Modification to enable the construction and operation of a Solid Recovered Fuel (SRF) processing area within the Woodlawn Eco Precinct

Conceptual drawings of the proposed Woodlawn SRF processing area and existing power station

Prepared for Veolia Environmental Services (Australia) Pty Ltd

July 2018

SG HADDAD ADVISORY

CW Strategic Planning Services

Contents

Figures

Tables

Plates

Version	Date	Status
4.0	18.12.17	Submitted to Veolia Environmental Services (Australia) Pty Ltd and Department of Planning and Environment
5.0	06.07.18	Submitted to Veolia Environmental Services (Australia) Pty Ltd and Department of Planning and Environment

Preparation:	Chris Wilson - CW Strategic Planning Services
Approval:	Sam Haddad – SG Haddad Advisory

Abbreviations

BRS	Biological Rotating Systems
BTT	Banksmeadow Transfer Terminal
CTT	Clyde Transfer Terminal
DEE	Department of Environment and Energy
DPE	NSW Department of Planning and Environment
DPI	Department of Primary Industries
EPA	NSW Environment Protection Authority
EP&A Act	Environmental Planning and Assessment Act 1979
IMF	Intermodal Facility
Ktpa	Kilotonnes per annum
MBT	Mechanical Biological Treatment
Mtpa	Million tonnes per annum
NSROC	Northern Sydney Regional Organisation of Councils
PA	Project Approval
PN	Pacific National
RDF	Refuse Derived Fuel
SRF	Solid Recovered Fuel
SSROC	Southern Sydney Regional Organisation of Councils
Tpa	Tonnes per annum

Executive Summary

Introduction

Veolia Environmental Services (Australia) Pty Limited (Veolia) own and operate the Woodlawn Bioreactor, Mechanical Biological Treatment (MBT) facility and Crisps Creek Intermodal Facility (IMF). The complex is commonly known as the Woodlawn Eco Precinct.

The Woodlawn Eco Precinct, which is located approximately 40 km south of Goulburn and 50 km north of Canberra, is a major putrescible landfill and waste processing facility that services the Sydney metropolitan area. Compressed waste sourced from Sydney is transported in containers by rail to the IMF where it is transferred by heavy vehicle for the short trip by road to the Bioreactor and MBT.

Originally approved to accept a maximum of 500,000 tonnes per annum (tpa) of putrescible waste, the Bioreactor, is now approved to accept a maximum throughput of 1.13 mtpa. Key drivers for the increased limit are the continued demand for the disposal of approximately 2mtpa of Sydney's putrescible waste, the decreasing landfill capacity in the Sydney metropolitan area, and the slow uptake of alternative waste technology in NSW in general.

The MBT was approved in 2007 and has been designed to process the residual fraction of municipal solid waste (MSW) to extract recyclable materials and produce compost. The MBT facility currently comprises four building/processing areas (reception / drums, refining, buffer, fermentation / maturation) and is recognised as an example of best practice waste processing technology. The MBT has a maximum approved processing capacity of 280,000 tpa. The first stage of the MBT recently commenced operations processing up to 144,000 tpa of mixed waste and 40,000tpa of green waste.

The Proposed Modification

Veolia proposes to construct and operate a new Solid Recovered Fuel (SRF) processing area next to the Woodlawn power station to further process MBT waste outputs into Solid Recovered Fuel (SRF). A key reason for locating the SRF processing area in this location is to enable the heat generated by the power station to be utilised for the SRF process (i.e. dryer).

The SRF processing area will be located approximately 400 metres south of the Collector Road entrance to the Eco Precinct (refer to Figure 2), and approximately 150 metres south-east of the main administration building and car park. Residual waste from the MBT will be shuttled approximately 2.5 kilometres in closed trucks to the processing area via the main internal access road. The SRF process represents an additional resource recovery step in the overall MBT process. The SRF process would result in outputs with high calorific value being diverted from the waste stream and being exported for additional processing and use as an alternative fuel.

It is proposed that approximately 50,000 tpa of residual waste from the MBT will be processed through the SRF resulting in approximately 37,400 tpa of SRF being extracted with approximately 12,600 tpa of non recyclable material being disposed of within the Bioreactor. This represents approximately an additional 10% resource recovery from the MBT and an overall recovery rate of approximately 75%.

The recovered SRF material will be stored in containers adjacent to the SRF building and transported fortnightly to the Crisps Creek intermodal facility for railing to Port Botany.

The modification seeks approval for the:

- Construction of a Solid Recovered Fuel (SRF) processing area adjacent to the Woodlawn power station;
- The transfer and processing of approximately 50,000 tpa of residual MBT waste through the SRF building resulting in the recovery and diversion of approximately 37,400 tpa from landfill;
- The transfer of approximately 12,600 tpa of residual waste from the SRF processing area for disposal within the Bioreactor;
- Storage of SRF within containers adjacent to the SRF building; and
- Fortnightly transportation of approximately 55 containers of SRF by road to the IMF for railing to Port Botany (and the return of approximately 55 empty containers). [1]

Justification

The NSW Government Waste Avoidance and Resource Recovery Strategy 2014–21 provides a clear framework for waste management over the next five years. The Strategy aims to increase recycling rates for municipal solid waste from 52% (in 2010–11) to 70% in 2021.

The SRF processing area would enable the diversion of approximately 37,400 tpa of additional residual waste currently not recycled or composted at the MBT, further reducing the amount of material going to landfill. The modification would subsequently contribute positively to the implementation of the goals in the NSW Waste Avoidance and Resource Recovery Strategy.

The MBT is a transitional Part 3A project and therefore can be modified under Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Woodlawn Bioreactor Expansion (Project Approval 10_0012) approval should also be amended in accordance with Section 4.55 (1A) of the EP&A Act to facilitate the movement of SRF material from IMF to Sydney but does not represent any additional train movements.

This was confirmed with the issue of the Secretary's Environmental Assessment Requirements (SEARs). Veolia submits that the Minister can be satisfied that the proposed modification is consistent with the approved project.

Impact Assessment

Traffic

Both truck and train movements associated with the modification would be accommodated within movements assessed and acknowledged by existing approvals.

Notwithstanding, a traffic impact assessment was undertaken for the proposed modification based on the 55 containers (110 truck movements) expected on the road network between the IMF and the SRF every fortnight. The traffic impacts associated with the modification on the local road network were found to be negligible.

The intersections of Bungendore Road with Collector Road and the access points to Woodlawn and the IMF were analysed using SIDRA modeling which found the existing level of Service A/B (good

[1] It should be noted that there will be no additional rail movements over and above the current operations..

level) would remain unchanged with the additional truck movements. The existing site access will remain unchanged and sufficient parking provision is available to cater for the three employees required to operate the SRF. The site layout will enable the movement of trucks (semi-trailers) to circumnavigate the SRF, and after having the SRF containers loaded, will be able to leave the Woodlawn site in a forward direction.

Noise

A noise impact assessment was prepared for the modification to assess the potential noise impacts of the construction and operation of the SRF processing area on sensitive receivers. Noise levels associated with construction activities were predicted to meet the ICNG construction criteria at potentially affected receivers. Similarly, noise predicted from the operation of the SRF is expected to comply with the Project Approval criteria at all receiver locations under calm and noise enhancing weather conditions. Night-time sleep disturbance noise goals are also predicted to be met at all receiver locations. Noise levels of Bungendore Road and Collector Road during construction and operation of the modification were not assessed as there are no sensitive receivers (not associated with the project) along these roads.

Air Quality

Odour

An odour impact assessment was prepared to assess the potential for offensive odour emissions. The assessment concluded that the SRF processing area is likely to have a low odour emission profile given the material to be processed would be the dry inorganic residual fraction from the MBT process, and further, Veolia's commitment to implement controls such as the treatment of the airstream via a double-cyclone system to remove particulate matter prior to discharge.

The SRF process includes the provision for a dryer to meet expected market based product specifications. This process was considered to have the highest risk as a potential odour source compared to other potential sources in the SRF process. The assessment recommends that a validation assessment be conducted once the building is completed and commissioned to confirm that no additional controls are needed to minimise the odour emissions from the dryer. It is noted that there are odour management options available if required including providing a dedicated odour control system for the SRF.

Greenhouse Gas

A Greenhouse Gas Assessment was undertaken for the proposed modification. Australia's total greenhouse gas emissions in 2012 amounted to 554.6 million tonnes of carbon dioxide equivalent (Mt CO2-e). In the same year, New South Wales accounted for 154.7 Mt of the total. A GHG assessment for the SRF processing area found that emissions would be low with an estimated 2,365 tonnes of CO2-emissions per year representing less than 0.0015% of NSW' annual emission rate.

Other

As the SRF is a dry process, the only water requirement for the building would be for amenities and for fire management purposes. The water will be stored in tanks on site and sourced by extending the potable and raw water pipes from the Bioreactor. There would be no process water.

The stormwater management system will be designed to accommodate all runoff from the SRF building and surrounding hardstand (including firefighting water) areas consistent with contemporary standards. The fire management controls adopted for the SRF will also be similar to those utilised for the MBT and will be finalised prior to construction.

The site for the SRF processing area is highly disturbed and devoid of flora and fauna habitat. There will be no impacts on biodiversity as a result of the modification. There are no heritage items or areas within the proposed SRF footprint. Notwithstanding, existing approval conditions for heritage will continue to apply which include appropriate safeguards if unexpected Aboriginal site(s) are found during construction. Construction traffic will be managed through the MBT's CEMP.

The SRF building will be constructed to Australian Standards and consistent with the Building Code of Australia (BCA). Finished materials will be similar to those used in the recently commissioned MBT facility. The SRF building will be just over 60 metres long and just under 60 metres wide. At its highest point it will be 12.30 metres sloping to a low of 8.23 metres.

The key viewpoint to the proposed SRF processing area would be from Collector Road generally looking north past the main administration building towards the Woodlawn power station. It is predicted that the visual impact of the SRF processing area on the Collector Road viewpoint would be low given the highly disturbed nature of the site, the industrial zoning, existing infrastructure, and lack of nearby receptors. The impact of the SRF processing area for all remaining viewpoints, including the non project related private properties would be negligible.

Conclusion

The modification will facilitate better environmental performance by allowing Veolia to recover and divert from landfill approximately 37,400 tpa of high calorific material for eventual use as an alternative fuel.

Potential impacts associated with the modification including traffic, noise and air quality impacts have been carefully considered. The environmental assessment demonstrates that the construction and operation of the SRF processing area will have negligible environmental and amenity impacts.

Subsequently, it is considered to be in the public interest and should be approved.

1 Introduction

1.1 The modification proposal

This document supports the application by Veolia Environmental Services (Australia) Pty Ltd (Veolia) to modify Project Approval (PA) 06-0239 (approved in 2007) for the development of the MBT and Project Approval (PA) 10_0012 (approved in 2012) for Woodlawn Bioreactor Expansion.

The modification seeks the following:

- Construction of a Solid Recovered Fuel (SRF) processing area adjacent to the Woodlawn power station;
- The transfer and processing of approximately 50,000 tpa of residual MBT waste through the SRF building resulting in the recovery and diversion of approximately 37,400 tpa from landfill;
- The transfer of approximately 12,600 tpa of residual waste from the SRF processing area for disposal within the Bioreactor;
- Storage of SRF within containers adjacent to the SRF building; and
- Fortnightly transportation of approximately 55 containers of SRF by road to the IMF for railing to Port Botany (and the return of approximately 55 empty containers).

The SRF is also referred to as "Refuse Derived Fuel" and some plans and figures throughout this document refer to the SRF as the RDF.

1.2 Woodlawn waste management operations

Veolia's Woodlawn Eco Precinct is located approximately 10 kilometres southwest of Tarago and 40 kilometres south of Goulburn in the Goulburn Mulwaree Local Government Area. A mining lease (currently no processing activity) lies immediately to the north of the site. Otherwise the site is surrounded by agricultural land uses. The nearest sensitive receiver not associated with the site is approximately 1.6 kilometres away ("Pylara").

The operations (Appendix F) that form part of the Eco Precinct are described in Table 1.

Table 1: Woodlawn Eco Precinct Operations

Operations	Description
The Bioreactor, including the Woodlawn Bioenergy Power Station (the Power Station);	The Bioreactor was the first stage of the Eco Precinct developed by Veolia. Landfilling operations, which commenced in September 2004, are located in the void of the former open cut Woodlawn Mine. Waste is deposited in the Bioreactor and with optimal moisture and temperature conditions, achieves enhanced production of landfill gas, which is collected through a vast network of infrastructure within the void. Methane is extracted from the landfill gas within the Power Station for conversion and supply as electricity into the energy grid.
The Crisps Creek Intermodal Facility (IMF)	The IMF, forms an integral part of the logistical operations of the Eco Precinct, and is located 8km from the Bioreactor in the township of

	Tarago, adjacent to the Goulburn-Bombala Railway line. Waste containers transported from the Sydney region via rail are unloaded and transferred onto road trailers at the IMF for transport to the Bioreactor. The IMF is approved to accept 1,180,000 tonnes per annum of waste from Sydney.
Woodlawn MBT Facility	The MBT Facility was approved in 2007 and is located to the north-west of the Bioreactor as illustrated in Figure 2. At full capacity, it will receive up to 280,000 tpa of mixed waste from Councils (SSROC and NSROC) in Sydney Metropolitan Area. The waste is processed to extract recyclable materials or produce compost. The compost is matured on site and used to rehabilitate the mine. Changes to site layout, technology and operating hours were approved in 2014. Stage 1 of the facility which recently commenced operations is able to process up to 144,000 tpa of MSW and 40,000 tpa of green waste of the approved 280,000 tpa.
Aquaculture and horticulture operations	In keeping with the objectives of utilising as many resources as possible within the Woodlawn Eco Precinct, Veolia has been looking for ways to utilise the waste heat created through the production of renewable energy from the landfill gas. As a part of this project, Veolia is using waste heat from the Power Station's engines in aquaculture operations to cultivate fish, with a horticultural system operating to remove excess nutrients.
Woodlawn and Pylara farms	The original Woodlawn mine site included an operating farm on the property which acted as a buffer zone during the mine operations. When Veolia was granted development consent for the Woodlawn Bioreactor, the condition of the development consent required Veolia to acquire the neighbouring farm Pylara to create a larger buffer zone around the Bioreactor operations. The surrounding land on the 3,000 ha Woodlawn property is utilised either for farming practices or requires rehabilitation from former mining activities. Adjacent to the south of the Woodlawn property is the 3,000 ha Pylara property, a working farm which utilises sustainable farming practices such as a sheep breeding program that includes genetic selection, nutrition and grazing rotation, to increase meat and wool productivity and reduce impacts on soils.

The Woodlawn Wind Farm (the Wind Farm) operated by Infigen Energy	The 48 MW Woodlawn Wind Farm comprises 23 turbines and is located along a ridgeline running through both the Woodlawn and Pylara properties. This operation commenced in 2011. The Woodlawn Wind Farm is owned and operated by Infigen Energy.
Leachate Treatment Plant	Veolia's modification application with Department of Planning and Environment (DPE) for construction and operations of leachate treatment plant (LTP) to process leachate was approved on 22 December 2017. Construction of the LTP commenced following the approval and It is anticipated that the LTP will accept leachate by 30 September 2018. The LTP will facilitate better environmental and operational performance by allowing Veolia to extract and treat greater volumes of leachate from the Bioreactor and minimise and reduce the generation of odour, and enable more efficient gas extraction maximizing the waste to energy benefits of the Bioreactor.

The Eco Precinct and its operations form part of Veolia's integrated waste management services and are augmented with the following transfer facilities:

- The Clyde Transfer Terminal (CTT) in Sydney , receives up to 500,000 TPA of putrescible waste from the SMA from municipal, commercial and industrial sectors of the SMA, which is unloaded, screened, compacted and containerised into shipping containers for transport via rail to the IMF; and
- The Banksmeadow Transfer Terminal (BTT) in Sydney receives up to 400,000 TPA of putrescible waste similarly to the CTT. Waste from the BTT is destined for either the Bioreactor or the MBT Facility, depending on Veolia's contractual obligations with its customers.

Figure 1 below depicts the inputs and output from the Eco Precinct operations.

In addition to these operations, Heron Resources Limited (formerly TriAusMin Pty Ltd) was granted planning approval for the Woodlawn Mine Project (Application No. 07_0143) to recommence mining operations within the Eco Precinct for both re-mining of existing tailings dams and further underground mining.

The remnant mining degraded areas within the Eco Precinct that are subject to remediation requirements under the former mining lease obligations. The compost produced from the MBT Facility shall be generated and applied to land under the requirements of the site specific Resource Recovery Order and Exemption as described in the previous section.

Figure 1: Eco Precinct operations.

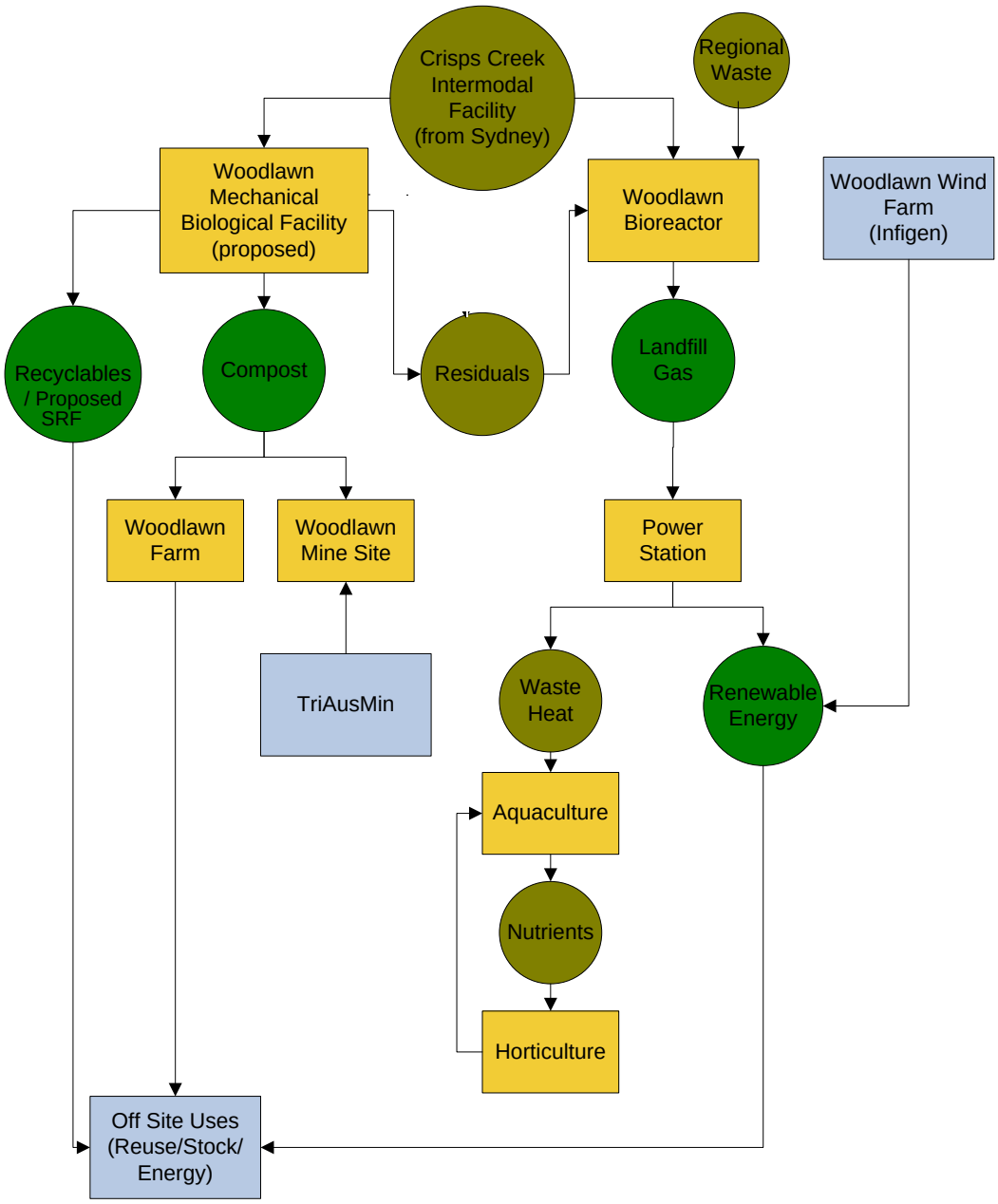


Figure 2: Site location and Lot and DP numbers for SRF processing area

LEGEND

LAND AFFECTED BY EXISTING CONSENT

LAND AFFECTED BY PROPOSED CONSENT MODIFICATION

MGA

55 DP 750056
54 DP 750056
7001 DP 1029633
17 DP 754919
95 DP 754919
35 DP 754919
1 DP 126600
87 DP 754919
96 DP 754919
16 DP 754919
12 DP 754919
1 DP 180491
6 DP 830765
68 DP 754919
34 DP 754919
90 DP 754919
9 DP 534616
97 DP 754919
1 DP241092
EVAPORATION DAM ED2
6 DP 830765
8 DP 534616
8 DP 830765
COLLECTOR ROAD
4 DP 830765
33 DP 754919
5 DP 830765
EVAPORATION DAM ED1
30 DP 754919
VISITORS CARPARK
VISITORS ENTRANCE
RECEPTION
25 DP 754919
MAIN ENTRANCE
ROAD
1 DP 1179305
21 DP 827588
MBT FACILITY
ED3N4
ED3N2
ED3N3
ED3N1
MBT HAUL ROAD
LEACHATE DAM
SUB STATION
GAS FLARE
POWER STATION
13 DP 754919
69 DP 754919
ED3S1
91 DP 754919
ED3S2
2 DP 1179305
BIOREACTOR VOID
PROPOSED SRF AREA
RAW WATER DAM
88 DP 754919
5 DP 830765
WASTEROCK DUMP
91 DP 754919
TO WINDFARM TURBINES
20 DP 827588
WASTEROCK DAM
92 DP 754919
74 DP 754919

Note: Land boundaries have been plotted In approximate positions only, No survey investigation of boundaries has been undertaken.

File Name: J:\Surveyors\Jobs\Veolia\16800 Engineering\CAD\16800-501 Site Plan RDF Proposal & Affected Land Issue C.dwg

Liability limited by a scheme approved under Professional Standards Legislation.

VEOLIA ENVIRONMENTAL SERVICES

SCALE 1:8000

0 160 320 480 640 800

Metres

ISSUE	AMENDMENT	DRAWN	DATE
A	INITIAL ISSUE	MK	16/11/2017
B	CONSENT AREA MODIFIED INSIDE LOT 2 DP 1179305	MK	16/11/2017
C	AFFECTED LAND SHOWN TO IMPACTED AREA ONLY	MK	21/11/2017

LandTeam Australia Pty Ltd
ABN 35 300 283 592
Goulburn Office
36 Montague Street
Postal: PO Box 1040
GOULBURN NSW 2580
p: (02) 4821 1033
e: goulburn@landteam.com.au
www.landteam.com.au

LandTeam

A1 SHEET

VEOLIA ENVIRONMENTAL SERVICES

WOODLAWN BIOREACTOR COLLECTOR ROAD, TARAGO

PLAN SHOWING
WOODLAWN ECO PRECINCT INFRASTRUCTURE AND AFFECTED LAND PARCELS
COLLECTOR ROAD, TARAGO

SURVEYED: N/A
DRAWN: MK
CHECKED: JK
ISSUE C

DRAWING No. 16800-501

DATUM N/A | CONTOUR INTERVAL N/A | DATE 21/11/2017

Plate 1 – Site of proposed SRF processing area looking south-west towards the power station

1.3 Waste processing at MBT facility

The treatment of the waste at MBT Facility includes the following key steps:

Pre-treatment: Receival

Once the waste is received at the MBT facility, the waste is inspected as it is discharged from the vehicle using a fixed tipper, to check for non-conforming waste. In the event that easily extractable, bulk recyclable waste is detected this waste is separated from the general waste stream and set aside for disposal at the Woodlawn Bioreactor.

Pre-treatment: Biological

The variability of the feedstock from MSW sources has resulted in the incorporation of drum-based biological pre-treatment in the MBT Facility prior to mechanical treatment, which includes size and density separation.

The BRS drum technology, comprised of 50 m long cylinders, installed adjacent to the Reception Building, uses the combined action of rotation, rising temperatures and slow wear on waste to separate the organic material within the mixed waste into a fine size.

This organic fraction can then easily be separated from the inert fraction, including recyclable material and physical contaminants in the later mechanical stages before composting.

Pre-treatment: Mechanical

The mechanical treatment stages at MBT facility involve the use of sorting equipment that includes trommels to separate waste into different sized fractions, magnets to remove ferrous material and ballistic separators to segregate light, organic material from inorganic material for composting.
Recovered ferrous metals are stored in the bin located outside the refining building for transport offsite and all the residual material are currently sent to the Bioreactor for disposal.

Composting: Fermentation

Organic material is transferred to the fermentation building for composting. Aerated stockpiles in specially designed cells are created through an automated delivery system. The fermentation processing technology adheres to the Resource Recovery Order under Part 9, Clause 93 of the *Protection of the Environment Operations (Waste) Regulation 2014* (Order), generating a final compost product suitable to meet the output requirements of the Order.
Composting: Storage Area

The process of fermentation effectively creates a biological stable product, at the end of which, the compost produced is moved into the Compost Storage Area, located adjacent to the Fermentation Building for maturation, before being transferred to mine site for rehabilitation.

1.4 Need for the subject modification and project justification

The modification seeks the following:

- Construction of a Solid Recovered Fuel (SRF) processing area adjacent to the Woodlawn power station;
- The transfer and processing of approximately 50,000 tpa of residual MBT waste through the SRF building resulting in the recovery and diversion of approximately 37,400 tpa from landfill;
- The transfer of approximately 12,600 tpa of residual waste from the SRF processing area for disposal within the Bioreactor;
- Storage of SRF within containers adjacent to the SRF building; and
- Fortnightly transportation of approximately 55 containers of SRF by road to the IMF for railing to Port Botany (and the return of approximately 55 empty containers).

The new building and storage area would be constructed adjoining the Woodlawn power station to further process MBT waste outputs into Solid Recovered Fuel (SRF). The SRF process will result in outputs with high calorific value being diverted from the waste stream and on sold for further processing offshore for eventual use as an alternative fuel. Up to 50,000 tpa of residual waste from the MBT will be processed resulting in approximately 37,400 tpa (74.8%) of SRF being extracted. The remaining 12,600 tpa (25.2%) will be disposed of within the Bioreactor. The SRF material would be stored in containers beside the SRF processing area (refer to Figure 3) and transported fortnightly to the Crisps Creek intermodal facility for railing to Port Botany for export.

The NSW Waste Avoidance and Resource Recovery Strategy 2014–21 provides a clear framework for waste management over the next five years. The Strategy aims to increase recycling rates for municipal solid waste from 52% (in 2010–11) to 70% in 2021. The SRF processing area would divert an additional approximately 37,400 tpa of residual waste currently not recycled or composted at the

MBT, further reducing the amount of material going to landfill. The modification would subsequently contribute positively to the implementation of the goals in the NSW Waste Avoidance and Resource Recovery Strategy.

1.5 Environmental Assessment Requirements

Veolia received the Secretary's Environmental Assessment Requirements for this modification on the on 23rd June 2017. However, in September 2017, Veolia decided to locate the SRF processing plant at an alternative site within the Eco Precinct adjacent to the Woodlawn power plant instead as originally proposed adjacent to the MBT. Subsequently, DPE issued fresh SEARs on the 22 September 2017.

The requirements have been addressed as listed in Table 2. In addition to the environmental assessment requirements, Veolia has considered other relevant potential environmental impacts associated with the proposed modification (refer to Table 3). It should be noted that the environmental assessment has fully considered the impacts of the SRF processing area in the new location. All specialists report including the traffic, air and acoustics impact assessments were revisited and updated to reflect the new location.

Veolia submits that the modification is minor focusing primarily on improving waste recovery. While more detailed analysis has been undertaken for traffic, noise, air including GHG emissions and visual impacts (Section 4), additional assessment for dust, biodiversity, water management and heritage is not considered necessary given the limited impacts expected and the ability of these issues to be effectively managed under existing conditions of approval, and the Construction and Operational Environmental Management Plans applicable to the MBT (refer to Table 2 and Table 3).

1.6 Amendments to Conditions

Veolia does not believe that any approval conditions for MP 06_0239 need to be modified to allow the construction and operation of the SRF area, other than administrative conditions describing the project and the modification application and additional Lot and DP numbers applicable to the location of the SRF processing area and transport route. All relevant environmental management plans will be amended and updated to reflect the construction and operation of the SRF processing area.

The MBT approval will be amended by adding the Lot and DP numbers to which the SRF processing area and transport route applies (refer to Figure 2). The MBT site description for the MBT as amended will be as follows:

Current Lot and DP numbers

- Lot 1 - DP 241092, Lot 33 – DP 754919, Lot 34 – DP 754919, Lot 69 – DP 754919, Lot 97 – DP 754919, Lot 4 – DP 830765

Proposed additional Lot and DP numbers

- Lot 30 – DP 754919, Lot 25 – DP 754919, Lot 2 – DP 1179305, and Lot 91 – DP 754919

The Woodlawn Bioreactor Expansion approval should be amended to reflect the need to transport the SRF material from the SRF to Sydney via the IMF by inserting an additional condition (Schedule 3, Condition 8A) in the approval (PA 10_0012) as follows:

The Proponent shall not receive any more than 37,400 tpa of SRF material from the Woodlawn AWT for transport by rail to Sydney.

Table 2: Summary of Secretary's Environmental Assessment Requirements and where addressed in this modification

Requirement	Where addressed
Department of Planning and Environment	
Detailed description of the proposal including the need for the modification, likely interactions between existing, approved and proposed operations, other approvals required and detailed plans of the building works, equipment, access and car parking.	Sections 2 and 3
An assessment of the key issues including the potential impacts of the development.	Section 4 Key impact assessments were undertaken for traffic, noise and air. Detailed assessments can be found in Appendices 1-3 and summaries provided in Section 4. The assessments demonstrate that the SRF processing area will have negligible construction and operational impacts and will meet applicable environmental and amenity standards.
Waste Management including a description of the likely waste stream and volumes that would be handled, details of location and size of stockpiles, details of measures to be implemented.	Section 2.2 and 2.3
Transport – including the transport implications of the proposal particularly in relation to the vehicles to be used, proposed traffic routes, site access, internal roads and parking, and an assessment of the predicted impacts of traffic on road safety and capacity of the network.	Appendix A and summarised in Section 4.1
Soil and Water – The SRF is a dry process. The only water requirements for the building would be for fire management. The stormwater management system will be designed to ensure adequate capacity of on-site detention systems and measures to treat, reuse or dispose of water as appropriate. No groundwater disturbance or contamination is anticipated during the construction works. If any contamination is detected, the management practices detailed in the CEMP will be adopted.	Section 2.6 and Section 4.5
Air Quality - an assessment of the potential odour, dust and greenhouse gas impacts of the project and any mitigation measures that will be deployed to manage air quality and odour and a greenhouse gas	Odour in Appendix B and Section 4.2 GHG in Section 4.3

Requirement	Where addressed
assessment. Dust generated during construction and operation of the SRF building and infrastructure will be managed through the dust mitigation measures in the MBTs conditions, and the CEMP and OEMP.	
Noise – an assessment of potential construction, operational and transport noise and vibration impacts, including potential impacts on surrounding receivers.	Appendix C and summarised in Section 4.4
Hazards – including a preliminary risk screening undertaken in accordance with SEPP 33 and if necessary a Preliminary Hazard Analysis.	Section 3.4.1
Fire and Incident Management – including information on the environmental protection equipment to be installed on the premises such as air, water, spill clean-up equipment and fire management (including fire hydrant locations, hydrant water flow capabilities, firewater management and stockpile size and separation) and containment measures.	Section 2.7
Design and visual impact – including details of building design and potential visual impact of the proposed building, lighting and signage and proposed measures to mitigate impacts.	Section 4.6
Consultation – consult with relevant local, State and Commonwealth government authorities, service providers and community groups and address any issues that are raised.	Section 3.7

Table 3: Other potential environmental impacts

Potential impact	Response
Construction Traffic	Construction traffic will be managed under the provisions of the CEMP and the approved Traffic Code of Conduct for the project.
Biodiversity	The site for the SRF building and associated infrastructure is highly disturbed and devoid of flora and fauna habitat. There will be no impacts on biodiversity as a result of the modification.
Heritage	There are no heritage items or heritage areas within the proposed SRF processing area footprint. Further, existing approval conditions for heritage will continue to apply which include appropriate safeguards if unexpected Aboriginal site(s) are found during construction.

2 Proposed modification

2.1 Key elements of modification

The modification seeks the following:

- Construction of a Solid Recovered Fuel (SRF) processing area adjacent to the Woodlawn power station;
- The transfer and processing of approximately 50,000 tpa of residual MBT waste through the SRF building resulting in the recovery and diversion of approximately 37,400 tpa from landfill;
- The transfer of approximately 12,600 tpa of residual waste from the SRF processing area for disposal within the Bioreactor;
- Storage of SRF within containers adjacent to the SRF building; and
- Fortnightly transportation of approximately 55 containers of SRF by road to the IMF for railing to Port Botany (and the return of approximately 55 empty containers).

2.2 Solid Recovered Fuel (SRF) building and processing area

The proposed SRF building and processing area is within Woodlawn Eco Precinct. The SRF processing area will be located on the former mineral processing area for Woodlawn Mine, adjacent to the Woodlawn power station as illustrated in Figure 7 and Appendix G. The construction of SRF building will form the part of the rehabilitation of this part of the Woodlawn mine area.

Topography and Drainage

The Woodlawn Eco Precinct is located nine kilometres south-west of Lake Bathurst and eight kilometres east of Lake George, on a ridgeline which forms part of the Great Dividing Range. The natural ground surface surrounding Woodlawn Mine void lies at an elevation of approximately 800 metres Australian Height Datum (AHD), with the base elevation of the mine void at approximately 630 mAHD. The surrounding area comprises both rolling to undulating hills that rise up to approximately 1,000m AHD, particularly to the north and south of the site. To the west, the terrain rises toward the Brindabella Range.

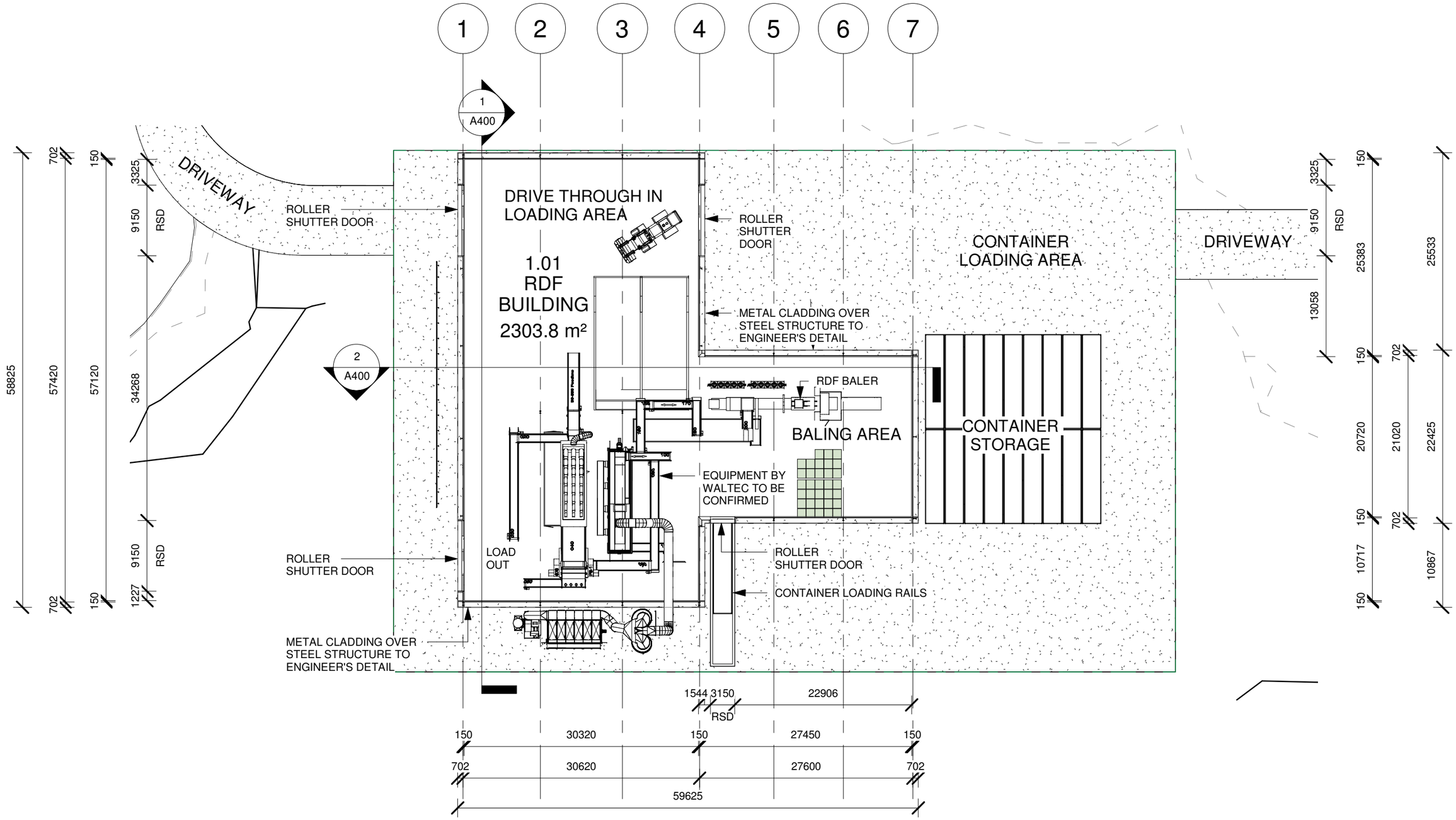
The Woodlawn Eco Precinct lies at the head of the Allianoyonyiga Creek and Crisps Creek catchments. The watershed of the Wollondilly River/Lake George catchment area passes through the property at an elevation approximately 150 metres lower than the adjacent hills. A small number of gullies and creeks are located within the area. The Woodlawn Bioreactor and all unrehabilitated parts of the Woodlawn mine including the proposed SRF processing area will have a closed water management system, which ensures no discharge to the downstream environment. The land surrounding the Bioreactor and tailing dams drains to the Wollondilly River System via Crisps Creek and the Mulwaree River.

SRF Processing Area

No significant disturbance to the landscape is proposed as part of the construction phase of the SRF processing area other than site clearing and grading. The general silty topsoil over a clayey residual soil with weathered underlying rock could be reused on site as engineered fill.

The processing building will be just over 60 metres long and just under 60 metres wide (refer to Figure 3). At its highest point the SRF building will be 12.3m sloping to a low of 8.23m at the northern end (refer to Figure 11). Containers will be stored at the northern end and will be less than the height of the SRF building. The SRF building will require 3 employees to operate who will form part of the MBT workforce. No additional services including parking will be required. There are currently excess parking spaces available at the nearby administration building.

Figure 3: Configuration of the SRF building



REV:	DETAILS	DATE	BY
T2	TENDER ISSUE	18/12/17	MC

PROJECT
WOODLAWN RDF

PROJECT NUMBER
1702

DRAWING NUMBER
A120 A3

REVISION
T2

CLIENT
VEOLIA

DRAWING NAME
GROUND FLOOR PLAN

DRAWING STATUS
TENDER ISSUE

SCALE
1 : 500 @ A3

DATE
12/18/17

DRAWN
MC

davidson architecture
2/70 Kerr Street Fitzroy 3065
0415 12 57 56
abn 29 600 077 487

2.3 SRF Process Description

As described in Section 1.3, prior to waste material being transferred from the existing MBT process line (mechanical pre-treatment) to the SRF processing area, all organics will be removed via the drum and refining process leaving only the dry non organics fraction. Subsequently, it is generally inert residual with no organics which possesses a very small odour profile and materials that contain significant amounts of plastic film, hard plastics, textiles, contaminated paper and cardboard that, if processed effectively, can be transformed into a high calorific alternative fuel to replace the use of fossil fuels in a number of potential applications. The typical breakdown of the residual waste stream is as follows:

Component	Percentage
Plastics	38.8%
Textiles	21.2%
Metals	4.4%
Card board	9.8%
Wood	5%
Heavier fraction	20.8%

SRF processing area will convert this residual waste stream into the following products with the associated destinations:

Component	Product recovered	Destination *
Plastics and textiles	SRF material	Alternative fuel source in facilities such as cement kilns facilities or dedicated Energy from Waste facilities
Metals	Metals	Metal recyclers
Card board and Wood	SRF material	Alternative fuel source in facilities such as cement kilns facilities or dedicated Energy from Waste facilities
Heavier fraction	N/A	Bioreactor landfill

* Note: the potential alternative fuel source facilities may be located locally or overseas.

A description of the process is provided below and shown in Figure 5.

- The waste is delivered from the MBT via the main road in fully enclosed trucks to the unloading bay of the SRF building where it is unloaded directly onto an accelerator conveyor. The waste first passes under an over belt electromagnet to remove ferrous metals which fall into a skip bin below.

- The accelerator conveyor then takes the remaining waste through an air separator where heavier material drops directly into a bunker below. This material is transported for disposal to the Bioreactor.

- The lighter material is blown up and over the rotating drum and into the expansion chamber where it settles down on the discharge conveyor.

- From the expansion chamber the light material is fed directly into an optical sorter unit which identifies PVC or other undesirable plastics and ejects them via the splitter box. The ejected material falls into the rejects bunker and is transported for disposal to the Bioreactor.

- All accepted material from the optical sorter is then fed into the high speed shredder for reduction in size down to 30mm. Moisture content of the SRF material is analyzed by the in-line moisture probe.

- If the moisture content is too high the dryer is activated and the material is diverted through the tumble dryer before being deposited onto the baling conveyor for transfer to the baler and wrapping unit. All material that is within the predetermined moisture content is allowed to feed directly onto the baling conveyor.

- The material is baled and wrapped with plastic (polyethylene) to prevent any potential odour emissions and then packed into 40 ft boxes and into containers. The containers will be stored adjacent to the SRF building and transported to the IMF once a fortnight.

Specification for the SRF material

SRF material will be potentially used in cement kiln facilities as alternative fuel source or in dedicated Energy from Waste facilities. The SRF specification and test procedures will be determined in conjunction with each specific customer.All potential customers for the SRF material will have predetermined specifications that Veolia would meet. Typical SRF specifications and test procedures for use in cement kiln facilities are summarized in Table 4 below.Veolia is currently in discussions with facilities in NSW as well as overseas to finalise the end use market for this material.

Table 4: Specifications for the SRF Material

Parameter	Specification
Gross Calorific Value (MJ/kg)	≥12.0
Moisture (as H_2O)	Target of ≤15.0% m/m up to a maximum of <20.0% m/m
Chlorine (as Cl)	≤0.20% m/m
Total Fluorine, Bromine, Iodine (as F, Br, I)	≤0.25% m/m
Sulphur (as S)	≤1.0% m/m [2]
Particle size	≤50 mm in any direction with all Goods passing a 50mm x 50mm screen. No

Parameter	Specification
	dimension to be >50mm.
Biomass content	≥90% [2]
K_2O (%)	1.0
Na_2O (%)	0.5
Mercury (Hg) (mg/kg)	≤1.2
Cadmium (Cd) (mg/kg)	≤20
Thallium (Tl) (mg/kg)	≤20
Total Group II metals (mg/kg) Cadmium (Cd) + Thallium (Tl)	≤30
Copper (mg/kg)	≤500
Lead (mg/kg)	≤1000
Total Group III metals (mg/kg) Antimony (Sb) + Arsenic (As) + Cobalt (Co) + Copper (Cu) + Chromium (Cr) + Lead (Pb) + Manganese (Mn) + Nickel (Ni) + Vanadium (V)	≤3000
PCB's (Polychlorinated biphenyls)	<10mg/kg
PCP's (Phencyclidines)	<100mg/kg

Test Methods

Parameter	Test Method
Gross and Net Calorific Value	EN 15400:2011
Moisture content	EN 15414:2010
Chlorine	EN 15408:2011
Sulphur	EN 15408:2011

Nitrogen Carbon Content Biomass Ash K_2O, Na_2O	EN 15407:2011 EN 15407:2011 EN 15440:2011 EN 15403:2011 EN 15410:2011
Particle Size	EN 15412-1:2011
Metals – Mercury, cadmium, thallium, copper, lead, Total Group II metals, Total Group III metals	EN 15411:2011

Quality Control

Following appropriate regulatory approval, installation and commission of the required plant, Veolia will perform the associated quality assurance activities relating to provision of SRF material to potential customer.

Testing and sampling of SRF material

Testing of all the parameters listed in Table 4 (or the relevant customer specifications) will be undertaken in accordance with all the regulatory requirements and by a NATA accredited laboratory.

- Prior to the commencement of the supply, Veolia will conduct sampling of the SRF material to determine the characterisation of the fuel for composition and variability to ensure conformance with the relevant specifications.
- Twenty (20) Composite Samples will be collected and analysed for all relevant parameters to establish a baseline (characterisation) data set. A Composite Sample is defined as a sample that combines four (4) discrete sub-samples of equal size into a single sample for the purpose of analysis.
- Following the commencement of the operations, Veolia will undertake a routine sampling process as follows:
    - Every month two (2) Composite Samples (one primary and one duplicate sample) will be collected from the goods prior to dispatch.
    - Samples will be taken from a belt conveyor, falling stream or truck.
    - Monthly samples will be taken from a batch, truckload or stockpile that has not been previously sampled.
    - All samples collected during a month will be sent to an independent NATA accredited laboratory.
    - Weekly samples for key perimeters, such as Calorific Value (CV), chlorine and moisture, will be conducted prior to delivery to potential customer, until such time as both parties are satisfied with the consistency of supply in respect of these parameters. The results

from this monitoring will be available to potential customers upon request and will be maintained in accordance with an agreed QA/QC system.

Once the customers are satisfied with consistency of supply in respect of the key parameters, sampling process and monitoring may be modified, while still ensuring that the customer's specification are able to be met.

2.4 Storage and transport requirements

Once the material is baled and wrapped it is picked up via a grab forklift and loaded directly into containers via the container loading bay for storage until transportation to the IMF. It is proposed that every fortnight one train loaded with containers of SRF would travel from the IMF to Port Botany for off shore delivery. Fifty-five containers loaded with SRF would be transported by semi-trailer to the IMF on a campaign basis every 2nd Saturday with 55 empty containers returning from Crisps Creep. The campaign would take approximately 4 hours. Should transportation of the SRF material off site be interrupted, then the following measures will be enacted:

- Containers loaded with SRF material will be stored in the container storage area, which can store up to 112 containers.
- Store the residual waste material in the SRF building and roller doors will be kept close all the times to prevent any escape of the fugitive emissions.
- Once the container storage area and covered SRF building are full, residual waste will be diverted to the Woodlawn Bioreactor.

2.5 Transport of the SRF material

Covered shuttle trucks will use the internal road system to deliver waste from the MBT to the SRF processing area, unloading the waste in the processing building before exiting the building in a forward direction back to the MBT (refer to Figure 8). Container trucks will enter the SRF processing area, drive to the container storage area and once loaded or unloaded of containers, leave the area in a forward direction and exit the site via the Collector Road entrance.

There are no proposed changes to existing access arrangements for the Woodlawn site as a whole, or the IMF.

The road route to the IMF and back from the SRF building to collect and deposit the SRF containers will be the same as the current route, being:

- Access to the SRF from Collector Road,
- Collector Road to Bungendore Road,
- Bungendore Road provides access to the Crisps Creek Intermodal Terminal.

Approximately 37,400 tpa of SRF material will be transported to the IMF via road. The material will be transported in a campaign approximately once a fortnight, on a Saturday. It is estimated that 15 trucks per hour for around 4 hours would transport material to the IMF and return the empty containers to the storage area adjacent to the SRF building.

2.6 Water Management

Like the MBT, the SRF processing area will be maintained as a zero discharge site. Stormwater will be captured, stored and used within the Woodlawn Eco Precinct. The key operational water management infrastructure for the SRF processing area will be:

- 1 x 30 kL rainwater tank and 2 x 144 kL firewater tanks; and
- Extended pipe work.

The SRF process is a dry process and therefore does not require any processing water. Water for amenities will be stored in a 30kL tank on the processing site and sourced either from rain water capture or by extending the potable water pipe from the Bioreactor. Similarly, water supply for firefighting purposes will be stored in two 144 kL tanks sourced by extending the raw water pipe from the Bioreactor.

The key aspects of the SRF site water management are as follows:

- The roof area of the SRF building which requires runoff management; and
- Runoff management for the hardstand area adjacent to the SRF building, including the container marshaling area and the new internal road network for trucks accessing the SRF.

Stormwater from the roof of the SRF building and adjacent hardstand area are the key water management issue. Stormwater from the roof will be captured in a new rainwater tank in the first instance and overflow into the drainage for the power station if necessary.

Storm water runoff from the area where the SRF processing area will be located is currently managed as contaminated water, which drains to the plant collection dam (refer to Figure 4), which is then pumped to an Evaporation dam of the Bioreactor where the water is evaporated naturally and with the aid of mechanical evaporators. This will continue to be the case once operational and the site water balance for the will be updated to reflect the development of the area for SRF processing. The main change to be reflected will be the installation of rainwater tanks to capture runoff from the roof of the building, which will result in a reduction to the current water collection requirements into the plant collection dam from this area.

Figure 4 : Surface water flows

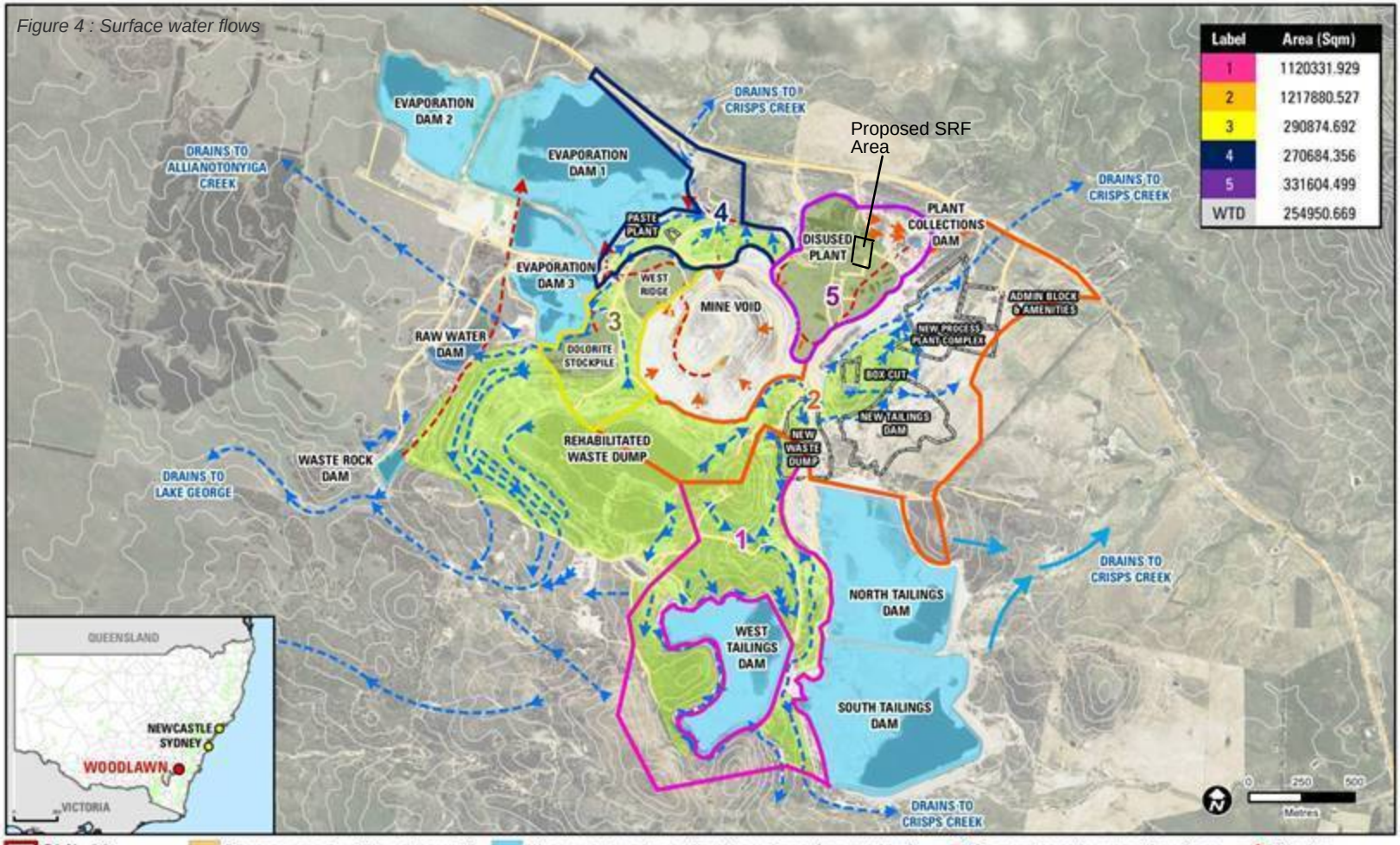
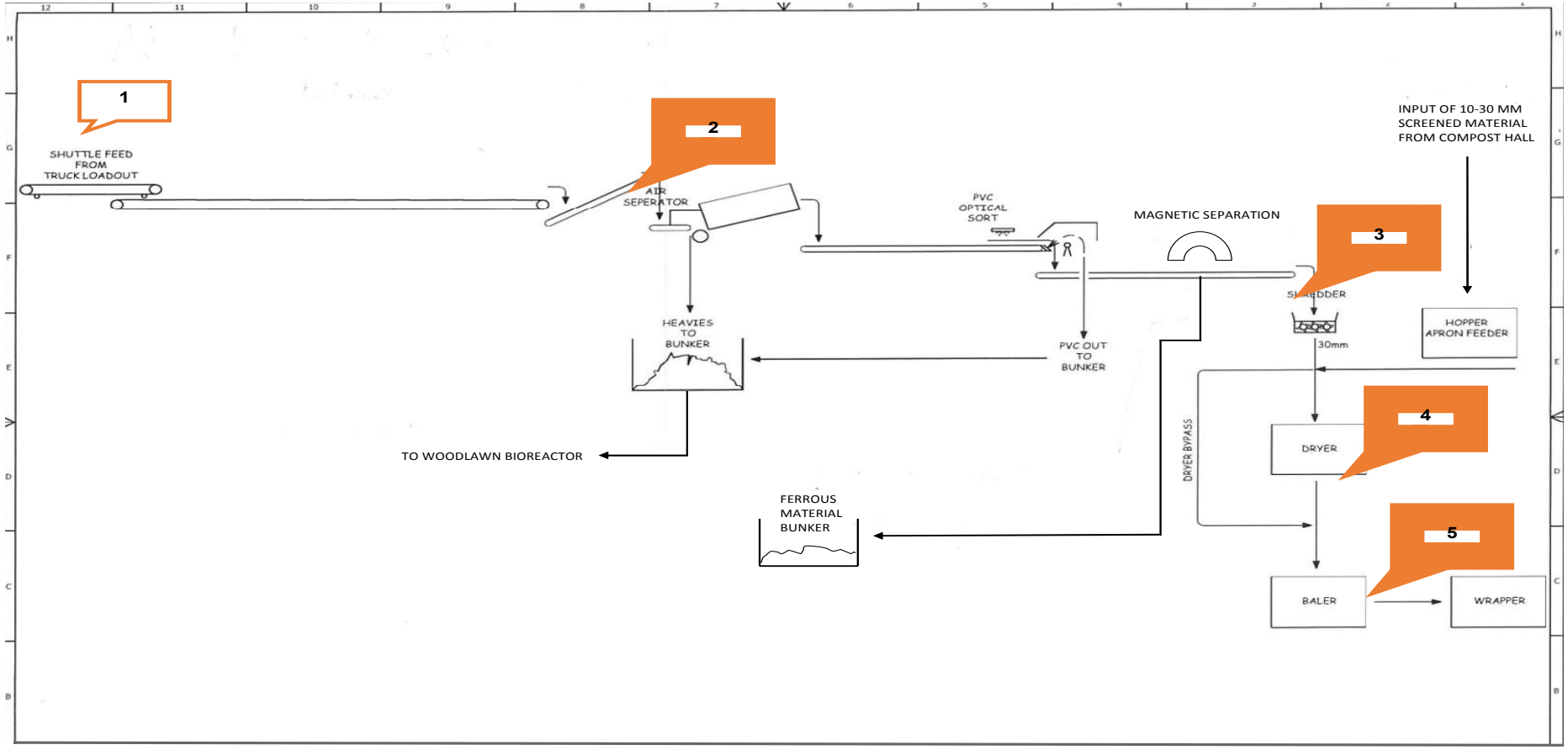


Figure 5: Process flow chart



2.7 Fire and Incident Management

No dangerous goods, as classified by Australian dangerous goods code, would be handled at SRF processing area, Notwithstanding, The Woodlawn MBT site has a current Emergency Response Plan which provides a planned and coordinated strategy for site personnel in the event of an emergency situation. The strategy includes requirements for both Occupational Health & Safety and Environmental Management matters. The plan was developed by identifying key potential hazard scenarios that could be encountered at the facility through Risk Management procedures.

The SRF processing area will include implementation of an Incident Response Plan detailing the emergency response will be implemented in the event that there is a fire or explosion in the SRF processing area.

A number of measures to address fire risks on the site including:

- Ensuring safe operational access and egress for emergency service personnel and workers.
- Appropriate fire alarms and firefighting equipment to be provided on-site for an initial emergency response and would include a deluge system, fire extinguishers, hoses and reels.
- Ensuring that utility services are adequate to meet the needs of fire fighters.
  A fire hydrant system and/or foam from portable units, as well as a manually operated fire deluge system, for fires on the tipping floor.

In addition to the measures listed above, the Woodlawn site also has the following fire control equipment:

- Water cart
- Dump truck mounted water cart.

Veolia completed high level fire risk assessment (Table 5) for proposed SRF processing area due to vicinity of the proposed location close to Power station and outside storage of SRF material in the containers. The finding of the risk assessment showed that based on the control measures that are in place /will be implemented for proposed SRF processing area, it will be low risk

Table 5: Fire Risk Assessment-SRF processing area

	Hazard/Risk	Control Measures	Risk Ranking
1	Internal Combustion within Containers	Waste is dried using the in-situ driers within the RDF building prior to baling	Low
		Waste material is bailed - to increase compaction and limit oxygen ingress	
		Containers are sealed to prevent air ingress	
2	Fire Risk from Power Station and or flare	Fire detection system at the Power Station	Low
		Automatic shut down system at the power station (Electricity and Biogas)	
		Landfill Gas Flare is designed to suppress flame inside column.	
		landfill gas flare will be 80m from the container storage area	

	Hazard/Risk	Control Measures	Risk Ranking
		Engine exhaust system is designed to mitigate sparks from the engine	
		Waste is stored/packed into steel ISO shipping containers	
		Waste is stored ready for packaging within the RDF complex. No storage of bailed or unbiled material outside	
3	Bush Fire Risk	The RDF building and container storage is in the compound of the former mineral processing area No vegetation which could lead to risk of bushfire within 100 metres	Low
		Fire hydrant system exists within the compound of the RDF complex and other Woodlawn infrastructure	

The Emergency Response Plan will be updated to incorporate the SRF processing area, which would include measures for all potential hazardous scenarios that would be identified through risk management processes. Once the design of the SRF is finalised, Veolia will engage a consultant to conduct a fire safety engineering review of the design and all required engineering inputs for fire management will be incorporated into the final design of the SRF area. Details of the review and an updated and complete Emergency response Plan will be provided to relevant regulatory authorities prior to construction/commissioning.

3 Statutory framework

3.1 Existing approval

A number of approvals have been granted for projects within the Woodlawn Eco Precinct. However, given the SRF will be an addition to the MBT process, it is proposed to modify:

- MP 06-0239 being the 2007 approval of the Mechanical Biological Treatment (MBT) facility (as amended in 2014). The MBT receives waste from Sydney and processes the waste to extract recyclable materials and produce compost. The MBT has a maximum approved processing capacity of 280,000 tpa. The first stage of the MBT recently commenced operations processing up to 144,000 tpa of waste.
- PA 10_0012 (approved in March 2012) for the Woodlawn Bioreactor Expansion. This consent covers the Crisps Creek Intermodal Facility, which will be used to transport the containerised SRF material from the IMF.

3.2 Modification of approval

Up until recently, and for the purposes of S75W of the EP&A Act, the MBT and Woodlawn Bioreactor Expansion projects were designated transitional Part 3A projects and therefore any modifications could be applied for under S75W.

However, on 1 March 2018 changes were made to the EP&A Act including the repeal of S75W. The changes to the Act were supported by amended EP&A Regulations which include transitional provisions relevant to resolving outstanding S75W applications. The implications of the Regulations for the current application are as follows:

- The MBT approval can be modified under section S75W of the EP&A Act given the request to modify was made before 1 March 2018. However, determination of the MBT modification must be made before 1 September 2018 or if not, the Secretary must be satisfied that the application is supported by sufficient information for a determination to be made; and
- As advised by the Department of Planning and Environment the proposed modification to PA 10_0012 to facilitate the movement of SRF material from the Woodlawn Eco-Precinct through the IMF to Sydney can be modified in accordance with Section 4.55 (1A) of the EP&A Act.

The consistency of both modifications with the EP&A Act is discussed further in Section 3.5.2.

Veolia submits that the proposed modification to the MBT and Woodlawn Bioreactor Expansion projects are of a scale that is consistent with the MBT and Woodlawn Bioreactor. The modification would not change the intent or purpose of the approved project given:

- They would remain a waste processing facility;
- They would retain essentially the same development approval; and
- The environmental consequences of the modification would be similar in nature to those resulting from the existing operations at the site.

In addition, the proposal would divert away from landfill an additional approximately 37,400 tpa of residual waste currently not recycled or composted at the MBT.

The proposed modification to PA 10_0012 is to facilitate the movement of SRF material from IMF to Sydney but does not represent any additional train movements.

The environmental assessment has been prepared in accordance with EP&A Regulations and the Secretary's Environmental Assessment Requirements (SEARs) noting that an environmental impact statement is not required being a modification.

The Proposed Modification

Veolia proposes to construct and operate the SRF processing area adjacent to the Woodlawn power station to further process residual waste outputs into Solid Recovered Fuel (SRF). The SRF process represents an additional resource recovery step in the overall MBT process. The SRF process would result in outputs with high calorific value being diverted from the waste stream and being exported for additional processing and use as an alternative fuel.

Up to 50,000 tonnes of residual waste from the MBT will be processed resulting in approximately 37,400 tonnes of SRF being extracted with the remainder being disposed of within the Bioreactor. The SRF material will be stored in containers besides the SRF building and transported fortnightly to the Crisps Creek intermodal facility for railing to Port Botany for export.

Veolia seeks approval for the following:

- Construction of a Solid Recovered Fuel (SRF) processing area adjacent to the Woodlawn power station;
- The transfer and processing of approximately 50,000 tpa of residual MBT waste through the SRF building resulting in the recovery and diversion of approximately 37,400 tpa from landfill;
- The transfer of approximately 12,600 tpa of residual waste from the SRF processing area for disposal within the Bioreactor;
- Storage of SRF within containers adjacent to the SRF building; and
- Fortnightly transportation of approximately 55 containers of SRF by road to the IMF for railing to Port Botany (and the return of approximately 55 empty containers).
- Addition of condition 8A in Schedule 3 of PA 10_0012:

The Proponent shall not receive any more than 37,400 tpa of SRF material from the Woodlawn AWT for transport by rail to Sydney.

Justification

The NSW Waste Avoidance and Resource Recovery Strategy 2014–21 provides a clear framework for waste management over the next five years. The Strategy aims to increase recycling rates for municipal solid waste from 52% (in 2010–11) to 70% in 2021. The modification will contribute positively to the implementation of the goals in the NSW Waste Avoidance and Resource Recovery Strategy by diverting an additional, approximately 37,400 tpa of waste from landfill. It will also help improve the environmental and amenity performance of the MBT facility and its long term sustainability as a key waste management asset for the wider NSW community.

3.3 Permissibility

The site is zoned IN3 Heavy Industrial under *Goulburn Mulwaree Local Environmental Plan 2009*. The proposed development is permissible with consent under *State Environmental Planning Policy (Infrastructure) 2007* as a waste or resource management facility on land in a prescribed zone.

3.4 State Environmental Planning Policies

3.4.1 State Environmental Planning Policy No. 33 – Hazardous & Offensive Development

SEPP 33 requires consent authorities, in assessing DAs for industrial development, to consider the potential risk and offensiveness of the proposal in terms of impacts on human health, property and the biophysical environment. No dangerous goods, as classified by the Australian Dangerous Goods Code, would be handled at the SRF processing area. The proposal is therefore not considered potentially hazardous.

Furthermore, an air quality assessment was undertaken to determine the potential for offensive odours to be generated offsite. The assessment found that the SRF processing area is likely to have a low odour emission profile given that:

- The characteristics of the material to be handled and processed within the SRF is expected to be relatively dry and contain a low level of organics (as the MBT facility is designed to retain the organics in the incoming waste stream);
- The treatment of the SRF drying process exhaust airstream by a double cyclone system prior to atmospheric discharge which would have a positive effect by reducing odour emissions; and
- The SRF process will be undertaken in a dedicated and enclosed building with highly automated and controlled operations.

3.4.2 State Environmental Planning Policy No. 55 – Remediation of Land

SEPP 55 aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment. Under SEPP 55, a consent authority must consider a range of contamination issues before it can grant consent to carry out development on a site.

The proposal does not involve changing the use of land, rather an additional processing stage to produce SRF material. The proposed modification does not alter or impact the contamination issues associated with the Woodlawn facility.

3.4.3 State Environmental Planning Policy (Rural Lands) 2008

The Rural Lands SEPP generally aims to facilitate the orderly and economic use and development of rural lands for rural and related purposes and to protect state and regionally significant rural lands from inappropriate land use changes. The Project does not involve changing the use of rural land and the viability and productivity of rural lands would not be adversely affected.

3.4.4 State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

The Sydney Drinking Water Catchment SEPP aims to provide for healthy water catchments that deliver high quality water while permitting development that is compatible with that goal and to support the maintenance or achievement of the water quality objectives for the Sydney's drinking water catchment.

The proposed modification will not alter the site's neutral or beneficial effect on water quality as:

- The site will continue to operate as a zero contaminated water discharge site;
- No significant changes will be made to water flows, watercourses or riparian corridors as a result of the SRF processing area; and
- Pollutant loads will continue to be effectively treated and disposed of through approved waste and water management systems.

All soil disturbed as a result of the proposed modification is considered to be already disturbed and will be managed through the Construction Environmental Management Plan, the Construction Soil Water and Leachate Management Plan. The Operational Environmental Management Plan for the MBT will be updated to incorporate the SRF processing area and ensure that appropriate controls are in place.

3.5 Other NSW legislation

3.5.1 Protection of the Environment Operations Act 1997

The MBT has an existing licence under the POEO Act. Veolia is currently liaising with EPA in relation to amendments to the current license to reflect the location of the SRF processing area. Water Management Act 2000

No additional water will be extracted at the site as a result of the modification; therefore a water access licence or aquifer interference approval is not required. The proposal is not on waterfront land or a floodplain. The other approvals required under this Act do not apply to Part 3A projects.

3.5.2 Environmental Planning & Assessment Act 1979 (EP&A Act)

As outlined in Section 3.2 the proposed modification to the MBT approval can be made in accordance with S75W of the EP&A Act and the modification to PA 10_0012 can be made under Section 4.55 (1A) of the EP&A Act.

Modification to MBT

Section 75W requires the Minister to be satisfied that the proposed modification to the MBT is consistent with the approved project and does not constitute a new project in its own right. Veolia submits that the proposed modification is of a scale that is consistent with the original MBT approval. The modification would not change the intent or purpose of the approved project given:

- It would remain a waste processing facility;
- It would retain essentially the same development approval; and
- The environmental consequences of the modification would be similar in nature to those resulting from the existing operations at the site.

Modification to Woodlawn Bioreactor Expansion

Section 4.55 (1A) of the EP&A Act requires the consent authority to be satisfied that the proposed modification to the Woodlawn Bioreactor Expansion approval to include the movement of SRF material from the Woodlawn Eco-Precinct through the IMF to Sydney is:

(a) Of minimal environmental impact; and
(b) Substantially the same development as the development for which the consent was originally granted and before that consent as originally granted was modified (if at all).

Veolia submits that the proposed modification to Woodlawn Bioreactor Expansion approval is of minimal environmental impact. There will be no additional container or train movements associated with the modification. Furthermore, the modification would not change the intent or purpose of the approved project given it would remain a waste processing facility and intermodal terminal and retain essentially the same development parameters.

Section 4.15 of the *Environmental Planning and Assessment Act 1979* lists the matters that a consent authority is required to take into consideration in determining an application (so far as relevant). These include:

- any environmental planning instrument

- any draft environmental planning instrument that is or has been placed on public exhibition and details of which have been notified to the consent authority
- any development control plan
- the regulations that apply to the land to which the development application relates
- the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality
- the suitability of the site for development
- any submissions made in accordance with the Act or the Regulations
- the public interest

The assessment of this modification request has had due regard to the matters outlined in Section 4.15 where applicable at this stage. All relevant environmental planning instruments have been considered and the proposal is generally consistent with the aims and objectives of these instruments. The modification application has been prepared and submitted consistent with the EP&A Regulations. A comprehensive impact assessment has been undertaken consistent with the SEARs.

3.5.3 Mining Act 2000

Part of the Bioreactor site is located within Special Mining Lease 20, held by Heron Resources as illustrated in Figure 6. While there are significant interactions between the operations of the Bioreactor, proposed LTP and proposed Woodlawn mine in relation to water management, there are no interactions between the proposed SRF activities and the proposed mine.

3.5.4 NSW EPA Energy from Waste Policy Statement 2015

The Energy from Waste Policy Statement (EfW Policy) provides three categories of criteria for the use of waste-derived fuels that do not fall into the “eligible waste fuels “category. Two of these categories the “Technical criteria” and “Thermal Efficiency criteria” are requirements on the facility that uses (burns) the fuel. Ultimately these requirements will be responsibility of the receiving facility.

The third category of criteria is the “Resource Recovery Criteria “. These criteria apply to the SRF processing area. The objectives in setting resource recovery criteria are to:

•*promote the source separation of waste where technically and economically achievable*

The MBT facility handles only the residual waste after source separation activities are performed by or on behalf of the Councils that direct their waste to the MBT via contractual arrangements with Veolia.

• *drive the use of best practice material recovery processes*

The MBT facility is targeting to achieve around 60 % diversion from residual household waste processed at the site after the removal of material incompatible with the facility. We believe this is comparable to best practice in mixed waste processing.

• *ensure only the residual from bona-fide resource recovery operations are eligible for use as a feedstock for an energy recovery facility.*

The Proposed SRF processing area is also consistent with the specific criteria listed in Table 1 of the EfW Policy. The MBT facility accepts for processing approximately 144,000 tonnes collected,

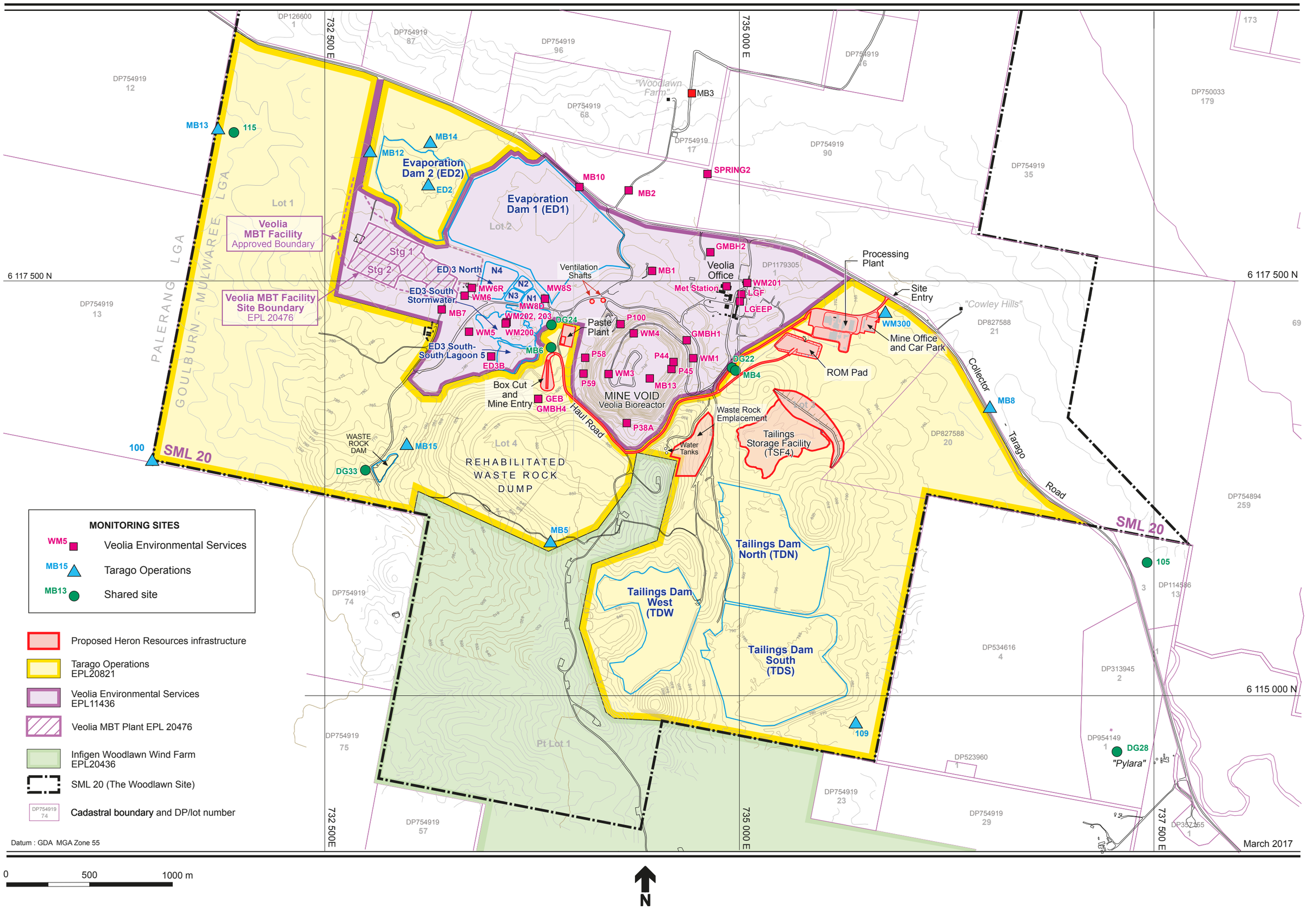
however potentially hazardous or incompatible with the processing equipment is rejected prior to receival at the MBT facility. This represents approximately 1% of the total.

As discussed in Section 1.2 above, waste received at the MBT facility is sourced from Councils in Sydney, which have a variety of collection systems in place. Approximately 77 % comes from Councils with a 3 –bin collection system and 23 % from 2 bin collection systems. Based on this ratio and the requirements in Table 1 of the EfW Policy, the SRF processing area could produce up to 50,000 tpa of RDF material. Refer to Table 6 below for calculations.

Table 6: Calculations for Allowable Total RDF

	Waste Tonnage (tpa)
Total Collected	144,000
Total Processed	136,800
Feedstock from 3 Bin Councils	105,336
Allowable RDF from 3 Bin Councils (40%)	42,134
Feedstock from 2 Bin Councils	31,464
Allowable RDF from 2 Bin Councils (25%)	7,866
Allowable Total RDF	**50,000**

Figure 6 Special Mining Lease -20 Boundary



Any future changes to Council collection systems are likely to increase the number of bins (ie from 2 bin system to 3 bin system), therefore, these calculations are considered to be conservative.

By comparison, the calculated mass balance for the SRF processing area, assumes an output of approximately 37,400 tpa, which is well below the maximum allowance RDF volume based on the current capacity of the MBT facility. Therefore, this provides a reasonable level of contingency in the production of SRF material, which allows for some variability in the waste inputs from time to time.

Table 1 of the EfW Policy also includes a foot note stating that "*Waste streams proposed for energy recovery should not contain contaminants such as batteries, light bulbs or other electrical or hazardous waste"*. These materials are not appropriate for the MBT process and are therefore removed prior to processing at the MBT.

3.6 Commonwealth legislation

3.6.1 Environment Protection and Biodiversity Conservation Act 1999

An approval under the *Environment Protection and Biodiversity Conservation Act* (EPBC Act) is required for any action that is likely to have a significant impact on Matters of National Environmental Significance (MNES). Nine MNES are listed under Part 3 of the EPBC Act. None are relevant to the site. Subsequently, Veolia submits that there will be no significant impact on MNES and a referral to the Federal Department of the Environment and Energy is not required.

3.6.2 Hazardous Waste (Regulation of Exports and Imports) Act 1989

The main purpose of the *Hazardous Waste (Regulation of Exports and Imports) Act 1989* ('the Act') is to regulate the export, import and transit of hazardous waste to ensure that hazardous waste is dealt with appropriately so that human beings and the environment, both within and outside Australia, are protected from the harmful effects of the waste.
Based on the specification of the SRF material, Veolia has sought clarification from the Department of Environment and Energy (DEE) regarding the classification of the SRF material from this proposed process. Based on the expected material specifications, DEE has advised that the SRF material from the MBT facility would not be considered hazardous waste and therefore does not require a hazardous waste permit for its export. (Appendix -D)

3.7 Consultation

Veolia has been corresponding with both the NSW Department of Planning and Environment and the NSW Environment Protection Authority for some time in relation the Long Term Leachate Management Strategy and elements of the SRF processing area. Veolia has also had regular meetings with both agencies regarding the operation of the MBT facility general and matters relevant to the SRF were discussed at meetings held with DPE and EPA on the 14 October 2016 and the 20 June 2017 respectively. Consultation undertaken by Veolia is summarised in Table 7.

Table 7: Summary of Stakeholder Consultation

Stakeholder	Form of Consultation	Issues raised
NSW EPA	Project brief was provided to EPA and DPE during meetings at DPE offices on 14 October 2016 and 20 June 2017.	Comments received which are reflected in the SEARs have been fully addressed.
DPI Fisheries	Project brief was provided on 18/07/2017.	Advised to consider any impacts on natural drainage water ways.
DPI Agriculture	Project brief was provided on 18/07/2017.	No issues were raised.
DEE	Project brief was provided in correspondence dated 23/03/2018	DEE advised that the SRF material from the MBT facility would not be considered hazardous waste and therefore does not require a hazardous waste permit for its export
Rural Fire Services and/or Fire and Rescue NSW	Project brief provided by phone on 18/07/2017.	Advised to consider if the site is considered as Bush Fire prone area.
Roads and Maritime Services (RMS)	Project brief was provided via telephone (12/07/2017) and emails (14/07/2017).	No issues were raised. RMS advised it will review the application during the exhibition phase.
Water NSW	Project brief was provided via telephone 4/07/2017.	No issues were raised.
South East Local Land Services	Project brief was provided via email on 18/07/2017.	No feedback received.
Goulburn-Mulwaree Council	Project brief was provided via telephone 11/07/2017.	Initial comments included to keep the local community informed about the project.
Palerang Council	Project brief was provided via telephone (11/07/2017) and emails (14/07/2017).	No feedback received.
The surrounding landowners and occupiers that are likely to be impacted by the proposal	Project brief was provided during the Community Liaison Committee meeting on 7 July 2017, 16 August 2017 and 15 November 2017	No feedback received.

Veolia has kept the community abreast with quarterly meetings to discuss broader environmental performance including plans for the SRF. Goulburn Mulwaree and Palerang Councils have not raised any complaints with Veolia regarding operation of the Woodlawn facility since it commenced operations. Palerang Council has not raised any issues in relation to the proposed SRF whilst Goulburn Mulwaree sought to ensure that the community was fully informed.

4 Environmental Impact Assessment

A preliminary Environmental Impact Assessment was undertaken for the construction and operations of the proposed modification based on the requirements of the SEARs. Specialist studies have been undertaken on the key environmental aspects; traffic, air quality and noise.

4.1 Traffic

4.1.1 Impact Assessment

Colston Budd Rogers and Kafes Pty Ltd (Colston) were commissioned to prepare an assessment of the traffic implications of the proposed modification. The report is attached as Appendix A.

The SRF processing area would be located adjacent to the Woodlawn power station as illustrated in Figure 8. No new internal roads will be constructed as result of the proposed SRF processing area. Trucks from and to the IMF will access the SRF area via the main entrance, using the existing internal access road from Collector Road (Figure 7). Trucks picking up full containers or delivering empty containers will drive through to the container storage area and then will exit on to road behind power station for their route to IMF (Figure 8). These truck movements will occur on Saturdays on a fortnightly basis.

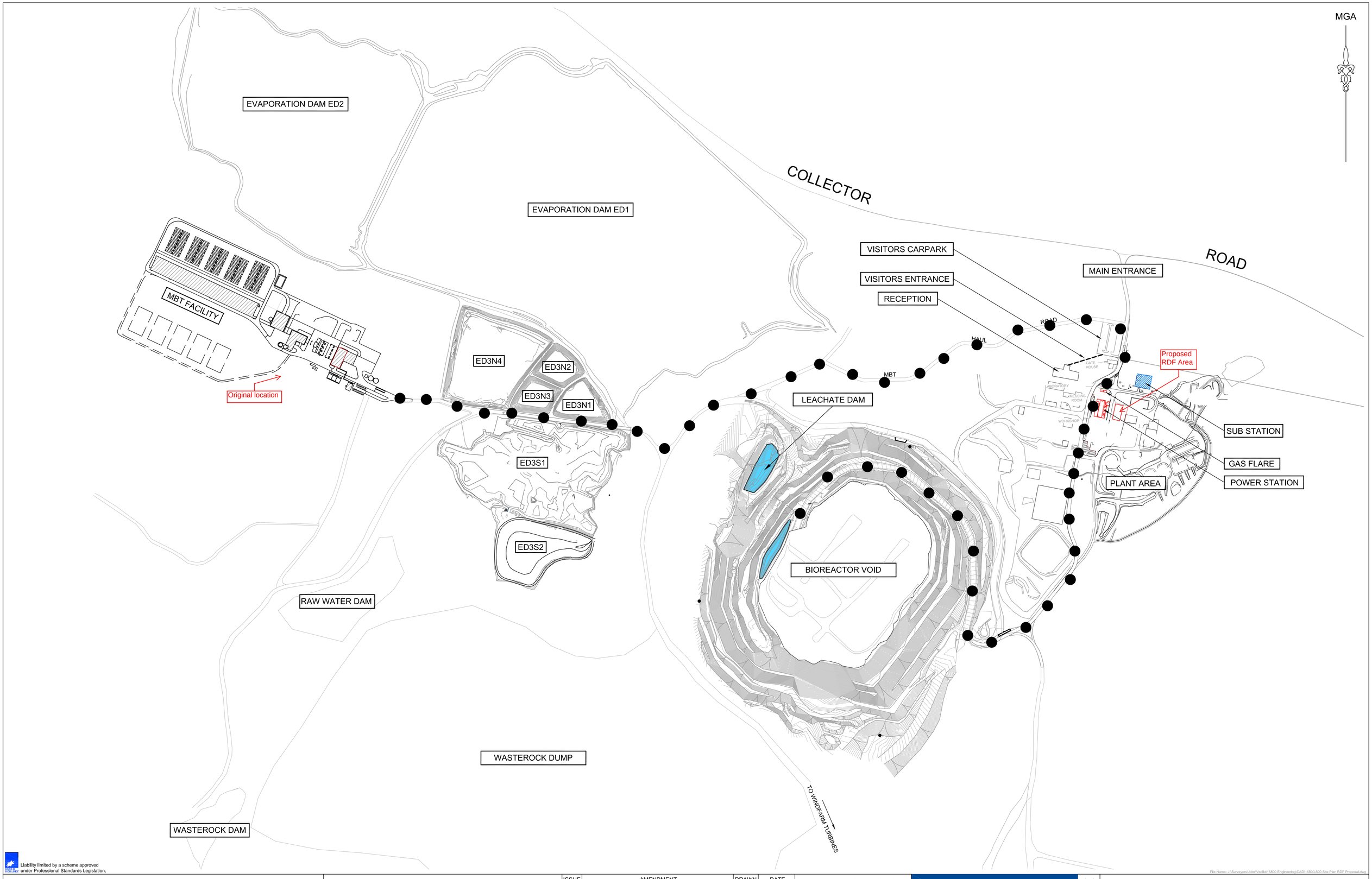
No changes are proposed to existing access arrangements between the Woodlawn facility and the IMF. Additionally, Bungendore Road and Collector Road, between the IMF and the Woodlawn facility including the intersection of Bungendore Road with Collector Road, have previously been upgraded to cater for traffic between the two facilities. Veolia also pays a levy for the maintenance of Collector and Bungendore Roads.

The layout of the SRF processing area is shown in Figure 3. Covered shuttle trucks will use the existing MBT haul road to deliver residual waste from the existing MBT process to the SRF processing area (Figure 7). After passing through the Woodlawn Bioreactor weighbridge, trucks will unload the waste in the SRF building and will leave the building in a forward direction and then will on the road behind the power station and then head back to the existing MBT processing area (Figure 8).

The location of the SRF processing area will reduce the travel distance for the trucks delivering the residual waste from MBT to the Bioreactor, by delivering material to the SRF processing area (Figure 7). This will reduce the number of trucks movements required to deliver residual waste into the Bioreactor and therefore reduce the interaction with traffic on Bioreactor internal roads.

In relation to onsite parking, the SRF will employ three people which will form part of the MBT workforce. There are underutilized parking facilities at the site developed as part of the original mine complex and which are currently used by employees at the site. The parking areas will readily cater for the 3 expected employees working within the SRF processing area.

Figure 7: Waste truck Route from MBT to SRF processing area



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VEOLIA ENVIRONMENTAL SERVICES

SCALE 1:4000

0 80 160 240 320 400

Metres

ISSUE	AMENDMENT	DRAWN	DATE
A	INITIAL ISSUE	MK	4/09/2017

LandTeam Australia Pty Ltd
ABN 35 300 283 592
Goulburn Office
36 Montague Street
Postal: PO Box 1040
GOULBURN NSW 2580
p: (02) 4821 1033
f: (02) 4821 7238
e: goulburn@landteam.com.au
www.landteam.com.au
Integrated Management System

LandTeam

A1 SHEET

VEOLIA ENVIRONMENTAL SERVICES

WOODLAWN BIOREACTOR
COLLECTOR ROAD, TARAGO

PLAN SHOWING
WOODLAWN ECO PRECINCT INFRASTRUCTURE
COLLECTOR ROAD, TARAGO

SURVEYED: N/A
DRAWN: MK
CHECKED: JK

ISSUE A

DRAWING No. 16800-500

DATUM	N/A	CONTOUR INTERVAL	N/A	DATE	4/09/2017

Figure 8: Traffic Flow around SRF processing area

LEGEND

- TRUCKS TRANSFERRING WASTE TO AND FROM MBT
- TRUCKS TRANSFERRING CONTAINERS TO INTERMODAL

REV:	DETAILS	DATE	BY
T5	A3 SHEETS	30/04/2018	AIS

PROJECT
WOODLAWN RDF

PROJECT NUMBER
1702

DRAWING NUMBER
A110 TP

REVISION
T5

CLIENT
VEOLIA

DRAWING NAME
TRAFFIC FLOW

DRAWING STATUS
TENDER ISSUE

SCALE
1 : 1000 @ A3

DATE
30/04/18

DRAWN
AIS

davidson architecture
2/70 Kerr Street Fitzroy 3065
0415 12 57 56
ABN 29 600 077 487
ARBV Registration 51488
NSW Nominated Architect
Andrew Davidson 9345

The transport of approximately 55 containers of baled SRF between the storage area and the IMF will occur approximately once a fortnight, generally on a Saturday and over a four hour period. Over this period, approximately 15 trucks per hour would transport material from the SRF storage area to the IMF and return with empty containers.

To assess the impact of these movements, the Traffic Impact Assessment conducted traffic counts over one weekday at the intersection of Bungendore Road with Collector Road and at existing points to the Woodlawn site and the IMF. Existing two-way (sum of both directions) hourly traffic flows are presented in Table 8.

Table 8: Summary of traffic flows (existing two-way (sum of both directions) hourly traffic flows) (Source: Colston)

Road	Location	Hourly traffic flow		
		AM	Midday	PM
Bungendore Road	At intermodal terminal	120	105	150
	At Collector Road	110	115	140
Collector Road	At Woodlawn	55	65	25
Intermodal Terminal	South of Bungendore Road	40	35	-
Woodlawn	Access at Collector Road	50	60	15

To determine the capacity of the road network to cater for peak period traffic flows, the intersections of Bungendore Road with Collector Road and the Woodlawn and IMF access points were analysed using the SIDRA program for traffic flows. The SIDRA analysis found these intersections and access points are currently operating with a Service A/B, which represents a good level of service.

The proposed additional traffic assigned to the road network, is summarised in Table 9. However, as the campaign would occur over a four hour period, it is unlikely that in practice the traffic increases would occur across the each of the three times of day being AM, Midday and PM. It is more likely that the increases would only occur over two of these periods.

Table 9: Summary of traffic flows (existing two-way (sum of both directions) hourly traffic flows) with additional traffic (Source: Colston)

Road	Location	Hourly traffic flow					
		AM		Midday		PM	
		Existing	Mod	Existing	Mod	Existing	Mod
Bungendore Road	At intermodal terminal	120	+30	105	+30	150	+30
	At Collector Road	110	+30	115	+30	140	+30
Collector Road	At Woodlawn	55	+30	65	+30	25	+30
Intermodal Terminal	South of Bungendore Road	40	+30	35	+30	-	+30
Woodlawn	Access at Collector Road	50	+30	60	+30	15	+30

Although the counts were conducted on a weekday, it was considered that the likely traffic counts on a Saturday would be less, and therefore the total traffic (including the proposed campaign) would

be a worst-case scenario. Table 9 shows that once per fortnight on a Saturday, the traffic would increase by 30 vehicles per hour, two-way for approximately a four hour period. These are considered to be low flows and would not be noticeable on the operation of Bungendore Road or Collector Ro ad.

The intersections previously analysed using SIDRA were reanalysed using SIDRA for the additional traffic flows from the proposed modification. The SIDRA analysis found that both the intersections of Bungendore Road with Collector Road, and the access points to Woodlawn with the IMF would continue to operate with a Service level of A/B, which is a good level of service and average delays. Therefore the surrounding road network will be able to cater for the low additional traffic generation of the proposed modification.

Train Movement at IMF

No additional train movements are proposed for transfer of the containerised SRF material from IMF to Port Botany. The existing approval for the Bioreactor and IMF allows for two trains per day, up to six days per week to and from Sydney and has a capacity to accommodate the proposed movement. However the PA 10_0012 should be modified to reflect the movement of SRF material from IMF to Sydney.

The existing Woodlawn Bioreactor approval allows for two trains into the IMF from Sydney (including the Clyde and Banksmeadow Transfer Terminals). The initial rail shunting times were established by Pacific National (PN) and the operational hours extended to allow for the two services to be managed up to 10:00pm. These shunting times were as follows:

Train 1 Arrive IMF – 6:30am
Train 1 Depart IMF – 1:15pm

Train 2 Arrive IMF – 2:45pm
Train 2 Depart IMF – 8:00pm

The Tarago Crossing loop within the village of Tarago caters for two locomotives and 34 containers. Following the completion of the Banksmeadow Transfer Terminal in 2016, the second train regularly grew beyond 34 containers. To maintain an agreed level of service and to achieve an efficiency of trains in and out of the IMF siding, in April 2017, PN trialed a shuttle arrangement, which involved the splitting of Train 2 in Goulburn and delivering this train into the IMF at two different intervals. This process proved to be very successful, as it maintained our operation within existing operational hours and did not require regular weekend activities. As a result of the service plan change, and when Train 2 length is greater than 34 containers, the above shunting plan occurs.

Train 1 Arrive IMF – 6:30am
Train 1 Depart IMF – 1:15pm

Train 2 Arrives Goulburn at 7:00am and separates 28 containers and departs for Tarago
Train 2a – First Portion (28 containers) arrives Tarago – 8:30am
Train 2a – First portion arrives IMF – 11:45am
Train 2b – Second portion (remaining containers above 34) arrives IMF – 2:15pm
Train 2 (combination) departs IMF – 4:30pm

Tarago Crossing Loop

In April 2016, Transport for NSW (TfNSW) through the NSW Government announced funding towards a pilot scheme called Fixing Country Rail. This program was established "*to fund rail enhance projects that eliminate connectivity constraints on the NSW regional rail network*".

The Country Rail Network and TfNSW secured funding and recognised the benefit to the Veolia operation, and to eliminate any impact on the public rail network. This funding announcement came early in our planning and efficiency assessment and such Veolia submitted an application to TfNSW to upgrade the IMF siding to allow two, 55 wagon trains to be parked. PN supported the initiative and submitted an application to increase the length of the existing crossing loop in Tarago.

Veolia recently received a letter, confirming that the Tarago Loop Extension was selected to progress to phase two: project development. Once these works are completed, the shuttle service PN is operating will be eliminated as there will no longer be a need to split Train 2. At this point in time the entire Train 2 will access the IMF at around 11:45am and depart at 4.30pm.

4.1.2 Mitigation and Management

It is considered that no additional mitigation or management measures are required given that there is:

- sufficient parking;
- site access arrangements are adequate for the proposed modification; and
- the local road network can readily absorb the fortnightly campaign of the transporting of 55 containers once per fortnight on a Saturday.

4.2 Odour

4.2.1 Impact Assessment

An assessment of the potential for the SRF processing area to generate odour was prepared by The Odour Unit (TOU) and is attached as Appendix 2. This assessment was undertaken as a qualitative, desktop approach with the aim of reviewing all relevant technical documentation and the proposed process to determine the likely odour outcomes. This review was conducted to establish whether the introduction of a new process (the SRF process) for waste streams from the MBT would be likely to generate additional odours from the site.

The assessment used an identification and characterization process to qualitatively determine the odour risk from each process step in the SRF. Based on this, a conceptual site model was developed identifying the potential major and minor odour emission sources from the SRF processing area (refer to Figure 9). The major potential source for odour emissions at the SRF was considered to be the SRF drying process, due to:

- The drying process leading to the evaporation of moisture from the SRF material which if it contains organic material that has not been separated or removed prior to drying, may volatilise odorous compounds,
- The drying process is expected to result in the generation of a moderate flow of exhaust air discharge to the atmosphere,
- A level of uncertainty as the expected odour emission rate of the dryer exhaust airstream was not able to be determined at this stage, due to a lack of readily available and representative odour emissions data.

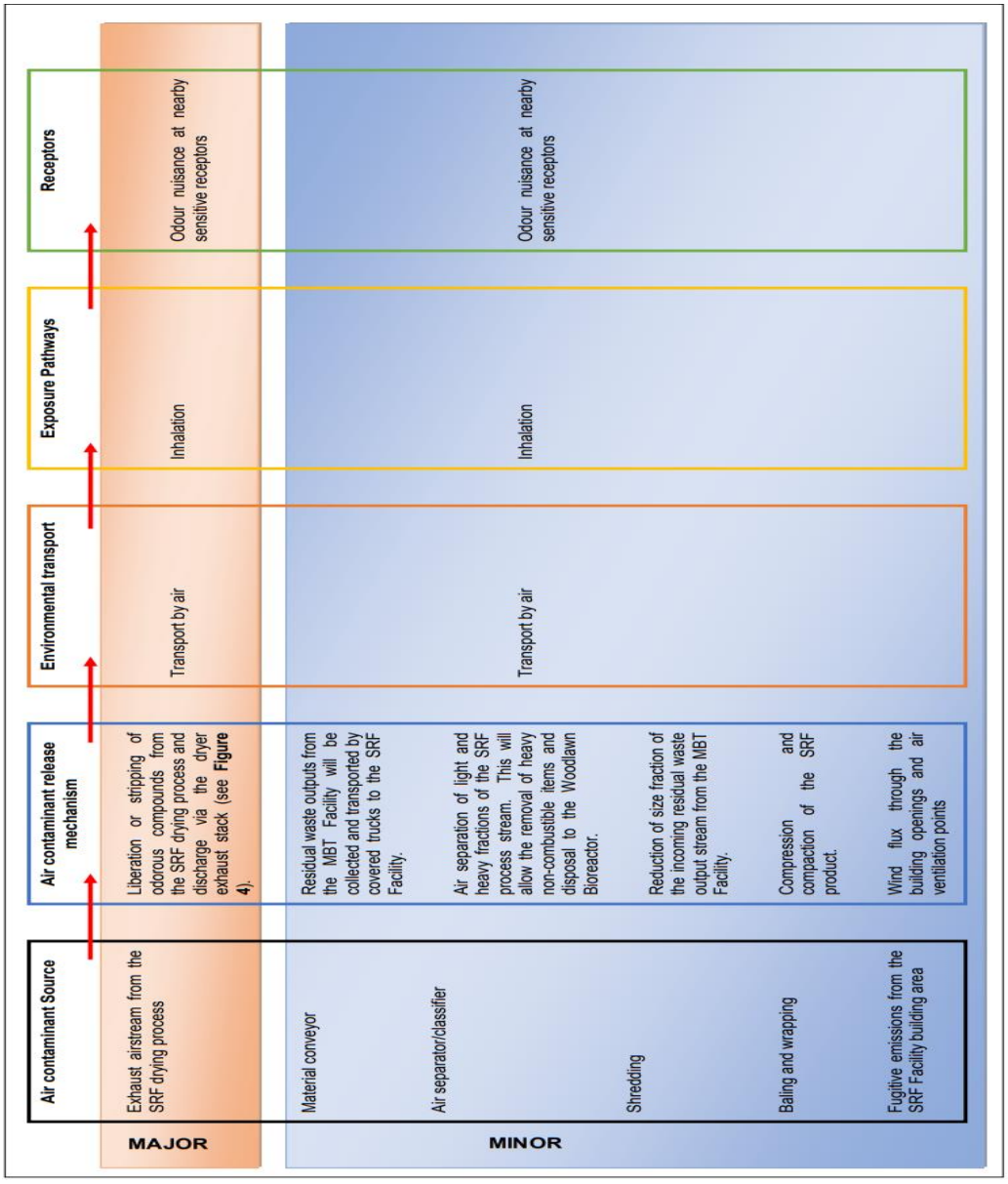
The SRF dryer exhaust airstream will be treated via a double-cyclone system to remove particulate matter prior to discharge through the exhaust stack. The double-cyclone system is expected to

significantly reduce the level of odour from the dryer exhaust airstream. However, as noted by TOU, this will require validation, which is expected to be undertaken post commissioning.

All other process steps in the SRF are expected to have a minor odour risk potential as shown in the site conceptual model. Based on the TOU's assessment, its' overall finding is that the SRF processing area is likely to have a low odour emission profile due to:

- The characteristics of the material to be handled, processed and transported in the SRF process is expected to be relatively dry and contain a low level of organics (as the MBT facility is designed to retain the organics in the incoming waste stream),
- The treatment of the SRF drying process exhaust airstream by a double cyclone system prior to atmospheric discharge which would have a positive effect by reducing odour emissions, and
- The SRF process will be undertaken in a dedicated and enclosed building with highly automated and controlled operations.

Figure 9: Conceptual Site Model identifying major and minor odour emission sources with the SRF (Source:TOU)



4.2.2 Mitigation and Management

Two key recommendations have been made by TOU to ensure the proposed modification does not pose a level of odour risk that could lead to off-site odour impact. These recommendations include:

- A validation assessment of the odour quality of the SRF dryer exhaust airstream to be undertaken upon completion and commissioning of the SRF processing area. The validation assessment would include odour sampling and testing and will enable an evaluation of whether further engineered controls are required to minimize the odour risk associated with this source, and
- In the unlikely event the odour quality of the SRF exhaust airstream was found to be a problem, then a review should be undertaken to explore if an additional odour control system is necessary.

Environmental management of the site currently includes an Odour Management Plan which also details monitoring and management of odour emissions. It is considered that the proposed

modification is not expected to generate odour that would result in an off-site odour impact, provided the recommendations, as required, are implemented.

4.3 Greenhouse Gas

The purpose of this study is to identify and quantify sources of greenhouse gas (GHG) emissions for the proposed SRF Processing area. The assessment of Greenhouse Gas emissions directly relates to the energy consumption and the associated impact on the environment. The following greenhouse gases have been identified as significant contributors to global warming:

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous oxide (N_2O);
- Synthetic gases; and
- Hydro fluorocarbons HFCs, SF_6, CF_4, C_2F_6.

HFCs and synthetic gases are not relevant to the proposed development. National Greenhouse Accounts Factors (July 2016) has been used to provide a consistent set of emissions factors, which are suitable for reporting Greenhouse Gas Emissions. Under the Department of Climate Change and Energy Efficiency protocol, GHG emissions are categorised as Scope 1, Scope 2 and Scope 3 emissions, being;

- Scope 1 – Direct (or point-source) emission factors emissions, are direct emissions from sources owned or operated by the facility. These may be calculated using 'Point Source Emissions Factors' as defined in the AGO Factors and Methods Workbook;
- Scope 2 – Indirect emission factors – emissions are GHGs released as a result of the generation of electricity, or the production of heat, cooling or steam purchased by the reporting company.
- Scope 3 – Various emission factors – emissions are all other GHG emissions that are not covered under Scope1 or Scope 2. Scope 3 emissions can include activities such as employees commuting to work; extraction, production and transport of fuels, materials and other goods; and use of products manufactured and sold.

This GHG assessment considers Scope 2 – Indirect Emissions for energy used to run the SRF processing area. The expected hourly electrical energy usage conservatively has been estimated to be 482 kWh for the SRF processing area including the dryer.

Inventories of greenhouse gas emissions can be calculated using published emission factors. Different gases have different greenhouse warming effects and emission factors take into account the global warming potentials of the gases created during combustion. The estimated emissions are referred to in terms of CO_2-equivalent emission by applying a global warming potential of one for CO_2.

The relevant emission factors applicable to the SRF processing area have been derived from the National Greenhouse Accounts Factors August 2016. Emission factors for Indirect Emissions for electricity used are 0.84 kg CO_2-e/kWh.

Equivalent CO_2-e emissions have been estimated to be 2,365 tonnes CO_2-e per year.

Australia's total greenhouse gas emissions in 2012 amounted to 554.6 million tonnes of carbon dioxide equivalent (Mt CO_2-e) whilst New South Wales, in 2012, accounted for 154.7 Mt of the total. Therefore, the SRF processing area will account for less than 0.0015% of NSW emissions. In addition,

the low production of GHG will also be offset by the benefits of diverting an additional, approximately 37,400 tonnes of waste from landfill.

4.3.1 Mitigation and Management

It is considered that no additional mitigation or management measures are required given that:

- the SRF processing area will account for less than 0.0015% of NSW emissions; and
- the low production of GHG will also be offset by the benefits of diverting an additional, approximately 37,400 tonnes of waste from landfill .

4.4 Noise

4.4.1 Context

A Noise Impact Assessment (NIA) was prepared by Wilkinson Murray to assess the potential noise impacts arising from the proposed modification. The following section summarises the NIA, which is provided in Appendix 3.

The key aspects of the proposed modification relevant to noise include:

- Mechanical sorting and processing of waste material via hammering and grinding,
- Product dispatch during normal operational hours.

4.4.2 Assessment Methodology

Operational and construction noise emissions from the site were modeled using the "CadnaA" acoustic noise prediction software using the CONCAWE noise algorithm. Factors that were included in the noise modelling are:

- Equipment noise level emissions and locations;
- Shielding from structures;
- Noise attenuation due to geometric spreading;
- Ground absorption; and,
- Atmospheric absorption.

The noise impacts associated with the proposed modifications were assessed for the construction and operational phases. As there are no non project sensitive receivers along Collector Road and Bungendore Road, a road traffic noise assessment was not conducted. The assessment was conducted in general accordance with the NSW EPA's Industrial Noise Policy (INP) and Interim Construction Noise Guideline (ICNG).

4.4.3 Project Approval

The project approval for the MBT sets the noise criteria as follows:

- 40 dBA LAeq (15 minute) at residences on privately owned land during construction,
- 35 dBA LAeq (15 minute) at residences on privately owned land during operations.

4.4.4 Construction Noise Assessment

Construction is proposed to commence in the second half of 2018 and is predicted to be complete, inclusive of commissioning by the mid of 2019. The construction noise assessment includes two potential scenarios for construction of the SRF processing area based on the likely stages of construction and is provided in Table 10.

Noise predictions indicate that noise emissions during construction of the SRF processing area would comply with the relevant noise criteria at all receivers during the recommended standard construction hours.

The results of the construction noise modeling for both construction scenarios are provided in Table 11.

Table 10: Construction scenarios

Scenario	Description	Estimated Sound Power Level, dBA
Scenario 1	Site preparation; including excavation and pouring of a concrete slab	120
Scenario 2	Installation of plant and equipment, construction of the buildings and delivery of materials.	115

Table 11: Predicted Construction Noise Levels

Receiver	Predicted Day time Scenario 1 $L_{Aeq, 15min}$ Level	Predicted Day time Scenario 1 $L_{Aeq, 15min}$ Level	Construction Noise Management Levels $L_{Aeq, 15min}$ Level
Torokina Property	<10	<10	40
Woodlawn Farm (property owned by Veolia)	44	39	40
Cowley Hill (property owned by Veolia)	42	37	40
Pylara (property owned by Veolia)	23	18	40

4.4.5 Operational Noise Assessment

The predicted operational noise levels at nearby residential receivers due to proposed activities are provided in Table 12. The noise assessment shows that predicted noise levels from the SFR at nearby receivers are well below noise criteria. The predicted noise level at the nearest sensitive receptor not owned by Veolia (Torokina) is well below the day and night time noise criteria and as such is unlikely to contribute to the existing noise levels from the Woodlawn facility. The predicted SRF noise levels are at a level that indicates inaudibility at the nearest sensitive receptor.

In assessing sleep disturbance, typical L_{Amax} noise levels of acoustically significant operations at night have been considered (i.e. the percussive impact noise associated with workshop activities). The use of the L_{Amax} noise level provides a worst-case prediction since the $L_{A1(1minute)}$ noise level of a noise event will be equal to or less than the L_{Amax}. Also, to provide a conservative assessment, it has been assumed that the noise source is outside the SRF building, with no screening from the workshop or other structures.

The highest L_{Amax} predicted at any potentially affected receiver was 27 dBA at "Woodlawn Farm". This predicted L_{Amax} noise level is compliant with the relevant sleep disturbance noise goal of 3 5 dBA

Table 12: Predicted Operational Noise Levels

Receiver	Predicted Day time LAeq, 15min Level	Predicted Night time LAeq, 15min Level	Criteria		
			Day	Evening	Night
Torokina Property	<10	<10	35	35	35
Woodlawn Farm (property owned by Veolia)	22	27	35	35	35
Cowley Hill (property owned by Veolia)	22	25	35	35	35
Pylara (property owned by Veolia)	<10	<10	35	35	35

Noise levels associated with construction activities at potentially affected receivers were predicted to meet the ICNG construction criteria at receiver locations.

Noise predicted from the operation of the SRF is expected to comply with the Project Approval criteria at all receiver locations under calm and noise enhancing weather conditions. Night-time sleep disturbance noise goals are also predicted to be met at all receiver locations.

Noise levels of Bungendore Road and Collector Road during construction and operation of the modification were not assessed as there are no sensitive receivers not associated with the project along these roads.

IMF Noise impacts

Current rail activities involve the transport of containers of waste from Sydney to the Woodlawn Eco Precinct via the IMF, and the return of containers from Woodlawn to Sydney via the IMF. The fact that a proportion of the returning containers to Sydney would contain SRF material will have negligible if no impact in terms of noise at the IMF.

A noise assessment for the Woodlawn Bioreactor Expansion was undertaken and operational noise levels from the IMF were predicted to meet the project specific noise criteria at all residential locations during the morning shoulder, day time and evening periods.

No changes to noise criteria are proposed as result of this modification. The proposed modification will comply with existing noise specific criteria.

4.4.6 Mitigation and Management

It is considered that no additional mitigation or management measures are required given that:

- Noise predictions indicate that noise emissions during construction of the SRF would comply with the relevant noise criteria set by ICNG at all receivers during the standard construction hours.
- Noise predictions indicate that noise emissions from the operations of the SRF would comply with project specific noise criteria and Project Approval noise criteria for operation

during the day, evening and night periods for calm and prevailing weather conditions.

4.5 Soil and Water

4.5.1 Impacts

Soil

The SRF processing area will be located with the former Woodlawn Mine processing area which ceased operations in 1998. Woodlawn Mine processing area is disturbed by human activity to a depth of at least 1 metre. Soil has been removed; greatly disturbed soil landscape area. Therefore, it is unlikely that acid sulphate soils would be encountered. The construction of SRF building will form the part of the rehabilitation of the old redundant Woodlawn mine area.

No significant disturbance to the landscape is proposed as part of the construction phase of the SRF processing area other than site clearing and grading. The general silty topsoil over a clayey residual soil with weathered underlying rock could be reused on site as engineered fill.

Minor earthworks will be required to level the proposed SRF area. This will involve bringing in fill material in to level the area in preference to excavation works. Fill material will be sourced from Woodlawn Eco Precinct site. Approximately 4500m3 of fill material will be required.

Ground Water

There will be no disturbance to the ground water or aquifer dewatering during the construction and operation of the proposed SRF processing area. During the lifetime of the development, soil and ground water will be protected from potential contamination through the use of a concrete pad in the SRF processing area.

Surface Water

Surface water in the vicinity of the SRF processing area is collected and stored on Site in evaporation dams to prevent water generated from disturbed areas into the Crisps Creek and Allianoyonyiga Creek catchments. Only clean surface water from undisturbed or rehabilitated area will be allowed to drain into Crisps Creek and Allianoyonyiga Creek.

No water will be used in the SRF process, therefore no leachate or dirty water will be generated. Storm water runoff from area where the SRF processing area will be located is currently managed as contaminated water, which drains to the plant collection dam (refer to Figure 4), which is then pumped to Evaporation dam of the Bioreactor where the water is evaporated naturally and with the aid of mechanical evaporators. This will continue to be the case once operational. Storm water drainage system for the uncovered areas (including hard stand area) around the SRF processing area will be designed to safely convey all the storm water runoff to the existing plant collection dam.

There will no container or vehicle wash down activity at the SRF Processing area. Containers will continue to be washed at Woodlawn Bioreactor facility if required as part of the existing container maintenance schedule.

The water management system for the proposed SRF processing area is discussed in Section 2.6 of this report

4.5.2 Mitigation and Management

Adequate erosion and sediment controls will be installed during construction to ensure that receiving waters are protected.

The measures to be adopted during the construction phase of the development of the SRF building and processing area will include the following:

- Installation of appropriate silt fences at the downstream perimeter of areas of disturbance
- Use of sandbags for temporary runoff control;
- Use of turf filter strips laid and maintained downstream of disturbance areas;
- Top soil stripping and stockpiling (where appropriate); and,
- Soil stabilisation of disturbed areas as soon as possible after completion of each stage of works.
- Watering of exposed surfaces, including stockpiles, during periods of high wind.
- Limiting dust generation activities during adverse wind conditions

The measures listed above will ensure that exposure of the soil surface to the actions of stormwater is minimised, sediment laden stormwater discharge are limited, and discharges are directed to suitable devices and methods to intercept, retain and remove water borne pollutants.

4.6 Visual Impact

4.6.1 Impact Assessment

The SRF processing area will be located on disturbed land adjacent to the Woodlawn power plant, about 150 metres south of the main administration building (refer to Figure 2 and Figure 8). The SRF building will be just over 60 metres long and less than 60 metres wide (refer to Figure 3). The main processing building will be 12.30 metres at its highest point sloping to a low of 8.23 metres (refer to Figure 11). Containers will be stored at the northern end to a height less than the height of the SRF building.

The building will be visible from some sections of Collector Road however it would be viewed as a an item in the foreground of existing infrastructure such as the MBT Facility, the administration building and power plant. The proposed height of the SRF building would be approximately 4m higher than the power station although it would slope to an equivalent height immediately adjacent to the power station. The SRF building would be of a similar scale to other on-site buildings.

In Modification 1 for the MBT, a detailed visual impact assessment was conducted which focused on the view from Collector Road, given it is the key public viewpoint for the Woodlawn Eco Precinct and that there are limited non project related views to the MBT and the Eco Precinct in general from the south, east or west.

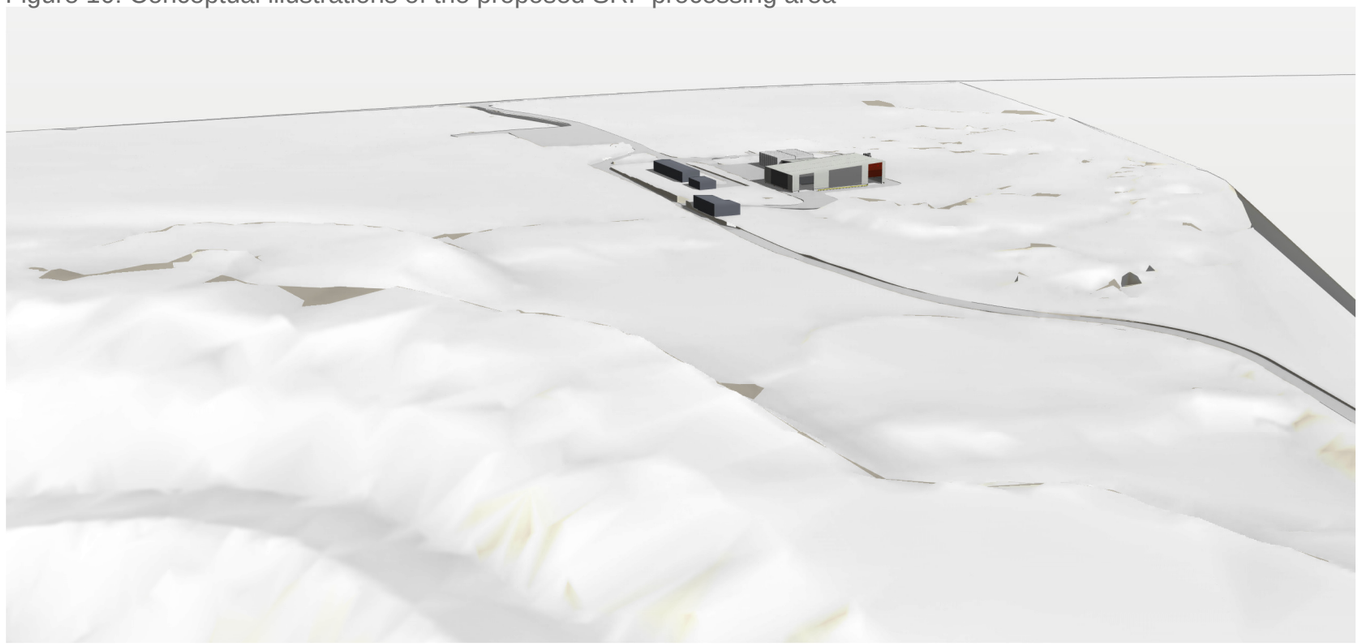
Similarly, the key viewpoint to the proposed SRF building and processing area would be from Collector Road generally looking north past the main administration building towards the Woodlawn power plant and Woodlawn Wind Farm as shown in Plate 1. It is predicted that the visual impact of the SRF building and processing area on the Collector Road viewpoint would be low given that Bioreactor would provide the backdrop for the SRF building, the land is highly disturbed, it is zoned industrial and characterized by existing infrastructure and structures such as the administration building and power station. Importantly, there is also a lack of nearby receptors. The impact of the SRF processing building and processing area for all remaining viewpoints, including the non project related private properties would be negligible.

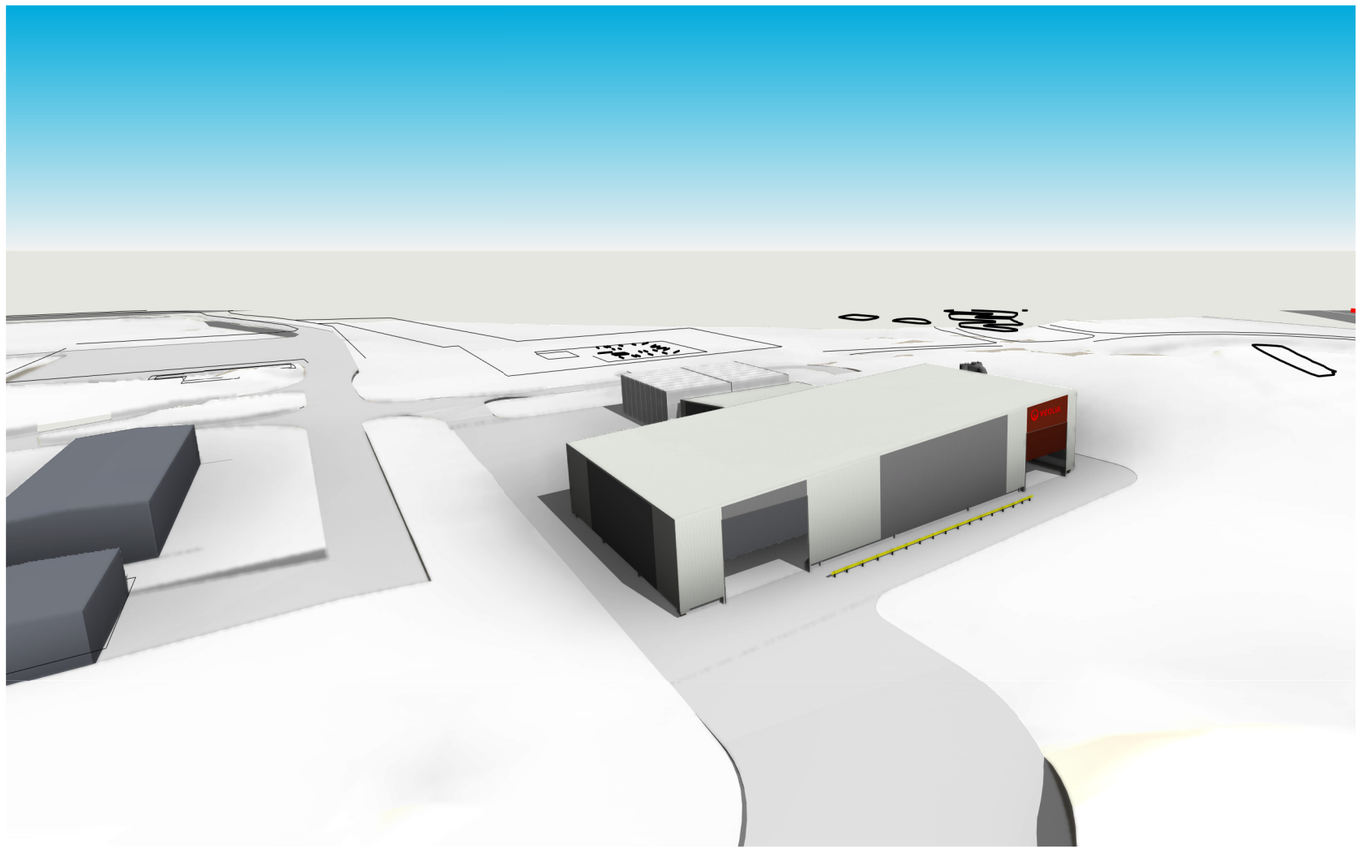
4.6.2 Mitigation and Management

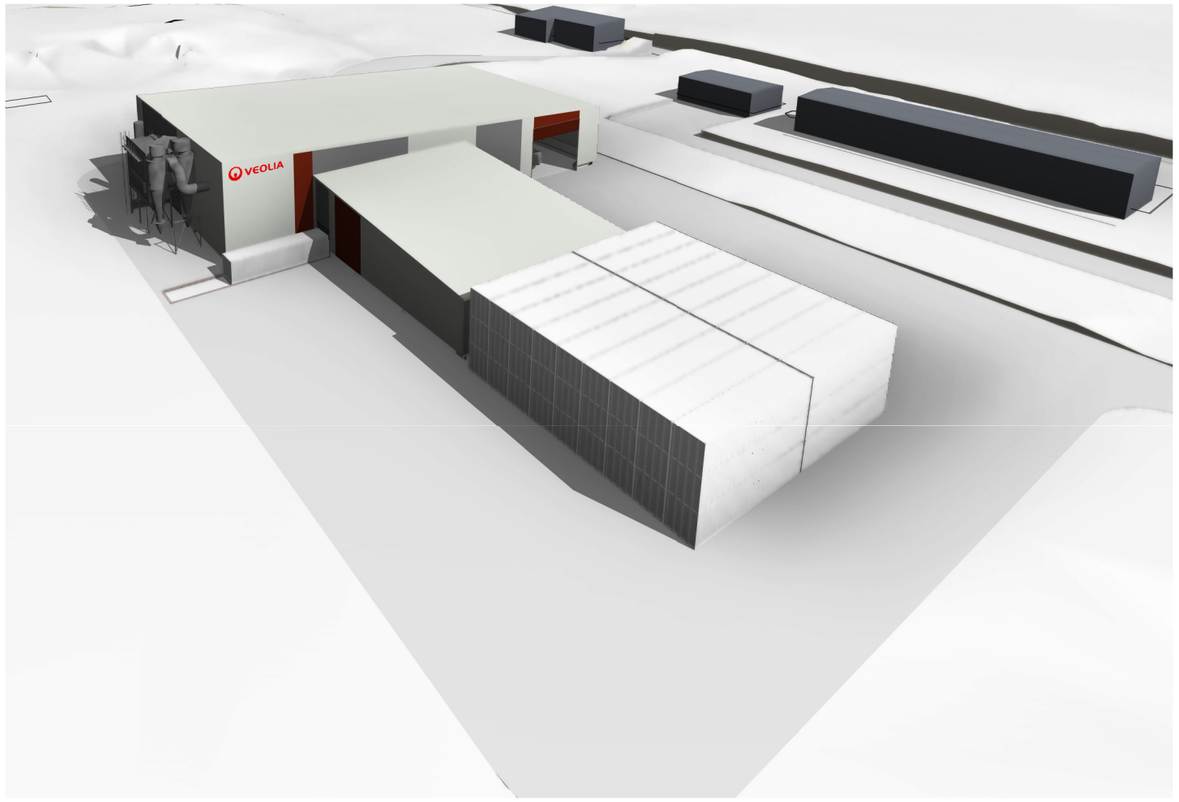
It is proposed that the SRF building be constructed using material and colours that complement the surrounding landscape. Additionally, external lighting requirements for the SRF processing area will comply with the "Control of Obstructive Effects of Outdoor Lighting" in accordance with the existing Project Approval visual amenity condition, to ensure it does not cause nuisance to surrounding receivers and / or roadways.

Plate 2 - View of the SRF processing site and power station looking south from Collector Road

Figure 10: Conceptual illustrations of the proposed SRF processing area







DRAWING LIST

SHEET NUMBER	SHEET NAME	REVISION	DATE ISSUED
A000 TP	COVER SHEET	T5	30/04/2018
A010 TP	LOCALITY PLAN	T5	30/04/2018
A100 TP	SITE PLAN	T6	29/5/18
A110 TP	TRAFFIC FLOW	T5	30/04/2018
A120 TP	GROUND FLOOR PLAN	T5	30/04/2018
A140 TP	ROOF PLAN	T5	30/04/2018
A300 TP	ELEVATIONS	T5	30/04/2018
A400 TP	SECTIONS	T5	30/04/2018

REV:	DETAILS	DATE	BY
T5	A3 SHEETS	30/04/2018	AIS

PROJECT
WOODLAWN RDF

CLIENT
VEOLIA

DRAWING STATUS
TENDER ISSUE

PROJECT NUMBER
1702

DRAWING NUMBER
A000 TP

REVISION
T5

DRAWING NAME
COVER SHEET

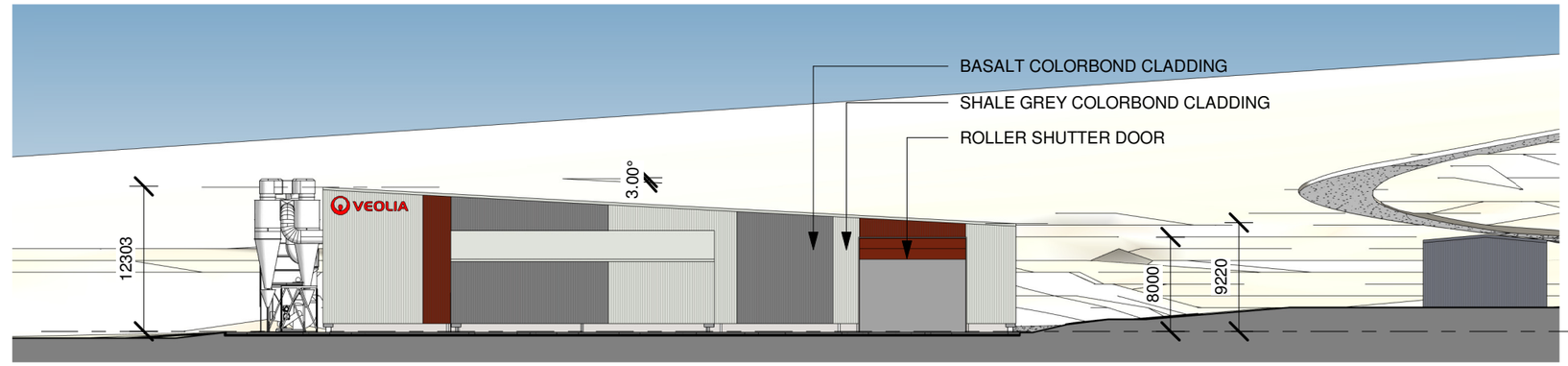
SCALE
@ A3

DATE
30/04/18

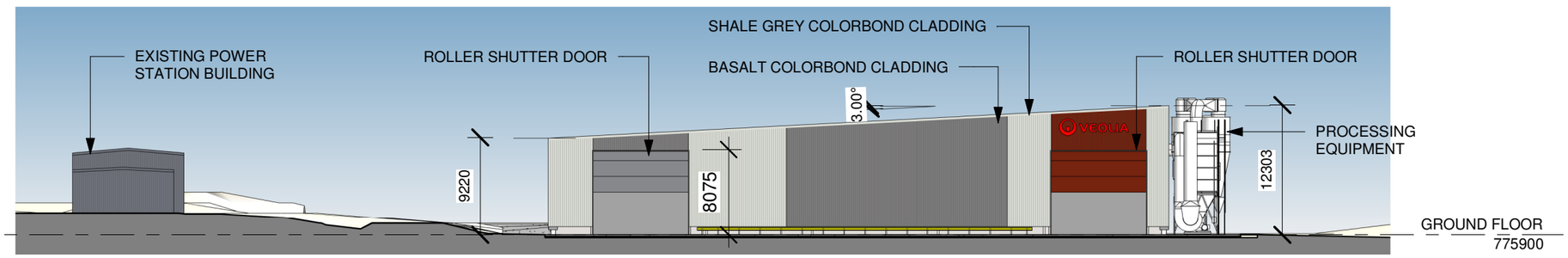
DRAWN
AIS

davidson architecture
2/70 Kerr Street Fitzroy 3065
0415 12 57 56
ABN 29 600 077 487
ARBV Registration 51488
NSW Nominated Architect
Andrew Davidson 9345

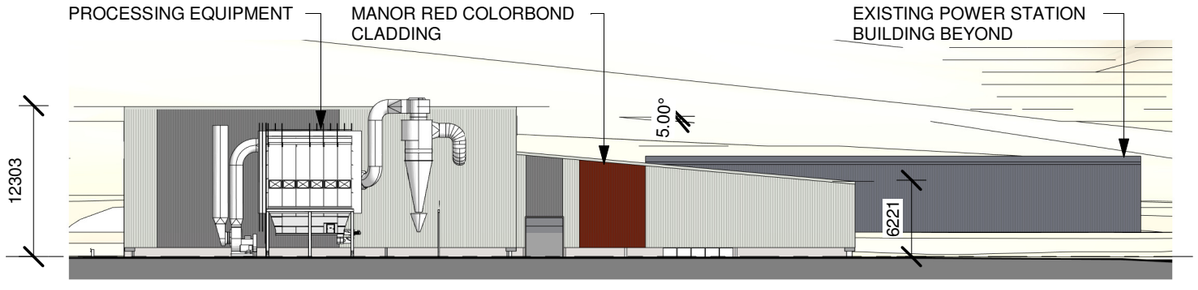
Figure 11: Elevations for the SRF processing area



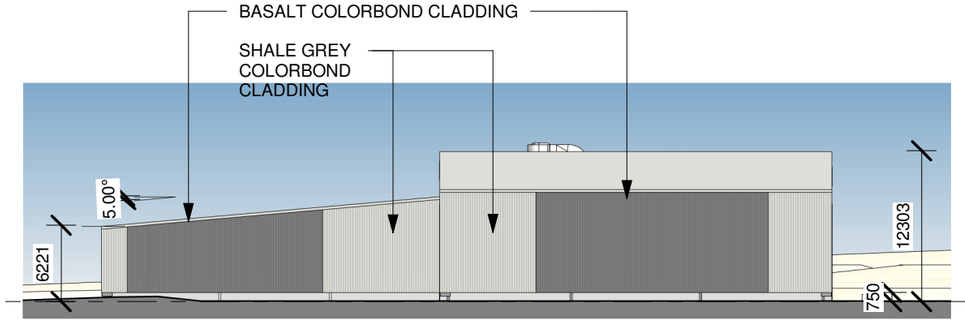
1 NORTH ELEVATION
1 : 500



2 SOUTH ELEVATION
1 : 500



3 EAST ELEVATION
1 : 500



4 WEST ELEVATION
1 : 500

REV:	DETAILS	DATE	BY
T5	A3 SHEETS	30/04/2018	AIS

PROJECT
WOODLAWN RDF

PROJECT NUMBER
1702

DRAWING NUMBER
A300 TP

REVISION
T5

CLIENT
VEOLIA

DRAWING NAME
ELEVATIONS

DRAWING STATUS
TENDER ISSUE

SCALE
1 : 500 @ A3

DATE
30/04/18

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AIS

davidson architecture
2/70 Kerr Street Fitzroy 3065
0415 12 57 56
ABN 29 600 077 487
ARBV Registration 51488
NSW Nominated Architect
Andrew Davidson 9345

5 Statement of Commitments

Table 13 below considers consolidated commitments made throughout this modification report additional to those in the existing development consent (PA 06_0239) to prevent, reduce and/or offset potential adverse impacts form the implementation of the proposed modification.

The commitments will be implemented through project specific management plans which form part of Veolia's accredited IMS.

Table 13: Statement of Commitments

Environmental Issue	Modification EA-proposed Environmental and Operational Controls
Air Quality	A validation assessment of the odour quality of the SRF dryer exhaust airstream
Erosion	• Installation of appropriate silt fences at the downstream perimeter of areas of disturbance • Use of sandbags for temporary runoff control; • Use of turf filter strips laid and maintained downstream of disturbance areas; • Top soil stripping and stockpiling (where appropriate); and, • Soil stabilisation of disturbed areas as soon as possible after completion of each stage of works. • Watering of exposed surfaces, including stockpiles, during periods of high wind. • Limiting dust generation activities during adverse wind conditions

6 Conclusion

The modification seeks approval for an important augmentation to the MBT Facility, through the addition of a SRF processing area to further process the waste outputs from the MBT process. This additional process proposes to divert an additional, approximately 37,400 tpa of waste from landfill, through the creation of a new product (SRF) with high calorific value for sale offshore as an alternative fuel.

This augmentation is consistent with and contributes to the NSW Government's Waste Avoidance and Resource Recovery Strategy 2014-2021. The modification will allow Veolia to create a new waste derived product for sale, from the output of the MBT process which is currently destined for landfill within the Bioreactor.

The potential impacts have been fully considered with a specific focus on traffic, air and noise quality. As the SRF is a dry process and requires no potable or non-potable water for processing purposes, there are only limited water requirements which can be easily sourced on site from the Bioreactor. Additionally, the existing site stormwater management system can accommodate the runoff from the SRF building and surrounding hardstand areas without further augmentation.

A traffic assessment was conducted to consider how the proposed additional movement of 55 containers once per fortnight between the Woodlawn facility and the IMF could be accommodated. The assessment found that the existing site access would remain unchanged and sufficient parking provision is available to cater for the three employees required to operate the SRF. Additionally, the site layout would enable the movement of trucks (semi-trailers) in a forward direction through the site, whilst circumnavigating the SRF, having the SRF containers loaded and leaving the Woodlawn site in a forward direction. The intersections of Bungendore Road with Collector Road and the access points to Woodlawn and the IMF were analysed using SIDRA modeling which found the existing level of Service A/B (good level) would remain unchanged with the additional trucks once per fortnight. Therefore traffic impacts resulting from the proposed modification for the Woodlawn site and the local road network are predicted to be negligible.

The odour assessment identified the presence of one potential major odour source, being the SRF dryer process which will have an exhaust stack to discharge air to the atmosphere. Through the presence of controls such as the treatment of the airstream via a double-cyclone system to remove particulate matter prior to discharge, the assessment concluded that it is likely that the SRF processing area will have a low odour emission profile. Further, a validation assessment is recommended once the facility is completed and commissioned to confirm that no additional controls are needed to minimise the odour risk from this source. It should be noted that in the unlikely event that additional odour management is required there are feasible options available such as providing a dedicated odour control system for the SRF. With these recommendations and measures in place, the odour emissions are not expected to pose an off-site odour impact.

The noise emissions from the proposed modification will comfortably meet the limits established in the development approval for sensitive receivers.

The modification would support the long-term sustainability of this important waste management project as it would contribute positively to the NSW Waste Avoidance and Resource Recovery Strategy 2014-2021. It is therefore considered to be in the public interest and should be approved.

Appendix A – Traffic Impact Assessment

Appendix B – Air Quality Impact Assessment

Appendix C – Noise Impact Assessment

Appendix D – DEE correspondence

Appendix E – Plans

Appendix F – Woodlawn Eco Precinct Primary Operations Area Plan

Appendix G – Woodlawn Eco Precinct Infrastructure Primary Operations Area