

Report

Project Approval Modification - Tomago Trunk Main Upgrade

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Prepared For

Hunter Water Corporation

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1. INTRODUCTION

Advitech Pty Limited was engaged by Hunter Water Corporation (HWC) to prepare a submission to the NSW Department of Planning (DoP) to vary Condition 2.3 of Project Approval 06-0107 for the Tomago Trunk Main Upgrade Project.

It should be noted that this report was prepared by Advitech Pty Limited for Hunter Water Corporation ("the customer") in accordance with the scope of work and specific requirements agreed between Advitech and the customer. This report was prepared with background information, terms of reference and assumptions agreed with the customer. The report is not intended for use by any other individual or organisation and as such, Advitech will not accept liability for use of the information contained in this report, other than that which was intended at the time of writing.

2. BACKGROUND AND OBJECTIVES

Hunter Water Corporation was issued a project approval (06-0107) by the NSW Department of Planning (DoP) to install and operate a 1350mm trunk main on Ash Island to the west of Newcastle. The purpose of the project is to replace an existing 900mm trunk main and secure the supply of water to Newcastle from the Tomago sand-beds. Potential environmental impacts associated with the construction and operation of the trunk main were considered in an Environmental Assessment (EA) prepared by GHD (2008).

Condition 2.3 (Schedule 2) of the Project Approval states:

2.3 The proponent shall only undertake site preparation and construction activities associated with the project that would generate an audible noise at any residential premises during the following hours:

- a) 7:00am to 6:00pm, Monday to Friday (inclusive);*
- b) 8:00am to 1:00pm Saturdays; and*
- c) at no time on Sundays of public holidays.*

In accordance with Condition 2.4 of the approval, HWC are seeking to vary the project approval to permit 24-hour operations to ensure critical commissioning dates can be achieved:

2.4 *The hours of construction specified under condition 2.3 of this approval may be varied with the prior written approval of the Director-General. Any request to alter the hours of construction specified under condition 2.3 shall be:*

- a) Considered on a case-by-case or activity-specific basis;*
- b) Accompanied by details of the nature and need for activities to be conducted during varied construction hours; and*
- c) Accompanied by sufficient information for the Director-General to reasonably determine that activities during the varied construction hours will not adversely impact on the acoustic amenity of receptors in the vicinity of the site.*

3. REFERENCES

The following information was used in the preparation of this report:

1. NSW Environment Protection Agency (2000). *NSW Industrial Noise Policy*, NSW Environment Protection Agency, Sydney;
2. NSW Department of Environment and Climate Change (2008). *NSW Construction Noise Guideline (Draft for Consultation)*, Sydney;
3. GHD (2008). *Tomago Trunkmain Upgrade (Ash Island) Environmental Assessment*, and
4. Tomago Trunkmain Upgrade Project Approval (06-0107).

4. MODIFICATION TO PROJECT APPROVAL 06-0107

4.1 Justification for Modification to Project Approval

The project presents significant operational constraints to HWC and the supply of potable to Newcastle as the existing 900mm main must be taken out of service periodically to enable tie-ins to occur with the new 1300mm trunk main. When the 900mm main is out of service, water is supplied via a second (existing) 1300mm main, however this main is only capable of supplying water during low demand periods, typically between late autumn and early spring.

Owing to delays during the initial stages of construction and uncertainties regarding the influence of ground conditions on the rate of construction, critical aspects of the construction works will not be achieved at the current rate of progress. It is therefore considered necessary to modify the approved hours of construction to allow HWC to meet operational deadlines.

4.2 Assessment of Impacts

The EA identified only one sensitive receiver adjacent to the study area on Ash Island. An assessment of potential noise impacts presented in the EA indicated that due to the large separation distances between site operations and the receiver, noise impacts associated with the construction works will be negligible. While noise impacts were assessed as being negligible, the EA conservatively recommended the following mitigation measures:

- *Construction hours would be limited to 7.00 am to 6.00 pm Monday to Friday and 8.00 am to 5.00 pm Saturday. No construction works would be undertaken on Sunday or public holidays without consultation with KWRP and local residents; and*
- *All construction vehicles and machinery would be fitted with manufacturer supplied noise suppression devices maintained in accordance with manufacturers' guidelines.*

This assessment will consider the construction noise impacts associated with operations outside the standard operating hours. It should be noted that HWC propose to modify only the approved operating hours outlined in Clause a) and b) of Condition 2.3. This will allow construction works to:

- operate continuously (24 hours per day) from 7am Monday to 1pm Saturday

This application does not seek to:

- allow construction works to take place on Sundays or public holidays;
- make any changes to the approved Traffic Management Plan or allow deliveries or heavy vehicle movements to occur outside the hours specified in this plan; or
- allow plant and equipment used in the construction works to be operated without manufacturer fitted or specific acoustic treatment.

4.2.1 Construction Noise Levels

The EA indicates that construction equipment to be used on-site (excavators and semi-trailers) typically generate Sound Power Levels (SWL) in the order of 107 and 104 dB(A) respectively. The minimum separation distance between construction activities and the sensitive receiver was conservatively estimated to be 1500 metres as shown in **Figure 1**. This data was used to construct a noise model of construction activities in ENM, assuming the simultaneous operation to two excavators.

A worst case meteorological scenario was applied to the model to ensure the impact prediction reflected worst case propagation conditions. The predicted construction noise impact at the sensitive receiver is presented in **Table 1**.

Table 1: Predicted construction noise levels, dB(A)

Plant	SWL, dB(A)	Scenario	Predicted Impact, dB(A)
SWL (2 x excavators)	110	1500m sep.distance Easterly wind @ 3m/s 10° C / 95% R.H	30

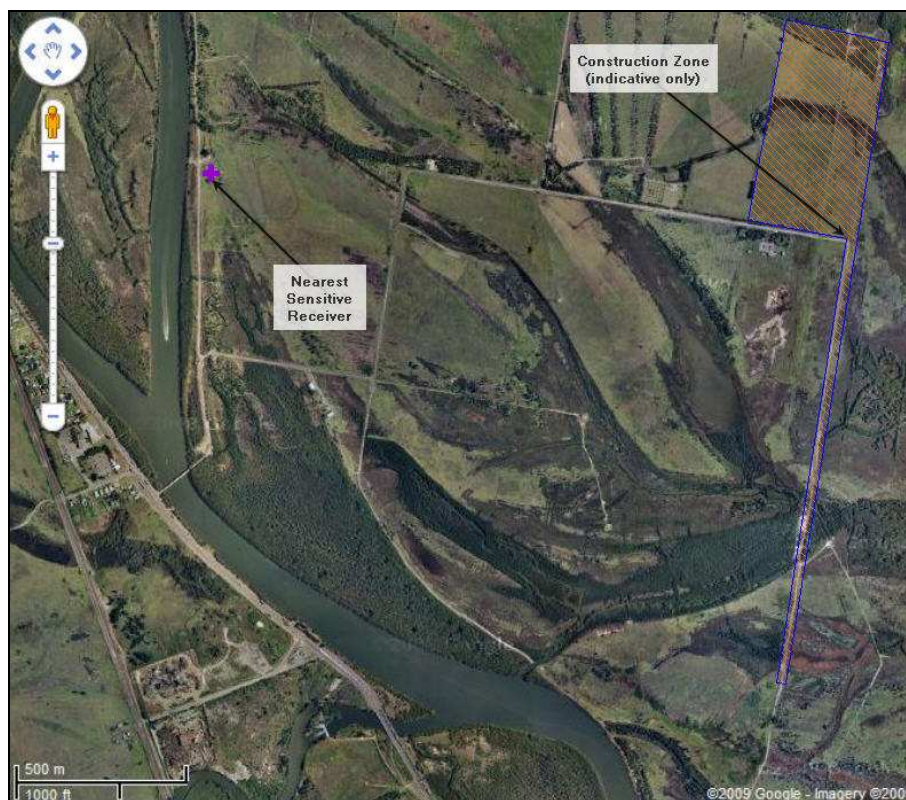


Figure 1: Location of noise sensitive receiver

4.2.2 Construction Noise Criteria

The NSW Draft Construction Noise Guideline (2008) provides guidance on managing construction works to minimise noise. The scale and duration of the construction works, and the number and type of potentially affected sensitive receivers defines the extent to which assessment and management of impacts should be undertaken. The quantitative approach is typically applied to projects with potential to affect sensitive receivers during noise sensitive periods (6pm to 7am). The quantitative approach establishes management levels for airborne noise incident at receivers as shown in **Table 2**.

Table 2: Construction noise management level

Receiver Type	Management Level, dB(A) ($L_{Aeq,15\text{minute}}$)
Residential	
Management level (7:00pm to 6:00pm)	RBL ¹ + 10dB(A)
Management level (6:00pm to 7:00am)	RBL + 5dB(A)

1. RBL - Rating Background Level: the overall single figure background noise level.

While no background monitoring has been undertaken to establish the RBL for the period 6:00pm to 7:00am at the sensitive receiver on Ash Island, Section 3.1.2 of the NSW Industrial Noise Policy (INP) specifies that where the RBL is determined to be less than 30 dB(A), it shall be set at 30 dB(A). Assuming a minimum RBL of 30 dB(A), the minimum construction noise criteria are presented in **Table 3**.

Table 3: Construction noise management level

Receiver Type	SPL ($L_{Aeq,15\text{minute}}$), dB(A)		
	Management Level	RBL	Construction Noise Criteria
Residential			
Management level (7:00pm to 6:00pm)	RBL ¹ + 10dB(A)	30	40
Management level (6:00pm to 7:00am)	RBL + 5dB(A)	30	35

4.2.3 Assessment of Construction Noise Impacts

The predicted impact of construction equipment expected to be used on site at the adjacent receiver is presented in **Table 4**.

Table 4: Predicted Construction Noise Levels, dB(A)

Period	Construction Noise Criteria, dB(A)	Predicted Impact
Standard hours (7:00am to 6:00pm)	40	30
Non-standard hours (6:00pm to 7:00am)	35	30

The analysis presented in **Table 4** indicates that construction noise impacts will comply with the criteria established in accordance with the NSW Draft Construction Noise Guideline.

5. RECOMMENDATIONS AND STATEMENT OF COMMITMENTS




Assessment of potential noise impacts presented in **Section 4** indicates that site operations will comply with the construction noise criteria at the nearest sensitive receiver. As this assessment is based on the minimum separation distance between source and receiver, the impact will further decrease as construction works proceed to the south along the trunk main alignment. It is therefore considered that modification of construction hours to allow 24-hour operations from 7am Monday to 1pm Saturday will not adversely impact on the acoustic amenity of receivers in the vicinity of the site.

While it can be demonstrated that the proposal will not negatively impact on sensitive receivers adjacent to the site, the following mitigation measures will be employed:

- construction works will not take place on Sundays or public holidays in accordance with Condition 2.3(c) of the project approval;
- deliveries or other heavy vehicle movements to the site will continue to be restricted to the hours:
 - 7am to 6pm Monday to Friday;
 - 8am to 1pm Saturdays ; and
 - at no time on Sundays of public holidays.

- monitoring for audibility of construction works will be undertaken by a HWC appointed representative on a fortnightly basis to determine compliance with the requirements of the existing Condition 2.3 of the Project Approval:
 - *The proponent shall only undertake site preparation and construction activities associated with the project that would generate an audible noise at any residential premises...*
- where construction activities are observed to be audible at the nearest sensitive receiver during non-standard construction hours (6:00pm to 7:00am), attended monitoring will be undertaken by an appropriately qualified acoustic professional to quantify the construction noise impact.

Endorsements

Function	Signature	Name and Title	Date
Written By		Clayton Sparke Environmental Scientist	06-10-2009
Checked By		Susan Kay Senior Environmental Scientist	06-10-2009
Authorised for Release By		Jeremy Pola Lead Environmental Scientist	06-10-2009

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