

Memorandum



To: Council

cc:

From: Curtis Shelswell, Chief Municipal Law Enforcement Officer R.M. File #:

Date: January 13, 2016 Roll #:

Subject: 2015 Environmental Noise Measurements (Burl's Creek Music Festivals)

This Memorandum is provided for information only.

Jade Acoustics Inc. was retained by the Township to monitor the sound levels on and around the Burl's Creek Event Grounds prior to and during both the 2015 Wayhome and Boots and Hearts Festivals. For the period of July 15th through till August 10th Jade Acoustics set up 2 unattended measurement tools, one on the front lawn of the Administration Building and another at 273 Line 8 South. The two units ran 24 hours a day providing both the ambient (background) noise and noise levels during both festivals. During the two festivals two unattended machines were set up at identified reception points on the south boundaries of the 241 Line 7 South and two unattended machines were set-up at the soundboard (front of house) in front of the two main stages. During each event the engineer along with a staff member conducted both on site and off site measurements with a hand held monitor. This provided the engineers with a large amount of data to help understand both the ambient noise and the noise associated with the festivals.

Jade encountered issues with the machine at the second stage during Wayhome and at a reception point on the north boundary of 97 Line 7 South.

During Wayhome, sound levels measured at the front of house of the main stage were up to 108 dba with a typical concert level of approximately 103 dba, 100 dba was the agreed upon level for the main stage. For Boots and Hearts the level reached as high as 104 dba with a typical concert level of 99 dba, again the level was set at 100 dba. The levels during the dance party at Boots and Hearts exceeded the set limit of 85 dba each night for almost the entire event

As part of the Memorandum of Understanding between the Township and Burl's Creek, Burl's Creek is responsible for all cost associated with the monitoring and analysis conducted by Jade Acoustics. .

If there are any questions associated with the report please contact the undersigned.

Respectfully submitted:

Curtis Shelswell
Chief Municipal Law Enforcement Officer

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Acoustics
Inc.

Consulting
Engineers

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ENVIRONMENTAL NOISE MEASUREMENTS

**BURL'S CREEK MUSIC FESTIVALS
TOWNSHIP OF ORO-MEDONTE**



Prepared for
Township of Oro-Medonte

December 16, 2015

File: 15-059

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SUMMARY

Jade Acoustics Inc. was retained to monitor the sound levels on and around the Burl's Creek Event Grounds (BCEG) caused by activities on the stages during two festivals to determine if unattended measurements near surrounding noise sensitive receptors could be used to assess compliance. Additional sound measurements were conducted to determine typical sound levels in the area. A portion of the measurement results were provided to Oro-Medonte Municipal Law Enforcement officers as they were collected.

The sound level measurements at the front of house locations are the most representative of sound produced by activities on the stages. Front of house sound levels for WayHome were up to 108 dBA with a typical level of 103 dBA. For Boots & Hearts, front of house sound levels of up to 104 dBA with a typical level of slightly less than 100 dBA were measured.

During dance parties that took place during the Boots & Hearts Festival, typical sound levels were 85 to 90 dBA at the front of house (soundboard) at Stage 2 (Front Porch). The sound level limits as outlined in the agreement between Oro-Medonte and Burl's Creek were exceeded the majority of the time.

The sound level measurements conducted outside of BCEG were influenced by noises such as vehicles, insects and campers. Based on the analysis of the measurement results included in Appendices A and B, it is recommended that the front of house sound levels be used to assess compliance and not the unattended measurements.

1.0 **EVENTS**

Two festival style concert events were held at BCEG during the summer of 2015. See Figure 1 for a key plan. The first, WayHome, was an alternative music festival which took place from July 24, 2015 to July 26, 2015 with four stages. The second was Boots & Hearts, a country music festival which took place from August 6, 2015 to August 9, 2015 with two stages. The schedules for each festival have been included in Appendix C.

Each festival had a substantial number of camping sites located around the BCEG. See Figure 2 for a site plan. Attendees began arriving the day before each festival and left by the day following each festival.

In addition to the current stages, activities, including the playing of music, took place at the camp sites before, during and after the scheduled concerts. Boots & Hearts also held dance parties with music on the second stage each night after the concerts.

2.0 **MEASUREMENTS**

2.1 **Equipment**

All sound level meters used were Type 1 meters with appropriate windscreens. All were calibrated before and after the measurements and found to be within the acceptable range.

2.2 **Weather**

The weather during both festivals was favourable for measurements. The weather between festivals had some unfavourable conditions such as precipitation and high winds. A log of the hourly weather has been included in Appendix D.

2.3 **Unattended Measurements**

Appendix A contains measurement data which was used in the analysis of sound from the stages at BCEG. Appendix B contains measurement data from locations where correlating the measured sound levels to events on the stages was not practical.

2.3.1 Long Term

Sound level meters were setup at the Oro-Medonte office and at a residence on the 8th Line from July 15, 2015 until August 10, 2015. These meters were collecting data throughout this entire period other than during periodic calibration checks. The data from these meters are presented on Figures A-1 and A-2 for the Oro-Medonte office and 8th Line, respectively. For clarity, the times associated with the WayHome and Boots & Hearts festivals have been coloured to allow easy identification. As can be seen from the figures, the maximum sound levels during festivals are similar to sound levels between festivals and the minimum sound levels are substantially elevated during festivals.

2.3.2 Short Term

During each festival additional sound level meters were setup within BCEG and around its perimeter. The results of these measurements can be seen in Figures A-3 and B-1 to B-3 for WayHome and Figures A-5 to A-10 and B-4 to B-7 for Boots & Hearts.

Sound levels measured at front of house on a typical festival day (Saturday July 25, 2015) are shown on Figure A-4. Individual concerts can be clearly seen in the data.

2.4 Attended Measurements

During each festival, attended measurements were conducted on and around the Burl's Creek Event Grounds. These measurements helped to identify the dominant noise sources at the unattended measurement locations as well as to investigate additional locations. Oro-Medonte municipal law enforcement officers provided the addresses of the location of noise complaints. Many of these locations were used as attended measurement locations. See Figure 1 for areas outside of BCEG where measurements were conducted. During each festival, Jade Acoustics Inc. staff conducted attended measurements for a minimum of six hours per day.

Although the measured sound levels at most locations was affected or in some cases dominated by road traffic noise and/or insects, music playing at BCEG was audible at all measurement locations. At distant measurement locations (greater than 2.5 km), depending on weather conditions and ambient sound levels, only occasionally were there times where activities at BCEG were not audible.

3.0 SOUND LEVEL LIMITS

Oro-Medonte and the proponent of the music festivals entered into agreements which outlined the applicable sound level limits for each festival. Excerpts from these agreements are included in Appendix E. The agreements outline sound level limits that vary by date and time of day. For clarity, only the highest sound level limits have been placed on Figures A-1, A-2, A-5, A-6 and B-1 to B-7 as red lines. For the dance parties, the varying sound level limits in the agreements are shown on Figures A-7 to A-10 as red lines.

As no time period or descriptive parameter (e.g. average, maximum, etc.) to be used for the sound measurements was specified in the agreements, the energy equivalent one minute (Leq 1 minute) sound level was compared to the sound level limits. This metric is representative of the sound produced by the music and is not unduly influenced by short-term events, such as yelling.

As stationary noise sources are typically evaluated using a one hour energy average (Leq1hour), Figure A-11 was prepared using this metric. Due to the nature of concert noise (high sound levels followed by periods of low sound levels) and difficulty for BCEG staff to use Leq1hour to control sound levels during a festival, as noted above, Leq1minute was used in this report as the metric for compliance assessment.

4.0 RESULTS AND CONCLUSIONS

Concerts at BCEG were audible over 8 km away. Therefore, audibility is not a reasonable metric to be used for assessing compliance as the concerts would not be able to meet this standard.

With unattended measurements, exceedances cannot be definitively attributed to concert activities at BCEG. As can be seen on Figures A-1 and A-2 many times the sound level limits chosen were exceeded even when no festival was occurring at BCEG. Due to the distances involved, the effect of atmospheric conditions on the sound levels and the background sound level caused by other activities not related to the concert activities, it is recommended that off-site locations not be used to assess sound level compliance of the activities at BCEG.

As the sound levels at front of house (sound board) locations were dominated by music and external noise sources (such as road traffic) were acoustically insignificant during concerts, it is recommended that these locations be used to set a sound level to be used to assess compliance.

During WayHome, sound levels measured at the front of house of the main stage were up to 108 dBA with a typical concert level of approximately 103 dBA. The sound levels at the same location during Boots & Hearts were up to 104 dBA with a typical concert level of approximately 99 dBA.

Boots & Hearts had a dance party each evening on the second stage (Front Porch). This portion of the festival substantially exceeded the sound level limits every day. In fact, there were very few occasions where the sound levels during the dance party did not exceed the sound level limits.

Based on the extensive measurements conducted both within the BCEG facility as well as throughout the surrounding neighbourhoods, it is recommended that the sound level compliance be assessed by setting a maximum sound level to be achieved at the sound boards of the concerts as well as the dance parties. This will result in variability off-site due to other factors as described above; however, it will allow for compliance to be easily assessed.

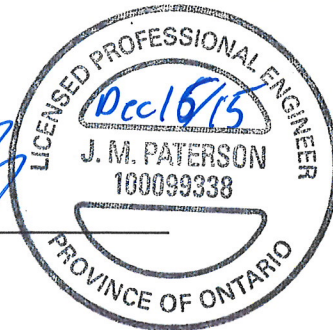
It is further recommended that the data collected during these measurements be used to create a protocol to be used for future concerts at the Burl's Creek Event Grounds.

Respectfully submitted,

JADE ACOUSTICS INC.

Per:


Jamie Paterson, P.Eng.



Per:

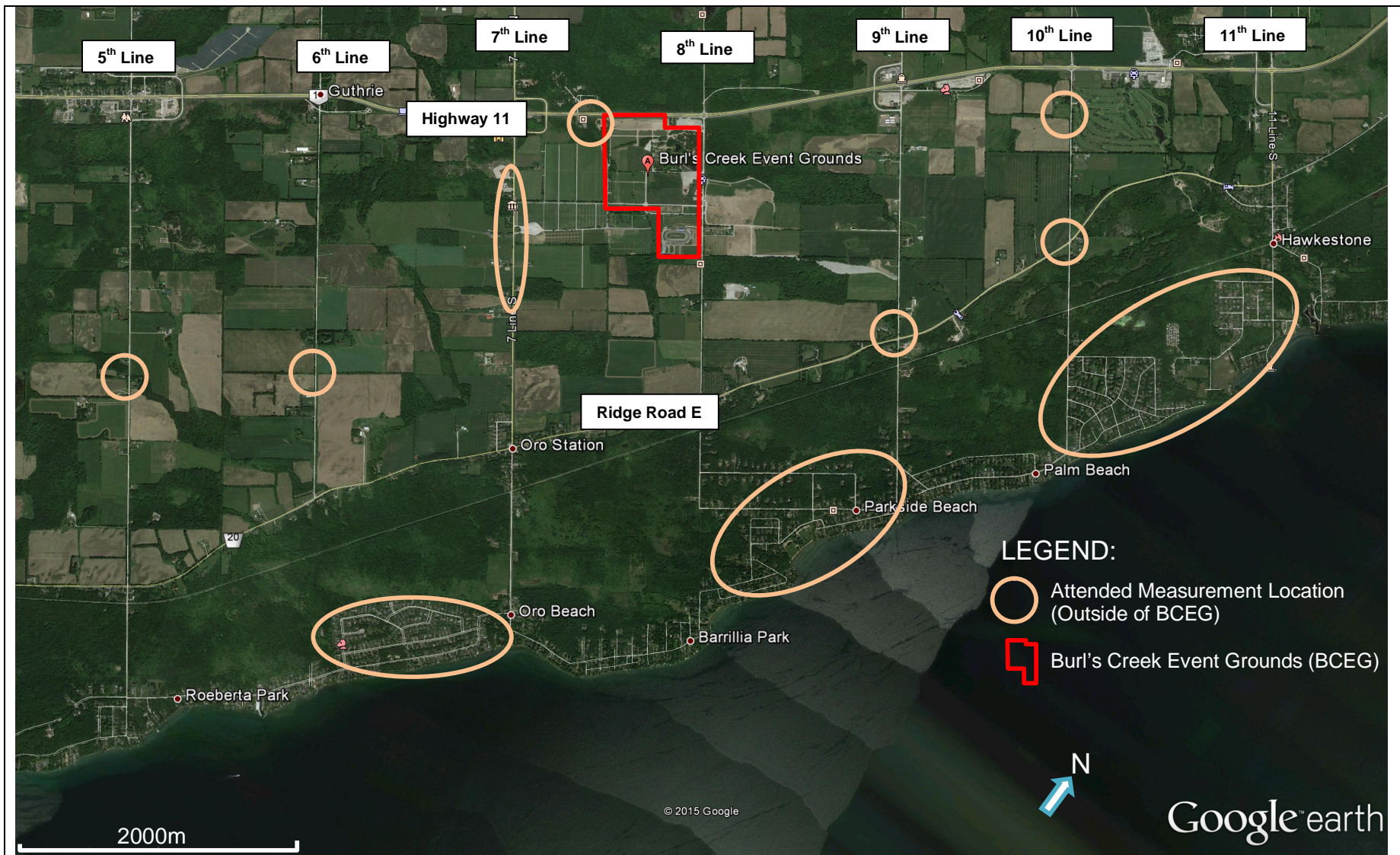

Dalila C. Giusti, P.Eng.



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5.0 REFERENCES

1. “Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning”, Ontario Ministry of the Environment, Publication NPC-300, August, 2013, released October 21, 2013 (updated final version # 22).
2. “Model Municipal Noise Control By-Law”, Final Report, by the Ontario Ministry of the Environment, August, 1978.
3. Publication NPC-101 – Technical Definitions (part of Reference), Ontario Ministry of the Environment.



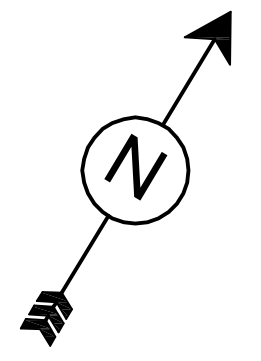
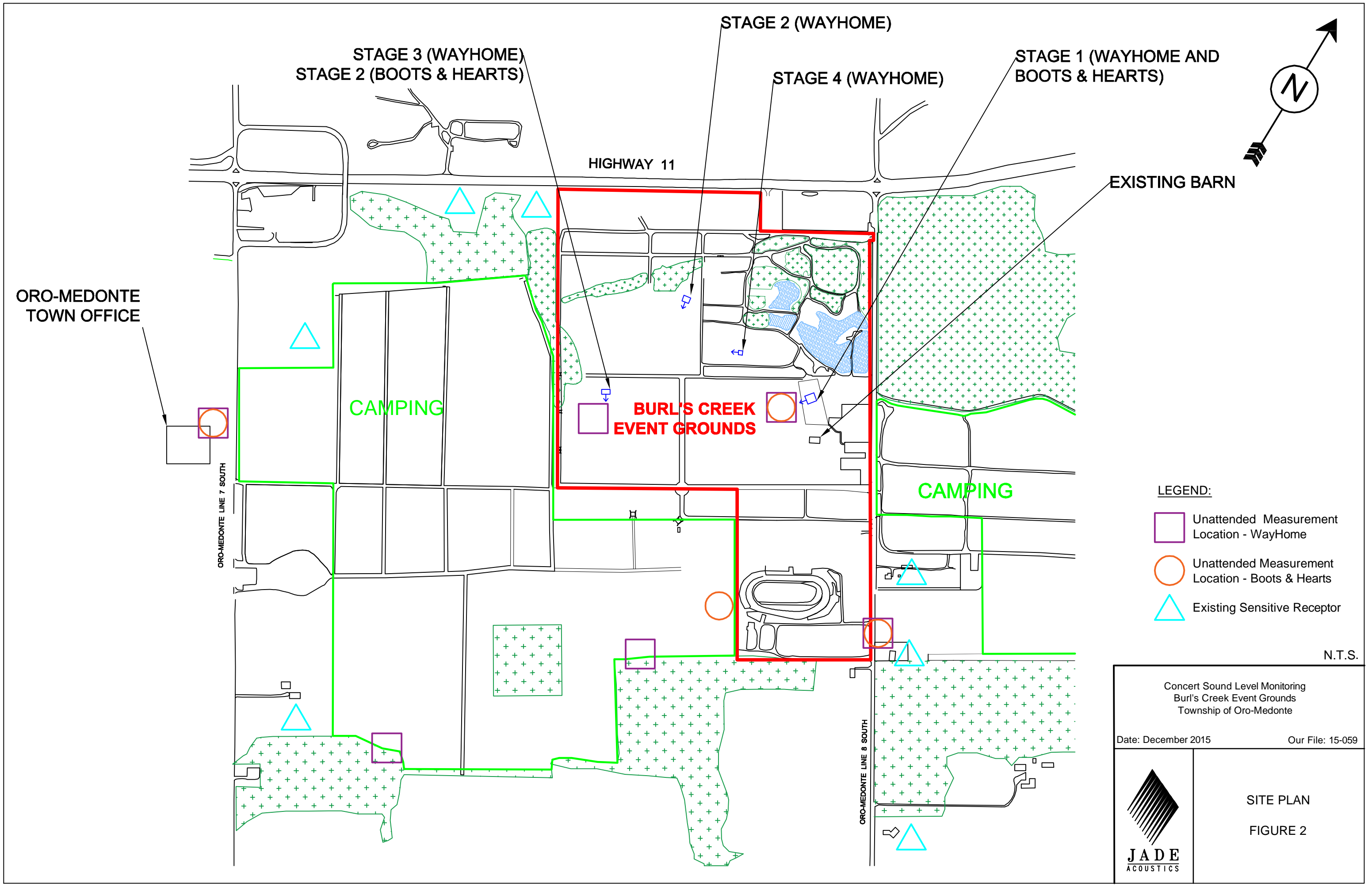
**Concert Sound Level Monitoring
Burl's Creek Event Grounds
Township of Oro-Medonte**

Date: December 2015 File: 15-059

KEY PLAN


FIGURE 1





- LEGEND:**
- Unattended Measurement Location - WayHome
 - Unattended Measurement Location - Boots & Hearts
 - Existing Sensitive Receptor

N.T.S.

Concert Sound Level Monitoring Burl's Creek Event Grounds Township of Oro-Medonte	
Date: December 2015	Our File: 15-059
 J A D E ACOUSTICS	SITE PLAN FIGURE 2

APPENDIX A

SOUND LEVEL MEASUREMENTS USED FOR ANALYSIS

FIGURE A-1
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE

ORO-MEDONTE OFFICE LONG-TERM SOUND LEVELS

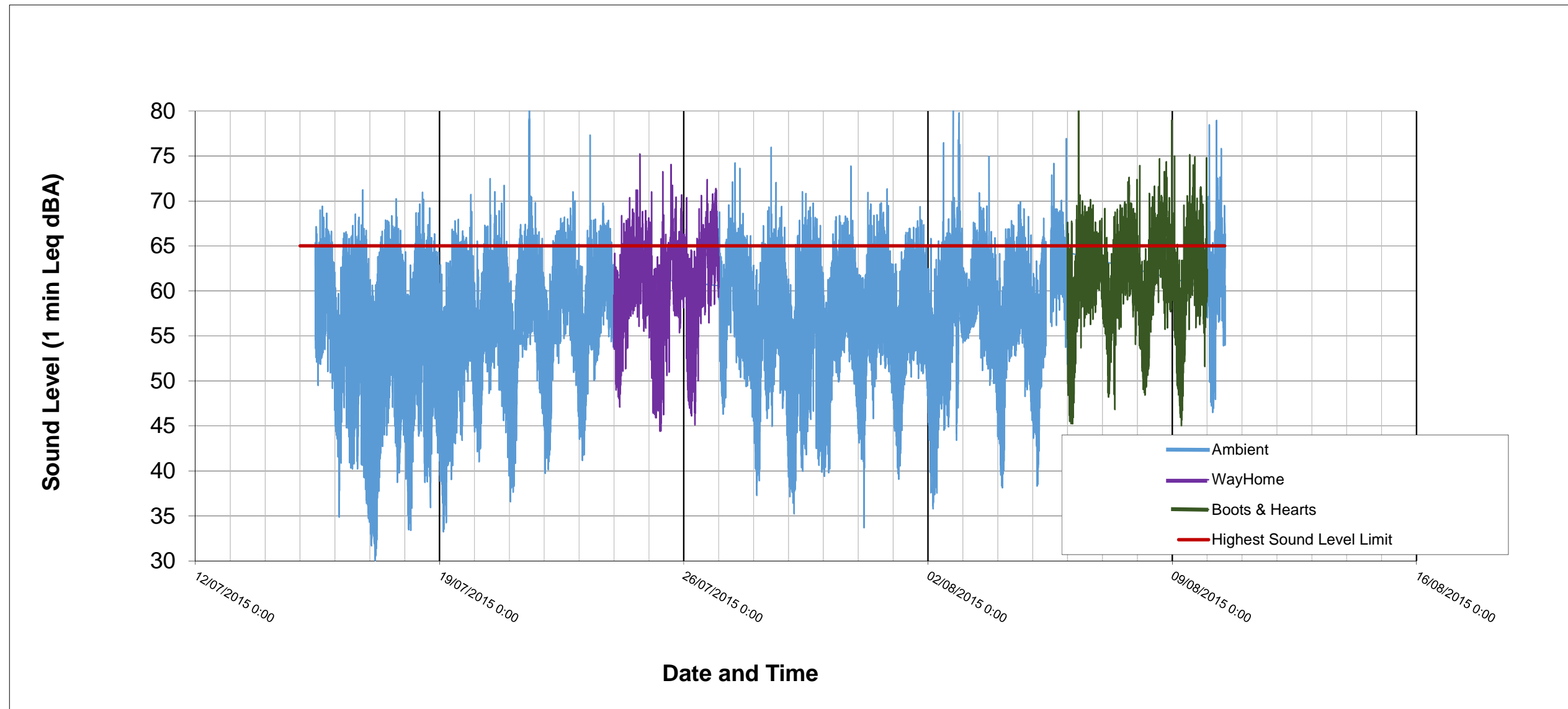


FIGURE A-2
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE
8TH LINE LONG-TERM SOUND LEVELS

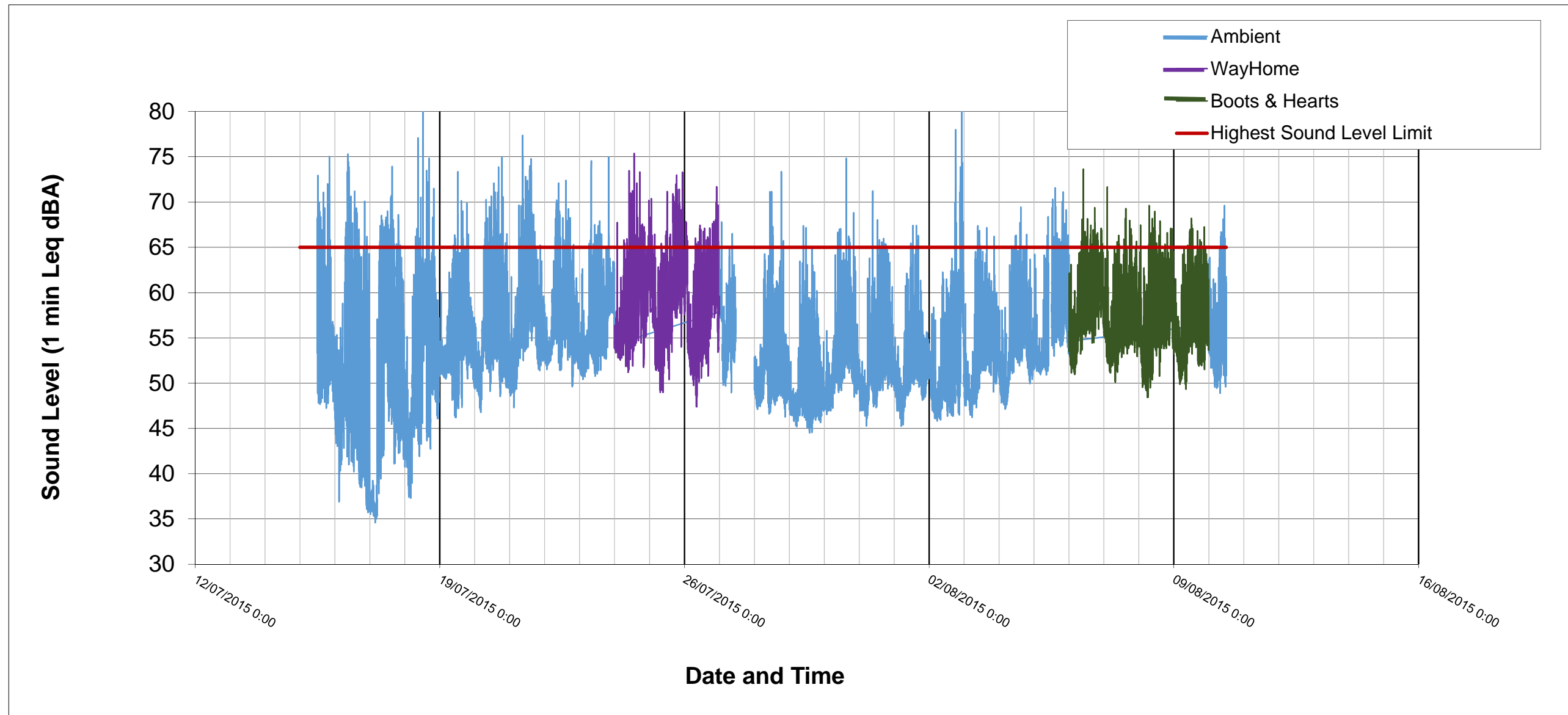


FIGURE A-3
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE

WAYHOME – MAIN STAGE FRONT OF HOUSE SOUND LEVELS

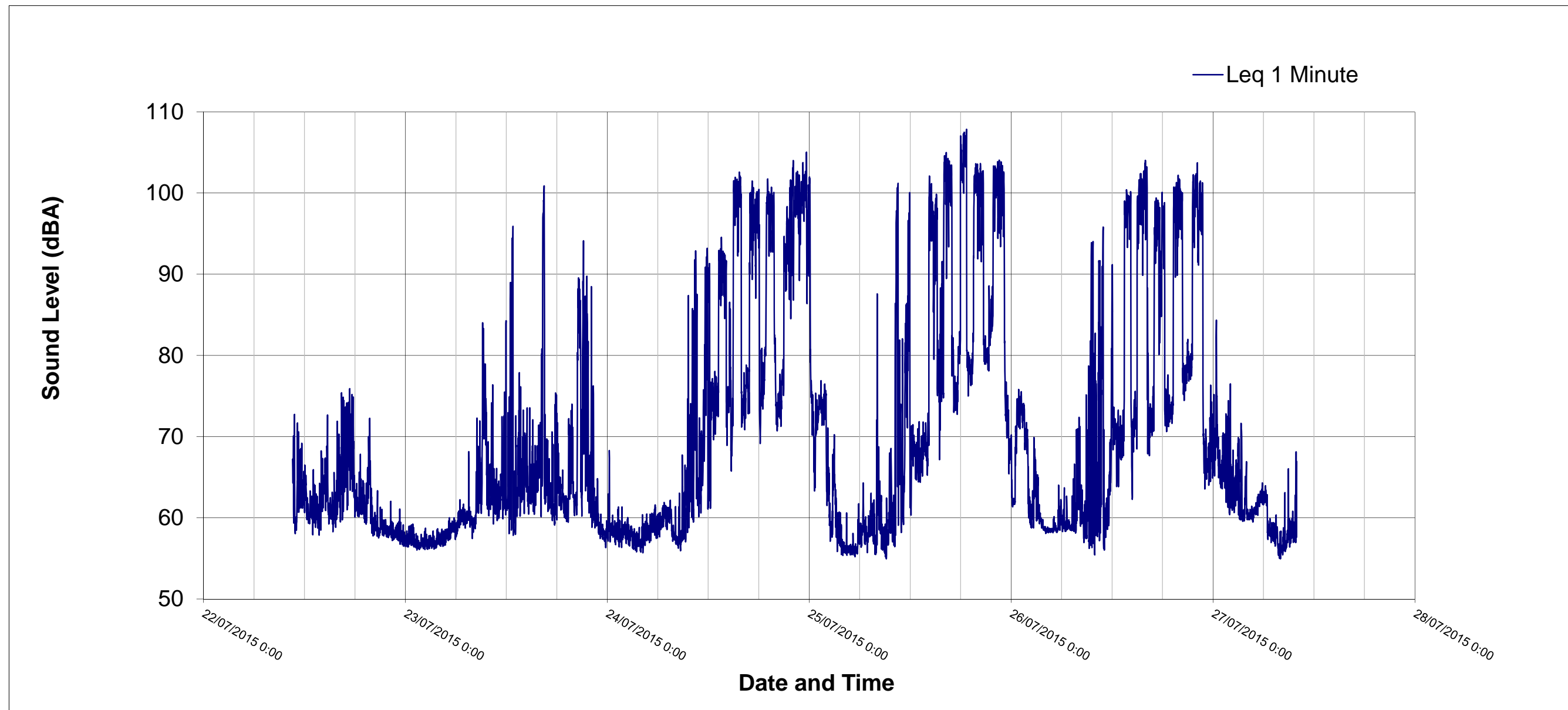


FIGURE A-4
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE

WAYHOME – MAIN STAGE FRONT OF HOUSE SATURDAY JULY 25, 2015 (TYPICAL DAY)

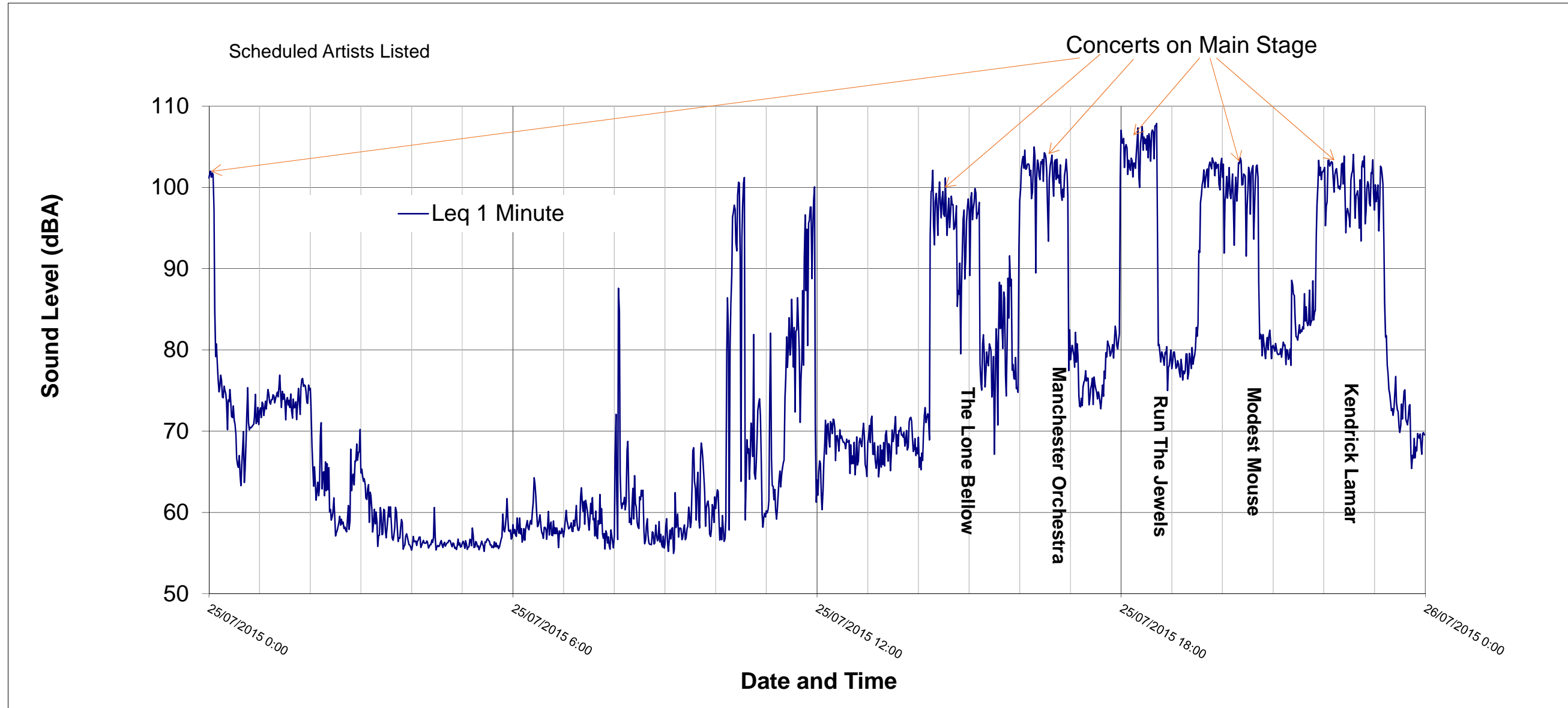


FIGURE A-5
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE

BOOTS & HEARTS – MAIN STAGE FRONT OF HOUSE SOUND LEVELS

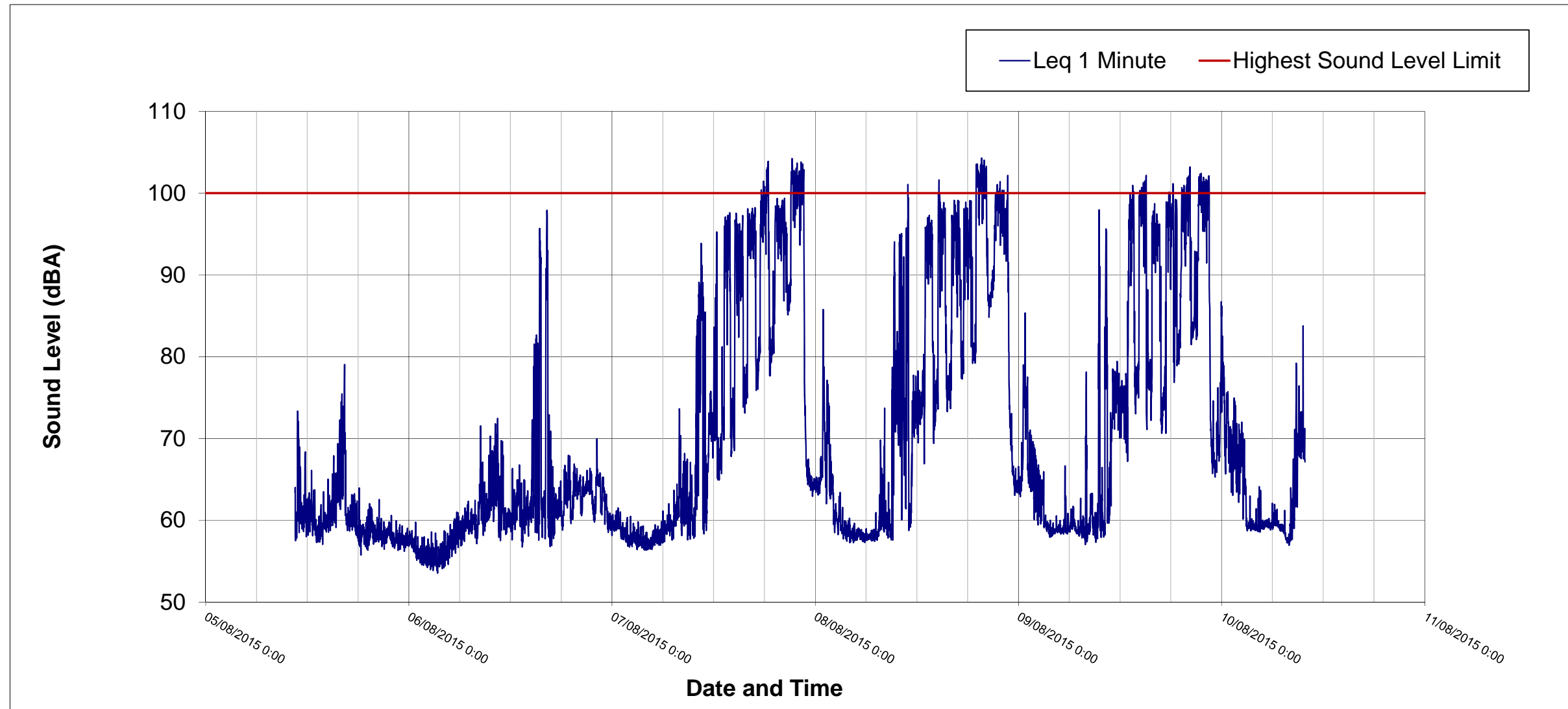


FIGURE A-6
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE

BOOTS & HEARTS – SECOND STAGE FRONT OF HOUSE SOUND LEVELS

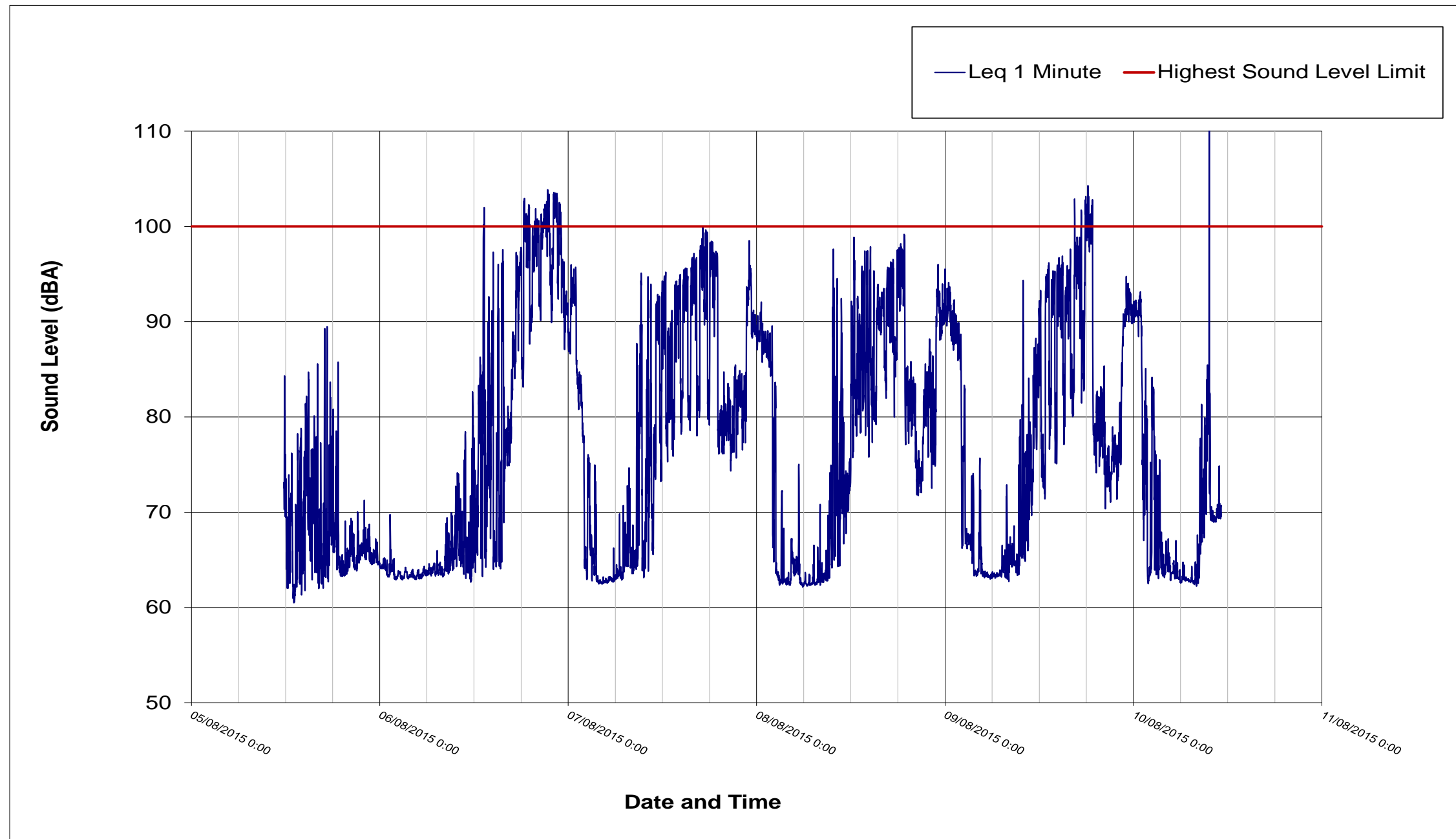


FIGURE A-7
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE

BOOTS & HEARTS – DANCE PARTY AUGUST 6, 2015 SOUND LEVELS

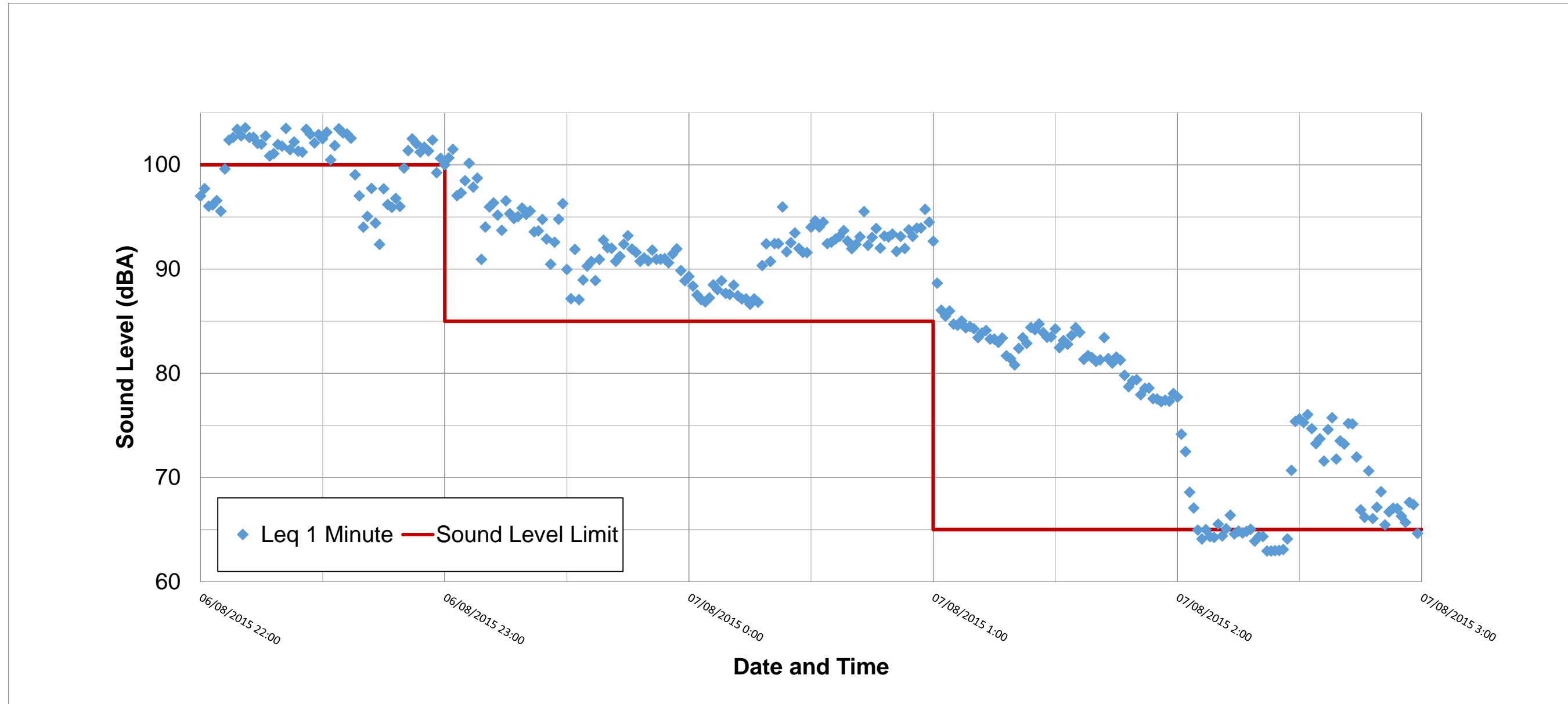


FIGURE A-8
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE

BOOTS & HEARTS – DANCE PARTY AUGUST 7, 2015 SOUND LEVELS

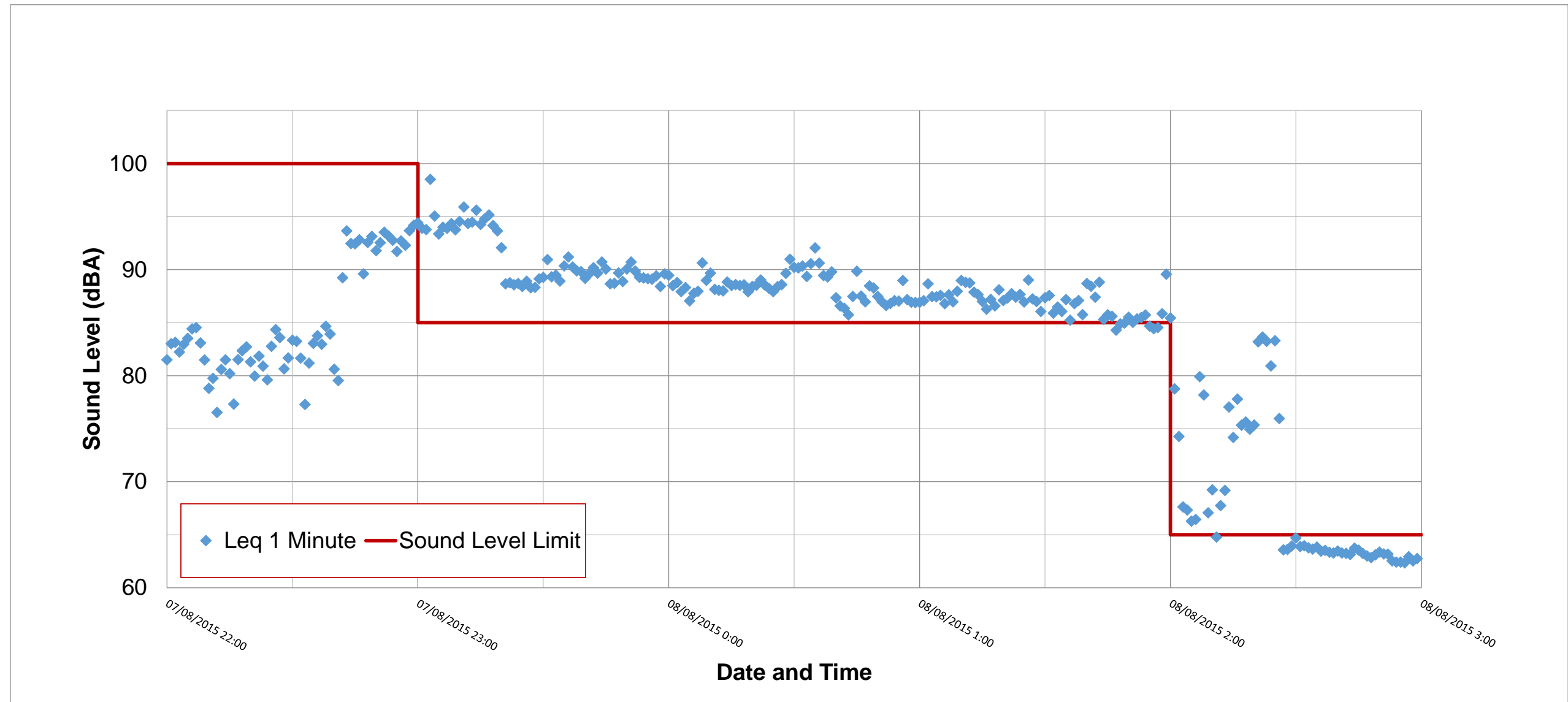


FIGURE A-9
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE

BOOTS & HEARTS – DANCE PARTY AUGUST 8, 2015 SOUND LEVELS

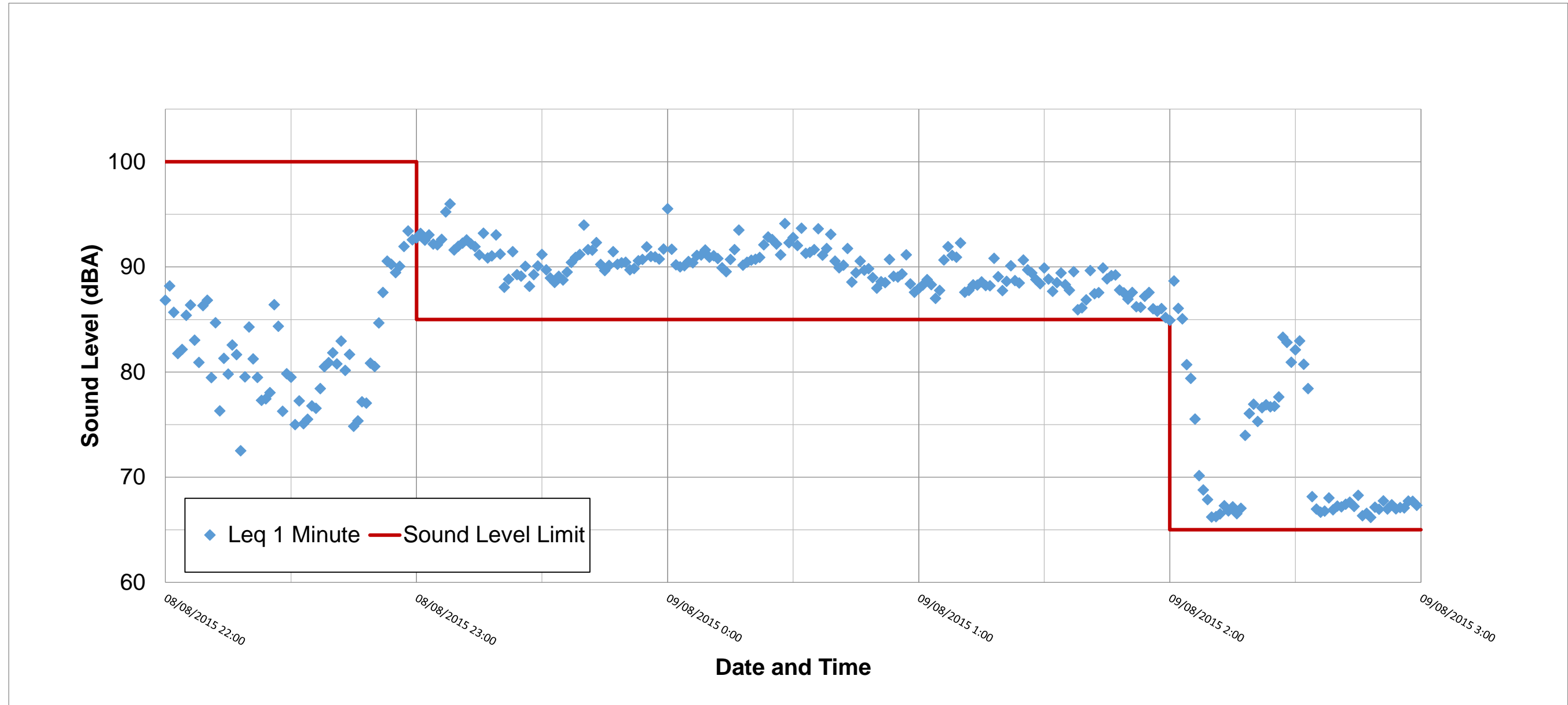


FIGURE A-10
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE

BOOTS & HEARTS – DANCE PARTY AUGUST 9, 2015 SOUND LEVELS

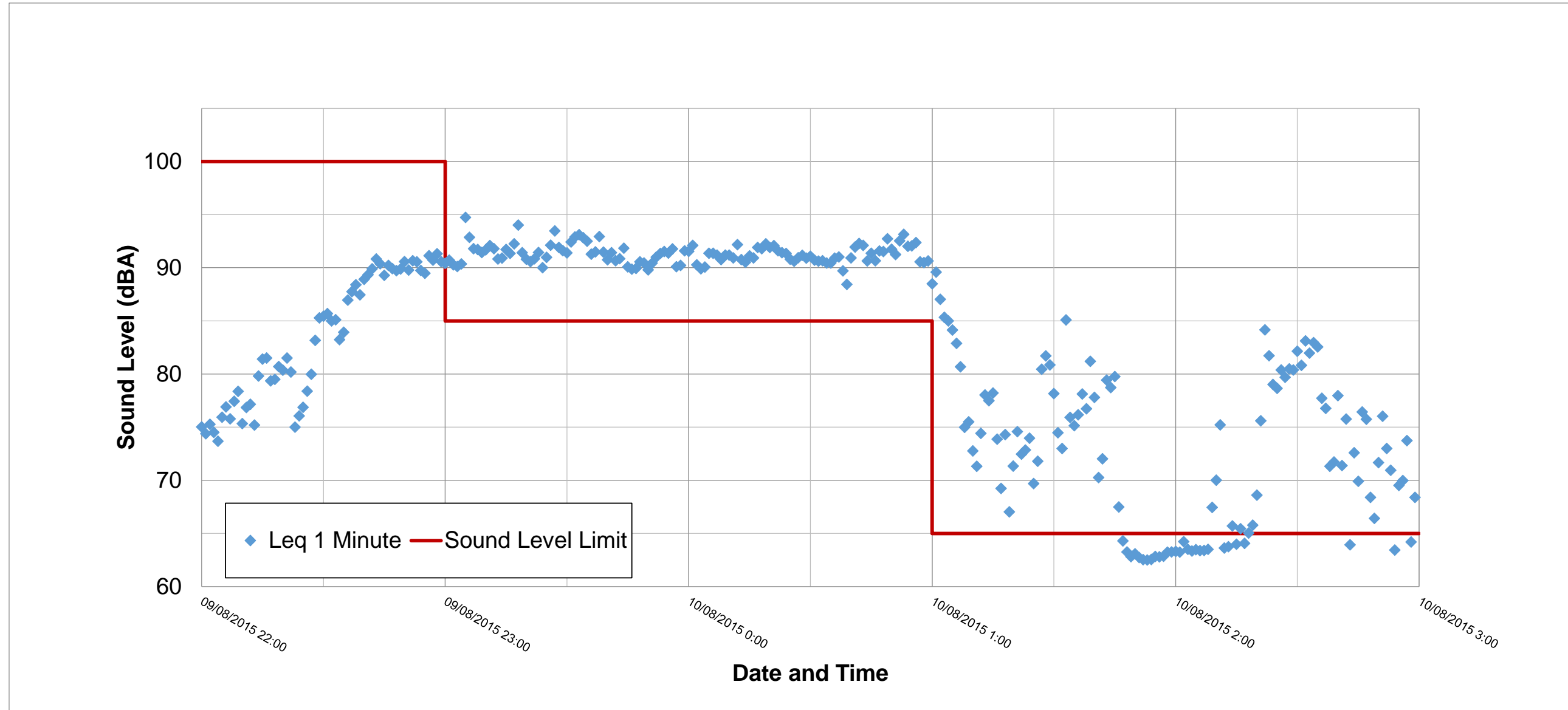
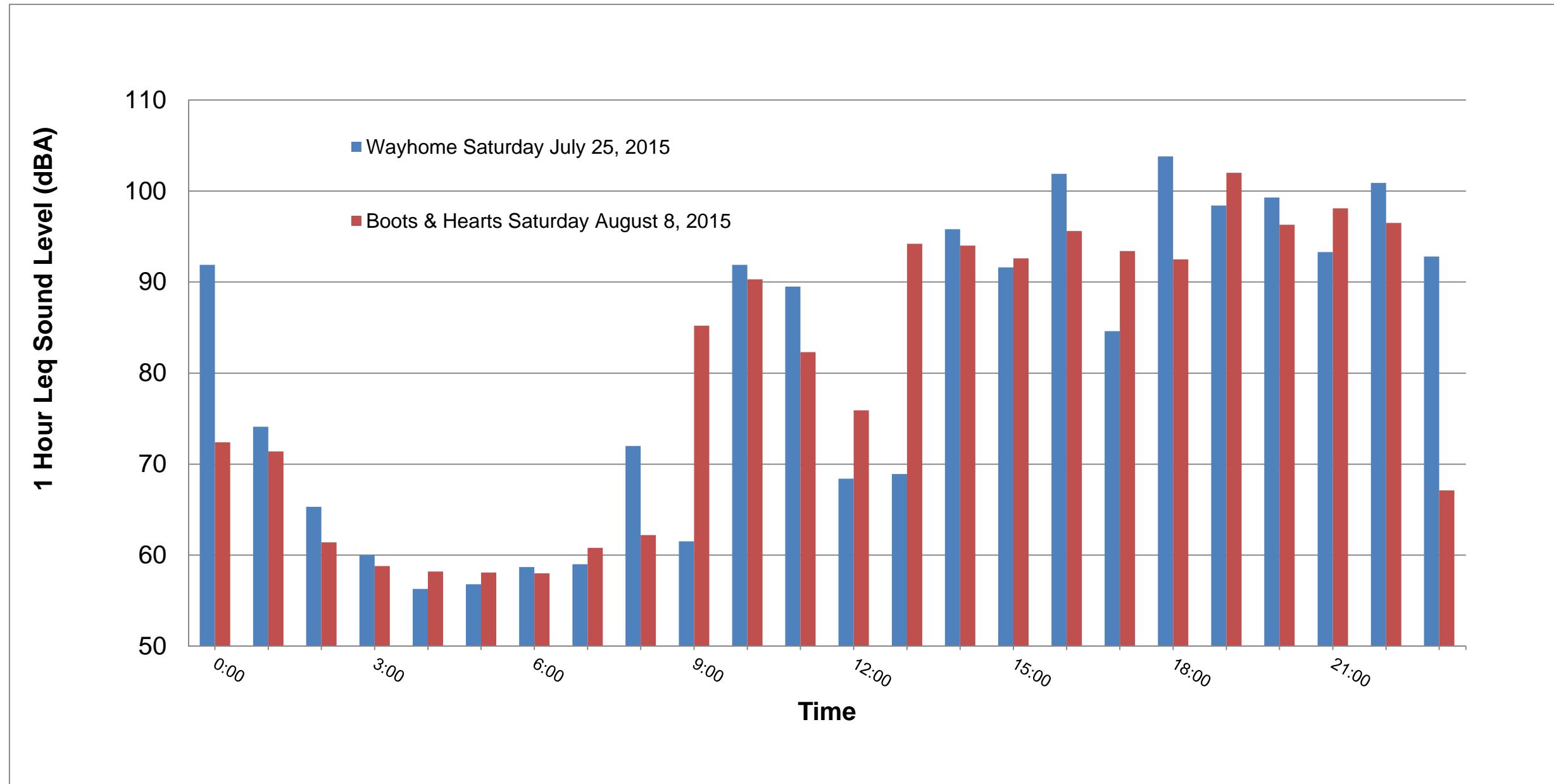


FIGURE A-11
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE

MAIN STAGE FRONT OF HOUSE 1 HOUR LEQ
SOUND LEVELS JULY 25, 2015 AND AUGUST 8, 2015



APPENDIX B

OTHER SOUND MEASUREMENTS

FIGURE B-1
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE

WAYHOME – ORO-MEDONTE OFFICE SOUND LEVELS

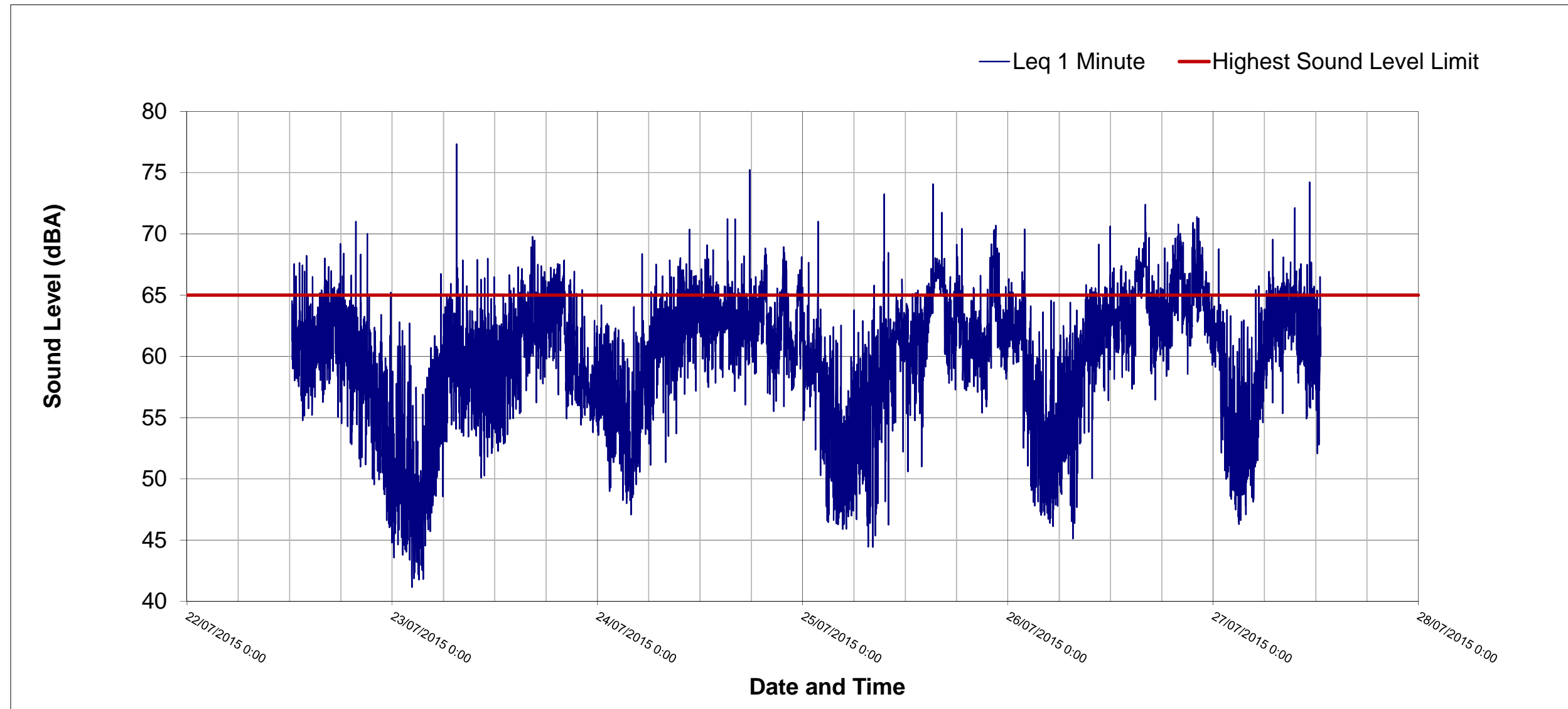


FIGURE B-2
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE
WAYHOME – 8TH LINE SOUND LEVELS

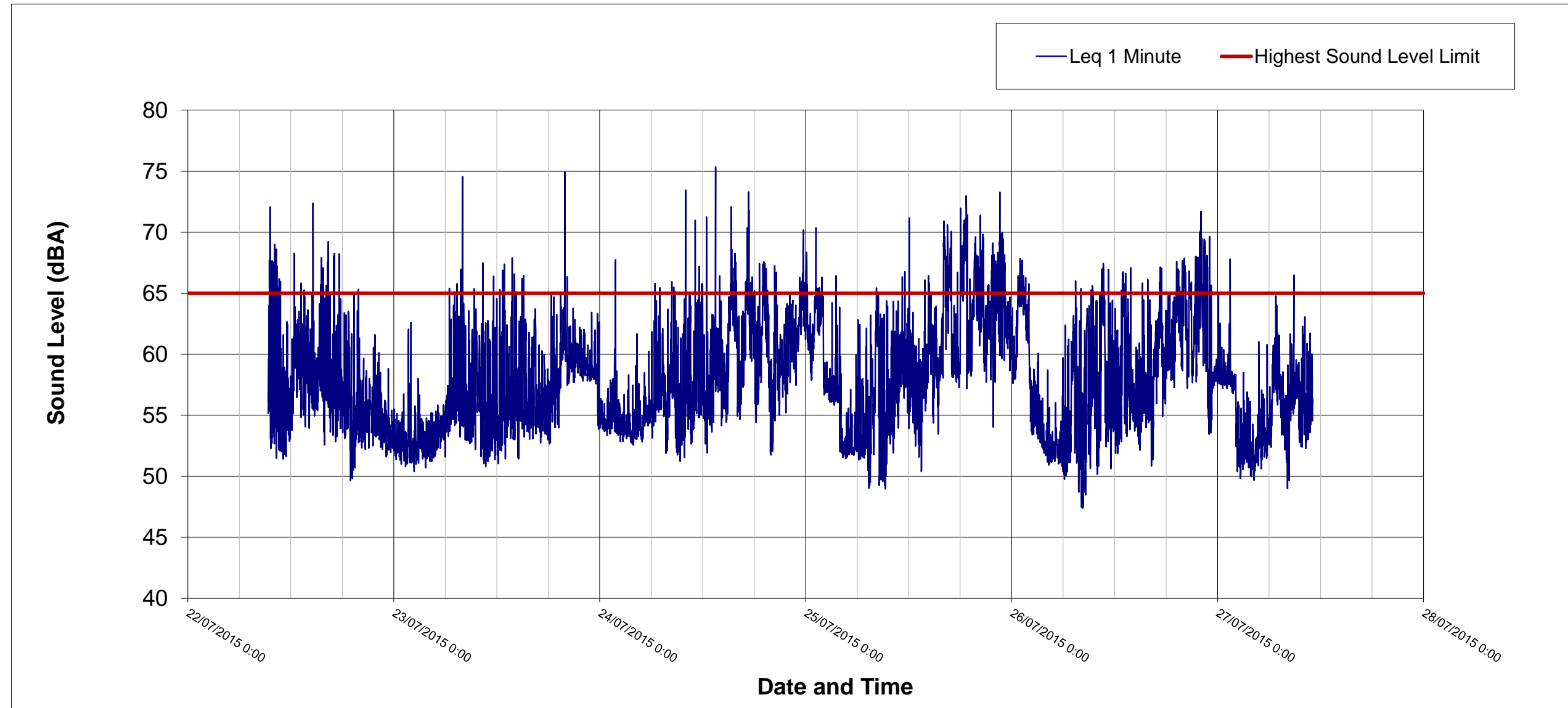


FIGURE B-3
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE

WAYHOME – BCEG SOUTH PROPERTY LINE SOUND LEVELS

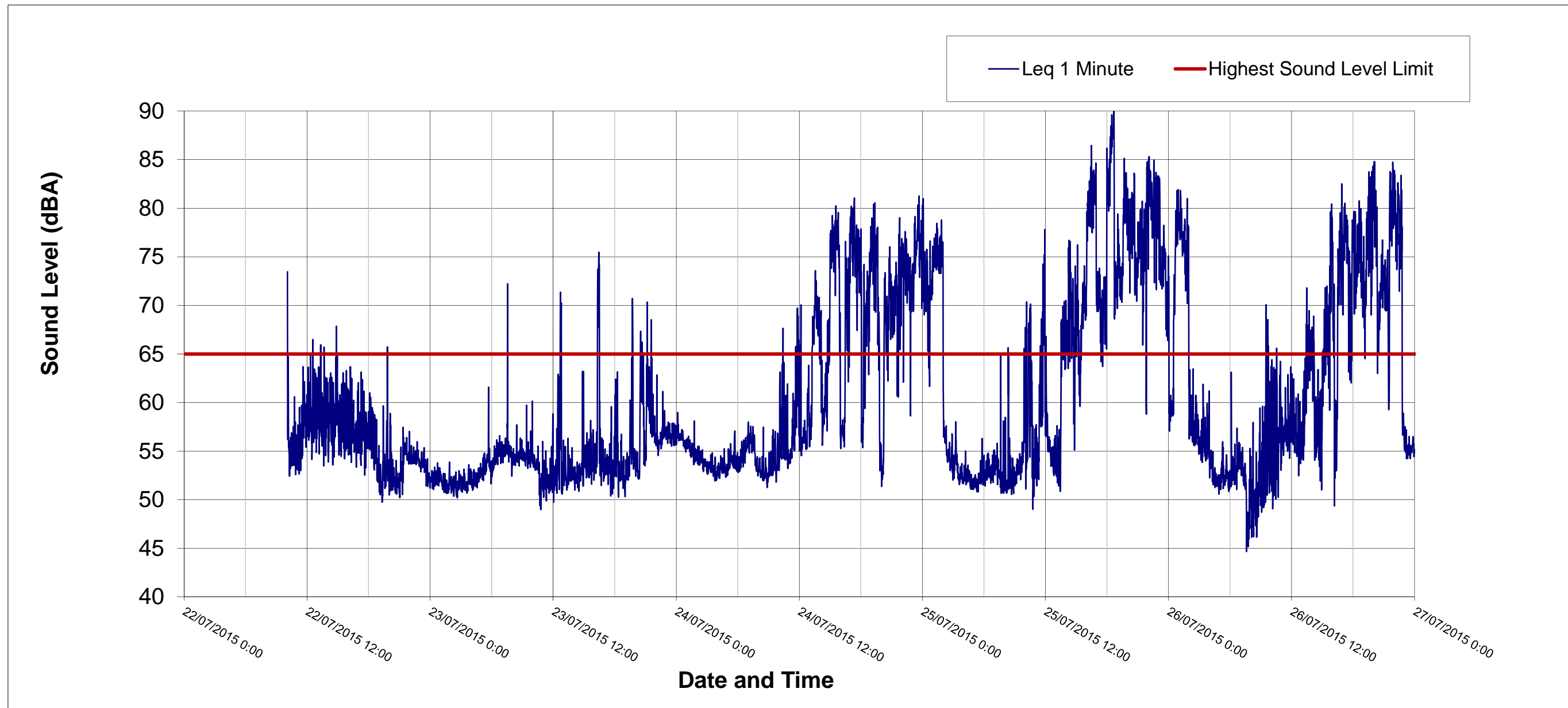


FIGURE B-4
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE

BOOTS & HEARTS – ORO-MEDONTE OFFICE SOUND LEVELS

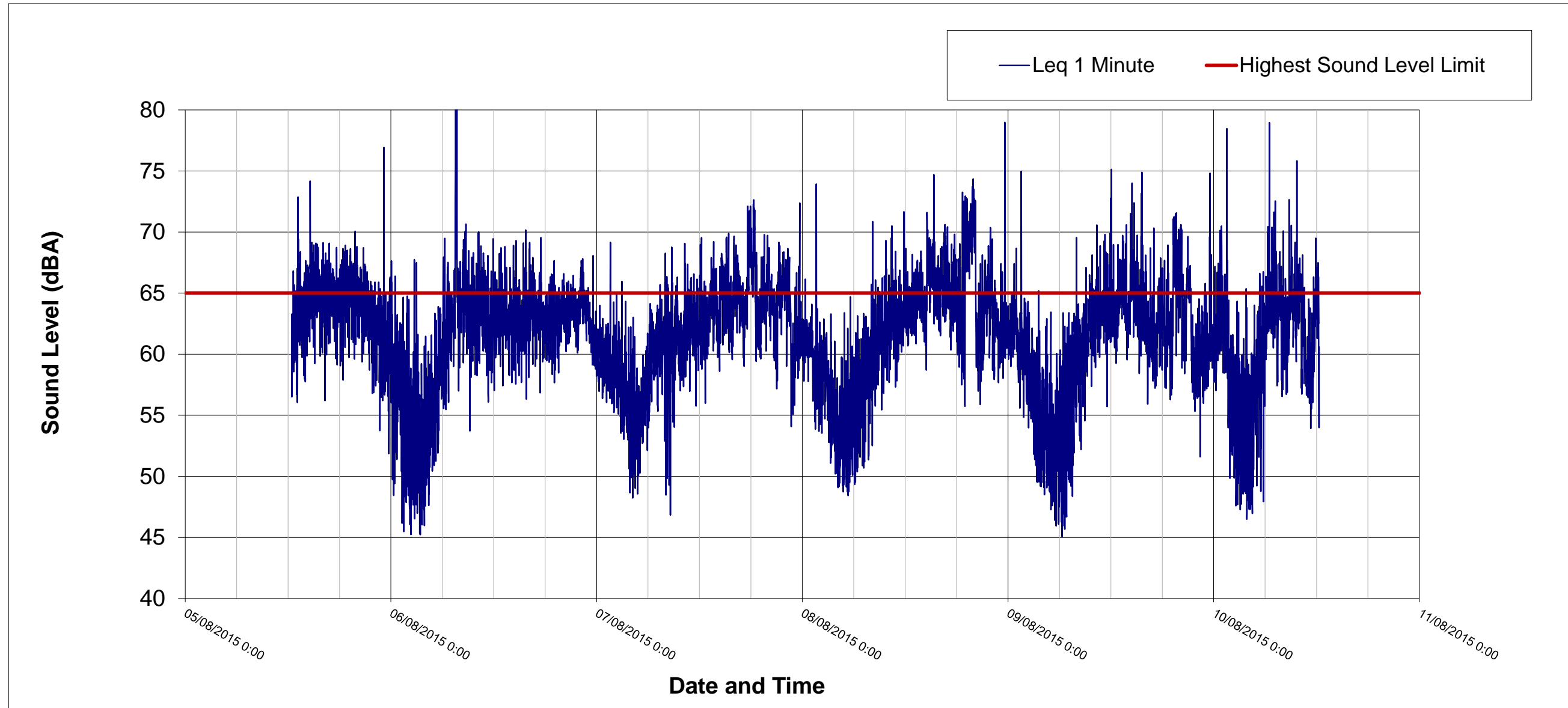


FIGURE B-5
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE

BOOTS & HEARTS – 8TH LINE SOUND LEVELS

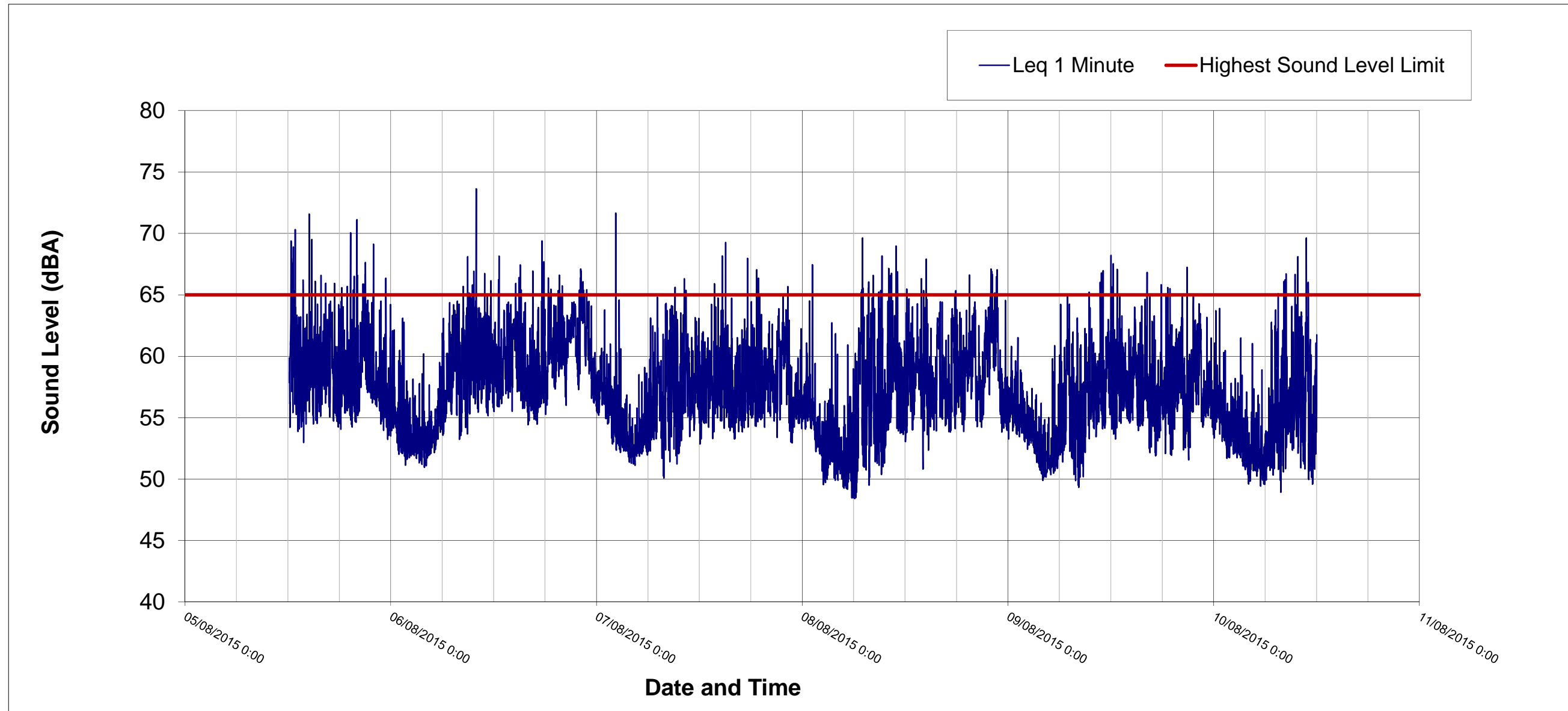


FIGURE B-6
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE

BOOTS & HEARTS – BCEG SOUTH PROPERTY LINE SOUND LEVELS

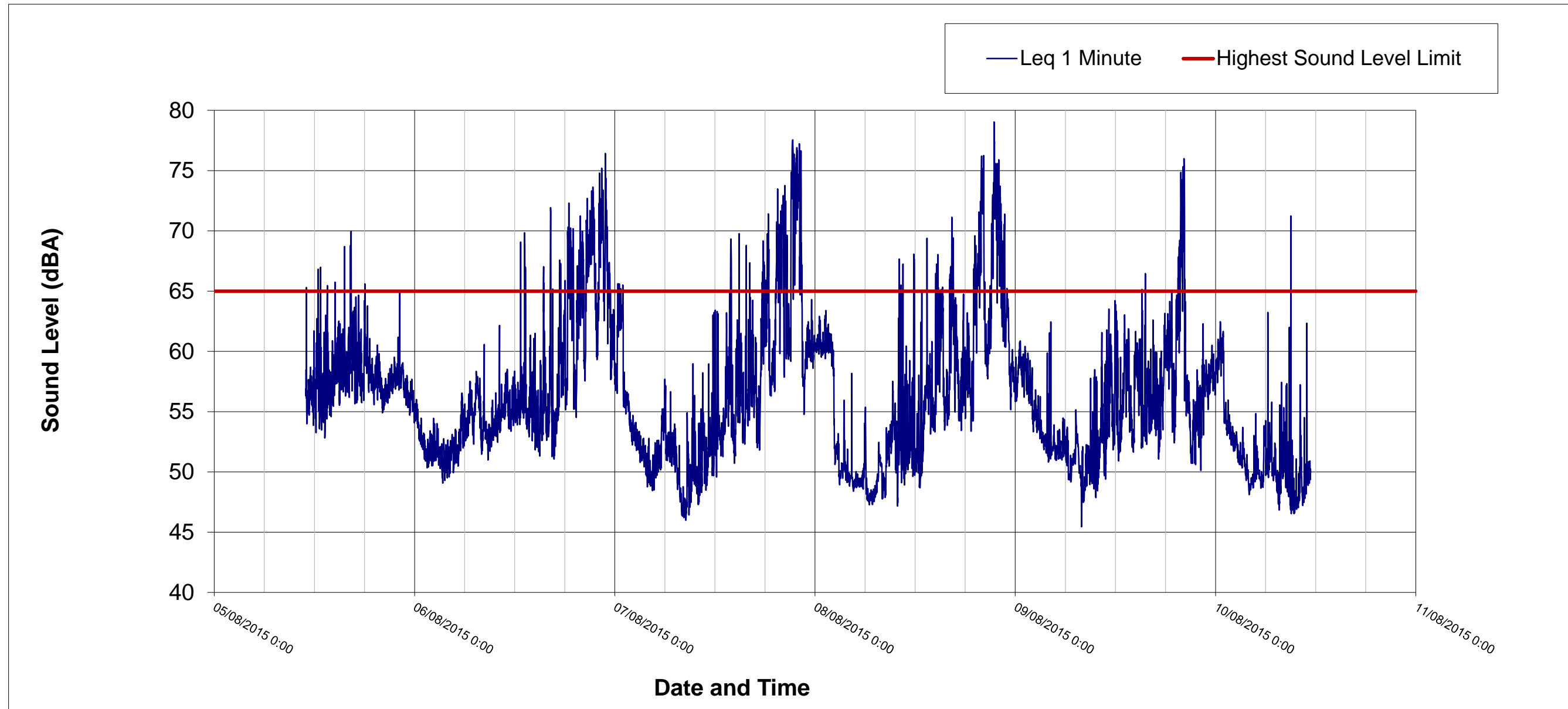
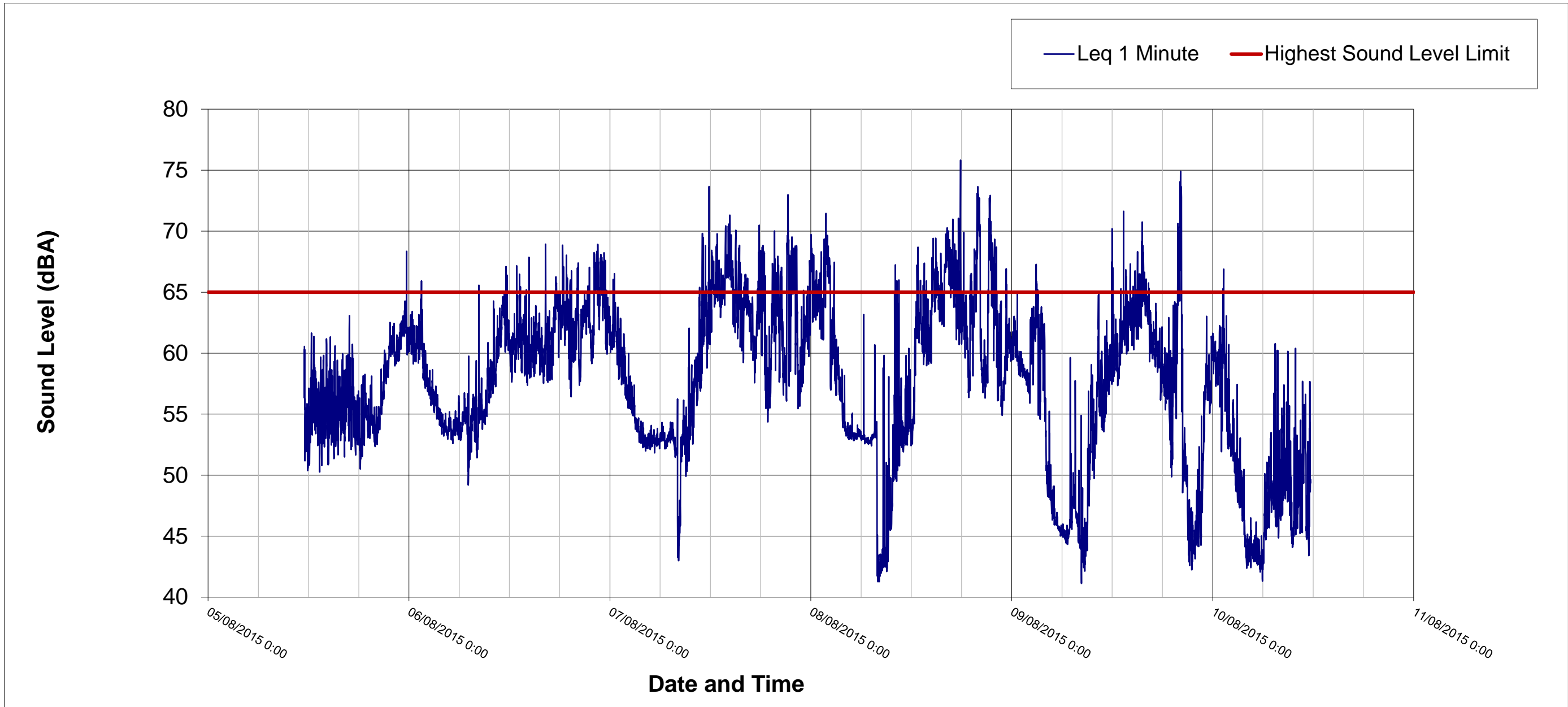


FIGURE B-7
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE

BOOTS & HEARTS – BCEG SOUTHWEST CORNER AT PROPERTY LINE SOUND LEVELS



APPENDIX C

FESTIVAL PERFORMANCE SCHEDULES

DAYS
SHARE
POWERED BY

Fri, Jul 24
f
t
e
p
416

	WayHome	WayBright	WayBold	WayAway Presented by SiriusXM
11:00				
11:15				CROSS DOG 1:00 - 1:45
11:30	Delta Spirit 1:15 - 2:45	Lowell 1:15 - 2:00	MacArthur Clark 1:30 - 2:15	
11:45				
2:00				
2:15				The Huarachos 2:15 - 3:00
2:30				
2:45				
3:00		Rhiannon Giddens 2:45 - 3:45		
3:15	Thousand Foot Krutch 3:00 - 4:00		Saxsindrum 3:15 - 4:00	Bear Mountain 3:30 - 4:15
3:30				
3:45				
4:00				
4:15				
4:30				
4:45		Courtney Barnett 4:30 - 5:30	For Esme 4:45 - 5:45	
5:00	The Decemberists 4:45 - 6:00			Slow Magic 5:15 - 6:15
5:15				
5:30				
5:45				
6:00				
6:15				
6:30		Sylvan Esso 6:15 - 7:15	The Gaslight Anthem 6:30 - 7:30	
6:45	Hozier 6:45 - 8:00			
7:00				
7:15				
7:30				Yiet Cong 7:30 - 8:30
7:45				
8:00				
8:15				
8:30		Alt-J 8:15 - 9:30	Hey Rosetta! 8:15 - 9:15	
8:45				
9:00				
9:15				
9:30				
9:45				
10:00				
10:15	Nail Young - Promise of the Real 9:00 - 12:00			
10:30				
10:45				
11:00				
11:15				
11:30		Kaytronada 11:15 - 12:30	Com Truise 11:30 - 12:15	Fucked Up 11:30 - 12:30
11:45				
12:00				
12:15				
12:30				
12:45				
1:00				
1:15		Future Islands 1:00 - 2:00	Girl Talk 1:45 - 2:00	Dwayne Gretzky 12:45 - 2:00
1:30				
1:45				
2:00				

DAYS
SHARE
POWERED BY

Sat, Jul 25
 





	WayHome	WayBright	WayBold	WayAway Presented by SiriusXM
11:00				
11:15				
11:30				
11:45			The Beaches 1:30 - 2:15	
12:00		Kevin Garratt 1:45 - 2:30		
12:15				
12:30	The Lone Ballow 2:15 - 3:15			Teen Violence 2:15 - 3:00
12:45				
13:00				
13:15			Broncho 3:00 - 3:45	
13:30				
13:45		Always 3:30 - 4:15		
14:00				Toni Swick 3:45 - 4:30
14:15	Manchester Orchestra 4:00 - 5:00			
14:30				
14:45			SZA 4:30 - 5:30	
15:00				
15:15		The Rural Alberta Advantage 5:00 - 6:00		Dear Rouge 5:15 - 6:15
15:30				
15:45				
16:00				
16:15	Run The Jewels 6:00 - 6:45			
16:30			Django Django 6:15 - 7:15	
16:45		Danny Brown 6:45 - 7:45		
17:00				The Highest Order 7:00 - 8:00
17:15				
17:30	Modest Mouse 7:30 - 8:45			
17:45				
18:00			G-Eazy 8:00 - 9:00	
18:15				
18:30				
18:45		Special Guest 8:45 - 9:45		METZ 8:45 - 9:45
19:00				
19:15				
19:30				
19:45				
10:00	Kendrick Lamar 9:45 - 11:00			
10:15				
10:30				
10:45				
11:00		How to Dress Well 11:00 - 11:45	Big K.R.I.T. 11:00 - 12:00	Timbar Timbre 11:00 - 12:00
11:15				
11:30				
11:45				
12:00				
12:15				
12:30				
12:45		ODESSA 12:30 - 1:45		
1:00			Bassnectar 12:45 - 2:00	The Growlers 12:45 - 1:45
1:15				
1:30				
1:45				
2:00				

DAYS
SHARE
POWERED BY

Sun, Jul 26
 





	WayHome	WayBright	WayBold	WayAway Presented by SiriusXM
11:00				
11:15				
11:30		Evening Hymns 11:15 - 12:00	Lost Cousins 11:15 - 12:00	Amos The Transparent 11:15 - 12:00
11:45	Sloan 11:30 - 12:15			
12:00				
12:15				
12:30				
12:45			Waavus 12:30 - 1:15	Ascot Royals 12:30 - 1:15
13:00		Chad VanGaalen 12:45 - 1:45		
13:15				
13:30	The Sheepsdogs 13:00 - 14:15			
13:45				
14:00				
14:15				
14:30			Brava Shores 14:15 - 15:15	
14:45		July Talk 14:30 - 15:30		
15:00				
15:15				ZORCH 15:00 - 15:45
15:30	St. Vincent 15:00 - 16:15			
15:45				
16:00				
16:15			Broods 16:00 - 17:00	
16:30				
16:45		Cold War Kids 16:15 - 17:30		Highs 16:30 - 17:30
17:00				
17:15				
17:30				
17:45	Brandon Flowers 17:15 - 18:30			
18:00				
18:15			Walk The Moon 18:00 - 19:00	
18:30				Yulan Blonde 18:15 - 19:15
18:45		Yancey Joy 18:30 - 19:30		
19:00				
19:15				
19:30				
19:45				
20:00	Sam Smith 19:30 - 20:45			
20:15				
20:30				
20:45				
21:00				
21:15				
21:30				
21:45				
22:00				

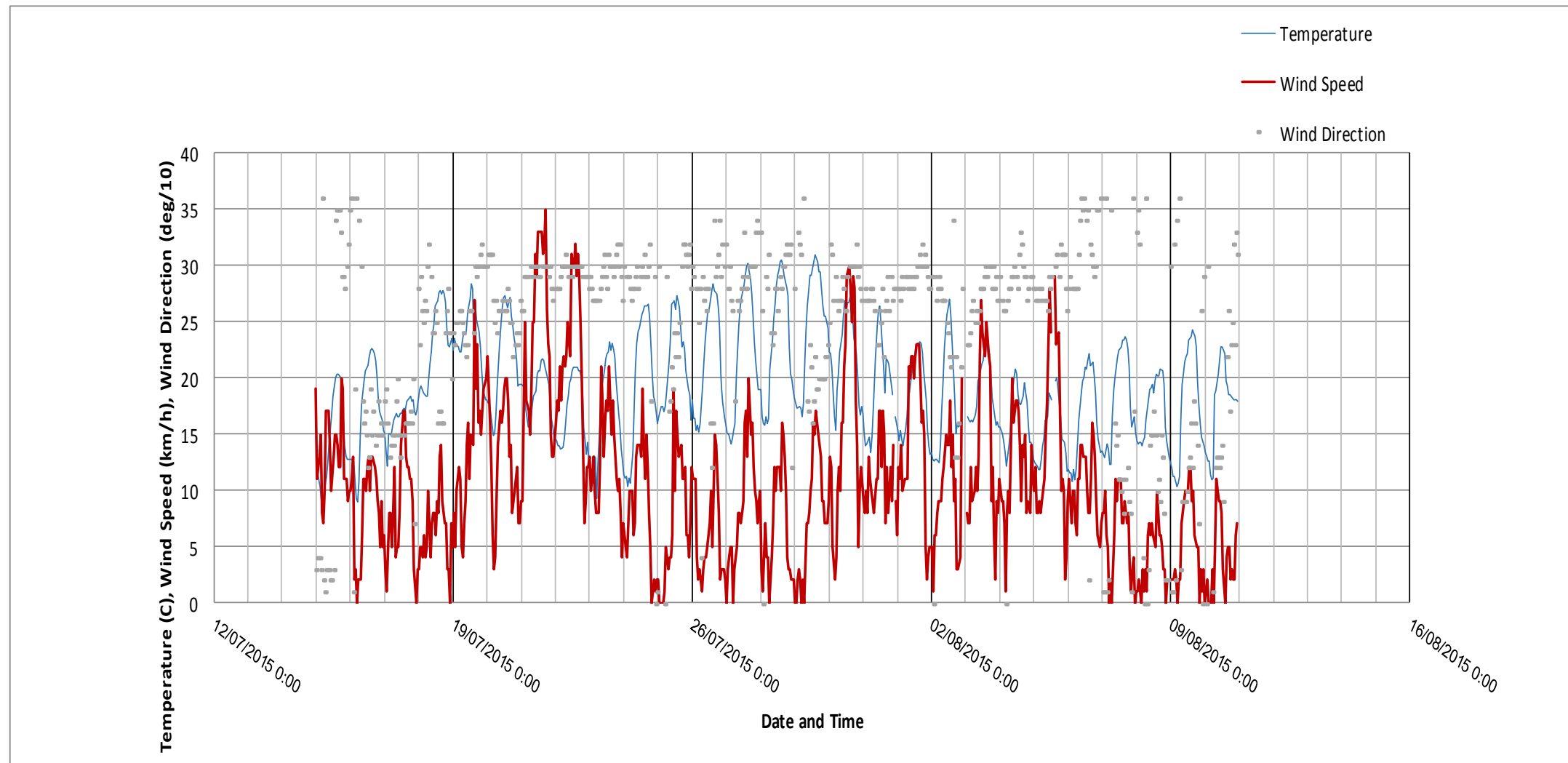
SCHEDULE ALBUMS ATTRACTIONS

Stage	Main		Main		Main	
	Front Porch	Front Porch	Front Porch	Front Porch	Front Porch	Front Porch
11AM		Open Sly				Gospel Brunch
12PM		Abby Stewart			Emerging Artist Showcase presented by SiriusXM	Them Dang Rattlers
1PM		Kate Suhr		Jesse La Belle		Trinity Bradshaw
2PM		The Lovebirds	Kaitlin Kazell	MacKenzie Porter		Wes Mack
3PM		Small Town Pistols	Ty Baynton		Miss Boots & Hearts presented by RocketHub Energy	Leah Daniels
4PM		Madde & Tee	Jesse La Belle	The Stellas/ Lennon and Maiky	MacArthur Clark	Genevieve Fisher
5PM	The Reklaws					Melissa Payne
6PM	Jess Moskaluke	High Valley	Austin Webb	Chad Brownlee	David Neil	Kim Isabella
7PM	Old Dominion	Justin Moore		Dallas Smith		Emerson Drive
8PM	Blackjack Billy					Frankle Ballard
9PM		Brad Paisley		Eric Church		Thomas Rhett
10PM	The Road Hammers					Florida Georgia Line
11PM	White Out Late Night Dance Party		Boots & Hearts Gear Late Night Dance Party		Somersby Late Night Dance Party	Farm Late Night Dance Party
12AM						
1AM						
2AM						

APPENDIX D

HOURLY WEATHER DURING MEASUREMENTS

FIGURE D-1
BURL'S CREEK EVENT GROUNDS
TOWNSHIP OF ORO-MEDONTE
WEATHER IN ORO-MEDONTE



Station Name BARRIE-ORO
 Province ONTARIO
 Latitude 44.48
 Longitude -79.55
 Elevation 289
 Climate Identifier 6117700
 WMO Identifier 71314
 TC Identifier XBI

All times are specified in Local Standard Time (LST). Add 1 hour to adjust for DST where and when it is observed.

Legend

E Estimated
 M Missing
 NA Not Available
 ‡ Partner data that is not subject to review by the National Climate Archives

Date/Time	Temp (°C)	Dew Point Temp (°C)	Rel Hum (%)	Wind Dir (10s deg)	Wind Spd (km/h)	Stn Press (kPa)
15/07/2015 0:00	12.8	6.9	68	3	19	97.48
15/07/2015 1:00	11.7	7	73	4	11	97.55
15/07/2015 2:00	10.9	7	77	4	13	97.6
15/07/2015 3:00	10.3	6.9	79	3	15	97.64
15/07/2015 4:00	9	6.6	85	36	8	97.7
15/07/2015 5:00	8.5	6.2	86	2	7	97.78
15/07/2015 6:00	9.9	6.9	82	1	10	97.89
15/07/2015 7:00	11.2	6.4	72	3	17	97.98
15/07/2015 8:00	12.6	6.4	66	3	17	98.06
15/07/2015 9:00	14.2	7.4	64	3	17	98.07
15/07/2015 10:00	15.5	7.2	58	2	14	98.08
15/07/2015 11:00	16.9	7.8	55	2	10	98.09
15/07/2015 12:00	18.4	7.1	48	3	13	98.13
15/07/2015 13:00	19.3	8.1	48	34	15	98.15
15/07/2015 14:00	20.1	8.1	46	35	15	98.18
15/07/2015 15:00	20.4	9	48	35	14	98.15
15/07/2015 16:00	20.4	9.6	50	35	12	98.1
15/07/2015 17:00	20	9	49	33	12	98.12
15/07/2015 18:00	18.2	11.5	65	29	20	98.18
15/07/2015 19:00	16.4	10.8	70	29	19	98.24
15/07/2015 20:00	14	10.3	79	28	11	98.26
15/07/2015 21:00	13	9.7	81	30	11	98.35
15/07/2015 22:00	12.7	9.1	79	32	9	98.36
15/07/2015 23:00	12.8	10	83	35	10	98.36
16/07/2015 0:00	12.8	10.9	88	36	10	98.35
16/07/2015 1:00	12.8	10.7	88	36	11	98.42
16/07/2015 2:00	12.6	10.9	89	1	13	98.45
16/07/2015 3:00	11	9.9	93	19	2	98.47
16/07/2015 4:00	9.3	8.2	93	36	3	98.52
16/07/2015 5:00	8.9	8	94		0	98.53
16/07/2015 6:00	10.8	9.8	93	34	2	98.61
16/07/2015 7:00	14.8	12.8	88	30	2	98.64
16/07/2015 8:00	17.6	11.7	68	18	6	98.63
16/07/2015 9:00	18.6	11.1	61	16	11	98.63
16/07/2015 10:00	19.8	11.9	60	17	11	98.62
16/07/2015 11:00	20.6	8.1	44	15	10	98.61
16/07/2015 12:00	21.1	10.5	51	12	12	98.56
16/07/2015 13:00	21.9	10.2	47	13	13	98.52
16/07/2015 14:00	22.5	11.6	50	19	10	98.49
16/07/2015 15:00	22.6	10	45	15	13	98.44
16/07/2015 16:00	22.5	11.2	49	17	13	98.38
16/07/2015 17:00	22.2	10.8	48	14	12	98.34
16/07/2015 18:00	21.5	11.6	53	15	11	98.28
16/07/2015 19:00	20.2	10.2	53	18	9	98.31
16/07/2015 20:00	18.2	8.1	52	15	8	98.25
16/07/2015 21:00	17	9.1	60	16	5	98.31
16/07/2015 22:00	16.3	9.6	65	15	9	98.29
16/07/2015 23:00	15.4	10.2	71	16	5	98.28
17/07/2015 0:00	15	9.9	71	18	6	98.3
17/07/2015 1:00	13.5	9.9	79	19	3	98.3
17/07/2015 2:00	12.1	9.8	86	16	1	98.24
17/07/2015 3:00	15	10.2	73	13	8	98.15
17/07/2015 4:00	15	9.9	71	14	8	98.11
17/07/2015 5:00	14.9	10.6	76	15	5	98.09
17/07/2015 6:00	15.7	11.5	76	14	8	98.06
17/07/2015 7:00	16.3	12.1	76	15	12	98.01
17/07/2015 8:00	16.8	13	78	18	4	97.97
17/07/2015 9:00	16.6	13.8	84	20	5	97.96
17/07/2015 10:00	16.5	14.8	90	15	5	97.92
17/07/2015 11:00	16.8	15.2	90	13	8	97.85
17/07/2015 12:00	16.8	15.1	89	15	14	97.78
17/07/2015 13:00	17.1	15.3	89	15	17	97.7
17/07/2015 14:00	17.3	15.5	90	16	17	97.65
17/07/2015 15:00	17.2	15.5	90	16	13	97.61
17/07/2015 16:00	17.9	16.1	89	16	12	97.57
17/07/2015 17:00	18.2	16.6	90	16	12	97.52

Date/Time	Temp (°C)	Dew Point Temp (°C)	Rel Hum (%)	Wind Dir (10s deg)	Wind Spd (km/h)	Stn Press (kPa)
17/07/2015 18:00	18.3	16.8	91	17	11	97.5
17/07/2015 19:00	17.9	16.6	92	16	11	97.47
17/07/2015 20:00	18.1	16.7	92	20	9	97.48
17/07/2015 21:00	17	16.1	94	7	3	97.52
17/07/2015 22:00	16.7	16	95		0	97.55
17/07/2015 23:00	17.2	16.4	95	28	3	97.54
18/07/2015 0:00	18.1	17.3	95	23	3	97.51
18/07/2015 1:00	19	18.2	95	29	5	97.52
18/07/2015 2:00	19.2	18.4	96	26	5	97.58
18/07/2015 3:00	18.7	18.1	96	25	4	97.59
18/07/2015 4:00	18.5	17.8	96	27	6	97.63
18/07/2015 5:00	18.4	17.7	96	26	4	97.68
18/07/2015 6:00	18.4	17.6	95	30	5	97.69
18/07/2015 7:00	19.9	17.4	85	32	10	97.73
18/07/2015 8:00	21.2	17.1	78	29	4	97.74
18/07/2015 9:00	22.3	18	77	24	7	97.72
18/07/2015 10:00	24	19	74	24	8	97.77
18/07/2015 11:00	24.7	18.9	70	26	8	97.78
18/07/2015 12:00	26.4	19.5	66	25	6	97.75
18/07/2015 13:00	26.9	20.6	68	16	9	97.73
18/07/2015 14:00	27.6	20.6	66	17	8	97.72
18/07/2015 15:00	27.7	20.2	64	17	13	97.65
18/07/2015 16:00	27.4	20.6	67	16	14	97.51
18/07/2015 17:00	27.8	20.4	64	16	9	97.5
18/07/2015 18:00	27.4	19.9	64	24	7	97.52
18/07/2015 19:00	26.7	20.3	68	26	7	97.54
18/07/2015 20:00	24.4	20.8	80	28	3	97.53
18/07/2015 21:00	22.9	20.7	88	24	3	97.58
18/07/2015 22:00	22.7	21	90		0	97.52
18/07/2015 23:00	23.5	20.7	84	20	7	97.53
19/07/2015 0:00	22.4	20.6	89	24	5	97.5
19/07/2015 1:00	23.5	21.2	87	23	8	97.47
19/07/2015 2:00	22.9	21	89	25	5	97.43
19/07/2015 3:00	22.9	20.7	87	25	10	97.42
19/07/2015 4:00	22.7	20.4	87	26	12	97.42
19/07/2015 5:00	22.3	19.9	86	26	11	97.4
19/07/2015 6:00	22.3	19.8	86	25	5	97.42
19/07/2015 7:00	23.2	20.2	83	24	4	97.36
19/07/2015 8:00	23.9	20.2	80	23	7	97.41
19/07/2015 9:00	24	19.9	78	22	9	97.4
19/07/2015 10:00	25.6	20.8	75	23	14	97.39
19/07/2015 11:00	26.4	20.8	71	26	16	97.36
19/07/2015 12:00	27	21.4	71	26	11	97.34
19/07/2015 13:00	28.4	21.3	66	26	15	97.33
19/07/2015 14:00	27.9	20.7	65	24	14	97.29
19/07/2015 15:00	22.3	18.2	78	30	27	97.31
19/07/2015 16:00	26.7	22.4	78	29	19	97.19
19/07/2015 17:00	25.2	21.1	78	30	23	97.25
19/07/2015 18:00	24.1	19.3	74	30	16	97.26
19/07/2015 19:00	22.8	17.7	73	31	17	97.3
19/07/2015 20:00	20.6	16	75	32	15	97.33
19/07/2015 21:00	18.9	14.6	76	30	17	97.38
19/07/2015 22:00	18.5	14.7	79	30	19	97.37
19/07/2015 23:00	18.1	13.3	73	30	20	97.4
20/07/2015 0:00	18	12.9	72	31	22	97.41
20/07/2015 1:00	17.8	12.9	73	31	19	97.42
20/07/2015 2:00	17.8	12.6	72	31	16	97.39
20/07/2015 3:00	16.8	12.5	76	31	12	97.36
20/07/2015 4:00	14.9	12.3	84	27	6	97.38
20/07/2015 5:00	15.1	12.5	85	25	3	97.42
20/07/2015 6:00	16.7	13.6	82	27	4	97.39
20/07/2015 7:00	19.3	14.1	72	24	9	97.41
20/07/2015 8:00	21.3	15	67	26	14	97.38
20/07/2015 9:00	23.2	16.4	66	26	17	97.34
20/07/2015 10:00	24.9	16.6	60	27	16	97.26
20/07/2015 11:00	26.2	15.6	52	27	17	97.24
20/07/2015 12:00	27.1	15.4	49	26	19	97.21
20/07/2015 13:00	27.3	14.5	46	26	20	97.19
20/07/2015 14:00	26.2	15.6	52	28	20	97.19
20/07/2015 15:00	26.7	14.4	47	27	18	97.15
20/07/2015 16:00	27.1	14.5	46	25	13	97.11
20/07/2015 17:00	25.5	14.2	50	25	14	97.04
20/07/2015 18:00	24.8	14.6	53	22	8	96.98
20/07/2015 19:00	23.6	15.2	59	23	10	96.97
20/07/2015 20:00	22.9	15.5	63	24	11	97.02
20/07/2015 21:00	21.5	16.6	74	23	12	97.04
20/07/2015 22:00	19.2	17.5	90	24	7	97.03
20/07/2015 23:00	19.5	17.8	90	27	7	97.03
21/07/2015 0:00	19.4	17.8	91	26	9	96.97
21/07/2015 1:00	19.3	18	92	26	9	96.94

Date/Time	Temp (°C)	Dew Point Temp (°C)	Rel Hum (%)	Wind Dir (10s deg)	Wind Spd (km/h)	Stn Press (kPa)
21/07/2015 2:00	19.1	17.6	91	29	17	96.94
21/07/2015 3:00	17.3	15.3	88	29	25	96.97
21/07/2015 4:00	16.5	15.1	91	29	18	96.99
21/07/2015 5:00	15.7	13.9	89	29	17	97.01
21/07/2015 6:00	15.7	13.6	87	30	15	97.02
21/07/2015 7:00	16.3	13.5	83	30	19	97.05
21/07/2015 8:00	17.5	14.2	81	29	25	97.09
21/07/2015 9:00	18.3	14.4	78	30	25	97.12
21/07/2015 10:00	18.8	14.6	77	30	31	97.17
21/07/2015 11:00	20.4	13.3	64	30	29	97.16
21/07/2015 12:00	20.6	13.3	63	29	33	97.19
21/07/2015 13:00	20.7	11.8	57	29	33	97.22
21/07/2015 14:00	21.5	11.6	54	30	33	97.23
21/07/2015 15:00	21.7	10.9	50	30	31	97.25
21/07/2015 16:00	21.5	11.7	53	30	32	97.27
21/07/2015 17:00	21	11	53	30	35	97.28
21/07/2015 18:00	20.5	11.2	55	30	26	97.3
21/07/2015 19:00	19.5	10.8	57	29	23	97.31
21/07/2015 20:00	17.8	11.4	66	30	22	97.33
21/07/2015 21:00	16.4	12.1	76	28	15	97.37
21/07/2015 22:00	15.7	11.9	78	27	13	97.4
21/07/2015 23:00	14.7	11.3	80	28	13	97.42
22/07/2015 0:00	14.6	10.4	76	28	16	97.42
22/07/2015 1:00	14.4	10.2	76	28	18	97.44
22/07/2015 2:00	13.9	10.2	78	28	17	97.45
22/07/2015 3:00	13.9	10.7	81	29	21	97.45
22/07/2015 4:00	13.6	10.8	84	30	18	97.46
22/07/2015 5:00	13.8	11.4	85	30	21	97.51
22/07/2015 6:00	14.6	12.2	86	30	22	97.56
22/07/2015 7:00	16.1	13	82	31	21	97.59
22/07/2015 8:00	17.6	13.1	75	30	22	97.67
22/07/2015 9:00	18.3	12.7	70	29	25	97.67
22/07/2015 10:00	19.6	12.3	63	30	22	97.67
22/07/2015 11:00	19.9	10.7	55	29	31	97.73
22/07/2015 12:00	20.6	9.4	48	30	30	97.74
22/07/2015 13:00	20.9	10.5	51	30	30	97.71
22/07/2015 14:00	20.9	11	53	30	32	97.72
22/07/2015 15:00	20.9	10.1	50	30	29	97.74
22/07/2015 16:00	20.6	10.5	53	30	31	97.76
22/07/2015 17:00	20.7	10.1	51	30	29	97.79
22/07/2015 18:00	20	9.4	51	30	25	97.81
22/07/2015 19:00	18.9	9.6	55	29	20	97.82
22/07/2015 20:00	15.5	9.8	69	29	7	97.83
22/07/2015 21:00	14.4	9.7	73	29	9	97.88
22/07/2015 22:00	13.2	9.6	79	29	12	97.91
22/07/2015 23:00	14.2	9.6	74	28	12	97.93
23/07/2015 0:00	12.5	8.9	79	29	13	97.95
23/07/2015 1:00	11.1	8.1	82	28	10	97.94
23/07/2015 2:00	10.7	7.9	83	27	11	97.94
23/07/2015 3:00	13	8.7	75	27	13	97.96
23/07/2015 4:00	12.9	8.7	75	27	10	97.98
23/07/2015 5:00	9.3	6.9	85	27	8	98
23/07/2015 6:00	12.5	8.3	76	27	8	98.01
23/07/2015 7:00	14.8	9.5	71	28	12	98.04
23/07/2015 8:00	17.2	11.6	70	29	21	98.06
23/07/2015 9:00	19.3	12.8	66	30	18	98.07
23/07/2015 10:00	20.7	13.2	62	31	13	98.06
23/07/2015 11:00	21.7	12.4	56	29	16	98.03
23/07/2015 12:00	22.1	11.7	52	28	18	98.02
23/07/2015 13:00	22.3	10.4	47	31	17	98.01
23/07/2015 14:00	23.2	10.8	46	30	21	98.03
23/07/2015 15:00	22.4	9.3	43	30	15	98.01
23/07/2015 16:00	23	6.7	35	29	18	98
23/07/2015 17:00	22.6	4.7	31	30	15	97.98
23/07/2015 18:00	21.8	7.8	41	31	13	97.97
23/07/2015 19:00	19.8	9.5	51	32	11	97.99
23/07/2015 20:00	16.9	9.6	62	30	10	98.02
23/07/2015 21:00	15.6	9.3	66	32	11	98.07
23/07/2015 22:00	13.7	9.7	77	29	8	98.08
23/07/2015 23:00	12.6	9.5	82	27	4	98.08
24/07/2015 0:00	11.4	9.5	88	30	7	98.09
24/07/2015 1:00	11.1	9.2	88	29	5	98.11
24/07/2015 2:00	11.2	9.3	88	29	4	98.13
24/07/2015 3:00	10.3	8.3	88	29	7	98.1
24/07/2015 4:00	11.1	9.1	88	28	10	98.12
24/07/2015 5:00	10.7	8.6	87	27	10	98.14
24/07/2015 6:00	13.4	9.2	76	28	10	98.13
24/07/2015 7:00	17.3	10.7	65	28	6	98.15
24/07/2015 8:00	20.9	10.6	52	29	7	98.17
24/07/2015 9:00	23.1	10.2	44	30	13	98.12
24/07/2015 10:00	24.2	10.6	42	28	14	98.09

Date/Time	Temp (°C)	Dew Point Temp (°C)	Rel Hum (%)	Wind Dir (10s deg)	Wind Spd (km/h)	Stn Press (kPa)
24/07/2015 11:00	24.5	9.1	38	29	14	98.13
24/07/2015 12:00	25.1	9.2	37	30	13	98.12
24/07/2015 13:00	25.7	10.5	39	29	19	98.11
24/07/2015 14:00	26	11.6	40	31	14	98.06
24/07/2015 15:00	26.4	11.6	40	29	11	98.03
24/07/2015 16:00	26.4	10.8	38	29	15	98
24/07/2015 17:00	26.5	12.1	41	30	12	97.99
24/07/2015 18:00	25.4	13.4	47	32	8	97.97
24/07/2015 19:00	22.8	14.8	61	18	5	97.97
24/07/2015 20:00	20.2	15.5	75		0	97.96
24/07/2015 21:00	18.3	15.1	82	29	2	97.98
24/07/2015 22:00	17.9	14.9	83	0	1	97.98
24/07/2015 23:00	17	14.7	87	1	2	97.96
25/07/2015 0:00	16	14.1	89	30	2	97.93
25/07/2015 1:00	16.6	14.2	86		0	97.94
25/07/2015 2:00	17.4	14.8	85		0	97.91
25/07/2015 3:00	17.5	15	85		0	97.91
25/07/2015 4:00	17	15.2	89		0	97.91
25/07/2015 5:00	17.4	15.6	89	0	1	97.9
25/07/2015 6:00	18.7	16.6	88	29	5	97.9
25/07/2015 7:00	20.1	17.7	86	17	3	97.9
25/07/2015 8:00	21.4	18.3	83	18	4	97.92
25/07/2015 9:00	23.3	18.8	76	21	4	97.92
25/07/2015 10:00	26.6	19.2	64	19	6	97.83
25/07/2015 11:00	26.8	16.5	53	24	19	97.83
25/07/2015 12:00	26.1	17.8	60	22	10	97.78
25/07/2015 13:00	27.3	17.2	54	24	17	97.73
25/07/2015 14:00	26.9	17.7	57	22	15	97.66
25/07/2015 15:00	26.3	16.7	56	25	13	97.6
25/07/2015 16:00	24.5	18.5	69	30	14	97.6
25/07/2015 17:00	22.8	18.9	79	32	11	97.62
25/07/2015 18:00	23.2	19.3	79	32	11	97.63
25/07/2015 19:00	22.6	18.9	79	31	12	97.67
25/07/2015 20:00	20.7	18.2	86	30	6	97.7
25/07/2015 21:00	19	17.3	90	31	6	97.77
25/07/2015 22:00	18.5	16.5	88	32	4	97.79
25/07/2015 23:00	16.3	14.4	89	28	7	97.79
26/07/2015 0:00	18	15.6	86	30	12	97.78
26/07/2015 1:00	16.4	14.8	90	29	11	97.79
26/07/2015 2:00	16.4	14.9	91	28	11	97.79
26/07/2015 3:00	15.4	14	91	28	4	97.77
26/07/2015 4:00	15.8	14.4	91	25	2	97.8
26/07/2015 5:00	15.2	14	92	28	3	97.89
26/07/2015 6:00	15.9	14.8	93	4	2	97.92
26/07/2015 7:00	19.4	16.3	82	29	1	97.98
26/07/2015 8:00	21.6	17.5	78	27	3	98.02
26/07/2015 9:00	23.3	17.1	68	28	4	98.03
26/07/2015 10:00	24.8	17	62	26	4	98.01
26/07/2015 11:00	26	17.6	60	28	5	98.02
26/07/2015 12:00	26.1	17.7	60	16	7	98.01
26/07/2015 13:00	26.9	16.5	53	12	10	98.01
26/07/2015 14:00	27.8	16.3	50	16	5	98
26/07/2015 15:00	28.4	14.6	43	34	10	98.02
26/07/2015 16:00	27.8	13.6	42	29	15	97.98
26/07/2015 17:00	27.5	12.8	40	30	14	97.97
26/07/2015 18:00	26.4	15.4	51	31	11	97.98
26/07/2015 19:00	24.6	16.5	61	34	8	98.02
26/07/2015 20:00	20.7	16.5	77	29	2	98.05
26/07/2015 21:00	18.6	16.3	87	32	3	98.14
26/07/2015 22:00	17.2	15.4	89	30	3	98.14
26/07/2015 23:00	16.4	15.1	92	32	2	98.16
27/07/2015 0:00	15.8	14.5	92		0	98.16
27/07/2015 1:00	15.1	13.5	91	28	3	98.13
27/07/2015 2:00	15.1	14.1	94	30	4	98.11
27/07/2015 3:00	14.1	12.9	92	27	5	98.12
27/07/2015 4:00	14.5	13.1	91	26	5	98.14
27/07/2015 5:00	15.4	13.7	90		0	98.16
27/07/2015 6:00	16	14.8	93	18	3	98.22
27/07/2015 7:00	20	16.8	82	27	5	98.28
27/07/2015 8:00	22.5	14.2	59	26	8	98.29
27/07/2015 9:00	24.7	15.8	58	27	8	98.28
27/07/2015 10:00	26.3	15.2	51	28	7	98.27
27/07/2015 11:00	27.2	16.8	53	29	8	98.26
27/07/2015 12:00	28.2	16.7	50	33	9	98.23
27/07/2015 13:00	29.2	15.7	44	28	16	98.21
27/07/2015 14:00	29.9	15.6	42	28	17	98.18
27/07/2015 15:00	30.2	15.5	41	29	13	98.14
27/07/2015 16:00	29.5	16.7	46	30	20	98.13
27/07/2015 17:00	28.8	14.5	42	30	15	98.1
27/07/2015 18:00	27.4	15.1	47	30	16	98.09
27/07/2015 19:00	25.5	16.5	57	30	12	98.11

Date/Time	Temp (°C)	Dew Point Temp (°C)	Rel Hum (%)	Wind Dir (10s deg)	Wind Spd (km/h)	Stn Press (kPa)
27/07/2015 20:00	23.2	16.7	67	33	10	98.15
27/07/2015 21:00	21.5	16.7	74	34	9	98.22
27/07/2015 22:00	19	16.1	83	33	7	98.26
27/07/2015 23:00	18.9	16.1	84	33	9	98.29
28/07/2015 0:00	18.9	16.3	85	33	10	98.29
28/07/2015 1:00	16.6	14.7	89	26	3	98.3
28/07/2015 2:00	16	14.8	92	0	1	98.29
28/07/2015 3:00	15.8	14.8	94	29	7	98.26
28/07/2015 4:00	16.5	15.3	93	28	4	98.26
28/07/2015 5:00	16	14.9	93	31	4	98.27
28/07/2015 6:00	16.4	15.1	92		0	98.3
28/07/2015 7:00	20.8	17.4	81	24	2	98.31
28/07/2015 8:00	23.4	16.5	65	23	4	98.32
28/07/2015 9:00	25.4	17.7	62	24	7	98.3
28/07/2015 10:00	26.6	15.9	52	28	12	98.29
28/07/2015 11:00	28.2	16.7	50	28	10	98.29
28/07/2015 12:00	29.2	17.1	48	26	12	98.25
28/07/2015 13:00	29.6	16.8	46	29	12	98.19
28/07/2015 14:00	30.3	17.5	46	28	10	98.15
28/07/2015 15:00	30.5	17.3	45	30	16	98.16
28/07/2015 16:00	30.1	16.8	45	30	15	98.16
28/07/2015 17:00	29.1	16.8	48	31	13	98.13
28/07/2015 18:00	28.1	17.3	52	32	10	98.1
28/07/2015 19:00	27.3	18.1	57	31	4	98.08
28/07/2015 20:00	22.7	19.2	80	31	3	98.1
28/07/2015 21:00	20.4	18.2	87	32	3	98.15
28/07/2015 22:00	19.9	18.5	92	12	2	98.17
28/07/2015 23:00	18.9	17	89	28	2	98.21
29/07/2015 0:00	18.2	16.8	92		0	98.23
29/07/2015 1:00	17.8	16.4	92		0	98.21
29/07/2015 2:00	17.3	15.8	91	33	2	98.19
29/07/2015 3:00	17.5	16.2	92	32	3	98.15
29/07/2015 4:00	17.3	15.8	91	31	2	98.11
29/07/2015 5:00	16.6	15.5	93		0	98.1
29/07/2015 6:00	17.7	16.5	92	36	2	98.08
29/07/2015 7:00	21.2	19.4	90		0	98.1
29/07/2015 8:00	24.3	20.4	79	18	7	98.1
29/07/2015 9:00	26.4	18.3	61	17	7	98.09
29/07/2015 10:00	27.7	17.9	55	23	8	98.05
29/07/2015 11:00	29.1	17.7	51	21	10	98.01
29/07/2015 12:00	29.2	17.8	50	16	11	97.94
29/07/2015 13:00	30.3	16.2	43	18	16	97.89
29/07/2015 14:00	30.9	14.6	37	22	15	97.83
29/07/2015 15:00	30.6	14.7	38	19	17	97.74
29/07/2015 16:00	30.4	16	42	19	16	97.66
29/07/2015 17:00	29.5	15.9	44	20	15	97.67
29/07/2015 18:00	29.4	16.1	45	20	13	97.61
29/07/2015 19:00	27.7	17	52	20	9	97.6
29/07/2015 20:00	26.4	17.7	59	20	9	97.59
29/07/2015 21:00	25.5	17.4	61	22	7	97.6
29/07/2015 22:00	25.5	17	59	22	7	97.57
29/07/2015 23:00	24.5	17.7	66	23	7	97.54
30/07/2015 0:00	22.3	19.7	85	25	9	97.52
30/07/2015 1:00	22.2	16.9	72	32	13	97.54
30/07/2015 2:00	21	15	69	31	12	97.5
30/07/2015 3:00	18.5	15.1	81	27	5	97.53
30/07/2015 4:00	16.5	15	91	29	2	97.52
30/07/2015 5:00	15.3	14	92	27	4	97.55
30/07/2015 6:00	18.9	15.2	79	26	10	97.59
30/07/2015 7:00	20.4	16.3	77	27	12	97.64
30/07/2015 8:00	22.3	16.5	70	27	10	97.62
30/07/2015 9:00	23.8	15	58	29	16	97.61
30/07/2015 10:00	25.6	14.6	50	28	16	97.59
30/07/2015 11:00	26.8	13.3	43	26	21	97.57
30/07/2015 12:00	26	13.8	47	26	23	97.55
30/07/2015 13:00	26.7	13.8	45	29	29	97.56
30/07/2015 14:00	26.7	13.7	45	30	30	97.56
30/07/2015 15:00	27.1	11.9	39	30	28	97.52
30/07/2015 16:00	26.4	12.4	42	30	25	97.55
30/07/2015 17:00	25.8	13.2	46	30	29	97.55
30/07/2015 18:00	23.5	15.1	60	30	28	97.59
30/07/2015 19:00	22.1	12.8	56	32	18	97.6
30/07/2015 20:00	20	12.9	64	29	14	97.62
30/07/2015 21:00	17.4	13.3	77	30	5	97.66
30/07/2015 22:00	16.7	14.2	85	28	10	97.7
30/07/2015 23:00	17.5	14	80	27	12	97.71
31/07/2015 0:00	16.8	13.2	79	27	9	97.72
31/07/2015 1:00	15.1	12	82	28	8	97.73
31/07/2015 2:00	14	12.3	89	27	10	97.74
31/07/2015 3:00	14.1	11.8	86	27	8	97.74
31/07/2015 4:00	14.8	11.9	83	27	13	97.73

Date/Time	Temp (°C)	Dew Point Temp (°C)	Rel Hum (%)	Wind Dir (10s deg)	Wind Spd (km/h)	Stn Press (kPa)
31/07/2015 5:00	13.4	11.2	87	28	11	97.73
31/07/2015 6:00	14.7	11.8	83	28	10	97.74
31/07/2015 7:00	17.3	12.9	76	27	9	97.74
31/07/2015 8:00	19.9	13.3	66	26	8	97.69
31/07/2015 9:00	22.4	12.9	55	23	11	97.65
31/07/2015 10:00	24.5	14.7	54	23	11	97.61
31/07/2015 11:00	25.9	12.4	43	26	17	97.58
31/07/2015 12:00	26.4	13.2	44	25	17	97.51
31/07/2015 13:00	24.9	13	48	28	12	97.46
31/07/2015 14:00	20.9	15	69	22	17	97.41
31/07/2015 15:00	18.6	14.3	76	26	15	97.41
31/07/2015 16:00	21.7	16.6	73	27	7	97.33
31/07/2015 17:00	21.5	17.3	77	29	12	97.38
31/07/2015 18:00	21.2	17.6	80	26	8	97.37
31/07/2015 19:00	20.4	14.5	69	29	12	97.39
31/07/2015 20:00	19.4	14.5	73	27	9	97.39
31/07/2015 21:00	18.5	14.7	79	28	14	97.43
31/07/2015 22:00						
31/07/2015 23:00	16.5	13.7	83	28	9	97.48
01/08/2015 0:00	15.3	12.9	86	28	6	97.47
01/08/2015 1:00	14.4	12.7	90	28	12	97.46
01/08/2015 2:00	15.3	13	86	27	11	97.45
01/08/2015 3:00	14.6	12.8	89	29	14	97.45
01/08/2015 4:00	14	12.4	90	28	10	97.49
01/08/2015 5:00	14.7	13.2	91	29	11	97.51
01/08/2015 6:00	15.3	13.7	91	29	11	97.56
01/08/2015 7:00	16.6	14.5	87	28	11	97.62
01/08/2015 8:00	18.5	14.6	78	29	21	97.62
01/08/2015 9:00	18.7	14	74	28	20	97.63
01/08/2015 10:00	20.6	13.3	63	29	22	97.64
01/08/2015 11:00	21.5	12.7	57	28	22	97.66
01/08/2015 12:00	21.7	12.4	56	29	20	97.64
01/08/2015 13:00	22.9	12.5	52	29	22	97.6
01/08/2015 14:00	23	13.5	55	30	23	97.58
01/08/2015 15:00	23	12.7	52	31	23	97.52
01/08/2015 16:00	23.2	12.5	51	30	20	97.54
01/08/2015 17:00	23	12.4	51	32	16	97.51
01/08/2015 18:00	22.3	12.8	55	30	17	97.51
01/08/2015 19:00	20.6	12.6	60	31	15	97.55
01/08/2015 20:00	18	13	73	30	5	97.61
01/08/2015 21:00	15.4	12.9	85	29	2	97.65
01/08/2015 22:00	14	12.5	90	28	4	97.66
01/08/2015 23:00	13.2	11.5	89	28	5	97.64
02/08/2015 0:00	13.4	11.9	91	29	5	97.64
02/08/2015 1:00	12.8	11.6	92	0	1	97.62
02/08/2015 2:00	12.6	11.2	91	29	6	97.59
02/08/2015 3:00	12.8	11	89	27	6	97.58
02/08/2015 4:00	12.8	10.8	87	28	8	97.57
02/08/2015 5:00	12.5	10.9	90	29	9	97.55
02/08/2015 6:00	14	12.4	90	28	9	97.59
02/08/2015 7:00	17.1	14.2	83	27	9	97.6
02/08/2015 8:00	19.7	14.4	71	27	11	97.6
02/08/2015 9:00	22.6	13.1	55	27	12	97.57
02/08/2015 10:00	24.3	12.5	48	25	15	97.5
02/08/2015 11:00	25.7	11.6	42	24	14	97.48
02/08/2015 12:00	26.3	11.9	41	22	14	97.4
02/08/2015 13:00	27	11.1	37	21	18	97.34
02/08/2015 14:00	25.6	12.5	44	22	12	97.28
02/08/2015 15:00	21	13	60	34	15	97.36
02/08/2015 16:00	18.4	14.4	78	13	9	97.16
02/08/2015 17:00	15.1	14	93	22	11	97.31
02/08/2015 18:00	15.9	14.8	93	13	3	97.17
02/08/2015 19:00	15.7	14.5	93	16	3	97.15
02/08/2015 20:00	15.8	15	95	21	4	97.2
02/08/2015 21:00	15.9	14.8	94	28	20	97.08
02/08/2015 22:00						
02/08/2015 23:00						
03/08/2015 0:00						
03/08/2015 1:00	16.5	15.5	94	23	8	96.91
03/08/2015 2:00	16.3	15.3	94	23	7	96.92
03/08/2015 3:00	16.1	15	93	24	7	96.96
03/08/2015 4:00	16.3	14.7	90	26	12	97
03/08/2015 5:00	16.1	14.8	92	27	9	97.02
03/08/2015 6:00	16.4	14.9	91	25	10	97.06
03/08/2015 7:00	16.7	15.4	92	26	12	97.09
03/08/2015 8:00	17.4	15.8	90	25	10	97.13
03/08/2015 9:00	19.8	16.7	82	26	13	97.12
03/08/2015 10:00	20	15.4	75	28	22	97.18
03/08/2015 11:00	21.3	14.6	65	28	27	97.23
03/08/2015 12:00	21.5	14.1	63	28	24	97.26
03/08/2015 13:00	22.7	13	54	29	23	97.28

Date/Time	Temp (°C)	Dew Point Temp (°C)	Rel Hum (%)	Wind Dir (10s deg)	Wind Spd (km/h)	Stn Press (kPa)
03/08/2015 14:00	22.3	11.6	51	30	22	97.28
03/08/2015 15:00	23.4	11.6	47	29	25	97.27
03/08/2015 16:00	21.9	11.3	51	30	22	97.28
03/08/2015 17:00	22.1	13.2	57	30	21	97.29
03/08/2015 18:00	20.5	13.7	65	28	9	97.31
03/08/2015 19:00	18.2	15.1	82	30	12	97.38
03/08/2015 20:00	17.4	15.1	87	28	6	97.42
03/08/2015 21:00	15.8	13.8	88	29	2	97.46
03/08/2015 22:00	16.1	13.3	84	27	9	97.49
03/08/2015 23:00	15.7	13.4	86	27	8	97.5
04/08/2015 0:00	15.6	13.8	89	29	11	97.5
04/08/2015 1:00	15.3	12.9	85	27	9	97.5
04/08/2015 2:00	15	12.8	87	26	9	97.53
04/08/2015 3:00	14.2	11.9	86	26	7	97.56
04/08/2015 4:00	13.3	11.7	90	0	1	97.59
04/08/2015 5:00	12.2	10.6	90	27	8	97.62
04/08/2015 6:00	14	12.4	90	28	10	97.67
04/08/2015 7:00	15.2	13	87	28	8	97.71
04/08/2015 8:00	17.8	13.1	74	29	14	97.72
04/08/2015 9:00	19	12.4	66	29	20	97.73
04/08/2015 10:00	20.1	11.5	58	30	16	97.75
04/08/2015 11:00	20.8	12.2	58	29	18	97.77
04/08/2015 12:00	20.4	13.2	63	28	18	97.74
04/08/2015 13:00	18.5	14.3	77	31	17	97.77
04/08/2015 14:00	17.7	13.1	75	33	14	97.76
04/08/2015 15:00	17.6	14.9	84	32	9	97.76
04/08/2015 16:00	18.3	14.4	78	30	14	97.74
04/08/2015 17:00	19.6	13.9	70	29	13	97.73
04/08/2015 18:00	18.6	14.1	75	29	15	97.76
04/08/2015 19:00	17.9	14.7	82	27	8	97.77
04/08/2015 20:00	15.8	14	89	28	9	97.82
04/08/2015 21:00	14.3	12.6	90	29	8	97.85
04/08/2015 22:00	14.3	12	86	29	14	97.86
04/08/2015 23:00	13.7	11.6	87	28	11	97.91
05/08/2015 0:00	12.8	11.4	91	28	10	97.96
05/08/2015 1:00	12.5	11.2	92	27	12	97.94
05/08/2015 2:00	12.2	10.7	90	27	8	97.92
05/08/2015 3:00	11.8	10.1	90	28	8	97.91
05/08/2015 4:00	11.9	10.5	91	27	9	97.94
05/08/2015 5:00	12.8	11.6	92	28	8	97.93
05/08/2015 6:00	14	12.2	89	27	9	97.97
05/08/2015 7:00	14.5	12.9	90	27	11	97.98
05/08/2015 8:00	16.3	14	86	27	15	98.01
05/08/2015 9:00	16.3	13.4	83	26	18	98.06
05/08/2015 10:00	16.5	13.7	84	29	23	98.09
05/08/2015 11:00	18.6	13.7	73	28	28	98.11
05/08/2015 12:00	18	12.5	70	29	24	98.11
05/08/2015 13:00						
05/08/2015 14:00						
05/08/2015 15:00	19.7	11.1	57	30	29	98.11
05/08/2015 16:00	20	11.6	58	31	23	98.12
05/08/2015 17:00	19	11.2	61	29	24	98.14
05/08/2015 18:00	17.7	11.2	66	32	17	98.15
05/08/2015 19:00	16.5	10.8	69	31	10	98.16
05/08/2015 20:00	14.6	11	79	31	11	98.18
05/08/2015 21:00	14.2	11.4	83	31	10	98.25
05/08/2015 22:00	13.4	11.2	87	28	2	98.24
05/08/2015 23:00	11.7	10.5	93	26	4	98.25
06/08/2015 0:00	11.8	10.6	92	28	9	98.26
06/08/2015 1:00	11.5	10.2	91	29	11	98.22
06/08/2015 2:00	11.5	10	91	28	7	98.19
06/08/2015 3:00	10.8	9.5	92	28	10	98.21
06/08/2015 4:00	11.8	10.6	92	28	10	98.17
06/08/2015 5:00	10.9	9.8	93	28	7	98.19
06/08/2015 6:00	11.9	10.9	94	28	6	98.23
06/08/2015 7:00	16.3	14.6	90	31	11	98.28
06/08/2015 8:00	17.4	13.7	79	34	11	98.32
06/08/2015 9:00	18.7	12.1	66	36	14	98.34
06/08/2015 10:00	19.8	11.8	60	35	14	98.31
06/08/2015 11:00	20	11	56	36	13	98.27
06/08/2015 12:00	20.9	11	53	34	13	98.24
06/08/2015 13:00	20.8	11.5	55	35	10	98.22
06/08/2015 14:00	21.6	11.7	53	2	8	98.15
06/08/2015 15:00	22.2	11.3	50	32	8	98.14
06/08/2015 16:00	21.1	12.4	58	31	11	98.13
06/08/2015 17:00	21.4	12.5	57	30	16	98.11
06/08/2015 18:00	20.2	12.6	61	29	15	98.09
06/08/2015 19:00	18.6	12.5	68	30	13	98.1
06/08/2015 20:00	16	12.6	80	35	9	98.12
06/08/2015 21:00	14.6	12.2	85	35	6	98.15
06/08/2015 22:00	14	11.5	85	36	5	98.13

Date/Time	Temp (°C)	Dew Point Temp (°C)	Rel Hum (%)	Wind Dir (10s deg)	Wind Spd (km/h)	Stn Press (kPa)
06/08/2015 23:00	13.4	11.2	87	36	7	98.16
07/08/2015 0:00	13.5	11.5	88	1	8	98.15
07/08/2015 1:00	13.2	10.7	84	1	8	98.14
07/08/2015 2:00	12.9	10.9	88	36	10	98.12
07/08/2015 3:00	14.1	11.9	87	1	6	98.11
07/08/2015 4:00	13.7	11.4	86	2	5	98.14
07/08/2015 5:00	12.3	10.8	91		0	98.16
07/08/2015 6:00	12.3	11.3	93	35	2	98.21
07/08/2015 7:00	16.5	13.4	82		0	98.18
07/08/2015 8:00	18.8	14.5	76	16	6	98.19
07/08/2015 9:00	20.1	13.6	67	14	11	98.22
07/08/2015 10:00	21	14.2	65	15	9	98.2
07/08/2015 11:00	21.8	11.2	51	11	11	98.19
07/08/2015 12:00	22.5	10.9	48	11	11	98.18
07/08/2015 13:00	22.8	10.3	45	10	11	98.17
07/08/2015 14:00	23.3	10	43	11	7	98.17
07/08/2015 15:00	23.3	8.9	40	8	7	98.14
07/08/2015 16:00	23.7	9.6	41	11	9	98.12
07/08/2015 17:00	23.3	9	40	12	7	98.1
07/08/2015 18:00	22.6	11	48	9	8	98.09
07/08/2015 19:00	21	14.3	66	8	3	98.09
07/08/2015 20:00	17.3	13.5	78	1	1	98.12
07/08/2015 21:00	15.7	13.3	86	36	3	98.16
07/08/2015 22:00	16.6	13.5	82	17	4	98.18
07/08/2015 23:00	15.2	13.3	89		0	98.2
08/08/2015 0:00	14.4	12.9	90	33	1	98.19
08/08/2015 1:00	14.1	12.5	90	35	1	98.2
08/08/2015 2:00	14.3	12.8	91	32	2	98.25
08/08/2015 3:00	14.3	12.7	90		0	98.24
08/08/2015 4:00	14	12.7	92	4	3	98.24
08/08/2015 5:00	14.4	13	91	0	1	98.25
08/08/2015 6:00	14.8	13.7	93	36	3	98.29
08/08/2015 7:00	16.2	14.9	92	0	1	98.35
08/08/2015 8:00	18	15.8	87	3	6	98.39
08/08/2015 9:00	18.9	14.9	78	14	7	98.42
08/08/2015 10:00	19.1	14.2	73	15	6	98.47
08/08/2015 11:00	19.4	13.9	71	15	7	98.48
08/08/2015 12:00	18.7	14.3	76	17	6	98.47
08/08/2015 13:00	19.8	15.5	77	15	5	98.45
08/08/2015 14:00	20.4	13.6	65	10	10	98.43
08/08/2015 15:00	20.2	13.1	63	11	8	98.43
08/08/2015 16:00	20.2	13.6	66	9	6	98.41
08/08/2015 17:00	20.8	12.9	61	15	6	98.4
08/08/2015 18:00	20.6	12.6	60	13	5	98.41
08/08/2015 19:00	19.5	15.7	79	8	3	98.41
08/08/2015 20:00	15.7	13.9	89	2	3	98.4
08/08/2015 21:00	14.4	13.4	94		0	98.42
08/08/2015 22:00	13.7	12.5	92	2	2	98.44
08/08/2015 23:00	12.9	11.9	94	30	2	98.44
09/08/2015 0:00	12.5	11.3	93	1	2	98.48
09/08/2015 1:00	12	10.9	93	1	2	98.47
09/08/2015 2:00	11.3	10.3	94	32	2	98.47
09/08/2015 3:00	11.2	10	92	2	3	98.45
09/08/2015 4:00	10.3	9.3	93	34	2	98.46
09/08/2015 5:00	10.6	9.6	94		0	98.49
09/08/2015 6:00	11.2	10.2	94	36	2	98.5
09/08/2015 7:00	16.2	14.5	89	3	2	98.49
09/08/2015 8:00	19.5	16.7	84	9	7	98.49
09/08/2015 9:00	20.4	16	76	9	9	98.46
09/08/2015 10:00	21.4	14.4	65	9	10	98.43
09/08/2015 11:00	21.8	11.5	52	10	10	98.37
09/08/2015 12:00	22.2	13.1	56	12	10	98.35
09/08/2015 13:00	23.3	13.5	54	13	12	98.36
09/08/2015 14:00	23.6	10.7	44	16	12	98.34
09/08/2015 15:00	24.3	12.2	47	12	9	98.3
09/08/2015 16:00	23.9	11.9	47	18	10	98.26
09/08/2015 17:00	23.6	11.3	46	16	6	98.22
09/08/2015 18:00	22.7	11.2	48	14	5	98.2
09/08/2015 19:00	19.6	15.7	78	7	5	98.16
09/08/2015 20:00	17.4	14.1	81		0	98.22
09/08/2015 21:00	16	13.8	87	26	3	98.23
09/08/2015 22:00	14.8	12.9	89	0	1	98.22
09/08/2015 23:00	14	12.4	90	29	3	98.21
10/08/2015 0:00	13.3	12	92		0	98.19
10/08/2015 1:00	13	11.5	91	0	1	98.14
10/08/2015 2:00	12.6	11.5	93	30	2	98.11
10/08/2015 3:00	12.6	11.1	91		0	98.06
10/08/2015 4:00	11.4	10.3	93		0	98.06
10/08/2015 5:00	11	9.7	91	1	3	98.03
10/08/2015 6:00	11.1	9.9	92		0	98
10/08/2015 7:00	18.5	15.2	81	12	5	98

Date/Time	Temp (°C)	Dew Point Temp (°C)	Rel Hum (%)	Wind Dir (10s deg)	Wind Spd (km/h)	Stn Press (kPa)
10/08/2015 8:00	18.8	13.9	73	13	11	98
10/08/2015 9:00	20.3	13.7	66	13	10	97.94
10/08/2015 10:00	21.6	14.3	63	12	9	97.92
10/08/2015 11:00	22.8	15.2	62	13	9	97.86
10/08/2015 12:00	22.8	14.8	61	14	8	97.81
10/08/2015 13:00	22.5	14.8	62	9	3	97.79
10/08/2015 14:00	22.1	14.5	62		0	97.78
10/08/2015 15:00	19.7	17.2	86	22	4	97.72
10/08/2015 16:00	19.3	17.6	90	26	5	97.67
10/08/2015 17:00	18.5	17.3	93	17	5	97.53
10/08/2015 18:00	18.5	17.3	93	23	2	97.47
10/08/2015 19:00	18.2	17.1	93	25	3	97.51
10/08/2015 20:00	18	16.8	93	32	2	97.54
10/08/2015 21:00	18	16.9	93	23	2	97.54
10/08/2015 22:00	18.1	17.1	94	33	6	97.53
10/08/2015 23:00	17.9	16.9	94	31	7	97.48

APPENDIX E

SOUND LEVEL LIMITS

WAYHOME

Noise

In accordance with the Special Events By-law the following levels have been established for amplified sound during the Wayhome Music Festival from Friday July 24th through till Sunday July 26th, 2015:

65 dba between 7:01 a.m. and 12:00 a.m. (midnight)

45 dba between 12:01 a.m. and 7:00 am

The Township has retained an independent Acoustical Engineer to provide monitoring during the Festival.

All after-hour concerns related to the amplified sound should be directed to Municipal Law Enforcement Division at (705) 487-2171. If you call is not answered, please ensure a detailed message is left with your name, phone number, address, time and reason for concern and staff will investigate your concern.

BOOTS & HEARTS

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
3. Notwithstanding the fact that it committed the Exceedances, Burl's Creek agrees and confirms that it remains bound to comply with, *inter alia*, the terms of the MOU and that Burl's Creek will manage amplified sound emanating from the Grounds during Boots and Hearts in accordance with the following terms (the "Noise Standards"):
- (a) amplified sound originating on the Grounds shall not exceed 100 dba at the sound board with the objective of not exceeding 65 dba at identified points of reception external to the Grounds between 7:00 a.m. and 11:30 p.m. from Thursday August 6 until Sunday August 9;
 - (b) all performances on the main stage are scheduled to cease at 11:00 p.m. subject to extension for encores;
 - (c) amplified sound from the front porch stage shall not exceed 85 dba at the sound board with the objective of not exceeding 45 dba at any points of reception external to the Grounds between 11:00 p.m. and 1:00 a.m. on

Thursday August 6 and Sunday August 9, and ~~between 11:00 p.m. and 2:00 a.m. on Friday August 7 and Saturday August 8;~~

- (d) dance parties are scheduled on the front porch stage between 11:00 p.m. and 1:00 a.m. on Thursday August 6 and Sunday August 9, and between 11:00 p.m. and 2:00 a.m. on Friday August 7 and Saturday August 8;
 - (e) if at any time during Boots and Hearts the amplified sound exceeds the aforementioned established levels, as determined by the Township, Burl's Creek shall utilize its utmost best efforts to ensure that the amplified sound levels are immediately reduced to comply with the aforementioned established levels;
 - (e) amplified sound levels may be gauged at the monitoring stations sites where acoustical readings are being taken by the Township's acoustical engineer but also from any other areas where municipal law enforcement officers and the Township's acoustical engineer may be situated and such data shall assist the parties to develop a fixed standard for sound at future events on the Grounds;
 - (f) at all other times, sound emissions from anywhere on the Grounds shall fully comply in all respects with the requirements of the Township's Noise By-law.
4. If there is any contravention of the Noise Standards, at any time, as determined by the Township in accordance with Section 5 below, Burl's Creek unequivocally agrees to forthwith pay to the Township:
- (a) the sum of \$15,000 for the first breach;
 - (b) the further sum of \$15,000 for a second breach; and
 - (c) the further sum of \$30,000 for each subsequent breach.
5. The Township shall, in its sole and absolute discretion, be responsible for determining if the Noise Standards have been complied with or have been breached during Boots and Hearts, acting reasonably, and its determination shall be final and binding.
6. This is no limit on the remedies available to the Township and that:
- (a) the remedies contained in this Undertaking are in addition to, and not in substitution of, the remedies available to the Township under the MOU and at law;
 - (b) the Township is at liberty to avail itself of any and all of its various remedies under the MOU and at law, and by enforcing this Undertaking, the Township is not precluded, or in any way restricted, from pursuing any other forms of enforcement at its disposal, or seeking any other remedies

APPENDIX F

DEFINITIONS

DEFINITIONS

Ambient sound level (or background sound): The sound level that is present in the environment produced by acoustical sources other than the source of interest.

A-weighting: A-Weighting is the frequency weighting characteristics intended to approximate the relative sensitivity of the normal human ear to different frequencies (pitches) of sound.

A-weighted Sound Pressure Level: The A-weighted sound pressure level is the sound pressure level modified by application of the A-weighting. It is measured in decibels, A-weighted and denoted dBA.

Decibels: The decibels is a dimensionless measure of sound level or sound pressure levels; see sound pressure levels.

Equivalent Sound Level: The equivalent sound level sometimes denoted (L_{eq}) is the value of the constant sound level which would result in exposure to the same total A-weighted energy as would the time-varying sound, if the constant sound level persisted over an equal time interval.

Noise sensitive receptor (receptor): A noise sensitive land use to be considered in the assessment. Receptors may include outdoor areas and/or façades of permanent residences, schools, hospitals, daycare centres, seniors' residences, and other buildings.

Sound Level: Sound level is the A-weighted sound pressure level.

Sound Level Meter: A sound level meter is an instrument which is sensitive to and calibrated for the measurement of sound.

Sound Pressure Level: The sound pressure level is the twenty times the logarithm to the base of 10 of the ratio of the effective pressure (p) of a sound to the reference pressure (p_r) of 20 μ Pa. Thus the sound pressure level in dB= $20 \log_{10} p/p_r$.