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August 4, 2015

Via Personal Delivery

Chairperson Diane Dillon and Members of
the Board of Supervisors
c/o Gladys Coil, Clerk of the Board
Napa County Administration Building
1195 Third Street, Suite 310
Napa, CA 94559

Gentlepersons:

Re: Appeal of the Planning Commission Approval of Use Permit Major Modification No. P13-00055
Bell Wine Cellars / Spanos Berberian Properties, LLC

Enclosed herewith please find report of Eric Yee concerning the above appeal. Kindly file this document as part of the Appeal on behalf of the Massa Trust and Michael Clark.

Respectfully yours,

DeMEO DeMEO & WEST

John F. DeMeo, Esq.
Attorney for Appellants,
Janice R. Russell, Trustee of the Frank J. Massa and Adra V. Massa Revocable Trust, and Michael Clark

JFD:lh
Enclosure
cc (w/encl.): Minh Tran, Esq., Napa County Counsel
John McDowell, Deputy Planning Director
Wyntress Balcher, Planner
Scott D. Greenwood-Meinert, Esq.
Laura Anderson, Esq., Deputy County Counsel

Bell Wine Cellars Noise Assessment

Napa, CA

Environmental Noise Study

4 August 2015

Prepared for:

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CSA Project Number:15-0426

INTRODUCTION

This environmental noise report has been prepared to predict the increased noise on the Massa Trust property (Clark residence) at 6160 Washington Street by the requested changes to Bell Wine Cellars use permit. Bell Wine Cellars proposed to increase wine production from the current 40,000 gallons to 60,000 gallons annually. In addition, the winery applied to change their use permit to allow an increase to the number of visitors to the winery from 76 guests per week to 100 guests per day with a maximum of 400 guests per week during the peak season and 250 guests per week during the offseason. The following sections comprise the whole of this report:

- Acoustical Criteria
- Existing Noise Conditions
- Future Noise Assessment
- Environmental Acoustics Appendix A. Those readers unfamiliar with environmental acoustics should refer to this section.

SUMMARY

Various winery activity noise levels exceed the allowable noise permitted by Napa County. Per the California Environmental Quality Act (CEQA), noise levels exceeding local standards constitute a significant impact and must be mitigated.

ACOUSTICAL CRITERIA

This assessment applies criteria found in the Napa County Code of Ordinances Chapter 8.16 Noise Control Regulations and guidelines in the California Environmental Quality Act (CEQA).

Napa County

The following sections define the acoustical criteria for this project in terms of maximum noise levels. These levels are determined by receiver land use as well as the characteristics of noise. For the purposes of this report, we used the residential land use as a receiver.

8.16.070 - Exterior noise limits.

No person shall operate, or cause to be operated, any source of sound at any location within the unincorporated area of the county, or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level, when measured on any other property, either incorporated or unincorporated, to exceed:

a. The noise standard for that land use as specified in Table 8.16.070 for a cumulative period of more than thirty minutes in any hour (L_{50} noise metric); or
b. The noise standard plus five dB for a cumulative period of more than fifteen minutes in any hour (L_{25} noise metric); or
c. The noise standard plus ten dB for a cumulative period of more than five minutes in any hour (L_{08} noise metric); or
d. The noise standard plus fifteen dB for a cumulative period of more than one minute in any hour (L_{02} noise metric);

e. The noise standard plus twenty dB or the maximum measured ambient level, for any period of time (L_{max} noise metric);

Table 8.16.070 Exterior Noise Limits
(Levels not to be exceeded more than 30 minutes in any hour)

Receiving Land Use Category	Time period	Noise Level (dB) Noise Zone Classification
		Rural
Residential: Single and Double	Nighttime (10:00 p.m. to 7:00 a.m.)	45
	Daytime (7:00 a.m. to 10:00 p.m.)	50

Based on these exterior limits and the allowable cumulative noise exposure, the noise limits are presented in Table 1 below:

Table 1: Allowable Noise Levels per the County Ordinance

Hourly Noise Metric	**Daytime Level**	**Nighttime Level**
L_{50} (30 minutes)	50 dBA	45 dBA
L_{25} (15 minutes)	55 dBA	50 dBA
L_{08} (5 minutes)	60 dBA	55 dBA
L_{02} (1 minute)	65 dBA	60 dBA
L_{max}	70 dBA	65 dBA

If the measured ambient noise level exceeds the allowable standard, then the allowable noise exposure standard shall be the ambient noise level.

Correction for Character of Sound. In the event the alleged offensive noise, as judged by the noise control officer, contains a steady, audible tone such as a whine, screech or hum, or is a repetitive noise such as hammering or riveting, or contains music or speech, the standard residential limits shall be reduced by five dB, but not lower than forty-five.

8.16.090 - Exemptions to noise regulations.

Agricultural Operations. All mechanical devices, apparatus or equipment associated with agricultural operations conducted on agricultural property. Wineries are not included in this section.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) guidelines include a checklist of items, some of which relate to noise and vibration. One item asks if the project will exceed any established noise standards or substantially increase existing ambient noise levels. To address the future increase in noise levels from this project, a change of 3 dB or less is considered just noticeable and not expected to cause significant community response. A change of 4 to 5 dB is marginal, but could be considered an impact if the resultant noise level exceeds "normally acceptable" levels. A change of more than 5 dB would be clearly noticeable and considered a significant impact, especially since it could potentially cause adverse community response.

EXISTING NOISE CONDITIONS

Between 13 June 2015 and 20 June 2015, we measured the background noise along the property line between the Clark residence (6160 Washington Street) and Bell Wine Cellars. Between 13 June 2015 and 14 June 2015, we measured background noise levels inside the second story bedroom. We also

conducted short-term measurements at various locations at the Massa Trust Residence to quantify the ambient noise in outdoor use areas. Figure 1 shows the location of these measurements. Table 2 summarizes the results of the long-term measurements. Table 3 summarizes the results of the short-term measurements.

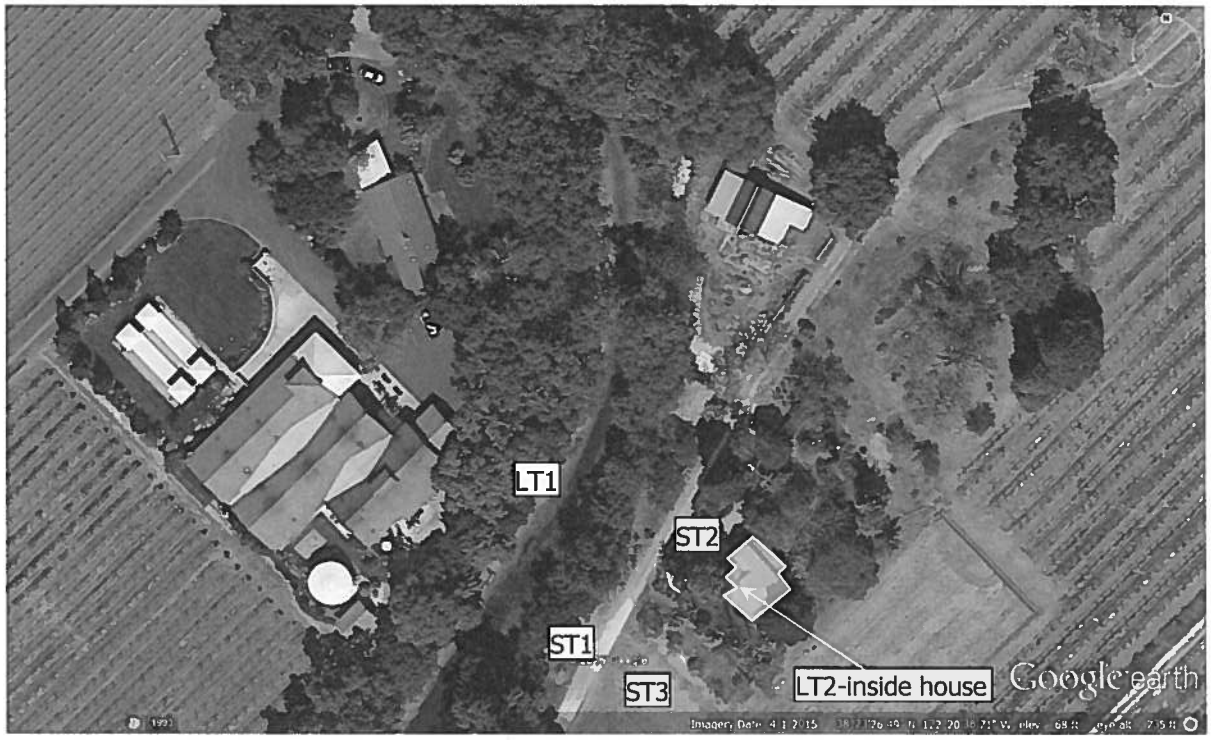


Table 2: Long Term Noise Measurements – Average Noise Levels (L_{50})

Site	Location	Start Date Start Time	Daytime (dB)	Nighttime (dB)
LT1	Along the west bank of creek bed	14 June 2015	39-43 dB	34-43 dB
		15 June 2015	37-45 dB	35-46 dB
		16 June 2015	37-44 dB	34-44 dB
		17 June 2015	38-43 dB	35-48 dB
		18 June 2015	39-55 dB	34-46 dB
		19 June 2015	37-44 dB	38-46 dB
		20 June 2015	37-38 dB	--
LT2	Second story bedroom window	13 June 2015 11:00 a.m.	40-46 dB	34-40 dB

Table 3: Short Term Noise Measurements – Average Noise Levels (L_{50})

Site	Location	Start Date Start Time	Daytime (dB)	Nighttime (dB)
ST1	Garden 50 feet east of creek bed	14 June 2015 1:30 p.m.	51** dB	--
ST2	Patio 100 feet east of creek bed centerline	14 June 2015 2:00 p.m.	42 dB	--
ST3	Farmland 100 feet east of creek bed	14 June 2015 2:30 p.m.	48** dB	--

** - Winery compressor noise dominates these measurements.

Long Term Measurement Location

The average noise level (L_{50}) varied between 37 dBA to 55 dBA during the day (7:00 a.m. to 10:00 p.m.), and 34 dBA to 48 dBA at night (10:00 p.m. to 7:00 a.m.) depending on the weather conditions and activity at the winery. The highest noise level (L_{50}) of 48 dBA occurred while a leaf blower operated on the winery property. The highest daytime noise levels (L_{50}) excluding the leaf blower were 45 dBA.

A second long term monitor was placed in the second story bedroom of the Clark residence and allowed to measure continuously to quantify the daytime and nighttime noise levels in the house. During these measurements, the occupants left the home. The average noise level (L_{50}) varied between 40 dBA to 46 dBA during the day (7:00 a.m. to 10:00 p.m.), and 34 dBA to 40 dBA at night (10:00 p.m. to 7:00 a.m.).

Short Term Measurement Location

On 14 June 2015, we visited the site to conduct attended measurements. The measurement duration lasted 30 minutes at each of these locations. While measuring at the various short-term locations, we noted maximum noise levels for typical-single events. This data are presented in Table 2.

Table 2: Typical Single Event Noise Sources

Noise Sources	Average Noise Levels (dBA)		
	ST1	ST2	ST3
Winery compressor	52	46	49
Wind in vegetation	48	47	45
Aircraft flyover	51	51	51

FUTURE NOISE ASSESSMENT

Mechanical Equipment Noise

To maintain the proper temperatures for fermenting, storing, and aging wine, the winery requires mechanical ventilation and cooling. This ventilation system also provides a conditioned climate for winery guests. The current mechanical system noise measures 52 dBA at the nearest outdoor use space. The

quality of the mechanical noise contains distinct tones, which applies a 5-decibel penalty to the allowable daytime 50 dBA. Therefore, the applicable standard is 45 dBA. The equipment noise measured 52 dBA and currently exceeds the County standard of 45 dBA at the nearest residential outdoor use space.

In the future, if the winery guest totals increase six fold (76 to 420), the existing mechanical equipment may need to run more frequently to offset the increased heat loads. The existing mechanical noise and future noise increase have not been studied or mitigated.

The winery has not mitigated mechanical equipment noise to meet county noise standards. This could constitute a significant impact under CEQA guidelines.

Bottling Operation Noise

The winery currently brings in a mobile bottling truck to transfer the wine from the barrels and/or fermentation tanks into bottles. This activity occurs adjacent to the parking lot and has direct line of sight to the Massa Trust property. This bottling operation occurs 200 feet from the nearest outdoor use area.

Average bottling noise at 50 feet and at 200 feet are compared to the County's Ordinance in Table 3 below.

Table 3: Mobile Bottling Noise Comparison

Hourly Noise Metric	Bottling Noise Levels at 50 feet	Bottling Noise Levels at 200 feet	Ordinance Noise Limits	Exceedance
L_{50} (30 minutes)	65 dBA	53 dBA	50 dBA	3 dBA
L_{25} (15 minutes)	67 dBA	55 dBA	55 dBA	--
L_{08} (5 minutes)	69 dBA	57 dBA	60 dBA	--
L_{02} (1 minute)	71 dBA	59 dBA	65 dBA	--
Lmax	72 dBA	60 dBA	70 dBA	--

We calculate that noise from bottling operations would exceed the County's allowable noise level.

In the future, if the winery gallon production increases from 40,000 gallons to 60,000 gallons, the mobile bottling operations will ether increase their number of visits or operate for longer hours to process the additional wine. The existing bottling noise and future noise increase have not been studied or mitigated.

The winery has not mitigated bottling equipment noise to meet county noise standards. This could constitute a significant impact under CEQA guidelines.

Increased Guest Noise

Part of the winery business program includes public tasting. Currently, the winery hosts up 24 to 76 people per week, which works out to roughly 10 people per day. The existing parking lot has space for 11 vehicles (visitors and employees alike). The noise from these vehicles depends on the total number of trips generated by the winery. In the future, the winery would like to increase visitation to 100 guests per day with a total of 400 guests per week during the peak season. The revised plan includes an additional 14 parking spaces to accommodate the increased traffic. The winery also plans to host up to four large events per year (200 people) and up to four medium events per week (40 person maximum) no more than one per day.

The increased consumer traffic will inherently increase the noise experienced on the Massa Trust property. Predicting actual noise levels is difficult as the visitation schedule will vary day to day. Daily visitations are addressed in terms of increased guests instead of total headcount. We also chose to estimate the noise the medium and large events since the attendance is relatively set.

Table 4 includes typical noise levels associated with parking lot activities at known distances and projects the noise levels to the nearest outdoor use area. These noise levels decrease based on the "inverse square law", which reduces the noise 6 decibels per every doubling of distance. This table would be used to estimate potential event noise levels as experienced at the Massa Trust property.

Table 4: Typical Parking Lot Noise Levels

Activity	Measured Noise Level	Distance	Noise Level at 200 feet
Car Idling	52 dBA	25 feet	34 dBA
Car door slam	58 dBA	75 feet	50 dBA
Car start	59 dBA	50 feet	47 dBA
Car Horn	65 dBA	25 feet	47 dBA
Raised Conversation	62 dBA	25 feet	45 dBA

The discrete single event noise in Table 4 does not exceed the County Noise standards, but the aggregate noise from medium to large gatherings could significantly increase noise levels above the County Noise standards.

Increased Daily Use

The proposed permit request would increase guest traffic tenfold on a day-to-day basis. The increased visits would increase car and bus traffic noise and guest noise at the Massa Trust property. The level of increase cannot be accurately predicted because the guest arrival and departure frequency is difficult to regulate. Based on a tenfold logarithmic increase, noise levels could increase 10 decibels, which is a perceived double of loudness. However, it is doubtful that all 100 guests would arrive simultaneously on a daily basis, except for special events. More realistically, the winery would more than double its average guest attendance, which corresponds to at least a 3-decibel increase.

Medium Sized Events

As proposed by the winery, these events are meals and/or seminars for wine club members. A single event holds up to 40 people. The average noise level of conversations amongst 40 people (assuming only 50% are speaking at once) could reach levels in excess of 48 dBA at the Clark residence.

We measured daytime background noise levels of 42 dBA at the outdoor use area nearest the winery patio and parking. The predicted level exceeds the ambient by 6 decibels and exceeds the County Noise Standards by 3 decibels (assuming 45 dBA is the minimum ambient noise level).

Large Sized Events

As proposed by the winery, these events are Wine-Auction or Napa Film Festival related. A single event holds up to 200 people. These events could also feature unamplified music. The predicted noise from these types of events could reach noise levels in excess of 56 dBA at the outdoor use area nearest the winery patio and parking. The predicted level exceeds the ambient by 14 decibels and exceeds the County Noise Standards by 11 decibels (assuming 45 dBA is the minimum ambient noise level).

The winery has not proposed mitigation to reduce guest noise to meet county noise standards or reduce increased ambient noise. This could constitute a significant impact under CEQA guidelines.

Conclusion

The projected increase to noise would likely exceed the County's Noise standards and constitute a significant impact according to CEQA Appendix G.

APPENDIX A

FUNDAMENTAL CONCEPTS OF ENVIRONMENTAL NOISE

This section provides background information to aid in understanding the technical aspects of this report.

Three dimensions of environmental noise are important in determining subjective response. These are:

a) The intensity or level of the sound;
b) The frequency spectrum of the sound; and
c) The time-varying character of the sound.

Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB), with 0 dB corresponding roughly to the threshold of hearing.

The "frequency" of a sound refers to the number of complete pressure fluctuations per second in the sound. The unit of measurement is the cycle per second (cps) or hertz (Hz). Most of the sounds which we hear in the environment do not consist of a single frequency, but of a broad band of frequencies, differing in level. The name of the frequency and level content of a sound is its sound spectrum. A sound spectrum for engineering purposes is typically described in terms of octave bands which separate the audible frequency range (for human beings, from about 20 to 20,000 Hz) into ten segments.

Many rating methods have been devised to permit comparisons of sounds having quite different spectra. Surprisingly, the simplest method correlates with human response practically as well as the more complex methods. This method consists of evaluating all of the frequencies of a sound in accordance with a weighting that progressively de-emphasizes the importance of frequency components below 1000 Hz and above 5000 Hz. This frequency weighting reflects the fact that human hearing is less sensitive at low frequencies and at extreme high frequencies relative to the mid-range.

The weighting system described above is called "A"-weighting, and the level so measured is called the "A-weighted sound level" or "A-weighted noise level." The unit of A-weighted sound level is sometimes abbreviated "dBA." In practice, the sound level is conveniently measured using a sound level meter that includes an electrical filter corresponding to the

A-weighting characteristic. All U.S. and international standard sound level meters include such a filter. Typical sound levels found in the environment and in industry are shown in Figure A-1.

Although a single sound level value may adequately describe environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise is a conglomeration of distant noise sources which results in a relatively steady background noise having no identifiable source. These distant sources may include traffic, wind in trees, industrial activities, etc. and are relatively constant from moment to moment. As natural forces change or as human activity follows its daily cycle, the sound level may vary slowly from hour to hour. Superimposed on this slowly varying background is a succession of identifiable noisy events of brief duration. These may include nearby activities such as single vehicle passbys, aircraft flyovers, etc. which cause the environmental noise level to vary from instant to instant.

To describe the time-varying character of environmental noise, statistical noise descriptors were developed. "L_{10}" is the A-weighted sound level equaled or exceeded during 10 percent of a stated time period. The L_{10} is considered a good measure of the maximum sound levels caused by discrete noise events. "L_{50}" is the A-weighted sound level that is equaled or exceeded 50 percent of a stated time period; it represents the median sound level. The "L_{90}" is the A-weighted sound level equaled or exceeded during 90 percent of a stated time period and is used to describe the background noise.

As it is often cumbersome to quantify the noise environment with a set of statistical descriptors, a single number called the average sound level or "L_{eq}" is now widely used. The term "L_{eq}" originated from the concept of a so-called equivalent sound level which contains the same acoustical energy as a varying sound level during the same time period. In simple but accurate technical language, the L_{eq} is the average A-weighted sound level in a stated time period. The L_{eq} is particularly useful in describing the subjective change in an environment where the source of noise remains the same but there is change in the level of activity. Widening roads and/or increasing traffic are examples of this kind of situation.

In determining the daily measure of environmental noise, it is important to account for the different response of people to daytime and nighttime noise. During the nighttime, exterior background noise levels are generally lower than in the daytime; however, most household noise also decreases at night, thus exterior noise intrusions again become noticeable. Further, most people trying to sleep at night are more sensitive to noise.

To account for human sensitivity to nighttime noise levels, a special descriptor was developed. The descriptor is called the DNL (Day/Night Average Sound Level) which represents the 24-hour average sound level with a penalty for noise occurring at night.

The DNL computation divides the 24-hour day into two periods: daytime (7:00 am to 10:00 pm); and nighttime (10:00 pm to 7:00 am). The nighttime sound levels are assigned a 10 dB penalty prior to averaging with daytime hourly sound levels. For highway noise environments, the average noise level during the peak hour traffic volume is approximately equal to the DNL.

The effects of noise on people can be listed in three general categories:

a) Subjective effects of annoyance, nuisance, dissatisfaction;
b) Interference with activities such as speech, sleep, and learning; and
c) Physiological effects such as startle, hearing loss.

The sound levels associated with environmental noise usually produce effects only in the first two categories. Unfortunately, there has never been a completely predictable measure for the subjective effects of noise nor of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and habituation to noise over time.

Thus, an important factor in assessing a person's subjective reaction is to compare the new noise environment to the existing noise environment. In general, the more a new noise exceeds the existing, the less acceptable the new noise will be judged.

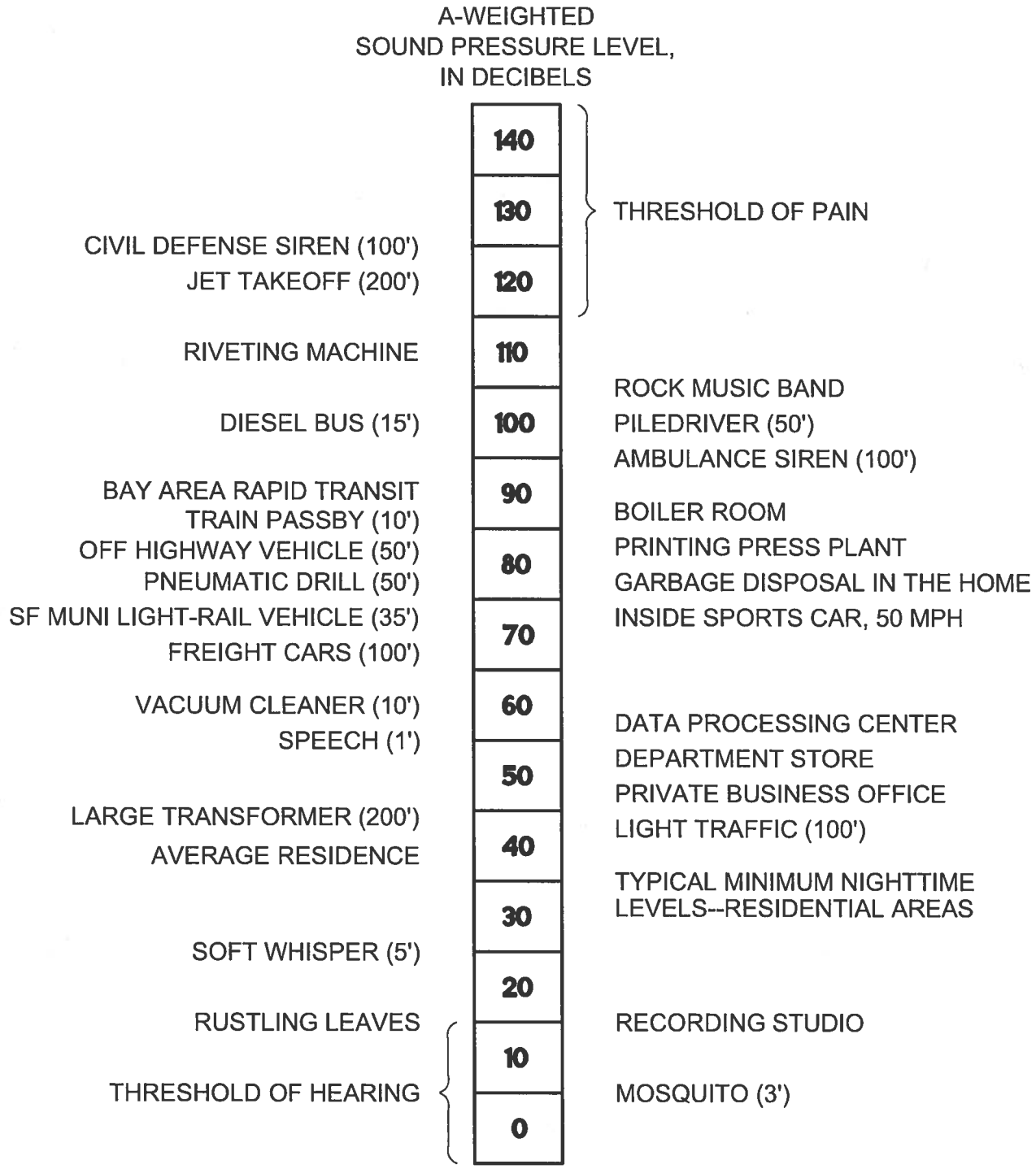
With regard to increases in noise level, knowledge of the following relationships will be helpful in understanding the quantitative sections of this report:

a) Except in carefully controlled laboratory experiments, a change of only 1 dB in sound level cannot be perceived.

b) Outside of the laboratory, a 3 dB change is considered a just-noticeable difference.

c) A change in level of at least 5 dB is required before any noticeable change in community response would be expected.

d) A 10 dB change is subjectively heard as approximately a doubling in loudness, and would almost certainly cause an adverse community response.



(100') = DISTANCE IN FEET BETWEEN SOURCE AND LISTENER

TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

FIGURE A1

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MISC. 11.25.03

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