



TECHNICAL MEMORANDUM

DATE October 31, 2025

Project No. CA-GLD- 1791470

TO Andreanne Simard - Director of Lands, Resources and Environment
Stephen May - Lands Manager, Western Region

CC Joe Tomaselli - WSP; Neal DeRuyter - MHBC

FROM Tomasz Nowak

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RESPONSE TO VALCOUSTICS CANADA LTD. PEER REVIEW OF THE NOISE STUDY COMPLETED IN SUPPORT OF THE AGGREGATE LICENCE APPLICATION FOR THE PROPOSED CBM ABERFOYLE SOUTH LAKE PIT

INTRODUCTION

This memorandum provides a response to the peer review comments made by Valcoustics Canada Ltd. (Valcoustics) on the WSP Canada Inc. (WSP) Noise Study prepared in support of the CBM Aggregates (CBM) licence application under the Aggregate Resources Act (ARA) for the Aberfoyle South Lake Pit (the Site). The Valcoustics comment/question presented in the letter dated March 11, 2024 is provided bellow, followed by WSP's response.

Comment a)

a) The report states that it was prepared in support of the proposed expansion to the Aberfoyle South Pit. However, no information regarding the existing pit (i.e. location, operations, how the two will interact, etc.) is provided. Additional detail is requested. Since the proposal is indicated as being an expansion to the existing Aberfoyle South Pit, both the existing pit and this proposed expansion should be considered as a single stationary noise source whose sound emissions must comply with the applicable sound level limits. It does not appear that the operations within the existing pit have been included in the assessment.

WSP response a)

The Aberfoyle South Lake Pit is considered as a feeder pit to the existing Aberfoyle South Pit (McNally Pit) and operations considered for this site include aggregate extraction and shipment offsite for processing. The processing of the aggregate from the proposed pit is not expected to increase noise levels associated with existing operations at the existing Aberfoyle South Pit and therefore it is not expected to affect the noise compliance status of the Aberfoyle South Pit. Due to setback distance (i.e., in excess of 2000 m) between the existing Aberfoyle South Pit and the proposed Aberfoyle South Lake Pit, the noise emissions from the existing Aberfoyle South Pit activities are not expected to alter the predicted levels at the receptors assessed for the Aberfoyle South Lake Pit lands. The same can be said for the impact of Aberfoyle South Lake Pit noise emissions on the receptors in the vicinity of the existing Aberfoyle South Pit.

Comment b)

- b) Even though the movement of material from the expansion area to the existing pit is being done on a public road, these truck movements should be included as part of the stationary noise source since this appears to be part of the pit operation and not simply shipping the final product off-site.*

WSP response b)

Noise emissions from the shipping trucks were assessed under the traffic assessment section of the Noise Study. Although the project was formerly referenced as an expansion of the Aberfoyle South Pit in the context of licensing with the Ministry of Natural Resources (MNR) under the Aggregate Resources Act (ARA), the existing Aberfoyle South Pit is located approximately 2,400 meters to the East, and located on separate parcels separated by; roads, agricultural fields, bodies of water and existing aggregate extraction sites. In the context of the Ministry of the Environment, Conservation and Parks (MECP) Noise Pollution Control (NPC) Document 300, these are considered separate sites. As discussed in Response A above, the receptors that could be impacted by noise emissions associated with activities in the South Lake Pit lands are located approximately 2,000 meters from the processing activities located in the existing Aberfoyle South Pit lands. At these distances, it is not expected the cumulative sound levels at the assessed receptors would be substantially different than the levels predicted from the activities proposed within the South Lake Pit lands. Therefore, no additional assessment was completed.

Comment c)

- c) The study also includes an assessment of the off-site haul route that is to be used to ship aggregate from the site to the market. However, no information regarding the proposed haul route or any alternatives (as required by the landfill guideline) is presented within the report. Additional detail is requested.*

WSP response c)

The report indicated that the trucks for shipping material will be using Concession Road 2, entering and leaving the Site via an access gate located at the northeastern corner of the Site. All material extracted at the Site will be shipped offsite for processing. The route selected along Concession Road 2 has been reviewed by the transportation and planning team and was identified as the preferred route, with the lowest potential impact to the environment. The proposed haul route is the only viable route given the destination (Aberfoyle South Pit) is fixed. Trucks are not permitted to use Sideroad 20 S or head west on Concession 2.

Additional information on the proposed haul route or alternatives are included within the Transportation Impact Study prepared by TYLin and the Planning Report prepared by MHBC.

Comment d)

- d) The noise study has appropriately applied the Ministry of Environment, Conservation and Parks (MECP) noise guidelines. Most of the noise sensitive receptors are deemed to be in a Class 2 area. Noise sensitive receptor locations POR001, POR009 and POR010 are deemed to be in a Class 3 area. This is considered appropriate.*

WSP response d)

WSP acknowledges Valcoustics comment. No further action required.

Comment e)

e) The noise study should also discuss the requirements of the Township of Puslinch Noise By-Law No. 5001-05 and confirm those requirements are also met.

WSP response e)

Please note Township of Puslinch By-Law No. 5001-05 was replaced by By-Law No. 6001 -24.

WSP reviewed Township of Puslinch By-Law No. 6001-24, which replaced By-Law No. 5001-05, and based on the review of the By-Law, no specific noise limits could be established. Sections of the By-Law No. 6001-24 considered applicable to the CBM project would include best practice requirements related to operation of the equipment according to the manufacturer intended purpose, maintaining equipment in good condition and using manufacturer designed equipment noise controls devices (e.g., mufflers). This is consistent with CBM's approach for their operations of their other sites in Puslinch. Specific commitments intended to reduce equipment noise will be included in the Site Plans under best practices.

The proposed hours of operation for the pit (7 am to 7 pm) align with the requirements of the Noise By-law.

Comment f)

f) There are a few items that require some additional clarification before we can agree with the findings and recommendations of the noise impact study:

a. Regarding Table 1: Facility Noise Source Summary, it should outline the maximum amount of equipment that can be used and their maximum emission levels. Instead of simply referencing the table on the Site Plans, the table (as modified) should be included on the Site Plans.

WSP response f) a

Site Plans will include following Table

Source ID	Source Description	Quantity	Overall Sound Power Level [dBA] ⁽¹⁾
Truck	Highway Truck	28 ⁽⁴⁾	102
Loader 1	Loader	1	107 ⁽²⁾
Loader 2	Loader	1	107 ⁽²⁾
Dragline	Dragline	1	112
Dragline	Dragline Mitigated	1	107 ⁽³⁾
Excavator/ Backhoe	Excavator/ Backhoe	1	<112

Notes:

- 1) Values presented in Table 1 do not include adjustments that were considered in the modelling (i.e., time weighting) where applicable
- 2) Average sound power level representing various loader activities
- 3) Either a single form of mitigation (e.g., silencer, barrier) or combination of different types of noise mitigation
- 4) Number of one-way trips per hour

Comment f) a (1)

In addition:

- (1) *What is the source of the sound data that is being used to complete the assessment? If sound level measurements of existing equipment were done, please include the measurement data.*

WSP response f) a (1)

The equipment sound power levels were obtained from WSP database of similar equipment.

Comment f) a (2)

- (2) *The highway truck sound power level of 102 dBA is lower than what we typically use and is lower than what we have seen WSP use for other similar applications.*

WSP response f) a (2)

WSP acknowledges a minor inconsistency in assigning 102 dBA PWL to a shipping truck. In the most recent noise study WSP considered a typical highway truck for shipment of processed material to market having PWL of 103 dBA. This emission is based on WSP's database of similar sources as measured in the recent past. It should be noted that many of the previous files being referred to by Valcoustics are files that commenced in and around 2017. WSP has a revised dataset that represents these noise sources based on more recent sound emission data from newer equipment that more accurately reflects what is available for use in the market.

WSP completed additional noise modelling using a shipment truck with PWL of 103 dBA to align with typical shipment truck PWL used in other noise studies.

Table 1 shows the results of additional noise modelling.

Table 1: Results of Additional Noise Modelling

Receptor ID	Central Region [dBA]	Central Region, West Area [dBA]	West Region [dBA]	Central Region, East Area [dBA]	Central Region, North [dBA]	East Region, North Part [dBA]	East Region, South Part [dBA]	Overall Maximum Noise Impact [dBA]	Daytime Noise Limit [dBA]	Compliance with Applicable Noise Limits (Yes/No)
POR001	41	45	45	39	36	36	36	45	45	Yes
POR002	42	43	42	38	37	36	36	43	50	Yes
POR003	40	40	39	35	34	37	36	40	50	Yes
POR004	48	47	43	46	45	43	40	48	50	Yes

Receptor ID	Central Region [dBA]	Central Region, West Area [dBA]	West Region [dBA]	Central Region, East Area [dBA]	Central Region, North [dBA]	East Region, North Part [dBA]	East Region, South Part [dBA]	Overall Maximum Noise Impact [dBA]	Daytime Noise Limit [dBA]	Compliance with Applicable Noise Limits (Yes/No)
POR005	45	44	42	50	47	44	44	50	50	Yes
POR006	44	43	42	49	46	44	46	49	50	Yes
POR007	42	41	40	46	43	43	47	47	50	Yes
POR008	37	36	35	39	38	43	45	45	50	Yes
POR009	40	38	37	41	40	45	45	45	45	Yes
POR010	41	38	37	41	39	42	42	42	45	Yes

Comment f) a (3)

(3) The noise data for Loader 2 presented in Appendix C of the report is 112 dBA which is inconsistent with the 107 dBA stated in the table.

WSP response f) a (3)

This table was incorrectly included in the report, the updated Table is provided below.

Name	ID	Type	Octave Band Sound Pressure Level [dB]												Source Data
			Weight	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Truck	Truck	Lw		91	101	101	97	99	97	96	90	86	102	107	WSP Database
Loader 1 and 2	CAT_980G	Lw		106	110	108	101	103	104	99	92	86	107	114	WSP Database
Dragline	Dragline	Lw		102	115	123	108	104	106	105	99	92	112	124	WSP Database

Comment f) a (4)

(4) A minimum 5 dB of attenuation is recommended for the dragline. Additional detail about the mitigation measure(s), its practicality of implementation and a detailed procedure that is to be used

WSP response f) a (4)

As indicated in the WSP noise study, mitigation that will reduce the noise emissions of the dragline by a minimum of 5 dB will be required for the equipment when operating with certain areas of the Site. It is expected that the engineering controls could include a combination of equipment-mounted local barriers and exhaust silencer. The

performance of the actual implemented noise controls will be evaluated through verification measurements intended to confirm that the equipment is not exceeding the maximum sound power level of 107 dBA. The requirements for a verification measurements program have been included on the Site Plan

Comment f) a (5)

- (5) *How is the 45 minute operating restriction provided for the drag line and loaders going to be monitored/enforced?*

WSP response f) a (5)

Where required, CBM will ensure that loading operations (high rev operations of a loader) will be limited to 45 minutes during each hour. It is understood that, for the remainder of time loader will be idling or not operating. Please note that the assessment considers two loaders, however both are expected to be able to load the required hourly number of trucks below 45 minutes under “high rev condition”, therefore WSP approach is expected to be conservative in regard to loader operational time. The approach taken to monitor and/or enforce this requirement varies from site to site. These approaches could include logging operational data on equipment, logging of fuel consumption or alternative measures. The optimal approach will be dependent on the equipment procured.

Comment f) a (6)

- (6) *The sound levels used for the drag line and front-end loaders when operating at “low rev” conditions are missing.*

WSP response f) a (6)

Low rev emissions were considered acoustically insignificant when compared to the high rev noise emissions and therefore were not quantitatively considered in the assessment.

Comment f) a (7)

- (7) *Note 1 indicates that adjustments that were used in the noise modelling are not included in the table. Other than time weighting, what other adjustments were included?*

WSP response f) a (7)

Resulting sound power levels of the line source associated with shipment truck was established by the CadnaA software based on; the PWL of truck (Table 1), number of trips per hour and the truck's speed.

Comment f) a (8)

- (8) *Note 2 indicates that the sound levels already account for average operations and not continuous maximum sound emissions. Is the reduced operating time scenario being doubly accounted for since the sound data already accounts for an average activity level?*

WSP response f) a (8)

No, Note 2 refers to the average sound power level representing varying equipment noise output while operating under load (movement, aggregate extraction, loading and reversing with the exclusion of equipment idling). This

is expected to reflect the equipment PWL representing the highest typical noise emissions during operations. To reflect the average acoustical output from the loader's typical operations over the one-hour period, a time adjustment (25 % operational time reduction) was considered to represent 75% of time for which the loader operates under load.

Comment f) a (9)

(9) The noise sources operating in the existing pit are missing from the table.

WSP response f) a (9)

As discussed in response a) and b) above. The operation of equipment within the existing pit (including processing plant) were not quantitatively considered in the noise study due to distance and noise shielding (pit and terrain) to the receptors assessed in the noise study.

Comment f) b

b) Section 4.0 lists the Points of Reception (PORs) that were included in the assessment. The PORs all appear to be existing residential dwellings. NPC-300 indicates that vacant lots that can accommodate a noise sensitive land use should also be included as a POR. Have vacant lots been considered in the noise impact assessment?

WSP response f) b

In completing the noise assessment, vacant lots in the vicinity of the South Lake Pit lands were reviewed and considered. It was determined that there were no applicable vacant lots that required assessment within the noise study.

Comment f) c

c) There is an existing residential dwelling located on the gravel pit site that appears as though it will remain in place over the life of the gravel pit operation. Why was this dwelling not included as a POR?

WSP response f) c

This building will not be occupied as a residence during the operation of the Site, since it is located within the project boundary, according to NPC 300 it would be considered as part of the Site and therefore not considered as a noise sensitive receptor. It should be noted that the house is currently not inhabited and is used as farm office.

Comment f) d

d) How were the predictable worst case operational locations determined for each receptor location?

WSP response f) d

The predictions were made for different operating locations for the equipment within the aggregate site. The locations with the highest predicted levels were carried forward in the assessment and used for the development of mitigation, where required.

Comment f) e (1)

e. The description of the operations indicates that one front end loader will operate close to the drag line and the other will operate further (maybe 200 m) from the dragline:

(1) What material is the front-end loader further from the drag line handling?

WSP response f) e (1)

This configuration assumed that the one loader will be supporting operation of the dragline, and the second loader will be loading shipment trucks with material that has had the opportunity to dry out after being extracted with the dragline from below water.

Comment f) e (2)

(2) Which loader location are the haul trucks travelling to/from?

WSP response f) e (2)

The trucks are modelled to travel to and from a loader operating at a further distance from the dragline as the material loaded will typically need to have been provided the opportunity to dry-out after been excavated.

Comment f) e (3)

(3) Recognizing the MECP requirement for a predictable worst-case assessment, what noise source locations were used in the modelling?

WSP response f) e (3)

The predictions were made for different locations of the equipment operating within varying areas associated with the progression of the extraction operations. The equipment was located within seven regions of the extraction area. For each identified equipment location, the resulting noise level at the relevant receptors, corresponding to the worst-case scenario was calculated and if required, a suitable set of noise controls was proposed.

Comment f) f

f) Other than the ground absorption coefficient of 0 for ponds, the 0.5 absorption coefficient for the pit floor and 1.0 for all other areas are not conservative and likely result in an underprediction of the off-site sound levels.

WSP response f) f

As the extraction will be mostly below water operation, WSP assumed the ground as partially absorptive within the vicinity of the extraction equipment, except for the water body covering already extracted area, which is ultimately the majority of the site. The area in the proximity of the points of reception was modelled as absorptive considering a type of soft ground coverage. As indicated, the model conservatively did not account for the presence of woodlots which, if considered would introduce additional noise reduction of noise levels from the site operations. Based on a review of available information, it is understood there are a number of woodlots that are expected to remain between the site and the assessed off-site PORs. The exclusion of the consideration of these existing established woodlots is expected to result in a conservative assessment.

Comment f) g

g) The proposed noise controls indicated in Section 6.1.3 indicate stockpiles or other methods could be used. Detail on how stockpiles will be used to provide the required noise mitigation and how the stockpiles will be maintained is needed. Also, what other mitigation methods will be used?

WSP response f) g

The stockpiles will, when present, provide additional noise screening, however due to its spatial and temporal characteristic they were not included in the noise prediction. The statement was provided to describe aspects of the noise assessment that expected to result in a conservative approach.

Comment f) h

h) The report recommends a 4.0 m high berm be constructed along the northern edge of the extraction area to the west of the site entrance gate. The sample calculations in Appendix E indicate a 6 m high north berm and 4 m high south and west berms. This discrepancy requires clarification.

WSP response f) h

The sample calc provided along the report are incorrect. The correct sample calc information is provided in Attachment A.

Comment f) i (1)

Regarding the haul route noise analysis:

(1) Why is only one dwelling included in the haul route noise impact analysis?

WSP response f) i (1)

A single receptor adjacent to the haul route was selected to represent a worst-case scenario for shipment truck traffic along the shipping route. There is only one house located along the proposed haul route. The remaining receptors are located west of the Site entry gate with the traffic travelling east of the gate. For receptors located to the west of the Site, the setback distance will be significantly larger than the distance of the assessed receptor and therefore the Site impact from traffic is expected to be lower. As the haul route analysis considers the relative change over existing conditions, the calculated expected change for the receptor to the east of the Site gate, along the haul route is expected to be similar or lower at receptors located at greater distances from the haul route.

Comment f) i (2)

(2) Sample calculations for the haul route noise impact analyses should be included in the report.

WSP response f) i (2)

Sample calculation for traffic noise assessment are provided in Attachment B.

Comment f) i (3)

(3) Where is the actual analysis point at the receptor location?

WSP response f) i (3)

The receptor is located along the front façade of the building.

Comment f) i (4)

(4) What, if any, acoustical screening, particularly for Highway 401, was accounted for in the analysis?

WSP response f) i (4)

A flat area with absorptive ground was considered for Highway 401 noise calculations.

Comment f) j (1)

j. The Site Plan Noise Control Notes:

(1) Should also include a recommendation that the drag line and excavator/backhoe do not operate at the same time.

WSP response f) j (1)

The Site Plans have been updated to include a sentence:

“When an excavator/backhoe will be used to support extraction operations a dragline shall not be in operation.”

Comment f) j (2)

(2) The western and eastern regions of the extraction area where the additional dragline noise controls are required should be clearly shown on the figures in the noise impact assessment and on the Site Plans.

WSP response f) j (2)

Please refer to Site Plans for location of operations of mitigated dragline and loaders.

Comment f) j (3)

(3) Since the excavator/backhoe sound emission limit is 112 dBA, the excavator and/or backhoe should not be permitted to operate in the western and eastern regions of the extraction area where the additional dragline noise controls are required.

WSP response f) j (3)

Site Plans have been updated to reflect these conditions. The following sentence will be included:

“an excavator or a backhoe will be permitted to operate as a replacement for a dragline if the sound power level of the excavator/backhoe does not exceed 107 dBA”

CLOSURE

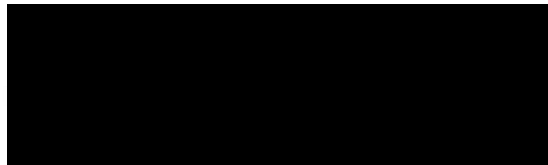
We trust that the information provided in this technical memorandum provides you with the required information to address the Comments provided. Please contact the undersigned with any questions or comments.

WSP Canada Inc.



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TN/JT/rk



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Attachments: Attachment 1 – Sample Calculations
Attachment 2 – Road Traffic Noise Prediction

[https://wsponline.sharepoint.com/sites/gld-21291g/deliverables/01 agency comments/01 township of puslinch \(objection letter and 9 sets of comments\)/07 valcoustics \(draft\)/draft/ca1791470-tm-rev0-cbm aberfoyle south lake-valcoustics-responses_31oct2025.docx](https://wsponline.sharepoint.com/sites/gld-21291g/deliverables/01%20agency%20comments/01%20township%20of%20puslinch%20(objection%20letter%20and%209%20sets%20of%20comments)/07%20valcoustics%20(draft)/draft/ca1791470-tm-rev0-cbm%20aberfoyle%20south%20lake-valcoustics-responses_31oct2025.docx)

ATTACHMENT 1

Sample Calculations

Report (1791470 CBM Lake Above V21 mod operations sampl calc.cna)

CALCULATION CONFIGURATION

Configuration	
Parameter	Value
General	
Max. Error (dB)	0.00
Max. Search Radius (m)	2000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (m)	1000.00
Min. Length of Section (m)	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	0.00
Night-time Penalty (dB)	0.00
DTM	
Standard Height (m)	297.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rcvr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613 (1996))	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (°C)	10
rel. Humidity (%)	70
Ground Absorption G	1.00
Wind Speed for Dir. (m/s)	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

NOISE SOURCES

Noise Source Library

Name	ID	Type	1/3 Oktave Spectrum (dB)												Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	
Heavy Trucks	HeavyTruck	Lw		91.0	101.0	101.0	97.0	99.0	97.0	96.0	90.0	86.0	102.2	107.0	
CAT 980G Loader	CAT_980G	Lw		106.0	110.0	108.0	101.0	103.0	104.0	99.0	92.0	86.0	107.1	114.3	
Dragline HS895 Liebherr	Dragline	Lw		101.5	115.3	122.6	107.8	104.1	106.2	104.9	99.4	91.6	112.1	123.7	

Point Source(s)

Name	Sel.	M.	ID	Result. PWL			Lw / Li		Correction				Sound Reduction		Attenuation	Operating Time			K0	Freq.	Direct.	Height
				Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night	(dB)	(Hz)		(m)
				(dBA)	(dBA)	(dBA)		dB(A)		dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)				
Dragline north			!E06ID	107.1	112.1	112.1	Lw	Dragline		-5.0	0.0	0.0				45.00	0.00	0.00	0.0		(none)	2.50 r
Dragline east	~		!F01ID	112.1	112.1	112.1	Lw	Dragline		0.0	0.0	0.0				45.00	0.00	0.00	0.0		(none)	2.50 r
Dragline center			!E05ID	112.1	112.1	112.1	Lw	Dragline		0.0	0.0	0.0				45.00	0.00	0.00	0.0		(none)	2.50 r
Dragline east	~		!E07ID	112.1	112.1	112.1	Lw	Dragline		0.0	0.0	0.0				45.00	0.00	0.00	0.0		(none)	2.50 r
Dragline north	~		!E09ID	112.1	112.1	112.1	Lw	Dragline		0.0	0.0	0.0				45.00	0.00	0.00	0.0		(none)	2.50 r
Dragline west			!E03ID	112.1	112.1	112.1	Lw	Dragline		0.0	0.0	0.0				45.00	0.00	0.00	0.0		(none)	2.50 r
Dragline west	~		!W01ID	107.1	112.1	112.1	Lw	Dragline		-5.0	0.0	0.0				45.00	0.00	0.00	0.0		(none)	2.50 r
Dragline west	~		!E08ID	107.1	112.1	112.1	Lw	Dragline		-5.0	0.0	0.0				45.00	0.00	0.00	0.0		(none)	2.50 r

Line Source(s)

Name	Sel.	M.	ID	Result. PWL			Result. PWL'			Lw / Li		Correction				Sound Reduction		Attenuation	Operating Time			K0
				Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night	(dB)
				(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)	(dB)
Truck	~		!E07IT	95.1	-22.2	-22.2	73.5	-43.8	-43.8	PWL-Pt	HeavyTruck		20.0	0.0	0.0							0.0
Truck	~		!W01IT_W	104.3	-13.0	-13.0	73.5	-43.8	-43.8	PWL-Pt	HeavyTruck		20.0	0.0	0.0				60.00	0.00	0.00	0.0
Truck	~		!E05IT_C	102.3	-15.0	-15.0	73.5	-43.8	-43.8	PWL-Pt	HeavyTruck		20.0	0.0	0.0							0.0
Truck			!E06IT	99.0	-18.3	-18.3	73.5	-43.8	-43.8	PWL-Pt	HeavyTruck		20.0	0.0	0.0							0.0
Truck	~		!E02I	99.7	-17.6	-17.6	73.5	-43.8	-43.8	PWL-Pt	HeavyTruck		20.0	0.0	0.0							0.0
Truck	~		!F01IT_C	92.8	-24.5	-24.5	73.5	-43.8	-43.8	PWL-Pt	HeavyTruck		20.0	0.0	0.0							0.0
Truck	~		!E03IT_W	103.7	-13.7	-13.7	73.5	-43.8	-43.8	PWL-Pt	HeavyTruck		20.0	0.0	0.0							0.0
Truck	~		!E08IT_W	106.3	-11.0	-11.0	75.6	-41.8	-41.8	PWL-Pt	HeavyTruck		20.0	0.0	0.0							0.0
Truck	~		!E04IT_C	102.5	-14.8	-14.8	73.5	-43.8	-43.8	PWL-Pt	HeavyTruck		20.0	0.0	0.0							0.0
Truck	~		!W02IT_C	99.8	-17.5	-17.5	73.5	-43.8	-43.8	PWL-Pt	HeavyTruck		20.0	0.0	0.0							0.0
Truck	~		!E09I	99.5	-17.8	-17.8	73.5	-43.8	-43.8	PWL-Pt	HeavyTruck		20.0	0.0	0.0							0.0

Area Source(s)

Name	Sel.	M.	ID	Result. PWL			Result. PWL''			Lw / Li		Correction				Sound Reduction		Attenuation	Operating Time			K0	Freq
				Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night	(dB)	(Hz)
				(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				dB(A)	dB(A)	dB(A)		(m²)		(min)	(min)	(min)	(dB)	
Loader			!E06!L1	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0				60.00	0.00	0.00	0.0	
Loader			!E06!L1	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0				60.00	0.00	0.00	0.0	
Loader	~		!E04!L2	112.1	112.1	112.1	84.3	84.3	84.3	Lw	CAT_980M		0.0	0.0	0.0							0.0	
Loader	~		!E03!L2	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0							0.0	
Loader	~		!F01!L1	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0							0.0	
Loader	~		!W01!L1	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0				45.00	0.00	0.00	0.0	
Loader	~		!E05!L1	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0							0.0	
Loader	~		!E08!L1	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0				45.00	0.00	0.00	0.0	
Loader	~		!E07!L1	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0				60.00	0.00	0.00	0.0	
Loader	~		!E02I	112.1	112.1	112.1	84.3	84.3	84.3	Lw	CAT_980M		0.0	0.0	0.0							0.0	
Loader	~		!E09I	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0				45.00	0.00	0.00	0.0	
Loader	~		!E09I	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0				45.00	0.00	0.00	0.0	
Loader	~		!W02!L1	112.1	112.1	112.1	84.3	84.3	84.3	Lw	CAT_980M		0.0	0.0	0.0							0.0	
Loader	~		!E02I	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0							0.0	
Loader	~		!W01!L2	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0				45.00	0.00	0.00	0.0	
Loader	~		!E04!L1	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0							0.0	
Loader	~		!E05!L1	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0							0.0	
Loader	~		!E03!L2	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0							0.0	
Loader	~		!E07!L1	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0				60.00	0.00	0.00	0.0	
Loader	~		!F01!L1	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0							0.0	
Loader	~		!E08!L1	107.1	107.1	107.1	79.3	79.3	79.3	Lw	CAT_980G		0.0	0.0	0.0				45.00	0.00	0.00	0.0	

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height	
				left	right		horz.	vert.	Begin	End
						(m)	(m)	(m)	(m)	
Berm North updated			!F02I	0.60	0.60				4.00 r	

Ground Absorption Area(s)

Name	M.	ID	G	
water West west	~	!WA03I	0.0	301
pit bottom	~	!A01I	0.5	301
pit bottom	~	!A05I	0.5	301
water West west	~	!WA02I	0.0	301

Name	M.	ID	G	
Phase 8 water	~	!WA04!	0.0	301
pit bottom P5	~	!A07!	0.5	301
Water 5	~	!B01!	0.0	301
pit bottom water P9	~	!A06!	0.0	301
Truck haul road	~	!E04!T_C	0.0	2
Truck	~	!W02!T_C	0.0	2
Phase 1 water	~	!WA06!	0.0	301
Phase 4 water	~	!W01!	0.0	301
Phase 1 water	~	!E03!	0.0	301
Phase 3 water	~	!E08!	0.0	301

Receptor Noise Impact Level(s)

Name	Sel.	M.	ID	Level Lr			Limit. Value			Land Use			Height	Coordinates			
				Day (dBA)	Evening (dBA)	Night (dBA)	Day (dBA)	Evening (dBA)	Night (dBA)	Type	Auto	Noise Type	(m)	X (m)	Y (m)	Z (m)	
POR001			POR001	35.8	-80.1	-80.1	45.4	0.0	0.0				4.50	r	564811.00	4808829.00	311.22
POR002			POR002	37.0	-80.1	-80.1	50.4	0.0	0.0				4.50	r	564765.00	4809488.00	319.50
POR003			POR003	33.8	-80.1	-80.1	50.4	0.0	0.0				3.00	r	564828.00	4809462.00	309.12
POR004			POR004	45.3	-79.7	-79.7	50.4	0.0	0.0				4.50	r	565236.00	4809563.00	310.13
POR005			POR005	46.9	-78.8	-78.8	50.4	0.0	0.0				4.50	r	565585.41	4809737.20	310.28
POR006			POR006	45.6	-78.8	-78.8	50.4	0.0	0.0				4.50	r	565653.00	4809784.00	310.32
POR007			POR007	42.5	-79.1	-79.1	50.4	0.0	0.0				4.50	r	565724.34	4809885.07	309.27
POR008			POR008	38.0	-79.8	-79.8	50.4	0.0	0.0				4.50	r	566472.70	4809775.04	310.87
POR009			POR009	39.6	-79.8	-79.8	45.4	0.0	0.0				4.50	r	566388.00	4809219.00	310.50
POR010			POR010	38.6	-80.0	-80.0	45.4	0.0	0.0				4.50	r	566293.00	4808904.00	310.50
OPOR001			OPOR001	34.8	-80.1	-80.1	45.4	0.0	0.0				1.50	r	564839.95	4808836.81	307.50
OPOR002			OPOR002	35.7	-80.1	-80.1	50.4	0.0	0.0				1.50	r	564769.77	4809459.10	315.55
OPOR003			OPOR003	33.7	-80.2	-80.2	45.4	0.0	0.0				1.50	r	564856.19	4809454.54	306.74
OPOR004			OPOR004	45.1	-79.7	-79.7	50.4	0.0	0.0				1.50	r	565263.68	4809553.77	306.22
OPOR005			OPOR005	47.2	-78.9	-78.9	50.4	0.0	0.0				1.50	r	565590.80	4809707.98	306.69
OPOR006			OPOR006	45.7	-78.9	-78.9	50.4	0.0	0.0				1.50	r	565660.15	4809753.80	305.87
OPOR007			OPOR007	43.0	-79.1	-79.1	50.4	0.0	0.0				1.50	r	565728.18	4809848.96	307.47
OPOR008			OPOR008	33.8	-80.0	-80.0	50.4	0.0	0.0				1.50	r	566443.88	4809767.40	307.84
OPOR009			OPOR009	38.7	-79.9	-79.9	45.4	0.0	0.0				1.50	r	566356.90	4809214.08	306.50
OPOR010			OPOR010	37.6	-80.0	-80.0	50.4	0.0	0.0				1.50	r	566273.24	4808926.54	306.44
OPOR010	-		OPOR010	-88.0	-88.0	-88.0	50.4	0.0	0.0				1.50	r	565132.52	4808934.21	303.50

ATTACHMENT 2

Road Traffic Noise Prediction

ORNAMENT Road Traffic Noise Prediction

POR	Posted Speed Limit (km/hr)	Road Grade (%)	Road Grade Mode			Road Pavement	Angle 1 (degrees)	Angle 2 (degrees)		Topography	
Existing Concession 2	60	0.0%	2	Manual	1	Typical Asphalt or Concrete	-90	90	2	Flat/gentle slope; with barrier	0
Future Concession 2	60	0.0%	2	Manual	1	Typical Asphalt or Concrete	-90	90	2	Flat/gentle slope; with barrier	0
Existing Highway 401	100	0.0%	2	Manual	1	Typical Asphalt or Concrete	-90	90	2	Flat/gentle slope; with barrier	0

Wood Depth	No of Row of Houses	Density of 1st Row		Intermediate Surface	Receptor Height (m)	Source-Receptor Perpendicular Distance	Source-Receptor Total Distance	Elevation Change	EW Barrier Angle 1 (degrees)	EW Barrier Angle 2 (degrees)	EW Barrier Height (m)	Barrier Receiver Distance (m)	Source Elevation (m)
None, or < 30 m woods	0	95%	1	Absorptive Ground	4.50	52	52	0	-90	90	0.0	0	0.00
None, or < 30 m woods	0	95%	1	Absorptive Ground	4.50	52	52	0	-90	90	0.0	0	0.00
None, or < 30 m woods	0	95%	1	Absorptive Ground	4.50	1030	1030	0	-90	90	0.0	0	0.00

															Reference			
Receiver Gnd Elevation (m)	Barrier Base Elevation (m)	# Vehicles	Leq (dBA)	Pre	Main	Post	%Cars	%MT	%HT	La	Lmt	Lht	Kg	Leq	Leq	Av	Hs	
0.00	0.00	58	42.99	0.00	42.98	0.00	97.90%	2.10%	0.00%	65.3	76.7	82.2	1	51.37	42.98	1.61	0.50	
0.00	0.00	86	56.37	0.00	56.37	0.00	66.00%	1.00%	33.00%	65.3	76.7	82.2	1	62.64	56.37	3.32	2.40	
0.00	0.00	5166	0.00	0.00	54.85	0.00	80.00%	5.00%	15.00%	73.8	84.2	87.7	1	63.60	54.85	21.11	1.97	

[illegible]

							Main Woods								Pre-Main
Ad Af Ap	A1 A2 A3	Ah	Leq	Av	Heff	α	Ad	Af	Ap	Aw	Leq				
		0.00													
		0.00													
		0.00													

Standard						Pre-Main Woods						Post-Main Standard			
Av	Heff	α	Ad	Af	Ap	Leq	Av	Heff	α	Ad	Af	Ap	Leq	Av	Heff

[illegible]

