

# **Stationary Noise Source Study**

## **Half Moon Bay South and Quinn's Pointe Stage 2**

**Proposed Residential Development**  
Greenbank Road South of Cambrian Road  
City of Ottawa

May 3, 2018  
Project: 118-0052

Prepared for

**Mattamy Homes and Minto Developments**

Prepared by

  
\_\_\_\_\_  
Anthony Amarra, M.Sc.

Reviewed by

  
\_\_\_\_\_  
John Emeljanow, B.Eng., P.Eng.  


**VALCOUSTICS**

*Canada Ltd.*

## Revision History

| Revision # | Date        | Comments         |
|------------|-------------|------------------|
| 1.0        | May 3, 2018 | Issued to Client |
|            |             |                  |

## TABLE OF CONTENTS

|       |   |   |
|-------|---|---|
| 1.0   | INTRODUCTION.....   | 1 |
| 1.1   | PURPOSE .....   | 1 |
| 1.2   | SITE .....  | 1 |
| 2.0   | ENVIRONMENTAL NOISE GUIDELINES .....                        | 2 |
| 2.1   | MOE PUBLICATION NPC-300 .....                               | 2 |
| 2.2   | CITY OF OTTAWA ENVIRONMENTAL NOISE CONTROL GUIDELINES ..... | 2 |
| 3.0   | NOISE IMPACT ASSESSMENT.....                                | 2 |
| 3.1   | METHODOLOGY.....  | 3 |
| 3.2   | BRAZEAU PIT .....   | 3 |
| 3.2.1 | Analysis Results .....                                      | 3 |
| 3.2.2 | Mitigation Requirements .....                               | 4 |
| 3.3   | DRUMMOND PIT.....   | 4 |
| 3.3.1 | Analysis Results .....                                      | 4 |
| 4.0   | DISCUSSION .....  | 5 |
| 5.0   | CONCLUSIONS .....   | 5 |
| 6.0   | REFERENCES.....   | 5 |

### LIST OF TABLES

|         |  |   |
|---------|--|---|
| TABLE 1 | EQUIPMENT SOUND EMISSION LEVELS.....                   | 6 |
| TABLE 2 | BRAZEAU PIT – PREDICTED UNMITIGATED SOUND LEVELS.....  | 7 |
| TABLE 3 | BRAZEAU PIT – PREDICTED MITIGATED SOUND LEVELS.....    | 8 |
| TABLE 4 | DRUMMOND PIT – PREDICTED UNMITIGATED SOUND LEVELS..... | 9 |

### LIST OF FIGURES

|          |  |
|----------|--|
| FIGURE 1 | KEY PLAN   |
| FIGURE 2 | SITE PLAN  |
| FIGURE 3 | BRAZEAU PIT – PREDICTED WORST-CASE SOUND LEVELS                      |
| FIGURE 4 | BRAZEAU PIT – PREDICTED WORST-CASE SOUND LEVELS –<br>WITH MITIGATION |
| FIGURE 5 | DRUMMOND PIT – PREDICTED WORST-CASE SOUND LEVELS                     |

### LIST OF APPENDICES

|            |                                |
|------------|--------------------------------|
| APPENDIX A | ENVIRONMENTAL NOISE GUIDELINES |
| APPENDIX B | OPERATIONAL MEMORANDA          |
| APPENDIX C | SAMPLE CALCULATIONS            |

## **Stationary Noise Source Study**

# **Half Moon Bay South and Quinn's Pointe Stage 2**

**Proposed Residential Development**  
Greenbank Road South of Cambrian Road  
City of Ottawa

## **1.0 INTRODUCTION**

### **1.1 PURPOSE**

Valcoustics Canada Ltd. (VCL) has prepared this stationary noise source study for the proposed Mattamy Half Moon Bay South Phase 5 and Minto Quinn's Pointe Stage 2 residential developments in the City of Ottawa.

The potential sound levels and noise mitigation needed to comply with the Ministry of the Environment and Climate Change (MOE) stationary source noise guidelines are outlined herein.

### **1.2 SITE**

The site is part of the Barrhaven South Urban Expansion Area, which is proposed to be developed mainly for residential dwellings. The proposed developments will include school blocks, neighbourhood parks, a commercial block, park & ride block, and storm water management facilities. The noise study was prepared using the Concept Plan.

The overall site is bounded by:

- Future (under construction) residential uses to the east (other lands within the Half Moon Bay South development);
- Existing aggregate extraction operations to the north and northwest; and
- Vacant lands to the west and south.

Figure 1 shows a Key Plan. Figure 2 shows the Site Plan.

Note, there is an existing berm to the east of Brazeau Pit. This existing berm is part of the noise mitigation recommended for northern portion of the Half Moon Bay South development (Phase 4). This berm overlaps with some of the low and medium-density blocks, as shown on Figure 3. It is

understood that the intent is for the berm to remain until the extraction and processing operations at the aggregate pits are completed.

## **2.0 ENVIRONMENTAL NOISE GUIDELINES**

The applicable noise guidelines are those in MOE Publication NPC-300, "*Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning*". These guidelines address both transportation sources of sound as well as stationary noise sources.

NPC-300 is also referenced in the City of Ottawa Environmental Noise Control Guidelines.

### **2.1 MOE PUBLICATION NPC-300**

NPC-300 defines a "stationary noise source" as sources of sound normally operated within the property lines of a facility, including on-site vehicle movements. Industrial and commercial facilities are considered stationary sources of sound. An aggregate extraction facility is specifically listed in NPC-300 as being a stationary noise source. The MOE sound level limits are summarized in Appendix A and discussed below.

For this study, the site is considered a Class 2 area due to the density of the adjacent developments as well as the proximity to nearby roadways (i.e. Greenbank Road).

The sound level limits for Class 2 areas are the higher of the ambient sound level or the minimum exclusion limits which are:

- 50 dBA during the daytime (between 0700 and 1900 hours) and evening (between 1900 and 2300 hours) and 45 dBA during the nighttime (between 2300 and 0700 hours) at an exterior plane of window; and
- 50 dBA during the daytime and 45 dBA during the evening at an outdoor point of reception.

### **2.2 CITY OF OTTAWA ENVIRONMENTAL NOISE CONTROL GUIDELINES**

The 2016 City of Ottawa Environmental Noise Control Guidelines provide guidance on how to assess noise from stationary sources onto proposed noise-sensitive developments.

The guidelines reference MOE Publication NPC-300, which establishes the sound level limits based on the area class. Thus, the City of Ottawa requirements are consistent with the MOE requirements.

## **3.0 NOISE IMPACT ASSESSMENT**

The stationary noise sources with the potential to adversely impact the proposed development are the existing (active) sand and gravel pits to the west of Future Greenbank Road. There are two areas licensed for extraction. The Brazeau Pit is immediately northwest of the proposed development, while the Drummond Pit is north of Brazeau Pit.

Staff of VCL previously met with the owners of the Brazeau and Drummond Pits on July 18, 2013. The purpose of the meetings was to obtain an understanding of the operations at both pits, to determine the predictable worst-case operations and to understand the areas that remain to be extracted.

Memorandums outlining the operations at the two pits (as discussed during the meeting) were prepared and circulated to the owners. These are included as Appendix B. To date, only the owners of Brazeau Pit have responded, indicating there could be up to 50 loads shipped in an hour occasionally.

### **3.1 METHOD**

The noise analysis was done using CadnaA V4.6 environmental acoustics modelling software. The 3-D model follows the procedures of ISO 9613 Part 2.

Receptors representing the worst-case dwelling locations in the proposed development were chosen. The receptors were taken at a height of 4.5 m above grade for the exterior plane-of-window receptors, representing windows on the second storey, and 1.5 m above grade for the outdoor points of reception, representing the rear yards.

The noise sources were modelled as operating at the base of the extraction pits, at an elevation of approximately 97 m asl. This represents both the current and future operations, including below water table extraction.

### **3.2 BRAZEAU PIT**

The Brazeau Pit has a Class A licence to extract up to 300,000 tonnes of aggregate per year.

Above water table extraction of the eastern portion of the Brazeau Pit has been completed. The working face is currently at about the midpoint of the site and is progressing westerly. It was also noted that below water table extraction is also permitted over the entire site. During the meeting with VCL staff, the operators were not certain whether below water table extraction would occur.

The operations that typically occur on the site are outlined in Appendix B. The information in Appendix B was also confirmed via phone calls in 2018. Note that the worst-case assessment has assumed that all operations, including below water table extraction could occur anywhere on the site (that has not already been extracted). It was also assumed that the processing plant and additional screens only operate during the daytime, and all other sources can operate at any time during the day, evening or night.

Typical maximum sound emission levels for the equipment was used based on experience as well as measurements performed during the on-site meeting. The emission levels for the Brazeau Pit are outlined in Table 1.

Detailed noise analyses of the worst-case gravel pit activities were done at the proposed dwellings closest to the gravel pits. Compliance with the noise guidelines at these receptors would inherently result in compliance at all dwellings within the proposed development.

#### **3.2.1 Analysis Results**

Figure 3 and Table 2 show the predicted unmitigated sound levels due to the worst-case operations at Brazeau Pit.

The sound levels exceed the MOE noise guideline limits by up to 21 dBA during the daytime and 18 dBA during the evening/nighttime at R13. This is due to the direct line of sight between the first row of dwellings and the pit.

The operational locations shown on Figure 3 represent the worst-case in terms of exposure of the dwellings to the sources.

### **3.2.2 Mitigation Requirements**

Due to the significant excesses at the closest receptors, mitigation measures are required to comply with the MOE noise guideline limits.

To meet the noise guideline limits at the closest proposed dwellings to the Brazeau Pit, unreasonably high sound barriers are required.

To reduce the height of sound barrier required to a more reasonable level, portions of the site could be held until operations at Brazeau Pit have ended. Specifically, the portions that could be held are the first row of dwellings to the south and east of Brazeau Pit. This is in addition to the dwellings which overlap with the existing berm. Where dwellings are to be held, sound barriers could be constructed to provide sufficient screening for the remaining dwellings.

Figure 4 shows the extents and heights of the sound barriers. Table 3 summarizes the mitigated sound levels. Once operations at the pit have been exhausted, the sound barriers can be removed and the remaining dwellings constructed.

Note that the sound barrier must be of solid construction with no gaps, cracks or holes (except for small openings required for water drainage) and must have a minimum surface weight of 20 kg/m<sup>2</sup>. A variety of materials are available, including concrete, wood, earthen berms or a combination of the above.

## **3.3 DRUMMOND PIT**

The Drummond Pit has a Class A licence to extract up to 350,000 tonnes of aggregate per year. From discussions with the owner as of 2015, the pit has enough aggregate for approximately five more years of operation. Thus, this pit is nearing the end of operations on the site.

Extraction of the western portion of the Drummond Pit has been completed. In fact, the furthest western portion of the site has been removed from the licenced area and extraction there is no longer permitted. The remaining portion of the western part of the pit has been rehabilitated. Thus, the only active area is at the eastern end of the site. Extraction is still occurring in the (original) setback along the northern boundary of the site. The other area where extraction could occur is the southeastern corner of the site.

The operations that typically occur on the site are outlined in Appendix B. Note that the worst-case assessment has assumed that all operations, including below water table extraction, could occur anywhere on site. As in the Brazeau Pit, it was also assumed that the processing plant does not need to operate during the nighttime period; all other sources were assumed to operate at any time of the day, evening or night.

### **3.3.1 Analysis Results**

Figure 5 and Table 4 show the predicted unmitigated sound levels due to the worst-case operations at Drummond Pit. Since Drummond Pit is significantly further from the proposed dwellings compared to Brazeau Pit, the noise guideline limits are met at all locations except R13 and R14. However, assuming the mitigation for Brazeau Pit is implemented (i.e. these dwellings are held until extraction and processing at the pits is completed), then the excesses at these receptors would also be addressed.

## **4.0 DISCUSSION**

The results outlined above indicate that the noise guideline limits from worst case operations will be exceeded at the closest dwelling units within the proposed development. The only activity assumed to not occur at night is the processing of aggregate. All other activities, which include extraction (both above and below water table), material movement, loading of shipping trucks and the movement of shipping trucks, are assumed to occur at night. If processing were permitted at night, additional noise mitigation would need to be incorporated into the gravel pit operations since the sound levels would exceed the applicable guideline limits at the dwellings currently under construction to the north. Mitigation measures implemented for the gravel pits to comply at the dwellings to the north could also benefit the proposed dwellings to the south.

It must also be noted that the proposed dwellings are exposed to the Future Greenbank Road. This road will eventually carry significant road traffic volumes and will have dedicated bus lanes. Using ultimate traffic volumes for Future Greenbank Road (AADT of 35,000), the minimum daytime ambient sound level at the dwellings east of Greenbank Road is predicted to be 66 dBA at R01 and R05, and 64 dBA at R03 and R04 during the daytime. This is higher than the sound levels due to Brazeau Pit.

It is recognized that it may take a considerable amount of time for the road traffic on Future Greenbank Road to reach the ultimate volume. However, if half the ultimate volume were used, the minimum sound levels would only be reduced by 3 dBA; if one quarter of the ultimate volume were used, the minimum predicted sound levels would be reduced by 6 dBA. These sound levels are still higher than the predicted sound levels from the gravel pit operations.

## **5.0 CONCLUSIONS**

A detailed assessment of the noise impact from the gravel pit operations onto the proposed Mattamy Half Moon Bay South Phase 5 and Minto Quinn's Pointe Stage 2 residential development has been completed. In accordance with the MOE requirements, a predictable worst-case scenario was assessed.

The results of the stationary noise impact assessment indicate that, with the mitigation measures outlined above, the MOE noise guideline limits will be met at all dwellings. Future homeowners within approximately 300 m of the property line of the licensed gravel pits should be made aware of the potential noise situation by including the following warning clause in all Offers of Purchase and Sale and by registering it on title:

*"Purchasers are advised that due to the proximity of the adjacent gravel pit operations, sound from the gravel pits may, at times, be audible".*

## **6.0 REFERENCES**

1. "Environmental Noise Guidelines, Stationary and Transportation Sources – Approval and Planning", Ontario Ministry of the Environment and Climate Change, Publication NPC-300, October 2013.
2. "Environmental Noise Control Guidelines", City of Ottawa Planning and Growth Management Department, January 2016.

**TABLE 1**  
**EQUIPMENT SOUND EMISSION LEVELS**

| <b>Equipment</b>           | <b>Sound Emission Level (dBA)<br/>at 15 m Reference Distance</b> |
|----------------------------|--|
| <b><u>BRAZEAU PIT</u></b>  |  |
| Front End Loader           | 75   |
| Excavator                  | 80   |
| Processing Plant           | 91   |
| Screen                     | 75   |
| Shipping Trucks            | 78   |
| <b><u>DRUMMOND PIT</u></b> |  |
| Front End Loader           | 75   |
| Excavator                  | 70   |
| Processing Plant           | 91   |
| Shipping Trucks            | 78   |

**TABLE 2**  
**BRAZEAU PIT – PREDICTED UNMITIGATED SOUND LEVELS**

| Receptor | Description   | Time Period | Predicted Sound Level (dBA) <sup>(1)</sup> | Performance Limit (dBA) | Compliance with Performance Limit? |
|----------|---|-------------|--|-------------------------|------------------------------------|
| R01      | West-facing window on the dwelling to the east                      | Daytime     | 54   | 50                      | NO                                 |
|          |   | Evening     | 48   | 50                      | YES                                |
|          |   | Nighttime   | 48   | 45                      | NO                                 |
| R02      | Rear yard of dwelling to the east                                   | Daytime     | 48   | 50                      | NO                                 |
|          |   | Evening     | 44   | 45                      | YES                                |
|          |   | Nighttime   | —  | —                       | N/A <sup>(2)</sup>                 |
| R03      | West-facing window on the dwelling to the east                      | Daytime     | 51   | 50                      | NO                                 |
|          |   | Evening     | 47   | 50                      | YES                                |
|          |   | Nighttime   | 47   | 45                      | NO                                 |
| R04      | West-facing window on the dwelling to the east                      | Daytime     | 50   | 50                      | YES                                |
|          |   | Evening     | 47   | 50                      | YES                                |
|          |   | Nighttime   | 47   | 45                      | NO                                 |
| R05      | West-facing window on the townhouse block to the east               | Daytime     | 49   | 50                      | YES                                |
|          |   | Evening     | 46   | 50                      | YES                                |
|          |   | Nighttime   | 46   | 45                      | NO                                 |
| R06      | West-facing window on the dwelling to the south                     | Daytime     | 50   | 50                      | YES                                |
|          |   | Evening     | 44   | 50                      | YES                                |
|          |   | Nighttime   | 44   | 45                      | YES                                |
| R07      | West-facing window on the dwelling to the south                     | Daytime     | 52   | 50                      | NO                                 |
|          |   | Evening     | 46   | 50                      | YES                                |
|          |   | Nighttime   | 46   | 45                      | NO                                 |
| R08      | West-facing window on the dwelling to the south                     | Daytime     | 58   | 50                      | NO                                 |
|          |   | Evening     | 50   | 50                      | YES                                |
|          |   | Nighttime   | 50   | 45                      | NO                                 |
| R09      | North-facing window on dwelling to the south                        | Daytime     | 70   | 50                      | NO                                 |
|          |   | Evening     | 60   | 50                      | NO                                 |
|          |   | Nighttime   | 60   | 45                      | NO                                 |
| R10      | North-facing window on dwelling to the south                        | Daytime     | 68   | 50                      | NO                                 |
|          |   | Evening     | 59   | 50                      | NO                                 |
|          |   | Nighttime   | 59   | 45                      | NO                                 |
| R11      | Rear yard of dwelling to the south                                  | Daytime     | 70   | 50                      | NO                                 |
|          |   | Evening     | 60   | 45                      | NO                                 |
|          |   | Nighttime   | —  | —                       | N/A <sup>(2)</sup>                 |
| R12      | Rear yard of dwelling to the south                                  | Daytime     | 67   | 50                      | NO                                 |
|          |   | Evening     | 58   | 45                      | NO                                 |
|          |   | Nighttime   | —  | —                       | N/A <sup>(2)</sup>                 |
| R13      | West-facing window of dwelling to the west of Future Greenbank Road | Daytime     | 71   | 50                      | NO                                 |
|          |   | Evening     | 63   | 50                      | NO                                 |
|          |   | Nighttime   | 63   | 45                      | NO                                 |
| R14      | Rear yard of dwelling to the west of Future Greenbank Road          | Daytime     | 69   | 50                      | NO                                 |
|          |   | Evening     | 59   | 45                      | NO                                 |
|          |   | Nighttime   | 54   | —                       | N/A <sup>(2)</sup>                 |

Notes:

- (1) See Figure 3.
- (2) Nighttime sound level limits do not apply to outdoor points of reception.

**TABLE 3**  
**BRAZEAU PIT – PREDICTED MITIGATED SOUND LEVELS<sup>(1)</sup>**

| Receptor | Description   | Time Period | Predicted Sound Level (dBA) <sup>(2)</sup> | Performance Limit (dBA) | Compliance with Performance Limit? |
|----------|---|-------------|--|-------------------------|------------------------------------|
| R01      | West-facing window on the dwelling to the east        | Daytime     | 50   | 50                      | YES                                |
|          |   | Evening     | 45   | 50                      | YES                                |
|          |   | Nighttime   | 45   | 45                      | YES                                |
| R02      | Rear yard of dwelling to the east                     | Daytime     | 49   | 50                      | YES                                |
|          |   | Evening     | 43   | 45                      | YES                                |
|          |   | Nighttime   | —  | —                       | N/A <sup>(3)</sup>                 |
| R03      | West-facing window on the dwelling to the east        | Daytime     | 45   | 50                      | YES                                |
|          |   | Evening     | 43   | 50                      | YES                                |
|          |   | Nighttime   | 43   | 45                      | YES                                |
| R04      | West-facing window on the dwelling to the east        | Daytime     | 44   | 50                      | YES                                |
|          |   | Evening     | 42   | 50                      | YES                                |
|          |   | Nighttime   | 42   | 45                      | YES                                |
| R05      | West-facing window on the townhouse block to the east | Daytime     | 44   | 50                      | YES                                |
|          |   | Evening     | 43   | 50                      | YES                                |
|          |   | Nighttime   | 43   | 45                      | YES                                |
| R06      | West-facing window on the dwelling to the south       | Daytime     | 47   | 50                      | YES                                |
|          |   | Evening     | 43   | 50                      | YES                                |
|          |   | Nighttime   | 43   | 45                      | YES                                |
| R07      | West-facing window on the dwelling to the south       | Daytime     | 48   | 50                      | YES                                |
|          |   | Evening     | 43   | 50                      | YES                                |
|          |   | Nighttime   | 43   | 45                      | YES                                |
| R08      | West-facing window on the dwelling to the south       | Daytime     | 50   | 50                      | NO                                 |
|          |   | Evening     | 42   | 50                      | YES                                |
|          |   | Nighttime   | 42   | 50                      | YES                                |

Notes:

- (1) As part of the mitigation, receptors R09 to R14 cannot be constructed until after the Brazeau Pit operations cease
- (2) See Figure 4.
- (3) Nighttime sound level limits do not apply to outdoor points of reception.

**TABLE 4**  
**DRUMMOND PIT – PREDICTED UNMITIGATED SOUND LEVELS**

| Receptor | Description   | Time Period | Predicted Sound Level (dBA) <sup>(1)</sup> | Performance Limit (dBA) | Compliance with Performance Limit? |
|----------|---|-------------|--|-------------------------|------------------------------------|
| R01      | West-facing window on the dwelling to the east                      | Daytime     | 44   | 50                      | YES                                |
|          |   | Evening     | 41   | 50                      | YES                                |
|          |   | Nighttime   | 41   | 45                      | YES                                |
| R02      | Rear yard of dwelling to the east                                   | Daytime     | 42   | 50                      | YES                                |
|          |   | Evening     | 39   | 45                      | YES                                |
|          |   | Nighttime   | —  | —                       | N/A <sup>(2)</sup>                 |
| R03      | West-facing window on the dwelling to the east                      | Daytime     | 42   | 50                      | YES                                |
|          |   | Evening     | 38   | 50                      | YES                                |
|          |   | Nighttime   | 38   | 45                      | YES                                |
| R04      | West-facing window on the dwelling to the east                      | Daytime     | 46   | 50                      | YES                                |
|          |   | Evening     | 41   | 50                      | YES                                |
|          |   | Nighttime   | 41   | 45                      | YES                                |
| R05      | West-facing window on the townhouse block to the east               | Daytime     | 46   | 50                      | YES                                |
|          |   | Evening     | 41   | 50                      | YES                                |
|          |   | Nighttime   | 41   | 45                      | YES                                |
| R06      | West-facing window on the dwelling to the south                     | Daytime     | 37   | 50                      | YES                                |
|          |   | Evening     | 36   | 50                      | YES                                |
|          |   | Nighttime   | 36   | 45                      | YES                                |
| R07      | West-facing window on the dwelling to the south                     | Daytime     | 40   | 50                      | YES                                |
|          |   | Evening     | 38   | 50                      | YES                                |
|          |   | Nighttime   | 38   | 45                      | YES                                |
| R08      | West-facing window on the dwelling to the south                     | Daytime     | 44   | 50                      | YES                                |
|          |   | Evening     | 40   | 50                      | YES                                |
|          |   | Nighttime   | 40   | 45                      | YES                                |
| R09      | North-facing window on dwelling to the south                        | Daytime     | 49   | 50                      | YES                                |
|          |   | Evening     | 42   | 50                      | YES                                |
|          |   | Nighttime   | 42   | 45                      | YES                                |
| R10      | North-facing window on dwelling to the south                        | Daytime     | 49   | 50                      | YES                                |
|          |   | Evening     | 42   | 50                      | YES                                |
|          |   | Nighttime   | 42   | 45                      | YES                                |
| R11      | Rear yard of dwelling to the south                                  | Daytime     | 50   | 50                      | YES                                |
|          |   | Evening     | 43   | 45                      | YES                                |
|          |   | Nighttime   | —  | —                       | N/A <sup>(2)</sup>                 |
| R12      | Rear yard of dwelling to the south                                  | Daytime     | 50   | 50                      | YES                                |
|          |   | Evening     | 43   | 45                      | YES                                |
|          |   | Nighttime   | —  | —                       | N/A <sup>(2)</sup>                 |
| R13      | West-facing window of dwelling to the west of Future Greenbank Road | Daytime     | 52   | 50                      | NO                                 |
|          |   | Evening     | 45   | 50                      | YES                                |
|          |   | Nighttime   | 45   | 45                      | YES                                |
| R14      | Rear yard of dwelling to the west of Future Greenbank Road          | Daytime     | 54   | 50                      | NO                                 |
|          |   | Evening     | 46   | 45                      | NO                                 |
|          |   | Nighttime   | —  | —                       | N/A <sup>(2)</sup>                 |

Notes:

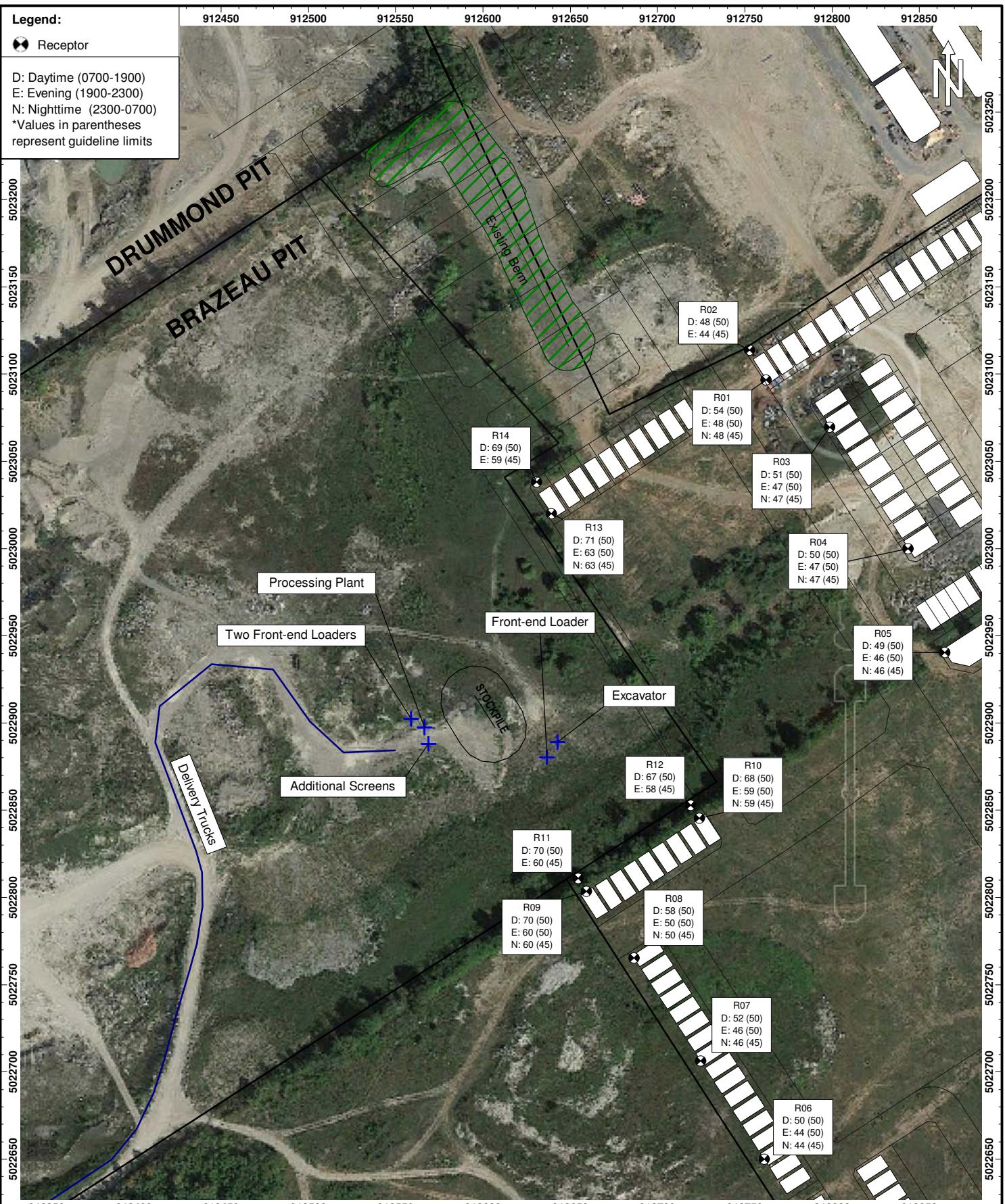
- (1) See Figure 5.
- (2) Nighttime sound level limits do not apply to outdoor points of reception.



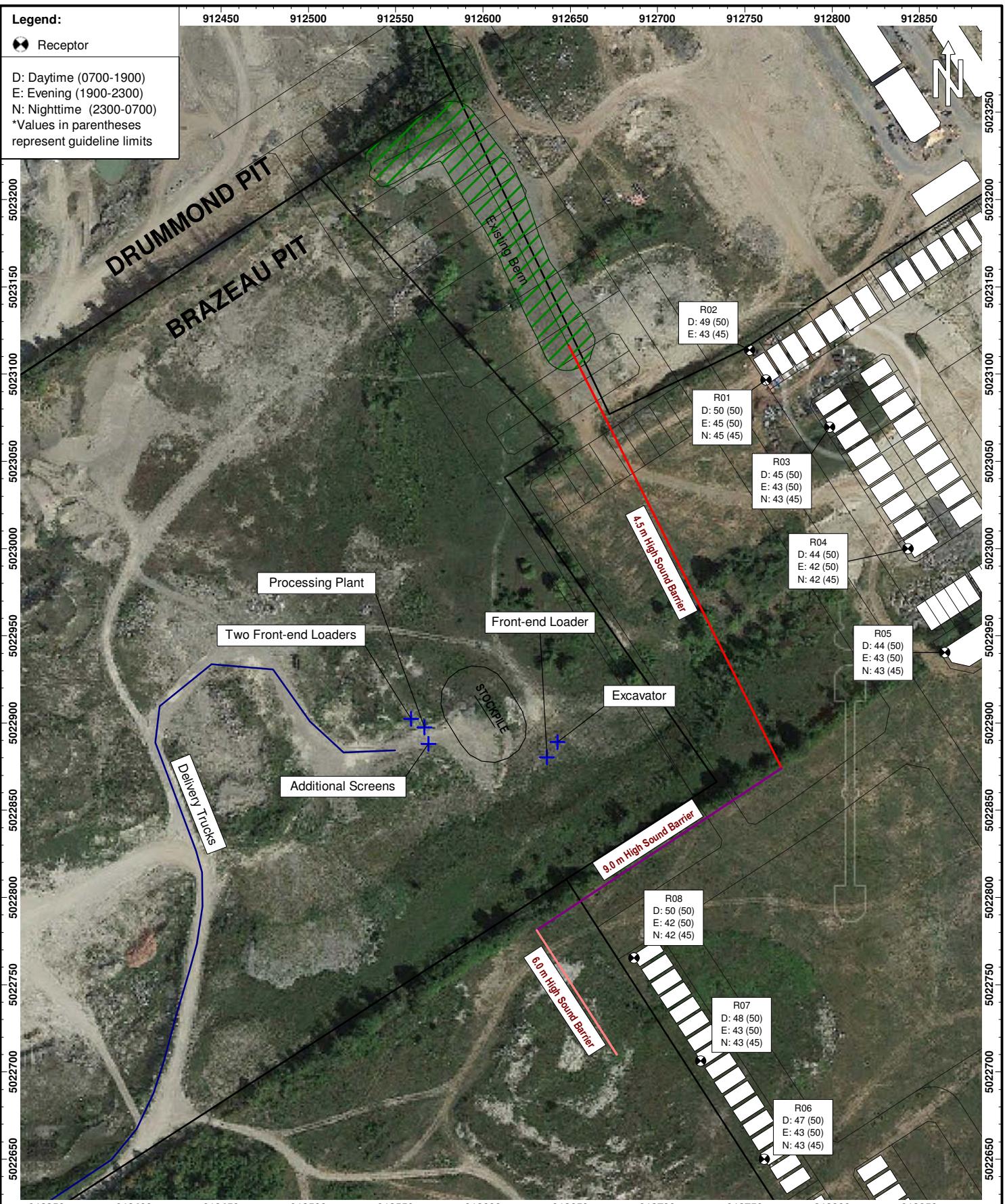
|  |   |                                |          |
|--|---|--------------------------------|----------|
| <b>VALCOUSTICS</b><br>Canada Ltd.<br>consulting acoustical engineers | Title<br><b>Key Plan</b>  | Date<br><b>2018-05-01</b>      | Figure   |
|  | Project Name<br><b>Half Moon Bay South and Quinn's Pointe Stage 2</b> | Project No.<br><b>118-0052</b> | <b>1</b> |

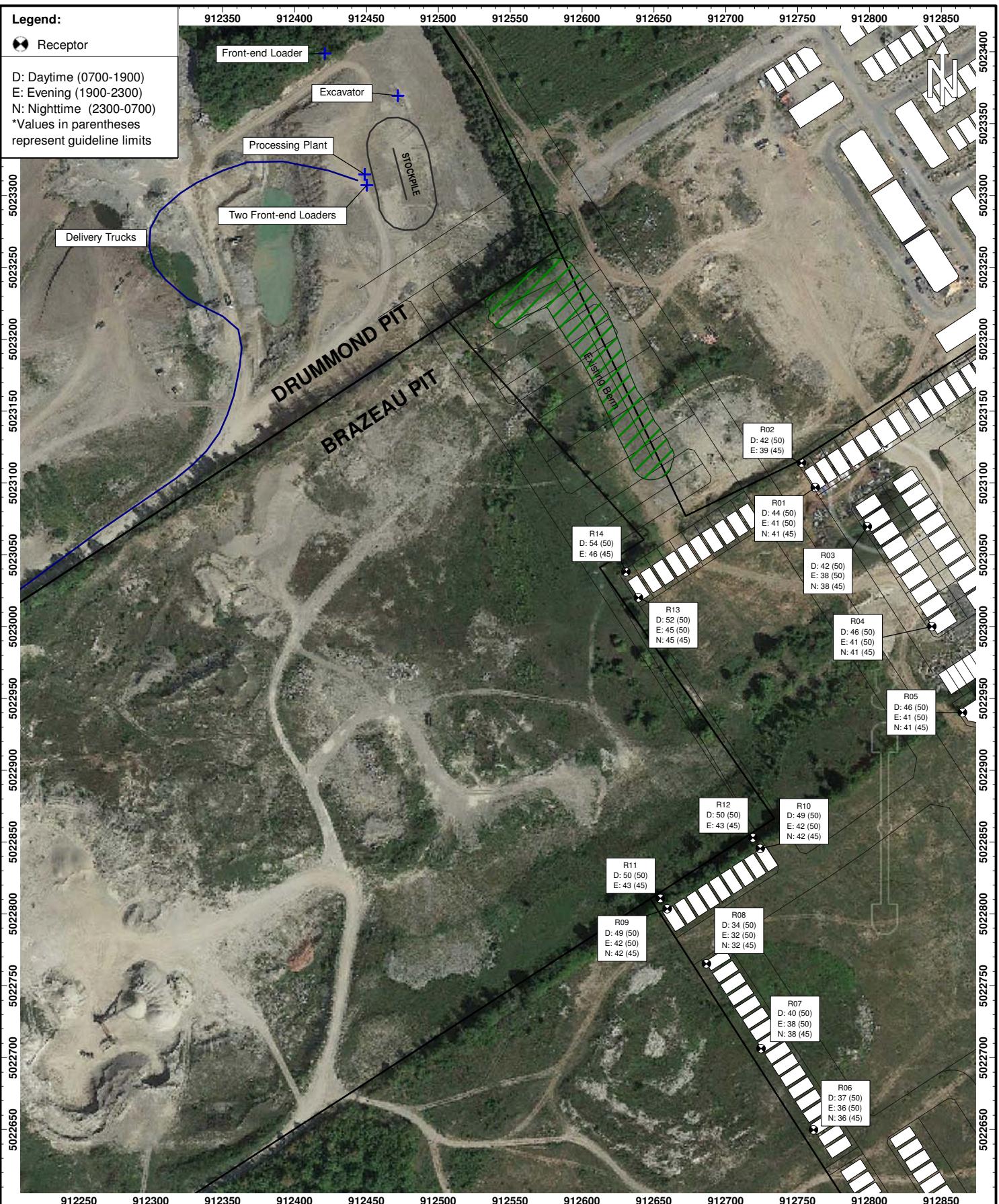


| VALCOUSTICS<br>Canada Ltd. | Title  | Date                    | Figure |
|----------------------------|--|-------------------------|--------|
|                            | Site Plan  | 2018-05-01              | 2      |
|                            | Project Name<br>Half Moon Bay South and Quinn's Pointe Stage 2 | Project No.<br>118-0052 |        |



| Valco Acoustics Canada Ltd.<br>consulting acoustical engineers | Title<br>Brazeau Pit - Predicted Worst-Case Sound Levels (dBA) | Date<br>2018-05-01      | Figure<br>3            |
|--|--|-------------------------|------------------------|
|  | Project Name<br>Half Moon Bay South and Quinn's Pointe Stage 2 | Project No.<br>118-0052 | Date Plotted: 01.05.18 |





| VALCOUSTICS<br>Canada Ltd.<br>consulting acoustical engineers | Title<br>Drummond Pit - Predicted Worst-Case Sound Levels (dBA) | Date<br>2018-05-01      | Figure<br>5 |
|---|---|-------------------------|-------------|
|   | Project Name<br>Half Moon Bay South and Quinn's Pointe Stage 2  | Project No.<br>118-0052 |             |

## **APPENDIX A**

## **ENVIRONMENTAL NOISE GUIDELINES**

**APPENDIX A**  
**ENVIRONMENTAL NOISE GUIDELINES**  
**MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE (MOE)**

Reference: MOE Publication NPC-300, October 2013: "Environmental Noise Guideline, Stationary and Transportation Source – Approval and Planning".

| SPACE  | SOURCE                   | TIME PERIOD  | CRITERION                     |
|--|--------------------------|--|-------------------------------|
| Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.           | Road<br>Rail<br>Aircraft | 07:00 to 23:00<br>07:00 to 23:00<br>24-hour period             | 45 dBA<br>40 dBA<br>NEF/NEP 5 |
| Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres) | Road<br>Rail<br>Aircraft | 23:00 to 07:00<br>23:00 to 07:00<br>24-hour period             | 45 dBA<br>40 dBA<br>NEF/NEP 5 |
| Sleeping quarters  | Road<br>Rail<br>Aircraft | 07:00 to 23:00<br>07:00 to 23:00<br>24-hour period             | 45 dBA<br>40 dBA<br>NEF/NEP 0 |
| Sleeping quarters  | Road<br>Rail<br>Aircraft | 23:00 to 07:00<br>23:00 to 07:00<br>24-hour period             | 40 dBA<br>35 dBA<br>NEF/NEP 0 |
| Outdoor Living Areas   | Road and Rail            | 07:00 to 23:00   | 55 dBA                        |
| Outdoor Point of Reception   | Aircraft                 | 24-hour period   | NEF/NEP 30#                   |
|  | Stationary Source        |  |                               |
|  | Class 1 Area             | 07:00 to 19:00 <sup>(1)</sup><br>19:00 to 23:00 <sup>(1)</sup> | 50* dBA<br>50* dBA            |
|  | Class 2 Area             | 07:00 to 19:00 <sup>(2)</sup><br>19:00 to 23:00 <sup>(2)</sup> | 50* dBA<br>45* dBA            |
|  | Class 3 Area             | 07:00 to 19:00 <sup>(3)</sup><br>19:00 to 23:00 <sup>(3)</sup> | 45* dBA<br>40* dBA            |
|  | Class 4 Area             | 07:00 to 19:00 <sup>(4)</sup><br>19:00 to 23:00 <sup>(4)</sup> | 55* dBA<br>55* dBA            |

..../cont'd

| SPACE                                       | SOURCE                            | TIME PERIOD   | CRITERION                     |
|---|-----------------------------------|---|-------------------------------|
| Plane of a Window of Noise Sensitive Spaces | Stationary Source<br>Class 1 Area | 07:00 to 19:00 <sup>(1)</sup><br>19:00 to 23:00 <sup>(1)</sup><br>23:00 to 07:00 <sup>(1)</sup> | 50* dBA<br>50* dBA<br>45* dBA |
|   | Class 2 Area                      | 07:00 to 19:00 <sup>(2)</sup><br>19:00 to 23:00 <sup>(2)</sup><br>23:00 to 07:00 <sup>(2)</sup> | 50* dBA<br>50* dBA<br>45* dBA |
|   | Class 3 Area                      | 07:00 to 19:00 <sup>(3)</sup><br>19:00 to 23:00 <sup>(3)</sup><br>23:00 to 07:00 <sup>(3)</sup> | 45* dBA<br>45* dBA<br>40* dBA |
|   | Class 4 Area                      | 07:00 to 19:00 <sup>(4)</sup><br>19:00 to 23:00 <sup>(4)</sup><br>23:00 to 07:00 <sup>(4)</sup> | 60* dBA<br>60* dBA<br>55* dBA |

- # may not apply to in-fill or re-development.  
 \* or the minimum hourly background sound exposure  $L_{eq(1)}$ , due to road traffic, if higher.  
 (1) Class 1 Area: Urban.  
 (2) Class 2 Area: Urban during day; rural-like evening and night.  
 (3) Class 3 Area: Rural.  
 (4) Class 4 Area: Subject to land use planning authority's approval.

Reference: MOE Publication ISBN 0-7729-2804-5, 1987: "Environmental Noise Assessment in Land-Use Planning".

| EXCESS ABOVE RECOMMENDED SOUND LEVEL LIMITS (dBA) <sup>(1)</sup> | CHANGE IN SUBJECTIVE LOUDNESS ABOVE | MAGNITUDE OF THE NOISE PROBLEM | NOISE CONTROL MEASURES (OR ACTION TO BE TAKEN)  |
|--|-------------------------------------|--------------------------------|---|
| No excess (<55 dBA)  | —                                   | No expected noise problem      | None  |
| 1 to 5 inclusive (56 to 60 dBA)                                  | Noticeably louder                   | Slight noise impact            | If no physical measures are taken, then prospective purchasers or tenants should be made aware by suitable warning clauses. |
| 6 to 10 inclusive (61 - 65 dBA)                                  | Almost twice as loud                | Definite noise impact          | Recommended.  |
| 11 to 15 inclusive (66 - 70 dBA)                                 | Almost three times as loud          | Serious noise impact           | Strongly Recommended.   |
| 16 and over (>70 dBA)  | Almost four times as loud           | Very serious noise impact      | Strongly Recommended (may be mandatory).  |

- (1) Potential excess above noise guideline limit, as outlined in the table below, applies only to the criterion for an outdoor living area from road and rail noise sources.

## **APPENDIX B**

## **OPERATIONAL MEMORANDA**

# MEMORANDUM

**TO:** Marcel Brazeau **VIA EMAIL**

**FROM:** John Emeljanow/Ian Matthew

**DATE:** August 8, 2013

**RE:** Operations Review  
**Brazeau Pit**

**FILE:** 108363.100

---

As per our on site meeting on July 18, 2013, outlined below is our understanding of the permitted operations at the above noted gravel pit. If there is anything within this memorandum that is incorrect, please let us know as soon as possible.

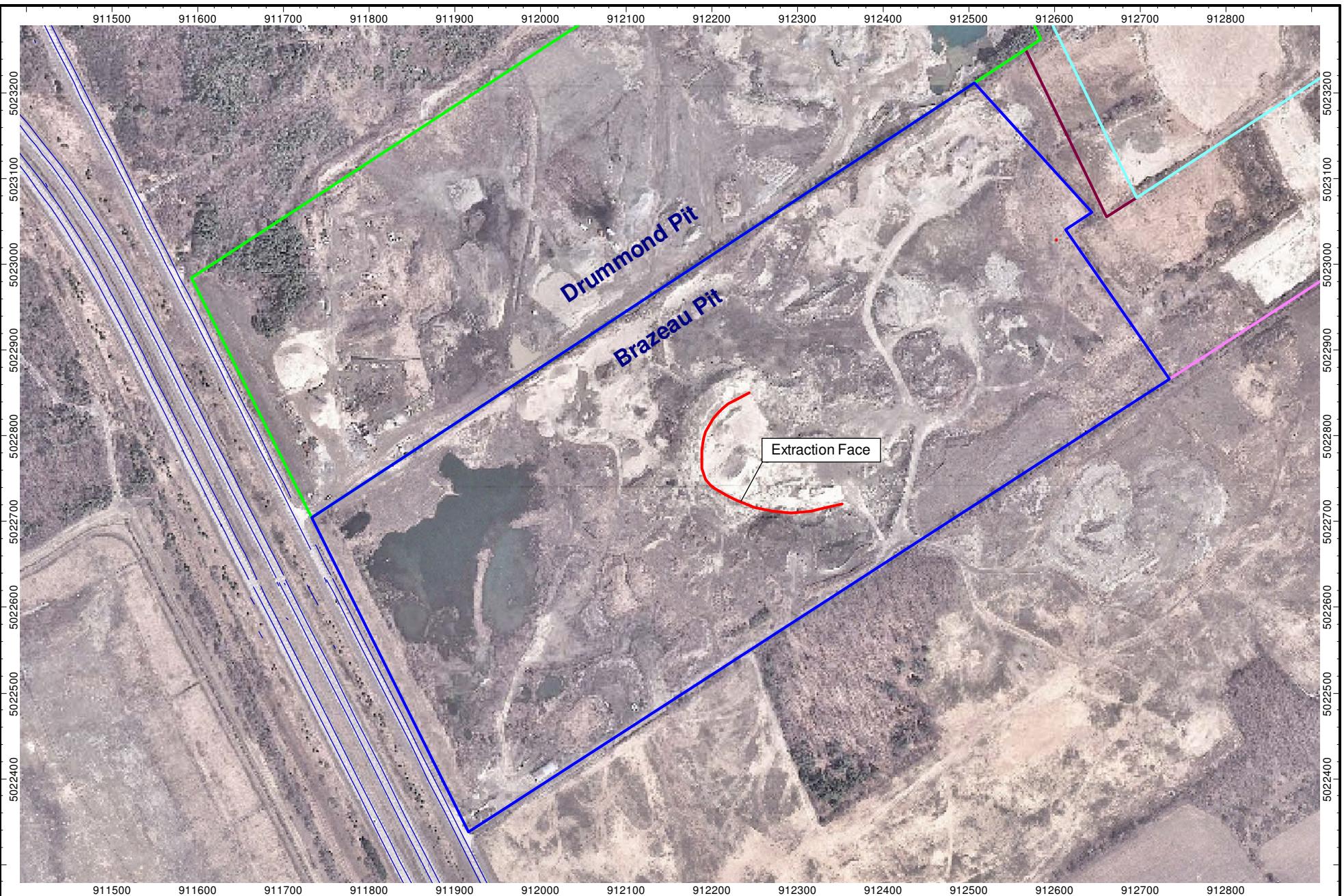
As you are aware, residential development is proposed to the east of your site. As part of the approvals process, a noise study is needed demonstrating that the predictable worst case operations of the gravel pit site comply with the Ministry of Environment (MOE) noise guidelines. The applicable guideline is MOE Publication NPC-205 as an aggregate extraction and processing facility is considered a stationary noise source. Note that construction and rehabilitation activities are excluded from assessment under NPC-205. Equipment used for construction and rehabilitation simply needs to comply with the noise emission limits in MOE Publication NPC-115. Thus, the noise assessment is applicable to the extraction, processing and shipping activities that occur on your site.

Based on our meeting to review your operations, our understanding of the predictable worst case operations are:

- Regular operating hours are during the daytime period (i.e. 0700 to 1900 hours). However, the pit is licensed to operate 24 hours per day. Thus, nighttime operations were also considered in the assessment;
- The approximate location of the current extraction face is shown on Figure 1. Extraction is progressing from east to west across the site;
- Above water table extraction to the east of the current face has been completed;

- Other than the trucks travelling along the southern boundary of the site, which are at undisturbed grade, all equipment operates at the bottom elevation of the pit (at an elevation of approximately 97.5 m);
- The typical operation that occurs on the site is shipping. Trucks enter the site, travel to the aggregate stockpile location (which is close to the working face) where they are loaded by a front end loader and then they leave the site;
- Once the stockpiles are depleted, a portable processing plant (which includes a crusher, vibratory screen and stacker) are brought to the site. The processing plant operates in close proximity to the working face to minimize the distance material needs to be transported. Aggregate is extracted from the face using up to 2 front end loaders which directly feed the processing plant which replenishes the stockpiles;
- For dust control purposes, the processing plant is always located to the west of the stockpiles. Thus, the stockpiles would be in between the proposed residential development and the processing equipment. The stockpiles would be 40 to 50 feet in height;
- The processing plant only operates during the daytime period (i.e. 0700 to 1900 hours);
- Two additional screens could operate on the site in close proximity to the working face;
- As the site is licensed to ship up to 300,000 tonnes of material per year, we estimate in a worst case hour there could be 25 loads of aggregate leaving the site. Thus, there would be 25 trucks coming to and leaving the site in a predictable worst case hour;
- If below water table extraction were to be done, an excavator would be added to the equipment operating on the site. Extraction would be from the east to west across the site. Other than the excavator extracting material from below the water table, all other equipment and its operation would be similar to what was outlined above;
- During the winter time, the site is used for snow storage. Snow is hauled to the site and is piled using a front end loader. The snow pile will always be in between the loader and the proposed residential development. This activity primarily occurs on the western end of the site.

As indicated above, please let us know if we have misinterpreted your operations in any way. If there are any questions, please do not hesitate to call (Valcoustics, 905-764-5223).



|  |   |                                   |                    |
|--|---|-----------------------------------|--------------------|
| <b>VALCOUSTICS</b><br>Canada Ltd.<br>consulting acoustical engineers | <p>Title<br/><b>Current Extraction Face - Brazeau Pit</b></p> <p>Project Name<br/><b>Half Moon Bay South - Pit Assessment</b></p> | Date<br><b>August 7, 2013</b>     | Figure<br><b>1</b> |
|  |   | Project No.<br><b>108-363.100</b> |                    |

# MEMORANDUM

**TO:** Scott Drummond **VIA EMAIL**

**FROM:** John Emeljanow/Ian Matthew

**DATE:** August 8, 2013

**RE:** Operations Review  
**Drummond Pit**

**FILE:** 108363.100

---

As per our on site meeting on July 18, 2013, outlined below is our understanding of the permitted operations at the above noted gravel pit. If there is anything within this memorandum that is incorrect, please let us know as soon as possible.

As you are aware, residential development is proposed to the east of your site. As part of the approvals process, a noise study is needed demonstrating that the predictable worst case operations of the gravel pit site comply with the Ministry of Environment (MOE) noise guidelines. The applicable guideline is MOE Publication NPC-205 as an aggregate extraction and processing facility is considered a stationary noise source. Note that construction and rehabilitation activities are excluded from assessment under NPC-205. Equipment used for construction and rehabilitation simply needs to comply with the noise emission limits in MOE Publication NPC-115. Thus, the noise assessment is applicable to the extraction, processing and shipping activities that occur on your site.

Based on our meeting to review your operations, our understanding of the predictable worst case operations are:

- There is approximately 5 years of pit operations remaining;
- Operating hours are during the daytime period (i.e. 0700 to 1700 hours);
- There are two extraction locations remaining on the site. One is along the 15 m setback to the north and the other is the northeast corner of the site. For the northeast corner, extraction would be from west to east;
- Other than the trucks travelling along the southern boundary of the site, which are at undisturbed grade, all equipment operates at the bottom elevation of the pit (at an elevation of approximately 97.5 m);

- The typical operation that occurs on the site is shipping. Trucks enter the site, travel to the aggregate stockpile location (which is close to the working face) where they are loaded by a front end loader and then they leave the site;
- Once the stockpiles are depleted, a portable processing plant (which includes a crusher, vibratory screen and stacker) are brought to the site. The processing plant operates in close proximity to the working face to minimize the distance material needs to be transported. Aggregate is extracted from the face using up to 2 front end loaders which directly feed the processing plant which replenishes the stockpiles;
- For dust control purposes, the processing plant is always located to the west of the stockpiles. Thus, the stockpiles would be in between the proposed residential development and the processing equipment. The stockpiles would be 40 to 50 feet in height;
- As the site is licensed to ship up to 350,000 tonnes of material per year, we estimate in a worst case hour there could be 25 loads of aggregate leaving the site. Thus, there would be 25 trucks coming to and leaving the site in a predictable worst case hour. The trucks would be loaded from the west side of the stockpiles;
- If below water table extraction were to be done, an excavator would be added to the equipment operating on the site. Other than the excavator extracting material from below the water table, all other equipment and its operation would be similar to what was outlined above;

As indicated above, please let us know if we have misinterpreted your operations in any way. If there are any questions, please do not hesitate to call (Valcoustics, 905-764-5223).

## **APPENDIX C**

### **SAMPLE CALCULATIONS**

## 118-0052 Half Moon Bay South Phase 5 and Quinn's Pointe Stage 2

## Point Source Table

| Name                  | M. | ID         | Result. PWL |         |       | Lw / Li |                      |       | Correction |         | Sound Reduction |   | Attenuation |      | Operating Time |       | K0    | Freq. | Direct. | Height | Coordinates |           |            |        |
|-----------------------|----|------------|-------------|---------|-------|---------|----------------------|-------|------------|---------|-----------------|---|-------------|------|----------------|-------|-------|-------|---------|--------|-------------|-----------|------------|--------|
|                       |    |            | Day         | Evening | Night | Type    | Value                | norm. | Day        | Evening | Night           | R | Area        | (m²) | (min)          | (min) | (min) | (dB)  | (Hz)    | (m)    | (m)         | (m)       |            |        |
| Processing Plant      | -  | DrCVS_PRCs | 122.5       | 122.5   | 122.5 | Lw      | CRV                  |       | 0.0        | 0.0     | 0.0             |   |             |      | 60.00          | 0.00  | 0.00  | 0.0   | (none)  | 3.50   | r           | 912448.77 | 5023314.62 | 100.50 |
| Two Front-end Loaders | -  | DrFEL_PRCs | 109.4       | 109.4   | 109.4 | Lw      | FEL950 + 10*log10(2) |       | 0.0        | 0.0     | 0.0             |   |             |      | 60.00          | 0.00  | 60.00 | 0.0   | (none)  | 2.50   | r           | 912450.35 | 5023307.10 | 99.50  |
| Front-end Loader      | -  | DrFEL_TYP  | 106.4       | 106.4   | 106.4 | Lw      | FEL950               |       | 0.0        | 0.0     | 0.0             |   |             |      | 60.00          | 0.00  | 60.00 | 0.0   | (none)  | 2.50   | r           | 912421.08 | 5023398.87 | 99.50  |
| Excavator             | -  | DrExc      | 101.9       | 101.9   | 101.9 | Lw      | EXC330               |       | 0.0        | 0.0     | 0.0             |   |             |      | 60.00          | 0.00  | 60.00 | 0.0   | (none)  | 2.50   | r           | 912471.92 | 5023369.38 | 99.50  |
| Excavator             |    | BrExc      | 111.1       | 111.1   | 111.1 | Lw      | EXC350               |       | 0.0        | 0.0     | 0.0             |   |             |      | 60.00          | 0.00  | 60.00 | 0.0   | (none)  | 2.50   | r           | 912642.72 | 5022888.94 | 100.00 |
| Processing Plant      |    | BrCVS      | 122.5       | 122.5   | 122.5 | Lw      | CRV                  |       | 0.0        | 0.0     | 0.0             |   |             |      | 60.00          | 0.00  | 60.00 | 0.0   | (none)  | 3.50   | r           | 912566.43 | 5022897.59 | 100.50 |
| Front-end Loader      |    | BrFEL      | 106.4       | 106.4   | 106.4 | Lw      | FEL950               |       | 0.0        | 0.0     | 0.0             |   |             |      | 60.00          | 0.00  | 60.00 | 0.0   | (none)  | 2.50   | r           | 912636.73 | 5022888.26 | 99.50  |
| Additional Screens    |    | BrSCR      | 109.5       | 109.5   | 109.5 | Lw      | SCR + 10*log10(2)    |       | 0.0        | 0.0     | 0.0             |   |             |      | 60.00          | 0.00  | 0.00  | 0.0   | (none)  | 3.50   | r           | 912568.83 | 5022888.17 | 100.50 |
| Two Front-end Loaders |    | BrFEL      | 109.4       | 109.4   | 109.4 | Lw      | FEL950 + 10*log10(2) |       | 0.0        | 0.0     | 0.0             |   |             |      | 60.00          | 0.00  | 60.00 | 0.0   | (none)  | 2.50   | r           | 912558.76 | 5022902.49 | 99.50  |

## Line Source Table

| Name            | M. | ID      | Result. PWL |         |       | Result. PWL' |         |       | Lw / Li |            |       | Correction |         | Sound Reduction |   | Attenuation |      | Operating Time |       | K0    | Freq.  | Direct. | Moving Pt. Src |         |       |
|-----------------|----|---------|-------------|---------|-------|--------------|---------|-------|---------|------------|-------|------------|---------|-----------------|---|-------------|------|----------------|-------|-------|--------|---------|----------------|---------|-------|
|                 |    |         | Day         | Evening | Night | Day          | Evening | Night | Type    | Value      | norm. | Day        | Evening | Night           | R | Area        | (m²) | (min)          | (min) | (min) | (dB)   | (Hz)    | Day            | Evening | Night |
| Delivery Trucks |    | BrTrkC1 | 116.8       | -3.2    | 116.8 | 86.8         | -33.2   | 86.8  | PWL-Pt  | vclHvyTrkA | 0.0   | 0.0        | 0.0     |                 |   |             |      |                |       | 0.0   | (none) | 100.0   | 0.0            | 100.0   | 20.0  |
| Delivery Trucks | -  | DrTrk   | 114.1       | -2.9    | 114.1 | 83.7         | -33.2   | 83.7  | PWL-Pt  | vclHvyTrkA | 0.0   | 0.0        | 0.0     |                 |   |             |      |                |       | 0.0   | (none) | 50.0    | 0.0            | 50.0    | 20.0  |

## Sound Power Levels

| Name                       | ID | Type       | Oktave Spectrum (dB) |       |       |       |       |       |       |       |       |       |       |       | Source                               |       |      |      |       |       |      |      |
|----------------------------|----|------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------------------------------------|-------|------|------|-------|-------|------|------|
|                            |    |            | Weight.              | 31.5  | 63    | 125   | 250   | 500   | 1000  | 2000  | 4000  | 8000  | A     | lin   | (min)                                | (max) | (dB) | (Hz) | (min) | (max) | (dB) | (Hz) |
| Heavy Truck Movement       |    | vclHvyTrkA | Lw                   | 101.7 | 98.2  | 97.3  | 91.3  | 95.0  | 97.2  | 101.8 | 105.7 | 104.3 | 109.8 | 110.6 | MTO long truck at 20 kph             |       |      |      |       |       |      |      |
| Front End Loader (CAT950)  |    | FEL950     | Lw                   | 109.0 | 109.0 | 114.0 | 109.0 | 100.0 | 99.0  | 96.0  | 97.0  | 94.0  | 106.4 | 117.2 | FHWA Const. Noise Handbook Table 9.4 |       |      |      |       |       |      |      |
| Excavator (Deere 350G)     |    | EXC350     | Lw                   | 100.1 | 108.8 | 108.1 | 110.7 | 108.0 | 106.9 | 102.5 | 97.0  | 92.2  | 111.1 | 116.1 | 7/18/2013 Measurement                |       |      |      |       |       |      |      |
| Excavator (CAT 330)        |    | EXC330     | Lw                   | 100.0 | 97.0  | 102.0 | 99.0  | 98.0  | 97.0  | 96.0  | 88.0  | 80.0  | 101.9 | 107.4 | Noise and Dust Study                 |       |      |      |       |       |      |      |
| Screen (non-vibratory)     |    | SCR        | Lw                   | 108.4 | 116.8 | 110.4 | 103.0 | 102.6 | 101.2 | 99.1  | 94.9  | 90.9  | 106.4 | 118.6 | 7/18/2013 Measurement                |       |      |      |       |       |      |      |
| Crusher + Vibratory Screen |    | CRV        | Lw                   | 110.9 | 119.5 | 122.9 | 114.8 | 116.7 | 116.2 | 116.4 | 115.1 | 109.7 | 122.5 | 127.0 | 7/18/2013 Measurement                |       |      |      |       |       |      |      |

## Calculation Configuration

| Configuration                                  |                                |
|--|--------------------------------|
| Parameter                                      | Value                          |
| General  |                                |
| Country  | International                  |
| Max. Error (dB)                                | 0.00                           |
| Max. Search Radius (#(Unit,LEN))               | 2000.00                        |
| Min. Dist Src to Rcvr                          | 0.00                           |
| Partition                                      |                                |
| Raster Factor                                  | 0.50                           |
| Max. Length of Section (#(Unit,LEN))           | 1000.00                        |
| Min. Length of Section (#(Unit,LEN))           | 1.00                           |
| Min. Length of Section (%)                     | 0.00                           |
| Proj. Line Sources                             | On                             |
| Proj. Area Sources                             | On                             |
| Ref. Time                                      |                                |
| Reference Time Day (min)                       | 60.00                          |
| Reference Time Night (min)                     | 60.00                          |
| Daytime Penalty (dB)                           | 0.00                           |
| Recr. Time Penalty (dB)                        | 0.00                           |
| Night-time Penalty (dB)                        | 0.00                           |
| DTM  |                                |
| Standard Height (m)                            | 100.00                         |
| 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)                          |                                |
| 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 (#(Unit,TEMP))                     | 10                             |
| rel. Humidity (%)                              | 70                             |
| Ground Absorption G                            | 0.00                           |
| Wind Speed for Dir. (#(Unit,SPEED))            | 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                           |                                |

## Receiver

Name: R08  
 ID: R08  
 X: 912686.47 m  
 Y: 5022765.42 m  
 Z: 115.28 m

| Point Source, ISO 9613, Name: "Processing Plant", ID: "BrCVS" |           |            |        |       |     |       |       |     |        |      |      |      |      |      |      |       |      |      |      |        |
|---|-----------|------------|--------|-------|-----|-------|-------|-----|--------|------|------|------|------|------|------|-------|------|------|------|--------|
| Nr.   | X         | Y          | Z      | Refl. | DEN | Freq. | Lw    | I/a | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr     |
|   | (m)       | (m)        | (m)    |       |     | (Hz)  | dB(A) | dB  | dB     | (dB)  | (dB) | (dB) | (dB) | dB(A)  |
| 6   | 912566.43 | 5022897.59 | 100.50 | 0     | D   | A     | 122.5 | 0.0 | 0.0    | 0.0  | 0.0  | 56.1 | 1.9  | -1.2 | 0.0  | 0.0   | 9.1  | 0.0  | 0.0  | 56.6   |
| 6   | 912566.43 | 5022897.59 | 100.50 | 0     | N   | A     | 122.5 | 0.0 | -188.0 | 0.0  | 0.0  | 56.1 | 1.9  | -1.2 | 0.0  | 0.0   | 9.1  | 0.0  | 0.0  | -131.4 |
| 6   | 912566.43 | 5022897.59 | 100.50 | 0     | E   | A     | 122.5 | 0.0 | -188.0 | 0.0  | 0.0  | 56.1 | 1.9  | -1.2 | 0.0  | 0.0   | 9.1  | 0.0  | 0.0  | -131.4 |
| 11  | 912566.43 | 5022897.59 | 100.50 | 1     | D   | A     | 122.5 | 0.0 | 0.0    | 0.0  | 0.0  | 56.4 | 2.0  | -1.2 | 0.0  | 0.0   | 23.8 | 0.0  | 5.6  | 35.9   |
| 11  | 912566.43 | 5022897.59 | 100.50 | 1     | N   | A     | 122.5 | 0.0 | -188.0 | 0.0  | 0.0  | 56.4 | 2.0  | -1.2 | 0.0  | 0.0   | 23.8 | 0.0  | 5.6  | -152.1 |
| 11  | 912566.43 | 5022897.59 | 100.50 | 1     | E   | A     | 122.5 | 0.0 | -188.0 | 0.0  | 0.0  | 56.4 | 2.0  | -1.2 | 0.0  | 0.0   | 23.8 | 0.0  | 5.6  | -152.1 |

| Point Source, ISO 9613, Name: "Excavator", ID: "BrEXC" |           |            |        |       |     |       |       |     |        |      |      |      |      |      |      |       |      |      |      |        |
|--|-----------|------------|--------|-------|-----|-------|-------|-----|--------|------|------|------|------|------|------|-------|------|------|------|--------|
| Nr.  | X         | Y          | Z      | Refl. | DEN | Freq. | Lw    | I/a | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr     |
|  | (m)       | (m)        | (m)    |       |     | (Hz)  | dB(A) | dB  | dB     | (dB)  | (dB) | (dB) | (dB) | dB(A)  |
| 19   | 912642.72 | 5022888.94 | 100.00 | 0     | D   | A     | 111.1 | 0.0 | 0.0    | 0.0  | 0.0  | 53.4 | 0.7  | 0.0  | 0.0  | 0.0   | 18.3 | 0.0  | 0.0  | 38.7   |
| 19   | 912642.72 | 5022888.94 | 100.00 | 0     | N   | A     | 111.1 | 0.0 | 0.0    | 0.0  | 0.0  | 53.4 | 0.7  | 0.0  | 0.0  | 0.0   | 18.3 | 0.0  | 0.0  | 38.7   |
| 19   | 912642.72 | 5022888.94 | 100.00 | 0     | E   | A     | 111.1 | 0.0 | -188.0 | 0.0  | 0.0  | 53.4 | 0.7  | 0.0  | 0.0  | 0.0   | 18.3 | 0.0  | 0.0  | -149.3 |

| Point Source, ISO 9613, Name: "Front-end Loader", ID: "BrFEL" |           |            |       |       |     |       |       |     |        |      |      |      |      |      |      |       |      |      |      |        |
|---|-----------|------------|-------|-------|-----|-------|-------|-----|--------|------|------|------|------|------|------|-------|------|------|------|--------|
| Nr.   | X         | Y          | Z     | Refl. | DEN | Freq. | Lw    | I/a | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr     |
|   | (m)       | (m)        | (m)   |       |     | (Hz)  | dB(A) | dB  | dB     | (dB)  | (dB) | (dB) | (dB) | dB(A)  |
| 31  | 912636.73 | 5022880.26 | 99.50 | 0     | D   | A     | 106.4 | 0.0 | 0.0    | 0.0  | 0.0  | 53.0 | 0.9  | 1.1  | 0.0  | 0.0   | 12.8 | 0.0  | 0.0  | 38.5   |
| 31  | 912636.73 | 5022880.26 | 99.50 | 0     | N   | A     | 106.4 | 0.0 | 0.0    | 0.0  | 0.0  | 53.0 | 0.9  | 1.1  | 0.0  | 0.0   | 12.8 | 0.0  | 0.0  | 38.5   |
| 31  | 912636.73 | 5022880.26 | 99.50 | 0     | E   | A     | 106.4 | 0.0 | -188.0 | 0.0  | 0.0  | 53.0 | 0.9  | 1.1  | 0.0  | 0.0   | 12.8 | 0.0  | 0.0  | -149.5 |

| Point Source, ISO 9613, Name: "Two Front-end Loaders", ID: "BrFEL" |           |            |       |       |     |       |       |     |        |      |      |      |      |      |      |       |      |      |      |        |
|--|-----------|------------|-------|-------|-----|-------|-------|-----|--------|------|------|------|------|------|------|-------|------|------|------|--------|
| Nr.  | X         | Y          | Z     | Refl. | DEN | Freq. | Lw    | I/a | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr     |
|  | (m)       | (m)        | (m)   |       |     | (Hz)  | dB(A) | dB  | dB     | (dB)  | (dB) | (dB) | (dB) | dB(A)  |
| 51   | 912558.76 | 5022902.49 | 99.50 | 0     | D   | A     | 109.4 | 0.0 | 0.0    | 0.0  | 0.0  | 56.5 | 1.2  | -1.2 | 0.0  | 0.0   | 7.7  | 0.0  | 0.0  | 45.2   |
| 51   | 912558.76 | 5022902.49 | 99.50 | 0     | N   | A     | 109.4 | 0.0 | 0.0    | 0.0  | 0.0  | 56.5 | 1.2  | -1.2 | 0.0  | 0.0   | 7.7  | 0.0  | 0.0  | 45.2   |
| 51   | 912558.76 | 5022902.49 | 99.50 | 0     | E   | A     | 109.4 | 0.0 | -188.0 | 0.0  | 0.0  | 56.5 | 1.2  | -1.2 | 0.0  | 0.0   | 7.7  | 0.0  | 0.0  | -142.8 |
| 56   | 912558.76 | 5022902.49 | 99.50 | 1     | D   | A     | 109.4 | 0.0 | 0.0    | 0.0  | 0.0  | 56.8 | 1.2  | -1.2 | 0.0  | 0.0   | 20.3 | 0.0  | 12.3 | 20.0   |
| 56   | 912558.76 | 5022902.49 | 99.50 | 1     | N   | A     | 109.4 | 0.0 | 0.0    | 0.0  | 0.0  | 56.8 | 1.2  | -1.2 | 0.0  | 0.0   | 20.3 | 0.0  | 12.3 | 20.0   |
| 56   | 912558.76 | 5022902.49 | 99.50 | 1     | E   | A     | 109.4 | 0.0 | -188.0 | 0.0  | 0.0  | 56.8 | 1.2  | -1.2 | 0.0  | 0.0   | 20.3 | 0.0  | 12.3 | -168.0 |

| Point Source, ISO 9613, Name: "Additional Screens", ID: "BrSCR" |           |            |        |       |     |       |       |     |        |      |      |      |      |      |      |       |      |      |      |        |
|---|-----------|------------|--------|-------|-----|-------|-------|-----|--------|------|------|------|------|------|------|-------|------|------|------|--------|
| Nr.   | X         | Y          | Z      | Refl. | DEN | Freq. | Lw    | I/a | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr     |
|   | (m)       | (m)        | (m)    |       |     | (Hz)  | dB(A) | dB  | dB     | (dB)  | (dB) | (dB) | (dB) | dB(A)  |
| 61  | 912568.83 | 5022888.17 | 100.50 | 0     | D   | A     | 109.5 | 0.0 | 0.0    | 0.0  | 0.0  | 55.6 | 1.1  | -1.0 | 0.0  | 0.0   | 8.9  | 0.0  | 0.0  | 44.8   |
| 61  | 912568.83 | 5022888.17 | 100.50 | 0     | N   | A     | 109.5 | 0.0 | -188.0 | 0.0  | 0.0  | 55.6 | 1.1  | -1.0 | 0.0  | 0.0   | 8.9  | 0.0  | 0.0  | -143.2 |
| 61  | 912568.83 | 5022888.17 | 100.50 | 0     | E   | A     | 109.5 | 0.0 | -188.0 | 0.0  | 0.0  | 55.6 | 1.1  | -1.0 | 0.0  | 0.0   | 8.9  | 0.0  | 0.0  | -143.2 |

| Line Source, ISO 9613, Name: "Delivery Trucks", ID: "BrTrkC1" |           |            |       |       |     |       |       |      |        |      |      |      |      |      |      |       |      |      |      |        |
|---|-----------|------------|-------|-------|-----|-------|-------|------|--------|------|------|------|------|------|------|-------|------|------|------|--------|
| Nr.   | X         | Y          | Z     | Refl. | DEN | Freq. | Lw    | I/a  | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr     |
|   | (m)       | (m)        | (m)   |       |     | (Hz)  | dB(A) | dB   | dB     | (dB)  | (dB) | (dB) | (dB) | dB(A)  |
| 67  | 912423.87 | 5022857.79 | 99.50 | 0     | D   | A     | 86.8  | 18.2 | 0.0    | 0.0  | 0.0  | 59.9 | 6.3  | -2.2 | 0.0  | 0.0   | 7.0  | 0.0  | 0.0  | 34.0   |
| 67  | 912423.87 | 5022857.79 | 99.50 | 0     | N   | A     | 86.8  | 18.2 | 0.0    | 0.0  | 0.0  | 59.9 | 6.3  | -2.2 | 0.0  | 0.0   | 7.0  | 0.0  | 0.0  | 34.0   |
| 67  | 912423.87 | 5022857.79 | 99.50 | 0     | E   | A     | -33.2 | 18.2 | 0.0    | 0.0  | 0.0  | 59.9 | 6.3  | -2.2 | 0.0  | 0.0   | 7.0  | 0.0  | 0.0  | -86.0  |
| 85  | 912417.10 | 5022875.90 | 99.50 | 1     | D   | A     | 86.8  | 8.4  | 0.0    | 0.0  | 0.0  | 62.1 | 7.3  | -2.8 | 0.0  | 0.0   | 26.8 | 0.0  | 4.6  | -2.9   |
| 85  | 912417.10 | 5022875.90 | 99.50 | 1     | N   | A     | 86.8  | 8.4  | 0.0    | 0.0  | 0.0  | 62.1 | 7.3  | -2.8 | 0.0  | 0.0   | 26.8 | 0.0  | 4.6  | -2.9   |
| 85  | 912417.10 | 5022875.90 | 99.50 | 1     | E   | A     | -33.2 | 8.4  | 0.0    | 0.0  | 0.0  | 62.1 | 7.3  | -2.8 | 0.0  | 0.0   | 26.8 | 0.0  | 4.6  | -122.9 |
| 93  | 912422.62 | 5022861.13 | 99.50 | 1     | D   | A     | 86.8  | 10.3 | 0.0    | 0.0  | 0.0  | 61.2 | 6.9  | -2.6 | 0.0  | 0.0   | 26.8 | 0.0  | 3.1  | 1.7    |
| 93  | 912422.62 | 5022861.13 | 99.50 | 1     | N   | A     | 86.8  | 10.3 | 0.0    | 0.0  | 0.0  | 61.2 | 6.9  | -2.6 | 0.0  | 0.0   | 26.8 |      |      |        |

## 118-0052 Sample Calculation - R08 (Brazeau Pit, Unmitigated)

| Line Source, ISO 9613, Name: "Delivery Trucks", ID: "BrTrkC1" |           |            |        |       |     |       |       |      |        |      |      |      |      |      |      |       |      |      |      |        |
|---|-----------|------------|--------|-------|-----|-------|-------|------|--------|------|------|------|------|------|------|-------|------|------|------|--------|
| Nr.   | X         | Y          | Z      | Refl. | DEN | Freq. | Lw    | I/a  | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr     |
|   | (m)       | (m)        | (m)    |       |     | (Hz)  | dB(A) | dB   | dB     | (dB)  | (dB) | (dB) | (dB) |        |
| 98  | 912418.00 | 5022873.51 | 99.50  | 1     | E   | A     | -33.2 | 12.0 | 0.0    | 0.0  | 0.0  | 61.4 | 7.0  | -2.7 | 0.0  | 0.0   | 26.8 | 0.0  | 3.1  | -116.9 |
| 100   | 912413.76 | 5022884.84 | 99.50  | 1     | D   | A     | 86.8  | 9.3  | 0.0    | 0.0  | 0.0  | 61.6 | 7.1  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | 0.1    |
| 100   | 912413.76 | 5022884.84 | 99.50  | 1     | N   | A     | 86.8  | 9.3  | 0.0    | 0.0  | 0.0  | 61.6 | 7.1  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | 0.1    |
| 100   | 912413.76 | 5022884.84 | 99.50  | 1     | E   | A     | -33.2 | 9.3  | 0.0    | 0.0  | 0.0  | 61.6 | 7.1  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | -119.9 |
| 103   | 912434.59 | 5022829.10 | 99.50  | 1     | D   | A     | 86.8  | 7.0  | 0.0    | 0.0  | 0.0  | 61.2 | 6.9  | -2.4 | 0.0  | 0.0   | 26.6 | 0.0  | 3.1  | -1.7   |
| 103   | 912434.59 | 5022829.10 | 99.50  | 1     | N   | A     | 86.8  | 7.0  | 0.0    | 0.0  | 0.0  | 61.2 | 6.9  | -2.4 | 0.0  | 0.0   | 26.6 | 0.0  | 3.1  | -1.7   |
| 103   | 912434.59 | 5022829.10 | 99.50  | 1     | E   | A     | -33.2 | 7.0  | 0.0    | 0.0  | 0.0  | 61.2 | 6.9  | -2.4 | 0.0  | 0.0   | 26.6 | 0.0  | 3.1  | -121.7 |
| 107   | 912433.38 | 5022832.35 | 99.50  | 1     | D   | A     | 86.8  | 2.9  | 0.0    | 0.0  | 0.0  | 61.2 | 6.9  | -2.4 | 0.0  | 0.0   | 26.6 | 0.0  | 3.1  | -5.8   |
| 107   | 912433.38 | 5022832.35 | 99.50  | 1     | N   | A     | 86.8  | 2.9  | 0.0    | 0.0  | 0.0  | 61.2 | 6.9  | -2.4 | 0.0  | 0.0   | 26.6 | 0.0  | 3.1  | -5.8   |
| 107   | 912433.38 | 5022832.35 | 99.50  | 1     | E   | A     | -33.2 | 2.9  | 0.0    | 0.0  | 0.0  | 61.2 | 6.9  | -2.4 | 0.0  | 0.0   | 26.6 | 0.0  | 3.1  | -125.8 |
| 112   | 912430.86 | 5022839.08 | 99.50  | 1     | D   | A     | 86.8  | 10.9 | 0.0    | 0.0  | 0.0  | 61.3 | 6.9  | -2.5 | 0.0  | 0.0   | 26.7 | 0.0  | 3.1  | 2.2    |
| 112   | 912430.86 | 5022839.08 | 99.50  | 1     | N   | A     | 86.8  | 10.9 | 0.0    | 0.0  | 0.0  | 61.3 | 6.9  | -2.5 | 0.0  | 0.0   | 26.7 | 0.0  | 3.1  | 2.2    |
| 112   | 912430.86 | 5022839.08 | 99.50  | 1     | E   | A     | -33.2 | 10.9 | 0.0    | 0.0  | 0.0  | 61.3 | 6.9  | -2.5 | 0.0  | 0.0   | 26.7 | 0.0  | 3.1  | -117.8 |
| 115   | 912426.02 | 5022852.03 | 99.50  | 1     | D   | A     | 86.8  | 11.8 | 0.0    | 0.0  | 0.0  | 61.5 | 7.0  | -2.6 | 0.0  | 0.0   | 26.7 | 0.0  | 3.1  | 2.8    |
| 115   | 912426.02 | 5022852.03 | 99.50  | 1     | N   | A     | 86.8  | 11.8 | 0.0    | 0.0  | 0.0  | 61.5 | 7.0  | -2.6 | 0.0  | 0.0   | 26.7 | 0.0  | 3.1  | 2.8    |
| 115   | 912426.02 | 5022852.03 | 99.50  | 1     | E   | A     | -33.2 | 11.8 | 0.0    | 0.0  | 0.0  | 61.5 | 7.0  | -2.6 | 0.0  | 0.0   | 26.7 | 0.0  | 3.1  | -117.2 |
| 118   | 912421.28 | 5022864.72 | 99.50  | 1     | D   | A     | 86.8  | 10.7 | 0.0    | 0.0  | 0.0  | 61.6 | 7.1  | -2.7 | 0.0  | 0.0   | 26.8 | 0.0  | 3.2  | 1.5    |
| 118   | 912421.28 | 5022864.72 | 99.50  | 1     | N   | A     | 86.8  | 10.7 | 0.0    | 0.0  | 0.0  | 61.6 | 7.1  | -2.7 | 0.0  | 0.0   | 26.8 | 0.0  | 3.2  | 1.5    |
| 118   | 912421.28 | 5022864.72 | 99.50  | 1     | E   | A     | -33.2 | 10.7 | 0.0    | 0.0  | 0.0  | 61.6 | 7.1  | -2.7 | 0.0  | 0.0   | 26.8 | 0.0  | 3.2  | -118.5 |
| 122   | 912417.20 | 5022875.63 | 99.50  | 1     | D   | A     | 86.8  | 10.6 | 0.0    | 0.0  | 0.0  | 61.8 | 7.2  | -2.8 | 0.0  | 0.0   | 26.8 | 0.0  | 3.2  | 1.1    |
| 122   | 912417.20 | 5022875.63 | 99.50  | 1     | N   | A     | 86.8  | 10.6 | 0.0    | 0.0  | 0.0  | 61.8 | 7.2  | -2.8 | 0.0  | 0.0   | 26.8 | 0.0  | 3.2  | 1.1    |
| 122   | 912417.20 | 5022875.63 | 99.50  | 1     | E   | A     | -33.2 | 10.6 | 0.0    | 0.0  | 0.0  | 61.8 | 7.2  | -2.8 | 0.0  | 0.0   | 26.8 | 0.0  | 3.2  | -118.9 |
| 125   | 912413.74 | 5022884.91 | 99.50  | 1     | D   | A     | 86.8  | 9.2  | 0.0    | 0.0  | 0.0  | 61.9 | 7.2  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | -0.4   |
| 125   | 912413.74 | 5022884.91 | 99.50  | 1     | N   | A     | 86.8  | 9.2  | 0.0    | 0.0  | 0.0  | 61.9 | 7.2  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | -0.4   |
| 125   | 912413.74 | 5022884.91 | 99.50  | 1     | E   | A     | -33.2 | 9.2  | 0.0    | 0.0  | 0.0  | 61.9 | 7.2  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | -120.4 |
| 133   | 912346.01 | 5022622.36 | 115.15 | 0     | D   | A     | 86.8  | 20.0 | 0.0    | 0.0  | 0.0  | 62.3 | 7.4  | -1.9 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 38.8   |
| 133   | 912346.01 | 5022622.36 | 115.15 | 0     | N   | A     | 86.8  | 20.0 | 0.0    | 0.0  | 0.0  | 62.3 | 7.4  | -1.9 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 38.8   |
| 133   | 912346.01 | 5022622.36 | 115.15 | 0     | E   | A     | -33.2 | 20.0 | 0.0    | 0.0  | 0.0  | 62.3 | 7.4  | -1.9 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | -81.2  |
| 137   | 912534.80 | 5022883.72 | 99.50  | 0     | D   | A     | 86.8  | 14.7 | 0.0    | 0.0  | 0.0  | 56.7 | 5.0  | -1.7 | 0.0  | 0.0   | 8.2  | 0.0  | 0.0  | 33.3   |
| 137   | 912534.80 | 5022883.72 | 99.50  | 0     | N   | A     | 86.8  | 14.7 | 0.0    | 0.0  | 0.0  | 56.7 | 5.0  | -1.7 | 0.0  | 0.0   | 8.2  | 0.0  | 0.0  | 33.3   |
| 137   | 912534.80 | 5022883.72 | 99.50  | 0     | E   | A     | -33.2 | 14.7 | 0.0    | 0.0  | 0.0  | 56.7 | 5.0  | -1.7 | 0.0  | 0.0   | 8.2  | 0.0  | 0.0  | -86.7  |
| 141   | 912534.80 | 5022883.72 | 99.50  | 1     | D   | A     | 86.8  | 14.7 | 0.0    | 0.0  | 0.0  | 57.6 | 5.3  | -1.8 | 0.0  | 0.0   | 26.3 | 0.0  | 2.7  | 11.3   |
| 141   | 912534.80 | 5022883.72 | 99.50  | 1     | N   | A     | 86.8  | 14.7 | 0.0    | 0.0  | 0.0  | 57.6 | 5.3  | -1.8 | 0.0  | 0.0   | 26.3 | 0.0  | 2.7  | 11.3   |
| 141   | 912534.80 | 5022883.72 | 99.50  | 1     | E   | A     | -33.2 | 14.7 | 0.0    | 0.0  | 0.0  | 57.6 | 5.3  | -1.8 | 0.0  | 0.0   | 26.3 | 0.0  | 2.7  | -108.7 |
| 145   | 912521.60 | 5022883.24 | 99.50  | 1     | D   | A     | 86.8  | 4.9  | 0.0    | 0.0  | 0.0  | 58.4 | 5.7  | -2.0 | 0.0  | 0.0   | 26.5 | 0.0  | 2.8  | 0.3    |
| 145   | 912521.60 | 5022883.24 | 99.50  | 1     | N   | A     | 86.8  | 4.9  | 0.0    | 0.0  | 0.0  | 58.4 | 5.7  | -2.0 | 0.0  | 0.0   | 26.5 | 0.0  | 2.8  | 0.3    |
| 145   | 912521.60 | 5022883.24 | 99.50  | 1     | E   | A     | -33.2 | 4.9  | 0.0    | 0.0  | 0.0  | 58.4 | 5.7  | -2.0 | 0.0  | 0.0   | 26.5 | 0.0  | 2.8  | -119.7 |
| 148   | 912529.55 | 5022883.53 | 99.50  | 1     | D   | A     | 86.8  | 11.1 | 0.0    | 0.0  | 0.0  | 58.2 | 5.5  | -1.9 | 0.0  | 0.0   | 26.4 | 0.0  | 2.8  | 6.9    |
| 148   | 912529.55 | 5022883.53 | 99.50  | 1     | N   | A     | 86.8  | 11.1 | 0.0    | 0.0  | 0.0  | 58.2 | 5.5  | -1.9 | 0.0  | 0.0   | 26.4 | 0.0  | 2.8  | 6.9    |
| 148   | 912529.55 | 5022883.53 | 99.50  | 1     | E   | A     | -33.2 | 11.1 | 0.0    | 0.0  | 0.0  | 58.2 | 5.5  | -1.9 | 0.0  | 0.0   | 26.4 | 0.0  | 2.8  | -113.1 |
| 156   | 912251.22 | 5022561.80 | 112.98 | 0     | D   | A     | 86.8  | 21.0 | 0.0    | 0.0  | 0.0  | 64.6 | 8.6  | -2.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 37.1   |
| 156   | 912251.22 | 5022561.80 | 112.98 | 0     | N   | A     | 86.8  | 21.0 | 0.0    | 0.0  | 0.0  | 64.6 | 8.6  | -2.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 37.1   |
| 156   | 912251.22 | 5022561.80 | 112.98 | 0     | E   | A     | -33.2 | 21.0 | 0.0    | 0.0  | 0.0  | 64.6 | 8.6  | -2.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | -82.9  |
| 160   | 912490.18 | 5022915.83 | 99.50  | 0     | D   | A     | 86.8  | 15.6 | 0.0    | 0.0  | 0.0  | 58.9 | 5.8  | -2.3 | 0.0  | 0.0   | 7.0  | 0.0  | 0.0  | 32.9   |
| 160   | 912490.18 | 5022915.83 | 99.50  | 0     | N   | A     | 86.8  | 15.6 | 0.0    | 0.0  | 0.0  | 58.9 | 5.8  | -2.3 | 0.0  | 0.0   | 7.0  | 0.0  | 0.0  | 32.9   |
| 160   | 912490.18 | 5022915.83 | 99.50  | 0     | E   | A     | -33.2 | 15.6 | 0.0    | 0.0  | 0.0  | 58.9 | 5.8  | -2.3 | 0.0  | 0.0   | 7.0  | 0.0  | 0.0  | -87.1  |
| 171   | 912481.79 | 5022927.69 | 99.50  | 1     | D   | A     | 86.8  | 8.8  | 0.0    | 0.0  | 0.0  | 59.9 | 6.3  | -2.6 | 0.0  | 0.0   | 26.8 | 0.0  | 3.0  | 2.1    |
| 171   | 912481.79 | 5022927.69 | 99.50  | 1     | N   | A     | 86.8  | 8.8  | 0.0    | 0.0  | 0.0  | 59.9 | 6.3  | -2.6 | 0.0  | 0.0   | 26.8 | 0.0  | 3.0  | 2.1    |
| 171   | 912481.79 | 5022927.69 | 99.50  | 1     | E   | A     | -33.2 | 8.8  | 0.0    | 0.0  | 0.0  | 59.9 | 6.3  | -2.6 | 0.0  | 0.0   | 26.8 | 0.0  | 3.0  | -117.9 |
| 174   | 912492.37 | 5022912.73 | 99.50  | 1     | D   | A     | 86.8  | 14.6 | 0.0    | 0.0  | 0.0  | 59.4 | 6.1  | -2.4 | 0.0  | 0.0   | 26.7 | 0.0  | 2.9  | 8.7    |
| 174   | 912492.37 | 5022912.73 | 99.50  | 1     | N   | A     | 86.8  | 14.6 | 0.0    | 0.0  | 0.0  | 59.4 | 6.1  | -2.4 | 0.0  | 0.0   | 26.7 | 0.0  | 2.9  | 8.7    |
| 174   | 912492.37 | 5022912.73 | 99.50  | 1     | E   | A     | -33.2 | 14.6 | 0.0    | 0.0  | 0.0  | 59.4 | 6.1  | -2.4 | 0.0  | 0.0   | 26.7 | 0.0  | 2.9  | -111.3 |
| 179   | 912510.41 | 5022892.03 | 99.50  | 0     | D   | A     | 86.8  | 14.2 | 0.0    | 0.0  | 0.0  | 57.7 | 5.4  | -1.9 | 0.0  | 0.0   | 6.7  | 0.0  | 0.0  | 33.0   |
| 179   | 912510.41 | 5022892.03 | 99.50  | 0     | N   | A     | 86.8  | 14.2 | 0.0    | 0.0  | 0.0  | 57.7 | 5.4  | -1.9 | 0.0  | 0.0   | 6.7  | 0.0  | 0.0  | 33.0   |
| 179   | 912510.41 | 5022892.03 | 99.50  | 0     | E   | A     | -33.2 | 14.2 | 0.0    | 0.0  | 0.0  | 57.7 | 5.4  | -1.9 | 0.0  | 0.0   | 6.7  | 0.0  | 0.0  | -87.0  |
| 184   | 912510.41 | 5022892.03 | 99.50  | 1     | D   | A     | 86.8  | 14.2 | 0.0    | 0.0  | 0.0  | 58.5 | 5.7  | -2.1 | 0.0  | 0.0   | 26.5 | 0.0  | 2.8  | 9.4    |
| 184   | 912510.41 | 5022892.03 | 99.50  | 1     | N   | A     | 86.8  | 14.2 | 0.0    | 0.0  | 0.0  | 58   |      |      |      |       |      |      |      |        |

## 118-0052 Sample Calculation - R08 (Brazeau Pit, Unmitigated)

| Line Source, ISO 9613, Name: "Delivery Trucks", ID: "BrTrkC1" |           |            |        |       |     |       |       |      |        |      |      |      |      |      |      |       |      |      |      |        |
|---|-----------|------------|--------|-------|-----|-------|-------|------|--------|------|------|------|------|------|------|-------|------|------|------|--------|
| Nr.   | X         | Y          | Z      | Refl. | DEN | Freq. | Lw    | I/a  | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr     |
|   | (m)       | (m)        | (m)    |       |     | (Hz)  | dB(A) | dB   | dB     | (dB)  | (dB) | (dB) | (dB) |        |
| 188   | 912512.07 | 5022890.50 | 99.50  | 1     | N   | A     | 86.8  | 11.8 | 0.0    | 0.0  | 0.0  | 58.8 | 5.8  | -2.2 | 0.0  | 0.0   | 26.5 | 0.0  | 2.9  | 6.7    |
| 188   | 912512.07 | 5022890.50 | 99.50  | 1     | E   | A     | -33.2 | 11.8 | 0.0    | 0.0  | 0.0  | 58.8 | 5.8  | -2.2 | 0.0  | 0.0   | 26.5 | 0.0  | 2.9  | -113.3 |
| 191   | 912518.88 | 5022884.27 | 99.50  | 1     | D   | A     | 86.8  | 5.1  | 0.0    | 0.0  | 0.0  | 58.5 | 5.7  | -2.0 | 0.0  | 0.0   | 26.5 | 0.0  | 2.8  | 0.3    |
| 191   | 912518.88 | 5022884.27 | 99.50  | 1     | N   | A     | 86.8  | 5.1  | 0.0    | 0.0  | 0.0  | 58.5 | 5.7  | -2.0 | 0.0  | 0.0   | 26.5 | 0.0  | 2.8  | 0.3    |
| 191   | 912518.88 | 5022884.27 | 99.50  | 1     | E   | A     | -33.2 | 5.1  | 0.0    | 0.0  | 0.0  | 58.5 | 5.7  | -2.0 | 0.0  | 0.0   | 26.5 | 0.0  | 2.8  | -119.7 |
| 193   | 912462.09 | 5022932.23 | 99.50  | 0     | D   | A     | 86.8  | 15.5 | 0.0    | 0.0  | 0.0  | 59.9 | 6.3  | -2.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 38.5   |
| 193   | 912462.09 | 5022932.23 | 99.50  | 0     | N   | A     | 86.8  | 15.5 | 0.0    | 0.0  | 0.0  | 59.9 | 6.3  | -2.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 38.5   |
| 193   | 912462.09 | 5022932.23 | 99.50  | 0     | E   | A     | -33.2 | 15.5 | 0.0    | 0.0  | 0.0  | 59.9 | 6.3  | -2.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | -81.5  |
| 204   | 912458.11 | 5022932.56 | 99.50  | 1     | D   | A     | 86.8  | 14.3 | 0.0    | 0.0  | 0.0  | 60.6 | 6.6  | -2.7 | 0.0  | 0.0   | 26.9 | 0.0  | 3.1  | 6.6    |
| 204   | 912458.11 | 5022932.56 | 99.50  | 1     | N   | A     | 86.8  | 14.3 | 0.0    | 0.0  | 0.0  | 60.6 | 6.6  | -2.7 | 0.0  | 0.0   | 26.9 | 0.0  | 3.1  | 6.6    |
| 204   | 912458.11 | 5022932.56 | 99.50  | 1     | E   | A     | -33.2 | 14.3 | 0.0    | 0.0  | 0.0  | 60.6 | 6.6  | -2.7 | 0.0  | 0.0   | 26.9 | 0.0  | 3.1  | -113.4 |
| 207   | 912475.63 | 5022931.11 | 99.50  | 1     | D   | A     | 86.8  | 9.0  | 0.0    | 0.0  | 0.0  | 60.2 | 6.4  | -2.6 | 0.0  | 0.0   | 26.8 | 0.0  | 3.0  | 2.0    |
| 207   | 912475.63 | 5022931.11 | 99.50  | 1     | N   | A     | 86.8  | 9.0  | 0.0    | 0.0  | 0.0  | 60.2 | 6.4  | -2.6 | 0.0  | 0.0   | 26.8 | 0.0  | 3.0  | 2.0    |
| 207   | 912475.63 | 5022931.11 | 99.50  | 1     | E   | A     | -33.2 | 9.0  | 0.0    | 0.0  | 0.0  | 60.2 | 6.4  | -2.6 | 0.0  | 0.0   | 26.8 | 0.0  | 3.0  | -118.0 |
| 247   | 912429.66 | 5022921.63 | 99.50  | 0     | D   | A     | 86.8  | 15.8 | 0.0    | 0.0  | 0.0  | 60.6 | 6.6  | -2.6 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 38.0   |
| 247   | 912429.66 | 5022921.63 | 99.50  | 0     | N   | A     | 86.8  | 15.8 | 0.0    | 0.0  | 0.0  | 60.6 | 6.6  | -2.6 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 38.0   |
| 247   | 912429.66 | 5022921.63 | 99.50  | 0     | E   | A     | -33.2 | 15.8 | 0.0    | 0.0  | 0.0  | 60.6 | 6.6  | -2.6 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | -82.0  |
| 264   | 912417.28 | 5022911.63 | 99.50  | 1     | D   | A     | 86.8  | 8.1  | 0.0    | 0.0  | 0.0  | 61.4 | 7.0  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | -0.7   |
| 264   | 912417.28 | 5022911.63 | 99.50  | 1     | N   | A     | 86.8  | 8.1  | 0.0    | 0.0  | 0.0  | 61.4 | 7.0  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | -0.7   |
| 264   | 912417.28 | 5022911.63 | 99.50  | 1     | E   | A     | -33.2 | 8.1  | 0.0    | 0.0  | 0.0  | 61.4 | 7.0  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | -120.7 |
| 267   | 912432.19 | 5022923.68 | 99.50  | 1     | D   | A     | 86.8  | 15.0 | 0.0    | 0.0  | 0.0  | 61.2 | 6.9  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.1  | 6.5    |
| 267   | 912432.19 | 5022923.68 | 99.50  | 1     | N   | A     | 86.8  | 15.0 | 0.0    | 0.0  | 0.0  | 61.2 | 6.9  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.1  | 6.5    |
| 267   | 912432.19 | 5022923.68 | 99.50  | 1     | E   | A     | -33.2 | 15.0 | 0.0    | 0.0  | 0.0  | 61.2 | 6.9  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.1  | -113.5 |
| 271   | 912418.43 | 5022912.56 | 99.50  | 1     | D   | A     | 86.8  | 9.8  | 0.0    | 0.0  | 0.0  | 61.7 | 7.1  | -2.9 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | 0.5    |
| 271   | 912418.43 | 5022912.56 | 99.50  | 1     | N   | A     | 86.8  | 9.8  | 0.0    | 0.0  | 0.0  | 61.7 | 7.1  | -2.9 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | 0.5    |
| 271   | 912418.43 | 5022912.56 | 99.50  | 1     | E   | A     | -33.2 | 9.8  | 0.0    | 0.0  | 0.0  | 61.7 | 7.1  | -2.9 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | -119.5 |
| 275   | 912424.59 | 5022917.54 | 99.50  | 1     | D   | A     | 86.8  | 8.1  | 0.0    | 0.0  | 0.0  | 61.6 | 7.1  | -2.9 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | -1.0   |
| 275   | 912424.59 | 5022917.54 | 99.50  | 1     | N   | A     | 86.8  | 8.1  | 0.0    | 0.0  | 0.0  | 61.6 | 7.1  | -2.9 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | -1.0   |
| 275   | 912424.59 | 5022917.54 | 99.50  | 1     | E   | A     | -33.2 | 8.1  | 0.0    | 0.0  | 0.0  | 61.6 | 7.1  | -2.9 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | -121.0 |
| 277   | 912430.43 | 5022922.26 | 99.50  | 1     | D   | A     | 86.8  | 9.4  | 0.0    | 0.0  | 0.0  | 61.5 | 7.0  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | 0.4    |
| 277   | 912430.43 | 5022922.26 | 99.50  | 1     | N   | A     | 86.8  | 9.4  | 0.0    | 0.0  | 0.0  | 61.5 | 7.0  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | 0.4    |
| 277   | 912430.43 | 5022922.26 | 99.50  | 1     | E   | A     | -33.2 | 9.4  | 0.0    | 0.0  | 0.0  | 61.5 | 7.0  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | -119.6 |
| 279   | 912434.22 | 5022925.32 | 99.50  | 1     | D   | A     | 86.8  | 0.5  | 0.0    | 0.0  | 0.0  | 61.4 | 7.0  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | -8.3   |
| 279   | 912434.22 | 5022925.32 | 99.50  | 1     | N   | A     | 86.8  | 0.5  | 0.0    | 0.0  | 0.0  | 61.4 | 7.0  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | -8.3   |
| 279   | 912434.22 | 5022925.32 | 99.50  | 1     | E   | A     | -33.2 | 0.5  | 0.0    | 0.0  | 0.0  | 61.4 | 7.0  | -2.8 | 0.0  | 0.0   | 26.9 | 0.0  | 3.2  | -128.3 |
| 282   | 912427.84 | 5022744.68 | 99.87  | 0     | D   | A     | 86.8  | 14.5 | 0.0    | 0.0  | 0.0  | 59.3 | 6.0  | -0.4 | 0.0  | 0.0   | 8.5  | 0.0  | 0.0  | 27.8   |
| 282   | 912427.84 | 5022744.68 | 99.87  | 0     | N   | A     | 86.8  | 14.5 | 0.0    | 0.0  | 0.0  | 59.3 | 6.0  | -0.4 | 0.0  | 0.0   | 8.5  | 0.0  | 0.0  | 27.8   |
| 282   | 912427.84 | 5022744.68 | 99.87  | 0     | E   | A     | -33.2 | 14.5 | 0.0    | 0.0  | 0.0  | 59.3 | 6.0  | -0.4 | 0.0  | 0.0   | 8.5  | 0.0  | 0.0  | -92.2  |
| 287   | 912144.36 | 5022493.45 | 110.37 | 0     | D   | A     | 86.8  | 21.1 | 0.0    | 0.0  | 0.0  | 66.7 | 9.7  | -3.0 | 0.0  | 0.0   | 7.7  | 0.0  | 0.0  | 26.7   |
| 287   | 912144.36 | 5022493.45 | 110.37 | 0     | N   | A     | 86.8  | 21.1 | 0.0    | 0.0  | 0.0  | 66.7 | 9.7  | -3.0 | 0.0  | 0.0   | 7.7  | 0.0  | 0.0  | 26.7   |
| 287   | 912144.36 | 5022493.45 | 110.37 | 0     | E   | A     | -33.2 | 21.1 | 0.0    | 0.0  | 0.0  | 66.7 | 9.7  | -3.0 | 0.0  | 0.0   | 7.7  | 0.0  | 0.0  | -93.3  |
| 290   | 912420.49 | 5022718.72 | 103.14 | 0     | D   | A     | 86.8  | 14.2 | 0.0    | 0.0  | 0.0  | 59.6 | 6.2  | -0.2 | 0.0  | 0.0   | 7.4  | 0.0  | 0.0  | 28.0   |
| 290   | 912420.49 | 5022718.72 | 103.14 | 0     | N   | A     | 86.8  | 14.2 | 0.0    | 0.0  | 0.0  | 59.6 | 6.2  | -0.2 | 0.0  | 0.0   | 7.4  | 0.0  | 0.0  | 28.0   |
| 290   | 912420.49 | 5022718.72 | 103.14 | 0     | E   | A     | -33.2 | 14.2 | 0.0    | 0.0  | 0.0  | 59.6 | 6.2  | -0.2 | 0.0  | 0.0   | 7.4  | 0.0  | 0.0  | -92.0  |
| 292   | 912437.74 | 5022784.09 | 99.50  | 0     | D   | A     | 86.8  | 13.3 | 0.0    | 0.0  | 0.0  | 59.0 | 5.9  | -1.2 | 0.0  | 0.0   | 9.2  | 0.0  | 0.0  | 27.2   |
| 292   | 912437.74 | 5022784.09 | 99.50  | 0     | N   | A     | 86.8  | 13.3 | 0.0    | 0.0  | 0.0  | 59.0 | 5.9  | -1.2 | 0.0  | 0.0   | 9.2  | 0.0  | 0.0  | 27.2   |
| 292   | 912437.74 | 5022784.09 | 99.50  | 0     | E   | A     | -33.2 | 13.3 | 0.0    | 0.0  | 0.0  | 59.0 | 5.9  | -1.2 | 0.0  | 0.0   | 9.2  | 0.0  | 0.0  | -92.8  |
| 297   | 912439.17 | 5022804.61 | 99.50  | 0     | D   | A     | 86.8  | 12.9 | 0.0    | 0.0  | 0.0  | 59.0 | 5.9  | -1.6 | 0.0  | 0.0   | 7.8  | 0.0  | 0.0  | 28.6   |
| 297   | 912439.17 | 5022804.61 | 99.50  | 0     | N   | A     | 86.8  | 12.9 | 0.0    | 0.0  | 0.0  | 59.0 | 5.9  | -1.6 | 0.0  | 0.0   | 7.8  | 0.0  | 0.0  | 28.6   |
| 297   | 912439.17 | 5022804.61 | 99.50  | 0     | E   | A     | -33.2 | 12.9 | 0.0    | 0.0  | 0.0  | 59.0 | 5.9  | -1.6 | 0.0  | 0.0   | 7.8  | 0.0  | 0.0  | -91.4  |
| 309   | 912439.09 | 5022808.84 | 99.50  | 1     | D   | A     | 86.8  | 7.2  | 0.0    | 0.0  | 0.0  | 61.5 | 7.0  | -2.3 | 0.0  | 0.0   | 26.5 | 0.0  | 3.1  | -1.9   |
| 309   | 912439.09 | 5022808.84 | 99.50  | 1     | N   | A     | 86.8  | 7.2  | 0.0    | 0.0  | 0.0  | 61.5 | 7.0  | -2.3 | 0.0  | 0.0   | 26.5 | 0.0  | 3.1  | -121.9 |
| 314   | 912406.43 | 5022677.64 | 112.04 | 0     | D   | A     | 86.8  | 13.6 | 0.0    | 0.0  | 0.0  | 60.4 | 6.5  | -0.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 34.1   |
| 314   | 912406.43 | 5022677.64 | 112.04 | 0     | N   | A     | 86.8  | 13.6 | 0.0    | 0.0  | 0.0  | 60.4 | 6.5  | -0.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 34.1   |
| 314   | 912406.43 | 5022677.64 | 112.04 | 0     | E   | A     | -33.2 | 13.6 | 0.0    | 0.0  | 0.0  | 60.4 | 6.5  | -0.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | -85.9  |
| 320   | 912414.15 | 5022697.08 | 107.96 | 0     | D   | A     | 86.8  | 12.9 | 0.0    | 0.0  | 0.0  | 60.0 | 6.3  | -0.3 | 0.0  | 0.0   | 5.1  | 0.0  | 0.0  | 28.6   |
| 320   | 912414.15 | 5022697.08 | 107.96 | 0     | N   | A     | 86.8  | 12.9 | 0.0    | 0.0  | 0.0  | 60.0 |      |      |      |       |      |      |      |        |

## 118-0052 Sample Calculation - R08 (Brazeau Pit, Unmitigated)

| Line Source, ISO 9613, Name: "Delivery Trucks", ID: "BrTrkC1" |           |            |          |       |     |               |             |           |              |            |            |              |              |             |              |               |              |              |            |             |
|---|-----------|------------|----------|-------|-----|---------------|-------------|-----------|--------------|------------|------------|--------------|--------------|-------------|--------------|---------------|--------------|--------------|------------|-------------|
| Nr.   | X<br>(m)  | Y<br>(m)   | Z<br>(m) | Refl. | DEN | Freq.<br>(Hz) | Lw<br>dB(A) | I/a<br>dB | Optime<br>dB | K0<br>(dB) | Di<br>(dB) | Adiv<br>(dB) | Aatm<br>(dB) | Agr<br>(dB) | Afol<br>(dB) | Ahous<br>(dB) | Abar<br>(dB) | Cmet<br>(dB) | RL<br>(dB) | Lr<br>dB(A) |
| 333   | 912394.38 | 5022658.60 | 114.90   | 0     | D   | A             | 86.8        | 13.6      | 0.0          | 0.0        | 0.0        | 60.9         | 6.7          | -1.0        | 0.0          | 0.0           | 0.0          | 0.0          | 33.8       |             |
| 333   | 912394.38 | 5022658.60 | 114.90   | 0     | N   | A             | 86.8        | 13.6      | 0.0          | 0.0        | 0.0        | 60.9         | 6.7          | -1.0        | 0.0          | 0.0           | 0.0          | 0.0          | 33.8       |             |
| 333   | 912394.38 | 5022658.60 | 114.90   | 0     | E   | A             | -33.2       | 13.6      | 0.0          | 0.0        | 0.0        | 60.9         | 6.7          | -1.0        | 0.0          | 0.0           | 0.0          | 0.0          | -86.2      |             |
| 334   | 911973.77 | 5022377.21 | 108.04   | 0     | D   | A             | 86.8        | 21.2      | 0.0          | 0.0        | 0.0        | 69.2         | 11.1         | -3.3        | 0.0          | 0.0           | 0.0          | 0.0          | 31.1       |             |
| 334   | 911973.77 | 5022377.21 | 108.04   | 0     | N   | A             | 86.8        | 21.2      | 0.0          | 0.0        | 0.0        | 69.2         | 11.1         | -3.3        | 0.0          | 0.0           | 0.0          | 0.0          | 31.1       |             |
| 334   | 911973.77 | 5022377.21 | 108.04   | 0     | E   | A             | -33.2       | 21.2      | 0.0          | 0.0        | 0.0        | 69.2         | 11.1         | -3.3        | 0.0          | 0.0           | 0.0          | 0.0          | -88.9      |             |
| 343   | 912413.51 | 5022899.20 | 99.50    | 0     | D   | A             | 86.8        | 13.2      | 0.0          | 0.0        | 0.0        | 60.7         | 6.6          | -2.5        | 0.0          | 0.0           | 7.3          | 0.0          | 27.9       |             |
| 343   | 912413.51 | 5022899.20 | 99.50    | 0     | N   | A             | 86.8        | 13.2      | 0.0          | 0.0        | 0.0        | 60.7         | 6.6          | -2.5        | 0.0          | 0.0           | 7.3          | 0.0          | 27.9       |             |
| 343   | 912413.51 | 5022899.20 | 99.50    | 0     | E   | A             | -33.2       | 13.2      | 0.0          | 0.0        | 0.0        | 60.7         | 6.6          | -2.5        | 0.0          | 0.0           | 7.3          | 0.0          | -92.1      |             |
| 348   | 912414.64 | 5022908.68 | 99.50    | 1     | D   | A             | 86.8        | 2.6       | 0.0          | 0.0        | 0.0        | 61.4         | 7.0          | -2.8        | 0.0          | 0.0           | 26.9         | 0.0          | 3.2        | -6.3        |
| 348   | 912414.64 | 5022908.68 | 99.50    | 1     | N   | A             | 86.8        | 2.6       | 0.0          | 0.0        | 0.0        | 61.4         | 7.0          | -2.8        | 0.0          | 0.0           | 26.9         | 0.0          | 3.2        | -6.3        |
| 348   | 912414.64 | 5022908.68 | 99.50    | 1     | E   | A             | -33.2       | 2.6       | 0.0          | 0.0        | 0.0        | 61.4         | 7.0          | -2.8        | 0.0          | 0.0           | 26.9         | 0.0          | 3.2        | -126.3      |
| 349   | 912413.51 | 5022899.20 | 99.50    | 1     | D   | A             | 86.8        | 13.2      | 0.0          | 0.0        | 0.0        | 61.7         | 7.1          | -2.8        | 0.0          | 0.0           | 26.9         | 0.0          | 3.2        | 3.9         |
| 349   | 912413.51 | 5022899.20 | 99.50    | 1     | N   | A             | 86.8        | 13.2      | 0.0          | 0.0        | 0.0        | 61.7         | 7.1          | -2.8        | 0.0          | 0.0           | 26.9         | 0.0          | 3.2        | 3.9         |
| 349   | 912413.51 | 5022899.20 | 99.50    | 1     | E   | A             | -33.2       | 13.2      | 0.0          | 0.0        | 0.0        | 61.7         | 7.1          | -2.8        | 0.0          | 0.0           | 26.9         | 0.0          | 3.2        | -116.1      |
| 371   | 912412.69 | 5022892.30 | 99.50    | 1     | D   | A             | 86.8        | 8.5       | 0.0          | 0.0        | 0.0        | 62.0         | 7.3          | -2.8        | 0.0          | 0.0           | 26.9         | 0.0          | 3.2        | -1.3        |
| 371   | 912412.69 | 5022892.30 | 99.50    | 1     | N   | A             | 86.8        | 8.5       | 0.0          | 0.0        | 0.0        | 62.0         | 7.3          | -2.8        | 0.0          | 0.0           | 26.9         | 0.0          | 3.2        | -1.3        |
| 371   | 912412.69 | 5022892.30 | 99.50    | 1     | E   | A             | -33.2       | 8.5       | 0.0          | 0.0        | 0.0        | 62.0         | 7.3          | -2.8        | 0.0          | 0.0           | 26.9         | 0.0          | 3.2        | -121.3      |
| 378   | 912413.55 | 5022899.47 | 99.50    | 1     | D   | A             | 86.8        | 8.7       | 0.0          | 0.0        | 0.0        | 62.0         | 7.3          | -2.9        | 0.0          | 0.0           | 26.9         | 0.0          | 3.2        | -1.0        |
| 378   | 912413.55 | 5022899.47 | 99.50    | 1     | N   | A             | 86.8        | 8.7       | 0.0          | 0.0        | 0.0        | 62.0         | 7.3          | -2.9        | 0.0          | 0.0           | 26.9         | 0.0          | 3.2        | -1.0        |
| 378   | 912413.55 | 5022899.47 | 99.50    | 1     | E   | A             | -33.2       | 8.7       | 0.0          | 0.0        | 0.0        | 62.0         | 7.3          | -2.9        | 0.0          | 0.0           | 26.9         | 0.0          | 3.2        | -121.0      |
| 385   | 912437.23 | 5022820.62 | 99.50    | 0     | D   | A             | 86.8        | 11.1      | 0.0          | 0.0        | 0.0        | 59.2         | 6.0          | -1.8        | 0.0          | 0.0           | 7.0          | 0.0          | 0.0        | 27.4        |
| 385   | 912437.23 | 5022820.62 | 99.50    | 0     | N   | A             | 86.8        | 11.1      | 0.0          | 0.0        | 0.0        | 59.2         | 6.0          | -1.8        | 0.0          | 0.0           | 7.0          | 0.0          | 0.0        | 27.4        |
| 385   | 912437.23 | 5022820.62 | 99.50    | 0     | E   | A             | -33.2       | 11.1      | 0.0          | 0.0        | 0.0        | 59.2         | 6.0          | -1.8        | 0.0          | 0.0           | 7.0          | 0.0          | 0.0        | -92.6       |
| 391   | 912435.52 | 5022826.58 | 99.50    | 1     | D   | A             | 86.8        | -4.1      | 0.0          | 0.0        | 0.0        | 61.2         | 6.9          | -2.4        | 0.0          | 0.0           | 26.6         | 0.0          | 3.1        | -12.7       |
| 391   | 912435.52 | 5022826.58 | 99.50    | 1     | N   | A             | 86.8        | -4.1      | 0.0          | 0.0        | 0.0        | 61.2         | 6.9          | -2.4        | 0.0          | 0.0           | 26.6         | 0.0          | 3.1        | -12.7       |
| 391   | 912435.52 | 5022826.58 | 99.50    | 1     | E   | A             | -33.2       | -4.1      | 0.0          | 0.0        | 0.0        | 61.2         | 6.9          | -2.4        | 0.0          | 0.0           | 26.6         | 0.0          | 3.1        | -132.7      |
| 402   | 912060.11 | 5022435.94 | 109.02   | 0     | D   | A             | 86.8        | 18.8      | 0.0          | 0.0        | 0.0        | 68.0         | 10.4         | -3.2        | 0.0          | 0.0           | 8.0          | 0.0          | 0.0        | 22.4        |
| 402   | 912060.11 | 5022435.94 | 109.02   | 0     | N   | A             | 86.8        | 18.8      | 0.0          | 0.0        | 0.0        | 68.0         | 10.4         | -3.2        | 0.0          | 0.0           | 8.0          | 0.0          | 0.0        | 22.4        |
| 402   | 912060.11 | 5022435.94 | 109.02   | 0     | E   | A             | -33.2       | 18.8      | 0.0          | 0.0        | 0.0        | 68.0         | 10.4         | -3.2        | 0.0          | 0.0           | 8.0          | 0.0          | 0.0        | -97.6       |
| 407   | 911914.05 | 5022335.69 | 107.50   | 0     | D   | A             | 86.8        | 11.3      | 0.0          | 0.0        | 0.0        | 69.9         | 11.5         | -3.4        | 0.0          | 0.0           | 0.0          | 0.0          | 0.0        | 20.0        |
| 407   | 911914.05 | 5022335.69 | 107.50   | 0     | N   | A             | 86.8        | 11.3      | 0.0          | 0.0        | 0.0        | 69.9         | 11.5         | -3.4        | 0.0          | 0.0           | 0.0          | 0.0          | 0.0        | 20.0        |
| 407   | 911914.05 | 5022335.69 | 107.50   | 0     | E   | A             | -33.2       | 11.3      | 0.0          | 0.0        | 0.0        | 69.9         | 11.5         | -3.4        | 0.0          | 0.0           | 0.0          | 0.0          | 0.0        | -100.0      |

## Receiver

Name: R08  
 ID: R08  
 X: 912686.47 m  
 Y: 5022765.42 m  
 Z: 115.28 m

Point Source, ISO 9613, Name: "Processing Plant", ID: "BrCVS\_C1\_unmit"

| Nr. | X         | Y          | Z      | Refl. | DEN | Freq. | Lw    | I/a | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr    |
|-----|-----------|------------|--------|-------|-----|-------|-------|-----|--------|------|------|------|------|------|------|-------|------|------|------|-------|
|     | (m)       | (m)        | (m)    |       |     | (Hz)  | dB(A) | dB  | dB     | (dB)  | (dB) | (dB) | (dB) | dB(A) |
| 55  | 912566.43 | 5022897.59 | 100.50 | 0     | D   | A     | 122.5 | 0.0 | 0.0    | 0.0  | 0.0  | 56.1 | 1.9  | -1.2 | 0.0  | 0.0   | 17.4 | 0.0  | 0.0  | 48.3  |
| 55  | 912566.43 | 5022897.59 | 100.50 | 0     | N   | A     | 122.5 | 0.0 | -188.0 | 0.0  | 0.0  | 56.1 | 1.9  | -1.2 | 0.0  | 0.0   | 17.4 | 0.0  | 0.0  | 139.7 |
| 55  | 912566.43 | 5022897.59 | 100.50 | 0     | E   | A     | 122.5 | 0.0 | -188.0 | 0.0  | 0.0  | 56.1 | 1.9  | -1.2 | 0.0  | 0.0   | 17.4 | 0.0  | 0.0  | 139.7 |

Point Source, ISO 9613, Name: "Excavator", ID: "BrEXC\_C1"

| Nr. | X         | Y          | Z      | Refl. | DEN | Freq. | Lw    | I/a | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr    |
|-----|-----------|------------|--------|-------|-----|-------|-------|-----|--------|------|------|------|------|------|------|-------|------|------|------|-------|
|     | (m)       | (m)        | (m)    |       |     | (Hz)  | dB(A) | dB  | dB     | (dB)  | (dB) | (dB) | (dB) | dB(A) |
| 62  | 912642.72 | 5022888.94 | 100.00 | 0     | D   | A     | 111.1 | 0.0 | 0.0    | 0.0  | 0.0  | 53.4 | 0.7  | 0.0  | 0.0  | 0.0   | 23.6 | 0.0  | 0.0  | 33.3  |
| 62  | 912642.72 | 5022888.94 | 100.00 | 0     | N   | A     | 111.1 | 0.0 | 0.0    | 0.0  | 0.0  | 53.4 | 0.7  | 0.0  | 0.0  | 0.0   | 23.6 | 0.0  | 0.0  | 33.3  |
| 62  | 912642.72 | 5022888.94 | 100.00 | 0     | E   | A     | 111.1 | 0.0 | -188.0 | 0.0  | 0.0  | 53.4 | 0.7  | 0.0  | 0.0  | 0.0   | 23.6 | 0.0  | 0.0  | 154.7 |

Point Source, ISO 9613, Name: "Front-end Loader", ID: "BrFEL\_C1"

| Nr. | X         | Y          | Z     | Refl. | DEN | Freq. | Lw    | I/a | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr    |
|-----|-----------|------------|-------|-------|-----|-------|-------|-----|--------|------|------|------|------|------|------|-------|------|------|------|-------|
|     | (m)       | (m)        | (m)   |       |     | (Hz)  | dB(A) | dB  | dB     | (dB)  | (dB) | (dB) | (dB) | dB(A) |
| 75  | 912636.73 | 5022880.26 | 99.50 | 0     | D   | A     | 106.4 | 0.0 | 0.0    | 0.0  | 0.0  | 53.0 | 0.9  | 1.2  | 0.0  | 0.0   | 20.3 | 0.0  | 0.0  | 31.0  |
| 75  | 912636.73 | 5022880.26 | 99.50 | 0     | N   | A     | 106.4 | 0.0 | 0.0    | 0.0  | 0.0  | 53.0 | 0.9  | 1.2  | 0.0  | 0.0   | 20.3 | 0.0  | 0.0  | 31.0  |
| 75  | 912636.73 | 5022880.26 | 99.50 | 0     | E   | A     | 106.4 | 0.0 | -188.0 | 0.0  | 0.0  | 53.0 | 0.9  | 1.2  | 0.0  | 0.0   | 20.3 | 0.0  | 0.0  | 157.0 |

Point Source, ISO 9613, Name: "Two Front-end Loaders", ID: "BrFEL\_C1"

| Nr. | X         | Y          | Z     | Refl. | DEN | Freq. | Lw    | I/a | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr    |
|-----|-----------|------------|-------|-------|-----|-------|-------|-----|--------|------|------|------|------|------|------|-------|------|------|------|-------|
|     | (m)       | (m)        | (m)   |       |     | (Hz)  | dB(A) | dB  | dB     | (dB)  | (dB) | (dB) | (dB) | dB(A) |
| 83  | 912558.76 | 5022902.49 | 99.50 | 0     | D   | A     | 109.4 | 0.0 | 0.0    | 0.0  | 0.0  | 56.5 | 1.2  | -1.1 | 0.0  | 0.0   | 13.9 | 0.0  | 0.0  | 39.0  |
| 83  | 912558.76 | 5022902.49 | 99.50 | 0     | N   | A     | 109.4 | 0.0 | 0.0    | 0.0  | 0.0  | 56.5 | 1.2  | -1.1 | 0.0  | 0.0   | 13.9 | 0.0  | 0.0  | 39.0  |
| 83  | 912558.76 | 5022902.49 | 99.50 | 0     | E   | A     | 109.4 | 0.0 | -188.0 | 0.0  | 0.0  | 56.5 | 1.2  | -1.1 | 0.0  | 0.0   | 13.9 | 0.0  | 0.0  | 149.0 |

Point Source, ISO 9613, Name: "Additional Screens", ID: "BrSCR\_C1\_unmit"

| Nr. | X         | Y          | Z      | Refl. | DEN | Freq. | Lw    | I/a | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr    |
|-----|-----------|------------|--------|-------|-----|-------|-------|-----|--------|------|------|------|------|------|------|-------|------|------|------|-------|
|     | (m)       | (m)        | (m)    |       |     | (Hz)  | dB(A) | dB  | dB     | (dB)  | (dB) | (dB) | (dB) | dB(A) |
| 102 | 912568.83 | 5022888.17 | 100.50 | 0     | D   | A     | 109.5 | 0.0 | 0.0    | 0.0  | 0.0  | 55.6 | 1.1  | -1.0 | 0.0  | 0.0   | 15.6 | 0.0  | 0.0  | 38.1  |
| 102 | 912568.83 | 5022888.17 | 100.50 | 0     | N   | A     | 109.5 | 0.0 | -188.0 | 0.0  | 0.0  | 55.6 | 1.1  | -1.0 | 0.0  | 0.0   | 15.6 | 0.0  | 0.0  | 149.9 |
| 102 | 912568.83 | 5022888.17 | 100.50 | 0     | E   | A     | 109.5 | 0.0 | -188.0 | 0.0  | 0.0  | 55.6 | 1.1  | -1.0 | 0.0  | 0.0   | 15.6 | 0.0  | 0.0  | 149.9 |

Line Source, ISO 9613, Name: "Delivery Trucks", ID: "BrTrkC1"

| Nr. | X         | Y          | Z      | Refl. | DEN | Freq. | Lw    | I/a  | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr    |
|-----|-----------|------------|--------|-------|-----|-------|-------|------|--------|------|------|------|------|------|------|-------|------|------|------|-------|
|     | (m)       | (m)        | (m)    |       |     | (Hz)  | dB(A) | dB   | dB     | (dB)  | (dB) | (dB) | (dB) | dB(A) |
| 109 | 912433.60 | 5022831.75 | 99.50  | 0     | D   | A     | 86.8  | 10.3 | 0.0    | 0.0  | 0.0  | 59.4 | 6.1  | -1.9 | 0.0  | 0.0   | 14.5 | 0.0  | 0.0  | 19.0  |
| 109 | 912433.60 | 5022831.75 | 99.50  | 0     | N   | A     | 86.8  | 10.3 | 0.0    | 0.0  | 0.0  | 59.4 | 6.1  | -1.9 | 0.0  | 0.0   | 14.5 | 0.0  | 0.0  | 19.0  |
| 109 | 912433.60 | 5022831.75 | 99.50  | 0     | E   | A     | -33.2 | 10.3 | 0.0    | 0.0  | 0.0  | 59.4 | 6.1  | -1.9 | 0.0  | 0.0   | 14.5 | 0.0  | 0.0  | 101.0 |
| 117 | 912431.47 | 5022837.45 | 99.50  | 0     | D   | A     | 86.8  | 1.9  | 0.0    | 0.0  | 0.0  | 59.5 | 6.1  | -2.0 | 0.0  | 0.0   | 18.4 | 0.0  | 0.0  | 6.6   |
| 117 | 912431.47 | 5022837.45 | 99.50  | 0     | N   | A     | 86.8  | 1.9  | 0.0    | 0.0  | 0.0  | 59.5 | 6.1  | -2.0 | 0.0  | 0.0   | 18.4 | 0.0  | 0.0  | 6.6   |
| 117 | 912431.47 | 5022837.45 | 99.50  | 0     | E   | A     | -33.2 | 1.9  | 0.0    | 0.0  | 0.0  | 59.5 | 6.1  | -2.0 | 0.0  | 0.0   | 18.4 | 0.0  | 0.0  | 113.4 |
| 121 | 912421.74 | 5022863.49 | 99.50  | 0     | D   | A     | 86.8  | 17.3 | 0.0    | 0.0  | 0.0  | 60.0 | 6.3  | -2.2 | 0.0  | 0.0   | 18.1 | 0.0  | 0.0  | 21.8  |
| 121 | 912421.74 | 5022863.49 | 99.50  | 0     | N   | A     | 86.8  | 17.3 | 0.0    | 0.0  | 0.0  | 60.0 | 6.3  | -2.2 | 0.0  | 0.0   | 18.1 | 0.0  | 0.0  | 21.8  |
| 121 | 912421.74 | 5022863.49 | 99.50  | 0     | E   | A     | -33.2 | 17.3 | 0.0    | 0.0  | 0.0  | 60.0 | 6.3  | -2.2 | 0.0  | 0.0   | 18.1 | 0.0  | 0.0  | -98.2 |
| 128 | 912346.01 | 5022622.36 | 115.15 | 0     | D   | A     | 86.8  | 20.0 | 0.0    | 0.0  | 0.0  | 62.3 | 7.4  | -1.0 | 0.0  | 0.0   | 5.8  | 0.0  | 0.0  | 32.1  |
| 128 | 912346.01 | 5022622.36 | 115.15 | 0     | N   | A     | 86.8  | 20.0 | 0.0    | 0.0  | 0.0  | 62.3 | 7.4  | -1.0 | 0.0  | 0.0   | 5.8  | 0.0  | 0.0  | 32.1  |
| 128 | 912346.01 | 5022622.36 | 115.15 | 0     | E   | A     | -33.2 | 20.0 | 0.0    | 0.0  | 0.0  | 62.3 | 7.4  | -1.0 | 0.0  | 0.0   | 5.8  | 0.0  | 0.0  | -87.9 |
| 149 | 912534.80 | 5022883.72 | 99.50  | 0     | D   | A     | 86.8  | 14.7 | 0.0    | 0.0  | 0.0  | 56.7 | 5.0  | -1.7 | 0.0  | 0.0   | 20.2 | 0.0  | 0.0  | 21.3  |
| 149 | 912534.80 | 5022883.72 | 99.50  | 0     | N   | A     | 86.8  | 14.7 | 0.0    | 0.0  | 0.0  | 56.7 | 5.0  | -1.7 | 0.0  | 0.0   | 20.2 | 0.0  | 0.0  | 21.3  |
| 149 | 912534.80 | 5022883.72 | 99.50  | 0     | E   | A     | -33.2 | 14.7 | 0.0    | 0.0  | 0.0  | 56.7 | 5.0  | -1.7 | 0.0  | 0.0   | 20.2 | 0.0  | 0.0  | -98.7 |
| 159 | 912251.22 | 5022561.80 | 112.98 | 0     | D   | A     | 86.8  | 21.0 | 0.0    | 0.0  | 0.0  | 64.6 | 8.6  | -1.5 | 0.0  | 0.0   | 6.2  | 0.0  | 0.0  | 29.8  |
| 159 | 912251.22 | 5022561.80 | 112.98 | 0     | N   | A     | 86.8  | 21.0 | 0.0    | 0.0  | 0.0  | 64.6 | 8.6  | -1.5 | 0.0  | 0.0   | 6.2  | 0.0  | 0.0  | 29.8  |

## 118-0052 Sample Calculation - R08 (Brazeau Pit, Mitigated)

| Line Source, ISO 9613, Name: "Delivery Trucks", ID: "BrTrkC1" |           |            |          |       |     |               |             |           |              |            |            |              |              |             |              |               |              |              |            |            |
|---|-----------|------------|----------|-------|-----|---------------|-------------|-----------|--------------|------------|------------|--------------|--------------|-------------|--------------|---------------|--------------|--------------|------------|------------|
| Nr.   | X<br>(m)  | Y<br>(m)   | Z<br>(m) | Refl. | DEN | Freq.<br>(Hz) | Lw<br>dB(A) | I/a<br>dB | Optime<br>dB | K0<br>(dB) | Di<br>(dB) | Adiv<br>(dB) | Aatm<br>(dB) | Agr<br>(dB) | Afol<br>(dB) | Ahous<br>(dB) | Abar<br>(dB) | Cmet<br>(dB) | RL<br>(dB) | Lr<br>(dB) |
| 159   | 912251.22 | 5022561.80 | 112.98   | 0     | E   | A             | -33.2       | 21.0      | 0.0          | 0.0        | 0.0        | 64.6         | 8.6          | -1.5        | 0.0          | 0.0           | 6.2          | 0.0          | 0.0        | -90.2      |
| 162   | 912490.18 | 5022915.83 | 99.50    | 0     | D   | A             | 86.8        | 15.6      | 0.0          | 0.0        | 0.0        | 58.9         | 5.8          | -2.3        | 0.0          | 0.0           | 19.1         | 0.0          | 0.0        | 20.9       |
| 162   | 912490.18 | 5022915.83 | 99.50    | 0     | N   | A             | 86.8        | 15.6      | 0.0          | 0.0        | 0.0        | 58.9         | 5.8          | -2.3        | 0.0          | 0.0           | 19.1         | 0.0          | 0.0        | 20.9       |
| 162   | 912490.18 | 5022915.83 | 99.50    | 0     | E   | A             | -33.2       | 15.6      | 0.0          | 0.0        | 0.0        | 58.9         | 5.8          | -2.3        | 0.0          | 0.0           | 19.1         | 0.0          | 0.0        | -99.1      |
| 167   | 912510.41 | 5022892.03 | 99.50    | 0     | D   | A             | 86.8        | 14.2      | 0.0          | 0.0        | 0.0        | 57.7         | 5.4          | -1.9        | 0.0          | 0.0           | 19.6         | 0.0          | 0.0        | 20.1       |
| 167   | 912510.41 | 5022892.03 | 99.50    | 0     | N   | A             | 86.8        | 14.2      | 0.0          | 0.0        | 0.0        | 57.7         | 5.4          | -1.9        | 0.0          | 0.0           | 19.6         | 0.0          | 0.0        | 20.1       |
| 167   | 912510.41 | 5022892.03 | 99.50    | 0     | E   | A             | -33.2       | 14.2      | 0.0          | 0.0        | 0.0        | 57.7         | 5.4          | -1.9        | 0.0          | 0.0           | 19.6         | 0.0          | 0.0        | -99.9      |
| 170   | 912462.09 | 5022932.23 | 99.50    | 0     | D   | A             | 86.8        | 15.5      | 0.0          | 0.0        | 0.0        | 59.9         | 6.3          | -2.5        | 0.0          | 0.0           | 18.4         | 0.0          | 0.0        | 20.1       |
| 170   | 912462.09 | 5022932.23 | 99.50    | 0     | N   | A             | 86.8        | 15.5      | 0.0          | 0.0        | 0.0        | 59.9         | 6.3          | -2.5        | 0.0          | 0.0           | 18.4         | 0.0          | 0.0        | 20.1       |
| 170   | 912462.09 | 5022932.23 | 99.50    | 0     | E   | A             | -33.2       | 15.5      | 0.0          | 0.0        | 0.0        | 59.9         | 6.3          | -2.5        | 0.0          | 0.0           | 18.4         | 0.0          | 0.0        | -99.9      |
| 178   | 912429.66 | 5022921.63 | 99.50    | 0     | D   | A             | 86.8        | 15.8      | 0.0          | 0.0        | 0.0        | 60.6         | 6.6          | -2.6        | 0.0          | 0.0           | 17.8         | 0.0          | 0.0        | 20.2       |
| 178   | 912429.66 | 5022921.63 | 99.50    | 0     | N   | A             | 86.8        | 15.8      | 0.0          | 0.0        | 0.0        | 60.6         | 6.6          | -2.6        | 0.0          | 0.0           | 17.8         | 0.0          | 0.0        | 20.2       |
| 178   | 912429.66 | 5022921.63 | 99.50    | 0     | E   | A             | -33.2       | 15.8      | 0.0          | 0.0        | 0.0        | 60.6         | 6.6          | -2.6        | 0.0          | 0.0           | 17.8         | 0.0          | 0.0        | -99.8      |
| 192   | 912427.84 | 5022744.68 | 99.87    | 0     | D   | A             | 86.8        | 14.5      | 0.0          | 0.0        | 0.0        | 59.3         | 6.0          | -0.4        | 0.0          | 0.0           | 17.6         | 0.0          | 0.0        | 18.6       |
| 192   | 912427.84 | 5022744.68 | 99.87    | 0     | N   | A             | 86.8        | 14.5      | 0.0          | 0.0        | 0.0        | 59.3         | 6.0          | -0.4        | 0.0          | 0.0           | 17.6         | 0.0          | 0.0        | 18.6       |
| 192   | 912427.84 | 5022744.68 | 99.87    | 0     | E   | A             | -33.2       | 14.5      | 0.0          | 0.0        | 0.0        | 59.3         | 6.0          | -0.4        | 0.0          | 0.0           | 17.6         | 0.0          | 0.0        | -101.4     |
| 196   | 912144.36 | 5022493.45 | 110.37   | 0     | D   | A             | 86.8        | 21.1      | 0.0          | 0.0        | 0.0        | 66.7         | 9.7          | -1.7        | 0.0          | 0.0           | 6.5          | 0.0          | 0.0        | 26.7       |
| 196   | 912144.36 | 5022493.45 | 110.37   | 0     | N   | A             | 86.8        | 21.1      | 0.0          | 0.0        | 0.0        | 66.7         | 9.7          | -1.7        | 0.0          | 0.0           | 6.5          | 0.0          | 0.0        | 26.7       |
| 196   | 912144.36 | 5022493.45 | 110.37   | 0     | E   | A             | -33.2       | 21.1      | 0.0          | 0.0        | 0.0        | 66.7         | 9.7          | -1.7        | 0.0          | 0.0           | 6.5          | 0.0          | 0.0        | -93.3      |
| 198   | 912420.49 | 5022718.72 | 103.14   | 0     | D   | A             | 86.8        | 14.2      | 0.0          | 0.0        | 0.0        | 59.6         | 6.2          | -0.2        | 0.0          | 0.0           | 16.1         | 0.0          | 0.0        | 19.3       |
| 198   | 912420.49 | 5022718.72 | 103.14   | 0     | N   | A             | 86.8        | 14.2      | 0.0          | 0.0        | 0.0        | 59.6         | 6.2          | -0.2        | 0.0          | 0.0           | 16.1         | 0.0          | 0.0        | 19.3       |
| 198   | 912420.49 | 5022718.72 | 103.14   | 0     | E   | A             | -33.2       | 14.2      | 0.0          | 0.0        | 0.0        | 59.6         | 6.2          | -0.2        | 0.0          | 0.0           | 16.1         | 0.0          | 0.0        | -100.7     |
| 200   | 912437.74 | 5022784.09 | 99.50    | 0     | D   | A             | 86.8        | 13.3      | 0.0          | 0.0        | 0.0        | 59.0         | 5.9          | -1.2        | 0.0          | 0.0           | 14.2         | 0.0          | 0.0        | 22.3       |
| 200   | 912437.74 | 5022784.09 | 99.50    | 0     | N   | A             | 86.8        | 13.3      | 0.0          | 0.0        | 0.0        | 59.0         | 5.9          | -1.2        | 0.0          | 0.0           | 14.2         | 0.0          | 0.0        | 22.3       |
| 200   | 912437.74 | 5022784.09 | 99.50    | 0     | E   | A             | -33.2       | 13.3      | 0.0          | 0.0        | 0.0        | 59.0         | 5.9          | -1.2        | 0.0          | 0.0           | 14.2         | 0.0          | 0.0        | -97.7      |
| 220   | 912439.17 | 5022804.61 | 99.50    | 0     | D   | A             | 86.8        | 12.9      | 0.0          | 0.0        | 0.0        | 59.0         | 5.9          | -1.6        | 0.0          | 0.0           | 14.7         | 0.0          | 0.0        | 21.7       |
| 220   | 912439.17 | 5022804.61 | 99.50    | 0     | N   | A             | 86.8        | 12.9      | 0.0          | 0.0        | 0.0        | 59.0         | 5.9          | -1.6        | 0.0          | 0.0           | 14.7         | 0.0          | 0.0        | 21.7       |
| 220   | 912439.17 | 5022804.61 | 99.50    | 0     | E   | A             | -33.2       | 12.9      | 0.0          | 0.0        | 0.0        | 59.0         | 5.9          | -1.6        | 0.0          | 0.0           | 14.7         | 0.0          | 0.0        | -98.3      |
| 224   | 912406.43 | 5022677.64 | 112.04   | 0     | D   | A             | 86.8        | 13.6      | 0.0          | 0.0        | 0.0        | 60.4         | 6.5          | -0.5        | 0.0          | 0.0           | 5.8          | 0.0          | 0.0        | 28.2       |
| 224   | 912406.43 | 5022677.64 | 112.04   | 0     | N   | A             | 86.8        | 13.6      | 0.0          | 0.0        | 0.0        | 60.4         | 6.5          | -0.5        | 0.0          | 0.0           | 5.8          | 0.0          | 0.0        | 28.2       |
| 224   | 912406.43 | 5022677.64 | 112.04   | 0     | E   | A             | -33.2       | 13.6      | 0.0          | 0.0        | 0.0        | 60.4         | 6.5          | -0.5        | 0.0          | 0.0           | 5.8          | 0.0          | 0.0        | -91.8      |
| 227   | 912414.15 | 5022697.08 | 107.96   | 0     | D   | A             | 86.8        | 12.9      | 0.0          | 0.0        | 0.0        | 60.0         | 6.3          | -0.3        | 0.0          | 0.0           | 12.4         | 0.0          | 0.0        | 21.3       |
| 227   | 912414.15 | 5022697.08 | 107.96   | 0     | N   | A             | 86.8        | 12.9      | 0.0          | 0.0        | 0.0        | 60.0         | 6.3          | -0.3        | 0.0          | 0.0           | 12.4         | 0.0          | 0.0        | 21.3       |
| 227   | 912414.15 | 5022697.08 | 107.96   | 0     | E   | A             | -33.2       | 12.9      | 0.0          | 0.0        | 0.0        | 60.0         | 6.3          | -0.3        | 0.0          | 0.0           | 12.4         | 0.0          | 0.0        | -98.7      |
| 231   | 912433.97 | 5022765.78 | 99.50    | 0     | D   | A             | 86.8        | 12.0      | 0.0          | 0.0        | 0.0        | 59.1         | 5.9          | -0.8        | 0.0          | 0.0           | 18.2         | 0.0          | 0.0        | 16.4       |
| 231   | 912433.97 | 5022765.78 | 99.50    | 0     | N   | A             | 86.8        | 12.0      | 0.0          | 0.0        | 0.0        | 59.1         | 5.9          | -0.8        | 0.0          | 0.0           | 18.2         | 0.0          | 0.0        | 16.4       |
| 231   | 912433.97 | 5022765.78 | 99.50    | 0     | E   | A             | -33.2       | 12.0      | 0.0          | 0.0        | 0.0        | 59.1         | 5.9          | -0.8        | 0.0          | 0.0           | 18.2         | 0.0          | 0.0        | -103.6     |
| 263   | 912394.38 | 5022658.60 | 114.90   | 0     | D   | A             | 86.8        | 13.6      | 0.0          | 0.0        | 0.0        | 60.9         | 6.7          | -1.0        | 0.0          | 0.0           | 5.9          | 0.0          | 0.0        | 27.9       |
| 263   | 912394.38 | 5022658.60 | 114.90   | 0     | N   | A             | 86.8        | 13.6      | 0.0          | 0.0        | 0.0        | 60.9         | 6.7          | -1.0        | 0.0          | 0.0           | 5.9          | 0.0          | 0.0        | 27.9       |
| 263   | 912394.38 | 5022658.60 | 114.90   | 0     | E   | A             | -33.2       | 13.6      | 0.0          | 0.0        | 0.0        | 60.9         | 6.7          | -1.0        | 0.0          | 0.0           | 5.9          | 0.0          | 0.0        | -92.1      |
| 278   | 911973.77 | 5022377.21 | 108.04   | 0     | D   | A             | 86.8        | 21.2      | 0.0          | 0.0        | 0.0        | 69.2         | 11.1         | -2.4        | 0.0          | 0.0           | 7.2          | 0.0          | 0.0        | 22.9       |
| 278   | 911973.77 | 5022377.21 | 108.04   | 0     | N   | A             | 86.8        | 21.2      | 0.0          | 0.0        | 0.0        | 69.2         | 11.1         | -2.4        | 0.0          | 0.0           | 7.2          | 0.0          | 0.0        | 22.9       |
| 278   | 911973.77 | 5022377.21 | 108.04   | 0     | E   | A             | -33.2       | 21.2      | 0.0          | 0.0        | 0.0        | 69.2         | 11.1         | -2.4        | 0.0          | 0.0           | 7.2          | 0.0          | 0.0        | -97.1      |
| 289   | 912413.51 | 5022899.20 | 99.50    | 0     | D   | A             | 86.8        | 13.2      | 0.0          | 0.0        | 0.0        | 60.7         | 6.6          | -2.5        | 0.0          | 0.0           | 17.7         | 0.0          | 0.0        | 17.5       |
| 289   | 912413.51 | 5022899.20 | 99.50    | 0     | N   | A             | 86.8        | 13.2      | 0.0          | 0.0        | 0.0        | 60.7         | 6.6          | -2.5        | 0.0          | 0.0           | 17.7         | 0.0          | 0.0        | 17.5       |
| 289   | 912413.51 | 5022899.20 | 99.50    | 0     | E   | A             | -33.2       | 13.2      | 0.0          | 0.0        | 0.0        | 60.7         | 6.6          | -2.5        | 0.0          | 0.0           | 17.7         | 0.0          | 0.0        | -102.5     |
| 291   | 912437.23 | 5022820.62 | 99.50    | 0     | D   | A             | 86.8        | 11.1      | 0.0          | 0.0        | 0.0        | 59.2         | 6.0          | -1.8        | 0.0          | 0.0           | 14.7         | 0.0          | 0.0        | 19.8       |
| 291   | 912437.23 | 5022820.62 | 99.50    | 0     | N   | A             | 86.8        | 11.1      | 0.0          | 0.0        | 0.0        | 59.2         | 6.0          | -1.8        | 0.0          | 0.0           | 14.7         | 0.0          | 0.0        | 19.8       |
| 291   | 912437.23 | 5022820.62 | 99.50    | 0     | E   | A             | -33.2       | 11.1      | 0.0          | 0.0        | 0.0        | 59.2         | 6.0          | -1.8        | 0.0          | 0.0           | 14.7         | 0.0          | 0.0        | -100.2     |
| 295   | 912060.11 | 5022435.94 | 109.02   | 0     | D   | A             | 86.8        | 18.8      | 0.0          | 0.0        | 0.0        | 68.0         | 10.4         | -2.1        | 0.0          | 0.0           | 6.9          | 0.0          | 0.0        | 22.4       |
| 295   | 912060.11 | 5022435.94 | 109.02   | 0     | N   | A             | 86.8        | 18.8      | 0.0          | 0.0        | 0.0        | 68.0         | 10.4         | -2.1        | 0.0          | 0.0           | 6.9          | 0.0          | 0.0        | 22.4       |
| 295   | 912060.11 | 5022435.94 | 109.02   | 0     | E   | A             | -33.2       | 18.8      | 0.0          | 0.0        | 0.0        | 68.0         | 10.4         | -2.1        | 0.0          | 0.0           | 6.9          | 0.0          | 0.0        | -97.6      |
| 298   | 911914.05 | 5022335.69 | 107.50   | 0     | D   | A             | 86.8        | 11.3      | 0.0          | 0.0        | 0.0        | 69.9         | 11.5         | -2.6        | 0.0          | 0.0           | 7.3          | 0.0          | 0.0        | 11.8       |
| 298   | 911914.05 | 5022335.69 | 107.50   | 0     | N   | A             | 86.8        | 11.3      | 0.0          | 0.0        | 0.0        | 69.9         | 11.5         | -2.6        | 0.0          | 0.0           | 7.3          | 0.0          | 0.0        | 11.8       |
| 298   | 911914.05 | 5022335.69 | 107.50   | 0     | E   | A             | -33.2       | 11.3      | 0.0          | 0.0        | 0.0        | 69.9         | 11.5         | -2.6        | 0.0          | 0.0           | 7.3          | 0.0          | 0.0        | -108.2     |

## Receiver

Name: R08  
 ID: R08  
 X: 912686.47 m  
 Y: 5022765.42 m  
 Z: 115.28 m

Point Source, ISO 9613, Name: "Processing Plant", ID: "DrCVS\_PRCs"

| Nr. | X         | Y          | Z      | Refl. | DEN | Freq. | Lw    | I/a | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr    |
|-----|-----------|------------|--------|-------|-----|-------|-------|-----|--------|------|------|------|------|------|------|-------|------|------|------|-------|
|     | (m)       | (m)        | (m)    |       |     | (Hz)  | dB(A) | dB  | dB     | (dB)  | (dB) | (dB) | (dB) | dB(A) |
| 8   | 912448.77 | 5023314.62 | 100.50 | 0     | D   | A     | 122.5 | 0.0 | 0.0    | 0.0  | 0.0  | 66.5 | 4.3  | -3.6 | 0.0  | 0.0   | 14.0 | 0.0  | 0.0  | 41.3  |
| 8   | 912448.77 | 5023314.62 | 100.50 | 0     | N   | A     | 122.5 | 0.0 | -188.0 | 0.0  | 0.0  | 66.5 | 4.3  | -3.6 | 0.0  | 0.0   | 14.0 | 0.0  | 0.0  | 146.7 |
| 8   | 912448.77 | 5023314.62 | 100.50 | 0     | E   | A     | 122.5 | 0.0 | -188.0 | 0.0  | 0.0  | 66.5 | 4.3  | -3.6 | 0.0  | 0.0   | 14.0 | 0.0  | 0.0  | 146.7 |

Point Source, ISO 9613, Name: "Two Front-end Loaders", ID: "DrFEL\_PRCs"

| Nr. | X         | Y          | Z     | Refl. | DEN | Freq. | Lw    | I/a | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr    |
|-----|-----------|------------|-------|-------|-----|-------|-------|-----|--------|------|------|------|------|------|------|-------|------|------|------|-------|
|     | (m)       | (m)        | (m)   |       |     | (Hz)  | dB(A) | dB  | dB     | (dB)  | (dB) | (dB) | (dB) | dB(A) |
| 33  | 912450.35 | 5023307.10 | 99.50 | 0     | D   | A     | 109.4 | 0.0 | 0.0    | 0.0  | 0.0  | 66.4 | 2.3  | -3.1 | 0.0  | 0.0   | 12.1 | 0.0  | 0.0  | 31.6  |
| 33  | 912450.35 | 5023307.10 | 99.50 | 0     | N   | A     | 109.4 | 0.0 | 0.0    | 0.0  | 0.0  | 66.4 | 2.3  | -3.1 | 0.0  | 0.0   | 12.1 | 0.0  | 0.0  | 31.6  |
| 33  | 912450.35 | 5023307.10 | 99.50 | 0     | E   | A     | 109.4 | 0.0 | -188.0 | 0.0  | 0.0  | 66.4 | 2.3  | -3.1 | 0.0  | 0.0   | 12.1 | 0.0  | 0.0  | 156.4 |

Point Source, ISO 9613, Name: "Front-end Loader", ID: "DrFEL\_TYP"

| Nr. | X         | Y          | Z     | Refl. | DEN | Freq. | Lw    | I/a | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr    |
|-----|-----------|------------|-------|-------|-----|-------|-------|-----|--------|------|------|------|------|------|------|-------|------|------|------|-------|
|     | (m)       | (m)        | (m)   |       |     | (Hz)  | dB(A) | dB  | dB     | (dB)  | (dB) | (dB) | (dB) | dB(A) |
| 140 | 912421.08 | 5023398.87 | 99.50 | 0     | D   | A     | 106.4 | 0.0 | 0.0    | 0.0  | 0.0  | 67.7 | 2.5  | -3.2 | 0.0  | 0.0   | 11.3 | 0.0  | 0.0  | 28.0  |
| 140 | 912421.08 | 5023398.87 | 99.50 | 0     | N   | A     | 106.4 | 0.0 | 0.0    | 0.0  | 0.0  | 67.7 | 2.5  | -3.2 | 0.0  | 0.0   | 11.3 | 0.0  | 0.0  | 28.0  |
| 140 | 912421.08 | 5023398.87 | 99.50 | 0     | E   | A     | 106.4 | 0.0 | -188.0 | 0.0  | 0.0  | 67.7 | 2.5  | -3.2 | 0.0  | 0.0   | 11.3 | 0.0  | 0.0  | 160.0 |

Point Source, ISO 9613, Name: "Excavator", ID: "DrExc"

| Nr. | X         | Y          | Z     | Refl. | DEN | Freq. | Lw    | I/a | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr    |
|-----|-----------|------------|-------|-------|-----|-------|-------|-----|--------|------|------|------|------|------|------|-------|------|------|------|-------|
|     | (m)       | (m)        | (m)   |       |     | (Hz)  | dB(A) | dB  | dB     | (dB)  | (dB) | (dB) | (dB) | dB(A) |
| 251 | 912471.92 | 5023369.38 | 99.50 | 0     | D   | A     | 101.9 | 0.0 | 0.0    | 0.0  | 0.0  | 67.1 | 3.0  | -3.4 | 0.0  | 0.0   | 17.0 | 0.0  | 0.0  | 18.2  |
| 251 | 912471.92 | 5023369.38 | 99.50 | 0     | N   | A     | 101.9 | 0.0 | 0.0    | 0.0  | 0.0  | 67.1 | 3.0  | -3.4 | 0.0  | 0.0   | 17.0 | 0.0  | 0.0  | 18.2  |
| 251 | 912471.92 | 5023369.38 | 99.50 | 0     | E   | A     | 101.9 | 0.0 | -188.0 | 0.0  | 0.0  | 67.1 | 3.0  | -3.4 | 0.0  | 0.0   | 17.0 | 0.0  | 0.0  | 169.8 |

Line Source, ISO 9613, Name: "Delivery Trucks", ID: "DrTrk"

| Nr. | X         | Y          | Z      | Refl. | DEN | Freq. | Lw    | I/a  | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr     |
|-----|-----------|------------|--------|-------|-----|-------|-------|------|--------|------|------|------|------|------|------|-------|------|------|------|--------|
|     | (m)       | (m)        | (m)    |       |     | (Hz)  | dB(A) | dB   | dB     | (dB)  | (dB) | (dB) | (dB) | dB(A)  |
| 54  | 912148.62 | 5022985.31 | 108.50 | 0     | D   | A     | 83.7  | 20.8 | 0.0    | 0.0  | 0.0  | 66.3 | 9.5  | -3.4 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 32.2   |
| 54  | 912148.62 | 5022985.31 | 108.50 | 0     | N   | A     | 83.7  | 20.8 | 0.0    | 0.0  | 0.0  | 66.3 | 9.5  | -3.4 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 32.2   |
| 54  | 912148.62 | 5022985.31 | 108.50 | 0     | E   | A     | -33.2 | 20.8 | 0.0    | 0.0  | 0.0  | 66.3 | 9.5  | -3.4 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | -84.8  |
| 102 | 912191.47 | 5023013.38 | 108.50 | 1     | D   | A     | 83.7  | 12.4 | 0.0    | 0.0  | 0.0  | 66.2 | 9.4  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0  | -6.6   |
| 102 | 912191.47 | 5023013.38 | 108.50 | 1     | N   | A     | 83.7  | 12.4 | 0.0    | 0.0  | 0.0  | 66.2 | 9.4  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0  | -6.6   |
| 102 | 912191.47 | 5023013.38 | 108.50 | 1     | E   | A     | -33.2 | 12.4 | 0.0    | 0.0  | 0.0  | 66.2 | 9.4  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0  | -123.6 |
| 108 | 912177.48 | 5023004.22 | 108.50 | 1     | D   | A     | 83.7  | 12.1 | 0.0    | 0.0  | 0.0  | 66.4 | 9.5  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0  | -7.1   |
| 108 | 912177.48 | 5023004.22 | 108.50 | 1     | N   | A     | 83.7  | 12.1 | 0.0    | 0.0  | 0.0  | 66.4 | 9.5  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0  | -7.1   |
| 108 | 912177.48 | 5023004.22 | 108.50 | 1     | E   | A     | -33.2 | 12.1 | 0.0    | 0.0  | 0.0  | 66.4 | 9.5  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0  | -124.1 |
| 119 | 912192.70 | 5023014.19 | 108.50 | 1     | D   | A     | 83.7  | 11.6 | 0.0    | 0.0  | 0.0  | 66.4 | 9.5  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0  | -7.6   |
| 119 | 912192.70 | 5023014.19 | 108.50 | 1     | N   | A     | 83.7  | 11.6 | 0.0    | 0.0  | 0.0  | 66.4 | 9.5  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0  | -7.6   |
| 119 | 912192.70 | 5023014.19 | 108.50 | 1     | E   | A     | -33.2 | 11.6 | 0.0    | 0.0  | 0.0  | 66.4 | 9.5  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0  | -124.6 |
| 123 | 912181.65 | 5023006.95 | 108.50 | 1     | D   | A     | 83.7  | 10.8 | 0.0    | 0.0  | 0.0  | 66.5 | 9.6  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0  | -8.6   |
| 123 | 912181.65 | 5023006.95 | 108.50 | 1     | N   | A     | 83.7  | 10.8 | 0.0    | 0.0  | 0.0  | 66.5 | 9.6  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0  | -8.6   |
| 123 | 912181.65 | 5023006.95 | 108.50 | 1     | E   | A     | -33.2 | 10.8 | 0.0    | 0.0  | 0.0  | 66.5 | 9.6  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0  | -125.5 |
| 128 | 912140.90 | 5022980.25 | 108.50 | 1     | D   | A     | 83.7  | 19.3 | 0.0    | 0.0  | 0.0  | 66.9 | 9.8  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.1  | -0.7   |
| 128 | 912140.90 | 5022980.25 | 108.50 | 1     | N   | A     | 83.7  | 19.3 | 0.0    | 0.0  | 0.0  | 66.9 | 9.8  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.1  | -0.7   |
| 128 | 912140.90 | 5022980.25 | 108.50 | 1     | E   | A     | -33.2 | 19.3 | 0.0    | 0.0  | 0.0  | 66.9 | 9.8  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.1  | -117.7 |
| 130 | 912101.88 | 5022954.68 | 108.50 | 1     | D   | A     | 83.7  | 9.0  | 0.0    | 0.0  | 0.0  | 67.4 | 10.0 | -3.7 | 0.0  | 0.0   | 26.6 | 0.0  | 4.2  | -11.7  |
| 130 | 912101.88 | 5022954.68 | 108.50 | 1     | N   | A     | 83.7  | 9.0  | 0.0    | 0.0  | 0.0  | 67.4 | 10.0 | -3.7 | 0.0  | 0.0   | 26.6 | 0.0  | 4.2  | -11.7  |
| 130 | 912101.88 | 5022954.68 | 108.50 | 1     | E   | A     | -33.2 | 9.0  | 0.0    | 0.0  | 0.0  | 67.4 | 10.0 | -3.7 | 0.0  | 0.0   | 26.6 | 0.0  | 4.2  | -128.7 |
| 133 | 912128.82 | 5022972.33 | 108.50 | 1     | D   | A     | 83.7  | 12.6 | 0.0    | 0.0  | 0.0  | 67.2 | 10.0 | -3.7 | 0.0  | 0.0   | 26.6 | 0.0  | 6.9  | -10.6  |
| 133 | 912128.82 | 5022972.33 | 108.50 | 1     | N   | A     | 83.7  | 12.6 | 0.0    | 0.0  | 0.0  | 67.2 | 10.0 | -3.7 | 0.0  | 0.0   | 26.6 | 0.0  | 6.9  | -10.6  |
| 133 | 912128.82 | 5022972.33 | 108.50 | 1     | E   | A     | -33.2 | 12.6 | 0.0    | 0.0  | 0.0  | 67.2 | 10.0 | -3.7 | 0.0  | 0.0   | 26.6 | 0.0  | 6.9  | -127.6 |

## 118-0052 Sample Calculation - R08 (Drummond Pit, Unmitigated)

| Line Source, ISO 9613, Name: "Delivery Trucks", ID: "DrTrk" |           |            |        |       |     |       |       |      |        |      |      |      |      |      |      |       |      |      |         |        |
|---|-----------|------------|--------|-------|-----|-------|-------|------|--------|------|------|------|------|------|------|-------|------|------|---------|--------|
| Nr.   | X         | Y          | Z      | Refl. | DEN | Freq. | Lw    | I/a  | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL      | Lr     |
|   | (m)       | (m)        | (m)    |       |     | (Hz)  | dB(A) | dB   | dB     | (dB)  | (dB) | (dB) | (dB(A)) |        |
| 136   | 912109.87 | 5022959.92 | 108.50 | 1     | D   | A     | 83.7  | 14.3 | 0.0    | 0.0  | 0.0  | 67.4 | 10.1 | -3.8 | 0.0  | 0.0   | 26.6 | 0.0  | 7.0     | -9.3   |
| 136   | 912109.87 | 5022959.92 | 108.50 | 1     | N   | A     | 83.7  | 14.3 | 0.0    | 0.0  | 0.0  | 67.4 | 10.1 | -3.8 | 0.0  | 0.0   | 26.6 | 0.0  | 7.0     | -9.3   |
| 136   | 912109.87 | 5022959.92 | 108.50 | 1     | E   | A     | -33.2 | 14.3 | 0.0    | 0.0  | 0.0  | 67.4 | 10.1 | -3.8 | 0.0  | 0.0   | 26.6 | 0.0  | 7.0     | -126.3 |
| 159   | 912231.64 | 5023042.42 | 109.49 | 0     | D   | A     | 83.7  | 19.1 | 0.0    | 0.0  | 0.0  | 65.5 | 9.0  | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0     | 31.8   |
| 159   | 912231.64 | 5023042.42 | 109.49 | 0     | N   | A     | 83.7  | 19.1 | 0.0    | 0.0  | 0.0  | 65.5 | 9.0  | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0     | 31.8   |
| 159   | 912231.64 | 5023042.42 | 109.49 | 0     | E   | A     | -33.2 | 19.1 | 0.0    | 0.0  | 0.0  | 65.5 | 9.0  | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0     | -85.2  |
| 176   | 912256.21 | 5023060.55 | 110.23 | 1     | D   | A     | 83.7  | 12.6 | 0.0    | 0.0  | 0.0  | 65.7 | 9.1  | -3.6 | 0.0  | 0.0   | 26.8 | 0.0  | 3.9     | -5.5   |
| 176   | 912256.21 | 5023060.55 | 110.23 | 1     | N   | A     | 83.7  | 12.6 | 0.0    | 0.0  | 0.0  | 65.7 | 9.1  | -3.6 | 0.0  | 0.0   | 26.8 | 0.0  | 3.9     | -5.5   |
| 176   | 912256.21 | 5023060.55 | 110.23 | 1     | E   | A     | -33.2 | 12.6 | 0.0    | 0.0  | 0.0  | 65.7 | 9.1  | -3.6 | 0.0  | 0.0   | 26.8 | 0.0  | 3.9     | -122.5 |
| 184   | 912223.83 | 5023036.66 | 109.25 | 1     | D   | A     | 83.7  | 18.0 | 0.0    | 0.0  | 0.0  | 65.9 | 9.3  | -3.6 | 0.0  | 0.0   | 26.8 | 0.0  | 3.9     | -0.5   |
| 184   | 912223.83 | 5023036.66 | 109.25 | 1     | N   | A     | 83.7  | 18.0 | 0.0    | 0.0  | 0.0  | 65.9 | 9.3  | -3.6 | 0.0  | 0.0   | 26.8 | 0.0  | 3.9     | -0.5   |
| 184   | 912223.83 | 5023036.66 | 109.25 | 1     | E   | A     | -33.2 | 18.0 | 0.0    | 0.0  | 0.0  | 65.9 | 9.3  | -3.6 | 0.0  | 0.0   | 26.8 | 0.0  | 3.9     | -117.5 |
| 188   | 912200.95 | 5023019.79 | 108.57 | 1     | D   | A     | 83.7  | 3.1  | 0.0    | 0.0  | 0.0  | 66.3 | 9.5  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0     | -16.0  |
| 188   | 912200.95 | 5023019.79 | 108.57 | 1     | N   | A     | 83.7  | 3.1  | 0.0    | 0.0  | 0.0  | 66.3 | 9.5  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0     | -16.0  |
| 188   | 912200.95 | 5023019.79 | 108.57 | 1     | E   | A     | -33.2 | 3.1  | 0.0    | 0.0  | 0.0  | 66.3 | 9.5  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0     | -133.0 |
| 192   | 912199.41 | 5023018.65 | 108.52 | 1     | D   | A     | 83.7  | 2.5  | 0.0    | 0.0  | 0.0  | 66.3 | 9.5  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0     | -16.6  |
| 192   | 912199.41 | 5023018.65 | 108.52 | 1     | N   | A     | 83.7  | 2.5  | 0.0    | 0.0  | 0.0  | 66.3 | 9.5  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0     | -16.6  |
| 192   | 912199.41 | 5023018.65 | 108.52 | 1     | E   | A     | -33.2 | 2.5  | 0.0    | 0.0  | 0.0  | 66.3 | 9.5  | -3.7 | 0.0  | 0.0   | 26.7 | 0.0  | 4.0     | -133.6 |
| 195   | 912055.26 | 5022922.89 | 108.11 | 0     | D   | A     | 83.7  | 20.2 | 0.0    | 0.0  | 0.0  | 67.3 | 10.0 | -3.4 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0     | 30.1   |
| 195   | 912055.26 | 5022922.89 | 108.11 | 0     | N   | A     | 83.7  | 20.2 | 0.0    | 0.0  | 0.0  | 67.3 | 10.0 | -3.4 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0     | 30.1   |
| 195   | 912055.26 | 5022922.89 | 108.11 | 0     | E   | A     | -33.2 | 20.2 | 0.0    | 0.0  | 0.0  | 67.3 | 10.0 | -3.4 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0     | -86.9  |
| 217   | 912064.63 | 5022929.31 | 108.19 | 1     | D   | A     | 83.7  | 12.5 | 0.0    | 0.0  | 0.0  | 68.1 | 10.5 | -3.8 | 0.0  | 0.0   | 26.5 | 0.0  | 7.3     | -12.3  |
| 217   | 912064.63 | 5022929.31 | 108.19 | 1     | N   | A     | 83.7  | 12.5 | 0.0    | 0.0  | 0.0  | 68.1 | 10.5 | -3.8 | 0.0  | 0.0   | 26.5 | 0.0  | 7.3     | -12.3  |
| 217   | 912064.63 | 5022929.31 | 108.19 | 1     | E   | A     | -33.2 | 12.5 | 0.0    | 0.0  | 0.0  | 68.1 | 10.5 | -3.8 | 0.0  | 0.0   | 26.5 | 0.0  | 7.3     | -129.3 |
| 240   | 912086.83 | 5022944.48 | 108.39 | 1     | D   | A     | 83.7  | 14.5 | 0.0    | 0.0  | 0.0  | 67.5 | 10.1 | -3.8 | 0.0  | 0.0   | 26.6 | 0.0  | 4.2     | -6.4   |
| 240   | 912086.83 | 5022944.48 | 108.39 | 1     | N   | A     | 83.7  | 14.5 | 0.0    | 0.0  | 0.0  | 67.5 | 10.1 | -3.8 | 0.0  | 0.0   | 26.6 | 0.0  | 4.2     | -6.4   |
| 240   | 912086.83 | 5022944.48 | 108.39 | 1     | E   | A     | -33.2 | 14.5 | 0.0    | 0.0  | 0.0  | 67.5 | 10.1 | -3.8 | 0.0  | 0.0   | 26.6 | 0.0  | 4.2     | -123.4 |
| 242   | 912063.73 | 5022928.69 | 108.18 | 1     | D   | A     | 83.7  | 14.4 | 0.0    | 0.0  | 0.0  | 67.8 | 10.3 | -3.8 | 0.0  | 0.0   | 26.6 | 0.0  | 4.2     | -6.9   |
| 242   | 912063.73 | 5022928.69 | 108.18 | 1     | N   | A     | 83.7  | 14.4 | 0.0    | 0.0  | 0.0  | 67.8 | 10.3 | -3.8 | 0.0  | 0.0   | 26.6 | 0.0  | 4.2     | -6.9   |
| 242   | 912063.73 | 5022928.69 | 108.18 | 1     | E   | A     | -33.2 | 14.4 | 0.0    | 0.0  | 0.0  | 67.8 | 10.3 | -3.8 | 0.0  | 0.0   | 26.6 | 0.0  | 4.2     | -123.9 |
| 244   | 912094.56 | 5022949.77 | 108.46 | 1     | D   | A     | 83.7  | 9.9  | 0.0    | 0.0  | 0.0  | 67.6 | 10.2 | -3.8 | 0.0  | 0.0   | 26.6 | 0.0  | 7.1     | -14.1  |
| 244   | 912094.56 | 5022949.77 | 108.46 | 1     | N   | A     | 83.7  | 9.9  | 0.0    | 0.0  | 0.0  | 67.6 | 10.2 | -3.8 | 0.0  | 0.0   | 26.6 | 0.0  | 7.1     | -14.1  |
| 244   | 912094.56 | 5022949.77 | 108.46 | 1     | E   | A     | -33.2 | 9.9  | 0.0    | 0.0  | 0.0  | 67.6 | 10.2 | -3.8 | 0.0  | 0.0   | 26.6 | 0.0  | 7.1     | -131.0 |
| 245   | 912079.17 | 5022939.25 | 108.32 | 1     | D   | A     | 83.7  | 14.4 | 0.0    | 0.0  | 0.0  | 67.8 | 10.3 | -3.8 | 0.0  | 0.0   | 26.6 | 0.0  | 7.1     | -9.8   |
| 245   | 912079.17 | 5022939.25 | 108.32 | 1     | N   | A     | 83.7  | 14.4 | 0.0    | 0.0  | 0.0  | 67.8 | 10.3 | -3.8 | 0.0  | 0.0   | 26.6 | 0.0  | 7.1     | -9.8   |
| 245   | 912079.17 | 5022939.25 | 108.32 | 1     | E   | A     | -33.2 | 14.4 | 0.0    | 0.0  | 0.0  | 67.8 | 10.3 | -3.8 | 0.0  | 0.0   | 26.6 | 0.0  | 7.1     | -126.8 |
| 246   | 912054.84 | 5022922.61 | 108.10 | 1     | D   | A     | 83.7  | 15.0 | 0.0    | 0.0  | 0.0  | 68.0 | 10.4 | -3.8 | 0.0  | 0.0   | 26.5 | 0.0  | 4.3     | -6.8   |
| 246   | 912054.84 | 5022922.61 | 108.10 | 1     | N   | A     | 83.7  | 15.0 | 0.0    | 0.0  | 0.0  | 68.0 | 10.4 | -3.8 | 0.0  | 0.0   | 26.5 | 0.0  | 4.3     | -6.8   |
| 246   | 912054.84 | 5022922.61 | 108.10 | 1     | E   | A     | -33.2 | 15.0 | 0.0    | 0.0  | 0.0  | 68.0 | 10.4 | -3.8 | 0.0  | 0.0   | 26.5 | 0.0  | 4.3     | -123.8 |
| 248   | 912026.92 | 5022903.52 | 107.85 | 1     | D   | A     | 83.7  | 15.6 | 0.0    | 0.0  | 0.0  | 68.3 | 10.6 | -3.8 | 0.0  | 0.0   | 26.5 | 0.0  | 4.4     | -6.6   |
| 248   | 912026.92 | 5022903.52 | 107.85 | 1     | N   | A     | 83.7  | 15.6 | 0.0    | 0.0  | 0.0  | 68.3 | 10.6 | -3.8 | 0.0  | 0.0   | 26.5 | 0.0  | 4.4     | -6.6   |
| 248   | 912026.92 | 5022903.52 | 107.85 | 1     | E   | A     | -33.2 | 15.6 | 0.0    | 0.0  | 0.0  | 68.3 | 10.6 | -3.8 | 0.0  | 0.0   | 26.5 | 0.0  | 4.4     | -123.6 |
| 249   | 912291.23 | 5023085.04 | 110.49 | 0     | D   | A     | 83.7  | 18.1 | 0.0    | 0.0  | 0.0  | 65.1 | 8.8  | -3.6 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0     | 31.5   |
| 249   | 912291.23 | 5023085.04 | 110.49 | 0     | N   | A     | 83.7  | 18.1 | 0.0    | 0.0  | 0.0  | 65.1 | 8.8  | -3.6 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0     | 31.5   |
| 249   | 912291.23 | 5023085.04 | 110.49 | 0     | E   | A     | -33.2 | 18.1 | 0.0    | 0.0  | 0.0  | 65.1 | 8.8  | -3.6 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0     | -85.5  |
| 252   | 911953.51 | 5022856.97 | 106.78 | 0     | D   | A     | 83.7  | 17.9 | 0.0    | 0.0  | 0.0  | 68.4 | 10.6 | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0     | 26.2   |
| 252   | 911953.51 | 5022856.97 | 106.78 | 0     | N   | A     | 83.7  | 17.9 | 0.0    | 0.0  | 0.0  | 68.4 | 10.6 | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0     | 26.2   |
| 252   | 911953.51 | 5022856.97 | 106.78 | 0     | E   | A     | -33.2 | 17.9 | 0.0    | 0.0  | 0.0  | 68.4 | 10.6 | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0     | -90.8  |
| 259   | 911973.51 | 5022868.74 | 106.99 | 1     | D   | A     | 83.7  | 12.0 | 0.0    | 0.0  | 0.0  | 68.9 | 10.9 | -3.9 | 0.0  | 0.0   | 26.4 | 0.0  | 4.5     | -11.1  |
| 259   | 911973.51 | 5022868.74 | 106.99 | 1     | N   | A     | 83.7  | 12.0 | 0.0    | 0.0  | 0.0  | 68.9 | 10.9 | -3.9 | 0.0  | 0.0   | 26.4 | 0.0  | 4.5     | -11.1  |
| 259   | 911973.51 | 5022868.74 | 106.99 | 1     | E   | A     | -33.2 | 12.0 | 0.0    | 0.0  | 0.0  | 68.9 | 10.9 | -3.9 | 0.0  | 0.0   | 26.4 | 0.0  | 4.5     | -128.1 |
| 261   | 911963.34 | 5022862.76 | 106.88 | 1     | D   | A     | 83.7  | 8.9  | 0.0    | 0.0  | 0.0  | 69.0 | 11.0 | -3.9 | 0.0  | 0.0   | 26.3 | 0.0  | 4.5     | -14.4  |
| 261   | 911963.34 | 5022862.76 | 106.88 | 1     | N   | A     | 83.7  | 8.9  | 0.0    | 0.0  | 0.0  | 69.0 | 11.0 | -3.9 | 0.0  | 0.0   | 26.3 | 0.0  | 4.5     | -14.4  |
| 261   | 911963.34 | 5022862.76 | 106.88 | 1     | E   | A     | -33.2 | 8.9  | 0.0    | 0.0  | 0.0  | 69.0 | 11.0 | -3.9 | 0.0  | 0.0   | 26.3 | 0.0  | 4.5     | -131.3 |
| 262   | 911950.39 | 5022855.14 | 106.75 | 1     | D   | A     | 83.7  | 13.5 | 0.0    | 0.0  | 0.0  | 69.2 | 11.1 | -3.9 | 0.0  | 0.0   | 26.3 | 0.0  | 4.5     | -10.0  |
| 262   | 911950.39 | 5022855.14 | 106.75 | 1     | N   | A     | 83.7  | 13.5 | 0.0    | 0.0  | 0.0  | 69.2 | 11.1 | -3.9 | 0.0  | 0.0   | 26.3 | 0.0  | 4.5     | -10.0  |
| 2   |           |            |        |       |     |       |       |      |        |      |      |      |      |      |      |       |      |      |         |        |

## 118-0052 Sample Calculation - R08 (Drummond Pit, Unmitigated)

| Line Source, ISO 9613, Name: "Delivery Trucks", ID: "DrTrk" |           |            |        |       |     |       |       |      |        |      |      |      |      |      |      |       |      |      |      |        |
|---|-----------|------------|--------|-------|-----|-------|-------|------|--------|------|------|------|------|------|------|-------|------|------|------|--------|
| Nr.   | X         | Y          | Z      | Refl. | DEN | Freq. | Lw    | I/a  | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr     |
|   | (m)       | (m)        | (m)    |       |     | (Hz)  | dB(A) | dB   | dB     | (dB)  | (dB) | (dB) | (dB) |        |
| 266   | 912407.77 | 5023320.51 | 99.50  | 0     | E   | A     | -33.2 | 15.1 | 0.0    | 0.0  | 0.0  | 66.9 | 9.8  | -3.9 | 0.0  | 0.0   | 15.3 | 0.0  | 0.0  | -106.2 |
| 272   | 912415.03 | 5023319.09 | 99.50  | 2     | D   | A     | 83.7  | 7.1  | 0.0    | 0.0  | 0.0  | 66.8 | 9.7  | -3.9 | 0.0  | 0.0   | 27.0 | 0.0  | 74.9 | -83.6  |
| 272   | 912415.03 | 5023319.09 | 99.50  | 2     | N   | A     | 83.7  | 7.1  | 0.0    | 0.0  | 0.0  | 66.8 | 9.7  | -3.9 | 0.0  | 0.0   | 27.0 | 0.0  | 74.9 | -83.6  |
| 272   | 912415.03 | 5023319.09 | 99.50  | 2     | E   | A     | -33.2 | 7.1  | 0.0    | 0.0  | 0.0  | 66.8 | 9.7  | -3.9 | 0.0  | 0.0   | 27.0 | 0.0  | 74.9 | -200.6 |
| 277   | 911996.15 | 5022883.02 | 107.39 | 0     | D   | A     | 83.7  | 15.8 | 0.0    | 0.0  | 0.0  | 67.9 | 10.3 | -3.4 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 24.7   |
| 277   | 911996.15 | 5022883.02 | 107.39 | 0     | N   | A     | 83.7  | 15.8 | 0.0    | 0.0  | 0.0  | 67.9 | 10.3 | -3.4 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 24.7   |
| 277   | 911996.15 | 5022883.02 | 107.39 | 0     | E   | A     | -33.2 | 15.8 | 0.0    | 0.0  | 0.0  | 67.9 | 10.3 | -3.4 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | -92.3  |
| 279   | 912008.03 | 5022890.73 | 107.63 | 1     | D   | A     | 83.7  | 9.7  | 0.0    | 0.0  | 0.0  | 68.5 | 10.7 | -3.8 | 0.0  | 0.0   | 26.4 | 0.0  | 4.4  | -12.8  |
| 279   | 912008.03 | 5022890.73 | 107.63 | 1     | N   | A     | 83.7  | 9.7  | 0.0    | 0.0  | 0.0  | 68.5 | 10.7 | -3.8 | 0.0  | 0.0   | 26.4 | 0.0  | 4.4  | -12.8  |
| 279   | 912008.03 | 5022890.73 | 107.63 | 1     | E   | A     | -33.2 | 9.7  | 0.0    | 0.0  | 0.0  | 68.5 | 10.7 | -3.8 | 0.0  | 0.0   | 26.4 | 0.0  | 4.4  | -129.8 |
| 282   | 911992.22 | 5022880.47 | 107.31 | 1     | D   | A     | 83.7  | 14.5 | 0.0    | 0.0  | 0.0  | 68.7 | 10.8 | -3.8 | 0.0  | 0.0   | 26.4 | 0.0  | 4.4  | -8.3   |
| 282   | 911992.22 | 5022880.47 | 107.31 | 1     | N   | A     | 83.7  | 14.5 | 0.0    | 0.0  | 0.0  | 68.7 | 10.8 | -3.8 | 0.0  | 0.0   | 26.4 | 0.0  | 4.4  | -8.3   |
| 282   | 911992.22 | 5022880.47 | 107.31 | 1     | E   | A     | -33.2 | 14.5 | 0.0    | 0.0  | 0.0  | 68.7 | 10.8 | -3.8 | 0.0  | 0.0   | 26.4 | 0.0  | 4.4  | -125.2 |
| 286   | 912359.81 | 5023170.60 | 101.48 | 0     | D   | A     | 83.7  | 12.9 | 0.0    | 0.0  | 0.0  | 65.3 | 8.9  | -3.8 | 0.0  | 0.0   | 19.2 | 0.0  | 0.0  | 6.9    |
| 286   | 912359.81 | 5023170.60 | 101.48 | 0     | N   | A     | 83.7  | 12.9 | 0.0    | 0.0  | 0.0  | 65.3 | 8.9  | -3.8 | 0.0  | 0.0   | 19.2 | 0.0  | 0.0  | 6.9    |
| 286   | 912359.81 | 5023170.60 | 101.48 | 0     | E   | A     | -33.2 | 12.9 | 0.0    | 0.0  | 0.0  | 65.3 | 8.9  | -3.8 | 0.0  | 0.0   | 19.2 | 0.0  | 0.0  | -110.1 |
| 289   | 912360.67 | 5023174.65 | 101.07 | 1     | D   | A     | 83.7  | 10.5 | 0.0    | 0.0  | 0.0  | 65.4 | 9.0  | -3.7 | 0.0  | 0.0   | 27.8 | 0.0  | 61.7 | -66.0  |
| 289   | 912360.67 | 5023174.65 | 101.07 | 1     | N   | A     | 83.7  | 10.5 | 0.0    | 0.0  | 0.0  | 65.4 | 9.0  | -3.7 | 0.0  | 0.0   | 27.8 | 0.0  | 61.7 | -66.0  |
| 289   | 912360.67 | 5023174.65 | 101.07 | 1     | E   | A     | -33.2 | 10.5 | 0.0    | 0.0  | 0.0  | 65.4 | 9.0  | -3.7 | 0.0  | 0.0   | 27.8 | 0.0  | 61.7 | -183.0 |
| 290   | 912359.07 | 5023167.08 | 101.83 | 1     | D   | A     | 83.7  | 6.5  | 0.0    | 0.0  | 0.0  | 65.3 | 8.9  | -3.7 | 0.0  | 0.0   | 27.9 | 0.0  | 61.2 | -69.3  |
| 290   | 912359.07 | 5023167.08 | 101.83 | 1     | N   | A     | 83.7  | 6.5  | 0.0    | 0.0  | 0.0  | 65.3 | 8.9  | -3.7 | 0.0  | 0.0   | 27.9 | 0.0  | 61.2 | -69.3  |
| 290   | 912359.07 | 5023167.08 | 101.83 | 1     | E   | A     | -33.2 | 6.5  | 0.0    | 0.0  | 0.0  | 65.3 | 8.9  | -3.7 | 0.0  | 0.0   | 27.9 | 0.0  | 61.2 | -186.3 |
| 295   | 912343.93 | 5023129.59 | 107.23 | 0     | D   | A     | 83.7  | 11.1 | 0.0    | 0.0  | 0.0  | 65.0 | 8.8  | -3.7 | 0.0  | 0.0   | 13.1 | 0.0  | 0.0  | 11.7   |
| 295   | 912343.93 | 5023129.59 | 107.23 | 0     | N   | A     | 83.7  | 11.1 | 0.0    | 0.0  | 0.0  | 65.0 | 8.8  | -3.7 | 0.0  | 0.0   | 13.1 | 0.0  | 0.0  | 11.7   |
| 295   | 912343.93 | 5023129.59 | 107.23 | 0     | E   | A     | -33.2 | 11.1 | 0.0    | 0.0  | 0.0  | 65.0 | 8.8  | -3.7 | 0.0  | 0.0   | 13.1 | 0.0  | 0.0  | -105.3 |
| 297   | 912339.41 | 5023123.33 | 108.10 | 0     | D   | A     | 83.7  | 4.2  | 0.0    | 0.0  | 0.0  | 65.0 | 8.7  | -3.7 | 0.0  | 0.0   | 8.5  | 0.0  | 0.0  | 9.5    |
| 297   | 912339.41 | 5023123.33 | 108.10 | 0     | N   | A     | 83.7  | 4.2  | 0.0    | 0.0  | 0.0  | 65.0 | 8.7  | -3.7 | 0.0  | 0.0   | 8.5  | 0.0  | 0.0  | 9.5    |
| 297   | 912339.41 | 5023123.33 | 108.10 | 0     | E   | A     | -33.2 | 4.2  | 0.0    | 0.0  | 0.0  | 65.0 | 8.7  | -3.7 | 0.0  | 0.0   | 8.5  | 0.0  | 0.0  | -107.5 |
| 307   | 912389.89 | 5023323.54 | 99.50  | 0     | D   | A     | 83.7  | 6.3  | 0.0    | 0.0  | 0.0  | 67.0 | 9.8  | -3.9 | 0.0  | 0.0   | 16.3 | 0.0  | 0.0  | 0.8    |
| 307   | 912389.89 | 5023323.54 | 99.50  | 0     | N   | A     | 83.7  | 6.3  | 0.0    | 0.0  | 0.0  | 67.0 | 9.8  | -3.9 | 0.0  | 0.0   | 16.3 | 0.0  | 0.0  | 0.8    |
| 307   | 912389.89 | 5023323.54 | 99.50  | 0     | E   | A     | -33.2 | 6.3  | 0.0    | 0.0  | 0.0  | 67.0 | 9.8  | -3.9 | 0.0  | 0.0   | 16.3 | 0.0  | 0.0  | -116.2 |
| 308   | 912382.70 | 5023323.39 | 99.50  | 0     | D   | A     | 83.7  | 10.0 | 0.0    | 0.0  | 0.0  | 67.1 | 9.9  | -3.9 | 0.0  | 0.0   | 17.2 | 0.0  | 0.0  | 3.5    |
| 308   | 912382.70 | 5023323.39 | 99.50  | 0     | N   | A     | 83.7  | 10.0 | 0.0    | 0.0  | 0.0  | 67.1 | 9.9  | -3.9 | 0.0  | 0.0   | 17.2 | 0.0  | 0.0  | 3.5    |
| 308   | 912382.70 | 5023323.39 | 99.50  | 0     | E   | A     | -33.2 | 10.0 | 0.0    | 0.0  | 0.0  | 67.1 | 9.9  | -3.9 | 0.0  | 0.0   | 17.2 | 0.0  | 0.0  | -113.4 |
| 317   | 912372.40 | 5023323.18 | 99.50  | 0     | D   | A     | 83.7  | 10.2 | 0.0    | 0.0  | 0.0  | 67.1 | 9.9  | -3.9 | 0.0  | 0.0   | 21.2 | 0.0  | 0.0  | -0.3   |
| 317   | 912372.40 | 5023323.18 | 99.50  | 0     | N   | A     | 83.7  | 10.2 | 0.0    | 0.0  | 0.0  | 67.1 | 9.9  | -3.9 | 0.0  | 0.0   | 21.2 | 0.0  | 0.0  | -0.3   |
| 317   | 912372.40 | 5023323.18 | 99.50  | 0     | E   | A     | -33.2 | 10.2 | 0.0    | 0.0  | 0.0  | 67.1 | 9.9  | -3.9 | 0.0  | 0.0   | 21.2 | 0.0  | 0.0  | -117.3 |
| 346   | 912433.69 | 5023313.94 | 99.50  | 0     | D   | A     | 83.7  | 13.3 | 0.0    | 0.0  | 0.0  | 66.6 | 9.6  | -3.9 | 0.0  | 0.0   | 16.3 | 0.0  | 0.0  | 8.4    |
| 346   | 912433.69 | 5023313.94 | 99.50  | 0     | N   | A     | 83.7  | 13.3 | 0.0    | 0.0  | 0.0  | 66.6 | 9.6  | -3.9 | 0.0  | 0.0   | 16.3 | 0.0  | 0.0  | 8.4    |
| 346   | 912433.69 | 5023313.94 | 99.50  | 0     | E   | A     | -33.2 | 13.3 | 0.0    | 0.0  | 0.0  | 66.6 | 9.6  | -3.9 | 0.0  | 0.0   | 16.3 | 0.0  | 0.0  | -108.6 |
| 361   | 912317.96 | 5023234.61 | 99.50  | 0     | D   | A     | 83.7  | 13.0 | 0.0    | 0.0  | 0.0  | 66.5 | 9.6  | -3.9 | 0.0  | 0.0   | 14.7 | 0.0  | 0.0  | 9.9    |
| 361   | 912317.96 | 5023234.61 | 99.50  | 0     | N   | A     | 83.7  | 13.0 | 0.0    | 0.0  | 0.0  | 66.5 | 9.6  | -3.9 | 0.0  | 0.0   | 14.7 | 0.0  | 0.0  | 9.9    |
| 361   | 912317.96 | 5023234.61 | 99.50  | 0     | E   | A     | -33.2 | 13.0 | 0.0    | 0.0  | 0.0  | 66.5 | 9.6  | -3.9 | 0.0  | 0.0   | 14.7 | 0.0  | 0.0  | -107.0 |
| 367   | 911874.41 | 5022819.85 | 106.50 | 0     | D   | A     | 83.7  | 15.7 | 0.0    | 0.0  | 0.0  | 69.2 | 11.1 | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 22.6   |
| 367   | 911874.41 | 5022819.85 | 106.50 | 0     | N   | A     | 83.7  | 15.7 | 0.0    | 0.0  | 0.0  | 69.2 | 11.1 | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 22.6   |
| 367   | 911874.41 | 5022819.85 | 106.50 | 0     | E   | A     | -33.2 | 15.7 | 0.0    | 0.0  | 0.0  | 69.2 | 11.1 | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | -94.4  |
| 372   | 912333.69 | 5023117.28 | 108.85 | 0     | D   | A     | 83.7  | 11.5 | 0.0    | 0.0  | 0.0  | 64.9 | 8.7  | -3.7 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 25.2   |
| 372   | 912333.69 | 5023117.28 | 108.85 | 0     | N   | A     | 83.7  | 11.5 | 0.0    | 0.0  | 0.0  | 64.9 | 8.7  | -3.7 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 25.2   |
| 372   | 912333.69 | 5023117.28 | 108.85 | 0     | E   | A     | -33.2 | 11.5 | 0.0    | 0.0  | 0.0  | 64.9 | 8.7  | -3.7 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 25.2   |
| 372   | 912333.69 | 5023117.28 | 108.85 | 0     | D   | A     | 83.7  | 11.5 | 0.0    | 0.0  | 0.0  | 64.9 | 8.7  | -3.7 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | -91.8  |
| 379   | 912323.31 | 5023107.82 | 109.98 | 0     | D   | A     | 83.7  | 11.5 | 0.0    | 0.0  | 0.0  | 65.0 | 8.8  | -3.7 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 25.2   |
| 379   | 912323.31 | 5023107.82 | 109.98 | 0     | N   | A     | 83.7  | 11.5 | 0.0    | 0.0  | 0.0  | 65.0 | 8.8  | -3.7 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 25.2   |
| 379   | 912323.31 | 5023107.82 | 109.98 | 0     | E   | A     | -33.2 | 11.5 | 0.0    | 0.0  | 0.0  | 65.0 | 8.8  | -3.7 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | -91.8  |
| 388   | 912350.63 | 5023141.18 | 105.45 | 0     | D   | A     | 83.7  | 11.5 | 0.0    | 0.0  | 0.0  | 65.0 | 8.8  | -3.7 | 0.0  | 0.0   | 19.1 | 0.0  | 0.0  | 6.0    |
| 388   | 912350.63 | 5023141.18 | 105.45 | 0     | N   | A     | 83.7  | 11.5 | 0.0    | 0.0  | 0.0  | 65.0 | 8.8  | -3.7 | 0.0  | 0.0   | 19.1 | 0.0  | 0.0  | 6.0    |
| 388   | 912350.63 | 5023141.18 | 105.45 | 0     | E   | A     | -33.2 | 11.5 | 0.0    | 0.0  | 0.0  | 65.0 | 8.8  | -3.7 | 0.0  | 0.0   | 19.1 | 0.0  | 0.0  | -111.0 |
| 409   | 912355.69 | 5023154.36 | 103.42 | 0     |     |       |       |      |        |      |      |      |      |      |      |       |      |      |      |        |

## 118-0052 Sample Calculation - R08 (Drummond Pit, Unmitigated)

| Line Source, ISO 9613, Name: "Delivery Trucks", ID: "DrTrk" |           |            |        |       |     |       |       |      |        |      |      |      |      |      |      |       |      |      |      |        |
|---|-----------|------------|--------|-------|-----|-------|-------|------|--------|------|------|------|------|------|------|-------|------|------|------|--------|
| Nr.   | X         | Y          | Z      | Refl. | DEN | Freq. | Lw    | I/a  | Optime | K0   | Di   | Adiv | Aatm | Agr  | Afol | Ahous | Abar | Cmet | RL   | Lr     |
|   | (m)       | (m)        | (m)    |       |     | (Hz)  | dB(A) | dB   | dB     | (dB)  | (dB) | (dB) | (dB) |        |
| 433   | 912341.63 | 5023313.26 | 99.50  | 0     | N   | A     | 83.7  | 13.2 | 0.0    | 0.0  | 0.0  | 67.2 | 10.0 | -4.0 | 0.0  | 0.0   | 15.5 | 0.0  | 0.0  | 8.1    |
| 433   | 912341.63 | 5023313.26 | 99.50  | 0     | E   | A     | -33.2 | 13.2 | 0.0    | 0.0  | 0.0  | 67.2 | 10.0 | -4.0 | 0.0  | 0.0   | 15.5 | 0.0  | 0.0  | -108.8 |
| 459   | 912350.23 | 5023317.36 | 99.50  | 2     | D   | A     | 83.7  | 2.3  | 0.0    | 0.0  | 0.0  | 67.9 | 10.4 | -4.2 | 0.0  | 0.0   | 9.0  | 0.0  | 7.0  | -4.1   |
| 459   | 912350.23 | 5023317.36 | 99.50  | 2     | N   | A     | 83.7  | 2.3  | 0.0    | 0.0  | 0.0  | 67.9 | 10.4 | -4.2 | 0.0  | 0.0   | 9.0  | 0.0  | 7.0  | -4.1   |
| 459   | 912350.23 | 5023317.36 | 99.50  | 2     | E   | A     | -33.2 | 2.3  | 0.0    | 0.0  | 0.0  | 67.9 | 10.4 | -4.2 | 0.0  | 0.0   | 9.0  | 0.0  | 7.0  | -121.1 |
| 468   | 912342.39 | 5023313.62 | 99.50  | 2     | D   | A     | 83.7  | 12.0 | 0.0    | 0.0  | 0.0  | 68.0 | 10.4 | -4.2 | 0.0  | 0.0   | 13.4 | 0.0  | 8.6  | -0.5   |
| 468   | 912342.39 | 5023313.62 | 99.50  | 2     | N   | A     | 83.7  | 12.0 | 0.0    | 0.0  | 0.0  | 68.0 | 10.4 | -4.2 | 0.0  | 0.0   | 13.4 | 0.0  | 8.6  | -0.5   |
| 468   | 912342.39 | 5023313.62 | 99.50  | 2     | E   | A     | -33.2 | 12.0 | 0.0    | 0.0  | 0.0  | 68.0 | 10.4 | -4.2 | 0.0  | 0.0   | 13.4 | 0.0  | 8.6  | -117.5 |
| 491   | 912335.04 | 5023310.12 | 99.50  | 2     | D   | A     | 83.7  | -2.4 | 0.0    | 0.0  | 0.0  | 68.0 | 10.4 | -4.2 | 0.0  | 0.0   | 13.3 | 0.0  | 8.6  | -14.8  |
| 491   | 912335.04 | 5023310.12 | 99.50  | 2     | N   | A     | 83.7  | -2.4 | 0.0    | 0.0  | 0.0  | 68.0 | 10.4 | -4.2 | 0.0  | 0.0   | 13.3 | 0.0  | 8.6  | -14.8  |
| 491   | 912335.04 | 5023310.12 | 99.50  | 2     | E   | A     | -33.2 | -2.4 | 0.0    | 0.0  | 0.0  | 68.0 | 10.4 | -4.2 | 0.0  | 0.0   | 13.3 | 0.0  | 8.6  | -131.8 |
| 581   | 911794.66 | 5022763.68 | 106.00 | 0     | D   | A     | 83.7  | 15.8 | 0.0    | 0.0  | 0.0  | 70.0 | 11.6 | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 21.4   |
| 581   | 911794.66 | 5022763.68 | 106.00 | 0     | N   | A     | 83.7  | 15.8 | 0.0    | 0.0  | 0.0  | 70.0 | 11.6 | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 21.4   |
| 581   | 911794.66 | 5022763.68 | 106.00 | 0     | E   | A     | -33.2 | 15.8 | 0.0    | 0.0  | 0.0  | 70.0 | 11.6 | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | -95.6  |
| 585   | 912355.41 | 5023211.13 | 99.50  | 0     | D   | A     | 83.7  | 11.6 | 0.0    | 0.0  | 0.0  | 65.9 | 9.2  | -3.8 | 0.0  | 0.0   | 17.9 | 0.0  | 0.0  | 6.0    |
| 585   | 912355.41 | 5023211.13 | 99.50  | 0     | N   | A     | 83.7  | 11.6 | 0.0    | 0.0  | 0.0  | 65.9 | 9.2  | -3.8 | 0.0  | 0.0   | 17.9 | 0.0  | 0.0  | 6.0    |
| 585   | 912355.41 | 5023211.13 | 99.50  | 0     | E   | A     | -33.2 | 11.6 | 0.0    | 0.0  | 0.0  | 65.9 | 9.2  | -3.8 | 0.0  | 0.0   | 17.9 | 0.0  | 0.0  | -110.9 |
| 592   | 912313.28 | 5023295.12 | 99.50  | 0     | D   | A     | 83.7  | 12.8 | 0.0    | 0.0  | 0.0  | 67.2 | 10.0 | -4.0 | 0.0  | 0.0   | 12.8 | 0.0  | 0.0  | 10.5   |
| 592   | 912313.28 | 5023295.12 | 99.50  | 0     | N   | A     | 83.7  | 12.8 | 0.0    | 0.0  | 0.0  | 67.2 | 10.0 | -4.0 | 0.0  | 0.0   | 12.8 | 0.0  | 0.0  | 10.5   |
| 592   | 912313.28 | 5023295.12 | 99.50  | 0     | E   | A     | -33.2 | 12.8 | 0.0    | 0.0  | 0.0  | 67.2 | 10.0 | -4.0 | 0.0  | 0.0   | 12.8 | 0.0  | 0.0  | -106.5 |
| 599   | 912362.07 | 5023200.23 | 99.50  | 0     | D   | A     | 83.7  | 11.0 | 0.0    | 0.0  | 0.0  | 65.7 | 9.1  | -3.8 | 0.0  | 0.0   | 19.2 | 0.0  | 0.0  | 4.5    |
| 599   | 912362.07 | 5023200.23 | 99.50  | 0     | N   | A     | 83.7  | 11.0 | 0.0    | 0.0  | 0.0  | 65.7 | 9.1  | -3.8 | 0.0  | 0.0   | 19.2 | 0.0  | 0.0  | 4.5    |
| 599   | 912362.07 | 5023200.23 | 99.50  | 0     | E   | A     | -33.2 | 11.0 | 0.0    | 0.0  | 0.0  | 65.7 | 9.1  | -3.8 | 0.0  | 0.0   | 19.2 | 0.0  | 0.0  | -112.5 |
| 605   | 911915.80 | 5022835.47 | 106.50 | 0     | D   | A     | 83.7  | 13.9 | 0.0    | 0.0  | 0.0  | 68.8 | 10.8 | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 21.5   |
| 605   | 911915.80 | 5022835.47 | 106.50 | 0     | N   | A     | 83.7  | 13.9 | 0.0    | 0.0  | 0.0  | 68.8 | 10.8 | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 21.5   |
| 605   | 911915.80 | 5022835.47 | 106.50 | 0     | E   | A     | -33.2 | 13.9 | 0.0    | 0.0  | 0.0  | 68.8 | 10.8 | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | -95.5  |
| 607   | 912360.30 | 5023320.81 | 99.50  | 0     | D   | A     | 83.7  | 11.6 | 0.0    | 0.0  | 0.0  | 67.2 | 9.9  | -4.0 | 0.0  | 0.0   | 20.6 | 0.0  | 0.0  | 1.6    |
| 607   | 912360.30 | 5023320.81 | 99.50  | 0     | N   | A     | 83.7  | 11.6 | 0.0    | 0.0  | 0.0  | 67.2 | 9.9  | -4.0 | 0.0  | 0.0   | 20.6 | 0.0  | 0.0  | 1.6    |
| 607   | 912360.30 | 5023320.81 | 99.50  | 0     | E   | A     | -33.2 | 11.6 | 0.0    | 0.0  | 0.0  | 67.2 | 9.9  | -4.0 | 0.0  | 0.0   | 20.6 | 0.0  | 0.0  | -115.4 |
| 608   | 912352.22 | 5023318.13 | 99.50  | 0     | D   | A     | 83.7  | 4.2  | 0.0    | 0.0  | 0.0  | 67.2 | 10.0 | -4.0 | 0.0  | 0.0   | 15.8 | 0.0  | 0.0  | -1.1   |
| 608   | 912352.22 | 5023318.13 | 99.50  | 0     | N   | A     | 83.7  | 4.2  | 0.0    | 0.0  | 0.0  | 67.2 | 10.0 | -4.0 | 0.0  | 0.0   | 15.8 | 0.0  | 0.0  | -1.1   |
| 608   | 912352.22 | 5023318.13 | 99.50  | 0     | E   | A     | -33.2 | 4.2  | 0.0    | 0.0  | 0.0  | 67.2 | 10.0 | -4.0 | 0.0  | 0.0   | 15.8 | 0.0  | 0.0  | -118.1 |
| 614   | 912356.94 | 5023319.69 | 99.50  | 2     | D   | A     | 83.7  | 5.5  | 0.0    | 0.0  | 0.0  | 67.9 | 10.4 | -4.2 | 0.0  | 0.0   | 25.2 | 0.0  | 10.1 | -20.2  |
| 614   | 912356.94 | 5023319.69 | 99.50  | 2     | N   | A     | 83.7  | 5.5  | 0.0    | 0.0  | 0.0  | 67.9 | 10.4 | -4.2 | 0.0  | 0.0   | 25.2 | 0.0  | 10.1 | -20.2  |
| 614   | 912356.94 | 5023319.69 | 99.50  | 2     | E   | A     | -33.2 | 5.5  | 0.0    | 0.0  | 0.0  | 67.9 | 10.4 | -4.2 | 0.0  | 0.0   | 25.2 | 0.0  | 10.1 | -137.2 |
| 636   | 912353.13 | 5023318.43 | 99.50  | 2     | D   | A     | 83.7  | 6.5  | 0.0    | 0.0  | 0.0  | 67.9 | 10.4 | -4.2 | 0.0  | 0.0   | 9.0  | 0.0  | 7.0  | 0.2    |
| 636   | 912353.13 | 5023318.43 | 99.50  | 2     | N   | A     | 83.7  | 6.5  | 0.0    | 0.0  | 0.0  | 67.9 | 10.4 | -4.2 | 0.0  | 0.0   | 9.0  | 0.0  | 7.0  | 0.2    |
| 636   | 912353.13 | 5023318.43 | 99.50  | 2     | E   | A     | -33.2 | 6.5  | 0.0    | 0.0  | 0.0  | 67.9 | 10.4 | -4.2 | 0.0  | 0.0   | 9.0  | 0.0  | 7.0  | -116.8 |
| 668   | 912300.61 | 5023257.21 | 99.50  | 0     | D   | A     | 83.7  | 11.3 | 0.0    | 0.0  | 0.0  | 66.9 | 9.8  | -4.0 | 0.0  | 0.0   | 13.1 | 0.0  | 0.0  | 9.1    |
| 668   | 912300.61 | 5023257.21 | 99.50  | 0     | N   | A     | 83.7  | 11.3 | 0.0    | 0.0  | 0.0  | 66.9 | 9.8  | -4.0 | 0.0  | 0.0   | 13.1 | 0.0  | 0.0  | 9.1    |
| 668   | 912300.61 | 5023257.21 | 99.50  | 0     | E   | A     | -33.2 | 11.3 | 0.0    | 0.0  | 0.0  | 66.9 | 9.8  | -4.0 | 0.0  | 0.0   | 13.1 | 0.0  | 0.0  | -107.9 |
| 673   | 911770.35 | 5022741.34 | 105.06 | 0     | D   | A     | 83.7  | 14.5 | 0.0    | 0.0  | 0.0  | 70.2 | 11.7 | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 19.8   |
| 673   | 911770.35 | 5022741.34 | 105.06 | 0     | N   | A     | 83.7  | 14.5 | 0.0    | 0.0  | 0.0  | 70.2 | 11.7 | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 19.8   |
| 673   | 911770.35 | 5022741.34 | 105.06 | 0     | E   | A     | -33.2 | 14.5 | 0.0    | 0.0  | 0.0  | 70.2 | 11.7 | -3.5 | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | -97.2  |
| 679   | 912299.31 | 5023270.45 | 99.50  | 0     | D   | A     | 83.7  | 11.3 | 0.0    | 0.0  | 0.0  | 67.1 | 9.9  | -3.9 | 0.0  | 0.0   | 12.7 | 0.0  | 0.0  | 9.3    |
| 679   | 912299.31 | 5023270.45 | 99.50  | 0     | N   | A     | 83.7  | 11.3 | 0.0    | 0.0  | 0.0  | 67.1 | 9.9  | -3.9 | 0.0  | 0.0   | 12.7 | 0.0  | 0.0  | 9.3    |
| 679   | 912299.31 | 5023270.45 | 99.50  | 0     | E   | A     | -33.2 | 11.3 | 0.0    | 0.0  | 0.0  | 67.1 | 9.9  | -3.9 | 0.0  | 0.0   | 12.7 | 0.0  | 0.0  | -107.7 |
| 700   | 912306.36 | 5023245.99 | 99.50  | 0     | D   | A     | 83.7  | 10.9 | 0.0    | 0.0  | 0.0  | 66.7 | 9.7  | -3.9 | 0.0  | 0.0   | 13.7 | 0.0  | 0.0  | 8.5    |
| 700   | 912306.36 | 5023245.99 | 99.50  | 0     | N   | A     | 83.7  | 10.9 | 0.0    | 0.0  | 0.0  | 66.7 | 9.7  | -3.9 | 0.0  | 0.0   | 13.7 | 0.0  | 0.0  | 8.5    |
| 700   | 912306.36 | 5023245.99 | 99.50  | 0     | E   | A     | -33.2 | 10.9 | 0.0    | 0.0  | 0.0  | 66.7 | 9.7  | -3.9 | 0.0  | 0.0   | 13.7 | 0.0  | 0.0  | -108.5 |
| 703   | 912306.36 | 5023245.99 | 99.50  | 1     | D   | A     | 83.7  | 10.9 | 0.0    | 0.0  | 0.0  | 66.8 | 9.7  | -3.9 | 0.0  | 0.0   | 27.0 | 0.0  | 72.5 | -77.4  |
| 703   | 912306.36 | 5023245.99 | 99.50  | 1     | N   | A     | 83.7  | 10.9 | 0.0    | 0.0  | 0.0  | 66.8 | 9.7  | -3.9 | 0.0  | 0.0   | 27.0 | 0.0  | 72.5 | -77.4  |
| 703   | 912306.36 | 5023245.99 | 99.50  | 1     | E   | A     | -33.2 | 10.9 | 0.0    | 0.0  | 0.0  | 66.8 | 9.7  | -3.9 | 0.0  | 0.0   | 27.0 | 0.0  | 72.5 | -194.4 |
| 708   | 912326.35 | 5023305.14 | 99.50  | 0     | D   | A     | 83.7  | 11.4 | 0.0    | 0.0  | 0.0  | 67.2 | 10.0 | -4.0 | 0.0  | 0.0   | 13.4 | 0.0  | 0.0  | 8.5    |
| 708   | 912326.35 | 5023305.14 | 99.50  | 0     | N   | A     | 83.7  | 11.4 | 0.0    | 0.0  | 0.0  | 67.2 | 10.0 | -4.0 | 0.0  | 0.0   | 13.4 | 0.0  | 0.0  | 8.5    |
| 708   | 912326.35 | 5023305.14 | 99.50  | 0     | E   | A     | -33.2 | 11.4 | 0.0    | 0.0  | 0.0  | 67.2 | 10.0 | -4.0 | 0.0  | 0.0   | 13.4 | 0.0  | 0.0  | -108.5 |
| 716   | 912302.95 | 5023282.99 | 99.50  | 0     | D   | A</td |       |      |        |      |      |      |      |      |      |       |      |      |      |        |

## 118-0052 Sample Calculation - R08 (Drummond Pit, Unmitigated)

| Line Source, ISO 9613, Name: "Delivery Trucks", ID: "DrTrk" |           |            |          |       |     |               |             |           |              |            |            |              |              |             |              |               |              |              |            |             |
|---|-----------|------------|----------|-------|-----|---------------|-------------|-----------|--------------|------------|------------|--------------|--------------|-------------|--------------|---------------|--------------|--------------|------------|-------------|
| Nr.   | X<br>(m)  | Y<br>(m)   | Z<br>(m) | Refl. | DEN | Freq.<br>(Hz) | Lw<br>dB(A) | I/a<br>dB | Optime<br>dB | K0<br>(dB) | Di<br>(dB) | Adiv<br>(dB) | Aatm<br>(dB) | Agr<br>(dB) | Afol<br>(dB) | Ahous<br>(dB) | Abar<br>(dB) | Cmet<br>(dB) | RL<br>(dB) | Lr<br>dB(A) |
| 724   | 911898.60 | 5022827.00 | 106.50   | 0     | D   | A             | 83.7        | 11.4      | 0.0          | 0.0        | 0.0        | 69.0         | 10.9         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | 18.7       |             |
| 724   | 911898.60 | 5022827.00 | 106.50   | 0     | N   | A             | 83.7        | 11.4      | 0.0          | 0.0        | 0.0        | 69.0         | 10.9         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | 18.7       |             |
| 724   | 911898.60 | 5022827.00 | 106.50   | 0     | E   | A             | -33.2       | 11.4      | 0.0          | 0.0        | 0.0        | 69.0         | 10.9         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | -98.3      |             |
| 739   | 911823.50 | 5022795.11 | 106.50   | 0     | D   | A             | 83.7        | 12.1      | 0.0          | 0.0        | 0.0        | 69.7         | 11.4         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | 18.3       |             |
| 739   | 911823.50 | 5022795.11 | 106.50   | 0     | N   | A             | 83.7        | 12.1      | 0.0          | 0.0        | 0.0        | 69.7         | 11.4         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | 18.3       |             |
| 739   | 911823.50 | 5022795.11 | 106.50   | 0     | E   | A             | -33.2       | 12.1      | 0.0          | 0.0        | 0.0        | 69.7         | 11.4         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | -98.7      |             |
| 751   | 911820.00 | 5022790.41 | 106.50   | 1     | D   | A             | 83.7        | 6.7       | 0.0          | 0.0        | 0.0        | 70.6         | 11.9         | -4.0        | 0.0          | 0.0           | 26.0         | 0.0          | 9.0        | -23.1       |
| 751   | 911820.00 | 5022790.41 | 106.50   | 1     | N   | A             | 83.7        | 6.7       | 0.0          | 0.0        | 0.0        | 70.6         | 11.9         | -4.0        | 0.0          | 0.0           | 26.0         | 0.0          | 9.0        | -23.1       |
| 751   | 911820.00 | 5022790.41 | 106.50   | 1     | E   | A             | -33.2       | 6.7       | 0.0          | 0.0        | 0.0        | 70.6         | 11.9         | -4.0        | 0.0          | 0.0           | 26.0         | 0.0          | 9.0        | -140.1      |
| 759   | 911813.52 | 5022782.60 | 106.50   | 0     | D   | A             | 83.7        | 11.9      | 0.0          | 0.0        | 0.0        | 69.8         | 11.5         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | 17.9       |             |
| 759   | 911813.52 | 5022782.60 | 106.50   | 0     | N   | A             | 83.7        | 11.9      | 0.0          | 0.0        | 0.0        | 69.8         | 11.5         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | 17.9       |             |
| 759   | 911813.52 | 5022782.60 | 106.50   | 0     | E   | A             | -33.2       | 11.9      | 0.0          | 0.0        | 0.0        | 69.8         | 11.5         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | -99.1      |             |
| 762   | 911813.63 | 5022782.72 | 106.50   | 1     | D   | A             | 83.7        | 11.9      | 0.0          | 0.0        | 0.0        | 70.7         | 12.0         | -4.0        | 0.0          | 0.0           | 26.0         | 0.0          | 9.0        | -18.1       |
| 762   | 911813.63 | 5022782.72 | 106.50   | 1     | N   | A             | 83.7        | 11.9      | 0.0          | 0.0        | 0.0        | 70.7         | 12.0         | -4.0        | 0.0          | 0.0           | 26.0         | 0.0          | 9.0        | -18.1       |
| 762   | 911813.63 | 5022782.72 | 106.50   | 1     | E   | A             | -33.2       | 11.9      | 0.0          | 0.0        | 0.0        | 70.7         | 12.0         | -4.0        | 0.0          | 0.0           | 26.0         | 0.0          | 9.0        | -135.0      |
| 780   | 911744.63 | 5022720.63 | 104.50   | 0     | D   | A             | 83.7        | 11.3      | 0.0          | 0.0        | 0.0        | 70.5         | 11.9         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | 16.1       |             |
| 780   | 911744.63 | 5022720.63 | 104.50   | 0     | N   | A             | 83.7        | 11.3      | 0.0          | 0.0        | 0.0        | 70.5         | 11.9         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | 16.1       |             |
| 780   | 911744.63 | 5022720.63 | 104.50   | 0     | E   | A             | -33.2       | 11.3      | 0.0          | 0.0        | 0.0        | 70.5         | 11.9         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | -100.9     |             |
| 787   | 911837.26 | 5022807.37 | 106.50   | 0     | D   | A             | 83.7        | 10.3      | 0.0          | 0.0        | 0.0        | 69.6         | 11.3         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | 16.6       |             |
| 787   | 911837.26 | 5022807.37 | 106.50   | 0     | N   | A             | 83.7        | 10.3      | 0.0          | 0.0        | 0.0        | 69.6         | 11.3         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | 16.6       |             |
| 787   | 911837.26 | 5022807.37 | 106.50   | 0     | E   | A             | -33.2       | 10.3      | 0.0          | 0.0        | 0.0        | 69.6         | 11.3         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | -100.4     |             |
| 795   | 911754.99 | 5022728.21 | 104.56   | 0     | D   | A             | 83.7        | 10.9      | 0.0          | 0.0        | 0.0        | 70.4         | 11.8         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | 15.9       |             |
| 795   | 911754.99 | 5022728.21 | 104.56   | 0     | N   | A             | 83.7        | 10.9      | 0.0          | 0.0        | 0.0        | 70.4         | 11.8         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | 15.9       |             |
| 795   | 911754.99 | 5022728.21 | 104.56   | 0     | E   | A             | -33.2       | 10.9      | 0.0          | 0.0        | 0.0        | 70.4         | 11.8         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | -101.1     |             |
| 800   | 911734.48 | 5022714.49 | 104.50   | 0     | D   | A             | 83.7        | 10.1      | 0.0          | 0.0        | 0.0        | 70.6         | 11.9         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | 14.8       |             |
| 800   | 911734.48 | 5022714.49 | 104.50   | 0     | N   | A             | 83.7        | 10.1      | 0.0          | 0.0        | 0.0        | 70.6         | 11.9         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | 14.8       |             |
| 800   | 911734.48 | 5022714.49 | 104.50   | 0     | E   | A             | -33.2       | 10.1      | 0.0          | 0.0        | 0.0        | 70.6         | 11.9         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | -102.1     |             |
| 805   | 911830.47 | 5022803.24 | 106.50   | 0     | D   | A             | 83.7        | 7.2       | 0.0          | 0.0        | 0.0        | 69.7         | 11.4         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | 13.4       |             |
| 805   | 911830.47 | 5022803.24 | 106.50   | 0     | N   | A             | 83.7        | 7.2       | 0.0          | 0.0        | 0.0        | 69.7         | 11.4         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | 13.4       |             |
| 805   | 911830.47 | 5022803.24 | 106.50   | 0     | E   | A             | -33.2       | 7.2       | 0.0          | 0.0        | 0.0        | 69.7         | 11.4         | -3.5        | 0.0          | 0.0           | 0.0          | 0.0          | -103.6     |             |