
Appendix 13 Noise Assessment

25 September 2009

Ref: 09502/3296

Mr Alan Wells
Wells Environmental Services
PO Box 205
East Maitland NSW 2323

BOWMAN'S CREEK DIVERSION – NOISE ASSESSMENT

Dear Sir,

This letter provides the results of an assessment of potential noise impacts from the proposed construction of Bowmans Creek diversions near Camberwell, NSW. The project site, nearest residential receivers and approximate locations of the eastern and western diversions are shown in Figure 1.

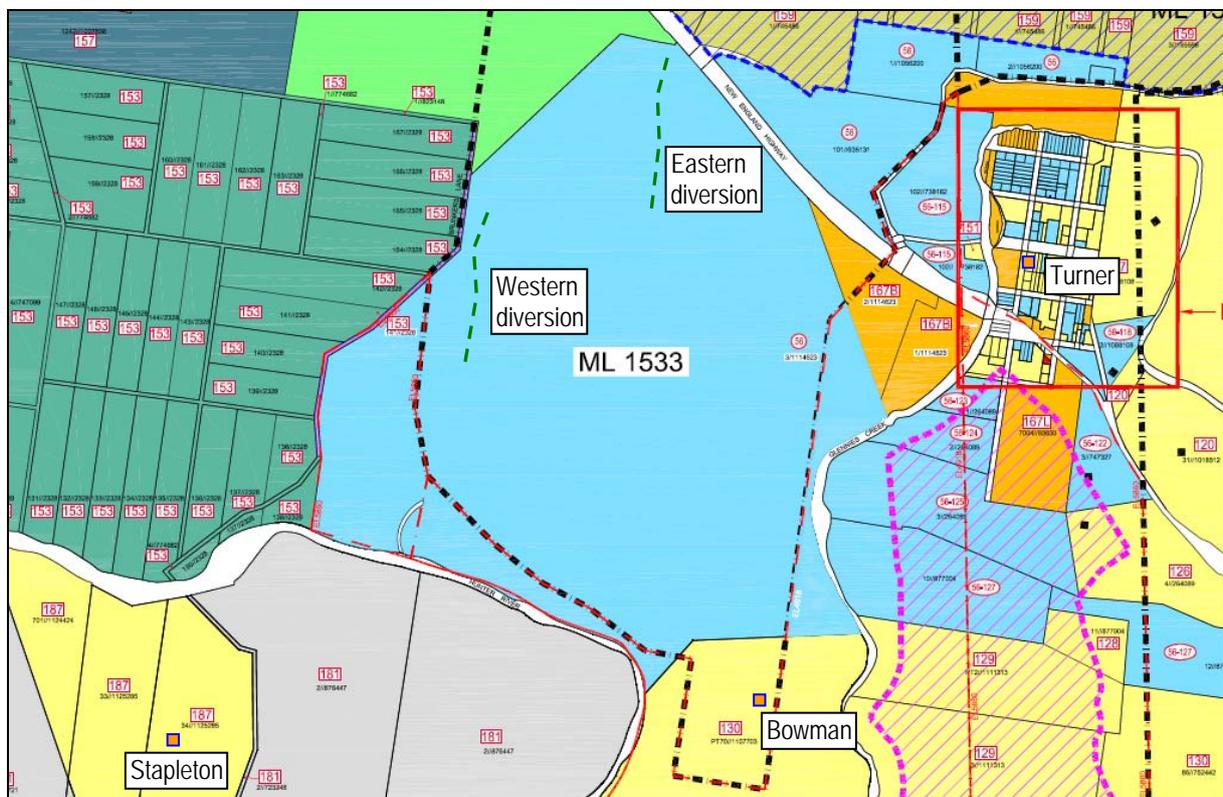


Figure 1. Bowmans Creek diversion locations and nearest residential receivers.

Construction of each diversion would take approximately four months and involve the following noise-generating activities and equipment:

- Bulk earthworks utilising:
 - 5 x CAT 657 scrapers;
 - 2 x CAT D9 dozers;
 - 2 x 330 excavators; and
 - 4 x trucks.
- Detailed channel shaping utilising:
 - 3 x 330 excavators;
 - 6 x trucks; and
 - 1 x 996 loader.
- Construction block banks and opening diversions:
 - 2 x 330 excavators;
 - 4 x trucks; and
 - 1 x 996 loader.

A grader and water cart would also be required throughout the duration of these works.

In terms of noise production, the bulk works stage would produce significantly higher noise emissions than the subsequent stages due to the scrapers and dozers. Assessment of worst case noise impacts has therefore been based on the Bulk earthworks stages of the project with anticipated durations of seven weeks (eastern diversion) and 11 weeks (western diversion). The total duration of the project is expected to be four months.

Assessment of noise emissions from the project have been compared with established Ashton Coal Project (ACP) criteria of 38 dB(A), $L_{eq(15\text{ minute})}$ at Turner and 35 dB(A), $L_{eq(15\text{ minute})}$ at Bowman. Stapleton is sufficiently distant from the ACP that it has not been assigned ACP noise criteria in any previous noise study for ACP. This receiver is in the Hunter Valley Operations (HVO) noise affectation zone, however, and has a criterion of 41 dB(A), $L_{eq(15\text{ minute})}$ day, evening and night for noise from HVO.

The activities would occur during the daytime only (7am – 6pm). Accordingly, the cumulative noise from HVO and the proposed works should be below the recommended acceptable level of 50 dB(A), L_{eq} (day) in Table 2.1 of the NSW Industrial Noise Policy (INP).

Noise emissions were modelled using the Environmental Noise Model (ENM) by considering two scenarios” one with a single representative noise source at the centre of the eastern diversion and another with a noise source at the southern end of the western diversion. A total sound power level of 119 dB(A), $L_{eq(15\text{ minute})}$ was calculated for the bulk excavation plant.

Recent analysis of ACP wind data by Spectrum Acoustics has found that winds from the N, NE and SSW are applicable at various times of the year (winds from the SE also occur during the warmer months but are noise-reducing relative to the three receiver locations and have not been assessed).

Calm daytime (neutral) and temperature inversion conditions (INP default 3^oC/100m) were also modelled for each scenario. Point-calculation results are summarised in Table 1.

TABLE 1
Predicted bulk earthworks noise levels dB(A), L_{eq}(15minute)

Receiver	Atmospheric Condition					Criterion
	Neutral	Inversion	N wind	NE wind	SSW wind	
Eastern diversion						
Turner	<20	35	25	<20	36	38
Bowman	<20	29	33	30	<20	35
Stapleton	<20	30	25	30	<20	50*
Western diversion						
Turner	<20	30	<20	<20	33	38
Bowman	20	30	30	23	25	35
Stapleton	30	36	37	39	27	50*

* Daytime cumulative noise limit.

The results in Table 1 are discussed below for each receiver.

Turner

Predicted levels range from <20 dB(A) under favourable conditions to 36 dB(A) under adverse conditions. Given that the activities are likely to occur during the upcoming summer months, the likelihood of temperature inversions during daytime hours or SSW winds (which prevail throughout winter months) is minimal and noise levels of 30 dB(A) or less would be the norm.

Bowman

The worst case predicted level of 33 dB(A) at this receiver is 2 dB below the criterion and considered acceptable.

Stapleton

The worst case predicted level from the bulk excavation works is 39 dB(A). When added to the allowable noise limit of 41 dB(A) from HVO, the total is 44 dB(A). This is 6 dB below the daytime recommended level of 50 dB(A) and is considered acceptable.

In addition to the predicted noise levels being below the relevant criteria, the major noise-producing activities would be of relatively short duration. We find no reason, in terms of potential noise impacts, why the proposal should not be approved. Nor do we consider it necessary to propose noise-specific consent conditions.

Please call our office on 4954 2276 if you require further information.

Yours faithfully,

SPECTRUM ACOUSTICS PTY LIMITED



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Neil Pennington
Principal/Director

