

# ***CITY OF ST. GEORGE, UTAH***

## **EIS for a Proposed Replacement Airport in St. George, Utah**

### **TASK 18 - Little Black Mountain (LBM) Petroglyph Site BASELINE NOISE MONITORING REPORT**

LBM SITE # 1

LBM SITE # 2

LBM SITE # 3

**MONITORING PERIOD: JANUARY 14, 2005 - JANUARY 24, 2005**

**PREPARED BY:  
SANCHEZ INDUSTRIAL DESIGN INC.**

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## 1.0 INTRODUCTION

The purpose of the report is to document the existing baseline ambient sound data of the Little Black Mountain (LBM) Petroglyph Site (**Figure 1**). This site is located on the Arizona-Utah border. The site was chosen due to its potential sensitivity to noise and to its proximity to the proposed SGU airport. Three locations in the project area were chosen for the long-term measurements. The equipment, maps, methods, and procedures for data collection and analysis of the data are detailed in this report.



**Figure 1 – Little Black Mountain Petroglyph Site parking lot and entrance**

## 2.0 NOISE MONITORING LOCATIONS

The noise monitoring locations were selected based on a visual survey of the project area on January 13 and January 14, 2005. The three locations were selected to be representative of noise receptors in the project area that have the greatest potential to be affected by noise from the planned SGU airport operations.

Access to the LBM Petroglyph Site required the use of off-road vehicles. The 4.5 mile main “road” leading into the site is a rough, dirt road, wide enough for one vehicle. Overall, the condition of this main access road limits the number and frequency of people that visit the site. There are also smaller trails near LBM that are used by all terrain vehicles (ATVs), off-road motorcycles, and mountain bikers. See **Figure 2**.



**Figure 2 – All terrain vehicles (ATVs) parked at Little Black Mountain Petroglyph Site**

Due to the relatively close proximity of all three of the noise monitoring locations to each other, the sound generated by an aircraft, motorcycle, or other source would generally be detected at each of the three noise monitoring sites. Some of the sites were located closer to motorcycle trails, so this influences the intensity of the noise level detected at each particular site.

There is an established parking area, pavilion, and toilet facility located at the entrance gate to LBM. This entrance gate served as the central site reference point for this project. Primarily, all of the equipment set-up and observer noise monitoring was done from this parking lot location adjacent to the entrance gate.

Sites #1, #2, and #3 were established in a triangle configuration, with Site #1 being the northernmost “point” of the triangle, and Sites #2 and #3 serving as the east and west “base” of the triangle locations. See **Figure 3** and **Figure 4**.

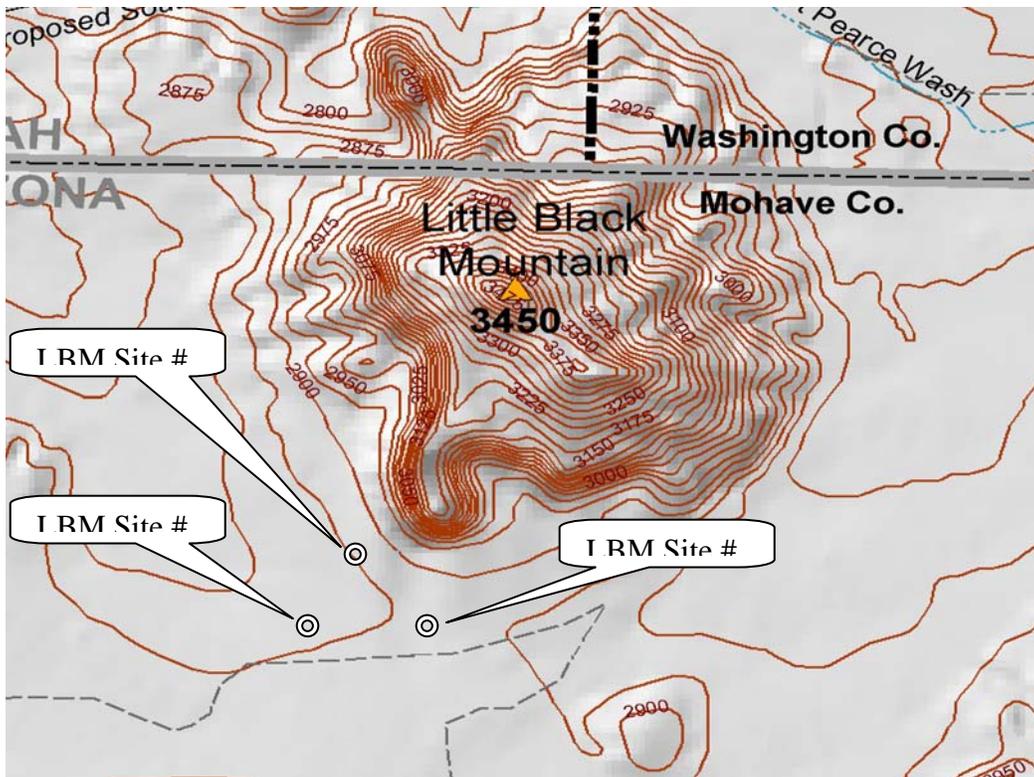


Figure 3 – Little Black Mountain Petroglyph Site noise monitoring locations

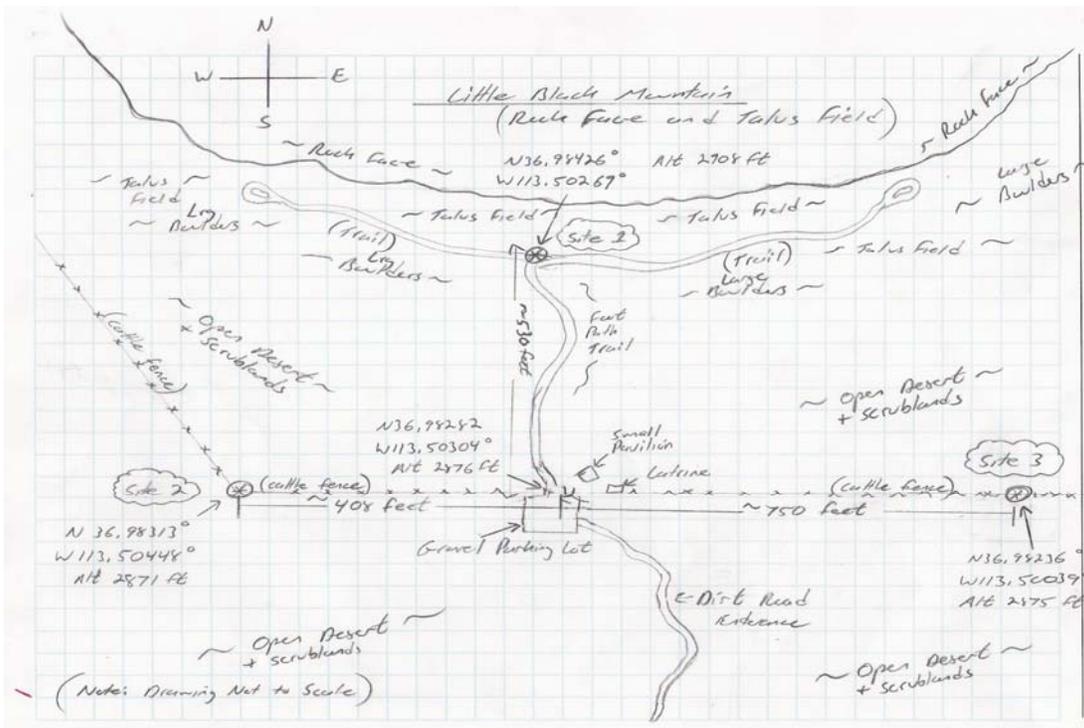


Figure 4 – Little Black Mountain Petroglyph Site noise monitoring locations field sketch

## 2.1 LBM SITE # 1

This site is located at the base of the south face of the LBM Petroglyph Site (see Figure 3 and Figure 4). The monitoring instrument and case were secured to the entrance information sign at the intersection of the east and west foot tails leading to the petroglyph artifacts (see **Figure 5**). Of the three monitoring sites that were installed, Site #1 was most influenced by the noise of visitors on foot that came to walk the trail and view the petroglyphs. Visitors would stop to read the sign and discuss which path they would hike, thereby generating noise close to the microphone. Weekends and holidays tended to be busier times for visitors to come to the LBM site. There were weekdays noted when no visitor or trail rider was seen.

Aside from occasional visitors hiking the trail, the noise that generally influenced Site #1 conditions was generated by jet aircraft at altitude passing overhead; small (propeller) plane activity from SGU and over flights; birds flying over LBM; and irregular ATV, motorcycle (dirt bike), and off-road vehicle traffic.

The flight characteristics for a majority of the jet aircraft heard (and seen) at altitude consisted of aircraft traveling in established airway corridors in a southwest or northeast direction. Aircraft heading southwest would typically be directly over, or a bit to the south, of LBM. The aircraft heading northeast would generally be just to the north, or directly over LBM.



**Figure 5 – LBM Site #1 noise monitor location**

## 2.2 LBM SITE # 2

This site is located to the west of the main entrance area to the LBM Petroglyph Site. The noise monitoring equipment and case were secured to the posts of a cattle fence gate (see **Figure 6**). The fence extended in an east and west direction approximately 600 feet to the south of LBM. Site #2 is located in open, high-desert terrain, so this fence served as a good anchoring point to set the equipment next to. Site #2 was also very close (~20 feet) to one of the trails used by motorcycles coming to the site from the west.

As with Site #1, the majority of the noise events impacting this site were generated by jet aircraft at altitude (following the same flight corridor patterns as noted above), small planes, motorcycles, ATVs, and birds circling overhead. Due the location of Site #2, away and to the west of LBM, it was not obstructed to the north by the rock mesa which comprises LBM. This is a key point because the City of St. George is located northwest of LBM and background "urban" noise could be heard some mornings from the parking lot monitoring location. (It was noted that roadwork and development along S. River Road heading toward LBM is ongoing, and this includes an industrial park on the southern edge of town.) Of the three sites in relation to St. George, Site #1 was somewhat shielded by the rock face of LBM and Site #3 was located further to the east and behind LBM.

Also, any visitors to LBM would typically not notice the Site # 2 location, as it is not along any of the established foot trails and difficult to discern from a distance due to vegetation.



**Figure 6 – LBM Site # 2 noise monitor location**

### 2.3 LBM SITE # 3

The location of Site #3 is to the east of the LBM Petroglyph Site. The noise monitor and case were secured to a cattle fence post (the same fence as Site #2) which extends in an east and west direction to the south of LBM (see **Figure 7**). Site #3 is also located in open, high desert terrain, so this fence served as a good anchoring location for the monitoring equipment. Site #3 was also relatively close (~50 feet) to a trail that ATVs, motorcycles, and four-wheel drive vehicles use.

As with Site #2, any visitors to LBM would generally not notice the location and equipment at Site #3, as it is not along established foot trails and is camouflaged by the scrub brush typical to the area.



**Figure 7 – LBM Site # 3 noise monitor location**

As with Sites #1 and #2, the majority of the noise events impacting this site were generated by jet aircraft at altitude (following the same flight corridor patterns as noted above), small planes, motorcycles, ATVs, and birds circling overhead. Because it is not located along the trail paths, the sound of people talking close to the microphone would not be a common occurrence. However, off-road vehicles using the trail heading east from the parking lot would pass relatively closely to Site #3, more so than at the Site #1 or #2 locations. It was noted that motorcyclists ride in an area to the northeast of LBM, and the noise from these off-road vehicles could be heard in the distance on occasion. Site #3 may have been influenced by this activity more than Sites #1 or #2, due to its open location on the landscape and being east of LBM.

### 3.0 LONG-TERM NOISE MEASUREMENT METHODS & PROCEDURES

Long-term noise monitoring was used to collect baseline information and also to provide a good understanding of the daily noise patterns typical of each measurement site.

During these measurements, the noise monitors were programmed to collect continuous 1-sec Time Histories. Each 1-sec Time History was time stamped with time from the onboard Global Positioning System, unit and contained the following metrics produced by the LD-824 sound level meter: LeqA, LeqC, LeqF and 1/3 octave band center frequencies between 12.5 Hz and 20 KHz. All the measurements were performed with LD-824 sound level meters and GRAS 40AE microphones that comply with Type 1 instrumentation as defined by ANSI Standards. The noise monitors were calibrated at the beginning and end of the measurement period.

**Table 1** below provides the location and measurement days for all three sites. Data was collected at Site #2 for a period of 10 days and at Sites #1 and #3 for a period of seven days. The field observations were done on eight days during the measurement period with most days consisting of at least six hours of field observations. The observation logs documented the time and type of noise sources that were audible during each observation period.

**Table 1**  
MEASUREMENT DATES AND LOCATIONS

Site	GPS Location	Field Observations	Start Date & Time	End Date & Time
LBM Site # 1	N 36.98426 W 113.50267	Yes	1/17/05 12:00	1/24/05 12:00
LBM Site # 2	N 36.98282 W 113.50304	Yes	1/13/05 18:00	1/24/05 12:00
LBM Site # 3	N 36.98236 W 113.50039	Yes	1/17/05 12:00	1/24/05 12:00
Field Observations Days	Jan 14, 15, 16, 17, 18, 19, 21 and 23.			

### 4.0 NOISE MEASUREMENT ANALYSIS AND RESULTS

The 1-sec data was used to calculate the metrics used in this section. The data was organized in 1-hour metrics and daily metrics. Descriptions and results for each measurement site, including the most relevant metrics are discussed in this section.

#### 4.1 DAILY METRICS

The following metrics were used to summarize the daily changes in noise level at all 3 sites. The daily metrics were calculated from 00:00 to 23:59 for each measurement site.

*DNL provides the total energy present during each 24-hour period with a 10 dB penalty for all noise levels produced between 00:00 and 07:00 and between 22:00 and 00:00.*

The DNL levels at these three sites were controlled by noise events happening during the day time hours. The main contributors to the high levels during the day time were people in the area and ATVs. The noise produced by jet overflights and other small planes were usually in the 30 dB range and did not influence the DNL as much.

**Leq24:** *provides the total energy present during each 24- hour period.*

The Leq24 levels were also controlled by people and ATV noise sources close to each measurement location.

**Leq-day:** *provides the total energy present during the daytime hours between 07:00 and 22:00 hours.*

The Leq-day levels show how the sound energy, present during the day time hours at all three sites, was the dominant factor.

**Leq-day PkHr:** *provides the level of the hourly Leq with the highest level measured during each 24-hour period.*

The Leq for the daily peak hour was controlled by local noise sources like people and ATVs.

**Daily Lmax:** *provides the maximum level measured during each 24-hour period.*

The maximum level at all three sites was caused by noise sources that were very close to the microphone at each site. The levels recorded show that people and ATV activity in the area were the loudest noise sources at all three sites.

**Daily L50:** *provides the medium noise level present during each 24-hour period.*

The daily L50 levels for all three sites did not change by more than 5 dB during the whole measurement period. This small change in level shows that the infrequent noise generated by people and ATVs is not present for more than 50 percent of the time.

An evaluation of the measured noise levels at the three locations within the Site, as provided in **Table 3**, indicates that the multi-day average levels for each metric are considerably greater than the average L50(existing) measured noise levels. The average metric levels are listed in **Table 2**, below.

**Table 2**  
**MEASUREMENT PERIOD AVERAGE METRICS**

Noise Metric	Site LBM-1	Site LBM-2	Site LBM-3
DNL (dBA)	43.0	49.5	39.6
Leq24 (dBA)	42.8	49.5	38.9
Leq-day (dBA)	44.8	51.1	40.9
Leq-day PkHr (dBA)	56.0	62.5	50.3
Period Lmax (dBA)	92.0	99.8	87.5
L50(existing) (dBA)	19.9	22.0	20.7

**Table 3**  
**DAILY METRICS**

LBM Site # 1	Fri 14-Jan	Sat 15-Jan	Sun 16-Jan	Mon 17-Jan	Tue 18-Jan	Wed 19-Jan	Thur 20-Jan	Fri 21-Jan	Sat 22-Jan	Sun 23-Jan
DNL (dBA)				45.0	36.6	41.7	30.6	38.4	37.0	48.8
Leq24 (dBA)				44.4	36.0	41.5	29.0	38.1	36.7	48.8
Leq-day (dBA)				46.4	38.0	43.6	30.9	40.1	38.7	50.8
Leq-day PkHr (dBA)				57.0	48.2	55.0	37.2	49.4	43.0	62.5
Daily Lmax (dBA)				92.5	67.8	82.6	65.0	80.8	75.6	92.3
Daily L50 (dBA)				19.3	20.3	20.4	19.7	20.5	20.0	18.4
LBM Site # 2	Fri 14-Jan	Sat 15-Jan	Sun 16-Jan	Mon 17-Jan	Tue 18-Jan	Wed 19-Jan	Thur 20-Jan	Fri 21-Jan	Sat 22-Jan	Sun 23-Jan
DNL (dBA)	47.6	52.6	51.3	42.1	56.3	32.7	47.7	34.2	34.8	30.4
Leq24 (dBA)	47.6	52.6	51.3	42.0	56.3	31.0	47.7	33.2	34.1	28.9
Leq-day (dBA)	49.6	54.7	53.3	44.0	58.3	32.8	49.7	35.1	36.0	30.8
Leq-day PkHr (dBA)	58.6	66.4	62.9	55.3	69.8	39.4	59.8	41.8	46.4	38.1
Daily Lmax (dBA)	87.5	99.8	94.1	79.2	98.9	61.8	94.2	67.3	78.8	61.2
Daily L50 (dBA)	21.7	22.0	20.6	22.9	22.9	22.7	22.2	22.7	21.2	19.9
LBM Site # 3	Fri 14-Jan	Sat 15-Jan	Sun 16-Jan	Mon 17-Jan	Tue 18-Jan	Wed 19-Jan	Thur 20-Jan	Fri 21-Jan	Sat 22-Jan	Sun 23-Jan
DNL (dBA)				42.4	38.5	31.6	44.7	33.8	36.4	30.5
Leq24 (dBA)				40.4	38.2	29.7	44.7	32.7	36.0	28.9
Leq-day (dBA)				42.2	40.2	31.5	46.7	34.6	38.0	30.7
Leq-day PkHr (dBA)				50.2	48.3	39.2	57.1	40.9	44.8	37.5
Daily Lmax (dBA)				80.5	77.8	61.7	87.5	66.5	71.1	64.0
Daily L50 (dBA)				21.3	21.0	20.8	20.2	21.3	20.5	19.7

## 4.2 HOURLY METRICS

The hourly metrics were used to show how the noise levels vary during the day and night hours at all three sites. The hourly Leq and L50 were calculated for all three sites and are plotted in **Figure 8** and **Figure 9**. **Appendix B** provides all the hourly data in a tabular format.

The data in **Figures 8 and 9** show how the L50 and the hourly Leqs track each other but with some differences in level. This change in noise level was influenced by the proximity of the noise source to each one of the sites.

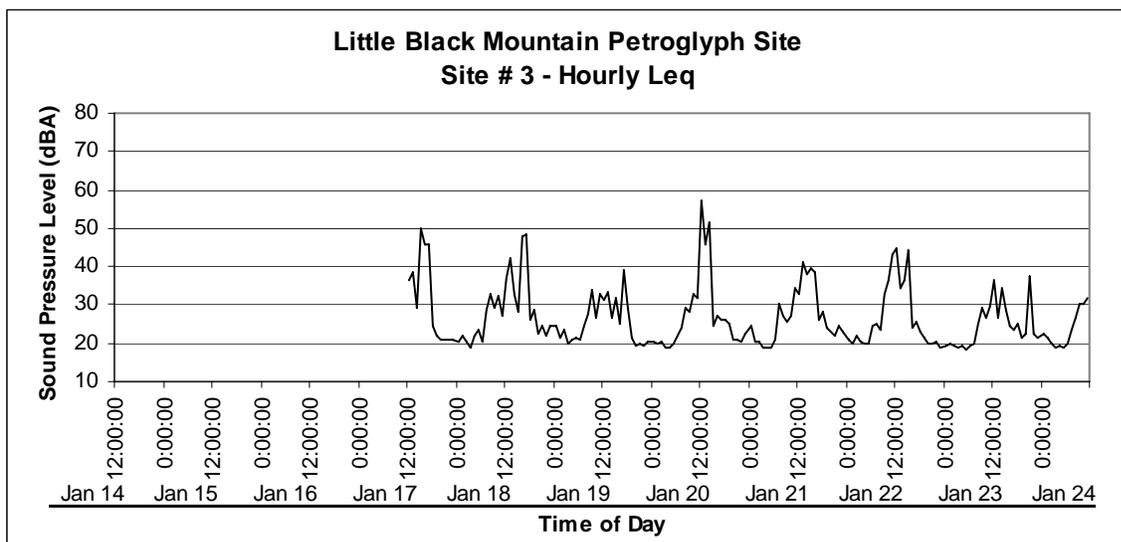
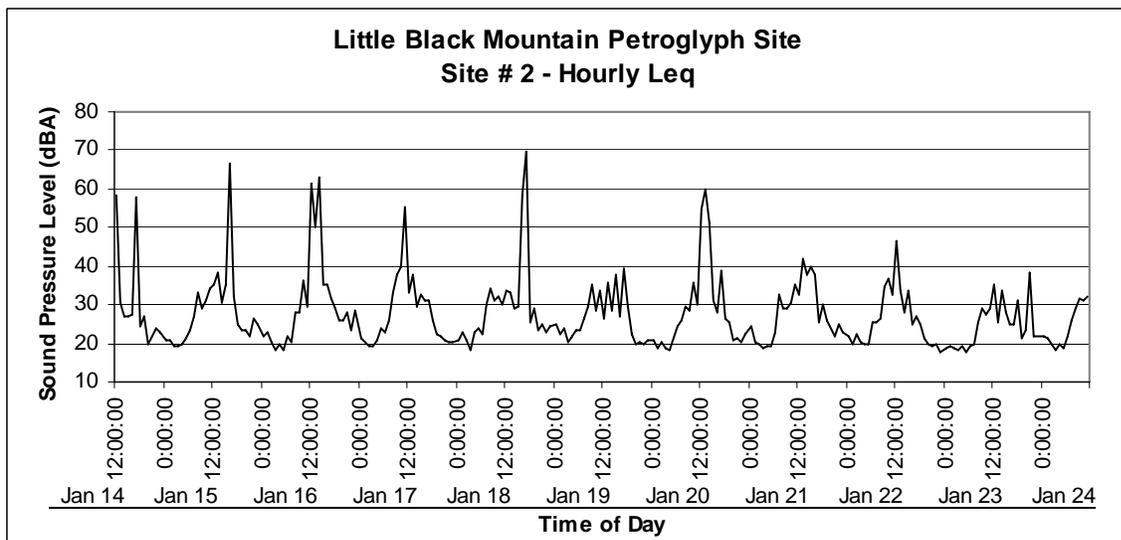
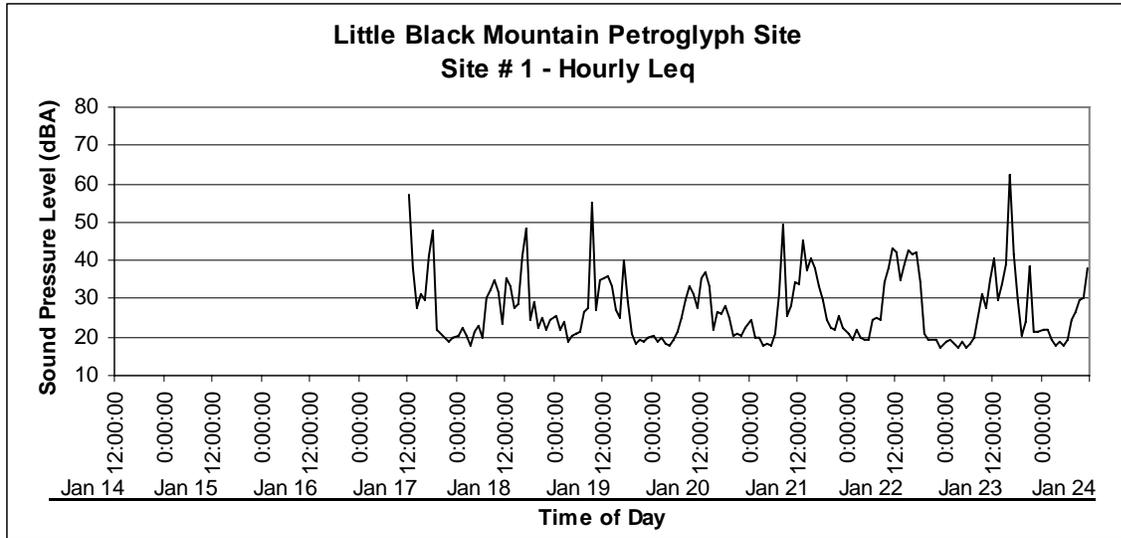


Figure 8 – Hourly Leq plots

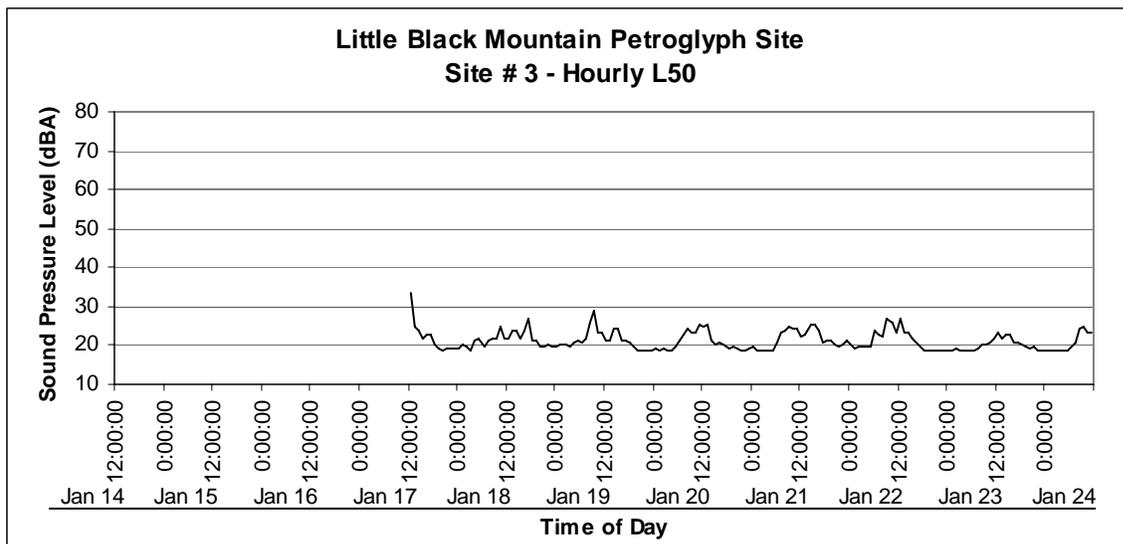
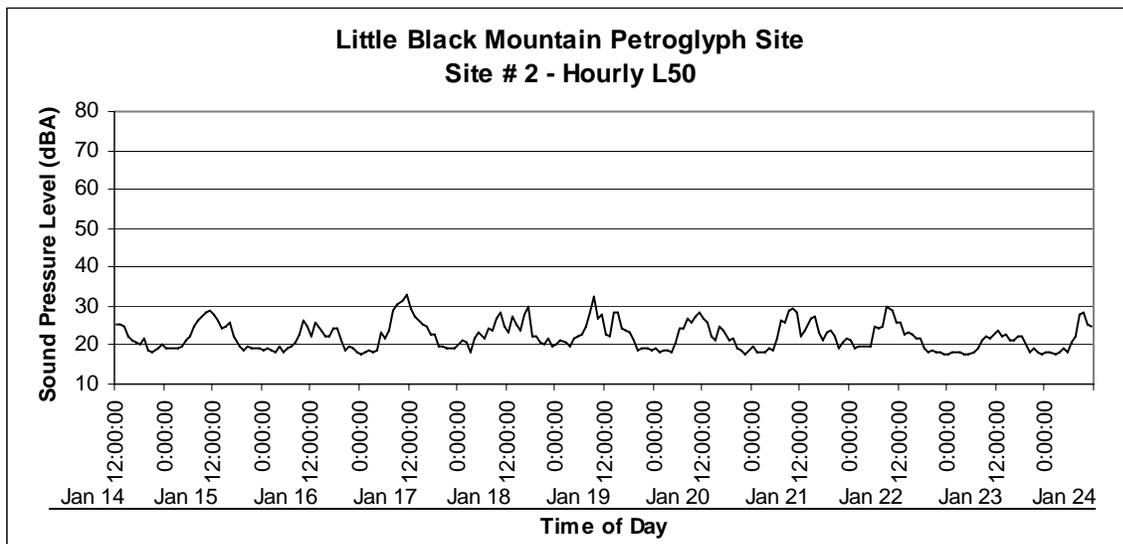
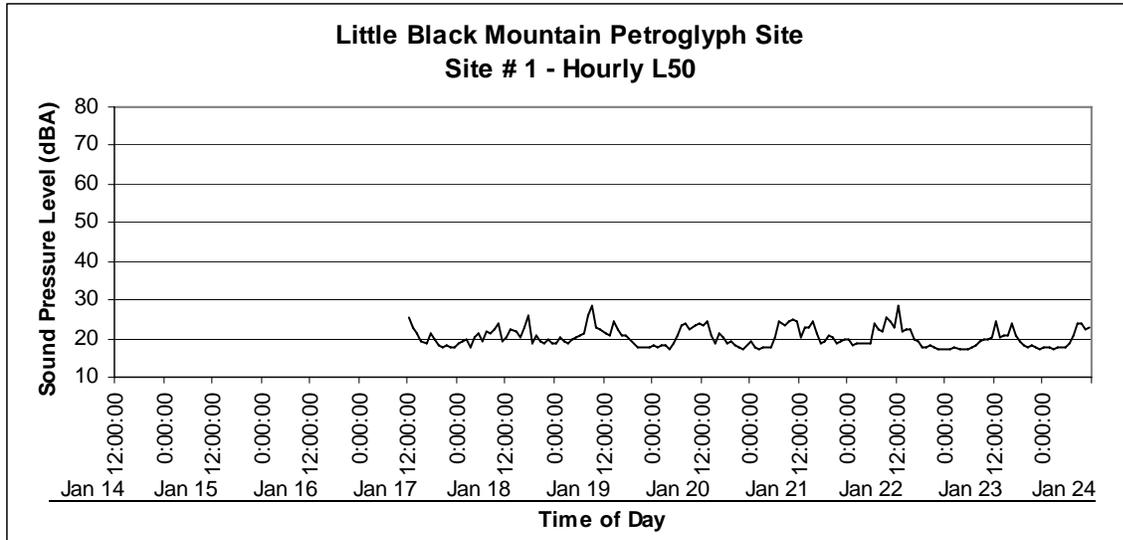
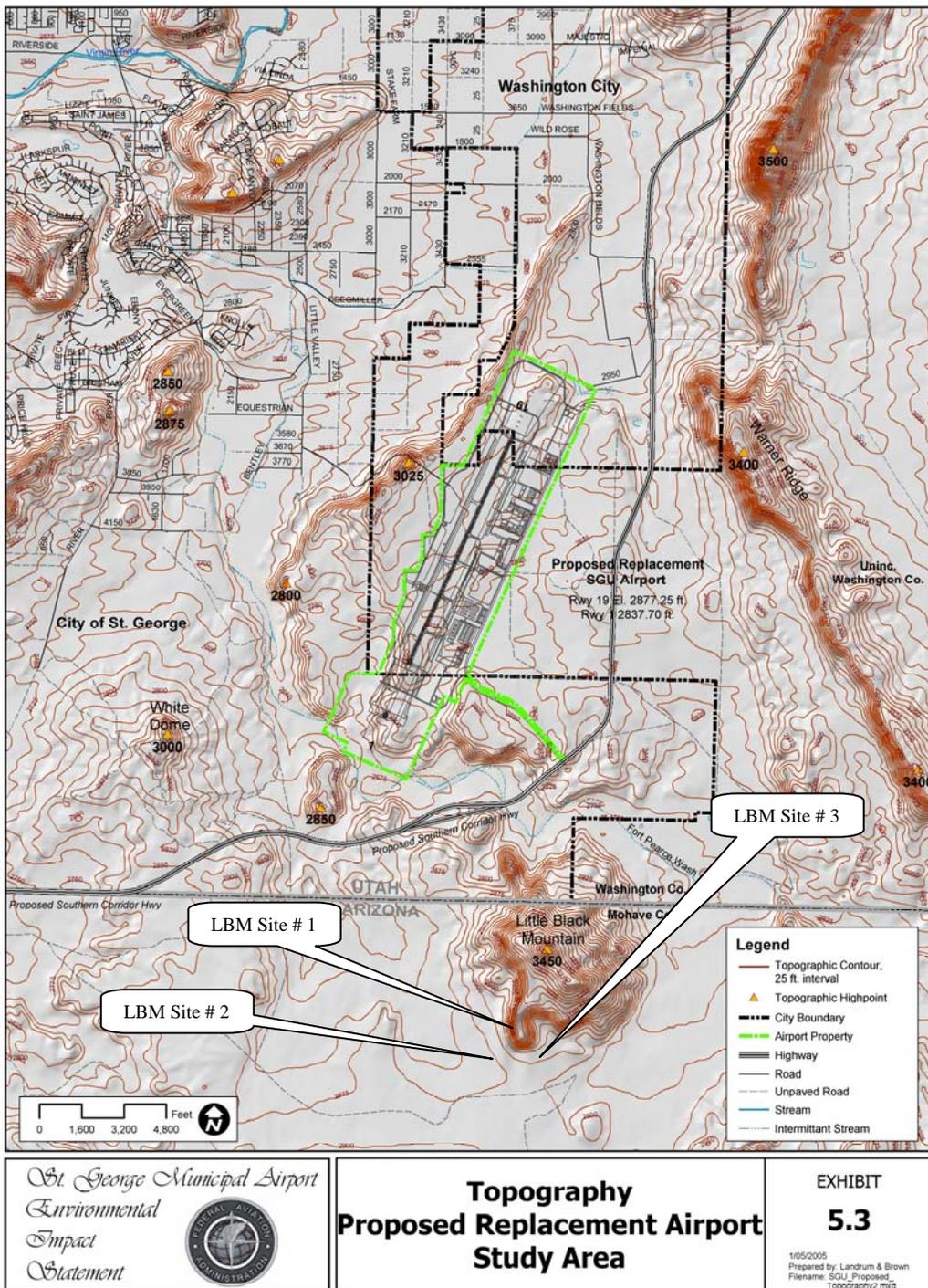


Figure 9 – Hourly L50 plots

## **APPENDIX A**

# St. George Replacement Airport and Little Black Mountain Petroglyph Site



**APPENDIX B****Hourly Metrics – Leq and L50**

Date	Time	Leq (dBA)			L50 (dBA)		
		LBM Site 1	LBM Site 2	LBM Site 3	LBM Site 1	LBM Site 2	LBM Site 3
14/01/2005	0:00:00		0			0	
14/01/2005	1:00:00		18.6			18.3	
14/01/2005	2:00:00		21.0			18.7	
14/01/2005	3:00:00		19.2			19.1	
14/01/2005	4:00:00		20.6			20.1	
14/01/2005	5:00:00		20.2			20.1	
14/01/2005	6:00:00		29.4			22.5	
14/01/2005	7:00:00		27.8			26.7	
14/01/2005	8:00:00		29.3			26.6	
14/01/2005	9:00:00		34.8			32	
14/01/2005	10:00:00		34.6			30.3	
14/01/2005	11:00:00		28.4			27.8	
14/01/2005	12:00:00		58.6			25.2	
14/01/2005	13:00:00		30.8			25.3	
14/01/2005	14:00:00		27.0			24.6	
14/01/2005	15:00:00		26.8			22.4	
14/01/2005	16:00:00		27.6			21.2	
14/01/2005	17:00:00		58.0			20.8	
14/01/2005	18:00:00		24.4			20.2	
14/01/2005	19:00:00		26.8			21.8	
14/01/2005	20:00:00		19.8			18.9	
14/01/2005	21:00:00		21.7			18.4	
14/01/2005	22:00:00		23.9			19	
14/01/2005	23:00:00		23.0			20	
15/01/2005	0:00:00		20.9			19.3	
15/01/2005	1:00:00		20.7			19.4	
15/01/2005	2:00:00		19.4			19.2	
15/01/2005	3:00:00		19.5			19.3	
15/01/2005	4:00:00		20.0			19.6	
15/01/2005	5:00:00		21.2			21	
15/01/2005	6:00:00		23.2			22.4	
15/01/2005	7:00:00		26.8			24.6	
15/01/2005	8:00:00		33.2			26.5	
15/01/2005	9:00:00		29.2			27.35	
15/01/2005	10:00:00		31.3			28.2	
15/01/2005	11:00:00		34.1			28.7	
15/01/2005	12:00:00		35.3			28.1	
15/01/2005	13:00:00		38.2			26.6	
15/01/2005	14:00:00		30.4			24.3	
15/01/2005	15:00:00		35.2			25	
15/01/2005	16:00:00		66.4			25.6	
15/01/2005	17:00:00		32.1			22.1	
15/01/2005	18:00:00		25.0			19.6	

Date	Time	Leq (dBA)			L50 (dBA)		
		LBM Site 1	LBM Site 2	LBM Site 3	LBM Site 1	LBM Site 2	LBM Site 3
15/01/2005	19:00:00		23.2			18.7	
15/01/2005	20:00:00		23.4			19.7	
15/01/2005	21:00:00		21.6			19.4	
15/01/2005	22:00:00		26.4			19	
15/01/2005	23:00:00		24.7			19.1	
16/01/2005	0:00:00		21.7			18.7	
16/01/2005	1:00:00		22.8			19	
16/01/2005	2:00:00		20.1			18.7	
16/01/2005	3:00:00		18.3			18.1	
16/01/2005	4:00:00		19.6			19.5	
16/01/2005	5:00:00		18.4			18.3	
16/01/2005	6:00:00		21.6			19	
16/01/2005	7:00:00		20.5			19.9	
16/01/2005	8:00:00		28.1			20.7	
16/01/2005	9:00:00		28.1			22.8	
16/01/2005	10:00:00		36.3			26.6	
16/01/2005	11:00:00		29.4			24.9	
16/01/2005	12:00:00		61.7			22.5	
16/01/2005	13:00:00		50.2			25.8	
16/01/2005	14:00:00		62.9			23.6	
16/01/2005	15:00:00		35.0			22.2	
16/01/2005	16:00:00		35.1			22.1	
16/01/2005	17:00:00		31.8			24.5	
16/01/2005	18:00:00		29.0			24.2	
16/01/2005	19:00:00		26.0			21.4	
16/01/2005	20:00:00		26.2			18.5	
16/01/2005	21:00:00		28.1			19.8	
16/01/2005	22:00:00		23.6			19	
16/01/2005	23:00:00		28.3			18.2	
17/01/2005	0:00:00		21.3			17.6	
17/01/2005	1:00:00		20.1			18	
17/01/2005	2:00:00		19.1			18.9	
17/01/2005	3:00:00		19.5			18.4	
17/01/2005	4:00:00		20.9			18.5	
17/01/2005	5:00:00		23.7			23.4	
17/01/2005	6:00:00		22.9			21.7	
17/01/2005	7:00:00		26.1			24	
17/01/2005	8:00:00		33.0			29	
17/01/2005	9:00:00		37.9			30.4	
17/01/2005	10:00:00		40.1			31.7	
17/01/2005	11:00:00		55.3			33.1	
17/01/2005	12:00:00	57.0	33.2	36.6	25.5	29.6	33.7
17/01/2005	13:00:00	37.8	38.0	38.4	23.1	27.4	24.6
17/01/2005	14:00:00	27.6	29.5	29.2	21.1	26.1	24
17/01/2005	15:00:00	31.2	32.5	50.2	19.5	25.1	21.9
17/01/2005	16:00:00	29.8	30.8	45.8	18.8	24.8	22.7
17/01/2005	17:00:00	41.2	31.2	45.7	21.1	22.9	22.8

Date	Time	Leq (dBA)			L50 (dBA)		
		LBM Site 1	LBM Site 2	LBM Site 3	LBM Site 1	LBM Site 2	LBM Site 3
17/01/2005	18:00:00	47.9	25.8	24.6	19.8	22.8	20.3
17/01/2005	19:00:00	21.9	22.5	22.0	18.1	19.6	19
17/01/2005	20:00:00	20.7	21.9	21.1	17.7	19.8	18.8
17/01/2005	21:00:00	19.8	20.6	20.9	18.2	19.4	19.3
17/01/2005	22:00:00	18.9	20.2	21.1	17.9	19.1	19.2
17/01/2005	23:00:00	19.6	20.4	20.8	17.9	19	19.1
18/01/2005	0:00:00	20.3	20.8	20.3	18.5	20	19.3
18/01/2005	1:00:00	22.4	22.8	21.9	19.4	21	20.1
18/01/2005	2:00:00	20.3	21.0	20.2	19.6	20.7	19.7
18/01/2005	3:00:00	17.7	18.5	19.0	17.5	18.3	18.8
18/01/2005	4:00:00	21.6	22.7	21.7	20.5	21.9	21.1
18/01/2005	5:00:00	23.0	24.2	23.3	21.5	23.5	21.8
18/01/2005	6:00:00	20.1	22.3	20.3	19.1	21.6	19.7
18/01/2005	7:00:00	30.5	29.8	28.7	21.7	24.1	21.3
18/01/2005	8:00:00	32.3	34.0	32.7	21.4	24	22
18/01/2005	9:00:00	34.8	30.9	29.1	22.3	27	22
18/01/2005	10:00:00	31.9	32.3	32.0	23.7	28.5	24.8
18/01/2005	11:00:00	23.7	30.1	27.0	19.4	24.8	21.5
18/01/2005	12:00:00	35.2	33.8	36.8	20.1	23.4	21.7
18/01/2005	13:00:00	33.6	33.3	41.9	22.6	27.3	23.9
18/01/2005	14:00:00	27.7	28.8	32.8	22.0	25.4	23.8
18/01/2005	15:00:00	28.8	29.3	28.0	20.4	23.6	21.5
18/01/2005	16:00:00	41.3	58.3	47.7	23.0	27.8	23.9
18/01/2005	17:00:00	48.2	69.8	48.3	26.0	29.8	26.9
18/01/2005	18:00:00	24.3	25.5	26.3	18.8	22.4	21
18/01/2005	19:00:00	29.1	28.8	28.4	20.6	22.5	21.1
18/01/2005	20:00:00	22.3	23.2	22.4	19.1	20.8	19.8
18/01/2005	21:00:00	25.0	24.8	24.5	18.6	20.4	19.6
18/01/2005	22:00:00	22.1	23.1	22.1	19.7	21.9	20.3
18/01/2005	23:00:00	24.5	24.6	24.5	18.9	19.9	19.7
19/01/2005	0:00:00	25.3	24.9	24.7	18.9	20.1	19.8
19/01/2005	1:00:00	21.7	22.2	21.5	20.2	21.4	20.3
19/01/2005	2:00:00	23.9	23.8	23.5	19.5	20.7	20.2
19/01/2005	3:00:00	19.0	20.3	19.7	18.9	19.9	19.6
19/01/2005	4:00:00	20.4	22.1	20.8	19.9	21.9	20.7
19/01/2005	5:00:00	21.1	23.3	21.4	20.4	22.5	21
19/01/2005	6:00:00	21.4	23.3	20.9	21.0	22.8	20.5
19/01/2005	7:00:00	26.4	26.5	24.7	21.5	24.8	21.5
19/01/2005	8:00:00	27.5	29.4	27.8	25.7	28.3	25.8
19/01/2005	9:00:00	55.0	35.0	34.1	28.6	32.3	28.7
19/01/2005	10:00:00	26.9	28.4	26.7	22.8	26.9	23.3
19/01/2005	11:00:00	34.9	33.6	32.8	22.4	27.7	23.4
19/01/2005	12:00:00	35.4	26.7	31.4	21.4	22.9	21.3
19/01/2005	13:00:00	36.2	35.7	33.1	20.6	22.2	21.2
19/01/2005	14:00:00	33.2	28.6	26.8	24.2	28.15	24.5
19/01/2005	15:00:00	27.4	37.8	32.0	22.6	28.2	24.2
19/01/2005	16:00:00	25.2	27.2	24.9	20.6	24.1	21.1

Date	Time	Leq (dBA)			L50 (dBA)		
		LBM Site 1	LBM Site 2	LBM Site 3	LBM Site 1	LBM Site 2	LBM Site 3
19/01/2005	17:00:00	40.1	39.4	39.2	20.7	23.9	21.3
19/01/2005	18:00:00	29.2	29.4	29.4	19.7	23.3	20.5
19/01/2005	19:00:00	20.9	22.4	21.4	18.8	21.1	19.5
19/01/2005	20:00:00	18.3	19.7	19.4	17.5	18.6	18.6
19/01/2005	21:00:00	19.6	20.5	20.1	17.8	19.1	18.9
19/01/2005	22:00:00	18.6	19.7	19.4	17.8	19.2	18.8
19/01/2005	23:00:00	19.8	20.6	20.4	17.6	18.7	18.7
20/01/2005	0:00:00	20.3	20.6	20.6	18.3	19.4	19.3
20/01/2005	1:00:00	18.8	18.9	19.6	17.7	18.3	18.9
20/01/2005	2:00:00	19.7	20.0	20.2	18.0	18.9	19.1
20/01/2005	3:00:00	18.0	18.9	19.0	18.0	18.8	18.9
20/01/2005	4:00:00	17.5	18.3	18.7	17.4	18.1	18.6
20/01/2005	5:00:00	19.2	21.2	19.6	19.0	20.8	19.5
20/01/2005	6:00:00	21.5	24.5	21.9	21.0	24.3	21.3
20/01/2005	7:00:00	25.0	25.9	23.9	23.3	24.1	22.7
20/01/2005	8:00:00	30.0	29.8	29.3	23.9	26.7	24.3
20/01/2005	9:00:00	33.5	28.7	28.0	22.6	25.8	23.3
20/01/2005	10:00:00	31.1	35.8	32.9	23.4	27.5	23.5
20/01/2005	11:00:00	27.4	30.0	31.7	24.0	28.4	25.4
20/01/2005	12:00:00	35.2	54.8	57.1	23.3	27.1	24.7
20/01/2005	13:00:00	37.2	59.8	45.7	24.6	25.8	25.2
20/01/2005	14:00:00	33.3	51.4	51.4	20.7	22.3	21.4
20/01/2005	15:00:00	22.1	31.1	24.8	19.0	21.4	20.1
20/01/2005	16:00:00	26.8	28.2	26.9	21.2	24.7	20.95
20/01/2005	17:00:00	26.2	39.0	26.3	20.1	23.9	20.3
20/01/2005	18:00:00	28.1	26.3	25.9	18.8	21	19.3
20/01/2005	19:00:00	24.9	25.5	24.8	19.4	21.8	19.9
20/01/2005	20:00:00	20.4	20.8	20.8	18.2	19	19.2
20/01/2005	21:00:00	20.7	21.1	20.9	17.8	18.6	18.7
20/01/2005	22:00:00	20.2	20.4	20.6	17.3	17.9	18.5
20/01/2005	23:00:00	22.5	22.5	22.6	18.0	18.6	19
21/01/2005	0:00:00	24.3	24.3	24.3	19.1	19.8	19.9
21/01/2005	1:00:00	19.9	20.2	20.4	17.5	18.1	18.7
21/01/2005	2:00:00	20.1	20.0	20.4	17.3	18	18.5
21/01/2005	3:00:00	17.9	18.7	19.0	17.7	18.4	18.8
21/01/2005	4:00:00	18.0	19.2	19.0	17.9	19	18.8
21/01/2005	5:00:00	17.9	19.0	18.9	17.7	18.7	18.9
21/01/2005	6:00:00	21.0	23.1	21.1	20.4	21.9	20.6
21/01/2005	7:00:00	31.1	32.4	30.4	24.5	26.1	23.5
21/01/2005	8:00:00	49.4	28.8	27.3	23.5	25.9	23.6
21/01/2005	9:00:00	25.4	29.1	25.5	24.6	28.7	24.9
21/01/2005	10:00:00	28.3	30.5	27.2	24.7	29.5	24.5
21/01/2005	11:00:00	34.3	35.3	34.2	24.5	28.4	24.5
21/01/2005	12:00:00	33.7	32.9	32.8	20.1	22.3	22.1
21/01/2005	13:00:00	45.2	41.8	40.9	22.8	23.6	22.9
21/01/2005	14:00:00	37.6	37.8	38.0	22.8	27	25.1
21/01/2005	15:00:00	40.6	39.9	39.7	24.3	27.4	25.2

Date	Time	Leq (dBA)			L50 (dBA)		
		LBM Site 1	LBM Site 2	LBM Site 3	LBM Site 1	LBM Site 2	LBM Site 3
21/01/2005	16:00:00	37.9	37.9	38.7	21.3	23.5	23.6
21/01/2005	17:00:00	33.4	25.6	25.9	18.5	21.4	20.6
21/01/2005	18:00:00	29.7	30.0	28.3	19.5	23.4	21.3
21/01/2005	19:00:00	24.6	26.0	23.9	20.9	24	21.2
21/01/2005	20:00:00	22.5	23.8	22.8	20.3	22.4	20.4
21/01/2005	21:00:00	21.8	22.0	21.9	18.5	19.4	19.5
21/01/2005	22:00:00	25.4	24.9	24.7	19.1	20.5	20
21/01/2005	23:00:00	22.2	22.8	22.7	19.9	21.5	21
22/01/2005	0:00:00	21.0	21.7	21.1	20.0	21.1	20.3
22/01/2005	1:00:00	19.1	19.9	19.9	18.4	19.2	19.3
22/01/2005	2:00:00	21.9	22.2	22.1	18.8	19.5	19.5
22/01/2005	3:00:00	19.7	20.4	20.4	18.7	19.5	19.6
22/01/2005	4:00:00	19.2	20.0	19.9	18.8	19.7	19.6
22/01/2005	5:00:00	19.2	20.0	20.0	19.0	19.9	19.8
22/01/2005	6:00:00	24.3	25.4	24.5	23.9	24.9	23.7
22/01/2005	7:00:00	25.2	25.4	25.0	22.2	24.4	22.6
22/01/2005	8:00:00	24.6	26.7	23.7	22.0	25	22.1
22/01/2005	9:00:00	34.2	34.5	32.7	25.4	29.7	26.8
22/01/2005	10:00:00	37.9	36.5	36.5	24.3	28.9	25.8
22/01/2005	11:00:00	43.0	32.8	43.2	22.9	25.7	23.2
22/01/2005	12:00:00	42.3	46.4	44.8	28.7	25.6	26.8
22/01/2005	13:00:00	35.1	33.9	34.4	21.9	22.9	23.3
22/01/2005	14:00:00	39.2	28.0	36.3	22.6	23.1	23.2
22/01/2005	15:00:00	42.6	33.5	44.4	22.5	22.8	21.9
22/01/2005	16:00:00	41.6	24.7	24.0	19.6	21.5	20.7
22/01/2005	17:00:00	42.4	27.2	25.7	19.5	22	19.6
22/01/2005	18:00:00	34.3	24.9	22.9	17.7	19.1	18.7
22/01/2005	19:00:00	21.1	21.1	21.2	17.5	18.2	18.6
22/01/2005	20:00:00	19.1	19.8	19.7	18.0	18.7	18.7
22/01/2005	21:00:00	19.4	19.5	19.9	17.7	18.2	18.8
22/01/2005	22:00:00	19.1	19.6	20.3	17.3	18.1	18.6
22/01/2005	23:00:00	17.3	17.8	18.7	17.2	17.7	18.5
23/01/2005	0:00:00	18.6	18.8	19.3	17.3	17.8	18.5
23/01/2005	1:00:00	19.1	19.3	19.8	17.4	18	18.7
23/01/2005	2:00:00	18.2	18.8	19.4	17.7	18.4	19.1
23/01/2005	3:00:00	17.5	18.1	18.7	17.4	18	18.7
23/01/2005	4:00:00	18.8	19.0	19.5	17.3	17.9	18.7
23/01/2005	5:00:00	17.3	18.0	18.5	17.3	17.9	18.5
23/01/2005	6:00:00	18.1	19.3	19.4	17.5	18.4	18.8
23/01/2005	7:00:00	19.9	19.7	19.9	18.4	19.2	19.3
23/01/2005	8:00:00	25.8	25.6	25.2	19.5	21.4	20.3
23/01/2005	9:00:00	31.5	28.8	29.0	19.8	22.1	20.4
23/01/2005	10:00:00	27.5	27.4	26.7	19.6	21.5	20.8
23/01/2005	11:00:00	35.0	28.9	29.7	20.4	22.9	21.8
23/01/2005	12:00:00	40.5	35.1	36.2	24.6	23.8	23.5
23/01/2005	13:00:00	29.5	25.7	26.7	20.2	22.4	21.7
23/01/2005	14:00:00	33.9	33.6	34.6	21.0	22.7	23

Date	Time	Leq (dBA)			L50 (dBA)		
		LBM Site 1	LBM Site 2	LBM Site 3	LBM Site 1	LBM Site 2	LBM Site 3
23/01/2005	15:00:00	38.8	27.8	28.5	20.6	21.4	23
23/01/2005	16:00:00	62.5	24.7	24.7	24.0	21.1	20.7
23/01/2005	17:00:00	41.6	24.9	23.7	20.7	22.1	20.8
23/01/2005	18:00:00	29.7	31.2	24.8	19.3	22.1	20.2
23/01/2005	19:00:00	20.6	21.5	21.5	18.3	20	19.9
23/01/2005	20:00:00	23.9	23.4	22.4	17.9	18.4	19
23/01/2005	21:00:00	38.6	38.1	37.5	18.2	19	19.5
23/01/2005	22:00:00	21.6	21.7	22.3	17.7	18.1	18.8
23/01/2005	23:00:00	21.3	21.6	21.7	17.3	17.9	18.5
24/01/2005	0:00:00	21.8	21.7	22.2	17.6	18	18.7
24/01/2005	1:00:00	22.0	21.2	21.4	17.7	18	18.8
24/01/2005	2:00:00	19.3	19.5	20.0	17.3	17.8	18.5
24/01/2005	3:00:00	17.7	18.4	18.8	17.5	18.1	18.7
24/01/2005	4:00:00	19.1	20.0	19.5	17.9	19.1	18.8
24/01/2005	5:00:00	17.8	18.6	18.8	17.6	18.4	18.7
24/01/2005	6:00:00	19.6	21.7	20.1	18.9	20.9	19.5
24/01/2005	7:00:00	24.5	25.9	23.5	21.0	22.15	20.6
24/01/2005	8:00:00	26.7	28.9	26.5	23.7	27.9	24.3
24/01/2005	9:00:00	29.6	31.7	30.1	24.1	28.3	25
24/01/2005	10:00:00	30.4	31.2	30.3	22.2	25.4	23.2
24/01/2005	11:00:00	38.0	32.0	31.7	23.0	24.7	23.1

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