becomes anaerobic or methanogenic by mistake | On the vehicle - we have broom, shovel, water, and sand as well as relevant PPE - gloves, facemask and goggles. Should a spill occur either in the vehicle or outside of the vehicle, the protocol for cleaning the spill is as follows:<br>1) Place a barrier of sand around the spill.<br>2) Use the shovel to collect the spill and return it to a bin.<br>3) Cover the spill area with sand to collect any particles.<br>4) Shovel the sand into the bin.<br>5) Wet the area with water and cover again with sand.<br>6) Allow the sand to soak up the water.<br>7) Shovel the sand into the bin and then sweep the area clear.<br><br>On site we have the following measures at the point of processing:<br>1) All bins are placed on a concrete pad.<br>2) Broom, shovel, water, and sand as well as relevant PPE - gloves, facemask and goggles.<br>3) Bleach cleaning agent.<br><br>We utilise the same process to manage any spills or unintentional drops. .<br><br>Pollution Incident Plan is required for NSW. | Moderate |
| Closure of premises | Clean up of site to ensure no site contamination at the closure of the premises | Water, land | Leftover waste or infrastructure impacting on land or water | Modular system means everything is contained, and can be removed from site without any impact to site. Any incidental spills or pollution events prior to site closure will be managed using the Pollution Incident Response Management Plan | Low |
| Security on premises | Unauthorised access to site | Site workers, maggots | N/A | Only Goterra staff are allowed within the Facility due to strict hygiene rules.<br>Signage, locks and remote monitoring. | Low |

# 7. Monitoring, evaluation and adaptive management

An outline is in this section of the mitigations for the likely environmental risks associated with this activity. It has been drafted in accordance with NSW EPA guidelines for assessing environmental risk.

## 7.1 Noise Management

A noise assessment using the NSW EPA guidance (EPA NSW, 2003) has been undertaken during the commissioning phase at the Facility to determine any sources of noise and vibration that may occur at the Site.
A Construction Noise Assessment was conducted and based on the Sound Power Level of the tools required to fix trays to the walls and them being used in an enclosed space the NSW DECC Interim Construction Noise Guideline (2009) will not be exceeded at the surrounding industrial noise receivers.

The theoretical and practical assessment using existing equipment at the Goterra facility in Hume, Canberra will form the basis of requirements in relation to WHS Regulation 59 will ensure that acceptable standards and an adequate level of employee and public amenity is maintained. This assessment will be used for understanding the specific performance requirement of the Site and adaptive management at the Site, which will be in addition to the control measures discussed in Section 5.1. Goterra will keep records of all complaints including name, phone number, times and dates and associated action.
A Noise Impact Assessment was carried out for the change of use DA for the proposed composting facility located at 3/132 Newton Road, Wetherill Park.
The vibration measurements of vibratory plant from Goterra's ACT facility are based on the Vibration Dose Value measurements should plant items operate continuously over a 24-hour period at the proposed Wetherill Park facility the Human Comfort Criteria will not be exceeded at the adjacent receiver warehouses. The report also notes that the vibration expected from the depackager is low enough to not impact human comfort and can be installed directly into the slab.
The Noise Impact Assessment predicted the noise emissions generated from within the facility and by the delivery/dispatch vehicles at the nearby industrial noise receivers and were found to comply with the Fairfield City Council and NSW EPA Noise Criteria.

All operations will be undertaken in accordance with Appendix C, especially with regards to vibrating machinery. Machinery will be certified to be within scope for their operation before commencement.

The absence of complaints regarding noise will be considered to be the measurement for success of noise management.

## 7.2 Odour

As discussed in Section 6, odour is the only likely offensive risk from the facility. Goterra has undertaken an odour assessment of their Fairfield facility. This has been undertaken using the NSW
guidelines Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (EPA 1998). This will be used to determine if any additional controls are required, and that the current process of fermentation, aerobic conversion, biofilters and containerised systems minimises odour.

An odour management plan is required in NSW (EPA NSW, 2003). The odour management plan for Goterra includes:

- Odour control equipment and/or testing – biofilters on the MIBs with monthly testing
- Best practice management of organic food waste to minimise odour – organic food waste will be processed on the same day it is received, and then enters a fully automated and enclosed system. Waste receival areas will be washed down daily, and all leachate from the conveyor and macerator is collected and put back into the process. After this process, all waste is enclosed with a biofilter on the MIB for larvae conversion of waste.
- Inventory of odour sources – The odour assessment will identify locations of odour, which will then be added to our inventory and regularly inspected.
- Frass will be stored in closed bags, within an enclosed area, and shipped from site in accordance with the NSW Compost Order 2016.
- Monitoring and recording – odour monitoring will occur periodically using the NSW guidelines within best management practice for waste facilities. Adaptive management practices will be undertaken accordingly.
- Effective implementation of the Pollution Incident Response Management Plan in the event of any incident
- Proactive prevention and investigation of complaints, including relationship management with neighbours
- Maintenance of odour equipment – biofilters / air scrubbers will be cleaned/ serviced monthly

All controls as per the odour management plan will be put in place to prevent odour based pollution, and success will be measured by the absence of complaints. Adaptive management at the end of each yearly odour assessment will be undertaken as needed.

The odour risk mitigation being done on site have been demonstrated in the plans for different zones below:

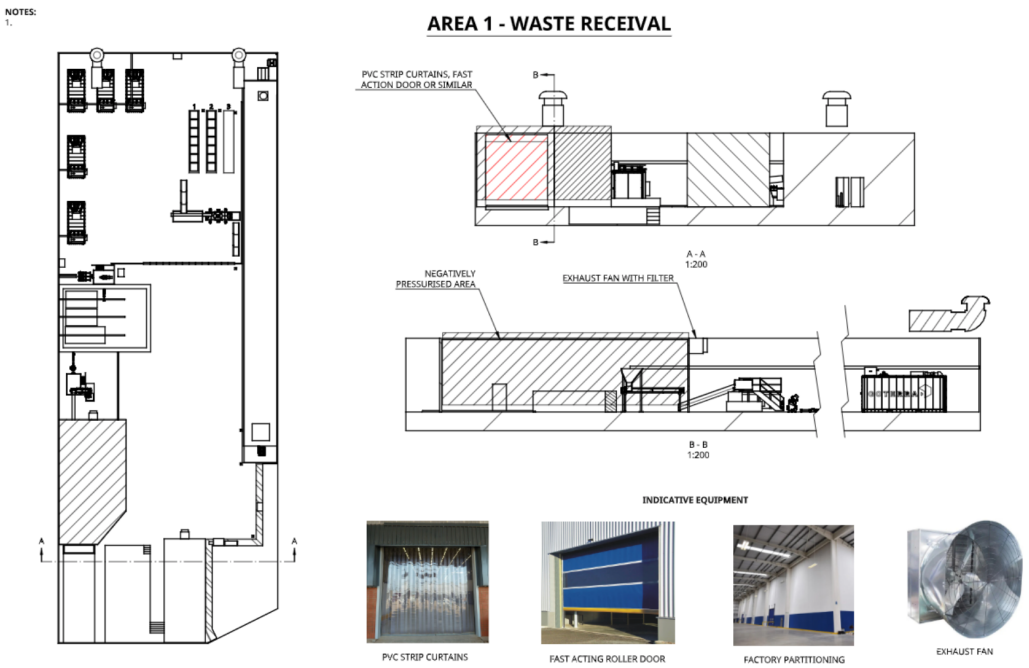
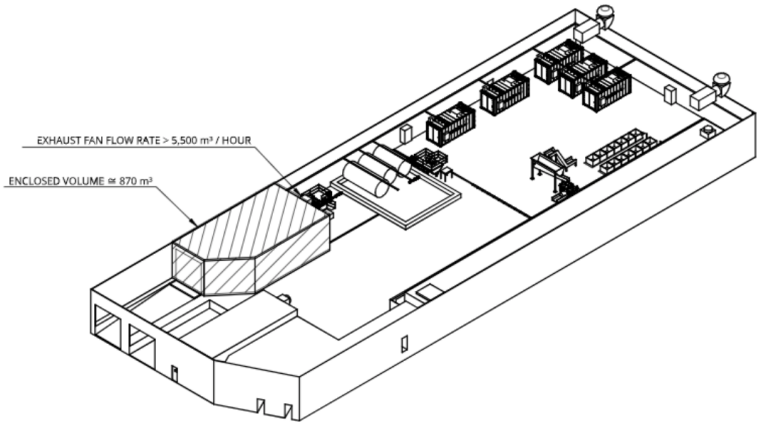


Figure 21 : Odour mitigation for Waste Receival Area

NOTES:
1.

**AREA 1 - WASTE RECEIVAL**




| VOLUME AND EQUIPMENT TABLE | | | |
|---|---|---|---|
| ITEM / LOCATION / EQUIPMENT | PARAMETER | VALUE | UNIT |
| ENCLOSED AREA | VOLUME | 868 | m³ |
| | DOOR OPENING SIZE | 25 | m² |
| EXHAST FAN | FLOW RATE | >5,500 | m³ / h |
| FRESH AIR | VELOCITY THROUGH OPENING | 0.06 | m / s |
| | AIR EXCHANGES PER HOUR | > 6.3 | ACPH |

Figure 22 : 3D view showing the mitigations

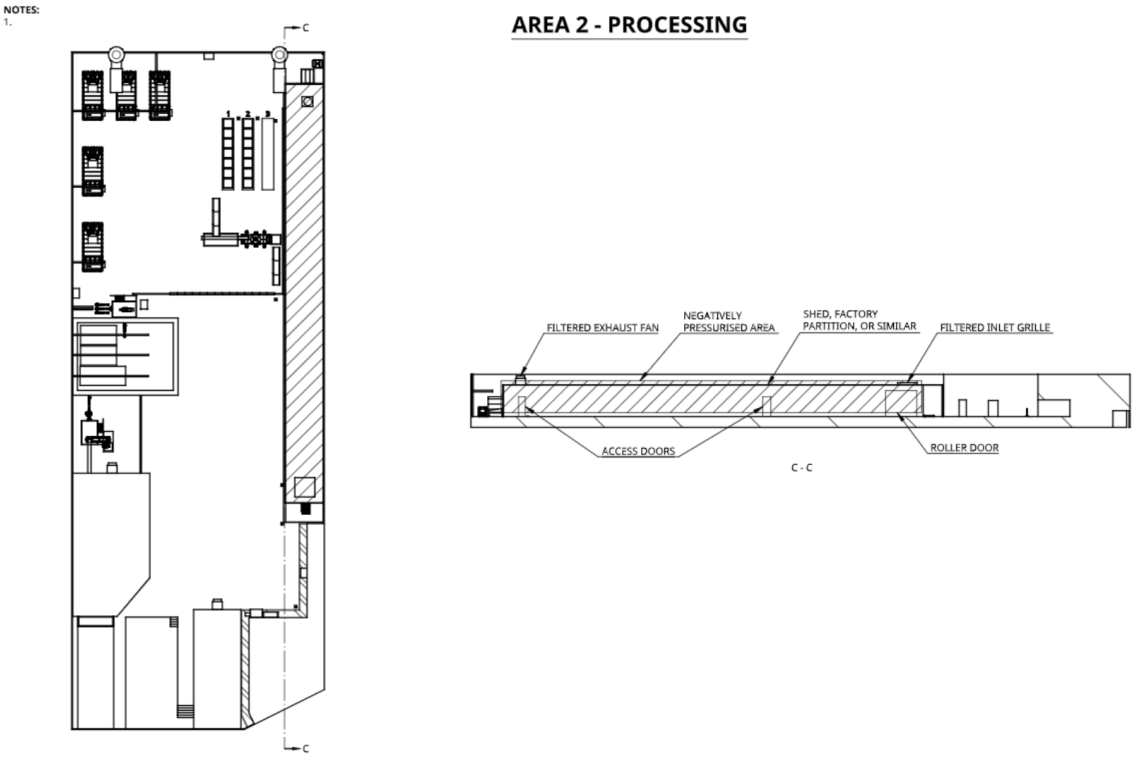
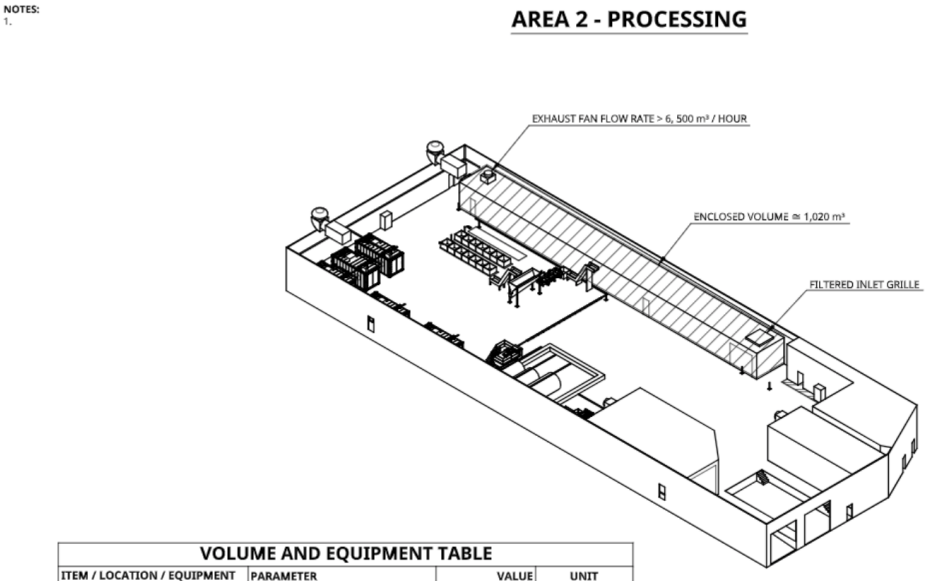



Figure 23: Odour mitigation for Processing Area




**VOLUME AND EQUIPMENT TABLE**

| ITEM / LOCATION / EQUIPMENT | PARAMETER | VALUE | UNIT |
|---|---|---|---|
| ENCLOSED AREA | VOLUME | 1,021 | m³ |
| | INLET GRILLE AREA | 6 | m² |
| EXHAST FAN | FLOW RATE | >6,500 | m³ / h |
| FRESH AIR | VELOCITY THROUGH OPENING | 0.3 | m / s |
| | AIR EXCHANGES PER HOUR | > 6.4 | ACPH |

Figure 24 : 3D view showing the mitigations

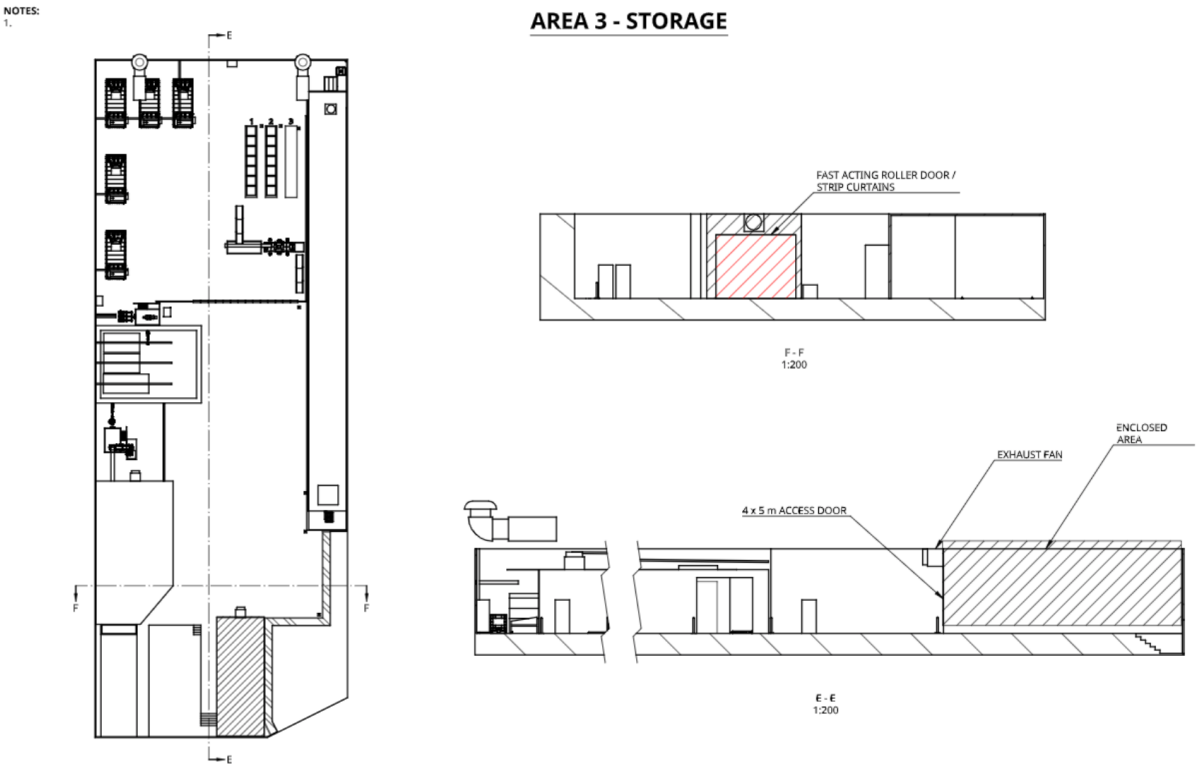
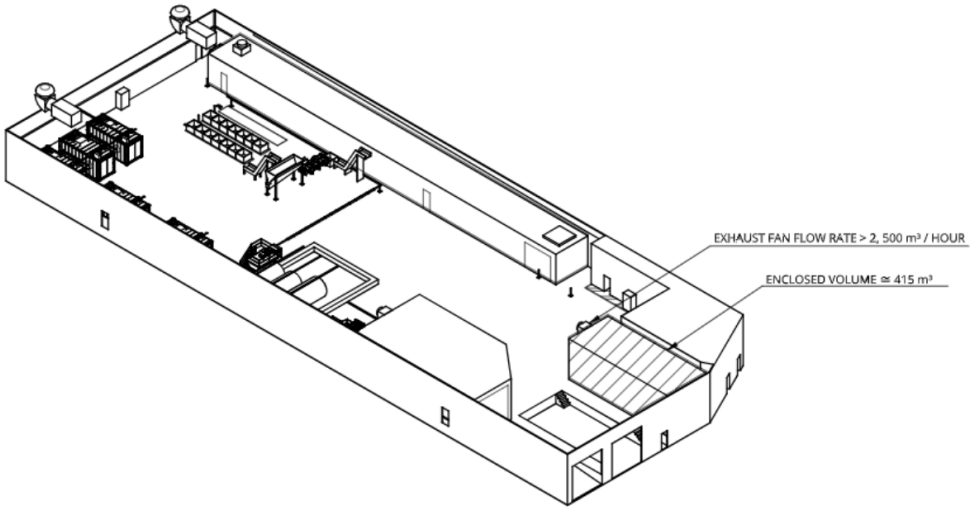



Figure 25: Odour mitigation for Storage Area

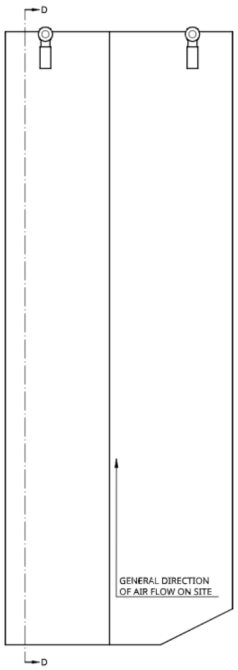
## AREA 3 - STORAGE

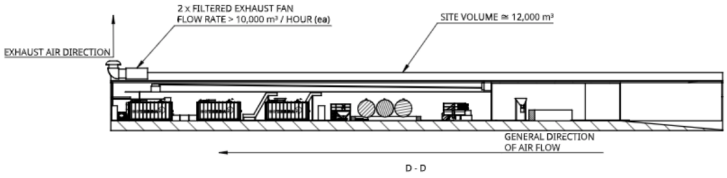



| VOLUME AND EQUIPMENT TABLE | | | |
|---|---|---|---|
| ITEM / LOCATION / EQUIPMENT | PARAMETER | VALUE | UNIT |
| ENCLOSED AREA | VOLUME | 469 | m³ |
| EXHAST FAN | FLOW RATE | > 3,000 | m³ / h |
| FRESH AIR | AIR EXCHANGES PER HOUR | > 6.4 | ACPH |

Figure 26: 3D view showing the mitigations

## AREA 4 - WHOLE OF SITE




| VOLUME AND EQUIPMENT TABLE | | | |
|---|---|---|---|
| ITEM / LOCATION / EQUIPMENT | PARAMETER | VALUE | UNIT |
| SITE | VOLUME | 12,000 | m³ |
| | DOOR OPENING SIZE | 43.3 | m² |
| EXHAST FAN | FLOW RATE | > 20,000 | m³ / h |
| FRESH AIR | VELOCITY THROUGH OPENING | 0.13 | m / s |
| | AIR EXCHANGES PER HOUR | > 1.67 | ACPH |

Figure 27: Section of site showcasing the odour mitigation

## 7.3 Waste Management

As per previous sections, including Table 1 & 3 and Section 6.2, identify sources of waste received and generated at the Site. It also includes identifying quality, storage and outgoing materials, and consideration of the Waste Avoidance and Resource Recovery Act in NSW with minimal unavoidable waste generated on the Site through recycling and municipal waste from screening or as frass which is reused by composters as per the NSW Compost Order. Wastewater is the only other by-product, and will be discharged through Sydney wastewater treatment works and reuse onsite to be considered. The flow diagram, Table 3, includes how waste is being screened and recorded, including the user-input systems and weighing of waste entering the Facility.

Appropriate management of waste will have deemed to have been achieved when:

- All waste entering the Site is recorded, including weight, source and correctly identified as food waste. All clients and contaminants are also tracked and recorded.
- All waste entering the Site is screened
- Municipal and recycling generated from screening by staff, are stored in enclosed spaces (bins and bags) and undercover
- All residual waste exiting the Site is recorded in terms of weight, and appropriately managed through licensed facilities
- Frass is dispatched via the Compost Order to a facility licensed to receive it
- Volumes of waste do not exceed the licencing threshold
- When organic food waste is contained to the receival, waste and processing areas
- Storage of waste does not exceed design requirements of the Facility e.g. only 150T of organic food waste is processed per day on site

## 7.4 Land and Water

Wastewater and leachate are the two biggest hazards to land and water at Goterra. These hazards are controlled by a range of practices and engineering solutions including bunds, aprons, concrete hardstands, leachate collection drip trays, enclosed waste processing and automated pumps. See Section 6.3 for more details. As the system is contained and connection to the external environment is removed, it is highly unlikely that there will be any discharges to land or water. Ongoing monitoring of land and water is not required due to the low risk of discharges. Instead equipment including bunds, sumps, and leachate systems will be maintained as per design requirements. Management is considered to be successful when ongoing maintenance of wastewater and leachate systems results in no-unintended spills.

In the highly unlikely event of a flood impacting the facility, any water that has ingressed into the site will be managed in the same fashion as leachate from the processing plant.

In NSW, water assessment reports are written when there is a failure of a leachate management or water management system and there has been an incident. This then follows with a water pollution remediation plan. This will be included in our Pollution Incident Response Management Plan for NSW facilities.

## 7.5 Pest control, pathogens, plant propagules

Pest control measures are described in Section 6.5. Goterra's facility will be monitored daily for pest activity as part of site cleaning and hygiene procedures. It is unlikely for any pests to be present on the Site given the hygiene and waste management practices. As these pests can directly interfere in the food conversion process, it is essential that they do not occur on site. If a pest is detected on site, immediate adaptive management will be undertaken. Management of pests is considered successful with no detection of pests.

## 7.6 Litter

Litter management is described in Section 6.6. Management of litter is deemed successful when it does not go outside the Site boundary of the premises. This is determined as the absence of waste and litter on roads and the absence of litter after a windy work day. If either of these things are detected, waste storage and tyre washing procedures will be reviewed.

## 7.7 Household Chemicals

Management of chemicals is discussed in Section 6.7. The management of chemicals is deemed successful with no incidental spills, and if spills occur that they only happen in bunded areas. No chemicals should leave bunded areas.

## 7.8 Fire Management

As per section 6.8, fire generated by waste on the Site is very unlikely given the form of waste conversion process.
Goterra has a fire management plan as part of the WHS and facility safety practices. It includes:

- Emergency evacuation plan, including signposting throughout the site
- Fire extinguishers and blankets, multiple egress options signposted throughout site
- Fire escapes are kept free from blockages with clearance for doors.
- WHS induction process to assist new staff in identifying fire safety equipment, exits, and assembly locations.

## 7.9 Security on Premises

Security is discussed in Section 6.9. This management regime prevents unauthorised entry due to strict hygiene requirements. In the event guests are hosted at the facility, they will be thoroughly inducted and provided with appropriate protective clothing. They will also be chaperoned at all times by an experienced member of Goterra staff. Entrances to the facility will be locked when unattended and there are existing security lights in place throughout the facility to assist with prevention of crime. Success of security will be in no unauthorised access at the Site and procedures for preventing access. Should unauthorised access occur, a review of the incident and adaptive management will be undertaken accordingly.

## 7.10 Closure of Premises

Closure plan as per Compost Guidelines NSW is discussed in Section 6.10. Success of closure in NSW will be in the removal of the Facility with no residual contamination. This is possible through the use of fully-enclosed mobile plants. All plant and equipment is temporary, therefore, no permanent fixtures will be made to the building for the successful operation of the waste facility.

## 7.11 Traffic and Parking

Transport for NSW (TfNSW) have requested, as part of the SEARs process, an assessment of traffic safety on the site, swept path diagrams for access to the site, transport routes to the site, and any required road upgrades. This proposed change of use will have a minimal impact on the road network in Fairfield City Council and the wider Sydney region. No road upgrades or new roads are required to be constructed for this change of use.

**Local Transport Network**

The site is accessible by vehicle in a forward direction via Newton Rd. Newton Rd is situated in an easterly direction to the M7 (connected via Victoria St and The Horsely Dr), the M4 in a southerly direction (connected via Prospect Hwy), and the A28/Cumberland Hwy in a westerly direction, connecting via Victoria St. In this section, a reference to the main thoroughfare (M4, M7, and Cumberland Hwy) implies a reference to the connecting roads.

Goterra encourages staff to use public transport wherever possible, in alignment with our sustainability mission. Failing that, we also encourage staff who live close to each other to carpool when convenient. The hiring strategy for the site will be to seek staff that live in the local region so travel from other parts of Sydney for staff is thought to be unlikely, increasing the likelihood staff are able to use the below outlined public transport routes.

Bus services operate across western Sydney and service many residential areas close to the site. A Fairfield to Smithfield and Wetherill Park Industrial Area (Loop Service) (route 814) stops immediately adjacent to the site at the Newton Rd before McKay Cl stop. This service operates hourly. The site is additionally serviced by more frequent bus routes which stop at the Victoria St T-Way Station, 1km (or an 11 minute walk) away. These services connect various major residential hubs in Western Sydney to the site, including Fairfield (800, 812, 814), Parramatta (806, T80), Liverpool (806, T80) and Blacktown (800, 812) and operate every fifteen or thirty minutes, depending on time of day and particular route.

Bus routes also connect the closest train station (Fairfield) to the site. Fairfield train station is situated on the T2 (City to Leppington via Parramatta) and T5 (Richmond to Leppington) train lines, connecting the city and western suburbs of Sydney to the site.

These transport routes also complement active travel, including cycling and walking. Bicycle parking will be provided within the office space of the facility should a staff member choose to cycle, noting that there is no requirement for bicycle parking under the DCP. The Victoria St T-Way Station is an eminently walkable distance from the facility.

As Goterra intend to primarily hire staff living in the Fairfield City area, we predict any staff that drive a personal vehicle to the site will be arriving from the south east, using local roads (eg. Polding St) to connect to Victoria St and then onto Newton Rd. It is not anticipated that staff will use the Cumberland Hwy, the M4 or the M7 to travel to work.

**Traffic Impact**

As outlined in the Plan of Management submitted with this EIS, this site is expected to have a small number of movements both inbound and outbound during the course of a day. The table below outlines expected movements per week. It conservatively assumes two full shifts of six staff operating seven days a week. It is expected that the Site Manager and MIB Operator roles will not be on-site seven days a week.

| Movement Type | Vehicle Type | Example Vehicle Dimension (m) (l x h x w) | Example Make / Model | Movement Frequency (inbound + outbound) | Inbound Direction | Outbound Direction |
|---|---|---|---|---|---|---|
| Waste Receival | MR or HR waste truck | 11.6 x 4.5 x 2.5 | Volvo FM Series | 52 | M4 or M7 - see Table 15. | M7 |
| Water Collection | MR or HR waste truck | 11.6 x 4.5 x 2.5 | Volvo FM Series | 6 | M7 | M7 |
| Waste Collection | MR or HR waste truck | 11.6 x 4.5 x 2.5 | Volvo FM Series | 3 | M7 | M7 |
| Biological Service | Light van or truck | 6.2 x 2.3 x 1.8 | Hino 300 | 6-8 | M7 | M7 |
| Sales Collection | MR truck | 10.5 x 2.4 x 2.7 | Hino 500 | 8 | M7 | M7 |
| Staff | Light car | 4.9 x 1.4 x 1.8 | Toyota Camry | 72 | Assumed to be local traffic via Victoria St | Assumed to be local traffic via Victoria St |
| Visitors | Light car or van | 5.3 x 2.0 x 2.0 | Hyundai Staria | 2-6 | M4 | M4 |

*Table 14: Expected Movement Details **per week***

The majority of movements to site are from waste receival and staff. Routes for waste receival trucks are described below and maps have been provided as Appendix V. This number of movements per week represents a low impact on the local and wider traffic network.

Cleanaway has provided transport routes for existing services which currently deliver waste to a facility at Erskine Park. They have indicated that routes may be subject to change for efficiencies or as clients change. It is highlighted that these are *existing* routes, so this change of use will only have the effect of changing the final destination from Erskine Park (via M4 or M7) to Wetherill Park, via the M4 or M7. Erskine Park will be the outbound destination for the waste collection trucks, hence all are outbound from the site to the M7. There will be no additional waste trucks on the roads in Sydney as a result of this development. The only substantial change will be those trucks using the Cumberland Hwy or The Horsely Dr as arterial routes to the site.

The routes that have been identified by Cleanaway for service are outlined below. Appendix V contains additional routes which Cleanaway have indicated as potential routes that could be serviced by Goterra

at Wetherill Park, however, not all routes will be able to be serviced at once due to the volume restrictions on the site. The routes identified below have been provided to Goterra by Cleanaway as their preferred routes to be directed to Wetherill Park.

| Route | Truck Type | Days Serviced by Goterra | Arrival | Description of route |
|---|---|---|---|---|
| 511 | HR | Mon-Fri | 2pm | Area bounded by the M4 in the south, M7 in the north and west and Lane Cove Rd in the east. **Access to Wetherill Park via M4.** |
| 527A | HR | Mon-Fri | 3pm | Northern route continuing east along the M5, extending to the A3 (King Georges Rd) exit, continuing along the A34 (Canterbury Rd) to the Princes Hwy. Turns south along the Princes Hwy servicing the Sutherland Shire, before joining the A6 (Heathcote Rd). Continues southwest from the Moorebank Rd intersection through local roads to Western Sydney University, before joining the M31 (Hume Hwy). **Access to Wetherill Park via M7.** |
| 527B | HR | Mon-Fri | 1pm | Services northern Sydney, bounded by the A3 (Mona Vale Rd) continuing south along the A8 (Pittwater Rd) to the Northern Beaches. The route continues north along local roads to the A38 (Warringah Rd) intersection at Frenchs Forest, where it continues southwest to the M2 which connects to the M7. **Access to Wetherill Park will be from the M4 after exiting the M7.** |
| 166 | MR | Mon-Fri | 12pm | A main loop, encompassing an area bounded by the M7 in the west, M4 in the north, M5 in the south and the A6 (Rookwood Rd). A secondary loop, connected to the M7 via the A6 (Alfords Point Rd) to the Sutherland Shire and north to the Bayside Council area via the A1 (Princes Hwy) . Connection back to the M4 via the A3 (King Georges Rd). **Access to Wetherill Park via M4.** |
| 167 | MR | Mon-Fri | 11am | A loop currently east from Erskine Park to the M7 at Eastern Creek, exiting at The Horsely Dr continuing to a loop bounded by Cowpasture Rd/Camden Valley Way in the northwest, A9 (Narellan Rd) in the southwest, A28 (Campbelltown Rd) in the southeast, and Elizabeth Dr in the northwest.<br>A second loop continues north along Cowpasture Rd at the intersection with Elizabeth Dr through local roads to the A2 (Windsor Rd) at Box Hill, before continuing back south via local roads to the A44 (Great Western Hwy) to Penrith, joining the M4 at Jamisontown. **Access to Wetherill Park may be via M4 or Cowpasture Rd, depending upon Cleanaway's preferred sequencing.** |

| | | | | |
|---|---|---|---|---|
| 515 | HR | Sat-Sun | 8pm | Servicing local roads in the Bayside Council area, connecting to the City of Ryde via the M8/M4 and the A3 (Church St). **Access to Wetherill Park via M4.** |
| 574 | HR | Sat-Sun | 3pm | A service incorporating the 527B route (Northern Beaches), with an additional loop through Bayside Council and Waverley Council. **Access to Wetherill Park via M4.** |
| 171 | MR | Sat-Sun | 2pm | A loop continuing south along the M7 to the M5 until the A6 (Fairford Rd) exit. Continues south to the A6 (Heathcote Rd), turning north along the A1 (Princes Hwy), turning northwest along the A3 (King Georges Rd). Continues through local roads at Greenacre to Sydney Olympic Park, before returning via the M4. **Access to Wetherill Park via M4.** |

Table 15: Cleanaway Route Summaries

Traffic impact to the site will be additionally mitigated by scheduling arrivals for off-peak hours, as outlined in Table 16: Waste Receival Schedule. The scheduling of trucks will avoid the risk of trucks queuing - as shown, there is at least an hour between expected arrivals and the receival of waste takes no longer than fifteen minutes, allowing ample contingency time.

| **Hours** | **Days of the Week** | **Operational Type** |
|---|---|---|
| All Day | Mon - Fri | Internal Production and Processing |
| 11H00 - 22H00 | Mon - Fri | Waste Receival |
| 14H00 - 20H00 | Sat - Sun | Waste Receival |

Table 16: Waste Open Hours

| **Arrival Time** | **Departure Time** | **Operational Type** | **Access** |
|---|---|---|---|
| 08H00 | 16H00 | Staff Shift 1 | Parking Spaces |
| 08H00 | 13H00 | Wastewater Collection | Loading Dock |
| 08H00 | 13H00 | Biological Service | Loading Dock |
| 12H00 | 12H15 | Organic Waste Receival (1 of 4) | Ramp |
| 13H00 | 13H15 | Organic Waste Receival (2 of 4) | Ramp |
| 14H00 | 14H15 | Organic Waste Receival (3 of 4) | Ramp |
| 16H00 | 22H00 | Staff Shift 2 | Parking Spaces |
| 14H00 | 16H00 | Sales Collection | Loading Dock |
| 15H00 | 15H15 | Organic Waste Receival (4 of 4) | Ramp |

| | | | |
|---|---|---|---|
| 16H00 | 16H30 | General Waste Collection | Loading Dock |

Table 17: Arrival and Departure Movements per day

The traffic impact for other types of movements will be negligible. Waste collection for the plastic material discharged by the process will be three times a week, with a Cleanaway truck accessing the site via the M7 from Erskine Park. Goterra biological service and sales collection routes will connect from Canberra via the Hume Hwy and M7. Each of these three types of service will not impact upon the waste receival ramp, instead utilising the loading dock available. It is expected that services will arrive at Wetherill Park around 10am and depart before 10:45am. This timing will avoid conflict with the current waste receival routes, and with peak hour traffic heading north from Campbelltown and other southern population centres. Visits, when necessary, will be arranged during business hours to avoid unnecessary impact to the road network during peak hours.

**Parking Survey**

A parking survey was conducted at the Goterra site at 9am on 7 July 2023 - noting the office hours are 8am to 4pm. Pictures are attached. It revealed that 19 vehicles are parked on site with 18 individuals on-site. Of the 19 vehicles, one is a company truck, one is a guest, and the remaining 17 are staff vehicles. A total of 42 individuals work from the Hume site, however, a combination of casual, part-time, and shift work is used meaning the full staff are never on-site at once. This will be the same practice in the Wetherill Park facility.

Figure 28 : Image of Goterra Hume staff carpark during parking survey

The Goterra site in Hume, ACT has a much greater number of staff; including admin staff, manufacturing staff, farming (production of flies) staff and waste staff. There are only eight individuals (part-time, casual, and full time) which fulfil similar duties in Hume as will be conducted at Wetherill Park, and it is not expected that they will all be on-site at the same time. Of the vehicles on the site at the time of the survey, five were owned by staff members holding roles commensurate with those available at Wetherill Park. Other differences between the sites include the availability of public transport. The Hume facility is serviced by a single bus route with services every 90 minutes which only services one of Canberra's five town centres. Hence, no staff member surveyed uses the bus to travel to Hume.

**Parking Requirements**

Chapter 12 of the Fairfield City DCP (2013) outlines the minimum requirements for the provision of off-street parking for general industrial developments at a rate of one parking space per 70m$^2$ of floor space. The Gross Floor Area of the site has been calculated as 2,749.8 m$^2$, meaning the development requires access to 39 parking spaces. The original construction consent for the site (Appendix U) makes a requirement of 175 communal spaces be made available, more than sufficient to meet the requirements of the DCP.

Goterra has also given consideration to the amount of parking it will require to successfully operate the site. The above Parking Survey suggests that an allowance of one space per staff member is prudent. As outlined in the Plan of Management and section 2 of this EIS, there will be eight staff employed from the site, with a maximum of six on-site at any given time - requiring six parking spaces.

Parking spaces are sized in accordance with AS/NZ 2890.1:2004 and AS 2890.2:2018, as demonstrated in Appendix CC. It has been assumed that staff will drive vehicles up to the 85th percentile (the example Toyota Camry shares its dimensions with the 85th percentile example car in AS/NZ 2890.1:2004 standard). There is ample space to park such a vehicle at the site. Similarly, the 99th percentile vehicle, represented by the Hyundai Staria, would also adequately fit in the parking spaces.

An estimate of a maximum of three visitor vehicles (six movements) has been allowed for, per week. It is expected that visitors will be from three categories; ad-hoc repairs and maintenance staff or contractors attending site; staff based in Canberra visiting Sydney for business meetings, or events using the office facilities at Wetherill Park; and prospective clients or business partners visiting for meetings or to view the facility. To minimise the number of business visitor movements to the site, Goterra encourages online meetings to reduce travel, and will maintain a preference for tours at the existing Hume facility, as this gives a more comprehensive experience. On-site staff will be trained to conduct routine maintenance and repairs in accordance with their skill and qualifications to prevent a preponderance of maintenance and break-down visits, as well as trained to use equipment to reduce the incidence of break-downs.

Parking space has been provided within the facility, and demarcated in Appendix H, for the excavator and the forklift required to operate the facility. Neither of these vehicles will need to leave the confines of Unit 3, and neither of them will require parking in the common parking areas of the facility.

**Manoeuvring On-Site**

Swept path diagrams for the largest truck (HR) manoeuvring on-site have been prepared by a qualified traffic engineer and provided as Appendix L. They demonstrate that a standard HR truck (12.5m long) can successfully drive forwards into the 132 Newton Rd complex, reverse into Unit 3 (a requirement for receival) and drive forwards out of the complex.

# 8. Limitations

As discussed in Section 6.2 Waste Management, the NSW EPA requires, under the POEO Act (1997), facilities which process greater than 6000T of organics in Sydney to be licenced. A licence has not been obtained for this facility, hence its capacity is limited to no more than 6000T.

# 9. Conclusion

Following a review of the relevant planning controls, it is concluded that the proposed development is consistent with the objectives, planning strategies and detailed controls of these planning documents. Consideration has been given to the potential environmental and amenity impacts that are relevant to the proposed development and this report addresses these impacts.

Having regard to the benefits of the proposal and taking into account the absence of adverse environmental, social or economic impacts, the application is submitted to Council for assessment and granting of development consent. Goterra Pty Ltd recommends the approval of this Development Application subject to necessary, relevant and appropriate conditions of consent.

# Appendix

Appendix A: SEARs
Appendix B: Section 10.7 (Part 5) Property Information Certificate
Appendix C: Acoustic Impact Assessment Report
Appendix D: Air Quality and Odour Impact Assessment Report
Appendix E: Plan of Management
Appendix F: Building Code of Australia Compliance Report and Accessibility Report
Appendix G: Site Plan
Appendix H: Floor Plan
Appendix I: Roof Plan
Appendix J: Elevation & Section Plan
Appendix K: Goterra Environment Management Plan
Appendix L: Swept Path Diagrams
Appendix M: Emergency Evacuation Plan
Appendix N: Lease Agreement
Appendix O: Landlord Consent
Appendix P: Flood Risk Management Report
Appendix Q: Cost Estimate Report
Appendix R: Survey Plan
Appendix S: Parking Map
Appendix T: Odour Mitigations Designs
Appendix U: Original Consent for the Site
Appendix V: Cleanaway Route Maps
Appendix AA: Truck Tipping Layout
Appendix BB: Onsite Movement Plan
Appendix CC: Parking Sizing Layout
Appendix DD: Storage and Spill Containers
Appendix FF: Drainage Appliances
Appendix LL: Swept Path Diagrams for Loading Dock

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