BORG ST MARYS GREENHOUSE GAS ASSESSMENT

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PREPARED FOR

BORG MANUFACTURING PTY LTD 2 WELLA WAY SOMERSBY NSW 2250



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GLOSSARY OF TERMS

SCOPE 1 GREENHOUSE GAS EMISSIONS

Emissions released into the atmosphere as a direct result of an activity, or series of activities (including ancillary activities) that constitutes the facility.

SCOPE 2 GREENHOUSE GAS EMISSIONS

Emissions released as a result of one or more activities that generate electricity, heating, cooling or steam that is consumed by the facility but that do no form part of the facility.

SCOPE 3 GREENHOUSE GAS EMISSIONS

Emissions that occur outside the site boundary of a facility as a result of activities at a facility that are not Scope 2 emissions.

1 INTRODUCTION

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

The Proposal was declared to be a State Significant Development (SSD-10474). The Secretary's Environmental Assessment Requirements (SEARs) for the Proposal have been issued and set out the environmental assessment requirements for the project.

Wilkinson Murray Pty Limited has been engaged by Borg Manufacturing to prepare s Greenhouse Gas (GHG) Assessment for inclusion in the Environmental Impact Statement (EIS) relative to the project.

The proposal is for the increase of throughput/volume of waste to the existing Resource Recovery Facility at 25 Dunheved Circuit. The site currently has approval for the sorting and processing of 18,000 tonnes of waste per annum (DA01/1034 Penrith Council). It is proposed to increase this throughput to 150,000 tonnes per annum, consisting of 110,000 tonnes wood/timber waste and 30,000 tonnes of plasterboard. As a result of processing the timber materials, a minor amount of waste metals (approx.10,000 tonnes) will also be collected on site and transferred elsewhere for processing.

This GHG Assessment has been conducted in general accordance with:

- Technical Guidelines for the Estimation of Greenhouse Gas Emissions by Facilities in Australia (DoE, 2017); and,
- National Greenhouse Accounts Factors (DoE, 2019)

1.1 Secretary's Environmental Assessment Requirements

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) (SSD 10474) for the Proposal, issued by NSW Department of Planning and Environment.

Table 1-1 provides a summary of the relevant SEARs which relate to greenhouse gas, and where these have been addressed in this report.

Table 1-1 SEARs

SEARs	Where addressed	
Greenhouse gas and energy efficiency — including an assessment of the		
energy use of the proposal and all reasonable and feasible measures that	Sections 3 through 5	
buld be implemented on site to minimise the proposal's greenhouse gas		
emissions.		

2 PROJECT DESCRIPTION

2.1 Site Location

The site is identified as 25 Dunheved Circuit, St Marys, being Lot 143 in DP 7013185. The site is an irregular shaped battle-axe lot with an area of 6,140 m² and is zoned IN1 General Industrial. The land is predominantly flat, with vegetation on the site, all areas of the site are hardstand.

The lot contains:

- a 3,455 m² waste process cladding with a ridge;
- a site office and amenities;
- two inground 20 m weighbridges;
- external areas sealed with concrete hardstand; and
- water tanks.

The site location is shown in Figure 2-1.





2.2 Project Description

2.2.1 Proposal Overview

The proposal is for the increase of throughput/volume of waste to the existing Resource Recovery Facility at 25 Dunheved Circuit. The site currently has approval for the sorting and processing of 18,000 tonnes of waste per annum (DA01/1034 Penrith Council). It is proposed to increase this throughput to 150,000 tonnes per annum, consisting of 110,000 tonnes wood/timber waste and 30,000 tonnes of plasterboard. As a result of processing the timber materials, a minor amount of waste metals (10,000 tonnes) will be collected on site and transferred elsewhere for processing. No physical works are proposed to the existing site or buildings.

Processing of timber and wood and plasterboard waste will happen inside the existing building by way of compaction and shredding/grinding. The majority of the processed wood waste will be transferred to the Borg Manufacturing site in Oberon, NSW to be used in the manufacture of particle board and MDF products, or to be used as a non-standard fuel in heat plant. The typical types of wood waste include clean pallets, particle board & MDF, LOSP & T2 pine and laminated MDF with coatings, along with other urban and raw wood materials deemed suitable. These waste materials will come from a number of sources including Borg Panels customers, framing and truss builders, freight companies, waste facilities and other timber companies.

Plasterboard will be minimised and grinded, with paper removed during the grinding process. The gypsum generated by processing will be used for agricultural soil conditioning or re-used in plasterboard production.

Waste metals recovered during the timber processing will be manually sorted and separated, and then taken off-site to other waste facilities to be processed or disposed of.

All RRF activities (storage and processing) will be undertaken inside the existing building on 25 Dunheved Circuit.

reDirect is proposing to increase the throughput of waste from 18,000 tpa to process up to 150,000 tpa of materials within the existing resource recovery facility. The majority of the processed material will be re-used in the manufacture of engineered timber products, mainly particle board. Detailed below are the amounts of material proposed to be recovered on the site.

- 110,000 tonnes of Urban and Natural Wood wastes (MDF off-cuts, raw wood offcuts, clean pallets, LOSP pine, engineered wood products, particleboard, some laminated MDF with paint).
- 30,000 tonnes of plasterboard waste, primarily offcuts and de-construction materials from construction sites.
- Minor amounts <10,000 tonnes of ferrous and non-ferrous metals. This will be made up of steel, and steel components removed from the processing of pallets i.e. nails, strapping etc. waste metals will be sorted and dispatched off-site. Some metal independent of the recovered materials will also be brought to be site.

The key components of the Proposal are shown in Figure 2-2.



Figure 2-2 Site plan showing proposed site layout

It is noted that there are no new facilities proposed for this development.

2.2.2 Hours of Operation

It is proposed to operate the facility 24 hours a day, 7 days a week including processing, waste delivery and collection. This is consistent with the previous approval on-site under SSD-8200.

A modern waste recycling facility needs to be able to receive, process and despatch 24 hours per day, although for the majority of times, it can be expected that most operations would be carried out in daytime hours.

There will be up to 10 staff employed onsite in processing, stockpiling, receiving, dispatch and office related work.

3 ASSESSMENT METHODOLOGY

The following greenhouse gases have been identified as significant contributors to global warming:

- Carbon dioxide (CO₂);
- Methane (CH₄);
- Nitrous oxide (N₂O);
- Synthetic gases; and
- Hydro fluorocarbons HFCs, SF₆, CF₄, C₂F₆.

No significant emissions of HFCs and synthetic gases are likely to occur as a result of the r operation of the Proposal and have therefore been omitted from the remainder of the assessment.

GHG emissions are categorized as Scope 1, Scope 2 and Scope 3 emissions; which are defined as follows:

- Scope 1 Direct (or point-source) emissions emissions from sources owned or operated by the facility.
- Scope 2 Indirect emissions emissions 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 emissions all other GHG emissions that are not covered under Scope1 or Scope 2. Scope 3 emissions. These 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 the following GHG emissions and energy consumption activities associated with the project:

Scope 1 – Direct Emissions:

• Combustion of fuel in facility owned stationary and mobile plant and equipment.

Scope 2 – Indirect Emissions:

• Electricity generated off-site of that is consumed on the site.

Reporting of Scope 3 emissions is optional since these emissions are reported as either Scope 1 or Scope 2 emissions from other activities. Accordingly, Scope 3 emissions are not discussed further in this assessment.

3.1 Emission Factors

Based on the identified sources of GHG emissions from the Project, relevant emission factors have been adopted from the *National Greenhouse Accounts Factors, August 2019*.

Table 3-1 presents the Scope 1 emissions factors used in this assessment.

Table 3-1 Scope 1 Emission Factors (Transport Fuels)

Fuel True	Energy Content	Emissior	Emission Factor (kg CO _{2-e} /GJ)		
Fuel Type	(GJ/kL)	CO ₂	CH₄	N ₂ O	
Diesel Oil	38.6	69.9	0.1	0.6	

Scope 2 emissions have been calculated using an emission factor of 0.81 (kg CO_{2-e}/kWh), applicable to electricity produced in New South Wales.

4 ESTIMATION OF GREENHOUSE EMISSIONS

Greenhouse gas emissions associated with the Proposal have been estimated based on information from the client, and published emissions factors. The emissions estimates are based on the best available design data for the project at the time of undertaken the assessment.

Since the Proposal includes no major construction works, GHG emissions associated with construction are considered to be negligible.

4.1 Operational Greenhouse Gas Emissions

Greenhouse gas emissions associated with the operation of the Proposal will result from fuel combusted in mobile plant, and electricity used to power the processing equipment, and in offices. The following section presents an estimation of greenhouse gas emissions associated with the operation of the Project.

4.1.1 Fuel Consumption

The estimated annual fuel consumption in facility-owned plant is summarised in Table 4-1. The CO₂-e emissions associated with fuel consumed in facility owned plant are 293 tonnes per annum.

Table 4-1Annual Fuel Consumption

Source	Fuel Type	Fuel Consumption (L/year)
Front end loader		78,000
Telehandler	Discol	18,200
Forklifts	Diesel	6,240
Sweeper		5,200
Tota	Total	

4.1.2 Electricity Use

The estimated annual electricity usage is summarised in Table 4-3. The CO_2 -e emissions associated with electricity use are 3,007 tonnes per annum.

Table 4-2Annual Electricity Usage

Item	Electricity Use (kWh)
Waste timber processing machinery	3,104,400
Plasterboard processing machinery	379,600
Miscellaneous tools	9,360
Office, weighbridge, security, lighting.	219,000
Total	3,712,360

The total operational GHG emissions for the Project are summarised in Table 4-3.

Table 4-3 Summary of Estimated Operational CO₂-e Emissions

Source	CO ₂ -e Emissions (tonnes)
Diesel	293
Electricity	3,007
Total	3,300

4.2 **Overall Emissions**

The total estimated annual operational GHG emissions for the Proposal are $3,300 \text{ tCO}_2$ -e and are summarised in Table 4-3.

Table 4-4 Summary of Estimated Operational CO₂-e Emissions

Source	CO ₂ -e Emissions (tonnes)
Diesel	293
Electricity	3,007
Total	3,300

Australia's total greenhouse gas emissions in 2017 amounted to 533.7 million tonnes of carbon dioxide equivalent (MtCO₂-e) (reference: Quarterly Update of Australia's National Greenhouse Gas Inventory: December 2017), whilst New South Wales, in 2017, accounted for 128.87 Mt of the total. Therefore, operation of the Proposal will account for approximately 0.003% of current NSW emissions.

5 GREENHOUSE GAS MITIGATION AND ENERGY EFFICIENCY

Where reasonable and feasible, the following measures would be implemented to reduce greenhouse gas emissions associated with the operation of the Proposal:

- Utilise energy efficient building design features such as natural ventilation and lighting, and insulation;
- Consider on-site renewable energy, such as solar power; and,
- Investigate the feasibility of using electric powered mobile plant on site.

It is noted that the Proposal's business activity of resource recovery would potentially have a positive effect on overall carbon emissions by diverting waste from landfill and reducing the need for new raw material generation.

6 CONCLUSION

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

Wilkinson Murray Pty Limited has been engaged by Borg Manufacturing to prepare s Greenhouse Gas (GHG) Assessment for inclusion in the Environmental Impact Statement (EIS) relative to the project.

This study has identified sources of greenhouse gas (GHG) emissions associated with the Proposal, in accordance with the Secretary's Environmental Assessment Requirements.

Estimates of equivalent carbon dioxide have been predicted and it has been determined that the operation of the project will account for approximately 0.003% of current NSW emissions.

It is noted that the Proposal's business activity of resource recovery would potentially have a positive effect on overall carbon emissions by diverting waste from landfill and reducing the need for new raw material generation.