

9 December 2021
Rose-Anne Hawkeswood
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Dear Rose-Anne,

We refer to your request for information dated 3 December 2021 for further information in relation to the Bulli Seam Operations (MP08_0150) Modification 3 Application:

Table 25 of the Noise and Vibration Impact Assessment (NVIA) (RWDI, June 2021) provides predicted construction noise levels for standard construction hours for the range of construction activities proposed. Table 22 of the NVIA provides the indicative construction schedule, which indicates that several construction activities overlap.

The Department requests clarification about whether the noise predictions in Table 25 consider these overlaps. In particular, the Department requests predicted construction noise levels for worst case concurrent activities associated with construction for:

- 1. site establishment, bulk earthworks, utilities, pre-sinking, access upgrades and the power supply;*
- 2. the power supply and shaft sinking at both the VS7 and VS8 (no sheds);*
- 3. the power supply and shaft sinking at both the VS7 and VS8 (with sheds); and*
- 4. shaft sinking at both the VS7 and VS8 (with sheds), fans, evases, mine access infrastructure and ancillary site infrastructure.*

It is noted that Table 27 of the NVIA does present worst case concurrent activity noise impact levels from OOH activities for truck deliveries and shaft drilling occurring at both the VS7 and VS8 sites concurrently (columns 7 and 8). These levels are significantly higher than those presented in Table 25.

In response to the Department's request, RWDI have prepared a memorandum regarding the predicted construction noise levels for the stages outlined. Please refer to Attachment A.

The conservative approach taken by RWDI in the NVIA was to model the likely equipment noise level emissions and locations associated with each key noise generating construction stage outlined in Table 24 of the NVIA. Based on the predicted noise levels, it is possible to calculate the cumulative noise impact from construction stages that may occur concurrently, including the activity combinations requested.

As demonstrated in Table 1 of the attached, during standard construction hours the predicted exceedances of the NMLs in the requested activity combinations are consistent with those presented in the NVIA in that the construction noise impacts at R2 and R3 are expected to exceed the NMLs by 5dBA and 1dBA respectively. The power supply works do not appreciably contribute to the overall construction noise levels when they are concurrent with civil works or shaft sinking works. Construction noise levels from activity combinations 3 and 4 comply with the NMLs at all residential receivers.

As noted in the NVIA and our letter dated 5 October 2021, to minimise exceedances of the construction noise criteria R2 and R3 a Construction Noise Management Plan including a variety of mitigation options has been recommended in the NVIA, and all reasonable and feasible mitigation options considered.

Regarding the difference in assessment between Table 25 and Table 27 in the NVIA, additional noise assessment was conducted of the proposed OOH activities as residential receivers are more noise-sensitive during the OOH periods, when sleep disturbance impacts are more likely. It is noted that sinking works and truck deliveries are the only noise intensive OOH activities expected to occur on site.

The assessment of the OOH period in the NVIA involved assessing the worst-case scenario of shaft sinking works being conducted simultaneously at VS7 and VS8 and considering the impact of noise enhancing (NE) meteorological conditions. The night time NE meteorological conditions are more onerous than those of the day and evening periods with respect to noise impact at the receivers, and it is for this reason that the Table 27 noise predictions are higher than the Table 25 predictions.

Table 27 demonstrates that even under NE meteorological conditions, construction noise emissions from OOH work can comply with the NMLs through the implementation of noise mitigation measures. As noted in the NVIA and our recent correspondence, a combination of noise mitigation options will be utilised, including acoustic sheds and options presented in Table 28 of the NVIA, to ensure the relevant OOH NMLs are met. The required acoustic performance of the mitigations to achieve the NMLs could be lowered if quieter construction methods are able to be used, or by entering into negotiated noise agreements with some of the most potentially affected receivers.

If you have any queries or require further information please contact the undersigned.

Yours sincerely,



Gary Brassington
Manager Approvals
0438 042 897

Attachment A – Memorandum on Noise (RWDI, December 2021)



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MEMORANDUM

DATE:	9 December 2021	RWDI REFERENCE #: 2101914
TO:	Nicola Curtis	Email: Nicola.Curtis@south32.net
FROM:	Justin Leong	Email: justin.leong@rwdi.com
	John Wassermann	Email: john.wassermann@rwdi.com
RE:	Response to DPIE Request for Information #8 – Noise Assessment Appin Mine Ventilation and Access Project Menangle, NSW	

Dear Nicola

This memorandum has been prepared in response to the request for information (RFI) dated 3 December 2021 provided by the NSW Department of Planning, Industry and Environment (DPIE) with respect to the Noise and Vibration Impact Assessment (NVIA), RWDI#2101914, dated 24 June, 2021 for the Appin Mine Ventilation and Access Project MP08_0150-Mod-3.

The RFI from the DPIE states the following:

“Table 25 of the Noise and Vibration Impact Assessment (NVIA) (RWDI, June 2021) provides predicted construction noise levels for standard construction hours for the range of construction activities proposed. Table 22 of the NVIA provides the indicative construction schedule, which indicates that several construction activities overlap.

The Department requests clarification about whether the noise predictions in Table 25 consider these overlaps. In particular, the Department requests predicted construction noise levels for worst case concurrent activities associated with construction for:

- 1. site establishment, bulk earthworks, utilities, pre-sinking, access upgrades and the power supply;*
- 2. the power supply and shaft sinking at both the VS7 and VS8 (no sheds);*
- 3. the power supply and shaft sinking at both the VS7 and VS8 (with sheds); and*
- 4. shaft sinking at both the VS7 and VS8 (with sheds), fans, evases, mine access infrastructure and ancillary site infrastructure.*

It is noted that Table 27 of the NVIA does present worst case concurrent activity noise impact levels from OOH activities for truck deliveries and shaft drilling occurring at both the VS7 and VS8 sites concurrently (columns 7 and 8). These levels are significantly higher than those presented in Table 25.”

Presentation of Predicted Noise Levels

The predicted construction noise levels during standard construction hours presented in Table 25 of the NVIA are for the individual construction stages identified. The table does not include predictions of cumulative noise impacts for construction stages that may occur concurrently. The predicted noise levels were presented in this fashion as it was understood that the construction schedule outlined in Table 22 of the NVIA was indicative in nature.

Rather than attempt to predict the noise impacts from every possible permutation of construction activity that could occur concurrently on site, the predicted noise impact from each individual stage was presented (refer to Table 25 of the NVIA). Based on these predicted noise levels, it is possible to calculate the cumulative noise impact from construction stages that may occur concurrently, including the activity combinations requested in the DPIE RFI.

The predicted cumulative construction noise impacts from the construction stages requested in the DPIE's RFI are presented in Table 1. The predicted levels have been assessed against the NMLs established in accordance with the EPA's Interim Construction Noise Guideline (refer to Table 21 of the NVIA).

We note the following in relation to the predicted construction noise levels:

- The overall activity sound power level (SWL) for the VS7 and VS8 shaft sinking works is expected to be 121 dBA, which is 4 dBA lower than the overall activity SWL presented in the NVIA for shaft sinking works. This is due to the fact that excavators are unlikely to use rock breaking attachments during the VS7 and VS8 shaft sinking stages based on a review that was conducted of the expected construction methodology after the NVIA was prepared (this is discussed in the RWDI memorandum titled "Response to DPIE Request for Information – Noise Criteria", dated 1 October 2021).
- During the pre-sink and shaft sinking stages noise mitigation options will be utilised (such as those presented in Table 28 of the NVIA) in conjunction with acoustic sheds to ensure that the noise management levels (NML) are met (as discussed in the Illawarra Metallurgical Coal letter to the DPIE dated 26 November 2021). As such, predicted noise levels in Table 1 below are labelled in terms of "no mitigation/sheds" and "with mitigation/sheds", in lieu of "no sheds" and "25 dBA sheds" as was done in the NVIA.



Table 1: Predicted Concurrent Construction Noise Levels during Standard Construction Hours – $L_{Aeq,15min}$ dBA
(Activities are Divided into Four Stages as per the DPIE RFI)

Receiver	(1) Civil Works + Power Supply	(2) Power Supply + VS7 & VS8 Sinking (no mitigation/shed)	(3) Power Supply + VS7 & VS8 Sinking (with mitigation/shed)	(4) Fans + Access + VS7 & VS8 Sinking (with mitigation/shed)	NML	Exceedance
R2	53	52	39	42	48	5 dB
R3	49	48	35	38	48	1 dB
R4	35	33	<20	25	48	-
R5	36	33	<20	<20	48	-
R6	38	36	25	26	48	-
R7	37	35	<20	26	48	-
R8	35	33	<20	25	48	-
R9	29	27	<20	<20	48	-
R10	35	34	<20	25	48	-
R11	35	34	<20	25	48	-
R12	28	26	<20	<20	48	-
R13	44	44	29	34	48	-
R14	30	29	<20	<20	48	-
R15	41	39	27	29	48	-
R16	45	46	31	36	48	-
R17	32	31	<20	<20	48	-
R18	<20	<20	<20	<20	48	-
R19	27	25	<20	<20	48	-
R20	26	<20	<20	<20	48	-

Receiver	(1) Civil Works + Power Supply	(2) Power Supply + VS7 & VS8 Sinking (no mitigation/shed)	(3) Power Supply + VS7 & VS8 Sinking (with mitigation/shed)	(4) Fans + Access + VS7 & VS8 Sinking (with mitigation/shed)	NML	Exceedance
R21	29	27	<20	<20	48	-
R22	29	27	<20	<20	48	-
R23	30	29	<20	<20	48	-
R24	32	30	<20	<20	48	-
R25	30	28	<20	<20	48	-
R26	30	27	<20	<20	48	-
R27	28	25	<20	<20	48	-
R28	28	26	<20	<20	48	-
R29	29	27	<20	<20	48	-
R30	28	26	<20	<20	48	-
R31	29	27	<20	<20	48	-
R32	29	27	<20	<20	48	-
R33	25	<20	<20	<20	48	-
R34	<20	<20	<20	<20	48	-
R35	32	29	<20	<20	48	-

Construction noise levels from scenarios 3 and 4 (power supply + VS7 & VS8 shaft sinking, and Fans + Access + VS7 & VS8 shaft sinking respectively) comply with the NMLs at all residential receivers.

The exceedances of the NMLs predicted in Table 1 are consistent with those presented in the NVIA in that the construction noise impacts at R2 and R3 are expected to exceed the NMLs by 5dBA and 1dBA respectively.

We note that the power supply stage works do not appreciably contribute to the overall construction noise levels when they are concurrent with civil works or shaft sinking works without noise mitigation/acoustic sheds. It is also noted that the “site establishment, bulk earthworks, utilities, pre-sinking, access upgrades” and “power supply” works are anticipated to occur concurrently for less than one month, and “shaft sinking works for VS8” and “construction of mine access infrastructure works” are expected to occur concurrently for approximately 3 months; both of these overlap periods are of relatively short duration.

Out of Hours (OOH) Noise Predictions

The DPIE RFI notes that Table 27 of the NVIA presents concurrent construction noise impacts for OOH work. This is due to the fact that residential receivers are more noise-sensitive during the OOH periods, especially during the night time when sleep disturbance impacts are more likely. Given this, additional noise assessment was conducted of the proposed OOH activities, which involved assessing the worst-case scenario of shaft sinking works being conducted simultaneously at VS7 and VS8. It is noted that shaft sinking works and truck deliveries are the only noise intensive OOH activities expected to occur on site.

The DPIE also notes that the predicted construction noise levels in Table 27 of the NVIA are significantly higher than those presented in Table 25. This difference is due to the noise enhancing (NE) meteorological conditions applied during the night time period (Table 27) were different to the NE conditions applied during standard construction hours (Table 25). As stated in section 3.2.1, in accordance with the Noise Policy for Industry (NPfI), the default conditions modelled to account for potential NE meteorology are as follows:

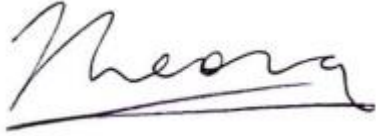
- Stability category D with 3.0 m/s source-to-receiver winds during the daytime and evening; and
- Stability category F with 2.0 m/s source-to-receiver winds during the night time.

It is noted that the night time NE meteorological conditions are more onerous than those during the day and evening periods with respect to noise impact at the receivers, and it is for this reason that the Table 27 noise predictions are higher than the Table 25 predictions. Table 27 demonstrates that even under NE meteorological conditions, construction noise emissions from OOH work can comply with the NMLs through the implementation of noise mitigation measures including acoustic sheds.

We trust this information is sufficient. Please contact us if you have any further queries.

Yours Sincerely,

RWDI

A handwritten signature in black ink, appearing to read 'Justin Leong', with a horizontal line underneath.

Justin Leong, M.Des.Sc. (Audio & Acoustics), MAAS
Acoustical Consultant

A handwritten signature in black ink, appearing to read 'John Wassermann', with a stylized initial 'J'.

John Wassermann, B.Eng. Mech, M.Eng.Sc., GradDipMgmt, MAAS, C.P.Eng. (Civil/ Mech)
Senior Technical Director