REPORT

Meliadine Extension Noise Modelling

Agnico Eagle Mines Ltd.

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1.0 INTRODUCTION

Agnico Eagle Mines Ltd. (Agnico Eagle) owns and operates the Meliadine Mine, which is located in Nunavut, approximately 25 km north of the community of Rankin Inlet.

Potential noise effects from the Meliadine Mine were assessed as part of a Final Environmental Impact Statement (FEIS), which was prepared in 2014 (Golder 2014) and submitted to the Nunavut Impact Review Board (NIRB) for review. The Meliadine Mine was approved by the NIRB in 2015.

Agnico Eagle is now considering changes to the Meliadine Mine. The proposed changes will hereafter be referred to as the Meliadine Extension. Agnico Eagle must reassess potential noise effects associated with the Meliadine Extension and submit an FEIS Addendum to the NIRB.

Agnico Eagle retained Golder Associates Ltd. (Golder) to develop computer noise models of the Meliadine Extension, predict noise levels from the Meliadine Extension at potentially affected environmental receptors, and provide a preliminary assessment of potential noise effects from the Meliadine Extension using a framework established in the 2014 FEIS (Golder 2014). Results from Golder's noise modelling and preliminary effects assessment are presented in this report.

2.0 MELIADINE EXTENSION DESCRIPTION

The Meliadine Extension will include the following features, noise from which was previously modelled and assessed for the 2014 FEIS (Golder 2014):

- processing plant
- power generation using diesel generators
- all-weather access road (AWAR) between Rankin Inlet and the processing plant, which is used to transport people and materials to and from site
- open pit and underground mining in the Tiriganiaq mining area, including ore haul to the processing plant and waste haul to dedicated storage areas
- open pit mining in the Wesmeg mining area, including ore haul to the processing plant and waste haul to dedicated storage areas
- open pit mining in the Pump mining area, including ore haul to the processing plant and waste haul to dedicated storage areas
- open pit mining in the F-Zone mining area, including ore haul to the processing plant and waste haul to dedicated storage areas
- open pit mining in the Discovery mining area, including ore haul to the processing plant and waste haul to dedicated storage areas
- ancillary support operations

The proposed Meliadine Extension would add the following features to the Meliadine Mine:

- underground mining in the Wesmeg mining area, including ore haul to the processing plant
- underground mining in the Pump mining area, including ore haul to the processing plant
- underground mining in the F-Zone mining area, including ore haul to the processing plant
- underground mining in the Discovery mining area, including ore haul to the processing plant
- underground mining in the Tiriganiaq-Wolf mining area, including ore haul to the processing plant
- power generation by on-site wind turbines
- on-site airstrip, which would be used to transport people and materials to and from site

3.0 ASSESSMENT APPROACH

3.1 Modelling Snapshot

The operations phase of the mine plan for the Meliadine Extension covers a period of 24 years, from 2020 through 2043. The intensity and location of activities will vary near-continuously over the course of the 24-year operations phase, and it is not feasible for a computer model or noise assessment to fully capture this variation. Instead, the computer modelling and preliminary assessment of noise effects from the Meliadine Extension were based on a single snapshot of activities when noise emissions are expected to be greatest. Using a modelling snapshot that reflects maximum noise emissions is a conservative approach to assessing potential noise effects that will tend to overestimate the magnitude of potential effects during other periods.

The modelling snapshot selected for the preliminary noise assessment reflects planned operations during the year 2034. This snapshot year was selected by considering planned production levels from open pit mining and underground mining. Golder first used mine forecast data provided by Agnico Eagle to identify the years with maximum ore and waste production from open pit mining activities, since open pit mining emits more noise into the environment than underground mining (i.e., more heavy equipment on the surface). A maximum open pit production of 12,000,000 tons was planned for three different years: 2034, 2038, and 2039. Golder next considered underground production planned for these three candidate years, and found underground production planned for 2034 was more than 1,000,000 tons greater than underground production planned for 2038 or 2039 (i.e., 2,680,061 tons during 2034 versus 1,632,921 tons during 2038 or 1,268,476 tons during 2039). The combination of maximum open pit production plus intense underground production makes the year 2034 the most appropriate snapshot for computer modelling to assess potential noise effects from the Meliadine Extension.

Noise from the on-site wind turbines and on-site airstrip being considered for the Meliadine Extension were modelled separately from the “core” elements of the Meliadine Extension (i.e., processing plant, AWAR, and mining activities) because the wind turbines are a new type of noise source not previously associated with the Meliadine Mine and Agnico Eagle considers the airstrip to be an “optional” feature of the Meliadine Extension, which may or may not be developed. Notwithstanding, predicted noise levels from the on-site wind turbines and on-site airstrip were summed with predicted noise levels from other Meliadine Extension elements to obtain estimates of cumulative noise levels as they would exist if development of the wind turbines and airstrip were to proceed.

3.2 Noise Receptors

For consistency with the 2014 FEIS, computer noise modelling and preliminary noise effects assessment for the Meliadine Extension made use of a study area that extends approximately 5 km from the Meliadine Extension footprint, which is defined so as to include the processing plant, AWAR, mining areas, wind turbines, and airstrip. Agnico Eagle provided Golder with a list of active receptors located within the noise study area.

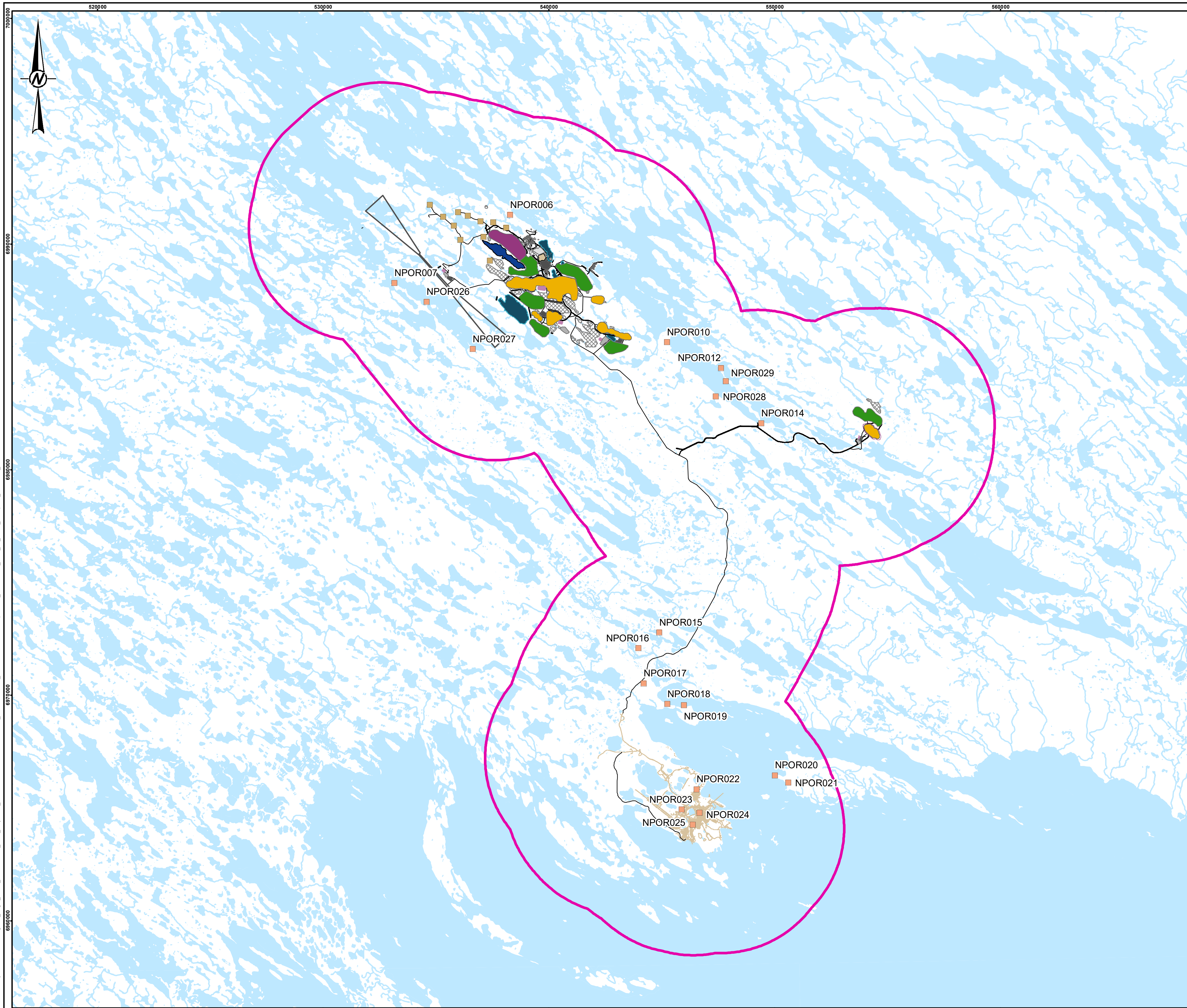
For the most part, the Meliadine Extension noise assessment made use of the same receptors as the 2014 FEIS (Golder 2014). However, Agnico Eagle confirmed that nine receptors included in the 2014 FEIS are no longer active (i.e., NPOR001 through NPOR005, NPOR008, NPOR009, NPOR011, and NPOR013); these nine receptors were not considered in the Meliadine Extension noise assessment. In addition, Agnico Eagle identified four new receptors that have been developed within the noise study area since the 2014 FEIS (i.e., NPOR026 through NPOR029); these four new receptors were added to the Meliadine Extension noise assessment.

Information about noise receptors is presented in Table 1 and Figure 1. The noise study area and the locations of Meliadine Extension elements, including the processing plant, AWAR, mining areas, wind turbines, and airstrip, are also shown in Figure 1.

Table 1: Noise Receptors

Noise Receptor	Description	Universal Transverse Mercator Coordinates [Zone 15]	
		Easting [m]	Northing [m]
NPOR006[(a)]	Present Day Cabin[(b)]	538286	6991299
NPOR007[(a)]	Present Day Cabin Tatty's[(b)]	533152	6988279
NPOR010[(a)]	Present Day Cabin Peter's[(b)]	545226	6985656
NPOR012[(a)]	Present Day Cabin Barney Tootoo's[(b)]	547623	6984512
NPOR014[(a)]	Present Day Cabin[(b)]	549401	6982060
NPOR015[(a)]	Iqalugaarjuup Nunanga Territorial Park[(b)]	544891	6972789
NPOR016[(a)]	Iqalugaarjuup Nunanga Territorial Park[(b)]	543964	6972097
NPOR017[(a)]	Present Day Cabin Tommy's[(b)]	544203	6970537
NPOR018[(a)]	Present Day Cabin Ugjuk's[(b)]	545248	6969621
NPOR019[(a)]	Present Day Cabin Angutetuark's[(b)]	545976	6969572
NPOR020[(a)]	Present Day Cabin Ollie's[(b)]	550012	6966463
NPOR021[(a)]	Present Day Cabin Nattar's[(b)]	550596	6966144
NPOR022[(a)]	Rankin Inlet Receptor[(b)]	546542	6965844
NPOR023[(a)]	Rankin Inlet Receptor[(b)]	545879	6964944
NPOR024[(a)]	Rankin Inlet Receptor[(b)]	546669	6964799
NPOR025[(a)]	Rankin Inlet Receptor[(b)]	546369	6964272
NPOR026	New Receptor Not Included in 2014 FEIS	534577	6987444
NPOR027	New Receptor Not Included in 2014 FEIS	536626	6985349
NPOR028	New Receptor Not Included in 2014 FEIS	547397	6983259
NPOR029	New Receptor Not Included in 2014 FEIS	547844	6983934

(a) Receptor identification code taken directly from 2014 FEIS (Golder 2014)
(b) Receptor description taken directly from 2014 FEIS (Golder 2014).



REFERENCE(S)
1. BASE DATA OBTAINED FROM AGNICO EAGLE MINES LIMITED AND NATURAL RESOURCES CANADA.
DATUM: NAD 83 PROJECTION: UTM ZONE 15

CLIENT
AGNICO EAGLE
AGNICO EAGLE MINES LIMITED

PROJECT
MELIADINE GOLD PROJECT
NUNAVUT

TITLE
NOISE RECEPTORS AND MELIADINE EXTENSION ELEMENTS

CONSULTANT
GOLDER MEMBER OF WSP

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REVIEWED	VY
APPROVED	AF

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3.3 Effects Classification

Potential noise effects from the Meliadine Extension were classified using the same framework established in the 2014 FEIS (Golder 2014). The assessment framework considers noise levels at receptors (Table 1), expressed in units of A-weighted decibels (dBA). Note that noise levels expressed in dBA have been scaled to reflect the frequency sensitivity of the human auditory system. Table 2 presents representative noise levels for several common sources and environments; this information provides context to the noise predictions that appear elsewhere in this report.

Table 2: Representative Noise Levels for Common Sources and Environments

Common Source / Environment	Representative Noise Level
whisper / remote area with light wind	<35 dBA
light rainfall	35 to 40 dBA
refrigerator	40 to 45 dBA
pre-Meliadine nighttime noise level in most of Rankin Inlet (outdoor)[a]	45 to 50 dBA
pre-Meliadine daytime noise level in most of Rankin Inlet (outdoor) [a]	50 to 55 dBA
normal conversation	55 to 60 dBA
ringing telephone	60 to 65 dBA
alarm clock	65 to 70 dBA
singing	70 to 75 dBA
barking dog	75 to 80 dBA

(a) Based on baseline noise monitoring conducted for the 2014 FEIS (Golder 2014).

For each receptor, the representative pre-Meliadine noise level and the cumulative noise level associated with the Meliadine Mine (as assessed in the 2014 FEIS) were taken directly from Table 5.5-8 of the 2014 FEIS (Golder 2014). The pre-Meliadine noise level represents conditions as they existed before development of the Meliadine Mine. The 2014 FEIS cumulative noise level represents the noise contribution from Meliadine Mine (as assessed in the 2014 FEIS) added to the pre-Meliadine conditions.

For each receptor, the noise contribution from the Meliadine Extension was predicted using computer noise models; see Section 3.4 of this report for additional details on the computer noise models developed for the Meliadine Extension. The predicted noise contribution from the Meliadine Extension was added to the pre-Meliadine noise level to obtain the cumulative noise level associated with the Meliadine Extension.

At each receptor, the magnitude of potential noise effects from the Meliadine Extension was classified based on the predicted change from the cumulative noise level from the 2014 FEIS. For consistency with the 2014 FEIS, four different magnitude categories were considered in the noise assessment (Golder 2014). The magnitude categories are summarized in Table 3.

Table 3: Magnitude Categories for Potential Noise Effects

Magnitude of Effect	Change in Noise Levels	Description
negligible	cumulative noise levels increase by ≤3 dBA	this level of increase is hardly perceptible
low	cumulative noise levels increase by ≤6 dBA	this level of increase is noticeable
moderate	cumulative noise levels increase by ≤10 dBA	this level of increase is readily noticeable
high	cumulative noise levels increase by >10 dBA	this level of increase is disturbing

3.4 Noise Prediction Methodology

Most Meliadine Extension noise sources will be effectively continuous or steady state. Sources in this category include trucks, loaders, dozers, graders, diesel generators, wind turbines, fans/blowers, compressors, and crushers. These types of sources will emit noise into the environment continuously 24 hours per day. In contrast, noise associated with the Meliadine Extension airstrip will be intermittent. The airstrip will emit noise into the environment when airplanes take off or land, but the airstrip will be effectively silent at other times. Because noise emissions and noise effects from the Meliadine Extension airstrip are qualitatively different than noise emissions and noise effects from other Meliadine Extension equipment and activities, separate computer models were developed to predict and analyze noise effects from these two groups of sources.

For consistency with the 2014 FEIS (Golder 2014), computer models of continuous noise sources associated with the Meliadine Extension were developed using International Organization for Standardization (ISO) technical standard 9613-2 (ISO 1996). The computer models were used to calculate Meliadine Extension noise levels at the receptors listed in Table 1. Inputs to the computer models consisted of source emissions in the form of octave band sound power levels and environmental conditions that are known to influence noise propagation (e.g., ground cover, temperature, humidity, wind conditions).

Noise source emissions for the Meliadine Extension are discussed in detail in Section 5 of this report. A summary of environmental inputs to the computer models is provided in Table 4. Note that noise model inputs presented in Table 4 were selected for consistency with the 2014 FEIS (Golder 2014).

Table 4: Noise Model Inputs

Parameter	Model Setting[(a)]	Description / Notes
Standard	ISO 9613-2 (ISO 1996)	Models treated noise sources, noise attenuation, and noise propagation in accordance with this standard.
Ground Factor	0.0 – water bodies 0.5 – elsewhere	This value represents the acoustic properties of the ground in accordance with ISO 9613-2.
Temperature / Humidity	10^0C / 70% relative humidity	These are typical default conditions for ISO 9613-2 intended to represent nighttime summer conditions.
Wind Conditions	1 m/s to 5 m/s from source to receptor	These represent default ISO 9613-2 wind conditions – moderate temperature inversion, wind from source to receptor 100% of the time
Terrain	Terrain modelled using ground elevation contours	Ground elevation contours at one metre intervals were included in the models.

(a) Parameters for the Meliadine Extension noise modelling taken directly from the 2014 FEIS (Golder 2014).

When calculating noise levels at receptors, the ISO 9613-2 algorithm used the environmental inputs listed in Table 4 to account for four noise attenuation mechanisms:

- geometric divergence
- atmospheric absorption
- ground absorption
- screening by barriers

Geometric divergence accounts for the fact that a given noise source radiates a finite amount of acoustic energy and as this finite amount of energy propagates into the environment it is spread out over a larger and larger area (i.e., the surface of an ever-expanding sphere). This geometric spreading means that the farther away a receptor is located from a source, the less energy will be received (i.e., the lower the observed noise level).

Atmospheric absorption accounts for the fact that the acoustic energy associated with a given noise source is absorbed via interaction with molecules in the air through which it propagates. Attenuation effects associated with atmospheric absorption are most substantial at high frequencies but can be important at lower frequencies for large propagation distances.

Ground absorption accounts for the fact that each time the acoustic energy emitted by a noise source interacts with the ground some of it is absorbed. The amount of energy absorbed depends on the type of ground surface. During interactions with the hard ground very little energy is absorbed but during interactions with porous ground a substantial amount of energy is absorbed. As a result, if all other factors are held constant, observed noise levels associated with sources operating in an area of hard ground will be higher than observed noise levels associated with sources operating in an area of porous ground.

Screening by barriers accounts for the fact that a physical object (either terrain-based or anthropogenic) placed between a noise source and receptor can block acoustic energy and reduce observed noise levels at the receptor.

According to the ISO 9613-2 standard, the overall accuracy of the propagation algorithm used in the Meliadine Extension computer models is ±3 dBA for distances between source and receptor up to 1 km. The accuracy for propagation distances greater than 1 km is not stated in the standard.

A number of conservative assumptions were made to account for the level of uncertainty inherent in the noise level predictions. Most importantly, each receptor was assumed to be downwind from each source 100% of the time. Because downwind conditions tend to enhance noise propagation, this assumption is conservative and likely overestimates the noise levels from the Meliadine Extension. In addition, terrain features were the only acoustical screening elements considered in the noise model. Acoustical screening from anthropogenic features (e.g., buildings) and acoustical screening from vegetation were not considered in the computer model. This is a conservative approach to modelling noise from the Meliadine Extension.

Computer models of airstrip noise sources were based on an algorithm from European Civil Aviation Conference (ECAC) Document 29 (ECAC 2016). The ECAC computer models were used to calculate airstrip noise levels at the receptors listed in Table 1. Inputs to the ECAC models consisted of aircraft types, which are used to establish noise emissions based on historical measurements and empirical formulae, runway orientation and length, and take off/landing frequencies within a representative six-month period. Inputs to the ECAC noise model of the Meliadine Extension airstrip are discussed in detail in Section 5 of this report.

When calculating noise levels at receptors, the ECAC algorithm accounts for noise attenuation due to geometric divergence, atmospheric absorption, and screening by barriers in a manner similar to the ISO 9613-2 algorithm. The ECAC does not quantify the accuracy or uncertainty associated with its modelling algorithm; however, it is likely the ECAC algorithm has an overall accuracy comparable to the ±3 dBA value specified for ISO 9613-2 since the ECAC and ISO 9613-2 algorithms use similar methods to account for propagation effects.

4.0 RESULTS FROM 2014 FEIS

Table 5 presents representative pre-Meliadine noise levels and cumulative noise levels associated with the Meliadine Mine (as assessed in the 2014 FEIS) for each of the noise receptors from Table 1. For most receptors, pre-Meliadine noise levels and Meliadine Mine cumulative noise levels were taken directly from Table 5.5-8 of the 2014 FEIS (Golder 2014). For the four new receptors not included in the 2014 FEIS (i.e., NPOR026 through

NPOR029), pre-Meliadine noise levels were established based on the same regulatory guidance used in the 2014 FEIS (AER 2007), and Meliadine Mine cumulative noise levels were established by adding the new receptors to the computer models developed for the 2014 FEIS.

For each receptor, Table 5 classifies the magnitude of the noise effect from the Meliadine Mine (as assessed in the 2014 FEIS) by comparing the change in noise level (i.e., the difference between cumulative noise level and pre-Meliadine noise level) to the effect thresholds described in Section 3.3.

Table 5: Noise Results from 2014 FEIS

Noise Receptor	Pre-Meliadine Noise Level [dBA]	Cumulative Noise Level [dBA]	Effect Classification	
			Change in Noise Level [dBA]	Magnitude of Effect
NPOR006	35[a]	39.8[a]	+4.8	low
NPOR007	35[a]	35.5[a]	+0.5	negligible
NPOR010	35[a]	37.7[a]	+2.7	negligible
NPOR012	35[a]	35.7[a]	+0.7	negligible
NPOR014	35[a]	44.7[a]	+9.7	moderate
NPOR015	35[a]	35.4[a]	+0.4	negligible
NPOR016	35[a]	36.6[a]	+1.6	negligible
NPOR017	35[a]	43.4[a]	+8.4	moderate
NPOR018	35[a]	35.4[a]	+0.4	negligible
NPOR019	35[a]	35.3[a]	+0.3	negligible
NPOR020	35[a]	35.1[a]	+0.1	negligible
NPOR021	35[a]	35.1[a]	+0.1	negligible
NPOR022	48[a]	48.0[a]	0.0	negligible
NPOR023	45[a]	45.2[a]	+0.2	negligible
NPOR024	52[a]	52.0[a]	0.0	negligible
NPOR025	46[a]	46.9[a]	+0.9	negligible
NPOR026	35[b]	36.2[c]	+1.2	negligible
NPOR027	35[b]	38.2[c]	+3.2	low
NPOR028	35[b]	35.4[c]	+0.4	negligible
NPOR029	35[b]	35.6[c]	+0.6	negligible

(a) These noise levels were taken directly from Table 5.5-8 of the 2014 FEIS (Golder 2014).
(b) These noise levels were established based on regulatory guidance (AER 2007).
(c) These noise levels were established using the same computer models developed for the 2014 FEIS (Golder 2014).

Table 6 presents a summary of the noise effects from the Meliadine Mine (as assessed in the 2014 FEIS) by tabulating the number of receptors within each magnitude category (i.e., negligible, low, moderate, high).

Table 6: Summary of Noise Effects from 2014 FEIS

Magnitude of Effect	Number of Receptors
negligible (increase ≤3 dBA)	16
low (increase ≤6 dBA)	2
moderate (increase ≤10 dBA)	2
high (increase >10 dBA)	0

5.0 MELIADINE EXTENSION NOISE EMISSIONS

Table 7 presents noise emissions for sources used to model the processing plant, power plant, and ancillary support operations. Table 8 presents noise emissions sources used to model open pit mining in the Tiriganiaq mining area and underground mining in the Tiriganiaq and Wesmeg mining areas. Table 9 presents noise emissions sources used to model open pit and underground mining in the Pump mining area. Table 10 presents noise emissions sources used to model open pit and underground mining in the F-Zone mining area. Table 11 presents noise emissions sources used to model open pit mining in the Discovery mining area. Table 12 presents noise emissions sources used to model underground mining in the Tiriganiaq-Wolf mining area. Table 13 presents noise emissions sources used to model traffic on the AWAR between Rankin Inlet and the Meliadine site. Table 14 presents noise emissions sources used to model the on-site wind turbines.

Noise emissions in Tables 7 through 14 are presented as octave band sound power levels, expressed in unweighted decibels (dBZ), and as total sound power levels, expressed in dBA. With the exception of haul trucks and traffic on the AWAR, all the noise sources listed in Tables 7 through 14 were modelled as operating continuously, 24 hours per day. Haul trucks and AWAR traffic were modelled with the daily usage factors specified in the tables. Where the same or similar noise sources are part of the 2014 FEIS and the Meliadine Extension, noise emissions from the 2014 FEIS (Golder 2014) were used directly in the Meliadine Extension models. Where this approach was not feasible (e.g., in the case of the on-site wind turbines, which are not part of the 2014 FEIS), Golder estimated noise emissions using a combination of manufacturer data sheets, empirical formulae from engineering handbooks, and professional judgement.

Table 15 presents aircraft data used to model noise from the on-site airstrip. As discussed in Section 3.4, inputs to the airstrip model include the type of aircraft and take off/landing frequencies within a representative six-month period. The ECAC modelling algorithm uses this information to estimate noise emissions from the airstrip.

As discussed in Section 3.1, noise emissions presented in Tables 7 through 15 represent the Meliadine Extension during the year 2034. This is the year when noise emissions from the Meliadine Extension are expected to be greatest.

Table 7: Noise Emissions from Processing Plant, Power Plant, and Ancillary Support Operations

Source	Quantity	Octave Band Sound Power Level Per Unit [dBZ]									Total Sound Power Level Per Unit [dBA]
		31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Primary Crusher	1	97.1	107.9	113.2	107.6	113.6	119.1	120.2	115.4	106.6	124.5
Diverter	1	101.0	109.2	110.8	105.9	109.4	109.9	109.0	105.4	98.8	114.8
Loader	4	113.3	119.6	108.8	106.3	105.8	104.9	101.4	98.0	98.1	109.6
Power Plant (Building)	1	119.9	119.9	121.7	113.9	100.8	89.8	84.7	83.7	84.7	109.0
Genset (100 kW)	1	96.0	101.0	103.0	102.0	103.0	103.0	101.0	97.0	91.0	107.5
Process Plant	1	117.7	117.7	114.7	111.7	97.7	83.7	77.7	73.7	66.7	105.1
Fresh Water Pumping Station	1	107.1	104.5	107.0	101.4	103.9	96.9	96.8	94.8	93.1	105.0
Concrete Batch Plant	1	117.8	117.8	115.8	102.8	101.8	88.8	85.8	80.8	79.8	103.5
Paste Plant	1	110.9	110.9	107.9	104.9	90.9	76.9	70.9	66.9	59.9	98.3
Generator Exhaust (Power Plant)	4	124.0	118.0	106.0	97.0	92.0	92.0	86.0	76.0	69.0	98.1
Secondary Crusher	1	88.3	95.1	96.4	88.5	87.2	86.5	83.4	77.7	70.2	91.1

Table 8: Noise Emissions from Tiriganiaq and Wesmeg Mining Areas

Source	Quantity	Octave Band Sound Power Level Per Unit [dBZ]									Total Sound Power Level Per Unit [dBA]
		31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Compressor Building	1	109.1	111.4	113.2	113.3	112.4	112.2	111.1	105.2	98.1	117.0
Tiriganiaq Ore Haul Truck (CAT 777F)	29 round trips per day	103.5	99.5	105.5	107.5	106.5	106.5	105.5	98.5	93.5	111.2
Wesmeg Ore Haul Truck (CAT 777F)	38 round trips per day	103.5	99.5	105.5	107.5	106.5	106.5	105.5	98.5	93.5	111.2
Loader	1	113.3	119.6	108.8	106.3	105.8	104.9	101.4	98.0	98.1	109.6
Vent Raise	4	111.6	117.0	107.0	96.0	87.0	96.0	103.0	104.0	105.0	109.5
Portal	2	77.3	79.7	83.1	88.3	85.8	81.2	74.1	66.5	89.8	90.8

Table 9: Noise Emissions from Pump Mining Area

Source	Quantity	Octave Band Sound Power Level Per Unit [dBZ]									Total Sound Power Level Per Unit [dBA]
		31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Production Drill (Sandvik DR560)	5	104.5	115.5	118.5	107.5	112.0	114.0	112.5	109.0	103.0	118.5
Tool Carrier (CAT IT62H)	2	115.5	111.5	111.5	116.5	115.5	111.5	110.5	105.5	98.5	117.6
Wheel Dozer (CAT 824H)	2	115.5	111.5	111.5	116.5	115.5	111.5	110.5	105.5	98.5	117.6
Compressor Building	1	109.1	111.4	113.2	113.3	112.4	112.2	111.1	105.2	98.1	117.0
Motor Grader (CAT 16M)	2	117.7	122.4	113.0	112.8	112.5	110.4	109.0	107.6	101.1	116.2
Ore Haul Truck (CAT 777F)	25 round trips per day	103.5	99.5	105.5	107.5	106.5	106.5	105.5	98.5	93.5	111.2
Waste Haul Truck (CAT 777F)	17 round trips per day	103.5	99.5	105.5	107.5	106.5	106.5	105.5	98.5	93.5	111.2
Loader	1	113.3	119.6	108.8	106.3	105.8	104.9	101.4	98.0	98.1	109.6
Wheel Loader	2	113.3	119.6	108.8	106.3	105.8	104.9	101.4	98.0	98.1	109.6
Vent Raise	2	111.6	117.0	107.0	96.0	87.0	96.0	103.0	104.0	105.0	109.5
Excavator (CAT 345DL)	2	102.3	106.8	107.9	115.3	102.3	100.3	99.5	94.8	90.0	109.2
Excavator (CAT 390DL)	2	102.3	106.8	107.9	115.3	102.3	100.3	99.5	94.8	90.0	109.2
Excavator (Terex RH120)	2	102.3	106.8	107.9	115.3	102.3	100.3	99.5	94.8	90.0	109.2
Track Dozer (CAT D9T)	4	100.0	103.0	115.0	106.0	107.0	103.0	101.0	97.0	87.0	109.1
Compactor (CAT C556)	1	115.3	112.3	110.1	102.2	103.9	103.8	99.5	93.3	90.6	107.5
Portal	1	77.3	79.7	83.1	88.3	85.8	81.2	74.1	66.5	89.8	90.8

Table 10: Noise Emissions from F-Zone Mining Area

Source	Quantity	Octave Band Sound Power Level Per Unit [dBZ]									Total Sound Power Level Per Unit [dBA]
		31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Production Drill (Sandvik DR560)	5	104.5	115.5	118.5	107.5	112.0	114.0	112.5	109.0	103.0	118.5
Tool Carrier (CAT IT62H)	2	115.5	111.5	111.5	116.5	115.5	111.5	110.5	105.5	98.5	117.6
Wheel Dozer (CAT 824H)	2	115.5	111.5	111.5	116.5	115.5	111.5	110.5	105.5	98.5	117.6
Compressor Building	1	109.1	111.4	113.2	113.3	112.4	112.2	111.1	105.2	98.1	117.0
Motor Grader (CAT 16M)	2	117.7	122.4	113.0	112.8	112.5	110.4	109.0	107.6	101.1	116.2
Ore Haul Truck (CAT 777F)	14 round trips per day	103.5	99.5	105.5	107.5	106.5	106.5	105.5	98.5	93.5	111.2
Waste Haul Truck (CAT 777F)	34 round trips per day	103.5	99.5	105.5	107.5	106.5	106.5	105.5	98.5	93.5	111.2
Loader	1	113.3	119.6	108.8	106.3	105.8	104.9	101.4	98.0	98.1	109.6
Wheel Loader	2	113.3	119.6	108.8	106.3	105.8	104.9	101.4	98.0	98.1	109.6
Vent Raise	3	111.6	117.0	107.0	96.0	87.0	96.0	103.0	104.0	105.0	109.5
Excavator (CAT 345DL)	2	102.3	106.8	107.9	115.3	102.3	100.3	99.5	94.8	90.0	109.2
Excavator (CAT 390DL)	2	102.3	106.8	107.9	115.3	102.3	100.3	99.5	94.8	90.0	109.2
Excavator (Terex RH120)	2	102.3	106.8	107.9	115.3	102.3	100.3	99.5	94.8	90.0	109.2
Track Dozer (CAT D9T)	4	100.0	103.0	115.0	106.0	107.0	103.0	101.0	97.0	87.0	109.1
Compactor (CAT C556)	1	115.3	112.3	110.1	102.2	103.9	103.8	99.5	93.3	90.6	107.5
Portal	1	77.3	79.7	83.1	88.3	85.8	81.2	74.1	66.5	89.8	90.8

Table 11: Noise Emissions from Discovery Mining Area

Source	Quantity	Octave Band Sound Power Level Per Unit [dBZ]									Total Sound Power Level Per Unit [dBA]
		31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Production Drill (Sandvik DR560)	5	104.5	115.5	118.5	107.5	112.0	114.0	112.5	109.0	103.0	118.5
Tool Carrier (CAT IT62H)	2	115.5	111.5	111.5	116.5	115.5	111.5	110.5	105.5	98.5	117.6
Wheel Dozer (CAT 824H)	2	115.5	111.5	111.5	116.5	115.5	111.5	110.5	105.5	98.5	117.6
Motor Grader (CAT 16M)	2	117.7	122.4	113.0	112.8	112.5	110.4	109.0	107.6	101.1	116.2
Ore Haul Truck (CAT 777F)	20 round trips per day	103.5	99.5	105.5	107.5	106.5	106.5	105.5	98.5	93.5	111.2
Waste Haul Truck (CAT 777F)	256 round trips per day	103.5	99.5	105.5	107.5	106.5	106.5	105.5	98.5	93.5	111.2
Loader	1	113.3	119.6	108.8	106.3	105.8	104.9	101.4	98.0	98.1	109.6
Wheel Loader	2	113.3	119.6	108.8	106.3	105.8	104.9	101.4	98.0	98.1	109.6
Excavator (CAT 345DL)	2	102.3	106.8	107.9	115.3	102.3	100.3	99.5	94.8	90.0	109.2
Excavator (CAT 390DL)	2	102.3	106.8	107.9	115.3	102.3	100.3	99.5	94.8	90.0	109.2
Excavator (Terex RH120)	2	102.3	106.8	107.9	115.3	102.3	100.3	99.5	94.8	90.0	109.2
Track Dozer (CAT D9T)	4	100.0	103.0	115.0	106.0	107.0	103.0	101.0	97.0	87.0	109.1
Compactor (CAT C556)	1	115.3	112.3	110.1	102.2	103.9	103.8	99.5	93.3	90.6	107.5

Table 12: Noise Emissions from Tiriganiaq-Wolf Mining Area

Source	Quantity	Octave Band Sound Power Level Per Unit [dBZ]									Total Sound Power Level [dBA]
		31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Compressor Building	1	109.1	111.4	113.2	113.3	112.4	112.2	111.1	105.2	98.1	117.0
Ore Haul Truck (CAT 777F)	1 round trip per day	103.5	99.5	105.5	107.5	106.5	106.5	105.5	98.5	93.5	111.2
Loader	1	113.3	119.6	108.8	106.3	105.8	104.9	101.4	98.0	98.1	109.6
Vent Raise	3	111.6	117.0	107.0	96.0	87.0	96.0	103.0	104.0	105.0	109.5
Portal	1	77.3	79.7	83.1	88.3	85.8	81.2	74.1	66.5	89.8	90.8

Table 13: Noise Emissions for All-Weather Access Road

Source	Quantity [average round trips per day]	Octave Band Sound Power Level Per Unit [dBZ]									Total Sound Power Level Per Unit [dBA]
		31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Grader	0.662	117.7	122.4	113.0	112.8	112.5	110.4	109.0	107.6	101.1	116.2
Transport Truck	23.412	103.5	99.5	105.5	107.5	106.5	106.5	105.5	98.5	93.5	111.2
Fuel Truck	3.331	103.5	99.5	105.5	107.5	106.5	106.5	105.5	98.5	93.5	111.2
Haul Truck	0.292	103.5	99.5	105.5	107.5	106.5	106.5	105.5	98.5	93.5	111.2
Vacuum Truck	0.273	103.5	99.5	105.5	107.5	106.5	106.5	105.5	98.5	93.5	111.2
Boom Truck	0.253	103.5	99.5	105.5	107.5	106.5	106.5	105.5	98.5	93.5	111.2
Loader	0.117	113.3	119.6	108.8	106.3	105.8	104.9	101.4	98.0	98.1	109.6
Backhoe	0.019	102.3	106.8	107.9	115.3	102.3	100.3	99.5	94.8	90.0	109.2
Bus	3.603	121.0	121.0	114.0	104.0	104.0	101.0	100.0	92.0	87.0	107.2
Ambulance	0.039	118.0	118.0	111.1	101.1	101.0	98.0	97.0	89.0	84.0	104.3
Pickup Truck	11.998	68.0	79.4	98.6	85.9	84.0	82.2	77.8	70.3	63.1	87.9

Table 14: Noise Emissions from Wind Turbines

Source	Quantity	Octave Band Sound Power Level Per Unit [dBZ]									Total Sound Power Level Per Unit [dBA]
		31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Wind Turbine (Enercon E-115 EP3)	11	116.9	115.5	111.3	106.8	103.6	100.3	96.9	89.6	74.8	106.0

Table 15: Airstrip Noise Model Inputs

Type of Aircraft	Number of Take Offs in Representative Six-Month Period	Number of Landings in Representative Six-Month Period
Boeing 737-200	108	108

6.0 MELIADINE EXTENSION MODELLING RESULTS

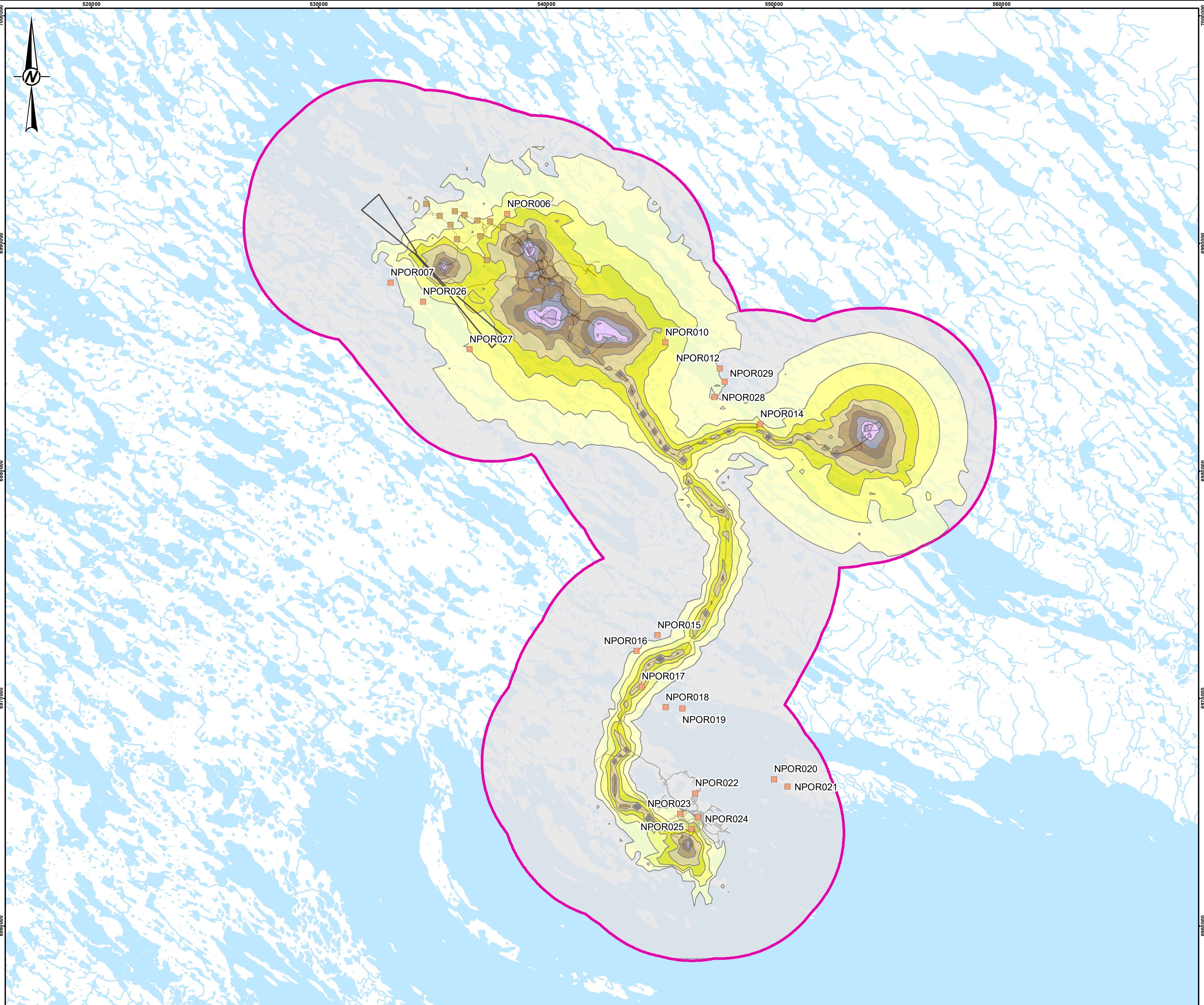
Table 16 presents predicted noise levels from the Meliadine Extension. Predicted noise levels are presented for each receptor identified in Table 1. Predicted noise levels are presented separately for the core Meliadine Extension (sources/equipment described in Tables 7 through 13), for the wind turbines (Table 14), and for the optional airstrip (Table 15). Table 16 also presents predicted noise levels obtained by summing the core Meliadine Extension with the wind turbines and optional airstrip. The noise predictions presented in Table 16 represent average noise levels over a typical 24-hour period. The noise predictions in Table 16 represent the noise contribution from the Meliadine Extension in isolation from other sources.

Table 16: Predicted Noise Levels from the Meliadine Extension

Noise Receptor	Predicted Meliadine Extension Noise Level [dBA]				
	Core Elements	Wind Turbines	Optional Airstrip	Core Elements + Wind Turbines	Core Elements + Wind Turbines + Optional Airstrip
NPOR006	38.3	40.2	28.7	42.4	42.5
NPOR007	28.6	28.3	38.2	31.5	39.0
NPOR010	39.1	9.1	16.8	39.1	39.1
NPOR012	29.6	10.2	14.6	29.6	29.8
NPOR014	38.8	10.7	13.0	38.8	38.8
NPOR015	26.1	nil[(a)]	18.1	26.1	26.7
NPOR016	31.2	nil[(a)]	15.0	31.2	31.3
NPOR017	43.5	nil[(a)]	12.4	43.5	43.5
NPOR018	24.8	nil[(a)]	11.2	24.8	25.0
NPOR019	21.2	nil[(a)]	11.2	21.2	21.6
NPOR020	17.3	nil[(a)]	3.9	17.3	17.5
NPOR021	16.5	nil[(a)]	3.0	16.5	16.7
NPOR022	26.6	nil[(a)]	5.9	26.6	26.6
NPOR023	31.9	nil[(a)]	5.4	31.9	31.9
NPOR024	29.3	nil[(a)]	5.0	29.3	29.3
NPOR025	40.8	nil[(a)]	4.7	40.8	40.8
NPOR026	32.9	27.0	38.0	33.9	39.4
NPOR027	34.8	23.3	23.6	35.1	35.4
NPOR028	29.2	5.1	14.4	29.2	29.4
NPOR029	29.7	12.9	14.1	29.8	29.9

(a) Predicted noise contribution too small to be meaningfully quantified.

Figure 2 presents a contour map showing the spatial extent of noise from the core Meliadine Extension. Figure 3 presents a contour map showing the spatial extent of noise from the core Meliadine Extension combined with the wind turbines. Figure 4 presents a contour map showing the spatial extent of noise from the core Meliadine Extension combined with the wind turbines and optional airstrip. The noise predictions presented in Figures 2 through 4 represent average noise levels over a typical 24-hour period. The noise predictions in Figures 2 through 4 represent the noise contribution from the Meliadine Extension in isolation from other sources.



LEGEND

- ON-SITE WIND TURBINES
- NOISE RECEPTOR
- NOISE STUDY AREA
- WATERBODY
- WATERCOURSE
- ROAD
- AIR STRIP

PREDICTED NOISE LEVEL [dBA]

- <30
- 30 - 35
- 35 - 40
- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- >75

0 4,000 8,000

1:170,000 METRES

REFERENCE(S)

1. BASE DATA OBTAINED FROM AGNICO EAGLE MINES LIMITED AND NATURAL RESOURCES CANADA.

DATUM: NAD 83 PROJECTION: UTM ZONE 15

CLIENT

AGNICO EAGLE

AGNICO EAGLE MINES LIMITED

PROJECT

MELIADINE GOLD PROJECT
NUNAVUT

TITLE

PREDICTED NOISE LEVELS FROM CORE MELIADINE EXTENSION

CONSULTANT

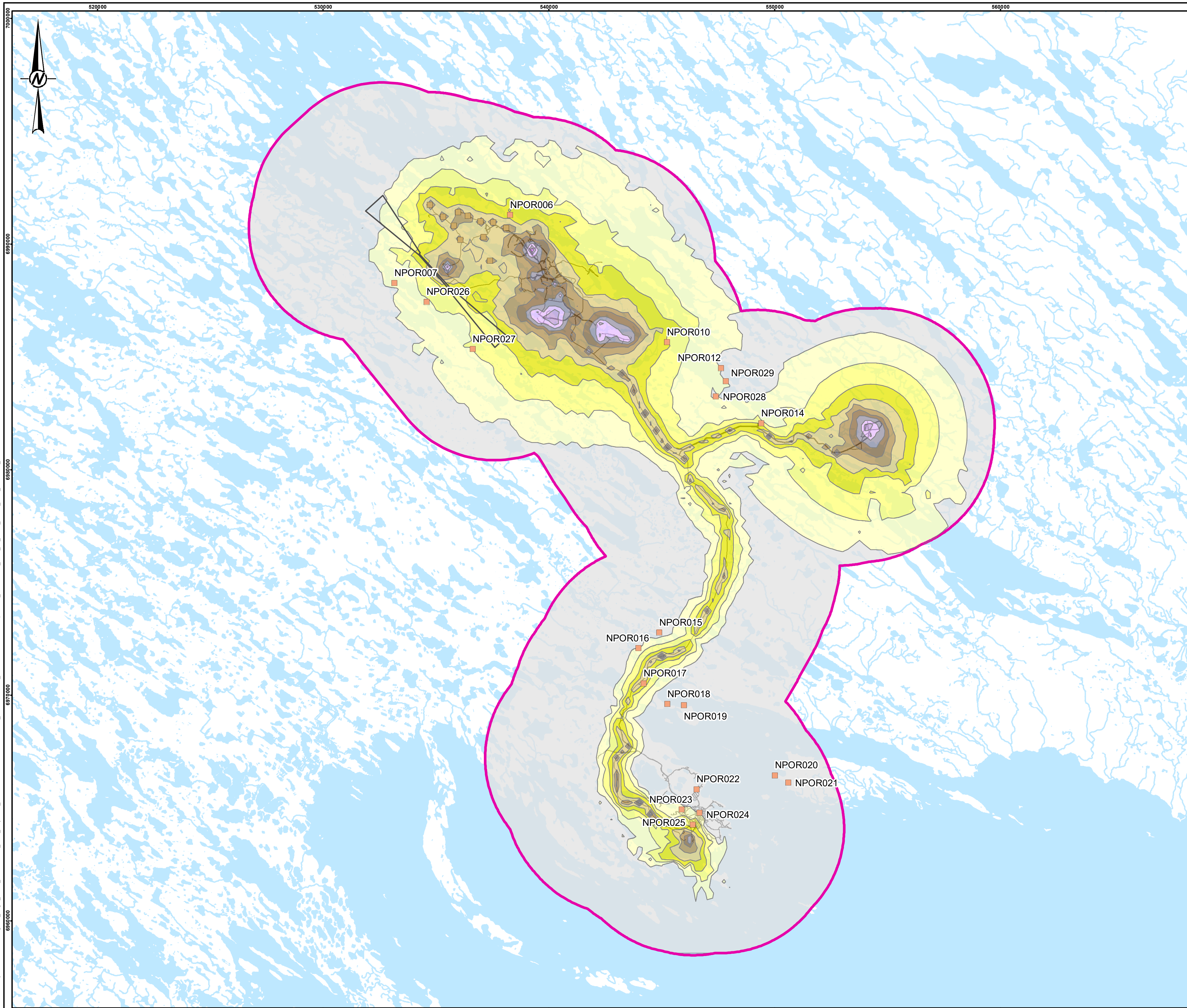
GOLDER MEMBER OF WSP

YYYY-MM-DD	2021-11-17
DESIGNED	VY
PREPARED	CC
REVIEWED	VY
APPROVED	AF

PROJECT NO.	CONTROL	REV.	FIGURE
21468047	3000	0	2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm



LEGEND

- ON-SITE WIND TURBINES
- NOISE RECEPTOR
- NOISE STUDY AREA
- WATERBODY
- WATERCOURSE
- ROAD
- AIR STRIP

PREDICTED NOISE LEVEL [dBA]

- <30
- 30 - 35
- 35 - 40
- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- >75

0 4,000 8,000

1:170,000 METRES

REFERENCE(S)

1. BASE DATA OBTAINED FROM AGNICO EAGLE MINES LIMITED AND NATURAL RESOURCES CANADA.
DATUM: NAD 83 PROJECTION: UTM ZONE 15

CLIENT

AGNICO EAGLE

AGNICO EAGLE MINES LIMITED

PROJECT

MELIADINE GOLD PROJECT
NUNAVUT

TITLE

PREDICTED NOISE LEVELS FROM CORE MELIADINE EXTENSION PLUS WIND TURBINES

CONSULTANT

GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-11-17
DESIGNED	VY
PREPARED	CC
REVIEWED	VY
APPROVED	AF

PROJECT NO.	CONTROL	REV.	FIGURE
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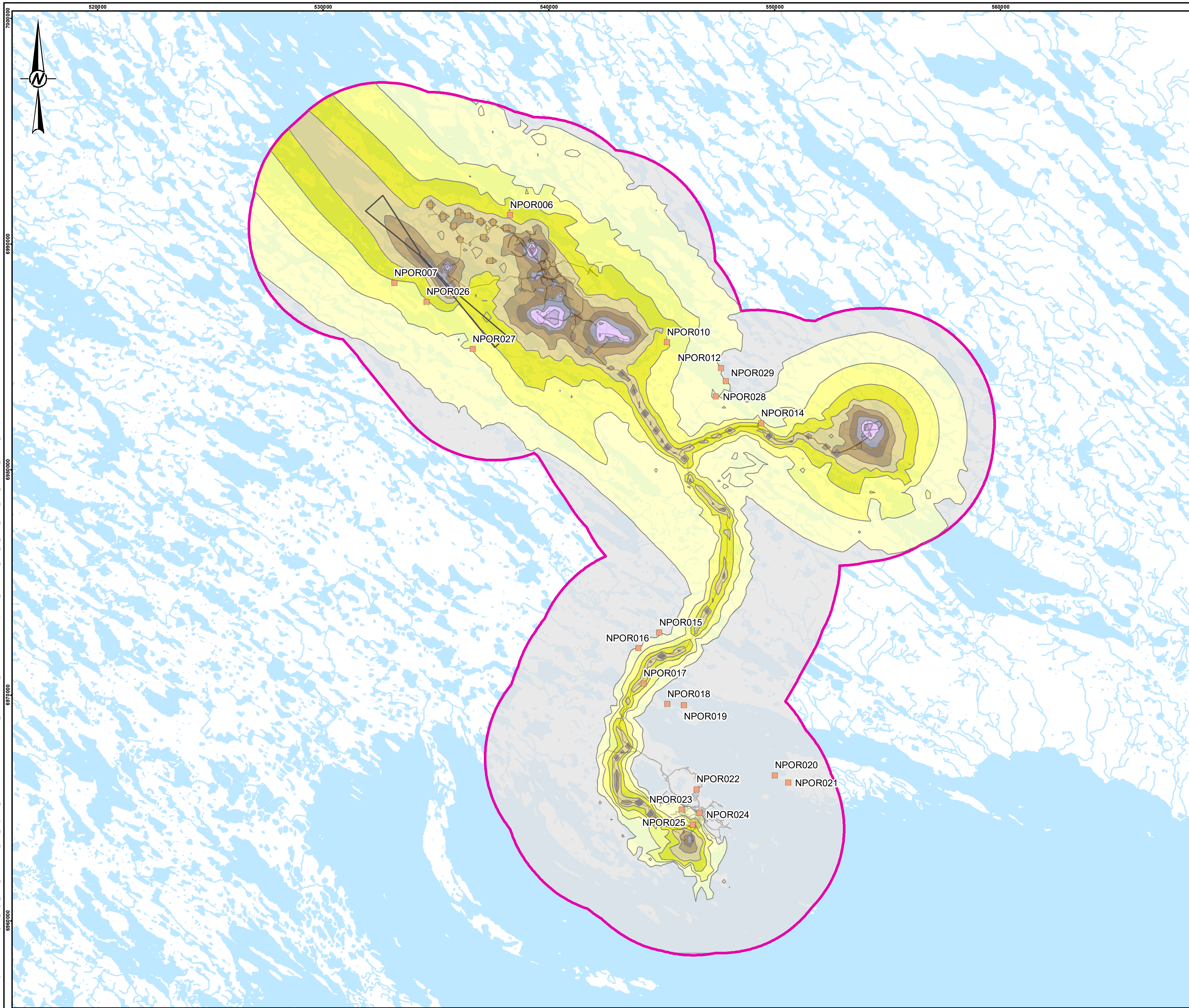


LEGEND

- ON-SITE WIND TURBINES
- NOISE RECEPTOR
- NOISE STUDY AREA
- WATERBODY
- WATERCOURSE
- ROAD
- AIR STRIP

PREDICTED NOISE LEVEL [dBA]

- <30
- 30 - 35
- 35 - 40
- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- >75

0 4,000 8,000

1:170,000 METRES

REFERENCE(S)

1. BASE DATA OBTAINED FROM AGNICO EAGLE MINES LIMITED AND NATURAL RESOURCES CANADA.

DATUM: NAD 83 PROJECTION: UTM ZONE 15

CLIENT

AGNICO EAGLE MINES LIMITED

AGNICO EAGLE

PROJECT

MELIADINE GOLD PROJECT
NUNAVUT

TITLE

PREDICTED NOISE LEVELS FROM CORE MELIADINE EXTENSION PLUS WIND TURBINES AND OPTIONAL AIRSTRIP

CONSULTANT

GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-11-17
DESIGNED	VY
PREPARED	CC
REVIEWED	VY
APPROVED	AF

PROJECT NO.	CONTROL	REV.	FIGURE
21468047	3000	0	4

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

Table 17 presents predicted cumulative noise levels associated with the Meliadine Extension. These cumulative noise levels were obtained by summing predicted noise levels from the Meliadine Extension (Table 16) with representative pre-Meliadine noise levels (Table 5). Cumulative noise levels presented in Table 17 represent average noise levels over a typical 24-hour period. Cumulative noise levels presented in Table 17 represent the noise contribution from the Meliadine Extension in combination with other sources in the environment.

Table 18 classifies the magnitude of noise effects from the Meliadine Extension by comparing the change in noise level (i.e., the difference between Meliadine Extension cumulative noise levels and cumulative noise levels from the 2014 FEIS) to the effect thresholds described in Table 3. Noise effects are classified for the core Meliadine Extension and for the wind turbines and optional airstrip.

Table 17: Predicted Cumulative Noise Levels from the Meliadine Extension

Noise Receptor	Predicted Cumulative Noise Level from the Meliadine Extension[(a)] [dBA]		
	Core Elements	Core Elements + Wind Turbines	Core Elements + Wind Turbines + Optional Airstrip
NPOR006	40.0	43.1	43.3
NPOR007	35.9	36.6	40.5
NPOR010	40.5	40.5	40.5
NPOR012	36.1	36.1	36.1
NPOR014	40.3	40.3	40.3
NPOR015	35.5	35.5	35.6
NPOR016	36.5	36.5	36.5
NPOR017	44.1	44.1	44.1
NPOR018	35.4	35.4	35.4
NPOR019	35.2	35.2	35.2
NPOR020	35.1	35.1	35.1
NPOR021	35.1	35.1	35.1
NPOR022	48.0	48.0	48.0
NPOR023	45.2	45.2	45.2
NPOR024	52.0	52.0	52.0
NPOR025	47.1	47.1	47.1
NPOR026	37.1	37.5	40.8
NPOR027	37.9	38.1	38.2
NPOR028	36.0	36.0	36.0
NPOR029	36.1	36.1	36.2

(a) Cumulative noise levels calculated by summing predicted Meliadine Extension noise levels (Table 16) with representative pre-Meliadine noise levels (Table 5).

Table 18: Meliadine Extension Noise Effects Classification

Noise Receptor	Cumulative Noise Level from 2014 FEIS [dBA]	Core Elements			Core Elements + Wind Turbines			Core Elements + Wind Turbines + Optional Airstrip		
		Meliadine Extension Cumulative Noise Level [dBA]	Change in Noise Level[(a)] [dBA]	Magnitude of Effect	Meliadine Extension Cumulative Noise Level [dBA]	Change in Noise Level[(a)] [dBA]	Magnitude of Effect	Meliadine Extension Cumulative Noise Level [dBA]	Change in Noise Level[(a)] [dBA]	Magnitude of Effect
NPOR006	39.8	40.0	+0.2	negligible	43.1	+3.3	low	43.3	+3.5	low
NPOR007	35.5	35.9	+0.4	negligible	36.6	+1.1	negligible	40.5	+5.0	low
NPOR010	37.7	40.5	+2.8	negligible	40.5	+2.8	negligible	40.5	+2.8	negligible
NPOR012	35.7	36.1	+0.4	negligible	36.1	+0.4	negligible	36.1	+0.4	negligible
NPOR014	44.7	40.3	-4.4	negligible	40.3	-4.4	negligible	40.3	-4.4	negligible
NPOR015	35.4	35.5	+0.1	negligible	35.5	+0.1	negligible	35.6	+0.2	negligible
NPOR016	36.6	36.5	-0.1	negligible	36.5	-0.1	negligible	36.5	-0.1	negligible
NPOR017	43.4	44.1	+0.7	negligible	44.1	+0.7	negligible	44.1	+0.7	negligible
NPOR018	35.4	35.4	0.0	negligible	35.4	0.0	negligible	35.4	0.0	negligible
NPOR019	35.3	35.2	-0.1	negligible	35.2	-0.1	negligible	35.2	-0.1	negligible
NPOR020	35.1	35.1	0.0	negligible	35.1	0.0	negligible	35.1	0.0	negligible
NPOR021	35.1	35.1	0.0	negligible	35.1	0.0	negligible	35.1	0.0	negligible
NPOR022	48.0	48.0	0.0	negligible	48.0	0.0	negligible	48.0	0.0	negligible
NPOR023	45.2	45.2	0.0	negligible	45.2	0.0	negligible	45.2	0.0	negligible
NPOR024	52.0	52.0	0.0	negligible	52.0	0.0	negligible	52.0	0.0	negligible
NPOR025	46.9	47.1	+0.2	negligible	47.1	+0.2	negligible	47.1	+0.2	negligible
NPOR026	36.2	37.1	+0.9	negligible	37.5	+1.3	negligible	40.8	+4.6	low
NPOR027	38.2	37.9	-0.3	negligible	38.1	-0.1	negligible	38.2	0.0	negligible
NPOR028	35.4	36.0	+0.6	negligible	36.0	+0.6	negligible	36.0	+0.6	negligible
NPOR029	35.6	36.1	+0.5	negligible	36.1	+0.5	negligible	36.2	+0.6	negligible

(a) Difference between Meliadine Extension cumulative noise level and cumulative noise level from 2014 FEIS.

Table 19 presents a summary of the Meliadine Extension noise effects by tabulating the number of receptors within each magnitude category (i.e., negligible, low, moderate, high). For ease of reference, Table 19 also presents a similar summary from the 2014 FEIS, taken directly from Table 6.

Table 19: Summary of Noise Effects from Meliadine Extension

Magnitude of Effect	Number of Receptors			
	2014 FEIS	Meliadine Extension		
		Core Elements	Core Elements + Wind Turbines	Core Elements + Wind Turbines + Optional Airstrip
negligible (increase ≤3 dBA)	16	20	19	17
low (increase ≤6 dBA)	2	0	1	3
moderate (increase ≤10 dBA)	2	0	0	0
high (increase >10 dBA)	0	0	0	0

Table 19 shows that the magnitude of noise effects from the core Meliadine Extension will be negligible at all receptors. Table 19 shows that the magnitude of noise effects from the core Meliadine Extension plus wind turbines will be negligible at 19 receptors and low at one receptor. Table 19 shows that the magnitude of noise effects from the core Meliadine Extension plus wind turbines and operation airstrip will be negligible at 17 receptors and low at three receptors. In other words, the magnitude of noise effects from the Meliadine Extension will be generally consistent with the magnitude of noise effects predicted in the 2014 FEIS (Golder 2014).

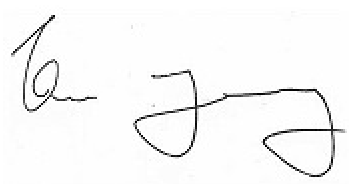
7.0 SUMMARY AND DISCUSSION

At the request of Agnico Eagle, Golder developed computer noise models of the Meliadine Extension, predicted noise levels from the Meliadine Extension at potentially affected environmental receptors, and provided a preliminary assessment of potential noise effects from the Meliadine Extension using a framework established in the 2014 FEIS (Golder 2014). Golder's modelling and assessment considered potential noise effects from core activities (i.e., processing plant, AWAR, and mining activities), as well as potential noise effects from on-site wind turbines and an optional on-site airstrip. The noise modelling focused on a temporal snapshot (i.e., the year 2034) when noise emissions and the magnitude of potential noise effects are expected to be greatest. The modelling focused on 20 noise receptors located within approximately 5 km of the Meliadine Extension.

Noise effects from the Meliadine Extension are predicted to be negligible at most receptors and low at up to three receptors. In other words, the magnitude of noise effects from the Meliadine Extension are predicted to be generally consistent with the magnitude of noise effects predicted in the 2014 FEIS (Golder 2014).

Signature Page

Golder Associates Ltd.



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https://golderassociates.sharepoint.com/sites/147187/project files/6 deliverables/noise modelling report/aem meliadine extension - noise modelling report - final.docx

8.0 REFERENCES

AER (Alberta Energy Regulator). 2007. Directive 038: Noise Control. Dated February 16, 2007.

ECAC (European Civil Aviation Conference). 20016. Document 29 – Report on Standard Method of Computing Noise Contours Around Civil Airports. Dated December 7, 2016.

Golder (Golder Associates Ltd.). 2014. Final Environmental Impact Statement – Meliadine Gold Project, Nunavut. Volume 5.0 Atmospheric Environment and Impact Assessment – Section 5.5 Noise. April 2014. Ref No. Doc 288-1314280007 Ver. 0.

ISO (International Organization for Standardization). 1996. ISO 9613-2 Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation. Dated December 16, 1996.

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