JART COMMENT SUMMARY TABLE – Noise

Please accept the following as feedback from the Burlington Quarry Joint Agency Review Team (JART). Fully addressing each comment below will help expedite the potential for resolutions of the consolidated JART objections and individual agency objections. **Additional, new comments may be provided once a response has been prepared to the comments raised below and additional information provided**.

	JART Comments (May 2021)	Reference	Source of Comment	Applicant Response	JART Response
Report/Date: Noise Impact Assessment, April 2020				**Author: HGC Engineering**	
Report/Date: Acoustic Assessment Report – Halton Asphalt Supply, February 2020				**Author: HGC Engineering**	
1.	Provide a copy of the HGC report for MECP environmental compliance approval to confirm how the height of the berms was determined and what mitigation they provide to the nearby residential noise sensitive receptors.	General	City of Burlington	An updated Acoustic Assessment Report dated April 27, 2021 was submitted to the MECP in support of an ECA amendment application for the Halton Asphalt Supply hot-mix asphalt plant located on the quarry lands. A copy of the updated AAR is included as an Appendix to the updated Noise Impact Study (NIS) enclosed with this response. Determination of existing berm heights is detailed in Section 6 of the AAR and Section 5 of the NIS.	
2.	Provide a copy of the MECP ECA. This information is required for the City's records to confirm there is an ECA for the existing quarry and asphalt plant operations.	General	City of Burlington	A copy of the existing ECA for the hot-mix asphalt plant is enclosed with this response. The MECP has not yet issued the amended ECA referenced in Comment 1. However, as noted in Section 1 of the NIS, the MECP Senior Noise Engineer assigned to the application has confirmed the noise review is complete. With the exception of the hot-mix asphalt plant, the equipment operated within the quarry is exempt from requiring an ECA per Ontario Regulation 524/98.	
3.	Provide a clear figure/map summary of stationary source noise levels for each receptor and sample calculations.	General	City of Burlington	The updated NIS includes sound level contours for worst-case operating scenarios in Figures 4a through 4i, and detailed source sound level contributions at points of reception, included as Appendix D.	
4.	Provide OLA receptors for nearby residential, and clearly identify on a figure/map, if possible, noise contour mapping would be appreciated so that it is clearly demonstrated which receptors could be most affected.	General	City of Burlington	The updated NIS includes OLA receptors associated with each assessed residential property and sound level contours for worst-case operating scenarios in Figures 4a through 4i.	
5.	For STAMSON calculations there may be multiple segments needed for different receptors, i.e. RO4 may need No. 2 Side Road and Guelph Line, same for RO2 maybe Colling and Guelph Line. Please provide sample calculations to demonstrate.	General	City of Burlington	The updated NIS and AAR do not rely on predictions of road traffic sound to establish noise criteria. Rather, the Class 2 exclusionary minimum limits stipulated in MECP guideline NPC-300 have been adopted.	
6.	Does not include traffic counts confirmed by Halton and Burlington and copies of the correspondence with the agencies. It looks like private traffic counts were undertaken and utilized in calculations. Please provide traffic data from Burlington and Halton, including a copy of the correspondence, for comparison.	General	City of Burlington	The updated NIS and AAR do not rely on predictions of road traffic sound to establish noise criteria. Rather, the Class 2 exclusionary minimum limits stipulated in MECP guideline NPC-300 have been adopted.	
7.	Confirm responsibility for the implementation and maintenance of required noise control measures.	General	City of Burlington	The implementation of noise control measures is the responsibility of the two respective entities operating within the site, Halton Asphalt Supply (via an ECA) and Nelson Aggregate (via an ARA licence).	
8.	Need an estimate from the Quarry regarding truck traffic. There will be at grade quarry truck traffic crossing NO. 2 Side Road when the east section opens, their calculations only looked to take into consideration Guelph Line. Are there mitigation measures needed here (noise wall?) as the crossing is adjacent to two residential back yards and large trucks will be going up and down a slope,	General	City of Burlington	Truck traffic activities and operating hours are detailed in Appendix B of the updated NIS and are based on the predictable worst-case activities assuming the maximum yearly production rate of 2 million tonnes, provided by Nelson Aggregate. Noise from haul trucks crossing 2	

	use of air brakes, etc. can be very loud. Please also ensure operating hours are taken into consideration and clearly stated (i.e. 24-hour/7-day operation or 7 to 7 Monday to Saturday. Additionally, please ensure truck traffic is based on licence tonnage, i.e. if licence is for 2 million tonnes extraction per year, ensure calculations are based on worst case scenario.			Side Road to access the South Extension is included, as are recommended berms west/east of the crossing as detailed in Appendix C. Nelson Aggregate has confirmed that the use of Jake-brakes is not permitted on the site (as noted in Appendix C).	
9.	Provide revised Noise/Acoustical Impact Assessments and Blast Impact Analysis for review and commenting by all vested parties.	General	City of Burlington	The updated NIS is enclosed with this response.	
10.	Please provide a copy of the current MECP Environmental Compliance Approval for the existing quarry operations, and a copy of the noise impact study that was submitted as supporting materials for the approval.	General	City of Burlington	See response to Comment 2.	
11.	Please confirm in the report who is responsible for the implementation and maintenance of the required noise measures.	General	City of Burlington	Implementation and maintenance of the noise control measures are detailed in Appendix C of the updated NIS.	
12.	Provide noise measurements taken on site during normal working hours in peak construction season	General	City of Burlington	The NIS assesses the worst-case noise impact from the future quarry operation, based on an assumption that it will operate at its maximum yearly production rate of 2 million tonnes. Noise measurements taken during existing operation, which can be significantly different than that of the maximum production, are not relevant for the purposes of this noise assessment.	
13.	MHBC Burlington Quarry Extension Drawing 2 of 4 dated September 2020, Note I, items 1 to 6, reference “complete a noise audit to ensure the site is meeting NPC-300 Noise Guidelines” with each phase. The HGC Noise Impact Assessment Nelson aggregate Quarry Extension dated April 22, 2020 does not reflect this requirement in their summary or recommendations. The noise report will need to be updated to reflect these statements.	General	City of Burlington	Appendix C of the updated NIS includes a recommendation for periodic noise surveys to confirm that extension operations comply with the limits stipulated in NPC-300.	
14.	An Acoustic Assessment Report Halton Asphalt Supply prepared by HGC Engineering (Dated February 27, 2020), was submitted in support of the application. This report (when revised) should be referenced and included in the appendix of the Noise Impact Assessment Nelson Aggregate Quarry Extension.	General	City of Burlington	The most recent version of the AAR, dated April 27, 2021, is included in the updated NIS as Appendix F.	
15.	This acoustic report should clarify the operating tonnage the assessment is based on. The assessment should be based on the worst-case operating scenario of 2 million tonnes per year. Adjustments to the applicant’s noise report may be required, depending on the quantity and how the material is mined.	General	J.E. Coulter Associates Limited	The updated NIS includes a statement in Appendix B confirming that predictable worst-case operation considers trucking activities based on the maximum yearly production rate of 2 million tonnes.	
16.	The acoustic reports use two different truck models in their analysis. The ambient sound levels at the receptors surrounding the site are calculated using STAMSON version 5.04. The trucks in STAMSONS data base are rated to sound level of approximately 83 dBA at 15m (acceleration in second gear at ~35Km/h on asphalt). The CadnaA model of the site that is used to predict the sound levels produced by the quarry uses highway truck sound levels of 72 dBA at 15m. This review limits the analysis to twin axle trucks since both models assume truck noise to be the equivalent of ~13 cars. As such, truck noise dominates the ambient noise near roadways. When comparing the sound levels from the quarry to the baseline sound levels at the receptors, the highway trucks modelled in CadnaA should use similar sound levels as the trucks used to calculate the baseline sound levels at the receptors. The CadnaA model has used trucks that are 11 dB quieter than those used in STAMSON and appear to be low.	General	J.E. Coulter Associates Limited	Sound emission levels employed for highway trucks in the acoustic analysis represent an average of trucks measured by HGC Engineering for numerous past projects and are consistent with those used by HGC Engineering in numerous peer reviewed noise impact studies of pits/quarries throughout Ontario. As noted in the response to Comment 5, the updated NIS does not rely on predictions of road traffic sound to establish noise criteria.	
17.	For modelling purposes, the report used 83 dBA at 15m maximum for the quarry haul when operating in the quarry. The report does not address the sound levels of operations such as the haul trucks climbing the hill to the at-grade crossing when loaded. It also does not model Jacobs brakes used to manage speed when descending.	General	J.E. Coulter Associates Limited	The updated NIS explicitly considers noise from haul trucks crossing 2 Side Road to access the South Extension (including the incline/decline), as detailed in Appendix C. Nelson Aggregate has confirmed that the use of Jake-brakes is not permitted on the site (as noted in Appendix C).	

18.	The ambient sound levels calculated in STAMSON are used to justify the use of Class 2 sound level criteria for the receptors surrounding the quarry. A review of Table 1 in the Noise Impact Assessment report shows that the calculated ambient sound levels at most receptors are below the exclusion limit. The statement about the analysis being conservative is incorrect. The background sound levels could not be measured in the field as the current sound levels produced by the quarry are significant enough that it would dominate the ambient sound levels. No further field observations were conducted nor was any monitoring data provided.	General	J.E. Coulter Associates Limited	Class 1 through 3 acoustical environments are defined in NPC-300 in terms of the degree to which the background sound level is dominated by the activities of people (e.g. road traffic), not the background sound levels themselves. During multiple visits to the site and surrounding area, as cited in the NIS, HGC Engineering staff observed daytime background sound levels to be dominated by traffic (excluding that to/from the subject site) on surrounding roadways. Where background sound levels in such areas may be dominated by natural sounds at night, they best fit the definition of a Class 2 area, per NPC-300. This classification is supported by an MECP Senior Noise Engineer having recently completed their review of the updated AAR prepared for the onsite hot-mix asphalt plant (see the response to Comment 2), and a previous NIS prepared for the site by Aercoustics Engineering Limited.	
19.	The report states that the parts of the quarry and asphalt plant (shipping material in and out) will operate at night. 2nd Line east of Highway 6 is shown as having 0 to 2 trucks per hour during the early morning periods. This will create a Class 3 environment at Receptors R4 to R8 and drop the minimum exclusion limit to 40 dBA. This will result in the sound levels from the Nelson Quarry being above the guideline limits at Receptors R4 to R7. With no additional mitigation recommended, nighttime operation involving shipping is questionable.	General	J.E. Coulter Associates Limited	See response to Comment 18.	
20.	Broadband backup beepers (hiss) can be used as an alternative to the tonal beepers currently used. They are noticeably quieter than the standard beepers when heard indoors and cost ~$200 to equip the construction vehicle. Not every vehicle will be captive to the operation, so a complete changeover will take several years. They have been used successfully on the Toronto Eglinton LRT construction project.	General	J.E. Coulter Associates Limited	The updated NIS includes a recommendation in Appendix C to equip all mobile equipment operating in the extension with broadband back-up alarms.	
21.	A quiet drill with a sound power of 109 dBA has been used in the analysis and has been assumed to operate at all areas on the quarry. This will require the use of a special drill such as the Atlas Copco ROC D9C silenced drill or similar and should be noted clearly in the report. Standard drills typically have a sound power of 115 to 120 dBA.	General	J.E. Coulter Associates Limited	Comment only, no response required.	
22.	The noise reports discuss briefly the MECP notion of predicable worst case for the analysis. This would be the case when the weather is calm (minimum leaf noise), often at night and during an inversion. The combination of light winds in the evening or early morning often results in the worst-case scenario. It is often the result of idling trucks lining up at the gate of a quarry awaiting opening.	General	J.E. Coulter Associates Limited	Comment only, no response required.	
23.	The local noise barrier for the asphalt plant should be designed using the octave band sound values, as we have observed in past projects that the sound emitted from such plants is mostly concentrated in the lower frequency (100–500 Hz) bands.	General	J.E. Coulter Associates Limited	The updated NIS and AAR no longer include a recommendation for a noise barrier at the hot-mix asphalt plant.	
24.	NPC-233, one of the report's references, states in Section 8-4 that the sound level analysis should include mapping of the existing level of road traffic in the vicinity of the proposed site and the increase in such traffic due to the plant's operation, projected for at least 10 years into the future. The truck routes to/from the quarry have not been considered as it is assumed that truck traffic from the extension will replace the current truck traffic and will therefore not cause an increase in sound levels. However, residences along the haul route may have been under the impression that the existing quarry was nearing exhaustion and	General	J.E. Coulter Associates Limited	Comment only, no response required.	

	the sound levels from truck traffic would be reduced once the material in the existing quarry was exhausted.				
25.	Ambient sound levels were calculated in STAMSON version 5.04 using traffic data of the surrounding roadways. The ambient sound levels could not be measured as the existing quarry operates through the year. Calculated sound levels when the quarry extensions are in operation were within the applicable MECP noise criteria at all receptors. Once the south quarry extension is operational, a noise monitoring program should be implemented to corroborate the predicted sound levels at the receptors selected in the report. A monitoring program for the predictable worst-case scenario should be prepared ahead of time and should account for wind direction. The monitoring should be conducted when the quarry is operating at full capacity. A similar monitoring program should be implemented once the west extension is operational.	General	J.E. Coulter Associates Limited	Appendix C of the updated NIS includes a recommendation for periodic noise surveys to confirm that extension operations comply with the limits stipulated in NPC-300.	
26.	The asphalt plant horn, use of Jacobs brakes, working hours, and low-frequency noise from the asphalt plant burners remain to be dealt with and should be dealt with by direct talks with the quarry owners. *JART Comment:* These issues will be raised in discussions with the quarry operator.	General	J.E. Coulter Associates Limited	Comment only, no response required.	
27.	Section 1 indicates that the study is required to support an application for a Class “A” license (Category 2) to the MNRF. It is also required to support an Official Plan Designation to “Mineral Resource Extraction Area” in the City of Burlington. Please include the additional purpose of the study in this section.	Section 1	City of Burlington	Section 1 of the updated NIS has been updated accordingly.	
28.	Section 2 indicates that the extraction activities and processing of aggregate for the proposed quarry extension will occur from Monday to Friday 7:00 to 19:00; therefore, would recommend (if possible) that the language of the Official Plan Designation (if approved) reflect the working hours stated in the Noise Impact Study. Alternatively, if operations could run on a 24-hour basis (including weekends) please revise the report to reflect and clearly state.	Section 2	City of Burlington	Proposed hours of operation are as stated in the NIS and are included on the ARA Site Plans. The ARA Site Plans are the appropriate location to govern hours of operation.	
29.	Section 3 indicates that the hourly traffic data for No 2 Side Road, Cedar Springs Road and Colling Road were collected by a private firm. Would ask that HGC reach out to the City of Burlington’s Traffic Department to obtain the City’s traffic data and use the most conservative data for calculations. Please include a copy of the City’s correspondence in the appendix of the report.	Section 3	City of Burlington	The updated NIS and AAR do not rely on predictions of road traffic sound to establish noise criteria. Rather, the Class 2 exclusionary minimum limits stipulated in MECP guideline NPC-300 have been adopted.	
30.	Please reference NPC-300 in the title or as a footnote on the table, including class designation.	Section 3 (Table 1)	City of Burlington	Tables 2 and 3 in Section 7 of the updated NIS include reference to NPC-300 and the established Class 2 acoustical environment.	
31.	Please change the description of “Residential Home” to the individual municipal addresses. All the documents associated with the application are accessible to the public on the City’s website, and the impact to each property should be clear for adjacent homeowners to see in the report.	Section 3 (Table 1)	City of Burlington	The updated NIS includes the municipal address of each point of reception in Tables 2 and 3 of Section 7 and Appendix D.	
32.	Section 4 references Appendix B, which outlines on-site operations. Appendix B provides Sound Power Levels for equipment/trucks and estimates of truck haul movements, but does not reference noise levels on adjacent receptors. i.e. the proposed entrance for the No. 2 Side Road south quarry expansion could impact existing residential lots, typically the house can provide protection for rear yard outdoor living areas from road/traffic noise, but if the Quarry and associated vehicles/equipment is operating at the side or rear of existing homes what is the effect on the houses outdoor living areas? Please assess each house in the area on all sides. Specifically, comment if noise/acoustical barriers are required for adjacent/nearby existing residential properties. Please also provide comment in this regard for the other adjacent existing residential properties on the west expansion, i.e. without a new access proposed, combined with the construction of new berms and difference in elevation, the	Section 4 (Appendix B)	City of Burlington	The updated NIS includes noise from haul trucks crossing the 2 Side Road to access the South Extension and assesses the sound levels of the quarry at all façades and in outdoor amenity areas of neighbouring homes. Multiple operating scenarios are presented, representative of “worst-case” impacts at each point of reception.	

	noise from the West expansion may be very different from the noise on the South expansion.				
33.	Please provide a table summarizing the stationary sources of noise, impact on adjacent residential and allowable limits, exceedances, mitigated level estimates, etc.	Section 4	City of Burlington	The updated NIS includes the sound level contribution of each source at each point of reception, detailed in Appendix D.	
34.	Section 5 references a separate Acoustical Assessment for the hot-mix asphalt plant. Please provide a copy of this report.	Section 5	City of Burlington	The most version of the AAR, dated April 27, 2021, is included in the updated NIS as Appendix F.	
35.	Please provide more detail for the noise control measures, i.e. height of berms, reference a plan that shows the location of the berms, etc., and any other noise .control measures.	Section 5	City of Burlington	The updated NIS includes detailed descriptions of the noise control measures in Section 5, Figures 3a through 3c and Appendix C.	
36.	Please include the quarry/asphalt plant working hours assessed/used for the calculations for predicted worst-case sound levels, i.e. 7am to 7pm Monday to Saturday or 24-hours/7days	Section 7	City of Burlington	The updated NIS details the operating hours of all onsite operations in Appendix B.	
37.	Appendix B, Table B2, please include the location of the Phases either in the column subtitles or as a footnote to the table, i.e. Phases 1-2 are the south expansion, Phases 3-6 are the west expansion. Also, the MHBC Operation Plan indicates Phase 1A and 1B, what is the difference? The MHBC extraction sequence notes do not delineate between Phase 1A and 1B, the Extraction Sequence section "I" just states Phase 1.	Appendix B (Table B2)	City of Burlington	Table B2 of the updated NIS has been updated accordingly.	
38.	Appendix C provides a sketch for a 1.0-metre barrier at the asphalt plant mixing tower. How was the height determined, what are the unmitigated noise levels and the mitigated noise levels on nearby noise sensitive receptors?	Appendix C	City of Burlington	The updated NIS and AAR no longer include a recommendation for a noise barrier at the hot-mix asphalt plant.	
39.	The traffic counts for the municipal roads, Colling, Cedar Springs, No. 2 Side Road, were taken by a private firm in December 2018. We ask that the City's traffic data be obtained from City Staff, for comparison, and include a copy of the correspondence in the appendix.	Appendix D	City of Burlington	The updated NIS and AAR do not rely on predictions of road traffic sound to establish noise criteria. Rather, the Class 2 exclusionary minimum limits stipulated in MECP guideline NPC-300 have been adopted.	
40.	Please ensure the example STAMSON calculations clearly identify the road segment, i.e. is it Colling Road, Guelph Line, No. 2 Side Road, etc. Some STAMSON calculations may require more than one segment, i.e. corner lots would have minimum 2 - one for each road. Provide clearer figures/maps summarizing calculations.	Appendix E	City of Burlington	The updated NIS and AAR do not rely on predictions of road traffic sound to establish noise criteria. Rather, the Class 2 exclusionary minimum limits stipulated in MECP guideline NPC-300 have been adopted.	
41.	Appendix F does not appear to clearly label the total sound level calculation (total) for R01. Please clearly label the total dBA from the quarry vehicles/equipment/trucks/etc. Additionally, R01 looks to be the receptor that may be one of the least impacted by the proposed quarry expansion (as it is located near the middle of Colling Road between Guelph Line and Cedar Springs Road). Please provide sample calculations, including a clear total dBA for each receptor for at minimum R10, R09, and R15, additional calculations may be asked for after review of the revised report.	Appendix F	City of Burlington	Appendix D of the updated NIS includes a table showing sound level contributions from all equipment at each point of reception. Detailed calculations showing attenuating parameters determined by the ISO 9613-2 standard have been included for locations R10 and R15. Location R09 has been excluded from assessment as it does not represent a noise sensitive use (a barn associated with the home represented by R08).	
Report/Date: Acoustic Assessment Report – Halton Asphalt Supply, February 2020				**Author: HGC Engineering**	
42.	There were supplemental pages submitted in October's circulation, STAMSON calculations for R03-Morning, RO4-Morning, R05-Morning, R06-Morning, R07-Morning, and R14-Morning, there was also Table 1 that had rows for R01 through R18, but the aforementioned individual STAMSON calculations do not appear to correspond with Table 1. Do these supplementary tables reference the Acoustic Assessment Report Halton Asphalt Supply, or another report? If another report, which one?	General	City of Burlington	The updated AAR does not rely on predictions of road traffic sound to establish noise criteria. Rather, the Class 2 exclusionary minimum limits stipulated in MECP guideline NPC-300 have been adopted.	
43.	There was a calculation summary provided for R01, R02, R03, R04, R05, R06, R07, R08, R09, R10, R11, VL1, and VL2. Figure 2 provides general locations of receptors but the report does not clearly identify the municipal addresses of the receptors. Would ask that the municipal addresses of the receptors be provided in a separate table (or on Table 2 & 3) so that they can be clearly identified by the general public, as all reports submitted in support of the OPA are public information and available for view on the City's website.	General	City of Burlington	An updated AAR (included as Appendix F to the updated NIS) has been submitted to the MECP in support of an application to amend the ECA for the onsite hot-mix asphalt plant. As noted in the response to Comment 2, the MECP Senior Noise Engineer has completed their review of the AAR. Therefore, the AAR cannot be further updated. Nevertheless, the updated NIS includes the	

				municipal address of each point of reception in Tables 2 and 3 of Section 7 and Appendix D.	
44.	The executive summary states the purpose of the report is to support an application to the Ontario Ministry of Environment Conservation and Parks for an Environmental Compliance Approval for a Hot Mix Asphalt Plant. Is this for a renewal of an existing MECP Compliance Approval? The Halton Asphalt Supply Ltd. (Steed & Evans) is existing. Has the Compliance Approval from the MECP been received? Is this report also in support of the OPA?	General	City of Burlington	The AAR was prepared in support of an ECA amendment application for the hot-mix asphalt plant. A copy of the existing ECA for the hot-mix asphalt plant is enclosed with this response. The amended ECA has not yet been issued by the MECP. However, as noted in Section 1 of the NIS, the MECP Senior Noise Engineer assigned to the application has confirmed the noise review is complete. The NIS enclosed with this response has been prepared in support of the OPA.	
45.	Tables 2 and 3 are for the applicable (allowable) sound level limits. Please provide additional columns or additional tables for the calculated and mitigated sound level limits at the receptors. Figure 5a, 5b, 5c, 5d, and 5e show contour lines for mitigated noise levels, and Appendix A and B have tables/calculations for unmitigated and mitigated values. Please also provide a summary (of just dBA for each receptor) table in the body of the report.	General	City of Burlington	The AAR has been submitted as part of an ECA application to the MECP and has been since reviewed and accepted by the Ministry review staff, as confirmed by email communication included in Appendix F of the updated NIS. For this reason, it is no longer possible to make changes to the AAR. Nevertheless, detailed information is included in Appendix F.	
46.	Figure 4a identifies a 1.0-metre high barrier above the mixing tower. Please provide details, material, density, etc., will this need a building permit? Please reach out to the City's Building Department to confirm. Usually building permits are required for only permanent structures	General	City of	Based on results of the updated acoustic analysis, the noise barrier for the mixing tower is no longer required.	
47.	Section 8.2 indicates that noise control measures will be installed within 24 months following receipt of approval from the MECP. If the hot mix plant is currently in operation should not the noise control measures already be in place?	General (Photograph)	City of Burlington	Per Section 9 of the Environmental Protection Act, the operator of the hot-mix asphalt plant is not permitted to install the noise control measures recommended in the AAR until approval is granted by the MECP in the form of an amended ECA. Typically, ECA conditions relating to proposed noise control measures provide a timeline for implementation based on a proposal from the proponent and approved at the discretion of the MECP.	
48.	Figure 4b identifies a 5.0-metre high barrier around the drill. Please provide details, material, density, etc., is it a portable barrier, will this need a building permit? Please reach out to the City's Building Department to confirm.	Section 2.2 (Page 4) Last Sentence	City of Burlington	The updated NIS and AAR no longer include a recommendation for a noise barrier at the hot-mix asphalt plant.	
49.	Appendix F, Tables F1 and F1 - Please indicate which values are NPC-300 and which values are calculated background sound levels. Please also note at the bottom of the tables that they are also identified as Tables 2 and 3 in section 5 of the report.	Section 3.1	City of Burlington	The updated AAR does not rely on predictions of road traffic sound to establish noise criteria. Rather, the MECP exclusionary minimum limits (NPC-300) have been adopted.	
50.	Please confirm in the report who is responsible for the implementation and maintenance of the required noise measures.	Section 3.2	City of Burlington	The implementation of noise control measures at the hot-mix asphalt plant will be the responsibility of Halton Asphalt Supply, which will be stipulated in the ECA upon issuance.	
51.	Appendix G - Please also provide the correspondence from the City and Region that accompanied the traffic data. Appendix F indicates that the Region of Halton supplied traffic counts, but did not indicate that the City of Burlington supplied traffic counts. Ask that the City of Burlington Traffic Department be contacted for traffic counts so that City information can be compared to the consultant's counts. As mentioned, provide copies of the correspondence with the agencies as well in the appendix.	Section 3.2 (Page 11) Last Sentence	City of Burlington	The updated AAR does not rely on predictions of road traffic sound to establish noise criteria. Rather, the MECP exclusionary minimum limits (NPC-300) have been adopted.	
52.	Appendix H - The sample STAMSON calculation did not identify the road name. Please provide additional sample STAMSON calculations and ensure the roads and receptors are clearly identified.	Section 3.2 (Page 12)	City of Burlington	The updated AAR does not rely on predictions of road traffic sound to establish noise criteria. Rather, the MECP exclusionary minimum limits (NPC-300) have been adopted.	

53.	The NEC is undertaking review of the second submission regarding Visual Impact Assessment (VIA) and notes that there is a relationship between berm location and height in terms of visual impact. Any modifications to berming and landscaping will need to also be considered in terms of visual impact.	General	Niagara Escarpment Commission	Comment only, no response required.	

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NOISE IMPACT ASSESSMENT
NELSON AGGREGATE QUARRY EXTENSION
BURLINGTON, ONTARIO

Prepared for

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November 15, 2021

HGC Engineering Project No. 01800576

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1 INTRODUCTION AND SUMMARY

HGC Engineering was retained by Nelson Aggregate Co. to assess the noise impact from the proposed extension of their Nelson Aggregate Quarry in Burlington, Ontario. The study is required to support applications to the Ministry of Natural Resources and Forestry for a Class 'A' Licence (Category 2) under the Aggregate Resources Act ("ARA") and its regulations, including associated land use approvals from the Niagara Escarpment Commission, Region of Halton, and City of Burlington.

This is an update of the original report, dated April 22, 2020, to address comments from the Burlington Quarry Joint Agency Review Team ("JART").

The quarry and associated equipment operate in accordance with a licence issued under the ARA and, per Ontario Regulation 524/98, is exempt from requiring an Environmental Compliance Approval ("ECA") from the Ontario Ministry of the Environment, Conservation and Parks ("MECP"). The site also hosts a hot-mix asphalt plant operated by Halton Asphalt Supply, which does require an ECA. HGC Engineering prepared an Acoustic Assessment Report ("AAR"), revised April 27, 2021, in support of an application to amend the existing ECA for the hot-mix asphalt plant. A copy of the AAR and the existing ECA for the hot-mix asphalt plant, number 8/300/088/82/826, are included for reference as Appendix F. As of the date of this updated noise impact assessment, the amended ECA had not yet been issued. However, the MECP Senior Noise Engineer assigned to the application confirmed by email (included in Appendix F) that their review is complete. The AAR jointly assesses sound emissions from the hot-mix asphalt plant and all existing operations within the quarry.

The principles and methods of assessing the proposed quarry extension, as detailed herein, including identifying points of reception, establishing applicable criteria, acoustical modelling, etc., are in accordance with MECP requirements and are the same as presented in the AAR. The analysis was based on a review of the operational site plan of the proposed extension prepared by MHBC, dated April 2021, a digital terrain model of the existing quarry and surrounding area, equipment sound

levels measured by HGC Engineering at the site, and information from Nelson Aggregate regarding the planned operation of the extension.

The assessment considers all operations of the quarry, including extraction activities in the proposed extension areas, and material processing and shipping within the existing quarry. Overall sound levels from the future activities following the extension were assessed against the noise limits stipulated in the MECP guideline NPC-300. The results of the analysis indicate that, with the benefit of noise control measures integral to the site design, the sound emissions from the site will comply with the MECP noise limits. Details of the analysis are outlined below.

1.1 Summary of Updates

This updated report includes the following updates:

- The geometry of the acoustical model has been refined based on more recent georeferenced data,
- Noise criteria have been updated to conservatively adopt the minimum exclusion limits of the MECP,
- The assessment locations at surrounding points of reception have been adjusted to consider worst-case impacts at all dwelling facades and in outdoor amenity areas within 30 metres of residential dwellings given the adoption of the minimum exclusion limits,
- Location R09 has been removed from assessment as it represented a non-noise-sensitive location (a barn),
- The noise control measures have been revised considering the above updates and are summarized in Section 5 and Appendix C.

2 DESCRIPTION OF SITE AND SURROUNDING AREA

The subject quarry is located at 2433 No. 2 Side Road, Burlington, immediately west of the village of Mt. Nemo. A key plan of the area is included as Figure 1.

The site is an open aggregate quarry employing various mobile equipment to extract and transport raw materials to stationary processing equipment. The processed aggregate products are shipped off-

site via aggregate transport trucks. Nelson Aggregate currently proposes to open two new extraction areas referred to as the West Extension and the South Extension. Copies of the most recent site plans showing the existing quarry and the proposed extensions are included as Appendix A. The maximum production rate of the proposed operation is 2 million tonnes per year. Although Nelson Aggregate indicates operating the site at peak production is expected to be rare, the assessment presented herein considers a predictable worst-case operating scenario based on this production capacity.

As noted above, the site hosts a hot-mix asphalt plant owned by a third-party; sound emissions from the hot-mix asphalt plant have been jointly assessed with the quarry.

Noise from blasting is subject to assessment under MECP guideline NPC-119, and is therefore excluded from this assessment.

The extraction activities and processing of aggregate from the proposed extension will occur from Monday to Friday, from 7:00 to 19:00.

The existing Burlington Quarry site plans do not have any restrictions for hours of operation. From May to December, the processing activities in the existing quarry generally occur from 7:00 to 17:00 on weekdays and from 7:00 to 12:00 on Saturdays, but could occasionally operate to 19:00. The shipping of aggregate products generally occurs from 6:00 to 19:00, but could occur on a 24-hour basis. From January to May, both processing activities and shipping of products generally occur from 7:00 to 17:00. However, on occasion, the processing could extend to 19:00 and the shipping activities could occur on a 24-hour basis.

The nearest noise-sensitive points of reception are residential homes surrounding the site, to the north, east, south, and west, shown in Figure 2 as assessment locations R01a/b through R18a/b. Locations R01a through R18a represent the most-potentially impacted of all façades of surrounding homes. Locations R01b through R18b represent the outdoor amenity areas within 30 metres of the respective dwellings. Note that locations R01 through R08 are the same as those included in the AAR; locations R10 through R18 do not correspond with the AAR as different receptors were required to assess the sound levels of the proposed quarry extension.

The background sound in the area is dominated by traffic noise on surrounding roadways, including Guelph Line, No. 2 Side Road, Cedar Springs Road, and Colling Road. The acoustical environment in the area is characterized as a Class 2 area, in accordance with MECP guidelines.

3 CRITERIA FOR ACCEPTABLE SOUND LEVELS

The applicable sound level limits, for the purposes of this assessment, were established in accordance with MECP guideline NPC-300 [1]. The guideline draws a distinction between sound produced by traffic sources and that produced by industrial or commercial activities, which are classified as *stationary sources*. According to NPC-300, sound level limits for stationary sources apply at noise sensitive points of reception and are set as the greater of either the applicable exclusion limit, or the minimum background sound level that occurs during the time period corresponding to the operation of the source under assessment.

The exclusion limits applicable at windows of noise-sensitive locations in Class 2 areas are 50 dBA during daytime/evening hours (7:00 – 23:00) and 45 dBA during nighttime hours (23:00 – 7:00). The limits at outdoor amenity areas within 30 metres of residential dwellings are 50 dBA during daytime hours (7:00 – 19:00) and 45 dBA during evening hours (19:00 – 23:00). No limits apply at outdoor amenity areas during night-time hours.

The background sound levels can be determined through automated long-term measurement, or by predictive analysis based on road traffic volume counts, in cases where the background sound is dominated by road traffic. Since the site operates continuously, automated measurements of background sound could not be conducted at the nearest receptors without the possibility of including some contribution from the site. Although observations and predictions of road traffic noise indicate that minimum-hour background sound levels can be greater than the exclusionary minima at dwelling façades facing Guelph Line and 2 Side Road (and in outdoor amenity areas next to those roadways), at locations without direct/proximate exposure to Guelph Line and 2 Side Road (which have been accordingly assessed herein), background sound levels could fall as low as the exclusion limits. As a conservative approach, the exclusion limits applicable to Class 2 areas have been adopted for all assessment locations in this assessment.

4 DESCRIPTION OF QUARRY OPERATIONS

Nelson Aggregate proposes to open extraction in two new areas to the southeast and southwest of the main site. After initial stripping of the overburden, which will be used for construction of earth berms at the perimeter of the proposed extraction areas, the extraction will proceed in a total of six phases. The first two phases of extraction will occur in the South Extension, on the southeast side of No. 2 Side Road. Once resources in this area are exhausted, the extraction will proceed from the existing quarry to the West Extension, in Phases 3 through 6. The progress of extraction is evident from the graphical presentation in the site plan, included as Appendix A. In Phase 1, raw materials will be extracted down to approximately 270 metres above the sea level. In Phases 2 to 6, the materials will be removed in a single lift, down to the floor of the quarry at 252.5 metres above the sea level.

A rock drill will operate at the top of the terrain and drill holes to prepare rock cuts for blasting. Following a blast, loosened rock will be loaded into haul trucks for transport to the processing area in the existing quarry, which includes a series of crushers and screeners, and an electrical power generator. The haul trucks will access the South Extension via an at-grade crossing over No. 2 Side Road. The West Extension will be accessed by the haul trucks directly from the floor of the existing quarry. Products from the processing area will be loaded by a front-end loader into highway trucks, and shipped off-site, via the main entrance on No. 2 Side Road.

The asphalt plant produces hot-mix asphalt used in the construction industry. Raw materials and products are delivered to and shipped out via highway trucks.

Figure 2 shows the locations of the processing plant and the asphalt plant.

Details of the on-site operations considered for the purposes of this study are included as Appendix B.

5 NOISE CONTROL MEASURES

The quarry is currently bounded by perimeter berms which have, over time, transformed into permanent terrain features with varying heights and which are partly covered by vegetation. For this

reason, it was not practical to define the berms in discrete terms, showing their exact heights and lengths. A terrain survey of the site was commissioned by Nelson Aggregate in 2018, and the resulting detailed topographical data were included in the analysis. The site plans, included as Appendix A, depict the existing terrain features, which have been incorporated in the analysis.

Prior to commencement of extraction activities in the proposed extension areas, additional perimeter berms will be raised at the property line of the site, which are shown in detail in Figures 3a through 3e, and detailed in Appendix C. The beneficial acoustical shielding of the berms above has been included in the analysis.

In addition, two acoustical silencers will be required for the hot-mix asphalt plant, which are detailed in Appendix C and the AAR included as Appendix F. The benefit of these measures was included in this assessment.

In order for the site to comply with the MECP noise limits, the sound emission levels from the equipment at the site must not exceed those listed in Appendix B. The equipment at the site must also operate within the times detailed in Appendix B.

6 ASSESSMENT METHODOLOGY

The predictive model used for this study (*CadnaA, version 2021 MR2*) is based on the methods from ISO Standard 9613-2.2 “Acoustics – Attenuation of sound during propagation outdoors – Part 2: General Method of Calculation” [2] which accounts for reductions in sound levels due to geometrical spreading, air absorption, ground attenuation and acoustical shielding by intervening structures and topography. The ISO method tends to be conservative, as it assumes a moderate downwind condition (favorable for the propagation of sound from the source to a receiver) in all directions, at all times.

7 ASSESSMENT RESULTS

The overall sound levels from the site, including the proposed extension, were predicted to range from 35 dBA to 50 dBA during daytime hours (7:00 – 19:00), and from 27 to 45 dBA during

evening/night-time hours (19:00 – 7:00). These sound levels are within the applicable MECP noise criteria.

The results are summarized in Tables 1 and 2, below. Sample calculations and contributions of individual sound sources to the overall sound levels at individual assessment locations are detailed in Appendix D. Figures 4a through 4i show the sound levels in graphical form during the worst-case scenarios of extraction activities in both the South and West Extension.

Table 1: Predicted "Worst-Case" Sound Levels, L_{EQ} [dBA]
Most-Impacted Windows at Facades – R01a through R18a

Location	Address	Nelson Aggregate		NPC-300 Limits, Class 2 Area		Within Limits? (Yes/No)
		Daytime	Evening/Night	Daytime	Evening/Night	
		7:00 – 19:00	19:00 – 7:00	7:00 – 19:00	19:00 – 7:00	
R01a	2331 Colling Rd - 4.5 m AG	47	44	50	45	Yes
R02a	2401 Colling Rd - 4.5 m AG	44	39	50	45	Yes
R03a	2607 Homestead Dr - 4.5 m AG	46 – 47	42	50	45	Yes
R04a	2473 2 Side Rd - 4.5 m AG	50	45	50	45	Yes
R05a	2470 2 Side Rd - 4.5 m AG	48 – 49	42	50	45	Yes
R06a	2462 2 Side Rd - 4.5 m AG	49	44	50	45	Yes
R07a	2450 2 Side Rd - 1.5 m AG	49 – 50	44	50	45	Yes
R08a	2416 2 Side Rd - 1.5 m AG	49 – 50	43	50	45	Yes
R10a	2280 2 Side Rd - 1.5 m AG	49 – 50	36	50	45	Yes
R11a	2244 2 Side Rd - 4.5 m AG	49 – 50	37	50	45	Yes
R12a	2226 2 Side Rd - 4.5 m AG	48 – 49	36	50	45	Yes
R13a	2116 2 Side Rd - 1.5 m AG	43 – 49	31	50	45	Yes
R14a	5070 Cedar Springs Rd - 4.5 m AG	39 – 44	28	50	45	Yes
R15a	5191 Cedar Springs Rd - 4.5 m AG	39 – 43	30	50	45	Yes

Location	Address	Nelson Aggregate		NPC-300 Limits, Class 2 Area		Within Limits? (Yes/No)
		Daytime 7:00 – 19:00	Evening/Night 19:00 – 7:00	Daytime 7:00 – 19:00	Evening/Night 19:00 – 7:00	
R16a	5255 Cedar Springs Rd - 4.5 m AG	38 – 42	28	50	45	Yes
R17a	5353 Cedar Springs Rd - 4.5 m AG	37 – 41	29	50	45	Yes
R18a	2129 Colling Rd - 4.5 m AG	41 - 48	33	50	45	Yes

Table 2: Predicted "Worst-Case" Sound Levels, L_{EQ} [dBA]

Outdoor Amenity Areas – R01b through R18b

Location	Address	Nelson Aggregate		NPC-300 Limits, Class 2 Area		Within Limits? (Yes/No)
		Daytime 7:00 – 19:00	Evening/Night 19:00 – 7:00	Daytime 7:00 – 19:00	Evening 19:00 – 23:00	
R01b	2331 Colling Rd - 4.5 m AG	46	42	50	45	Yes
R02b	2401 Colling Rd - 4.5 m AG	43	37	50	45	Yes
R03b	2607 Homestead Dr - 4.5 m AG	46	42	50	45	Yes
R04b	2473 2 Side Rd - 4.5 m AG	48	44	50	45	Yes
R05b	2470 2 Side Rd - 4.5 m AG	46 – 47	38	50	45	Yes
R06b	2462 2 Side Road - 4.5 m AG	38 – 42	29	50	45	Yes
R07b	2450 2 Side Rd - 1.5 m AG	46 – 47	35	50	45	Yes
R08b	2416 2 Side Rd - 1.5 m AG	49 – 50	44	50	45	Yes
R10b	2280 2 Side Rd - 1.5 m AG	48 – 49	34	50	45	Yes
R11b	2244 2 Side Rd - 4.5 m AG	41 – 45	26	50	45	Yes
R12b	2226 2 Side Rd - 4.5 m AG	47 – 49	34	50	45	Yes
R13b	2116 2 Side Rd - 1.5 m AG	42 – 44	30	50	45	Yes
R14b	5070 Cedar Springs Rd - 4.5 m AG	38 – 43	27	50	45	Yes
R15b	5191 Cedar Springs Rd - 4.5 m AG	39 – 43	30	50	45	Yes

Location	Address	Nelson Aggregate		NPC-300 Limits, Class 2 Area		Within Limits? (Yes/No)
		Daytime	Evening/Night	Daytime	Evening	
		7:00 – 19:00	19:00 – 7:00	7:00 – 19:00	19:00 – 23:00	
R16b	5255 Cedar Springs Rd - 4.5 m AG	37 – 41	27	50	45	Yes
R17b	5353 Cedar Springs Rd - 4.5 m AG	35 – 40	27	50	45	Yes
R18b	2129 Colling Rd - 4.5 m AG	40 - 46	32	50	45	Yes

8 CONCLUSIONS

The results of the acoustical analysis indicate that, with the benefit of the noise control measures described in Section 5, sound levels from the Nelson Aggregate quarry including the proposed extension will comply with the noise limits set out in MECP guideline NPC-300.

REFERENCES

1. Ontario Ministry of the Environment, Conservation and Parks Publication NPC-300, *Environmental Noise Guideline, Stationary and Transportation Sources - Approval and Planning*, August, 2013.

2. International Organization for Standardization, *Acoustics – Attenuation of Sound during Propagation Outdoors – Part 2: General Method of Calculation*, ISO-9613-2, Switzerland, 1996.

3. International Organization for Standardization, *Acoustics – Determination of sound power levels of noise sources using sound intensity – Part 2: Measurement by scanning*, ISO-9614-2, Switzerland, 1996.

4. Google Maps and Aerial Imagery, Internet application: *maps.google.com*

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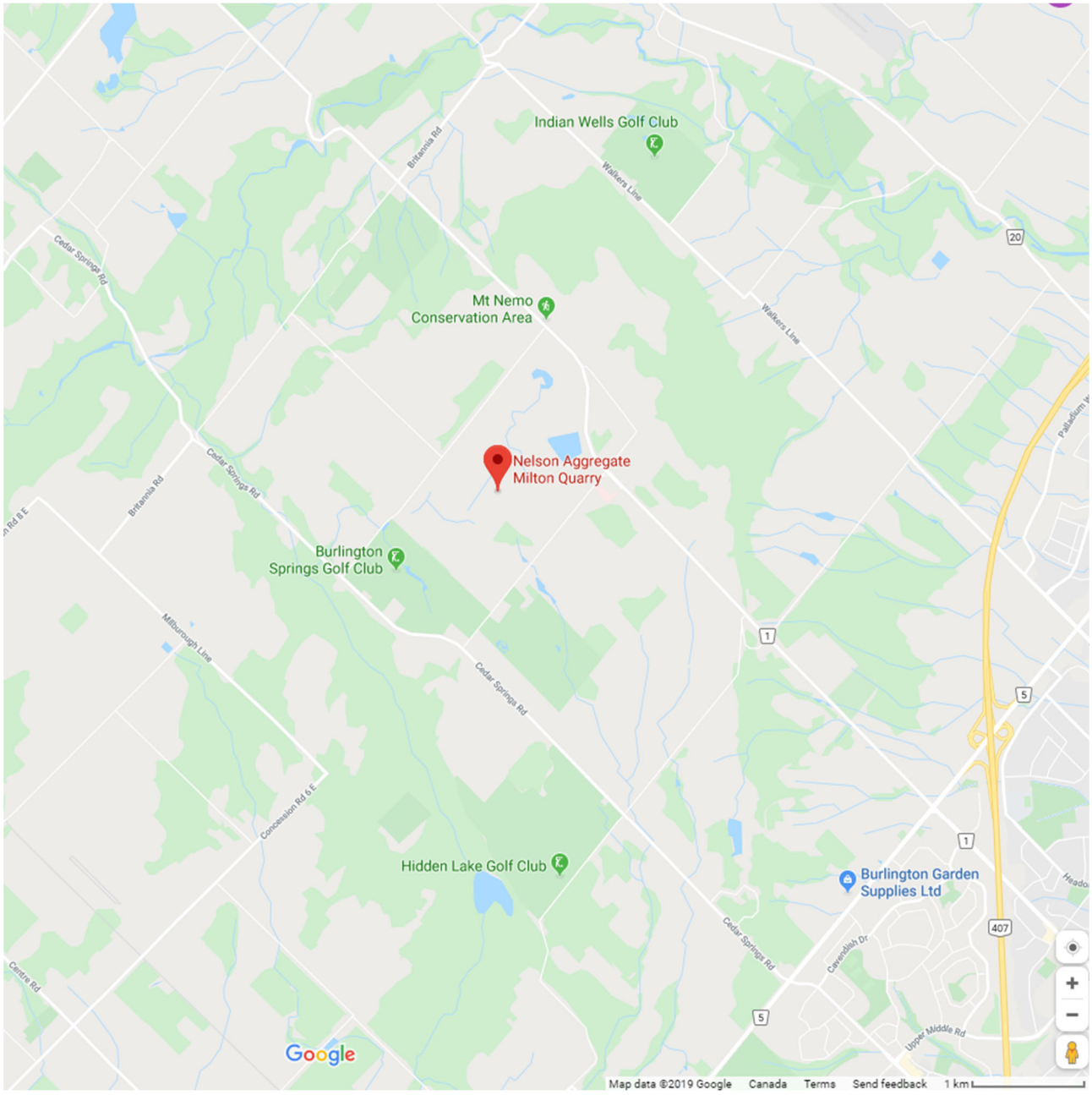


Figure 1: Location Map

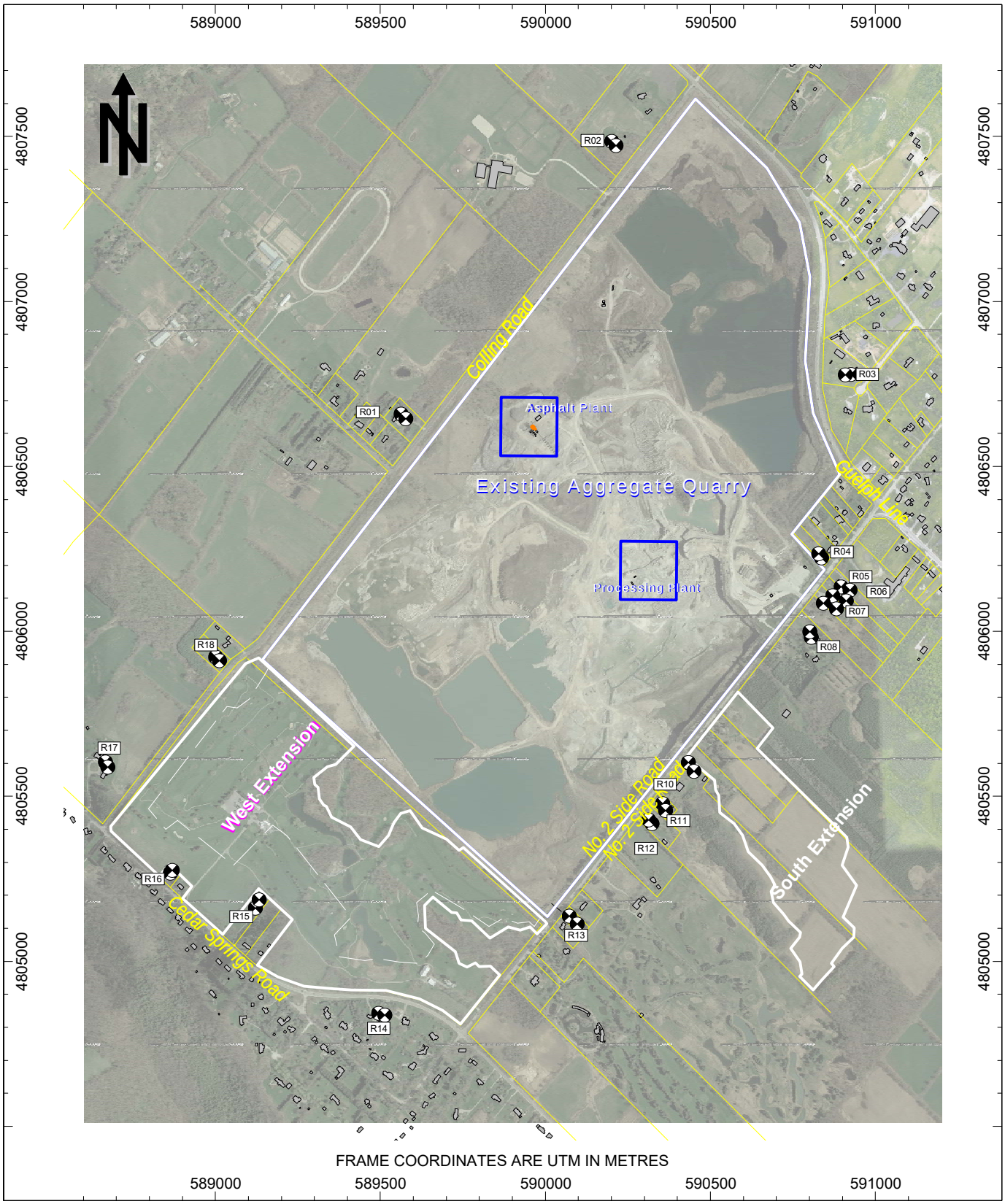


Figure 2: Points of Reception

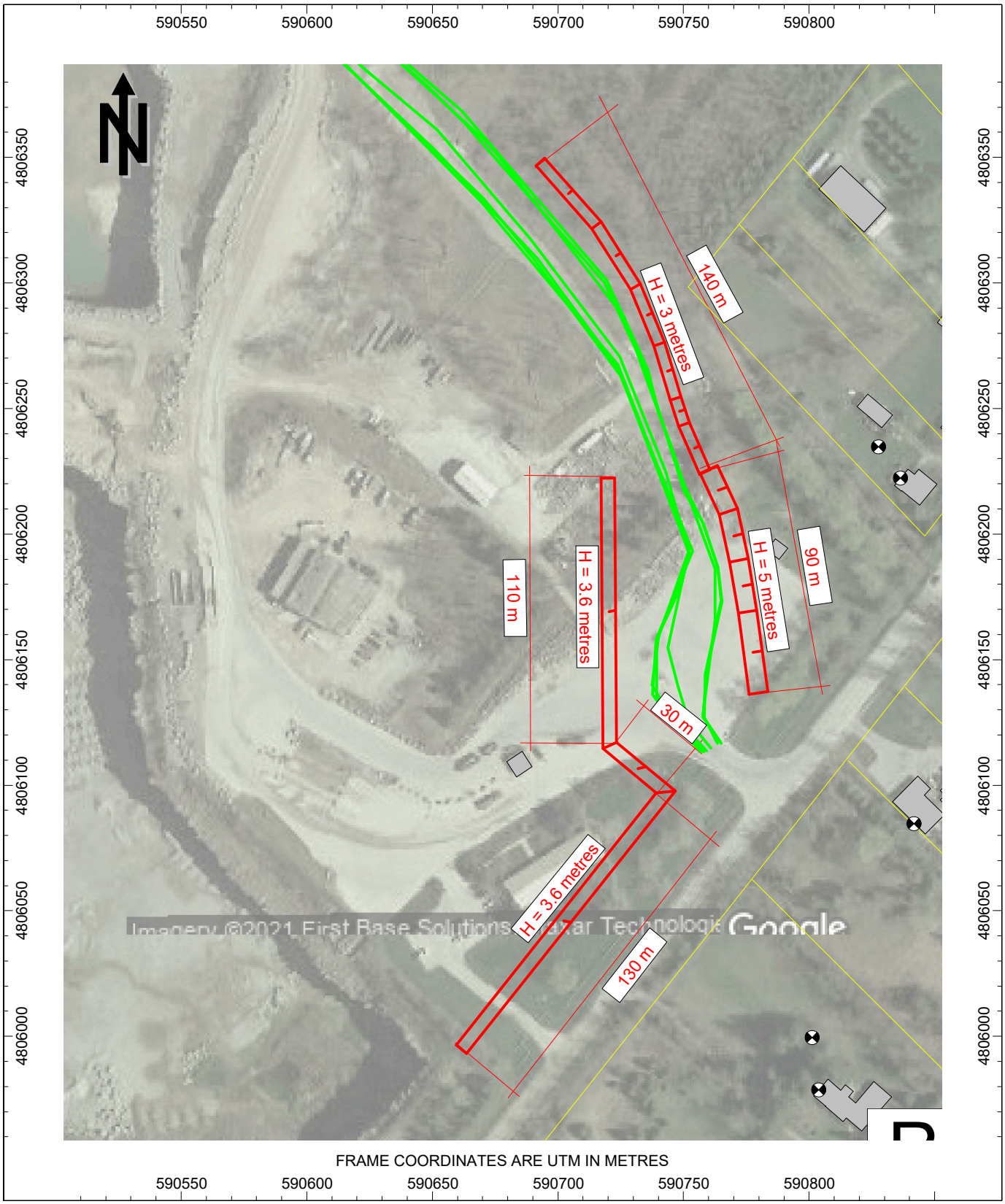


Figure 5: Noise Barriers/Berms Near Site Entrance

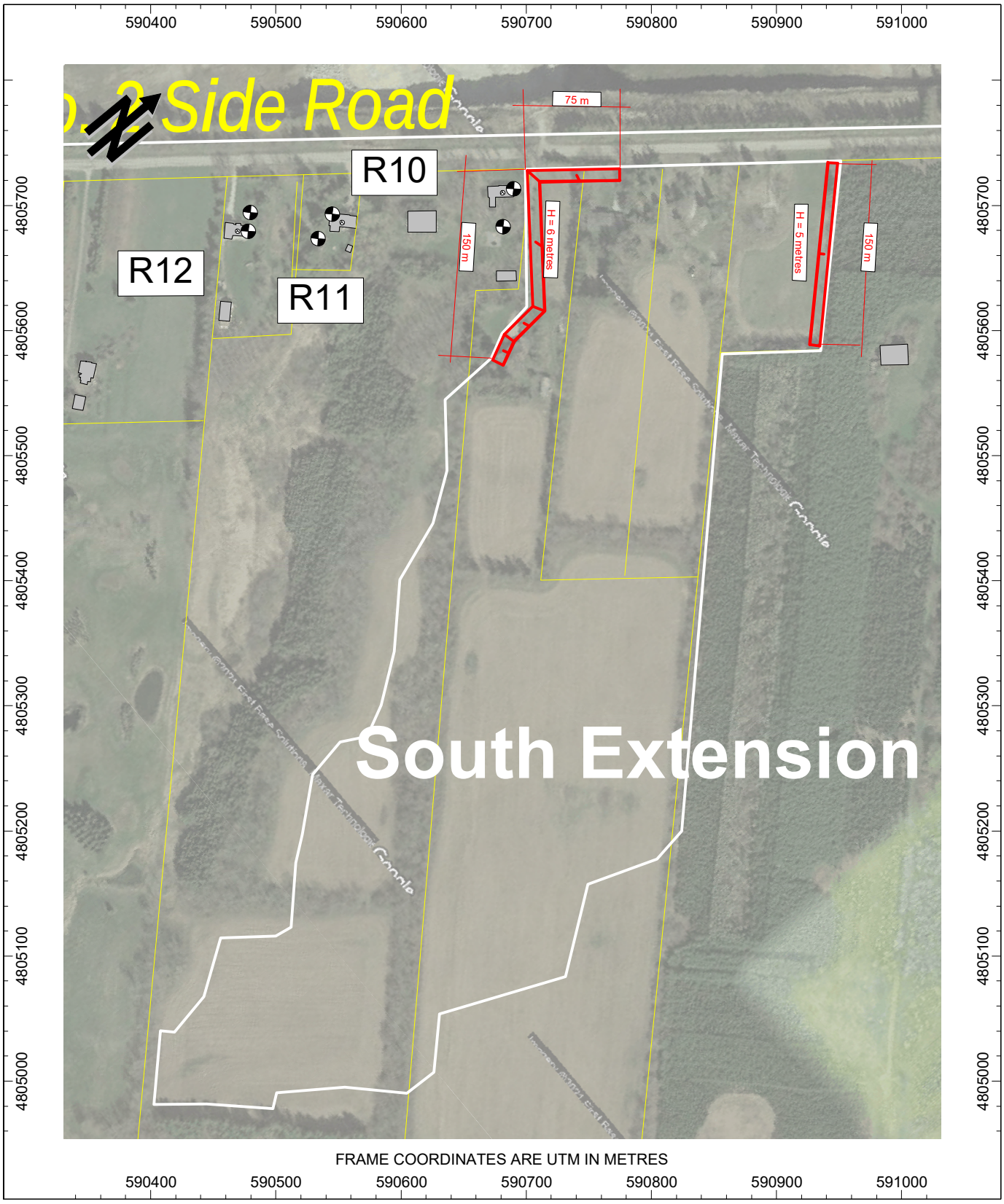


Figure 3b: Noise Berms at South Extension

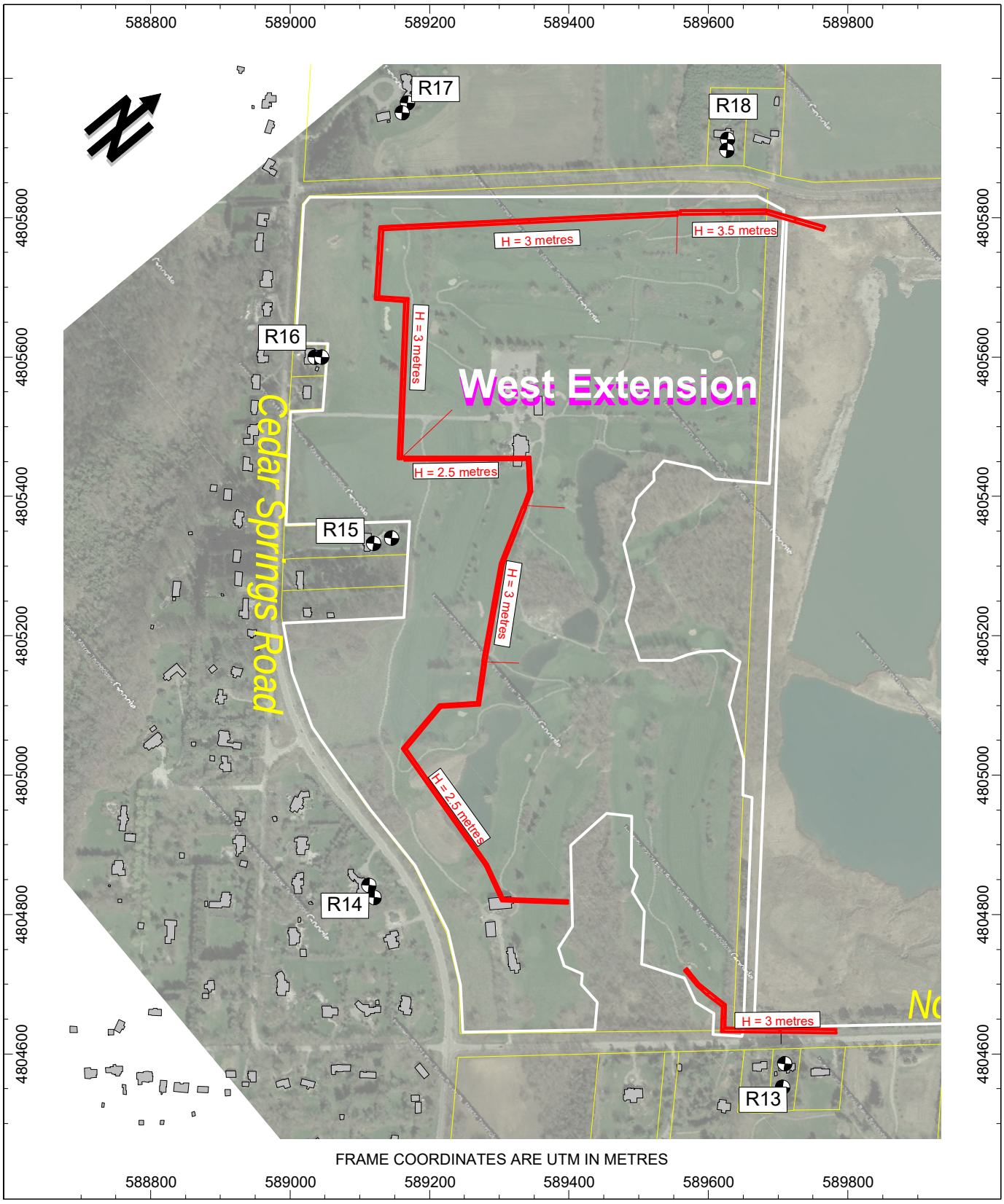


Figure 3c: Noise Berms at West Extension

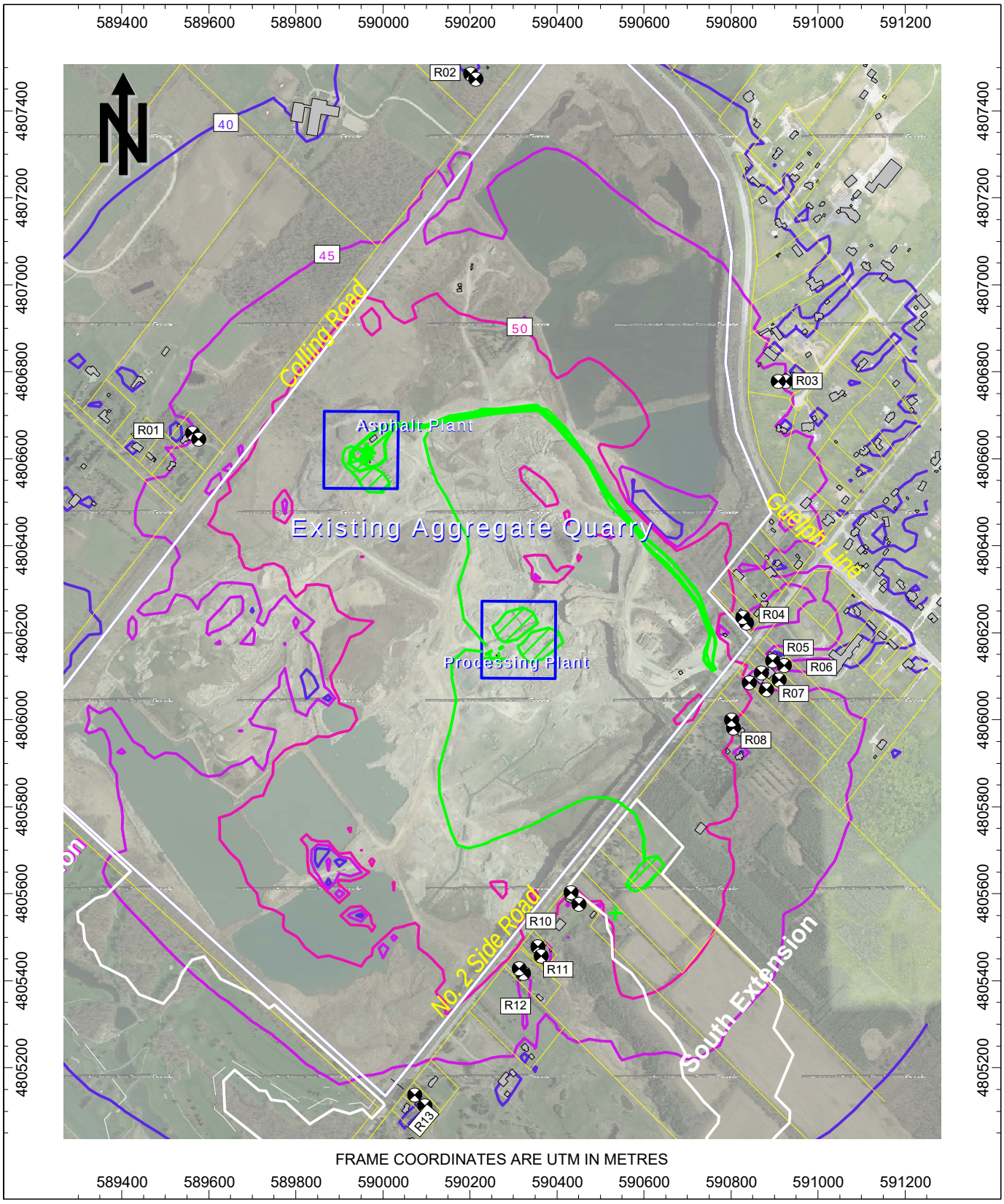


Figure 4a: Predicted Sound Level Contours at 1.5 m AG, Leq [dBA]
Predictable Worst-Case Scenario During Extraction of South Extension - Phase 1
Daytime Hours (7:00 - 19:00)

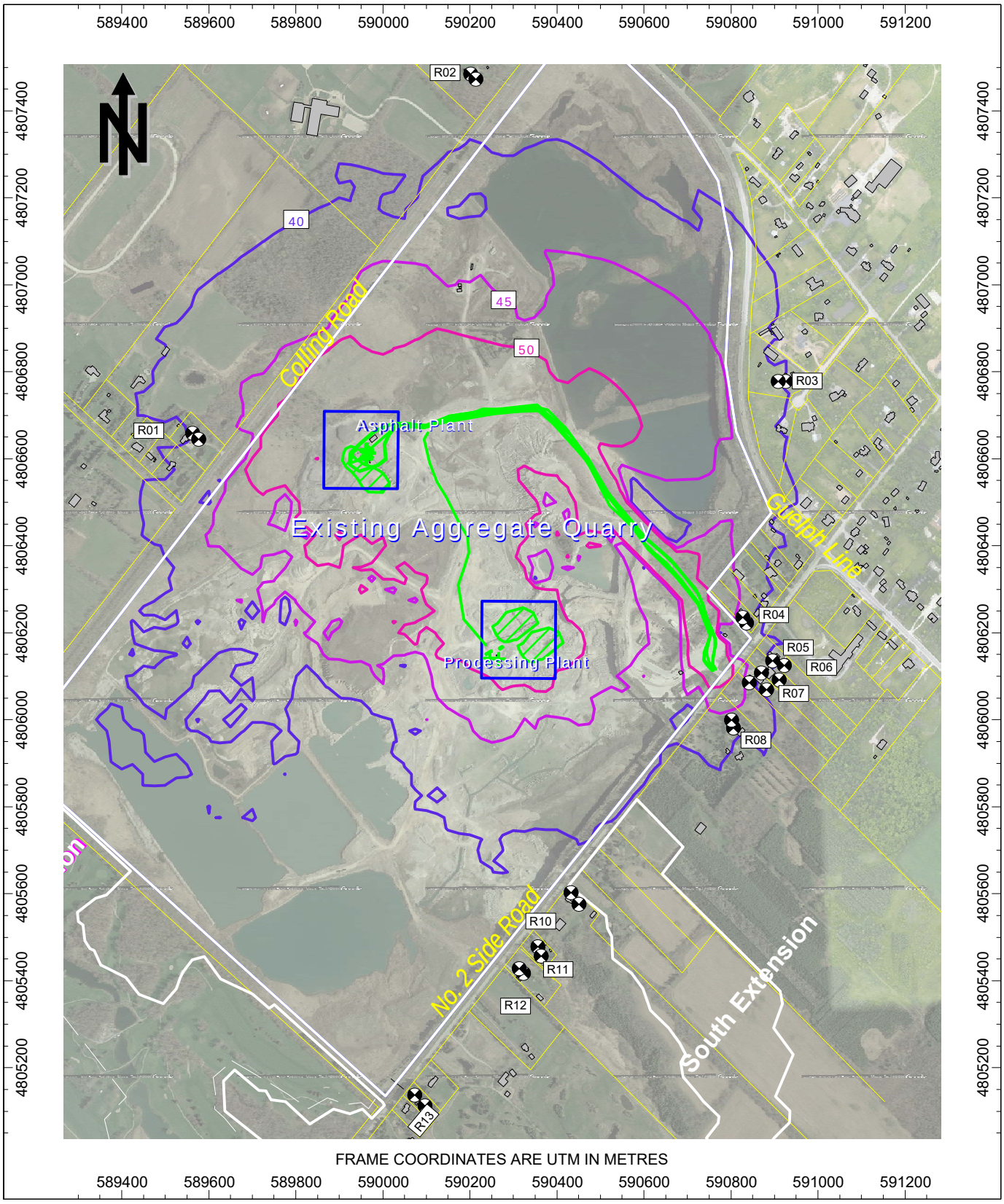


Figure 4b: Predicted Sound Level Contours at 1.5 m AG, Leq [dBA]
Predictable Worst-Case Scenario During Extraction of South Extension - Phase 1
Night-time Hours (19:00 - 7:00)

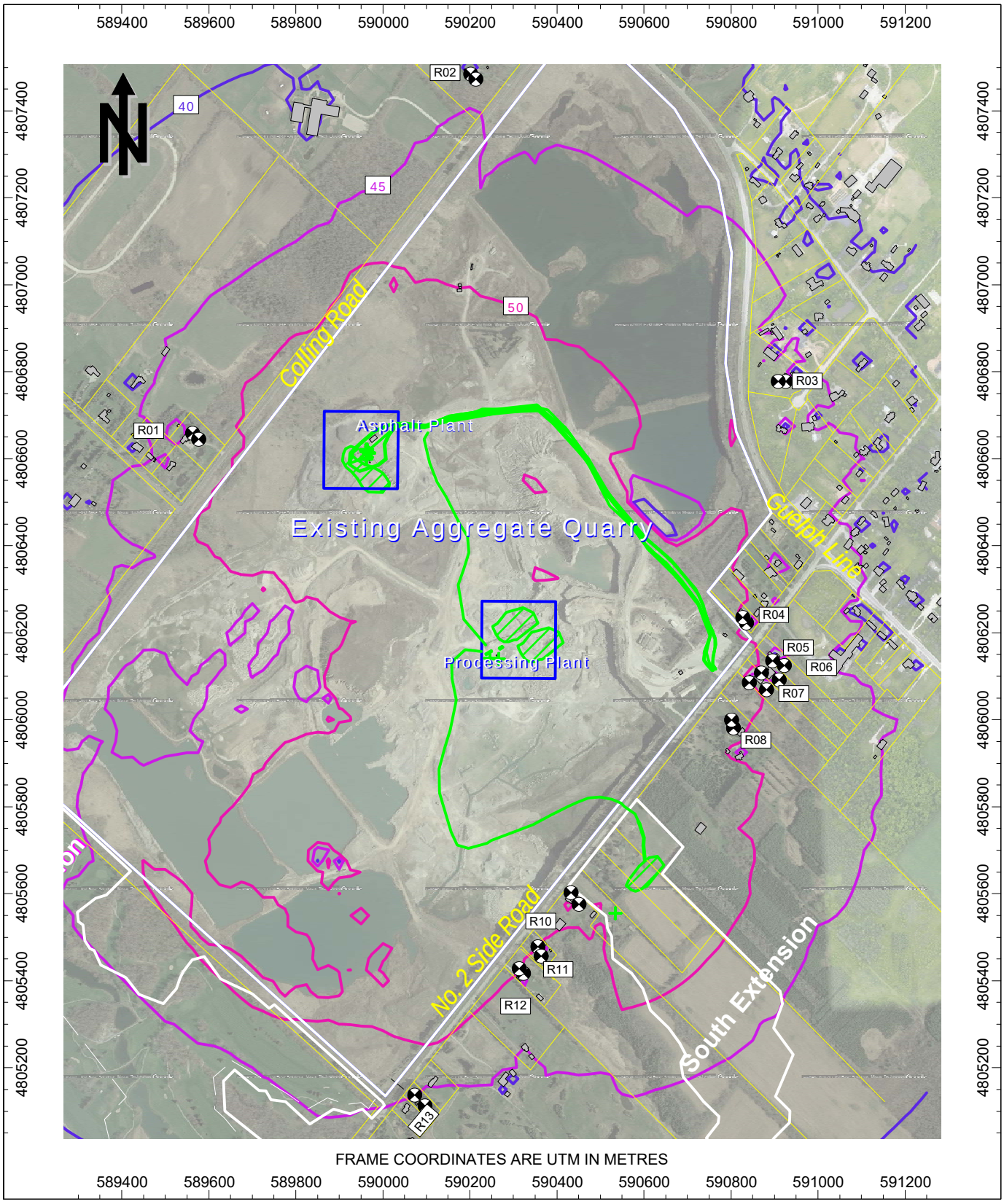


Figure 4c: Predicted Sound Level Contours at 4.5 m AG, Leq [dBA]
Predictable Worst-Case Scenario During Extraction of South Extension - Phase 1
Daytime Hours (7:00 - 19:00)

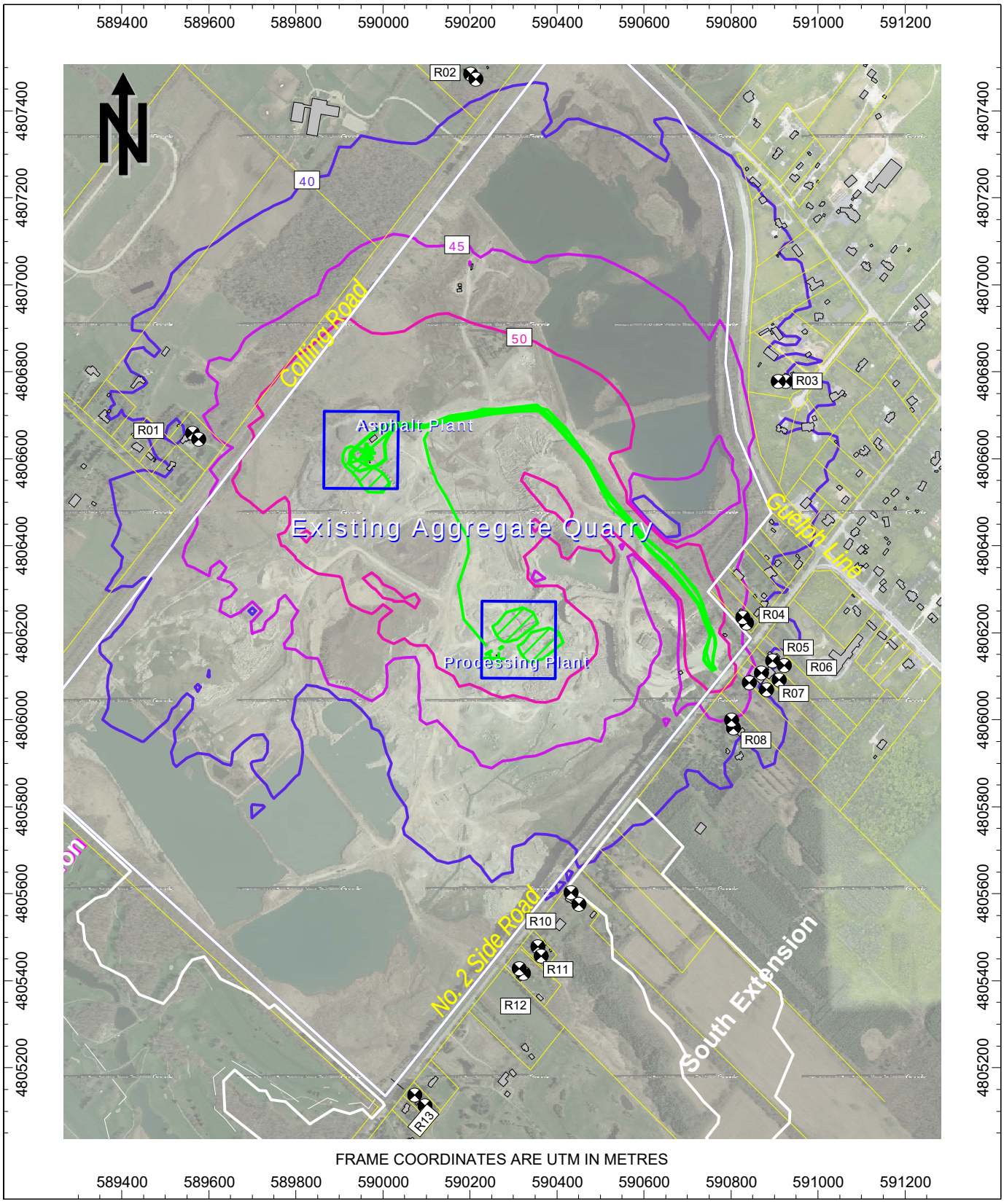


Figure 4d: Predicted Sound Level Contours at 4.5 m AG, Leq [dBA]
Predictable Worst-Case Scenario During Extraction of South Extension - Phase 1
Night-time Hours (19:00 - 7:00)

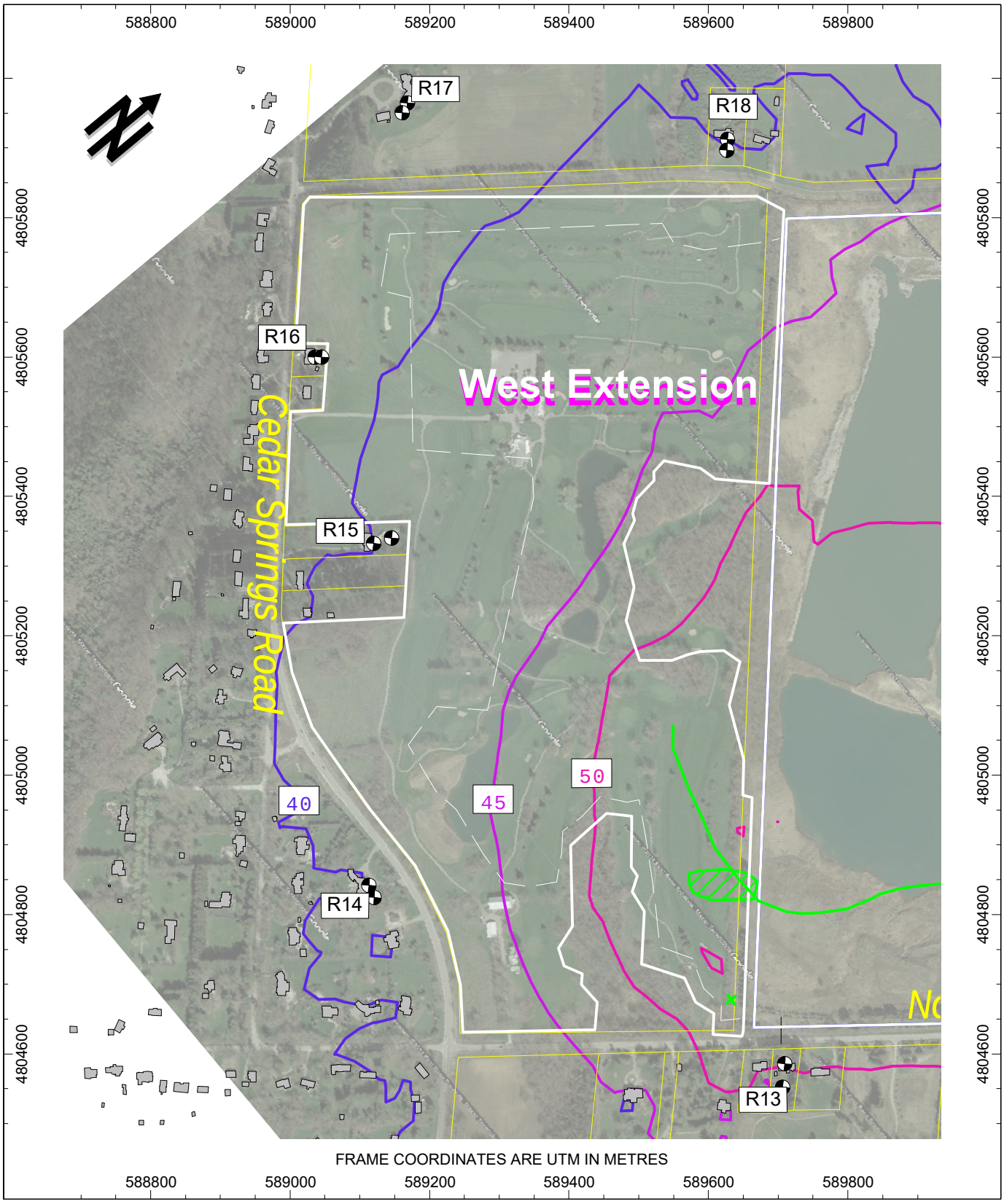


Figure 4e: Predicted Sound Level Contours at 4.5 m AG, Leq [dBA]
Predictable Worst-Case Scenario During Extraction of West Extension - Phase 3
Daytime Hours (7:00 - 19:00)

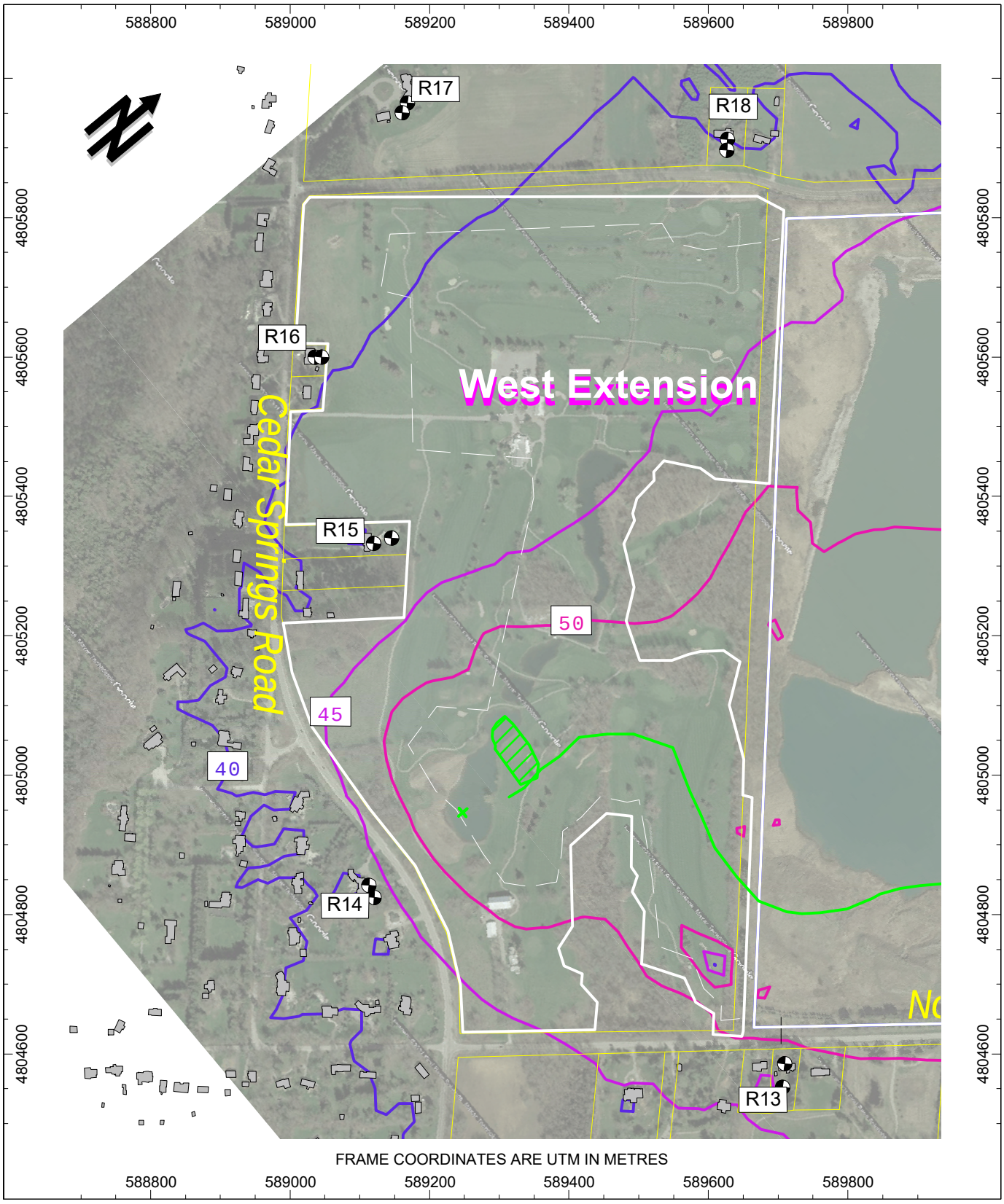


Figure 4f: Predicted Sound Level Contours at 4.5 m AG, Leq [dBA]
Predictable Worst-Case Scenario During Extraction of West Extension - Phase 4
Daytime Hours (7:00 - 19:00)

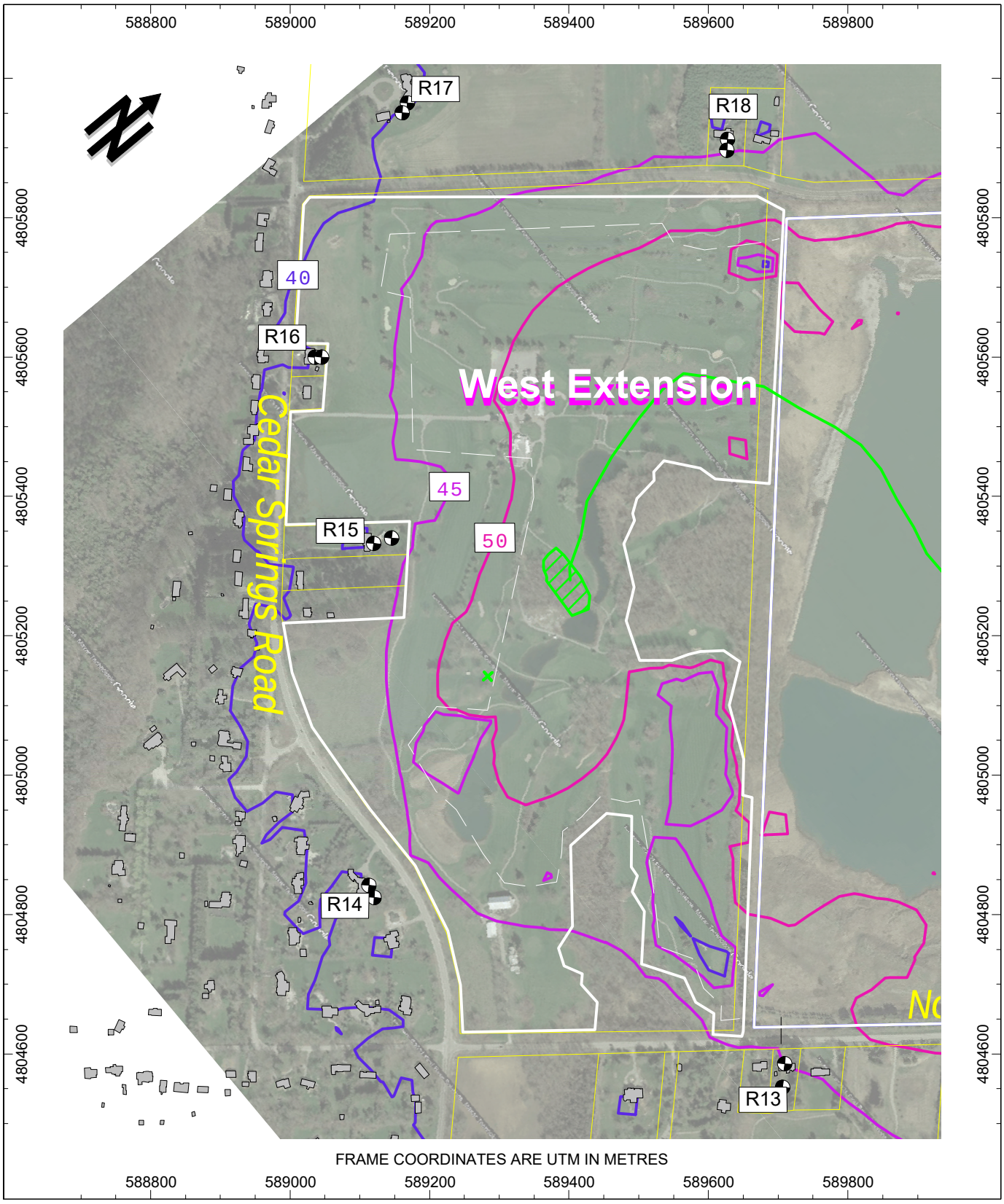


Figure 4g: Predicted Sound Level Contours at 4.5 m AG, Leq [dBA]
Predictable Worst-Case Scenario During Extraction of West Extension - Phase 6
Daytime Hours (7:00 - 19:00)

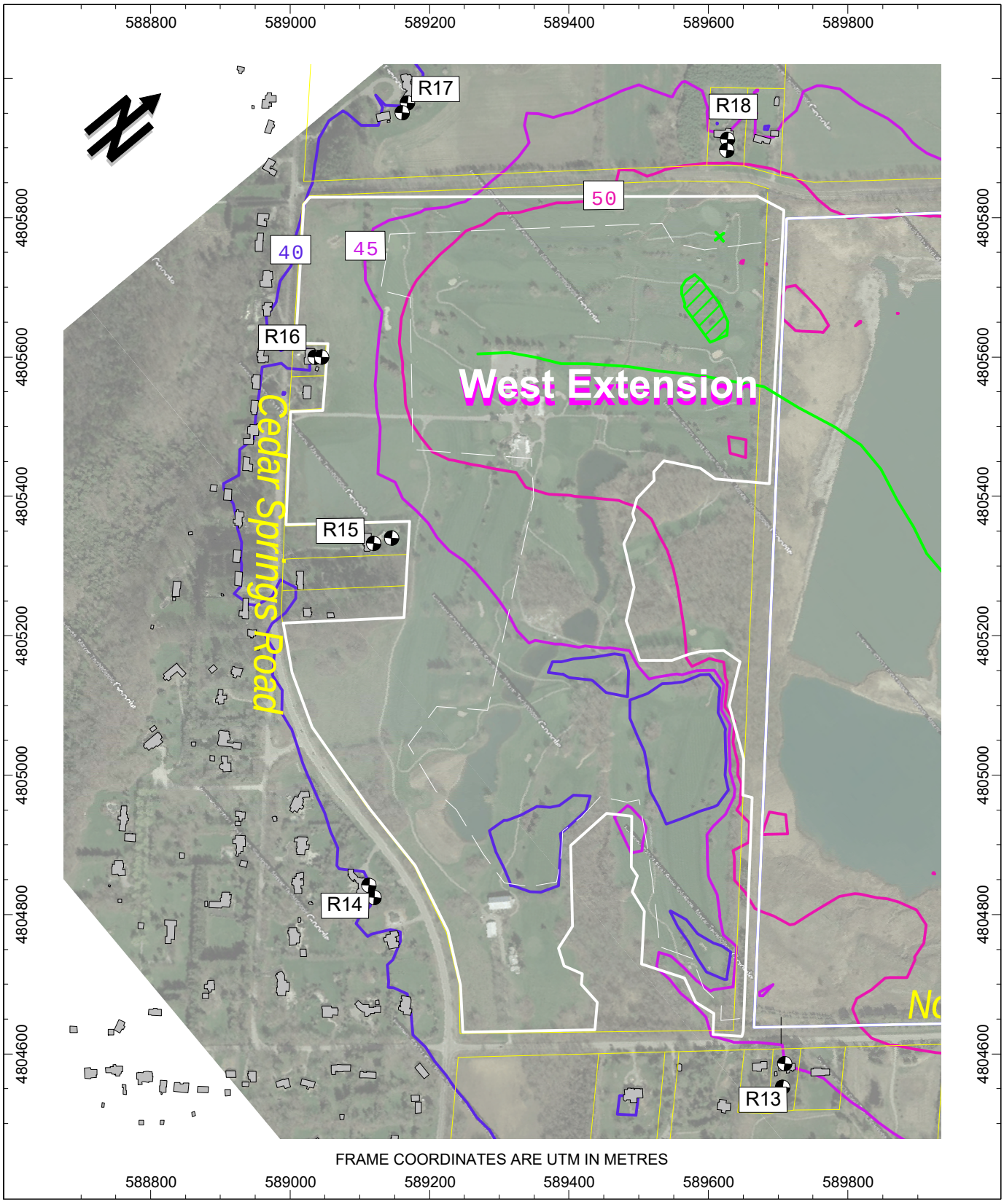


Figure 4h: Predicted Sound Level Contours at 4.5 m AG, Leq [dBA]
Predictable Worst-Case Scenario During Extraction of West Extension - Phase 5
Daytime Hours (7:00 - 19:00)

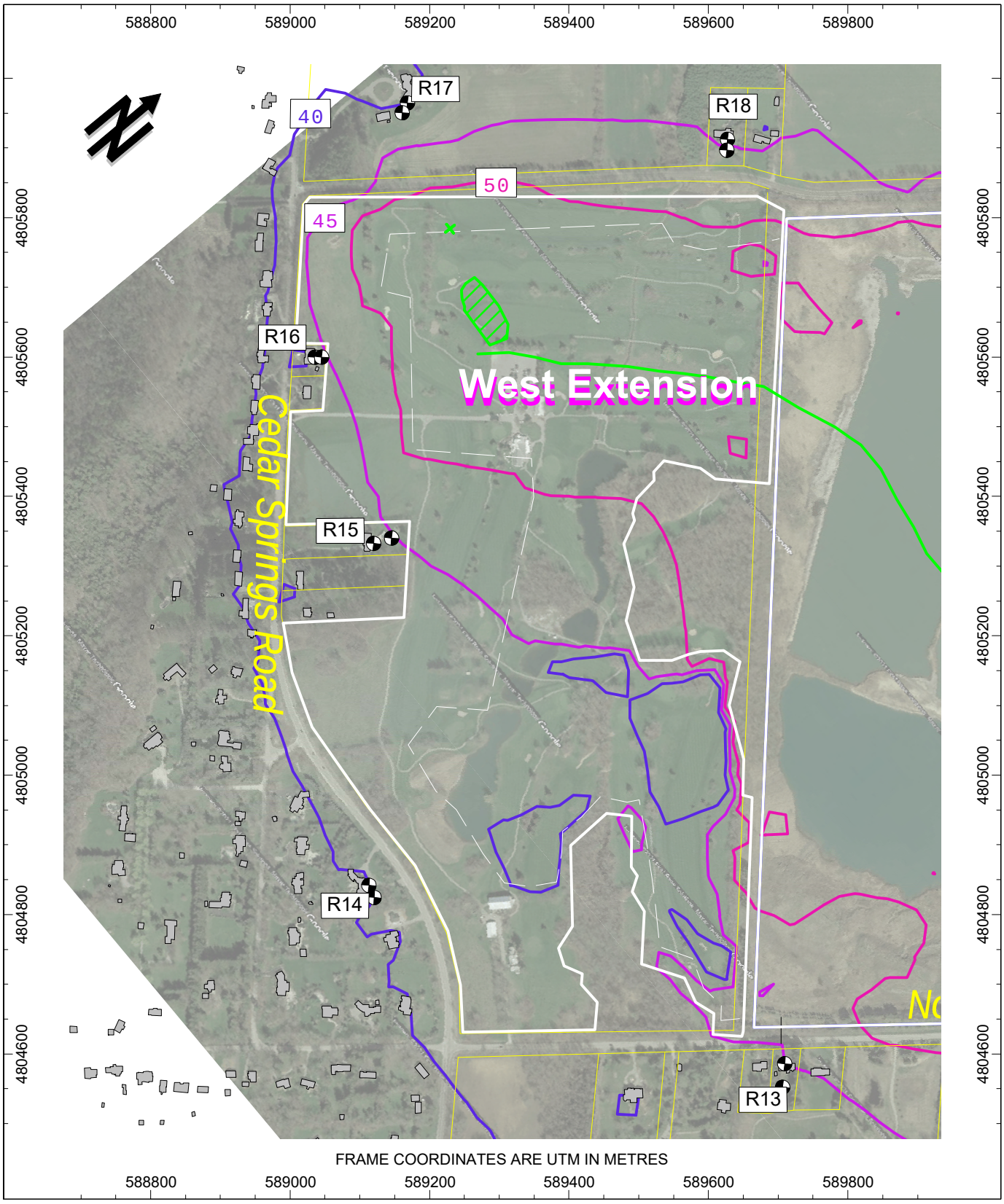
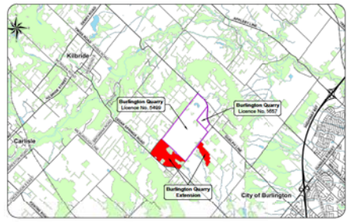


Figure 4i: Predicted Sound Level Contours at 4.5 m AG, Leq [dBA]
Predictable Worst-Case Scenario During Extraction of West Extension - Phase 5
Daytime Hours (7:00 - 19:00)

APPENDIX A

Site Plan

Key Map
(N.T.S.)



A. General

1. This site plan is prepared under the Aggregate Resources Act (ARA) for a Class 'A' Licence, Category 2.
2. Area Calculations:
   i. Licence Area (total) 78.4 ha
   - South Extension 18.3 ha
   - West Extension 60.1 ha

B. References

1. Contours were obtained from the City of Burlington's Open Data Catalogue based on 2017 data and are displayed in one metre intervals. Elevations shown are in metres above sea level (masl).
2. Topographic information was obtained from numerous sources including Ontario MNR lidb (Land Information Ontario), City of Burlington's Open Data Catalogue, Google Earth Pro aerial photography captured on May 7, 2016 and field investigations for technical reports.
3. All topographic features and structures are shown to scale in Universal Transverse Mercator (UTM) with North American Datum 1983 (NAD83), Zone 17 (metre), Central Meridian 81 degrees west coordinate system.
4. The licence boundaries were established using Municipal Property Assessment Corporation (MPAC) parcel fabric data. Distances are approximate and for reference purposes only.
5. Land use designations on and within 120 metres of the licences are from the Niagara Escarpment Plan, Map 3 - Regional Municipality of Halton, approved June 1, 2017. The Burlington Quarry Extension lands are designated Escarpment Rural Area.
6. Land use information and structures identified on or within 120 metres of the licence boundaries were determined using Google Earth Pro aerial photography captured on May 7, 2016.

C. Drainage

1. Surface drainage on and within 120 metres of the licence boundaries are by overland flow in the directions shown by arrows on the plan view, or by infiltration.

D. Groundwater

1. The established groundwater table varies between 264 masl to 273 masl in the South Extension and 263 masl to 265 masl in the West Extension (EarthFX 2020).

E. Site Access and Fencing

1. There are four existing site accesses on Side Road No. 2 and a single existing site access on Cedar Springs Road.
2. Post and wire fencing (unless noted otherwise) exists in the locations shown on the plan view.

F. Aggregate Related Site Features

1. There are no existing aggregate operations or features on either Extension such as internal haul roads, processing, stockpiles, scrap, fuel storage, berms or excavation faces.

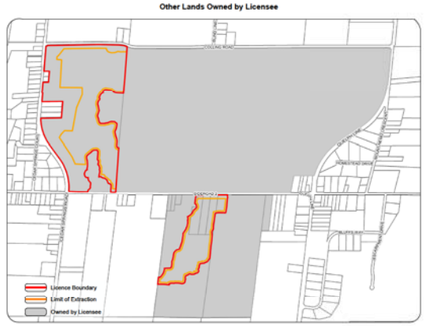
G. Cross Sections

1. See drawing 4 of 4.

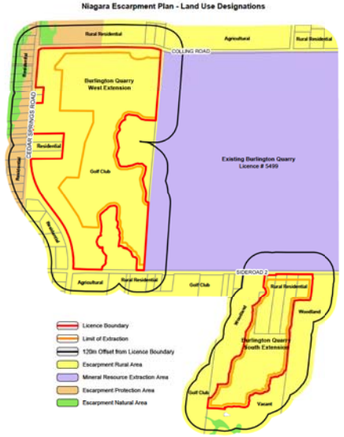
H. Technical Reports - References

1. Adaptive Management Plan, Proposed Burlington Quarry Extension, EarthFX Inc., Savanta and Tatham Engineering, April 2020.
2. Agricultural Impact Assessment, Nelson Aggregate Co. Burlington Quarry Expansion, April 2020.
3. Air Quality Study for Nelson Aggregate Co., Burlington Quarry Extension, BCX Environmental Consulting, March 2020.
4. Archaeological Assessment (Stages 1, 2 & 3), Nelson Aggregates Quarry Expansion, Archaeologix Inc., August 2003.
5. Archaeological Assessment (Stage 4), Nelson Aggregates Quarry Expansion, Archaeologix Inc., August 2004.
6. Stage 1-2 Archaeological Assessment, Proposed West Extension of the Burlington Quarry, Golder Associates, September 2020.
7. Blast Impact Analysis, Burlington Quarry Extension, Explotech Engineering Ltd, April 23, 2020.
8. Cultural Heritage Impact Assessment Report, Burlington Quarry Extension, MacNaughton Hermsen Britton Clarkson Planning Limited (MHBC), April 2020.
9. Financial Impact Study, Proposed Burlington Quarry Extension, Nelson Aggregates Co., April, 2020.
10. Level 1 and 2 Hydrogeological and Hydrological Impact Assessment Report, Proposed Burlington Quarry Extension, EarthFX Incorporated, April 2020.
11. Level 1 and 2 Natural Environment Technical Report, Proposed Burlington Quarry Extension, Savanta, April 2020.
12. Noise Impact Assessment, Nelson Aggregate Quarry Extension, Howe Gastmeier Chapnik Limited, April 22, 2020.
13. Nelson Aggregate Company, Burlington Quarry Extension Traffic Report, Paradigm Transportation Solutions Limited, February 2020.
14. Surface Water Assessment, Burlington Quarry Extension, Tatham Engineering, April 2020.
15. Visual Impact Assessment Report, Proposed Extension of the Burlington Quarry, MacNaughton Hermsen Britton Clarkson Planning Limited (MHBC), April 2020.

Other Lands Owned by Licensee



Niagara Escarpment Plan - Land Use Designations



Legal Description

Part Lot 1 & 2, Concession 2 and Part Lot 17 & 18, Concession 2 NDS
(former geographic Township of Nelson)
City of Burlington
Region of Halton

Legend

- Licence Boundary
- Limit of Extraction
- Contours with Elevation (Metres above sea level (MASL))
- Public Road
- Fence (1.2m post & wire fence unless otherwise noted)
- Water Feature
- Irrigation Pond
- Significant Woodlands
- Woodlands
- Wooded Feature
- Wetland (Swamp)
- Wetland (MNRF - Provincially Significant)
- Wetland (MNRF - Unevaluated)
- 120m Offset From Licence Boundary
- Existing Licence (Existing Licenced Boundary (solid line) Existing Limit of Extraction (dashed line))
- Parcel Fabric
- Diversion or Discharge Pipe (Existing - Single Dash)
- Discharge Location
- Jefferson Salamander Regulatory Boundary
- Fish Habitat (Direct - solid; Indirect - dash)
- Sun-Canadian Pipe Line (Pipe line location and easement)
- Entrance / Exit (Existing)
- Direction of Surface Drainage
- Building/Structure
- Cross Sections (A1)

Significant Wildlife Habitat

- Amphibian Breeding (Woodland)
- Bat Maternity Colony
- Rare Vegetation Community

Species of Conservation Concern

- Unicorn Clubtail
- Eastern Wood-pewee
- Large Toothwort Community

Species at Risk

- Butternut Category 1
- Butternut Category 2
- Bobolink (BP16)
- Barn Swallow Nest Observation (BSNO C)
- Bat Habitat (Little Brown Myotis and Tri-coloured Bat)

Site Plan Amendments

No.	Date	Description	By

Site Plan Revisions (Pre-Licencing)

No.	Date	Description	By
1.	September 2020	Update date of Archaeological Assessment Report in Section H	CAP
2.	April 2021	Included MNRF wetlands for South Extension. Added Significant Wildlife Habitat, Species of Conservation Concern and Species at Risk. Update legend.	CAP

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MNRF Approval Stamp

MHBC Stamp

DRAFT

Applicant

NELSON AGGREGATE CO.
2430 No. 2 Sideroad
P.O.Box 1570 Burlington Ont. L7R 4L8
phone: (905) 335 5385

Project

Burlington Quarry Extension

MNRF Licence Reference No. 626477	Pre-approval review:
Plan Scale: 1:3000 (Arch E) (0 100 200 Metres)	Date: April 2021
	Drawn By: C.P.
	Checked By: B.Z.
	File No.: 9135D

File Name: **Existing Features**

Drawing No.: **1 of 4**

File Path: N:\Brian\9135D\ Nelson - Project Sideways\Drawings\ARA Site Plans\Extension Site Plan\CAD\9135D - Site Plan - Blacklined - April 19 2021.dwg

A. General

1. Area Calculations:
   i. Licence Area (total) 78.4 ha
      - South Extension 18.3 ha
      - West Extension 60.1 ha
   ii. Limit of Extraction (total) 50.2 ha
      - South Extension 15.1 ha
      - West Extension 35.1 ha
2. The maximum annual tonnage is 2,000,000.
3. The existing golf course use in the West Extension may continue to operate until site preparation for that Extension commences.

B. Hours of Operation

1. Hours of operation are Monday to Friday from 7:00am to 7:00pm excluding statutory holidays.
2. Blasting is permitted Monday to Friday between 8:00am to 6:00pm excluding statutory holidays. Blasting will typically occur once per week but may occur more often based on operational needs.

C. Site Access and Fencing

1. Prior to extraction within the South or West Extension, post and wire fencing (at least 1.2 metres in height) shall be erected and maintained (for the life of that extension) along the licence or property boundary. Portions of the West Extension licence boundary shall be exempt from this requirement (see Section O. Variations from Provincial Standards). Where the licence boundary is not fenced, it will be delineated with marker posts every 30 metres.
2. A new operational entrance/exit for the South Extension shall be established in the location shown on the plan view (see Section N. Report Recommendations for additional details under Traffic). Material being transferred from the South Extension to existing Licence # 5499 (see Section O. Variations from Provincial Standards) shall occur through an at grade roadway crossing on Side Road No. 2 in this location.
3. A gate shall be installed at the operational entrance/exit of the South Extension on Side Road No. 2, kept closed during hours of non-operation, and maintained throughout the life of that Extension.
4. A gate shall not be required for the field/property access located at 2282 and 2015 Side Road No. 2 (see Section O. Variations from Provincial Standards).
5. The West Extension shall be accessed through the common licence boundary with existing Licence #5499 in Phases 3 and 5. The locations shown on the plan view are approximate only.

D. Drainage and Siltation Control

1. Drainage of undisturbed areas will continue in the directions shown on drawing 1 of 4.
2. Prior to site preparation, an Erosion and Sedimentation Control (ESC) Plan shall be prepared and implemented to minimize the potential for erosion and sedimentation from the operation of the quarry (see Section N. Report Recommendations - Natural Environment note "a").
3. Prior to extraction in the West Extension, the infiltration pond located in the west setback (including the diversion/discharge pipe and bottom draw outlet) shall be constructed. The pond shall be excavated to an elevation of +267 masl into bedrock. For the portions of the pond located above bedrock, 3:1 slopes shall be established. The purpose of the diversion pipe is to convey water from the weir pond to the infiltration pond in the west setback and to provide the diffuse discharge in the northwest corner of the site.
4. Within the West Extension, the diversion and discharge pipes shall be placed in the locations shown on the plan view (see Section N. Report Recommendations -Natural Environment note "h" for timing to install the diversion pipe within the weir pond). The centreline of the diversion pipe along the north boundary of Phase 5 shall remain a minimum of 7.0 metres from the Sun-Canadian Pipe Line easement and be installed prior to constructing the berm in this vicinity.
5. Prior to removal of the irrigation ponds and irrigation channel in the West Extension, the downstream end of the golf course channel shall be blocked to isolate surface water. If water is to be pumped from the feature to facilitate site preparation, it shall be directed to the existing sump for discharge in accordance with MECP, ECA and PTTW requirements.

E. Site Preparation

1. All existing structures within the South Extension (including the house and barn located at 2280 Side Road No. 2) and West Extension (including the house and barn located at 2015 Side Road No. 2) shall be demolished prior to extraction in each Extension, in accordance with all applicable regulations (see Section N. Report Recommendations - Natural Environment note "d" regarding removal of three structures within the West Extension that contain Barn Swallow habitat).
2. No new buildings are proposed for either Extension.
3. Timber resources (if any) will be salvaged for use as saw logs, fence posts and fuel wood where appropriate. Stumps, trees, shrubs and brush cleared will be used for rehabilitation of this site and Licence #5499 to provide coarse and fine wood debris to enhance soils and create habitats during site rehabilitation.
4. Topsoil and overburden shall be stripped and stored separately wherever feasible (see Section O. Variations from Provincial Standards).
5. Topsoil and overburden shall be placed in perimeter acoustic/visual berms, pond construction or used immediately for progressive rehabilitation in either Extension or existing Licence #5499 (see Section O. Variations from Provincial Standards).
6. Excess topsoil and overburden not required for immediate use in berms or rehabilitation may be temporarily stockpiled on the quarry floor. Topsoil and overburden stockpiles shall be located within the limit of extraction and remain a minimum of 30 metres from the licence boundary (except where the West Extension licence boundary abuts existing Licence #5499) and 90 metres from a property with a residential use (see Section O. Variations from Provincial Standards).
7. Temporary topsoil and overburden stockpiles which remain for more than one year shall have their slopes vegetated to control erosion.

F. Berms and Screening

1. Acoustic and visual berms shall be constructed to the heights or elevations specified in the locations shown on the plan view. See Section N. Report Recommendations - Visual Impact Assessment notes and the Typical Acoustic & Visual Berm detail on this drawing for additional information.
2. Berm side slopes shall not exceed the following maximums:
   i. South Extension
      - Northwest, north and northeast setback = 1.5:1
      - Southwest setback = 2:1
   ii. West Extension
      - North and west setback = 2:1
      - Southeast setback = 1.5:1
3. Berms in the South Extension shall be constructed prior to extraction in that extension.
4. Berms in the West Extension shall be constructed prior to extraction in that extension.
5. The north toe of the perimeter berm in the West Extension shall not be located within 1 metre of the Sun-Canadian Pipe Line easement.
6. Berms shall be vegetated with a native mix of wildflowers and grasses to stabilize slopes and minimize mowing and maintenance. The vegetation on the berms shall be maintained until the berms are removed for rehabilitation.
7. Existing vegetation within the setbacks shall be maintained except where acoustic berms, visual berms, ponds or diversion/discharge pipes are required (see Section O. Variations from Provincial Standards). Setbacks disturbed will be vegetated with a native mix of wildflowers and grasses to restore areas and minimize mowing and maintenance. A portion of the setback areas, as shown on the operations schematic, will also be forested in accordance with Section N. Report Recommendations - Natural Environment note "g".
8. Setbacks identified as forested setbacks on the plan view shall be forested (see Section N. Report Recommendations - Natural Environment notes "d" and "f" for additional information).

G. Site Dewatering

1. During the initial stages of extraction within the South Extension, a temporary settling pond will be constructed within the extraction area (eg. Phase 2). Once sufficient extraction has occurred in Phase 2, the sump and settling pond will be constructed on the quarry floor. See Adaptive Management Plan for additional details.
2. The discharge location for the South Quarry Extension shall be constructed in accordance with Section N. Report Recommendations - Natural Environment note "e".
3. For the West Extension, the water will be diverted to existing Licence #5499 and discharged from the existing sump and discharge locations.
4. The licensee shall operate in accordance with Environmental Compliance Approval (ECA) and Permit to Take Water (PTTW) requirements.

H. Extraction Sequence

1. Phase 1
   a. Prepare Phase 1 (South Extension) for extraction and ensure all requirements pertaining to this Extension in Sections C through G of this drawing are met.
   b. Strip Phase 1 and construct perimeter berms. Should there be insufficient topsoil and overburden in Phase 1 to construct berms, only the amount of material required to complete the perimeter berms and the temporary settling pond may be stripped from Phase 2.
   c. Create sinking cut.
   d. Commence extraction in a southerly direction and complete a noise audit to ensure the site is meeting NPC 300 Noise Guidelines at the nearest sensitive receptors.
   e. Phase 1A may be extracted to a maximum depth of 271 masl.
   f. Phase 1B may be extracted to a maximum depth of 270 masl.
   g. Prepare Phase 2 for extraction.
2. Phase 2
   a. Strip Phase 2 in sequence as extraction progresses in a southerly direction.
   b. Extract Phase 2 in a southerly direction from Phase 1 and complete a noise audit to ensure the site is meeting NPC 300 Noise Guidelines at the nearest sensitive receptors.
   c. Phase 2 may be extracted to a maximum depth of 252.5 masl.
   d. As extraction advances, complete progressive rehabilitation of Phase 2.
   e. Prepare Phase 3 (West Extension) for extraction and ensure all requirements pertaining to this Extension in Sections C through G and Archaeology note "a", under Section N. Report Recommendations, of this drawing are met.
   f. Remove wooded features in Phase 3 (see Section N. Report Recommendations - Natural Environment note "ee").
3. Phase 3
   a. Strip Phase 3 and a portion of Phase 4 (if required) to construct perimeter berms in West Extension.
   b. Extract Phase 3 by commencing at the common boundary with existing Licence #5499 and proceeding westerly before heading in a northwesterly direction. At the commencement of extraction, complete a noise audit to ensure the site is meeting NPC 300 Noise Guidelines at the nearest sensitive receptors.
   c. Phase 3 may be extracted to a maximum depth of 252.5 masl.
   d. Complete progressive and final rehabilitation in Phases 1 and 2.
   e. Prepare Phase 4 for extraction.
4. Phase 4
   a. Strip Phase 4 and use the material for progressive rehabilitation in Phase 3 and existing Licence #5499.
   b. Extract Phase 4 in a westerly and southwesterly direction from Phase 3. At the commencement of extraction, complete a noise audit to ensure the site is meeting NPC 300 Noise Guidelines at the nearest sensitive receptors.
   c. Phase 4 may be extracted to a maximum depth of 252.5 masl.
   d. Prepare Phase 5 for extraction.
5. Phase 5
   a. Strip Phase 5 and use the material for progressive rehabilitation in Phase 5 and existing Licence #5499.
   b. Continue progressive rehabilitation in Phases 3 and 4.
   c. Extract Phase 5 by commencing at the common boundary with existing Licence #5499 and proceeding in a westerly direction. At the commencement of extraction, complete a noise audit to ensure the site is meeting NPC 300 Noise Guidelines at the nearest sensitive receptors.
   d. Refer to Section N. Report Recommendations - Blasting for additional requirements regarding the Sun-Canadian Pipe Line.
   e. Phase 5 may be extracted to a maximum depth of 252.5 masl.
   f. Prepare Phase 6 for extraction.
   g. Remove wooded feature in Phase 6 (see Section N. Report Recommendations - Natural Environment note "f").
6. Phase 6
   a. Strip Phase 6 and use the material for progressive rehabilitation in Phases 4, 5 and existing Licence #5499.
   b. Prior to extraction commencing in Phase 6, side sloping within Phase 3 shall be completed.
   c. Extract Phase 6 in a southerly direction from Phase 5. At the commencement of extraction, complete a noise audit to ensure the site is meeting NPC 300 Noise Guidelines at the nearest sensitive receptors.
   d. Phase 6 may be extracted to a maximum depth of 252.5 masl.
   e. Complete progressive and final rehabilitation of the West Extension.

I. Extraction Details

1. The maximum height of a lift shall be 25 metres.
2. The maximum depth of extraction for the South Extension is 29.5 metres. Phase 1 shall be extracted in one lift and Phase 2 shall be extracted in a maximum of two lifts.
3. The maximum depth of extraction for the West Extension is 23.5 metres and the maximum number of lifts is two.
4. Extraction shall be permitted in two Phases simultaneously to allow for transition between Phases.
5. Internal haul road locations will vary as extraction progresses and will be located on the quarry floor with the exception of the at grade roadway crossing between the South Extension and existing Licence #5499.
6. Blasted aggregate will be transported back to existing Licence #5499 for processing and shipping.
7. Berms that encroach within the limit of extraction shall be removed, and the underlying aggregate may be extracted, as part of final extraction for each Extension.

J. Equipment and Processing

1. Equipment used for site preparation, extraction, pond construction, and site rehabilitation includes drills, front-end loaders, graders, bulldozers, backhoes, conveyors, water trucks, fuel trucks and haul trucks. See Section N. Report Recommendations for additional details from the Noise report regarding equipment.
2. No processing shall occur in the South or West Extension. Aggregate extracted in the South and West Extension shall be hauled to existing Licence #5499 for processing.

K. Fuel Storage

1. No fuel shall be stored in the South or West Extension.
2. Fuel trucks will be used to transfer fuel to on-site equipment in accordance with the Liquid Fuels Handling Code.
3. A Spills Contingency Program will be developed prior to site preparation.

L. Dust

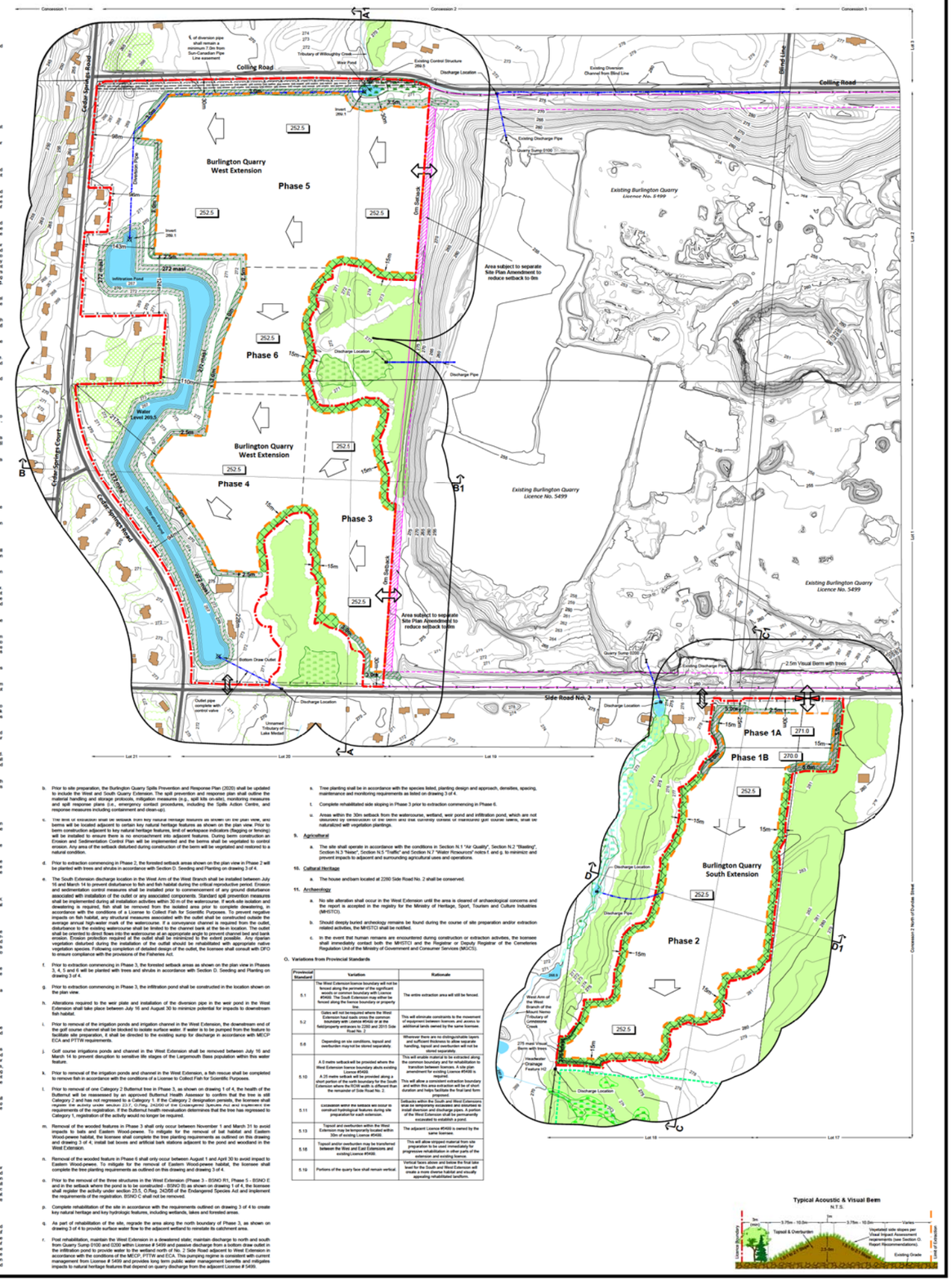
1. Dust shall be mitigated on-site.
2. Water or another provincially approved dust suppressant shall be applied to internal haul roads as often as required to mitigate dust.
3. The licensee shall implement all air quality recommendations outlined in Section N. Report Recommendations.

M. Scrap and Recycling

1. No scrap shall be stored in the South and West Extension.
2. No recycling shall occur in the South and West Extension.

N. Report Recommendations

1. Air Quality
   a. The Licensee shall implement their Best Management Practices Plan (BMPP) for the Control of Fugitive Dust dated March 2020, as may be amended from time to time to reflect current best management practices.
   b. The Licensee shall construct the acoustic berms as shown on the operational plan. See Section F for additional detail.
2. Blasting
   a. All blasts shall be monitored for both ground vibration and overpressure at the closest privately owned sensitive receptors adjacent the site, or closer, with a minimum of two (2) instruments - one installed in front of the blast and one installed behind the blast.
   b. In order to safeguard the structural integrity of the structures located at 2280 No 2 Side Road, ground vibrations shall be maintained below Velocity = 50 mm in accordance with recommendations published by the United States Bureau of Mines (USBM RI8507). The closest structure located at 2280 No 2 Side Road shall be monitored for ground vibration and overpressure when vibration calculations suggest vibrations in excess of 35mm/s.
   c. All blasts within 60m of the adjacent Sun-Canadian High Pressure Oil Pipeline will be designed and monitored by a registered engineer, licensed in the province of Ontario or any distance specified in later revisions of the Sun-Canadian guidelines or when vibration calculations suggest vibrations in excess of 35mm/s at the pipeline.
   d. To protect adjacent fish habitat, the Department of Fisheries and Oceans (DFO) has established limits for water overpressure and ground vibrations. Water overpressures are to be limited to 103kPa (year round), and in the presence of active spawning beds (March 15 - July 15), ground vibrations at the bed are to be limited to 13mm/s. Fish habitat and assumed spawning beds are present in the Unnamed Tributary of Willoughby Creek, the Unnamed Tributary of Lake Medad and the East and West Arms of the West Branch of the Mount Nemo Tributary of Grindstone Creek. The utilization of shallower blast holes, decks, smaller hole diameters and/or changes in blasting patterns, along with hydrophone sensor monitoring, are necessary when blasting adjacent to fish habitat at any time of year. These mitigation measures, in addition to vibration monitoring, would also apply, when adjacent to spawning beds from March 15 - July 15.
   e. The guideline limits for vibration and overpressure shall adhere to standards as outlined in the MECP Model Municipal Noise Control By-law publication NPC 119 (1978) or any such document, regulation or guideline which supersedes this standard.
   f. In the event of an exceedance of NPC 119 limits or any such document, regulation or guideline which supersedes this standard, blast designs and protocol shall be reviewed prior to any subsequent blasts and revised accordingly in order to return the operations to compliant levels.
   g. Orientation of the aggregate extraction operation will be designed and maintained so that the direction of the overpressure propagation will be away from structures as much as possible.
   h. Blast designs shall be continually reviewed with respect to fragmentation, ground vibration and overpressure. Blast designs shall be modified as required to ensure compliance with current applicable guidelines and regulations.
   i. Blasting procedures such as drilling and loading shall be reviewed on a yearly basis and modified as required to ensure compliance with industry standards.
   j. Detailed blast records shall be maintained in accordance with current industry best practices.
3. Noise
   a. Site preparation, pond construction, rehabilitation, drilling, extraction activities, and transporting material to the existing quarry for processing and shipping may only occur Monday to Friday during daytime hours (7:00 - 19:00).
   b. Prior to extraction in the South Extension, all berms in this Extension shall be constructed to the heights specified in the locations shown on the plan view. Berms shall not be required in the West Extension until prior to extraction in that Extension.
   c. Prior to extraction in the West Extension, all berms in this Extension shall be constructed to the heights specified in the locations shown on the plan view.
   d. Equipment used on-site shall operate within the sound power levels specified below:
      - drills - 110 dBA
      - front-end loaders - 101 dBA
      - haul trucks - 114 dBA
   e. Up to three haul trucks will be used to transport material from this site to the processing area in License #5499, with a posted speed limit of 35 km/hr along this route.
   f. Equipment used for site preparation, pond construction and rehabilitation shall satisfy the noise emission levels of MOE - 115, "Noise Construction Equipment".
4. Visual Impact Assessment
   a. For both Extension areas, existing vegetation located along the site perimeter and within the setback area will be retained where possible. Berms will be laid out in a way that favours the retention of existing vegetation where possible.
   b. Visual and acoustic berms are to be installed in the location shown on the plan view and berm elevation details (on drawing 4 of 4) and to the requirements outlined below.
   c. Where berms are deemed to be required, they are to only be constructed where shown on the plan view. Berms are to be constructed in a smooth, rolling manner with varying highpoints (respecting minimum height requirements), and variations along the berm frontage to create a more natural appearance. Berms should be seeded with a native mix of wildflowers and grasses to stabilize slopes and minimize mowing and maintenance.
   d. The existing deciduous trees and shrubs located within 15 metres of No. 2 Side road and in front of the proposed southern noise berm in the West Extension are to be retained.
   e. Visual berms proposed for the South Extension are to be planted with trees (see plan view for berm locations). Trees will be planted at a spacing of 5 to 10 m on centre, depending on species. Plantings are to be randomly spaced and staggered up on the berm up to one third of its maximum height to appear more natural, where possible. Low vegetation is to be selected for areas of limited space maintenance. native species that complement the existing surroundings are to be utilized wherever possible.
   f. For the visual berm adjacent to Side Road No. 2, deciduous trees of minimum 40mm caliper, coniferous trees of minimum 1.2m height, and shrub species of minimum 40cm height shall be planted.
   g. For the visual berm in the southwest corner of the South Extension, deciduous tree whips of minimum 1.2m height, coniferous trees of minimum 0.6m height, and shrub species of minimum 20cm height (or bare root stock when in season) shall be planted.
   h. Plant species for the visual berm planting referenced in note 4e, f, and g may include, but are not limited to the following trees (White Pine, Common Hackberry, Chokecherry, White Spruce, Paper Birch, Pin Oak Sugar / Silver Maple, Trembling Aspen, Basswood, White Pine, White Spruce or White Cedar) and shrubs (Nannyberry, Common Ninebark, American Elder, Dogwood, or Highbush Cranberry).
   i. To ensure survival and positive growth rate, the vegetative screening is to be maintained and managed appropriately so that it remains an effective visual screen over time. Allowance of natural succession to occur is encouraged, in keeping with restoration objectives.
   j. During the first year of quarry operations, the planted trees will be watered and monitored until established. After the first year, the trees will be inspected twice each year. Once in spring after leaf break, and once in fall prior to leaf drop, to ensure any trees which are in poor condition at the time, are fertilized, watered and monitored, as needed, to improve their health and vigor.
   k. If any of the planted trees die, they will be replaced yearly, and will be planted in spring or late summer. With annual maintenance and monitoring, the trees will have the best chance of survival, and overall, it is anticipated that the need for tree replacements during the life of the operation will be reduced.
5. Traffic
   a. The northbound and southbound approaches to Side Road No. 2 shall be controlled by stop sign control.
   b. The new roadway crossing will be located on the crest on Side Road No. 2 (in the location shown on the plan view) with a clear sight distance of at least 215 metres in each direction along Side Road No. 2 for both the northbound and southbound approaches.
   c. The roadway geometry and road bed structure will be designed to accommodate the rock trucks that the licensee plans to operate.
   d. Prior to extraction commencing in the South Extension, the licensee will be responsible to upgrade the crossing on Side Road No. 2 to municipal standards. During operations in the South Extension, the licensee will be responsible for maintaining the crossing. The licensee is responsible for all costs associated with the crossing, including any signage at the crossing. (Financial Report)
6. Water Resources and Natural Environment
   a. The licensee is required to operate in accordance with the Adaptive Management Plan, prepared by EarthFX Inc., Tatham Engineering and Savanta dated April 2020, as may be amended from time to time with approval from MNRF, in consultation with NEC, Region of Halton, City of Burlington and Conservation Halton.
7. Water Resources
   a. Based on current approvals for the existing quarry, the water discharge pumping at both locations will cease (once extraction is complete), which would have a negative impact on flow and associated fish habitat in both watercourses (Savanta, 2020). The proposed diversion/discharge plan would stipulate that dewatering and pumping will continue at the same locations and in the same manner to ensure there are no negative impacts to any of the hydrological features that rely on this water input. This will result in long-term enhancements to downstream fish habitat compared to the existing approved post-extraction water management plan.
   b. Post rehabilitation, the West Extension is to be maintained in a dewatered state using the main discharge points to the north and south from Quarry Sump 0100 and 0200 in licence #5499 in accordance with the conditions of the PTTW and ECA to provide public water management benefits.
   c. Prior to extraction commencing in each of the South and West Extensions, the licensee shall complete a residential well survey for properties within one kilometre of the extraction area.
   d. If a water well complaint is received by the licensee the following actions will be taken:
      d.a. The licensee will notify MNRF and MECP of the complaint.
      d.b. The licensee will contact a well contractor in the event of a well malfunction and residents will be provided a temporary water supply within 24 hours, if the issue cannot be easily determined and rectified.
      d.c. The well contractor will contact the resident with the supply issue and rectify the problem as expediently as possible, provided the landowner gives authorization for the work. If the issue raised by the landowner is related to loss of water supply, the licensee will have a consultant/contractor determine the likely causes of the loss of water supply, which can result from a number of factors, including pump failure (owner's expense), extended overuse of the well (owner's expense) or lowering of the water level in the well from potential quarry interference (licensee expense). This assessment process would be carried out at the expense of the licensee and the results provided to the homeowner.
      d.d. If it has been determined that the quarry caused the water supply interference, the quarry shall continue to supply water at the licensee's expense until the problem is rectified. The following mitigation measures shall be considered and the appropriate measure(s) implemented at the expense of the licensee:
         - adjust pump pressure;
         - lowering of the pump to take advantage of existing water storage within the well;
         - deepening of the well to increase the available water column;
         - widening of the well to increase the available storage of water;
         - relocation of the well to another area on the property;
         - drilling multiple wells; and
         - only at the request of a landowner would a cistern be installed.
   e. If the issue raised by the land owner is related to water quality, the licensee will have a consultant/contractor determine the likely causes of the change in water quality, and review monitoring results at the quarry and background monitoring results from the baseline well survey to determine if there is any potential correlation with the quarry. If it has been determined that the quarry caused a water quality issue, the quarry shall continue to supply water at the licensee's expense until the problem is rectified. The licensee shall be responsible for restoring the water supply by replacing the well or providing a water treatment system, only at the request of a landowner would a cistern be supplied. The licensee is responsible for the expense to restore the water quality.
8. Natural Environment
   a. Prior to site preparation an Erosion and Sedimentation Control (ESC) Plan will be prepared and implemented to minimize the potential for erosion and sedimentation from the operation of the quarry. Basic elements of the plan should include consideration of: Construction and operation phasing to minimize the amount of time soils are barren and therefore, more susceptible to erosion; Requirements and timing for rehabilitation of disturbed areas; Stormwater management strategies during construction; Grading and removal of golf course surface water features during periods when the features are not flowing, to minimize potential for adverse effects on downstream water quality; Erosion prevention measures (e.g., hydroseeding, sodding, erosion control matting, tarping of stockpiles); Sedimentation control measures (e.g., silt fences); and Inspection and performance monitoring requirements and adaptive management.



O. Variations from Provincial Standards

Provincial Standard	Variation	Rationale
5.1	The West Extension licence boundary will not be fenced along the perimeter of the significant woods or common boundary with Licence #5499. The South Extension may either be fenced along the licence boundary or property line.	The entire extraction area will still be fenced.
5.2	Gates will not be required where the West Extension licence boundary abuts existing Licence #5499 or at the field/property entrances to 2280 and 2015 Side Road No. 2.	This will eliminate constraints to the movement of equipment between licence areas, access to additional lands owned by the same licensee.
5.6	Depending on site conditions, topsoil and overburden may not be stored separately.	Wherever there are no distinguishable layers and sufficient thickness to allow separate handling, topsoil and overburden will not be stored separately.
5.10	A 5 metre setback will be provided where the West Extension licence boundary abuts existing Licence #5499. A 25 metre setback will be provided along a short portion of the north boundary for the South Extension where the 60/90 width is different than the remainder of Side Road No. 2.	This will enable material to be transported between the two licence areas and eliminate the transition between licence areas. See plan amendment for existing Licence #5499 is required. This will allow a consistent extraction boundary to be established between the South Extension and the lands to the north that are not licensed or proposed.
5.11	Excavation within the setback will occur to construct hydrological features during site preparation for each extension.	Setbacks within the South and West Extensions shall be temporarily excavated and returned to install diversion and discharge pipes. Portion of the West Extension setback shall be permanently excavated to establish a pond.
5.13	Topsoil and overburden within the West Extension may be temporarily located within 30m of existing Licence #5499.	The adjacent Licence #5400 is owned by the same licensee.
5.18	Topsoil and/or overburden may be transferred between the West and East Extensions and existing Licence #5499.	This will allow stripped material from site preparation to be used immediately for progressive rehabilitation in other parts of the extension and existing licence.
5.19	Portions of the quarry face shall remain vertical.	Vertical faces above and below the final lake level for the South and West Extension will create a more diverse habitat and visually appealing rehabilitated landform.

a. Tree planting shall be in accordance with the species listed, planting design and approach, densities, spacing, maintenance and monitoring requirements as listed on drawing 3 of 4.
t. Complete rehabilitated side sloping in Phase 3 prior to extraction commencing in Phase 6.
u. Areas within the 30m setback from the watercourse, wetland, weir pond and infiltration pond, which are not assessed by consideration of the berm and that currently consist of manicured golf course lawns, shall be naturalized with vegetation plantings.

9. Agricultural
   a. The site shall operate in accordance with the conditions in Section N.1 "Air Quality", Section N.2 "Blasting", Section N.3 "Noise", Section N.5 "Traffic" and Section N.7 "Water Resources" notes f and g, to minimize and prevent impacts to adjacent and surrounding agricultural uses and operations.
10. Cultural Heritage
   a. The house and barn located at 2280 Side Road No. 2 shall be conserved.
11. Archaeology
   a. No site alteration shall occur in the West Extension until the area is cleared of archaeological concerns and the report is accepted in the registry for the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI).
   b. Should deeply buried archeology remains be found during the course of site preparation and/or extraction related activities, the MHSTCI shall be notified.
   c. In the event that human remains are encountered during construction or extraction activities, the licensee shall immediately contact both the MHSTCI and the Registrar or Deputy Registrar of the Cemeteries Regulation Unit of the Ministry of Government and Consumer Services (MGCS).

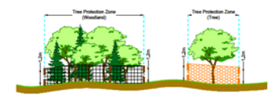
Legal Description

Part Lot 1 & 2, Concession 2 and Part Lot 17 & 18, Concession 2 NDS
(former geographic Township of Nelson)
City of Burlington
Region of Halton

Legend

- Licence Boundary
- Limit of Extraction
- Contours with Elevation (Metres above sea level (MASL))
- Public Road
- Fence (1.2m post & wire fence unless otherwise noted)
- Jefferson Salamander Regulatory Boundary
- Water Feature
- Significant Woodlands
- Woodlands
- Wooded Feature
- Wetland (Savanta)
- Wetland (MNRF - Provincially Significant)
- Wetland (MNRF - Unevaluated)
- Forested Setbacks
- 120m Offset From Licence Boundary
- Existing Licence (Existing Licensed Boundary (solid line) Existing Limit of Extraction (dashed line))
- Parcel Fabric
- Diversion or Discharge Pipe (Existing - Single Dash Proposed - Double Dash)
- Discharge Location
- Sun-Canadian Pipe Line (Pipe line location and easement)
- Entrance / Exit (Operational - hotline Field / Property - hatch)
- Gate
- General Direction of Excavation & Boundary
- Berm - Acoustic
- Berm - Hydrologic
- Berm - Visual
- Building/Structure
- Quarry Floor (Metres above sea level (MASL))
- Cross Sections

Tree Protection Plan Detail
Not to Scale



1. The Tree Protection Zone (TPZ) for woodlands extends the length of the woodland dripline of significant woodlands.
2. Prior to site preparation in each Phase, liner fencing shall be erected along the licence boundary. The area between the licence boundary and the drip line of the significant woodland is the TPZ. The TPZ is to prevent damage and soil compaction within the TPZ.
3. Fencing material shall consist of orange plastic web snow fencing and/or page wire fencing with reflective tape.
4. Fencing material shall be installed a minimum 1.2 metres in height above grade.
5. Signage shall be posted in visible locations along the perimeter of each TPZ fence and be a minimum 25 cm x 36 cm. Each sign shall clearly state the text provided to the right.
6. The TPZ must remain fully intact and shall not be used for temporary storage of fill, topsoil, building materials, equipment storage, washing of equipment, or dumping of any construction material.
7. Where encroachment into the TPZ is necessary to facilitate construction of the discharge pipe, tree removal shall be kept to a minimum and the disturbed soil shall be restored with wood chips. In this location a trail will be maintained to provide access to the discharge location.

Legend
- Woodland / Tree Dripline
- Orange Plastic Web Snow Fencing
- Page Wire Fencing with Reflective Tape

Tree Protection Zone
No grade change, storage of any materials or equipment, washing of equipment, or dumping of any material within this area.
20cm

Site Plan Amendments

No.	Date	Description	By

Site Plan Revisions (Pre-Licencing)

No.	Date	Description	By
1.	September 2020	Adjust pond adjacent to dwelling in the southwest corner of the West Extension.	CAP
2.	April 2021	Updated notes per MNRF feedback. Added discharge location/pipe to plan view. Updated legend and added Tree Preservation Plan detail. Included MNRF wetlands for South Extension.	CAP

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MNRF Approval Stamp

MHBC Stamp

DRAFT

Applicant

NELSON AGGREGATE CO.
2433 No. 2 Sideroad
P.O.Box 1015 Bolton On, L7E 4L8
(905) 880 6260

Project

Burlington Quarry Extension

MNRF Licence Reference No. 626477	Pre-approval review:
Plan Scale: 1:3000 (Arch E) 0 100 200 Meters	Date: April 2021
	Drawn By: C.P. File No.: 9135D
	Checked By: B.Z.
File Name: **Operational Plan**	
Drawing No.: **2 of 4**	
File Path: N:\Barrie\9135D- Nelson - Project Sideways\Drawings\ARA Site Plans\Extension Site Plan\CAD\9135D - Site Plan - Blackline! - April 19 2021.dwg	

Progressive Rehabilitation

A. General

1. Area Calculations:

   i. To be extracted (total) 58.2 ha
   - South Extension 14.5 ha
   - West Extension 35.7 ha

   ii. To be rehabilitated (total) 58.2 ha
   - South Extension 14.5 ha
   - West Extension 35.7 ha

B. Phasing

1. As excavation reaches the limit of extraction or maximum depth, progressive rehabilitation shall commence.
2. Progressive rehabilitation shall follow the direction and sequence of extraction identified on the plan view and described in the notes on drawing 2 of 4.
3. Prior to extraction commencing in Phase 5, side sloping within Phase 3 shall be completed.

C. Slopes and Grading

1. Progressive rehabilitation will utilize a variety of rehabilitation techniques including:
   i. Backfilling extraction faces and quarry floors;
   ii. Partially backfilling extraction faces to create a cliff with talus slope; or
   iii. Leaving extraction faces vertical
2. Excess soil, in accordance with MECP "Excess Soil Regulation (O. Reg 406/19), as may be amended from time to time, may be imported to facilitate the establishment of 3:1 and 2:1 (horizontal: vertical) slopes on the quarry faces and/or applied to the quarry floors to achieve the final contour elevations shown on the plan view. The licensee must ensure that the material is tested at the source, before it is deposited on-site, to ensure that the material meets the MECP's criteria under Table 1 of MECP's Soils, Ground Water and Sediment Standards for use under Part XV.1 of the *Environmental Protection Act*. Sampling results will be provided to the MNRF upon request.
3. Notwithstanding Condition 1, where the imported material is not being placed within 1.5 metres of the surface, the criteria under Table 1 for sodium absorption ratio and electrical conductivity do not have to be met.
4. The final rehabilitated landforms established in the South and/or West Extension using the rehabilitation techniques will consist of lakes, islands, shoreline wetlands, vernal pools, beach, pond, woodlands, gradually sloping grades, 2:1 and 3:1 side slopes, cliff with talus slopes, and vertical faces as shown on the plan view.
5. Beach sand may be imported to establish the beach area in the South Extension.
6. As part of rehabilitation of the site, regrade the area along the north boundary of Phase 3, as shown on his drawing to provide surface water flow to the adjacent wetland to reinstate its catchment area.

D. Seeding and Planting

1. The side slopes and backfilled portions of the quarry floor will be seeded with the Ministry of Transportation's (MTO) Ontario Roadside Seed Mix (Creeping Red Fescue, Kentucky Bluegrass, Perennial Ryegrass and White Clover) or equivalent
2. Ponds, wetlands, and tree planting areas identified in the plan view shall be planted in accordance with Table 1: Rehabilitation Plant List Recommendations on this drawing.
3. The planting design and approach will be guided by the Conservation Halton Landscaping and Tree Preservation Guidelines (2010).
4. Planting densities shall be determined based on the restoration objectives and presence/absence of existing natural features. For example, planting densities will be highest where the objective is to restore/establish a woodland, and meet the definition of woodland under the Forestry Act, but may be reduced if/when objective is to establish a buffer adjacent to a naturalized area. The type of species planted will also be dependent on adjacent habitat (e.g., greater reliance on shrub plantings when restoration occurs adjacent to a meadow, and tree plantings when planting next to woodland).
5. Where the restoration objective is the establishment of a woodland, trees will be planted at a minimum density of 10 trees per 100 m², in order to account for competition, stress or wildlife damage and to meet the definition of woodland under the Forestry Act. Within this area, the shrub to tree ratio will be 5:1, with trees planted no closer than 2.5 m on centre and shrubs planted between 0.75 m and 1.5 m apart.
6. Where the restoration objective is the establishment of a setback adjacent to a natural feature, planting densities will be dependent on the features they abut (e.g., densities will be higher when planting next to an existing forest relative to the densities when planting next to an anthropogenic or cultural feature). The planting design of a proposed setback adjacent to a natural feature will follow a 3-band approach, where woody planting densities will be highest within Band 1 (closest to the existing adjacent feature) and reduced in Band 2. No woody species will be planted in Band 3, which will be seeded with a soil and moisture-appropriate native seed mix. Where trees will be planted, the following planting densities will be applied: Band 1 - five trees per 100 m². Where shrubs are also being proposed, these will be planted at a shrub to tree ratio of 5:1; Band 2 - three trees per 100 m². Where shrubs are also being proposed, these will be planted at a shrub to tree ratio of 5:1.
7. Competing herbaceous vegetation will be controlled by placing mulch around each planted tree or shrub (50 cm radius of mulch around each planting). Rodent protection will be installed as necessary. Where access permits, planting will be watered during periods of drought (defined as a 30 day period between May and September with less than 25mm of precipitation) until establishment has occurred.
8. For planting in areas not extracted, plantings shall be monitored at least annually until "free-to-grow" conditions have been achieved. "Free-to-grow" is a condition in which the plantings are considered established based on a minimum stocking standard, a minimum height and freedom from competition that could impede growth. At the "free-to-grow condition", the survival (stocking standard) of planted trees shall be a minimum of 1000 trees per hectare. If survival is less than 1000 "free-to-grow" condition trees per hectare, additional planting will take place.
9. For plantings in areas extracted, plantings shall be monitored at least annually until "free-to-grow" conditions have been achieved. "Free-to-grow" is considered established based on a minimum stocking standard, a minimum height and freedom from competition that could impede growth. At the "free-to-grow" condition, the survival (stocking standard) of planted trees shall be a minimum of 1000 trees per hectare. If survival is less than 1000 "free-to-grow" condition trees per hectare, additional planting will take place.

E. Drainage

1. Final surface drainage will follow the rehabilitated contours and directional arrows shown on the plan view.
2. Once the South Extension is depleted, pumping will cease and portions of the site below the ground water table will fill with water.
3. Runoff within the South Extension will drain into the lake.
4. Construct overflow outlet in the southwest corner of the South Extension.
5. Once the West Extension is depleted, the West Extension will remain in a dewatered state. Runoff within the West Extension will either drain north towards the lake or southeast into existing Licence #5499.
6. During rehabilitation the licensee shall maintain discharge to fish habitat to the north and south from Quarry Sump 0100 and 0200 within License #5499 and passive discharge from a bottom draw outlet in the infiltration pond to provide water to the wetland north of No. 2 Side Road adjacent to West Extension.
7. During rehabilitation the licensee shall operate in accordance with the conditions of the MECP, PTTW and ECA for the ongoing dewatering of the site. This pumping regime is consistent with current management from License #5499 and provides long term public water management benefits and mitigates impacts to natural heritage features that depend on quarry discharge from the adjacent License #5499.
8. The licensee has committed to: conveying the site into public ownership and to maintain the West Extension in a dewatered state by maintaining the pumping regime from License #5499 to provide long-term public water management benefits and mitigate impacts on natural heritage features which depend on quarry discharge from the adjacent License #5499.

F. Adaptive Management Plan

- During progressive rehabilitation, until surrendering the licence, the licensee is required to operate in accordance with the Adaptive Management Plan, prepared by EarthFX Inc., Savanta and Tatham Engineering, dated April 2020, as may be amended from the time to time with approval from MNRF, in consultation with NEC, Region of Halton, City of Burlington and Conservation Halton.

Final Rehabilitation

A. General

1. All equipment shall be removed from the South and West Extension.
2. No internal haul roads shall remain in either Extension.
3. The residence and barn at 2280 Side Road No. 2 in the South Extension shall remain.
4. The residence and barn located at 2015 Side Road No. 2 in the southwest corner of the West Extension shall remain.
5. A field/property access entrance shall remain to access the residence and barn located at 2280 and 2015 Side Road No. 2.
6. The groundwater table post rehabilitation varies between 263.5 masl to 271 masl in the South Extension and 255.5 masl to 265 masl in the West Extension (EarthFX 2020) or ±269 masl if the West Extension is not maintained in a dewatered state.
7. The licensee, prior to the surrender of the licence, shall complete a Record of Site Condition for the Extensions in accordance with the Environmental Protection Act.
8. Prior to the surrender of the Aggregate Resource Act Licence, the licensee shall define the transition of the site to another party and the pre-requisite for license surrender to the satisfaction of the MNRF.

Table 1: Rehabilitation Plant List Recommendations

Pond/Wetland (PW)
Grassland and Existing Trees (GL)
Gradual Grade/Side Slope with Trees (GG)
Forested Setback During Operation (FSO)
Forested Setback Post Berm (FSB)
Restored to Existing Grade and Forested (REG)

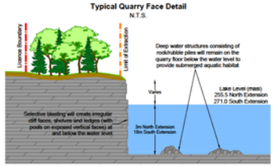
Location	LATIN NAME	COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	OWES WETLAND SPECIES	PROVINCIAL STATUS (S-RANK)	LOCAL STATUS SOUTH (Range zone)
PSB, REG	*Sambucus racemosa* ssp. *pubens*	Red Elderberry	5	3		S5	X
PSB, REG	*Cornus alternifolia*	Alternate-Leaved Dogwood	4	3		S5	X
PSB, REG	*Cornus racemosa*	Gray Dogwood	2	0	?	S5	X
Pav, PSB, REG	*Cornus sericea*	Red-Osier Dogwood	2	-3		S5	X
PSB, REG	*Hilton cynosbati*	Eastern Prickly Gooseberry	4	3		S5	X
PSB, REG	*Prunus virginiana* var. *virginiana*	Chokecherry	2	3		S5	X
PSB, REG	*Rubus allegheniensis*	Allegheny Blackberry	2	3		S5	X
PSB, REG	*Rubus occidentalis*	Black Raspberry	2	3		S5	X
PW	*Salix amygdaloides*	Peach-Leaved Willow	4	-3	?	S5	X
Pav, PSB, REG	*Salix discolor/petiolaris*	Pussy Willow	4	3	?	S5	X
PSB, PSE, REG	*Salix interior*	Sandbar Willow	4	-3	?	S5	X
PW	*Salix pentandra*	Meadow Willow	3	-3	?	S5	X
CG, PSB, REG	*Betula alleghaniensis*	Yellow Birch	6	0	?	S5	X
DG, FSO, PSB, REG	*Betula papyrifera*	Paper Birch	2	3	?	S5	X
CG, PSB, REG	*Carpinus caroliniana* ssp. *virginiana*	Blue Beech	5	0	?	S5	X
CL, CG, FSO, PSB, REG	*Ostrya virginiana*	Eastern Hop-Hornbeam	4	3		S5	X
CL, DG, FSO, PSB, REG	*Fagus grandifolia*	American Beech	6	3		S5	X
CL, DG, FSO, PSB, REG	*Quercus macrocarpa*	Bur Oak	5	3	?	S5	X
CL, DG, FSO, PSB, REG	*Quercus rubra*	Northern Red Oak	6	3		S5	X
CL, CG, PSB, REG	*Tilia americana*	American Basswood	4	3		S5	X
CL, DG, FSO, PSB, REG	*Tilia americana*	Basswood	4	3		S5	X
CL, DG, FSO, PSB, REG	*Prunus serotina* ssp. *serotina*	Black Cherry	3	3		S5	X
CG, PSB, REG	*Populus balsamifera*	Balsam Poplar	4	-3	?	S5	X
CL, DG, FSO, PSB, REG	*Populus deltoides* ssp. *deltoides*	Eastern Cottonwood	4	0	?	S5	X
CL, DG, FSO, PSB, REG	*Populus tremuloides*	Trembling Aspen	2	0	?	S5	X
PW, DG, PSB, REG	*Salix amygdaloides*	Peach-Leaved Willow	4	-3	?	S5	X
CL, DG, FSO, PSB, REG	*Acer nigrum*	Black Maple	7	3		S5?	X
DG, PSB, REG	*Acer saccharinum*	Silver Maple	5	-3	?	S5	X
CL, DG, FSO, PSB, REG	*Acer saccharum*	Sugar Maple	4	3		S5	X
PSB, REG	*Physocarpus opulifolius*	Common Ninebark	2	0		S5	X
CG, PSB, REG	*Thuja occidentalis*	Eastern White Cedar	4	3	?	S5	X
CL, DG, FSO, PSB, REG	*Picea glauca*	White Spruce	6	3	?	S5	O
CL, DG, FSO, PSB, REG	*Pinus strobus*	Eastern White Pine	4	3	?	S5	X
CL, DG, FSO, PSB, REG	*Tsuga canadensis*	Eastern Hemlock	7	3	?	S5	X

Herbaceous seed mixes will be applied where appropriate (e.g. if soil seedbank is deemed unsuitable). Potential mixes could include Upland Dry Meadow Mix, Early Successional/Riparian Mix, and Meadow Marsh Mix, following Conservation Halton guidelines.

A nurse crop will be applied to exposed soil, the species of which will depend on season of application but will follow Conservation Halton guidelines.

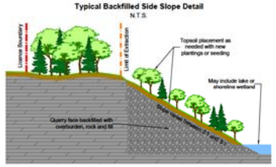
Beach
Pond
Swim Area
Lake
Wetland / Shoreline Wetland
Vertical Face
3:1 slope (tree planting)
2:1 slope (tree planting)
Setback - grassland & existing trees
Setback - forested - planted during operations
Setback - forested - planted when berms removed
Restored to existing grade (tree planting)
Gradual grade (with trees & vernal pools) or islands

Typical Quarry Face Detail N.T.S.

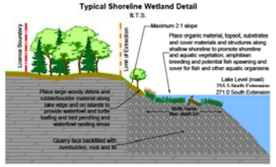


Typical Cliff and Talus Slope Detail N.T.S.

Typical Backfilled Side Slope Detail N.T.S.



Typical Shoreline Wetland Detail N.T.S.



Legal Description

Part Lot 1 & 2, Concession 2 and Part Lot 17 & 18, Concession 2 NDS
(former geographic Township of Nelson)
City of Burlington
Region of Halton

Legend

- Licence Boundary
- Limit of Extraction
- Contours with Elevation (Metres above sea level (MASL))
- Public Road
- Fence (1.2m post & wire fence unless otherwise noted)
- Water Feature
- Lake / Pond (Licence # 5499)
- Significant Woodlands
- Woodlands
- Wooded Feature
- Wetland (Savanta)
- Wetland (MNRF - Provincially Significant)
- Wetland (MNRF - Unevaluated)
- 120m Offset From Licence Boundary
- Existing Licence (Existing Licenced Boundary (solid line) Existing Limit of Extraction (dashed line))
- Parcel Fabric
- Diversion or Discharge Pipe (Existing - Single Dash, Proposed - Double Dash)
- Discharge Location
- Sun-Canadian Pipe Line (Pipe line location and easement)
- Jefferson Salamander Regulatory Boundary
- Entrance / Exit (Field / Property)
- Gate
- Building/Structure
- Proposed Final Grade and Slope
- Final Elevation of Land and Lake (MASL)
- Cross Sections

Site Plan Amendments

No.	Date	Description	By

Site Plan Revisions (Pre-Licencing)

No.	Date	Description	By
1	September 2020	Adjust pond adjacent to dwelling in the southwest corner of the West Extension.	CAP
2	April 2021	Included MNRF wetlands for South Extension. Updated notes per MNRF feedback. Updated legend.	CAP

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MNRF Approval Stamp

DRAFT

MHBC Stamp

Applicant

NELSON AGGREGATE CO.
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P.O.Box 1570 Burlington Ont. L7N 4L8
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Project

Burlington Quarry Extension

MNRF Licence Reference No. 626477	Pre-approval review:
Plan Scale: 1:3000 (Arch C.) 0 100 200 Meters	Date: April 2021
	Drawn By: C.P.
	Checked By: B.Z.
	File No. 9135D

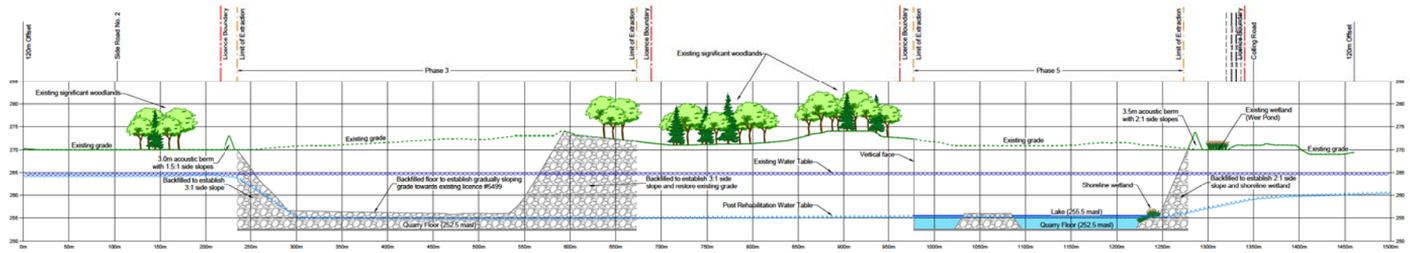
File Name

Rehabilitation Plan

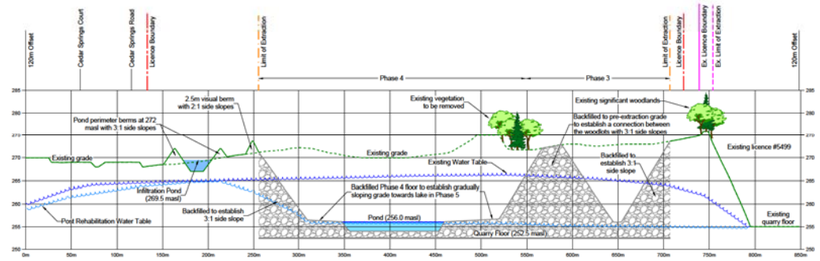
Drawing No.

3 of 4

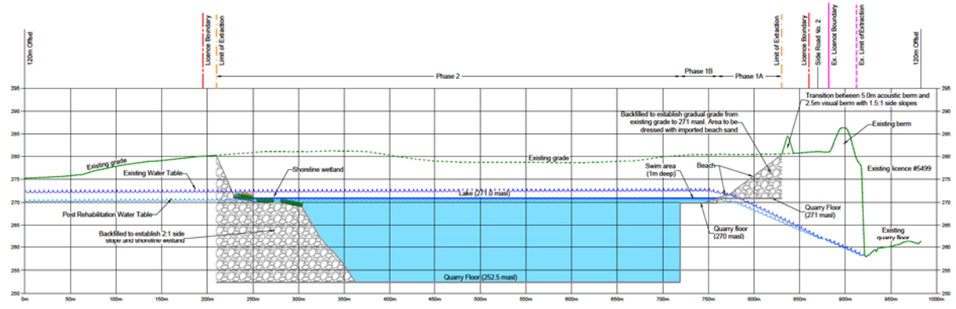
File Path N:\Brant\9135D\ Nelson - Project Sideways\Drawings\ARA Site Plans\Extension Site Plan\EA2401500 - Site Plan - Blackline - April 19 2021.dwg



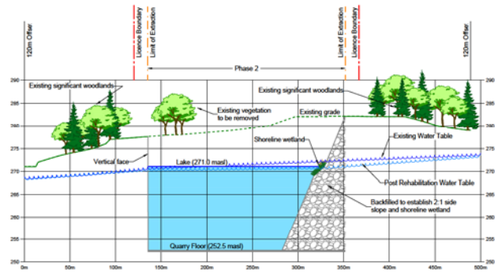
Cross Section A-A1



Cross Section B-B1



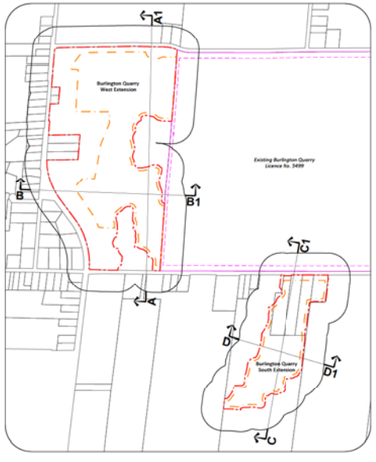
Cross Section C-C1



Cross Section D-D1

Key Map

Cross Sections



Legal Description

Part Lot 1 & 2, Concession 2 and Part Lot 17 & 18, Concession 2 NDS
(former geographic Township of Nelson)
City of Burlington
Region of Halton

Legend

- Licence Boundary
- Limit of Extraction
- Existing Licence
- Existing Limit of Extraction
- 120m Offset From Licence Boundary
- Existing Grade - Removed / Altered
- Existing Grade - Undisturbed
- Quarry Floor / Face
- Berm
- Existing Water Table
- Post Rehabilitation Water Table
- Backfilled
- Lake or Pond

Site Plan Amendments

No.	Date	Description	By

Site Plan Revisions (Pre-Licencing)

No.	Date	Description	By
1	April 2021	Added additional cross section labels for clarity	CAP

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MNRF Approval Stamp

DRAFT

MHBC Stamp

Applicant

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Project

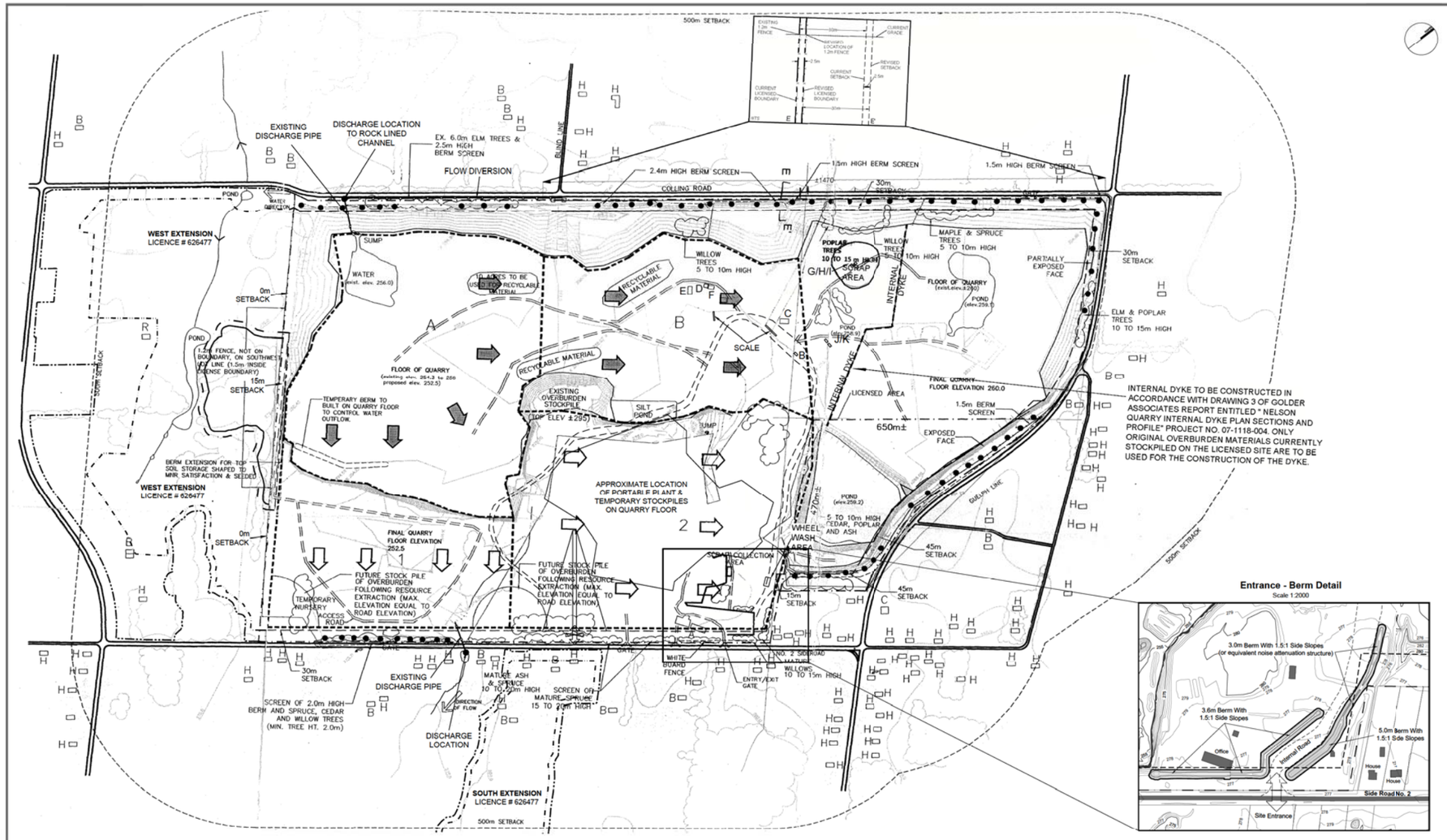
Burlington Quarry Extension

MNRF Licence Reference No. 626477	Pre-approval review:
Plan Scale: Horizontal 1:2000, Vertical 1:400	Date: April 2021
	Drawn By: C.P.
	Checked By: B.Z.
	File No. 9135D

File Name: **Cross Sections**

Drawing No.: **4 of 4**

File Path: N:\Brian\9135D- Nelson - Project Sideways\Drawings\ARA Site Plans\Extension Site Plan\CAD\9135D - Site Plan - Blackline - April 19 2021.dwg



Entrance - Berm Detail
Scale 1:2000

LEGEND

- EXISTING SPOT ELEVATIONS
- EXISTING CONTOURS
- BOUNDARY OF LICENSED AREA
- SETBACK LIMITS
- EXISTING 1.2m FENCE ON BOUNDARY
- ENTRANCE GATES
- ACTIVE QUARRY FACE
- TREED AREAS/WOODLOTS/SCREENS
- HAUL ROUTES/INTERIOR ROADWAYS
- AREA STRIPPED OF TOPSOIL/OVERBURDEN
- EARTH BERM SCREEN
- AGGREGATE STOCKPILE MAXIMUM HT. 20.0m
- 1 APPROXIMATE SEQUENCE OF EXTRACTION (UPPER LIFTS)
- A APPROXIMATE SEQUENCE OF EXTRACTION (LOWER LIFTS)
- APPROXIMATE BOUNDARY BETWEEN STAGES
- DIRECTION OF EXTRACTION
- DIRECTION OF EXTRACTION 2ND. LIFT
- EXTENSION LICENCE BOUNDARY
- EXTENSION LIMIT OF EXTRACTION
- FLOW DIVERSION / DISCHARGE PIPE
- PROPOSED ENTRANCE / EXIT WITH GATE

General Notes

Recycling Area:

1) This site plan specifies the additional storage size (10 acres) for recyclable materials,

2) This site plan specifies that the storage only includes asphalt and concrete for the purpose of aggregate recycling for this to be considered accessory to the aggregate operation. The materials should be restricted to aggregate based materials),

3) This site plan specifies that this use only continues so long as the site is licensed.

Aggregate Extraction

1) This plan depicts an operation plan for this property based upon the best information available at the time of preparation. Phases are schematic and may vary slightly with demand. Phases do not represent any specific or equal time period. Any major deviations from the operational sequence will require approval of the MNRF.

2) Topsoil and overburden will be removed approximately 100 to 200 metres in advance of aggregate extraction.

3) Phase 1 will be excavated in a single lift of (20-25m) down to the shale layer. A slot may be advanced southward in the centre of Phase 1. Extraction will occur simultaneously from the east, west and south faces within the slot and from the south face on either side of the slot opening.

4) Phase 2 will be extracted in an easterly direction in a single lift (20-25m) down to the shale layer.

5) As required, the existing processing plant will be removed and a new portable plant will be established on the quarry floor (as shown).

6) A section lift (+/- 5m) in areas A and B will be extracted down to the shale layer. Extraction may being in the northwest corner of the quarry floor and proceed simultaneously south and eastward this lift will be undertaken at the same time as phases 1 and 2.

7) This Plan permits aggregate extracted at the Burlington Quarry Extension to be transported on site for processing and shipping. The Burlington Quarry South Extension will transport aggregate from an at-grade crossing on No. 2 Sideroad in the location shown on this Plan. The Burlington Quarry West Extension will transport aggregate on the quarry floor within the extraction area connecting the two sites. The final area to be extracted on-site is the southeast corner of Licence No. 5499 after the completion of extraction of the Burlington Quarry Extension.

8) Fuel storage tanks will be installed and maintained in accordance with the Liquid Fuels Handling Code under the Technical Standards and Safety Act.

On-site Operations

1) Existing equipment includes:
   - Portable crushing plant
   - Trucks and graders
   - Loaders
   - Hydraulic shovels
   - And general equipment required to extract and ship aggregates

2) The processing of extracted materials shall occur between 7.00 and 19.00 only.

3) The loading and shipping of products may occur 24 hours.

4) The asphalt plant may operate 24 hours.

5) No drilling or extraction activities will occur within this quarry simultaneously with extraction activities within the Burlington Quarry Extension.

6) The maximum sound power level of equipment operated within the quarry will be as follows:

Source	Sound Power Level [dBA re: 10^{-12} Watts]
Front-end Loader - Processing Area	101
Jaw Crusher	113
Cone Crusher (a set of two)	117
Screen Plant	123
Power Generator	109
Moving Haul Truck	114
Moving Highway Truck	101

7) Up to three haul trucks will be used to transport material from the Burlington Quarry Extension to the processing area, with a posted speed limit of 35 km/hr along this route.

8) Up to 30 highway trucks can arrive and depart the site per hour, travelling between the No. 2 Side Road access and the processing area, with a posted speed limit of 20 km/hr along this route.

9) The asphalt plant will be equipped with noise control measures and operate within the conditions stipulated in the ECA issued by the MECP.

10) Equipment used for site preparation and rehabilitation shall satisfy the noise emission levels of the MECP guideline NPC-115, "Noise Construction Equipment".

11) Existing perimeter berms along the north, east and south property lines shall be retained and a new berm/acoustic barrier shall be constructed at the entrance/exit in the southeast corner of the site. See berm detail on this page.

Overburden and Topsoil

The existing terrain features along the north, east, and south property lines, including perimeter berms, will be maintained. Overburden and topsoil will be stripped prior to extraction and will be used for backfilling of selected slopes to affect the rehabilitation measures outlined on dwg No. 3 - Progressive and Final Rehabilitation Plans. Overburden stockpiles along No. 2 sideroad shall not be any higher than the existing road grade.

Water Discharge

Water discharge points are to remain as shown on dwg No.1 and may also include the flow diversion in the northwest corner of this Plan. Dewatering will occur to maintain a dry quarry floor while the quarry is in operation. The northwest discharge is to a rock lined ditch adjacent to Colling Road where it drains westward and to the southeast if the flow diversion is installed. The south discharge is to a ditch which crosses No.2 Sideroad and proceeds southward. Discharge of water will be in accordance with permits issued by the MECP.

Tree Planting

Tree planting and seeding of backfilled slopes will be conducted progressively as described in note #6 on dwg No. 3 - Progressive and Final Rehabilitation Plans. Should any tree planting or seeding fail to become established, replacement of trees or seeding will be conducted and maintained to ensure proper success rates.

Fencing

The licensed area is enclosed by a 1.2m fence with the exception of the area around the office and main site access area which has a three rail wooden fence. No fencing is required adjacent to the Burlington Quarry West Extension.

Aggregate Stockpiles

Existing aggregate stockpiles will remain in the locations as shown on this plan during the extraction of areas 1, A and B. These stockpiles will be removed as required as the operation enters into these areas. The proposed stockpiles associated with the portable processing plant will be located on the quarry floor within the processing area. (as shown on the plan)

Temporary aggregate stockpiles may be located on the quarry floor as required.

Provision

Internal roads on quarry floor are temporary and can be relocated as required.

Variations from Control and Operation Standards

Section 0.13 Standard	Variation	Rationale
(3)(a)	The west licence boundary will not be fenced.	The west licence boundary abuts adjacent Licence # 626477 and additional land which are owned by the same licensee.
(1)1 & (1)2	Gates will not be required where haul roads cross the common boundary with the West Extension (Licence # 626477).	This will eliminate constraints to the movement of equipment between licences and access to additional lands owned by the same licensee.
(1)10.i	A 0 metre setback will be provided where the licence boundary abuts the West Extension (Licence # 626477).	This will enable material to be extracted along the common boundary and for rehabilitation to transition between licences.
(1)9 & (1)11	Excavation within the setback will occur to construct hydrological features and an access point for the South Extension.	Setbacks shall be temporarily excavated and disturbed to install diversion and discharge pipes as well as to construct an at grade roadway crossing on Side Road No. 2.
(1)13.i	Topsoil and overburden may be temporarily located within 30m of the West Extension (Licence # 626477).	The adjacent Licence # 626477 is owned by the same licensee.
(1)17 & (1)18	Topsoil and/or overburden may be transferred between this licence and the West and East Extensions (Licence # 626477).	This will allow stripped material from site preparation to be used immediately for progressive rehabilitation in other parts of this licence or the extensions.
(1)19.ii	Portions of the quarry face shall remain vertical.	Vertical faces above and below the final lake level will create a more diverse habitat and visually appealing rehabilitated landform.

Information Compiled From

- 1990 Aerial Photography at 1:5000 Scale
- 1988 Official Plan for the Halton Planning Area, Regional Municipality of Halton
- 1985 Niagara Escarpment Plan
- Ministry of Environment, Water well records
- 1991 Reinders Field Survey
- Ontario Base Mapping (Air Photography 1982, Published 1983)
- 1985 Plans by Nelson
- 1997 Mark-Ups Provided bv Nelson
- Rehabilitation contours utilized the City of Burlington's Open Data Catalogue which contains 2017 contour data and are displayed in one metre intervals
- Elevations shown are in metres above sea level (masl)
- On-site haul roads, stockpile locations, buildings and structures were updated based on July, 2020 aerial photography

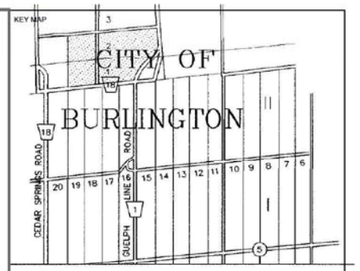
MINISTRY OF NATURAL RESOURCES
AURORA DISTRICT
SITE PLAN APPROVED
Under the Aggregate Resources Act
Date March 3/19

ORIGINAL SITE PLANS PREPARED BY:

REINDERS
[redacted]
F.J.Reinders and Associates Canada Limited
Architects, Engineers, Planners, Project Managers
BRAMPTON (416)452-1515

DATE MAR.05/99 | PROJECT NO. 4792 | DRAWN BY C.G./S.B. | CHECKED T.M.J.

KEY MAP



SITE DESCRIPTION AND STATISTICS
PT. LOTS 1 & 2, CONC. 2 & 3
CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF HALTON

	LICENSED AREA (ha)
LICENCE NO. 5499	202.1
LICENCE NO. 5657	16.2
TOTAL	218.3
TOTAL AREA TO BE EXTRACTED (both licenses)	211 ha

BUILDINGS WITHIN QUARRY BOUNDARY

A	OFFICE	40mX15mX5m
B	PORTABLE SCALE HOUSE	15mX7m
C	FUEL PUMPS	30mX10mX4m
D	LUNCH ROOM	5mX5mX5m
E	ASPHALT PLANT	120mX30mX15m
F	ASPHALT CONTROL ROOM	30mX15mX8m
G	STORAGE SHED #1	5mX10mX3m
H	STORAGE SHED #2	4mX5mX3m
I	STORAGE SHED #3	7mX5mX3m
J	PORTABLE OFFICE TRAILER	10mX5mX3m
K	PORTABLE OFFICE TRAILER	10mX5mX3m

LEGEND OF BUILDINGS WITHIN 500m OF QUARRY BOUNDARY

H	HOUSE
B	BARN
C	COMMERCIAL BUILDING i.e. GAS BAR
R	RECREATION BUILDING i.e. GOLF CLUBHOUSE

All distances on this plan are shown in metres unless otherwise stated.

Site Plan Amendments

No.	Date (YY/MM/DD)	Description	By
12	21/09/10	UPDATE NUMBERING FOR CONTROL AND OPERATION STANDARDS	C.P.
11	21/04/19	INTEGRATION OF BURLINGTON QUARRY EXTENSION (LICENCE # 626477)	C.P.
10	19/07/14	REMOVAL/RELOCATION OF BUILDINGS/STRUCTURES ON-SITE	L.H.
9	12/01/20	REVISE FUEL STORAGE NOTE #8 ON PAGE 2 OF 4	L.H.
8	07/12/03	REVISE INTERNAL DYKE	L.H.
7	06/11/02	REDUCTION OF LICENSED BOUNDARY	L.H.
6	06/09/18	REVISE LOCATION OF SCRAP AREA	L.H.
5	99/10/26	ADDITIONAL RECYCLABLE MATERIAL STORAGE	P.C.
4	97/03/05	REVISED AS PER MINISTRY COMMENTS	P.C.
3	93/06/15	REVISED AS PER MINISTRY COMMENTS	K.C.
2	92/10/16	REVISED AS PER CLIENT COMMENTS	G.M.
1	92/10/08	REVISED PLANS AS PER MNR COMMENTS	GM/BD

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
113 COLLIER STREET BARRIE, ON, L4M 1H2 | P: 705 728 0045 F: 705 728 2010 | WWW.MHBCPLAN.COM

MHBC PLANNING DRAFTED SITE PLAN AMENDMENTS NO. 6 TO 12

Stamp

Mr. Brian Zeman is authorized by the Ministry of Natural Resources and Foresthy to prepare and certify site plans for license applications.

PROJECT

Burlington Quarry
Part of Lots 1 & 2, Conc. 2 & 3
(former township of Nelson) City of Burlington, Region of Halton

NELSON AGGREGATE CO.
2433 No. 2 Sideroad
P.O.Box 1019 Burlington Ont. L7R 4L8
phone: (905) 335-5250

Metres 0 50 100 200 250
Plan Scale 1:4000

Drawn By L.H./C.P. | File No. 9135N
Checked By B.Z. | Date SEPTEMBER 2021

File Name

OPERATIONAL PLAN

Drawing No.

2 OF 4

N:\Brian\9135D- Nelson - Project Sideways\Drawings\ARA Site Plans\Existing Site Plan\CAD\9135D - Existing - 2 of 4 - Operational Plan.dwg

APPENDIX B

Summary of Assessed Operations

The following on-site operations represent the predictable worst-case operating scenario during the maximum production rate of the site, based on input from Nelson Aggregate personnel.

- The drilling, extraction activities, and processing of extracted materials may only occur during daytime hours only (7:00 – 19:00);
- Loading and shipping of products from the existing quarry may occur for 24 hours;
- The third-party asphalt plant can operate anytime during daytime (7:00 – 19:00) and evening/night-time (19:00 – 7:00) hours;
- Drilling and material extraction were assumed to occur at the closest possible location to each of the surrounding receptors within the extraction area indicated in the site plan;
- Prior to commencement of quarrying activities in the two extensions, berms will be constructed at the perimeter of the site, as discussed in Appendix C, and were assumed to remain in place throughout the operational life of each extension;
- The rock drill was assumed to be located on grade of the licenced area within the proposed quarry extension. The mobile equipment and the processing plant were modeled at an elevation representing the floor of the quarry, which will be approximately 270 metres above sea level in Phase 1 and 252.5 metres above sea level in Phases 2 through 6;
- The sound power levels assumed for the purposes of this assessment are summarized in the following table. The sound levels from the existing processing plant, front-end loaders for material extraction and loading of highway trucks, and all sources associated with the third-party asphalt plant were measured at the site on May 17, 2018 by HGC Engineering using methods in ISO standard 9614-2 [3]. Sound levels from movements of highway trucks and haul trucks were based on measurements of similar equipment at other sites conducted by HGC Engineering for past projects. The sound power level of the rock drill in the extensions is based on information provided by Nelson Aggregate.

Table B1: Source Sound Power Levels [dBA re: 10^{-12} W]

Source	Sound Power Level
Extraction at the Extension	
Drill	110
Front-end Loader – Working Face	101
Moving Haul Truck	114*
Processing and Shipping from the Existing Quarry	
Front-end Loader – Processing Area	101
Jaw Crusher	113
Cone Crushers	117
Screen Plant	123
Power Generator	109
Moving Highway Truck	101
Asphalt Plant at the Existing Quarry	
Front-end Loader	102
Mixing Tower	109
Burner and Dryer	111
Baghouse	104

- *Loaded haul trucks travelling uphill from the floor of the south extension to the crossing at 2 Side Road were assumed to be 8 dBA louder than the value stated in Table B1 (PWL of 122 dBA). Empty trucks travelling downhill in the same section were assumed to be 2 dBA quieter. These corrections were applied based on noise measurements of similar activities conducted by HGC Engineering for past projects.
- Three haul trucks will be used to transport material from the working face to the processing area. The frequency of haul truck movements was calculated based on the number of trucks in use, the round-trip distance traveled from the working face to the processing area and an average speed of 35 km/hr, based on observations at other sites. Consideration was also given to loading, acceleration/deceleration and unloading time, which were assumed to be two minutes, one minute and two minutes, respectively. The following table demonstrates the derivation of haul truck movements for typical operation within the quarry.

Table B2: Calculations of Haul Truck Movements

	Phase 1 (South Extension)	Phase 2 (South Extension)	Phase 3 (West Extension)	Phase 4 (West Extension)	Phase 5 (West Extension)	Phase 6 (West Extension)
Round Trip Distance [km]	2.1	3.5	2.7	3.2	3.2	3.3
Average Speed [km/h]:	35	35	35	35	35	35
Time/Trip/Truck [min]:	3.7	6.0	4.6	5.5	5.6	5.7
Loading Time [min]:	2	2	2	2	2	2
Unloading Time [min]:	2	2	2	2	2	2
Acceleration/Deceleration [min]:	1	1	1	1	1	1
Total Time /Trip/Truck [min]:	8.7	11.0	9.6	10.5	10.6	10.7
No. of Trips/Truck/Hour:	7	5	6	6	6	6
No. of Trucks in Operation:	3	3	3	3	3	3
No. of Total Trips/Hour:	21	16	19	17	17	17
Unloading Time (10 s per Truck) [min]	3.5	2.7	3.1	2.9	2.8	2.8

- Up to 30 and 20 highway trucks can visit the quarry and the asphalt plant, respectively, during the predictable worst-case hours of operation outlined above. The trucks were assumed to travel along the access route between the processing area, asphalt plant, and the site entrance on No. 2 Side Road. The trucks were assumed to move at an average speed of 20 km/hr, as that is the posted speed limit applicable to trucks vising the site.

APPENDIX C

Noise Control Measures

Noise Berms

Prior to commencement of extraction activities within the proposed extension, Nelson Aggregate will implement and maintain noise berms as follows:

- Berms between 3 and 5 metres high in the vicinity of the main site entrance, as shown in Figure 3a,
- 5 and 6-metre-high noise berms on the east and west sides, respectively, of Phase 1 of the extension, shown in Figure 3b,
- Berms between 2.5 and 3.5 metres high on the south, west and north sides of Phases 3 through 6 of the extension, shown in Figure 3c,

Acoustic Silencers

Upon receipt of approval from the MECP, Halton Asphalt Supply will equip/maintain the fresh-air intake of the burner blower and baghouse stack outlet at the asphalt plant with acoustic silencers. The acoustical performance specifications for these silencers are included in the table below.

Table C1: Silencer Minimum Insertion Loss [dB]

	Centre Octave Band Frequency					
	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
Burner Blower Inlet	9	19	19	20	15	5
Baghouse Outlet	12	18	20	20	14	--

Supplemental Noise Control Measures

Safety regulations require that mobile equipment at the subject site be equipped with reverse alarms, sound emissions from which are exempt from noise assessment. However, to decrease the potential for offsite audibility, Nelson Aggregate will equip all equipment operating in the extension areas with reverse alarms that generate broadband sound, rather than traditional "beepers" that produce a pure tone.

Nelson Aggregate does not permit the use of truck "Jake-brakes" on the site, a policy which should be maintained.

Finally, during each phase of extraction in the extension, Nelson Aggregate will undertake an acoustic survey of the extension to confirm that the sound emissions of the operation comply with the MECP limits.

APPENDIX D

Results and Sample Calculations

Source Sound Level Contributions at Points of Reception During the Worst-Case Operation

Source Name	Phase 1 R01a LEQ [dBA] 2331 Colling Rd - 4.5 m AG			Phase 1 R01b LEQ [dBA] 2331 Colling Rd - 4.5 m AG			Phase 1 R02a LEQ [dBA] 2401 Colling Rd - 4.5 m AG			Phase 1 R02b LEQ [dBA] 2401 Colling Rd - 4.5 m AG			Phase 1 R03a LEQ [dBA] 2607 Homestead Dr - 4.5 m AG			Phase 1 R03b LEQ [dBA] 2607 Homestead Dr - 4.5 m AG		
	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night
HMA - Burner Fan Casing	409	33	33	394	30	30	903	26	26	895	24	24	971	26	26	955	24	24
HMA - Burner Motor	409	23	23	394	20	20	902	15	15	893	13	13	971	20	20	954	16	16
HMA - Burner Blower Inlet	408	24	24	393	23	23	903	13	13	895	12	12	972	16	16	955	15	15
HMA - Dryer	415	38	38	400	31	31	907	30	30	900	29	29	968	35	35	951	33	33
HMA - Baghouse Fan/Motor	404	29	29	388	26	26	918	12	12	909	11	11	980	14	14	964	13	13
HMA - Baghouse Stack Outlet	403	26	26	388	26	26	917	19	19	908	19	19	980	18	18	964	18	18
HMA - Bucket Elevator	404	24	24	388	24	24	902	17	17	894	16	16	975	22	22	959	19	19
HMA - Head of Bucket Elevator	402	31	31	387	31	31	901	26	26	893	24	24	976	27	27	960	24	24
HMA - Drop at Mixing Tower	402	31	31	386	31	31	901	27	27	893	25	25	977	27	27	960	26	26
HMA - Concentric Weight at top of Asphalt Tower	400	38	38	385	38	38	898	34	34	890	33	33	977	34	34	961	33	33
HMA - Pneumatic Loading Gates	402	17	17	387	19	19	900	0	0	891	0	0	977	6	6	960	5	5
HMA - Idling Trucks	403	24	24	388	20	20	897	17	17	889	15	15	975	21	21	958	20	20
HMA - Horn	401	27	27	386	22	22	896	10	10	888	9	9	976	13	13	960	12	12
HMA - Front-End Loader	401	29	29	385	27	27	892	23	23	885	22	22	1004	27	27	987	26	26
HMA - Moving HMA Trucks	846	27	27	830	25	25	1025	27	27	1017	25	25	616	33	33	648	32	32
HMA - Moving Aggregate Trucks	795	26	26	773	24	24	1029	26	26	1022	24	24	614	32	32	642	31	31
HMA - Moving Liquid Asphalt Trucks	726	16	16	714	15	15	993	16	16	979	14	14	635	22	22	665	21	21
Quarry - Moving Aggregate Trucks	976	28	28	959	27	27	1080	31	31	1065	28	28	516	36	36	509	36	36
Quarry - Moving Aggregate Trucks	636	29	29	618	28	28	1047	27	27	1036	23	23	838	27	27	823	26	26
Quarry - Front-End Loader 1	862	25	25	843	24	24	1287	20	20	1275	19	19	857	24	24	844	22	22
Quarry - Front-End Loader 2	937	24	24	917	23	23	1339	19	19	1326	17	17	841	25	25	836	24	24
Front-End Loader - Extraction	1456	12	--	1436	11	--	1893	14	--	1878	13	--	1195	3	--	1190	19	--
Quarry - Jaw Crusher - Top	865	33	--	845	32	--	1323	28	--	1311	27	--	898	33	--	886	32	--
Quarry - Jaw Crusher - Sides	868	36	--	848	34	--	1326	32	--	1313	31	--	899	37	--	887	35	--
Quarry - Pair of Screeners	846	40	--	827	40	--	1329	38	--	1317	37	--	923	39	--	910	39	--
Quarry - Pair of Cone Crushers	856	40	--	836	39	--	1342	38	--	1330	37	--	930	39	--	918	39	--
Quarry - Generator Intake	872	24	--	852	23	--	1343	21	--	1331	17	--	916	24	--	904	23	--
Quarry - Generator Radiator & Exhaust	873	26	--	854	24	--	1345	19	--	1333	19	--	917	32	--	905	29	--
Drill	1471	19	--	1451	18	--	1959	14	--	1945	14	--	1284	2	--	1279	21	--
Moving Rock Trucks	1105	34	--	1085	32	--	1638	32	--	1626	30	--	1120	32	--	1092	34	--
Moving Rock Trucks - Climbing Phase 1	1388	25	--	1368	24	--	1805	23	--	1793	22	--	1095	16	--	1087	28	--
Moving Rock Trucks - Descending Phase 1	1389	15	--	1370	14	--	1796	13	--	1782	12	--	1091	6	--	1090	18	--
Overall:		47	44		46	42		44	39		43	37		46	42		46	42
Noise Limit		50	45		50	45		50	45		50	45		50	45		50	45

Source Name	Phase 1 R04a LEQ [dBA] 2473 2 Side Rd - 4.5 m AG			Phase 1 R04b LEQ [dBA] 2473 2 Side Rd - 4.5 m AG			Phase 1 R05a LEQ [dBA] 2470 2 Side Rd - 4.5 m AG			Phase 1 R05b LEQ [dBA] 2470 2 Side Rd - 4.5 m AG			Phase 1 R06a LEQ [dBA] 2462 2 Side Rd - 4.5 m AG			Phase 1 R06b LEQ [dBA] 2462 2 Side Rd - 4.5 m AG		
	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night
HMA - Burner Fan Casing	952	13	13	939	12	12	1043	11	11	1071	8	8	1034	12	12	1077	8	8
HMA - Burner Motor	952	15	15	939	14	14	1044	14	14	1072	6	6	1035	3	3	1078	--	--
HMA - Burner Blower Inlet	952	7	7	939	7	7	1044	6	6	1072	4	4	1035	6	6	1077	3	3
HMA - Dryer	946	30	30	933	29	29	1037	29	29	1065	18	18	1028	29	29	1071	17	17
HMA - Baghouse Fan/Motor	953	8	8	940	6	6	1044	5	5	1072	4	4	1034	6	6	1077	5	5
HMA - Baghouse Stack Outlet	953	18	18	940	18	18	1044	18	18	1072	15	15	1034	18	18	1077	15	15
HMA - Bucket Elevator	956	16	16	943	16	16	1047	15	15	1076	11	11	1038	16	16	1081	11	11
HMA - Head of Bucket Elevator	958	23	23	945	22	22	1050	21	21	1078	16	16	1041	22	22	1084	16	16
HMA - Drop at Mixing Tower	959	23	23	946	22	22	1051	22	22	1079	16	16	1041	22	22	1085	16	16
HMA - Concentric Weight at top of Asphalt Tower	961	30	30	948	29	29	1053	28	28	1081	21	21	1044	29	29	1087	20	20
HMA - Pneumatic Loading Gates	960	--	--	947	--	--	1052	--	--	1080	--	--	1042	--	--	1085	--	--
HMA - Idling Trucks	960	16	16	946	15	15	1051	15	15	1080	4	4	1042	15	15	1085	4	4
HMA - Horn	962	9	9	949	4	4	1054	2	2	1082	2	2	1044	3	3	1087	2	2
HMA - Front-End Loader	987	23	23	978	21	21	1081	22	22	1109	12	12	1069	22	22	1112	12	12
HMA - Moving HMA Trucks	581	37	37	576	37	37	671	35	35	707	30	30	660	36	36	710	20	20
HMA - Moving Aggregate Trucks	510	36	36	523	36	36	617	34	34	641	29	29	610	35	35	652	19	19
HMA - Moving Liquid Asphalt Trucks	549	27	27	573	26	26	656	24	24	694	20	20	673	25	25	704	9	9
Quarry - Moving Aggregate Trucks	354	41	41	356	41	41	458	39	39	467	34	34	450	40	40	468	24	24
Quarry - Moving Aggregate Trucks	701	28	28	700	26	26	798	27	27	822	23	23	770	27	27	802	15	15
Quarry - Front-End Loader 1	538	30	30	536	29	29	607	29	29	635	26	26	586	29	29	622	16	16
Quarry - Front-End Loader 2	490	27	27	483	25	25	545	26	26	572	23	23	522	27	27	556	15	15
Front-End Loader - Extraction	636	9	--	646	25	--	584	18	--	587	21	--	547	17	--	554	23	--
Quarry - Jaw Crusher - Top	569	37	--	561	34	--	626	36	--	653	35	--	602	37	--	644	26	--
Quarry - Jaw Crusher - Sides	569	40	--	562	37	--	626	39	--	653	38	--	602	40	--	644	29	--
Quarry - Pair of Screeners	597	44	--	590	41	--	654	43	--	681	42	--	630	44	--	671	29	--
Quarry - Pair of Cone Crushers	596	36	--	589	33	--	651	37	--	677	34	--	626	38	--	668	27	--
Quarry - Generator Intake	576	29	--	570	24	--	631	30	--	657	28	--	606	30	--	648	19	--
Quarry - Generator Radiator & Exhaust	576	39	--	570	36	--	630	38	--	657	36	--	606	38	--	647	28	--
Drill	732	21	--	740	29	--	684	25	--	689	30	--	647	21	--	656	30	--
Moving Rock Trucks	625	40	--	628	38	--	629	39	--	653	36	--	597	36	--	637	37	--
Moving Rock Trucks - Climbing Phase 1	548	30	--	552	36	--	504	34	--	511	36	--	467	30	--	480	37	--
Moving Rock Trucks - Descending Phase 1	551	20	--	554	26	--	508	24	--	513	26	--	470	21	--	484	27	--
Overall:		50	45		48	44		49	42		47	38		49	44		42	29
Noise Limit		50	45		50	45		50	45		50	45		50	45		50	45

Source Name	Phase 1 R07a LEQ [dBA] 2450 2 Side Rd - 1.5 m AG			Phase 1 R07b LEQ [dBA] 2450 2 Side Rd - 1.5 m AG			Phase 1 R08a LEQ [dBA] 2416 2 Side Rd - 1.5 m AG			Phase 1 R08b LEQ [dBA] 2416 2 Side Rd - 1.5 m AG			Phase 1 R10a LEQ [dBA] 2280 2 Side Rd - 1.5 m AG			Phase 1 R10b LEQ [dBA] 2280 2 Side Rd - 1.5 m AG		
	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night
HMA - Burner Fan Casing	1020	11	11	1063	9	9	1049	11	11	1034	11	11	1112	10	10	1143	10	10
HMA - Burner Motor	1021	3	3	1064	0	0	1050	2	2	1035	2	2	1114	2	2	1145	2	2
HMA - Burner Blower Inlet	1021	6	6	1064	4	4	1049	6	6	1035	6	6	1113	7	7	1144	7	7
HMA - Dryer	1014	28	28	1057	24	24	1042	28	28	1028	28	28	1106	27	27	1137	27	27
HMA - Baghouse Fan/Motor	1020	6	6	1063	5	5	1047	6	6	1032	6	6	1103	19	19	1135	20	20
HMA - Baghouse Stack Outlet	1020	18	18	1063	17	17	1047	17	17	1033	18	18	1104	17	17	1135	17	17
HMA - Bucket Elevator	1025	15	15	1068	14	14	1053	15	15	1038	15	15	1115	15	15	1146	15	15
HMA - Head of Bucket Elevator	1027	21	21	1070	20	20	1056	21	21	1041	21	21	1118	20	20	1149	20	20
HMA - Drop at Mixing Tower	1028	22	22	1071	20	20	1056	21	21	1042	21	21	1119	21	21	1150	20	20
HMA - Concentric Weight at top of Asphalt Tower	1031	28	28	1073	25	25	1059	28	28	1044	28	28	1122	27	27	1153	27	27
HMA - Pneumatic Loading Gates	1029	--	--	1072	--	--	1057	--	--	1042	--	--	1120	--	--	1151	--	--
HMA - Idling Trucks	1029	15	15	1072	11	11	1058	14	14	1043	15	15	1122	5	5	1153	5	5
HMA - Horn	1031	3	3	1074	2	2	1060	2	2	1045	2	2	1124	1	1	1155	1	1
HMA - Front-End Loader	1053	21	21	1097	15	15	1074	20	20	1060	20	20	1085	20	20	1116	20	20
HMA - Moving HMA Trucks	688	37	37	733	24	24	738	36	36	721	37	37	902	22	22	942	20	20
HMA - Moving Aggregate Trucks	637	35	35	669	23	23	685	34	34	668	35	35	871	20	20	906	19	19
HMA - Moving Liquid Asphalt Trucks	699	26	26	723	12	12	759	25	25	743	26	26	914	10	10	951	9	9
Quarry - Moving Aggregate Trucks	506	41	41	521	27	27	532	40	40	527	41	41	864	25	25	889	23	23
Quarry - Moving Aggregate Trucks	754	27	27	792	23	23	737	27	27	722	27	27	882	26	26	912	25	25
Quarry - Front-End Loader 1	562	28	28	598	27	27	559	28	28	547	28	28	586	27	27	616	26	26
Quarry - Front-End Loader 2	492	26	26	538	26	26	487	26	26	476	26	26	556	28	28	583	22	22
Front-End Loader - Extraction	513	27	--	518	21	--	403	12	--	418	29	--	166	31	--	157	31	--
Quarry - Jaw Crusher - Top	576	36	--	619	35	--	565	36	--	555	36	--	585	36	--	615	35	--
Quarry - Jaw Crusher - Sides	576	39	--	618	38	--	564	39	--	554	39	--	583	38	--	613	38	--
Quarry - Pair of Screeners	603	43	--	645	42	--	587	41	--	577	41	--	586	44	--	617	44	--
Quarry - Pair of Cone Crushers	599	35	--	641	35	--	584	43	--	574	43	--	573	44	--	604	43	--
Quarry - Generator Intake	580	29	--	621	29	--	565	29	--	555	29	--	567	30	--	597	29	--
Quarry - Generator Radiator & Exhaust	579	38	--	621	37	--	564	38	--	554	38	--	565	38	--	595	37	--
Drill	613	31	--	620	31	--	506	27	--	519	33	--	112	34	--	86	36	--
Moving Rock Trucks	565	40	--	591	38	--	489	41	--	489	41	--	246	44	--	301	40	--
Moving Rock Trucks - Climbing Phase 1	431	39	--	443	38	--	327	40	--	339	42	--	210	39	--	215	40	--
Moving Rock Trucks - Descending Phase 1	435	29	--	447	28	--	328	30	--	342	32	--	205	29	--	210	30	--
Overall:		50	44		47	35		50	43		50	44		50	36		49	34
Noise Limit		50	45		50	45		50	45		50	45		50	45		50	45

Source Name	Phase 1 R11a LEQ [dBA] 2244 2 Side Rd - 4.5 m AG			Phase 1 R11b LEQ [dBA] 2244 2 Side Rd - 4.5 m AG			Phase 1 R12a LEQ [dBA] 2226 2 Side Rd - 4.5 m AG			Phase 1 R12b LEQ [dBA] 2226 2 Side Rd - 4.5 m AG			Phase 3 R13a LEQ [dBA] 2116 2 Side Rd - 1.5 m AG			Phase 3 R13b LEQ [dBA] 2116 2 Side Rd - 1.5 m AG		
	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night
HMA - Burner Fan Casing	1199	12	12	1222	7	7	1247	12	12	1234	11	11	1480	4	4	1506	5	5
HMA - Burner Motor	1200	4	4	1223	--	--	1249	4	4	1235	3	3	1481	--	--	1507	--	--
HMA - Burner Blower Inlet	1199	9	9	1222	3	3	1247	9	9	1234	9	9	1480	0	0	1506	4	4
HMA - Dryer	1193	27	27	1216	12	12	1239	27	27	1228	26	26	1476	20	20	1502	22	22
HMA - Baghouse Fan/Motor	1189	23	23	1212	10	10	1237	23	23	1223	22	22	1467	18	18	1494	19	19
HMA - Baghouse Stack Outlet	1190	17	17	1213	15	15	1238	16	16	1224	16	16	1468	14	14	1495	14	14
HMA - Bucket Elevator	1203	15	15	1225	9	9	1251	14	14	1237	13	13	1482	9	9	1508	10	10
HMA - Head of Bucket Elevator	1204	23	23	1227	16	16	1252	24	24	1239	20	20	1484	17	17	1510	17	17
HMA - Drop at Mixing Tower	1205	23	23	1228	16	16	1253	24	24	1239	20	20	1484	17	17	1511	17	17
HMA - Concentric Weight at top of Asphalt Tower	1208	31	31	1231	19	19	1256	31	31	1243	27	27	1488	24	24	1514	23	23
HMA - Pneumatic Loading Gates	1206	--	--	1229	--	--	1254	--	--	1241	--	--	1486	--	--	1512	--	--
HMA - Idling Trucks	1208	13	13	1231	--	--	1256	3	3	1243	3	3	1488	--	--	1514	--	--
HMA - Horn	1210	6	6	1233	0	0	1258	5	5	1245	5	5	1490	--	--	1516	--	--
HMA - Front-End Loader	1168	22	22	1191	14	14	1197	22	22	1201	20	20	1444	15	15	1471	17	17
HMA - Moving HMA Trucks	1003	23	23	1024	13	13	1063	21	21	1062	20	20	1397	17	17	1409	17	17
HMA - Moving Aggregate Trucks	970	22	22	991	13	13	1047	20	20	1036	19	19	1374	16	16	1387	16	16
HMA - Moving Liquid Asphalt Trucks	1007	12	12	1029	2	2	1066	11	11	1071	10	10	1402	7	7	1415	6	6
Quarry - Moving Aggregate Trucks	969	26	26	986	16	16	1050	25	25	1023	24	24	1387	21	21	1401	20	20
Quarry - Moving Aggregate Trucks	943	25	25	1005	13	13	1028	25	25	1024	24	24	1274	20	20	1330	20	20
Quarry - Front-End Loader 1	697	26	26	721	13	13	755	25	25	744	24	24	1053	21	21	1072	19	19
Quarry - Front-End Loader 2	677	25	25	699	12	12	739	25	25	728	24	24	1056	21	21	1074	19	19
Front-End Loader - Extraction	285	16	--	290	23	--	350	25	--	347	22	--	274	29	--	298	24	--
Quarry - Jaw Crusher - Top	691	35	--	713	24	--	749	34	--	737	33	--	1045	29	--	1065	27	--
Quarry - Jaw Crusher - Sides	689	37	--	711	26	--	747	37	--	735	36	--	1042	31	--	1062	28	--
Quarry - Pair of Screeners	688	42	--	710	26	--	744	42	--	732	41	--	1034	37	--	1046	35	--
Quarry - Pair of Cone Crushers	675	42	--	697	28	--	731	42	--	719	41	--	1022	37	--	1042	36	--
Quarry - Generator Intake	672	29	--	694	17	--	729	28	--	717	27	--	1026	23	--	1045	21	--
Quarry - Generator Radiator & Exhaust	670	37	--	692	26	--	727	36	--	715	35	--	1023	31	--	1043	30	--
Drill	194	24	--	197	24	--	252	27	--	255	22	--	119	46	--	145	29	--
Moving Rock Trucks	409	46	--	395	40	--	436	45	--	437	44	--	502	44	--	485	41	--
Moving Rock Trucks - Climbing Phase 1	349	35	--	362	39	--	418	39	--	418	34	--	--	--	--	--	--	--
Moving Rock Trucks - Descending Phase 1	347	25	--	361	29	--	416	29	--	416	24	--	--	--	--	--	--	--
Overall:		50	37		44	26		49	36		48	34		49	31		44	30
Noise Limit		50	45		50	45		50	45		50	45		50	45		50	45

Source Name	Phase 4 R14a LEQ [dBA] 5070 Cedar Springs Rd - 4.5 m AG			Phase 4 R14b LEQ [dBA] 5070 Cedar Springs Rd - 4.5 m AG			Phase 5 R15a LEQ [dBA] 5191 Cedar Springs Rd - 4.5 m AG			Phase 5 R15b LEQ [dBA] 5191 Cedar Springs Rd - 4.5 m AG			Phase 5 R16a LEQ [dBA] 5255 Cedar Springs Rd - 4.5 m AG			Phase 5 R16b LEQ [dBA] 5255 Cedar Springs Rd - 4.5 m AG		
	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night
HMA - Burner Fan Casing	1833	6	6	1834	1	1	1681	9	9	1653	9	9	1741	19	19	1732	17	17
HMA - Burner Motor	1834	0	0	1835	--	--	1682	--	--	1654	--	--	1742	2	2	1733	--	--
HMA - Burner Blower Inlet	1833	5	5	1833	--	--	1680	5	5	1653	5	5	1741	11	11	1731	10	10
HMA - Dryer	1828	11	11	1828	6	6	1677	13	13	1650	10	10	1740	5	5	1731	3	3
HMA - Baghouse Fan/Motor	1819	18	18	1819	17	17	1666	19	19	1638	18	18	1727	19	19	1717	17	17
HMA - Baghouse Stack Outlet	1819	13	13	1820	12	12	1667	13	13	1639	13	13	1727	13	13	1718	13	13
HMA - Bucket Elevator	1834	10	10	1835	7	7	1680	12	12	1652	11	11	1740	11	11	1730	11	11
HMA - Head of Bucket Elevator	1835	16	16	1836	15	15	1681	18	18	1653	17	17	1740	16	16	1730	16	16
HMA - Drop at Mixing Tower	1835	16	16	1836	15	15	1681	18	18	1653	17	17	1740	16	16	1730	16	16
HMA - Concentric Weight at top of Asphalt Tower	1838	22	22	1839	21	21	1683	24	24	1656	23	23	1742	22	22	1733	21	21
HMA - Pneumatic Loading Gates	1836	--	--	1837	4	4	1682	6	6	1654	5	5	1741	5	5	1732	5	5
HMA - Idling Trucks	1839	7	7	1840	5	5	1685	9	9	1657	8	8	1744	8	8	1735	7	7
HMA - Horn	1840	--	--	1841	--	--	1685	1	1	1658	0	0	1744	0	0	1735	--	--
HMA - Front-End Loader	1794	16	16	1795	14	14	1642	17	17	1614	16	16	1704	16	16	1695	15	15
HMA - Moving HMA Trucks	1840	14	14	1839	13	13	1800	16	16	1773	14	14	1820	11	11	1810	10	10
HMA - Moving Aggregate Trucks	1829	13	13	1826	12	12	1809	16	16	1781	14	14	1814	11	11	1805	9	9
HMA - Moving Liquid Asphalt Trucks	1834	3	3	1831	2	2	1793	5	5	1766	4	4	1817	0	0	1807	--	--
Quarry - Moving Aggregate Trucks	1874	17	17	1868	15	15	1899	19	19	1874	17	17	1933	10	10	1943	11	11
Quarry - Moving Aggregate Trucks	1731	18	18	1729	16	16	1647	18	18	1620	17	17	1748	17	17	1738	14	14
Quarry - Front-End Loader 1	1546	18	18	1541	16	16	1554	18	18	1529	17	17	1698	16	16	1688	15	15
Quarry - Front-End Loader 2	1568	17	17	1563	16	16	1582	17	17	1557	16	16	1725	16	16	1714	15	15
Front-End Loader - Extraction	282	27	--	290	23	--	588	27	--	562	26	--	561	28	--	552	27	--
Quarry - Jaw Crusher - Top	1538	26	--	1533	24	--	1525	27	--	1500	26	--	1669	26	--	1660	24	--
Quarry - Jaw Crusher - Sides	1529	28	--	1524	25	--	1527	29	--	1501	28	--	1670	29	--	1661	27	--
Quarry - Pair of Screeners	1513	32	--	1509	31	--	1500	32	--	1475	32	--	1642	31	--	1633	30	--
Quarry - Pair of Cone Crushers	1503	33	--	1499	32	--	1493	33	--	1468	32	--	1637	32	--	1628	31	--
Quarry - Generator Intake	1513	19	--	1509	17	--	1509	19	--	1484	18	--	1653	18	--	1644	15	--
Quarry - Generator Radiator & Exhaust	1511	28	--	1507	27	--	1507	28	--	1482	27	--	1653	27	--	1644	26	--
Drill	169	40	--	174	38	--	663	33	--	638	31	--	606	31	--	596	31	--
Moving Rock Trucks	826	40	--	821	38	--	763	41	--	736	40	--	939	40	--	930	39	--
Moving Rock Trucks - Climbing Phase 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Moving Rock Trucks - Descending Phase 1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Overall:		44	28		43	27		43	30		43	28		42	28		41	27
Noise Limit		50	45		50	45		50	45		50	45		50	45		50	45

Source Name	Phase 5 R17a LEQ [dBA] 5353 Cedar Springs Rd - 4.5 m AG			Phase 5 R17b LEQ [dBA] 5353 Cedar Springs Rd - 4.5 m AG			Phase 5 R18a LEQ [dBA] 2129 Colling Rd - 4.5 m AG			Phase 5 R18b LEQ [dBA] 2129 Colling Rd - 4.5 m AG		
	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night	Dist [m]	Day	Night
HMA - Burner Fan Casing	1647	19	19	1651	17	17	1188	23	23	1186	21	21
HMA - Burner Motor	1648	0	0	1652	--	--	1189	3	3	1186	2	2
HMA - Burner Blower Inlet	1646	9	9	1651	8	8	1188	12	12	1185	11	11
HMA - Dryer	1647	16	16	1651	14	14	1189	20	20	1186	19	19
HMA - Baghouse Fan/Motor	1633	19	19	1638	16	16	1175	23	23	1172	21	21
HMA - Baghouse Stack Outlet	1634	13	13	1638	13	13	1176	16	16	1173	16	16
HMA - Bucket Elevator	1644	12	12	1649	11	11	1186	15	15	1183	14	14
HMA - Head of Bucket Elevator	1644	16	16	1649	16	16	1186	20	20	1183	19	19
HMA - Drop at Mixing Tower	1644	16	16	1648	16	16	1185	20	20	1183	20	20
HMA - Concentric Weight at top of Asphalt Tower	1645	22	22	1650	22	22	1187	26	26	1184	26	26
HMA - Pneumatic Loading Gates	1645	6	6	1650	5	5	1186	10	10	1184	10	10
HMA - Idling Trucks	1648	8	8	1652	7	7	1189	13	13	1186	12	12
HMA - Horn	1647	--	--	1652	--	--	1189	0	0	1186	0	0
HMA - Front-End Loader	1613	17	17	1618	15	15	1156	20	20	1153	19	19
HMA - Moving HMA Trucks	1747	12	12	1751	10	10	1480	18	18	1486	17	17
HMA - Moving Aggregate Trucks	1720	11	11	1724	10	10	1443	17	17	1442	16	16
HMA - Moving Liquid Asphalt Trucks	1731	1	1	1736	0	0	1413	7	7	1408	6	6
Quarry - Moving Aggregate Trucks	1898	12	12	1880	11	11	1609	20	20	1602	19	19
Quarry - Moving Aggregate Trucks	1710	16	16	1712	15	15	1268	21	21	1262	20	20
Quarry - Front-End Loader 1	1732	16	16	1731	13	13	1321	20	20	1313	19	19
Quarry - Front-End Loader 2	1764	15	15	1763	13	13	1367	19	19	1357	16	16
Front-End Loader - Extraction	507	26	--	506	25	--	233	26	--	217	25	--
Quarry - Jaw Crusher - Top	1699	25	--	1698	23	--	1293	29	--	1284	25	--
Quarry - Jaw Crusher - Sides	1699	27	--	1698	25	--	1293	31	--	1284	27	--
Quarry - Pair of Screeners	1670	29	--	1670	27	--	1265	35	--	1255	29	--
Quarry - Pair of Cone Crushers	1668	30	--	1668	28	--	1264	35	--	1255	30	--
Quarry - Generator Intake	1687	15	--	1686	12	--	1284	19	--	1274	15	--
Quarry - Generator Radiator & Exhaust	1687	11	--	1686	10	--	1284	14	--	1274	13	--
Drill	487	34	--	489	34	--	141	45	--	125	43	--
Moving Rock Trucks	988	38	--	985	37	--	645	43	--	632	42	--
Moving Rock Trucks - Climbing Phase 1	--	--	--	--	--	--	--	--	--	--	--	--
Moving Rock Trucks - Descending Phase 1	--	--	--	--	--	--	--	--	--	--	--	--
Overall:		41	29		40	27		48	32		46	33
Noise Limit		50	45		50	45		50	45		50	45

R10a	Residential Home - 2280 2 Side Road - 1.5 m AG	590433	4805602	281.5																				
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	ReflD	ReflE	ReflN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	71.9	0	0.0	4.4	14.5	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	10	10
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	71.9	0	0.0	5.6	11.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	2	2
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	98	98	98	71.9	0	0.0	2.1	15.3	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	7	7
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	71.9	0	0.0	1.4	4.0	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	71.9	0	0.0	3.3	6.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	96	96	96	71.9	0	0.0	1.3	3.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17
HMA-07	HMA - Bucket Elevator	589964	4806614	273.2	93	93	93	71.9	0	0.0	1.4	2.6	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	72.0	0	0.0	2.5	2.1	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	72.0	0	0.0	2.7	3.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	72.0	0	0.0	1.2	3.1	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	72.0	0	0.0	0.7	22.6	14.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	72.0	0	0.0	3.2	10.9	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5	5	5
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	72.0	0	0.0	-0.4	23.9	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	1	1
HMA-14	HMA - Front-End Loader	589955	4806576	267.1	102	102	102	71.7	0	0.0	2.6	3.4	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-15	HMA - Moving HMA Trucks	590338	4806499	272.7	103	103	103	70.3	0	0.0	2.3	4.0	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-16	HMA - Moving Aggregate Trucks	590381	4806471	273.7	102	102	102	70.4	0	0.0	3.1	3.2	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-17	HMA - Moving Liquid Asphalt Trucks	590323	4806510	272.0	92	92	92	70.4	0	0.0	2.3	4.2	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	10	10
Q-01a	Quarry - Moving Aggregate Trucks	590501	4806463	274.9	106	106	106	69.9	0	0.0	2.3	4.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25
Q-01b	Quarry - Moving Aggregate Trucks	590159	4806440	263.8	103	103	103	69.1	0	0.0	1.2	4.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
Q-02	Quarry - Front-End Loader 1	590284	4806168	260.7	101	101	101	67.0	0	0.0	2.5	1.8	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-03	Quarry - Front-End Loader 2	590363	4806154	260.9	101	101	101	66.2	0	0.0	2.5	2.1	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
Q-03	Front-End Loader - Extraction	590596	4805634	273.1	--	--	--	55.8	0	0.0	6.9	7.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31	--	--
Q-04a	Quarry - Jaw Crusher - Top	590271	4806164	262.6	--	--	--	66.4	0	0.0	1.9	2.8	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	--	--
Q-04b	Quarry - Jaw Crusher - Sides	590271	4806162	262.1	--	--	--	66.4	3	0.0	3.2	3.5	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38	--	--
Q-05	Quarry - Pair of Screeners	590244	4806157	263.5	--	--	--	66.3	0	0.0	0.0	4.5	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44	--	--
Q-06	Quarry - Pair of Cone Crushers	590246	4806144	262.2	117	--	--	66.1	0	0.0	1.8	2.3	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	--	--	--	66.0	3	0.0	3.5	3.2	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	--	--
Q-07b	Quarry - Generator Radiator & Exhaust	590266	4806142	262.0	108	--	--	66.0	3	0.0	1.9	2.8	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38	--	--
Q-08	Drill	590535	4805555	281.1	110	--	--	52.0	0	0.0	7.3	15.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34	--	--
Q-09a	Moving Rock Trucks - Section 1	590177	4805877	261.1	--	--	--	64.0	0	0.0	2.8	4.1	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40	--	--
Q-09b	Moving Rock Trucks - Section 2	590424	4805782	268.3	--	--	--	56.8	0	0.0	4.5	6.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41	--	--
Q-09c	Moving Rock Trucks - Section 3	590554	4805803	283.0	--	--	--	58.3	0	0.0	4.5	7.6	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33	--	--
Q-09d	Moving Rock Trucks - Climbing	590597	4805734	282.1	--	--	--	57.3	0	0.0	5.1	7.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39	--	--
Q-09e	Moving Rock Trucks - Descending	590595	4805729	282.2	--	--	--	57.2	0	0.0	5.1	7.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	--	--

Where: Lr = Lx - Adiv + K0 + Dc - Agnd - Abar - Aatm - Afol - Ahous + Cmet + Refl

R15a	Residential Home - 5191 Cedar Springs Rd - 4.5 m AG	589122	4805161	277.0																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	ReflD	ReflE	ReflN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	75.5	0	0.0	0.7	15.2	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9	9	9
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	75.5	0	0.0	0.9	19.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	98	98	98	75.5	0	0.0	-0.2	14.7	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5	5	5
HMA-04	HMA - Dryer	589975	4806606	266.1	110	110	110	75.5	0	0.0	-0.8	14.3	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	75.4	0	0.0	1.4	3.6	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	96	96	96	75.4	0	0.0	-1.4	4.4	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13
HMA-07	HMA - Bucket Elevator	589964	4806615	275.0	93	93	93	75.5	0	0.0	-0.7	3.9	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	75.5	0	0.0	0.2	3.7	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	75.5	0	0.0	0.1	3.7	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	75.5	0	0.0	-0.9	3.9	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	23	23
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	75.5	0	0.0	-1.3	4.7	16.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	75.5	0	0.0	-0.7	4.5	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9	9	9
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	75.5	0	0.0	-1.5	19.8	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	1	1
HMA-14	HMA - Front-End Loader	589955	4806576	267.1	102	102	102	75.3	0	0.0	-0.2	4.7	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17
HMA-15	HMA - Moving HMA Trucks	590325	4806500	272.6	103	103	103	76.5	0	0.0	-0.3	4.7	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-16	HMA - Moving Aggregate Trucks	590378	4806463	273.8	102	102	102	76.5	0	0.0	0.3	4.4	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-17	HMA - Moving Liquid Asphalt Trucks	590319	4806496	272.1	92	92	92	76.5	0	0.0	-0.3	4.7	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4	4	4
Q-01a	Quarry - Moving Aggregate Trucks	590532	4806433	276.0	106	106	106	76.7	0	0.0	-0.2	4.7	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18
Q-01b	Quarry - Moving Aggregate Trucks	590159	4806440	263.8	103	103	103	75.2	0	0.0	-0.7	4.5	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18
Q-02	Quarry - Front-End Loader 1	590304	4806169	260.7	101	101	101	75.0	0	0.0	-0.5	4.4	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18
Q-03	Quarry - Front-End Loader 2	590352	4806155	260.6	101	101	101	75.1	0	0.0	-0.5	4.6	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17
Q-03	Front-End Loader - Extraction	589328	4805351	254.7	101	--	--	60.2	0	0.0	3.1	12.3	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	--	--
Q-04a	Quarry - Jaw Crusher - Top	590271	4806164	262.6	109	--	--	74.7	0	0.0	-0.7	4.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	--	--
Q-04b	Quarry - Jaw Crusher - Sides	590271	4806166	262.1	110	--	--	74.7	3	0.0	-0.7	5.9	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	--	--
Q-05	Quarry - Pair of Screeners	590244	4806157	263.5	123	--	--	74.5	0	0.0	-1.7	4.7	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32	--	--
Q-06	Quarry - Pair of Cone Crushers	590246	4806144	262.2	117	--	--	74.5	0	0.0	-0.8	4.6	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	103	--	--	74.6	3	0.0	2.6	5.0	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	--	--
Q-07b	Quarry - Generator Radiator & Exhaust	590266	4806142	262.0	108	--	--	74.6	3	0.0	0.9	3.9	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	--	--
Q-08	Drill	589374	4805166	275.5	110	--	--	59.0	0	0.0	3.4	8.2	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	--	--
Q-09	Moving Rock Trucks	589644	4805757	260.2	117	--	--	68.2	0	0.0	1.6	3.7	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40	--	--

Where: Lr = Lx - Adiv + K0 + Dc - Agnd - Abar - Aatm - Afol - Ahous + Cmet + Refl

APPENDIX E

Consultant's Curriculum Vitae

Petr Chocensky

Project Consultant, PhD, PEng

pchocensky@hgcengineering.com
Ph: 905-826-4044

Education

PhD in Civil Engineering, Czech Technical University in Prague,
Faculty of Transportation Sciences, Prague, Czech Republic,
Masters Degree in Civil Engineering, Czech Technical University in Prague,
Faculty of Transportation Sciences, Prague, Czech Republic

Professional History

2010 to Present Project Engineer, HGC Engineering, Toronto, Canada
2003 to 2004/2006 to 2010 Project Engineer, EKOLAgroup, Czech Republic
2004 to 2005 Noise Review Engineer, Ministry of Health, Czech Republic

Experience

Dr. Chocensky's area of expertise covers acoustic assessments and noise mapping for large transportation and industrial projects. He has completed large-scale noise mapping projects for large urban areas, including noise emissions from airports, railways, and roadways. He is an expert in computerized noise modeling and the use of CadnaA modeling software.

Selected Projects

Strategic Noise Map for Prague International Airport, Prague, Czech Republic
Noise Monitoring to Assess Noise from Prague International Airport, Czech Republic
Strategic Noise Maps for Roads, Prague, Czech Republic
Noise Control Measures for Outer Transit Corridor, Prague, Czech Republic
Noise Control Measures for National Highway D11
Noise Control Measures for Railway Corridor Prague – Pilsen
Noise Map of the City of Prague
Noise Map of the City of Jihlava
The Bay Adelaide Centre, Toronto, Ontario
One York, Toronto, Ontario
Lafarge Canada Inc., various sites, Ontario
G.E. Booth Wastewater Treatment Facility, Mississauga, Ontario
Petro-Canada, Mississauga, Ontario
Vale & Kelly Mine, Sudbury, Ontario
Bunge, Hamilton, Ontario
Dufferin Concrete, various sites, Ontario
Dufferin Construction, various sites, Ontario
NOVA Chemicals, Corunna, Ontario
Kellogg Canada Inc., London, Ontario
Morrison-Hershfield Energy Centre, Windsor, Ontario

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ACOUSTICS NOISE VIBRATION

Education

University of Waterloo, Bachelor of Applied Science, Mechanical Engineering, 2001
Schulich School of Business, York University, Master of Business Administration, 2015

Professional Memberships

Professional Engineers Ontario (PEO)
Canadian Acoustical Association (CAA)

Professional History

2009 to present	Senior Associate, HGC Engineering, Mississauga
2006 to 2009	Project Engineer, HGC Engineering, Mississauga
2001 to 2006	Mechanical Engineer, Magellan Aerospace, Mississauga
2000 to 2001	Contract Engineer, HGC Engineering, Mississauga

Experience

Mr. Kinart has extensive experience in the assessment and mitigation of noise emissions from industrial and commercial facilities, and specializes in the use of advanced sound intensity measurement equipment and techniques. He has conducted feasibility studies, acoustic assessments and audits for government approvals, as well as noise complaint investigations for hundreds of facilities across Ontario and abroad. His experience spans a wide variety of industrial and commercial sectors and is highlighted by natural gas fired power generation facilities, natural gas transmission and distribution facilities, electrical transformer stations, petrochemical refineries, mineral mines, hot mix asphalt, ready-mix concrete and cement plants, aggregate pits and quarries and myriad of other sites and facilities of varying size and complexity.

Selected Projects

Union Gas Limited, Numerous sites throughout Ontario
General Dynamics Land Systems, London, Ontario
Vale, Copper Cliff & Garson, Ontario
Suncor Energy Products Inc., Mooretown, Ontario
Lafarge Canada Inc., Numerous sites throughout Ontario
National Gas Company of Trinidad & Tobago, Trinidad & Tobago
General Motors, St. Catharines, Ontario
Enbridge Gas Distribution, Numerous sites throughout Ontario
Petro-Canada, Mississauga, Ontario
TransCanada Pipelines Ltd., Numerous sites in Ontario and Western Canada
Canada Building Materials, Numerous sites throughout Ontario
DeBeers Victor Mine Project, Northern Ontario
Staatsolie, Tout Lui Faut, Suriname
Dufferin Concrete, Numerous sites throughout Ontario
NOVA Chemicals, Corunna, Mooretown & St. Clair, Ontario
Hydro One, Numerous sites throughout Ontario

APPENDIX F

Acoustic Assessment Report Acoustic Assessment Report and Existing Environmental Compliance Approval

HGC ENGINEERING

Howe Gastmeier Chapnik Limited
2000 Argentia Road, Plaza One, Suite 203
Mississauga, Ontario, Canada L5N 1P7
t: 905.826.4044

ACOUSTIC ASSESSMENT REPORT

Halton Asphalt Supply

Nelson Aggregate Burlington Quarry, Ontario

Prepared for

Halton Asphalt Supply Ltd.
2433 No. 2 Side Road
Burlington, Ontario
L7P 0G8

Prepared by

Petr Chocensky, PhD, PEng

Reviewed by

Corey D. Kinart, MBA, PEng

April 27, 2021

HGC Engineering Project No. 01800139

VERSION CONTROL

Halton Asphalt Supply, Nelson Aggregate Quarry, Burlington, Ontario

Ver.	Date	Version Description	Prepared By
1	7-Feb-20	Original AAR in support of an application for an Environmental Compliance Approval	P. Chocensky
2	27-Apr-21	Updated AAR to address comments from MECP	P. Chocensky

EXECUTIVE SUMMARY

Halton Asphalt Supply retained HGC Engineering to undertake an Acoustic Assessment of their hot-mix asphalt ("HMA") plant located in the Nelson Aggregate Quarry in Burlington, Ontario. The report is required in support of an application to the Ontario Ministry of the Environment, Conservation and Parks ("MECP") for an Environmental Compliance Approval. Equipment and operations of both the HMA plant and the Nelson Aggregate Quarry are assessed jointly in this assessment, as required by MECP guidelines.

This is a second version of the report, updated to address comments from the MECP during the review of the original version of the report. Based on instructions from the MECP, this updated report considers more stringent noise criteria, and details revised noise control measures proposed at the site.

HGC Engineering measured sound levels of the equipment at the site on May 17, 2018. Sound emission levels of each stationary source and sound pressure levels at neighbouring off-site points of reception were both measured. The sound emission levels were used as input to an acoustical computational model to quantify the sound emissions of the site under existing operating conditions. Acoustic assessment criteria were established in accordance with the sound level limits in MECP guideline NPC-300.

The acoustical measurements and analysis indicate that, with the benefit of the noise control measures detailed herein, the potential worst-case sound levels of the site are predicted to be within the limits set out in MECP guideline NPC-300. Given the absence of any sources of ground-borne vibration at the site, the site also complies with the applicable vibration limits of the MECP.

Table of Contents

Ontario

Ministry of the Environment and Climate Change

Acoustic Assessment Report Check-List

Company Name
Halton Asphalt Supply Ltd.

Company Address

Unit Number	Street Number	Street Name	PO Box
	2433	No. 2 Side Road	

City/Town	Province	Postal Code
Burlington	Ontario	L7P 0G8

Location of Facility

Same as above

The attached Acoustic Assessment Report was prepared in accordance with the guidance in the ministry document "Information to be Submitted for Approval of Stationary Sources of Sound" (NPC-233) dated October 1995 and the minimum required information identified in the check-list on the reverse of this sheet has been submitted.

Company Contact

Company Contact

Last Name	First Name	Middle Initial
Karageorgos	Jim	

Title	Telephone Number
General Manager	519-465-2542

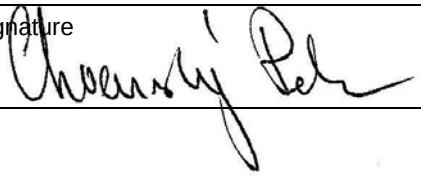
Signature	Date (yyyy/mm/dd)
	2021/04/27

Technical Contact

Technical Contact

Last Name	First Name	Middle Initial
Chocensky	Petr	

Representing	Telephone Number
HGC Engineering	905-826-4044

Signature	Date (yyyy/mm/dd)
	2021/04/27

	Required Information	Submitted	Explanation/Reference
1.0	**Introduction (Project Background and Overview)**	☑ Yes	Section 1
2.0	**Facility Description**		
	2.1 Operating hours of Facility and significant Noise Sources	☑ Yes	Section 2
	2.2 Site Plan identifying all significant Noise Sources	☑ Yes	Figure 3
3.0	**Noise Source Summary**		
	3.1 Noise Source Summary Table	☑ Yes	Appendices A & B
	3.2 Source noise emissions specifications	☑ Yes	Appendices A & B
	3.3 Source power/capacity ratings	☑ Yes	Appendices A & B
	3.4 Noise control equipment description and acoustical specifications	☑ Yes	Sections 6 & 8
4.0	**Point of Reception Noise Impact Calculations**		
	4.1 Point of Reception Noise Impact Table	☑ Yes	Appendices A & B
	4.2 Point(s) of Reception (POR) list and description	☑ Yes	Section 4
	4.3 Land-use Zoning Plan	☑ Yes	Appendix C
	4.4 Scaled Area Location Plan	☑ Yes	Figure 1
	4.5 Procedure used to assess noise impacts at each POR	☑ Yes	Appendix E
	4.6 List of parameters/assumptions used in calculations	☑ Yes	Appendix E
5.0	**Acoustic Assessment Summary**		
	5.1 Acoustic Assessment Summary Table	☑ Yes	Appendices A & B
	5.2 Rationale for selecting applicable noise guideline limits	☑ Yes	Appendix F
	5.3 Predictable Worst Case Impacts Operating Scenario	☑ Yes	Section 3, Table 1
6.0	**Conclusions**		
	6.1 Statement of compliance with the selected noise performance limits	☑ Yes	Sections 9 & 10
7.0	**Appendices (Provide details such as)**		
	Listing of Insignificant Noise Sources	☐ Yes	N/A
	Manufacturer's Noise Specifications	☐ Yes	N/A
	Calculations	☑ Yes	Appendices G & H
	Instrumentation	☑ Yes	Appendix D
	Meteorology during Sound Level Measurements	☑ Yes	Appendix D
	Raw Data from Measurements	☑ Yes	Appendices G & H
	Drawings (Facility/ Equipment)	☑ Yes	Figure 3

1 INTRODUCTION

1.1 Context

The Nelson Aggregate quarry is located at 2433 No. 2 Side Road in Burlington, Ontario. A scaled location map of the surrounding area is included as Figure 1.

This report has been prepared in accordance with the MECP guideline documents NPC-233 "Information to be Submitted for Approval of Stationary Sources of Sound" [1], and Appendix A of "Basic Comprehensive Certificates of Approval (Air): User Guide" [2]. Two sets of Acoustic Assessment summary tables are presented in Appendices A and B, in the standardized format required by the MECP. The purpose of this assessment is to evaluate the overall sound emissions of the site during a predictable worst-case hour, which is defined as an hour when typical busy operation of the stationary sources under consideration could coincide with an hour of low background sound.

The site is located within Niagara Escarpment, where land use designation is subject to the Niagara Escarpment Plan of the Ministry of Natural Resources and Forestry. A copy of the plan identifying the land uses surrounding the site is included as Appendix C. The designated land use to the north, west and south of the site is for "Escarpment Rural Area". The adjacent lands to the east are designated as "Minor Urban Centre". The nearest noise-sensitive areas subject to the zoning by-law of the City of Burlington are located further east. A zoning map of the City of Burlington is included in Appendix C. A total of twenty-two assessment locations have been chosen to represent the potentially most-impacted residential homes on the lands surrounding the site, marked as locations R01a through R11a and R01b through R11b in Figure 2.

This assessment also considers two currently vacant lots on which noise sensitive uses are permitted, labelled as locations VL1 and VL2 in Figure 2.

During a visit to the site and surrounding area by HGC Engineering on May 17, 2018, the background sound in the area was dominated by traffic noise on surrounding roadways. The acoustical environment in the vicinity of the assessment locations is best characterized as a Class 2 area, under MECP environmental noise guideline NPC-300.

1.2 Summary of Updates

- The applicable noise criteria at all points of reception have been conservatively assumed to be the MECP minimum exclusion limits, as discussed in Appendix F,
- The noise control recommendations required for the site to meet the applicable noise criteria have been updated, and are included in Section 8,
- The points of reception included in this updated assessment now include two locations at each assessed property, representing both the most impacted window at a residence and an outdoor amenity area within 30 metres of the dwelling,
- Locations of existing homes have been refined based on detailed location data provided by the City of Burlington.

2 FACILITY DESCRIPTION

The HMA plant produces hot-mix asphalt used in the construction industry. Aggregate materials, recycled asphalt materials, and liquid asphalt are delivered to the site via trucks. Products are shipped out via trucks.

The site hosting the HMA plant is an active aggregate quarry located immediately west of Mt. Nemo, Burlington, Ontario.

The primary equipment associated with the quarry operation includes an aggregate crushing operation with a series of screens and crushers, a rock drill, and front-end loaders used to transport materials from the working face, feed the crushing operation, and to load finished product into outbound road trucks.

The HMA plant can operate on a 24-hour basis. While the quarry generally operates during daytime hours from Monday to Saturday, this analysis conservatively assumes 24-hour operation.

There are no significant sources of ground-borne vibration at the site.

3 SOUND SOURCE SUMMARY

A Sound Source Summary is included as Table A1 in Appendix A, which lists the sources at the site, in the standard format required by the MECP. Figures 3a and 3b show the locations of each source. Unless where noted otherwise, sound levels of the individual sources were measured on-site on May 17, 2018. The details of the measurement methods used to quantify the sound power of each source are listed in Appendix D.

Sources at the HMA plant and the quarry operation have been given identification numbers of the form HMA-## and Q-## (e.g. HMA-01, Q-01), respectively. Where appropriate, the source descriptions also include identifiers included in the Emission Summary and Dispersion Modelling report, prepared to support this application by others. A number of sources with negligible sound emissions are not part of this analysis, including stackers, conveyors, feeder belts, hoppers and similar equipment.

The primary sources of sound at the site are described below.

3.1 HMA Plant

The sound sources associated with the HMA plant are described below. Unless where noted otherwise, the equipment was assumed to operate continuously during both daytime (7:00 – 19:00) and night-time (19:00 – 7:00) hours, based on information received from Halton Asphalt Supply.

- Components of a natural-gas-fired burner (HMA-01 through HMA-03) that is used to heat aggregate inside a rotating dryer drum (HMA-04);

- The fan housing (HMA-05) and the stack outlet (HMA-06) of a baghouse that is used for air-emission control of exhaust air from the burner/mixer system;

- Components of a mixing tower used for preparation, mixing, and temporary storage of final asphalt products, including the body and drive components of a bucket elevator (HMA-07 and HMA-08), material drop point (HMA-09), and a vibratory concentric weight of the screening mechanism at the top of the mixing tower (HMA-10);

- Loading of asphalt products into trucks is metered by pneumatic gates at the bottom (HMA-11) of the mixing tower. Sound emissions from the pneumatic gates occur only when the gates are opening or closing. The total operating time of this equipment was assumed to be 120 seconds per hour (2 minutes), assuming that the gates can open up to five times per loaded truck and the sound event from one opening takes approximately two seconds, based on observations on-site;

- One truck was assumed to idle continuously at the loading point (HMA-12), to represent stationary trucks during loading of HMA;

- A signal horn used to signal trucks to leave the loading point (HMA-13). The total operating time of this source was assumed to be approximately 20 seconds per hour, assuming that each truck is signaled once for a duration of approximately 1.5 seconds, based on observations during the site visit;

- A front-end loader used to feed aggregate materials in the plant (HMA-14);

- Movements of HMA trucks to take products away from the site (HMA-15). Up to 12 HMA trucks were assumed to enter and exit the site during a predictable worst-case hour of operation, based on input from Halton Asphalt Supply personnel.

- Movements of trucks to deliver aggregate materials (HMA-16) and liquid asphalt (HMA-17) from outside of the site. Up to 7 aggregate trucks and 1 liquid asphalt truck were assumed to enter and exit the site during a predictable worst-case hour of operation, based on input from Halton Asphalt Supply personnel.

It was not practical to measure noise from truck movements at this facility due to safety concerns. Therefore, truck sound emissions (HMA-15 through HMA-17) were based on noise measurements of accelerating trucks conducted for similar past projects by HGC Engineering.

3.2 Quarry Operation

The following sources associated with the quarry operation were included in this assessment. Based on input from Nelson Aggregate personnel, the processing equipment operates during daytime hours

only (7:00 – 19:00). On-site trucking activities, loading, and shipping of products can occur on 24-hour basis.

- Movements of aggregate trucks to take products away from the site (Q-01). Up to 30 trucks can enter and exit the site during a predictable worst-case hour of operation. As above, truck sound emissions were based on noise measurements of accelerating trucks conducted for similar past projects by HGC Engineering.

- Two front-end loaders (Q-02 and Q-03) used to feed the crushing operation with extracted materials and to load outbound aggregate trucks with products.

- Crushing operation including a jaw crusher (Q-04), a pair of screeners (Q-05), a pair of cone crushers (Q-06), and a diesel-powered generator (Q-07).

- Aggregate materials have been nearly exhausted from the site. The remaining deposits are in an area of approximately 10-hectars near the entrance of the site as highlighted in Figure 3. A drill (Q-08) will operate in these areas to prepare the appropriate rock cut for blasting. The drill can operate continuously during daytime hours only (7:00 – 19:00). The drill was not available for measurement during the site visit. Nelson Aggregates indicates that the sound power level of the drill will be 110 dBA or less. As the sound level information was available as an overall A-weighted sound level only, the frequency spectrum used for this study was adopted from measurements of drills at other sites and scaled to meet the given overall sound level.

3.3 Summary of Predictable Worst-Case Hour Activities

The following table summarizes the predictable worst-case hours of operation at the site.

Table 1: Summary of Predictable Worst-Case Hours of Operation

Source Type/Name	Quantity or Operating Time/ Hr	
	Daytime	Evening/Nighttime
	7:00 – 19:00	19:00 – 7:00
HMA Plant		
HMA Equipment	60 min/hr	60 min/hr
Pneumatic Gates	2 mins/hr	2 mins/hr
Signal Horn	20 secs/hr	20 secs/hr
HMA Trucks	12 per hour at 20 km/h	12 per hour at 20 km/h
Aggregate Trucks	7 per hour at 20 km/h	7 per hour at 20 km/h
Liquid Asphalt Trucks	1 per hour at 20 km/h	1 per hour at 20 km/h
Quarry Operation		
Drill	60 min/hr	--
Aggregate Trucks	30 per hour at 20 km/h	30 per hour at 20 km/h
Front-End Loaders	60 min/hr	60 min/hr
Crushing Operation	60 min/hr	--

Note that the level of onsite activity detailed in Table 1 is a generous estimate of predictable worst-case operations. Per input from Halton Asphalt Supply and Nelson Aggregate personnel, this degree of activity is not representative of typical day-to-day operations, but rather of a potential worst-case scenario that is unlikely to occur on a frequent basis (i.e. both the HMA plant and quarry operating simultaneously at maximum production and shipping rates). The sound emission levels outlined above were used to develop the sound source inventory included as Table A1 in Appendix A and were input to a computational acoustic model (see Appendix E) to quantify the sound emissions of the site during the predictable worst-case hours outlined in Table 1, above.

4 POINT OF RECEPTION SUMMARY

The assessment locations representing the most-potentially impacted noise-sensitive points of reception proximate to the site are shown in Figure 2.

Locations R01a through R11a represent the upper-storey windows on the most-potentially impacted façades of residential homes about the perimeter of the site. The most-potentially impacted locations were determined using computational modelling, considering the difference between sound levels from the site and the background sound levels, as briefly discussed in Appendix F. Locations R01b

through R11b represent the outdoor amenity areas within 30 metres of the respective dwellings.

The vacant lots, where a dwelling would be reasonably expected in the future based on the typical built form in the area, are marked as locations VL1 and VL2.

The selected points of reception are described briefly in Tables A3 and B3 in Appendices A and B.

5 ASSESSMENT CRITERIA

The applicable sound level limits for the purposes of this assessment were established in accordance with MECP Publication NPC-300 [3], details of which are provided in Appendix F, and are summarized in the Table 2 below.

Table 2: Applicable Sound Level Limits at Points of Reception, L_{EQ} [dBA]

Description	ID	Daytime	Evening	Night-time
		7:00 – 19:00	19:00 – 23:00	23:00 – 7:00
Residential Homes	R01a to R11a	50	50	45
Outdoor Amenity Areas	R01b to R11b	50	45	--
Vacant Lots	VL1 and VL2	50	50	45

6 EXISTING NOISE CONTROL MEASURES

The quarry is currently bounded by perimeter berms which have, over time, transformed into permanent terrain features with varying heights and which are partly covered by vegetation. For this reason, it was not practical to define the berms in discrete terms, showing their exact heights and lengths. A terrain survey of the site was commissioned by Nelson Aggregate in 2018, and the resulting detailed topographical data were included in the analysis. Figure 4 shows the most recent site plan, which depicts the existing terrain features.

The combustion exhaust of the power generator (Q-07) is equipped with a muffler. Its acoustical performance is implicitly included in the measured sound emission level, and is included in the analysis.

7 SOUND LEVELS OF EXISTING WORST-CASE OPERATION

As noted in Section 3.3, the worst-case operating scenario detailed in Table 1 is not representative of typical day-to-day operations at the site, such that opportunities to measure the sound levels of the site at neighbouring points of reception under worst-case conditions is limited. Moreover, direct measurement of the sound levels of the site are typically precluded by interfering background sound from concomitant road traffic, particularly in the vicinity of locations R03 through R08 and VL1. Therefore, the acoustical model detailed in Section 3 and Appendix E were used to predict the sound levels of the site at the neighbouring points of reception under the worst-case operating scenario detailed in Table 1. Were that scenario to occur, sound levels at the points of reception are predicted to range between 43 and 54 dBA during daytime hours and between 35 and 50 dBA during evening/night-time hours. These levels are generally within the applicable criteria but can exceed the noise limits at locations R01, R04 through R08, and VL1.

These sound levels are summarized in Table A3 of Appendix A.

The sound levels of the site, summarized in Table A3 of Appendix A, are primarily attributable to the drilling and on-site trucking, and the burner intake and baghouse stack outlet of the HMA plant. Noise control measures for these sources are discussed in Section 8, below.

8 PROPOSED NOISE CONTROL MEASURES

8.1 Noise Control Measures for HMA Plant

The fresh-air intake of the burner blower (HMA-03) and the outlet of the baghouse stack (HMA-06) will be equipped with acoustic silencers. The acoustical performance specifications for these silencers are included in the table below.

Table 3: Silencer Minimum Insertion Loss [dB]

	Centre Octave Band Frequency					
	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz
Burner Blower Inlet	9	19	19	20	15	5
Baghouse Outlet	12	18	20	20	14	--

8.2 Noise Control Measures for Quarry Operations

Noise barriers/berms will be erected near the site entrance to mitigate noise from on-site traffic movements and drilling operations. The layout and dimensions of the barriers are shown in Figure 5.

The barriers can be constructed from any of a variety of materials such as earthen berms, wood, metal, brick, pre-cast concrete or other concrete/wood composite systems provided that they are free of gaps or cracks and have a solid construction with a surface density of no less than 20 kg/m^2.

8.3 Timelines for Implementation

The measured detailed in Sections 8.1 and 8.2 will be implemented within 24 months following receipt of Approval from the MECP.

9 IMPACT ASSESSMENT

Considering the noise control measures outlined above in Sections 6 and 8, the worst-case sound levels of the site, including future extraction as detailed in Section 3.2, were predicted to range between 42 and 50 dBA during daytime hours (7:00 – 19:00) and between 34 and 45 dBA during evening/night-time hours (19:00 – 7:00). These sound levels are within the applicable limits.

These results are summarized in Table B3 of Appendix B. Sample calculation results are included as Appendices G and H. Figures 6a and 6b show the predicted sound exposure level contours, L_{EQ} [dBA] during daytime and evening/night-time hours, respectively.

10 CONCLUSIONS

The acoustical measurements and analysis indicate that, with the noise control measures outlined in Sections 6 and 8, the worst-case sound levels of the site are predicted to be within the applicable limits as set out in MECP publication NPC-300. Given the absence of any sources of ground-borne vibration at the site, the site also complies with the impulse vibration limits set out in NPC-207 [4].

REFERENCES

1. Ontario Ministry of the Environment, Conservation and Parks Publication NPC-233, *Information to be Submitted for Approval of Stationary Sources of Sound*, October, 1995.

2. Ontario Ministry of the Environment, Conservation and Parks Guide, *Basic Comprehensive Certificates of Approval (Air): User Guide*, March, 2011.

3. Ontario Ministry of the Environment, Conservation and Parks Publication NPC-300, *Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning*, August, 2013.

4. Ontario Ministry of the Environment, Conservation and Parks Publication NPC-207, *Impulse Vibration in Residential Buildings*, November, 1983.

5. International Organization for Standardization, *Acoustics – Determination of sound power levels of noise sources using sound intensity – Part 2: Measurement by scanning*, ISO-9614-2, Switzerland, 1996.

6. International Organization for Standardization, "Acoustics – Attenuation of Sound during Propagation Outdoors – Part 2: General Method of Calculation," ISO-9613-2, Switzerland, 1996.

7. Google Maps Aerial Imagery, Internet application: *maps.google.com*.

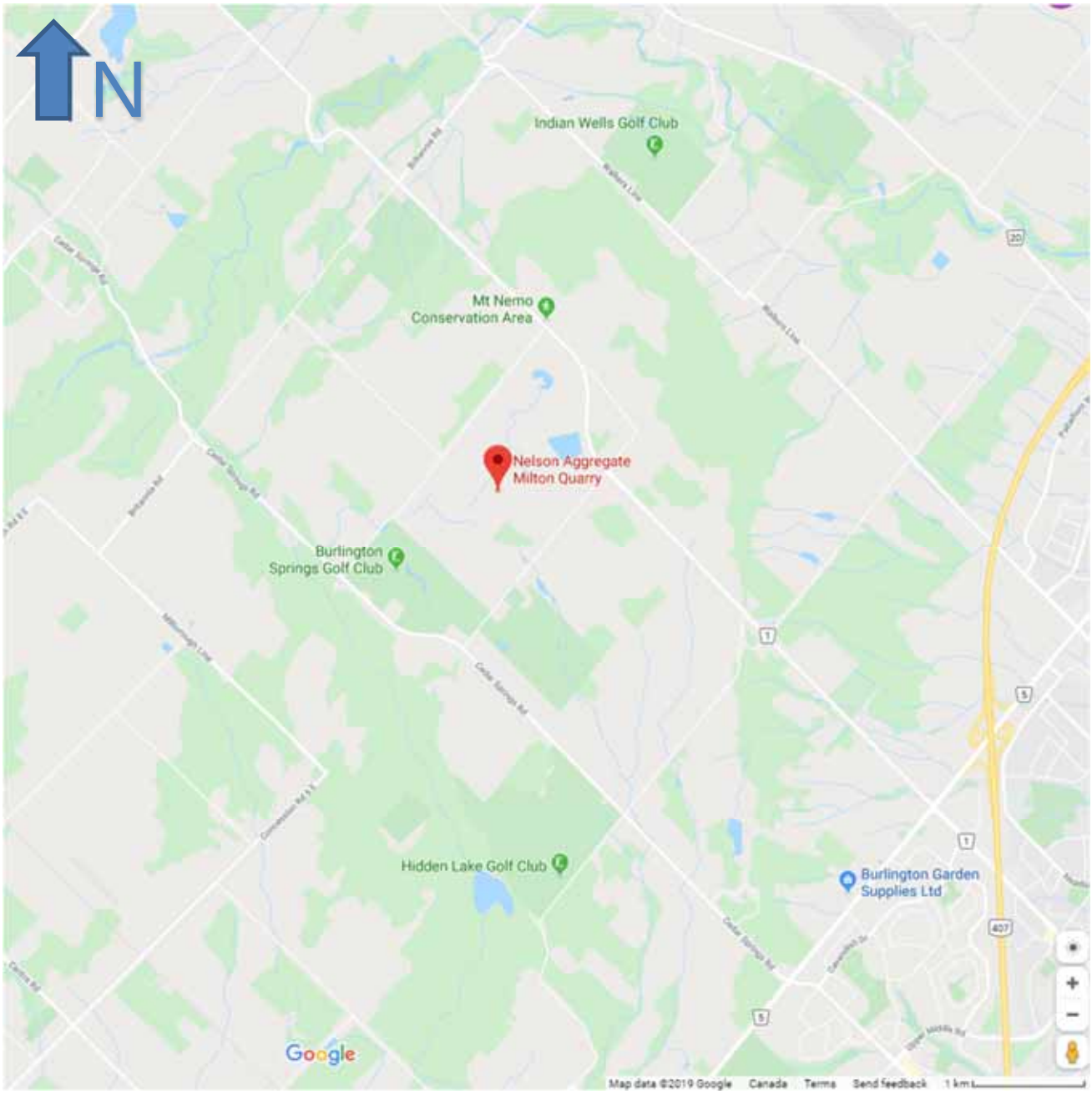


Figure 1: Location Map

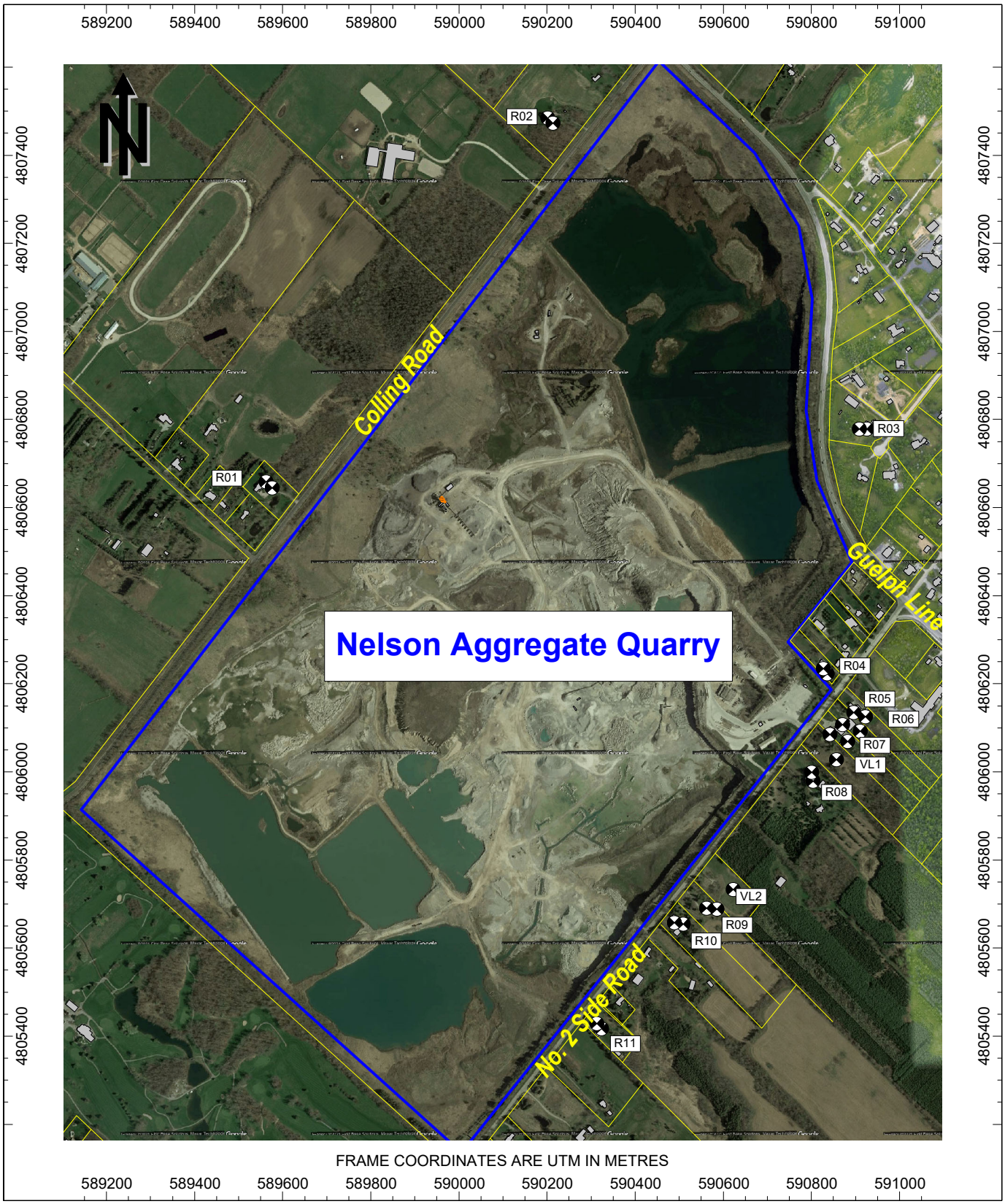


Figure 2: Adjacent Properties and Assessment Locations

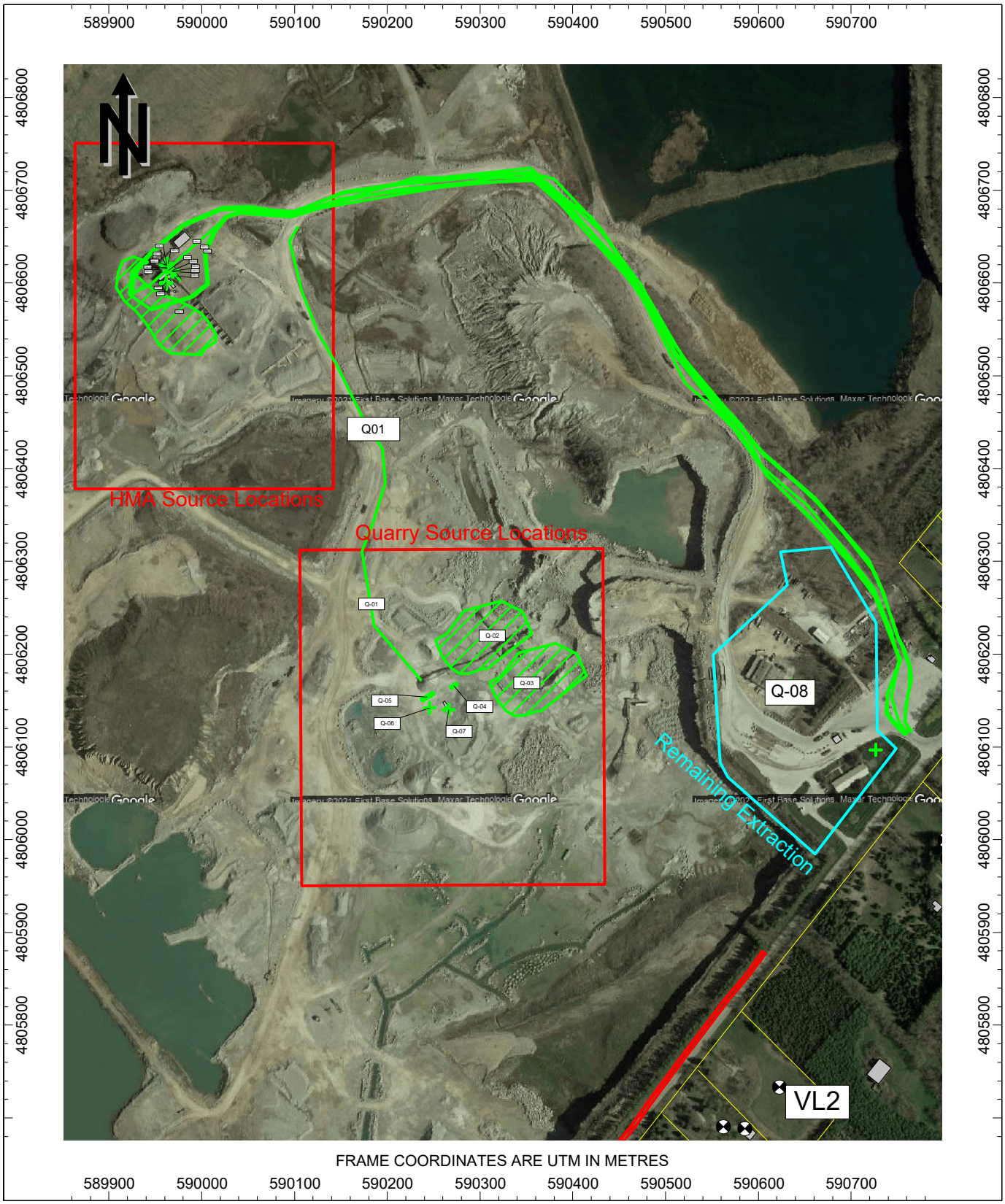


Figure 3: Locations of Sound Sources

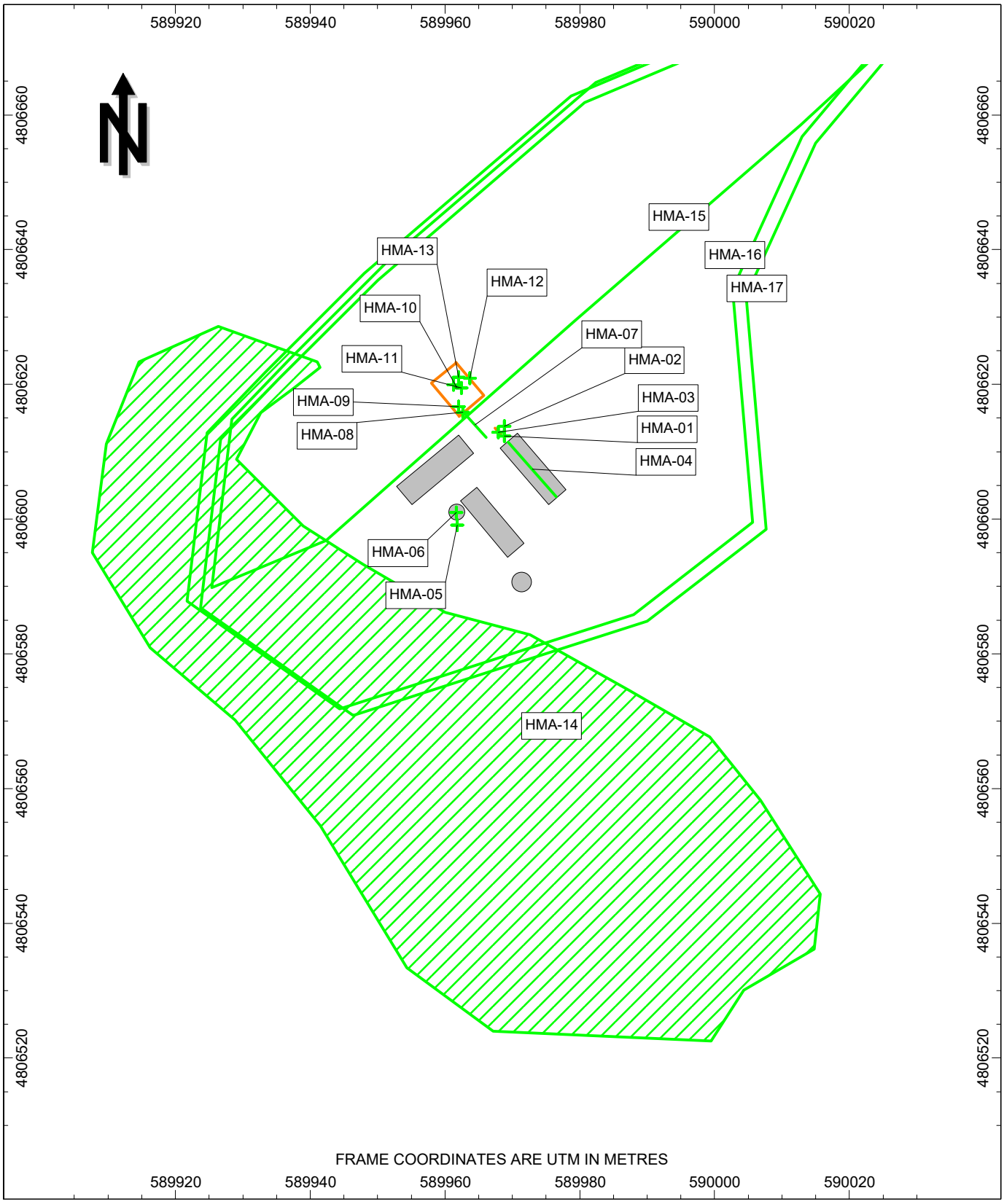


Figure 3a: Locations of Sound Sources at HMA Plant

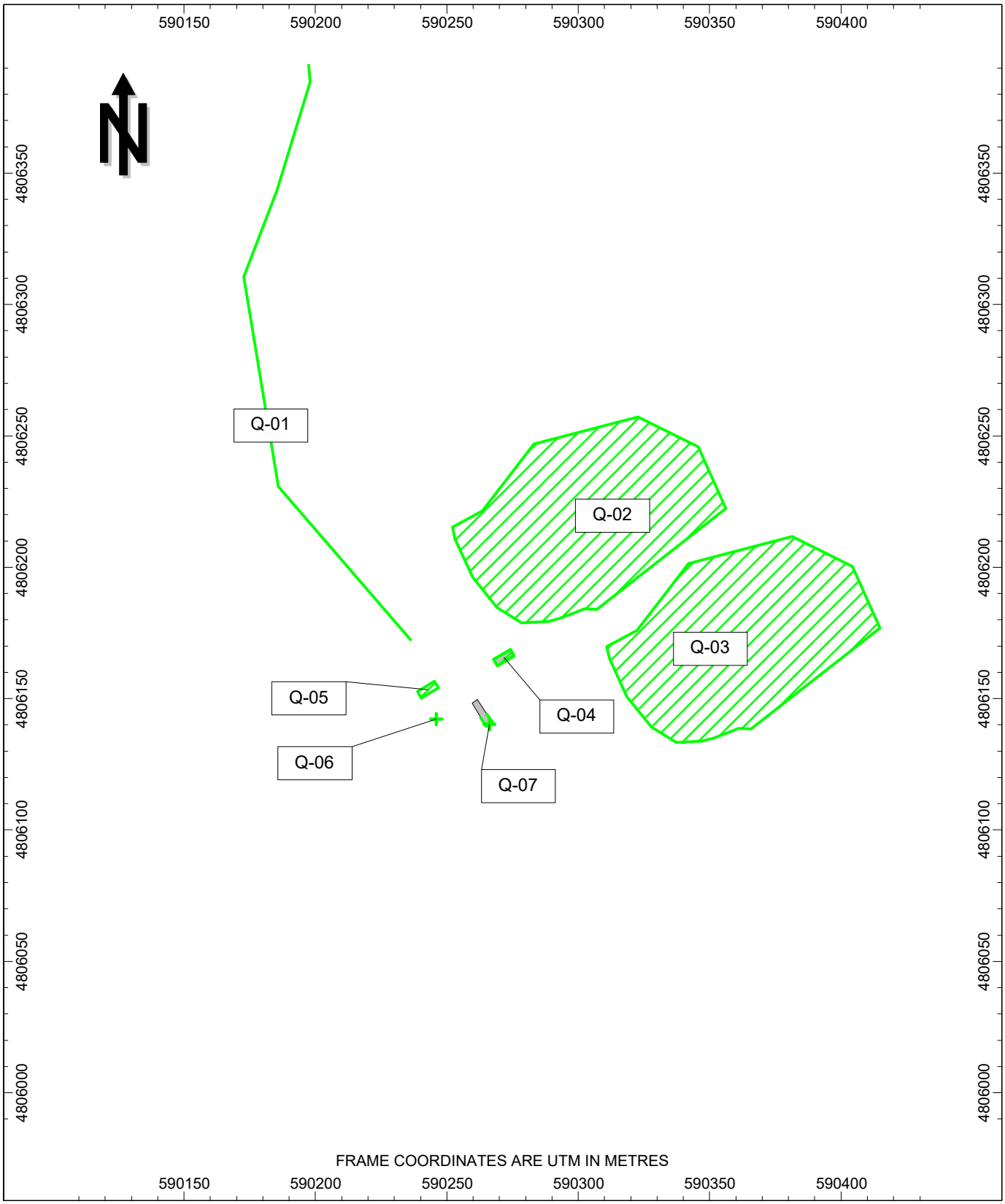


Figure 3b: Locations of Sound Sources at Quarry Crushing Operation

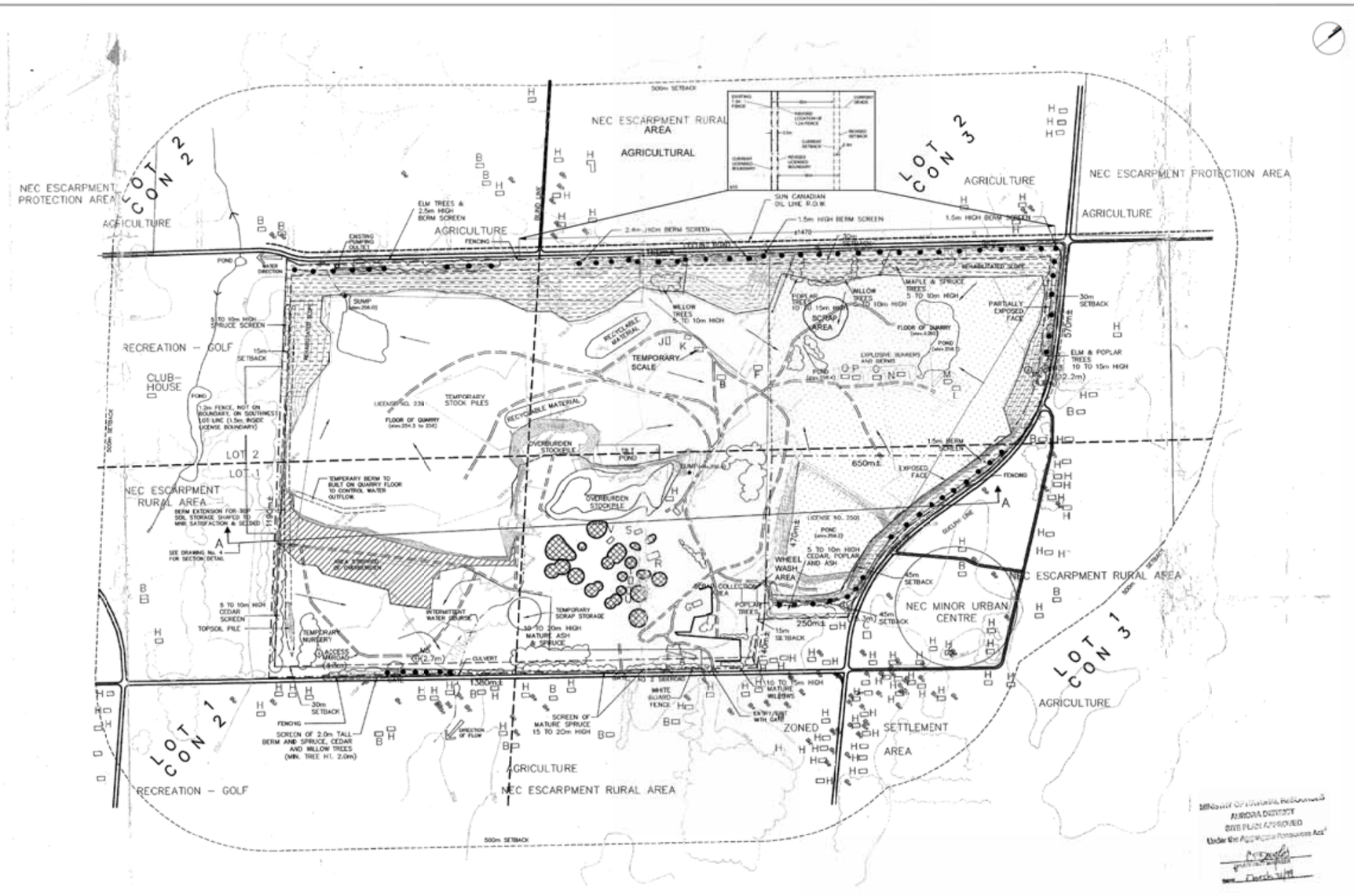


Figure 4a

WELL INFORMATION												
Key	M.O.E. No.(78-)	Elev.(m)	Static Elev.(m)	Key	M.O.E. No.(78-)	Elev.(m)	Static Elev.(m)	Key	M.O.E. No.(78-)	Elev.(m)	Static Elev.(m)
1	105	283.5	278.9	28	5572	283.5	276.8	55	488	277.4	276.5
2	99	281.9	277.4	29	124	278.0	276.6	56	495	277.4	277.4
3	101	281.9	277.4	30	5464	274.3	265.2	57	493	278.0	275.5
4	5454	286.5	277.4	31	126	274.3	271.0	58	5392	280.4	273.7
5	5461	282.1	274.3	32	125	274.3	272.8	59	5566	280.4	267.9
6	103	284.1	278.6	33	128	274.3	271.9	60	5463	280.4	272.8
7	5565	286.5	278.3	34	5110	274.3	266.4	61	4299	283.5	266.7
8	5361	288.4	280.4	35	5434	274.3	264.6	62	5460	283.5	274.3
9	5455	288.1	278.9	36	129	280.4	268.2	63	491	281.9	277.7
10	100	283.5	277.4	37	5564	283.5	270.7	64	494	283.5	275.9
11	5570	286.2	277.7	38	4172	280.4	278.3	65	465	283.5	278.9
12	5433	286.5	276.8	39	3666	280.4	269.4	66	492	283.5	274.6
13	4725	283.5	281.9	40	3646	273.3	268.8	67	3552	289.6	281.6
14	4859	282.2	278.9	41	5313	274.3	266.7	68	5736	286.5	274.3
15	102	281.0	278.0	42	137	272.2	268.5	69	5432	280.4	268.5
16	5714	286.5	279.2	43	5789	277.4	268.2	70	3143	283.5	281.3
17	5709	286.2	274.9	44	5622	277.4	273.7	71	5373	280.4	272.2
18	3015	281.9	280.7	45	5700	277.4	265.2	72	5109	278.9	268.8
19	5459	289.6	276.8	46	5569	280.4	275.2	73	497	279.8	270.4
20	115	275.6	272.8	47	499	277.4	259.1	74	2820	278.9	267.3
21	5588	280.4	272.2	48	487	277.4	275.2	75	5861	277.4	266.3
22	3115	280.4	278.0	49	486	281.0	275.5	76	3516	277.4	260.6
23	5706	283.5	276.5	50	5589	280.4	268.5	77	4229	280.4	263.7
24	5466	283.5	279.8	51	5713	286.4	269.1	78	5311	278.9	263.3
25	3230	280.4	276.8	52	4281	279.8	273.7	79	4744	278.0	263.7
26	110	281.0	279.8	53	489	277.4	276.5	80	3545	280.4	271.3
27	111	280.4	277.4	54	5560	286.4	272.8				

LEGEND:
- EXISTING SPOT ELEVATIONS
- EXISTING CONTOURS
- BOUNDARY OF LICENSED AREA
- SETBACK LIMITS
- EXISTING 1.2m FENCE ON BOUNDARY
- ENTRANCE GATES
- ACTIVE QUARRY FACE
- TREED AREAS/WOODLOTS/SCREENS
- HAUL ROUTES/INTERIOR ROADWAYS
- EXISTING WATER WELL(WITH KEY No.)
- MONITORING WELL(WITH KEY No. and DEPTH TO WATER AS OF MARCH 30,1992)
- AREA STRIPPED OF TOPSOIL/OVERBURDEN
- SURFACE DRAINAGE
- EARTH BERM SCREEN
- REHABILITATED AREA
- INTERIM REHABILITATED AREA
- AGGREGATE STOCKPILE – MAXIMUM HEIGHT 20.0m

OFFICIAL PLAN & ZONING INFORMATION:
AS PER THE NIAGARA ESCARPMENT PLAN, WHICH IS INCLUDED AS PART OF THE HALTON OFFICIAL PLAN, QUARRY SITE IS DESIGNATED AS A MINERAL RESOURCE EXTRACTION AREA. THE DESIGNATION OF AREAS ADJACENT TO THE QUARRY IS ESCARPMENT RURAL. THE OFFICIAL PLAN FOR HALTON REGION DESIGNATES THE SITE AS EXTRACTIVE INDUSTRIAL.

WATERTABLE INFORMATION
THE WATERTABLE IS LOCATED APPROXIMATELY ±4.9m (269.0m ASL) BELOW UNDISTURBED GRADE. DE-WATERING TAKES PLACE CONTINUOUSLY, AND HAS BEEN IN PLACE FOR APPROXIMATELY 20 YEARS.

FENCING
THE LICENSED AREA IS ENCLOSED BY A 1.2m FENCE WITH THE EXCEPTION OF THE AREA AROUND THE OFFICE WHICH HAS A THREE RAIL WOODEN FENCE.

SITE DESCRIPTION
PART OF LOTS 1 AND 2, CONCESSIONS 2 AND 3, CITY OF BURLINGTON, REGIONAL MUNICIPALITY OF HALTON.

Ministry of Natural Resources
AURORA DISTRICT
SITE PLAN APPROVED
Under the Aggregate Resources Act
Date: March 31/99

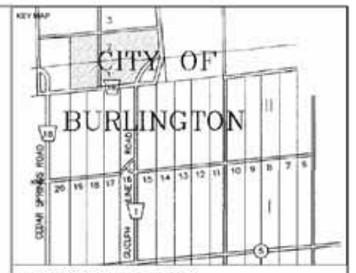
ORIGINAL SITE PLANS PREPARED BY:
REINDERS
E.J.Reinders and Associates Canada Limited
Architects, Engineers, Planners Project Managers
(416)631-8181
PROFESSIONAL ENGINEERS PROVINCE OF ONTARIO

DATE	PROJECT NO.	DRAWN BY	CHECKED
MAR.05/99	4792	C.G./S.B	T.M.J.

THIS SITE PLAN HAS BEEN PREPARED TO COMPLY WITH THE PROVISIONS OF SECTION 69 (5) OF THE AGGREGATE RESOURCES ACT. AS REPLACEMENT SITE PLANS.

INFORMATION COMPILED FROM:
- 1990 AERIAL PHOTOGRAPHY AT 1:5000 SCALE
- 1988 OFFICIAL PLAN FOR THE HALTON PLANNING AREA, REGIONAL MUNICIPALITY OF HALTON
- 1985 NIAGARA ESCARPMENT PLAN
- MINISTRY OF ENVIRONMENT, WATER WELL RECORDS
- 1991 REINDERS FIELD SURVEY
- ONTARIO BASE MAPPING (AIR PHOTOGRAPHY 1982, PUBLISHED 1983)
- 1985 PLANS BY NELSON
- 1997 MARK-UPS PROVIDED BY NELSON

KEY MAP



SITE DESCRIPTION AND STATISTICS
PT. LOTS 1 & 2, CONC. 2 & 3
CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF HALTON

	LICENSED AREA (ha)	DISTURBED AREA (ha)
LICENCE NO. 5499	202.1	54.75
LICENCE NO. 5657	16.2	5.25
TOTAL	218.3	60.0

TOTAL AREA TO BE EXTRACTED (both licenses)	210 ha
REMAINING AREA TO BE EXTRACTED (both licenses)	67 ha

BUILDINGS WITHIN QUARRY BOUNDARY

A	OFFICE	40mX15mX5m
B	PORTABLE SCALE HOUSE	15mX7m
F	FUEL PUMPS	30mX10mX4m
G	MAIN SHOP	30mX40mX10m
H	1' LUNCH ROOM	5mX5mX5m
I	1' CRUSHER	20mX10mX7m
J	ASPHALT PLANT (including stockpiles)	120mX30mX15m
K	ASPHALT CONTROL ROOM	30mX15mX8m
L	EXPLOSIVE MAG. #1	5mX10mX3m
M	EXPLOSIVE MAG. #2	4mX5mX3m
N	EXPLOSIVE MAG. #3	7mX5mX3m
O	EXPLOSIVE MAG. #4	15mX5mX3m
P	EXPLOSIVE MAG. #5	5mX5mX3m
Q	EXPLOSIVE MAG. #6	5mX7mX3m
R	2' #1 BUILDING	20mX20mX15m
S	2' TRANSFER BUILDING	5mX5mX5m
T	2' #2 BUILDING	20mX15mX15m
U	2' #2 BUILDING	15mX15mX15m
V	2' HL6 PLANT	10mX10mX8m

LEGEND OF BUILDINGS WITHIN 500m OF QUARRY BOUNDARY

H	HOUSE
B	BARN
C	COMMERCIAL BUILDING i.e. GAS BAR
R	RECREATION BUILDING i.e. GOLF CLUBHOUSE

All distances on this plan are shown in metres unless otherwise stated.

Site Plan Amendments

No.	Date	Description	By
10	19/01/05	REMOVAL/RELOCATION OF BUILDINGS/STRUCTURES ON-SITE	L.H.
9	12/01/05	REVISE FUEL STORAGE NOTES AS ON PAGE 2 OF 4	L.H.
8	01/12/00	REVISE INTERNAL DYKE	L.H.
7	09/11/00	REDUCTION OF LICENSED BOUNDARY	L.H.
6	28/06/99	REVISED LOCATION OF SCRAP AREA	L.H.
5	99/10/26	ADDITIONAL RECYCLABLE MATERIAL STORAGE	P.C.
4	99/09/08	REVISED AS PER MINISTRY COMMENTS	P.C.
3	99/06/10	REVISED AS PER MINISTRY COMMENTS	K.C.
2	99/10/15	REVISED AS PER CLIENT COMMENTS	G.M.
1	99/10/06	REVISED PLANS AS PER MNR COMMENTS	G.M.

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE

MHBC PLANNING DRAFTED SITE PLAN AMENDMENTS NO. 6 TO 10

Stamp

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Burlington Quarry
Part of Lots 1 & 2, Conc. 2 & 3
(former township of Nelson) City of Burlington, Region of Halton

Project

NELSON AGGREGATE CO.
2430 No. 2 Sideroad
P.O.Box 1010 Burlington Ont. L7R 4L8
phone: (905) 335-3252

Drawn By	L.H.
File No.	9135N
Checked By	B.Z.
Date	JULY 24, 2019

File Name

EXISTING FEATURES

Drawing No.

1 OF 4

N:\9135N\ - Nelson Aggregate - Site Plan Update\Drawings\CAD

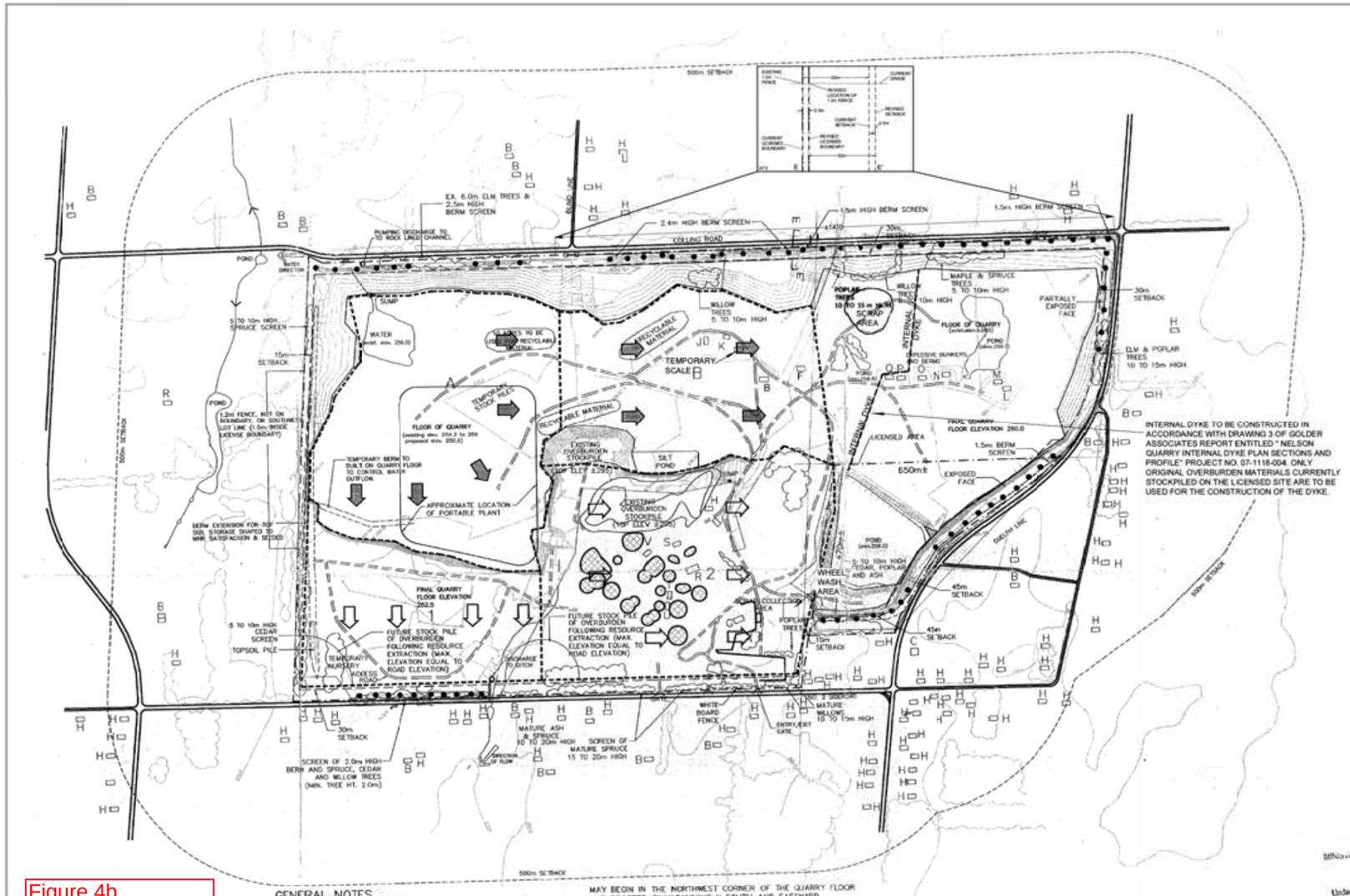

Figure 4b

LEGEND

- EXISTING SPOT ELEVATIONS
- EXISTING CONTOURS
- BOUNDARY OF LICENSED AREA
- SETBACK LIMITS
- EXISTING 1.2m FENCE ON BOUNDARY
- ENTRANCE GATES
- ACTIVE QUARRY FACE
- TREED AREAS/WOODLOTS/SCREENS
- HAUL ROUTES/INTERIOR ROADWAYS
- AREA STRIPPED OF TOPSOIL/OVERBURDEN
- EARTH BERM SCREEN
- AGGREGATE STOCKPILE MAXIMUM HT. 20.0m
- 1 APPROXIMATE SEQUENCE OF EXTRACTION (UPPER LIFTS)
- A APPROXIMATE SEQUENCE OF EXTRACTION (LOWER LIFTS)
- APPROXIMATE BOUNDARY BETWEEN STAGES
- DIRECTION OF EXTRACTION
- DIRECTION OF EXTRACTION 2ND. LIFT

GENERAL NOTES

RECYCLING AREA:

1) THIS SITE PLAN SPECIFIES THE ADDITIONAL STORAGE SIZE (10 ACRES) FOR RECYCLABLE MATERIALS.

2) THIS SITE PLAN SPECIFIES THAT THE STORAGE ONLY INCLUDES ASPHALT AND CONCRETE FOR THE PURPOSE OF AGGREGATE RECYCLING (FOR THIS TO BE CONSIDERED ACCESSORY TO THE AGGREGATE OPERATION, THE MATERIALS SHOULD BE RESTRICTED TO AGGREGATE BASED MATERIALS).

3) THIS SITE PLAN SPECIFIES THAT THIS LIFE ONLY CONTINUES SO LONG AS THE SITE IS LICENSED.

AGGREGATE EXTRACTION

1) THIS PLAN DEPICTS AN OPERATION PLAN FOR THIS PROPERTY BASED UPON THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION. PHASES ARE SCHEMATIC AND MAY VARY SLIGHTLY WITH DEMAND. PHASES DO NOT REPRESENT ANY SPECIFIC OR EQUAL TIME PERIOD. ANY MAJOR DEVIATIONS FROM THE OPERATIONAL SEQUENCE WILL REQUIRE APPROVAL OF THE MNR.

2) TOPSOIL AND OVERBURDEN WILL BE REMOVED APPROXIMATELY 100 TO 200 METRES IN ADVANCE OF AGGREGATE EXTRACTION.

3) PHASE 1 WILL BE EXCAVATED IN A SINGLE LIFT OF (20-25m) DOWN TO THE SHALE LAYER. A SLOT MAY BE ADVANCED SOUTHWARD IN THE CENTER OF PHASE 1. EXTRACTION WILL OCCUR SIMULTANEOUSLY FROM THE EAST, WEST AND SOUTH FACES WITHIN THE SLOT AND FROM THE SOUTH FACE ON EITHER SIDE OF THE SLOT OPENING.

4) PHASE 2 WILL BE EXTRACTED IN AN EASTERLY DIRECTION IN A SINGLE LIFT (20-25m) DOWN TO THE SHALE LAYER.

5) AS REQUIRED, THE EXISTING PROCESSING PLANT WILL BE REMOVED AND A NEW PORTABLE PLANT WILL BE ESTABLISHED ON THE QUARRY FLOOR (AS SHOWN).

6) A SECOND LIFT (+/- 5m) IN AREAS A AND B WILL BE EXTRACTED DOWN TO THE SHALE LAYER. EXTRACTION MAY BEGIN IN THE NORTHWEST CORNER OF THE QUARRY FLOOR AND PROCEED SIMULTANEOUSLY SOUTH AND EASTWARD. THIS LIFT WILL BE UNDERTAKEN AT THE SAME TIME AS PHASES 1 AND 2.

7) PRIOR TO FINAL EXTRACTION AND FINAL REHABILITATION TAKING PLACE, THE OWNER RESERVES THE RIGHT TO DISCUSS THE POSSIBILITY OF FUTURE UNDERGROUND MINING UNDER THE RULES AND REGULATIONS OF THE MINING ACT) WITH THE MINISTRY OF OF NATURAL RESOURCES AND OTHER APPROPRIATE AGENCIES.

8. Fuel storage tanks will be installed and maintained in accordance with the Liquid Fuels Handling Code under the Technical Standards and Safety Act.

AGGREGATE PROCESSING EQUIPMENT

EXISTING EQUIPMENT INCLUDES:
- PORTABLE CRUSHING PLANT
- TRUCKS AND GRADERS
- LOADERS
- HYDRAULIC SHOVELS
- AND GENERAL EQUIPMENT REQUIRED TO EXTRACT AND SHIP AGGREGATES

EXISTING PROCESSING EQUIPMENT, INCLUDING CRUSHER, SCREENS, CONVEYORS ETC. WILL BE MAINTAINED. ALL EQUIPMENT IS PERMANENT EQUIPMENT. THIS MAY BE SUBJECT TO RELOCATION AS INDICATED IN PHASING.

OVERBURDEN AND TOPSOIL

OVERBURDEN AND TOPSOIL WILL BE STRIPPED PRIOR TO EXTRACTION AND WILL BE USED FOR BACKFILLING OF SELECTED SLOPES TO AFFECT THE REHABILITATION MEASURES OUTLINED ON DWG No. 3 – PROGRESSIVE AND FINAL REHABILITATION PLANS. OVERBURDEN STOCKPILES ALONG No. 2 SIDEROAD SHALL NOT BE ANY HIGHER THAN THE EXISTING ROAD GRADE.

BERMING AND PROGRESSIVE REHABILITATION

IT IS NOT ANTICIPATED THAT ADDITIONAL BERMING OR TREE SCREENING WILL BE REQUIRED ALONG No. 2 SIDEROAD. SHOULD CONDITIONS CHANGE THAT MAY REQUIRE BERMING OR TREE SCREENING, BERMS WILL BE CONSTRUCTED TO EXISTING SPECIFICATIONS (MAX. HEIGHT 2.0m WITH MIN. SIDE SLOPES OF 3:1. BERMS SHALL BE SEEDED WITH AN APPROPRIATE SEED MIXTURE.)

WATER DISCHARGE

WATER DISCHARGE POINTS ARE TO REMAIN AS SHOWN ON DWG No. 1. DEWATERING WILL OCCUR TO MAINTAIN A DRY QUARRY FLOOR WHILE THE QUARRY IS IN OPERATION. THE NORTHWEST DISCHARGE IS TO A ROCK LINED DITCH ADJACENT TO COLLING ROAD WHERE IT DRAINS WESTWARD. THE SOUTH DISCHARGE IS TO A DITCH WHICH CROSSES No. 2 SIDEROAD AND PROCEEDS SOUTHWARD.

TREE PLANTING

TREE PLANTING AND SEEDING OF BACKFILLED SLOPES WILL BE CONDUCTED PREGRESSIVELY AS DESCRIBED IN NOTE #6 ON DWG No. 3 PROGRESSIVE AND FINAL REHABILITATION PLANS. SHOULD ANY TREE PLANTING OR SEEDING FAIL TO BECOME ESTABLISHED, REPLACEMENT OF TREES OR SEEDING WILL BE CONDUCTED AND MAINTAINED TO ENSURE PROPER SUCCESS RATES.

FENCING

THE LICENSED AREA IS ENCLOSED BY A 1.2m FENCE WITH THE EXCEPTION OF THE AREA AROUND THE OFFICE AND MAIN SITE ACCESS AREA WHICH HAS A THREE RAIL WOODEN FENCE.

AGGREGATE STOCKPILES

EXISTING AGGREGATE STOCKPILES WILL REMAIN IN THE LOCATIONS AS SHOWN ON THIS PLAN DURING THE EXTRACTION OF AREAS 1, A AND B. THESE STOCKPILES WILL BE REMOVED AS REQUIRED AS THE OPERATION ENTERS INTO THESE AREAS. THE PROPOSED STOCKPILES ASSOCIATED WITH THE PORTABLE PROCESSING PLANT WILL BE LOCATED ON THE QUARRY FLOOR WITHIN THE PROCESSING AREA. (AS SHOWN ON THE PLAN)

TEMPORARY AGGREGATE STOCKPILES MAY BE LOCATED ON THE QUARRY FLOOR AS REQUIRED.

PROVISION

INTERNAL ROADS ON QUARRY FLOOR ARE TEMPORARY AND CAN BE RELOCATED AS REQUIRED.

MINISTRY OF NATURAL RESOURCES
AURORA DISTRICT
SITE PLAN APPROVED
Under the Aggregate Resources Act
Date: March 31/99

ORIGINAL SITE PLANS PREPARED BY:

REINDERS

F.J.Reinders and Associates Canada Limited
Architects, Engineers, Planners Project Managers
BRAMPTON (416)451-8181

DATE	PROJECT NO.	DRAWN BY	CHECKED
MAR.05/99	4792	C.G./S.B.	T.M.J.

THIS SITE PLAN HAS BEEN PREPARED TO COMPLY WITH THE PROVISIONS OF SECTION 69 (5) OF THE AGGREGATE RESOURCES ACT. AS REPLACEMENT SITE PLANS.

INFORMATION COMPILED FROM:
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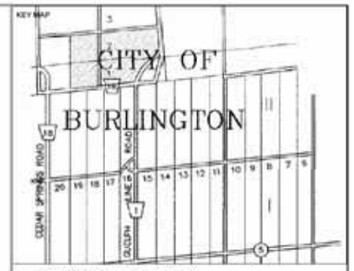
- 1991 REINDERS FIELD SURVEY
- ONTARIO BASE MAPPING (AIR PHOTOGRAPHY 1982, PUBLISHED 1983)
- 1985 PLANS BY NELSON
- 1997 MARK-UPS PROVIDED BY NELSON

KEY MAP



SITE DESCRIPTION AND STATISTICS
PT. LOTS 1 & 2, CONC. 2 & 3
CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF HALTON

	LICENSED AREA (ha)	DISTURBED AREA (ha)
LICENCE NO. 5499	202.1	54.75
LICENCE NO. 5657	16.2	5.25
TOTAL	218.3	60.0

TOTAL AREA TO BE EXTRACTED (both licenses)	210 ha
REMAINING AREA TO BE EXTRACTED (both licenses)	67 ha

BUILDINGS WITHIN QUARRY BOUNDARY

A	OFFICE	40mX15mX5m
B	PORTABLE SCALE HOUSE	15mX7m
F	FUEL PUMPS	30mX10mX4m
G	MAIN SHOP	30mX40mX10m
H	1' LUNCH ROOM	5mX5mX5m
I	1' CRUSHER	20mX10mX7m
J	ASPHALT PLANT (including stockpiles)	120mX30mX15m
K	ASPHALT CONTROL ROOM	30mX15mX8m
L	EXPLOSIVE MAG. #1	5mX10mX3m
M	EXPLOSIVE MAG. #2	4mX5mX3m
N	EXPLOSIVE MAG. #3	7mX5mX3m
O	EXPLOSIVE MAG. #4	15mX5mX3m
P	EXPLOSIVE MAG. #5	5mX5mX3m
Q	EXPLOSIVE MAG. #6	5mX7mX3m
R	2' #1 BUILDING	20mX20mX15m
S	2' TRANSFER BUILDING	5mX5mX5m
T	2' #2 BUILDING	20mX15mX15m
U	2' #2 BUILDING	15mX15mX15m
V	2' HL6 PLANT	10mX10mX8m

LEGEND OF BUILDINGS WITHIN 500m OF QUARRY BOUNDARY

H	HOUSE
B	BARN
C	COMMERCIAL BUILDING i.e. GAS BAR
R	RECREATION BUILDING i.e. GOLF CLUBHOUSE

All distances on this plan are shown in metres unless otherwise stated.

Site Plan Amendments

No.	Date	Description	By
10	19/01/08	REMOVAL/RELOCATION OF BUILDINGS/STRUCTURES ON-SITE	L.H.
9	12/01/00	REVISE FUEL STORAGE NOTE #6 ON PAGE 2 OF 4	L.H.
8	07/12/00	REVISE INTERNAL DYKE	L.H.
7	09/11/00	REDUCTION OF LICENSED BOUNDARY	L.H.
6	28/06/99	REVISE LOCATION OF SCRAP AREA	L.H.
5	99/10/26	ADDITIONAL RECYCLABLE MATERIAL STORAGE	P.C.
4	97/09/08	REVISED AS PER MINISTRY COMMENTS	P.C.
3	93/06/10	REVISED AS PER MINISTRY COMMENTS	K.C.
2	93/10/15	REVISED AS PER CLIENT COMMENTS	G.M.
1	93/10/06	REVISED PLANS AS PER MNR COMMENTS	G.M.

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE

MHBC PLANNING DRAFTED SITE PLAN AMENDMENTS NO. 6 TO 10

Stamp

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Part of Lots 1 & 2, Conc. 2 & 3
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2430 No. 2 Sideroad
P.O.Box 1010 Burlington Ont. L7R 4L8
phone: (905) 335-3252

Scale	Drawn By	File No.
1:4000	L.H.	9135N
	Checked By	Date
	B.Z.	JULY 24, 2019

File Name

OPERATIONAL PLAN

Drawing No.

2 OF 4

N:\9135N Nelson Aggregate - Site Plan Update\Drawings\CAD

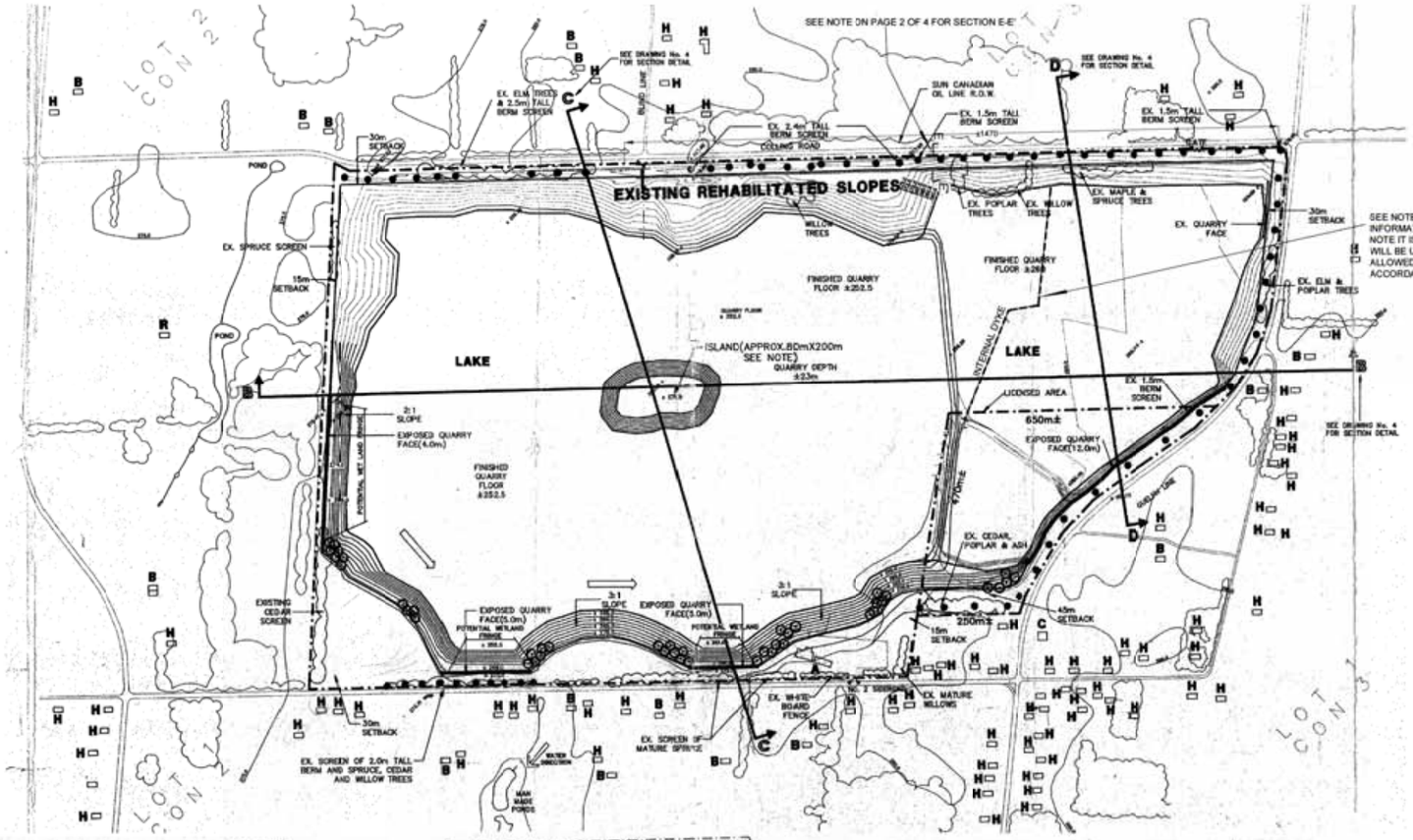

Figure 4c

LEGEND:

- GENERAL DIRECTION OF REHABILITATION
- BOUNDARY OF LICENSED AREA
- SETBACK LIMITS
- EXISTING 1.2m POST & WIRE FENCE ON BOUNDARY
- EXISTING CONTOURS
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- ACTIVE PIT FACE
- EXPOSED QUARRY FACE
- EXISTING TREES
- PROPOSED TREES
- EXISTING REHABILITATED AREA
- APPROXIMATE EDGE OF WATER

REHABILITATION NOTES

1) a) FINAL REHABILITATION OF THE SITE IS FOR A LAKE WITH VEGETATED SLOPES.
   b) NOT WITHSTANDING a) ABOVE, THE OWNER RESERVES THE RIGHT TO DEVELOP THE SITE FOR OTHER USES, INCLUDING ESTATE RESIDENTIAL, PUBLIC AND/OR PRIVATE RECREATIONAL USES (ie sports fishing, swimming and boating). DEPENDING ON THE FINAL OWNERSHIP OF THE REHABILITATED SITE, THESE SHALL BE SUBJECT TO ALL APPLICABLE LEGISLATION AND BY LAWS.
   THE CONTOUR SHAPING OF THE REMAINING AREAS TO BE REHABILITATED, WILL BE DONE IN A MANNER TO CREATE A DIVERSE WATERS EDGE. AREAS WHERE THE WATERS EDGE MEETS A VERTICAL QUARRY FACE WILL BE BLENDED INTO SOFTER SLOPES AND AREAS JUST UNDER THE WATERS SURFACE WILL BE CREATED TO ESTABLISH THE POTENTIAL FOR NATURALLY OCCURING WETLAND AREAS FOR FISH AND WILDLIFE HABITAT. (SEE TYPICAL SKETCH ON SHEET 4.)
2) WASTE ROCK, OVERBURDEN TOPSOIL AND ANY NOE APPROVED CLEAN FILL WILL BE USED TO DEVELOP SUITABLE SAFE SLOPE ANGLES AS SHOWN. IF INSUFFICIENT OVERBURDEN AND TOPSOIL EXISTS ON THE SITE, THE OWNER RESERVES THE RIGHT TO IMPORT MATERIAL FROM OFFSITE SOURCES.
3) REHABILITATED SLOPES OF THE QUARRY SHALL NOT EXCEED 2:1. TABLELAND AREAS FOR DEVELOPMENT WILL BE GRADED AT 2–10% SLOPE ANGLES.
4) ISLANDS MAY BE LEFT IN THE LAKE SHOULD SUFFICIENT MATERIAL REMAIN ON THE SITE AT THE COMPLETION OF OPERATIONS. THE SIZE OF THE ISLAND SHOWN ON THE PLAN IS APPROXIMATE BASED ON CURRENT EARTH QUANTITIES. THE OWNER RESERVES THE RIGHT TO ADJUST THE SIZE DEPENDING ON THE FINAL QUANTITIES.
5) IN THE FINAL STAGES, THE EXISTING BERMS MAY BE USED IN THE FINAL REHABILITATION OF THE SLOPES.
6) REGRADED SLOPES WILL BE VEGETATATED WITH A MAINTENANCE FREE GROUND COVER(ie. trefoil, crown vetch) AND DECIDUOUS AND CONIFEROUS TREES OF VARIETIES INDIGENOUS TO THE AREA. INSTALLED HEIGHTS FOR DECIDUOUS TREES WILL BE 2.0 METRES AND FOR CONIFEROUS TREES WILL BE 1.0 METRE. TREE FATALITIES WILL BE REPLACED AT SEASONALLY OPPORTUNE TIMES. TREES AND SHRUBS WILL BE PLANTED FOR SLOPE STABILIZATION, HABITAT ENHANCEMENT AND AESTHETICS.
7) FOR SAFETY A POST AND WIRE FENCE MUST BE INSTALLED AT THE TOP OF ALL EXPOSED QUARRY FACES AND SHALL RUN ALONG THE TOP TO THE POINT WHERE THE QUARRY FACE FLARES INTO THE REHABILITATED SLOPE.
8) PHASING OF REHABILITATION TO FOLLOW SKETCHES SHOWN ABOVE AND AS SET OUT IN DWG No 2.

MINISTRY OF NATURAL RESOURCES
AURORA DISTRICT
SITE PLAN APPROVED
Under the Aggregate Resources Act
Date: March 31/99

ORIGINAL SITE PLANS PREPARED BY:

REINDERS

F.J.Reinders and Associates Canada Limited
Architects, Engineers, Planners Project Managers
(416)491-8181

DATE	PROJECT NO.	DRAWN BY	CHECKED
MAR.05/99	4792	C.G./S.B.	T.M.J.

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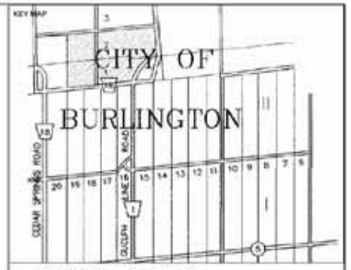
KEY MAP



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REMAINING AREA TO BE EXTRACTED (both licenses)	67 ha

BUILDINGS WITHIN QUARRY BOUNDARY

A	OFFICE	40mX15mX5m

NOTE
THE INTENT IS TO REMOVE THE EXISTING OFFICE BUILDING BUT THE OWNER RESERVES THE RIGHT TO RETAIN THE BUILDING IF HE DEEMS IT NECESSARY.

LEGEND OF BUILDINGS WITHIN 500m OF QUARRY BOUNDARY

- H HOUSE
- B BARN
- C COMMERCIAL BUILDING i.e. GAS BAR
- R RECREATION BUILDING i.e. GOLF CLUBHOUSE

All distances on this plan are shown in metres unless otherwise stated

Site Plan Amendments

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10	19/01/28	REMOVAL/RELOCATION OF BUILDINGS/STRUCTURES ON-SITE	L.H.
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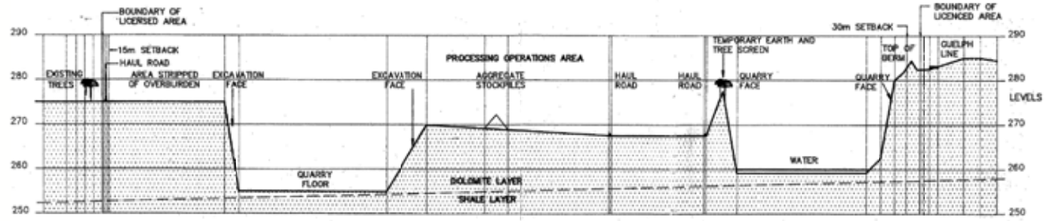
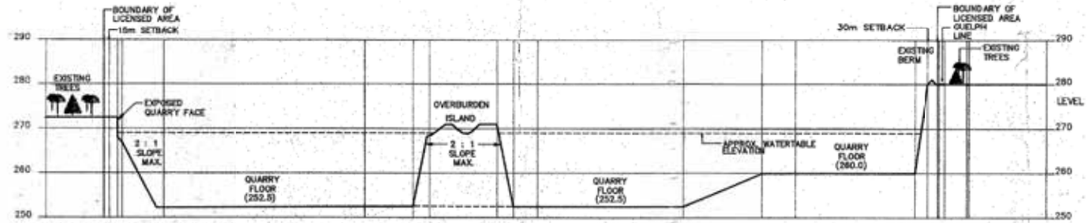
Drawn By	L.H.	File No.	9135N
Checked By	B.Z.	Date	JULY 24, 2019

File Name
PROGRESSIVE & FINAL REHABILITATION PLAN

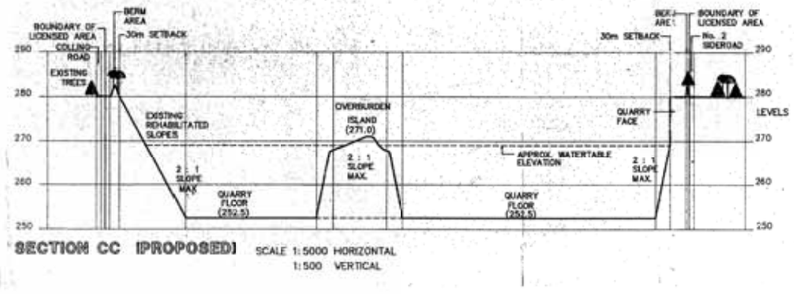
Drawing No.
3 OF 4



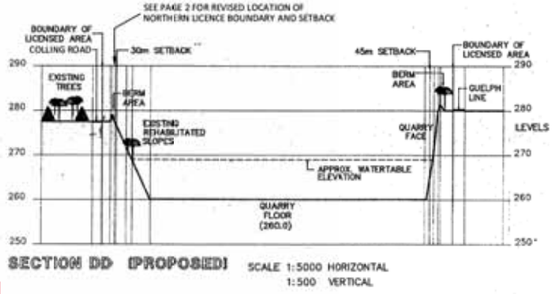
SECTION AA (EXISTING) SCALE 1:5000 HORIZONTAL
1:500 VERTICAL



SECTION BB (PROPOSED) SCALE 1:5000 HORIZONTAL
1:500 VERTICAL

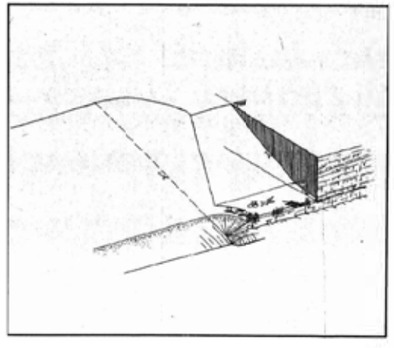


SECTION CC (PROPOSED) SCALE 1:5000 HORIZONTAL
1:500 VERTICAL

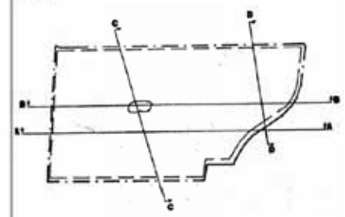


SECTION DD (PROPOSED) SCALE 1:5000 HORIZONTAL
1:500 VERTICAL

Figure 4d



KEY MAP



Ministry of Natural Resources
AURORA DISTRICT
SITE PLAN APPROVED
Under the Aggregate Resources Act
Date: July 1/99

ORIGINAL SITE PLANS PREPARED BY:

REINDERS

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DATE	PROJECT NO.	DRAWN BY	CHECKED
MAR.05/99	4792	C.G./S.B.	T.M.J.

THIS SITE PLAN HAS BEEN PREPARED TO COMPLY WITH THE PROVISIONS OF SECTION 69 (5) OF THE AGGREGATE RESOURCES ACT, AS REPLACEMENT SITE PLANS.

INFORMATION COMPILED FROM:
- 1990 AERIAL PHOTOGRAPHY AT 1:5000 SCALE
- 1988 OFFICIAL PLAN FOR THE HALTON PLANNING AREA, REGIONAL MUNICIPALITY OF HALTON
- 1985 NIAGARA ESCARPMENT PLAN
- MINISTRY OF ENVIRONMENT, WATER WELL RECORDS
- 1991 REINDERS FIELD SURVEY
- ONTARIO BASE MAPPING (AIR PHOTOGRAPHY 1982, PUBLISHED 1983)
- 1985 PLANS BY NELSON
- 1997 MARK-UPS PROVIDED BY NELSON

All distances on this plan are shown in metres unless otherwise stated.

Site Plan Amendments

No.	Date	Description	By
10	1997/07/08	REMOVAL/RELOCATION OF BUILDINGS/STRUCTURES ON-SITE	L.H.
9	1997/07/03	REVISE FUEL STORAGE NOTE #6 ON PAGE 2 OF 4	L.H.
8	1997/07/03	REVISE INTERNAL DYKE	L.H.
7	1997/11/03	REDUCTION OF LICENSED BOUNDARY	L.H.
6	1997/06/16	REVISE LOCATION OF SCRAP AREA	L.H.
5	1997/03/26	ADDITIONAL RECYCLABLE MATERIAL STORAGE	P.C.
4	1997/03/05	REVISED AS PER MINISTRY COMMENTS	P.C.
3	1996/12/20	REVISED AS PER MINISTRY COMMENTS	K.C.
2	1996/10/15	REVISED AS PER CLIENT COMMENTS	G.M.
1	1996/10/08	REVISED PLANS AS PER MNR COMMENTS	G.M.

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE

MHBC PLANNING DRAFTED SITE PLAN AMENDMENTS NO. 6 TO 10

Stamp

Mr. Brian Zeman is authorized by the Ministry of Natural Resources and Forestry to prepare and certify site plans for license applications.

Project

Burlington Quarry
Part of Lots 1 & 2 Conc. 2 & 3
(former township of Nelson) City of Burlington, Region of Halton

NELSON AGGREGATE CO.
3233 Mc. 7 Sideroad
P.O.Box 1019 Burlington Ont. L7R 4L6
phone: (905) 335-3250

Drawn By	L.H.	File No.	9135N
Checked By	B.Z.	Date	JULY 24, 2019

File Name

CROSS SECTIONS

Drawing No.

4 OF 4

W:\9135N-Nelson Aggregate - Site Plan Update\Drawings\CAD

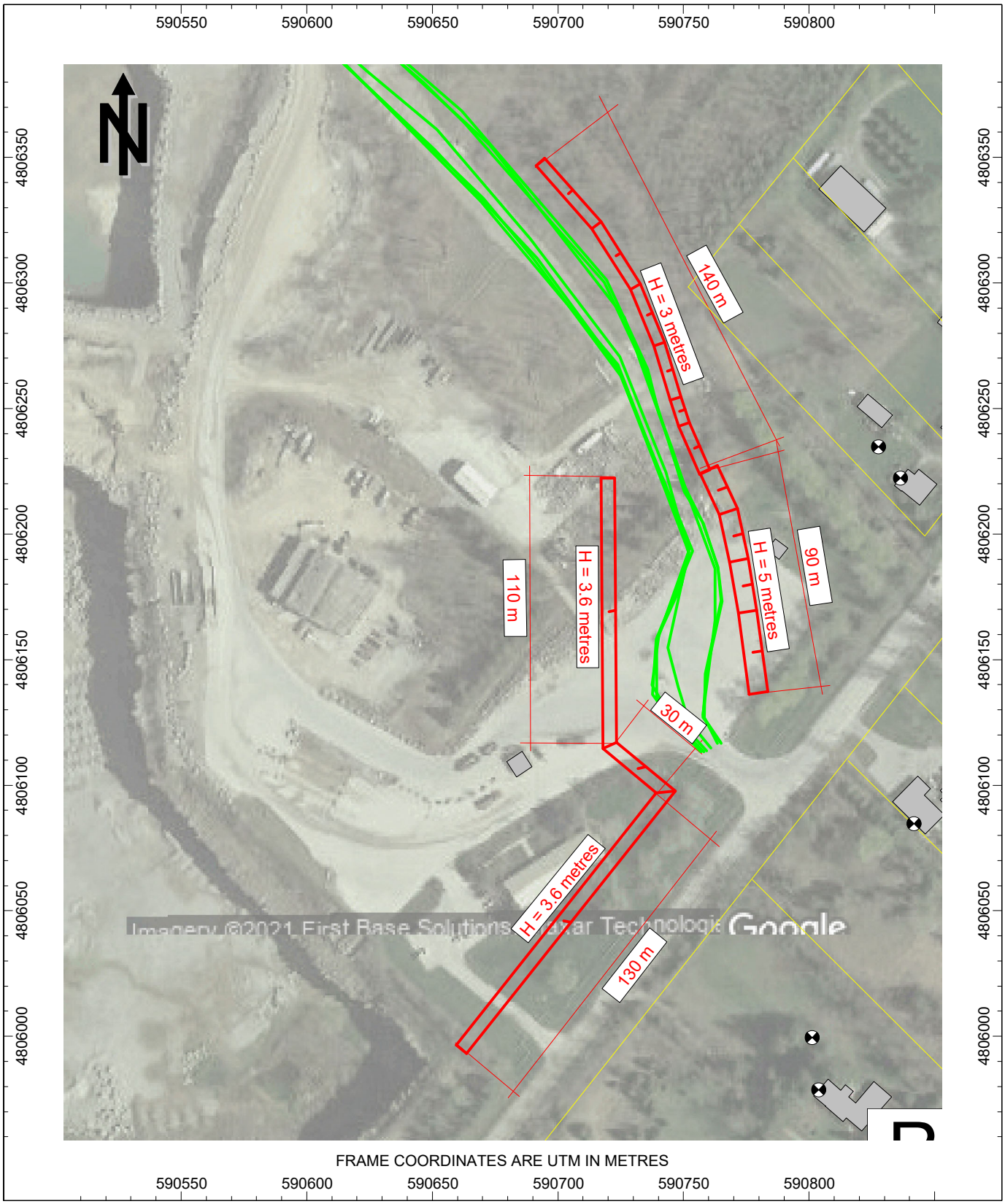


Figure 5: Noise Barriers/Berms Near Site Entrance

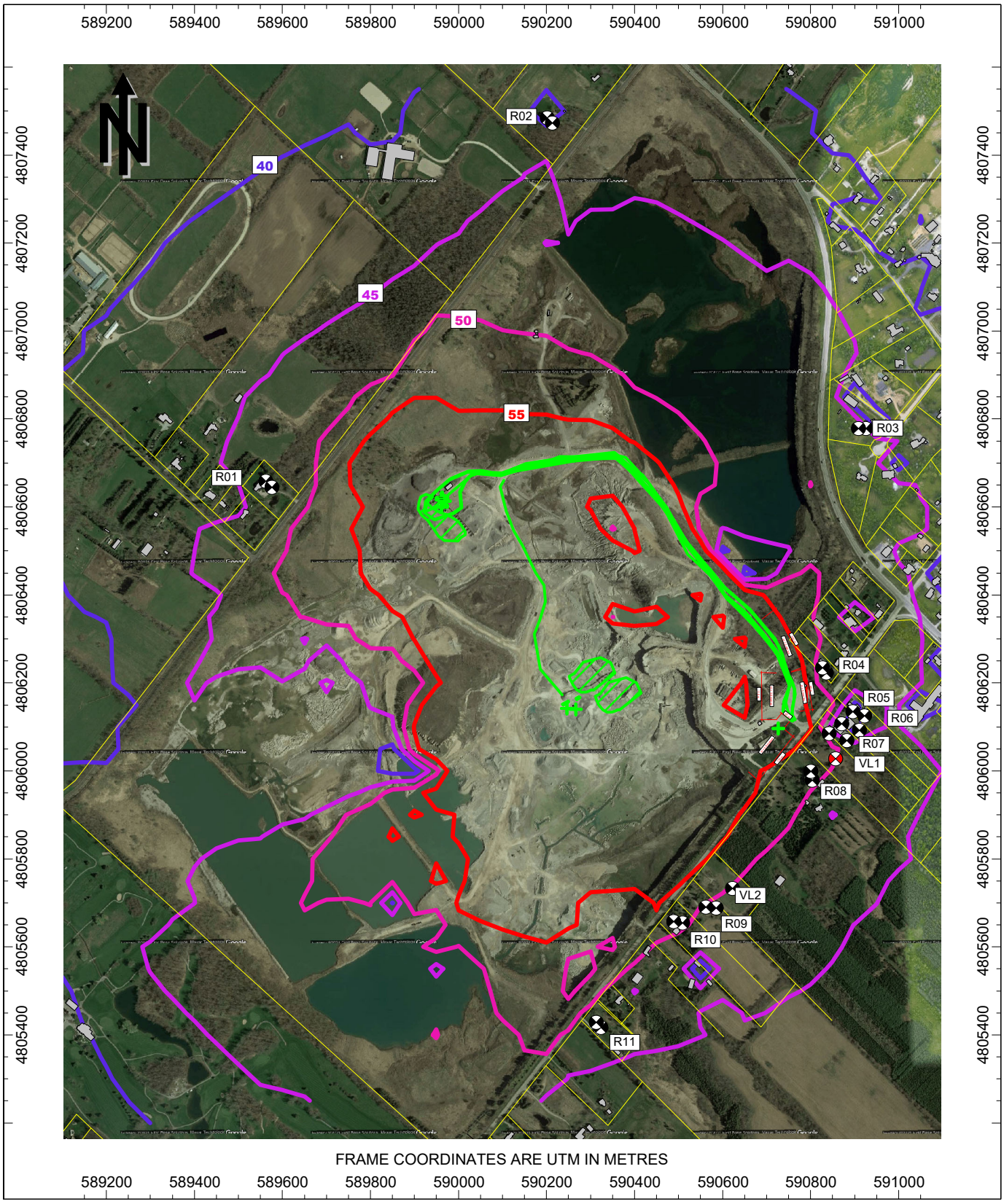


Figure 6a: Future Mitigated Sound Level Contrours, Leq [dBA] at 4.5 metres Above Grade Daytime Hours (7:00 - 19:00)

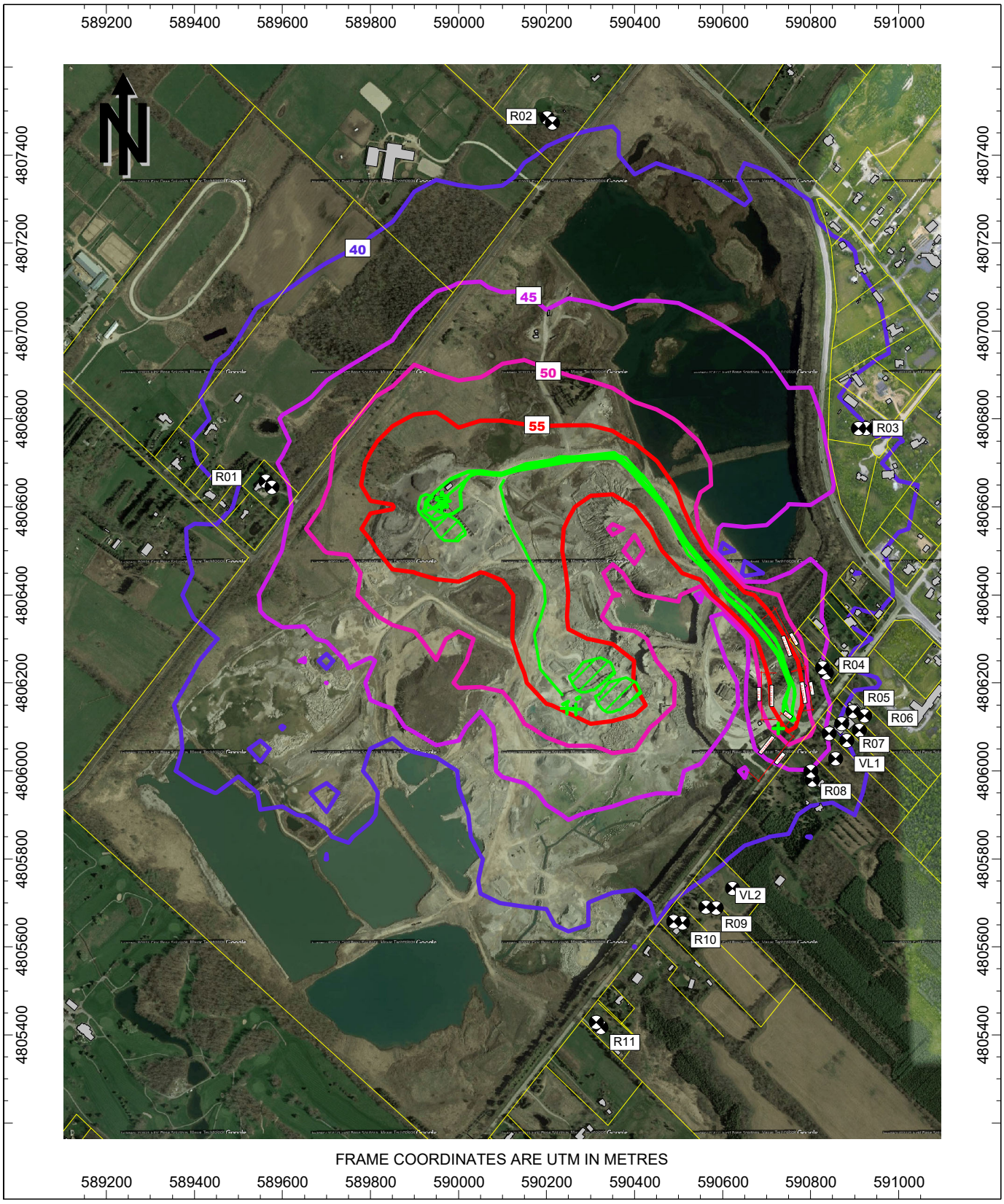


Figure 6b: Future Mitigated Sound Level Contours, Leq [dBA] at 4.5 metres Above Grade Evening/Night-time Hours (19:00 - 7:00)

APPENDIX A

Acoustic Assessment Summary Tables – Existing Worst-Case Operation

ACOUSTIC ASSESSMENT SUMMARY TABLES

VERSION CONTROL – EXISTING WORST-CASE OPERATION

Halton Asphalt Supply, Nelson Aggregate Quarry, Burlington, Ontario

Ver.	Date	Issued as Part of AAR?	Version Description	Prepared By
1.0	7-Feb-20	Y	Original version of tables as part of Ver. 1 of Acoustic Assessment Report	P. Chocensky
2.0	27-Apr-21	Y	Updated version of tables as part of Ver. 2 of Acoustic Assessment Report	P. Chocensky

Table A1: Noise Source Summary Table - Existing Worst-Case Operation

Source ID	Source Description	Sound Power Level [dBA re 10^-12 W]	Source Location	Sound Characteristic	Noise Control Measure
HMA-01	HMA - Burner Fan Casing	103	O	S	B
HMA-02	HMA - Burner Motor	92	O	S	B
HMA-03	HMA - Burner Blower Inlet	111	O	S	B
HMA-04	HMA - Dryer	110	O	S	B
HMA-05	HMA - Baghouse Fan/Motor	103	O	S	B
HMA-06	HMA - Baghouse Stack Outlet	110	O	S	B
HMA-07	HMA - Bucket Elevator	93	O	S	B
HMA-08	HMA - Head of Bucket Elevator	99	O	S	B
HMA-09	HMA - Drop at Mixing Tower	101	O	S	B
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	107	O	S	B
HMA-11	HMA - Pneumatic Loading Gates	112*	O	S	B
HMA-12	HMA - Idling Trucks	95	O	S	B
HMA-13	HMA - Horn	128*	O	S	B
HMA-14	HMA - Front-End Loader	102	O	S	B
HMA-15	HMA - Moving HMA Trucks (each)	101*	O	S	B
HMA-16	HMA - Moving Aggregate Trucks (each)	102*	O	S	B
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	101*	O	S	B
Q-01a	Quarry - Moving Aggregate Trucks (each)	101*	O	S	B
Q-01b	Quarry - Moving Aggregate Trucks (each)	101*	O	S	B
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	101	O	S	B
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	101	O	S	B
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	109	O	S	B
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	110	O	S	B
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	123	O	S	B
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	117	O	S	B
Q-07a	Quarry - Generator Intake	103	O	S	B
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	108	O	S	S
Q-08	Drill (ESDM QD/QD-DC)	110	O	S	O

Legend

Sound Characteristics
S: Steady
Q: Quasi-steady impulsive
I: Impulsive
B: Buzzing
T: Tonal (+5 dBA penalty applied)
C: Cyclically varying
O: Occasional

Noise Control Measures
S: Silencer, Acoustic Louvre, Muffler
A: Acoustic Lining, Plenum
B: Barrier, Berm, Screening
L: Lagging (Acoustical Wrapping)
E: Acoustic Enclosure
O: Other
U: Currently Uncontrolled

Source Location
O: Outdoors
I: Indoors

* Time weighted source. Reported sound power level does not include time weighted factor.

Table A2: Point of Reception Noise Impact Table - Existing Worst-Case Operation

Source ID	Source Name	Point of Reception															
		R01a LEQ [dBA]				R01b LEQ [dBA]				R02a LEQ [dBA]				R02b LEQ [dBA]			
		Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night
HMA-01	HMA - Burner Fan Casing	409	33	33	33	394	30	30	30	903	26	26	26	895	24	24	24
HMA-02	HMA - Burner Motor	409	23	23	23	394	20	20	20	902	15	15	15	893	13	13	13
HMA-03	HMA - Burner Blower Inlet	408	41	41	41	393	38	38	38	903	24	24	24	895	22	22	22
HMA-04	HMA - Dryer	415	38	38	38	400	31	31	31	907	30	30	30	900	29	29	29
HMA-05	HMA - Baghouse Fan/Motor	404	29	29	29	388	26	26	26	918	12	12	12	909	11	11	11
HMA-06	HMA - Baghouse Stack Outlet	403	42	42	42	388	41	41	41	917	34	34	34	908	33	33	33
HMA-07	HMA - Bucket Elevator	404	24	24	24	388	24	24	24	902	17	17	17	894	16	16	16
HMA-08	HMA - Head of Bucket Elevator	402	31	31	31	387	31	31	31	901	26	26	26	893	24	24	24
HMA-09	HMA - Drop at Mixing Tower	402	31	31	31	386	31	31	31	901	27	27	27	893	25	25	25
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	400	38	38	38	385	38	38	38	898	34	34	34	890	33	33	33
HMA-11	HMA - Pneumatic Loading Gates	402	17	17	17	387	19	19	19	900	0	0	0	891	0	0	0
HMA-12	HMA - Idling Trucks	403	24	24	24	388	20	20	20	897	17	17	17	889	15	15	15
HMA-13	HMA - Horn	401	27	27	27	386	22	22	22	896	10	10	10	888	9	9	9
HMA-14	HMA - Front-End Loader	401	29	29	29	385	27	27	27	892	23	23	23	885	22	22	22
HMA-15	HMA - Moving HMA Trucks (each)	813	27	27	27	797	25	25	25	1003	28	28	28	990	25	25	25
HMA-16	HMA - Moving Aggregate Trucks (each)	769	26	26	26	748	24	24	24	1014	26	26	26	1003	24	24	24
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	691	16	16	16	679	15	15	15	970	17	17	17	957	14	14	14
Q-01a	Quarry - Moving Aggregate Trucks (each)	965	28	28	28	948	27	27	27	1066	31	31	31	1051	29	29	29
Q-01b	Quarry - Moving Aggregate Trucks (each)	636	29	29	29	618	28	28	28	1047	27	27	27	1036	23	23	23
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	862	25	25	25	843	24	24	24	1287	20	20	20	1275	19	19	19
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	937	24	24	24	917	23	23	23	1339	19	19	19	1326	17	17	17
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	865	33	--	--	845	32	--	--	1323	28	--	--	1311	27	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	868	36	--	--	848	34	--	--	1326	32	--	--	1313	31	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	846	40	--	--	827	40	--	--	1329	38	--	--	1317	37	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	856	40	--	--	836	39	--	--	1342	38	--	--	1330	37	--	--
Q-07a	Quarry - Generator Intake	872	24	--	--	852	23	--	--	1343	21	--	--	1331	17	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	873	26	--	--	854	24	--	--	1345	19	--	--	1333	19	--	--
Q-08	Drill (ESDM QD/QD-DC)	1179	24	--	--	1161	24	--	--	1387	25	--	--	1372	22	--	--

Source ID	Source Name	Point of Reception															
		R03a LEQ [dBA]				R03b LEQ [dBA]				R04a LEQ [dBA]				R04b LEQ [dBA]			
		Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night
HMA-01	HMA - Burner Fan Casing	971	26	26	26	955	24	24	24	952	20	20	20	939	18	18	18
HMA-02	HMA - Burner Motor	971	20	20	20	954	16	16	16	952	15	15	15	939	14	14	14
HMA-03	HMA - Burner Blower Inlet	972	30	30	30	955	28	28	28	952	24	24	24	939	22	22	22
HMA-04	HMA - Dryer	968	35	35	35	951	33	33	33	946	30	30	30	933	29	29	29
HMA-05	HMA - Baghouse Fan/Motor	980	14	14	14	964	13	13	13	953	21	21	21	940	17	17	17
HMA-06	HMA - Baghouse Stack Outlet	980	34	34	34	964	33	33	33	953	34	34	34	940	33	33	33
HMA-07	HMA - Bucket Elevator	975	22	22	22	959	19	19	19	956	17	17	17	943	16	16	16
HMA-08	HMA - Head of Bucket Elevator	976	27	27	27	960	24	24	24	958	23	23	23	945	22	22	22
HMA-09	HMA - Drop at Mixing Tower	977	27	27	27	960	26	26	26	959	23	23	23	946	22	22	22
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	977	34	34	34	961	33	33	33	961	30	30	30	948	29	29	29
HMA-11	HMA - Pneumatic Loading Gates	977	6	6	6	960	5	5	5	960	11	11	11	947	5	5	5
HMA-12	HMA - Idling Trucks	975	21	21	21	958	20	20	20	960	16	16	16	946	16	16	16
HMA-13	HMA - Horn	976	13	13	13	960	12	12	12	962	9	9	9	949	5	5	5
HMA-14	HMA - Front-End Loader	1004	27	27	27	987	26	26	26	991	23	23	23	978	22	22	22
HMA-15	HMA - Moving HMA Trucks (each)	637	33	33	33	677	33	33	33	613	43	43	43	601	43	43	43
HMA-16	HMA - Moving Aggregate Trucks (each)	629	32	32	32	666	31	31	31	553	42	42	42	555	42	42	42
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	659	22	22	22	710	22	22	22	588	32	32	32	605	32	32	32
Q-01a	Quarry - Moving Aggregate Trucks (each)	512	37	37	37	509	36	36	36	368	47	47	47	356	47	47	47
Q-01b	Quarry - Moving Aggregate Trucks (each)	838	27	27	27	823	26	26	26	712	28	28	28	700	28	28	28
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	857	24	24	24	844	22	22	22	544	30	30	30	536	28	28	28
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	841	25	25	25	836	24	24	24	490	27	27	27	483	23	23	23
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	898	33	--	--	886	32	--	--	569	37	--	--	561	36	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	899	37	--	--	887	35	--	--	569	41	--	--	562	39	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	923	39	--	--	910	39	--	--	597	45	--	--	589	44	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	930	39	--	--	918	39	--	--	596	40	--	--	589	37	--	--
Q-07a	Quarry - Generator Intake	916	24	--	--	904	23	--	--	576	31	--	--	570	29	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	917	32	--	--	905	29	--	--	576	39	--	--	570	37	--	--
Q-08	Drill (ESDM QD/QD-DC)	676	24	--	--	669	31	--	--	209	49	--	--	204	45	--	--

Source ID	Source Name	Point of Reception															
		R05a LEQ [dBA]				R05b LEQ [dBA]				R06a LEQ [dBA]				R06b LEQ [dBA]			
		Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night
HMA-01	HMA - Burner Fan Casing	1043	11	11	11	1071	8	8	8	1034	13	13	13	1077	8	8	8
HMA-02	HMA - Burner Motor	1044	14	14	14	1072	6	6	6	1035	5	5	5	1078	--	--	--
HMA-03	HMA - Burner Blower Inlet	1044	18	18	18	1072	15	15	15	1035	20	20	20	1077	15	15	15
HMA-04	HMA - Dryer	1037	29	29	29	1065	18	18	18	1028	29	29	29	1071	17	17	17
HMA-05	HMA - Baghouse Fan/Motor	1044	6	6	6	1072	4	4	4	1034	11	11	11	1077	5	5	5
HMA-06	HMA - Baghouse Stack Outlet	1044	33	33	33	1072	27	27	27	1034	33	33	33	1077	26	26	26
HMA-07	HMA - Bucket Elevator	1047	15	15	15	1076	11	11	11	1038	16	16	16	1081	11	11	11
HMA-08	HMA - Head of Bucket Elevator	1050	21	21	21	1078	16	16	16	1041	24	24	24	1084	16	16	16
HMA-09	HMA - Drop at Mixing Tower	1051	22	22	22	1079	16	16	16	1041	25	25	25	1085	16	16	16
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	1053	28	28	28	1081	21	21	21	1044	33	33	33	1087	20	20	20
HMA-11	HMA - Pneumatic Loading Gates	1052	--	--	--	1080	--	--	--	1042	--	--	--	1085	--	--	--
HMA-12	HMA - Idling Trucks	1051	15	15	15	1080	4	4	4	1042	15	15	15	1085	4	4	4
HMA-13	HMA - Horn	1054	2	2	2	1082	2	2	2	1044	8	8	8	1087	2	2	2
HMA-14	HMA - Front-End Loader	1081	23	23	23	1109	12	12	12	1069	23	23	23	1112	12	12	12
HMA-15	HMA - Moving HMA Trucks (each)	720	39	39	39	744	34	34	34	705	39	39	39	744	22	22	22
HMA-16	HMA - Moving Aggregate Trucks (each)	665	38	38	38	677	32	32	32	651	38	38	38	679	21	21	21
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	723	28	28	28	744	23	23	23	722	28	28	28	749	11	11	11
Q-01a	Quarry - Moving Aggregate Trucks (each)	493	43	43	43	497	37	37	37	484	43	43	43	493	26	26	26
Q-01b	Quarry - Moving Aggregate Trucks (each)	798	27	27	27	822	24	24	24	770	28	28	28	802	15	15	15
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	607	29	29	29	635	26	26	26	586	29	29	29	622	15	15	15
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	545	26	26	26	572	22	22	22	522	27	27	27	556	14	14	14
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	626	37	--	--	653	35	--	--	602	37	--	--	644	25	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	626	40	--	--	653	38	--	--	602	40	--	--	644	28	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	654	44	--	--	681	42	--	--	630	44	--	--	671	29	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	651	41	--	--	677	39	--	--	626	42	--	--	668	27	--	--
Q-07a	Quarry - Generator Intake	631	30	--	--	657	28	--	--	606	30	--	--	648	19	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	630	38	--	--	657	36	--	--	606	38	--	--	647	28	--	--
Q-08	Drill (ESDM QD/QD-DC)	263	46	--	--	291	41	--	--	243	47	--	--	286	26	--	--

Source ID	Source Name	Point of Reception															
		R07a LEQ [dBA]				R07b LEQ [dBA]				R08a LEQ [dBA]				R08b LEQ [dBA]			
		Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night
HMA-01	HMA - Burner Fan Casing	1020	12	12	12	1063	9	9	9	1049	17	17	17	1034	12	12	12
HMA-02	HMA - Burner Motor	1021	3	3	3	1064	0	0	0	1050	9	9	9	1035	3	3	3
HMA-03	HMA - Burner Blower Inlet	1021	19	19	19	1064	16	16	16	1049	24	24	24	1035	19	19	19
HMA-04	HMA - Dryer	1014	28	28	28	1057	24	24	24	1042	29	29	29	1028	28	28	28
HMA-05	HMA - Baghouse Fan/Motor	1020	6	6	6	1063	5	5	5	1046	12	12	12	1032	12	12	12
HMA-06	HMA - Baghouse Stack Outlet	1020	32	32	32	1063	30	30	30	1047	33	33	33	1033	32	32	32
HMA-07	HMA - Bucket Elevator	1025	15	15	15	1068	14	14	14	1053	16	16	16	1038	15	15	15
HMA-08	HMA - Head of Bucket Elevator	1027	21	21	21	1070	20	20	20	1055	24	24	24	1041	21	21	21
HMA-09	HMA - Drop at Mixing Tower	1028	22	22	22	1071	20	20	20	1056	25	25	25	1042	22	22	22
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	1031	28	28	28	1073	25	25	25	1059	33	33	33	1044	29	29	29
HMA-11	HMA - Pneumatic Loading Gates	1029	--	--	--	1072	--	--	--	1057	--	--	--	1042	--	--	--
HMA-12	HMA - Idling Trucks	1029	15	15	15	1072	11	11	11	1058	15	15	15	1043	15	15	15
HMA-13	HMA - Horn	1031	8	8	8	1074	2	2	2	1060	8	8	8	1045	7	7	7
HMA-14	HMA - Front-End Loader	1053	22	22	22	1097	15	15	15	1074	23	23	23	1060	21	21	21
HMA-15	HMA - Moving HMA Trucks (each)	720	37	37	37	752	25	25	25	761	37	37	37	745	37	37	37
HMA-16	HMA - Moving Aggregate Trucks (each)	666	36	36	36	698	24	24	24	709	36	36	36	692	36	36	36
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	745	27	27	27	758	14	14	14	792	26	26	26	775	26	26	26
Q-01a	Quarry - Moving Aggregate Trucks (each)	504	42	42	42	533	28	28	28	569	41	41	41	550	41	41	41
Q-01b	Quarry - Moving Aggregate Trucks (each)	754	27	27	27	792	24	24	24	761	28	28	28	722	27	27	27
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	562	28	28	28	598	27	27	27	558	29	29	29	547	29	29	29
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	496	26	26	26	538	25	25	25	486	28	28	28	476	27	27	27
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	576	36	--	--	619	35	--	--	564	37	--	--	555	36	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	576	38	--	--	618	38	--	--	563	40	--	--	554	39	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	603	44	--	--	645	43	--	--	585	44	--	--	577	43	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	599	41	--	--	641	40	--	--	582	44	--	--	574	44	--	--
Q-07a	Quarry - Generator Intake	580	30	--	--	621	29	--	--	563	31	--	--	555	30	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	579	38	--	--	621	37	--	--	562	39	--	--	554	38	--	--
Q-08	Drill (ESDM QD/QD-DC)	223	48	--	--	266	37	--	--	254	40	--	--	236	47	--	--

Source ID	Source Name	Point of Reception															
		R09a LEQ [dBA]				R09b LEQ [dBA]				R10a LEQ [dBA]				R10b LEQ [dBA]			
		Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night
HMA-01	HMA - Burner Fan Casing	1111	16	16	16	1097	10	10	10	1100	16	16	16	1088	10	10	10
HMA-02	HMA - Burner Motor	1112	8	8	8	1098	2	2	2	1102	8	8	8	1089	2	2	2
HMA-03	HMA - Burner Blower Inlet	1112	26	26	26	1097	20	20	20	1101	26	26	26	1088	19	19	19
HMA-04	HMA - Dryer	1105	28	28	28	1090	27	27	27	1094	28	28	28	1081	27	27	27
HMA-05	HMA - Baghouse Fan/Motor	1104	24	24	24	1090	22	22	22	1093	24	24	24	1080	20	20	20
HMA-06	HMA - Baghouse Stack Outlet	1105	32	32	32	1090	31	31	31	1093	32	32	32	1081	31	31	31
HMA-07	HMA - Bucket Elevator	1115	16	16	16	1100	15	15	15	1104	16	16	16	1091	15	15	15
HMA-08	HMA - Head of Bucket Elevator	1117	22	22	22	1103	20	20	20	1106	22	22	22	1094	21	21	21
HMA-09	HMA - Drop at Mixing Tower	1118	22	22	22	1104	21	21	21	1107	22	22	22	1094	21	21	21
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	1121	29	29	29	1107	27	27	27	1110	29	29	29	1098	27	27	27
HMA-11	HMA - Pneumatic Loading Gates	1119	--	--	--	1105	--	--	--	1108	--	--	--	1096	--	--	--
HMA-12	HMA - Idling Trucks	1121	13	13	13	1106	6	6	6	1110	13	13	13	1097	5	5	5
HMA-13	HMA - Horn	1123	7	7	7	1108	1	1	1	1112	7	7	7	1099	2	2	2
HMA-14	HMA - Front-End Loader	1100	22	22	22	1085	20	20	20	1076	22	22	22	1063	20	20	20
HMA-15	HMA - Moving HMA Trucks (each)	893	29	29	29	865	25	25	25	854	25	25	25	825	23	23	23
HMA-16	HMA - Moving Aggregate Trucks (each)	846	27	27	27	828	24	24	24	823	24	24	24	792	22	22	22
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	912	18	18	18	866	14	14	14	851	14	14	14	819	12	12	12
Q-01a	Quarry - Moving Aggregate Trucks (each)	780	32	32	32	771	29	29	29	772	29	29	29	760	27	27	27
Q-01b	Quarry - Moving Aggregate Trucks (each)	864	27	27	27	867	26	26	26	847	27	27	27	850	26	26	26
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	591	28	28	28	557	28	28	28	567	29	29	29	552	27	27	27
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	522	28	28	28	508	27	27	27	526	27	27	27	507	24	24	24
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	570	37	--	--	556	36	--	--	557	37	--	--	551	36	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	566	40	--	--	552	39	--	--	556	40	--	--	550	38	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	580	45	--	--	565	44	--	--	569	45	--	--	556	44	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	568	44	--	--	553	44	--	--	556	44	--	--	544	44	--	--
Q-07a	Quarry - Generator Intake	557	31	--	--	542	30	--	--	547	31	--	--	535	30	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	555	39	--	--	540	38	--	--	545	39	--	--	533	38	--	--
Q-08	Drill (ESDM QD/QD-DC)	482	39	--	--	482	34	--	--	529	33	--	--	530	33	--	--

Source ID	Source Name	Point of Reception															
		R11a LEQ [dBA]				R11b LEQ [dBA]				VL1 LEQ [dBA]				VL2 LEQ [dBA]			
		Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night
HMA-01	HMA - Burner Fan Casing	1247	12	12	12	1234	9	9	9	1064	12	12	12	1096	16	16	16
HMA-02	HMA - Burner Motor	1249	4	4	4	1235	1	1	1	1065	4	4	4	1097	8	8	8
HMA-03	HMA - Burner Blower Inlet	1247	22	22	22	1234	19	19	19	1064	19	19	19	1096	26	26	26
HMA-04	HMA - Dryer	1241	27	27	27	1228	24	24	24	1057	29	29	29	1089	28	28	28
HMA-05	HMA - Baghouse Fan/Motor	1237	23	23	23	1223	21	21	21	1063	24	24	24	1090	24	24	24
HMA-06	HMA - Baghouse Stack Outlet	1238	31	31	31	1224	30	30	30	1063	33	33	33	1090	32	32	32
HMA-07	HMA - Bucket Elevator	1251	13	13	13	1237	12	12	12	1068	16	16	16	1099	16	16	16
HMA-08	HMA - Head of Bucket Elevator	1252	21	21	21	1239	19	19	19	1071	24	24	24	1102	22	22	22
HMA-09	HMA - Drop at Mixing Tower	1253	21	21	21	1239	20	20	20	1071	25	25	25	1103	23	23	23
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	1256	28	28	28	1243	26	26	26	1074	32	32	32	1106	30	30	30
HMA-11	HMA - Pneumatic Loading Gates	1254	--	--	--	1241	--	--	--	1072	--	--	--	1104	--	--	--
HMA-12	HMA - Idling Trucks	1256	3	3	3	1243	--	--	--	1072	15	15	15	1105	13	13	13
HMA-13	HMA - Horn	1258	5	5	5	1245	0	0	0	1075	7	7	7	1107	7	7	7
HMA-14	HMA - Front-End Loader	1215	21	21	21	1201	19	19	19	1092	22	22	22	1086	22	22	22
HMA-15	HMA - Moving HMA Trucks (each)	1008	22	22	22	985	20	20	20	780	38	38	38	875	30	30	30
HMA-16	HMA - Moving Aggregate Trucks (each)	996	21	21	21	962	19	19	19	720	37	37	37	820	29	29	29
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	1004	11	11	11	975	10	10	10	809	27	27	27	889	19	19	19
Q-01a	Quarry - Moving Aggregate Trucks (each)	982	25	25	25	958	24	24	24	559	42	42	42	740	34	34	34
Q-01b	Quarry - Moving Aggregate Trucks (each)	1047	25	25	25	1024	24	24	24	768	27	27	27	809	27	27	27
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	754	25	25	25	744	24	24	24	591	29	29	29	573	29	29	29
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	739	25	25	25	728	24	24	24	522	27	27	27	502	28	28	28
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	749	34	--	--	737	33	--	--	602	37	--	--	556	37	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	747	37	--	--	735	36	--	--	601	40	--	--	553	40	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	744	42	--	--	732	41	--	--	625	43	--	--	562	45	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	731	42	--	--	719	41	--	--	622	43	--	--	557	44	--	--
Q-07a	Quarry - Generator Intake	729	28	--	--	717	27	--	--	603	30	--	--	544	31	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	727	36	--	--	715	35	--	--	602	38	--	--	543	39	--	--
Q-08	Drill (ESDM QD/QD-DC)	813	28	--	--	806	28	--	--	263	46	--	--	434	41	--	--

Note: Reported sound levels include all adjustment factors (time weighting, tonal penalty), as applicable.

Table A3: Acoustic Assessment Summary Table - Existing Worst-Case Operation

Point of Reception	Point of Reception Description	Sound Level at Point of Reception, LEQ [dBA]			Performance Limit, LEQ [dBA]			Compliance with Performance Limit	Acoustical Classification Area	Verified by Acoustic Audit
		Day	Eve	Night	Day	Eve	Night			
R01a	Residential Home - 4.5 m AG	49	47	47	50	50	45	Yes/Yes/No	Class 2	No
R01b	Outdoor Amenity Area - 1.5 m AG	48	45	45	50	45	45	Yes/Yes/Yes	Class 2	No
R02a	Residential Home - 4.5 m AG	44	40	40	50	50	45	Yes/Yes/Yes	Class 2	No
R02b	Outdoor Amenity Area - 1.5 m AG	43	39	39	50	45	45	Yes/Yes/Yes	Class 2	No
R03a	Residential Home - 4.5 m AG	47	43	43	50	50	45	Yes/Yes/Yes	Class 2	No
R03b	Outdoor Amenity Area - 1.5 m AG	46	42	42	50	45	45	Yes/Yes/Yes	Class 2	No
R04a	Residential Home - 4.5 m AG	54	50	50	50	50	45	No/Yes/No	Class 2	No
R04b	Outdoor Amenity Area - 1.5 m AG	52	50	50	50	45	45	No/No/No	Class 2	No
R05a	Residential Home - 4.5 m AG	51	46	46	50	50	45	No/Yes/No	Class 2	No
R05b	Outdoor Amenity Area - 1.5 m AG	48	40	40	50	45	45	Yes/Yes/Yes	Class 2	No
R06a	Residential Home - 4.5 m AG	52	46	46	50	50	45	No/Yes/No	Class 2	No
R06b	Outdoor Amenity Area - 1.5 m AG	37	32	32	50	45	45	Yes/Yes/Yes	Class 2	No
R07a	Residential Home - 1.5 m AG	52	45	45	50	50	45	No/Yes/Yes	Class 2	No
R07b	Outdoor Amenity Area - 1.5 m AG	47	36	36	50	45	45	Yes/Yes/Yes	Class 2	No
R08a	Residential Home - 4.5 m AG	51	45	45	50	50	45	No/Yes/Yes	Class 2	No
R08b	Outdoor Amenity Area - 1.5 m AG	52	44	44	50	45	45	No/Yes/Yes	Class 2	No
R09a	Residential Home - 4.5 m AG	50	40	40	50	50	45	Yes/Yes/Yes	Class 2	No
R09b	Outdoor Amenity Area - 1.5 m AG	49	38	38	50	45	45	Yes/Yes/Yes	Class 2	No
R10a	Residential Home - 4.5 m AG	50	39	39	50	50	45	Yes/Yes/Yes	Class 2	No
R10b	Outdoor Amenity Area - 1.5 m AG	49	37	37	50	45	45	Yes/Yes/Yes	Class 2	No
R11a	Residential Home - 4.5 m AG	47	37	37	50	50	45	Yes/Yes/Yes	Class 2	No
R11b	Outdoor Amenity Area - 1.5 m AG	46	35	35	50	45	45	Yes/Yes/Yes	Class 2	No
VL1	Vacant Lot - 4.5 m AG	52	45	45	50	50	45	No/Yes/Yes	Class 2	No
VL2	Vacant Lot - 4.5 m AG	50	40	40	50	50	45	Yes/Yes/Yes	Class 2	No

APPENDIX B

Acoustic Assessment Summary Tables – Future Worst-Case Operation

ACOUSTIC ASSESSMENT SUMMARY TABLES

VERSION CONTROL – FUTURE WORST-CASE OPERATION

Halton Asphalt Supply, Nelson Aggregate Quarry, Burlington, Ontario

Ver.	Date	Issued as Part of AAR?	Version Description	Prepared By
1.0	7-Feb-20	Y	Original version of tables as part of Ver. 1 of Acoustic Assessment Report	P. Chocensky
2.0	27-Apr-21	Y	Updated version of tables as part of Ver. 2 of Acoustic Assessment Report	P. Chocensky

Table B1: Noise Source Summary Table - Future Worst-Case Operation

Source ID	Source Description	Sound Power Level [dBA re 10^-12 W]	Source Location	Sound Characteristic	Noise Control Measure
HMA-01	HMA - Burner Fan Casing	103	O	S	B
HMA-02	HMA - Burner Motor	92	O	S	B
HMA-03	HMA - Burner Blower Inlet	98	O	S	B, S
HMA-04	HMA - Dryer	110	O	S	B
HMA-05	HMA - Baghouse Fan/Motor	103	O	S	B
HMA-06	HMA - Baghouse Stack Outlet	96	O	S	B, S
HMA-07	HMA - Bucket Elevator	93	O	S	B
HMA-08	HMA - Head of Bucket Elevator	99	O	S	B
HMA-09	HMA - Drop at Mixing Tower	101	O	S	B
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	107	O	S	B
HMA-11	HMA - Pneumatic Loading Gates	112*	O	S	B
HMA-12	HMA - Idling Trucks	95	O	S	B
HMA-13	HMA - Horn	128*	O	S	B
HMA-14	HMA - Front-End Loader	102	O	S	B
HMA-15	HMA - Moving HMA Trucks (each)	101*	O	S	B
HMA-16	HMA - Moving Aggregate Trucks (each)	102*	O	S	B
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	101*	O	S	B
Q-01a	Quarry - Moving Aggregate Trucks (each)	101*	O	S	B
Q-01b	Quarry - Moving Aggregate Trucks (each)	101*	O	S	B
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	101	O	S	B
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	101	O	S	B
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	109	O	S	B
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	110	O	S	B
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	123	O	S	B
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	117	O	S	B
Q-07a	Quarry - Generator Intake	103	O	S	B
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	108	O	S	S
Q-08	Drill (ESDM QD/QD-DC)	110	O	S	O, B

Legend

Sound Characteristics
S: Steady
Q: Quasi-steady impulsive
I: Impulsive
B: Buzzing
T: Tonal (+5 dBA penalty applied)
C: Cyclically varying
O: Occasional

Noise Control Measures
S: Silencer, Acoustic Louvre, Muffler
A: Acoustic Lining, Plenum
B: Barrier, Berm, Screening
L: Lagging (Acoustical Wrapping)
E: Acoustic Enclosure
O: Other
U: Currently Uncontrolled

Source Location
O: Outdoors
I: Indoors

* Time weighted source. Reported sound power level does not include time weighted factor.

Table B2: Point of Reception Noise Impact Table - Future Worst-Case Operation

Source ID	Source Name	Point of Reception															
		R01a LEQ [dBA]				R01b LEQ [dBA]				R02a LEQ [dBA]				R02b LEQ [dBA]			
		Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night
HMA-01	HMA - Burner Fan Casing	409	33	33	33	394	30	30	30	903	26	26	26	895	24	24	24
HMA-02	HMA - Burner Motor	409	23	23	23	394	20	20	20	902	15	15	15	893	13	13	13
HMA-03	HMA - Burner Blower Inlet	408	24	24	24	393	23	23	23	903	13	13	13	895	12	12	12
HMA-04	HMA - Dryer	415	38	38	38	400	31	31	31	907	30	30	30	900	29	29	29
HMA-05	HMA - Baghouse Fan/Motor	404	29	29	29	388	26	26	26	918	12	12	12	909	11	11	11
HMA-06	HMA - Baghouse Stack Outlet	403	26	26	26	388	26	26	26	917	19	19	19	908	19	19	19
HMA-07	HMA - Bucket Elevator	404	24	24	24	388	24	24	24	902	17	17	17	894	16	16	16
HMA-08	HMA - Head of Bucket Elevator	402	31	31	31	387	31	31	31	901	26	26	26	893	24	24	24
HMA-09	HMA - Drop at Mixing Tower	402	31	31	31	386	31	31	31	901	27	27	27	893	25	25	25
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	400	38	38	38	385	38	38	38	898	34	34	34	890	33	33	33
HMA-11	HMA - Pneumatic Loading Gates	402	17	17	17	387	19	19	19	900	0	0	0	891	0	0	0
HMA-12	HMA - Idling Trucks	403	24	24	24	388	20	20	20	897	17	17	17	889	15	15	15
HMA-13	HMA - Horn	401	27	27	27	386	22	22	22	896	10	10	10	888	9	9	9
HMA-14	HMA - Front-End Loader	401	29	29	29	385	27	27	27	892	23	23	23	885	22	22	22
HMA-15	HMA - Moving HMA Trucks (each)	846	27	27	27	830	25	25	25	1025	27	27	27	1017	25	25	25
HMA-16	HMA - Moving Aggregate Trucks (each)	795	26	26	26	773	24	24	24	1029	26	26	26	1022	24	24	24
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	726	16	16	16	714	15	15	15	993	16	16	16	979	14	14	14
Q-01a	Quarry - Moving Aggregate Trucks (each)	976	28	28	28	959	27	27	27	1080	31	31	31	1065	28	28	28
Q-01b	Quarry - Moving Aggregate Trucks (each)	636	29	29	29	618	28	28	28	1047	27	27	27	1036	23	23	23
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	862	25	25	25	843	24	24	24	1287	20	20	20	1275	19	19	19
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	937	24	24	24	917	23	23	23	1339	19	19	19	1326	17	17	17
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	865	33	--	--	845	32	--	--	1323	28	--	--	1311	27	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	868	36	--	--	848	34	--	--	1326	32	--	--	1313	31	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	846	40	--	--	827	40	--	--	1329	38	--	--	1317	37	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	856	40	--	--	836	39	--	--	1342	38	--	--	1330	37	--	--
Q-07a	Quarry - Generator Intake	872	24	--	--	852	23	--	--	1343	21	--	--	1331	17	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	873	26	--	--	854	24	--	--	1345	19	--	--	1333	19	--	--
Q-08	Drill (ESDM QD/QD-DC)	1292	23	--	--	1274	22	--	--	1484	21	--	--	1469	21	--	--

Source ID	Source Name	Point of Reception															
		R03a LEQ [dBA]				R03b LEQ [dBA]				R04a LEQ [dBA]				R04b LEQ [dBA]			
		Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night
HMA-01	HMA - Burner Fan Casing	971	26	26	26	955	24	24	24	952	13	13	13	939	12	12	12
HMA-02	HMA - Burner Motor	971	20	20	20	954	16	16	16	952	15	15	15	939	14	14	14
HMA-03	HMA - Burner Blower Inlet	972	16	16	16	955	15	15	15	952	7	7	7	939	7	7	7
HMA-04	HMA - Dryer	968	35	35	35	951	33	33	33	946	30	30	30	933	29	29	29
HMA-05	HMA - Baghouse Fan/Motor	980	14	14	14	964	13	13	13	953	8	8	8	940	6	6	6
HMA-06	HMA - Baghouse Stack Outlet	980	18	18	18	964	18	18	18	953	18	18	18	940	18	18	18
HMA-07	HMA - Bucket Elevator	975	22	22	22	959	19	19	19	956	16	16	16	943	16	16	16
HMA-08	HMA - Head of Bucket Elevator	976	27	27	27	960	24	24	24	958	23	23	23	945	22	22	22
HMA-09	HMA - Drop at Mixing Tower	977	27	27	27	960	26	26	26	959	23	23	23	946	22	22	22
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	977	34	34	34	961	33	33	33	961	30	30	30	948	29	29	29
HMA-11	HMA - Pneumatic Loading Gates	977	6	6	6	960	5	5	5	960	--	--	--	947	--	--	--
HMA-12	HMA - Idling Trucks	975	21	21	21	958	20	20	20	960	16	16	16	946	15	15	15
HMA-13	HMA - Horn	976	13	13	13	960	12	12	12	962	9	9	9	949	4	4	4
HMA-14	HMA - Front-End Loader	1004	27	27	27	987	26	26	26	987	23	23	23	978	21	21	21
HMA-15	HMA - Moving HMA Trucks (each)	616	33	33	33	648	32	32	32	581	37	37	37	576	37	37	37
HMA-16	HMA - Moving Aggregate Trucks (each)	614	32	32	32	642	31	31	31	510	36	36	36	523	36	36	36
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	635	22	22	22	665	21	21	21	549	27	27	27	573	26	26	26
Q-01a	Quarry - Moving Aggregate Trucks (each)	516	36	36	36	509	36	36	36	354	41	41	41	356	41	41	41
Q-01b	Quarry - Moving Aggregate Trucks (each)	838	27	27	27	823	26	26	26	701	28	28	28	700	26	26	26
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	857	24	24	24	844	22	22	22	538	30	30	30	536	29	29	29
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	841	25	25	25	836	24	24	24	490	27	27	27	483	25	25	25
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	898	33	--	--	886	32	--	--	569	37	--	--	561	34	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	899	37	--	--	887	35	--	--	569	40	--	--	562	37	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	923	39	--	--	910	39	--	--	597	44	--	--	590	41	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	930	39	--	--	918	39	--	--	596	36	--	--	589	33	--	--
Q-07a	Quarry - Generator Intake	916	24	--	--	904	23	--	--	576	29	--	--	570	24	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	917	32	--	--	905	29	--	--	576	39	--	--	570	36	--	--
Q-08	Drill (ESDM QD/QD-DC)	710	10	--	--	706	29	--	--	167	37	--	--	171	35	--	--

Source ID	Source Name	Point of Reception															
		R05a LEQ [dBA]				R05b LEQ [dBA]				R06a LEQ [dBA]				R06b LEQ [dBA]			
		Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night
HMA-01	HMA - Burner Fan Casing	1043	11	11	11	1071	8	8	8	1034	12	12	12	1077	8	8	8
HMA-02	HMA - Burner Motor	1044	14	14	14	1072	6	6	6	1035	3	3	3	1078	--	--	--
HMA-03	HMA - Burner Blower Inlet	1044	6	6	6	1072	4	4	4	1035	6	6	6	1077	3	3	3
HMA-04	HMA - Dryer	1037	29	29	29	1065	18	18	18	1028	29	29	29	1071	17	17	17
HMA-05	HMA - Baghouse Fan/Motor	1044	5	5	5	1072	4	4	4	1034	6	6	6	1077	5	5	5
HMA-06	HMA - Baghouse Stack Outlet	1044	18	18	18	1072	15	15	15	1034	18	18	18	1077	15	15	15
HMA-07	HMA - Bucket Elevator	1047	15	15	15	1076	11	11	11	1038	16	16	16	1081	11	11	11
HMA-08	HMA - Head of Bucket Elevator	1050	21	21	21	1078	16	16	16	1041	22	22	22	1084	16	16	16
HMA-09	HMA - Drop at Mixing Tower	1051	22	22	22	1079	16	16	16	1041	22	22	22	1085	16	16	16
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	1053	28	28	28	1081	21	21	21	1044	29	29	29	1087	20	20	20
HMA-11	HMA - Pneumatic Loading Gates	1052	--	--	--	1080	--	--	--	1042	--	--	--	1085	--	--	--
HMA-12	HMA - Idling Trucks	1051	15	15	15	1080	4	4	4	1042	15	15	15	1085	4	4	4
HMA-13	HMA - Horn	1054	2	2	2	1082	2	2	2	1044	3	3	3	1087	2	2	2
HMA-14	HMA - Front-End Loader	1081	22	22	22	1109	12	12	12	1069	22	22	22	1112	12	12	12
HMA-15	HMA - Moving HMA Trucks (each)	671	35	35	35	707	30	30	30	660	36	36	36	710	20	20	20
HMA-16	HMA - Moving Aggregate Trucks (each)	617	34	34	34	641	29	29	29	610	35	35	35	652	19	19	19
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	656	24	24	24	694	20	20	20	673	25	25	25	704	9	9	9
Q-01a	Quarry - Moving Aggregate Trucks (each)	458	39	39	39	467	34	34	34	450	40	40	40	468	24	24	24
Q-01b	Quarry - Moving Aggregate Trucks (each)	798	27	27	27	822	23	23	23	770	27	27	27	802	15	15	15
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	607	29	29	29	635	26	26	26	586	29	29	29	622	16	16	16
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	545	26	26	26	572	23	23	23	522	27	27	27	556	15	15	15
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	626	36	--	--	653	35	--	--	602	37	--	--	644	26	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	626	39	--	--	653	38	--	--	602	40	--	--	644	29	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	654	43	--	--	681	42	--	--	630	44	--	--	671	29	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	651	37	--	--	677	34	--	--	626	38	--	--	668	27	--	--
Q-07a	Quarry - Generator Intake	631	30	--	--	657	28	--	--	606	30	--	--	648	19	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	630	38	--	--	657	36	--	--	606	38	--	--	647	28	--	--
Q-08	Drill (ESDM QD/QD-DC)	174	42	--	--	198	28	--	--	145	44	--	--	185	29	--	--

Source ID	Source Name	Point of Reception															
		R07a LEQ [dBA]				R07b LEQ [dBA]				R08a LEQ [dBA]				R08b LEQ [dBA]			
		Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night
HMA-01	HMA - Burner Fan Casing	1020	11	11	11	1063	9	9	9	1049	12	12	12	1034	11	11	11
HMA-02	HMA - Burner Motor	1021	3	3	3	1064	0	0	0	1050	3	3	3	1035	2	2	2
HMA-03	HMA - Burner Blower Inlet	1021	6	6	6	1064	4	4	4	1049	6	6	6	1035	6	6	6
HMA-04	HMA - Dryer	1014	28	28	28	1057	24	24	24	1042	29	29	29	1028	28	28	28
HMA-05	HMA - Baghouse Fan/Motor	1020	6	6	6	1063	5	5	5	1046	6	6	6	1032	6	6	6
HMA-06	HMA - Baghouse Stack Outlet	1020	18	18	18	1063	17	17	17	1047	18	18	18	1033	18	18	18
HMA-07	HMA - Bucket Elevator	1025	15	15	15	1068	14	14	14	1053	16	16	16	1038	15	15	15
HMA-08	HMA - Head of Bucket Elevator	1027	21	21	21	1070	20	20	20	1055	22	22	22	1041	21	21	21
HMA-09	HMA - Drop at Mixing Tower	1028	22	22	22	1071	20	20	20	1056	22	22	22	1042	21	21	21
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	1031	28	28	28	1073	25	25	25	1059	29	29	29	1044	28	28	28
HMA-11	HMA - Pneumatic Loading Gates	1029	--	--	--	1072	--	--	--	1057	--	--	--	1042	--	--	--
HMA-12	HMA - Idling Trucks	1029	15	15	15	1072	11	11	11	1058	15	15	15	1043	15	15	15
HMA-13	HMA - Horn	1031	3	3	3	1074	2	2	2	1060	8	8	8	1045	2	2	2
HMA-14	HMA - Front-End Loader	1053	21	21	21	1097	15	15	15	1074	22	22	22	1060	20	20	20
HMA-15	HMA - Moving HMA Trucks (each)	688	37	37	37	733	24	24	24	738	37	37	37	721	37	37	37
HMA-16	HMA - Moving Aggregate Trucks (each)	637	35	35	35	669	23	23	23	685	35	35	35	668	35	35	35
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	699	26	26	26	723	12	12	12	750	26	26	26	743	26	26	26
Q-01a	Quarry - Moving Aggregate Trucks (each)	506	41	41	41	521	27	27	27	533	41	41	41	527	41	41	41
Q-01b	Quarry - Moving Aggregate Trucks (each)	754	27	27	27	792	23	23	23	761	28	28	28	722	27	27	27
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	562	28	28	28	598	27	27	27	558	29	29	29	547	28	28	28
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	492	26	26	26	538	26	26	26	486	28	28	28	476	26	26	26
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	576	36	--	--	619	35	--	--	564	37	--	--	555	36	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	576	39	--	--	618	38	--	--	563	40	--	--	554	39	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	603	43	--	--	645	42	--	--	585	42	--	--	577	41	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	599	35	--	--	641	35	--	--	582	44	--	--	574	43	--	--
Q-07a	Quarry - Generator Intake	580	29	--	--	621	29	--	--	563	31	--	--	555	29	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	579	38	--	--	621	37	--	--	562	39	--	--	554	38	--	--
Q-08	Drill (ESDM QD/QD-DC)	116	44	--	--	158	41	--	--	141	43	--	--	123	42	--	--

Source ID	Source Name	Point of Reception															
		R09a LEQ [dBA]				R09b LEQ [dBA]				R10a LEQ [dBA]				R10b LEQ [dBA]			
		Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night
HMA-01	HMA - Burner Fan Casing	1111	16	16	16	1097	10	10	10	1100	16	16	16	1088	10	10	10
HMA-02	HMA - Burner Motor	1112	8	8	8	1098	2	2	2	1102	8	8	8	1089	2	2	2
HMA-03	HMA - Burner Blower Inlet	1112	12	12	12	1097	7	7	7	1101	12	12	12	1088	7	7	7
HMA-04	HMA - Dryer	1105	28	28	28	1090	27	27	27	1094	28	28	28	1081	27	27	27
HMA-05	HMA - Baghouse Fan/Motor	1104	24	24	24	1090	22	22	22	1093	24	24	24	1080	20	20	20
HMA-06	HMA - Baghouse Stack Outlet	1105	17	17	17	1090	17	17	17	1093	17	17	17	1081	17	17	17
HMA-07	HMA - Bucket Elevator	1115	16	16	16	1100	15	15	15	1104	16	16	16	1091	15	15	15
HMA-08	HMA - Head of Bucket Elevator	1117	22	22	22	1103	20	20	20	1106	22	22	22	1094	21	21	21
HMA-09	HMA - Drop at Mixing Tower	1118	22	22	22	1104	21	21	21	1107	22	22	22	1094	21	21	21
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	1121	29	29	29	1107	27	27	27	1110	29	29	29	1098	27	27	27
HMA-11	HMA - Pneumatic Loading Gates	1119	--	--	--	1105	--	--	--	1108	--	--	--	1096	--	--	--
HMA-12	HMA - Idling Trucks	1121	13	13	13	1106	6	6	6	1110	13	13	13	1097	5	5	5
HMA-13	HMA - Horn	1123	7	7	7	1108	1	1	1	1112	7	7	7	1099	2	2	2
HMA-14	HMA - Front-End Loader	1100	22	22	22	1085	20	20	20	1076	22	22	22	1063	20	20	20
HMA-15	HMA - Moving HMA Trucks (each)	837	27	27	27	839	25	25	25	830	25	25	25	807	23	23	23
HMA-16	HMA - Moving Aggregate Trucks (each)	783	26	26	26	805	24	24	24	804	24	24	24	774	22	22	22
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	846	16	16	16	836	14	14	14	835	14	14	14	802	12	12	12
Q-01a	Quarry - Moving Aggregate Trucks (each)	745	31	31	31	756	29	29	29	758	29	29	29	747	26	26	26
Q-01b	Quarry - Moving Aggregate Trucks (each)	864	27	27	27	867	26	26	26	847	27	27	27	850	26	26	26
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	591	28	28	28	557	28	28	28	567	29	29	29	552	27	27	27
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	522	28	28	28	508	27	27	27	526	27	27	27	507	24	24	24
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	570	37	--	--	556	36	--	--	557	37	--	--	551	36	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	566	40	--	--	552	39	--	--	556	40	--	--	550	38	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	580	45	--	--	565	44	--	--	569	45	--	--	556	44	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	568	44	--	--	553	44	--	--	556	44	--	--	544	44	--	--
Q-07a	Quarry - Generator Intake	557	31	--	--	542	30	--	--	547	31	--	--	535	30	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	555	39	--	--	540	38	--	--	545	39	--	--	533	38	--	--
Q-08	Drill (ESDM QD/QD-DC)	432	36	--	--	438	35	--	--	493	34	--	--	499	33	--	--

Source ID	Source Name	Point of Reception															
		R11a LEQ [dBA]				R11b LEQ [dBA]				VL1 LEQ [dBA]				VL2 LEQ [dBA]			
		Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night	Dist [m]	Day	Eve	Night
HMA-01	HMA - Burner Fan Casing	1247	12	12	12	1234	9	9	9	1064	12	12	12	1096	16	16	16
HMA-02	HMA - Burner Motor	1249	4	4	4	1235	1	1	1	1065	3	3	3	1097	8	8	8
HMA-03	HMA - Burner Blower Inlet	1247	9	9	9	1234	6	6	6	1064	6	6	6	1096	12	12	12
HMA-04	HMA - Dryer	1241	27	27	27	1228	24	24	24	1057	29	29	29	1089	28	28	28
HMA-05	HMA - Baghouse Fan/Motor	1237	23	23	23	1223	21	21	21	1063	24	24	24	1090	24	24	24
HMA-06	HMA - Baghouse Stack Outlet	1238	16	16	16	1224	16	16	16	1063	18	18	18	1090	17	17	17
HMA-07	HMA - Bucket Elevator	1251	13	13	13	1237	12	12	12	1068	15	15	15	1099	16	16	16
HMA-08	HMA - Head of Bucket Elevator	1252	21	21	21	1239	19	19	19	1071	22	22	22	1102	22	22	22
HMA-09	HMA - Drop at Mixing Tower	1253	21	21	21	1239	20	20	20	1071	22	22	22	1103	23	23	23
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	1256	28	28	28	1243	26	26	26	1074	28	28	28	1106	30	30	30
HMA-11	HMA - Pneumatic Loading Gates	1254	--	--	--	1241	--	--	--	1072	--	--	--	1104	--	--	--
HMA-12	HMA - Idling Trucks	1256	3	3	3	1243	--	--	--	1072	15	15	15	1105	13	13	13
HMA-13	HMA - Horn	1258	5	5	5	1245	0	0	0	1075	7	7	7	1107	7	7	7
HMA-14	HMA - Front-End Loader	1215	21	21	21	1201	19	19	19	1092	22	22	22	1086	22	22	22
HMA-15	HMA - Moving HMA Trucks (each)	1001	21	21	21	975	20	20	20	757	36	36	36	811	28	28	28
HMA-16	HMA - Moving Aggregate Trucks (each)	988	20	20	20	955	19	19	19	689	35	35	35	767	27	27	27
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	997	10	10	10	968	10	10	10	778	25	25	25	823	17	17	17
Q-01a	Quarry - Moving Aggregate Trucks (each)	977	25	25	25	952	24	24	24	531	40	40	40	691	32	32	32
Q-01b	Quarry - Moving Aggregate Trucks (each)	1047	25	25	25	1024	24	24	24	768	27	27	27	809	27	27	27
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	754	25	25	25	744	24	24	24	591	29	29	29	573	29	29	29
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	739	25	25	25	728	24	24	24	522	27	27	27	502	28	28	28
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	749	34	--	--	737	33	--	--	602	37	--	--	556	37	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	747	37	--	--	735	36	--	--	601	40	--	--	553	40	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	744	42	--	--	732	41	--	--	625	43	--	--	562	45	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	731	42	--	--	719	41	--	--	622	43	--	--	557	44	--	--
Q-07a	Quarry - Generator Intake	729	28	--	--	717	27	--	--	603	30	--	--	544	31	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	727	36	--	--	715	35	--	--	602	38	--	--	543	39	--	--
Q-08	Drill (ESDM QD/QD-DC)	790	25	--	--	786	28	--	--	148	42	--	--	378	37	--	--

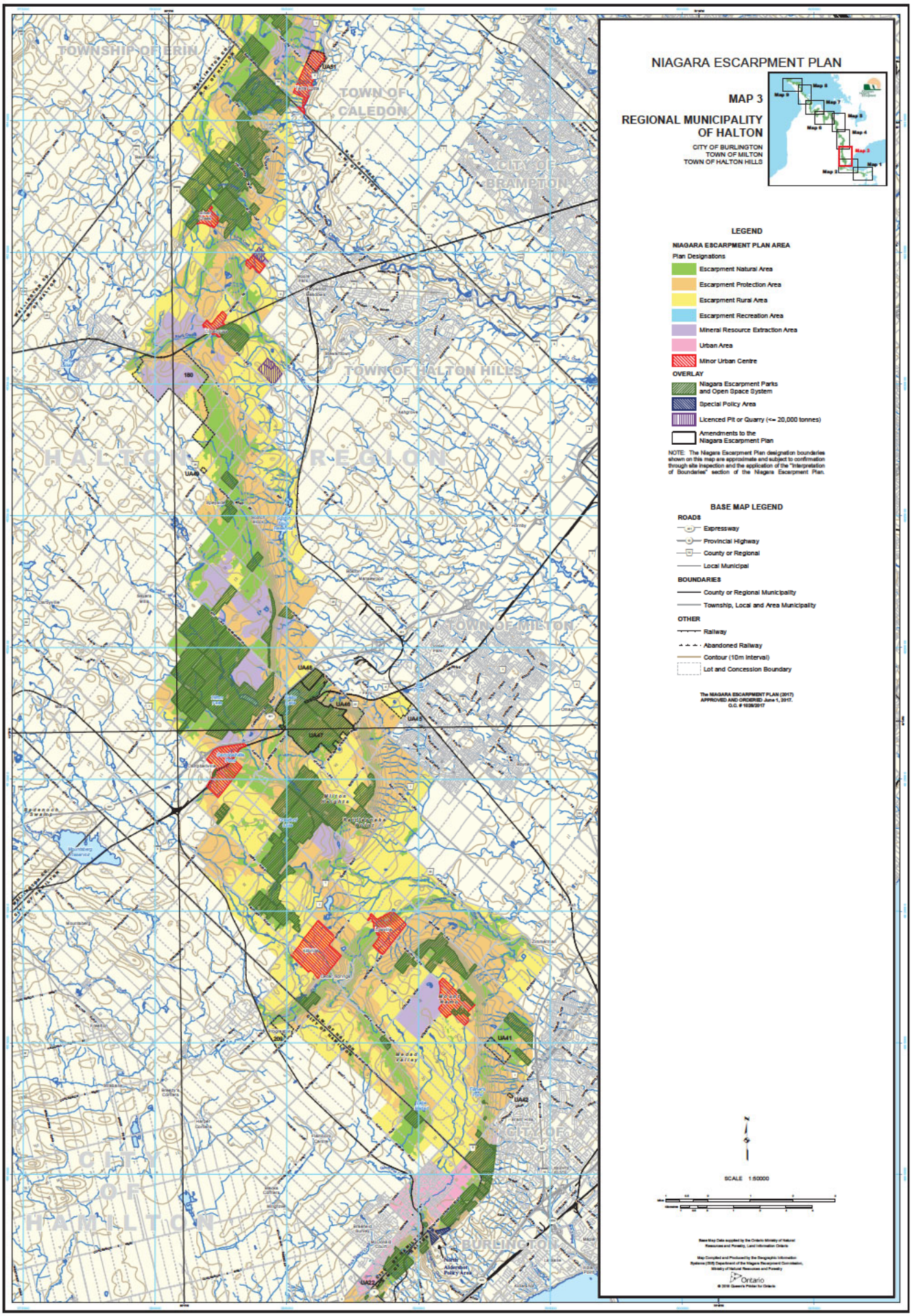
Note: Reported sound levels include all adjustment factors (time weighting, tonal penalty), as applicable.

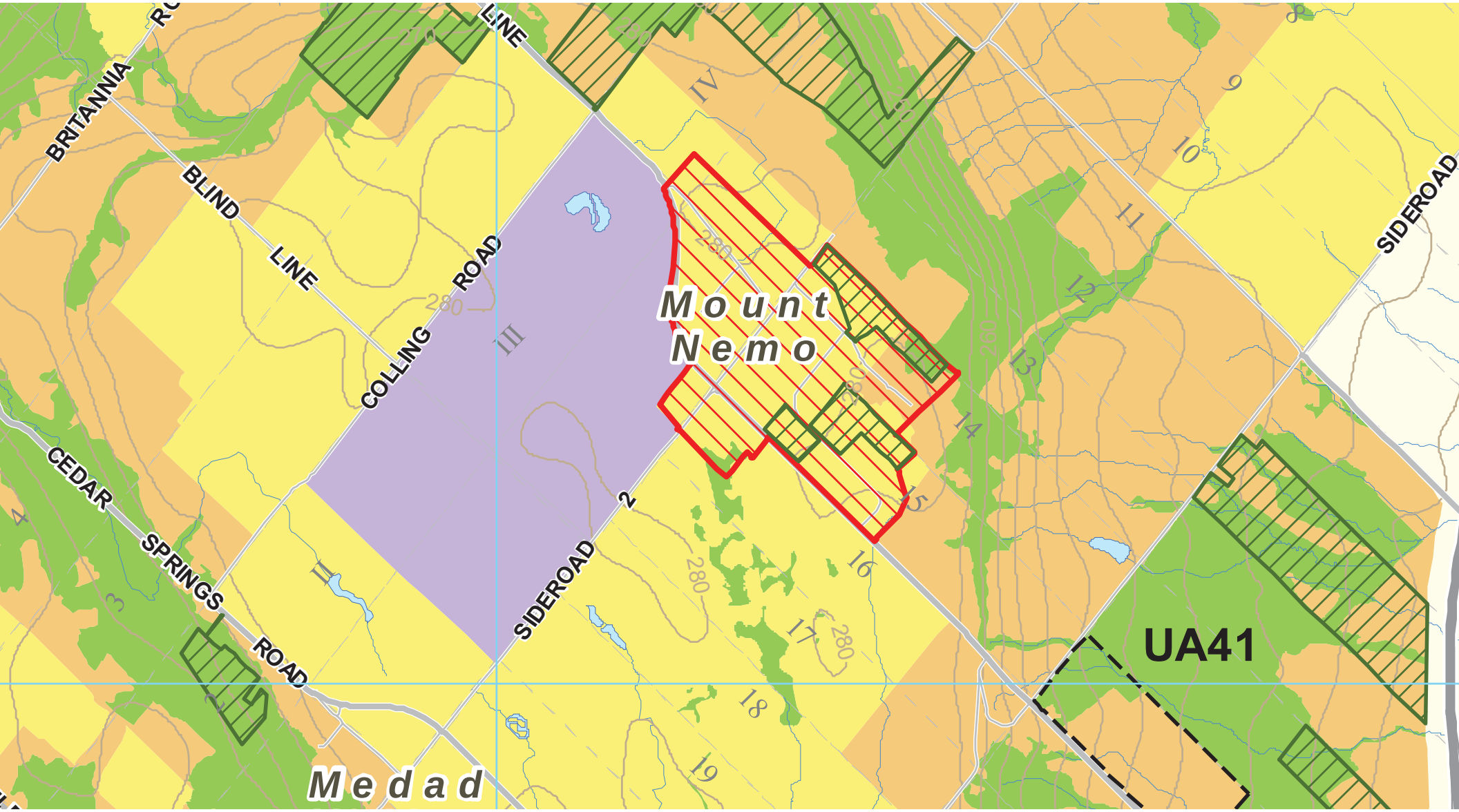
Table B3: Acoustic Assessment Summary Table - Future Worst-Case Operation

Point of Reception	Point of Reception Description	Sound Level at Point of Reception, LEQ [dBA]			Performance Limit, LEQ [dBA]			Compliance with Performance Limit	Acoustical Classification Area	Verified by Acoustic Audit
		Day	Eve	Night	Day	Eve	Night			
R01a	Residential Home - 4.5 m AG	47	44	44	50	50	45	Yes/Yes/Yes	Class 2	No
R01b	Outdoor Amenity Area - 1.5 m AG	46	42	42	50	45	45	Yes/Yes/Yes	Class 2	No
R02a	Residential Home - 4.5 m AG	44	39	39	50	50	45	Yes/Yes/Yes	Class 2	No
R02b	Outdoor Amenity Area - 1.5 m AG	42	37	37	50	45	45	Yes/Yes/Yes	Class 2	No
R03a	Residential Home - 4.5 m AG	46	42	42	55	50	45	Yes/Yes/Yes	Class 2	No
R03b	Outdoor Amenity Area - 1.5 m AG	46	42	42	50	45	45	Yes/Yes/Yes	Class 2	No
R04a	Residential Home - 4.5 m AG	50	45	45	50	50	45	Yes/Yes/Yes	Class 2	No
R04b	Outdoor Amenity Area - 1.5 m AG	47	44	44	50	45	45	Yes/Yes/Yes	Class 2	No
R05a	Residential Home - 4.5 m AG	49	42	42	50	50	45	Yes/Yes/Yes	Class 2	No
R05b	Outdoor Amenity Area - 1.5 m AG	46	38	38	50	45	45	Yes/Yes/Yes	Class 2	No
R06a	Residential Home - 4.5 m AG	50	44	44	50	50	45	Yes/Yes/Yes	Class 2	No
R06b	Outdoor Amenity Area - 1.5 m AG	37	29	29	50	45	45	Yes/Yes/Yes	Class 2	No
R07a	Residential Home - 1.5 m AG	50	44	44	50	50	45	Yes/Yes/Yes	Class 2	No
R07b	Outdoor Amenity Area - 1.5 m AG	47	35	35	50	45	45	Yes/Yes/Yes	Class 2	No
R08a	Residential Home - 4.5 m AG	50	44	44	50	50	45	Yes/Yes/Yes	Class 2	No
R08b	Outdoor Amenity Area - 1.5 m AG	50	44	44	50	45	45	Yes/Yes/Yes	Class 2	No
R09a	Residential Home - 4.5 m AG	50	38	38	50	50	45	Yes/Yes/Yes	Class 2	No
R09b	Outdoor Amenity Area - 1.5 m AG	49	36	36	50	45	45	Yes/Yes/Yes	Class 2	No
R10a	Residential Home - 4.5 m AG	50	37	37	50	50	45	Yes/Yes/Yes	Class 2	No
R10b	Outdoor Amenity Area - 1.5 m AG	49	35	35	50	45	45	Yes/Yes/Yes	Class 2	No
R11a	Residential Home - 4.5 m AG	46	35	35	50	50	45	Yes/Yes/Yes	Class 2	No
R11b	Outdoor Amenity Area - 1.5 m AG	46	34	34	50	45	45	Yes/Yes/Yes	Class 2	No
VL1	Vacant Lot - 4.5 m AG	50	44	44	50	50	45	Yes/Yes/Yes	Class 2	No
VL2	Vacant Lot - 4.5 m AG	50	39	39	50	50	45	Yes/Yes/Yes	Class 2	No

APPENDIX C

Zoning Maps


TOWNSHIP OF ERIN
TOWN OF CALEDON
CITY OF BRAMPTON
TOWN OF HALTON HILLS
HALTON REGION
TOWN OF MILTON
CITY OF HAMILTON
CITY OF BURLINGTON
UA37
UA46
UA45
UA47
UA41
UA42
UA22
180
200
Escarpment Protection Area
Escarpment Rural Area
Escarpment Natural Area
Escarpment Recreation Area
Mineral Resource Extraction Area
Urban Area
Minor Urban Centre
Niagara Escarpment Parks and Open Space System
Special Policy Area
Licenced Pit or Quarry (<= 20,000 tonnes)
Amendments to the Niagara Escarpment Plan
Escarpment Corridor Aldershot Policy Area
NIAGARA ESCARPMENT PLAN
MAP 3
REGIONAL MUNICIPALITY OF HALTON
CITY OF BURLINGTON
TOWN OF MILTON
TOWN OF HALTON HILLS
Map 8
Map 9
Map 7
Map 6
Map 5
Map 4
Map 3
Map 2
Map 1
LEGEND
NIAGARA ESCARPMENT PLAN AREA
Plan Designations
Escarpment Natural Area
Escarpment Protection Area
Escarpment Rural Area
Escarpment Recreation Area
Mineral Resource Extraction Area
Urban Area
Minor Urban Centre
OVERLAY
Niagara Escarpment Parks and Open Space System
Special Policy Area
Licenced Pit or Quarry (<= 20,000 tonnes)
Amendments to the Niagara Escarpment Plan
NOTE: The Niagara Escarpment Plan designation boundaries shown on this map are approximate and subject to confirmation through site inspection and the application of the "Interpretation of Boundaries" section of the Niagara Escarpment Plan.
BASE MAP LEGEND
ROADS
Expressway
Provincial Highway
County or Regional
Local Municipal
BOUNDARIES
County or Regional Municipality
Township, Local and Area Municipality
OTHER
Railway
Abandoned Railway
Contour (10m interval)
Lot and Concession Boundary
The NIAGARA ESCARPMENT PLAN (2017) APPROVED AND ORDERED June 1, 2017. O.C. # 1026/2017
SCALE 1:50000
Base Map Data supplied by the Ontario Ministry of Natural Resources and Forestry, Land Information Ontario
Map Compiled and Produced by the Geographic Information Systems (GIS) Department of the Niagara Escarpment Commission, Ministry of Natural Resources and Forestry
Ontario
© 2016 Queen's Printer for Ontario


BRITANNIA
BLIND LINE
LINE
COLLING ROAD
SIDEROAD 2
CEDAR SPRINGS ROAD
SIDEROAD
Mount Nemo
UA41
Medad

LEGEND

NIAGARA ESCARPMENT PLAN AREA

Plan Designations

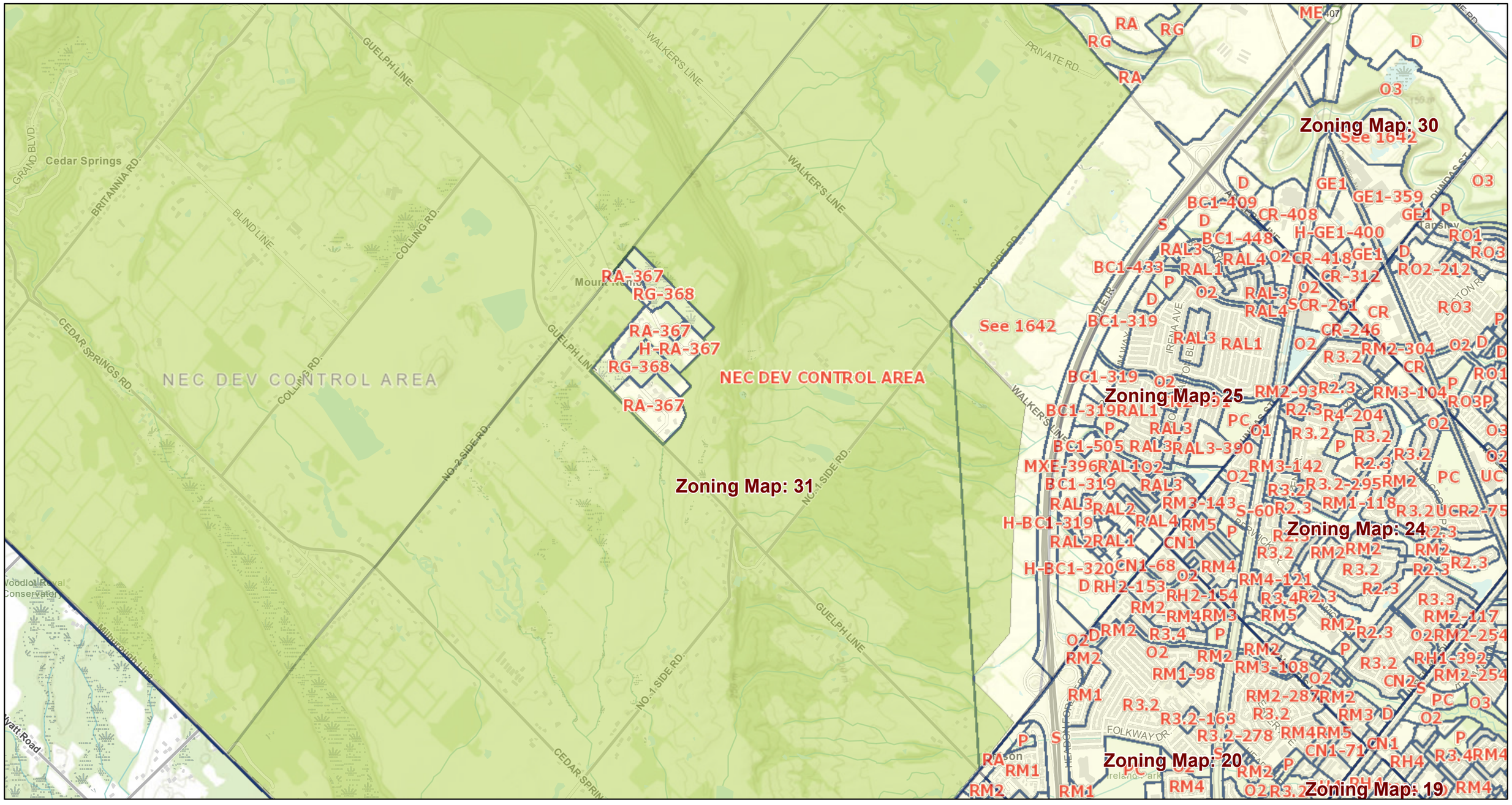
- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area
- Escarpment Recreation Area
- Mineral Resource Extraction Area
- Urban Area
- Minor Urban Centre

OVERLAY

- Niagara Escarpment Parks and Open Space System
- Special Policy Area
- Licenced Pit or Quarry (<= 20,000 tonnes)
- Amendments to the Niagara Escarpment Plan

NOTE: The Niagara Escarpment Plan designation boundaries shown on this map are approximate and subject to confirmation through site inspection and the application of the "Interpretation of Boundaries" section of the Niagara Escarpment Plan.

City of Burlington Mapping



2021-02-19, 1:36:33 p.m.

- Zoning Map Index
- Designated area for lot coverage
- Zoning Bylaw
- Shoreacres
- Roseland
- Indian Point

1:36,112

0 0.33 0.65 1.3 mi

0 0.5 1 2 km

APPENDIX D

Measurement Methods & Instrumentation

All instrumentation was within its laboratory calibration period. Field checks of correct calibration were made before and after the measurements. Weather conditions during the site visit were suitable for outdoor acoustical measurements.

Sound power levels of the equipment at the subject site were obtained using sound intensity measurement techniques. Methods from ISO 9614-2 “Acoustics - Determination of sound power levels of noise sources using sound intensity - Part 2: Measurement by scanning” [5] were employed in this regard. Sound intensity measurement instrumentation has a high inherent ability to reject extraneous sounds originating from outside the measurement control-volume, and can therefore separate the sound emitted by each component. The measurements were conducted in 1/3 octave bands using a Brüel & Kjær Hand-held Analyzer Type 2270, equipped with Sound Intensity software BZ-7233, a Brüel & Kjær model 3654 Sound Intensity Probe and a pair of phase-matched model 4197 microphones.

APPENDIX E

Details of Computational Acoustical Modelling

The computational model used for this Assessment (*Cadna-A version 2021 MR1*) is based on the methods from ISO Standard 9613-2.2 “Acoustics - Attenuation of Sound During Propagation Outdoors” [6], which accounts for reduction in sound level with distance due to geometrical spreading, air absorption, ground attenuation and acoustical shielding by intervening structures (or by topography and foliage where applicable). This modeling technique is acceptable to the MECP.

Topographical data for the site and the surrounding area (detailed data for the site provided by the proponent and Ontario Base Maps for the surrounding area) were incorporated into the computational model. The data included existing berms along the site perimeter. Ground attenuation was assumed to be spectral for all sources, with the ground factor (G) assumed to be 0.5 on gravel-covered area within the site, 0.25 in paved areas, 0.0 for bodies of water, and 1.0 in all other areas (representative of soft, grassy fields and lawns). The temperature and relative humidity were assumed to be 10° C and 70%, respectively.

The computational modelling considered one order of reflection, the sufficiency of which was verified through an iterative convergence analysis, using successively increasing orders of reflection. Shielding/reflections by structures was modelled with spectral absorptive characteristics applied to each structure as appropriate, with values representative of concrete, brick, or steel.

Sound sources were modeled as one or more of a point source, line source, area source or vertical area source (shown as green crosses, lines and polygons in Figures 3 through 5, depending on the physical nature and sound emission characteristics of the representative equipment. Time weighting factors were applied to the sound from on-site trucks, based on an on-site speed 20 km/h for road trucks, based on input from the proponent.

APPENDIX F

Acoustic Assessment Criteria

MECP Publication NPC-300 [3] draws a distinction between sound produced by traffic sources and that produced by industrial or commercial activities, which are classified as *stationary sources*. According to NPC-300, sound level limits for stationary sources apply at noise sensitive points of reception and are set as the greater of either the applicable exclusion limit, or the minimum background sound level that occurs during the time period corresponding to the operation of the source under assessment.

The exclusion limits applicable at windows of noise-sensitive locations in Class 2 areas are 50 dBA during daytime/evening hours (7:00 – 23:00) and 45 dBA during nighttime hours (23:00 – 7:00). The limits at outdoor amenity areas within 30 metres of residential dwellings are 50 dBA during daytime hours (7:00 – 19:00) and 45 dBA during evening hours (19:00 – 23:00). No limits apply at outdoor amenity areas during night-time hours.

The background sound levels can be determined through automated long-term measurement, or by predictive analysis based on road traffic volume counts, in cases where the background sound is dominated by road traffic.

Since the site operates continuously, automated measurements of background sound could not be conducted at the nearest receptors without the possibility of including some contribution from the site. Therefore, prediction methods for traffic noise were utilized in order to determine minimum hourly background sound levels. Hourly traffic data for No. 2 Side Road, Cedar Springs Road, and Colling Road were collected on behalf of HGC Engineering by Ontario Traffic Inc., between December 8 and 11, 2018. Hourly traffic data for Guelph Line were provided by the Halton Region. Predictions were made using STAMSON version 5.04, a computer algorithm developed by the MECP.

The traffic counts on 2 Side Road were collected at two locations, immediately north and south of the entrance to the Nelson Aggregate site. All truck traffic visiting the site uses the road section north of the entrance for access. While this road section is a public road, and noise generated on it is part of the existing background sound, in accordance with the definitions in NPC-300, the MECP instructed HGC Engineering to remove any traffic associated with the site from the traffic count in this road section. Since it is unknown what portion of the traffic count in this section was associated with the

site, the traffic count collected to the south of the entrance – which is clear of any traffic associated with the site – was adopted to determine the background sound levels along the entire extent of 2 Side Road.

The results of the traffic noise modelling indicate that background sound levels are generally greater than the exclusionary minima during all daytime hours (7:00 – 19:00) at location R3, on the north side of Guelph Line, and at the front façades of homes along 2 Side Road. However, a careful consideration of sound levels indicates that background sound levels at side façades, where most-potentially impacted points of reception are located, are as low as the exclusion limits. As a conservative approach, the exclusion limits applicable to Class 2 areas have been adopted for all assessment locations in this assessment.

These limits are also included in Tables A3 and B3 of Appendices A and B.

APPENDIX G

Sample Calculation Results - Condensed, Overall dBA Format

In the following tables of calculation results, the column headings for the various sound attenuation mechanisms follow the terminology of ISO Standard 9613-2. LxD and LxN are the A-weighted, one-hour energy-equivalent source sound power levels for day and night, respectively, which include the effects of any source-abatement measures included in the model, and any time-averaging effects for intermittent sources. LrD and LrN are the A-weighted, one-hour energy-equivalent sound levels at the point of reception. The results are presented in terms of overall A-weighted results, at the most impacted off-site point of reception.

R01a	Residential Home - 4.5 m AG	589563	4806659	284.5																				
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	63.2	0	0.0	0.4	4.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33	33	33
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	63.2	0	0.0	0.8	4.1	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	23	23
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	63.2	0	0.0	0.7	5.5	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-04	HMA - Dryer	589974	4806606	266.1	110	110	110	63.3	0	0.0	-0.5	6.3	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38	38	38
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	63.1	0	0.0	2.2	8.3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	63.1	0	0.0	0.3	4.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
HMA-07	HMA - Bucket Elevator	589964	4806615	275.9	93	93	93	63.1	0	0.0	0.7	4.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	63.1	0	0.0	0.9	3.7	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31	31	31
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	63.1	0	0.0	0.7	3.9	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31	31	31
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	63.1	0	0.0	0.1	4.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38	38	38
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	63.1	0	0.0	-0.3	15.6	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	63.1	0	0.0	-0.3	5.8	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	63.1	0	0.0	-0.3	12.5	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
HMA-14	HMA - Front-End Loader	589955	4806576	267.1	102	102	102	63.1	0	0.0	0.5	7.5	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
HMA-15	HMA - Moving HMA Trucks (each)	590388	4806474	273.9	103	103	103	67.7	0	0.0	-0.3	5.3	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
HMA-16	HMA - Moving Aggregate Trucks (each)	590337	4806481	272.8	102	102	102	67.6	0	0.0	0.1	4.9	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590274	4806516	271.0	92	92	92	67.4	0	0.0	-0.3	5.7	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
Q-01a	Quarry - Moving Aggregate Trucks (each)	590516	4806452	275.5	106	106	106	69.5	0	0.0	-0.3	4.7	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
Q-01b	Quarry - Moving Aggregate Trucks (each)	590159	4806440	263.8	103	103	103	67.2	0	0.0	-0.8	4.5	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590293	4806201	260.8	101	101	101	69.7	0	0.0	-0.5	3.9	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590352	4806155	260.6	101	101	101	70.4	0	0.0	-0.5	4.1	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590271	4806164	262.6	109	--	--	69.7	0	0.0	-0.6	4.1	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590272	4806159	262.1	110	--	--	69.7	3	0.0	-0.6	5.7	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590244	4806157	263.5	123	--	--	69.6	0	0.0	-1.4	4.7	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	69.7	0	0.0	-0.8	4.2	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40	--	--
Q-07a	Quarry - Generator Intake	590266	4806143	260.5	103	--	--	69.8	3	0.0	2.3	5.5	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	69.8	3	0.0	0.9	12.5	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	73.2	0	0.0	-1.2	4.7	10.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	--	--

R01b	Outdoor Amenity Area - 1.5 m AG	589577	4806645	281.5																				
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	62.9	0	0.0	4.5	4.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	30	30
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	62.9	0	0.0	3.6	4.6	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	62.9	0	0.0	3.0	7.5	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	23	23
HMA-04	HMA - Dryer	589975	4806606	266.1	110	110	110	63.0	0	0.0	3.1	10.8	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31	31	31
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	62.8	0	0.0	7.1	6.5	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	62.8	0	0.0	2.2	3.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
HMA-07	HMA - Bucket Elevator	589964	4806615	276.0	93	93	93	62.8	0	0.0	2.8	3.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	62.8	0	0.0	2.5	2.4	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31	31	31
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	62.7	0	0.0	2.5	2.3	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31	31	31
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	62.7	0	0.0	1.6	3.3	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38	38	38
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	62.8	0	0.0	1.8	11.3	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	62.8	0	0.0	2.5	7.8	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	62.7	0	0.0	1.3	16.8	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-14	HMA - Front-End Loader	589955	4806576	267.1	102	102	102	62.8	0	0.0	4.7	6.6	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
HMA-15	HMA - Moving HMA Trucks (each)	590388	4806474	273.9	103	103	103	67.8	0	0.0	1.9	4.1	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25
HMA-16	HMA - Moving Aggregate Trucks (each)	590333	4806482	272.7	102	102	102	67.7	0	0.0	2.7	3.4	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590279	4806514	271.1	92	92	92	67.6	0	0.0	2.0	4.5	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
Q-01a	Quarry - Moving Aggregate Trucks (each)	590516	4806452	275.5	106	106	106	69.2	0	0.0	1.9	3.5	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-01b	Quarry - Moving Aggregate Trucks (each)	590159	4806440	263.8	103	103	103	67.0	0	0.0	1.4	3.3	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590293	4806201	260.8	101	101	101	69.5	0	0.0	2.6	3.4	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590352	4806155	260.6	101	101	101	70.2	0	0.0	2.6	3.5	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	23	23
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590271	4806164	262.6	109	--	--	69.5	0	0.0	1.8	2.7	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590272	4806159	262.1	110	--	--	69.5	3	0.0	3.2	3.1	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590244	4806157	263.5	123	--	--	69.4	0	0.0	0.2	4.4	9.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	69.5	0	0.0	1.9	3.8	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39	--	--
Q-07a	Quarry - Generator Intake	590266	4806143	260.5	103	--	--	69.6	3	0.0	4.0	4.6	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	69.6	3	0.0	3.7	11.5	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	73.1	0	0.0	0.0	4.6	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	--	--

R02a	Residential Home - 4.5 m AG	590202	4807485	283.4																				
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	70.1	0	0.0	0.7	3.8	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	70.1	0	0.0	1.2	3.4	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	70.1	0	0.0	-0.8	15.2	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	70.2	0	0.0	-0.4	3.8	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	30	30
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	70.3	0	0.0	2.2	16.5	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	70.2	0	0.0	0.0	3.5	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19
HMA-07	HMA - Bucket Elevator	589964	4806615	275.0	93	93	93	70.1	0	0.0	0.1	4.5	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	70.1	0	0.0	0.8	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	70.1	0	0.0	0.7	0.1	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	70.1	0	0.0	0.1	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34	34	34
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	70.1	0	0.0	-0.2	19.2	11.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	70.0	0	0.0	-0.1	3.4	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	70.1	0	0.0	-0.2	19.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	10	10
HMA-14	HMA - Front-End Loader	589953	4806629	266.9	102	102	102	70.5	0	0.0	0.5	4.5	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	23	23
HMA-15	HMA - Moving HMA Trucks (each)	590382	4806477	273.7	103	103	103	70.3	0	0.0	-0.3	0.9	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
HMA-16	HMA - Moving Aggregate Trucks (each)	590344	4806466	273.0	102	102	102	70.4	0	0.0	0.1	1.1	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590288	4806496	271.5	92	92	92	70.3	0	0.0	-0.3	1.2	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
Q-01a	Quarry - Moving Aggregate Trucks (each)	590516	4806452	275.5	106	106	106	70.4	0	0.0	-0.4	0.4	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31	31	31
Q-01b	Quarry - Moving Aggregate Trucks (each)	590159	4806439	263.8	103	103	103	71.1	0	0.0	-0.5	0.7	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590293	4806201	260.8	101	101	101	73.1	0	0.0	0.0	3.8	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590352	4806155	260.6	101	101	101	73.4	0	0.0	0.0	4.9	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590271	4806164	262.6	109	--	--	73.4	0	0.0	-0.2	3.4	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590272	4806162	262.1	110	--	--	73.4	3	0.0	-0.1	4.4	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590244	4806157	263.5	123	--	--	73.5	0	0.0	-1.2	0.1	12.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	73.6	0	0.0	-0.6	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	103	--	--	73.6	3	0.0	2.0	4.1	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	73.6	3	0.0	2.2	13.8	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	74.4	0	0.0	-1.8	4.5	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	--	--

R02b	Outdoor Amenity Area - 1.5 m AG	590214	4807473	280.3																				
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	70.0	0	0.0	2.9	2.8	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	70.0	0	0.0	3.9	2.3	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	70.0	0	0.0	0.8	13.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12
HMA-04	HMA - Dryer	589974	4806606	266.1	110	110	110	70.1	0	0.0	2.3	3.6	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	70.2	0	0.0	6.4	12.8	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	11	11
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	70.2	0	0.0	2.2	3.3	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19
HMA-07	HMA - Bucket Elevator	589965	4806614	271.7	93	93	93	70.0	0	0.0	3.0	3.4	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	70.0	0	0.0	2.6	0.1	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	70.0	0	0.0	2.5	0.1	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	70.0	0	0.0	1.3	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33	33	33
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	70.0	0	0.0	1.8	17.2	12.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	70.0	0	0.0	2.1	4.4	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	70.0	0	0.0	1.0	18.0	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9	9	9
HMA-14	HMA - Front-End Loader	589953	4806628	266.9	102	102	102	70.4	0	0.0	3.6	2.8	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-15	HMA - Moving HMA Trucks (each)	590388	4806471	273.9	103	103	103	70.5	0	0.0	1.5	2.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25
HMA-16	HMA - Moving Aggregate Trucks (each)	590355	4806461	273.3	102	102	102	70.5	0	0.0	2.1	1.9	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590288	4806497	271.5	92	92	92	70.6	0	0.0	1.6	2.6	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	14	14
Q-01a	Quarry - Moving Aggregate Trucks (each)	590

R03a	Residential Home - 4.5 m AG	590926	4806778	289.5																				
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	70.7	0	0.0	-1.1	3.5	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	70.7	0	0.0	-1.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	70.8	0	0.0	-1.1	10.3	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	70.7	0	0.0	-2.0	0.0	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35	35	35
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	70.8	0	0.0	0.8	14.8	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	14	14
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	70.8	0	0.0	-1.4	4.4	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18
HMA-07	HMA - Bucket Elevator	589964	4806615	274.2	93	93	93	70.8	0	0.0	-1.3	0.2	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	70.8	0	0.0	-0.5	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	70.8	0	0.0	-0.7	0.1	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	70.8	0	0.0	-1.3	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34	34	34
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	70.8	0	0.0	-1.9	16.2	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	70.8	0	0.0	-1.8	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	70.8	0	0.0	-2.0	17.3	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13
HMA-14	HMA - Front-End Loader	589931	4806639	266.5	102	102	102	70.9	0	0.0	-1.4	1.9	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
HMA-15	HMA - Moving HMA Trucks (each)	590404	4806450	274.9	103	103	103	66.5	0	0.0	-1.6	1.7	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33	33	33
HMA-16	HMA - Moving Aggregate Trucks (each)	590414	4806438	275.2	102	102	102	66.5	0	0.0	-1.4	1.6	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32	32	32
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590376	4806460	274.1	92	92	92	66.6	0	0.0	-1.6	2.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
Q-01a	Quarry - Moving Aggregate Trucks (each)	590559	4806415	277.3	106	106	106	65.9	0	0.0	-1.5	1.7	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	36	36
Q-01b	Quarry - Moving Aggregate Trucks (each)	590159	4806440	263.8	103	103	103	69.6	0	0.0	-1.6	4.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590293	4806201	260.8	101	101	101	69.5	0	0.0	-0.9	5.4	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590365	4806152	260.9	101	101	101	69.4	0	0.0	-0.9	4.6	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590271	4806164	262.6	109	--	--	70.1	0	0.0	-1.0	4.2	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590272	4806162	262.1	110	--	--	70.1	3	0.0	-1.1	4.7	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590244	4806157	263.5	123	--	--	70.3	0	0.0	-1.9	4.8	10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	70.4	0	0.0	-1.2	4.2	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	103	--	--	70.2	3	0.0	1.8	5.2	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	70.3	3	0.0	0.1	5.8	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	68.0	0	0.0	-0.2	24.3	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	--	--

R03b	Outdoor Amenity Area - 1.5 m AG	590909	4806778	286.2																				
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	70.6	0	0.0	2.3	3.3	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	70.6	0	0.0	2.5	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	70.6	0	0.0	0.7	9.1	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	70.6	0	0.0	-0.4	0.0	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33	33	33
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	70.7	0	0.0	4.6	12.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	70.7	0	0.0	1.1	3.5	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18
HMA-07	HMA - Bucket Elevator	589964	4806615	274.2	93	93	93	70.6	0	0.0	1.3	0.1	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	70.6	0	0.0	2.2	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	70.6	0	0.0	1.2	0.1	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	70.7	0	0.0	-0.1	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33	33	33
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	70.6	0	0.0	-0.1	14.6	10.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5	5	5
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	70.6	0	0.0	-0.8	0.0	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	70.6	0	0.0	-0.9	16.6	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12
HMA-14	HMA - Front-End Loader	589931	4806639	266.5	102	102	102	70.8	0	0.0	0.6	1.7	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
HMA-15	HMA - Moving HMA Trucks (each)	590330	4806487	273.1	103	103	103	66.1	0	0.0	0.1	1.2	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32	32	32
HMA-16	HMA - Moving Aggregate Trucks (each)	590349	4806465	273.5	102	102	102	66.1	0	0.0	0.5	1.1	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31	31	31
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590310	4806489	272.3	92	92	92	66.2	0	0.0	0.0	1.5	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
Q-01a	Quarry - Moving Aggregate Trucks (each)	590522	4806448	275.7	106	106	106	65.6	0	0.0	0.2	1.3	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	36	36
Q-01b	Quarry - Moving Aggregate Trucks (each)	590159	4806440	263.8	103	103	103	69.5	0	0.0	0.4	3.8	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590293	4806201	260.8	101	101	101	69.4	0	0.0	3.0	3.9	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590352	4806155	260.6	101	101	101	69.2	0	0.0	2.2	1.9	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590271	4806164	262.6	109	--	--	69.9	0	0.0	1.3	2.8	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590272	4806162	262.1	110	--	--	69.9	3	0.0	2.7	2.1	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590244	4806157	263.5	123	--	--	70.2	0	0.0	-0.3	4.4	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	70.3	0	0.0	1.4	3.9	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	103	--	--	70.1	3	0.0	3.7	4.1	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	70.1	3	0.0	3.3	5.3	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	68.0	0	0.0	0.6	5.6	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	--	--

R04a	Residential Home - 4.5 m AG	590836	4806222	284.5																				
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	70.6	0	0.0	0.4	17.3	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	70.6	0	0.0	0.0	3.6	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	70.6	0	0.0	-0.3	18.8	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	7	7
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	70.5	0	0.0	-1.3	4.7	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	30	30
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	70.6	0	0.0	1.6	20.1	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	8	8
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	70.6	0	0.0	-0.9	4.2	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18
HMA-07	HMA - Bucket Elevator	589964	4806614	274.2	93	93	93	70.6	0	0.0	-0.4	4.9	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	70.6	0	0.0	0.5	2.9	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	23	23
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	70.6	0	0.0	0.3	4.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	23	23
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	70.7	0	0.0	-0.6	4.2	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	30	30
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	70.6	0	0.0	-1.4	19.6	12.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	70.6	0	0.0	-0.9	4.6	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	70.7	0	0.0	-1.4	19.7	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9	9	9
HMA-14	HMA - Front-End Loader	589936	4806626	266.8	102	102	102	70.5	0	0.0	-0.4	5.6	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	23	23
HMA-15	HMA - Moving HMA Trucks (each)	590322	4806493	272.9	103	103	103	58.1	0	0.0	0.3	5.9	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	37	37
HMA-16	HMA - Moving Aggregate Trucks (each)	590382	4806453	274.2	102	102	102	58.2	0	0.0	0.8	5.4	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	36	36
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590350	4806476	273.2	92	92	92	58.0	0	0.0	0.3	6.2	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-01a	Quarry - Moving Aggregate Trucks (each)	590545	4806423	276.5	106	106	106	57.6	0	0.0	0.3	5.6	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41	41	41
Q-01b	Quarry - Moving Aggregate Trucks (each)	590162	4806412	263.8	103	103	103	67.8	0	0.0	-1.0	4.5	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590300	4806208	260.9	101	101	101	65.5	0	0.0	-0.6	4.4	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	30	30
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590352	4806155	260.6	101	101	101	64.5	0	0.0	-0.3	8.2	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590271	4806164	262.6	109	--	--	66.1	0	0.0	-0.6	4.3	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590271	4806162	262.2	110	--	--	66.1	3	0.0	-0.7	5.8	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590244	4806157	263.5	123	--	--	66.5	0	0.0	-1.4	4.8	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	66.5	0	0.0	-0.3	12.2	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	103	--	--	66.2	3	0.0	2.3	6.1	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	66.2	3	0.0	0.5	3.4	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	55.5	0	0.0	-0.8	15.7	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	--	--

R04b	Outdoor Amenity Area - 1.5 m AG	590828	4806235	281.5																				
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	70.4	0	0.0	4.5	14.6	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	70.5	0	0.0	2.6	2.3	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	14	14
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	70.5	0	0.0	2.0	17.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	7	7
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	70.4	0	0.0	1.3	4.0	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	70.5	0	0.0	5.8	17.7	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	70.5	0	0.0	1.5	3.5	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18
HMA-07	HMA - Bucket Elevator	589964	4806614	274.1	93	93	93	70.5	0	0.0	3.1	1.9	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	70.5	0	0.0	2.7	2.1	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	70.5	0	0.0	2.8	3.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	70.5	0	0.0	1.3	3.2	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	70.5	0	0.0	0.6	22.6	13.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	70.5	0	0.0	1.1	4.5	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	70.5	0	0.0	-0.3	23.8	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4	4	4
HMA-14	HMA - Front-End Loader	589932	4806628	266.7	102	102	102	70.5	0	0.0	3.0	4.2	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
HMA-15	HMA - Moving HMA Trucks (each)	590315	4806497	272.7	103	103	103	57.2	0	0.0	2.1	5.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	37	37
HMA-16	HMA - Moving Aggregate Trucks (each)	590359	4806467	273.7	102	102	102	57.3	0	0.0	2.7	4.8	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	36	36
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590316	4806494	272.4	92	92	92	57.1	0	0.0	2.1	5.6	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
Q-01a	Quarry - Moving Aggregate Trucks (each)	590532

R05a	Residential Home - 4.5 m AG	590896	4806135	284.5																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	71.4	0	0.0	0.5	18.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	11	11
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	71.4	0	0.0	0.1	3.5	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	14	14
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	71.4	0	0.0	-0.3	19.2	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	71.3	0	0.0	-1.2	4.7	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	71.4	0	0.0	1.7	21.8	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5	5	5
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	71.4	0	0.0	-0.9	4.3	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18
HMA-07	HMA - Bucket Elevator	589964	4806614	273.3	93	93	93	71.4	0	0.0	-0.5	4.9	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	71.4	0	0.0	0.5	3.6	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	71.4	0	0.0	0.3	4.2	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	71.4	0	0.0	-0.6	4.4	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	71.4	0	0.0	-1.4	24.8	13.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	71.4	0	0.0	-0.9	4.6	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	71.4	0	0.0	-1.4	24.9	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	2	2
HMA-14	HMA - Front-End Loader	589933	4806626	266.7	102	102	102	71.3	0	0.0	-0.8	5.8	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-15	HMA - Moving HMA Trucks (each)	590327	4806492	273.0	103	103	103	59.3	0	0.0	0.2	7.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35	35	35
HMA-16	HMA - Moving Aggregate Trucks (each)	590375	4806466	274.0	102	102	102	59.5	0	0.0	0.6	6.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34	34	34
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590343	4806487	273.0	92	92	92	59.4	0	0.0	0.2	7.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
Q-01a	Quarry - Moving Aggregate Trucks (each)	590542	4806425	276.4	106	106	106	58.6	0	0.0	0.2	6.8	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39	39	39
Q-01b	Quarry - Moving Aggregate Trucks (each)	590159	4806440	263.8	103	103	103	68.7	0	0.0	-1.2	5.1	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590293	4806201	260.8	101	101	101	66.5	0	0.0	-0.9	4.5	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590352	4806155	260.6	101	101	101	65.5	0	0.0	-0.6	8.4	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590271	4806164	262.6	109	--	--	66.9	0	0.0	-0.9	4.4	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590271	4806162	262.2	110	--	--	66.9	3	0.0	-0.9	5.9	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590242	4806147	263.5	123	--	--	67.3	0	0.0	-1.6	4.9	8.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	67.3	0	0.0	-0.6	10.8	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	103	--	--	67.0	3	0.0	1.7	4.2	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	67.0	3	0.0	0.2	3.4	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	55.8	0	0.0	0.8	9.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42	--	--

R05b	Outdoor Amenity Area - 1.5 m AG	590923	4806125	281.5																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	71.6	0	0.0	4.5	16.5	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	8	8
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	71.6	0	0.0	5.8	7.2	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	71.6	0	0.0	2.0	18.3	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4	4	4
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	71.5	0	0.0	3.2	13.4	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	71.6	0	0.0	6.0	18.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4	4	4
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	71.6	0	0.0	0.7	8.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-07	HMA - Bucket Elevator	589965	4806615	271.8	93	93	93	71.6	0	0.0	2.6	7.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	11	11
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	71.7	0	0.0	4.2	5.6	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	71.7	0	0.0	3.8	7.7	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	71.7	0	0.0	2.7	9.3	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	71.7	0	0.0	0.9	22.6	14.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	71.7	0	0.0	3.4	12.5	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4	4	4
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	71.7	0	0.0	-0.2	23.9	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	2	2
HMA-14	HMA - Front-End Loader	589933	4806626	266.7	102	102	102	71.6	0	0.0	4.8	11.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12
HMA-15	HMA - Moving HMA Trucks (each)	590317	4806489	272.8	103	103	103	57.1	0	0.0	1.5	12.6	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	30	30
HMA-16	HMA - Moving Aggregate Trucks (each)	590371	4806451	274.0	102	102	102	57.4	0	0.0	2.2	11.8	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590326	4806480	272.7	92	92	92	57.1	0	0.0	1.5	12.7	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
Q-01a	Quarry - Moving Aggregate Trucks (each)	590552	4806409	276.6	106	106	106	56.9	0	0.0	1.5	11.8	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34	34	34
Q-01b	Quarry - Moving Aggregate Trucks (each)	590162	4806436	263.8	103	103	103	68.5	0	0.0	1.4	6.6	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	23	23
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590293	4806201	260.8	101	101	101	66.9	0	0.0	2.8	3.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590352	4806155	260.6	101	101	101	66.0	0	0.0	3.5	6.9	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	23	23
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590271	4806164	262.6	109	--	--	67.3	0	0.0	1.7	2.8	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590271	4806162	262.2	110	--	--	67.3	3	0.0	2.9	3.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590242	4806147	263.5	123	--	--	67.6	0	0.0	-0.1	4.7	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	67.6	0	0.0	3.7	9.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	103	--	--	67.3	3	0.0	3.6	3.2	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	67.3	3	0.0	1.7	2.9	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	56.9	0	0.0	3.8	18.8	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	--	--

R06a	Residential Home - 4.5 m AG	590871	4806108	284.5																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	71.3	0	0.0	-0.5	18.5	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	71.3	0	0.0	-0.1	15.7	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	3	3
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	71.3	0	0.0	-1.2	19.7	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	71.2	0	0.0	-1.8	4.7	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	71.3	0	0.0	0.8	22.4	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	71.3	0	0.0	-1.7	4.6	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18
HMA-07	HMA - Bucket Elevator	589964	4806614	273.6	93	93	93	71.3	0	0.0	-1.3	5.3	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	71.3	0	0.0	-0.5	4.1	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	71.4	0	0.0	-0.6	4.1	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	71.4	0	0.0	-1.2	4.6	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	71.4	0	0.0	-2.0	24.8	13.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	71.4	0	0.0	-1.5	4.7	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	71.4	0	0.0	-2.0	25.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	3	3
HMA-14	HMA - Front-End Loader	589934	4806623	266.7	102	102	102	71.2	0	0.0	-1.1	5.9	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-15	HMA - Moving HMA Trucks (each)	590334	4806493	273.0	103	103	103	56.4	0	0.0	-0.2	9.6	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	36	36
HMA-16	HMA - Moving Aggregate Trucks (each)	590376	4806465	273.9	102	102	102	57.2	0	0.0	0.0	8.6	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35	35	35
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590320	4806495	272.3	92	92	92	56.6	0	0.0	-0.2	9.6	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25
Q-01a	Quarry - Moving Aggregate Trucks (each)	590547	4806421	276.5	106	106	106	55.7	0	0.0	-0.2	9.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40	40	40
Q-01b	Quarry - Moving Aggregate Trucks (each)	590165	4806416	263.6	103	103	103	68.5	0	0.0	-1.5	4.9	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590293	4806201	260.8	101	101	101	66.2	0	0.0	-1.0	4.3	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590352	4806155	260.6	101	101	101	65.2	0	0.0	-0.9	7.3	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590271	4806164	262.6	109	--	--	66.6	0	0.0	-1.1	4.4	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590271	4806162	262.2	110	--	--	66.6	3	0.0	-1.2	5.8	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590242	4806147	263.5	123	--	--	67.0	0	0.0	-1.8	5.0	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	66.9	0	0.0	-0.9	10.7	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	103	--	--	66.6	3	0.0	1.4	4.4	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	66.6	3	0.0	-0.2	3.6	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	54.2	0	0.0	0.7	8.7	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44	--	--

R06b	Outdoor Amenity Area - 1.5 m AG	590911	4806092	281.5																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	71.6	0	0.0	4.2	16.8	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	8	8
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	71.6	0	0.0	5.5	14.5	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	71.7	0	0.0	1.7	18.5	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	3	3
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	71.6	0	0.0	2.9	14.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	71.6	0	0.0	5.7	18.1	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5	5	5
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	71.6	0	0.0	0.3	8.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-07	HMA - Bucket Elevator	589964	4806614	273.5	93	93	93	71.7	0	0.0	2.2	7.5	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	11	11
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	71.7	0	0.0	3.9	6.3	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	71.7	0	0.0	3.5	8.3	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	71.7	0	0.0	2.5	10.1	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	71.7	0	0.0	0.6	22.7	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	71.7	0	0.0	3.1	12.7	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4	4	4
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	71.7	0	0.0	-0.5	23.9	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	2	2
HMA-14	HMA - Front-End Loader	589934	4806623	266.7	102	102	102	71.6	0	0.0	4.7	11.2	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12
HMA-15	HMA - Moving HMA Trucks (each)	590321	4806486	273.0	103	103	103	63.0	0	0.0	4.6	14.6	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-16	HMA - Moving Aggregate Trucks (each)	590370	4806455	274.0	102	102	102	63.1	0	0.0	5.9	12.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590323	4806478	272.7	92	92	92	62.9	0	0.0	4.5	14.9	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9	9	9
Q-01a	Quarry - Moving Aggregate Trucks (each)	590560	4806402	276.9	106	106

R07a	Residential Home - 1.5 m AG	590842	4806085	281.5																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	71.2	0	0.0	4.2	14.5	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	11	11
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	71.2	0	0.0	5.4	11.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	3	3
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	71.2	0	0.0	1.8	16.8	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	71.1	0	0.0	1.1	3.9	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	71.2	0	0.0	5.9	17.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	71.2	0	0.0	1.3	3.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18
HMA-07	HMA - Bucket Elevator	589965	4806615	271.1	93	93	93	71.2	0	0.0	2.9	2.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	71.2	0	0.0	2.4	2.2	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	71.2	0	0.0	2.6	3.1	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	71.3	0	0.0	1.0	3.2	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	71.3	0	0.0	0.4	22.8	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	71.2	0	0.0	0.8	4.2	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	71.3	0	0.0	-0.6	24.0	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	3	3
HMA-14	HMA - Front-End Loader	589936	4806622	266.7	102	102	102	71.1	0	0.0	2.7	3.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
HMA-15	HMA - Moving HMA Trucks (each)	590304	4806514	272.2	103	103	103	54.1	0	0.0	0.7	10.4	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	37	37
HMA-16	HMA - Moving Aggregate Trucks (each)	590348	4806487	273.1	102	102	102	54.4	0	0.0	1.0	10.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35	35	35
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590296	4806521	271.6	92	92	92	54.2	0	0.0	0.7	10.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
Q-01a	Quarry - Moving Aggregate Trucks (each)	590501	4806459	274.8	106	106	106	52.6	0	0.0	0.6	10.8	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41	41	41
Q-01b	Quarry - Moving Aggregate Trucks (each)	590165	4806416	263.6	103	103	103	68.4	0	0.0	0.9	4.2	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590293	4806201	260.8	101	101	101	65.9	0	0.0	2.3	2.3	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590356	4806160	260.7	101	101	101	64.7	0	0.0	2.6	5.6	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590271	4806164	262.6	109	--	--	66.2	0	0.0	2.9	1.6	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590271	4806159	262.2	110	--	--	66.2	3	0.0	2.6	3.2	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590243	4806147	263.5	123	--	--	66.6	0	0.0	-0.3	5.5	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	66.5	0	0.0	3.4	9.5	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	103	--	--	66.3	3	0.0	3.4	3.5	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	66.2	3	0.0	1.5	3.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	52.3	0	0.0	1.7	10.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44	--	--

R07b	Outdoor Amenity Area - 1.5 m AG	590882	4806069	281.5																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	71.5	0	0.0	4.2	16.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9	9	9
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	71.5	0	0.0	5.5	13.4	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	71.5	0	0.0	1.8	18.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4	4	4
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	71.5	0	0.0	2.2	6.8	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	71.5	0	0.0	5.8	17.9	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5	5	5
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	71.5	0	0.0	1.2	4.9	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17
HMA-07	HMA - Bucket Elevator	589964	4806614	273.8	93	93	93	71.6	0	0.0	2.9	3.4	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	14	14
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	71.6	0	0.0	3.0	3.3	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	71.6	0	0.0	3.1	4.1	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	71.6	0	0.0	1.7	5.2	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	71.6	0	0.0	0.5	22.7	14.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	71.6	0	0.0	2.0	6.1	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	11	11
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	71.6	0	0.0	-0.5	24.0	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	2	2
HMA-14	HMA - Front-End Loader	589935	4806623	266.7	102	102	102	71.5	0	0.0	4.0	8.1	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-15	HMA - Moving HMA Trucks (each)	590296	4806508	272.2	103	103	103	61.0	0	0.0	3.3	14.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-16	HMA - Moving Aggregate Trucks (each)	590350	4806475	273.4	102	102	102	61.3	0	0.0	4.5	12.3	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	23	23
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590302	4806500	272.0	92	92	92	61.2	0	0.0	3.4	14.3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12
Q-01a	Quarry - Moving Aggregate Trucks (each)	590515	4806439	275.5	106	106	106	59.6	0	0.0	3.4	15.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-01b	Quarry - Moving Aggregate Trucks (each)	590166	4806406	263.6	103	103	103	68.3	0	0.0	1.4	6.4	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	23	23
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590301	4806209	260.9	101	101	101	66.5	0	0.0	2.4	2.1	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590352	4806155	260.6	101	101	101	65.5	0	0.0	2.6	5.3	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590271	4806164	262.6	109	--	--	66.8	0	0.0	1.5	2.9	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590271	4806159	262.2	110	--	--	66.8	3	0.0	2.8	3.1	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590243	4806147	263.5	123	--	--	67.2	0	0.0	-0.1	5.6	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	67.1	0	0.0	3.7	9.1	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	103	--	--	66.9	3	0.0	3.5	3.3	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	66.9	3	0.0	1.7	2.9	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	55.0	0	0.0	1.7	9.9	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41	--	--

R08a	Residential Home - 4.5 m AG	590804	4805979	284.5																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	71.4	0	0.0	0.1	18.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	71.4	0	0.0	0.4	15.2	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	3	3
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	71.4	0	0.0	-0.5	18.9	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	71.4	0	0.0	-1.6	4.7	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	71.4	0	0.0	1.4	21.7	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	71.4	0	0.0	-1.2	4.3	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18
HMA-07	HMA - Bucket Elevator	589965	4806614	270.6	93	93	93	71.4	0	0.0	-0.9	5.1	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	71.5	0	0.0	0.1	3.7	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	71.5	0	0.0	-0.1	4.3	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	71.5	0	0.0	-1.0	4.5	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	71.5	0	0.0	-1.7	19.8	13.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	71.5	0	0.0	-1.2	4.6	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	71.5	0	0.0	-1.8	19.9	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	8	8
HMA-14	HMA - Front-End Loader	589941	4806617	266.7	102	102	102	71.3	0	0.0	-0.7	5.7	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-15	HMA - Moving HMA Trucks (each)	590296	4806514	272.3	103	103	103	60.1	0	0.0	-0.2	0.8	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	37	37
HMA-16	HMA - Moving Aggregate Trucks (each)	590339	4806482	273.2	102	102	102	60.3	0	0.0	0.0	0.7	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35	35	35
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590281	4806515	271.6	92	92	92	60.1	0	0.0	-0.2	0.8	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
Q-01a	Quarry - Moving Aggregate Trucks (each)	590530	4806436	276.0	106	106	106	59.7	0	0.0	-0.3	0.7	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41	41	41
Q-01b	Quarry - Moving Aggregate Trucks (each)	590170	4806400	263.4	103	103	103	68.5	0	0.0	-1.1	4.4	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590293	4806201	260.8	101	101	101	65.9	0	0.0	-0.6	4.2	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590352	4806155	260.6	101	101	101	64.7	0	0.0	-0.5	6.7	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590271	4806164	262.6	109	--	--	66.0	0	0.0	-0.5	4.2	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590271	4806159	262.2	110	--	--	66.0	3	0.0	-0.6	5.6	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590244	4806149	263.5	123	--	--	66.4	0	0.0	-1.3	7.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	66.3	0	0.0	-0.8	4.3	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	103	--	--	66.0	3	0.0	2.0	4.1	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	66.0	3	0.0	0.6	3.3	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	54.0	0	0.0	0.8	10.3	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43	--	--

R08b	Outdoor Amenity Area - 1.5 m AG	590801	4806000	281.5																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	71.3	0	0.0	4.3	14.6	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	11	11
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	71.3	0	0.0	5.5	11.2	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	2	2
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	71.3	0	0.0	1.9	16.8	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	71.2	0	0.0	1.2	3.9	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	71.3	0	0.0	6.0	17.4	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	71.3	0	0.0	1.3	3.5	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18
HMA-07	HMA - Bucket Elevator	589965	4806614	270.7	93	93	93	71.3	0	0.0	2.9	2.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	71.3	0	0.0	2.5	2.1	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	71.4	0	0.0	2.7	3.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	71.4	0	0.0	1.1	3.2	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	71.4	0	0.0	0.6	22.7	14.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	71.4	0	0.0	1.0	4.2	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	71.4	0	0.0	-0.5	24.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	2	2
HMA-14	HMA - Front-End Loader	589940	4806618	266.7	102	102	102	71.2	0	0.0	2.8	3.9	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-15	HMA - Moving HMA Trucks (each)	590296	4806514	272.3	103	103	103	58.9	0	0.0	0.7	0.6	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	37	37
HMA-16	HMA - Moving Aggregate Trucks (each)	590339	4806482	273.2	102	102	102	59.1	0	0.0	1.0	0.6	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35	35	35
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590273	4806521	271.5	92	92	92	58.8	0	0.0	0.7	0.6	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
Q-01a	Quarry - Moving Aggregate Trucks (each)	590522	4806447	275.7	106	106

R09a	Residential Home - 4.5 m AG	590585	4805689	288.8																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	71.9	0	0.0	0.3	12.4	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	71.9	0	0.0	0.5	9.4	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	8	8
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	71.9	0	0.0	0.2	12.2	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	71.9	0	0.0	-1.4	4.7	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	71.9	0	0.0	1.0	3.8	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	71.9	0	0.0	-1.1	4.3	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17
HMA-07	HMA - Bucket Elevator	589964	4806614	273.2	93	93	93	71.9	0	0.0	-0.8	3.8	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	72.0	0	0.0	0.1	2.2	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	72.0	0	0.0	-0.1	3.2	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	72.0	0	0.0	-0.9	3.2	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	72.0	0	0.0	-1.5	19.8	13.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	72.0	0	0.0	-0.9	5.7	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	72.0	0	0.0	-1.6	19.9	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	7	7
HMA-14	HMA - Front-End Loader	589950	4806587	266.9	102	102	102	71.7	0	0.0	-0.5	5.2	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-15	HMA - Moving HMA Trucks (each)	590331	4806486	273.0	103	103	103	68.2	0	0.0	0.0	3.4	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
HMA-16	HMA - Moving Aggregate Trucks (each)	590390	4806446	274.3	102	102	102	68.3	0	0.0	0.3	3.3	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590317	4806491	272.4	92	92	92	68.3	0	0.0	-0.1	3.4	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
Q-01a	Quarry - Moving Aggregate Trucks (each)	590532	4806432	276.0	106	106	106	67.9	0	0.0	0.0	3.1	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31	31	31
Q-01b	Quarry - Moving Aggregate Trucks (each)	590159	4806440	263.8	103	103	103	69.0	0	0.0	-1.0	4.4	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590293	4806201	260.8	101	101	101	66.6	0	0.0	-0.5	4.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590352	4806155	260.6	101	101	101	65.6	0	0.0	-0.2	5.7	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590271	4806164	262.6	109	--	--	66.1	0	0.0	-0.4	4.1	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590271	4806159	262.2	110	--	--	66.1	3	0.0	-0.4	5.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590244	4806157	263.5	123	--	--	66.2	0	0.0	-1.2	4.7	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	66.1	0	0.0	-0.7	4.3	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	103	--	--	65.9	3	0.0	2.1	4.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	65.9	3	0.0	0.7	3.2	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	63.7	0	0.0	0.8	4.3	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	--	--

R09b	Outdoor Amenity Area - 1.5 m AG	590562	4805691	285.6																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	71.8	0	0.0	4.4	14.5	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	10	10
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	71.8	0	0.0	5.6	11.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	2	2
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	71.8	0	0.0	2.1	15.2	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	7	7
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	71.8	0	0.0	1.3	3.8	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	71.7	0	0.0	2.4	3.5	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	71.8	0	0.0	1.3	3.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17
HMA-07	HMA - Bucket Elevator	589964	4806614	273.2	93	93	93	71.8	0	0.0	1.4	2.6	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	71.9	0	0.0	2.5	2.1	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	71.9	0	0.0	2.7	3.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	71.9	0	0.0	1.2	3.1	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	71.9	0	0.0	0.7	22.6	14.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	71.9	0	0.0	3.1	10.6	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	71.9	0	0.0	-0.4	23.9	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	1	1
HMA-14	HMA - Front-End Loader	589950	4806587	266.9	102	102	102	71.6	0	0.0	2.7	3.4	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-15	HMA - Moving HMA Trucks (each)	590342	4806500	273.1	103	103	103	68.1	0	0.0	2.1	3.7	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25
HMA-16	HMA - Moving Aggregate Trucks (each)	590385	4806476	274.0	102	102	102	68.3	0	0.0	2.7	3.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590348	4806499	272.9	92	92	92	68.1	0	0.0	2.1	3.9	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	14	14
Q-01a	Quarry - Moving Aggregate Trucks (each)	590537	4806446	276.1	106	106	106	67.7	0	0.0	2.1	3.5	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
Q-01b	Quarry - Moving Aggregate Trucks (each)	590156	4806456	263.9	103	103	103	68.8	0	0.0	1.2	4.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590296	4806179	260.7	101	101	101	66.4	0	0.0	2.5	2.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590341	4806147	260.4	101	101	101	65.5	0	0.0	2.9	3.8	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590271	4806164	262.6	109	--	--	65.9	0	0.0	1.9	2.9	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590271	4806159	262.2	110	--	--	65.9	3	0.0	3.1	3.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590244	4806157	263.5	123	--	--	66.0	0	0.0	0.1	4.6	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	65.8	0	0.0	1.9	2.5	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	103	--	--	65.7	3	0.0	3.7	3.6	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	65.6	3	0.0	2.0	3.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	63.8	0	0.0	1.2	4.1	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35	--	--

R10a	Residential Home - 4.5 m AG	590509	4805654	287.0																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	71.8	0	0.0	0.3	12.4	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	71.8	0	0.0	0.5	9.4	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	8	8
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	71.8	0	0.0	0.2	12.2	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	71.8	0	0.0	-1.4	4.7	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	71.8	0	0.0	1.0	2.8	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	71.8	0	0.0	-1.1	4.3	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17
HMA-07	HMA - Bucket Elevator	589964	4806614	273.2	93	93	93	71.9	0	0.0	-0.8	3.9	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	71.9	0	0.0	0.2	2.5	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	71.9	0	0.0	0.0	3.5	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	71.9	0	0.0	-0.9	3.6	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	71.9	0	0.0	-1.5	19.8	13.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	71.9	0	0.0	-0.9	5.7	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	71.9	0	0.0	-1.6	19.9	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	7	7
HMA-14	HMA - Front-End Loader	589955	4806576	267.1	102	102	102	71.6	0	0.0	-0.6	5.2	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-15	HMA - Moving HMA Trucks (each)	590375	4806473	274.0	103	103	103	69.1	0	0.0	0.0	4.7	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25
HMA-16	HMA - Moving Aggregate Trucks (each)	590414	4806453	274.8	102	102	102	69.2	0	0.0	0.5	4.2	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590376	4806478	273.7	92	92	92	69.1	0	0.0	0.0	5.1	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	14	14
Q-01a	Quarry - Moving Aggregate Trucks (each)	590566	4806410	277.1	106	106	106	68.7	0	0.0	0.0	4.5	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
Q-01b	Quarry - Moving Aggregate Trucks (each)	590163	4806427	263.8	103	103	103	68.9	0	0.0	-1.0	4.4	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590279	4806172	260.8	101	101	101	66.6	0	0.0	-0.5	4.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590352	4806155	260.6	101	101	101	65.7	0	0.0	-0.2	6.4	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590272	4806157	262.6	109	--	--	66.0	0	0.0	-0.4	4.1	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590272	4806156	262.1	110	--	--	66.0	3	0.0	-0.4	6.3	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590244	4806157	263.5	123	--	--	66.1	0	0.0	-1.2	4.7	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	65.9	0	0.0	-0.7	4.3	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	103	--	--	65.7	3	0.0	2.1	3.9	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	65.7	3	0.0	0.7	3.3	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	64.9	0	0.0	0.8	4.3	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34	--	--

R10b	Outdoor Amenity Area - 1.5 m AG	590489	4805658	283.1																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	71.7	0	0.0	4.4	14.7	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	10	10
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	71.7	0	0.0	5.6	11.3	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	2	2
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	71.7	0	0.0	2.1	15.5	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	7	7
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	71.7	0	0.0	1.5	4.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	71.7	0	0.0	6.1	3.5	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	71.7	0	0.0	1.3	3.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17
HMA-07	HMA - Bucket Elevator	589964	4806614	273.2	93	93	93	71.8	0	0.0	1.4	2.6	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	71.8	0	0.0	2.5	2.1	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	71.8	0	0.0	2.7	3.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	71.8	0	0.0	1.2	3.1	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	71.8	0	0.0	0.6	22.6	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	71.8	0	0.0	3.1	11.6	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5	5	5
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	71.8	0	0.0	-0.4	23.9	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	2	2
HMA-14	HMA - Front-End Loader	589955	4806576	267.1	102	102	102	71.5	0	0.0	2.7	3.5	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-15	HMA - Moving HMA Trucks (each)	590396	4806459	274.2	103	103	103	68.6	0	0.0	2.3	4.9	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	23	23
HMA-16	HMA - Moving Aggregate Trucks (each)	590446	4806430	275.4	102	102	102	68.7	0	0.0	3.0	4.3	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590404	4806455	274.1	92	92	92	68.6	0	0.0	2.3	5.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12
Q-01a	Quarry - Moving Aggregate Trucks (each)	590564	4806401	277.1	106	106

R11a	Residential Home - 4.5 m AG	590323	4805417	282.9																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	72.9	0	0.0	0.2	16.1	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	72.9	0	0.0	0.5	12.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4	4	4
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	72.9	0	0.0	-0.3	15.2	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9	9	9
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	72.9	0	0.0	-1.5	4.7	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	72.8	0	0.0	1.0	3.8	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	23	23
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	72.9	0	0.0	-1.3	4.4	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-07	HMA - Bucket Elevator	589964	4806615	275.7	93	93	93	72.9	0	0.0	-0.7	5.2	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	73.0	0	0.0	0.0	3.4	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	73.0	0	0.0	-0.2	3.2	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	73.0	0	0.0	-1.0	3.2	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	73.0	0	0.0	-1.6	19.7	14.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	73.0	0	0.0	0.1	15.1	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	3	3
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	73.0	0	0.0	-1.7	19.9	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5	5	5
HMA-14	HMA - Front-End Loader	589955	4806575	267.0	102	102	102	72.7	0	0.0	-0.6	5.2	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
HMA-15	HMA - Moving HMA Trucks (each)	590465	4806408	275.8	103	103	103	72.0	0	0.0	0.0	5.2	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
HMA-16	HMA - Moving Aggregate Trucks (each)	590492	4806390	276.4	102	102	102	72.0	0	0.0	0.6	3.9	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590474	4806403	275.8	92	92	92	72.0	0	0.0	0.0	4.7	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	10	10
Q-01a	Quarry - Moving Aggregate Trucks (each)	590598	4806355	278.0	106	106	106	71.7	0	0.0	0.2	4.5	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25
Q-01b	Quarry - Moving Aggregate Trucks (each)	590157	4806451	263.9	103	103	103	70.7	0	0.0	-1.0	4.6	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590278	4806170	260.8	101	101	101	69.1	0	0.0	-0.3	3.9	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590352	4806155	260.6	101	101	101	68.5	0	0.0	-0.1	5.3	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590271	4806164	262.6	109	--	--	68.5	0	0.0	-0.4	4.1	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590271	4806162	262.1	110	--	--	68.5	3	0.0	-0.4	6.2	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590244	4806157	263.5	123	--	--	68.4	0	0.0	-1.3	4.7	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	68.3	0	0.0	-0.7	4.2	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	103	--	--	68.2	3	0.0	2.4	3.7	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	68.2	3	0.0	0.9	3.1	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	69.0	0	0.0	1.3	8.2	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	--	--

R11b	Outdoor Amenity Area - 1.5 m AG	590313	4805428	280.1																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	72.8	0	0.0	4.3	14.6	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9	9	9
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	72.8	0	0.0	5.5	11.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	1	1
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	72.8	0	0.0	2.0	15.2	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	72.8	0	0.0	2.0	6.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	72.7	0	0.0	2.5	3.7	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	72.8	0	0.0	1.2	3.6	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-07	HMA - Bucket Elevator	589964	4806615	275.5	93	93	93	72.8	0	0.0	2.7	4.1	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	72.9	0	0.0	2.4	2.2	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	72.9	0	0.0	2.6	3.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	72.9	0	0.0	1.0	4.1	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	72.9	0	0.0	0.7	22.5	15.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	72.9	0	0.0	3.0	18.6	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	72.9	0	0.0	-0.4	23.8	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-14	HMA - Front-End Loader	589955	4806575	267.0	102	102	102	72.6	0	0.0	2.7	3.2	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19
HMA-15	HMA - Moving HMA Trucks (each)	590463	4806391	276.0	103	103	103	71.5	0	0.0	2.4	4.7	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20
HMA-16	HMA - Moving Aggregate Trucks (each)	590501	4806365	276.9	102	102	102	71.6	0	0.0	3.1	4.4	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590467	4806384	275.9	92	92	92	71.6	0	0.0	2.4	4.6	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	10	10
Q-01a	Quarry - Moving Aggregate Trucks (each)	590609	4806333	278.5	106	106	106	71.2	0	0.0	2.5	4.6	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
Q-01b	Quarry - Moving Aggregate Trucks (each)	590159	4806440	263.8	103	103	103	70.5	0	0.0	1.3	3.9	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590279	4806171	260.8	101	101	101	69.0	0	0.0	2.8	1.7	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590352	4806155	260.6	101	101	101	68.4	0	0.0	3.1	2.9	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590271	4806164	262.6	109	--	--	68.4	0	0.0	1.9	2.7	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590271	4806162	262.1	110	--	--	68.4	3	0.0	3.3	3.4	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590244	4806157	263.5	123	--	--	68.3	0	0.0	0.1	4.4	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	68.1	0	0.0	1.9	2.1	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	103	--	--	68.1	3	0.0	3.8	2.9	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	68.1	3	0.0	2.0	2.6	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	68.9	0	0.0	1.6	3.9	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	--	--

VL1	Vacant Lot - 4.5 m AG	590857	4806028	284.5																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	71.5	0	0.0	0.2	17.8	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	71.5	0	0.0	0.5	14.9	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	3	3
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	71.5	0	0.0	-0.4	18.9	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	71.5	0	0.0	-1.5	4.7	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	71.5	0	0.0	0.9	2.9	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	71.5	0	0.0	-1.1	4.3	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18
HMA-07	HMA - Bucket Elevator	589965	4806614	270.6	93	93	93	71.6	0	0.0	-0.8	5.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	71.6	0	0.0	0.2	3.5	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	71.6	0	0.0	0.0	4.2	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	71.6	0	0.0	-0.9	4.3	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	71.6	0	0.0	-1.6	19.8	13.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	71.6	0	0.0	-1.1	4.6	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	71.6	0	0.0	-1.7	19.9	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	7	7
HMA-14	HMA - Front-End Loader	589938	4806618	266.7	102	102	102	71.5	0	0.0	-0.6	5.4	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-15	HMA - Moving HMA Trucks (each)	590279	4806516	272.0	103	103	103	59.9	0	0.0	-0.1	5.1	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	36	36
HMA-16	HMA - Moving Aggregate Trucks (each)	590336	4806479	273.2	102	102	102	60.2	0	0.0	0.2	4.8	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35	35	35
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590257	4806523	271.1	92	92	92	59.8	0	0.0	-0.1	5.4	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25
Q-01a	Quarry - Moving Aggregate Trucks (each)	590525	4806442	275.7	106	106	106	59.4	0	0.0	-0.1	4.8	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40	40	40
Q-01b	Quarry - Moving Aggregate Trucks (each)	590175	4806381	263.2	103	103	103	68.8	0	0.0	-1.2	4.4	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-02	Quarry - Front-End Loader 1 (ESDM Q1)	590293	4806201	260.8	101	101	101	66.4	0	0.0	-0.8	4.2	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29
Q-03	Quarry - Front-End Loader 2 (ESDM Q9)	590352	4806155	260.6	101	101	101	65.3	0	0.0	-0.7	7.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
Q-04a	Quarry - Jaw Crusher - Top (ESDM Q2)	590271	4806164	262.6	109	--	--	66.6	0	0.0	-0.6	4.2	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	--	--
Q-04b	Quarry - Jaw Crusher - Sides (ESDM Q2)	590271	4806159	262.2	110	--	--	66.6	3	0.0	-0.7	5.6	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40	--	--
Q-05	Quarry - Pair of Screeners (ESDM Q3, Q5)	590244	4806148	263.5	123	--	--	66.9	0	0.0	-1.4	6.0	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43	--	--
Q-06	Quarry - Pair of Cone Crushers (ESDM Q4)	590246	4806144	262.2	117	--	--	66.9	0	0.0	-0.9	4.3	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43	--	--
Q-07a	Quarry - Generator Intake	590266	4806144	260.5	103	--	--	66.6	3	0.0	2.0	4.1	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	--	--
Q-07b	Quarry - Generator Radiator & Exhaust (ESDM Q10)	590266	4806142	262.0	108	--	--	66.6	3	0.0	0.6	3.3	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38	--	--
Q-08	Drill (ESDM QD/QD-DC)	590726	4806097	281.5	110	--	--	54.4	0	0.0	0.8	10.2	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42	--	--

VL2	Vacant Lot - 4.5 m AG	590623	4805734	288.2																			
Src ID	Src Name	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN
HMA-01	HMA - Burner Fan Casing	589969	4806613	266.4	103	103	103	71.8	0	0.0	0.3	12.4	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-02	HMA - Burner Motor	589969	4806614	266.5	92	92	92	71.8	0	0.0	0.5	9.4	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	8	8
HMA-03	HMA - Burner Blower Inlet	589968	4806613	266.5	111	111	111	71.8	0	0.0	0.2	12.2	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12
HMA-04	HMA - Dryer	589973	4806608	266.2	110	110	110	71.7	0	0.0	-1.4	4.6	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
HMA-05	HMA - Baghouse Fan/Motor	589962	4806600	264.8	103	103	103	71.7	0	0.0	1.0	2.8	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24
HMA-06	HMA - Baghouse Stack Outlet	589962	4806601	276.4	110	110	110	71.8	0	0.0	-1.1	4.1	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17
HMA-07	HMA - Bucket Elevator	589964	4806614	273.2	93	93	93	71.8	0	0.0	-0.8	3.5	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16
HMA-08	HMA - Head of Bucket Elevator	589963	4806616	283.8	99	99	99	71.8	0	0.0	0.0	2.9	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-09	HMA - Drop at Mixing Tower	589962	4806617	282.8	101	101	101	71.9	0	0.0	-0.2	2.7	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	23	23
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	589961	4806620	282.6	107	107	107	71.9	0	0.0	-0.9	2.5	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	30	30
HMA-11	HMA - Pneumatic Loading Gates	589962	4806618	267.8	101	101	101	71.9	0	0.0	-1.5	19.8	13.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
HMA-12	HMA - Idling Trucks	589964	4806621	265.8	95	95	95	71.9	0	0.0	-0.9	5.8	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13
HMA-13	HMA - Horn	589962	4806622	269.8	105	105	105	71.9	0	0.0	-1.6	19.9	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	7	7
HMA-14	HMA - Front-End Loader	589950	4806587	266.9	102	102	102	71.6	0	0.0	-0.6	5.2	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22
HMA-15	HMA - Moving HMA Trucks (each)	590327	4806489	273.0	103	103	103	67.7	0	0.0	-0.1	3.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28
HMA-16	HMA - Moving Aggregate Trucks (each)	590373	4806459	274.0	102	102	102	67.7	0	0.0	0.2	2.9	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27
HMA-17	HMA - Moving Liquid Asphalt Trucks (each)	590311	4806495	272.3	92	92	92	67.7	0	0.0	-0.1	3.4	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17
Q-01a	Quarry - Moving Aggregate Trucks (each)	590545	4806420	276.4	106	106	106

APPENDIX H

Sample Calculation Results – Octave Band Format

In the following tables of calculation results, the column headings for the various sound attenuation mechanisms follow the terminology of ISO Standard 9613-2. LxD and LxN are the A-weighted, one-hour energy-equivalent source sound power levels for day and night, respectively, which include the effects of any source-abatement measures included in the model, and any time-averaging effects for intermittent sources. LrD and LrN are the A-weighted, one-hour energy-equivalent sound levels at the point of reception. The results are presented in terms of full octave band sound levels, at the most impacted off-site point of reception.

R01a	Residential Home - 4.5 m AG		589563	4806659	284.5																				
Src ID	Src Name	Band	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN	Band
HMA-01	HMA - Burner Fan Casing	31.5	589969	4806613	266.4	70	70	70	63.2	0	0.0	-4.3	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6	31.5
HMA-01	HMA - Burner Fan Casing	63	589969	4806613	266.4	82	82	82	63.2	0	0.0	-4.3	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18	63.0
HMA-01	HMA - Burner Fan Casing	125	589969	4806613	266.4	89	89	89	63.2	0	0.0	3.8	1.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20	125.0
HMA-01	HMA - Burner Fan Casing	250	589969	4806613	266.4	95	95	95	63.2	0	0.0	2.5	2.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26	250.0
HMA-01	HMA - Burner Fan Casing	500	589969	4806613	266.4	97	97	97	63.2	0	0.0	-0.7	5.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	29	29	500.0
HMA-01	HMA - Burner Fan Casing	1000	589969	4806613	266.4	97	97	97	63.2	0	0.0	-0.8	5.6	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	27	27	1000.0
HMA-01	HMA - Burner Fan Casing	2000	589969	4806613	266.4	95	95	95	63.2	0	0.0	-0.8	6.3	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22	2000.0
HMA-01	HMA - Burner Fan Casing	4000	589969	4806613	266.4	93	93	93	63.2	0	0.0	-0.8	7.5	13.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	10	10	4000.0
HMA-01	HMA - Burner Fan Casing	8000	589969	4806613	266.4	89	89	89	63.2	0	0.0	-0.8	9.1	47.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
HMA-02	HMA - Burner Motor	31.5	589969	4806614	266.5	53	53	53	63.2	0	0.0	-4.3	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	31.5
HMA-02	HMA - Burner Motor	63	589969	4806614	266.5	66	66	66	63.2	0	0.0	-4.3	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	3	3	63.0
HMA-02	HMA - Burner Motor	125	589969	4806614	266.5	76	76	76	63.2	0	0.0	3.8	1.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	8	8	125.0
HMA-02	HMA - Burner Motor	250	589969	4806614	266.5	87	87	87	63.2	0	0.0	2.5	2.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18	250.0
HMA-02	HMA - Burner Motor	500	589969	4806614	266.5	87	87	87	63.2	0	0.0	-0.7	5.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19	500.0
HMA-02	HMA - Burner Motor	1000	589969	4806614	266.5	85	85	85	63.2	0	0.0	-0.8	5.6	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15	1000.0
HMA-02	HMA - Burner Motor	2000	589969	4806614	266.5	82	82	82	63.2	0	0.0	-0.8	6.3	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9	9	9	2000.0
HMA-02	HMA - Burner Motor	4000	589969	4806614	266.5	80	80	80	63.2	0	0.0	-0.8	7.5	13.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	4000.0
HMA-02	HMA - Burner Motor	8000	589969	4806614	266.5	72	72	72	63.2	0	0.0	-0.8	9.1	47.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
HMA-03	HMA - Burner Blower Inlet	31.5	589968	4806613	266.5	69	69	69	63.2	0	0.0	-4.3	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5	5	5	31.5
HMA-03	HMA - Burner Blower Inlet	63	589968	4806613	266.5	81	81	81	63.2	0	0.0	-4.3	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17	63.0
HMA-03	HMA - Burner Blower Inlet	125	589968	4806613	266.5	85	85	85	63.2	0	0.0	3.8	1.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17	125.0
HMA-03	HMA - Burner Blower Inlet	250	589968	4806613	266.5	86	86	86	63.2	0	0.0	2.5	2.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17	250.0
HMA-03	HMA - Burner Blower Inlet	500	589968	4806613	266.5	85	85	85	63.2	0	0.0	-0.7	5.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17	500.0
HMA-03	HMA - Burner Blower Inlet	1000	589968	4806613	266.5	84	84	84	63.2	0	0.0	-0.8	5.6	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15	1000.0
HMA-03	HMA - Burner Blower Inlet	2000	589968	4806613	266.5	87	87	87	63.2	0	0.0	-0.8	6.3	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	14	14	2000.0
HMA-03	HMA - Burner Blower Inlet	4000	589968	4806613	266.5	94	94	94	63.2	0	0.0	-0.8	7.5	13.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	11	11	4000.0
HMA-03	HMA - Burner Blower Inlet	8000	589968	4806613	266.5	92	92	92	63.2	0	0.0	-0.8	9.1	47.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
HMA-04	HMA - Dryer	31.5	589974	4806606	266.1	73	73	73	63.3	0	0.0	-4.4	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9	9	9	31.5
HMA-04	HMA - Dryer	63	589974	4806606	266.1	80	80	80	63.3	0	0.0	-4.4	4.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16	63.0
HMA-04	HMA - Dryer	125	589974	4806606	266.1	87	87	87	63.3	0	0.0	3.8	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19	125.0
HMA-04	HMA - Dryer	250	589974	4806606	266.1	93	93	93	63.3	0	0.0	2.5	2.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24	250.0
HMA-04	HMA - Dryer	500	589974	4806606	266.1	101	101	101	63.3	0	0.0	-0.7	5.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32	32	32	500.0
HMA-04	HMA - Dryer	1000	589974	4806606	266.1	103	103	103	63.3	0	0.0	-0.8	5.8	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33	33	33	1000.0
HMA-04	HMA - Dryer	2000	589974	4806606	266.1	105	105	105	63.3	0	0.0	-0.8	6.6	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32	32	32	2000.0
HMA-04	HMA - Dryer	4000	589974	4806606	266.1	104	104	104	63.3	0	0.0	-0.8	7.7	13.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20	4000.0
HMA-04	HMA - Dryer	8000	589974	4806606	266.1	99	99	99	63.3	0	0.0	-0.8	9.3	48.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
HMA-05	HMA - Baghouse Fan/Motor	31.5	589962	4806599	264.8	53	53	53	63.1	0	0.0	-4.7	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	31.5
HMA-05	HMA - Baghouse Fan/Motor	63	589962	4806599	264.8	74	74	74	63.1	0	0.0	-4.7	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	10	10	63.0
HMA-05	HMA - Baghouse Fan/Motor	125	589962	4806599	264.8	87	87	87	63.1	0	0.0	3.4	3.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17	125.0
HMA-05	HMA - Baghouse Fan/Motor	250	589962	4806599	264.8	96	96	96	63.1	0	0.0	3.9	4.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24	250.0
HMA-05	HMA - Baghouse Fan/Motor	500	589962	4806599	264.8	98	98	98	63.1	0	0.0	1.5	8.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24	500.0
HMA-05	HMA - Baghouse Fan/Motor	1000	589962	4806599	264.8	98	98	98	63.1	0	0.0	-0.7	12.2	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22	1000.0
HMA-05	HMA - Baghouse Fan/Motor	2000	589962	4806599	264.8	96	96	96	63.1	0	0.0	-1.0	14.8	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15	2000.0
HMA-05	HMA - Baghouse Fan/Motor	4000	589962	4806599	264.8	90	90	90	63.1	0	0.0	-1.0	17.6	13.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	4000.0
HMA-05	HMA - Baghouse Fan/Motor	8000	589962	4806599	264.8	81	81	81	63.1	0	0.0	-1.0	20.5	47.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
HMA-06	HMA - Baghouse Stack Outlet	31.5	589962	4806601	276.4	69	69	69	63.1	0	0.0	-3.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4	4	4	31.5
HMA-06	HMA - Baghouse Stack Outlet	63	589962	4806601	276.4	86	86	86	63.1	0	0.0	-3.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21	63.0
HMA-06	HMA - Baghouse Stack Outlet	125	589962	4806601	276.4	87	87	87	63.1	0	0.0	3.0	1.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19	125.0
HMA-06	HMA - Baghouse Stack Outlet	250	589962	4806601	276.4	86	86	86	63.1	0	0.0	1.2	3.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18	250.0
HMA-06	HMA - Baghouse Stack Outlet	500	589962	4806601	276.4	86	86	86	63.1	0	0.0	-0.2	4.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17	500.0
HMA-06	HMA - Baghouse Stack Outlet	1000	589962	4806601	276.4	83	83	83	63.1	0	0.0	-0.2	4.8	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	14	14	1000.0
HMA-06	HMA - Baghouse Stack Outlet	2000	589962	4806601	276.4	86	86	86	63.1	0	0.0	-0.2	4.8	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	14	14	2000.0
HMA-06	HMA - Baghouse Stack Outlet	4000	589962	4806601	276.4	92	92	92	63.1	0	0.0	-0.2	4.8	13.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	11	11	4000.0
HMA-06	HMA - Baghouse Stack Outlet	8000	589962	4806601	276.4	79	79	79	63.1	0	0.0	-0.2	4.8	47.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
HMA-07	HMA - Bucket Elevator	31.5	589964	4806615	275.9	68	68	68	63.1	0	0.0	-3.2	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	3	3	31.5
HMA-07	HMA - Bucket Elevator	63	589964	4806615	275.9	81	81	81	63.1	0	0.0	-3.2	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	17	17	63.0
HMA-07	HMA - Bucket Elevator	125	589964	4806615	275.9	85	85	85	63.1	0	0.0	3.6	1.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16	125.0
HMA-07	HMA - Bucket Elevator	250	589964	4806615	275.9	88	88	88	63.1	0	0.0	1.1	3.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19	250.0
HMA-07	HMA - Bucket Elevator	500	589964	4806615	275.9	88	88	88	63.1	0	0.0	-0.3	5.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19	500.0
HMA-07	HMA - Bucket Elevator	1000	589964	4806615	275.9	83	83	83	63.1	0	0.0	-0.3	5.2	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13	1000.0
HMA-07	HMA - Bucket Elevator	2000	589964	4806615	275.9	76	76	76	63.1	0	0.0	-0.3	5.5	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4	4	4	2000.0
HMA-07	HMA - Bucket Elevator	4000	589964	4806615	275.9	79	79	79	63.1	0	0.0	-0.3	5.9	13.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	4000.0
HMA-07	HMA - Bucket Elevator	8000	589964	4806615	275.9	79	79	79	63.1	0	0.0	-0.3	6.5	47.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
HMA-08	HMA - Head of Bucket Elevator	31.5	589963	4806616	283.8	59	59	59	63.1	0	0.0	-3.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	31.5
HMA-08	HMA - Head of Bucket Elevator	63	589963	4806616	283.8	77	77	77	63.1	0	0.0	-3.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12	63.0
HMA-08	HMA - Head of Bucket Elevator	125	589963	4806616	283.8	92	92	92	63.1	0	0.0	3.1	1.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24	125.0
HMA-08	HMA - Head of Bucket Elevator	250	589963	4806616	283.8	91	91	91	63.1	0	0.0	1.2	3.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22	250.0
HMA-08	HMA - Head of Bucket Elevator	500	589963	4806616	283.8	94	94	94	63.1	0	0.0	-0.2	4.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26	500.0
HMA-08	HMA - Head of Bucket Elevator	1000	589963	4806616	283.8	94	94	94	63.1	0	0.0	-0.2	4.8	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25	1000.0
HMA-08	HMA - Head of Bucket Elevator	2000	589963	4806616	283.8	85	85	85	63.1	0	0.0	-0.2	4.7	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13	2000.0
HMA-08	HMA - Head of Bucket Elevator	4000	589963	4806616	283.8	86	86	86	63.1	0	0.0	-0.2	4.7	13.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5	5	5	4000.0
HMA-08	HMA - Head of Bucket Elevator	8000	589963	4806616	283.8	81	81	81	63.1	0	0.0	-0.2	4.6	47.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
HMA-09	HMA - Drop at Mixing Tower	31.5	589962	4806617	282.8	62	62	62	63.1	0	0.0	-3.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	31.5
HMA-09	HMA - Drop at Mixing Tower	63	589962	4806617	282.8	78	78	78	63.1	0	0.0	-3.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13	63.0
HMA-09	HMA - Drop at Mixing Tower	125	589962	4806617	282.8	92	92	92	63.1	0	0.0	3.1	1.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24	125.0
HMA-09	HMA - Drop at Mixing Tower	250	589962	4806617	282.8	89	89	89	63.1	0	0.0	1.2	3.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21	250.0
HMA-09	HMA - Drop at Mixing Tower	500	589962	4806617	282.8	93	93	93	63.1	0	0.0	-0.2	4.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24	500.0
HMA-09	HMA - Drop at Mixing Tower	1000	589962	4806617	282.8	97	97	97	63.1	0	0.0	-0.2	4.8	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28	1000.0
HMA-09	HMA - Drop at Mixing Tower	2000	589962	4806617	282.8	92	92	92	63.1	0	0.0	-0.2	4.8	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20	2000.0
HMA-09	HMA - Drop at Mixing Tower	4000	589962	4806617	282.8	92	92	92	63.1	0	0.0	-0.2	4.8	13.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	11	11	4000.0
HMA-09	HMA - Drop at Mixing Tower	8000	589962	4806617	282.8	93	93	93	63.1	0	0.0	-0.2	4.8	46.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	31.5	589961	4806620	282.6	58	58	58	63.1	0	0.0	-3.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	31.5
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	63	589961	4806620	282.6	75	75	75	63.1	0	0.0	-3.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	11	11	63.0
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	125	589961	4806620	282.6	92	92	92	63.1	0	0.0	3.1	1.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24	125.0
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	250	589961	4806620	282.6	93	93	93	63.1	0	0.0	1.2	3.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25	250.0
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	500	589961	4806620	282.6	97	97	97	63.1	0	0.0	-0.2	4.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28	28	28	500.0
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	1000	589961	4806620	282.6	106	106	106	63.1	0	0.0	-0.2	4.8	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37	37	37	1000.0
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	2000	589961	4806620	282.6	96	96	96	63.1	0	0.0	-0.2	4.8	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25	2000.0
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	4000	589961	4806620	282.6	85	85	85	63.1	0	0.0	-0.2	4.8	13.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5	5	5	4000.0
HMA-10	HMA - Concentric Weight at top of Asphalt Tower	8000	589961	4806620	282.6	75	75	75	63.1	0	0.0	-0.2	4.8	46.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
HMA-11	HMA - Pneumatic Loading Gates	31.5	589962	4806620	267.8	52	52	52	63.1	0	0.0	-4.1	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	31.5
HMA-11	HMA - Pneumatic Loading Gates	63	589962	4806620	267.8	61	61	61	63.1	0	0.0	-4.1	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	63.0
HMA-11	HMA - Pneumatic Loading Gates	125	589962	4806620	267.8	68	68	68	63.1	0	0.0	4.5	4.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	125.0
HMA-11	HMA - Pneumatic Loading Gates	250	589962	4806620	267.8	77	77	77	63.1	0	0.0	2.0	5.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6	250.0
HMA-11	HMA - Pneumatic Loading Gates	500	589962	4806620	267.8	82	82	82	63.1	0	0.0	-0.6	9.1	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	10	10	500.0
HMA-11	HMA - Pneumatic Loading Gates	1000	589962	4806620	267.8	88	88	88	63.1	0	0.0	-0.6	11.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13	1000.0
HMA-11	HMA - Pneumatic Loading Gates	2000	589962	4806620	267.8	92	92	92	63.1	0	0.0	-0.6	13.8	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12	2000.0
HMA-11	HMA - Pneumatic Loading Gates	4000	589962	4806620	267.8	97	97	97	63.1	0	0.0	-0.6	16.5	13.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5	5	5	4000.0
HMA-11	HMA - Pneumatic Loading Gates	8000	589962	4806620	267.8	97	97	97	63.1	0	0.0	-0.6	19.4	47.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
HMA-12	HMA - Idling Trucks	31.5	589964	4806621	265.8	--	--	--	63.1	0	0.0	-4.5	4.8	0.0	0.0	0.0	0.0

Src ID	Src Name	Band	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	RefID	RefIE	RefIN	LrD	LrE	LrN	Band
HMA-13	HMA - Horn	2000	589962	4806621	269.8	102	102	102	63.1	0	0.0	-0.4	13.1	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	23	23	2000.0
HMA-13	HMA - Horn	4000	589962	4806621	269.8	98	98	98	63.1	0	0.0	-0.4	15.6	13.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6	6	6	4000.0
HMA-13	HMA - Horn	8000	589962	4806621	269.8	89	89	89	63.1	0	0.0	-0.4	18.2	46.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
HMA-14	HMA - Front-End Loader	31.5	589955	4806577	267.1	59	59	59	63.1	0	0.0	-4.4	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	31.5
HMA-14	HMA - Front-End Loader	63	589955	4806577	267.1	79	79	79	63.1	0	0.0	-4.4	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15	63.0
HMA-14	HMA - Front-End Loader	125	589955	4806577	267.1	77	77	77	63.1	0	0.0	3.8	2.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	7	7	125.0
HMA-14	HMA - Front-End Loader	250	589955	4806577	267.1	94	94	94	63.0	0	0.0	3.0	4.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24	250.0
HMA-14	HMA - Front-End Loader	500	589955	4806577	267.1	92	92	92	63.1	0	0.0	-0.5	7.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21	500.0
HMA-14	HMA - Front-End Loader	1000	589955	4806577	267.1	99	99	99	63.1	0	0.0	-0.9	9.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26	1000.0
HMA-14	HMA - Front-End Loader	2000	589955	4806577	267.1	92	92	92	63.1	0	0.0	-0.9	11.1	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15	2000.0
HMA-14	HMA - Front-End Loader	4000	589955	4806577	267.1	86	86	86	63.0	0	0.0	-0.9	13.1	13.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	4000.0
HMA-14	HMA - Front-End Loader	8000	589955	4806577	267.1	76	76	76	62.8	0	0.0	-0.8	15.9	46.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
HMA-15	HMA - Moving HMA Trucks	31.5	590388	4806476	273.9	--	--	--	73.4	0	0.0	-5.5	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	--	--	31.5
HMA-15	HMA - Moving HMA Trucks	63	590388	4806476	273.9	76	76	76	68.3	0	0.0	-4.9	4.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	8	8	63.0
HMA-15	HMA - Moving HMA Trucks	125	590388	4806476	273.9	86	86	86	67.7	0	0.0	4.7	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12	125.0
HMA-15	HMA - Moving HMA Trucks	250	590388	4806476	273.9	87	87	87	68.0	0	0.0	3.1	2.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13	250.0
HMA-15	HMA - Moving HMA Trucks	500	590388	4806476	273.9	94	94	94	68.0	0	0.0	-0.6	5.4	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20	500.0
HMA-15	HMA - Moving HMA Trucks	1000	590388	4806476	273.9	99	99	99	67.8	0	0.0	-1.0	5.7	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24	24	24	1000.0
HMA-15	HMA - Moving HMA Trucks	2000	590388	4806476	273.9	98	98	98	66.9	0	0.0	-1.0	6.2	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19	2000.0
HMA-15	HMA - Moving HMA Trucks	4000	590388	4806476	273.9	94	94	94	65.0	0	0.0	-0.9	7.7	19.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2	2	2	4000.0
HMA-15	HMA - Moving HMA Trucks	8000	590388	4806476	273.9	87	87	87	63.5	0	0.0	-0.8	11.6	55.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
HMA-16	HMA - Moving Aggregate Trucks	31.5	590338	4806479	272.8	--	--	--	73.4	0	0.0	-5.5	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	--	--	31.5
HMA-16	HMA - Moving Aggregate Trucks	63	590338	4806479	272.8	76	76	76	68.2	0	0.0	-4.9	4.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	8	8	63.0
HMA-16	HMA - Moving Aggregate Trucks	125	590338	4806479	272.8	86	86	86	67.5	0	0.0	4.7	0.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12	125.0
HMA-16	HMA - Moving Aggregate Trucks	250	590338	4806479	272.8	90	90	90	67.8	0	0.0	3.2	2.1	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16	250.0
HMA-16	HMA - Moving Aggregate Trucks	500	590338	4806479	272.8	94	94	94	67.8	0	0.0	-0.6	5.4	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20	500.0
HMA-16	HMA - Moving Aggregate Trucks	1000	590338	4806479	272.8	97	97	97	67.6	0	0.0	-1.0	5.8	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22	1000.0
HMA-16	HMA - Moving Aggregate Trucks	2000	590338	4806479	272.8	96	96	96	66.8	0	0.0	-1.0	6.9	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	18	18	2000.0
HMA-16	HMA - Moving Aggregate Trucks	4000	590338	4806479	272.8	91	91	91	64.9	0	0.0	-0.9	7.8	19.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	4000.0
HMA-16	HMA - Moving Aggregate Trucks	8000	590338	4806479	272.8	81	81	81	63.5	0	0.0	-0.8	11.9	55.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
HMA-17	HMA - Moving Liquid Asphalt Trucks	31.5	590275	4806514	271.0	--	--	--	73.4	0	0.0	-5.5	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	--	--	31.5
HMA-17	HMA - Moving Liquid Asphalt Trucks	63	590275	4806514	271.0	66	66	66	68.2	0	0.0	-4.9	4.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	63.0
HMA-17	HMA - Moving Liquid Asphalt Trucks	125	590275	4806514	271.0	75	75	75	67.5	0	0.0	4.8	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1	1	1	125.0
HMA-17	HMA - Moving Liquid Asphalt Trucks	250	590275	4806514	271.0	76	76	76	67.7	0	0.0	3.3	2.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	3	3	250.0
HMA-17	HMA - Moving Liquid Asphalt Trucks	500	590275	4806514	271.0	84	84	84	67.6	0	0.0	-0.6	5.7	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	10	10	500.0
HMA-17	HMA - Moving Liquid Asphalt Trucks	1000	590275	4806514	271.0	88	88	88	67.4	0	0.0	-1.0	6.2	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13	1000.0
HMA-17	HMA - Moving Liquid Asphalt Trucks	2000	590275	4806514	271.0	87	87	87	66.6	0	0.0	-1.0	7.3	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8	8	8	2000.0
HMA-17	HMA - Moving Liquid Asphalt Trucks	4000	590275	4806514	271.0	83	83	83	64.9	0	0.0	-0.9	7.7	19.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	4000.0
HMA-17	HMA - Moving Liquid Asphalt Trucks	8000	590275	4806514	271.0	76	76	76	63.6	0	0.0	-0.8	11.7	55.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
Q-01a	Quarry - Moving Aggregate Trucks	31.5	590517	4806462	275.5	--	--	--	73.3	0	0.0	-5.5	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	--	--	31.5
Q-01a	Quarry - Moving Aggregate Trucks	63	590517	4806462	275.5	80	80	80	69.9	0	0.0	-5.2	4.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	10	10	63.0
Q-01a	Quarry - Moving Aggregate Trucks	125	590517	4806462	275.5	89	89	89	69.5	0	0.0	5.4	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13	125.0
Q-01a	Quarry - Moving Aggregate Trucks	250	590517	4806462	275.5	90	90	90	69.7	0	0.0	3.4	1.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15	250.0
Q-01a	Quarry - Moving Aggregate Trucks	500	590517	4806462	275.5	98	98	98	69.6	0	0.0	-0.7	5.1	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	22	22	500.0
Q-01a	Quarry - Moving Aggregate Trucks	1000	590517	4806462	275.5	102	102	102	69.5	0	0.0	-1.1	5.3	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	25	25	1000.0
Q-01a	Quarry - Moving Aggregate Trucks	2000	590517	4806462	275.5	101	101	101	68.9	0	0.0	-1.1	5.0	8.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19	2000.0
Q-01a	Quarry - Moving Aggregate Trucks	4000	590517	4806462	275.5	97	97	97	67.3	0	0.0	-1.0	4.8	26.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	4000.0
Q-01a	Quarry - Moving Aggregate Trucks	8000	590517	4806462	275.5	90	90	90	66.3	0	0.0	-0.9	4.8	77.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
Q-01b	Quarry - Moving Aggregate Trucks	31.5	590160	4806440	263.8	--	--	--	65.6	0	0.0	-4.8	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	--	--	31.5
Q-01b	Quarry - Moving Aggregate Trucks	63	590160	4806440	263.8	77	77	77	67.2	0	0.0	-5.0	4.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	10	10	63.0
Q-01b	Quarry - Moving Aggregate Trucks	125	590160	4806440	263.8	86	86	86	67.2	0	0.0	4.0	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14	14	14	125.0
Q-01b	Quarry - Moving Aggregate Trucks	250	590160	4806440	263.8	87	87	87	67.2	0	0.0	2.5	2.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15	250.0
Q-01b	Quarry - Moving Aggregate Trucks	500	590160	4806440	263.8	95	95	95	67.2	0	0.0	-1.0	4.8	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23	23	23	500.0
Q-01b	Quarry - Moving Aggregate Trucks	1000	590160	4806440	263.8	99	99	99	67.2	0	0.0	-1.4	4.9	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26	26	26	1000.0
Q-01b	Quarry - Moving Aggregate Trucks	2000	590160	4806440	263.8	98	98	98	67.1	0	0.0	-1.4	5.0	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21	2000.0
Q-01b	Quarry - Moving Aggregate Trucks	4000	590160	4806440	263.8	94	94	94	66.7	0	0.0	-1.3	5.3	20.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3	3	3	4000.0
Q-01b	Quarry - Moving Aggregate Trucks	8000	590160	4806440	263.8	87	87	87	65.9	0	0.0	-1.2	5.6	69.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
Q-02	Quarry - Front-End Loader 1	31.5	590293	4806205	260.8	54	54	54	69.7	0	0.0	-5.2	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	31.5
Q-02	Quarry - Front-End Loader 1	63	590293	4806205	260.8	63	63	63	69.7	0	0.0	-5.2	4.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	63.0
Q-02	Quarry - Front-End Loader 1	125	590293	4806205	260.8	84	84	84	69.7	0	0.0	4.2	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10	10	10	125.0
Q-02	Quarry - Front-End Loader 1	250	590293	4806205	260.8	91	91	91	69.7	0	0.0	2.0	2.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	16	16	250.0
Q-02	Quarry - Front-End Loader 1	500	590293	4806205	260.8	95	95	95	69.7	0	0.0	-1.4	4.8	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20	500.0
Q-02	Quarry - Front-End Loader 1	1000	590293	4806205	260.8	97	97	97	69.7	0	0.0	-1.6	4.8	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	21	21	1000.0
Q-02	Quarry - Front-End Loader 1	2000	590293	4806205	260.8	94	94	94	69.7	0	0.0	-1.6	4.8	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13	13	13	2000.0
Q-02	Quarry - Front-End Loader 1	4000	590293	4806205	260.8	87	87	87	69.7	0	0.0	-1.6	4.8	28.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	4000.0
Q-02	Quarry - Front-End Loader 1	8000	590293	4806205	260.8	76	76	76	69.7	0	0.0	-1.6	4.8	100.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
Q-03	Quarry - Front-End Loader 2	31.5	590351	4806160	260.6	54	54	54	70.4	0	0.0	-5.3	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	31.5
Q-03	Quarry - Front-End Loader 2	63	590351	4806160	260.6	63	63	63	70.4	0	0.0	-5.3	4.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	63.0
Q-03	Quarry - Front-End Loader 2	125	590351	4806160	260.6	84	84	84	70.4	0	0.0	4.3	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9	9	9	125.0
Q-03	Quarry - Front-End Loader 2	250	590351	4806160	260.6	91	91	91	70.4	0	0.0	2.0	3.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	15	15	250.0
Q-03	Quarry - Front-End Loader 2	500	590351	4806160	260.6	95	95	95	70.4	0	0.0	-1.4	4.9	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19	19	19	500.0
Q-03	Quarry - Front-End Loader 2	1000	590351	4806160	260.6	97	97	97	70.4	0	0.0	-1.7	4.9	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	20	20	1000.0
Q-03	Quarry - Front-End Loader 2	2000	590351	4806160	260.6	94	94	94	70.4	0	0.0	-1.7	4.9	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12	12	12	2000.0
Q-03	Quarry - Front-End Loader 2	4000	590351	4806160	260.6	87	87	87	70.4	0	0.0	-1.7	4.9	30.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	4000.0
Q-03	Quarry - Front-End Loader 2	8000	590351	4806160	260.6	76	76	76	70.4	0	0.0	-1.7	4.8	109.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
Q-04a	Quarry - Jaw Crusher - Top	31.5	590272	4806166	262.6	67	--	--	69.7	0	0.0	-5.1	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	31.5
Q-04a	Quarry - Jaw Crusher - Top	63	590272	4806166	262.6	85	--	--	69.7	0	0.0	-5.1	4.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	--	--	63.0
Q-04a	Quarry - Jaw Crusher - Top	125	590272	4806166	262.6	93	--	--	69.7	0	0.0	4.1	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	--	--	125.0
Q-04a	Quarry - Jaw Crusher - Top	250	590272	4806166	262.6	102	--	--	69.7	0	0.0	0.9	3.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	--	--	250.0
Q-04a	Quarry - Jaw Crusher - Top	500	590272	4806166	262.6	104	--	--	69.7	0	0.0	-1.5	4.8	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	--	--	500.0
Q-04a	Quarry - Jaw Crusher - Top	1000	590272	4806166	262.6	103	--	--	69.7	0	0.0	-1.5	4.8	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27	--	--	1000.0
Q-04a	Quarry - Jaw Crusher - Top	2000	590272	4806166	262.6	100	--	--	69.7	0	0.0	-1.5	4.8	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	--	--	2000.0
Q-04a	Quarry - Jaw Crusher - Top	4000	590272	4806166	262.6	96	--	--	69.7	0	0.0	-1.5	4.8	28.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	4000.0
Q-04a	Quarry - Jaw Crusher - Top	8000	590272	4806166	262.6	88	--	--	69.7	0	0.0	-1.5	4.8	101.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
Q-04b	Quarry - Jaw Crusher - Sides	31.5	590272	4806165	262.1	65	--	--	69.7	3	0.0	-5.2	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	31.5
Q-04b	Quarry - Jaw Crusher - Sides	63	590272	4806165	262.1	83	--	--	69.7	3	0.0	-5.2	5.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	--	--	63.0
Q-04b	Quarry - Jaw Crusher - Sides	125	590272	4806165	262.1	93	--	--	69.7	3	0.0	4.1	1.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	--	--	125.0
Q-04b	Quarry - Jaw Crusher - Sides	250	590272	4806165	262.1	102	--	--	69.7	3	0.0	1.3	4.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29	--	--	250.0
Q-04b	Quarry - Jaw Crusher - Sides	500	590272	4806165	262.1	105	--	--	69.7	3	0.0	-1.5	6.3	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32	--	--	500.0
Q-04b	Quarry - Jaw Crusher - Sides	1000	590272	4806165	262.1	105	--	--	69.7	3	0.0	-1.6	6.6	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30	--	--	1000.0
Q-04b	Quarry - Jaw Crusher - Sides	2000	590272	4806165	262.1	102	--	--	69.7	3	0.0	-1.6	6.9	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22	--	--	2000.0
Q-04b	Quarry - Jaw Crusher - Sides	4000	590272	4806165	262.1	97	--	--	69.7	3	0.0	-1.6	7.0	28.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	4000.0
Q-04b	Quarry - Jaw Crusher - Sides	8000	590272	4806165	262.1	90	--	--	69.7	3	0.0	-1.6	7.0	101.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
Q-05	Quarry - Pair of Screeners	31.5	590244	4806155	263.5	58	--	--	69.6	0	0.0	-5.1	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	31.5
Q-05	Quarry - Pair of Screeners	63	590244	4806155	263.5	76	--	--	69.6	0	0.0	-5.1	4.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	--	--	63.0
Q-05	Quarry - Pair of Screeners	125	590244	4806155	263.5	86	--	--	69.6	0	0.0	4.1	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	--	--	125.0
Q-05	Quarry - Pair of Screeners	250	590244	4806155	263.5	100	--	--	69.6	0	0.0	0.9	3.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25	--	--	250.0
Q-05	Quarry - Pair of Screeners	500	590244	4806155	263.5	107	--	--	69.6	0	0.0	-1.5	4.8	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32	--	--	500.0
Q-05	Quarry - Pair of Screeners	1000	590244	4806155	263.5	112	--	--	69.6	0	0.0	-1.5	4.8	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36	--	--	1000.0
Q-05	Quarry - Pair of Screeners	2000	590244	4806155	263.5	116	--	--	69.6	0	0.0	-1.5	4.8	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35	--	--	2000.0
Q-05	Quarry - Pair of Screeners	4000	590244	4806155	263.5	120	--	--	69.6	0	0.0	-1.5	4.8	27.8

Src ID	Src Name	Band	X	Y	Z	LxD	LxE	LxN	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	CmetE	CmetN	ReflD	ReflE	ReflN	LrD	LrE	LrN	Band
Q-07a	Quarry - Generator Intake	1000	590265	4806141	260.5	99	--	--	69.8	3	0.0	0.3	8.2	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	--	--	1000.0
Q-07a	Quarry - Generator Intake	2000	590265	4806141	260.5	97	--	--	69.8	3	0.0	-1.7	8.7	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	--	--	2000.0
Q-07a	Quarry - Generator Intake	4000	590265	4806141	260.5	90	--	--	69.8	3	0.0	-1.7	8.8	28.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	4000.0
Q-07a	Quarry - Generator Intake	8000	590265	4806141	260.5	81	--	65535	69.8	3	0.0	-1.7	8.8	102.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
Q-07b	Quarry - Generator Radiator & Exhaust	31.5	590266	4806140	262.0	61	--	--	69.8	3	0.0	-5.3	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	31.5
Q-07b	Quarry - Generator Radiator & Exhaust	63	590266	4806140	262.0	86	--	--	69.8	3	0.0	-5.3	5.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18	--	--	63.0
Q-07b	Quarry - Generator Radiator & Exhaust	125	590266	4806140	262.0	96	--	--	69.8	3	0.0	4.4	7.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	--	--	125.0
Q-07b	Quarry - Generator Radiator & Exhaust	250	590266	4806140	262.0	101	--	--	69.8	3	0.0	2.8	10.4	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20	--	--	250.0
Q-07b	Quarry - Generator Radiator & Exhaust	500	590266	4806140	262.0	102	--	--	69.8	3	0.0	-0.5	13.6	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	--	--	500.0
Q-07b	Quarry - Generator Radiator & Exhaust	1000	590266	4806140	262.0	102	--	--	69.8	3	0.0	-1.6	16.3	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17	--	--	1000.0
Q-07b	Quarry - Generator Radiator & Exhaust	2000	590266	4806140	262.0	99	--	--	69.8	3	0.0	-1.6	18.7	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7	--	--	2000.0
Q-07b	Quarry - Generator Radiator & Exhaust	4000	590266	4806140	262.0	93	--	--	69.8	3	0.0	-1.6	20.8	28.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	4000.0
Q-07b	Quarry - Generator Radiator & Exhaust	8000	590266	4806140	262.0	84	--	--	69.8	3	0.0	-1.6	22.4	102.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0
Q-08	Drill	31.5	590726	4806097	281.5	45	--	--	73.2	0	0.0	-5.6	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	31.5
Q-08	Drill	63	590726	4806097	281.5	59	--	--	73.2	0	0.0	-5.6	4.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	63.0
Q-08	Drill	125	590726	4806097	281.5	75	--	--	73.2	0	0.0	4.7	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	125.0
Q-08	Drill	250	590726	4806097	281.5	83	--	--	73.2	0	0.0	3.2	1.6	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4	--	--	250.0
Q-08	Drill	500	590726	4806097	281.5	91	--	--	73.2	0	0.0	0.8	4.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11	--	--	500.0
Q-08	Drill	1000	590726	4806097	281.5	103	--	--	73.2	0	0.0	-1.4	4.8	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21	--	--	1000.0
Q-08	Drill	2000	590726	4806097	281.5	104	--	--	73.2	0	0.0	-1.8	4.7	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16	--	--	2000.0
Q-08	Drill	4000	590726	4806097	281.5	105	--	--	73.2	0	0.0	-1.8	4.7	42.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	4000.0
Q-08	Drill	8000	590726	4806097	281.5	101	--	--	73.2	0	0.0	-1.8	4.7	151.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	8000.0

Where: Lr = Lx - Adiv + K0 + Dc - Agnd - Abar - Aatm - Afol - Ahous + Cmet + Refl

Ontario

Ministry of the Environment

CERTIFICATE OF APPROVAL
(AIR)

Granted under Section 8 of The Environmental Protection Act

Application number 8/300/088/82/826 *This Certificate dated* March 29, *19* 82

Owner/Operator GENSTAR STONE PRODUCTS INC.

Owner/Operator address Box 550, Oakville, Ontario L6J 5B7

This approval is for the installation of 2 gas fired burners, totalling 231,312,000 kJ/hr. in two existing asphalt plant driers presently operating on #5A oil.

located at Guelph Line, #2 Sideroad W., Burlington, Ontario

Your application has been reviewed on the basis of the information submitted and is approved, subject to the terms and conditions stated below.

DIRECTOR, SECTION 8

MOE 1107