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Fraser Surrey Canola Oil Transload Facility

Environmental Noise and Vibration Assessment

Prepared for:

Stantec Consulting Ltd.

2022-12-21

Prepared by:

BKL CONSULTANTS LTD.

File: 2280-22A-R3

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List of Abbreviations

Abbreviation/Acronym	Definition
%HA	Percentage of highly annoyed persons
ANSI	American National Standards Institute
BC	British Columbia
BKL	BKL Consultants Ltd.
dB	decibel
dBA	A-weighted decibel
EA	environmental assessment
EC	European Commission
Hz	hertz
km	kilometre
km/h	kilometres per hour
L_d	daytime (7 am to 7 pm) equivalent sound level
L_{den}	day-evening-night equivalent sound level
L_e	evening time (7 pm to 10 pm) equivalent sound level
L_{eq}	equivalent sound level
L_{LF}	low frequency sound level
L_n	nighttime (10 pm to 7 am) equivalent sound level
L_{Rden}	rated day-evening-night equivalent sound level
m	metre
MTPA	mega tonnes per annum
the Port	Vancouver Fraser Port Authority
the Project	Fraser Surrey Oil Transload Facility
s	second
SWL	sound power level
VFPA	Vancouver Fraser Port Authority

Executive Summary

BKL Consultants Ltd. (BKL) has conducted an environmental noise and vibration assessment for the Fraser Surrey Canola Oil Transload Facility Project (the Project) in Surrey, BC. The Project involves redeveloping a portion of an existing terminal at Fraser Surrey Docks to construct a Canola Oil Transload Facility and use of existing Berth 10, including facility infrastructure, storage tank farm, rail offloading stations, and expansion of facilities at Berth 10, for mooring and loading vessels. Market conditions will govern when the Project is able to be utilized at full capacity of 1,000,000 MT of canola oil throughput annually. At present, it is estimated that this will occur by year 2033..

Environmental Noise Assessment

BKL's environmental noise assessment aimed to

- evaluate existing noise conditions at potentially affected residential receivers within the community;
- develop a computer noise model to predict community noise levels in the future noise environment with the Project operating at full capacity;
- perform a noise impact assessment in compliance with the Port of Vancouver's *Project & Environmental Review Guidelines – Environmental Noise Assessment* (the PER Guideline).

BKL evaluated existing noise conditions by performing noise measurements at the site and in the community in Surrey and New Westminster. The noise measurements captured various activities at the existing DP World site including train arrivals, processing, unloading and rail car movements.

BKL developed a Cadna/A computer noise model to assess Project noise levels using the measurement results, and information provided by DP World and Stantec about expected sound sources and operating times of various activities.

The Project noise predictions were based on the following noise sources:

- Vessel loading at Berth 10;
- 322 canola delivery trains per year, which equates to one train every 27 hours;
- On-site rail movements associated with the processing of rail cars (including site locomotive movements, rolling stock, and shunting events); and
- Other sources such as the marine loading pumps, the rail unloading pumps, and agitation equipment installed on storage tanks.

The noise model accounts for the following factors:

- The specific operation times (times of day, total annual average daily operation time) of each noise source;
- A 12 dB impulsiveness penalty to noise from shunting activities; and

- A 5 dB low frequency noise penalty to noise from locomotives moving on the site.

Based on these assumptions, BKL predicts that

- annual average noise levels from the Project, with and without penalties, will be well below the existing community noise levels, such that the resulting total future annual average noise levels will be the same as the existing measured noise levels; and
- Project-related noise will not exceed any of the PER Guideline criteria.

Environmental Vibration Assessment

The port's PER Submission checklist also requests an assessment of how the Project will affect vibration levels experienced at the adjacent community.

While the PER does not specify how vibration should be assessed, the joint Railway Association of Canada (RAC) and Federation of Canadian Municipalities' (FCM) *Guidelines for New Development in Proximity to Railway Operations,* section AC.2.5 *Recommended Procedures for the Preparation of Vibration Impact Studies for New Residential or Other Sensitive Land Uses in Proximity to Railway Operations,* states that ground-borne vibration transmission should be evaluated for dwellings within 75 metres of the railway right-of-way.

Since the Project will be more than 90 metres away from the closest residential receivers, potential impacts from ground-borne vibration associated with the Project are expected to be insignificant, and no quantitative study has been performed.

Introduction

BKL Consultants Ltd. (BKL) has been retained by Stantec Consulting Ltd. (Stantec) to provide an environmental noise and vibration impact assessment for the proposed Fraser Surrey Canola Oil Transload Facility (the Project) to be operated by DP World Fraser Surrey Inc. (DP World).

DP World proposes to redevelop a portion of the existing Fraser Surrey Docks terminal to construct a Canola Oil Transload Facility Project and use of existing terminal Berth 10, including facility infrastructure, storage tank farm, rail offloading stations, and expansion of facilities at Berth 10, for mooring and loading vessels. The site, located at 11060 Elevator Road, Surrey, BC, is on Vancouver Fraser Port Authority (VFPA, the Port) land and therefore a noise assessment is required in support of the permit application.

Existing operations have been ongoing for many years and include the unloading of materials by rail operators. Six noise complaints have reportedly been received from the community in the past five years.

Environmental Noise Assessment

The assessment methodology for the Project was developed by considering the requirements outlined in the Port's document, *Project & Environmental Review Guidelines – Environmental Noise Assessment* (PER Guideline) which was issued July 2015. The PER Guideline includes a noise screening procedure to determine whether an environmental noise assessment report is required for a Project. The completed screening worksheet, included in Appendix A, confirmed that a full noise assessment is required for this Project.

This report documents existing noise exposure levels at potentially affected residential receiver locations near the Project and the predicted noise climate following completion of the Project.

Relevant information regarding acoustics fundamentals and terminology is presented in Appendix B: Introduction to Sound and Environmental Noise Assessment.

Environmental Vibration Assessment

The port's PER Submission checklist also requests an assessment of how the Project will affect vibration levels experienced at the adjacent community.

While the PER does not specify how vibration should be assessed, the joint Railway Association of Canada (RAC) and Federation of Canadian Municipalities' (FCM) *Guidelines for New Development in Proximity to Railway Operations,* section AC.2.5 *Recommended Procedures for the Preparation of Vibration Impact Studies for New Residential or Other Sensitive Land Uses in Proximity to Railway Operations,* states that ground-borne vibration transmission should be evaluated for dwellings within 75 metres of the railway right-of-way.

Project Description

DP World is proposing to redevelop a portion of the existing terminal to construct a Canola Oil Transload Facility Project and use of existing terminal Berth 10, including facility infrastructure, storage tank farm, rail offloading stations, and expansion of facilities at Berth 10, for mooring and loading vessels. The project location will be within the blue box shown in Figure 1 below.

Figure 1: Project Boundary

The key features of the Canola Oil Transload Facility Project include

- a storage tank and rail offload area adjacent to Timberland Road;
- vessel loading at Berth 10;
- below grade canola oil transmission and recycle lines connecting the storage tanks to the marine trestle; and
- a new canola operation building to support electrical distribution and a Motor Control Centre (MCC), a control room, and security center with breakroom, and critical spares storage.

The proposed canola oil transload facility will be built to support an initial annual throughput capacity of 1,000,000 tonnes per year. The new unloading rail yard will allow 32 railcars (16 railcars per track) to be unloaded at the same time. 322 canola delivery trains are estimated per year, which accounts to a canola train expected every 27.2 hours.

Study Objectives

The objectives of the environmental noise study were to

- evaluate existing noise conditions at potentially affected representative residential receivers within the community;
- develop a computer noise model to predict community noise levels in the future noise environment with the Project operating at full capacity;
- perform a noise impact assessment in compliance with the PER Guideline.

The objective of the environmental vibration study was to evaluate whether vibration levels could change at any residential receivers as a result of the Project.

Construction noise assessment was not part of the current study. Construction noise management is addressed in the Project's Construction Environmental Management Plan.

Spatial Boundaries

The study area includes three residential receivers, two to the south of the Project in Surrey, and one to the north in New Westminster. These residences are considered to be representative of the noise sensitive receivers closest to the Project site. The study locations are shown in Figure 2 below.

Figure 2: Study Locations

The Port's PER submission checklist also requests an assessment of how the Project will affect vibration levels experienced in the adjacent community. While the PER does not specify how vibration should be assessed, the joint Railway Association of Canada (RAC) and Federation of Canadian Municipalities' (FCM) *Guidelines for New Development in Proximity to Railway Operations,* section AC.2.5 *Recommended Procedures for the Preparation of Vibration Impact Studies for New Residential or Other Sensitive Land Uses in Proximity to Railway Operations,* states that ground-borne vibration transmission should be evaluated for dwellings within 75 metres of the railway right-of-way.

Temporal Boundaries

The intent of the study is to predict noise levels for two scenarios: the baseline (existing) scenario and the future scenario when the Project is operating at full capacity. It is expected that the Project may be utilized at or near full by 2033. A future year of 2033 has been used for the study as a basis for the modelling.

Noise associated with construction activities is excluded from this assessment.

Inventory of Noise Sensitive Receivers

The noise-sensitive receivers near the site are all residential dwellings. Commercial building receivers have been excluded from the study. The closest noise-sensitive receivers are located to the south of the Project site in Surrey. The receivers to the north of the Project site across the Fraser River in New Westminster are also included in the study. The chosen receivers, which are representative of other receivers in the study area, are shown in Figure 2.

The nearest residential receivers in the study area south of the Project site in Surrey are generally single-family dwellings, whereas the nearest residential receivers in the study area north and west of the Project site, across the Fraser River are multi-family dwellings.

Inventory of Vibration Sensitive Receivers

The vibration-sensitive receivers near the site are all residential dwellings. Commercial building receivers have been excluded from the study. The main source of ground-borne vibration in communities next to Port facilities is train movements along the railway mainline tracks. The closest trackwork to the receivers is the existing mainline which is approximately 95 metres from the closest receivers. There is no change to the set-back distance between the receivers and the main railway line. Therefore, maximum vibration levels in the community are not expected to change with the Project.

Since the trackwork associated with the Project is more than 75 meters away from the nearest residences, no vibration sensitive receivers have been identified. Potential impacts from ground-borne vibration associated with the Project are expected to be insignificant, and no further analysis of vibration has been performed.

Assessment Criteria

This noise assessment has been conducted to comply with the Port's *Project & Environmental Review Guidelines – Environmental Noise Assessment* (VFPA 2015). It is understood that the Port's preference is to be consistent with Health Canada's *Guidance for Evaluating Human Health Impacts in Environmental Assessment: NOISE* (HC 2017).

Following the PER Guideline, the noise impact assessment approach is based on comparing baseline noise levels to future total noise levels. The model predicts the yearly average Project noise levels and accounts for

- prominent tonal, impulsive and frequency characteristics of each noise source;
- how many days each activity occurs per year;
- the time of day each on-site activity occurs; and
- whether the activity occurs on weekends and/or weekdays.

Project noise levels have been added to existing noise levels at the representative receiver locations to predict the future total noise levels.

Noise has been quantified using the rated annual average day-evening-night sound level, or L_{Rden}. The rated annual average equivalent sound level is the recommended metric to predict the long-term annoyance response of a community (ANSI 2005). The predicted L_{Rden} includes adjustments for evening, night and weekend noise and any necessary adjustments for tonal or impulsive noise as recommended by the ANSI standard. The purpose of applying these adjustments is to reflect the fact that people are more disturbed by noise during evenings, nights and weekends, compared to weekday daytime hours. Similarly, people are more disturbed by impulsive (e.g., railcar shunting), tonal (e.g., backup alarms on mobile equipment, vehicle horns) and excessive low frequency (e.g., some shipboard generators) noise sources, than they are by more neutral noise sources, like steady road traffic noise. The Guidelines also state that the Port will consider whether the Project L_{den} level exceeds 75 dBA.

In addition to the L_{Rden}, the change in the percentage of highly annoyed individuals (%HA) between the baseline and the Project year has been calculated. The Guidelines reference the %HA parameter, but do not provide criteria. Therefore, Health Canada guidance has been considered (HC 2017), which states that noise mitigation should be considered where the difference between the baseline %HA and the Project %HA exceeds 6.5%.

The Guidelines also address low frequency noise, specifically stating that the Port will consider whether the post-Project low-frequency continuous noise level, which is defined as the logarithmic sum of the 16, 31.5 and 63 Hz octave bands, exceeds 70 dB L_{LF}.

In summary, the Guidelines indicate that mitigation will be considered following review of the application if the predicted noise impact exceeds the criteria indicated below in Table 1.

Table 1: PER Assessment Guideline Noise Impact Thresholds Summary

Parameter	Value
Project noise, L_{den}	> 75 dBA
Increased community noise exposure in terms of increase in %HA	> 6.5% increase (Health Canada guideline)
Low frequency noise level, L_{LF}.	> 70 dB

Existing Environmental Conditions

Community Interaction

The Guidelines state "*the history of interaction between a tenant and the surrounding community concerning noise and other nuisance issues is useful in understanding the current level of acceptance*." VFPA confirmed that there have been six noise complaints from the community in the last five years, as summarized in Appendix C: Noise Complaint Log.

Baseline Noise Monitoring

Baseline noise measurements were carried out between Thursday, September 15, and Sunday, September 25, 2022. Baseline noise measurements at single family homes located at 11366 River Road, and 11548 River Road in Surrey were conducted between September 15-22, 2022, and another measurement was taken at a condominium building, located at 3 K De K Court in New Westminster, between September 21-25, 2022.

The locations of the unattended sound level meters were selected to represent community locations with the highest potential to be impacted by Project noise. Figure 3 shows the monitoring locations.

The meters used meet the Type 1 specifications in ANSI S1.4 (ANSI 1983). The instruments were field-calibrated before and after the monitoring periods using a Brüel & Kjær Type 4230 Calibrator with a difference of less than 1 dBA recorded.

A summary of the measurement results is provided in Figure 4 and Table 2. L_{den} and L_n values for start and end dates for each monitoring site do not include the full 24 hour and 9 hour monitoring periods respectively. A detailed description of the monitoring site and time history graphs of the noise levels, and maximum noise histograms are contained in Appendix D: Baseline Noise Measurement Results.

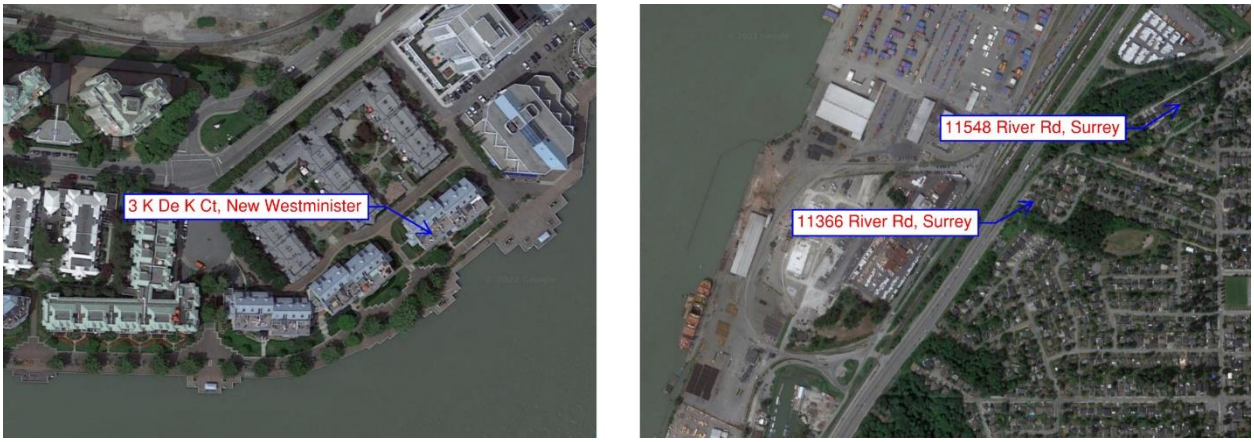

Figure 3: Monitoring Locations

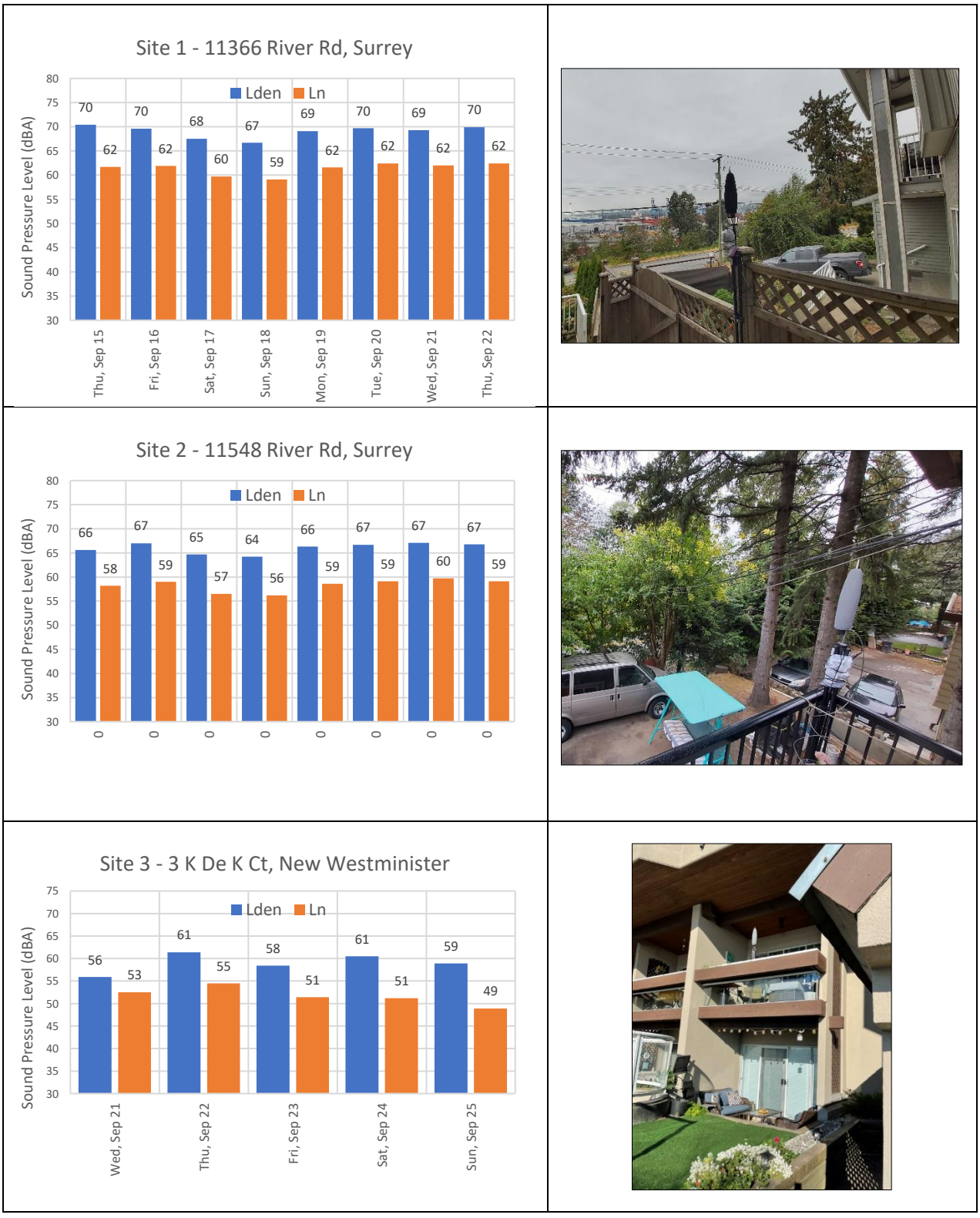

Figure 4: Monitoring Locations and Measured Daily Noise Levels (dBA)

Table 2: Noise Measurement Summary

Receiver	Average Rated Level L_{Rden} (dBA)	Average Daytime Level L_d (dBA)	Average Evening Level L_e (dBA)	Average Nighttime Level L_n (dBA)
11366 River Road, Surrey	69	65	63	61
11548 River Road, Surrey	66	63	61	58
3 K De K Ct, New Westminster	59	56	54	52

A cursory review of the noise data at three locations does not indicate any significant tonal, impulse, or strong low-frequency noise content; therefore, no additional penalties were added to assess the rated day-evening-night equivalent noise level.

In addition to the unattended one-week measurements, attended measurements of individual noise events on the site were taken for locomotive and rolling stock movements. The purpose of these measurements was to validate the sound power levels used for the individual items of equipment used in the model.

Based on information provided by DP World, the operations at Fraser Surrey Docks between September 15 and 25 are representative of the annual average operational patterns for the site. Appendix E: DP World Operations Schedule summarizes the activities that occurred during the monitoring periods.

Noise Modelling Methodology

In order to compare future and baseline noise levels, both metrics need to be normalized to an annual average level while incorporating adjustment factors as described in the Guidelines. Therefore, a 3-D computer model was developed to calculate an annual average noise level for the future Project noise sources at all three assessment locations. The future total noise level was calculated by adding the Project noise source levels to the measured baseline noise levels. The acoustical model implements the internationally recommended ISO 9613-2 (1996) standard for predicting exterior sound propagation. Details of the noise modelling methodology are shown in Appendix F: Noise Modelling Methodology and Details.

Noise Sources

The noise model includes noise sources shown in Figure 5 associated with the Project such as:

- locomotive movements, in and out of the unloading railyard;
- shunting events associated with the movement of the rail car strings at the rain unloading railyard;
- rolling stock noise associated with the movement of the rail cars strings at the unloading railyard;
- rail unloading pumps;
- storage tank agitators;
- marine loading pumps; and
- ship generators.

The model includes the following operational assumptions:

- Railcars are separated off-site into 32 car segments which are then brought onto the site by locomotive, then split into two sets of 16 car segments for product offloading.
- The time taken for rail to move between the mainline and the offloading tracks is the same time as the predicted Robson Road railroad crossing time: 46 minutes per train.
- There would be 322 separate trains per year, each expected to arrive on average once every 27 hours.
- Rail unloading pumps estimated to run for 8 hours per train.
- Rail activities can occur at any time during the day and night
- Tank agitators are estimated to run continuously.
- Marine loading pumps are estimated to run for 30 hours per vessel.

- Vessels would be at Berth 10 for an estimated 32 hours, including 30 hours for vessel loading of product, and an additional 2 hours of idling during arrival and departure.
- Vessels could be loaded at any time during the day and night.

Further details on the modelled noise sources including sound power levels are summarized in Appendix F: Noise Modelling Methodology and Details.

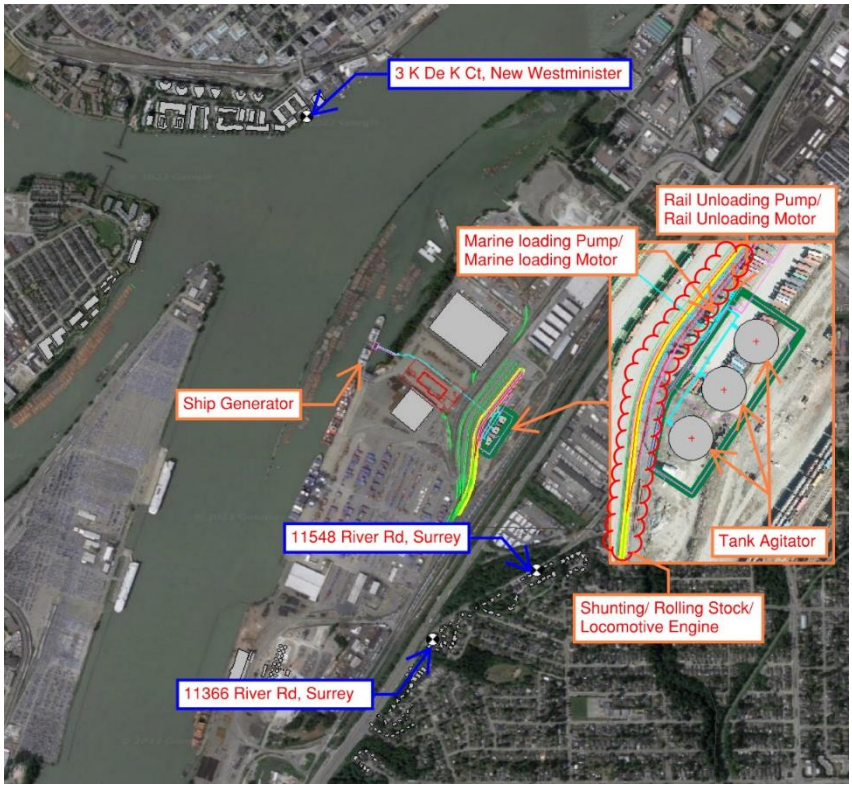

Figure 5. Project Noise Sources Locations

Sound Level Adjustments

The required 5 dB evening time and 10 dB nighttime adjustments have been applied in the model to all noise that occurs during evening hours (7 pm to 10 pm) and nighttime hours (10 pm to 7 am), respectively.

In addition to the time period adjustments, noise source levels were adjusted to reflect the character of the noise source, specifically tonal, low frequency or impulsiveness characteristics.

Within the unloading railyard, the shunting events have a +12 dB highly impulsive penalty. A 5 dB low frequency noise penalty was applied to locomotives while moving cars into and out of the unloading railyard, as well as for ship generators onboard vessels docked at Berth 10.

No other noise sources on the site were considered to have special characteristics, therefore no other penalties have been applied to the model.

Time scale adjustments were applied based on operational hours for each activity/equipment, and then normalized to an annual average. Based on information provided by DP World, rail unloading and shipping operations can occur at any time, day or night, weekday or weekend; therefore, all Project related activities were assumed to operate with equal bias for all hours of the day.

Limitations

For sound calculated using the ISO 9613 standard, the indicated accuracy is ± 3 dBA for source-to-receiver distances of up to 1,000 metres. Distances from the Project site to the included receivers are less than 1,000 metres.

Predicted Noise Levels and Noise Impact Assessment

Prediction of Project Noise

Based on the assumptions and noise source inputs provided, the predicted annual average rated noise levels for the modelled receivers from Project related noise sources is shown in Table 3.

Table 3: Predicted Annual Average Noise Levels from Project Noise Sources

Receiver	Predicted Annual Average Project Noise Levels		
	L_{Rden} (dBA)	L_n (dBA)	L_{LF} (dB)
11366 River Road, Surrey	39	32	49
11548 River Road, Surrey	39	32	47
3 K De K Ct, New Westminster	43	36	51

The nighttime maximum predicted noise level (L_{AFMax}) from intermittent project events such as locomotive and rolling stock movements/couplings is 46 dBA or less at each receiver.

Prediction of Future Total Noise Levels

The total future annual average noise level is the logarithmic sum of the existing noise levels measured at each site, and the noise contributed by the Project. The calculation result is shown in Table 4.

Table 4: Calculated Total Future Noise Levels

Receiver	Measured Baseline Noise Level [A]			Predicted Project Noise Level [B]			Future Total Noise Level [A] + [B]		
	L_{Rden}	L_n	L_{LF}	L_{Rden}	L_n	L_{LF}	L_{Rden}	L_n	L_{LF}
11366 River Road, Surrey	69	61	67	39	32	49	69	61	67
11548 River Road, Surrey	66	58	67	39	32	47	66	58	67
3 K De K Ct, New Westminster	59	52	66	43	36	51	59	52	66

The predicted annual average noise levels from the Project are more than 10 dB below the measured noise levels for each site; therefore, the resulting total future annual average noise levels are predicted to be the same as the existing measured noise levels.

Similarly, nighttime maximum noise levels from intermittent noise events are not expected to be additive with existing maximum noise levels.

Noise Impact Assessment

The predictions show that the Project noise will not measurably increase annual average noise levels above existing levels. Consequently, the increase in community annoyance due to noise, represented by the %HA metric, is 0% for this Project. The predicted future total L_{Rden} and L_{LF} levels shown in Table 4 are below the criteria thresholds established in Table 1.

As the predicted noise levels indicate no increase in noise levels due the Project, and are below the level that require an investigation of noise mitigation, noise mitigation is not required for the Project.

Conclusions and Recommendations

The Project involves redeveloping a portion of the existing terminal to construct a Canola Oil Transload Facility Project and use of existing terminal Berth 10, including facility infrastructure, storage tank farm, rail offloading stations, and expansion of facilities at Berth 10, for mooring and loading vessels.

The key changes to the noise and vibration emissions associated with the Project are due to an increase in the number of vessels docked at Berth 10, and the new rail unloading yard.

Environmental Noise Assessment

Based on these assumptions, BKL predicts that

- annual average noise levels from the Project, with and without penalties, will be well below the existing community noise levels, such that the resulting total future annual average noise levels will be the same as the existing measured noise levels; and
- Project-related noise will not exceed any of the PER Guideline criteria.

Environmental Vibration Assessment

Given that the Project is more than 90 metres away from the closest residential receivers, potential impacts from ground-borne vibration associated with the Project are expected to be insignificant.

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Glossary

%HA - A descriptor for noise annoyance in a population derived from a dose-response relationship between the percentage of a population expressing high annoyance to long-term noise and the corresponding A-weighted day night sound level (L_{dn})

A-weighting – A standardized filter used to alter the sensitivity of a sound level meter with respect to frequency so that the instrument is less sensitive at low and high frequencies where the human ear is less sensitive. Also written as dBA.

Ambient/existing level – The pre-project noise or vibration level.

C-weighting – C-weighting provides a more discriminating measure of the low frequency sound pressures than provided by A-weighting. Unlike A-weighting, C-weighting retains its sensitivity to sounds between 100 and 1000 Hz. Also written as dBC.

Cumulative sound – The summation of individual sounds into a single total value related to the effect over time.

Day-evening-night equivalent sound level (L_{den}) – The sound exposure level for a 24-hour day calculated by logarithmically adding the sound exposure level obtained during the daytime (L_d) (7:00 am to 7:00 pm) (or 5 times the sound exposure for Saturdays and Sundays) to 5 times the sound exposure level obtained during the evening (L_e) (7:00 pm to 10:00 pm) and to 10 times the sound exposure level obtained during the nighttime (L_n) (10:00 pm to 7:00 am) to account for greater human sensitivity to weekend daytime, evening, and nighttime noise.

Day-evening-night equivalent sound level (L_{den}) – The sound exposure level for a 24-hour day calculated by logarithmically adding the sound exposure level obtained during the daytime (L_d) (7:00 am to 7:00 pm) (or 5 times the sound exposure for Saturdays and Sundays) to 5 times the sound exposure level obtained during the evening (L_e) (7:00 pm to 10:00 pm) and to 10 times the sound exposure level obtained during the nighttime (L_n) (10:00 pm to 7:00 am) to account for greater human sensitivity to weekend daytime, evening, and nighttime noise.

Decibel – The standard unit of measurement for sound pressure and sound power levels. It is the unit of level that denotes the ratio between two quantities that are proportional to pressure or power. The decibel is 10 times the logarithm of this ratio. Also written as dB.

Equivalent sound level – The steady level that would contain the same amount of energy as the actual time-varying level. Although it represents the average sound energy throughout a period of time, it is strongly influenced by the loudest events because they contain the majority of the sound energy.

Frequency – The number of times that a periodically occurring quantity repeats itself in one second.

Frequency spectrum – The distribution of frequency components of a noise or vibration signal.

Hertz – The unit of acoustic or vibration frequency representing the number of cycles per second.

Impulsive sound – non-continuous sound characterized by brief bursts of sound pressure. The duration of a single burst of sound is usually less than one second.

Intermittent sound – non-continuous or transient noise or vibration that occurs at regular or irregular time intervals with each occurrence lasting more than about five seconds.

Intervening terrain – The terrain in between the noise/vibration source and a sensitive receiver.

Low frequency sound level (L_{LF})– The equivalent sound level that is the sum of the 16, 31.5 and 63 Hz octave bands, with no frequency weighting.

Maximum sound level – The highest exponential time-averaged sound level, in decibels, that occurs during a stated time period, using a "slow" or "fast" time constant (see time constant).

Metric – Measurement parameter or descriptor.

Noise – Noise is unwanted sound, which carries no useful information and tends to interfere with the ability to receive and interpret useful sound.

Noise sensitive human receivers – A place occupied by humans with a high sensitivity to noise. These include residences, hospitals, schools, hotels, etc.

Octave bands – A standardized set of bands making up a frequency spectrum. The centre frequency of each octave band is twice that of the lower band frequency. The bands are centred at standardized frequencies.

Rated day-evening-night equivalent sound level (L_{Rden}) – The L_{den} with a 5 dB correction added for tonal noise (e.g., alarm noise), a 12 dB adjustment for highly impulsive noise (e.g., rail shunting), a 5 dB adjustment for regular impulsive noise (e.g., banging sounds) and a variable adjustment for low frequency noise.

Receiver/receptor – A stationary far-field position at which noise or vibration levels are specified.

Root mean square – The square root of the mean-square value of an oscillating waveform, where the mean-square value is obtained by squaring the value of amplitudes at each instant of time and then averaging these values over the sample time.

Single event noise – Results from the occurrence of a singular intermittent or impulsive noise event such as from a train whistling, a railcar shunting or a vehicular pass-by. Single event noise is commonly described by the SEL and the fast A-weighted sound pressure level.

Sound – The fluctuating motion of air or other elastic medium that can produce the sensation of sound when incident upon the ear.

Sound exposure level – Defined as the constant sound level that has the same amount of energy in one second as the original noise event. Abbreviated as SEL.

Time constant (slow, fast) – Used to describe the exponential time weighting of a signal. The standardised time periods are 1 second for slow and 0.125 seconds for fast exponential weightings.

Tonal sound – Sound characterized by a single frequency component or multiple distinct frequency components that are perceptually distinct from the total sound.

Total Noise – Results from a combination of multiple noise sources at multiple spatial locations and is typically described by a 24-hour equivalent sound level.

Appendix A: PER Noise Assessment Worksheet

APPENDIX I – NOISE ASSESSMENT SCREENING WORKSHEET

This worksheet should be employed by one or more informed individuals representing the applicant in order to establish the potential to create noise impacts within surrounding areas. This screening procedure is opinion-based and largely qualitative in nature and involves completing a series of questions.

1. Complete this worksheet scoring each of the ten items.
2. Transfer the ten questionnaire scores into the Weighted Project Screening Scorecard provided as Appendix II – Noise Assessment Project Score.
3. Follow procedure in Appendix II

Question 1 – New Activity, Replacement or Expansion	5
Will the project involve only the replacement of existing equipment or activities or the expansion of a pre-existing facility or activity, or will it involve significant new noise sources or activities?	
• Replacement of Existing Equipment or Activities	Score 1 point
• Expansion of Existing Equipment or Activities	Score 3 points
• New Equipment or Activities	Score 5 points

Question 2 – Noise Levels Expected on Project Site	2
Based on experience with similar operations at the current location or elsewhere, or on your best judgment, do you expect that noise levels within the project site will be:	
• Very Low	Score 1 point
• Low	Score 2 points
• Moderate	Score 3 points
• High	Score 4 points
• Very High	Score 5 points

Question 3 - Presence of Undesirable Characteristics	5
Will any of the key activities/sources create ongoing noise which: (1). is clearly tonal (hums, whirs, whines), (2). is impulsive or has very rapid onset (bumps, bangs, material handling impacts, rail car shunting, compressed air release etc.), or (3). contains strong low-frequency content (e.g. large diesel engines, large fans or air compressors).	
• No	Score 0 points
• Yes, noise will contain one such characteristic	Score 3 points
• Yes, noise will contain two or three such characteristics	Score 5 points

Question 4 – Presence of High-Energy Impulsive Noise	0
Will any activities create ongoing noise which could be classified as “High-energy Impulsive”? Examples of such sources are limited in the port context but could include the industrial use of explosives or explosive circuit breakers.	
• No	Score 0 points
• Yes	Score 5 points

Question 5 – Hours/Days of Operation	5
Will the normal operating schedule be:	
• Day Shift only (5 days/week)	Score 1 point
• Day Shift only (7 days per week)	Score 2 points
• Day & Evening Shifts (5 days/week)	Score 2 points
• Day & Evening Shifts (7 days/week)	Score 3 points
• 24-hours per day (5 days /week)	Score 4 points
• 24-hours per day (7 days per week)	Score 5 points

Question 6 – Proximity to Noise-Sensitive Areas	1
How far is the nearest noise-sensitive land use (residences, schools, hospitals, passive parks etc.) from the property line of the project site?	
• More than 1,000 m	Score 0 points
• 500 to 1,000 m	Score 1 point
• 250 to 500 m	Score 2 points
• 125 to 250 m	Score 3 points
• 60 to 125 m	Score 4 points
• less than 60 m	Score 5 points

Question 7 – Presence of Noise Shielding or Reflection	0
Will buildings, structures and/or landforms partially or totally screen (that is, interrupt the line of sight and direct hearing) project noise sources from nearby noise receptors? Here consideration should be given to the relative elevations of the noise sources, the noise receivers (ground and upper floors) and the intervening buildings and/or landforms. Noise shielding effects are maximized when intervening buildings and/or landforms are higher and wider than both the noise source area and the noise receiver area. Alternatively, the project may involve construction of a building or other structure that, while not necessarily a significant source of noise itself, reflects noise from other sources towards adjacent noise-sensitive areas. This other noise may originate from project operations or from sources not related to the project, such as other port operations or transportation facilities related sources.	
• Substantial, continuous noise shielding	Score 0 points
• Substantial, but not total, screening	Score 1 point
• Intermittent shielding, e.g., row of smaller, non-adjoining buildings	Score 2 points
• Scattered shielding by objects, machinery, stockpiles	Score 3 points
• No shielding potential	Score 4 points
• No noise shielding and will reflect noise towards sensitive areas	Score 5 points

Question 8 – Baseline Noise Environment	1
How would you rate the baseline (pre-project) noise environment within the noise sensitive area nearest the project site?	
• Very noisy (near busy highway, busy port, airport, heavy industry)	Score 1 point
• Noisy (near busy arterial road, light industrial area, urban core)	Score 2 points
• Moderately noise (near collector road, suburban residential)	Score 3 points
• Quiet (suburban residential away from collector roads)	Score 4 points
• Very Quiet (rural residential, well away from industry or main roads)	Score 5 points

Question 9 – Population Potentially Exposed to Project Noise	3
Approximately how many residences or other noise sensitive land uses are located within 500 m of the project site's property line?	
• 5 or less	Score 1 point
• 5 to 15	Score 2 points
• 16 to 40	Score 3 points
• 41 to 100	Score 4 points
• more than 100	Score 5 points

Question 10 – Level of Community Concern about Noise	4
What level of concern (e.g., complaint history) currently exists among residents/users of adjacent noise sensitive lands regarding noise emissions from PMV lands in general and your project site in particular?	
• No history of concern or complaints	Score 1 point
• Minor concerns have been expressed	Score 2 points
• Unknown	Score 3 points
• Moderate level of concern, some complaints	Score 4 points
• High level of concern/organized complaints	Score 5 points

APPENDIX II – NOISE ASSESSMENT PROJECT SCORE

This worksheet should be used together with the questionnaire in Appendix I – Noise Assessment Screening Worksheet. For each of the ten questions, this worksheet applies a weighting factor that is reflective of the relative importance of that attribute in forecasting noise impact potential. The overall noise impact potential of the project is determined by tallying the weighted values of all response scores to obtain a *Total Weighted Project Score* as follows:

1. Complete the questionnaire as provided in Appendix I – Noise Assessment Screening Worksheet, scoring each of the ten items.
2. Transfer the ten questionnaire scores into the Weighted Project Screening Scorecard provided below.
3. Apply the *Importance Weighting* factor (multiplying the weighting factor by the questionnaire score) and determine a *Weighted Score* for each item.
4. Tally the *Weighted Scores* and determine the *Total Weighted Project Score*
5. Submit a completed project score worksheet as part of the PER project permit application

No.	Attribute of Project or Project Setting	Questionnaire Score (Appendix I)	Importance Weighting	Weighted Score
1	New Activity, Replacement or Expansion	5	1.2	6
2	Noise Levels Expected on Project Site	2	1.8	3.6
3	Presence of Undesirable Characteristics	5	1.6	8
4	Presence of High Energy Impulsiveness Noise	0	1.6	0
5	Hours/Days of Operation	5	1.2	6
6	Proximity to Noise Sensitive Areas	1	1.6	1.6
7	Presence of Noise Shielding or Reflection	0	1.8	0
8	Baseline Noise Environment	1	1.6	1.6
9	Population Potentially Exposed to Project Noise	3	1.0	3
10	Level of Community Concern About Noise	4	1.2	4.8
			Total Weighted Project Score :	34.6

Appendix B: Introduction to Sound and Environmental Noise Assessment

General Noise Theory

The two principal components used to characterize sound are loudness (magnitude) and pitch (frequency). The basic unit for measuring magnitude is the decibel (dB), which represents a logarithmic ratio of the pressure fluctuations in air relative to a reference pressure. The basic unit for measuring pitch is the number of cycles per second, or hertz (Hz). Bass tones are low frequency and treble tones are high frequency. Audible sound occurs over a wide frequency range, from approximately 20 Hz to 20,000 Hz, but the human ear is less sensitive to low and very high frequency sounds than to sounds in the mid frequency range (500 to 4,000 Hz). A-weighting networks are commonly employed in sound level meters to simulate the frequency response of human hearing, and A-weighted sound levels are often designated dBA rather than dB.

If a continuous sound has an abrupt change in level of 3 dB it will generally be noticed, while the same change in level over an extended period of time will probably go unnoticed. A change of 6 dB is clearly noticeable subjectively and an increase of 10 dB is generally perceived as being twice as loud.

Basic Sound Metrics

While the decibel or A-weighted decibel is the basic unit used for noise measurement, other indices are also used to describe environmental noise. The equivalent sound level, abbreviated L_{eq}, is commonly used to indicate the average sound level over a period of time. The L_{eq} represents the steady level of sound that would contain the same amount of sound energy as the actual time-varying sound level. Although the L_{eq} is an average, it is strongly influenced by the loudest events occurring during the time period because these events contain most of the sound energy. Another common metric used is the L_{90}, which represents the sound level exceeded for 90 per cent of a time interval and is typically referred to as the background noise level.

The L_{eq} can be measured over any period of time using an integrating sound level meter. Some common time periods used are 24 hours, noted as the L_{eq24}, daytime hours (7 am to 7 pm), noted as the L_d, evening hours (7 pm to 11 pm), notes as the L_e, and night time hours (11 pm to 7 am), noted as the L_n. As the impact of noise on people is judged differently during the daytime, evening and nighttime, 24-hour noise metrics have been developed to reflect this.

The day-evening-night equivalent sound level (L_{den}) is one metric commonly used to represent community noise levels outside of the United States. It is derived from the L_d, L_e and L_n with a 5 dB penalty applied to the L_e, a 10 dB penalty applied to the L_n and a 5 dB penalty applied to the weekend L_d to account for increased sensitivity to evening, nighttime and weekend noise. In the United States, the day-night equivalent sound level (L_{dn}) is commonly used to represent community noise levels. It is derived from the L_d and L_n (i.e., eliminating the evening time period) with a 10 dB penalty applied to the L_n. ANSI Standard S12.9-2007 Part 5 *Sound Level Descriptors for Determination of Compatible Land*

Use states that although the L_{dn} and the L_{den} are not equal, their difference is typically insignificant for the purposes of studying annoyance.

ANSI S12.9-2005/Part 4 (2005) also recommends that adjustments be applied for certain sound characteristics to better predict long-term annoyance in the community. Relevant adjustments include a 5 dB adjustment for tonal noise (e.g., alarm noise), a 12 dB adjustment for highly impulsive noise (e.g., rail shunting), a 5 dB adjustment for regular impulsive noise (e.g., banging sounds) and a variable adjustment for low frequency noise (based on the received values in low frequency octave bands and the difference between the C-weighted and A-weighted sound pressure levels). With these factors taken into account, the day-evening-night level is referred to as the rated day-evening-night level, or L_{Rden}.

Appendix C: Noise Complaint Log

Date	Topic
Jan 19, 2021	Excessive pile driving noise going until 11:37 last night from the Port Authority I presume at the Surrey Docks. That is ridiculous, totally unacceptable. That is way outside acceptable time.
May 18, 2021	There are 2 spur lines going across and there are new silos. They are going constantly all day and blowing their horns pretty loud which is echoing off. It is also an uncontrolled crossing.
May 30, 2020	Terminal noise complaint. Provided info about safety noise requirements
July 17, 2020	Terminal/rail noise complaint. Provided info about safety noise requirements
November 1, 2019	Noise Fraser Surrey
November 4, 2019	Noise Fraser Surrey Docks

Appendix D: Baseline Noise Measurement Results

Baseline Noise Monitoring Detailed Results - Site 1

Project ID:	2280-22A	Address:	11366 River Rd
Start Date:	September 15, 2022	Instrument:	01 dB Fusion
Start Time:	21:00	Serial No:	14041
Duration:	7 Days	Measured by:	AB

Location Description

The monitor was located on the fence north of the residence 11366 River Rd, about 2.8 m from the existing ground level and roughly 620 m from the Project Site.

Ambient Noise Description

The dominant noise source was road traffic noise from River Road.

Environmental Conditions

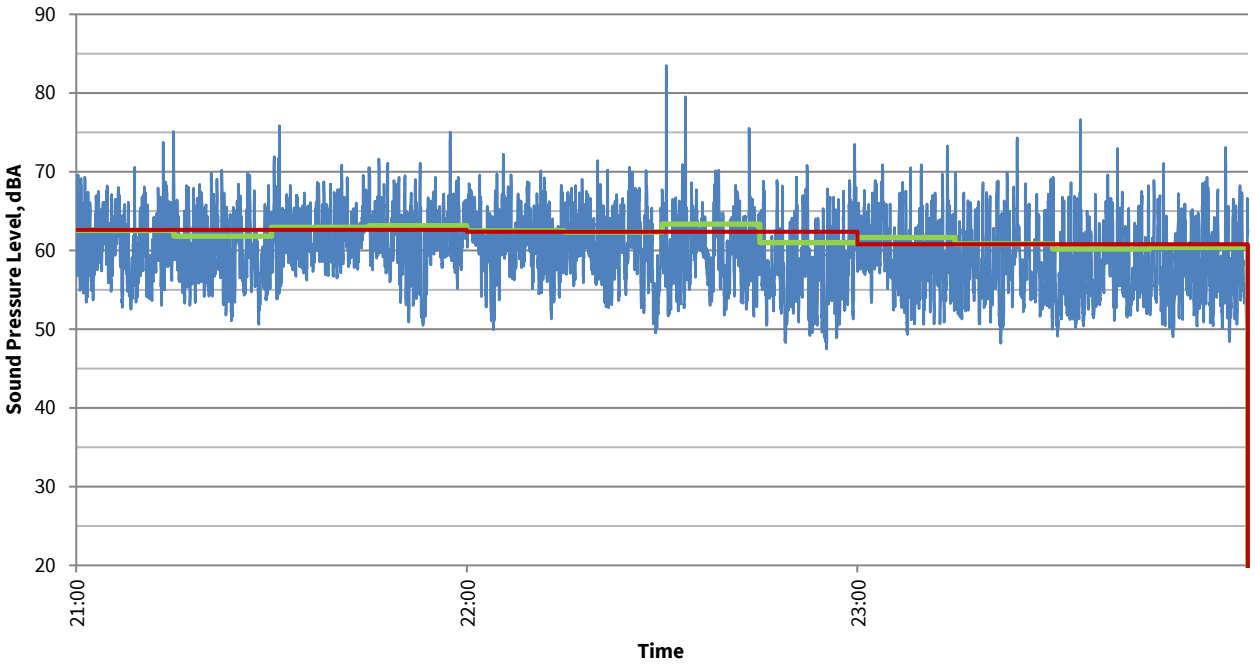
The weather condition showed no exceedances in windy periods and was overcast throughout the measurement duration.

Purpose of Monitoring Location

The purpose of this monitoring location is to establish existing baseline noise levels at a representative nearest noise sensitive residence in Surrey.

Baseline Noise Monitoring Detailed Results - Site 1

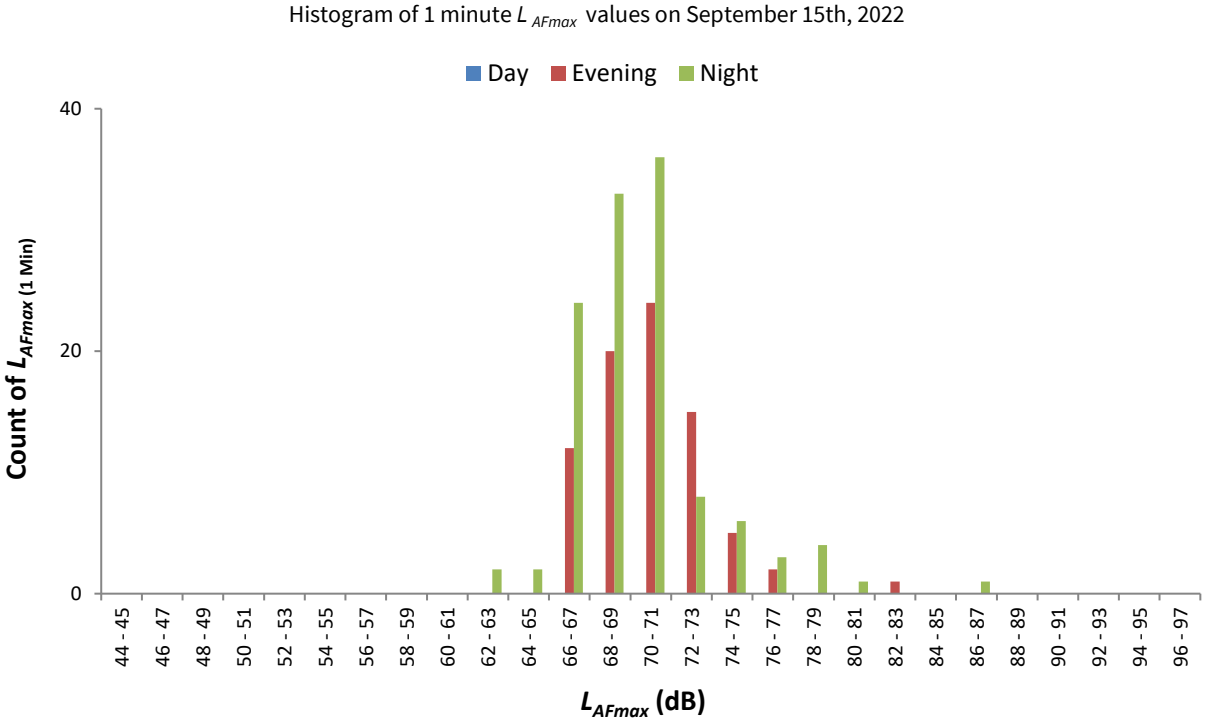
The graph below shows the measured, and calculated time histories beginning on September 15, 2022



Hourly Interval Report starting at September 15, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_1	L_5	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	3:00:00	62	84	48	70	67	66	60	54	50
Sep 15	21:00:00	1:00:00	63	76	51	70	67	66	61	56	52
Sep 15	22:00:00	1:00:00	62	84	48	70	67	66	60	54	50
Sep 15	23:00:00	1:00:00	61	77	48	69	66	65	58	53	50

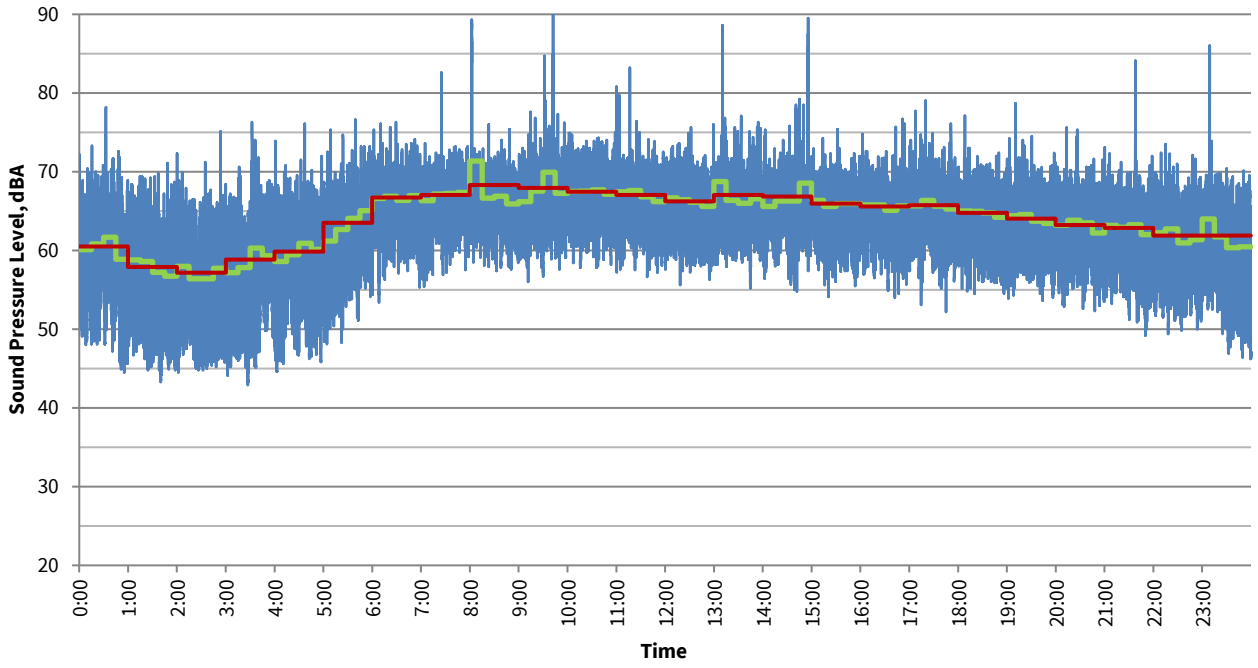
Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 1



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	0
48 - 49	0	0	0
50 - 51	0	0	0
52 - 53	0	0	0
54 - 55	0	0	0
56 - 57	0	0	0
58 - 59	0	0	0
60 - 61	0	0	0
62 - 63	0	0	2
64 - 65	0	0	2
66 - 67	0	12	24
68 - 69	0	20	33
70 - 71	0	24	36
72 - 73	0	15	8
74 - 75	0	5	6
76 - 77	0	2	3
78 - 79	0	0	4
80 - 81	0	0	1
82 - 83	0	1	0
84 - 85	0	0	0
86 - 87	0	0	1
88 - 89	0	0	0
90 - 91	0	0	0
92 - 93	0	0	0
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 1

The graph below shows the measured, and calculated time histories beginning on September 16, 2022

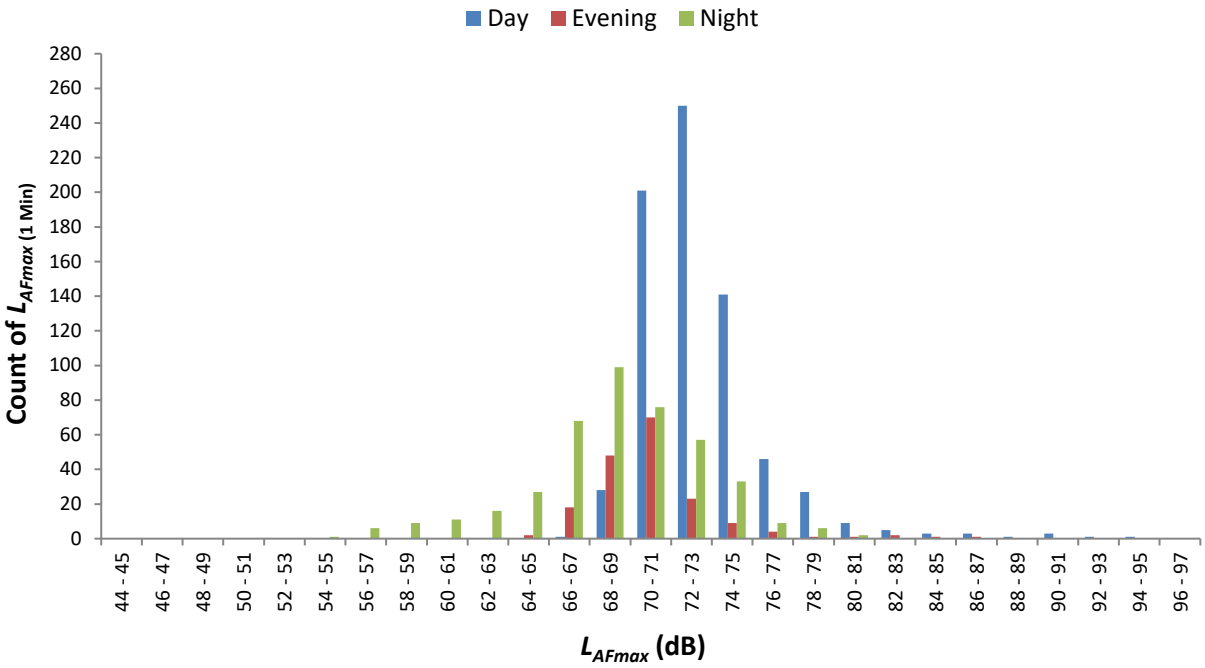


Hourly Interval Report starting at September 16, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_{1}	L_{5}	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	24:00:00	65	92	43	72	69	68	63	53	47
Sep 16	0:00:00	1:00:00	60	78	45	69	66	64	57	50	46
Sep 16	1:00:00	1:00:00	58	71	43	67	64	62	54	47	45
Sep 16	2:00:00	1:00:00	57	75	45	67	64	62	51	47	45
Sep 16	3:00:00	1:00:00	59	76	43	68	65	63	54	48	45
Sep 16	4:00:00	1:00:00	60	76	45	68	65	64	57	49	46
Sep 16	5:00:00	1:00:00	63	77	48	71	68	67	62	55	50
Sep 16	6:00:00	1:00:00	67	76	53	72	70	69	66	62	58
Sep 16	7:00:00	1:00:00	67	83	55	72	70	70	67	63	58
Sep 16	8:00:00	1:00:00	68	89	57	72	70	69	66	62	59
Sep 16	9:00:00	1:00:00	68	92	56	73	71	70	66	62	59
Sep 16	10:00:00	1:00:00	67	75	58	73	71	70	67	63	59
Sep 16	11:00:00	1:00:00	67	83	57	72	70	70	66	62	59
Sep 16	12:00:00	1:00:00	66	76	56	71	70	69	65	61	58
Sep 16	13:00:00	1:00:00	67	89	55	73	70	69	66	62	59
Sep 16	14:00:00	1:00:00	67	90	55	72	69	69	65	61	58
Sep 16	15:00:00	1:00:00	66	75	54	71	69	68	66	61	57
Sep 16	16:00:00	1:00:00	66	77	54	71	69	68	65	61	57
Sep 16	17:00:00	1:00:00	66	79	52	72	69	68	65	61	57
Sep 16	18:00:00	1:00:00	65	77	55	70	68	68	64	60	56
Sep 16	19:00:00	1:00:00	64	79	54	70	68	67	63	59	56
Sep 16	20:00:00	1:00:00	63	76	52	69	67	66	62	57	54
Sep 16	21:00:00	1:00:00	63	84	49	69	67	66	61	56	52
Sep 16	22:00:00	1:00:00	62	74	49	69	67	66	60	54	52
Sep 16	23:00:00	1:00:00	62	86	46	69	67	65	59	52	47

Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 1

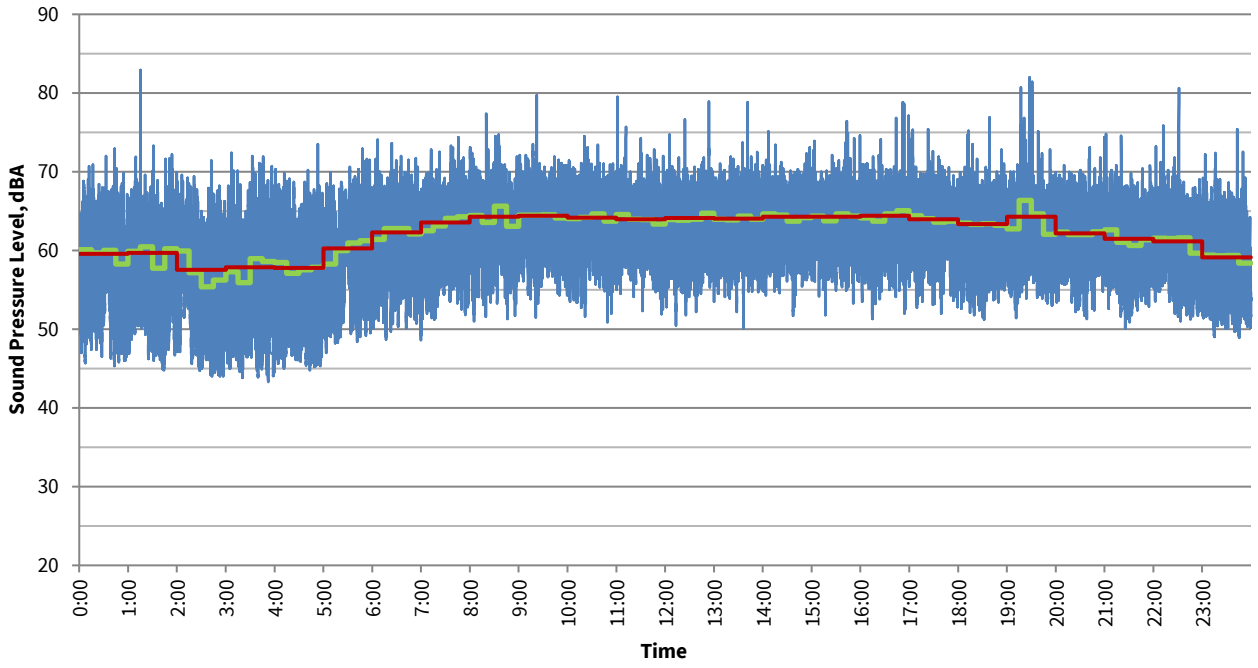
Histogram of 1 minute L_{AFmax} values on September 16th, 2022



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	0
48 - 49	0	0	0
50 - 51	0	0	0
52 - 53	0	0	0
54 - 55	0	0	1
56 - 57	0	0	6
58 - 59	0	0	9
60 - 61	0	0	11
62 - 63	0	0	16
64 - 65	0	2	27
66 - 67	1	18	68
68 - 69	28	48	99
70 - 71	201	70	76
72 - 73	250	23	57
74 - 75	141	9	33
76 - 77	46	4	9
78 - 79	27	1	6
80 - 81	9	1	2
82 - 83	5	2	0
84 - 85	3	1	0
86 - 87	3	1	0
88 - 89	1	0	0
90 - 91	3	0	0
92 - 93	1	0	0
94 - 95	1	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 1

The graph below shows the measured, and calculated time histories beginning on September 17, 2022

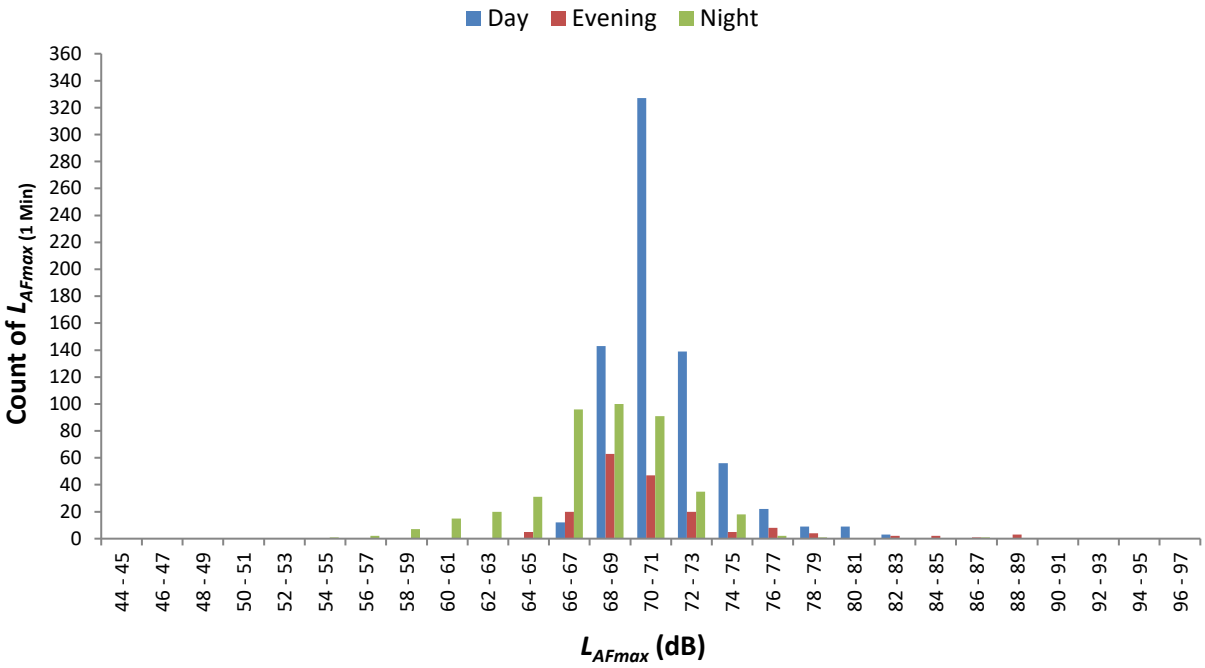


Hourly Interval Report starting at September 17, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_{1}	L_{5}	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	24:00:00	63	83	43	70	68	66	61	52	46
Sep 17	0:00:00	1:00:00	60	73	45	68	65	64	56	49	46
Sep 17	1:00:00	1:00:00	60	83	45	69	65	63	55	49	46
Sep 17	2:00:00	1:00:00	58	71	44	67	64	62	53	47	45
Sep 17	3:00:00	1:00:00	58	72	43	68	65	62	52	47	44
Sep 17	4:00:00	1:00:00	58	74	45	68	64	62	53	47	46
Sep 17	5:00:00	1:00:00	60	73	47	68	66	64	58	51	49
Sep 17	6:00:00	1:00:00	62	74	49	69	67	66	60	55	51
Sep 17	7:00:00	1:00:00	64	74	50	70	68	67	62	56	52
Sep 17	8:00:00	1:00:00	64	77	51	72	69	68	63	57	53
Sep 17	9:00:00	1:00:00	64	80	52	70	68	68	63	59	55
Sep 17	10:00:00	1:00:00	64	75	51	70	68	67	63	59	54
Sep 17	11:00:00	1:00:00	64	80	52	70	68	67	63	58	55
Sep 17	12:00:00	1:00:00	64	79	51	70	68	67	63	58	55
Sep 17	13:00:00	1:00:00	64	79	50	70	68	67	63	58	55
Sep 17	14:00:00	1:00:00	64	75	52	70	68	67	63	59	56
Sep 17	15:00:00	1:00:00	64	76	52	70	68	67	63	59	56
Sep 17	16:00:00	1:00:00	64	79	51	71	68	67	63	58	55
Sep 17	17:00:00	1:00:00	64	75	52	70	68	67	63	58	54
Sep 17	18:00:00	1:00:00	63	77	51	70	67	66	62	57	54
Sep 17	19:00:00	1:00:00	64	82	51	74	68	66	62	57	54
Sep 17	20:00:00	1:00:00	62	74	51	69	67	65	61	57	53
Sep 17	21:00:00	1:00:00	61	75	50	69	66	65	60	55	52
Sep 17	22:00:00	1:00:00	61	81	51	68	65	64	59	54	52
Sep 17	23:00:00	1:00:00	59	75	49	68	65	63	56	52	50

Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 1

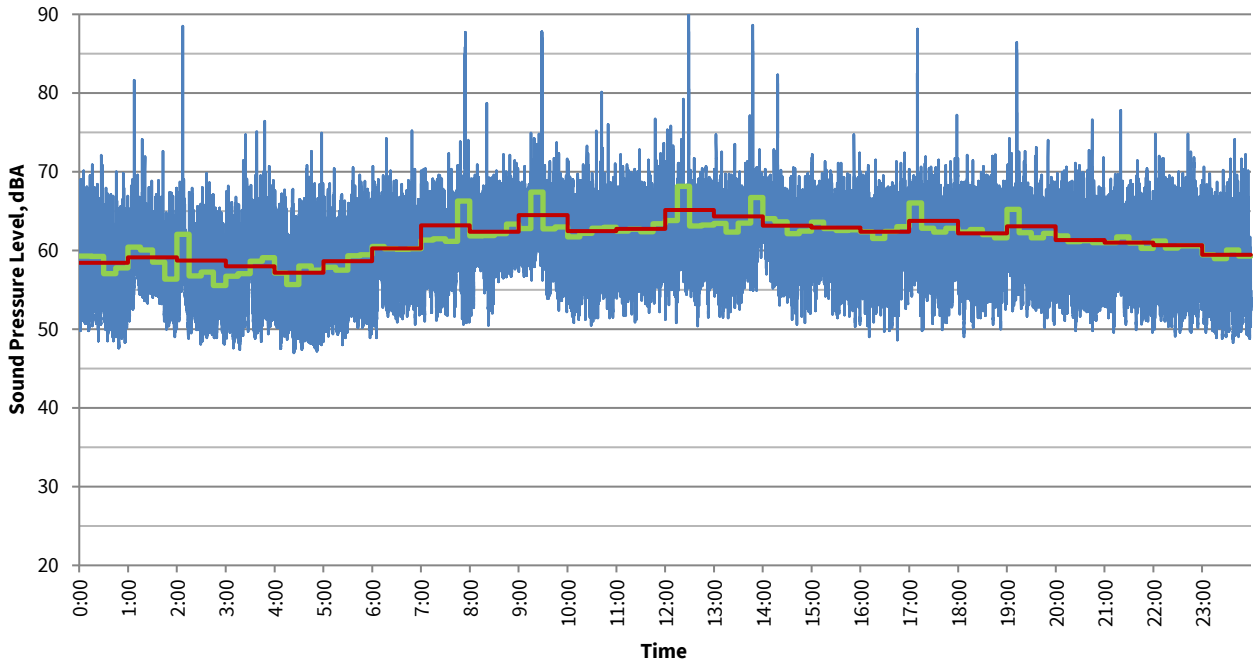
Histogram of 1 minute L_{AFmax} values on September 17th, 2022



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	0
48 - 49	0	0	0
50 - 51	0	0	0
52 - 53	0	0	0
54 - 55	0	0	1
56 - 57	0	0	2
58 - 59	0	0	7
60 - 61	0	0	15
62 - 63	0	0	20
64 - 65	0	5	31
66 - 67	12	20	96
68 - 69	143	63	100
70 - 71	327	47	91
72 - 73	139	20	35
74 - 75	56	5	18
76 - 77	22	8	2
78 - 79	9	4	1
80 - 81	9	0	0
82 - 83	3	2	0
84 - 85	0	2	0
86 - 87	0	1	1
88 - 89	0	3	0
90 - 91	0	0	0
92 - 93	0	0	0
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 1

The graph below shows the measured, and calculated time histories beginning on September 18, 2022

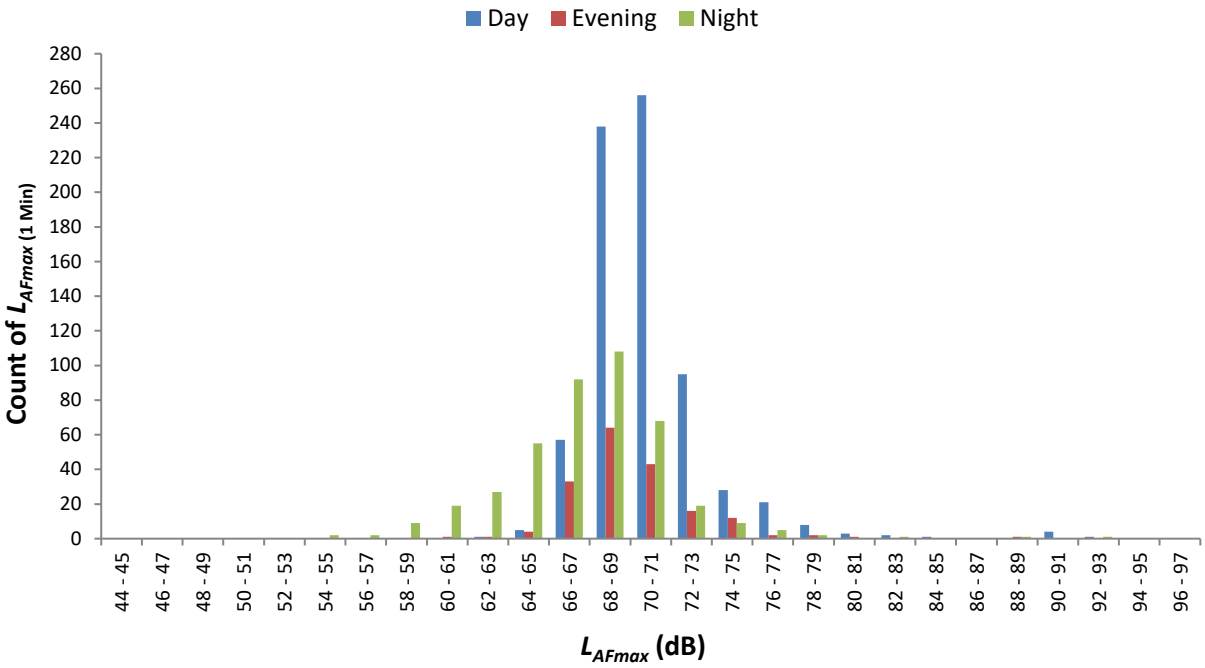


Hourly Interval Report starting at September 18, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_1	L_5	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	24:00:00	62	90	47	69	66	65	59	53	49
Sep 18	0:00:00	1:00:00	58	72	48	67	64	62	56	51	49
Sep 18	1:00:00	1:00:00	59	82	49	67	64	62	56	53	51
Sep 18	2:00:00	1:00:00	59	89	48	66	63	61	54	50	49
Sep 18	3:00:00	1:00:00	58	76	47	67	63	62	55	51	49
Sep 18	4:00:00	1:00:00	57	75	47	67	63	61	53	49	48
Sep 18	5:00:00	1:00:00	59	71	48	67	64	62	56	52	50
Sep 18	6:00:00	1:00:00	60	75	49	68	65	64	58	54	51
Sep 18	7:00:00	1:00:00	63	88	51	69	67	65	60	55	52
Sep 18	8:00:00	1:00:00	62	79	51	69	67	66	61	57	53
Sep 18	9:00:00	1:00:00	65	88	52	70	68	66	62	58	54
Sep 18	10:00:00	1:00:00	62	80	51	69	67	66	61	55	52
Sep 18	11:00:00	1:00:00	63	77	51	70	67	66	61	57	53
Sep 18	12:00:00	1:00:00	65	90	50	70	68	67	62	58	53
Sep 18	13:00:00	1:00:00	64	89	51	70	67	66	62	57	53
Sep 18	14:00:00	1:00:00	63	82	51	69	67	66	62	57	53
Sep 18	15:00:00	1:00:00	63	75	50	69	67	66	62	57	53
Sep 18	16:00:00	1:00:00	62	72	49	68	67	66	61	56	52
Sep 18	17:00:00	1:00:00	64	88	50	70	67	66	62	56	52
Sep 18	18:00:00	1:00:00	62	72	49	69	67	66	61	56	52
Sep 18	19:00:00	1:00:00	63	86	50	70	67	65	61	56	52
Sep 18	20:00:00	1:00:00	61	77	50	69	66	65	59	54	51
Sep 18	21:00:00	1:00:00	61	78	50	68	66	64	59	54	51
Sep 18	22:00:00	1:00:00	61	75	49	69	66	64	58	53	50
Sep 18	23:00:00	1:00:00	59	74	48	69	65	63	56	51	49

Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 1

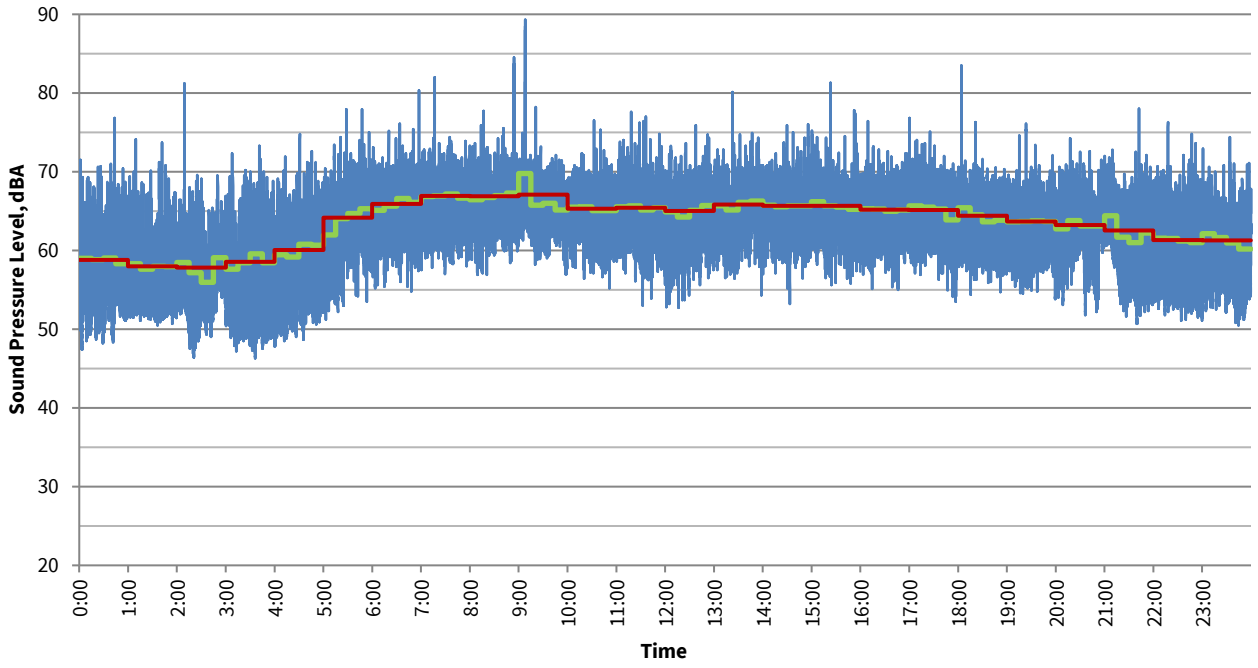
Histogram of 1 minute L_{AFmax} values on September 18th, 2022



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	0
48 - 49	0	0	0
50 - 51	0	0	0
52 - 53	0	0	0
54 - 55	0	0	2
56 - 57	0	0	2
58 - 59	0	0	9
60 - 61	0	1	19
62 - 63	1	1	27
64 - 65	5	4	55
66 - 67	57	33	92
68 - 69	238	64	108
70 - 71	256	43	68
72 - 73	95	16	19
74 - 75	28	12	9
76 - 77	21	2	5
78 - 79	8	2	2
80 - 81	3	1	0
82 - 83	2	0	1
84 - 85	1	0	0
86 - 87	0	0	0
88 - 89	0	1	1
90 - 91	4	0	0
92 - 93	1	0	1
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 1

The graph below shows the measured, and calculated time histories beginning on September 19, 2022

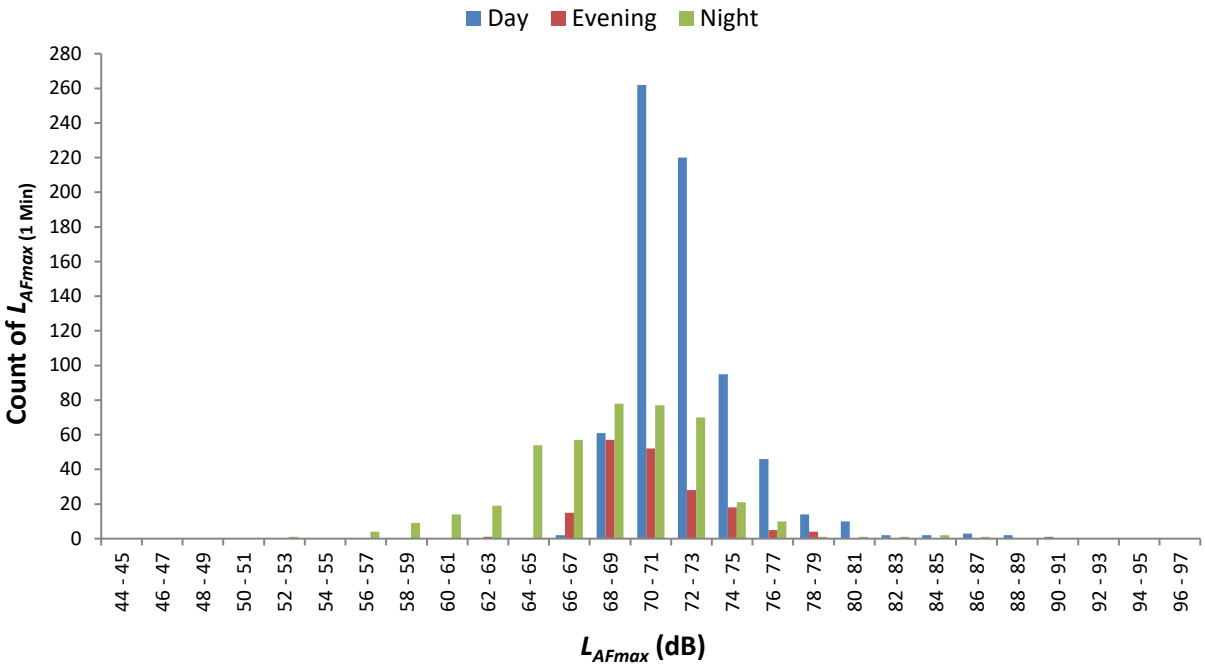


Hourly Interval Report starting at September 19, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_{1}	L_{5}	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	24:00:00	64	89	46	71	69	68	63	54	49
Sep 19	0:00:00	1:00:00	59	77	47	68	65	63	55	51	49
Sep 19	1:00:00	1:00:00	58	74	51	68	64	61	54	52	51
Sep 19	2:00:00	1:00:00	58	81	46	67	63	61	55	50	48
Sep 19	3:00:00	1:00:00	59	73	46	68	65	63	53	49	48
Sep 19	4:00:00	1:00:00	60	75	48	69	66	64	57	51	49
Sep 19	5:00:00	1:00:00	64	78	51	71	69	67	63	57	53
Sep 19	6:00:00	1:00:00	66	80	55	71	70	69	65	61	57
Sep 19	7:00:00	1:00:00	67	82	57	72	70	70	66	62	59
Sep 19	8:00:00	1:00:00	67	85	57	73	70	69	66	62	59
Sep 19	9:00:00	1:00:00	67	89	57	71	69	68	65	62	59
Sep 19	10:00:00	1:00:00	65	77	55	70	69	68	65	61	58
Sep 19	11:00:00	1:00:00	65	78	53	72	69	68	64	61	57
Sep 19	12:00:00	1:00:00	65	76	53	71	69	68	64	60	56
Sep 19	13:00:00	1:00:00	66	80	54	71	69	68	65	61	58
Sep 19	14:00:00	1:00:00	66	76	53	71	69	68	65	61	58
Sep 19	15:00:00	1:00:00	66	81	56	71	69	68	65	61	58
Sep 19	16:00:00	1:00:00	65	76	55	71	69	68	64	61	58
Sep 19	17:00:00	1:00:00	65	77	54	71	69	68	64	60	57
Sep 19	18:00:00	1:00:00	64	84	54	70	68	67	63	59	57
Sep 19	19:00:00	1:00:00	64	76	54	69	68	67	63	59	56
Sep 19	20:00:00	1:00:00	63	74	52	70	67	66	62	57	53
Sep 19	21:00:00	1:00:00	63	78	51	70	67	66	61	55	52
Sep 19	22:00:00	1:00:00	61	76	51	69	67	65	59	54	52
Sep 19	23:00:00	1:00:00	61	74	51	68	66	65	59	54	52

Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 1

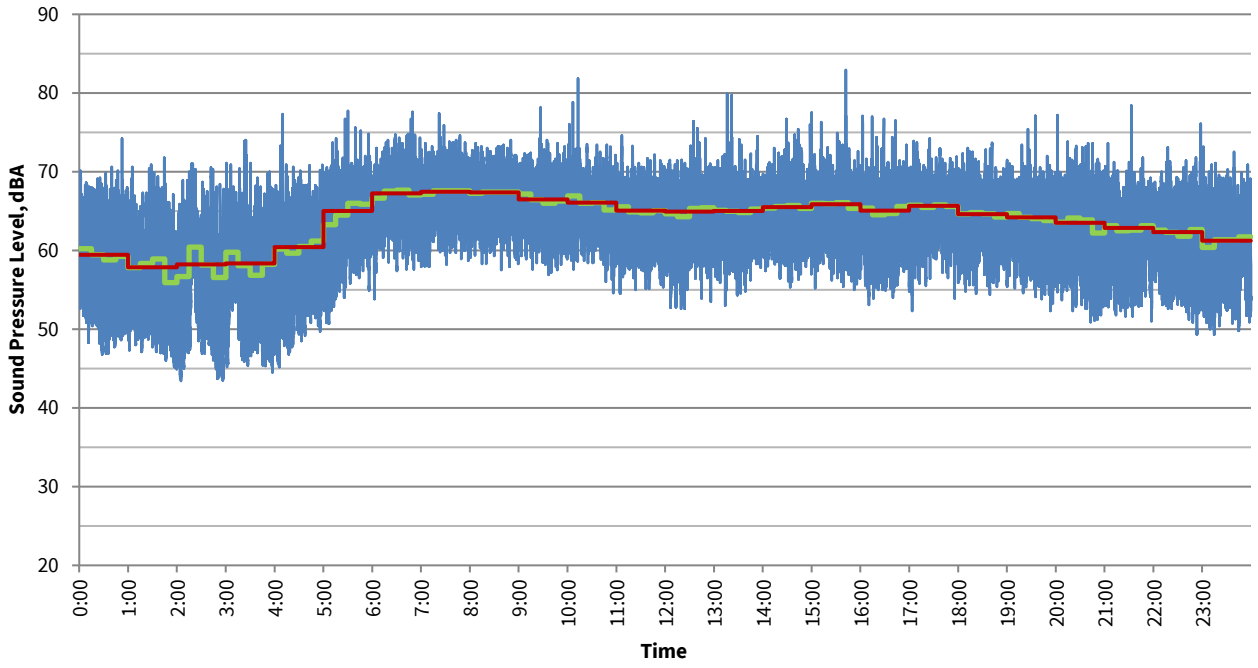
Histogram of 1 minute L_{AFmax} values on September 19th, 2022



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	0
48 - 49	0	0	0
50 - 51	0	0	0
52 - 53	0	0	1
54 - 55	0	0	0
56 - 57	0	0	4
58 - 59	0	0	9
60 - 61	0	0	14
62 - 63	0	1	19
64 - 65	0	0	54
66 - 67	2	15	57
68 - 69	61	57	78
70 - 71	262	52	77
72 - 73	220	28	70
74 - 75	95	18	21
76 - 77	46	5	10
78 - 79	14	4	1
80 - 81	10	0	1
82 - 83	2	0	1
84 - 85	2	0	2
86 - 87	3	0	1
88 - 89	2	0	0
90 - 91	1	0	0
92 - 93	0	0	0
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 1

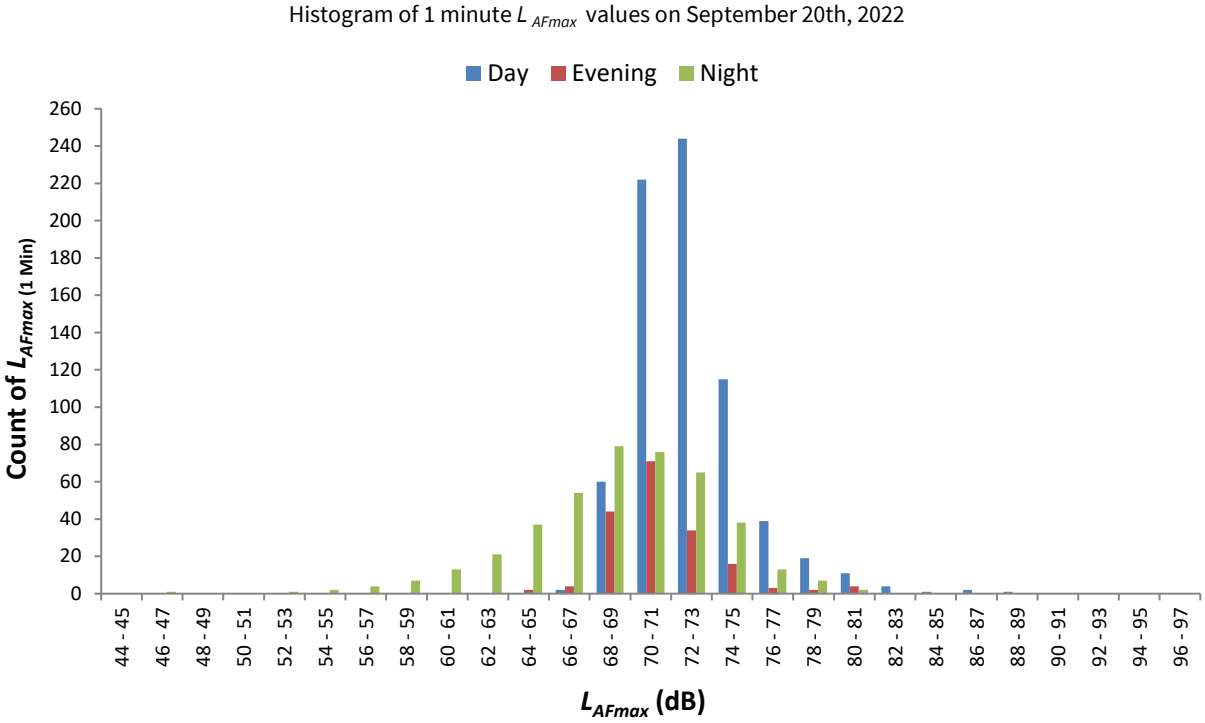
The graph below shows the measured, and calculated time histories beginning on September 20, 2022



Hourly Interval Report starting at September 20, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_1	L_5	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	24:00:00	65	83	43	71	69	68	63	54	47
Sep 20	0:00:00	1:00:00	59	74	47	68	65	64	56	50	48
Sep 20	1:00:00	1:00:00	58	72	45	68	64	62	53	48	46
Sep 20	2:00:00	1:00:00	58	71	43	68	65	63	53	46	44
Sep 20	3:00:00	1:00:00	58	74	45	68	64	62	53	47	46
Sep 20	4:00:00	1:00:00	60	77	45	69	66	64	57	50	47
Sep 20	5:00:00	1:00:00	65	78	51	71	69	68	64	58	53
Sep 20	6:00:00	1:00:00	67	78	54	73	71	70	67	62	59
Sep 20	7:00:00	1:00:00	67	77	58	72	71	70	67	63	59
Sep 20	8:00:00	1:00:00	67	74	58	72	71	70	67	63	59
Sep 20	9:00:00	1:00:00	66	78	57	72	70	69	66	62	59
Sep 20	10:00:00	1:00:00	66	82	55	72	70	69	65	61	58
Sep 20	11:00:00	1:00:00	65	75	55	70	69	68	65	60	57
Sep 20	12:00:00	1:00:00	65	76	53	71	69	68	64	59	54
Sep 20	13:00:00	1:00:00	65	80	53	71	69	68	64	60	56
Sep 20	14:00:00	1:00:00	65	77	55	72	69	68	65	61	58
Sep 20	15:00:00	1:00:00	66	83	55	71	69	68	65	61	57
Sep 20	16:00:00	1:00:00	65	77	53	71	69	68	64	59	56
Sep 20	17:00:00	1:00:00	66	74	52	71	69	68	65	61	57
Sep 20	18:00:00	1:00:00	65	74	54	70	68	67	64	60	56
Sep 20	19:00:00	1:00:00	64	77	52	70	68	67	63	58	55
Sep 20	20:00:00	1:00:00	64	77	51	71	68	67	62	56	53
Sep 20	21:00:00	1:00:00	63	78	51	69	67	66	61	56	53
Sep 20	22:00:00	1:00:00	62	76	49	69	67	66	60	55	52
Sep 20	23:00:00	1:00:00	61	73	49	69	67	65	59	53	51

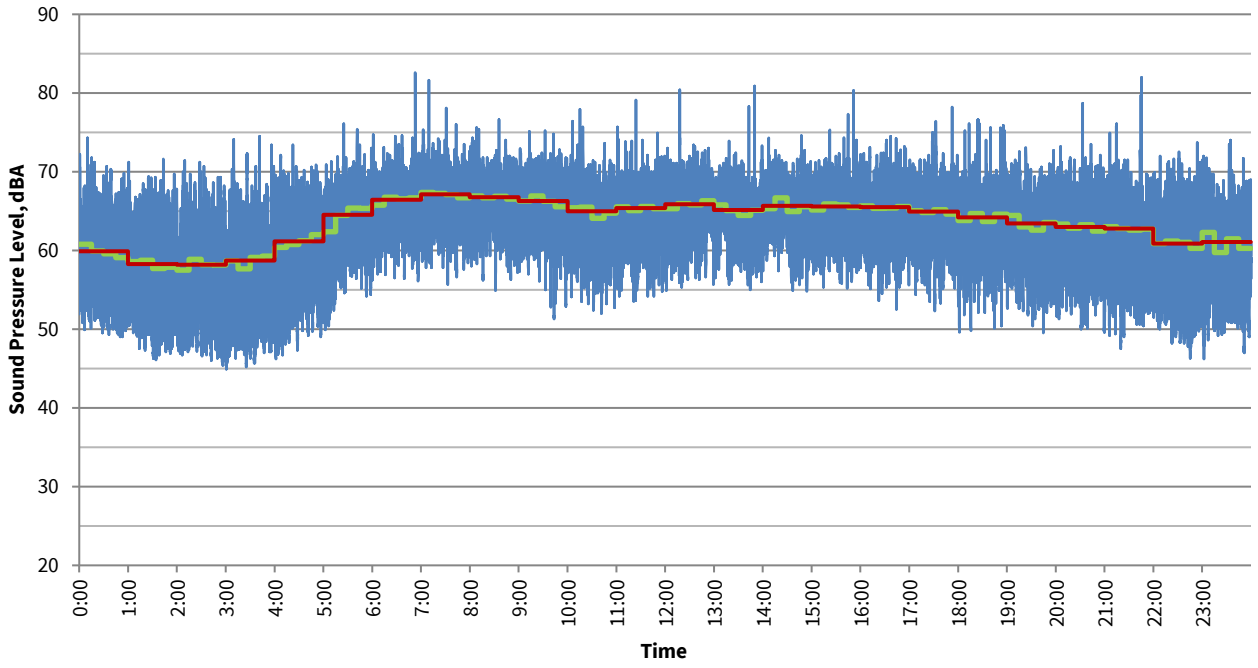
Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 1



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	1
48 - 49	0	0	0
50 - 51	0	0	0
52 - 53	0	0	1
54 - 55	0	0	2
56 - 57	0	0	4
58 - 59	0	0	7
60 - 61	0	0	13
62 - 63	0	0	21
64 - 65	0	2	37
66 - 67	2	4	54
68 - 69	60	44	79
70 - 71	222	71	76
72 - 73	244	34	65
74 - 75	115	16	38
76 - 77	39	3	13
78 - 79	19	2	7
80 - 81	11	4	2
82 - 83	4	0	0
84 - 85	1	0	0
86 - 87	2	0	0
88 - 89	1	0	0
90 - 91	0	0	0
92 - 93	0	0	0
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 1

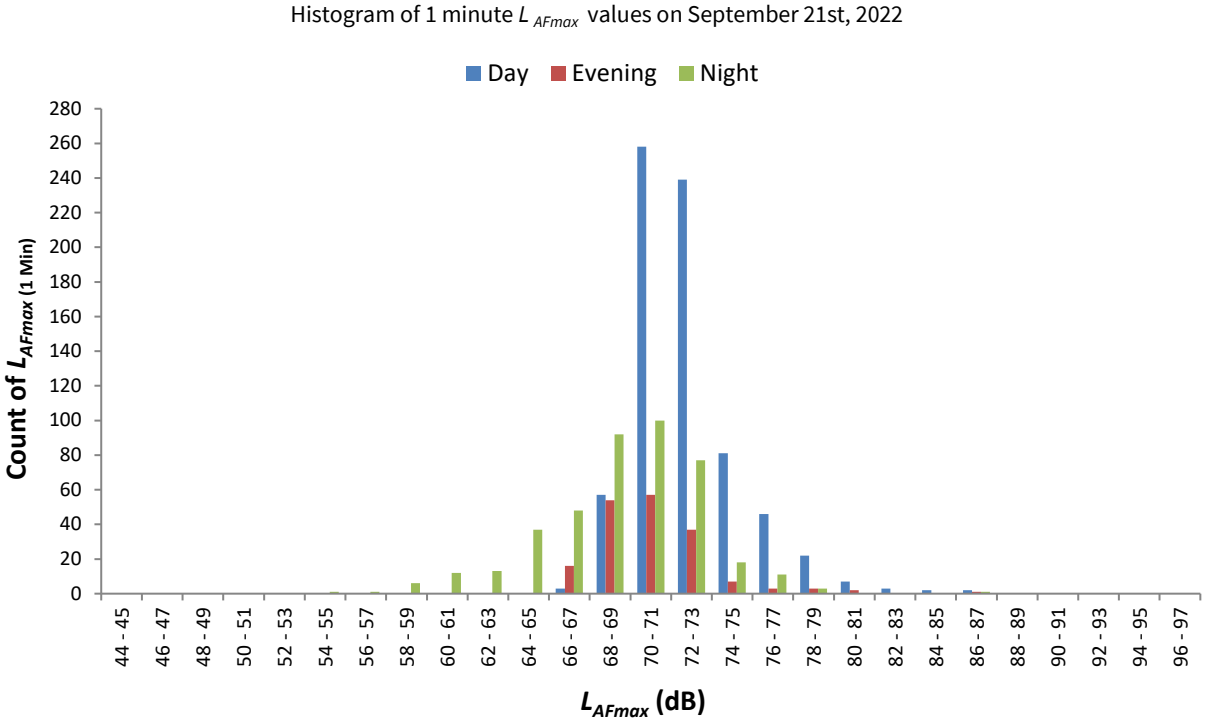
The graph below shows the measured, and calculated time histories beginning on September 21, 2022



Hourly Interval Report starting at September 21, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_{1}	L_{5}	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	24:00:00	63	83	45	71	69	68	63	53	48
Sep 21	0:00:00	1:00:00	60	74	49	68	66	64	56	52	50
Sep 21	1:00:00	1:00:00	58	72	46	68	65	62	54	49	47
Sep 21	2:00:00	1:00:00	58	71	45	68	65	63	53	48	46
Sep 21	3:00:00	1:00:00	59	75	45	69	65	63	53	48	46
Sep 21	4:00:00	1:00:00	61	73	46	69	67	65	58	51	48
Sep 21	5:00:00	1:00:00	65	76	50	71	69	68	63	57	52
Sep 21	6:00:00	1:00:00	66	83	56	71	70	69	66	62	58
Sep 21	7:00:00	1:00:00	67	82	56	72	70	69	67	62	59
Sep 21	8:00:00	1:00:00	67	77	55	72	70	69	66	62	59
Sep 21	9:00:00	1:00:00	66	75	51	71	70	69	65	61	55
Sep 21	10:00:00	1:00:00	65	78	52	71	69	68	64	59	54
Sep 21	11:00:00	1:00:00	65	79	54	72	69	68	64	59	55
Sep 21	12:00:00	1:00:00	66	80	55	71	69	69	65	61	57
Sep 21	13:00:00	1:00:00	65	81	55	70	68	68	64	60	57
Sep 21	14:00:00	1:00:00	66	75	55	71	69	68	65	61	57
Sep 21	15:00:00	1:00:00	66	80	55	71	69	68	65	61	58
Sep 21	16:00:00	1:00:00	65	75	53	71	69	68	65	60	56
Sep 21	17:00:00	1:00:00	65	78	52	71	69	68	64	59	56
Sep 21	18:00:00	1:00:00	64	77	50	71	68	67	63	58	53
Sep 21	19:00:00	1:00:00	63	73	50	70	68	67	62	56	52
Sep 21	20:00:00	1:00:00	63	79	50	70	68	66	61	55	51
Sep 21	21:00:00	1:00:00	63	82	48	70	67	66	60	54	50
Sep 21	22:00:00	1:00:00	61	74	46	69	66	65	58	52	49
Sep 21	23:00:00	1:00:00	61	74	46	70	67	65	58	52	49

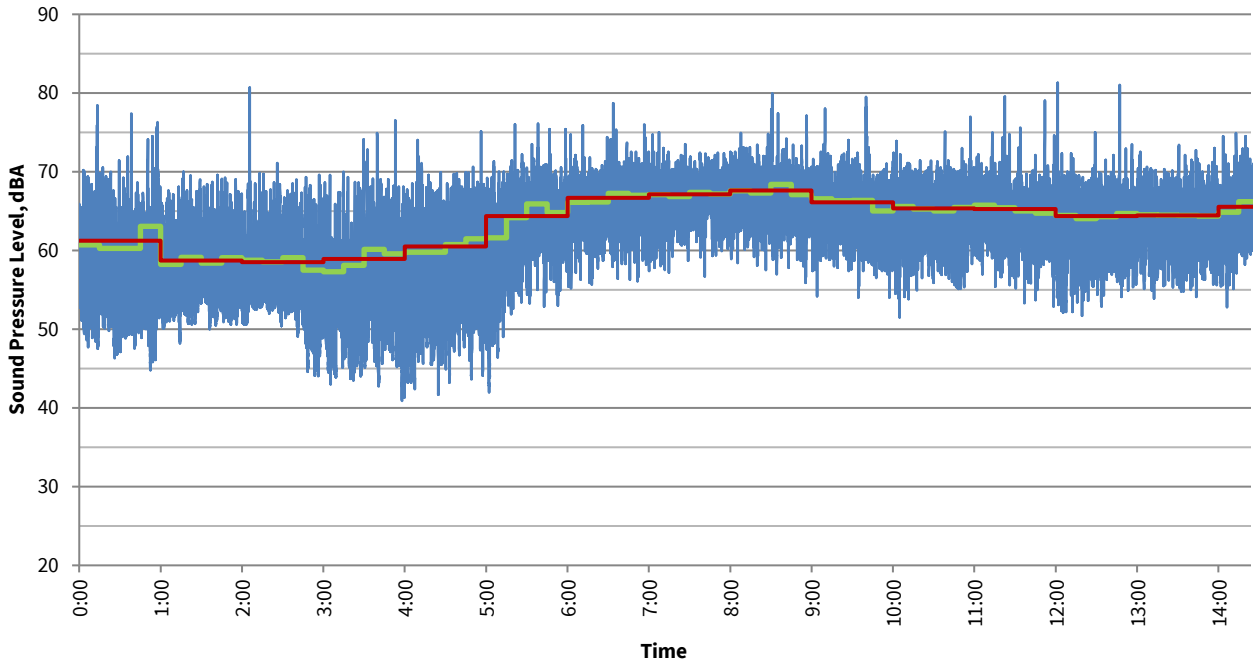
Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 1



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	0
48 - 49	0	0	0
50 - 51	0	0	0
52 - 53	0	0	0
54 - 55	0	0	1
56 - 57	0	0	1
58 - 59	0	0	6
60 - 61	0	0	12
62 - 63	0	0	13
64 - 65	0	0	37
66 - 67	3	16	48
68 - 69	57	54	92
70 - 71	258	57	100
72 - 73	239	37	77
74 - 75	81	7	18
76 - 77	46	3	11
78 - 79	22	3	3
80 - 81	7	2	0
82 - 83	3	0	0
84 - 85	2	0	0
86 - 87	2	1	1
88 - 89	0	0	0
90 - 91	0	0	0
92 - 93	0	0	0
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 1

The graph below shows the measured, and calculated time histories beginning on September 22, 2022

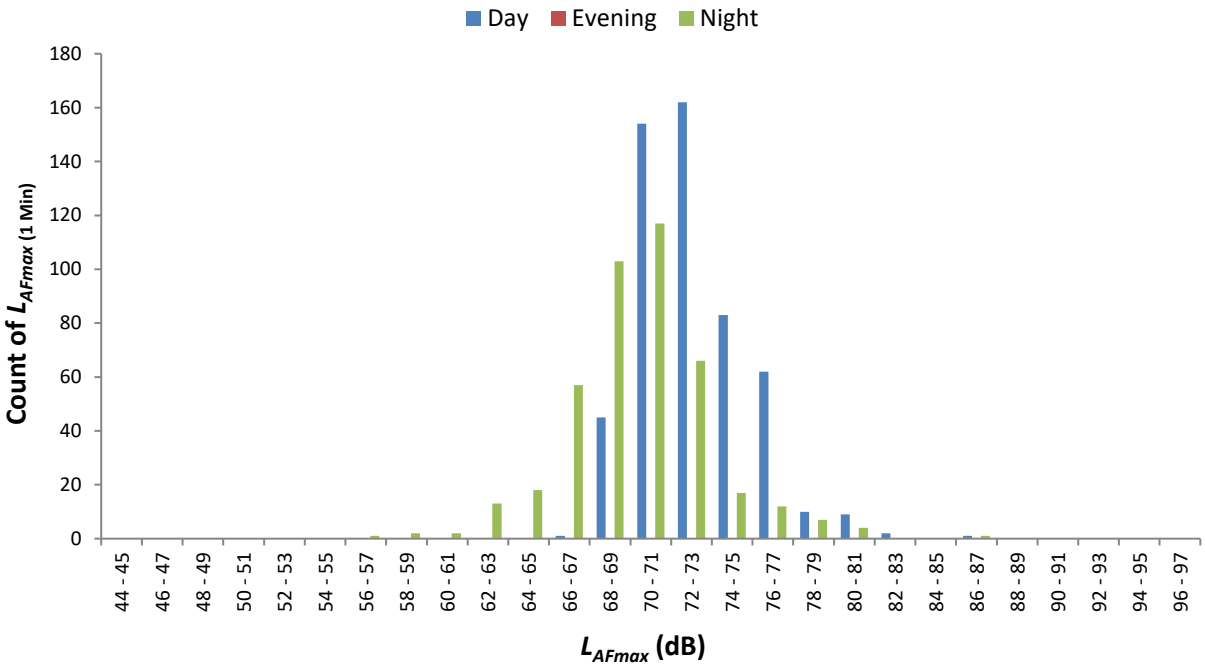


Hourly Interval Report starting at September 22, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_{1}	L_{5}	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	14:00:00	65	81	41	71	69	68	63	53	46
Sep 22	0:00:00	1:00:00	61	78	45	72	67	65	56	50	47
Sep 22	1:00:00	1:00:00	59	70	48	67	65	63	55	52	50
Sep 22	2:00:00	1:00:00	59	81	44	67	65	62	54	50	45
Sep 22	3:00:00	1:00:00	59	77	41	69	65	63	53	46	43
Sep 22	4:00:00	1:00:00	60	75	42	69	66	65	57	48	43
Sep 22	5:00:00	1:00:00	64	76	42	71	69	68	63	56	47
Sep 22	6:00:00	1:00:00	67	79	55	72	70	69	66	62	58
Sep 22	7:00:00	1:00:00	67	75	57	72	70	70	67	63	59
Sep 22	8:00:00	1:00:00	68	80	56	74	71	70	67	63	59
Sep 22	9:00:00	1:00:00	66	80	54	72	70	69	65	61	57
Sep 22	10:00:00	1:00:00	65	77	52	71	69	68	64	59	56
Sep 22	11:00:00	1:00:00	65	80	53	71	69	68	64	60	57
Sep 22	12:00:00	1:00:00	64	81	52	70	68	67	63	58	54
Sep 22	13:00:00	1:00:00	64	73	54	70	68	67	64	59	56
Sep 22	14:00:00	1:00:00	66	75	53	72	70	68	64	60	57

Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 1

Histogram of 1 minute L_{AFmax} values on September 22nd, 2022



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	0
48 - 49	0	0	0
50 - 51	0	0	0
52 - 53	0	0	0
54 - 55	0	0	0
56 - 57	0	0	1
58 - 59	0	0	2
60 - 61	0	0	2
62 - 63	0	0	13
64 - 65	0	0	18
66 - 67	1	0	57
68 - 69	45	0	103
70 - 71	154	0	117
72 - 73	162	0	66
74 - 75	83	0	17
76 - 77	62	0	12
78 - 79	10	0	7
80 - 81	9	0	4
82 - 83	2	0	0
84 - 85	0	0	0
86 - 87	1	0	1
88 - 89	0	0	0
90 - 91	0	0	0
92 - 93	0	0	0
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 2

Project ID:	2280-22A	Address:	11548 River Rd, Surrey
Start Date:	September 15, 2022	Instrument:	01 dB Duo
Start Time:	13:00	Serial No:	10204
Duration:	7 Days	Measured by:	AB

Location Description

The monitor was located on the balcony of the residence 11548 River Rd, about 4.6 m above the existing ground level and roughly 440 m from the Project Site.

Ambient Noise Description

The dominant noise source was road traffic noise from River Road.

Environmental Conditions

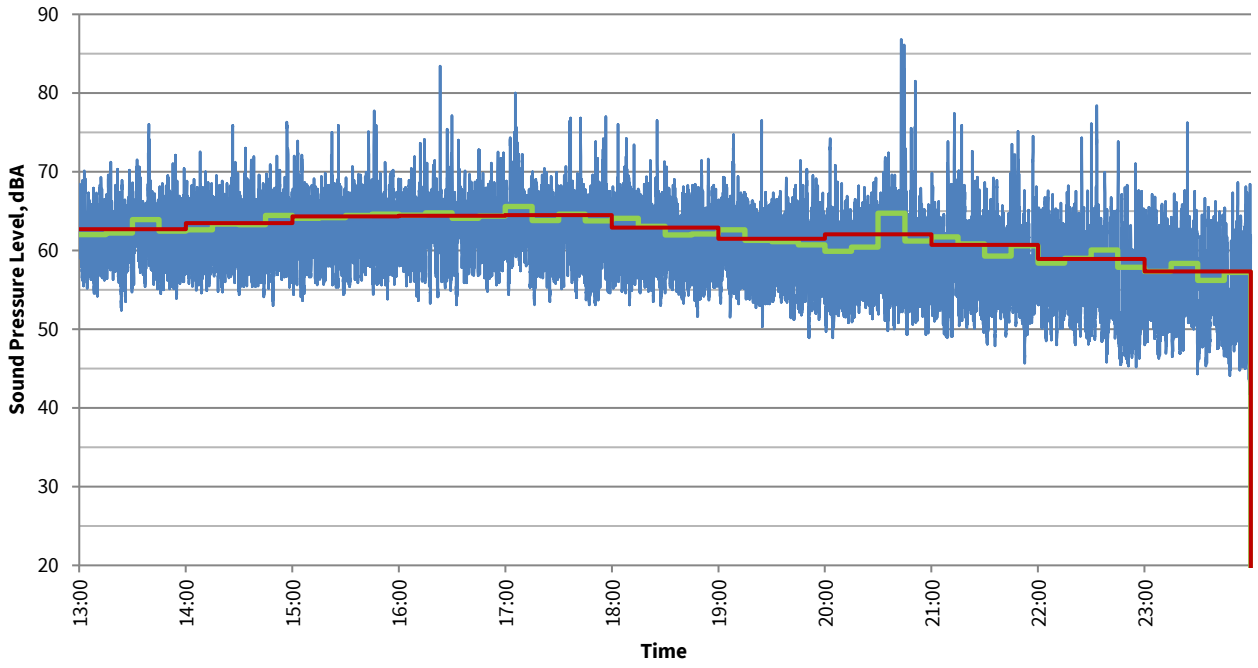
The weather condition showed no exceedances in windy periods and was overcast throughout the measurement duration.

Purpose of Monitoring Location

The purpose of this monitoring location is to establish existing baseline noise levels at a representative nearest noise sensitive residence in Surrey.

Baseline Noise Monitoring Detailed Results - Site 2

The graph below shows the measured, and calculated time histories beginning on September 15, 2022

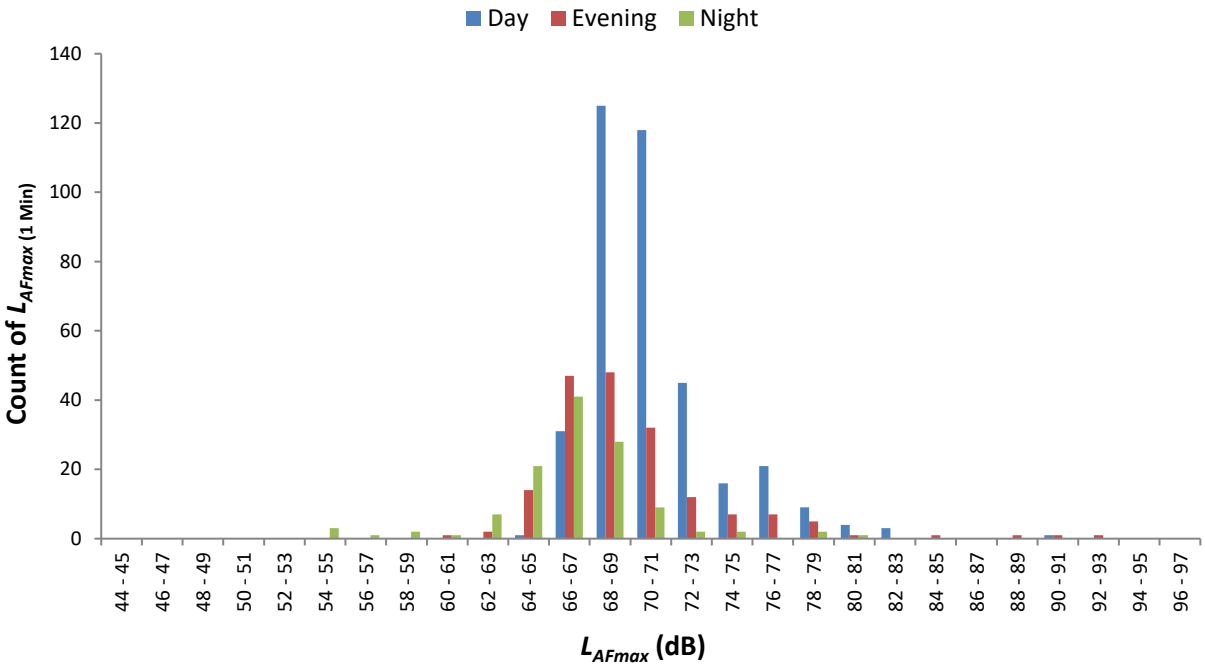


Hourly Interval Report starting at September 15, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_{1}	L_{5}	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	11:00:00	63	87	42	70	67	66	60	53	48
Sep 15	13:00:00	1:00:00	63	76	52	70	67	66	61	57	55
Sep 15	14:00:00	1:00:00	63	76	53	71	68	67	62	57	55
Sep 15	15:00:00	1:00:00	64	78	54	71	68	67	63	57	55
Sep 15	16:00:00	1:00:00	64	83	53	71	68	67	64	58	55
Sep 15	17:00:00	1:00:00	64	80	53	73	68	67	63	57	54
Sep 15	18:00:00	1:00:00	63	77	52	70	67	66	61	56	54
Sep 15	19:00:00	1:00:00	61	77	49	69	66	65	59	54	51
Sep 15	20:00:00	1:00:00	62	87	49	70	66	64	58	53	50
Sep 15	21:00:00	1:00:00	61	77	46	70	66	64	57	52	49
Sep 15	22:00:00	1:00:00	59	78	45	68	64	62	54	49	46
Sep 15	23:00:00	1:00:00	57	76	42	66	63	62	53	49	45

Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 2

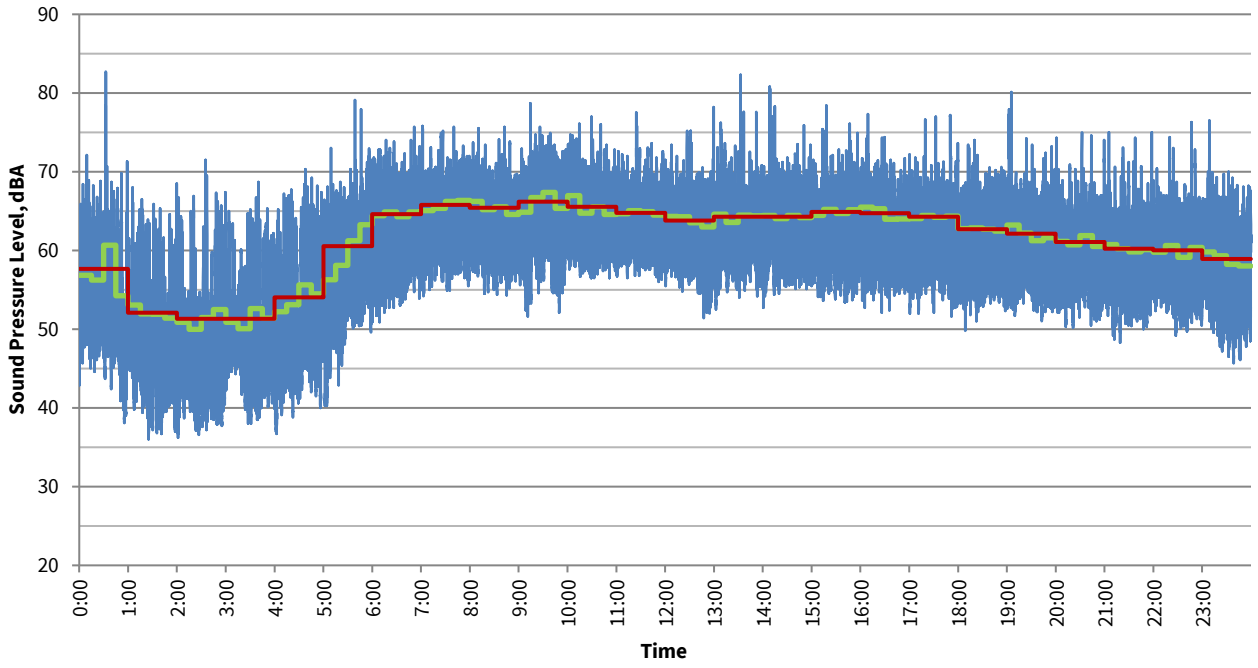
Histogram of 1 minute L_{AFmax} values on September 15th, 2022



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	0
48 - 49	0	0	0
50 - 51	0	0	0
52 - 53	0	0	0
54 - 55	0	0	3
56 - 57	0	0	1
58 - 59	0	0	2
60 - 61	0	1	1
62 - 63	0	2	7
64 - 65	1	14	21
66 - 67	31	47	41
68 - 69	125	48	28
70 - 71	118	32	9
72 - 73	45	12	2
74 - 75	16	7	2
76 - 77	21	7	0
78 - 79	9	5	2
80 - 81	4	1	1
82 - 83	3	0	0
84 - 85	0	1	0
86 - 87	0	0	0
88 - 89	0	1	0
90 - 91	1	1	0
92 - 93	0	1	0
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 2

The graph below shows the measured, and calculated time histories beginning on September 16, 2022

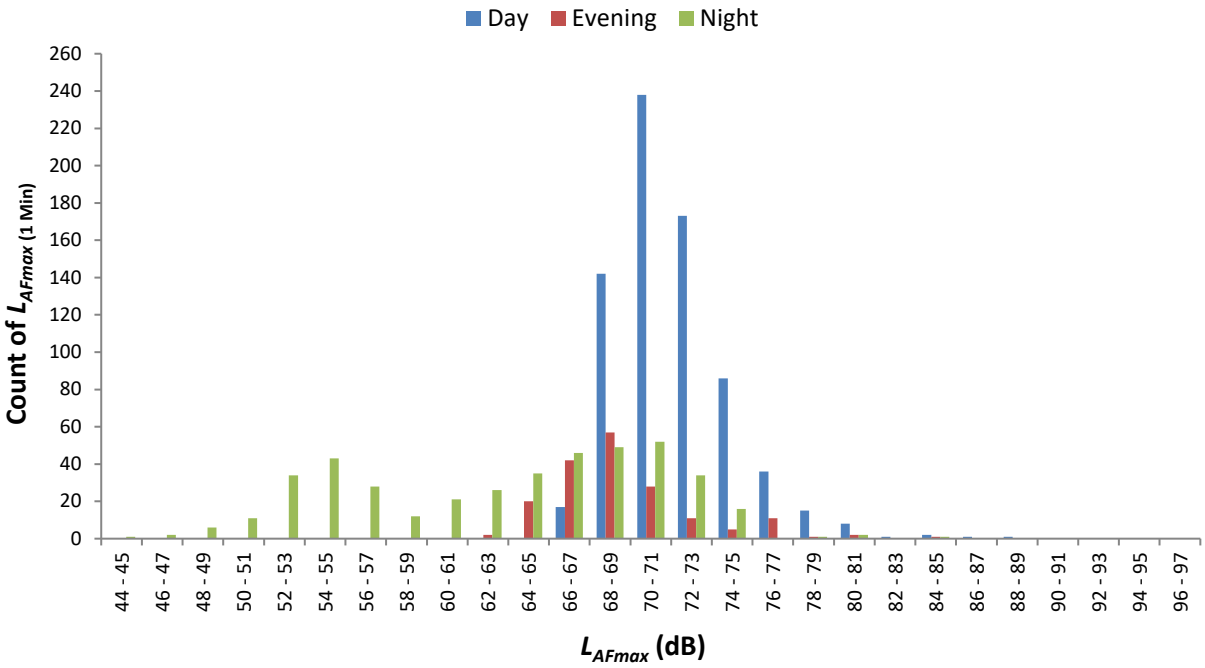


Hourly Interval Report starting at September 16, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_1	L_5	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	24:00:00	63	83	36	71	68	67	60	48	40
Sep 16	0:00:00	1:00:00	58	83	38	67	63	60	51	46	40
Sep 16	1:00:00	1:00:00	52	69	36	63	59	54	47	41	38
Sep 16	2:00:00	1:00:00	51	72	36	64	56	52	45	40	37
Sep 16	3:00:00	1:00:00	51	69	38	63	57	54	47	42	40
Sep 16	4:00:00	1:00:00	54	70	37	66	61	57	48	43	39
Sep 16	5:00:00	1:00:00	61	79	40	70	67	65	55	49	43
Sep 16	6:00:00	1:00:00	65	76	51	71	69	68	63	55	53
Sep 16	7:00:00	1:00:00	66	76	54	72	70	69	65	59	56
Sep 16	8:00:00	1:00:00	65	76	54	72	69	68	65	58	55
Sep 16	9:00:00	1:00:00	66	79	52	73	71	70	64	57	54
Sep 16	10:00:00	1:00:00	66	77	57	73	70	69	63	59	57
Sep 16	11:00:00	1:00:00	65	78	56	71	69	68	64	59	57
Sep 16	12:00:00	1:00:00	64	78	51	71	68	67	62	57	54
Sep 16	13:00:00	1:00:00	64	82	53	72	68	67	62	57	55
Sep 16	14:00:00	1:00:00	64	81	53	71	68	67	63	57	55
Sep 16	15:00:00	1:00:00	65	78	53	72	69	68	64	57	55
Sep 16	16:00:00	1:00:00	65	77	52	72	69	68	64	58	54
Sep 16	17:00:00	1:00:00	64	77	52	71	68	67	63	57	53
Sep 16	18:00:00	1:00:00	63	74	50	69	67	66	62	55	53
Sep 16	19:00:00	1:00:00	62	80	51	70	66	65	60	54	53
Sep 16	20:00:00	1:00:00	61	75	50	69	66	64	59	54	51
Sep 16	21:00:00	1:00:00	60	75	48	69	65	64	57	53	51
Sep 16	22:00:00	1:00:00	60	76	49	68	65	64	57	53	51
Sep 16	23:00:00	1:00:00	59	77	46	67	65	63	55	50	47

Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 2

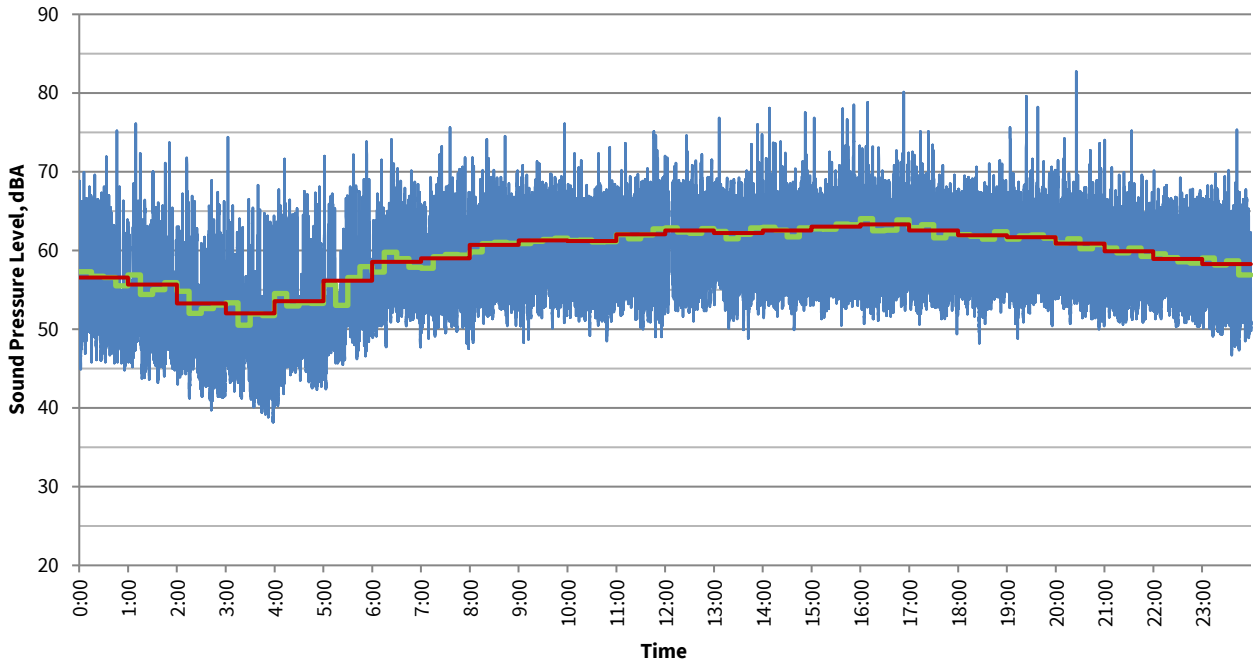
Histogram of 1 minute L_{AFmax} values on September 16th, 2022



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	1
46 - 47	0	0	2
48 - 49	0	0	6
50 - 51	0	0	11
52 - 53	0	0	34
54 - 55	0	0	43
56 - 57	0	0	28
58 - 59	0	0	12
60 - 61	0	0	21
62 - 63	0	2	26
64 - 65	0	20	35
66 - 67	17	42	46
68 - 69	142	57	49
70 - 71	238	28	52
72 - 73	173	11	34
74 - 75	86	5	16
76 - 77	36	11	0
78 - 79	15	1	1
80 - 81	8	2	2
82 - 83	1	0	0
84 - 85	2	1	1
86 - 87	1	0	0
88 - 89	1	0	0
90 - 91	0	0	0
92 - 93	0	0	0
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 2

The graph below shows the measured, and calculated time histories beginning on September 17, 2022

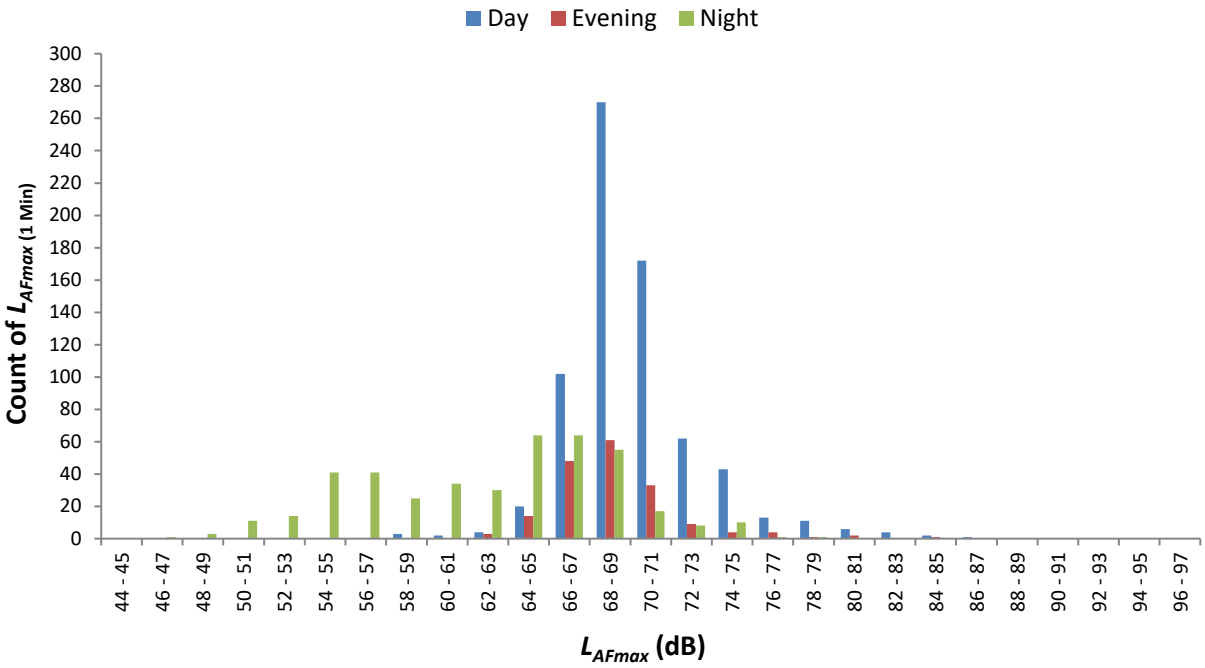


Hourly Interval Report starting at September 17, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_1	L_5	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	24:00:00	60	83	38	68	66	65	57	49	43
Sep 17	0:00:00	1:00:00	57	75	45	66	63	60	52	48	46
Sep 17	1:00:00	1:00:00	56	76	43	66	61	59	51	47	44
Sep 17	2:00:00	1:00:00	53	72	40	65	60	56	48	43	41
Sep 17	3:00:00	1:00:00	52	74	38	63	57	53	47	42	39
Sep 17	4:00:00	1:00:00	54	72	40	65	60	56	49	45	42
Sep 17	5:00:00	1:00:00	56	74	42	67	62	59	52	48	45
Sep 17	6:00:00	1:00:00	59	74	48	68	64	62	55	52	49
Sep 17	7:00:00	1:00:00	59	76	48	68	65	63	55	52	50
Sep 17	8:00:00	1:00:00	61	75	48	69	66	65	57	53	51
Sep 17	9:00:00	1:00:00	61	76	48	69	66	65	59	54	51
Sep 17	10:00:00	1:00:00	61	73	49	68	66	65	59	54	51
Sep 17	11:00:00	1:00:00	62	75	49	69	66	65	60	54	51
Sep 17	12:00:00	1:00:00	63	75	51	69	67	66	61	55	53
Sep 17	13:00:00	1:00:00	62	77	49	69	67	66	61	55	51
Sep 17	14:00:00	1:00:00	63	78	50	69	67	66	61	55	53
Sep 17	15:00:00	1:00:00	63	79	51	71	67	66	61	55	53
Sep 17	16:00:00	1:00:00	63	80	51	71	68	66	61	55	52
Sep 17	17:00:00	1:00:00	63	75	49	69	67	66	61	55	52
Sep 17	18:00:00	1:00:00	62	71	48	68	66	65	60	55	52
Sep 17	19:00:00	1:00:00	62	80	49	69	66	65	59	54	52
Sep 17	20:00:00	1:00:00	61	83	50	69	65	64	58	54	52
Sep 17	21:00:00	1:00:00	60	75	51	68	65	63	57	53	52
Sep 17	22:00:00	1:00:00	59	70	50	66	64	63	56	53	51
Sep 17	23:00:00	1:00:00	58	75	47	67	64	62	54	50	48

Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 2

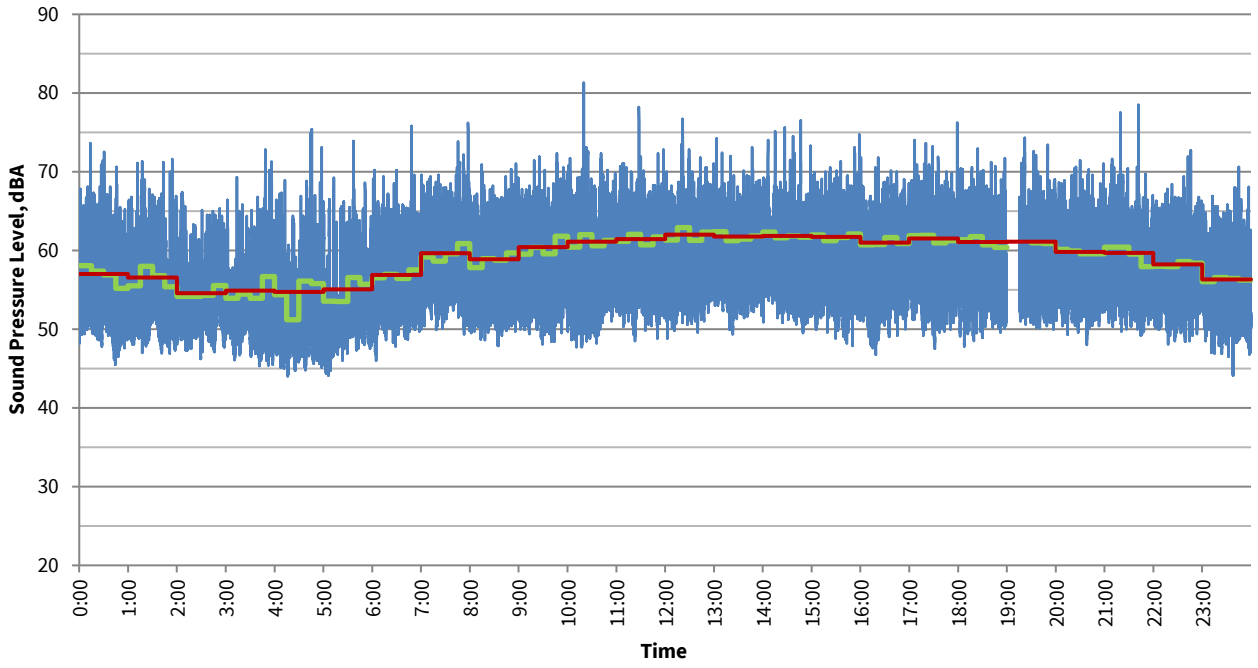
Histogram of 1 minute L_{AFmax} values on September 17th, 2022



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	1
48 - 49	0	0	3
50 - 51	0	0	11
52 - 53	0	0	14
54 - 55	0	0	41
56 - 57	0	0	41
58 - 59	3	0	25
60 - 61	2	0	34
62 - 63	4	3	30
64 - 65	20	14	64
66 - 67	102	48	64
68 - 69	270	61	55
70 - 71	172	33	17
72 - 73	62	9	8
74 - 75	43	4	10
76 - 77	13	4	1
78 - 79	11	1	1
80 - 81	6	2	0
82 - 83	4	0	0
84 - 85	2	1	0
86 - 87	1	0	0
88 - 89	0	0	0
90 - 91	0	0	0
92 - 93	0	0	0
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 2

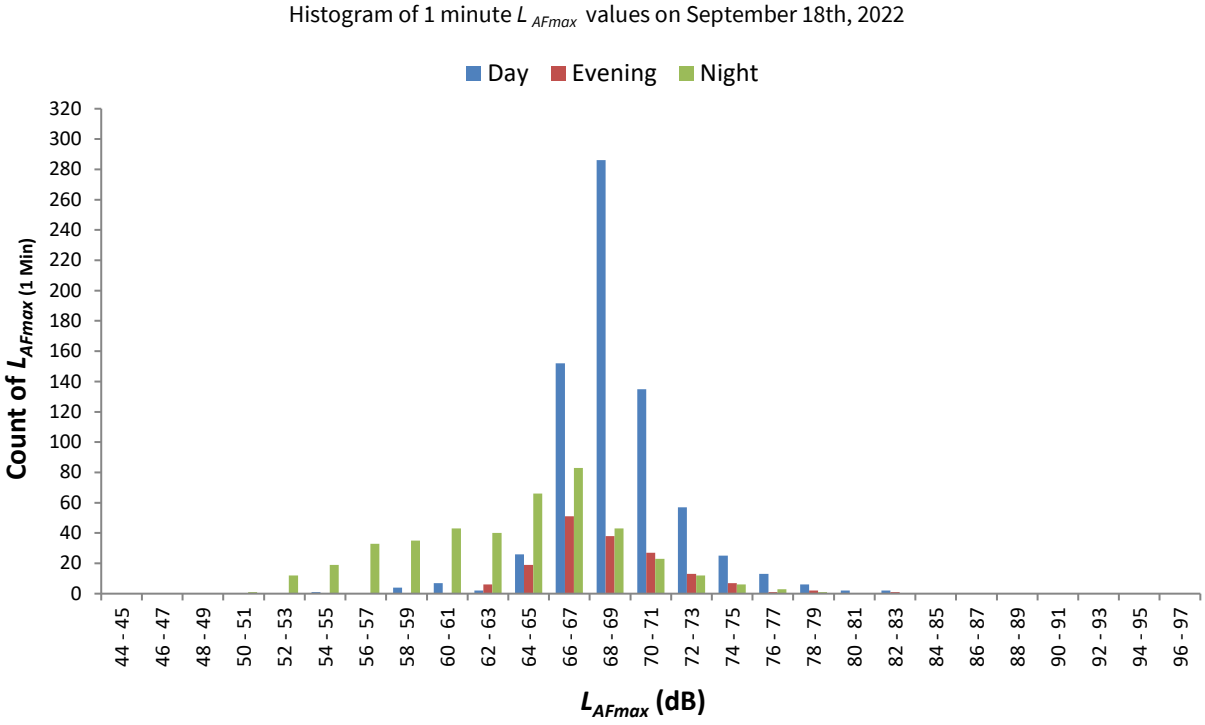
The graph below shows the measured, and calculated time histories beginning on September 18, 2022



Hourly Interval Report starting at September 18, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_1	L_5	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	24:00:00	60	81	44	68	65	64	55	50	47
Sep 18	0:00:00	1:00:00	57	74	46	67	63	61	53	49	47
Sep 18	1:00:00	1:00:00	57	72	47	67	63	60	53	49	48
Sep 18	2:00:00	1:00:00	55	67	46	63	60	58	52	49	48
Sep 18	3:00:00	1:00:00	55	73	45	65	60	57	51	48	46
Sep 18	4:00:00	1:00:00	55	75	44	67	59	55	50	47	45
Sep 18	5:00:00	1:00:00	55	74	44	65	61	57	52	48	45
Sep 18	6:00:00	1:00:00	57	76	46	66	63	60	53	51	48
Sep 18	7:00:00	1:00:00	60	76	49	68	65	63	56	53	50
Sep 18	8:00:00	1:00:00	59	71	48	67	65	63	55	51	50
Sep 18	9:00:00	1:00:00	60	72	48	68	66	64	57	52	50
Sep 18	10:00:00	1:00:00	61	81	48	69	66	65	57	51	49
Sep 18	11:00:00	1:00:00	61	78	49	69	66	65	59	53	50
Sep 18	12:00:00	1:00:00	62	77	49	69	67	65	60	54	51
Sep 18	13:00:00	1:00:00	62	74	49	69	66	65	60	54	52
Sep 18	14:00:00	1:00:00	62	77	50	69	66	65	60	54	51
Sep 18	15:00:00	1:00:00	62	75	48	69	67	65	60	52	50
Sep 18	16:00:00	1:00:00	61	72	47	68	66	65	59	53	49
Sep 18	17:00:00	1:00:00	62	76	48	70	66	65	59	53	50
Sep 18	18:00:00	1:00:00	61	73	48	69	66	65	59	52	50
Sep 18	19:00:00	1:00:00	61	74	50	69	66	65	59	53	51
Sep 18	20:00:00	1:00:00	60	71	48	68	65	64	57	52	50
Sep 18	21:00:00	1:00:00	60	79	49	68	65	63	56	52	50
Sep 18	22:00:00	1:00:00	58	73	48	67	64	62	55	51	49
Sep 18	23:00:00	1:00:00	56	71	44	65	62	60	53	49	46

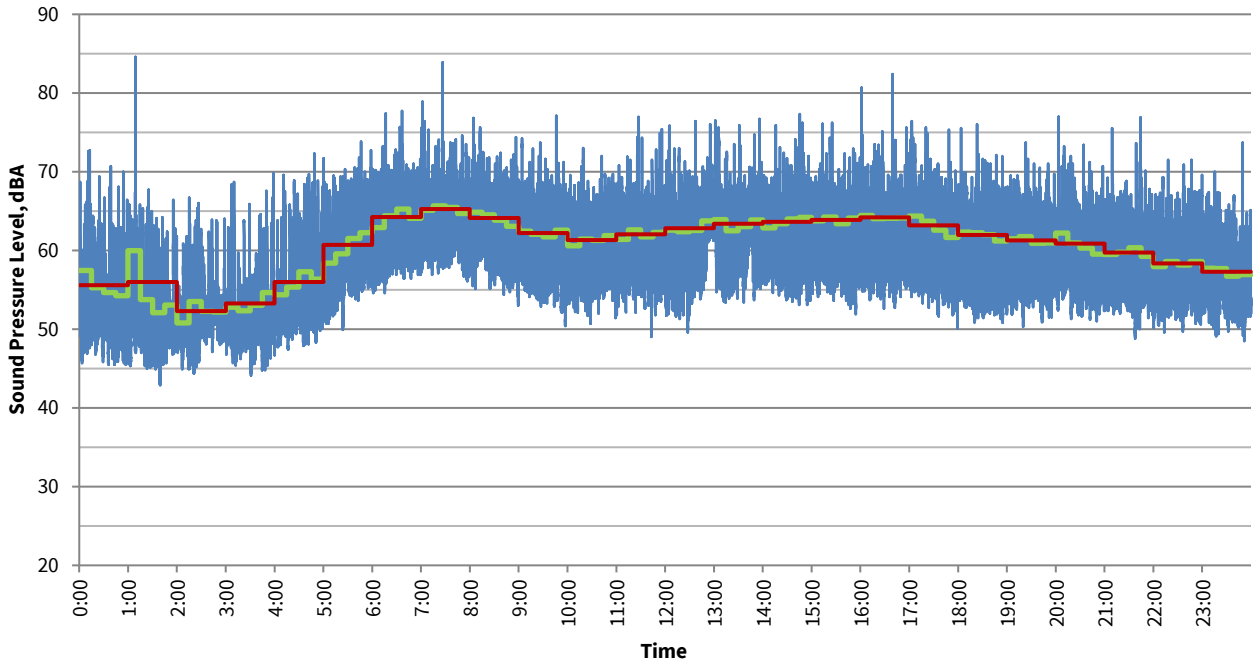
Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 2



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	0
48 - 49	0	0	0
50 - 51	0	0	1
52 - 53	0	0	12
54 - 55	1	0	19
56 - 57	0	0	33
58 - 59	4	0	35
60 - 61	7	0	43
62 - 63	2	6	40
64 - 65	26	19	66
66 - 67	152	51	83
68 - 69	286	38	43
70 - 71	135	27	23
72 - 73	57	13	12
74 - 75	25	7	6
76 - 77	13	1	3
78 - 79	6	2	1
80 - 81	2	0	0
82 - 83	2	1	0
84 - 85	0	0	0
86 - 87	0	0	0
88 - 89	0	0	0
90 - 91	0	0	0
92 - 93	0	0	0
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 2

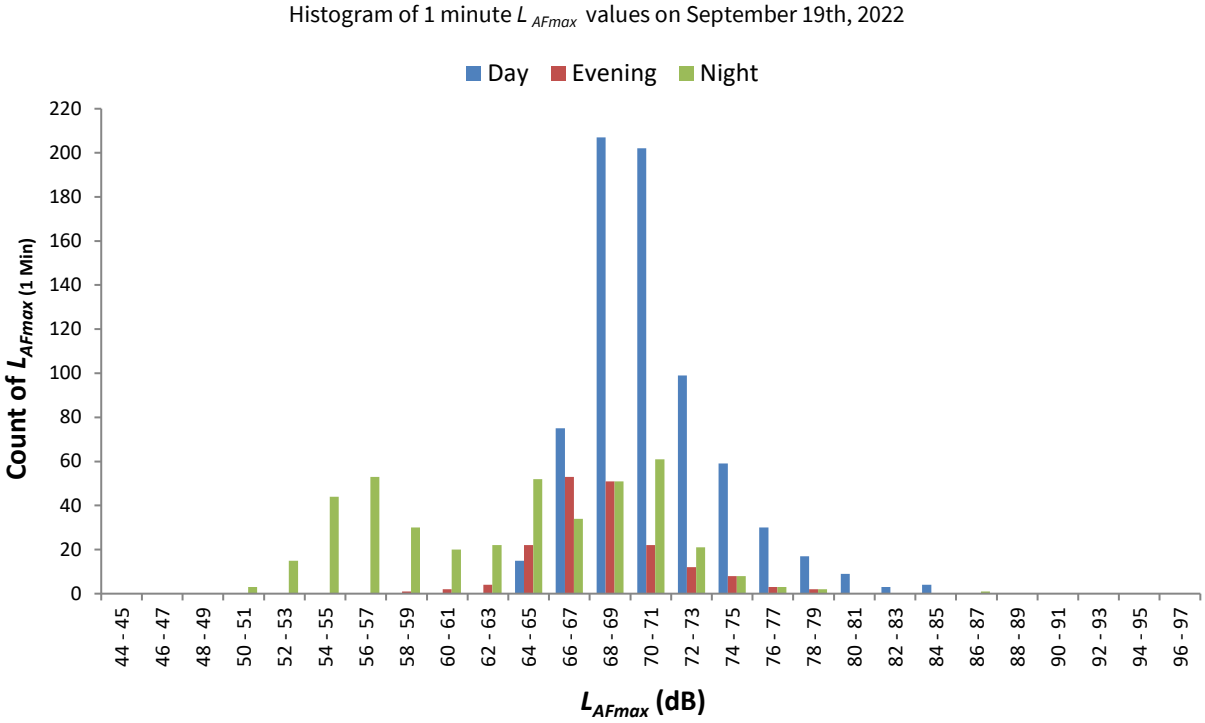
The graph below shows the measured, and calculated time histories beginning on September 19, 2022



Hourly Interval Report starting at September 19, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_{1}	L_{5}	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	24:00:00	62	85	43	70	67	66	59	51	47
Sep 19	0:00:00	1:00:00	56	73	46	66	62	58	51	48	46
Sep 19	1:00:00	1:00:00	56	85	43	64	60	56	50	47	44
Sep 19	2:00:00	1:00:00	52	67	44	62	56	54	50	48	45
Sep 19	3:00:00	1:00:00	53	70	44	63	57	55	51	48	45
Sep 19	4:00:00	1:00:00	56	72	47	66	62	58	53	50	48
Sep 19	5:00:00	1:00:00	61	74	50	69	66	64	57	54	51
Sep 19	6:00:00	1:00:00	64	78	55	71	69	67	62	58	56
Sep 19	7:00:00	1:00:00	65	84	56	73	69	68	64	59	57
Sep 19	8:00:00	1:00:00	64	77	53	71	68	67	63	58	56
Sep 19	9:00:00	1:00:00	62	77	50	70	67	66	60	55	53
Sep 19	10:00:00	1:00:00	61	73	51	68	66	65	59	55	53
Sep 19	11:00:00	1:00:00	62	77	49	70	66	65	60	55	53
Sep 19	12:00:00	1:00:00	63	76	50	70	67	66	61	55	52
Sep 19	13:00:00	1:00:00	63	77	53	71	68	66	62	57	54
Sep 19	14:00:00	1:00:00	64	77	53	71	68	67	62	57	54
Sep 19	15:00:00	1:00:00	64	76	52	70	68	67	63	57	54
Sep 19	16:00:00	1:00:00	64	82	53	71	68	67	63	58	55
Sep 19	17:00:00	1:00:00	63	76	50	71	67	66	62	55	52
Sep 19	18:00:00	1:00:00	62	76	51	69	67	66	60	54	52
Sep 19	19:00:00	1:00:00	61	74	50	68	66	65	59	55	52
Sep 19	20:00:00	1:00:00	61	77	51	70	65	64	58	54	52
Sep 19	21:00:00	1:00:00	60	77	49	68	65	63	57	53	51
Sep 19	22:00:00	1:00:00	58	72	50	67	64	62	55	53	51
Sep 19	23:00:00	1:00:00	57	74	49	65	62	60	55	52	50

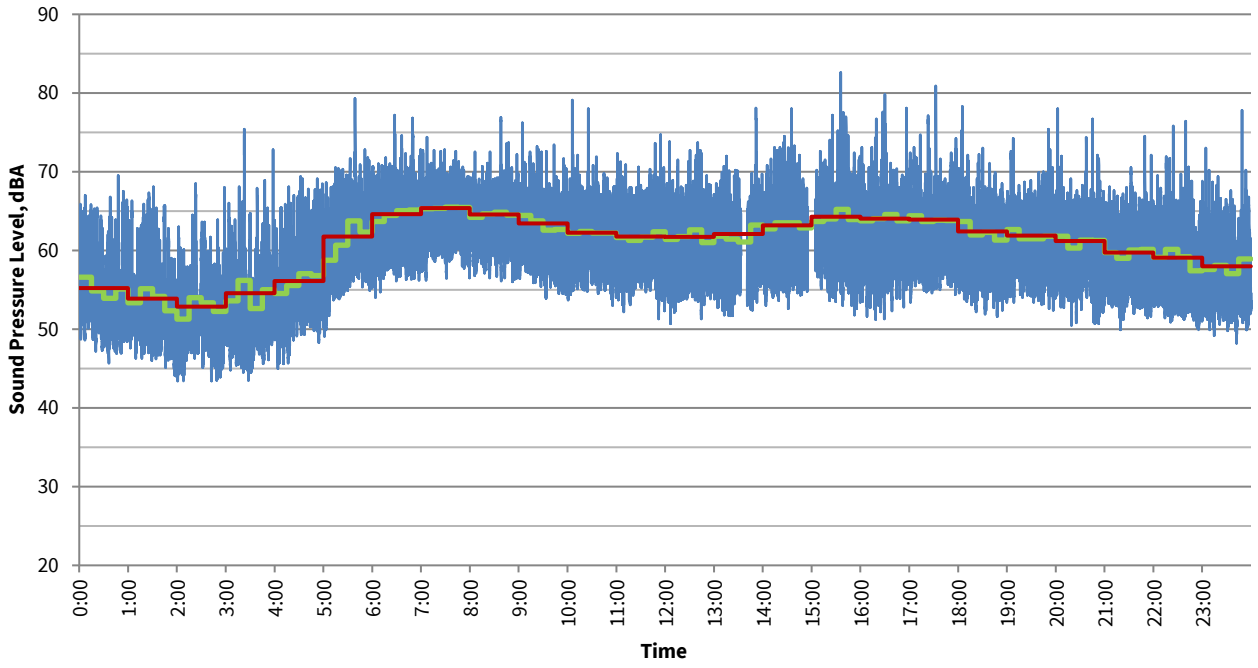
Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 2



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	0
48 - 49	0	0	0
50 - 51	0	0	3
52 - 53	0	0	15
54 - 55	0	0	44
56 - 57	0	0	53
58 - 59	0	1	30
60 - 61	0	2	20
62 - 63	0	4	22
64 - 65	15	22	52
66 - 67	75	53	34
68 - 69	207	51	51
70 - 71	202	22	61
72 - 73	99	12	21
74 - 75	59	8	8
76 - 77	30	3	3
78 - 79	17	2	2
80 - 81	9	0	0
82 - 83	3	0	0
84 - 85	4	0	0
86 - 87	0	0	1
88 - 89	0	0	0
90 - 91	0	0	0
92 - 93	0	0	0
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 2

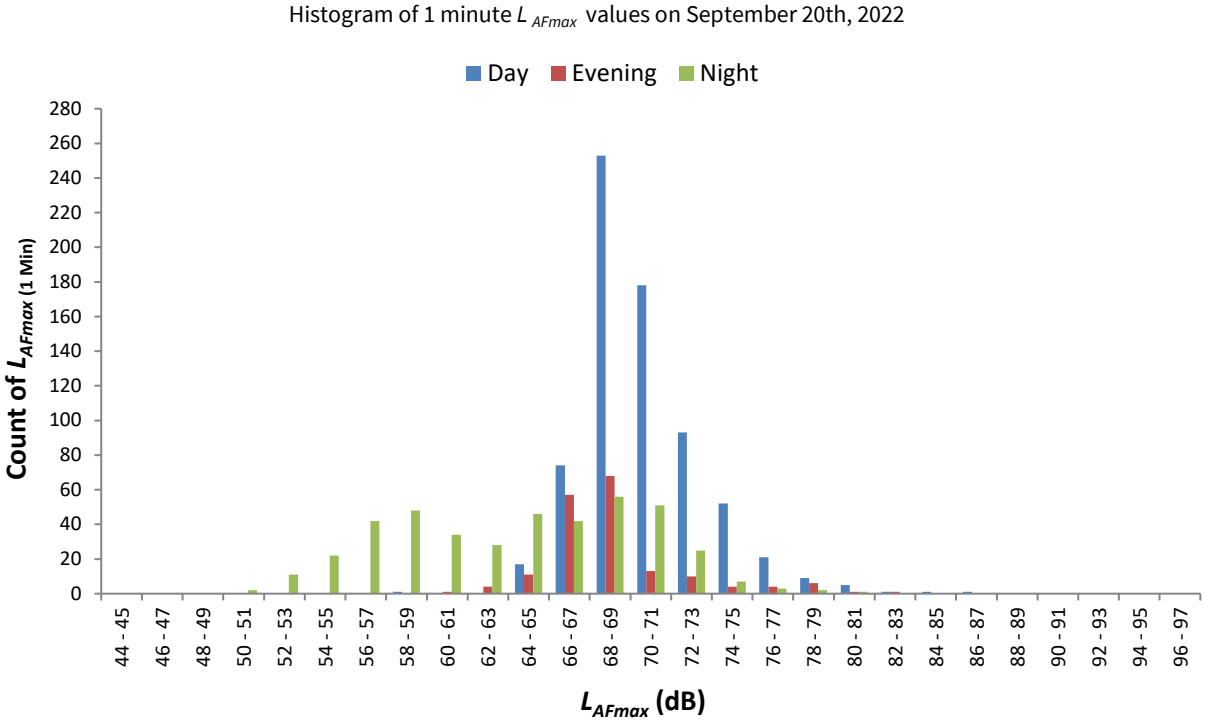
The graph below shows the measured, and calculated time histories beginning on September 20, 2022



Hourly Interval Report starting at September 20, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_{1}	L_{5}	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	24:00:00	62	83	43	70	67	66	59	52	47
Sep 20	0:00:00	1:00:00	55	70	46	65	61	58	53	49	47
Sep 20	1:00:00	1:00:00	54	68	44	64	59	56	52	48	46
Sep 20	2:00:00	1:00:00	53	69	43	61	57	55	51	46	44
Sep 20	3:00:00	1:00:00	55	75	44	64	59	56	51	47	45
Sep 20	4:00:00	1:00:00	56	69	45	66	62	59	53	50	46
Sep 20	5:00:00	1:00:00	62	79	49	69	67	65	59	55	51
Sep 20	6:00:00	1:00:00	65	77	54	72	69	67	63	58	57
Sep 20	7:00:00	1:00:00	65	74	56	71	69	68	65	60	58
Sep 20	8:00:00	1:00:00	65	77	56	70	68	67	64	60	57
Sep 20	9:00:00	1:00:00	63	76	54	71	67	66	62	57	56
Sep 20	10:00:00	1:00:00	62	79	53	69	66	65	60	56	55
Sep 20	11:00:00	1:00:00	62	75	51	69	66	65	60	56	54
Sep 20	12:00:00	1:00:00	62	74	51	70	66	65	60	55	53
Sep 20	13:00:00	1:00:00	62	78	52	69	67	65	60	55	53
Sep 20	14:00:00	1:00:00	63	78	53	71	67	66	61	56	55
Sep 20	15:00:00	1:00:00	64	83	52	72	68	67	63	57	54
Sep 20	16:00:00	1:00:00	64	80	51	71	68	66	63	57	53
Sep 20	17:00:00	1:00:00	64	81	53	71	68	66	63	58	55
Sep 20	18:00:00	1:00:00	62	78	52	70	67	65	61	55	53
Sep 20	19:00:00	1:00:00	62	75	52	69	66	65	60	56	54
Sep 20	20:00:00	1:00:00	61	78	51	68	65	64	59	55	52
Sep 20	21:00:00	1:00:00	60	75	50	67	64	63	57	54	52
Sep 20	22:00:00	1:00:00	59	76	50	68	64	62	56	53	51
Sep 20	23:00:00	1:00:00	58	78	48	66	63	62	55	52	50

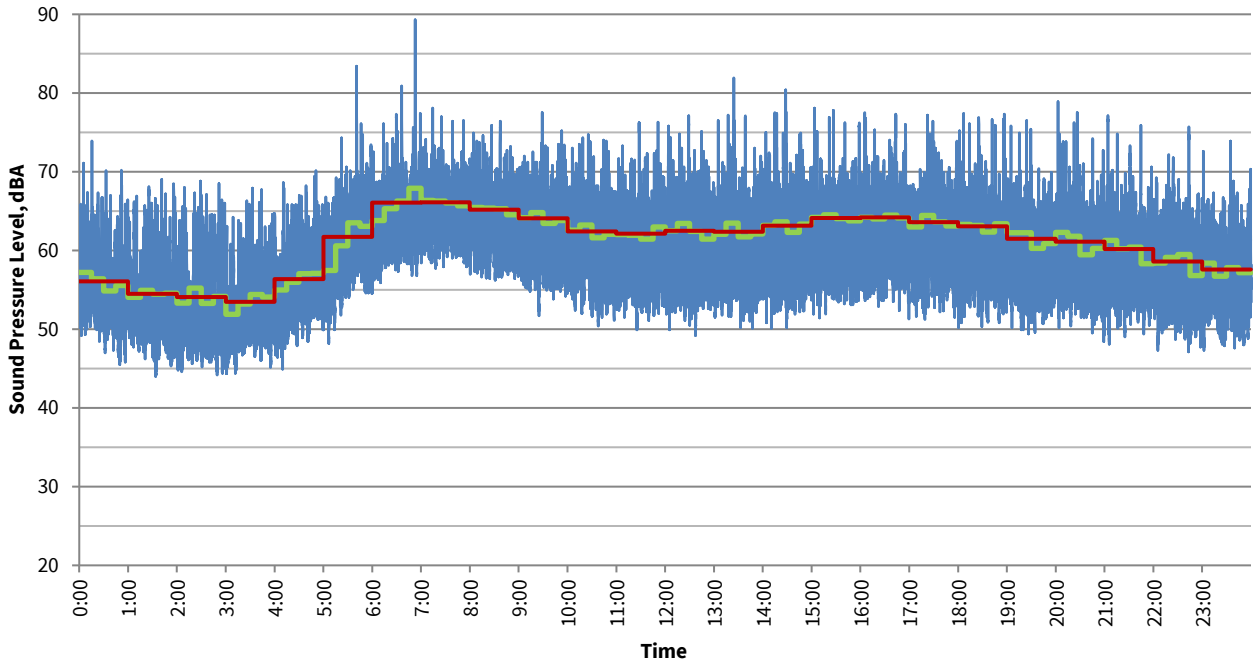
Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 2



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	0
48 - 49	0	0	0
50 - 51	0	0	2
52 - 53	0	0	11
54 - 55	0	0	22
56 - 57	0	0	42
58 - 59	1	0	48
60 - 61	0	1	34
62 - 63	0	4	28
64 - 65	17	11	46
66 - 67	74	57	42
68 - 69	253	68	56
70 - 71	178	13	51
72 - 73	93	10	25
74 - 75	52	4	7
76 - 77	21	4	3
78 - 79	9	6	2
80 - 81	5	1	1
82 - 83	1	1	0
84 - 85	1	0	0
86 - 87	1	0	0
88 - 89	0	0	0
90 - 91	0	0	0
92 - 93	0	0	0
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 2

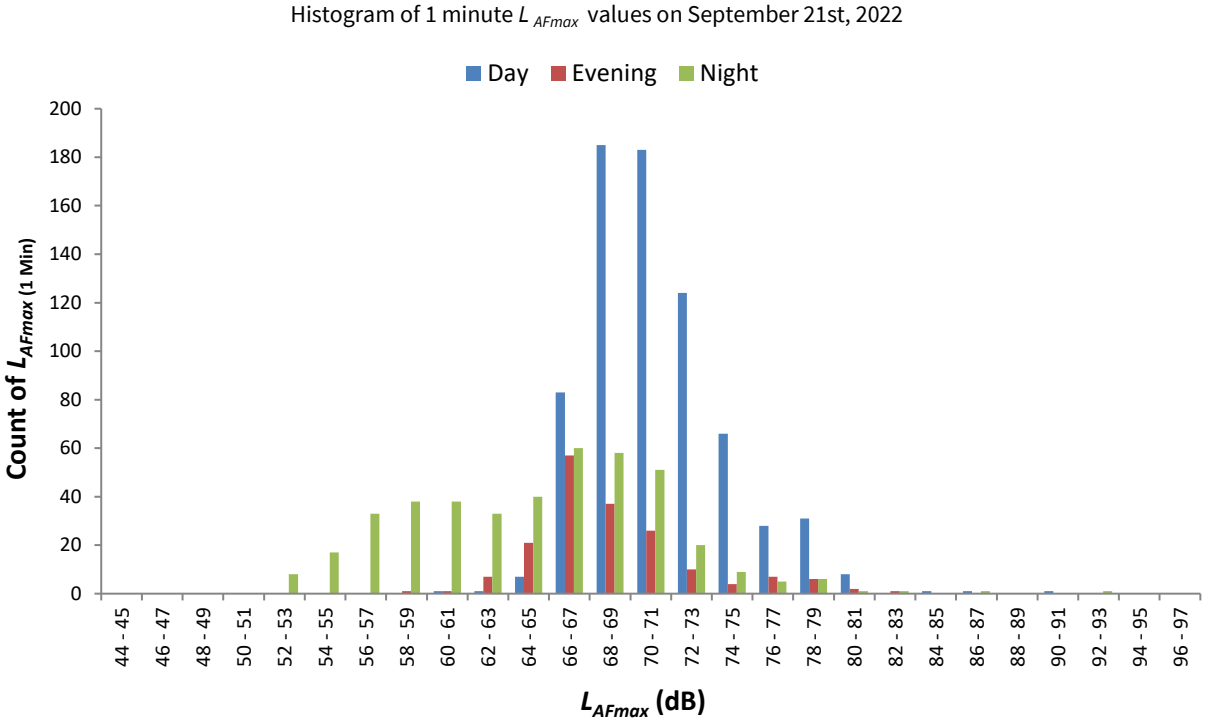
The graph below shows the measured, and calculated time histories beginning on September 21, 2022



Hourly Interval Report starting at September 21, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_{1}	L_{5}	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	24:00:00	62	89	44	71	67	66	59	51	47
Sep 21	0:00:00	1:00:00	56	74	46	66	62	59	53	50	47
Sep 21	1:00:00	1:00:00	54	69	44	65	59	57	52	48	45
Sep 21	2:00:00	1:00:00	54	69	44	64	60	57	50	47	45
Sep 21	3:00:00	1:00:00	53	68	44	63	58	56	51	48	45
Sep 21	4:00:00	1:00:00	56	70	45	66	62	59	54	50	47
Sep 21	5:00:00	1:00:00	62	83	48	70	67	65	58	54	51
Sep 21	6:00:00	1:00:00	66	89	56	74	69	68	64	59	57
Sep 21	7:00:00	1:00:00	66	78	58	72	70	69	65	61	59
Sep 21	8:00:00	1:00:00	65	76	56	72	69	68	64	59	57
Sep 21	9:00:00	1:00:00	64	78	52	71	68	67	63	57	55
Sep 21	10:00:00	1:00:00	62	75	50	71	67	66	60	55	52
Sep 21	11:00:00	1:00:00	62	76	50	71	67	65	59	55	52
Sep 21	12:00:00	1:00:00	62	77	49	71	67	65	60	55	52
Sep 21	13:00:00	1:00:00	62	82	50	71	67	65	59	54	52
Sep 21	14:00:00	1:00:00	63	80	50	72	68	66	61	55	52
Sep 21	15:00:00	1:00:00	64	78	51	72	68	67	63	56	53
Sep 21	16:00:00	1:00:00	64	78	51	72	68	67	63	57	54
Sep 21	17:00:00	1:00:00	64	77	51	71	68	66	62	56	53
Sep 21	18:00:00	1:00:00	63	77	50	73	67	66	61	55	52
Sep 21	19:00:00	1:00:00	61	77	49	69	66	65	59	54	51
Sep 21	20:00:00	1:00:00	61	79	48	70	65	64	58	54	51
Sep 21	21:00:00	1:00:00	60	77	48	69	65	64	57	53	50
Sep 21	22:00:00	1:00:00	59	76	47	67	64	62	55	51	49
Sep 21	23:00:00	1:00:00	58	74	47	66	63	61	55	51	49

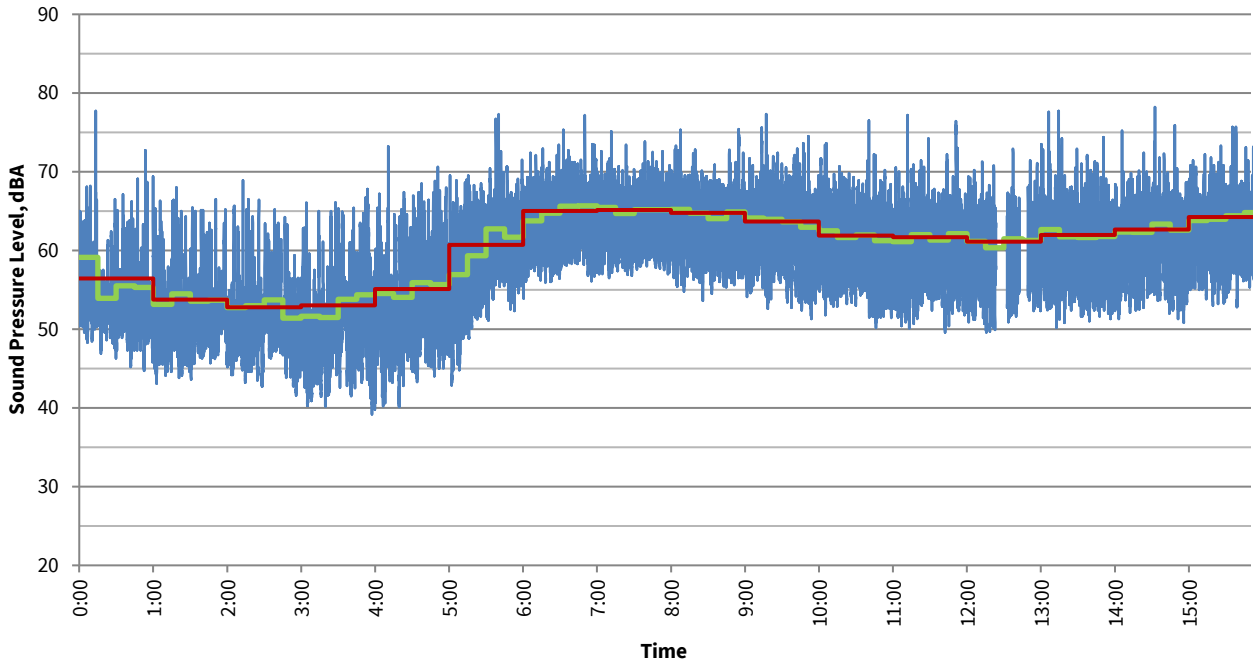
Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 2



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	0
48 - 49	0	0	0
50 - 51	0	0	0
52 - 53	0	0	8
54 - 55	0	0	17
56 - 57	0	0	33
58 - 59	0	1	38
60 - 61	1	1	38
62 - 63	1	7	33
64 - 65	7	21	40
66 - 67	83	57	60
68 - 69	185	37	58
70 - 71	183	26	51
72 - 73	124	10	20
74 - 75	66	4	9
76 - 77	28	7	5
78 - 79	31	6	6
80 - 81	8	2	1
82 - 83	0	1	1
84 - 85	1	0	0
86 - 87	1	0	1
88 - 89	0	0	0
90 - 91	1	0	0
92 - 93	0	0	1
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 2

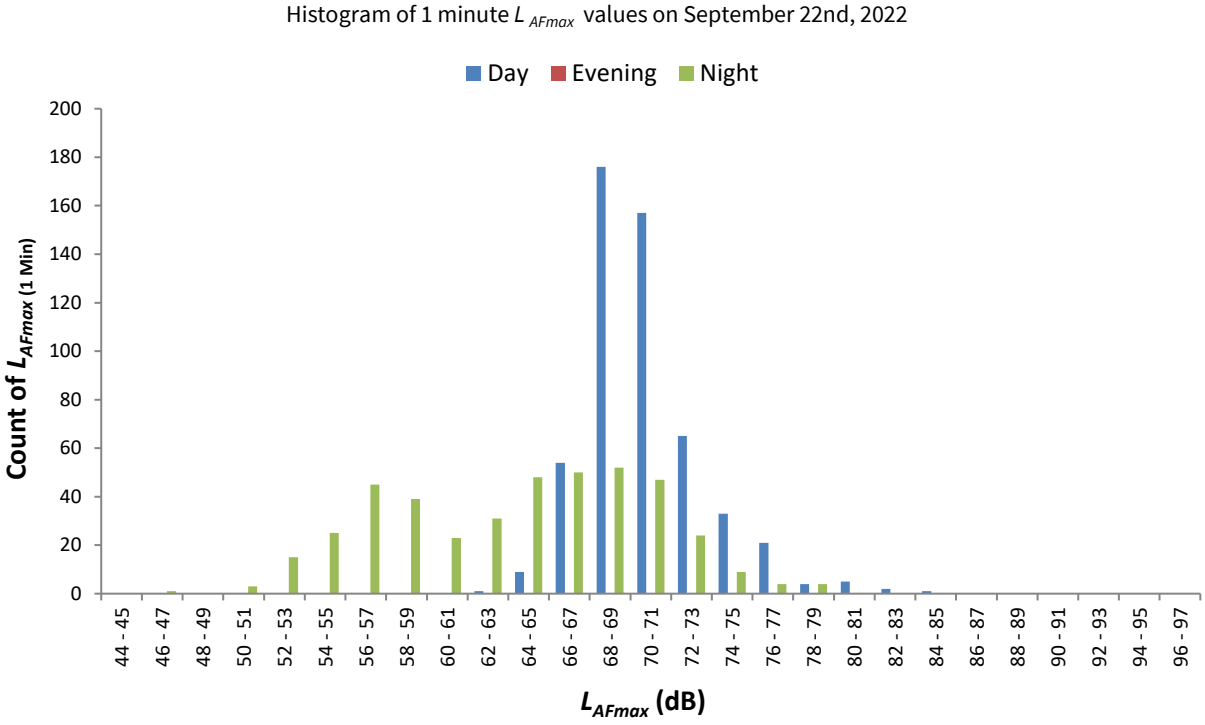
The graph below shows the measured, and calculated time histories beginning on September 22, 2022



Hourly Interval Report starting at September 22, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_1	L_5	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	16:00:00	62	78	39	70	67	66	58	49	44
Sep 22	0:00:00	1:00:00	56	78	45	66	61	58	53	49	46
Sep 22	1:00:00	1:00:00	54	68	43	64	59	56	51	47	45
Sep 22	2:00:00	1:00:00	53	69	42	63	58	55	50	45	43
Sep 22	3:00:00	1:00:00	53	68	39	63	58	56	50	44	41
Sep 22	4:00:00	1:00:00	55	73	40	65	62	59	51	46	42
Sep 22	5:00:00	1:00:00	61	77	43	69	66	64	57	50	45
Sep 22	6:00:00	1:00:00	65	77	54	72	69	68	64	59	57
Sep 22	7:00:00	1:00:00	65	75	57	70	69	68	65	60	58
Sep 22	8:00:00	1:00:00	65	75	54	72	69	68	64	58	56
Sep 22	9:00:00	1:00:00	64	77	51	72	68	67	62	56	53
Sep 22	10:00:00	1:00:00	62	77	50	70	67	66	59	55	52
Sep 22	11:00:00	1:00:00	62	77	50	70	66	65	59	54	52
Sep 22	12:00:00	1:00:00	61	73	50	69	66	65	59	53	51
Sep 22	13:00:00	1:00:00	62	78	50	70	67	65	60	54	52
Sep 22	14:00:00	1:00:00	63	78	51	70	67	66	61	55	53
Sep 22	15:00:00	1:00:00	64	76	53	71	68	67	63	57	54
Sep 22	16:00:00	1:00:00	65	73	54	72	68	67	64	57	55

Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 2



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	1
48 - 49	0	0	0
50 - 51	0	0	3
52 - 53	0	0	15
54 - 55	0	0	25
56 - 57	0	0	45
58 - 59	0	0	39
60 - 61	0	0	23
62 - 63	1	0	31
64 - 65	9	0	48
66 - 67	54	0	50
68 - 69	176	0	52
70 - 71	157	0	47
72 - 73	65	0	24
74 - 75	33	0	9
76 - 77	21	0	4
78 - 79	4	0	4
80 - 81	5	0	0
82 - 83	2	0	0
84 - 85	1	0	0
86 - 87	0	0	0
88 - 89	0	0	0
90 - 91	0	0	0
92 - 93	0	0	0
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 3

Project ID:	2280-22A	Address:	3 K De K Ct, New Westminister
Start Date:	September 21, 2022	Instrument:	01 dB Duo
Start Time:	10:00	Serial No:	10204
Duration:	5 Days	Measured by:	AB

Location Description

The monitor was located on the balcony of the residence about 4.7 m from the existing ground level and roughly 750 m from the Project Site.

Ambient Noise Description

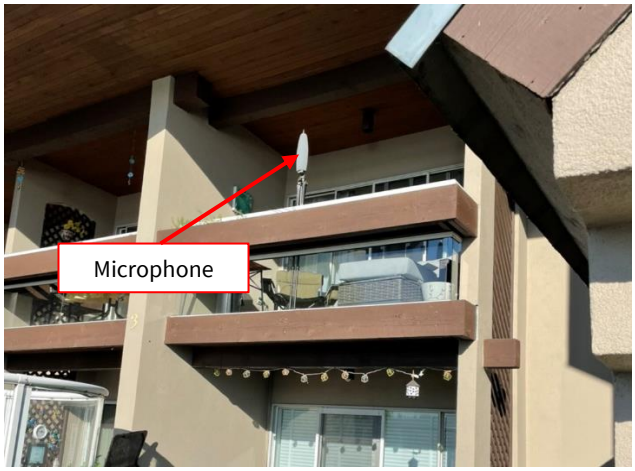
The dominant noise source was from pedestrian activity along the BC Parkway and boats along the Fraser River

Environmental Conditions

The weather condition showed no exceedances in windy periods and was sunny throughout the measurement duration.

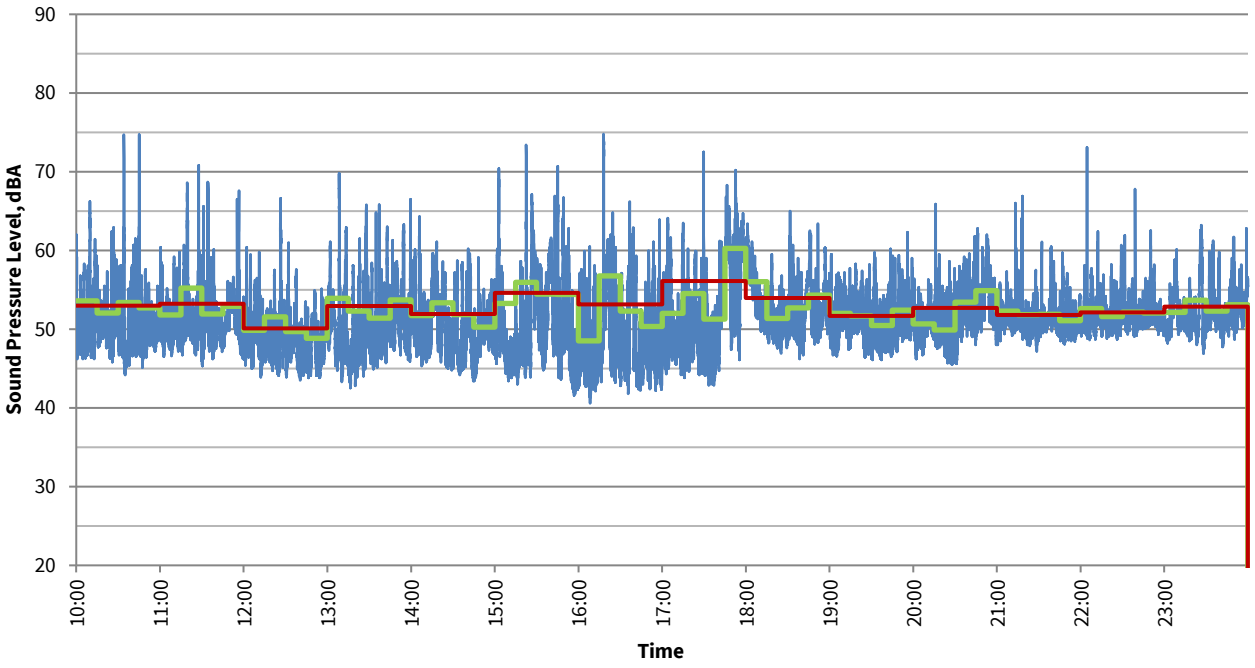
Purpose of Monitoring Location

The purpose of this monitoring location is to establish existing baseline noise levels at a representative nearest noise sensitive residence in New Westminster.



Baseline Noise Monitoring Detailed Results - Site 3

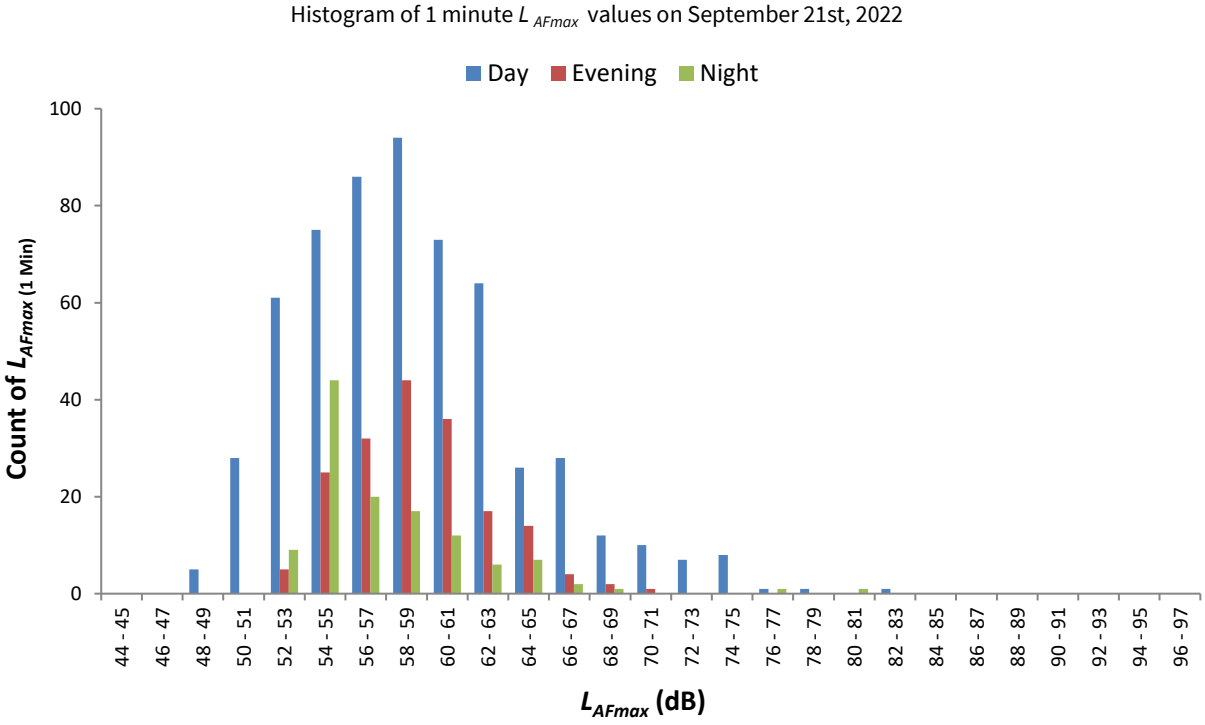
The graph below shows the measured, and calculated time histories beginning on September 21, 2022



Hourly Interval Report starting at September 21, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_1	L_5	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	14:00:00	53	75	41	62	58	56	50	46	44
Sep 21	10:00:00	1:00:00	53	75	44	61	58	56	50	47	45
Sep 21	11:00:00	1:00:00	53	71	45	64	57	55	50	48	47
Sep 21	12:00:00	1:00:00	50	67	44	60	54	52	48	45	44
Sep 21	13:00:00	1:00:00	53	70	43	63	58	56	49	46	44
Sep 21	14:00:00	1:00:00	52	64	43	59	57	56	49	46	44
Sep 21	15:00:00	1:00:00	55	73	42	65	60	58	49	45	43
Sep 21	16:00:00	1:00:00	53	75	41	61	58	56	47	44	43
Sep 21	17:00:00	1:00:00	56	73	43	65	62	61	50	46	44
Sep 21	18:00:00	1:00:00	54	65	46	61	59	57	52	49	48
Sep 21	19:00:00	1:00:00	52	62	46	58	56	54	51	48	47
Sep 21	20:00:00	1:00:00	53	66	46	60	57	56	51	48	46
Sep 21	21:00:00	1:00:00	52	67	47	58	54	53	51	49	49
Sep 21	22:00:00	1:00:00	52	73	49	57	55	53	51	50	49
Sep 21	23:00:00	1:00:00	53	63	47	61	56	55	52	50	48

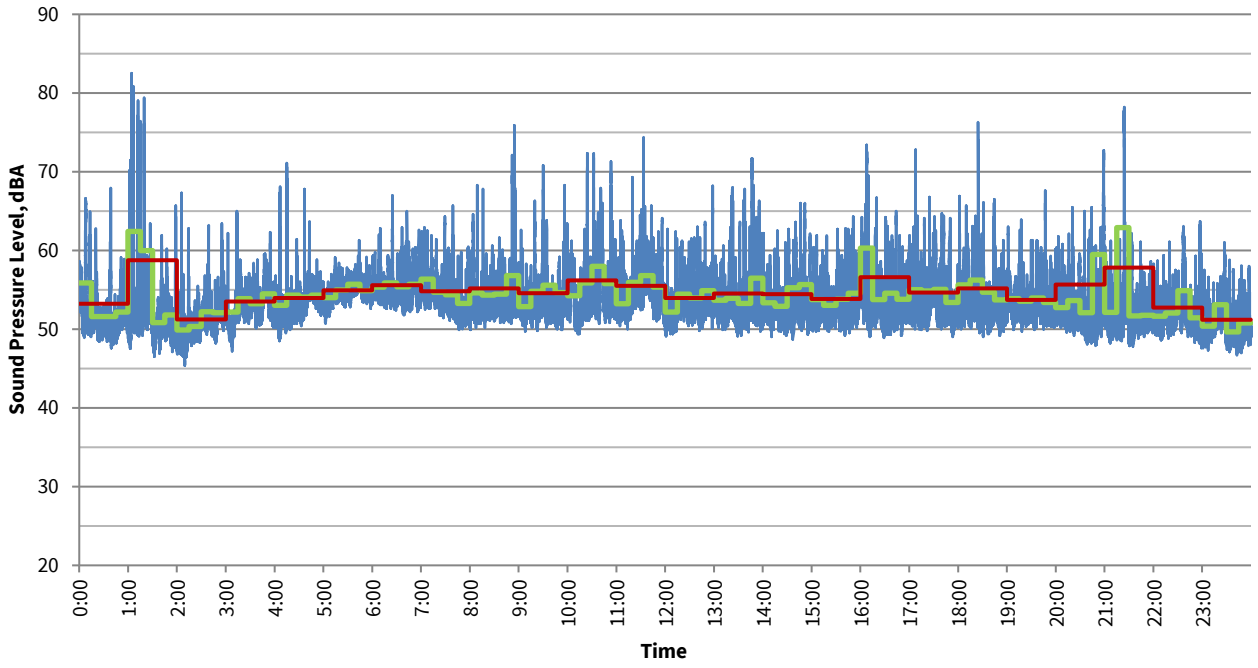
Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 3



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	0
48 - 49	5	0	0
50 - 51	28	0	0
52 - 53	61	5	9
54 - 55	75	25	44
56 - 57	86	32	20
58 - 59	94	44	17
60 - 61	73	36	12
62 - 63	64	17	6
64 - 65	26	14	7
66 - 67	28	4	2
68 - 69	12	2	1
70 - 71	10	1	0
72 - 73	7	0	0
74 - 75	8	0	0
76 - 77	1	0	1
78 - 79	1	0	0
80 - 81	0	0	1
82 - 83	1	0	0
84 - 85	0	0	0
86 - 87	0	0	0
88 - 89	0	0	0
90 - 91	0	0	0
92 - 93	0	0	0
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 3

The graph below shows the measured, and calculated time histories beginning on September 22, 2022

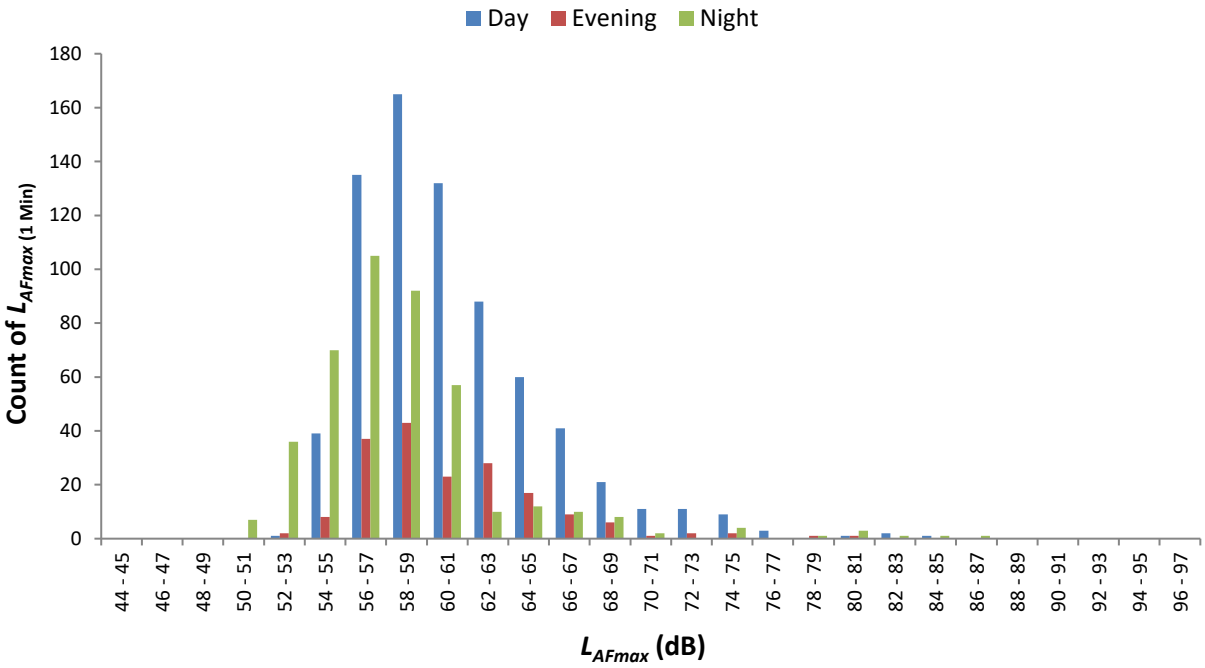


Hourly Interval Report starting at September 22, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_1	L_5	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	24:00:00	55	83	45	63	58	56	53	50	48
Sep 22	0:00:00	1:00:00	53	68	48	64	57	55	51	50	49
Sep 22	1:00:00	1:00:00	59	83	47	73	59	57	51	49	47
Sep 22	2:00:00	1:00:00	51	67	45	56	54	53	51	48	47
Sep 22	3:00:00	1:00:00	54	65	47	59	57	56	53	51	48
Sep 22	4:00:00	1:00:00	54	71	49	60	56	55	53	51	49
Sep 22	5:00:00	1:00:00	55	61	51	58	57	56	55	53	52
Sep 22	6:00:00	1:00:00	56	67	52	62	59	57	55	53	52
Sep 22	7:00:00	1:00:00	55	66	50	61	59	57	54	52	51
Sep 22	8:00:00	1:00:00	55	76	50	62	58	57	53	52	51
Sep 22	9:00:00	1:00:00	55	71	50	64	59	56	53	51	50
Sep 22	10:00:00	1:00:00	56	72	49	66	60	58	53	51	50
Sep 22	11:00:00	1:00:00	56	74	50	62	59	58	54	52	51
Sep 22	12:00:00	1:00:00	54	68	49	61	57	56	53	51	50
Sep 22	13:00:00	1:00:00	55	72	49	63	57	56	53	51	50
Sep 22	14:00:00	1:00:00	54	66	49	63	60	57	53	51	50
Sep 22	15:00:00	1:00:00	54	64	49	61	58	56	53	51	50
Sep 22	16:00:00	1:00:00	57	73	49	68	61	58	53	51	50
Sep 22	17:00:00	1:00:00	55	73	49	62	59	57	53	51	50
Sep 22	18:00:00	1:00:00	55	76	49	63	60	58	53	51	50
Sep 22	19:00:00	1:00:00	54	68	50	61	57	55	52	51	50
Sep 22	20:00:00	1:00:00	56	73	48	69	58	55	51	50	49
Sep 22	21:00:00	1:00:00	58	78	48	72	57	54	51	50	49
Sep 22	22:00:00	1:00:00	53	64	48	62	56	54	51	50	49
Sep 22	23:00:00	1:00:00	51	61	47	58	54	53	50	48	47

Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 3

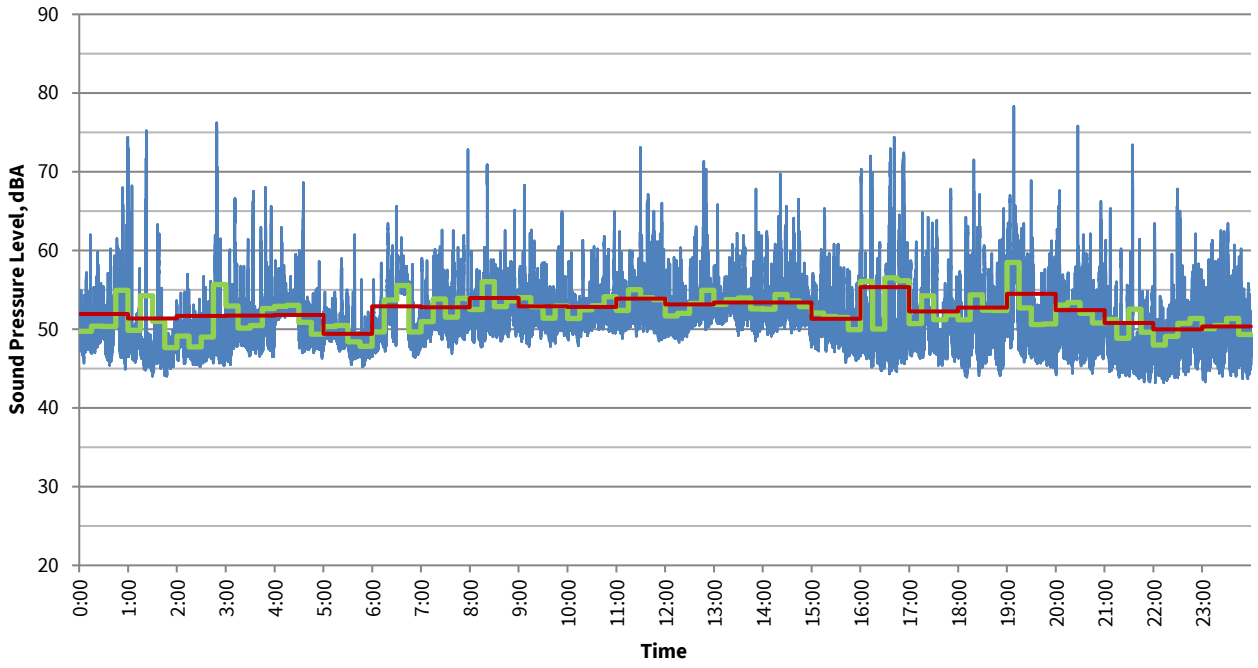
Histogram of 1 minute L_{AFmax} values on September 22nd, 2022



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	0
48 - 49	0	0	0
50 - 51	0	0	7
52 - 53	1	2	36
54 - 55	39	8	70
56 - 57	135	37	105
58 - 59	165	43	92
60 - 61	132	23	57
62 - 63	88	28	10
64 - 65	60	17	12
66 - 67	41	9	10
68 - 69	21	6	8
70 - 71	11	1	2
72 - 73	11	2	0
74 - 75	9	2	4
76 - 77	3	0	0
78 - 79	0	1	1
80 - 81	1	1	3
82 - 83	2	0	1
84 - 85	1	0	1
86 - 87	0	0	1
88 - 89	0	0	0
90 - 91	0	0	0
92 - 93	0	0	0
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 3

The graph below shows the measured, and calculated time histories beginning on September 23, 2022

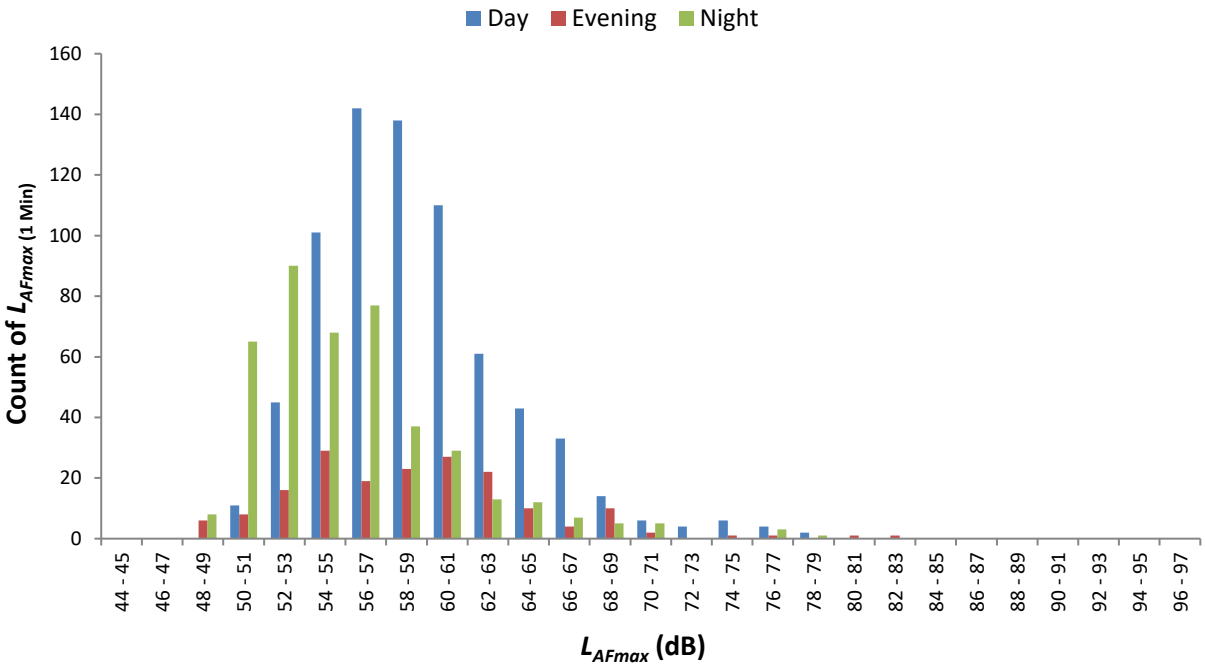


Hourly Interval Report starting at September 23, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_1	L_5	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	24:00:00	53	78	43	61	57	55	50	47	45
Sep 23	0:00:00	1:00:00	52	74	45	60	56	54	49	47	46
Sep 23	1:00:00	1:00:00	51	75	44	61	51	50	47	46	45
Sep 23	2:00:00	1:00:00	52	76	45	57	51	51	48	47	46
Sep 23	3:00:00	1:00:00	52	68	46	62	55	52	49	48	47
Sep 23	4:00:00	1:00:00	52	69	46	57	54	53	52	48	47
Sep 23	5:00:00	1:00:00	49	62	45	55	53	51	49	47	46
Sep 23	6:00:00	1:00:00	53	66	46	60	57	55	50	48	47
Sep 23	7:00:00	1:00:00	53	73	47	60	57	55	51	49	48
Sep 23	8:00:00	1:00:00	54	71	48	62	57	56	52	50	48
Sep 23	9:00:00	1:00:00	53	68	48	61	57	54	51	49	48
Sep 23	10:00:00	1:00:00	53	65	48	60	57	55	52	50	49
Sep 23	11:00:00	1:00:00	54	73	49	62	58	56	52	50	49
Sep 23	12:00:00	1:00:00	53	71	48	60	57	54	52	50	49
Sep 23	13:00:00	1:00:00	53	68	49	60	57	55	52	51	50
Sep 23	14:00:00	1:00:00	53	70	48	61	57	55	52	50	49
Sep 23	15:00:00	1:00:00	51	65	46	59	56	54	50	48	47
Sep 23	16:00:00	1:00:00	55	74	44	69	59	55	49	46	45
Sep 23	17:00:00	1:00:00	52	68	45	61	58	56	49	47	46
Sep 23	18:00:00	1:00:00	53	72	44	62	58	56	50	46	45
Sep 23	19:00:00	1:00:00	54	78	45	63	61	58	50	47	46
Sep 23	20:00:00	1:00:00	52	76	44	61	58	55	49	47	46
Sep 23	21:00:00	1:00:00	51	73	43	60	55	53	47	45	44
Sep 23	22:00:00	1:00:00	50	68	43	58	54	52	47	45	44
Sep 23	23:00:00	1:00:00	50	63	43	58	55	53	49	46	45

Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 3

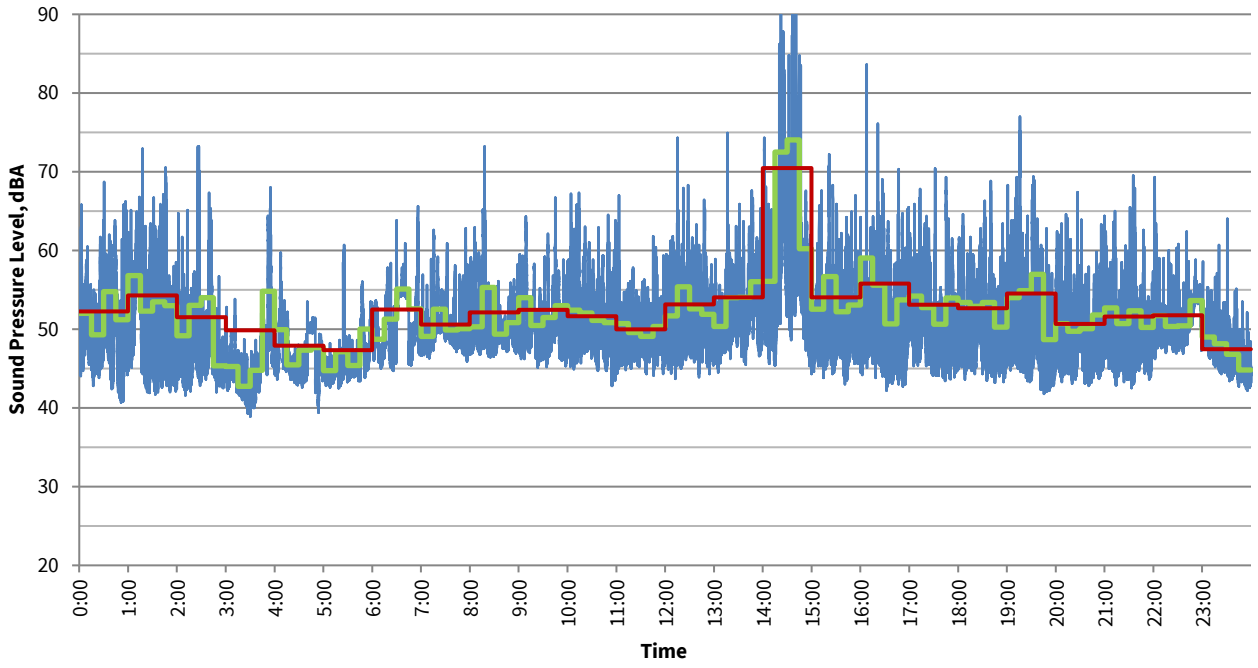
Histogram of 1 minute L_{AFmax} values on September 23rd, 2022



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	0
46 - 47	0	0	0
48 - 49	0	6	8
50 - 51	11	8	65
52 - 53	45	16	90
54 - 55	101	29	68
56 - 57	142	19	77
58 - 59	138	23	37
60 - 61	110	27	29
62 - 63	61	22	13
64 - 65	43	10	12
66 - 67	33	4	7
68 - 69	14	10	5
70 - 71	6	2	5
72 - 73	4	0	0
74 - 75	6	1	0
76 - 77	4	1	3
78 - 79	2	0	1
80 - 81	0	1	0
82 - 83	0	1	0
84 - 85	0	0	0
86 - 87	0	0	0
88 - 89	0	0	0
90 - 91	0	0	0
92 - 93	0	0	0
94 - 95	0	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 3

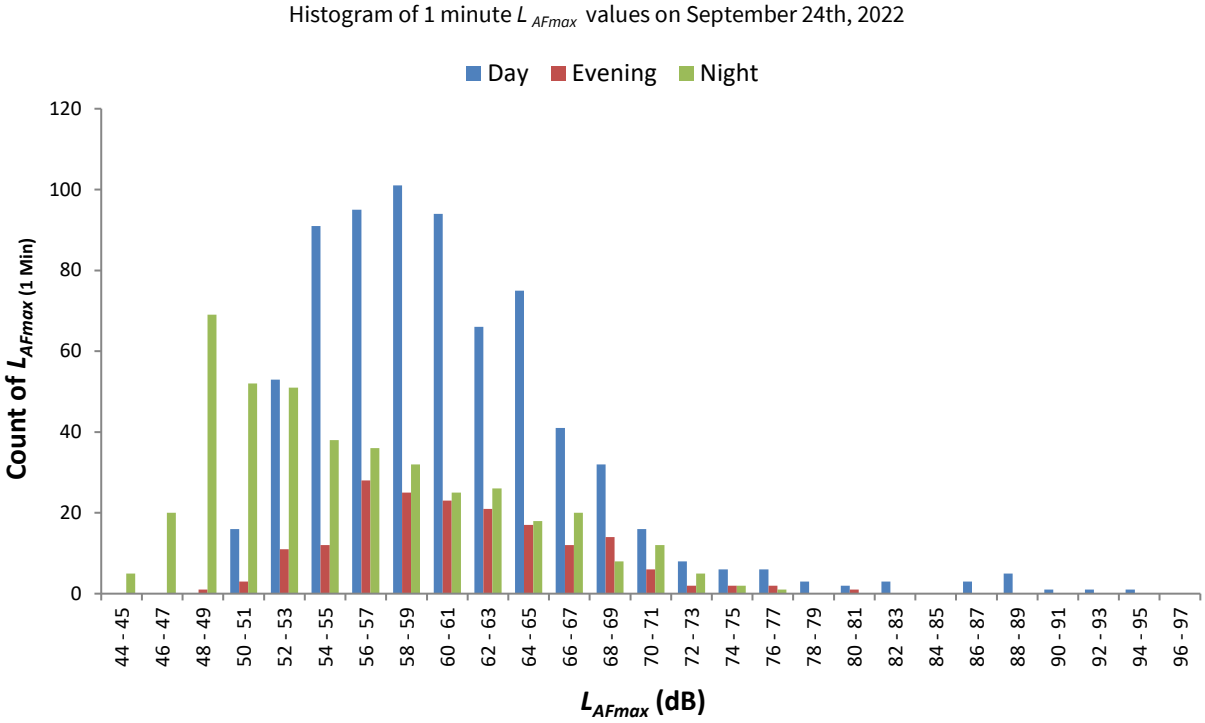
The graph below shows the measured, and calculated time histories beginning on September 24, 2022



Hourly Interval Report starting at September 24, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_1	L_5	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	24:00:00	58	95	39	64	58	55	49	45	42
Sep 24	0:00:00	1:00:00	52	69	41	62	58	56	49	45	42
Sep 24	1:00:00	1:00:00	54	73	42	64	60	58	49	44	43
Sep 24	2:00:00	1:00:00	52	73	42	63	56	52	46	44	43
Sep 24	3:00:00	1:00:00	50	68	39	63	54	50	44	41	40
Sep 24	4:00:00	1:00:00	48	60	39	57	51	50	46	44	41
Sep 24	5:00:00	1:00:00	47	61	43	55	52	51	45	44	43
Sep 24	6:00:00	1:00:00	52	66	45	61	57	56	49	46	45
Sep 24	7:00:00	1:00:00	51	63	46	59	54	52	49	47	47
Sep 24	8:00:00	1:00:00	52	73	46	62	55	53	49	48	47
Sep 24	9:00:00	1:00:00	52	67	45	63	58	55	49	47	46
Sep 24	10:00:00	1:00:00	52	67	43	60	57	54	49	47	45
Sep 24	11:00:00	1:00:00	50	67	44	58	54	52	48	46	45
Sep 24	12:00:00	1:00:00	53	74	44	63	58	56	50	47	45
Sep 24	13:00:00	1:00:00	54	75	45	63	59	57	51	48	47
Sep 24	14:00:00	1:00:00	70	95	44	83	70	66	55	49	46
Sep 24	15:00:00	1:00:00	54	72	43	66	59	55	49	46	45
Sep 24	16:00:00	1:00:00	56	84	42	64	59	56	49	45	44
Sep 24	17:00:00	1:00:00	53	70	43	63	59	56	49	46	44
Sep 24	18:00:00	1:00:00	53	69	43	62	59	56	49	46	44
Sep 24	19:00:00	1:00:00	55	77	42	67	60	56	48	44	43
Sep 24	20:00:00	1:00:00	51	67	43	62	56	52	47	45	43
Sep 24	21:00:00	1:00:00	52	70	43	62	57	54	48	45	44
Sep 24	22:00:00	1:00:00	52	69	46	57	55	54	50	48	47
Sep 24	23:00:00	1:00:00	47	64	42	53	51	50	46	44	43

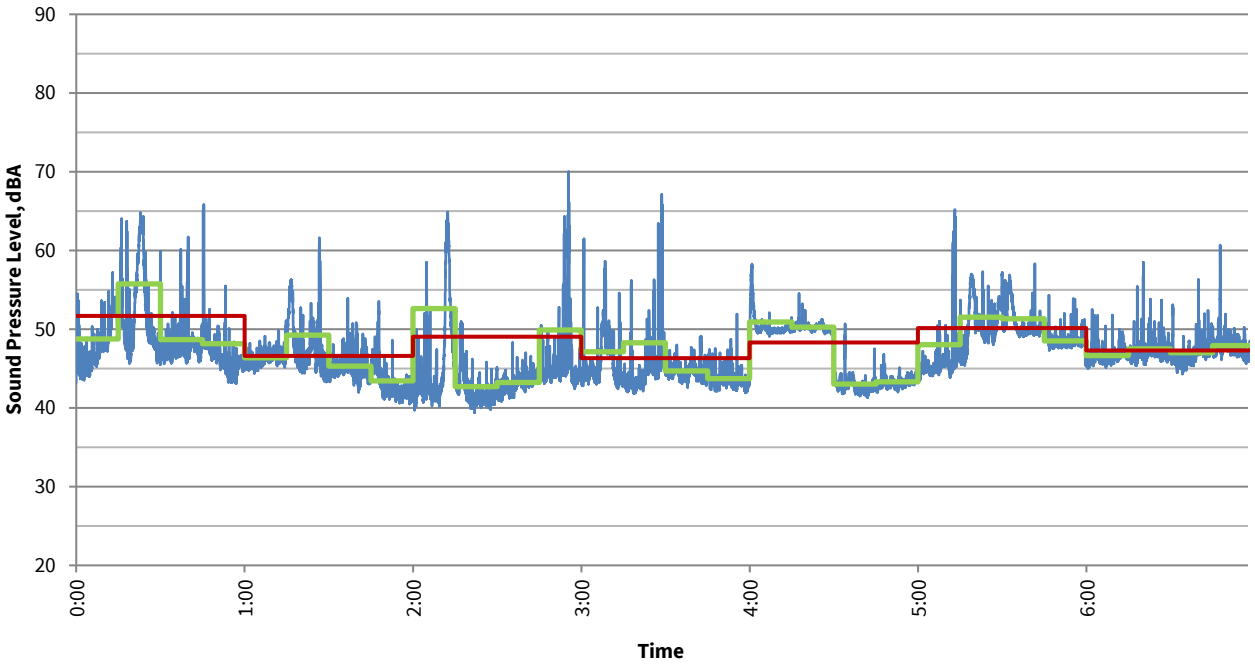
Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 3



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	5
46 - 47	0	0	20
48 - 49	0	1	69
50 - 51	16	3	52
52 - 53	53	11	51
54 - 55	91	12	38
56 - 57	95	28	36
58 - 59	101	25	32
60 - 61	94	23	25
62 - 63	66	21	26
64 - 65	75	17	18
66 - 67	41	12	20
68 - 69	32	14	8
70 - 71	16	6	12
72 - 73	8	2	5
74 - 75	6	2	2
76 - 77	6	2	1
78 - 79	3	0	0
80 - 81	2	1	0
82 - 83	3	0	0
84 - 85	0	0	0
86 - 87	3	0	0
88 - 89	5	0	0
90 - 91	1	0	0
92 - 93	1	0	0
94 - 95	1	0	0
96 - 97	0	0	0

Baseline Noise Monitoring Detailed Results - Site 3

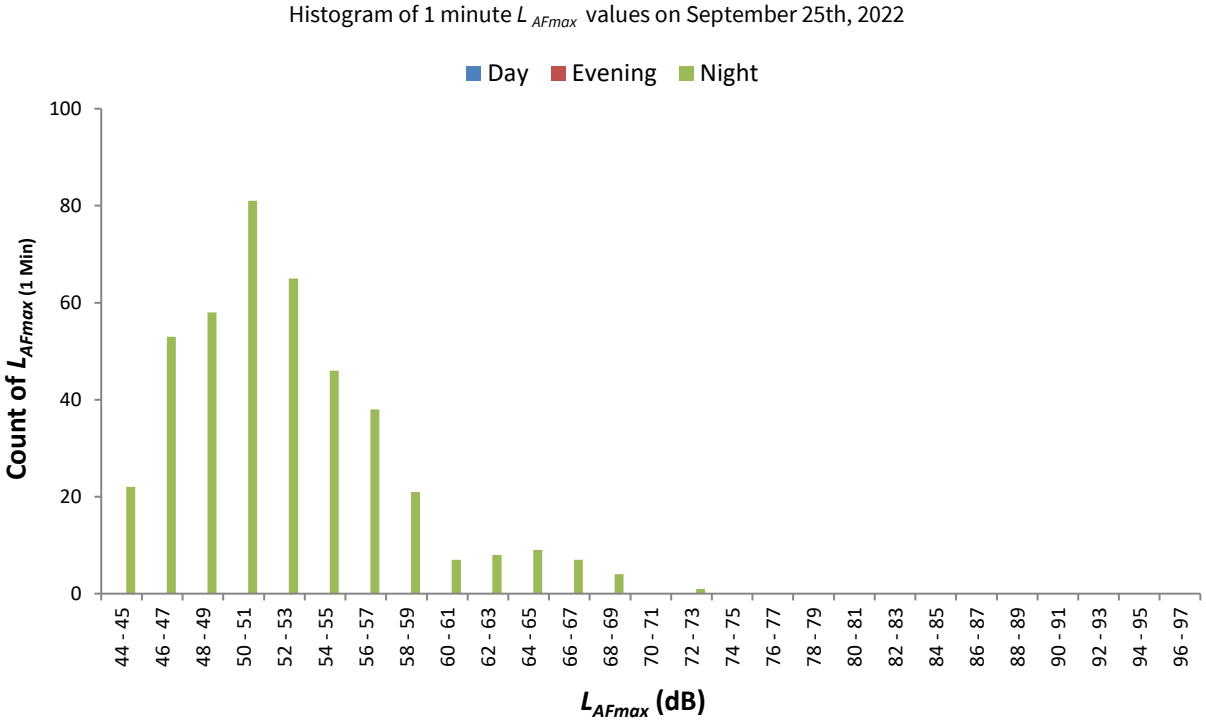
The graph below shows the measured, and calculated time histories beginning on September 25, 2022



Hourly Interval Report starting at September 25, 2022
All Sound Pressure Levels presented in dBA

Date	Time	Duration	L_{eq}	L_{max}	L_{min}	L_{1}	L_{5}	L_{10}	L_{50}	L_{90}	L_{99}
Total	-	7:00:00	49	70	39	59	52	50	46	43	41
Sep 25	0:00:00	1:00:00	52	66	43	63	57	53	48	45	43
Sep 25	1:00:00	1:00:00	47	62	41	55	50	48	45	42	41
Sep 25	2:00:00	1:00:00	49	70	39	63	52	48	43	41	40
Sep 25	3:00:00	1:00:00	46	67	42	54	49	47	44	43	42
Sep 25	4:00:00	1:00:00	48	58	41	55	51	51	49	42	42
Sep 25	5:00:00	1:00:00	50	65	44	57	55	53	49	45	44
Sep 25	6:00:00	1:00:00	47	61	44	51	49	48	47	46	45

Fraser Surrey Canola Oil Project - Maximum Sound Level Histogram - Site 3



	Count of 1 minute values		
L_{AFmax} (dB)	Day	Evening	Night
44 - 45	0	0	22
46 - 47	0	0	53
48 - 49	0	0	58
50 - 51	0	0	81
52 - 53	0	0	65
54 - 55	0	0	46
56 - 57	0	0	38
58 - 59	0	0	21
60 - 61	0	0	7
62 - 63	0	0	8
64 - 65	0	0	9
66 - 67	0	0	7
68 - 69	0	0	4
70 - 71	0	0	0
72 - 73	0	0	1
74 - 75	0	0	0
76 - 77	0	0	0
78 - 79	0	0	0
80 - 81	0	0	0
82 - 83	0	0	0
84 - 85	0	0	0
86 - 87	0	0	0
88 - 89	0	0	0
90 - 91	0	0	0
92 - 93	0	0	0
94 - 95	0	0	0
96 - 97	0	0	0

Appendix E: DP World Operations Schedule

DP World Operations Schedule

	15-Sep			16-Sep			17-Sep			18-Sep			19-Sep		
	1:00	8:00	16:30	1:00	8:00	16:30	1:00	8:00	16:30	1:00	8:00	16:30	1:00	8:00	16:30
Rail Switching		Y	Y		Y	Y		Y	Y		Y	Y		Y	Y
Rail Un/Loading			Y			Y			Y			Y			Y
Container Vessel Un/Loading		Y	Y		Y	Y								Y	Y
Container Truck Un/Loading		Y	Y		Y	Y								Y	Y
Steel/Breakbulk Vessel Unloading		Y				Y		Y	Y		Y	Y		Y	Y
Steel/Breakbulk Truck Loading		Y			Y									Y	
Grain Vessel Loading (FGT or us)											Y	Y			

	20-Sep			21-Sep			22-Sep			23-Sep			24-Sep		
	1:00	8:00	16:30	1:00	8:00	16:30	1:00	8:00	16:30	1:00	8:00	16:30	1:00	8:00	16:30
Rail Switching		Y	Y					Y	Y		Y	Y		Y	Y
Rail Un/Loading			Y						Y			Y			Y
Container Vessel Un/Loading		Y	Y					Y	Y		Y	Y			
Container Truck Un/Loading		Y	Y					Y	Y		Y	Y			
Steel/Breakbulk Vessel Unloading		Y	Y					Y	Y		Y	Y		Y	Y
Steel/Breakbulk Truck Loading		Y						Y			Y				
Grain Vessel Loading (FGT or us)		Y						Y	Y		Y	Y		Y	Y

	25-Sep			26-Sep		
	1:00	8:00	16:30	1:00	8:00	16:30
Rail Switching		Y	Y		Y	Y
Rail Un/Loading			Y			Y
Container Vessel Un/Loading					Y	Y
Container Truck Un/Loading					Y	Y
Steel/Breakbulk Vessel Unloading		Y	Y		Y	Y
Steel/Breakbulk Truck Loading					Y	
Grain Vessel Loading (FGT or us)		Y	Y		Y	Y

Appendix F: Noise Modelling Methodology and Details

Acoustical Model

Noise levels at residential receiver locations have been predicted using the internationally recommended ISO 9613-2 (1996) standard, which is implemented in the outdoor sound propagation software Cadna/A version 2021. The *Good Practice Guide for Strategic Noise Mapping* (EC WG-AEN 2007) points out that this standard is recommended by the European Commission (EC) as current best practice to obtain accurate prediction results.

ISO 9613 describes a method for calculating the attenuation of sound during propagation outdoors in order to predict environmental noise levels at a distance from a variety of sources. It is the EC preferred standard for general industrial noise prediction. The method predicts the equivalent continuous A-weighted sound pressure level under meteorological conditions favourable for sound propagation. BKL used this method to predict noise propagation from the Project activities to the residential receivers.

Model calculations were performed in octave bands, considering ground cover, topography and shielding objects (see following sections). A temperature of 10°C and relative humidity of 80 per cent were used in the model settings to represent average weather conditions in Vancouver. A moderate temperature inversion was assumed to represent conditions favourable for sound propagation but not the absolute worst-case conditions.

Geometric Data

Topography

The intervening terrain has been modelled by directly importing ground contours provided by the City of Surrey.

The layout and dimensions of the Project terminal, its nearby facilities, and road and rail were taken from drawings provided by the client. Residential building heights were estimated using field observations, and Google Earth.

Ground Surface

The acoustic properties of the ground surface can have a considerable effect on the propagation of noise. Flat non-porous surfaces, such as concrete, asphalt, buildings, calm water, etc., are highly reflective to noise, and according to ISO 9613-2 have a ground constant of G=0. Soft, porous surfaces, such as foliage, loam, soft grass, snow, etc., are highly absorptive to noise, and have a ground constant of G=1. The ISO standard does not use intermediate ground constants.

Highly reflective surfaces have been modelled in most areas as most of the surfaces near the site are considered to be acoustically hard, including nearby roadways and the water of the Fraser River.

Obstacles

The layout and dimensions of the Project's buildings and equipment were incorporated into the model based on Project drawings provided by DP World.

Noise Source Details

Table 5 below describes the sound power level and type of noise sources used in the model. The sound power levels in the table do not include noise source adjustments.

Table 5: Noise Source Data

Description	Model Source Type		SWL (dB) per Octave Band Frequency (Hz)								Total SWL
		31	63	125	250	500	1000	2000	4000	8000	dBA
Tank Agitator	Point	66	65	71	74	73	72	70	65	61	77
Rail Unloading Pump	Point	90	91	91	93	95	93	90	87	84	98
Rail Unloading Motor	Point	81	79	85	88	87	86	84	79	75	91
Marine Loading Pump	Point	100	101	101	102	105	102	99	96	94	107
Marine Loading Motor	Point	89	87	93	96	95	94	92	87	83	99
Ship Generator	Point	117	122	115	113	109	107	99	90	78	111
Shunting	Line	110	104	101	99	99	99	96	88	80	103
Rolling Stock	Line	110	106	98	96	93	91	90	86	81	97
Locomotive Engine	Line	112	110	104	104	101	96	92	88	81	102

The SWL in the model for 'Locomotive Engine' and 'Rolling Stock' were based on source measurements taken during a site visit to the existing Fraser Surrey Docks terminal. Other sources in the model were selected based on the closest match to the equipment provided in the design inputs, provided to us by DP World. To simplify modelling, the activities in the unloading railyard were consolidated into one track instead of two tracks. Details regarding the operations at the site are summarized in Table 6.

Table 6: Project Operations Summary

Information	Project
Capacity of unloading railyard per track	16 cars
Number of tracks	2
Number of train deliveries per year	322
Number of vessels per year	33