





Jemena Port Kembla Pipeline Project **NOISE MANAGEMENT SUBPLAN**

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REVISION HISTORY

This table describes changes made for numerical revisions after Rev 0

Date	Rev	By	Description
01/06/2022	1	BRO	Implementation of Jemena comments from Rev 0 returned as Code 2
02/08/2022	2	BRO	Implementation of Jemena and AIE comments for Approvals consultation
19/08/2022	3	BRO	Implementation of minor comments following Jemena review - CODE 2
24/11/2022	4	BRO	Update following review by DPE
1/12/2022	5	BRO	Update following review by DPE

CONTENT

LIST OF EMERGENCY AND KEY CONTACTS.....5

GLOSSARY 8

1 INTRODUCTION10

1.1 Background 10

1.2 Purpose and Scope..... 11

1.3 Project Description 12

1.4 References..... 12

1.5 Principal Contractor Details..... 12

1.6 Environmental Management System Overview 12

1.7 CEMP Structure and relationship with sub plans 12

1.8 Objectives and Targets 13

1.9 Consultation 14

1.10 Certification and Approval 14

1.11 Distribution 14

2 ENVIRONMENTAL PLANNING AND GOVERNANCE..... 14

2.1 Legislation 14

2.2 Guidelines..... 15

2.3 Conditions of Approval (CoA) requirements for NMP..... 15

2.4 Environmental Management Measures 17

3 EXISTING ENVIRONMENT.....19

3.1 Site Description and Existing Land use..... 19

3.2 Construction Activities and Program 20

3.3 Sensitive and Residential Receptors 21

3.4 Construction Noise Impacts..... 21

3.5 Construction Noise Assessment 22

3.5.1 Airborne Noise22

3.5.2 Ground-borne noise23

3.5.3 Annoying noise.....24

3.5.4 Sleep Disturbance24

3.5.5 Construction traffic noise.....24

3.5.6 Method for evaluation and assessment of impacts.....25

3.5.7 Site Based Meteorology25

4 CONSTRUCTION CONTROLS..... 26

4.1 Roles and Responsibilities 26

4.2 Training and Awareness 27

4.3 Approved Work Hours 28

4.4 Out of Hours Works 28

4.4.1 Out of Hours Works Segment 1.129

4.4.2 Out of Hours Works Segment 1.2 and 229

4.4.3	Emergency Works	29
4.5	Construction Noise Impact Statements	30
4.6	Construction Noise Management Measures	31
4.7	Additional Mitigation Measures	33
5	NOISE MONITORING AND INSPECTIONS.....	34
5.1	Site Inspections	34
5.2	Site Monitoring	34
6	RECORD KEEPING AND REPORTING.....	34
6.1	Record Keeping	34
6.2	Reporting.....	35
6.2.1	Environmental Incident Reporting.....	35
6.2.2	POEO Act Incident Notification	35
6.2.3	Non-Compliance Notification.....	35
7	REVIEW AND IMPROVEMENT.....	35
APPENDIX A	CONSULTATION RECORD.....	37
APPENDIX B	SENSITIVE AND RESIDENTIAL RECEPTORS MAPPING.....	38
APPENDIX C	OUT OF HOURS WORKS PROTOCQL.....	39
APPENDIX D	NOISE MONITORING PROTOCQL.....	41
APPENDIX E	OOHW APPROVAL SEGMENT 1.1.....	43

LIST OF FIGURES

Figure 1 - Project Layout.....	10
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LIST OF TABLES

Table 1 - NMP scope relevant to SS1-9471 and SSI-9973.....	11
Table 2 - Reference Documents	12
Table 3 - Principal Contract Details	12
Table 4 - Objectives and Targets	13
Table 5 - Conditions of Approval requirements NMP.....	15
Table 6 - Environmental Management Measures (EMM) relevant to Noise Management.	17
Table 7 - Noise Management Levels.....	22
Table 8 - Noise Management levels	23
Table 9 - Ground-borne noise	24
Table 10 - Road Traffic Noise Criteria (RNP)	24
Table 11 Weather Monitoring criteria	26
Table 12 - Nacap Environmental Management Responsibilities	26
Table 13 OOHW NML	29
Table 14 - Indicative CNIS to be prepared	30
Table 15 - Construction Noise Management Measures.....	31

LIST OF EMERGENCY AND KEY CONTACTS

Organisation/Position	Contact Details
Environment Line (EPA Pollution Hotline)	131 555 The Environment Line handles general inquiries about environmental issues and takes reports of pollution for which the EPA has regulatory responsibilities. Environment Line is a one-stop pollution and environmental incident reporting service provided by Environment and Heritage Group (EEG) and EPA.
Fire and Rescue NSW	000 (for pollution incidents that present an immediate threat to human health or property) 1300 729 579 (for pollution incidents that do not present an immediate threat to human health or property)
Wollongong City Council	General Enquiries (02) 4227 7111
NSW Ports	General Enquiries 1300 922 524
Port Authority NSW	24-hour community enquiries and complaints line (02) 9296 4962 enquiries@portauthoritynsw.com.au
Port Kembla Coal Terminal	Administration (02) 4228 0288
BlueScope	Laura Davis Laura.davis@bluescopesteel.com +61 467728547
Transport for NSW	General Enquiries (02) 8202 2200
GrainCorp	Dylan Clarkson +61 409 739 697 dclarkson@graincorp.com.au

Organisation/Position	Contact Details
AIE	Andrew Petch +61 401 175 917 Andrew.petch@ausindenergy.com
Jemena	Community Feedback - 1300 081 989 Justin Anderson 0435 092 889 justin.anderson@zinfra.com.au
Nacap	Jason Heard Nacap Project Manager j.heard@nacap.com.au +61 488 087 393

ACRONYMS

Term	Meaning
AIE	Australian Industrial Energy
CEMP	Construction Environmental Management Plan
CNIS	Construction Noise Impact Statement
CoA	Conditions of Approval
CROW	Construction Right-of-Way
DLP	Defects Liability Period
DPE	Department of Planning and Environment
EA	Environmental Assessment
EGP	Eastern Gas Pipeline
EIS	Environmental Impact Assessment
EOL	End of Line
EPA	Environment Protection Agency
ESC	Erosion and Sediment Control

Term	Meaning
FSRU	Floating Storage and Regasification Unit
ICNG	<i>Interim Construction Noise Guideline (DECC, 2009)</i>
ISO	International Standards Organisation
KGMS	Kembla Grange Meter Station
KP	Kilometre Point – linear descriptor from start of the pipeline KP 0 (0km) to end of line location.
LAeq	The A-weighted equivalent continuous (energy average) A-weighted sound pressure level of the construction works under consideration over a 15- minute period and excludes other noise sources such as from industry, road, rail and the community.
LA (max)	the A-weighted maximum noise level only from the construction works under consideration, measured using the fast time weighting on a sound level meter.
LECH	Land, Environment and Cultural Heritage
LNG	Liquid Natural Gas
MIJ	Monolithic Insulating Joint
NATA	National Association of Testing Authorities
NML	Noise Management Level
NMP	Noise Management Plan (This plan)
NSW	New South Wales
OOHW	Out of hours work
PKGT	Port Kembla Gas Terminal
PKL	Port Kembla Lateral
PKPP	Port Kembla Pipeline Project
PNL	Predicted noise level
Principal	Jemena

Term	Meaning
RBL	The Rating Background Level for each period is the medium value of the ABL values for the period over all of the days measured. There is therefore an RBL value for each period (day, evening and night)
RNP	Road Noise Policy (EPA 2011)
SOW	Scope of Work
SSI	State Significant Infrastructure
SWMS	Safe Work Method Statements
TfNSW	Transport for NSW

GLOSSARY

Term	Meaning
Company/Principal	Jemena
Contractor	Nacap
Construction Right of Way	The Construction Right of Way (CROW) is the established and approved linear work area in which the pipeline is constructed. For this project it will range in width commensurate with land and environmental constraints but will generally be 20m wide and sufficiently sized to enable concurrent construction and vehicular access for light and heavy vehicles and passing plant. The CROW will be maintained to ensure trafficability by light and heavy vehicles.
Environmental Assessment	Includes the following EIS and Modification Reports: > Port Kembla Gas Terminal EIS and Modifications 1, 2 and 3, and > Eastern Gas Pipeline EIS and Modifications 1 and 2.
Feasible and reasonable	Consideration of best practice taking into account the benefit of proposed measures and their technological and associated operational application in the NSW and Australian context. Feasible relates to engineering considerations and what is practical to build. Reasonable relates to the application of judgement in arriving at a decision, taking into account mitigation benefits and cost of mitigation versus benefits provided, community views and nature and extent of potential improvements.
Hazard	A source or a situation with a potential for harm in terms of human injury or ill-health, damage to property, damage to the environment, or a combination.

Term	Meaning
HAZID	Hazard Identification risk assessment
Highly noise intensive works	Works which are defined as annoying under the ICNG being: a) use of power saws, such as used for cutting timber, rail lines, masonry, road pavement or steel work b) grinding metal, concrete or masonry c) rock drilling d) line drilling e) vibratory rolling f) bitumen milling or profiling; g) jackhammering, rock hammering or rock breaking; and h) impact piling.
Incident	A set of circumstances that: > causes or threatens to cause material harm to the environment; and/or > breaches or exceeds the limits or performance measures/criteria in this approval
Project	Port Kembla Pipeline
Regulatory Requirements	Government acts and regulations that are environment specific which prescribe legal obligations encompassing the employer and contractor.
Risk	Effect of uncertainty on objectives. Often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence [ISO Guide 73:2009, definition 1.1]
Sensitive Receptor	Locations where people are likely to work or reside and be affected by the works. May include residential dwellings, places of work, places of worship and areas of public open space used for recreation and access
Stakeholder	Party with vested interest in the works
Third Party	Any party external to the works that has been identified as a stakeholder

1 INTRODUCTION

1.1 Background

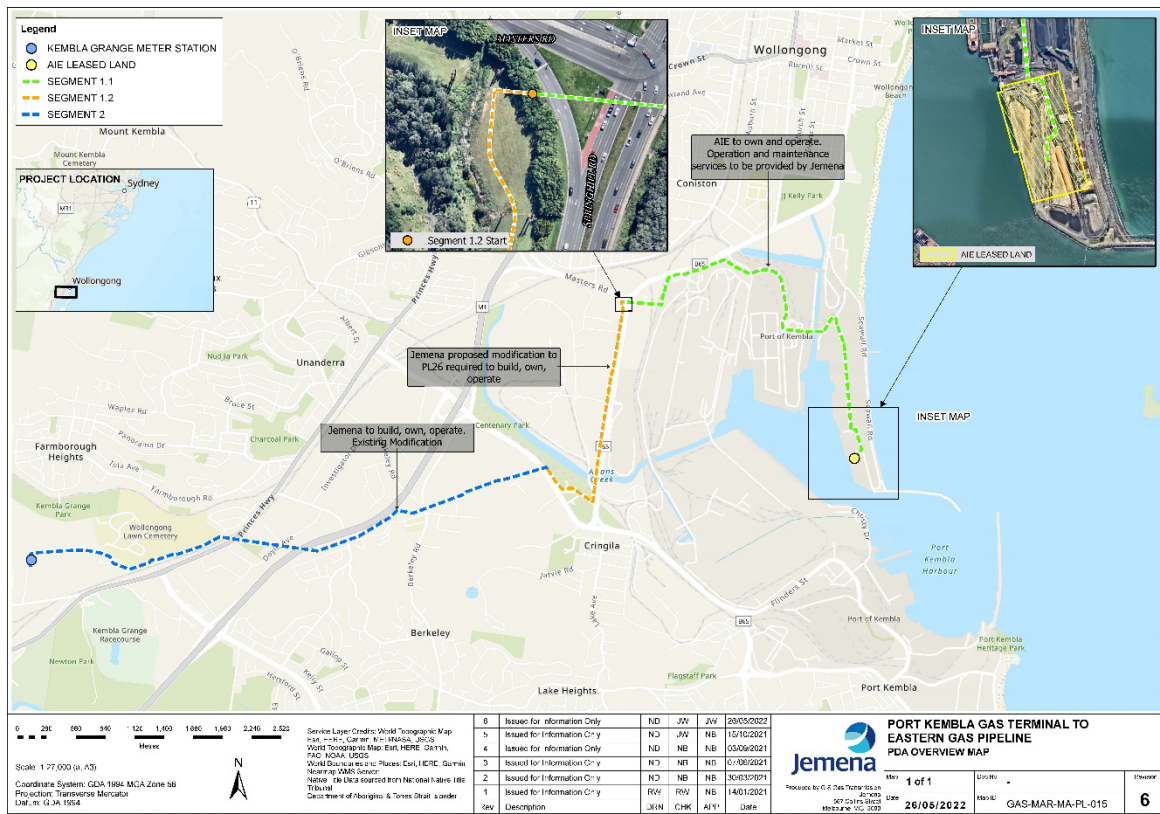
Australian Industrial Energy (AIE) have approval to build a new Liquid Natural Gas (LNG) import terminal at the Port Kembla inner harbour with the aim to sell gas to the east coast market. The gas is planned to be processed on a Floating Storage and Regasification Unit (FSRU) and imported into the existing gas networks through a new pipeline that will connect the AIE Port Kembla Gas Terminal (PKGT) with the Jemena owned gas transmission network via the Eastern Gas Pipeline (EGP).

In February 2021, Jemena and AIE entered into a Project Development Agreement to enable Jemena to build, own and operate a segment of the pipeline that is approved as part of AIE’s SSI 9471 Infrastructure Approval for the PKGT, and build and operate the remainder of the pipeline approved under the same Infrastructure Approval, SSI 9471.

The Port Kembla Pipeline Project (PKPP) involves the construction of an approximately 12.1 kilometres long, 18” (DN450) buried steel gas transmission pipeline and a new End of Line (EOL) facility in the vicinity of the Jemena’s existing Kembla Grange Metering Station (KGMS). The proposed PKPP Project is comprised of three sections (refer to Figure 1):

- > Segment 1.1 – 4.3 km pipeline from PKGT to Springhill Road to be built by Jemena; owned by AIE with some services provided in operation by Jemena.
- > Segment 1.2 – 2.2 km pipeline from Spring Hill Road to Five Islands Road to be built, owned, and operated by Jemena.
- > Segment 2 – 5.6 km pipeline from Five Islands Road to KGMS which includes the Kembla Grange Tie-in Facility to be built, owned and operated by Jemena.

Figure 1 - Project Layout



The project is approved by the Department of Planning and Environment (DPE) under a number of Infrastructure Approvals:

- > SSI-9471 Port Kembla Gas Terminal Infrastructure Approval under Section 5.19 of the Environmental Planning and Assessment Act 1979 which incorporates Segment 1.1 and 1.2.
- > SSI-9973 Eastern Gas Pipeline Modification 1 - Port Kembla Lateral Pipeline Infrastructure Approval under section 5.25 of the Environmental Planning and Assessment Act 1979 pertains to Segment 2.
- > SSI-9973 Eastern Gas Pipeline Modification 2 - Transfer of Pipeline Segment to transfer Segment 1.2 from AIE SSI-9471 PKGT Infrastructure Approval.
- > Proposed Modification to the AIE SSI-9471 Port Kembla Gas Terminal to remove segment 1.2 from the Infrastructure Approval in Q2 2022.
- > Staging Plan approved by DPE for SSI-9471
 - o Stage 1: Early Enabling Works commenced in May 2021
 - o Stage 2b: Marine Berth Construction and Dredging – Land and Marine based commenced March 2022, and
 - o Stage 3: Pipeline installation including ties ins, proposed to commence in December 2022.
- > Staging Plan approved by DPE for SSI-9973
 - o Stage 1: Pipeline installation, and
 - o Stage 2: Construction of the tie in facilities including Kembla Grange Metering Station (KGMS).

1.2 Purpose and Scope

This Noise Management Plan (NMP) has been prepared to ensure construction activities are carried out in accordance with the Conditions of Approval (CoA), relevant regulatory requirements, standards, procedures and current best practice to ensure that all reasonable and practical measures are implemented to minimise the potential for noise related impacts.

This NMP adopts an integrated approach, considering and identifying management measures overarching the sequencing of construction related activities. All works are to be implemented in accordance with the management measures and strategies contained within this plan.

This NMP has been prepared to satisfy the requirements of both SSI 9471 and SSI 9973, the Project EIS and subsequent modification reports to include the staging of works as described above in Section 1.1 and as presented in the table below. This NMP applies to the Construction phase of the works only and in accordance with the CoA will be implemented during construction.

Table 1 - NMP scope relevant to SS1-9471 and SSI-9973

Infrastructure Approval	Post Consent Stage	Description of Works	Segment of Works As detailed in Sect 1.4 and Figure 1
SSI-9471	Stage 3	Pipeline construction from PKGT to KGMS	Segment 1.1
SSI-9973	Stage 1		Segment 1.2 Segment 2

1.3 Project Description

A detailed project description is provided in Section 1.4 of the Construction Environment Management Plan (CEMP) (GAS-599-EV-001)

1.4 References

The following are principal documents referenced in this document:

Table 2 - Reference Documents

Document No.	Title of Document
GAS-554-AC-PM-001	SSI 9471 - Port Kembla Gas Terminal - Infrastructure Approval
GAS-556-AC-PM-001	SSI 9973 - Port Kembla Lateral Looping Pipeline – Infrastructure Approval including Modification 2
GAS-556-SP-PL-007	Construction Specification
GAS-551-SW-PL-001	Pipeline Construction Scope of Work
GAS-599-HSE-004	Environmental Management Plan
GAS-599-PA-RA-001	Joint Post-Approval Strategy - AIE's Port Kembla Gas Terminal to Jemena's Eastern Gas Pipeline
GAS-599-RP-RA-007	Eastern Gas Pipeline - Port Kembla Lateral Looping Modification Report
GAS-599-RP-RA-008	Eastern Gas Pipeline Modification 2 - Modification Report
	Port Kembla Gas Terminal Environmental Impact Statement

1.5 Principal Contractor Details

Table 3 - Principal Contract Details

Nacap Details	
Business name:	Nacap Pty Ltd
Address:	Ground Floor, 599 Doncaster Road, Doncaster Victoria 3108
ABN:	33 006 306 994
Main phone number:	03 8848 1888
Contact person:	Jason Heard Nacap Project Manager
Contact mobile:	+61 488 087 393
Contact email:	j.heard@nacap.com.au

1.6 Environmental Management System Overview

The environmental management system overview is described in Section 4.1 of the Construction Environmental Management Plan (CEMP) (GAS-599-PA-EV-001). This NMP used together with the CEMP, and subordinate project documents, procedures, resources, and practices will inform and guide Nacap personnel and subcontractors to ensure that all reasonable and practical measures are taken to manage the environmental risks for the Project

1.7 CEMP Structure and relationship with sub plans

The CEMP comprises three sections:

- > PART A: Provides background information and the overarching systems approach to environmental management and mitigation controls for the project
- > PART B: Comprising Appendices in support of PART A, and
- > PART C: Comprising the required series of environmental management sub-plans outlined in the CoA including:
 - (a) **Noise Management Plan (GAS-599-PA-EV-004) (this plan)**
 - (b) Air Quality Management Plan (GAS-599-PA-EV-005)
 - (c) Biodiversity Management Plan (GAS-599-PA-EV-006)
 - (d) Soil and Water Management Plan (GAS-599-PA-EV-007)
 - (e) Traffic Management Plan (GAS-599-PA-CN-002), and
 - (f) Waste Management Plan (GAS-599-PA-EV-008).

The sub plans are structured to incorporate mitigation and control measures in meeting the project’s environmental risk assessment and includes, construction Activity Specific Environmental Management Measures and Aspect Specific Environmental Management Measures, each of which identifies the following:

- > Environmental aspects
- > Environmental performance objectives and standards
- > Measurement criteria
- > Management measures and responsibilities
- > Compliance monitoring; and
- > Records.

1.8 Objectives and Targets

The objectives and targets for the PKPP Project to be undertaken in relation to the Noise are listed in Table 4 Objectives and Targets.

Table 4 - Objectives and Targets

Objective	Target
Minimise noise impacts on sensitive receptors generated as a result of construction activities.	Zero complaints from the community as a result of noise generation.
Ensure all personnel, subcontractors and visitors are inducted, consulted and receive regular updates and information on project noise aspects and impacts for the duration of works.	100% completion of Inductions, Daily Pre-Start Inputs by Environment Team, and Monthly toolbox inputs by Environment Team.
Ensure that personnel and subcontractors are aware of noise hazards and risks associated with construction activities and relevant scope of work under the contract.	100% attendance recorded at SWMS workshops, and 100% Project Induction.

Objective	Target
To conduct construction activities in compliance with all relevant approvals and environmental legislation.	100% compliance No regulatory infringements, including Provisional improvement notices and prosecutions.
Promote a positive reporting culture. To minimise the occurrence and severity of environmental incidents during construction activities.	All environmental incidents to be reported within 2 hours and investigated appropriately.
Ensure all corrective actions are closed out by the nominated due dates	No corrective actions outstanding past due date >7 days

1.9 Consultation

Consultation on this NMP is required to be undertaken with the following stakeholders:

- > Transport for NSW (TfNSW)
- > Wollongong City Council, and
- > Sydney Trains.

Comments and feedback received during consultation will be incorporated into the Plan where relevant before being submitted to the DPE for approval.

Details of the Consultation associated with this Plan will be presented in Appendix A.

1.10 Certification and Approval

This NMP is required to be submitted for approval by the Secretary of the DPE prior to commencement of construction or as otherwise agreed by the Secretary.

1.11 Distribution

A controlled hard copy of this NMP and supporting documentation will be maintained and reside at the Project construction site office. Registered copies of this NMP and supporting documentation will be distributed to the Project team, the DPE, all relevant personnel and interested third parties as required. It will also be available to view on the Project website [<https://jemen.com.au/pipelines/eastern-gas-pipeline>]

2 ENVIRONMENTAL PLANNING AND GOVERNANCE

2.1 Legislation

The following legislation and guidelines provide the primary context for construction Noise management in NSW:

- > Environmental Planning and Assessment Act 1979 (EP&A Act)
- > Protection of the Environment Operations Act 1997 (POEO Act)
- > Protection of the Environment Operations (Noise Control) Regulation 2008 (POEO Regulation).

2.2 Guidelines

The main guidelines, specifications and policy documents relevant to this Plan include:

- > Interim Construction Noise Guidelines (DECC 2009) (ICNG)
- > Noise Policy for Industry (EPA 2017), and
- > NSW Road Noise Policy (DEECW 2011).

2.3 Conditions of Approval (CoA) requirements for NMP

This Plan has been prepared to comply with the Joint Post Approval Strategy for SSI-9471 (GAS-554-AC-PM-001) and SSI-9973 (GAS-556-AC-PM-001) and associated consolidated conditions of approval derived from the impact assessment as listed in Table 5 Conditions of Approval requirements NMP.

Table 5 - Conditions of Approval requirements NMP

CoA	Condition	Refer to Section within This Plan
SSI 9471 - Port Kembla Gas Terminal – Stage 3 Works		
Schedule 2 CoA 14	The Proponent must ensure that all plant and equipment used on site, or to monitor the performance of the development is: (a) maintained in a proper and efficient condition; and (b) operated in a proper and efficient manner.	Section 4.6
Schedule 3 CoA 27	Unless the Secretary agrees otherwise, the Proponent may only undertake construction activities on site between: (a) 7 am to 6 pm Monday to Friday (b) 8 am to 1 pm Saturdays; and (c) at no time on Sundays and NSW public holidays The following construction activities may be undertaken outside these hours without the approval of the Secretary: (a) the delivery of materials as requested by the NSW Police Force or other authorities for safety reasons (b) emergency work to avoid the loss of life, property and/or material harm to the environment (c) construction works that cause LAeq (15 mins) noise levels that are: • no more than 5 dB(A) above the rating background level at any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009); and • no more than the noise management levels specified in Table 3 of the Interim Construction noise Guideline (DECC, 2009) at other sensitive land uses; and • continuous or impulsive vibration values, measured at the most affected residence, are no more than those for human exposure to vibration, specified in Table 2.2 of Assessing vibration: a technical guideline (DEC, 2006); and • intermittent vibration values measured at the most affected residence are no more than those for human exposure to vibration, specified in Table 2.4 of Assessing vibration: a technical guideline (DEC 2006); or (d) where a negotiated agreement has been reached with affected receivers;	Section 4.3 Section 4.5 Section 4.6
Schedule 3 CoA 28	The Proponent must: (a) minimise the noise of the development, including any associated traffic noise (b) ensure that the construction noise generated by the development is managed in accordance with the best practice requirements outlined in the Interim Construction Noise Guideline (DECC, 2009), or its latest version; and (c) implement all reasonable feasible mitigation measures to achieve the following construction vibration goals: • For structural damage vibration, the vibration limits set out in the German Standard DIN 4150 Part 3 – 1999 Structural Vibration in Buildings – Effects on Structures: or	Section 3.3 Section 4.6 Appendix B Appendix C

CoA	Condition	Refer to Section within This Plan
	<ul style="list-style-type: none"> For human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: A Technical Guidelines (DEC 2006). 	
Schedule 3 CoA 35	<p>Prior to commencement of construction, the Proponent must ensure that there is a suitable meteorological station operating in the vicinity of the site. The meteorological station must be maintained so as to be capable of continuously monitoring the following parameters: air temperature, wind direction, wind speed, rainfall, relative humidity, and any requirement specified in an EPL. Unless a suitable alternative is approved by the Secretary following consultation with the EPA, the meteorological station must be capable of monitoring weather conditions in accordance with:</p> <p>(a) AM-1 Guide to Siting of Sampling Units (AS 2922-1987) (b) AM-2 Guide for Horizontal Measurement of Wind for Air Quality Applications (AS 2923-1987); and (c) AM-4 On-Site Meteorological Monitoring Program Guidance for Regulatory Modelling Applications.</p>	Section 3.5
SSI 9973 Modification 2 - Port Kembla Lateral Looping Pipeline		
B5	<p>The Proponent must:</p> <p>(a) minimise traffic and pedestrian safety issues and disruption to local users of the transport route/s during construction (b) maintain all footpaths, roads and utility-related infrastructure in a safe and serviceable condition; and (c) minimise the traffic noise impacts from the construction of the Port Kembla Looping Pipeline.</p>	Section 4.6
B6	<p>Unless otherwise agreed by the Secretary, the Proponent may only undertake construction activities between:</p> <p>(a) 7 am to 6 pm Monday to Friday (b) 8 am to 1 pm Saturdays; and (c) at no time on Sundays and NSW public holidays</p> <p>The following activities may be undertaken outside these hours without the approval of the Secretary:</p> <p>(a) the delivery of materials as requested by the NSW Police Force or other authorities for safety reasons (b) emergency work to avoid the loss of life, property and/or material harm to the environment (c) where a negotiated agreement has been reached with affected receivers; or (d) works as approved through the out-of-hours work protocol outlined in the CEMP required by condition C1.</p>	Section 4.3 Section 4.5 Section 4.6
B7	<p>The Proponent must minimise the noise generated by any construction, upgrading or decommissioning activities in accordance with the best practice requirements outlined in the Interim Construction Noise Guideline (DECC, 2009), or its latest version.</p>	Section 3.3 Section 3.5 Section 4.3 Section 4.4 Section 4.6 Appendix B
C1	<p>Prior to commencing construction, the Applicant must prepare a Construction Environmental Management Plan (CEMP) for the Port Kembla Lateral Looping Pipeline to the satisfaction of the Secretary. This plan must:</p> <p>(a) be prepared in consultation with Council, Sydney Trains and TfNSW; (b) identify the statutory approvals that apply to the construction and commissioning of the Port Kembla Lateral Looping Pipeline (c) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the Port Kembla Lateral Looping Pipeline (d) describe the procedures that would be implemented to:</p> <ul style="list-style-type: none"> keep the local community and relevant agencies informed about the construction and commissioning of the Port Kembla Lateral Looping Pipeline receive, handle, respond to, and record complaints resolve any disputes that may arise 	This Plan Section 1.9 Section 2.1 Section 2.2 Section 2.3 Section 4.3 Section 5 Appendix A Appendix B Appendix C

CoA	Condition	Refer to Section within This Plan
	<ul style="list-style-type: none"> respond to any non-compliance; and respond to emergencies; and e)include: <ul style="list-style-type: none"> the following sub-plans: <ul style="list-style-type: none"> noise, including an out-of-hours work protocol air quality biodiversity soil and water management water management traffic management; and waste a clear plan depicting monitoring to be carried out in relation to the Port Kembla Lateral Looping Pipeline	
C2	The CEMP sub-plans must state how: <ol style="list-style-type: none"> the mitigation measures identified in the Modification Report will be implemented; and the relevant terms of this Schedule will be complied with. 	This Plan Section 1.2 Section 2.3 Section 4.6
C4	The CEMP sub-plans must state how: <ol style="list-style-type: none"> the mitigation measures identified in the Modification Report will be implemented; and the relevant terms of this Schedule will be complied with. 	Section 1.2 Section 4.6
C5	The Proponent must implement the approved CEMP	This Plan Section 1.2
C6	The Proponent must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must identify the development (including the development application number and name) and set out the location and nature of the incident.	Section 4.6 Section 6.2
C7	Within seven days of becoming aware of a non-compliance, the Proponent must notify the Department of the non-compliance. The notification must set out the condition of this consent that the development is non-compliant with, why it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance. Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.	Section 4.6 Section 6.2

2.4 Environmental Management Measures

Environmental Management Measures (EMM) derived from the Project Environmental Assessment relevant to this NMP Plan are listed in Table 6.

Table 6 - Environmental Management Measures (EMM) relevant to Noise Management.

EMM	Management Measure Category	Commitment	Refer to Section Within This Plan
SSI 9471 - Port Kembla Gas Terminal – Stage 3 Works			
NV1	Management of airborne noise through site inductions	Provide site inductions to all employees, contractors and subcontractors. The induction must at least include: <ul style="list-style-type: none"> All relevant project specific and standard noise and vibration mitigation measures Relevant license and approval conditions Permissible hours of work Any limitations on noise generating activities with special audible characteristics 	Section 4.6

EMM	Management Measure Category	Commitment	Refer to Section Within This Plan
		<ul style="list-style-type: none"> Location of nearest sensitive receivers Construction employee parking areas Designated loading/unloading areas and procedures Site opening/closing times (including deliveries) Environmental incident procedures. 	
NV2	Airborne noise from transport	Plan traffic flow, parking and loading/unloading areas to minimise reversing movements within the site.	Section 4.6
NV3	Management of sensitive receivers from airborne noise	Notify the affected receivers detailing the construction activities, time periods over which they would occur and the duration of works. Provide contact details to the affected receivers. If noise complaints are received, they should be recorded and attended noise monitoring should be conducted to assess compliance with the predicted construction noise levels.	Section 4.6 Section 4.7
NV4	Airborne noise and general construction methods	Quieter construction methods should be used where feasible.	Section 4.6
NV5	Airborne noise from pipeline construction	Minimise pipeline construction activities near sensitive receivers during more sensitive time periods (evening, night).	Section 4.6 Section 3.5 Appendix C
NV6	Airborne noise from equipment	Turn off equipment after use.	Section 4.6
NV7	Airborne noise from behavioural practices	No swearing or unnecessary shouting or loud stereos/radios on site. No dropping of materials from height, throwing of metal items and slamming of doors. No excessive revving of plant and vehicle engines. Controlled release of compressed air.	Section 4.6
NV8	Updating the Construction Environmental Management Plan (CEMP)	The CEMP must be regularly updated to account for changes in noise and vibration management issues and strategies.	CEMP Section 8 Section 6
NV9	Airborne noise from use and siting of plant	Simultaneous operation of noisy plant within discernible range of a sensitive receiver is to be avoided. The offset distance between noisy plant and adjacent sensitive receivers is to be maximised. Plant used intermittently to be throttled down or shut down. Noise-emitting plant to be directed away from sensitive receivers.	Section 4.6
NV10	Airborne noise from vehicles	Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work, including delivery vehicles.	Section 4.6
NV11	Airborne noise from delivery of goods to construction sites	Loading and unloading of materials/deliveries is to occur as far as possible from sensitive receivers. Select site access points and roads as far as possible away from sensitive receivers.	Section 4.6

EMM	Management Measure Category	Commitment	Refer to Section Within This Plan
		Dedicated loading/unloading areas to be shielded if close to sensitive receivers. Delivery vehicles to be fitted with straps rather than chains for unloading, wherever possible.	
NV12	Airborne noise from mobile plant	Where possible reduce noise from mobile plant through additional fittings including residential grade mufflers.	Section 4.6
NV13	Airborne noise from prefabrication of materials	Where practicable, pre-fabricate and/or prepare materials off-site to reduce noise with special audible characteristics occurring on site. Materials can then be delivered to site for installation.	Section 4.6
NV14	Airborne noise from stationary noise sources	Stationary noise sources, such as pumps, should be enclosed or shielded whilst ensuring that the occupational health and safety of workers is maintained. Appendix F of AS 2436:1981 lists materials suitable for shielding	Section 4.6
NV15	Noisy activity impacts on sensitive receivers	Use structures to shield residential receivers from noise such as site shed placement; earth bunds; fencing; erection of operational stage noise barriers (where practicable) and consideration of site topography when siting plant.	Section 4.6 Section 4.7
SSI 9973 Modification 2 - Port Kembla Lateral Looping Pipeline			
NV1-17		As per SSI 9471 above	Section 4.6
NV18	Noisy activity impacts on sensitive receivers	Install noise barriers between stationary plant such as generators, water treatment, desander and horizontal directional drill and noise sensitive receivers. Barriers may be plywood hoarding or construction blanket installed on temporary fencing.	Section 4.6

3 EXISTING ENVIRONMENT

3.1 Site Description and Existing Land use

As stated in Section 1.1 the pipeline will be constructed in three discrete segments:

- > Segment 1.1 – 4.3 km section from PKGT to Springhill Road.
- > Segment 1.2 – 2.2 km pipeline from Spring Hill Road to Five Islands Road
- > Segment 2 – 5.6 km pipeline from Five Islands Road to proposed Kembla Grange Metering Station.

The zoned land use across the pipeline alignment includes special use and industrial use at Port Kembla and a mix of primarily residential and commercial uses at the surrounding localities. Major infrastructure in the region of Port Kembla includes the Princes Highway, which is a major state and regional highway connecting Sydney and Wollongong and regional areas further south. Princes Highway provides access to Port Kembla through turnoffs at Masters Road, Five Islands Road and Northcliffe Drive and is broadly utilised including by heavy vehicles from the port.

The South Coast railway line runs along the periphery of Port Kembla including the stations Port Kembla, Port Kembla North, Cringila and Kembla Grange. The rail line services commuters and is also used to transport bulk solid goods like coal, grain, copper, and steel from Port Kembla. The environmental features of Port Kembla and the surrounding region are limited given the extensive industrial, commercial, and residential development. Waterways in the region include the Gurungaty Waterway, Allans Creek, American Creek and Byarong Creek.

3.2 Construction Activities and Program

The construction methodology for the works will generally involve but not be limited to:

- > Early access works comprising:
 - Environmental investigations, monitoring and works to prepare the site ahead of construction, and
 - Areas of work where access is available and approved prior to full site access dates.
- > Site survey and set out
- > Construction ROW preparation
 - Development and maintenance of project access points, tracks and roads
 - Location and non-destructive confirmation of all foreign services
 - Property management works to enable CROW access and construction
 - Installation of temporary construction gateways where specified, and
 - Clear and grade of the CROW as specified.
- > Transport of pipe to the CROW including stringing and bending operations
- > Trenching works
- > Trenchless crossing works
 - Horizontal directional drilling (HDD), and
 - Thrust bore.
- > Welding and Non-Destructive Testing (NDT)
- > Field joint coating works
- > Lowering in of pipe and backfill
- > Facility tie in works
- > Mainline valve works and tie ins
- > Cathodic Protection Works
- > Hydrostatic testing
- > Other pipeline works as specified:
 - Property Management Works
 - Permanent fencing and gateways
 - Watercourse rehabilitation
 - Trench breakers

- Pipeline marker posts, and
- Miscellaneous works required to satisfactorily complete the works.
- > Reinstatement and monitoring (including DLP).

Construction is expected to commence in December 2022 for a duration of approximately 11 months with practical completion forecast for September 2023. Refer to Contractors Program (GAS-599-SH-CN-001) for Execute Phase schedule.

3.3 Sensitive and Residential Receptors

During pipeline construction works, sensitive receptors impacted by noise are identified as locations where people are likely to work or reside and may include residential dwellings, places of work, places of worship and areas of public open space used for recreation and access.

The pipeline is located primarily on land zoned as heavy industrial and light industrial. Segment 1.1 as described in Section 1.3 will be constructed primarily within Port Kembla and traverses through heavy industrial land adjoining the Port before crossing Springhill Road where Segment 1.2 is again located within land zoned as industrial. Segment 2 then traverses land zoned as heavy and light industrial before passing through the road corridor of the M1 motorway passing the Nan Tien Temple then Nolans Street. After crossing Nolans Street the pipeline extends through a drainage reserve at the rear of Warwick Street, Unanderra before crossing the M1 motorway, the Illawarra railway and an industrial area via a HDD crossing that exits in proximity to Orana Parade before again, passing through recreational land to the end of line facility at Kembla Grange.

Sensitive/residential receptors and places of interest across the project include:

- > Wollongong City Memorial Gardens
- > Nan Tien Temple
- > Residents of Warwick St, Unanderra
- > Residents of Orana Parade, Kembla Grange
- > Wollongong Lawn Cemetery, and
- > Ian McLennan Park.

A map showing the pipeline route and proximity to sensitive/residential receptors and places of interest is presented in Appendix B.

In relation to impacts arising from pipeline construction works, sensitive and residential receptors will be identified and managed through a range of permanent and temporary access agreements entered with AIE / Jemena to facilitate the works. Sensitive receptors are further addressed in Section 5 of the CEMP. Communication with community, external and third party stakeholders is presented in Section 2.3 of the CEMP with complaints and disputes managed in accordance with Section 2.5 of the CEMP.

3.4 Construction Noise Impacts

The potential for noise and vibration impacts on sensitive receptors will depend on several factors. Typically, these might include:

- > The type of plant and equipment in use
- > The number of plant and equipment simultaneously in use
- > Existing site conditions
- > Topography and other physical barriers

- > Proximity to sensitive receptors
- > The type, configuration, and condition of sensitive receptor structures
- > Hours/duration of construction works, and
- > Existing background noise.

3.5 Construction Noise Assessment

The EPA recommends management levels and goals when assessing construction noise and vibration. These are outlined in the ICNG.

The main objectives of the ICNG are to:

- > Identify and minimise noise from construction works
- > Focus on applying all feasible and reasonable work practices to minimise construction noise impacts
- > Encourage construction during the recommended standard hours only, unless approval is given for works that cannot be carried out during these hours
- > Reduce time spent dealing with complaints during construction, and
- > Provide flexibility in selecting site -specific feasible and reasonable work practices to minimise noise impacts.

The ICNG notes noise that exceeds background noise levels may result in adverse impacts and an increased likelihood of complaints.

During normal hours, where construction noise is within 10 dB(A) of the RBL, the impacts are considered acceptable. Where construction noise is more than 10 dB(A) above the RBL, a residential receiver is taken to be noise affected and the proponent should undertake all reasonable and feasible steps to manage the impact and consult with the affected community. Above a LAeq, 15 minute noise level of 75 dB(A), a receiver is considered to be highly noise affected, requiring respite to be given in consultation with the regulatory authority and the community.

At night, or outside approved construction hours, construction noise at a residential receiver more than 5 dB(A) above the RBL is taken to be noise affected.

3.5.1 Airborne Noise

Table 2 of the ICNG reproduced in Table 7 below, shows how Noise Management Levels (NMLs) are determined and how they are applied. The rating background level (RBL) is used when determining the noise management level (NML). The RBL is the overall background noise level measured in each relevant assessment period. The term and methodology to obtain RBLs is described in detail within the Noise Policy for Industry (NPfI)(EPA, 2017).

Table 7 - Noise Management Levels

Time of Day	Management Level (LAeq (15 min))
Recommended standard hours	Noise affected RBL + 10 dB The noise affected level represents the point above which there may be some community reaction to noise. <ul style="list-style-type: none"> • Where predicted or measured LAeq (15 min) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet noise affected level.

Time of Day	Management Level (LAeq (15 min))
	<ul style="list-style-type: none"> The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75dB(A) The highly noise affected level represents the point above which there may be strong community reaction to noise. <ul style="list-style-type: none"> > Where noise is above this level, the relevant authority may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: <ol style="list-style-type: none"> times identified by the community when they are less sensitive to noise if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	<ul style="list-style-type: none"> > A strong justification would typically be required for works outside the recommended standard hours. > The proponent shall apply all feasible and reasonable work practices to meet noise affected level. > Where all feasible and reasonable practices have been applied and noise is more than 5dB(A) above the noise affected level, the proponent should negotiate with the community.

The ICNG also provides noise management levels for commercial and industrial premises and ‘other sensitive’ land uses (ICNG, Table 3). Noise management levels as derived from the ICNG are presented below in Table 8.

Table 8 - Noise Management levels

Land Use	Management Level (LAeq (15 min))
Industrial premises	External noise level 75 dB(A)
Offices, retail outlets	External noise level 70 dB(A)
Classrooms at schools and other educational institutions	Internal noise level 45 dB(A)
Hospital wards and operating theatres	Internal noise level 45 dB(A)
Places of worship	Internal noise level 45 dB(A)
Active recreation areas (characterised by sporting activities and activities which generate their own noise or focus for participants, making them less sensitive to external noise intrusion)	External noise level 65 dB(A)
Passive recreation areas (characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example, reading, meditation)	External noise level 65 dB(A)
Community centres	Depends on the intended use of the centre. Refer to the recommended ‘maximum’ internal levels in AS2107 for specific uses

3.5.2 Ground-borne noise

Ground-borne noise is noise generated by vibration transmitted through the ground into a structure. Ground-borne noise caused, for example, by underground works can be more noticeable than airborne noise. The following ground-borne noise levels for residences indicate when mitigation measures should

be implemented. The levels presented below recognise the temporary nature of pipeline construction works and should only be considered when ground-borne noise levels are higher than airborne noise levels. The ground-borne noise levels are for out of hours works only, as the objectives are to protect the amenity and sleep of people when they are at home.

Table 9 - Ground-borne noise

Time	Management Trigger Level (LAeq (15 min))
Evenings (6pm to 10pm)	Internal noise level 40 dB(A)
Night Time (10pm-7.00am)	Internal noise level 35 dB(A)

3.5.3 Annoying noise

The ICNG identifies 'particularly annoying' activities that require the addition of 5 dB(A) to the predicted level before comparing to the construction Noise Management Level. Annoying activities identified in the ICNG include:

- > use of beeper style reversing or movement alarms, particularly outside of normal work hours
- > use of power saws, such as used for cutting timber, masonry, road pavement or steel work
- > grinding metal, concrete or masonry
- > rock drilling
- > line drilling
- > vibratory rolling
- > jackhammering, rock hammering or rock breaking, and
- > impact piling.

3.5.4 Sleep Disturbance

The ICNG recommends where works are likely to occur over more than two consecutive nights, maximum noise levels should be analysed in terms of the extent and number of times the maximum noise exceeds the RBL. Additionally, the Road Noise Policy DECCW (2011) discusses a guideline aimed at limiting the level of sleep disturbance due to environmental noise: a LA1, 1 minute or LMax level of any noise should not exceed the ambient LA90 noise level by more than 15 dB(A).

The Road Noise Policy also suggests maximum internal noise levels below 50-55 dB(A) are unlikely to awaken people from sleep and one or two noise events per night, with maximum internal noise levels of 65-70 dB(A) are not likely to affect health and wellbeing significantly.

3.5.5 Construction traffic noise

The NSW Road Noise Policy (RNP) states that any increase in the total noise level at existing residences and other sensitive land uses affected by traffic generation on existing roads should be limited to 2 dBA above current levels. This criteria only applies when the noise level without the development is within 2 dBA or exceeds the road traffic noise criterion provided in the RNP. If road traffic noise increases as a result of construction works within 2 dBA of current levels then the objectives of the RNP are considered to be met and no specific mitigation measures would be required.

Where construction traffic increases the existing road traffic noise levels by more than 2 dBA then further assessment against the road traffic noise criteria is required.

The RNP noise criteria is presented in Table 10.

Table 10 - Road Traffic Noise Criteria (RNP)

Type of development	Day 7am – 10 pm	Night 10pm – 7am
Existing residence affected by additional traffic on arterial roads generated by land use developments	60 LAeq(15 hour)	55 LAeq(9 hour)
Existing residence affected by additional traffic on local roads generated by land use developments	55 LAeq(1 hour)	50 LAeq(1 hour)

3.5.6 Method for evaluation and assessment of impacts

The process of assessment of construction noise and vibration impacts is detailed below. This process will form the basis for any assessments that will be undertaken prior to the commencement of construction works. Where significant new/additional activities and/or significant changes to site layout or construction methodology are proposed, additional assessment as per this section will be also be undertaken.

Given the proposed pipeline alignment and varying proximity to sensitive receptors, site-specific or activity-specific noise assessments will be prepared in meeting the objectives of the ICNG and to ensure compliance with the Conditions of Approval.

1. Determine site specific noise objectives

- Identify noise sensitive receptors relevant to site specific works where predicted noise levels may exceed NMLs identified above, and
- Determine the relevant noise objectives in relation to NMLs identified in Step 1.

2. Identify Construction Activities

- Identify construction activities to be undertaken in relation to areas identified above including likely plant and equipment, and
- Identify other construction activities in the vicinity of targeted works to identify and manage cumulative impacts.

3. Predict noise impacts

- Establish predicted noise levels (PNL) for identified sensitive receptors, and
- Assess the PNLs against the NMLs.

4. Mitigate and manage impacts

- Implement all reasonable / feasible mitigation measures (Section 4.6)
- Coordinate works to manage cumulative impacts
- Determine additional mitigation measures (Section 4.7), and
- Summarise outcomes in Construction Noise Impact Statement (CNIS) (sect 4.4).

3.5.7 Site Based Meteorology

A site-based meteorological station is currently established at the southern end of the site compound established for Stage 2A works being undertaken on behalf of AIE. Refer to Figure 1.

In accordance with the Project Development Agreement between AIE and Jemena it is proposed that this site-based meteorological station also inform, and support pipeline construction works. The station currently provides monitoring against the following parameters:

- > Temperature
- > Humidity
- > Wind direction

- > Wind velocity, and
- > Rainfall.

The monitoring will be representative of the pipeline construction project area and will be maintained throughout the duration of pipeline construction.

Weather monitoring at the station follows the following Sampling methods as prescribed by SSI 9471 Schedule 3, CoA 35:

- > AM-1 Guide to Siting of Sampling Units (AS 2922-1987).
- > AM-2 Guide for Horizontal Measurement of Wind for Air Quality Applications (AS 2923-1987), and
- > AM-4 On-Site Meteorological Monitoring Program Guidance for Regulatory Modelling Applications.

Monitoring will be used to enable the planning and conduct of works to ensure suitable conditions exist for work activities and resources are available to ensure environmental management protocols are adhered to.

Weather monitoring will be undertaken in accordance with the criteria outlined below in Table 11.

Table 11 Weather Monitoring criteria

Parameter	Sampling Method	Units of Measure	Averaging Period	Frequency
Wind Speed	AM-2 & AM-4	Metres per second	15 Minutes	Continuous
Rainfall	AM-1 & AM-4	Millimetres per hour	1 hour	Continuous
Wind Direction at 10m	AM-2 & AM-4	Degreed in a clockwise direction from True North	1 hour	Wind Direction

Noise monitoring should not be conducted (or the data should be excluded) when average wind speeds (over 15-minute periods or shorter) at microphone height are greater than 5 metres per second, or when rainfall occurs.

4 CONSTRUCTION CONTROLS

4.1 Roles and Responsibilities

An Organisation Chart will be developed prior to the commencement of construction. Refer to Appendix A of Project Management Plan (GAS-599-PA-PM-015) for Organisation Chart for ECI Phase. Position descriptions describe the responsibilities specific to positions on the Project.

Table 12 provides a summary of Nacap environmental management responsibilities for relevant roles.

Table 12 - Nacap Environmental Management Responsibilities

Role	Responsibilities
Project Director (Management Representative)	<ul style="list-style-type: none"> > The Project Director provides environmental leadership and ensures that adequate, competent and experienced resources are provided and supported in the implementation of this NMP.
Project Manager	<ul style="list-style-type: none"> > Provide support and guide in the implementation of this NMP and associated controls > Provide management and leadership in the implementation of this NMP > Ensure adequate resources are provided for implementing and maintaining environmental controls and mitigation measures in relation to noise emissions.

Role	Responsibilities
	<ul style="list-style-type: none"> > Take action including the stopping of work in response to natural events and activities which may impact on the environment or compromise the performance objectives, standards and commitments contained in this NMP > Take action in the event of an environmental emergency and allocate the required resources to minimise environmental impact and harm.
Lands, Environment and Cultural Heritage (LECH) Manager	<ul style="list-style-type: none"> > Provide support and guide the implementation of this NMP and associated controls > Provide environmental input and support to construction and associated methodologies > Support and guide site environmental incident investigation and reporting > Review internal and external project audits and coordinate the implementation of audit recommendations, and > Development, review and update of this NMP as required.
Environment Advisor	<ul style="list-style-type: none"> > Provide and coordinate monitoring, inspections and audits of works > Provide and coordinate site-based training preparation and delivery > Routine record keeping and reporting in support of commitments in this NMP > Reporting of hazards and incidents and implementing any rectification measures > Provide site based environmental incident investigation and reporting and corrective action management.
Project Supervisors	<ul style="list-style-type: none"> > Provide leadership for the implementation of commitments contained in this NMP > Reporting of hazards and incidents and implementing any rectification measures.
Subcontractors	<ul style="list-style-type: none"> > Subcontractors engaged to perform works on behalf of Nacap will operate in accordance with all applicable legislation, Nacap procedures and this NMP. > Subcontractors are required to report all incidents to their Nacap Supervisor immediately.
All Project Personnel and Visitors	<ul style="list-style-type: none"> > All Project personnel and visitors will uphold a general environmental duty to take all reasonable and practical measures to ensure that the activities on the whole site do not pollute the environment in a way which causes or may cause environmental harm.

4.2 Training and Awareness

All personnel and subcontractors working on site will undergo a project induction detailed in the CEMP Section 6.1.

Targeted training undertaken as part of SWMS workshops, toolbox talks, or specific training will also be provided to personnel with a key role in works that will generate noise emissions, particularly in relation to the operation of plant and equipment including:

- > Roles and responsibilities for noise management
- > Location and details regarding works in proximity of sensitive receptors, and
- > Construction activities that may impact noise and the associated mitigation and management measures to minimise and control impacts to sensitive receptors.

4.3 Approved Work Hours

The construction of all sections of the pipeline alignment, will be undertaken between:

- > 7 am to 6 pm Monday to Friday
- > 8 am to 1 pm Saturdays, and
- > at no time on Sundays and NSW public holidays.

The following construction activities will be considered and undertaken outside these hours across all sections of the pipeline alignment without the approval of the Secretary:

- > the delivery of materials as requested by the NSW Police Force or other authorities for safety reasons
- > emergency work to avoid the loss of life, property and/or material harm to the environment, and
- > where a negotiated agreement has been reached with affected receivers.

Works outside normal hours that cause noise levels LAeq (15 mins), will be managed to ensure noise levels are:

- no more than 5 dB(A) above the rating background level at any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009) (ICNG)
- no more than the noise management levels specified in Table 3 of the ICNG at other sensitive land uses
- continuous or impulsive vibration values, measured at the most affected residence, are no more than those for human exposure to vibration, specified in Table 2.2 of Assessing vibration: a technical guideline (DEC 2006), and
- intermittent vibration values measured at the most affected residence are no more than those for human exposure to vibration, specified in Table 2.4 of Assessing vibration: a technical guideline (DEC 2006).

Works may also occur outside normal hours where a negotiated agreement has been reached with affected receivers.

4.4 Out of Hours Works

It is expected that out of hours works (OOHW) will be required in providing safe and effective construction activities that will also reduce the overall cumulative impact on the community and duration of impacts through the timely completion of various construction activities such as:

- > HDD operations where continuous works are required for to maintain drilling fluid properties and to prevent collapse of the bore hole
- > Plant and Equipment maintenance including re-fuelling
- > Vehicles arriving onsite from 06:00am onwards to prepare for Project pre-starts
- > Traffic control,
- > Water cartage,
- > Hydrotesting, and

In accordance with Condition of Approval B6, work hours may be varied with the written approval of the Secretary (DPE).

The OOHW Protocol (Appendix C) provides the process to ensure compliance with the CoA in relation to construction work outside of normal working hours. Any works undertaken outside of normal hours must follow the relevant OOHW protocol.

4.4.1 Out of Hours Works Segment 1.1

In relation to Segment 1.1 works, AIE obtained approval for Out of Hours Works based on the Construction noise and vibration impact statement prepared by Hutchison Weller Pty Ltd in October 2020. A subsequent request for amendment to this approval was provided to DPE requesting extension of OOHW in relation to the trenchless crossing works within Segment 1.1 and this was subsequently approved 11 November 2022. This OOHW approval is attached as Appendix E.

All out of hours works must be undertaken in accordance with the DPE approval for OOHW and the Construction noise and vibration impact assessment – out of hours works prepared by Hutchison Weller Pty Ltd in October 2020 where relevant to pipeline construction works.

Based on the measured RBLs and requirements of the ICNG, project-specific noise management levels (NMLs) reproduced from Hutchison Weller Pty Ltd in October 2020 are summarised in Table 13 below. NMLs for non-residential receivers are described in Table 8 above.

Hutchison Weller Pty Ltd in October 2020 adopted a sleep awakening criterion of 55 dB(A) (internal) for the works based on the guidance derived from the Road Noise Policy (refer to Section 3.5.4). It follows that noise attenuation of 10 dB(A) typically provided by an open window means that a sleep awakening criterion of 65 dB(A) (external) can be applied to residential bedroom façades.

On this basis a screening criterion for sleep disturbance of RBL + 15 dB(A) and an awakening criterion of 65 dB(A), measured as LA1, 1 minute or LAMax, will be applied in accordance with Hutchison Weller Pty Ltd in October 2020. While not mandatory, the screening criterion should trigger additional consideration of the nature and frequency of disturbances whilst the awakening criterion should act as a maximum noise goal not to be exceeded on more than a couple of occasions.

Table 13 OOHW NML

Representative NCA (refer to Appendix E.)	Noise Management Level, LAeq, 15 minute					
	Standard Hours		Outside standard hours			
	Noise affected	Highly noise affected	Day	Evening	Night	Sleep disturbance screening (LAMax)
3	49	75	44	44	44	54
1 & 2	53	75	48	47	47	57

Source Hutchison Weller Pty Ltd in October 2020

4.4.2 Out of Hours Works Segment 1.2 and 2

Works to construct the Segments 1.2 and 2 must minimise the noise generated by any construction in accordance with the latest best practice requirements outlined in the ICNG or its latest version. Any OOHW associated with Segment 1.2 and 2 must be progressed for approval in accord with Appendix C.

4.4.3 Emergency Works

Where out-of-hours works are required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm (SSI 9471 Schedule 3 CoA 27 and SSI

9973 CoA B6) the Project will notify, the Planning Secretary (DPE) and the EPA of the reasons for emergency works. In addition, the Project will use best endeavours to notify all potentially noise affected sensitive receptors of the likely impact and duration of those works at the earliest opportunity.

4.5 Construction Noise Impact Statements

The Construction Noise Impact Statements (CNIS) will be a key site management tool providing clear instructions for managing works where there is a predicted noise exceedance and in support of OOOHW requests. For Segment 1.2 and 2, it is expected that this will primarily be HDD drilling and pipeline construction works in close proximity to residential sensitive receptors as shown in Appendix B.

Each CNIS will be prepared before any works that result in noise impacts commence at the relevant construction work zone. The CNIS will be progressively prepared across Segment 1.2 and 2 of the pipeline alignment to identify noise impact predictions and applicable management measures in meeting compliance with the conditions of approval and to progress and inform OOHW requests.

Each CNIS will set out the mitigation and management measures required and include:

- > Scope of work covered by CNIS
- > Justification for OOHW (where required)
- > Mapping of nearest noise sensitive receptors
- > Construction noise objectives
- > Construction noise impact assessment
- > Mitigation options, preferred management measures and ongoing risk management, and
- > Identification of suitable and relevant noise monitoring locations and requirements.

The development of additional noise mitigation measures such as noise barriers and acoustic enclosures will be outlined along with specific management measures such as works staging, separation distances, respite periods and community notification and consultation will also be summarised and implemented.

Further, the CNIS will detail site specific communication and consultation requirements in advance of works to ensure ongoing noise risks are managed throughout the project. The notification and communication to receptors will identify predicted noise impacts, the duration of impact and any additional mitigation that may be required to manage noise impacts.

The works areas and subsequent CNIS to be prepared under this NMP are summarised in Table 14.

Table 14 - Indicative CNIS to be prepared

Work Area Descriptor	Construction Activity	Receptor	Comments
A1	KP2.7	Trenchless	CNIS not required. Refer to PKGT EIS Assessment (GHD 2018)
	KP2.8-KP3.3	Open Trenching	
	K3.3	Trenchless	
	KP3.5-KP3.9	Open Trenching	
	KP3.9-KP4.3	Trenchless	
	KP4.3-KP6.7	Trenchless/Open Trenching	
A2	KP6.7-KP8.1	Open Trenching / Trenchless	

Work Area Descriptor		Construction Activity	Receptor	Comments
A3	KP8.1-KP10.2	Open Trenching	Nan Tien Temple	CNIS not required – NML set at Internal 45 dB (A), in accord with the ICNG.
A4	KP10.2-10.5	Open Trenching	Residents in Warwick Street and Orana Parade	CNIS Required for all works
A5	KP11.3	Trenchless		CNIS Required for all works
A6	KP12.4-EOL	Open Trenching	Sir Ian McLennan Oval	CNIS not required - External noise level 65 dB(A) as defined by ICNG.

4.6 Construction Noise Management Measures

Table 15 - Construction Noise Management Measures

No	Management Measure	Implementation	Responsibility
N01	<p>All construction personnel and subcontractors are required to undertake a Project induction which will incorporate information on noise and vibration management specific to the project and field of operations and shall include the following:</p> <ul style="list-style-type: none"> > Legislation and penalties for exceedances of noise and vibration management levels > Roles and Responsibilities for noise and vibration management > Identification of resident and sensitive receivers in relation to works > Approved standard working hours Incident reporting and record keeping, and > Noise and vibration management measures > OOHW <p>A register attendance at all inductions will be maintained.</p>	Pre-Construction	Principal Contractor/ Subcontractors
N02	All construction personnel and subcontractors will participate in Safe Work Method Statement (SWMS) development that will include specific management measures relating to noise emissions for specific construction activities.	Pre-Construction	Principal Contractor/ Subcontractors
N03	In the event there are changes to people/plant/process or environment after the development of SWMS, ensure that any changes are communicated to work personnel including environmental hazards and controls which shall be recorded in a revised SWMS or SWMS review card and signed off by all involved in the activity.	Per Event	Principal Contractor/ Subcontractors
N04	<p>All works will be undertaken in accordance with the Traffic Management Plan (GAS-599-PA-CN-002) which will include the following reasonable and feasible measures to minimise traffic noise:</p> <ul style="list-style-type: none"> > The laydown and construction office will be located in an established industrial setting > Site access routes, and access to the CROW will be planned and designed in accordance with traffic studies undertaken as part of the environmental assessment to minimise noise impacts to resident receivers > The CROW will be utilised and provide the primary access for construction vehicles and equipment > Truck movements on the CROW will be one way, with the approved CROW sufficiently wide enough to allow for construction activities as well as construction vehicle movement > Drivers will operate in accordance with the Project Driving Procedure and will be advised of designated vehicle routes, acceptable operating and delivery hours and other relevant practices to minimise impacts (ie minimise use of engine brakes, idling for extended periods) > Traffic flow, parking and loading/unloading areas will be planned to minimise reversing movements > Non-tonal reversing beepers (or an equivalent mechanism) will be implemented for use on construction vehicles and mobile plant regularly used on site and for any out of hours' work. <p>.. Plan.</p>	Construction	Principal Contractor
N05	A Project complaints management system will be established and maintained for the duration of construction.	Construction	Principal Contractor
N06	<p>Unless otherwise approved, construction activities will be undertaken during the following standard work hours:</p> <p>a) 7:00am to 6:00pm Mondays to Fridays</p>	Construction	Principal Contractor/ Subcontractors

No	Management Measure	Implementation	Responsibility
	b) 8:00am to 1:00pm Saturdays, and c) At no time on Sundays or public holidays		
N07	The following construction activities may be undertaken outside these hours without the approval of the Secretary: (a) the delivery of materials as requested by the NSW Police Force or other authorities for safety reasons b) emergency work to avoid the loss of life, property and/or material harm to the environment (c) construction works that cause LAeq (15 mins) noise levels that are: > no more than 5 dB(A) above the rating background level at any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009); and > no more than the noise management levels specified in Table 3 of the Interim Construction noise Guideline (DECC, 2009) at other sensitive land uses; and > continuous or impulsive vibration values, measured at the most affected residence, are no more than those for human exposure to vibration, specified in Table 2.2 of Assessing vibration: a technical guideline (DEC, 2006); and > intermittent vibration values measured at the most affected residence are no more than those for human exposure to vibration, specified in Table 2.4 of Assessing vibration: a technical guideline (DEC 2006); or (d) where a negotiated agreement has been reached with affected receivers	Construction	Principal Contractor/ Subcontractors
N08	Where works are required to be undertaken outside of normal hours the OOHW Protocol Appendix C will be used to progress assessment and approval, any works undertaken outside of normal hours must be undertaken in accord with the OOHW Protocol.	Construction	Principal Contractor/ Subcontractors
N09	Undertake and or support ongoing consultation and communication with receptors and associated residents throughout works and advise of the type and nature of activities to be performed.	Construction	Principal Contractor/ Subcontractors
N10	Training and awareness will be provided to relevant Project personnel, including relevant sub-contractors on noise and vibration requirements from this NMP including OOHW through per-starts, toolboxes or targeted training. Awareness will be promoted to avoid: > swearing or unnecessary shouting or use of loud stereos/radios on site. > dropping of materials from height > metal on metal impacts > slamming of doors > excessive revving of plant and vehicle engines, and > uncontrolled release of compressed air	Construction	Principal Contractor
N11	Limit high noise impact activities and works to the mid-morning and mid-afternoon periods, where works are near to resident receivers.	Construction	Principal Contractor
N12	Give priority to the use of quieter construction methods and plant alternatives where feasible and reasonable	Construction	Principal Contractor/ Subcontractors
N13	Plant used intermittently is to be throttled down or shut down		
N14	Undertake haulage, laydown and the loading and unloading of materials/deliveries as far as practicable from resident receivers	Construction	Principal Contractor/ Subcontractors
N15	Truck movements will be restricted to the routes outlined in the TMP and drivers alerted to the limiting of compression braking where safe and practicable	Construction	Principal Contractor/ Subcontractors
N16	Out-of-hours deliveries will be minimised where possible. Where out of hours deliveries are required, due care will be taken to minimise impacts (i.e. no extended periods of engine idling, use of radios instead of shouting, non-tonal reversing beepers where possible, unloading / loading to be undertaken during standard hours).	Construction	Principal Contractor/ Subcontractors
N17	No swearing or unnecessary shouting or loud stereos/radios on site. No dropping of materials from height, throwing of metal items and slamming of doors. No excessive revving of plant and vehicle engines. Ensure controlled release of compressed air.	Construction	Principal Contractor/ Subcontractors
N18	All construction plant and equipment will be supplied and maintained in efficient working order and serviced regularly.	Construction	Principal Contractor/ Subcontractors
N19	Manage the use and siting of plant, where practicable by: > Avoiding simultaneous operation of noisy plant within discernible range of a sensitive receivers > Maximising the offset distance between noisy or vibration significant plant and adjacent sensitive receivers > Switching off when it is not in use for more than 15 minutes	Construction	Principal Contractor/ Subcontractors

No	Management Measure	Implementation	Responsibility
	<ul style="list-style-type: none"> > Directing noise-emitting plant away from sensitive receivers, particularly during OOHW, and > Using only necessary size, power and number of equipment on site. NOTE: Due to limited land available for construction this may not at times be practical.		
N20	Review and amend construction methodology, where known sensitive receivers will be potentially affected and where this is considered reasonable and feasible. Alternatives for consideration may include grinding, rock splitting or levelling instead of hydraulic rock breaking.	Construction	Principal Contractor/ Subcontractors
N21	The use of temporary noise shielding will be implemented at locations where exceedances of noise criteria is expected at resident receivers in proximity to works. At these locations, install noise barriers between stationary plant such as generators, water treatment, desander and horizontal directional drill and noise sensitive receivers. Barriers and shielding may include plywood hoarding (min 12mm) or construction blanket installed on temporary fencing.	Construction	Principal Contractor/ Subcontractors
N22	The location of static noise sources, such as generators, pumps and lighting towers, will be located as far as practicable and safe from resident receivers. Where practical and safe to do so, static noise sources should be set-up where noise emission is reverse facing from residential receivers.	Construction	Principal Contractor/ Subcontractors
N23	Additional temporary screening or enclosures will be considered for plant and equipment where additional measures are required to meet relevant NMLs, or where plant and equipment is known to exceed the NMLs	Construction	Principal Contractor/ Subcontractors
N24	All noise complaints received will be dealt with promptly and in accordance with Section 2.5 of the CEMP. Construction methods may need to be altered to reduce noise impacts at the affected locations such as the implementation of temporary noise shielding as detailed above. In the event construction methods can't be altered, the quantity of plant and equipment operating in the immediate area should be reduced to minimise noise emissions.	Construction	Principal Contractor/ Subcontractors
N25	Where it has been identified as necessary (e.g., in response to resolving community complaints), noise monitoring will be undertaken at the time to check that the noise mitigation measures are effective.	Construction	Principal Contractor/ Subcontractors
N26	Maintain separation of the operation of construction equipment from personnel in accordance with the limits for human exposure set out in the Environmental Noise Management Assessing Vibration: A Technical Guideline (DEC 2006).	Construction	Principal Contractor/ Subcontractors
N27	When selecting plant and equipment, quieter and less vibration emitting construction methods will be utilised where feasible and reasonable such as the avoidance of impact pile driving in noise sensitive areas.	Construction	Principal Contractor/ Subcontractors
N28	Incidents associated with noise impacts will be managed in accordance with Section 7 of the CEMP and Section 6.2.1 of this NMP.	Per Event	Principal Contractor/ Subcontractors
N29	Non-compliances associated with noise impacts will be managed in accordance with Section 8.4 of the CEMP and Section 6.2.3 of this NMP.	Per Event	Principal Contractor/ Subcontractors
N30	Undertake monitoring of works in accordance with Section 5	Construction	Principal Contractor

4.7 Additional Mitigation Measures

In instances where noise levels are still predicted to exceed the NML at receptors, after the application of all reasonable and feasible mitigation and management measures, the Project should consider implementing the additional mitigation measures such as:

- > Notification (letterbox drop or equivalent) detailing work activities, time periods of which these will occur, impacts and mitigation measures
- > Specific notifications, which provide additional information when relevant and informative to more highly affected receivers than covered in general letterbox drops
- > Phone calls, which detail relevant information to identified/affected stakeholders and provide personalised contact, tailored advice and the opportunity to comment on the proposed work

- > Individual briefings, which inform stakeholders about the impacts of high noise activities and mitigation measures, and provide personalised contact, tailored advice and the opportunity to comment on the proposed work
- > Tailored mitigation measure/s to individual circumstances (where engagement with affected stakeholder/s and/or resident/s has identified the need), and/or
- > Verification, including measurement of the background noise level and construction noise.

5 NOISE MONITORING AND INSPECTIONS

The LECH Manager (or delegate) shall coordinate environmental inspections and monitoring of works during the conduct of construction activities to check and record compliances with works procedures and this NMP.

5.1 Site Inspections

Inspections of pipeline alignment will include daily site inspections by Site Supervisors, and weekly site inspection by environmental personnel during construction as a minimum. The frequency of these inspections may be increased to reflect the risk associated with potential impacts arising from noise during specific construction activities or proximity of works to sensitive receptors.

5.2 Site Monitoring

Site monitoring will be undertaken in accordance with the Noise Monitoring Protocol (Appendix D) as follows:

- > Attended monitoring monthly during environmental inspections to ensure compliance with ICNG NMLs (Normal work hours).
- > Monitoring of proposed works outside normal work hours as required by an approved out of hours works activity approval
- > Monitoring arising from noise complaints
 - Monitoring will be undertaken as soon as practicable following receipt of a noise complaint, and
 - Monitoring locations and noise emitting scenarios will follow as close to the scenario of construction activities and time presented and recorded during the complaint

Site inspections will be recorded (along with actions and issues observed) and actioned appropriately within agreed timeframes. Noise related inspections/monitoring will be recorded as part of Environmental Inspection Checklist. Additional requirements and responsibilities in relation to inspections are documented in Section 8 of the CEMP.

6 RECORD KEEPING AND REPORTING

6.1 Record Keeping

The Project shall maintain a documentation and record system in support of this NMP and monthly Project HSE reporting requirements to enable review and auditing of environmental management systems and procedures.

The following records are expected to be generated in relation to Noise management and monitoring:

- > Environmental inspection records
- > Noise impact assessments and statements
- > Noise monitoring records
- > Stakeholder discussion records
- > Induction, training and awareness records
- > Site and construction activity specific records and registers
- > Reporting of Environmental Incident, non-conformances, and corrective actions
- > Audit reports, and
- > Complaints.

6.2 Reporting

Daily, Weekly, Monthly and Annual Reporting will include information on relevant environmental data including noise and commentary as generated in support of incident and complaint management, regulatory and contractual requirements.

6.2.1 Environmental Incident Reporting

Environmental incidents will be reported in accordance with the CEMP Section 7.1. Should it be determined by AIE / Jemena that the incident is reportable to DPE or any other relevant agency or Regulator, the Nacap Project Manager shall liaise with the AIE and or Jemena Representative and provide support to ensure that the incident is reported in the required timeframe and format required.

In accordance with the CoA DPE must be notified in writing via the Department's Major Projects Website immediately after AIE or Jemena becomes aware of an incident on site.

6.2.2 POEO Act Incident Notification

In accordance with the Protection of the Environment Operations Act 1997 (POEO Act) the Environment Protection Authority (EPA) must be notified of pollution incidents that cause or threaten material harm to the environment. POEO Act reporting will be undertaken in accordance with the CEMP Section 7.2.

6.2.3 Non-Compliance Notification

Non-Compliances will be reported in accordance with the CEMP Section 8.4. The Department must be notified in writing via the DPE's Major Projects Website within seven days after the identification of any non-compliance issue. The notification must identify the development, including the application number, set out the condition of approval that the development is noncompliant with, the way in which it does not comply, the reasons for the non-compliance (if known) and what actions have been taken, or will be taken, to address the non-compliance

7 REVIEW AND IMPROVEMENT

Section 8.6 and 8.7 of the CEMP describes the process for the review and continual improvement of project documents including this NMP.

Continual improvement of this NMP will be achieved by ongoing evaluation of environmental management performance against environmental policies, objectives and targets, for the purpose of identifying opportunities for improvement.

The continual improvement process is designed to:

- > Identification of opportunities for improvement of environmental management and performance
- > Identification through incident investigation the cause or causes of non-conformance,
- > Development of corrective and preventative measures to address non-conformance and process deficiency
- > Assessment of the effectiveness of corrective actions
- > Documentation and communication of change and process improvements, and
- > Any updates to the NMP as described above.

A copy of any updated plan and changes will be distributed to all relevant stakeholders and regulatory authorities. Any changes to work practices arising from document review will be communicated via pre-start alerts, toolboxes, SWMS review and or site specific awareness sessions.

APPENDIX A CONSULTATION RECORD

The following table provides a detailed record of the consultation activities associated with this Plan.

Stakeholder	Date Sent	Send Method	Due Date	Date Received	Comments
Wollongong City Council (WCC)	30/08/2022	Email	13/09/2022	10/11/2022	Completing review, however, note that the deadline has passed.
Sydney Trains	30/08/2022	Email	13/09/2022	15/09/2022	No Comments
Transport for NSW	30/08/2022	Email	13/09/2022	21/09/2022	No Comments

APPENDIX B SENSITIVE AND RESIDENTIAL RECEPTOR MAPPING







**RECEPTOR MAP – AREA 3
Segment 2 KP 8.5 – 11.0**



KP 12.4

KP 11.5

KP 10.6

KP 9.8

Receptor Mapping - Key

	Pipeline Easement Area
	Pipeline Alignment
	HDD Sections
	Approved Work Area

APPENDIXC OUT OF HOURS WORKS PROTOCOL

OUT OF HOURS WORKS PROTOCOL	
Purpose	<p>This Out of Hours Work (OOHW) Protocol has been prepared to provide guidance on the process to conduct OOHW on a case by case or activity basis outside normal hours in accordance with SSI 9973 B6.</p> <p>This OOHW Protocol will outline the process for minimising the noise generated by any construction, upgrading or decommissioning activities in accordance with the best practice requirements outlined in the Interim Construction Noise Guideline (DECC, 2009), or its latest version.</p>
Scope and Justification	<p>This OOHW protocol has been developed with consideration of relevant legislation, guidelines, specifications and policy documents outlined in Noise Management Plan (NMP). This protocol applies to OOHW that may be undertaken by the contractor and its subcontractors. This protocol applies to construction activities only. Standard and approved working hours are identified Section 4.3 of the NMP.</p> <p>For this protocol and in accordance with Section 4.3, OOHW is defined as work that occurs during the following periods:</p> <ul style="list-style-type: none"> > 6.00pm to 11.59pm and 12.00am to 7.00am Mondays to Friday inclusive > 12.00am to 8.00am and 1.00pm to 11.59pm Saturdays, and > At any time on a Sunday and Public Holiday <p>The Interim Construction Noise Guideline (ICNG) details five categories of works that may be undertaken outside recommended standard hours:</p> <ul style="list-style-type: none"> > The delivery of oversized plant or structures that police or other authorities determine require special arrangements to transport along public roads. > Emergency work to avoid the loss of life or damage to property, or to prevent environmental harm. > Maintenance and repair of public infrastructure where disruption to essential services and/or considerations of worker safety do not allow work within standard hours. > Public infrastructure works that shorten the length of the project and are supported by the affected community. > Works where a proponent demonstrates and justifies a need to operate outside the recommended standard hours. <p>Works may also occur outside normal hours where a negotiated agreement has been reached with affected receivers.</p> <p>Noise management levels for OOHW are detailed in the ICNG as being RBL + 5dB. OOHW will be avoided where reasonable and feasible. Occasions may arise when OOHW are required in providing safe and effective construction activities that reduce the overall cumulative impact on the community and duration of impacts through the timely completion of various construction activities, such as:</p> <ul style="list-style-type: none"> > HDD operations where continuous works are required for up to 12 hours to maintain drilling fluid properties and to prevent collapse of the bore hole > Plant and Equipment maintenance including re-fuelling > Vehicles arriving onsite from 06:00am onwards to prepare for Project pre-starts > Traffic control, > Water cartage, > Delivery of materials, and > Hydrotesting <p>This protocol provides guidance for procedures, mitigation and notification that should be followed in circumstances where OOHW are desirable in the delivery of safe and effective construction activities.</p>
Out of Hours Approval Process	<ul style="list-style-type: none"> > Identify the need for OOHW <ul style="list-style-type: none"> o Prior to undertaking OOHW, the contractor will consider nature of the works, expected noise levels at the receiver and duration of the OOHW > Prepare OOHW works application <ul style="list-style-type: none"> o Identify scope and justification for OOHW <ul style="list-style-type: none"> ▪ Detailed scope ▪ Location of works ▪ Duration of works ▪ Justification for OOHW > Construction Noise Impact Assessment (NMP Section 4.5)

OUT OF HOURS WORKS PROTOCOL

	<ul style="list-style-type: none"> ○ A risk assessment for the work will be undertaken and will determine the potential for intrusive noise and vibration impacts at sensitive receivers and categorise the noise and vibration impacts for OOHW. ○ The derived predicted intrusive noise impacts and the predicted level and duration of exceedance above the adopted NML for OOHW will determine the consultation requirements and/or measures to manage the noise impacts. ○ Additional mitigation measures will be identified for implementation where reasonable and feasible and will directly relate to the extent of noise impact of the proposed OOHW. The higher the level of impact the greater the level of mitigation and consultation ○ Impact Categories are proposed as follows: <ul style="list-style-type: none"> ▪ No exceedance of OOHW Adopted Construction NML – Very Low ▪ 1-5 dB(A) exceedance above NML – Low ▪ 6-15 dB(A) exceedance above NML – Medium ▪ 15-25 dB(A) exceedance above NML – High ▪ >25 dB(A) above NML – Very High > Undertake Consultation <ul style="list-style-type: none"> ○ Undertake consultation with relevant stakeholders including EPA > Approval <ul style="list-style-type: none"> ○ Under CoA B6 approval must be in writing from the Secretary (DPE) ○ The OOHW Application will summarise the activities, location duration and justification for the works and include the predicted noise levels and any additional mitigation measures required to ensure compliance with the CoA. ○ OOHW will not proceed without written approval of the Secretary (DPE) > Community Notification <ul style="list-style-type: none"> ○ Undertake community notifications as per the derived mitigation measures ○ The notification will clearly outline the reason that the work is required to occur outside standard hours ○ The notification will outline the location, nature, scope and duration of the proposed works ○ Provide diagrams and supporting information that clearly identifies the location of the proposed works in relation to the receptor including nearby roads and local landmarks ○ include details of relevant time restrictions that apply to the proposed works ○ Work methods (including noise mitigation measures), and ○ include an after-hours contact phone number and the project website address. > DPE and EPA notification <ul style="list-style-type: none"> ○ Provide notification to DPE and EPA in relation to the commencement of OOHW ○ Provide follow up notification at the cessation of OOHW. > Inductions and Awareness <ul style="list-style-type: none"> ○ Undertake a Pre-start toolbox for relevant personnel to ensure all onsite personnel involved in disturbance activities are aware of working in accord with the approved OOHW protocol.
Monitoring	Monitoring will be conducted in accordance Section 5 and the Noise Monitoring Protocol identified in Appendix D
Complaints Management	Complaints shall be managed in accordance with Section 2.5 of the CEMP.
Incident Management	Incidents and incident notification will be managed in accordance with Section 6.2.1 and 6.2.2 of the NMP
Non-Compliance Management	Non-Compliance and non-compliance notification will be managed in accordance Section 6.2.3 of the NMP
Legislative Requirements	Refer to Section 2.1 of this Plan.
Relevant Authority	DPE, and EPA

APPENDIXD NOISE MONITORING PROTOCOL

NOISE MONITORING PROTOCOL	
Purpose	This Noise Monitoring Protocol has been prepared in minimising the noise generated by any construction activities in accordance with the best practice requirements outlined in the Interim Construction Noise Guideline (DECC, 2009), or its latest version.
Scope	Noise monitoring is to be undertaken in accordance with the provisions in the following documents: <ul style="list-style-type: none"> > Noise Policy for Industry (DECCW 2017), and > Australian Standard AS 1055 Description and measurement of environmental noise. Noise levels from the monitoring should be compared with the noise management levels detailed in the NMP and any approved out of hours works approval. Noise monitoring will be undertaken at the relevant sensitive receiver in the event of a complaint or at sensitive receivers as required in the undertaking of a risk assessment in relation to Out of Hours Works or expected noise exceedance.
Location	Noise monitoring will occur at the closest sensitive receiver to the construction activity. Where access or acoustic considerations do not allow a measurement to take place at these locations, other locations may be used provided that they are representative of the acoustic environment at these locations. Additional monitoring locations may be added on a case by case basis to address specific concerns or complaints from any sensitive receiver.
Frequency	Unattended monitoring will be used in conjunction with operator attended noise monitoring during the following periods: <ul style="list-style-type: none"> > Monthly during environmental inspections to ensure compliance with ICNG NMLs (Normal work hours). > Monitoring of proposed works outside normal work hours as required by an approved out of hours works activity approval > Monitoring arising from noise complaints
Protocol and Methodology	<ul style="list-style-type: none"> > Noise compliance monitoring should be undertaken only using operator attended noise monitoring and or unattended monitoring equipment > The monitoring will be carried out in accordance with the provisions of the Noise Policy for Industry and AS 1055 > Monitoring should occur during typical construction activities. The state of activities should be confirmed by a representative of the construction works > The monitoring equipment's calibration will be checked before and after each monitoring occurrence > Measurements are only to be considered valid for a difference of less than ± 1 dB between calibration checks > The meteorological conditions at the time of measurements will be recorded as per Section 3.5.7 of the NMP. > Noise monitoring should not be conducted (or the data should be excluded) when average wind speeds (over 15-minute periods or shorter) at microphone height are greater than 5 metres per second, or when rainfall occurs > Monitoring will be conducted using a calibrated sound level meter > The monitoring should be conducted over a sufficient duration (minimum of 15 minutes) which provides results for comparison against the noise management levels > Attended monitoring should determine the noise level from the construction activities only for comparison with the noise management levels. Where this cannot be directly measured or accurately estimated, alternative methods of determining compliance may be used as detailed in the Industrial Noise Policy > A representative of the construction contractor be present during the noise measurements to assist in the identification of noise sources, their location and cause, and > Incidents and Non-Compliance will be reported in accordance with Section 6.2 of the NMP
Reporting	A report of each monitoring occurrence would include the detail below. <ul style="list-style-type: none"> > The date, time and duration of measurements > The equipment used, the serial numbers and date of last NATA calibration > The results of calibration checks before and after the monitoring occurrence > The location of the measurements including justification for the selected location

NOISE MONITORING PROTOCOL	
	<ul style="list-style-type: none"> > The prevailing meteorological conditions during the measurement, including the wind speed and direction, rainfall and a determination of the presence of temperature inversions > A description of the noise sources contributing to the noise environment > A description of the noise emission from the works including observations on the character of the noise -intermittent, steady, impulsive, tonal, broadband, low frequency and directivity > The potential cause of noise from the construction activities > The noise levels measured including Leq,15min, Lmax, L1,15min, L10,15min, L90,15min in dBA > Any adjustments made to the measurements e.g. for reflecting surfaces (other than the ground) > The measured, estimated or calculated noise level from construction activities > Where noise levels are not able to be directly measured or reliably estimated, the methodology and assumptions used to determine the noise level from construction shall be stated > Where noise limits are exceeded, identification of the cause of the exceedance and a list of mitigation and management measures recommended to reduce noise levels, and > Where monitoring is carried out in response to a complaint, the following shall also be included: <ul style="list-style-type: none"> o The nature and description of complaint o The location from where the complaint was made and the measurement location o An assessment of the contribution of the cause of the complaint to the ambient noise environment and the construction's noise emission, and o Where required, methods to mitigate and manage the cause of the complaint.
Noise Exceedance	<p>An exceedance of the noise management levels is defined where the measured noise level from the construction activities exceeds the noise management levels</p> <ul style="list-style-type: none"> > The noise level, use and location of the identified cause of the exceedance shall be reviewed > Existing noise mitigation and management controls will be reviewed and revised and implemented to prevent any further or ongoing exceedance > Corrective action will be implemented in a timely manner to address the exceedance and to prevent any ongoing exceedance > If required, additional monitoring is to be carried out to confirm the effectiveness of any actions taken > Records of all exceedances and actions taken to address them are to be maintained in the project monitoring register, and > Where an exceedance is identified as a result of a complaint, the complainant shall be notified of the corrective action being undertaken to address the complaint.
Incident Management	Incidents and incident notification will be managed in accordance with Section 6.2.1 and 6.2.2 of the NMP
Non-Compliance Management	Non-Compliance and non-compliance notification will be managed in accordance Section 6.2.3 of the NMP
Legislative Requirements	Refer to Section 2.1 of this Plan.
Relevant Authority	DPE, and EPA

APPENDIXE OOHWAPPROVAL SEGMENT 1.1

Mrs Alexandra Lovell
HSE Manager
PO Box 1070
Wollongong NSW 2500

11/11/2022

Subject: Out of Hours Works

Dear Mrs Lovell,

I refer to your letter dated 8 November 2022 requesting confirmation that the out of hours works approval granted on 20 November 2020 extends to line pullback activities.

The Department agrees that line pullback activities may be undertaken at the Garangaty and North Gate locations under the out of hours works approval granted on 20 November 2020.

If you wish to discuss the matter further, please contact the undersigned on 9274 6324.

Yours sincerely

A handwritten signature in black ink, appearing to read "R. Hawkeswood".

Rose-Anne Hawkeswood
Team Leader
Resource Assessments



Alexandra LOVELL
HSE Manager – Australian Industrial Energy (AIE)
PO Box 1070 Wollongong DC NSW 2550
P: 0413 250 961
E: Alex.Lovell@ausindenergy.com

8 November 2022

Georgia Dragicevic
Department of Planning and Environment – Wollongong Office
Level 2, 84 Crown Street
WOLLONGONG NSW 2520

Dear Georgia

Subject: Out of Hours Work Clarification

As discussed, AIE has a current Out of Hours Work approval for Horizontal Directional Drilling associated with the upcoming pipeline works. The approval is based on an assessment by Hutchison and Weller.

The approval and assessment are contained in the links to our public website below:

<https://ausindenergy.com/file/2020/11/20020-NV-RP-1-5-PKGT-OOHW-CNVIS.pdf>

<https://ausindenergy.com/file/2020/11/Out-of-Hours-Works-Approval.pdf>

The current approval allows for under boring using horizontal directional drilling (HDD) along new pipeline route, 7am to 6pm 7 days when running with possible extension outside standard hours where needed.

As part of the pipeline construction activities, line pullback activities using the same equipment as HDD is required at the Garangaty and North Gate locations (refer appendix A for figure showing these locations). The equipment would be used in a different manner for the line pull (as opposed to HDD) and result in less noise and vibration being emitted.

These pull back activities require 24-hour operations to prevent the drill fluid from going "off". There is a risk that if the pipe remains stationary too long the fluid sets around it and the pipe is held up.

For the two locations, it is expected that the pull back will take 36 hours each with only one night time period required for each. The nights will not be consecutive nights.

GHD (AIE's current environmental consultant) has reviewed the proposed activities and the Hutchison and Weller report and have confirmed:

- The noise and vibration expected to be generated from the line pull activities is likely to be less than that generated when the equipment is used for HDD activities
- Noise generated by the line pullback is expected to fall within the construction noise management levels for the nearest residential receivers
- The line pull activities are consistent with the approval (albeit with some interpretation required)



AIE believes the pull back activities are consistent with the existing out of hours work approval and intend to proceed with the work accordingly. We would appreciate if DPE could advise if they have any concerns with this approach.

With thanks

Your sincerely

A handwritten signature in black ink, which appears to read 'Alex Lovell'. The signature is written in a cursive, flowing style.

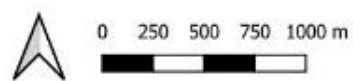
Alexandra LOVELL

Appendix A - Figure showing Garangaty and North Gate locations



Port Kembla Gas Terminal - Overview and NCAs

- | | | |
|------------------|---------------------------|-------|
| Work areas | Non-Residential Buildings | NCA 1 |
| Underbore | Residential Buildings | NCA 2 |
| Schools | Background noise monitor | NCA 3 |
| Place of worship | | NCA 4 |



Mrs Alexandra Lovell
HSE Manager
Australian Industrial Energy
PO Box 1070
WOLLONGONG NSW 2500

30/09/2022

Subject: Port Kembla Gas Terminal Project (SSI-9471) - Out of Hours Work Location

Dear Mrs Lovell

I refer to your request dated 26 September 2022 to change the location of the horizontal directional drilling (HDD) for the purposes of the out of hours works approval that was granted on 20 November 2020.

That approval allows HDD to be undertaken out of normal work hours along the pipeline route at a location near Five Islands Road, subject to a range of conditions outlined in the approval letter. The Department notes that you are seeking approval to undertake the HDD along the pipeline at Berth 101 instead of near Five Islands Road, on the basis that the change in location would not increase the noise impacts at nearby residences.

The Department accepts your justification and agrees that the HDD can be undertaken out of standard work hours at the location described in your request.

Accordingly, as nominee of the Planning Secretary, I approve HDD out of hours at the new location, subject to the same conditions outlined in the Department's approval letter dated 20 November 2020.

If you wish to discuss the matter further, please contact Rose-Anne Hawkeswood on 9274 6324.

Yours sincerely



Stephen O'Donoghue
Director
Resource Assessments
As nominee of the Planning Secretary



26 September 2022

Wayne Jones
Team Leader - Post Approval
Department of Planning & Environment
GPO Box 3145 Singleton NSW 2330
E: wayne.jones@planning.nsw.gov.au

Dear Wayne

**Subject: Port Kembla Gas Terminal (PKGT) Project (SSI-9471)
Change of Horizontal Directional Drill locations for out of hour works for pipeline corridor during
Stage 3**

AIE received approval from the Department of Planning Industry and Environment (DPIE) (now the Department of Planning and Environment (DPE)) on 20 November 2020 for extended construction hours for various construction activities, including works associated with underboring at five locations using horizontal directional drilling (HDD) along new pipeline route. See copy of out of hour works approval included as Attachment 1.

Since receipt of the DPE out of hour works approval, there have been some minor changes in the scope of the pipeline construction including the removal of an HDD location at the intersection between Springhill Road and Five Islands Road from SSI-9471 and the addition of a new HDD location at Berth 101.

Subsequently, AIE engaged GHD to review of the potential noise impacts due to the HDD changes. Refer to Attachment 2 for copy of GHD Technical Note dated 16/09/2022 which includes further detail on the HDD location changes.

In summary, the GHD Technical Note concluded that the proposed changes to the underboring locations are unlikely to change the outcomes of the 2020 out of hours noise assessment (Hutchison Weller, Oct 2020) and would likely result in a noise level reduction within noise catchment 2 (NCA 2).

AIE confirm that with the exception of the changes in the HDD locations as detailed in Attachment 2, all work will be undertaken in accordance with the requirements of Condition 28 of Schedule 3 and the additional noise mitigation measures proposed in Section 5 of the 'Out of Hours Works document' (Hutchison Weller, Oct 2020).

Therefore, in accordance with Condition 27 of Schedule 3, AIE requests that DPE apply the out of hours works approval issued on 20 November 2020 to the changes to the HDD locations as supported by the initial out of hour noise assessment (Hutchison Weller, Oct 2020) and Technical Note (GHD, Sept 2022) included as Attachment 2.

If you require any further information on this matter, or would like to discuss, please do not hesitate to contact the undersigned.

Yours sincerely

Alexandra Lovell
HSE Manager – Australian Industrial Energy (AIE)
E: alovell@squadronenergy.com



Attachment 1: DPIE letter of approval for Port Kembla Gas Terminal (SSI-9471) Out of Hour Works, 20 November 2020

Attachment 2: GHD Technical Memorandum, Noise impacts from changes to underboring locations, 16 Sept 2022

Kylie Hargreaves
Government and Stakeholder Relations
Australian Industrial Energy (AIE)
Level 16,44 Market Street
Sydney, NSW, 2000

20 November 2020

Dear Ms Hargreaves

**Port Kembla Gas Terminal (SSI-9471)
Out of Hours Works**

I refer to the Out of Hours Works document prepared by Hutchison Weller dated October 2020 and submitted to the Department in accordance with Condition 27 of Schedule 3 of the Infrastructure Approval for the Port Kembla Gas Terminal (SSI-9471).

The Department has carefully reviewed the Out of Hours Works document and your request to extend construction hours (as allowed by Condition 27 of Schedule 3) to undertake the follow work tasks:

- diaphragm wall construction at Berth 101 including excavation, bentonite slurry and concrete pours
- dredging with backacter and loading to barge at berth 101, disposal at outer harbour
- underboring at five locations using horizontal directional drilling along new pipeline route
- earthmoving at berth 101 and disposal site

The Department accepts the request to vary construction hours subject to the following:

- 1) Only the specific work scopes listed in the Out of Hours Works document can be undertaken.
- 2) Written notice must be provided to surrounding residential occupiers predicted to be impacted above the Noise Management Level (NML) before work occurs outside the normal construction hours. The written notice must:
 - (i) identify the location, duration and activities to occur outside normal construction hours;
 - (ii) be provided 48 hours before any work occurs outside normal construction hours; and
 - (iii) provide a telephone contact number of the construction site manager during the extended construction hours.
- 3) If any complaint is received, appropriate mitigation measures are to be identified, and the Department and the complainant are to be informed of the measures that will be implemented to address the complaint. Should any further complaints be received regarding works in the extended construction hours, this approval to extend the works hours may be revoked by the Department.
- 4) A record of any complaints made regarding works undertaken during the extended construction hours must be provided to the Department within 24 hours of the complaint.
- 5) All work is to be undertaken in accordance with the requirements of Condition 28 of Schedule 3 and that the additional noise mitigation measures proposed in Section 5 of the 'Out of Hours Works document' are adopted and implemented

Accordingly, the Planning Secretary has approved out of hours work to be undertaken in accordance with the Out of Hours Works document (Revision 5, dated October 2020).

Please ensure that a copy of the Out of Hours Works document is placed on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Wayne Jones on 6575 3406.

Yours sincerely

A handwritten signature in black ink, appearing to be 'S O'Donoghue', written in a cursive style.

Stephen O'Donoghue
Director Resource Assessments

Technical Memorandum

September 23, 2022

To	Alexandra Lovell	Contact No.	02 9239 7028
Copy to	Karl Rosen	Email	Pri.Pandey@ghd.com
From	Pri Pandey	Project No.	2127477
Project Name	East Coast Gas Project		
Subject	Technical Note: Noise impacts from changes to underboring locations		

1. Introduction

Australian Industrial Energy (AIE) is developing a liquefied natural gas (LNG) import terminal at Port Kembla, south of Wollongong, NSW (the Project).

AIE received approval from the Department of Planning, Industry and Environment (DPIE) on the 20th of November 2020, to extend construction hours for certain activities associated with the project in accordance with Condition 27 of Schedule 3 of SSI 9471. The Out of Hours Works approval was based upon a construction noise assessment prepared by Hutchison Weller (2020) for specific tasks including:

- Diaphragm wall construction at Berth 101 including excavation, bentonite slurry and concrete pours
- Dredging with backacter and loading to barge at berth 101, disposal at outer harbour
- Underboring using horizontal directional drilling along the new pipeline corridor
- Earthmoving at berth 101 and disposal site.

Subsequently, GHD undertook an out of hours work assessment of piling activities as part of the quay wall construction. Approval from Department of Planning and Environment ((DPE) previously DPIE) was granted on the 2nd of February 2022 for these activities.

Slight changes to the underboring locations are now proposed by AIE due to changes in the pipeline construction methodology.

1.1 Purpose of this Memorandum

This Memorandum has been prepared to qualitatively discuss the potential noise impacts of changes in the underboring locations and any potential consequences on the original DPIE out of hours construction work extension granted on 20th November 2020.

1.2 Scope and limitations

This technical memorandum has been prepared by GHD for AIE. It is not prepared as, and is not represented to be, a deliverable suitable for reliance by any person for any purpose. It is not intended for circulation or incorporation into other documents. The matters discussed in this memorandum are limited to those specifically detailed in the memorandum and are subject to any limitations or assumptions specially set out.

1.3 Changes to underboring locations

The proposed changes to the underboring locations are shown in Figure 1

Proposed changes to underboring locations (Figure 1).



Port Kembla Gas Terminal - Overview and NCAs



Figure 1 Proposed changes to underboring locations (Base imagery: Construction noise and vibration impact assessment – out of hours works October 2020 Doc no. 20020-NV-RP-1-5, Hutchison Weller)

This Technical Memorandum is provided as an interim output under our agreement with AIE. It is provided to foster discussion in relation to technical matters associated with the project and should not be relied upon in any way.

1.4 Discussion

An assessment of noise impacts from the original underboring locations was undertaken as part of the out of hours noise assessment prepared by Hutchison Weller (2020).

The Horizontal Directional Drill (HDD) was modelled with a sound power level of 106 dBA. *Table 13- Predicted noise levels – individual activities* of the out of hours assessment provide a maximum predicted LAeq, 15 minute noise level of 46 dBA from HDD operations. Six (6) sensitive receivers were predicted to exceed the noise management level during the day, evening and night time period for work outside standard construction hours.

Noise contours were provided in Figure 6 of the assessment (reproduced in Figure 2 below) and indicate that these exceedances are in NCA2 directly adjacent to the underboring location that has been subsequently removed.

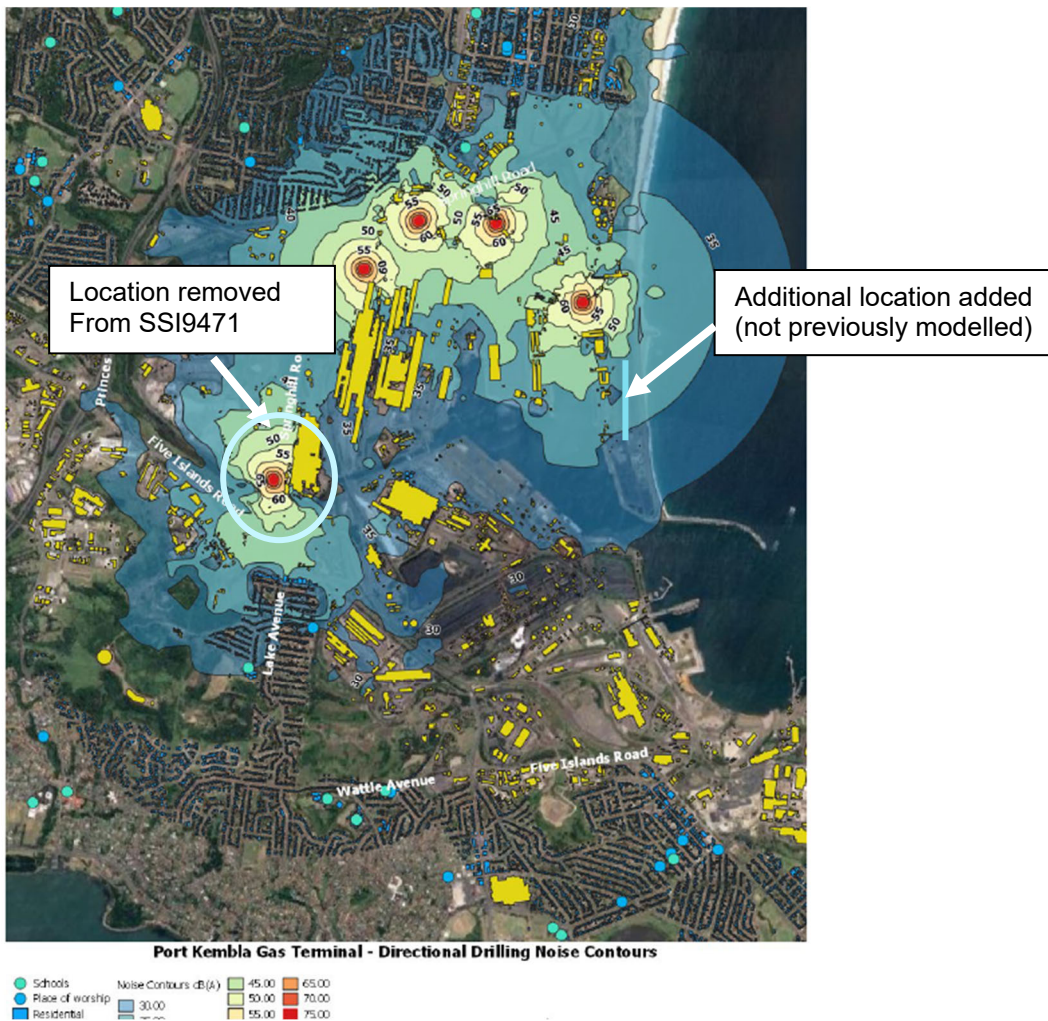


Figure 2 Directional drilling noise contours (Source: Construction noise and vibration impact assessment – out of hours works October 2020 Doc no. 20020-NV-RP-1-5, Hutchison Weller)

The additional proposed underboring location is at Berth 101 and over 2 kilometers away from the nearest sensitive receivers. Based on contours provided in Figure 6 of the 2020 assessment and reproduced above, noise levels at this distance would be anticipated to be below the noise management levels.

Furthermore, compared to currently approved construction activities in the area (including piling), the HDD would be quieter and less intrusive.

1.5 Conclusion

Proposed changes to underboring locations are unlikely to change the outcomes of the 2020 out of hours noise assessment. The proposed changes are likely to reduce noise levels in NCA 2.

Regards

Pri Pandey
Senior Engineer – Noise and Vibration