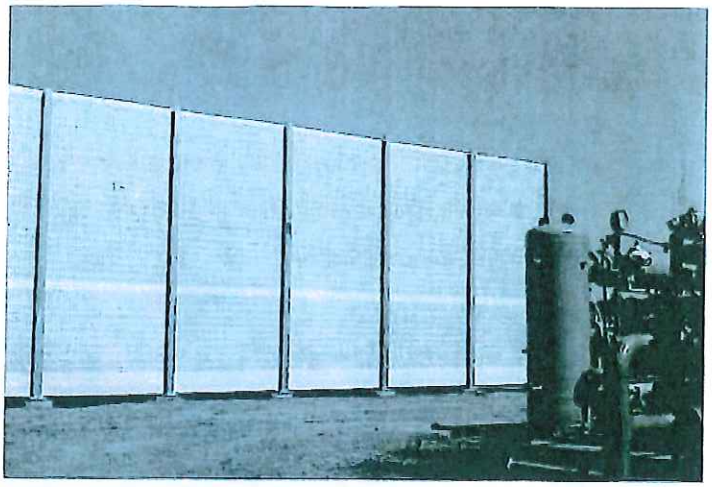
Equipment or Machinery Enclosures

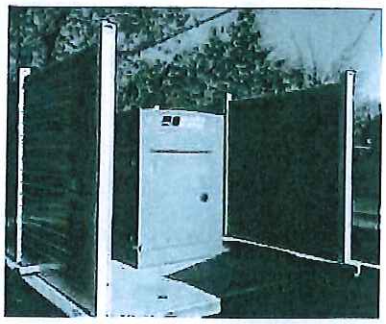
RECOMMENDED FOR

- Oil / Gas / Hydro / Compressors
- Petro Chemical / Utility Stations
- Mining/Quarry Crushers

Excessive noise is one of the most common occupational health hazards in today's heavy industrial or manufacturing environments, and permanent hearing loss is a serious health concern.

AIL Sound Walls are often used to mitigate unwanted noise in these types of applications. Transparent panels, utility ports and man-doors can also be integrated to allow access for routine maintenance or emergency repairs with reduced exposure to noise.





With a limited footprint, AIL Sound Walls provide an efficient land use solution for urban areas.

Your environmentally-friendly sound mitigation solution.

- Highest percentage of recycled material
- A readily-renewable and recyclable product
- Minimized water consumption in manufacturing
- Optimized shipping for reduced CO_2 emissions
- Long product lifespan
- Excellent fire-resistant properties
- Earn LEED Points for Green Building

Free Professional Credit Course available: Sustainable Design in Noise & Sound Barriers.

Sustainable Design In Noise & Sound Barriers is a free one-hour online professional development credit course offered by AIL Sound Walls through AECdaily.com. It provides an overview of the negative impacts of noise, the science of noise barriers, as well as a discussion on the features and benefits of absorptive and reflective noise barriers made of tongue and groove PVC panels. Contact AIL Sound Walls at 1-866-231-7867 or visit aecdaily.com for more information on the course.

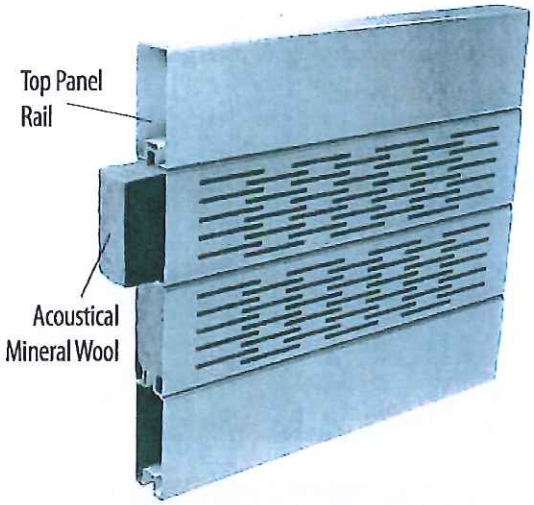
FREE on-line continuing EDUCATION www.aecdaily.com

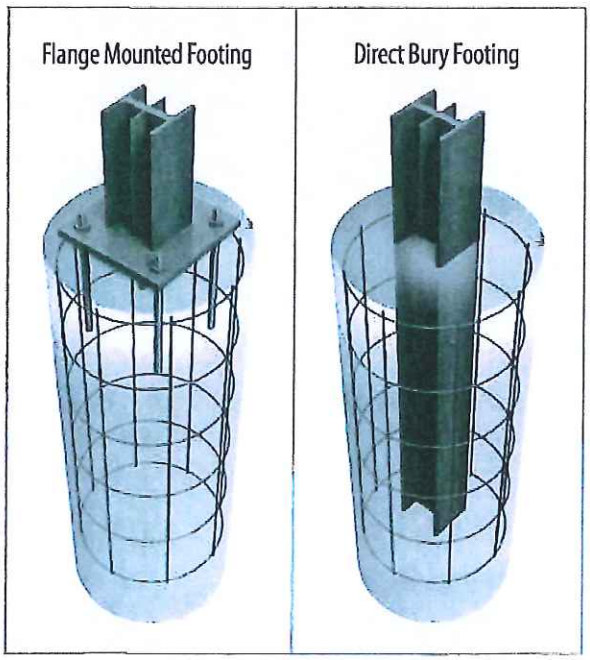
For more information on AIL Sound Wall solutions, call 1-866-231-7867 or visit ailsoundwalls.com

Easy to install with local crews and reduced need for lifting equipment.

AIL Sound Walls are constructed with tongue and groove PVC panels. Panels are stacked and placed within standard steel posts to the required height and capped with a top panel.

Typical Installation





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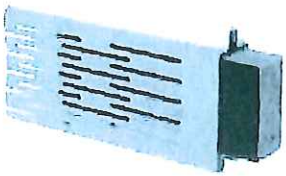
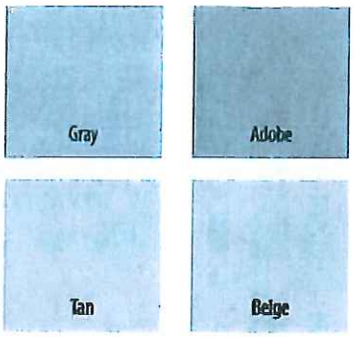


Product Specifications	Silent Protector® (Absorptive)	Tuf Barrier® (Reflective)
Panel Length	8 ft -12 ft (2.44 m - 3.66 m)	8 ft -14 ft (2.44 m - 4.27 m)
Panel Width	2.70 in (68.58 mm)	2.70 in (68.58 mm)
Panel Height	5.96 in ± .10 in (151.38 mm ± 0.25 mm)	5.96 in ± .10 in (151.38 mm ± 0.25 mm)
Weight	4.30 lbs/ft² (21 kg/m²)	Min. 4.10 lbs/ft² (20 kg/m²)
Absorptive	yes	n/a
Reflective	n/a	yes
STC Rating	up to 36	up to 32
NRC Rating	1.0	n/a
Plain Finish	yes	yes
Embossed Finish	n/a	yes

For product technical specifications visit ailsoundwalls.com

AIL Sound Walls are available in a variety of attractive colors.



Color reproduction in this brochure is subject to limitations of the printing process. Please consult AIL Sound Walls for actual PVC color samples.

Sound Transmission Loss ASTM E90 / E413

Octave Band Number	2	3	4	5	6	7	STC
Center Frequency (Hz)	125	250	500	1000	2000	4000	–
Silent Protector®	20	21	26	40	40	44	
Tuf-Barrier®	16	22	31	39	41	49	

RATINGS UP TO STC 36 ASK FOR DETAILS

Sound Absorption Coefficients ASTM C423/E795

Octave Band Number	2	3	4	5	6	7	NRC
Center Frequency (Hz)	125	250	500	1000	2000	4000	–
Silent Protector®	0.41	0.84	1.19	1.06	1	0.81	1.0

STC – Sound Transmission Class

STC is a single-number index used to rate the material's ability to reflect noise and to reduce the decibel level.

NRC – Noise Reduction Coefficient

NRC is a single-number index rating used to determine how absorptive the material is. Industry standard ranges from zero to 1. An absorptive sound wall reduces the sound energy that would typically reflect back toward the sound source and has a higher decibel reduction.

NRC	Qualitative
0.4 or less	Poor
0.5 to 0.6	Mediocre
0.6 to 0.7	Good
0.7 to 0.85	Very Good
> 0.85	Excellent
1.0	AIL Silent Protector®

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- Detailed proposals complete with installation budget estimates
- Engineer-stamped project drawings for approvals and construction
- Professional support in engineering, project management and site assistance

The information and suggested applications in this brochure are accurate and correct to the best of our knowledge and are intended for general information purposes only.

These general guidelines are not intended to be relied upon as final specifications and we do not guarantee specific results for any particular purpose.

We strongly recommend consultation with an AIL Sound Walls Technical Sales Representative before making any design and purchasing decisions.

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NOISE CONTROL /

PRECAST ACOUSTIC FACINGS

ACOUSTIC FACING TILES PROVIDE A MODULAR SOUND ABSORPTION SOLUTION TO A WIDE RANGE OF ACOUSTIC ISSUES

Durisol precast acoustic facing tiles provide a modular sound absorption solution to a wide variety of acoustic problems. The tiles can be attached to any existing flat wall surface, making them well suited for retrofit applications.

Amtec's precast acoustic facing tiles are made of proprietary Durisol material consisting of specially graded wood particles bonded with cement. The tiles are particularly effective at dampening reflected noise in loading areas, courtyards, shooting ranges, railway or highway cuts, and between parallel building walls.

Durisol material
Lightweight, absorptive, porous, rigid, non-combustible, vermin and fungus proof, thermally insulating, freeze-thaw resistant, durable

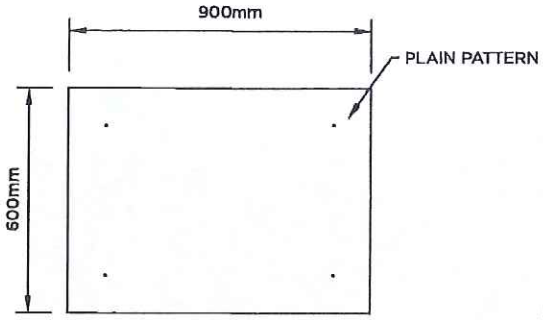
Retrofit applications
Can be attached to any flat building wall surface

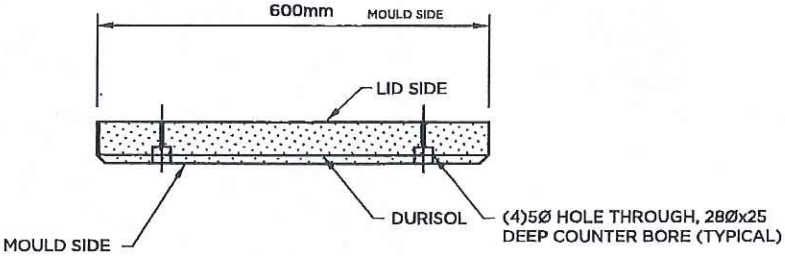
Aesthetic possibilities
Wide range of colours and finishes

TYPICAL APPLICATIONS
- Commercial buildings
- Retrofit applications
- Loading areas
- Shooting ranges
- Railways
- Highways

PANEL DETAILS

Typical application showing our 'standard' size of 600x900mm





Drawings and product details are for information and/or illustrative purposes only and may vary. Please contact your Armtec representative for the most current product information.

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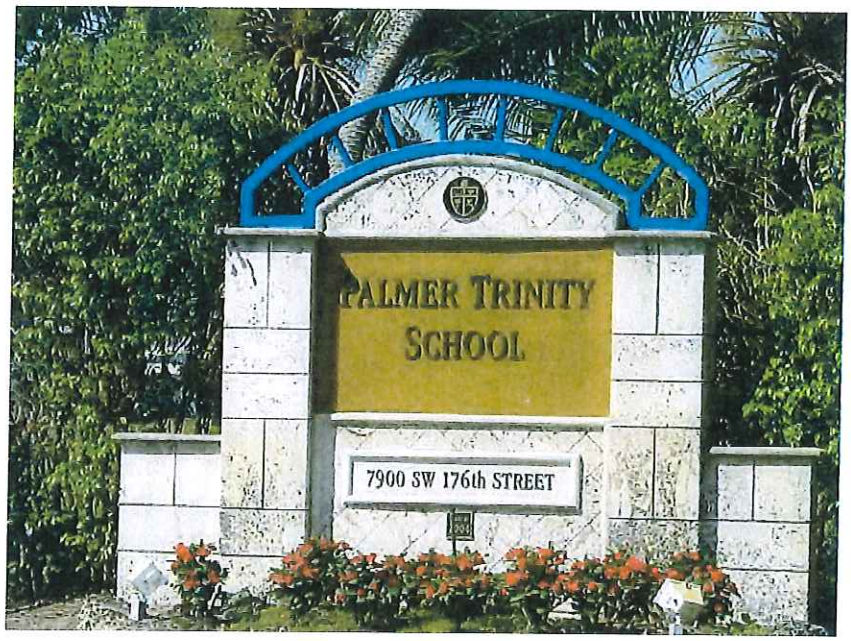
Community Noise Study

Palmer Trinity Private School, Inc.
7900 SW 176th Street
Palmetto Bay, Florida 33157



prepared for

Carter McDowell, Esq.
Bilzin, Sumberg, Baena, Price & Axelrod, LLP
200 South Biscayne Boulevard, Suite 2500
Miami, Florida 33131-5340

May 2, 2010

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1) Final Noise Survey Report, dated May 2, 2010

2) Summary of Measurement Data, Table 2

3) Maps of Measurement Locations

4) Sound Level Measurement Charts

5) Photographs taken during survey

6) Village of Palmetto Bay Noise Ordinance, annotated

7) Noise Study for Miami Shores Aquatic Facility, dated October 18, 2001

8) Professional Resume of Don Washburn, Principal Consultant

9) Measurement equipment information

10) Terms and Definitions - an acoustical tutorial

11) CD with data files and videos shot during survey

12) CD of audio recordings made during survey

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May 2, 2010

Carter McDowell, Esq.
Bilzin, Sumberg, Baena, Price & Axelrod, LLP
200 South Biscayne Boulevard, Suite 2500
Miami, Florida 33131-5340

Ref: Community Noise Study
Palmer Trinity Private School, Inc.
7900 SW 176th Street
Palmetto Bay, Florida 33157

Dear Mr. McDowell,

This letter will serve as a follow-up on the subject of the Community Noise Study performed for the above referenced client represented by your firm. At the time of our original preliminary report, dated Friday, April 23, 2010, I indicated that due to the extremely short time-frame available, our final report could not be available for submittal to the Village of Palmetto Bay by April 23rd. The preliminary report was submitted to indicate that the study was underway and that a final and complete report would be forthcoming. I'm happy to report that I have completed the Noise Study and that data contained herein represents an exhaustive and detailed analysis of information gathered on April 22nd at and around the school.

As previously indicated, on Thursday, April 22, I spent approximately six hours examining sound levels on the school's property and at multiple locations within the immediate vicinity around the school. Sound level measurements were taken to document typical ambient noise levels, sounds generated by activities observed in the area and specific activities associated with the school. Our goal was to assess these sound levels and compare them with the Village of Palmetto Bay's Noise Ordinance. Measurement data gathered during my site visit is tabulated below in Table 2 for comparison with limits set forth in the Noise Ordinance. Please refer to the attached copy of the Ordinance for details.

Sec. 15-54, Table 1 of the Ordinance, defines maximum permissible sound according to various Receiving Property Designations and time frames. The receiving property designation which applies to this matter is Residential Noise-Sensitive Zone. In these areas, sound levels are restricted to 65 dBA between the hours of 7:00 a.m. and 11:00 p.m., 60 dBA between the hours of 11:00 p.m. and 7:0 a.m. The Ordinance further stipulates, in Sec. 15-54, that these limits may not be exceeded by any single incident representing the normal, usual operation of the sound source, during any three sampling intervals, the duration of which shall be no less than one-half minute, within any one-hour period. [Additional stipulations are provided thereafter in the Ordinance in Section 15-54, (Ord. No. 04-24, § 1(.04), 12-6-2004).]

This expression of time limits represents a percentile methodology customarily used in acoustics referred to as L_n, where the letter "n" indicates a percentage of the measurement period. For instance, L_{50} would represent the sound level exceeded over 50% of the measurement period. Likewise, L_{90} would represent the sound level exceeded over 90% of the measurement period. Attached, the reader will find a document titled "Terms and Definition" which provides additional information on this methodology along with additional information of interest.

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Interpreting the Village of Palmetto Bay's Noise Ordinance, we discover that the level vs. time limits specified correlate roughly with an L_1 or the level exceeded over 1% of the measurement period for each incident. For instance, L_1 within an hour measurement period would be 36 seconds (1% of 60 minutes = 36 seconds). The ordinance permits up to three such periods within an hour's span for a total of approximately 108 seconds. More accurately, the total period within an hour that the sound level may exceed the specified 65 dBA limit would be expressed $L_{2.5}$, or 90 seconds over a one-hour span. Shorter measurement periods, for example 5 minutes, would be scaled accordingly due to the percentile approach of tabulating the data in this manner. $L_{2.5}$ for a 5-minute period would be 15 seconds.

Measured events presented in this report vary from one minute to 60 minutes. We have elected to specify sound levels in the forms of L_1, L_5, L_{90} and $L_{eq.}$ This allows easy interpretation of impulsive (L_1), short-duration events (L_5) and ambient noise levels (L_{90}) in compliance with industry-accepted standards.

Total sound level, as referred to in the Ordinance, means that measured level which represents the summation of the sounds from the sound source under investigation and the ambient sounds which affect a given place at a given time, exclusive of extraneous sound sources. This is referred to as the "equivalent level", or L_{eq}. This indicator is included in our data.

Sec. 15-57, specifies a number of sound sources which are exempt from the provisions of section 15-54. Two of those specifically mentioned are:

1) Noises from lawn mowers and agricultural equipment during daylight hours (7:00 a.m. to 9:00 p.m., or sunset, whichever is earlier) when operated with all the manufacturers' standard mufflers and noise-reducing equipment in use and in proper operating condition.

2) Non-amplified crowd noises resulting from the activities such as those planned by student, governmental or community groups, such as parades or sports events.

While conducting our on-site measurements, there were multiple opportunities to measure example events of both types. Three lawn service companies were observed at properties in the vicinity of 176th Street, between 80th and 82nd Avenues. Sound levels of this form of activity are relatively high and of sustained duration. If this type of sound source were not exempt from the Ordinance's specified level and time limits, they would be in violation in all cases.

Likewise, sporting events; football practice sessions, tennis classes and a baseball game were measured and the results tabulated. Sound of activities held on the school's campus never exceeded the Ordinance's limits at any time during our testing. This is verified by measurement data provided in the form of charts showing sound level-versus-time, each accompanied with notes describing the conditions of each measurement session. These charts are attached for review by the reader. These types of activities are, as specified above, exempt from the Ordinance's provisions of section 15-54.

Table 2, attached, summarizes levels measured at the various locations examined during this study. Audio recordings made of these measurements are also available on Compact Disc for review by Village Staff and the public. A number of video clips have likewise been prepared and are available for review.

Data gathered during our Study indicate that sound levels emanating from Palmer Trinity School currently do not exceed those levels or durations specified in the Village's Noise Ordinance. Based on personal observation and the measurements gathered, it is my professional opinion that, while sound from the school is at times audible at some listening positions, these sounds do not approach the 65 dBA sound level limit provided in the Ordinance. Indeed,

much of what was documented to exceed permissible levels were sounds attributable to sources outside the school's property; such as barking dogs, the noise of peacocks, traffic along roads adjacent to the school, residents using their pools and other activities typical of a residential neighborhood.

It is my hope that the information presented herein will assist the involved parties; residents, the school and the Village of Palmetto Bay, to arrive at an amicable resolution to the matter documented in this report.

Please feel free to contact me with any questions or other concerns.

Respectfully submitted,

Donald J. Washburn

Donald J. Washburn
President

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Palmer Trinity School Community Noise Study

Summary of Sound Levels Measured on and around the School

Table 2 - Sound Level Measurement Tabulations (in dBA)					
Location	Duration	L_1	L_5	L_{90}	L_{eq}
A - before game ambient noise	1 minute	58.5	50.3	39.4	46.1
A - during game ambient noise	1 minute	54.5	48.8	39.3	44.1
B - Walk up 80th Avenue during game	5 minutes	67.9	61.1	43.6	54.9
C - short (baseball game in progress)	9 minutes	66.4	62.6	46.7	56.0
C - long (baseball game in progress)	60 minutes	63.0	59.1	47.0	53.8
D - Lawn Service # 1 at 176th Street	10 minutes	83.2	78.6	60.2	72.7
E - ambient noise 182nd Terrace	2 minutes	54.8	51.1	39.4	45.7
E - FedEx truck 182nd Terrace	1 minute	75.5	72.7	40.9	65.3
F - Guard Gate (traffic at dismissal)	5 minutes	72.9	67.6	55.4	63.4
G - school entrance (garbage truck exit)	5 minutes	77.0	70.5	39.4	63.1
H - along driveway at dismissal	6 minutes	66.8	62.0	54.7	58.7
I - dismissal bell on campus	2 minutes	53.2	50.0	49.0	54.1
J - Center Courtyard during lunchtime	5 minutes	77.5	70.2	47.5	64.2
K - Tennis Court on 183rd Terrace	1 minute	51.6	50.5	44.7	47.3
L - SW 179 Terrace - dog and peacocks	2 minutes	84.5	73.9	38.3	69.6
M - 17840 SW 77th Avenue	2 minutes	66.2	54.8	43.2	51.8
N - Lawn Service # 2 at 177th Terrace	3 minutes	78.7	76.5	52.8	70.2
O - Lawn Service # 3 at 175th Street	3 minutes	73.4	71.4	62.4	66.9
P - Announcements at backstop	2 minutes	83.7	80.4	54.1	73.0

Legend:

L_1 exceeds Ordinance

L_5 exceeds Ordinance

L_{90} exceeds Ordinance

L_{eq} exceeds Ordinance

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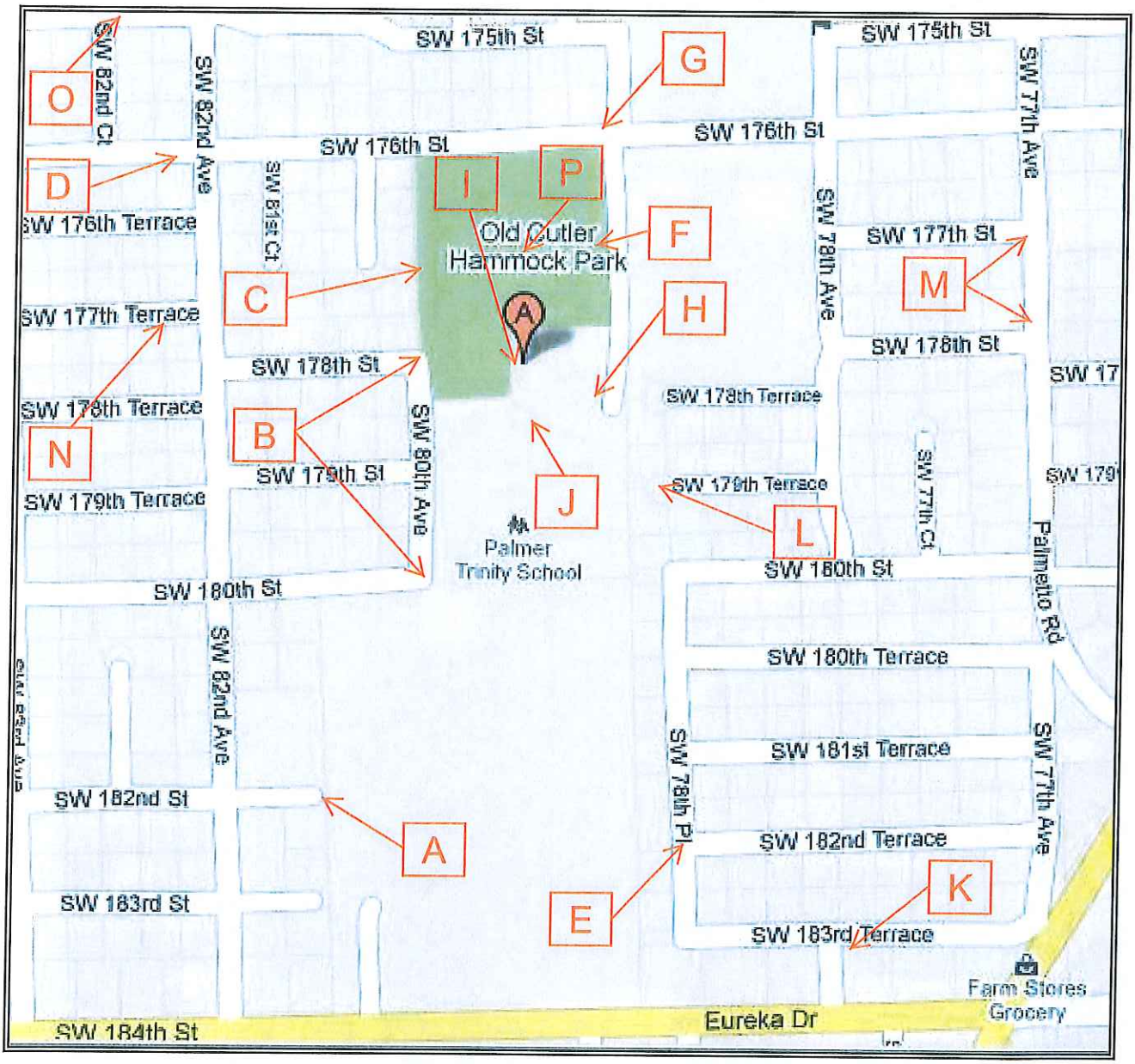
Palmer Trinity School - Sound Level Measurement Locations

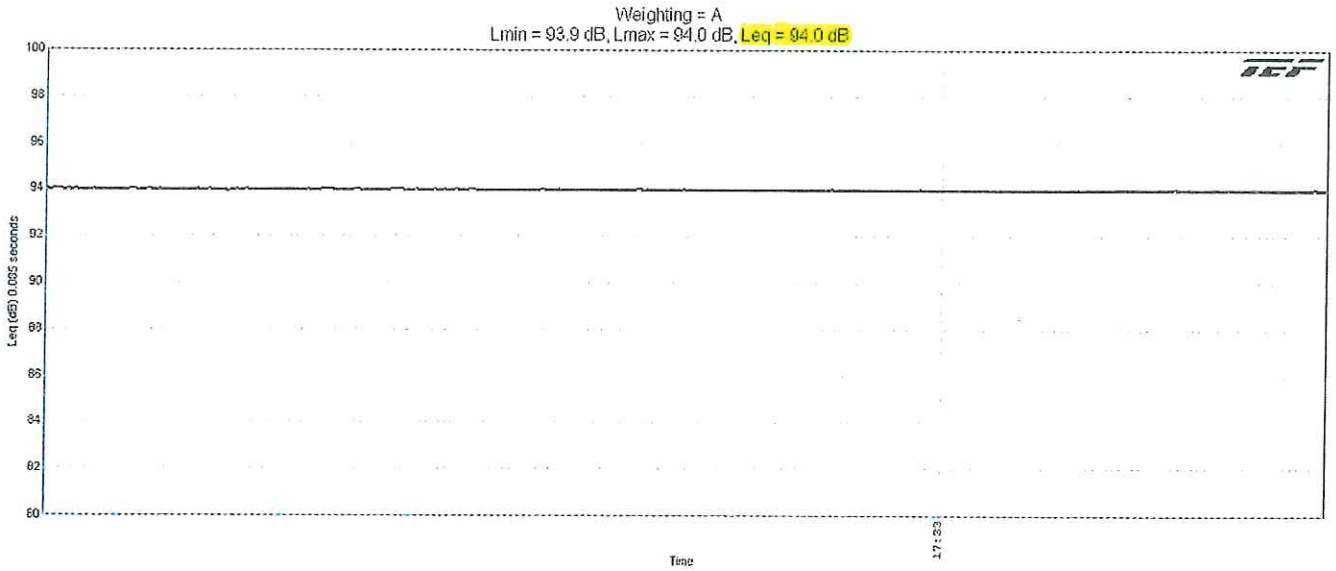
Identification of Measurement Locations



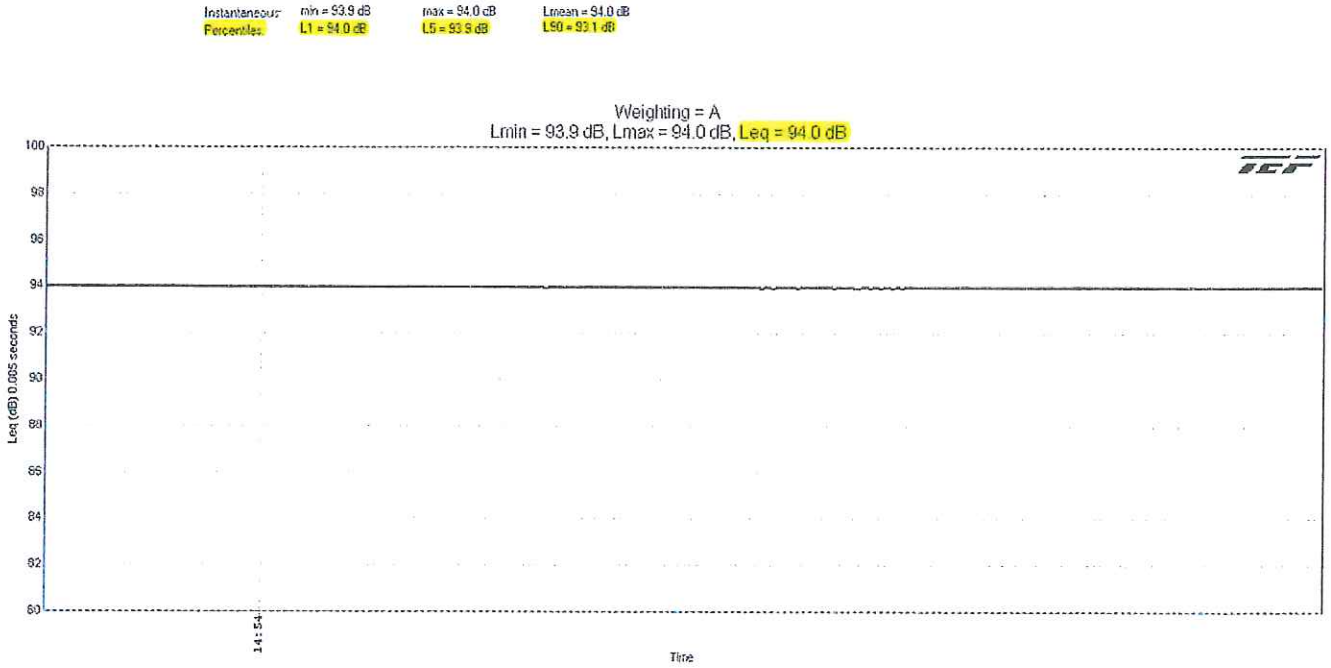
Palmer Trinity School - Sound Level Measurement Locations

Identification of Measurement Locations

Instantaneous: min = 93.9 dB max = 94.0 dB Lmean = 94.0 dB
Percentiles: L1 = 94.9 dB L5 = 94.6 dB L90 = 93.1 dB



Title	IE-35 calibration - 94 dB SPL @ 1 kHz
Name	Don Washburn, The Audio Bug, Inc.
Date	4/23/2010 5:33:50 PM
Location	Palmer Trinity School, Village of Palmetto Bay, FL
Description	Measurement system calibration, 94 dB SPL @ 1 kHz. 0.146391 V/Pa.

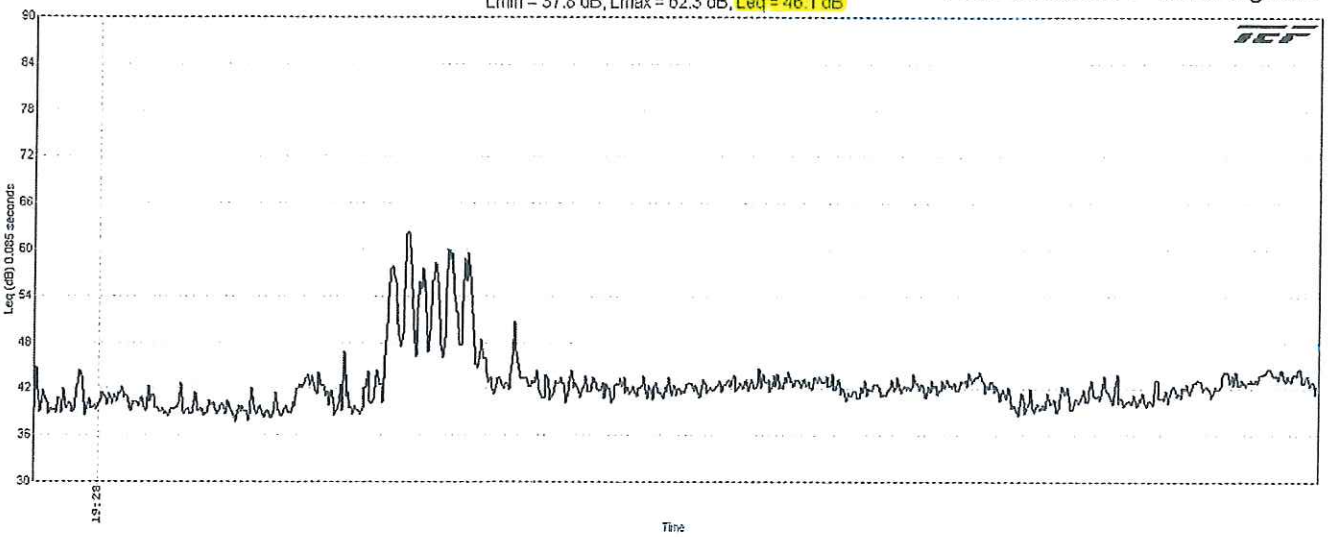


Title	Marantz Recordings Calibration - 94 dB SPL
Name	Don Washburn, The Audio Bug, Inc.
Date	4/23/2010 2:56:01 PM
Location	Palmer Trinity School, Village of Palmetto Bay, FL
Description	Measurement system calibration for post processing.

Instantaneous: min = 37.8 dB max = 62.3 dB Lmean = 42.5 dB
Percentile: L1 = 58.5 dB L5 = 50.3 dB L90 = 39.4 dB

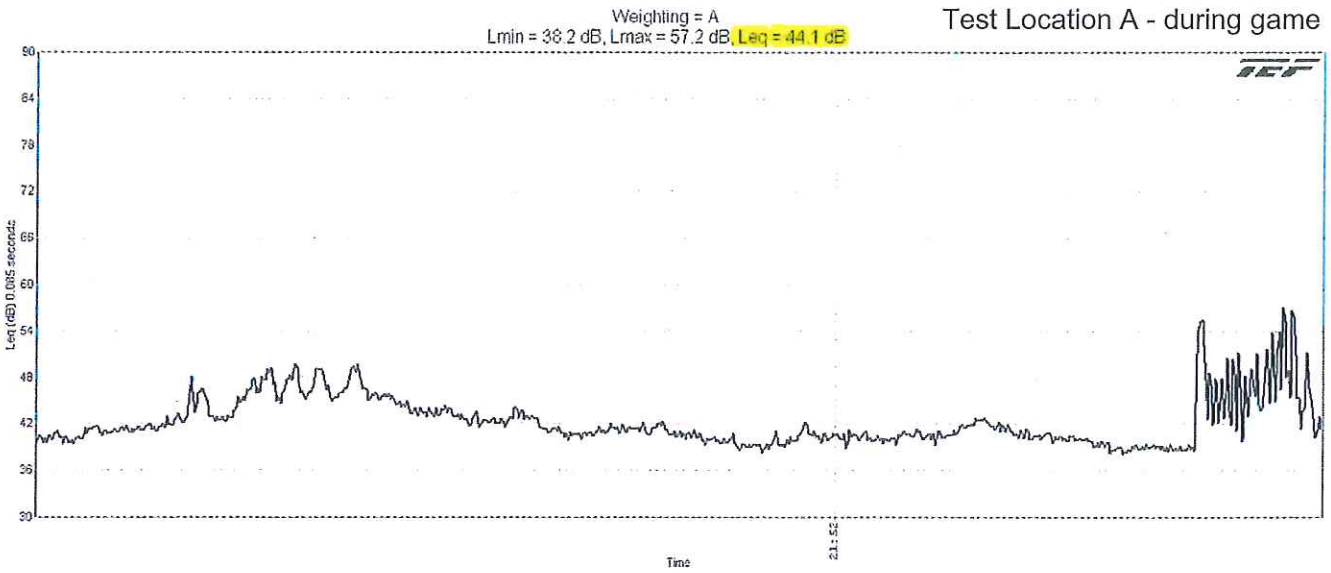
Weighting = A
Lmin = 37.8 dB, Lmax = 62.3 dB, Leq = 46.1 dB

Test Location A - before game



Title	1-minute LeqA at East end of 182nd St
Name	Don Washburn, The Audio Bug, Inc.
Date	4/23/2010 7:30:15 PM
Location	Palmer Trinity School, Village of Palmetto Bay, FL
Description	Neighborhood ambient noise level at 182nd St on West perimeter of 30 acre parcel.

Instantaneous: min = 38.2 dB max = 57.2 dB Lmean = 42.3 dB
Percentile: L1 = 54.5 dB L5 = 48.6 dB L90 = 39.3 dB



Title	182nd Street at School property line during game
Name	Don Washburn, The Audio Bug, Inc.
Date	4/23/2010 9:52:30 PM
Location	Palmer Trinity School, Village of Palmetto Bay, FL
Description	Measurement to determine whether game noise is audible at this location. It was not. Peacock noise at end.