

FINAL

Operational Noise Management Plan

Borg Panels

124 Lowes Mount Road, Oberon NSW

Borg Panels Pty Ltd

11 December 2017

Revision History

Rev No.	Revision Date	Author / Position	Details	Reviewed / Authorised	
				Name / Position	Signature
0	14/11/17	Carly McCormack Planning and Environmental Officer	Draft	Victor Bendeovski Environmental and Regulatory Compliance	
1	16/11/17	Carly McCormack Planning and Environmental Officer	Draft	Jeremy Welbourne Acoustics Engineer – Global Acoustics	
2	16/11/17	Carly McCormack Planning and Environmental Officer	Draft	Jeremy Welbourne Acoustics Engineer – Global Acoustics	
3	17/11/17	Carly McCormack Planning and Environmental Officer	Draft	Jeremy Welbourne Acoustics Engineer – Global Acoustics	
4	28/11/17	Carly McCormack Planning and Environmental Officer	Draft	Jeremy Welbourne Acoustics Engineer – Global Acoustics	
5	28/11/17	Carly McCormack Planning and Environmental Officer	Final	Jeremy Welbourne Acoustics Engineer – Global Acoustics	
6	11/12/17	Carly McCormack Planning and Environmental Officer	Final Incorporating DP&E Comments	Jeremy Welbourne Acoustics Engineer – Global Acoustics	

Table of Contents

Definitions and Abbreviations	iii
1 Introduction	1
1.1 Background	1
1.2 Purpose and Objectives	1
1.3 Structure of the ONMP	2
1.4 Approval of the ONMP	2
2 Legislative and Regulatory Compliance	3
2.1 Relevant Legislation	3
2.2 Conditions of Consent	3
2.3 Mitigation Measures	5
2.4 Environment Protection Licence	6
2.5 Guidelines and Standards	6
3 Sensitive Receivers	7
4 Noise Criteria	10
4.1 Hours of Operation	10
4.2 Operational Noise Limits	10
4.3 Modifying Factors	11
5 Noise and Vibration Impact Assessment	13
5.1 Existing Development Noise Assessment	13
5.2 Existing Development with Noise Controls	13
6 Impact Management Measures	14
7 Noise Monitoring	16
7.1 Overview	16
7.2 Baseline Data	16
7.3 Attended Noise Monitoring	17
7.3.1 Compliance Monitoring	17
7.3.2 Complaints Monitoring	18
7.4 Monitoring Locations	18
7.5 Meteorological Conditions	18
8 Contingency Plan for Unpredicted Impacts	20
9 Reporting	21
9.1 Internal Review	21
9.2 Scheduled Reporting	21
9.3 Exceedance of Criteria / Environmental Incident Management	21
9.4 Complaints	21
10 ONMP Review	22
11 References	23
Appendices	24
Appendix A – Correspondence with DP&E	25

Definitions and Abbreviations

Abbreviation	Description
ABL	Assessment background level (ABL), the 10th percentile background noise level for a single period (day, evening or night) of a 24 hour monitoring period.
Ambient Noise	The all-encompassing noise associated within a given environment at a given time, usually composed of sound from all sources near and far.
Background Noise	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation, when extraneous noise is removed.
Day	The period from 7:00am to 6:00pm on Monday to Saturday, and 8:00am to 6:00pm on Sundays and Public Holidays
dB(A)	Noise level measurement units are decibels (dB). The “A” weighting scale is used to describe human response to noise.
DP&E	NSW Department of Planning and Environment
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence issued by the EPA under the POEO Act
Evening	The period from 6:00pm to 10:00pm
Existing Development	The continuation of the existing MDF facility, located at 124 Lowes Mount Road, Oberon (Lot 26 DP 1200697), comprising the main production hall, warehouse, moulding plant, sawing plant, thin MDF plant and outdoor infrastructure, as described in the EIS and RTS, and the documents, drawings and plans in Appendix C of Development Consent SSD 7016
Incident	A set of circumstances causing or threatening material harm to the environment, and/or exceedance of the limits of performance criteria in Development Consent SSD 7016
L _{Aeq} (15 min)	The average noise energy during a 15 minute period.
Night	The period from 10:00pm to 7:00am on Monday to Saturday, and 10:00pm to 8:00am on Sundays and Public Holidays
MDF	Medium Density Fibreboard
OEMP	Operational Environmental Management Plan
ONMP	Operational Noise Management Plan

Abbreviation	Description
Project	The construction and operation of a particle board facility and alterations and additions to the Existing Development, as described in the EIS and RTS, and as generally depicted on the plans in Appendix A of Development Consent SSD 7016
RBL	Rating background level (RBL), the background noise level for a period (day, evening or night) determined from ABL data.
Sound Level Meter (SLM)	An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels.

1 Introduction

1.1 Background

Borg Panels operates an existing Medium Density Fibreboard (MDF) manufacturing facility in Oberon, NSW. This facility manufactures a range of Customwood MDF products including:

- Standard MDF;
- Moisture Resistant MDF;
- E0 (Low Formaldehyde Emitting) MDF;
- Ultraprime MDF Mouldings;
- Decorative Laminated MDF and Particle Board; and
- Treated paper for the lamination of MDF and Particle Board.

On 29 May 2017 Development Consent SSD 7016 was granted by the Minister for Planning to construct a Particle Board manufacturing facility, modify the existing MDF manufacturing facility and undertake general site works (the Project) at the existing Borg Panels facility located on 124 Lowes Mount Road, Oberon.

Condition B18 of Development Consent SSD 7016 requires the preparation of an Operational Noise Management Plan (ONMP) for the Existing Development to manage operational noise. The Existing Development comprises the MDF plant and multi-daylight (MDL) plant as unmodified.

This ONMP has been prepared to satisfy Condition B18 and Condition C9 of Development Consent SSD 7016 and is a sub plan to the Borg Panels Operational Environmental Management Plan (OEMP) (Condition C4).

1.2 Purpose and Objectives

This ONMP has been developed to:

- Ensure that operational noise generated by the Existing Development is managed;
- Maintain compliance with conditions of approval and legislation relating to noise;
- Provide a protocol for monitoring and evaluation of noise impacts on surrounding private residences and sensitive receivers;
- Communicate with the local community and regulators regarding Borg Panels activities.

1.3 Structure of the ONMP

This ONMP has been developed to manage operational noise at the Existing Development and to satisfy the requirements set out in Conditions B18 and C9 of Development Consent SSD 7016, and includes information on the following:

- **Section 2** – Legislative and Regulatory Compliance
- **Section 3** – Sensitive Receivers
- **Section 4** – Noise Criteria
- **Section 5** – Noise and Vibration Impact Assessment
- **Section 6** – Impact Management Measures
- **Section 7** – Noise Monitoring
- **Section 8** – Contingency Plan for Unpredicted Impacts
- **Section 9** – Reporting
- **Section 10** – ONMP Review
- **Section 11** – References

1.4 Approval of the ONMP

The Final ONMP has been submitted to the Secretary of the Department of Planning and Environment (DP&E) for approval. Correspondence from DP&E is included in **Appendix A**.

2 Legislative and Regulatory Compliance

2.1 Relevant Legislation

Key environmental legislation relating to noise management for the Existing Development includes:

- *Protection of the Environment Operations Act 1997*; and
- *Environment Planning and Assessment Act 1979*.

2.2 Conditions of Consent

The Existing Development operations are subject to the conditions contained in Development Consent SSD 7016 dated 29 May 2017.

Development Consent SSD 7016 specifies hours of operation, operational noise limits and noise mitigation measures for the Existing Development. The specific requirements for an ONMP (Schedule 2, Condition B18) and general requirements for environmental management plans (Schedule 2, Condition C9) are also detailed in **Table 1**.

Table 1 – Development Consent Conditions

No.	Requirement	Document Reference											
	NOISE												
	Hours of Work												
B13	<p>The Applicant must comply with the hours detailed in Table 1, unless otherwise agreed in writing by the Secretary.</p> <p>Table 1: Hours of Work</p> <table border="1"> <thead> <tr> <th>Activity</th> <th>Day</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Earthworks and Construction</td> <td>Monday – Friday</td> <td>7 am to 7 pm</td> </tr> <tr> <td>Saturday</td> <td>8 am to 1 pm</td> </tr> <tr> <td>Operation</td> <td>Monday – Sunday</td> <td>24 hours</td> </tr> </tbody> </table>	Activity	Day	Time	Earthworks and Construction	Monday – Friday	7 am to 7 pm	Saturday	8 am to 1 pm	Operation	Monday – Sunday	24 hours	Section 4
Activity	Day	Time											
Earthworks and Construction	Monday – Friday	7 am to 7 pm											
	Saturday	8 am to 1 pm											
Operation	Monday – Sunday	24 hours											
	Operational Noise Limits												
B16	<p>The Applicant must ensure that noise generated by the Development does not exceed the noise limits in Table 2.</p> <p>Table 2: Noise Limits dB(A)</p> <table border="1"> <thead> <tr> <th rowspan="2">Location</th> <th>Day</th> <th>Evening</th> <th>Night</th> </tr> <tr> <th>L_{Aeq}(15 minute)</th> <th>L_{Aeq}(15 minute)</th> <th>L_{Aeq}(15 minute)</th> </tr> </thead> <tbody> <tr> <td>All sensitive receivers</td> <td>55</td> <td>50</td> <td>45</td> </tr> </tbody> </table> <p>Note: Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.</p>	Location	Day	Evening	Night	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	All sensitive receivers	55	50	45	Section 4
Location	Day		Evening	Night									
	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)										
All sensitive receivers	55	50	45										

No.	Requirement	Document Reference
	Noise Mitigation	
B17	The Applicant must ensure all noise attenuation measures already installed for the Existing Development are maintained in good working order for the life of the Development.	Section 6
	Operational Noise Management Plan	
B18	Within 6 months of the date of this consent, the Applicant must prepare an Operational Noise Management Plan (ONMP) for the Existing Development, to manage operational noise to the satisfaction of the Secretary. The ONMP must form part of the OEMP required by Condition C4 and be prepared in accordance with Condition C9. The ONMP must:	This Plan
	a) be prepared by a suitably qualified and experienced noise expert;	Revision History
	b) describe the measures that will be implemented to minimise noise from the Existing Development including: <ul style="list-style-type: none"> (i) all reasonable and feasible measures being employed on site; (ii) maintain equipment to ensure it is in good order; (iii) traffic noise is effectively managed; (iv) the noise impacts of the Existing Development are minimised during any meteorological conditions when the noise criteria in this consent do not apply; (v) compliance with the relevant conditions of this consent; 	Section 6
	c) includes a noise monitoring program that: <ul style="list-style-type: none"> (i) must be carried out until otherwise agreed to in writing by the Secretary; (ii) is capable of evaluating the performance of the Existing Development; and (iii) includes a protocol for determining exceedances of the relevant conditions of this consent and responding to complaints; and 	Section 7 Section 9
	d) include a procedure for implementing noise mitigation measures, should the Applicant be directed by the EPA or the Secretary, or should non-compliances be detected.	Section 8
	MANAGEMENT PLAN REQUIREMENTS	
C9	The Applicant must ensure that the environmental management plans required under Condition C4 of this consent are prepared by a suitably qualified person or persons in accordance with best practice and include:	Revision History

No.	Requirement	Document Reference
	a) detailed baseline data;	Section 7.2
	b) a description of: <ul style="list-style-type: none"> (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures/criteria; and (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the Development or any management measures; 	Section 2 Section 4 Section 6
	c) a description of the management measures that would be implemented to comply with the relevant statutory requirements, limits or performance measures/criteria;	Section 6
	d) a program to monitor and report on the: <ul style="list-style-type: none"> (i) impacts and environmental performance of the Development; and (ii) effectiveness of any management measures (see (c) above); 	Section 9
	e) a contingency plan to manage any unpredicted impacts and their consequences;	Section 8
	f) a program to investigate and implement ways to improve the environmental performance of the Development over time;	Section 6
	g) a protocol for managing and reporting any: <ul style="list-style-type: none"> (i) incidents; (ii) complaints; (iii) non-compliances with statutory requirements; and (iv) exceedances of the impact assessment criteria and/or performance criteria; and 	Section 9
	h) a protocol for periodic review of the plan.	Section 10
	Note: These requirements also apply to the preparation or updates of management plans for the Existing Development and the Project.	

2.3 Mitigation Measures

Appendix B Applicant's Management and Mitigation Measures to Development Consent SSD 7016 details the reasonable and practical measures to avoid or minimise impacts to the environment that may arise as a result of the Project.

For operation of the Existing Development, Borg has committed to provide further noise control (attenuation) to the Conti 1 dryer fan, main fibre transport fan, and booster fan drive.

Additionally, management measures will be implemented for the mobile chipping plant to minimise noise impacts on nearby noise sensitive receivers. Management and mitigation measures are detailed in **Section 5.1**.

2.4 Environment Protection Licence

Environment Protection Licence 3035 (EPL 3035) specifies noise limits for operation of the Existing Development. Condition L4 of the EPL provides noise conditions, which are reproduced below:

L4 Noise limits

L4.1 Noise from the premises must not exceed:

- a) 55 dB(A) $L_{Aeq(15 \text{ minute})}$ during the day (7am to 6pm); and
- b) 50 dB(A) $L_{Aeq(15 \text{ minute})}$ during the evening (6pm to 10pm); and
- c) at all other times 45 dB(A) $L_{Aeq(15 \text{ minute})}$, except as expressly provided by this licence.

Where L_{Aeq} means the equivalent continuous noise level – the level of noise equivalent to the energy-average of noise levels occurring over a measurement period.

L4.2 To determine compliance with condition L4.1, noise must be measured at or computed for Oberon High School or any other noise sensitive locations (such as a residence/school). A modifying factor correction must be applied for tonal, impulsive or intermittent noise in accordance with the "NSW Industrial Noise Policy (EPA, January 2000)".

L4.3 The noise limits set out in condition L4.1 apply under all meteorological conditions except for the following:

- a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or
- b) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or
- c) Stability category G temperature inversion conditions.

L4.4 For the purpose of condition L4.3:

- a) Data recorded by the meteorological station identified as EPA Licence Point 26 must be used to determine meteorological conditions; and
- b) Temperature inversion conditions (stability category) are to be determined by the sigma-theta method referred to in Part E4 of Appendix E to the NSW Industrial Noise Policy.

2.5 Guidelines and Standards

The guidelines and standards relevant to noise management for the Existing Development include:

- EPA 2017, *Noise Policy for Industry (NPfI)*, Environment Protection Authority. Sydney NSW.
- EPA 2000, *NSW Industrial Noise Policy (INP)*, Environment Protection Authority: Sydney NSW.
- DECCW 2011, *NSW Road Noise Policy*, Department of Environment, Climate Change and Water NSW. Sydney NSW.
- DEC 2006, *Assessing Vibration: A Technical Guideline*, Department of Environment and Conservation. Sydney NSW.

3 Sensitive Receivers

The subject land is located on the northern outskirts of Oberon, to the east of Lowes Mount Road. As per the Oberon Local Environmental Plan (LEP) 2013, the land zoning classification of the subject site is IN1 General Industrial. The Borg operations are part of the larger Oberon Timber Complex operated by a number of separate companies, which generally involve timber product manufacture.

The Oberon LEP 2013 identifies a designated buffer area that aims:

- a) to protect the operational environment of industries operating within the Oberon Timber Complex; and
- b) to control development near the Oberon Timber Complex and waste disposal facilities to minimise land use conflict.

Before granting development consent to development on land to which is identified as being within the designated buffer area, the consent authority must consider the following:

- a) the impact that any noise, odour or other emissions associated with existing land uses may have on the development;
- b) any proposed measures incorporated into the development that limit the impact of such noise and other emissions associated with the existing land use;
- c) any opportunities to relocate the development outside the designated buffer area; and
- d) whether the development is likely to adversely affect the operational environment of any existing development within the designated buffer area.

Land use north, east and west of the subject site is generally agricultural. Land use to the immediate south is industrial / recreational, and further south residential and the township of Oberon.

For the purpose of identifying and managing noise impacts representative noise sensitive receivers (NSR) have been selected, including the nearest and potentially most affected residences to the site, the Oberon Christian Life Centre and Oberon High School. The following NSRs are considered representative of all potentially affected receivers and are referred to in this Plan. Refer to **Figure 1** for details.

Table 2 – Noise Sensitive Receivers

Receiver ID	Receiver Location
R01	32 O'Connell Road
R02	6 Herborn Street
R03	Oberon High School
R04	10 Tasman Street
R05	127 Hazelgrove Road

Receiver ID	Receiver Location
R06	26 Cunyngham Street
R07	131 Hazelgrove Road
R08	2 Herborn Street
R09	15-19 Albion Street
R10	Oberon Caravan Park
R11	Oberon Christian Life Centre



Figure 1 – Noise Sensitive Receivers

4 Noise Criteria

4.1 Hours of Operation

The Borg Panels facility is approved to operate 7 days per week 24 hours per day.

4.2 Operational Noise Limits

Relevant limits are detailed in **Table 3**. Monitoring locations are detailed in Table 6.

Table 3 – Noise Limits dB(A)

Location	Day L _{Aeq} (15 minute)	Evening L _{Aeq} (15 minute)	Night L _{Aeq} (15 minute)
All sensitive receivers	55	50	45

Note: Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.

EPL 3035 Condition L4.2 specifies:

To determine compliance with condition L4.1 [Table 3 above], noise must be measured at or computed for Oberon High School or any other noise sensitive locations (such as a residence/school). A modifying factor correction must be applied for tonal, impulsive or intermittent noise in accordance with the “NSW Industrial Noise Policy (EPA, January 2000)”.

In October 2017 the EPA released the *Noise Policy for Industry* (EPA, 2017). The *Noise Policy for Industry* (EPA, 2017) replaces the *NSW Industrial Noise Policy* (EPA, 2000). Implementation and transitional arrangements have been developed to ensure that there is an orderly and transparent transition from the *NSW Industrial Noise Policy* (2000) to the *Noise Policy for Industry* (2017).

Section 8 of the *Implementation and Transitional Arrangements for the Noise Policy for Industry* (2017) states:

The NSW Industrial Noise Policy (2000) will continue to apply where it is referenced in existing statutory instruments (such as consents and licences), except for the NSW Industrial Noise Policy Section 4 modifying factors, which will be transitioned to the Noise Policy for Industry (2017) Fact Sheet C through a NSW Industrial Noise Policy application note. This approach has been taken because the Noise Policy for Industry (2017) modification factor approach reflects more recent understanding of the impact of tonal and low-frequency noise on the community.

The *Industrial Noise Policy* (2000) application notes state:

Section 4 of the INP is withdrawn and the modifying factor adjustments outlined in the Noise Policy for Industry (2017) – Fact Sheet C are to be used when assessing the characteristics of a noise source. Fact Sheet C provides approaches to modifying factors that are supported by contemporary science and policy considerations.

As such, modifying factors will now be assessed in accordance with the *Noise Policy for Industry* (2017) as detailed in **Section 4.3**.

The noise limits set out in **Table 3** apply under all meteorological conditions except for the following:

- a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or
- b) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or
- c) Stability category G temperature inversion conditions.

Data recorded by the on-site meteorological station must be used to determine meteorological conditions.

Temperature inversion conditions (stability category) are to be determined by the sigma-theta method referred to in Part E4 of Appendix E to the *NSW Industrial Noise Policy* (2000) (EPL 3035 Condition L4.4). Again, the procedure for use of sigma-theta data has been updated in Section D1.4 of the *Noise Policy for Industry* (EPA, 2017). This new method for estimating stability class will be used.

4.3 Modifying Factors

As detailed in **Section 4.2**, the *Noise Policy for Industry* (2017) *Fact Sheet C: Corrections for Annoying Noise Characteristics* will be used to assess modifying factors that may apply.

This section outlines the correction factors to be applied to the source noise level at the receiver before comparison with the project noise levels specified in **Table 3**, to account for the additional annoyance caused by these noise characteristics.

As defined in the *Noise Policy for Industry* (2017):

Tonal noise: noise containing a prominent frequency and characterised by a definite pitch.

Low-frequency noise: noise with an unbalanced spectrum and containing major components within the low-frequency range (10–160 Hz) of the frequency spectrum.

Intermittent noise: noise where the level suddenly drops/increases several times during the assessment period, with a noticeable change in source noise level of at least 5 dB(A); for example, equipment cycling on and off. The intermittency correction is not intended to be applied to changes in noise level due to meteorology.

Correction for duration: this is applied where a single-event noise is continuous for a period of less than two and a half hours in any assessment period. The allowable exceedance of the $L_{Aeq,15min}$ equivalent noise criterion [is detailed] for the duration of the event. This adjustment is designed to account for unusual and one-off events, and does not apply to regular and/or routine high-noise level events.

Maximum correction: the maximum correction to be applied to the predicted or the measured level where two or more modifying factors are present. The maximum adjustment is 10 dB(A) where the noise contains two or more modifying factors (excluding the duration correction).

The Existing Development typically operates with relatively continuous noise emission levels, and low frequency, intermittent and tonal noise characteristics have not been identified during historical monitoring. Future monitoring will include evaluation of these noise characteristics, and modifying penalties as defined in the *Noise Policy for Industry* (2017) will be applied to measured levels as appropriate.

5 Noise and Vibration Impact Assessment

Global Acoustics (May 2016) was engaged by Borg to carry out a noise and vibration impact assessment for the proposed expansion of the MDF manufacturing facility. This assessment considered impacts associated with noise emission from the existing site, and the proposed expansion.

5.1 Existing Development Noise Assessment

Modelling of the existing development indicated the site currently operates close to EPL criteria during periods of enhancing meteorological conditions. Management measures and noise control for some plant were recommended to both manage and reduce noise emission from the existing site.

Model predictions for the existing site indicated:

- Compliance with existing EPL criteria was predicted for all receivers during non-enhancing meteorological conditions;
- Compliance with existing EPL criteria was predicted for all receivers for the evening and night periods during prevailing (enhancing) meteorological conditions;
- At R09, a minor 1 dB exceedance was predicted for the day period during enhancing meteorological conditions when one mobile chipper is operational; and
- A minor 1 dB exceedance was predicted for R03 and R10, and a moderate exceedance of 4 dB for R09 for the day period during enhancing meteorological conditions if two mobile chippers are operated concurrently.

The following management measures were recommended:

- Mobile chipping plant should be restricted to the day period;
- Two mobile chippers should not operate concurrently during enhancing meteorological conditions;
- During periods of strong meteorological enhancement to the south, neither mobile chipper should operate; and
- Conti 1 dryer fan, main fibre transport fan, and booster fan drive should be provided with further noise control (attenuation).

5.2 Existing Development with Noise Controls

Model predictions indicate reductions of up to 5 dB at receiver locations may result from implementation of noise control. Compliance is indicated for all receivers for the evening and night periods. Exceedances predicted for the day period remain unchanged, as these are caused by mobile chipping plant. Operation of mobile chippers will need to be managed during periods of meteorological enhancement.

6 Impact Management Measures

In order to ensure noise management levels are met and to maintain impacts at a practical minimum, the measures and safeguards summarised in **Table 5** will be implemented by Borg Panels during operation of the Existing Development.

Table 5 – Operational Noise Impact Mitigation Measures

Mitigation Measures	Timing	Responsibility
Administrative Controls		
Provide an induction to site personnel addressing the requirements of this ONMP and their responsibilities with regard to noise management.	Prior to starting work on site	Borg Panels Operations Manager
Ensure truck drivers are informed of designated vehicle routes, parking locations, delivery hours, and minimising engine exhaust braking and idling.	Prior to starting work on site	Borg Panels Operations Manager
Provide education of supervisors, operators and sub-contractors on the need to minimise noise through Toolbox meetings and on-site coaching.	As needed	Borg Panels Operations Manager
Procedures for handling noise complaints (Section 9) will be implemented including recording, reporting and acting on complaints.	As needed	Borg Panels Operations Manager
Operational Controls		
Select low noise emission plant where possible.	When new plant introduced to site	Borg Panels Management
Ensure all equipment is equipped with reasonable and feasible noise control (e.g. mufflers, acoustic enclosures, flashing lights or 'quackers' as an alternative to traditional reversing beepers) and is turned off when not in use.	Daily	Borg Panels Operations Manager
Ensure equipment is operated in the correct manner and adequately maintained - including replacement of engine covers, repair of defective silencing equipment, tightening of rattling components, repair of leakages in air lines and shutting down equipment not in use.	Daily	Borg Panels Operations Manager
Where practicable, maintenance work on all plant will be carried out away from noise sensitive receivers.	Daily	Borg Panels Operations Manager
Ensure all noise attenuation measures already installed for the Existing Development are maintained in good working order for the life of the Development.	Daily	Borg Panels Operations Manager
Minimise noise impacts during any meteorological conditions when noise criteria do not apply (refer Section 2.4 L4.3).	As needed	Borg Panels Operations Manager

Mitigation Measures	Timing	Responsibility
Mobile Wood Chipper operation is to be in accordance with the Mobile Wood Chipper Operation Management Plan.	Daily	Borg Panels Operations Manager
Conti 1 dryer fan, main fibre transport fan, and booster fan drive to be provided with further noise control (attenuation).	Prior to operation of the Project	Borg Panels Operations Manager
Operational Noise Monitoring		
Monitor operational noise levels to verify compliance with the ONMP.	As needed	Environment Officer
Report any exceedance of limits to DP&E and EPA in accordance with Development Consent SSD 7016 and EPL 3035.	As needed	Environment Officer

7 Noise Monitoring

7.1 Overview

Noise monitoring is conducted at the nearest sensitive residential receptors in accordance with the *NSW Industrial Noise Policy (2000)*, *Noise Policy for Industry (2017)* and *Australian Standard AS1055 Acoustics, Description and Measurement of Environmental Noise*.

Operational noise monitoring will be undertaken to:

- Verify compliance with the noise criteria for the facility as specified in Development Consent SSD 7016 and EPL 3035;
- In response to any exceedance of limits; and
- In response to complaints where this is considered appropriate.

7.2 Baseline Data

During the 2014-15 reporting period, Vipac Engineers and Scientists Ltd (Vipac) undertook an Environmental Noise Survey (Vipac, 30 January 2015) of the Existing Development. The purpose of that survey was to measure and quantify the overall ambient noise levels and noise contribution from industrial operations in accordance with relevant Australian Standards and procedures. The findings of the report included:

- The survey determined the internal noise level monitored at Oberon High School was within the prescribed limit.
- It is apparent from the results of both the attended noise surveys and the unattended noise logging surveys that noise emission from the Borg facility, in addition to the other industrial sites in the area, including the Carter Holt Harvey site and the Australian Pine Products site are notable contributory sources to the ambient noise levels in the area.
- The noise emissions from the industrial sites however are not generally the dominant noise source during the daytime or evening due to the masking effect of other extraneous noise sources in the area. The contribution of industrial noise sources is more influential during the night-time due to the reduction in road traffic noise levels in the area during the night-time.

In the 2015-16 reporting period Global Acoustics (May 2016) prepared a Noise and Vibration Impact Assessment for a proposed expansion of the MDF facility. This assessment included both attended noise surveys and unattended noise logging surveys. Attended monitoring results were compliant with EPL criteria. For the Existing Development compliance with the current EPL night period operational noise criterion was demonstrated. Day and evening periods were not monitored.

During May to July 2016 Borg Panels (August 2016) undertook an Environmental Noise Survey of the Existing Development to measure and quantify the influence of Borg Panels mobile chippers on the overall ambient noise levels measured at a noise sensitive receptor within the Oberon community. The survey included both attended noise survey and unattended noise logging. The key findings of this report included:

- The mobile chippers were found to have no discernible impact on the OTC's compliance to the established EPL noise limits.
- The noise monitoring survey confirmed that the Oberon Industrial Area was compliant to Borg Panels EPL levels ~98% of the time. It is worth noting that this is a conservative assessment of the entire OTC, and not just the Borg premises. The non-compliance outcomes were largely due to:
 - Engine idle noise;
 - Trucks entering and leaving factories;
 - General urban noises; and
 - Non OTC industry noises.

In summary, the Existing Development typically operates with relatively continuous noise emission levels, and low frequency, intermittent and tonal noise characteristics have not been identified during historical monitoring.

7.3 Attended Noise Monitoring

Attended noise monitoring is preferred to the use of noise loggers when determining compliance with prescribed limits as it allows the most accurate determination of the contribution, if any, to measured noise levels by the source of interest.

Operational noise impacts are potentially greatest at night when background levels are typically low and the allowable levels are correspondingly low, and, this is the period when noise propagation enhancement is most likely.

7.3.1 Compliance Monitoring

It is proposed to conduct compliance monitoring for the Existing Development at each location once per year during the day, evening and night periods (pending weather and operational constraints) with results compared to noise criteria in **Table 3**. Compliance monitoring should be conducted during the winter period as this season represents the likely worst-case season due to temperature inversions.

Any exceedance of a noise criterion recorded during regular attended noise monitoring is to be investigated. The acoustic consultant undertaking the attended monitoring is to contact the Environment Officer as soon as practicable to advise of the recorded results. If exceedance of limits is demonstrated follow-up monitoring is to be undertaken within one week of the exceedance. The regular monitoring frequency will be resumed if no further exceedances are measured.

Attended compliance monitoring is to be undertaken by a suitably qualified noise expert. Appropriate techniques should be applied to determine noise contributions from the Existing Development in isolation (in the absence of all extraneous noise sources). These techniques could include, but are not limited to:

- Pausing the sound level meter during extraneous noise events, for example, when a dog is barking or road traffic noise is clearly audible and affecting the measurements;
- Using frequency filtering techniques where certain frequencies of noise are excluded from the measurements; or
- Using other noise descriptors such as L_{A90} or L_{A50} to filter extraneous noise events.

The Existing Development should be fully operational at the time of monitoring.

Operational noise performance is reported as detailed in **Section 9**.

7.3.2 Complaints Monitoring

In the event of a noise complaint being received the complaint is to be investigated (refer **Section 9.4**). As soon as practicable following receipt and validation of the complaint follow-up monitoring is to be undertaken. If exceedance of limits is demonstrated further follow-up monitoring is to be undertaken within one week of the exceedance. The regular monitoring frequency will be resumed if no further exceedances are measured.

7.4 Monitoring Locations

Four representative locations have been chosen for monitoring as summarised in **Table 6**. Refer to **Figure 2** for these locations.

Table 6 – Noise Monitoring Locations

Location ID	Monitoring Location
NM1	Oberon Caravan Park
NM2	Intersection Pine Street and Herborn Street
NM3	127 Hazelgrove Road
NM4	Intersection Tasman Street and Earl Street

Noise management levels for each monitoring location are provided in **Table 3**. Where these are exceeded from operational noise sources, the exceedance should be investigated (as discussed in **Section 9**) to determine the cause and any necessary mitigation.

7.5 Meteorological Conditions

Monitoring should be undertaken on days of light winds (<5 m/s) and no rain. Wind speed is to be monitored using a hand held wind speed monitor. Rain and too much wind will elevate the noise level. If there is no choice but to monitor in inclement weather, note the conditions.

Meteorological data is obtained from the Borg Panels weather station (EPA Identification Point 26). This data allows correlation of atmospheric parameters and measured noise levels. Atmospheric condition measurement at ground level is also undertaken during attended monitoring.



Figure 2 – Noise Monitoring Locations

8 Contingency Plan for Unpredicted Impacts

In the event of previously unpredicted noise impacts, resulting from either an exceedance of criteria or valid complaint, the following process will be implemented:

- The Environment Officer is to be notified;
- Investigate to evaluate the contributing factors to the event. The investigation may include (where applicable):
 - Assessment of meteorological conditions for the period of monitoring, including wind speed and temperature inversion conditions;
 - Review of operational activities during the period of monitoring;
- Implement remedial response and/or adaptive management measures, dependant on the outcomes of the above investigation; and
- Implement the Review component (**Section 10**) of this ONMP as required.

9 Reporting

Borg Panels will manage all internal and external reporting requirements in accordance with the Operational Environmental Management Plan (OEMP). Specific reporting functions relevant to this ONMP are detailed below.

9.1 Internal Review

The Environment Officer will review noise monitoring results annually. Results of investigations of any complaints and any exceedances of the criteria outlined in **Table 3** will be reported to senior management promptly.

9.2 Scheduled Reporting

Results of the annual noise compliance monitoring and any complaints investigations are reported externally as follows:

- Annual noise compliance monitoring reports, which include a comparison of measured noise emissions with operational noise criteria conditioned in Development Consent SSD 7016 and EPL 3035;
- Annual updates of monitoring results on the Borg website;
- Annual Review. A copy of the Annual Review is sent to relevant stakeholders, including DP&E, EPA and Oberon Council and is available on the Borg website; and
- EPA Annual Return, statement of compliance and a monitoring and complaints summary annually as required by EPL 3035.

9.3 Exceedance of Criteria / Environmental Incident Management

Notification procedures and actions upon identification of an exceedance of any impact assessment criteria or management levels will be as per the Operational Environmental Management Plan (OEMP), and any specific requirements of the relevant management plan or monitoring program.

Where an exceedance of the impact assessment criteria and/or performance criteria outlined in Development Consent SSD 7016 and EPL 3035 continually occurs:

- A detailed examination of the existing processes to identify the potential for noise emissions reduction will be undertaken; and
- Where practicable and economically feasible to do so measures may be put in place to further reduce noise emissions.

9.4 Complaints

Community complaints will be managed in accordance with the procedures in the Operational Environmental Management Plan (OEMP).

10 ONMP Review

In accordance with Development Consent SSD 7016 Condition C10, this ONMP will be reviewed and if necessary revised within 3 months of an:

- Approval of a modification;
- Submission of an incident report under Condition C13;
- Approval of an Annual Review under Condition C11; or
- Completion of an audit under Condition C15.

Revisions to the ONMP will be submitted to the Secretary DP&E for approval.

11 References

Borg Panels (August 2016) *Borg Panels Oberon NSW In-House Noise Monitoring Survey. Survey Period May-July 2016*. Prepared by Borg Panels.

Broner 2010, *A Simple Method for Low Frequency Noise Emission Assessment*, JLFNV Vol 29-1 pp.1 to 14 2010)

DEC 2006, *Assessing Vibration: A Technical Guideline*, Department of Environment and Conservation. Sydney NSW.

DECCW 2011, *NSW Road Noise Policy*, Department of Environment, Climate Change and Water NSW. Sydney NSW.

Environment Protection Authority (January 2000). *NSW Industrial Noise Policy*. ISBN 0 7313 2715 2, EPA 00/1.

Environment Protection Authority (September 2015). *Draft Industrial Noise Guideline*. ISBN 978 1 74359 940 2, EPA 2015/0185.

Environment Protection Authority (October 2017) *Noise Policy for Industry*. ISBN 978 1 76039 481 3. EPA 2016/0524.

Global Acoustics (May 2016). *Borg Panels Timber Panel Processing Facility Oberon NSW – Noise and Vibration Impact Assessment*. Prepared for Borg Manufacturing.

Vipac, 30 January 2015. *Borg Oberon Environmental Noise Survey*. Prepared for Borg Manufacturing. Vipac Engineers and Scientists, Toronto NSW.

Appendices

Appendix A – Correspondence with DP&E



Contact: Pamela Morales
Phone: 9274 6386
Email: pamela.morales@planning.nsw.gov.au

Our ref: SSD 7016

Mr Victor Bendeovski
Environmental and Regulatory Compliance
Borg Construction Pty Ltd
2 Wella Way
SOMERSBY NSW 2250

Dear Mr Bendeovski

**Borg Panels Timber Processing Facility, Oberon, (SSD 7016)
Operational Environmental Management Plan – Condition C4**

I refer to your recent correspondence and submission of the Operational Environmental Management Plan (OEMP), Rev 1, and associated sub-plans for the existing medium density fibreboard (MDF) facility prepared by Borg Construction Pty Ltd (Borg) and dated 30 November 2017.

The Department has reviewed the OEMP and its associated sub-plans for the MDF facility and is satisfied they meet the terms of the relevant conditions of consent. Accordingly, the OEMP for the MDF facility has been approved pursuant to Condition C4 of the above consent.

Please ensure that all recommendations and measures outlined in the OEMP and its associated sub-plans are fully implemented.

You are also reminded that prior to the commencement of operation of the particle board facility, you must update the OEMP to include details of the particle board facility and its management. The updated OEMP must be re-submitted to the Secretary for approval.

Should you have any further enquiries, please contact Pamela Morales on 9274 6386.

Yours sincerely

Chris Ritchie 21/12/17.
Director
Industry Assessments
As delegate for the Secretary