

Project Number & Title:	M2819 – CBH BROOMEHILL – RAIL SIDING CONSTRUCTION
Contractor:	MARTINUS

Document Information

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- ☐ 1 - APPROVED
- ☒ 2 - APPROVED WORK MAY PROCEED - Submit IFT / IFD / IFU / IFC Documentation
- ☐ 3 - APPROVED EXCEPT AS NOTED - Revise and Resubmit
- ☐ 4 - NOT APPROVED, WORK MAY NOT PROCEED - Revise and Resubmit
- ☐ 5 - INFORMATION ONLY

Signature Daniel Sicoe Date 16/03/2023

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b. evidence or constitute a Direction by Co-operative Bulk Handling Limited; or

c. affect the time for performance of the Contractors or the Contractors Representative's obligations.

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NOISE MANAGEMENT PLAN

CBH Broomehill Rail Siding Construction

558-2819-EV-PLN-0001


MR—1124-005-04

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AMENDMENTS			
Revision No	Date	Amendment	Date to Client
0			
1			
2			
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AUTHORISATION			
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1 INTRODUCTION

1.1 Document Scope

This Noise Management Plan (NMP) forms part of the Environmental Management Plan (EMP) for the CBH Broomehill Project and covers strategies, systems and key measures that will be implemented by Martinus to manage and mitigate the potential impacts from construction noise on personnel working on the project and people living and working in the surrounding environment, including the local community and other project stakeholders. The NMP describes requirements to ensure Martinus meet legislative and other relevant guidelines related to noise management, and the environmental obligations as set out in the Contract.

1.2 Background

Cooperative Bulk Handling Group Ltd (CBH) is expanding its rail infrastructure at their existing Broomehill site located in the Shire of Broomehill-Tambellup. Martinus has been appointed as the contractor responsible for the construction of the rail siding which includes over 2km of track laid adjacent to the mainline to enable the loading of a 60 wagon trains. The upgrade works will provide CBH with greater network efficiency and deliver supply chain benefits and increased value to Western Australia growers.

1.3 Environmental Management System Overview

Martinus operates under an Environmental Management System (EMS) established in accordance with ISO 14001: 2015. The EMS is developed to create a framework to manage significant environmental aspects and limit adverse impacts on the environment. Environmental management for the project will be adapted to meet site specific and project specific requirements in accordance with the established EMS. Key aspects of the EMS include:

- Establishing environmental objectives and processes necessary to deliver results in accordance with the organisations environmental policy.
- Implementing processes as planned.
- Monitoring and measuring the processes against the environmental policy, including its commitments, environmental objectives and operating criteria, and reporting the results.
- Taking actions to continually improve.

1.4 Definitions

Table 1: Definitions

Acronym	Term
dB	Decibels - The unit for measuring sound levels
EMP	Environmental Management Plan
Exposure Standard for Noise	Defined in the WHS Regulations as an LAeq,8h of 85 dB(A) or an LC, peak of 140 dB(C). There are two parts to the exposure standard for noise, because noise can either cause gradual hearing loss over a period of time or could be so loud that it causes immediate hearing loss

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L Aeq, 8h	The eight-hour equivalent continuous A-weighted sound pressure level in decibels (dB(A)) referenced to 20 micropascals, determined in accordance with AS/NZS 1269.1:2005 (Occupational noise management— Measurement and assessment of noise emission and exposure).
L C, peak	The C-weighted peak sound pressure level in decibels (dB(C)) referenced to 20 micropascals, determined in accordance with AS/NZS 1269.1:2005 (Occupational noise management — measurement and assessment of noise emission and exposure).
NMP	Noise Management Plan

1.5 Objectives

The following Noise objectives will apply:

- Avoid or minimise unreasonable environmental and social impacts associated with noise
- Comply with relevant noise regulatory requirements
- Maintain positive and cooperative relationships with local communities
- Reasonable and feasible mitigation measures are implemented to minimise and manage noise and vibration impacts on surrounding residents, commercial and other sensitive receivers
- Any complaints are addressed in a timely and efficient manner

2 ENVIRONMENTAL REQUIREMENTS

This NMP has been prepared in accordance with the *Environmental Protection (Noise) Regulations 1997, Regulation 13 (6)* and AS 2436 – 2010: Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites. Inclusions required in a NMP under the *Environmental Protection (Noise) Regulations 1997* and NMP reference are listed in the below table.

Table 2: Noise Management Plan Requirements

<i>Environmental Protection (Noise) Regulations 1997</i> requirement (R.13(6))	NMP Reference
(a) Details of, and reasons for, construction work on the construction site; and	Section 4.1.1
(b) Details of, and the duration of, activities on the construction site likely to result in noise emissions that fail to comply with the standard prescribed under regulation 7; and	Section 4.1
(c) Predictions of noise emissions on the construction site; and	Section 4.2
(d) Details of measures to be implemented to control noise (including vibration) emissions; and	Section 5
(e) Procedure to be adopted for monitoring noise (including vibration) emissions; and	Section 7.1
(f) Complaint response procedure to be adopted.	Section 8.3

All legislation, standards and guidelines considered in this NMP are detailed in the below sections.

2.1 Legislation

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The legislative inputs for this Noise Management Plan include –

- Environmental Protection Act 1986
- Environmental Protection (Noise) Regulations 1997

2.2 Guidelines and Standards

- AS2436 – 2010: Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites
- AS/NZ 1269.0:2005: Occupational noise management – overview and general requirements
- Code of Practice – Managing Noise and Preventing Hearing Loss at Work

2.3 Martinus Documentation

- MR-WP-034 Noise Management Procedure

3 ENVIRONMENTAL ISSUES & REQUIREMENTS

3.1 Existing Environmental Conditions

The project is located in the existing CBH site in Broomehill. The property is zoned as ‘Industrial’ in the Shire of Broomehill Tambellup Local Planning Strategy. The surrounding area is rural with a number of farming properties located primarily to the west of the construction site.

3.2 Sensitive Receivers

Sixteen (16) sensitive receivers have been identified within 1km of the project site. Four (4) of these properties are located within 250m of the project site. The location of these receivers within proximity to the project are shown in the table and figures below.

Table 3: Project Distance to Sensitive Receivers

Sensitive Receiver Address	Closest Distance to Project (approx.)
179 Nardlah Road	170m
30566 Great Southern Hwy	170m
30602 Great Southern Hwy	190m
30644 Great Southern Hwy	240m
17 McGuire Road	520m
No Number McGuire Road	560m
115 McGuire Road	630m
14 McGuire Road	670m
151 McGuire Road	670m
90 Javelin Street	680m
155 McGuire Road	720m

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42 McGuire Road	725m
No Number Nelson Street	785m
90 McGuire Road	820m
77 Nelson Street	890m
154 McGuire Road	940m

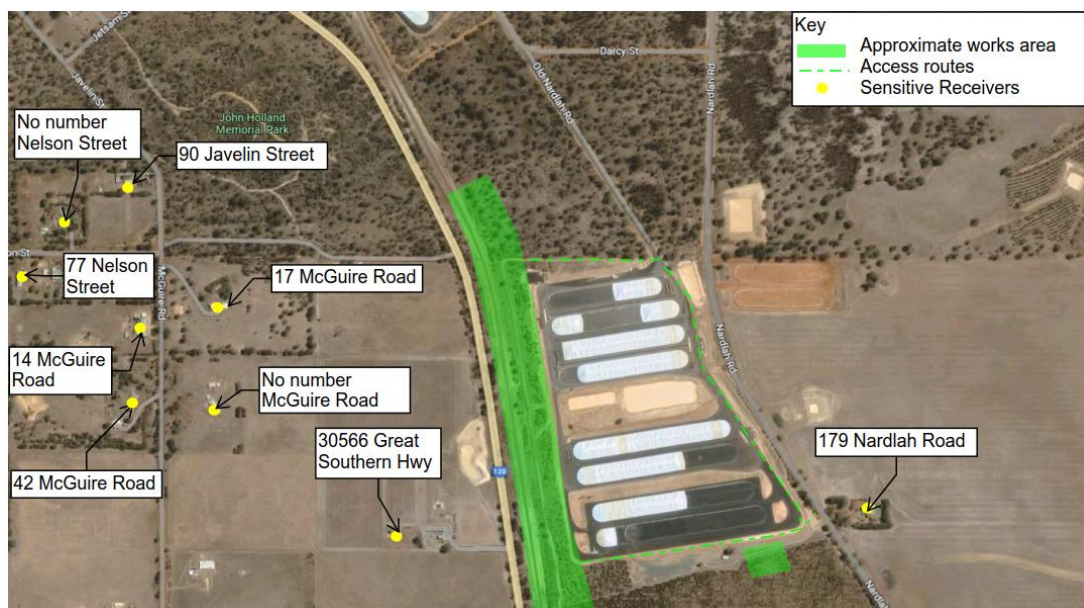


Figure 3 – Northern Sensitive Receivers



Figure 4 – Southern Sensitive Receivers

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4 CONSTRUCTION NOISE CRITERIA

Noise from construction may cause impairment of hearing to persons working on site and may be a cause of annoyance to people living and working in nearby premises, and to people outdoors in the vicinity.

Construction noise limits and regulations imposed through legislation and guidelines to prevent worker exposure to noise and minimise impacts on the receiving community are detailed below. Construction activities that have the potential to impact noise emissions have been identified and noise control measures determined to minimise noise impacts from construction activities.

Noise and vibration criteria are specific to the type and source of noise and vibration. An individual's perception of noise is influenced by their environment. A noise level that is perceived as loud in one situation may appear quiet in another. Figure XX shows a comparison of noise levels from common sources.

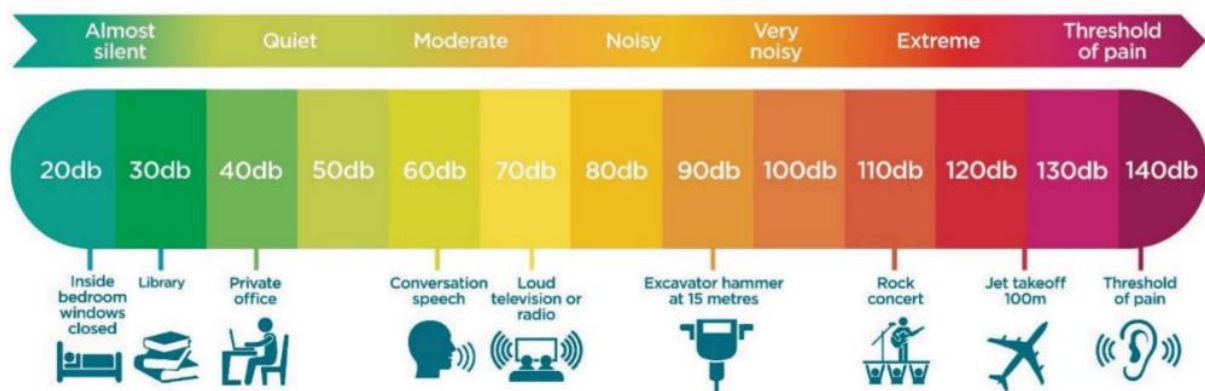


Figure 4 – Noise Level Comparisons

4.1.1 Occupational noise limits

Legislatively, workers need to be protected from noise emissions above 85dB(A) Leq or 140dB lin. Martinus will ensure that appropriate control measures are taken if a person is exposed to noise levels that:

- Exceed an 8-hour noise level equivalent of 85dB(A) or
- Peak at more than 140dB(C)

People exposed to more than 85dB(A) over an eight hour period are at risk of hearing loss. If you have to raise your voice to be understood by a listener one meter away, then you are in a hazardous noise environment. Control measures to prevent workers exposure to hazardous noise are included in Section 5.

4.1.2 Environmental noise limits

Environmental noise levels are regulated by the *Environmental Protection (Noise) Regulations Act 1997* (Noise Regulations). Noise from construction activities is exempt from the Noise Regulations between 7am and 7pm Monday to Saturday (excluding public holidays) provided that construction works comply with the AS 2436, and the equipment used is the quietest reasonably available. Construction works undertaken outside of the above standard hours (such as weekday evenings, Sundays, public holidays, and nights) are considered out of hours works (OOHW) and are required to comply with the Noise Regulations. In addition to following the above standard hours conditions, the contractor must

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provide written notice to all sensitive receivers potentially impacted by the works, demonstrate it is reasonably necessary for the work to be done out-of-hours, and undertake work in accordance with a NMP approved by the CEO of the Department of Water and Environmental Regulation.

4.1 Construction Activities

Martinus construction works for the Broomehill rail siding works are expected to take approximately six (6) months to complete. Construction activities that have the potential to emit noise emissions and their expected duration are listed in the table below:

Table 4: Construction Activities and Expected Duration

Construction Activity	Expected Duration	Expected Dates
Enabling works	37 days	21/03/2023 – 16/04/2023
Clearing, grubbing and topsoil stripping	18 days	21/03/2023 – 25/04/2023
Rail siding earthworks	91 days	11/04/2023 – 18/08/2023
Drainage works (culvert and open drain construction and water pipe relocation)	15 days	18/05/2023 – 03/06/2023
Turnout installation	2 days	09/08/2023 – 10/08/2023
Track works (sleeper install, rail placement, ballast)	20 days	21/07/2023 – 10/08/2023

4.1.1 CBH Broomehill Construction Hours

Due to the skills and expertise required to complete the scope of works for this project, Martinus relies on personnel located in other parts of Western Australia to travel to Broomehill to complete the project works.

To optimise efficiency of the workforce, Martinus will operate on a rolling roster where workers will work on a two week on, one week off basis (2:1). Out of hours works (OOHW) are required to occur on Sundays to support this work roster and enable successful delivery of the project.

To minimise disturbance to sensitive receivers from Sunday works, Martinus will implement specific noise reducing control measures (Section 5) and reduced hours will be employed.

Construction working hours to undertake the Broomehill Project are as follows:

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Table 5: Construction working hours

	Day	Time
Standard Working Hours	Monday to Saturday	7.00am – 7.00pm
Out of Hours Work	Sunday and Public Holidays	8.00am – 5.00pm

4.2 Predicted Noise Emissions

Noise emissions have been predicted for each of the proposed construction activities at distances representative of the nearby sensitive receivers. The predicted noise emissions represent the highest cumulative noise impacts that have the potential to occur at the closest receiver in each of the distance categories.

Plant proposed to be used in each activity is listed in Appendix B. The sound power levels are measured in L_{Aeq} based on in field sampling on similar projects completed by Martinus. The sound power levels for each piece of plant are included in Appendix A.

Noise impacts have been calculated based on 100% plant use for each activity. Typically, plant will be used intermittently. For example, the predicted noise level of a 30T dump truck in full operation tipping fill is 107dB. In reality, a dump truck hauling material during earthworks or topsoil stripping will spend time hauling (moving the noise source further away from the sensitive receiver), or idling (while waiting to be loaded). Therefore, it is expected that the below cumulative noise impacts are higher than the activity will be.

The noise predictions are based on activities occurring in the location closest to the sensitive receiver, in reality activities and plant will be spread across various locations within the construction site, therefore noise emissions will be dispersed, reducing noise pollution from any one location.

Table 6: Predicted Noise Emissions

Construction Activities	SR <250m from activity	SR 250-700m from project	SR 700-1km from project	SR >1km from project
Enabling works	52dB	42dB	40dB	37dB
Clearing, grubbing and topsoil stripping	63dB	54dB	51dB	48dB
Rail siding earthworks	65dB	56dB	53dB	50dB
Drainage works (culvert and open drain construction and water pipe relocation)	60dB	50dB	47dB	44dB
Turnout installation	62dB	52dB	50dB	47dB
Track works (sleeper install, rail placement, ballast)	62dB	52dB	50dB	47dB

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To reduce noise impacts during OOHW, the simultaneous operation of noisy plant and activities within 250m of sensitive receivers will be minimised.

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5 ENVIRONMENTAL MANAGEMENT AND MITIGATION

This section provides details on how noise and vibration associated with construction of the Project will be managed and mitigated. All Project environmental aspects and issues will be managed in accordance with all legal, contract, approval and other Project requirements.

Martinus will utilise a hierarchy of controls to mitigate effects of noise emissions on project stakeholders. These include:

- Eliminating a noise hazard by use of alternate work methods
- Selecting the quietest plant and equipment for the job
- Proactively maintaining plant and equipment to minimise noise levels

The following table outlines the management and mitigation measures that will be undertaken as far as practicable during construction to mitigate the potential impacts associated with noise and vibration.

Table 7: Noise and Vibration Management Measures

Topic	Management and Mitigation Measures	Responsibilities
Training and Awareness	Training will be provided to all Martinus contractors and subcontractors on noise and vibration management and mitigation measures through the project induction, Toolbox Talks, prestart meetings and targeted training as required. This will include the locations of sensitive receptors, measures to reduce noise emissions, any hazardous noise activities and safety requirements (avoidance, suitable hearing protection etc.)	Project Manager HSE Team
At source noise control	At source noise control methods will be prioritised over mitigation methods. At source noise controls include substitution, modification of existing equipment, use and siting of equipment, and regular and effective maintenance of equipment.	Project Manager
Substitution controls	Consider alternative low noise/vibration construction methodologies and techniques and investigate quieter plant and equipment where practical when working within close proximity to sensitive receivers.	Project Manager
	Utilise broadband or non-tonal alarms and other non-audible warning systems which are less intrusive (flashing lights, reversing cameras) on reversing vehicles	Project Manager
Modification controls	Acoustic covers will be used on engines where available.	Supervisors
Use and siting of equipment	Fixed plant (e.g., generators), temporary facilities and car parks/go lines will be located as far as practicable away from the nearest potential receptors.	Supervisor

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	Delivery routes will be developed within site boundaries to minimise noise where possible.	Supervisor
	Plant and equipment will be operated in the quietest and most efficient manner. This includes minimising idling and switching off when not required. Machines that might have intermittent use will be shut down between work periods or will be throttled down to a minimum.	All Project Personnel
	Temporary site buildings and material stockpiles will be used as noise barriers where possible.	
	Noise emitted from construction activities will be free of tonality, impulsiveness and modulation when received at sensitive receivers or in the local community.	Supervisor
Maintenance	All machinery and plant will be used in accordance with manufacturer's specifications. Vehicles, plant and equipment will be regularly maintained and serviced to minimise noise level increases and such that noise emissions comply with manufacturer's specifications.	All Project Personnel
Works planning /scheduling	Noisy activities will be scheduled during periods that will least adversely affect sensitive receivers (standard operating hours) and at non-sensitive times. Continuous noisy operations will be limited to prevent ongoing noise disturbance to workers and sensitive receivers.	Supervisor
	The number of deliveries will be optimized by amalgamating loads where possible. Deliveries arrivals will be scheduled within designated hours.	Project Manager
Occupational noise	<p>Martinus will implement the following controls to reduce the level of exposure to noise of all workers:</p> <ul style="list-style-type: none"> • Relocate high noise operations if possible • Place noise reduction screens around high noise operations if adjacent work is undertaken • Inform operatives around you before starting noise operations • Reduce the number of people close to the noise • Reduce times for which those people are exposed • Provide personal hearing protection for all workers • Hearing protection signs (Where applicable) <p>Hearing protection (PPE) is to be used in accordance with the Noise Management Procedure (MR-WP-034) where it is not practical to engineer noise control or reduce people's exposure times; and as a temporary measure while noise-control engineering, or reduced exposure times are being arranged.</p>	Project Manager
Communication	Potentially impacted sensitive receptors will receive written notified at least 24 hours prior to any noise and vibration generating activities taking place outside of standard daytime working hours (this includes prior to Sunday works). The notification will include, the time, date and duration of the scheduled construction and maintenance activities, reasons for construction and maintenance activities being carried	Project Manager

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	out, access routes for workers and equipment, nature of construction and maintenance activities being undertaken.	
Monitoring	Noise and vibration monitoring will be undertaken as required to validate that work is within the allowable limits, or in response to a complaint. Where noise monitoring identifies noise impact occurring at a sensitive receptor, additional mitigation measures such as screening, barriers, bunds, alternative machinery will be employed where necessary.	HSE Team

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6 COMPLIANCE

6.1 Roles and Responsibilities

Protection of the environment is the responsibility of all individuals and organisations involved with the Project. All personnel will be made aware of environmental issues associated with noise and vibration emissions and their responsibilities through training and competency methods detailed in Section 6.2.

Ultimate environmental responsibilities for each of the nominated Project Team representatives in relation to noise management are outlined below.

Table 8: Roles and Responsibilities

Role	Responsibility
Project Manager	<p>The Project Manager has responsibility for:</p> <ul style="list-style-type: none"> • Ensure all works achieve legislative compliance; • Provide leadership in the development and implementation of the NMP; • Ensure adequate resources are provided and that all project personnel and subcontractors are familiar with and implement all relevant control measures; and • Incorporate the requirements of this plan into project planning and scheduling.
HSE Manager / Advisor	<p>The HSE Manager / Advisor is the functional leader for the Project's health, safety and environmental obligations, and the principal contact for internal and external communication related to environmental management.</p> <ul style="list-style-type: none"> • Develop, review and ensure implementation of the NMP; • Undertake audits, inspections and monitoring to ensure the intention of the NMP is met; • Ensure that all relevant environmental permits are obtained for the works; • Ensure all staff and contractors involved in the works are appropriately inducted and trained in the relevant environmental issues and controls; • Report internally and externally in accordance with Project and other requirements; and • Investigate and report incidents and non-conformance and ensure corrective and preventive action is taken and is effective.
Project Engineers	<p>The Project Engineer(s) have the responsibility to:</p>

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	<ul style="list-style-type: none"> • Provide effective environmental leadership; • Ensure construction is undertaken in accordance with the requirements of the Project Scope and Technical Requirements, EMP and relevant standards; • Plan and schedule construction activities to meet the requirements of the NMP; and • Participate in incident and non-conformance report investigations and ensure that corrective and preventative action proposed is implemented effectively.
Superintendent / Supervisor	<p>The Site Superintendent/Supervisor has the responsibility to:</p> <ul style="list-style-type: none"> • Promote environmental awareness by all on the project site; • Ensure activities are performed in compliance with the NMP; • Ensure environmentally acceptable work methods and practices are implemented and that plant and equipment is properly operated and maintained to enable operations to be carried out without environmental harm; • Ensure construction activities are undertaken in accordance with the requirements of the NMP including ensuring timely planning and communication of activities; • Ensure hazards are identified, risks assessed and control measures are planned and implemented in consultation with all relevant personnel; and • Participate in incident and non-conformance report investigations and ensure that corrective and preventative action proposed is implemented effectively.
All personnel (including Sub-Contractors)	<p>All personnel and subcontractors engaged on the Project are required to operate within the requirements of this NMP and all Martinus processes and requirements. The person conducting business or undertaking (PCBU) is responsible for proactively identifying noise hazards, and using the hierarchy of controls to address those hazards, in consultation with workers, and then to proactively audit work practices, equipment, processes and environments that may pose a risk to workers safety and health and environmental nuisance. Their other primary responsibility is to train, instruct and supervise workers to implement and maintain safe work practices as they relate to this procedure.</p>

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6.2 Training

Martinus will train, instruct and supervise all workers in noise management and will expect a commitment from all workers to take a proactive approach to their own hearing and that of the works associates. Personnel employed by Martinus will be qualified to undertake tasks allocated to them. Training will include regular reinforcement or the need to minimise noise and vibration. Activities designed to impart competency to personnel include:

- Environmental Induction
- Toolbox Talks, Training and Awareness
- Pre-start Meetings

7 MONITORING, EVALUATION & REPORTING

7.1 Noise Monitoring

Noise monitoring will occur to measure the effectiveness of the environmental controls and validate impacts predicted for the project during out of hours works, or in response to a noise complaint or incident.

All environmental monitoring equipment will be maintained and calibrated according to manufacturer's specifications and appropriate records kept. Where monitoring identifies a non-conforming result with the legislative, licence or contractual criteria or objective, it will be managed as per the incident management process.

7.2 Environmental Inspections and Audits

The effectiveness of the noise and vibration controls will be assessed as part of the routine environmental inspections and audits. Findings of these inspections will be recorded on the **Site Environment and Sustainability Inspection** Form (MMS # **MR-EF-001**), **Site Environmental Audit** Form (MMS # **MR-EF-028**) in which required remedial actions are also recorded, including a responsibility and timeline for completion. These shall be monitored to ensure that they are closed out in the required time frame.

8 REVIEW

8.1 Plan Approval, Distribution, and Review

There is no restriction on the distribution of this Plan within Martinus entities. The controlled copy of the current version of this Plan will be maintained on the project document control system database and SharePoint.

Where any changes and improvement to working practices are identified through the investigation of environmental incidents or complaints, these will be assessed and incorporated into the NMP as part of the Incident Reporting and Investigation process.

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A controlled copy of this Plan, as well as future updates, will be provided externally to CBH.

8.2 Stakeholder and External Communication

The Project Manager is responsible for the conduct and coordination of communications with all key external stakeholders and sensitive receivers.

Construction works undertaken outside of standard working hours will only occur following communication and consultation with the potentially affected receivers and surrounding community. Consultation may include approaches such as community meetings, individual contact, or letterbox drops.

Written notification will be provided at least 24 hours in advance of noise and vibration generating activities occurring. The notification will include, the time, date and duration of the scheduled construction and maintenance activities, reasons for construction and maintenance activities being carried out, access routes for workers and equipment, nature of construction and maintenance activities being undertaken. Contact details for complaints and further information, including emergency phone numbers, will be readily available to the community through this process.

8.3 Complaints Management

Complaints will be recorded on **Incident and Injury Report** (MMS # **MR-WF-013**) form and entered into an Enquiry and Complaints Register. As a minimum, the following will be recorded:

- The date and time of enquiry / complaint;
- Personal details of the party lodging the enquiry / complaint (subject to privacy considerations);
- Nature of the enquiry or issue of concern;
- Outcome of complaint investigation and any remedial actions taken by the Project Team to cease the impact.

At the completion of the complaint / enquiry investigation, a summary of the findings and action taken will be provided to the party that lodged the complaint / enquiry. Records will be maintained on Martinus systems.

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APPENDICIES

APPENDIX A – Typical Sound Power Levels from Construction Plant

The below table lists the plant and equipment proposed to be used during construction of the project. The A-weighted sound power levels and mid-point sound pressure levels at 10m for each piece of plant and equipment sourced from *AS 2436 – 2010: Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites* (Appendix A – Table A1) are included. Typical sound power levels from plant and machinery not included in AS2436 have been sourced from in-field sampling on similar projects delivered by Martinus.

Table 1: Plant Sound Power Levels

Plant Description	A-weighted sound power levels L_{WA} dB ref: 10^{-12} W		A-weighted sound pressure level LPA (mid-point) dB at 10m
	Typical or Range	Typical (mid-point) / L_{Aeq}	
Excavator	97-117	107	79
Dozer	102-114	108	80
Roller	103-112	108	80
Compactor	110-115	113	85
Grader	105-115	110	82
Watercart	106-108	107	79
Articulated Dump Truck	117	117	89
Truck and Dog	107	107	79
Tamper	-	91	-
Regulator	-	114	-
Loader	110-115	113	85
Hi Rail Excavator	-	110	-
Ballast End Tipper	-	102	-
Prime Mover	-	102	-

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APPENDIX B – Construction Activity Plant

Plant proposed to be used for each construction activity is specified in the table below.

Table 1: Plant used for each Construction Activity

Construction Activity	Plant used
Enabling works	Truck and Dog Loader
Clearing, grubbing and topsoil stripping	Excavator Dozer Grader
Rail siding earthworks	Articulated Dump Truck Dozer Roller Excavator Watercart Compactor Grader
Drainage works (culvert and open drain construction, water pipe relocation)	Excavator Compactor Truck and Dog
Turnout installation	Tamper Regulator Loader Hi Rail Excavator Ballast End Tipper Prime Mover
Track works (sleeper install, rail placement, ballast)	Tamper Regulator Loader Hi Rail Excavator Ballast End Tipper Prime Mover