# **SUPPLEMENTAL INFORMATION #3**

For Planning Commission Agenda of: <u>December 3, 2020</u>

[]	Consent Agenda Item	
[]	Continued Hearing Item	
[x]	Public Hearing Item	•
[]	Department Report	
[]	Old Business	

Re: Lost Boys Farms, LLC Conditional Use Permit

Record Number: PLN-2018-15180 Assessor Parcel Number: 204-381-008 2494 Fisher Rd, Hydesville Area

Attached for the Planning Commission's record and review is the following supplementary information items.

- 1. Ambient Sound Level Survey, received December 3, 2020
- 2. Sound Impact Assessment, received December 3, 2020

Ambient Sound Level Survey, received December 3, 2020



December 2, 2020

Mr. Jack Wheeler contracted Principal Environmental, LLC (dba TruHorizon) to perform an ambient sound level survey for the proposed location, Lost Coast Organics site located in Humboldt County, California. The following document provides the results and measurements conducted during the ambient sound level survey.

# **Executive Summary**

From November 22 through November 28, 2020, TruHorizon conducted three 24- hour ambient studies on three property lines at the Lost Coast Organics site. Table 1 shows the overall A-Weighted averages produced by the study:

**Table 1. Overall 24-Hour Study Sound Level Averages** 

Monitoring Location	Description	LAeq (dBA)	Wind Speed (mph)	Precipitation (inches)
West MP	November $22 - 23$ , $2020$	55.2	1.3	0.1
South MP	November $24 - 25$ , $2020$	46.4	1.2	0.1
East MP	November 27 – 28, 2020	44.8	1.6	0.0

Daytime and nighttime averages (defined as 8 a.m. to 8 p.m. and 8 p.m. to 8 a.m. respectively) were also calculated for each monitoring location, as Lost Coast Organics plans to operate only during daytime hours.

# **Ordinance Summary**

Humboldt County, California sets forth noise regulations for commercial cannabis cultivation in 314-55.4.12.6 Performance Standard for Noise at Cultivation Sites:

Noise from cultivation and related activities shall not result in an increase of more than three decibels of continuous noise above existing ambient noise levels at any property line of the site. Existing ambient noise levels shall be determined by taking twenty-four (24) hour measurements on three or more property lines when all cannabis related activities are not in operation.

Note that the performance standard for ambient measurements at cultivation sites for lands deemed "inland" are identical to those deemed "coastal." 313-55.4.12.6 sets forth additional noise requirements for lands deemed coastal.



# **Site Information**

The Lost Coast Organics site is located to the north of Fisher Road and east of Cooper Road, at 2494 Fisher Road. The APN is 204-381-008. From November 22, 2020 through November 28, 2020, TruHorizon conducted three 24-hour studies at three separate property lines in accordance with Humboldt County regulations. The coordinates for the monitoring points (MP) are as follows: West MP (40°33'9.10"N, 124° 4'10.67"W); South MP (40°33'7.97"N, 124° 4'0.79"W); and East MP (40°33'9.00"N, 124° 3'54.29"W). The approximate coordinates for the center of the site are 40°33'10.21"N, 124° 4'1.72"W. Figure 1 below shows the monitoring points; photographs of the location are provided in Attachment 1. The approximate property line is shown in red.



Figure 1. Aerial view of Lost Coast Organics with site shown in green.

There was no extraneous noise observed while on location that could contribute or skew sound levels. The closest road to the monitoring points, Fisher Road, is a low trafficked road.

# **Sound Level Meter Specifications**

A Brüel & Kjær Type 2250, Type/Class 1, hand-held analyzer in conjunction with the Brüel & Kjær Type 4952 outdoor microphone were used to measure sound levels at the specified monitoring locations. The sound level meter and associated microphone are current on annual accredited calibration per the manufacturer's recommended best practices. The instrumentation used for this survey and the most recent accredited calibration date is listed below in Table 2.



The software modules installed on the 2250 allow for real-time frequency analysis, analysis of time histories for broadband parameters and spectra, and documentation of measurements through recoding of measured sound. The 2250 sound level meter continuously sampled sound levels, logging the specified data every second. Attachment 2 lists the manufacturer's specifications and approvals for this meter.

Prior to beginning the monitoring, the 2250 sound level meter was field calibrated using a Brüel & Kjær Type 4231 acoustical calibrator. The calibrator emits a reference sound pressure level of 94 dB at 1 kHz. The calibrator was placed on the sound meter to verify the meter was accurately measuring the reference sound level and to correct the measurement for ambient barometric pressure. Full accredited calibration documentation for the instruments used for this survey, listed below in Table 2, is available upon request.

**Table 2. Instrumentation Accredited NIST Calibration Table** 

Equipment	<b>Model Number</b>	Serial Number	Accredited Calibration Date
Sound Level Meter	2250	3010735	5/1/2020
Outdoor Microphone	4952	3077226	5/1/2020
Acoustic Calibrator	4231	3006471	2/1/2020

After monitoring, the data collected by the 2250 sound level meter was downloaded to a computer using Brüel & Kjær BZ-5503 Measurement Partner Suite Utility Software for Hand-held Analyzers Version 4.7.7.2. TruHorizon used the manufacturer's software, coupled with Excel spreadsheets, to summarize the data for analysis and reporting.

# **Acoustics Overview**

Sound pressure level measurements are commonly weighted in relation to their frequency components in order to provide a consistent basis for comparison to other measurements of the same type. By applying the acoustic weighting to the sound measurement, it is possible to get a more accurate representation of the human perception on a given sound source and level. The two most common weighting curves, A-Weighting (dBA) and C-Weighting (dBC), are plotted together for reference and shown in Figure 2.



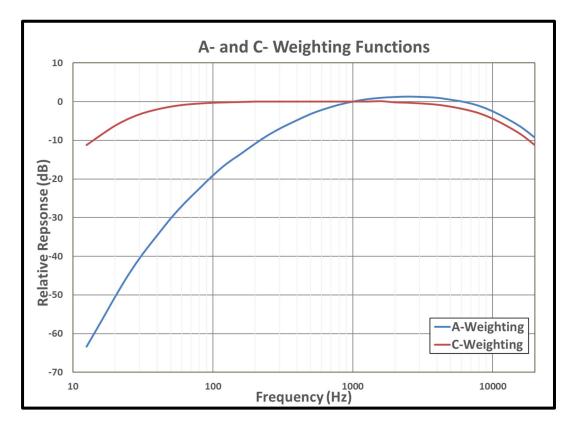


Figure 2. Common sound weighting curves as a function of frequency.

The study utilized an A-weighted filter which is a standard parameter for environmental noise assessments. An A-weighted filter corresponds to the human ear's response at low to medium sound levels. The A-weighted filter with slow time weighting is most common for environmental noise measurement. The C-weighted filter is typically used for very high sound level measurements and does not filter out low or high frequency sounds. C-weighting approximates the human ear at higher sound levels and is typically used for measurement aircraft, machinery, and other loud sound sources and is not the appropriate metric for this ambient survey and is available upon request.

Decibels (dB) are a measure of sound pressure level based on logarithmic scale. A sound level of 60 dB contains 10 times more sound energy relative to a sound level of 50 dB, and a sound level of 70 dB contains 100 times more sound energy relative to a sound of 50 dB.

In addition to acoustic weightings being applied, sound measurements are typically averaged over a defined measurement interval. The logarithmic average of a sound measurement is known as the equivalent continuous sound level, or Leq. As the definition implies, the Leq represents the value that contains the same acoustic energy over the measurement period. The Leq is easily computed using an integrating sound level meter and can incorporate the selected acoustic weightings. Leq values are represented in dB, with a designation of the acoustic weighting applied. Below is a detailed description of the equivalent metric reported below.



• LAeq (dBA) – The equivalent continuous sound level over a specified period of time that represents the same energy as the actual time varying sound signal. The 'A' in the above variables denotes that the A-weighting has been included.

For comparison, Figure 3 lists, a summary of typical A-weighted decibel levels for multiple types of sounds.

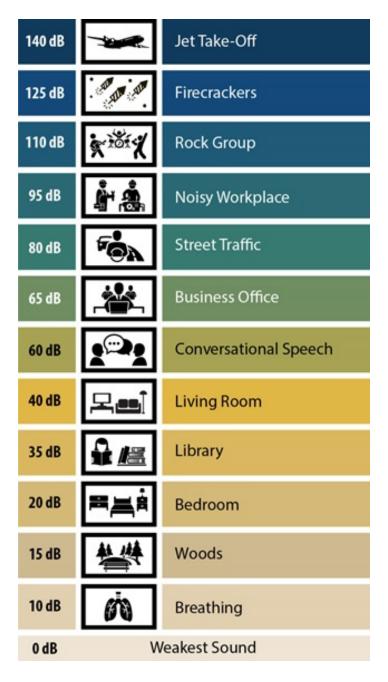


Figure 3. Typical sound levels (dBA) for common noise sources.



# **Ambient Monitoring Data and Results**

TruHorizon conducted the ambient sound level surveys from approximately 8:00 p.m. on November 22, 2020 to 8:00 p.m. on November 28, 2020 at three monitoring locations. Table 3 summarizes the logarithmic averages of the study. Weather data was referenced from weather station KCAFORTU19 located near the site.

**Table 3. Overall 24-Hour Study Sound Level Averages** 

Monitoring Location	Description	LAeq (dBA)	Wind Speed (mph)	Precipitation (inches)
West MP	November $22 - 23, 2020$	55.2	1.3	0.1
South MP	November 24 – 25, 2020	46.4	1.2	0.1
East MP	November 27 – 28, 2020	44.8	1.6	0.0

Daytime and nighttime averages are shown in Table 4. For the purposes of this study, daytime is defined as the time period from 8:00 a.m. to 8:00 p.m. Nighttime is defined as the time period from 8:00 p.m. to 8:00 a.m. Lost Coast Organics, LLC plans to operate only during daytime hours.

**Table 4. Day and Nighttime Sound Level Averages** 

Monitoring Location	Description	LAeq (dBA)
West MP	Nighttime Average 8 PM – 8 AM	44.8
	Daytime Average 8 AM – 8 PM	58.0
South MP	Nighttime Average 8 PM – 8 AM	34.5
	Daytime Average 8 AM – 8 PM	49.2
East MP	Nighttime Average 8 PM – 8 AM	42.9
	Daytime Average 8 AM – 8 PM	46.2

Attachment 3 contains the hourly average summary table and charts obtained from the ambient study.

Common sounds for the Lost Coast Organics site included dogs barking, children playing and road traffic passing nearby. The overall study averages are comparable to sound levels inside a living room, to slightly below conversational sound levels. During the study, skies were cloudy with average wind speeds between 0.0 miles per hour (calm) and gusts of up to 8.7 mph. The average daily temperature ranged from approximately 43 to 51°F. There were rain events during two days of the monitoring period.



The maximum LAeq at the monitoring location was 80.4 dBA and occurred on November 23, 2020 at approximately 6:23 p.m. The sound level meter captured audio events for all LAeq signals greater than or equal to 45 dB. From the recordings, the source of the maximum LAeq was a dog barking. All sound clips are identified and cataloged to the best of TruHorizon personnel's ability.

The services provided for this project were performed in accordance with industry best practices for environmental noise measurements using the most accurate, Type/Class 1 acoustic instrumentation. No warranty, expressed or implied, is made or intended by rendition of these consulting services or by furnishing oral or written reports of the findings made. This report has been prepared by Principal Environmental, LLC for the exclusive use by Lost Coast Organics, LLC.



# ATTACHMENT 1

# **PHOTO LOG**





View of West Monitoring Point looking South.



View of South Monitoring Point looking South.





View of East Monitoring Point looking North.



# **ATTACHMENT 2**

# MANUFACTURER'S SPECIFICATIONS



# PRODUCT DATA

### Hand-held Analyzer Types 2250 and 2270

for Types 2250-S, 2250-S-C, 2270-S and 2270-S-C

Types 2250 and 2270 are innovative, hand-held analyzers from Brüel & Kjær. The analyzers' easy, safe and clever design philosophy is based on extensive research. Type 2250 has won several awards for its excellent ergonomics and design.

Both analyzers can host a number of applications including frequency analysis, logging, FFT, building acoustics and signal recording. Additionally, Type 2270 can simultaneously measure with two microphones, two accelerometers or one of each. All application modules can be ordered as part of a fully preconfigured instrument or separately at any time, as the need

The combination of application modules and innovative hardware makes these analyzers dedicated solutions for performing high-precision measurement tasks in environmental, occupational and industrial application areas. Together with Measurement Partner Field App, MP Cloud support and Measurement Partner Suite for post-processing, they provide a total solution for your measurement needs.



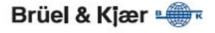
Uses and Features

#### Uses

- Class 1 sound measurements to latest international standards
   Hardware:
- Environmental noise assessment and tone assessment (1/3-octave and FFT)
- · Loudness and noise rating measurements
- · Occupational noise evaluation
- Reverberation time measurements (see BP 2190)
- Building acoustics (see 8P 2190)
- Product quality control (see BP 2183)
- · Noise source identification using sound intensity (see BP 2341)
- Audiometer calibration
- Real-time analysis in 1/1- and 1/3-octave bands
- · Analysis of logging profiles for broadband parameters and
- Vibration criteria measurements
- Low-frequency building vibration according to ISO 8041:05 and DIN 45669 - 1:2010 - 09
- · Whole-body and hand-arm human vibration measurements (RMS, MTVV and Crest Factor)
- Infrasound (G-weighting) measurements according to ISO 7196:1995 and ANSI S1.42 - 2001 (R2011)

#### Features

- - 2-channel measurement capability with any combination of microphones and accelerometers
  - Large, high-resolution, touch-sensitive colour screen
  - Communication via USB, LAN and options for Wi-Fi or 4G communication
  - Integral digital camera for documentation and reference
  - Automatic detection of and correction for windscreen
  - Robust and environmentally protected (IP44)
- · Software:
  - Dynamic range in excess of 123 dB(A)
  - 0.5 Hz 20 kHz broadband linear range
  - Personalized measurement, display and job setup
  - 'Smiley' quality indicators with hints and warnings
  - Timers for automatic start of measurement
  - Measurement Partner Cloud (MP Cloud)
  - Measurement Partner Field App
- Measurement Partner Suite for comprehensive postprocessing
- GPS coordinates stored with measurement data
- Simultaneous noise and weather data acquisition
- 24- or 16-bit recording during all or parts of measurement



<sup>\*</sup> Type 2270 only.



# **ATTACHMENT 3**

# MONITORING LOCATION STUDY SUMMARY DATA AND CHARTS



**Table 5. Hourly Sound Level Averages – West MP** 

Timestamp	LAeq (dBA)
11/22/20 8:00 PM	45.2
11/22/20 9:00 PM	48.8
11/22/20 10:00 PM	43.4
11/22/20 11:00 PM	25.5
11/23/20 12:00 AM	28.9
11/23/20 1:00 AM	45.6
11/23/20 2:00 AM	28.2
11/23/20 3:00 AM	50.3
11/23/20 4:00 AM	47.5
11/23/20 5:00 AM	35.9
11/23/20 6:00 AM	34.2
11/23/20 7:00 AM	44.4
11/23/20 8:00 AM	45.6
11/23/20 9:00 AM	45.1
11/23/20 10:00 AM	45.2
11/23/20 11:00 AM	38.5
11/23/20 12:00 PM	46.6
11/23/20 1:00 PM	54.8
11/23/20 2:00 PM	53.9
11/23/20 3:00 PM	37.8
11/23/20 4:00 PM	65.0
11/23/20 5:00 PM	44.2
11/23/20 6:00 PM	65.7
11/23/20 7:00 PM	45.3

Table 6. Hourly Sound Level Averages - South MP



Timestamp	LAeq (dBA)
11/24/20 8:00 PM	36.2
11/24/20 9:00 PM	32.0
11/24/20 10:00 PM	32.2
11/24/20 11:00 PM	36.5
11/25/20 12:00 AM	27.6
11/25/20 1:00 AM	37.6
11/25/20 2:00 AM	30.5
11/25/20 3:00 AM	31.0
11/25/20 4:00 AM	33.3
11/25/20 5:00 AM	30.3
11/25/20 6:00 AM	33.7
11/25/20 7:00 AM	38.6
11/25/20 8:00 AM	50.2
11/25/20 9:00 AM	44.6
11/25/20 10:00 AM	44.7
11/25/20 11:00 AM	50.0
11/25/20 12:00 PM	43.4
11/25/20 1:00 PM	47.0
11/25/20 2:00 PM	48.2
11/25/20 3:00 PM	49.0
11/25/20 4:00 PM	56.1
11/25/20 5:00 PM	49.4
11/25/20 6:00 PM	44.0
11/25/20 7:00 PM	39.9

Table 7. Hourly Sound Level Averages – East MP



Timestamp	LAeq (dBA)
11/27/20 8:00 PM	31.1
11/27/20 9:00 PM	38.1
11/27/20 10:00 PM	39.7
11/27/20 11:00 PM	31.1
11/28/20 12:00 AM	34.3
11/28/20 1:00 AM	43.4
11/28/20 2:00 AM	33.6
11/28/20 3:00 AM	35.0
11/28/20 4:00 AM	29.2
11/28/20 5:00 AM	29.8
11/28/20 6:00 AM	32.2
11/28/20 7:00 AM	52.6
11/28/20 8:00 AM	36.2
11/28/20 9:00 AM	50.4
11/28/20 10:00 AM	49.5
11/28/20 11:00 AM	42.9
11/28/20 12:00 PM	37.3
11/28/20 1:00 PM	44.6
11/28/20 2:00 PM	48.7
11/28/20 3:00 PM	46.0
11/28/20 4:00 PM	49.5
11/28/20 5:00 PM	38.2
11/28/20 6:00 PM	42.1
11/28/20 7:00 PM	40.5

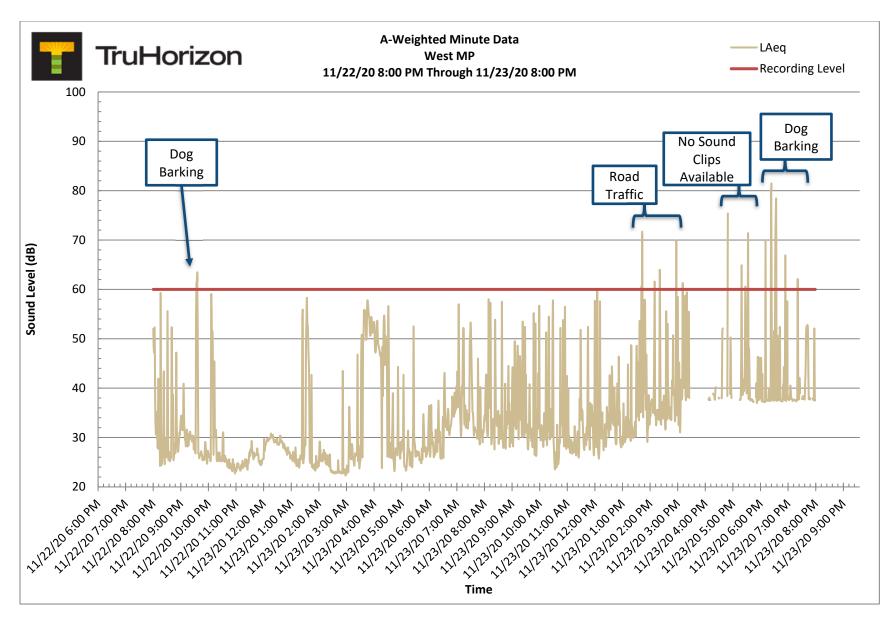


Figure 4. A-Weighted sound levels with minute resolution and comments for the West Monitoring Point.

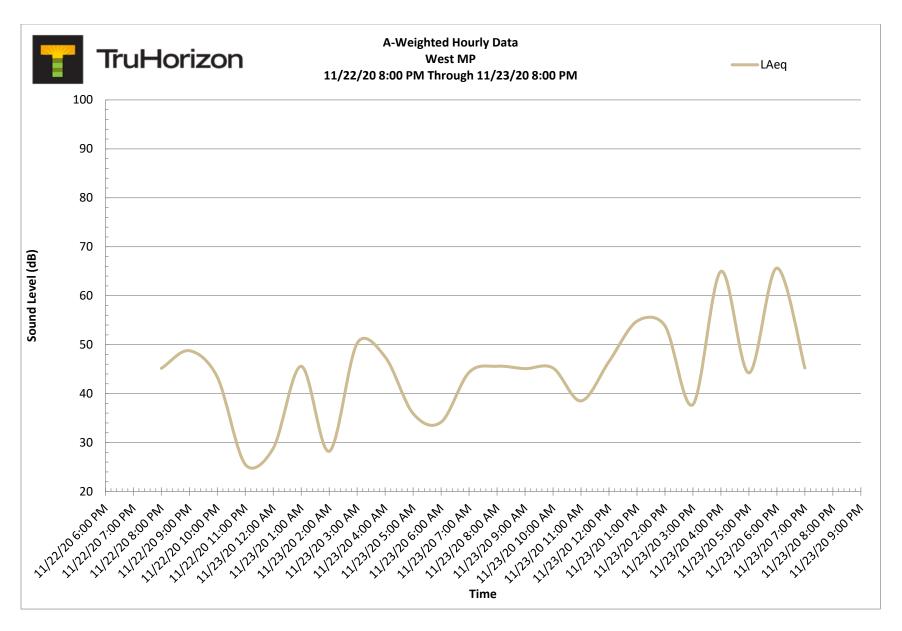


Figure 5. A-Weighted sound levels with hour resolution for total study, West Monitoring Point.

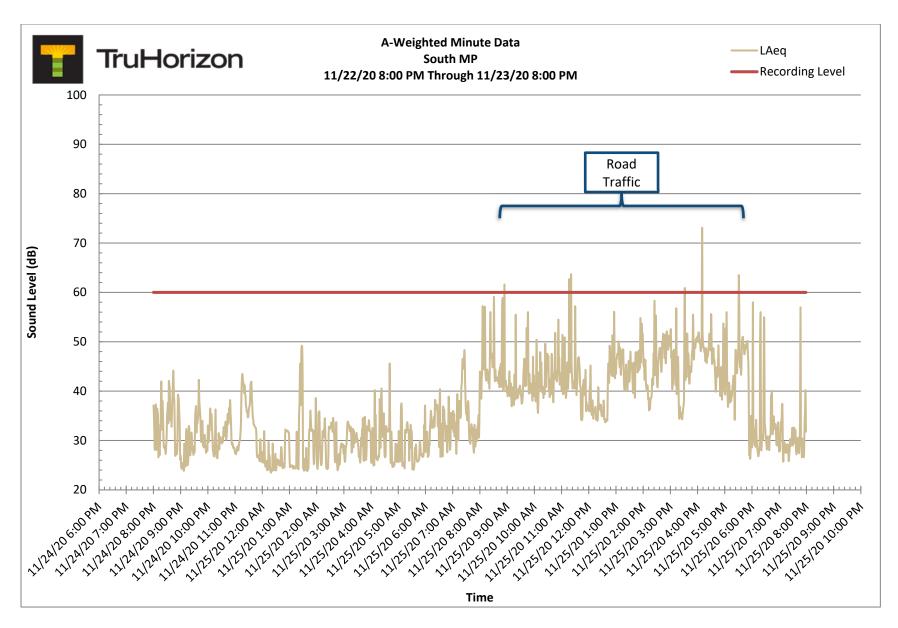


Figure 6. A-Weighted sound levels with minute resolution and comments for the South Monitoring Point.

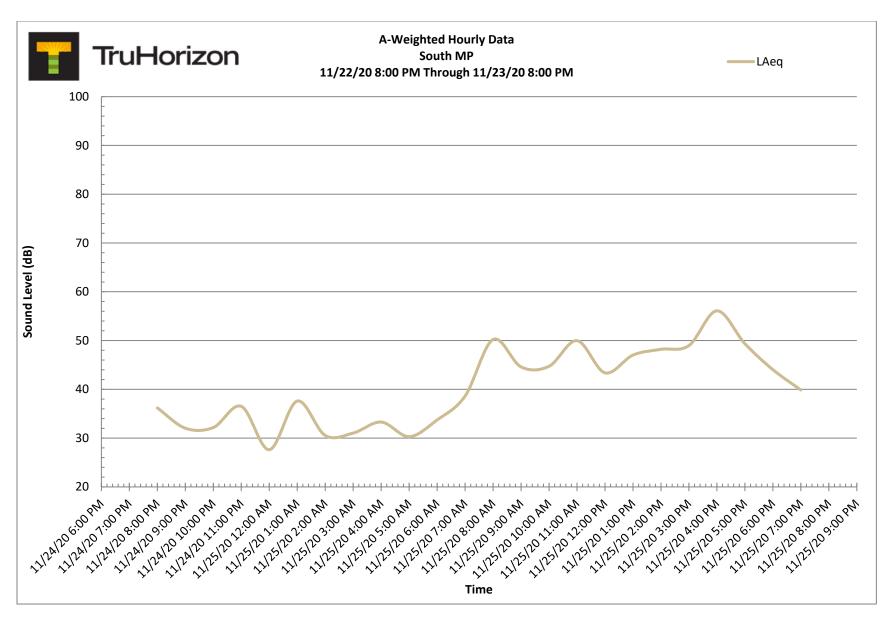


Figure 7. A-Weighted sound levels with hour resolution for total study, South Monitoring Point.

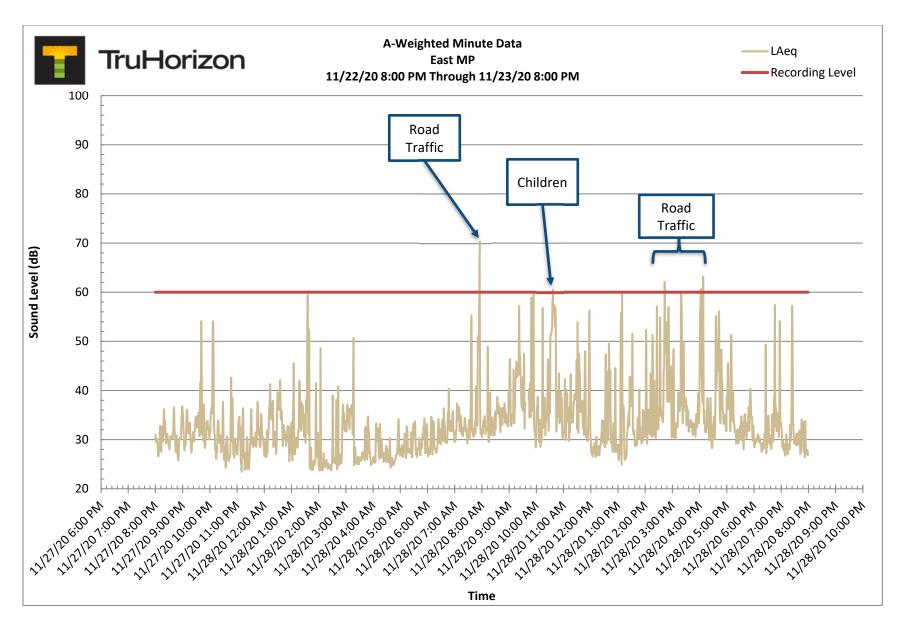


Figure 8. A-Weighted sound levels with minute resolution and comments for the East Monitoring Point.

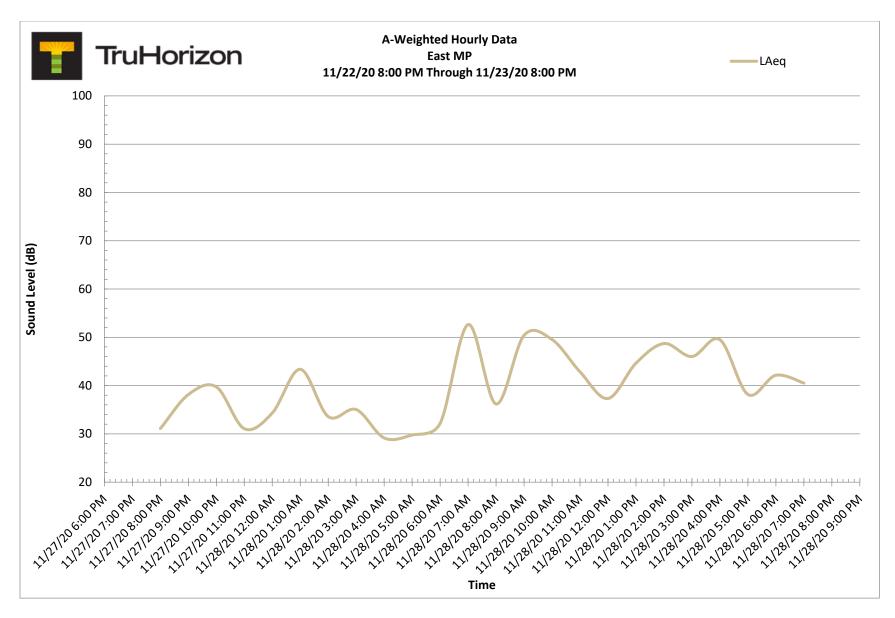


Figure 8. A-Weighted sound levels with hour resolution for total study, East Monitoring Point.

Sound Impact Assessment, received December 3, 2020



Lost Coast Organics LLC Sound Impact Assessment

December 2, 2020

Principal Environmental, LLC (TruHorizon) was contracted by Mr. Jack Wheeler to investigate the anticipated sound impact of greenhouse fan operations on the surrounding environment at the Lost Coast Organics site located in Humboldt County, California. The following document provides the results and models conducted for the sound impact assessment.

# **Executive Summary**

Sound levels from the greenhouse exhaust fan operations have been modeled for the Lost Coast Organics location. Table 1 shows the loudest estimated sound levels at the property lines from exhaust fan operations.

Table 1. Loudest Modeled Sound Level at Each Property Line

Property Line	Greenhouse Exhaust Fan Operations (dBA)
West	42.6
South	43.9
East	42.9
North	37.7

Based on the results of this study, the sound impact of operations on the area are expected to be lower than current ambient conditions. The sound levels generated by the greenhouse exhaust fan operations are not expected to exceed the Humboldt County limit at the property line or nearby structures. Mitigation for the fans are not recommended at this time. Please note sound levels for the area may be impacted due to ambient sound conditions. Sound levels cannot be lowered below ambient conditions.

# **Ordinance Summary**

Humboldt County, California sets forth noise regulations for commercial cannabis cultivation in 314-55.4.12.6 Performance Standard for Noise at Cultivation Sites:

Noise from cultivation and related activities shall not result in an increase of more than three decibels of continuous noise above existing ambient noise levels at any property line of the site. Existing ambient noise levels shall be determined by taking twenty-four (24) hour measurements on three or more property lines when all cannabis related activities are not in operation.



Note that the performance standard for ambient measurements at cultivation sites for lands deemed "inland" are identical to those deemed "coastal." 313-55.4.12.6 sets forth additional noise requirements for lands deemed coastal.

Additionally, the permit application must include information demonstrating compliance with the following noise standards:

55.4.12.6.3.1 Site plan detailing the location of all noise sources, property lines, and nearby forested areas and sensitive receptors.

55.4.12.6.3.2 Existing ambient noise levels at the property line using current noise measurements (excluding cultivation related noise).

55.4.12.6.3.3 Details on the design of any structure(s) or equipment used to attenuate noise.

55.4.12.6.3.4 Details on the location and characteristics of any landscaping, natural features, or other measures which serve to attenuate noise levels at nearby property lines or habitat.

# **Site Information**

The Lost Coast Organics site is located to the north of Fisher Road and east of Cooper Road, at 2494 Fisher Road. The APN is 204-381-008. The approximate coordinates for the center of the site are 40°33'10.21"N, 124° 4'1.72"W. Figure 1 below shows the vicinity of the Lost Coast Organics location, designated by the green dot. The approximate property line is shown in red. Structures surrounding the proposed site are primarily residential. There are several known structures within a 1,000 foot radius from the site location, located to the east, south, west and southwest.



Figure 1. Aerial view of Lost Coast Organics location with pad site shown in green and approximate property line shown in red.

The Lost Coast Organics site is located in a field and surrounded by hills. The closest structures to the site are at similar elevations (148 - 154 feet above sea level). Topography for the site and surrounding area is accounted for in the models.

# **Equipment Sound Power Level Data**

TruHorizon utilized manufacturer sound power level octave band data on the Patterson L372-5-E sidewall propeller fan to generate the sources in the sound models. This fan is considered comparable in specification to those proposed for utilization by Lost Coast Organics LLC. Specifications for the fan may be found in Attachment 1. The following sound levels in Table 2 are utilized in the models:

**Table 2: Lost Coast Organics Site Sound Sources at Selected Distances** 

Patterson L372-5-E (Greenhouse Exhaust Fan)			
Sound (Point Source)	Quantity	Sound Power Level (dBA)	
Patterson L372-5-E Fan	12	82.0	



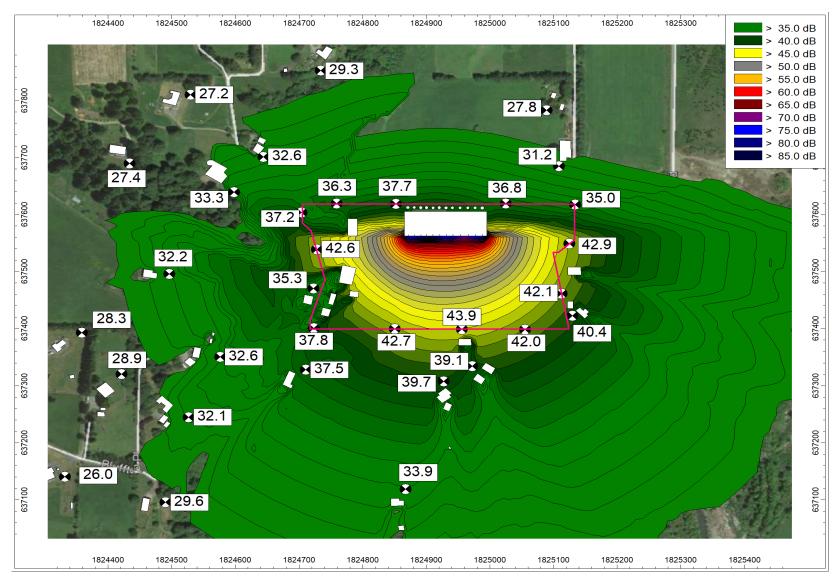
# **Sound Model Limitations and References**

By modeling the geographical properties of the location and utilizing equipment sound level data sound levels around the location can be predicted at specific locations. The predicted sound levels can then determine if mitigation is required. TruHorizon utilized DataKustik CadnaA version 2020 MR1 software for the calculation and assessment of noise propagation to generate the models in the report.

Pre-existing sound sources such as those from road traffic, weather, animals, air traffic and other ambient sounds are not included in the models. Weather conditions such as wind speed, wind direction, temperature and humidity can influence sound intensity and direction. Wind can affect the propagation of sound by several decibels depending on the wind speed, direction and cloud cover. For conservatism and the uncertainty of the season or weather conditions, TruHorizon omitted foliage in the models. The sound levels generated in the models are strictly from greenhouse operations; measured sound levels may differ from those in the model. Attachment 1 details typical decibel levels for various types of sound for reference and comparison. All models are oriented in the northern direction.

Predictive modeling of C-weighted sound data is not included in the International Standard ISO 9613 (Acoustics – Attenuation of sound during propagation outdoors.)

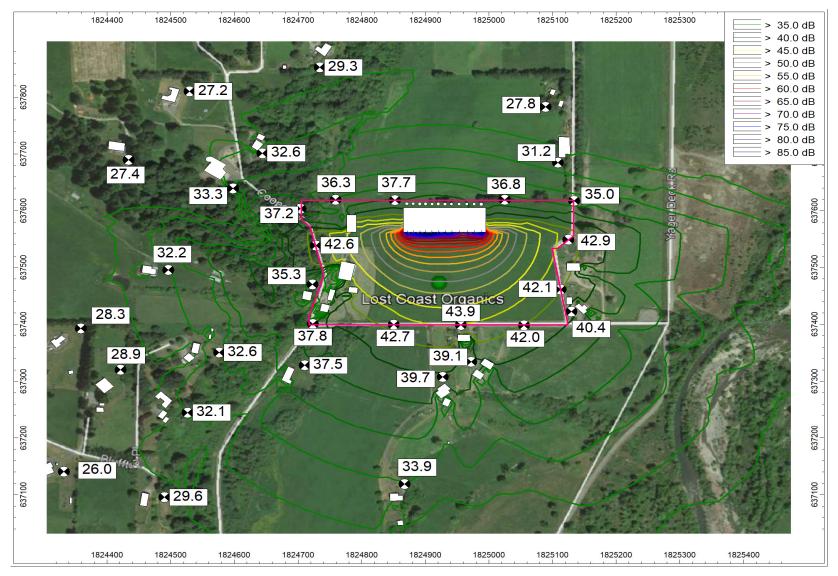
The services provided for this project were performed in accordance with industry best practices for environmental noise measurements using the most accurate, Type/Class 1 acoustic instrumentation. No warranty, expressed or implied, is made or intended by rendition of these consulting services or by furnishing oral or written reports of the findings made. This report has been prepared by Principal Environmental, LLC for the exclusive use by Lost Coast Organics, LLC.



**Model 1. Greenhouse Exhaust Fan Operations (A-Weighted Levels)** 

Lost Coast Organics, LLC Sound Impact Assessment





**Model 2. Greenhouse Exhaust Fan Operations (A-Weighted Levels)** 

Lost Coast Organics, LLC Sound Impact Assessment



# **Site Recommendations**

The sound levels at nearby structures are not expected to require abatement based on the Humboldt County limit of +3 decibels at the property line. Ambient sound level measurements were taken at three separate property lines from November 22 to November 28, 2020. Table 3 shows the overall A-weighted averages produced by the study; please reference the Lost Coast Organics LLC Ambient 201201 rev02 for the full report.

Table 3. Overall 24-Hour Study Sound Level Averages and Resulting Limits at Property Lines

Monitoring Location	LAeq (dBA)	Humboldt County Limit (dBA)	Loudest Projected Operational Sound Level (dBA)
West MP	55.2	58.2	42.6
South MP	46.4	49.4	43.9
East MP	44.8	47.8	42.9

All modeled sound levels at the property lines are below current ambient levels, and introduction of the additional exhaust fan sources would not result in an increase beyond the allowable 3 decibels based on the ambient measurements. Additional mitigation for the exhaust fans is not recommended at this time.



# **ATTACHMENT 1**

TABLE OF TYPICAL SOUND LEVELS & FAN MANUFACTURER SPECIFICATIONS



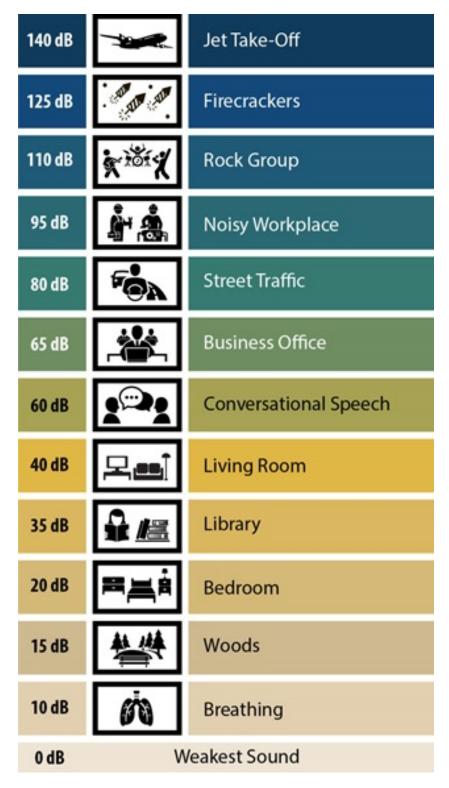


Figure 2. Typical sound levels (dBA) for common noise sources.



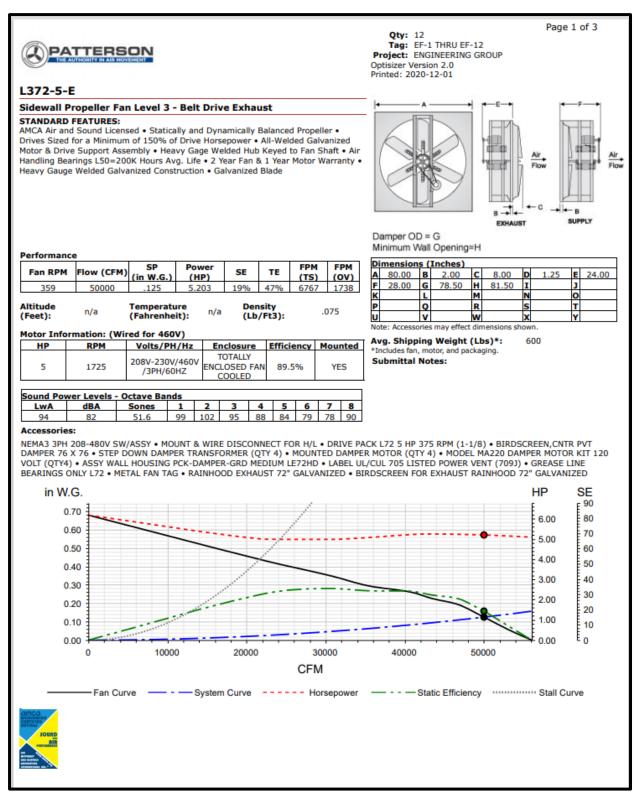


Figure 3. Manufacturer specifications for exhaust fans.

# Lost Coast Organics, LLC Sound Impact Assessment