

NOISE IMPACT ASSESSMENT

Boherkill gravel pit restoration project

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Noise Impact Assessment

Report prepared by Oliver Fitzsimons MSc. BSc.

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1.0 Introduction

Fitzsimons Walsh Environmental Limited has been retained to undertake a noise impact assessment of the proposed restoration project at Boherkill gravel pit, Rathangan, Co. Kildare.

The proposed development is for the restoration of an existing gravel pit at Boherkill, Rathangan, Co. Kildare. Planning permission is sought for the importation of inert materials over a 10-year period (a rate of approximately 150,000 tonnes per annum) to reinstate the lands to the original levels prior to commencement of extraction.

This noise report assess the potential noise impacts associated with the restoration project coupled (for the initial 5-year period) with the continued operation of the quarry (at a reduced production level).

1.1 Report structure

- Establish the existing noise environment
 - Determine applicable noise limits
- Description of the noise aspects of the proposal
- Predict potential noise impacts associated with the proposal
- Suggest mitigating measures
- Establish residual noise impacts

2.0 Existing Noise Environment

The gravel pit is located off the R401 Kildare road in the townland of Boherkill, Rathangan, Co Kildare; ref Figure 1.

The existing sand and gravel pit is located in a rural area surrounded by agricultural land. Population density is low with only a small number of dwellings in the environs of the quarry.

A select number of representative noise sensitive locations have been identified, ref Table 1 and Figure 2.

Table 1 Representative Noise Sensitive Receptors (NSRs)

Id	Address	Eastings	Northings	Comment
NSR 1	BOHERKILL, RATHANGAN, KILDARE, R51 VK72	269735	217623	201
NSR 2	AISLING HOUSE, THOMASTOWN EAST, RATHANGAN, KILDARE, R51 K761	269596	217696	335
NSR 3	BOHERKILL, RATHANGAN, KILDARE, R51 CY64	269498	217856	470
NSR 4	THOMASTOWN LODGE, THOMASTOWN EAST, RATHANGAN, KILDARE, R51 CR40	269911	217175	495
NSR 5	HILL VIEW, GUIDENSTOWN NORTH, DUNMURRY, KILDARE, R51 FT98	270649	217817	734
NSR 6	THE PADDOCKS, GUIDENSTOWN NORTH, DUNMURRY, KILDARE, R51 A718	270667	217704	738
NSR 7	KILMONEY LODGE, KILMONEY, RATHANGAN, KILDARE, R51 E290	270423	218281	785
NSR 8	THOMASTOWN EAST, RATHANGAN, KILDARE. R51 HN82	269105	217835	841
NSR 9	SAINT CONLETH'S, GUIDENSTOWN SOUTH, KILDARE. R51 D993	270196	216820	891
NSR 10	BOHERKILL, RATHANGAN, KILDARE, R51 YA02	269562	218590	991

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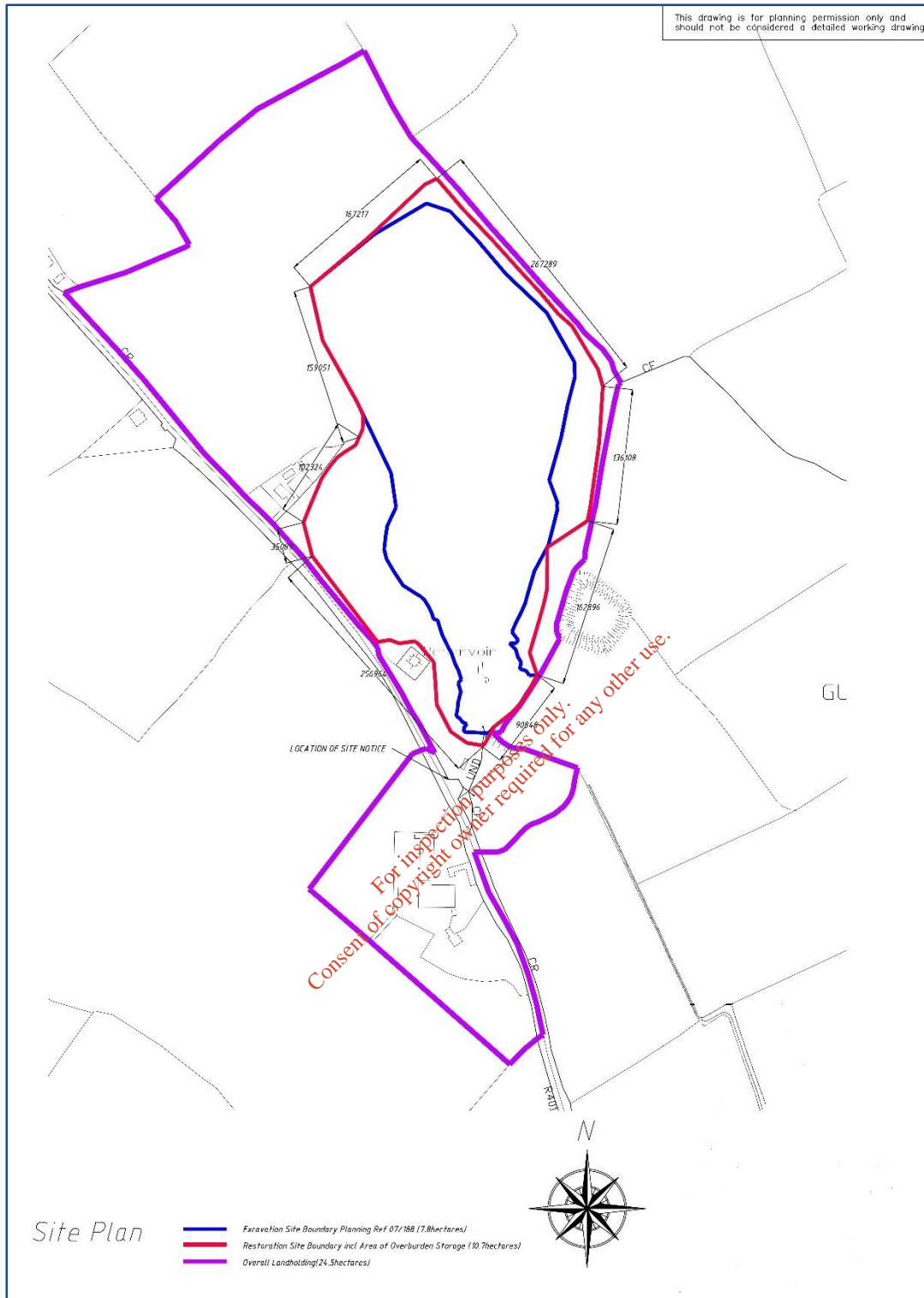


Figure 1 Site location map

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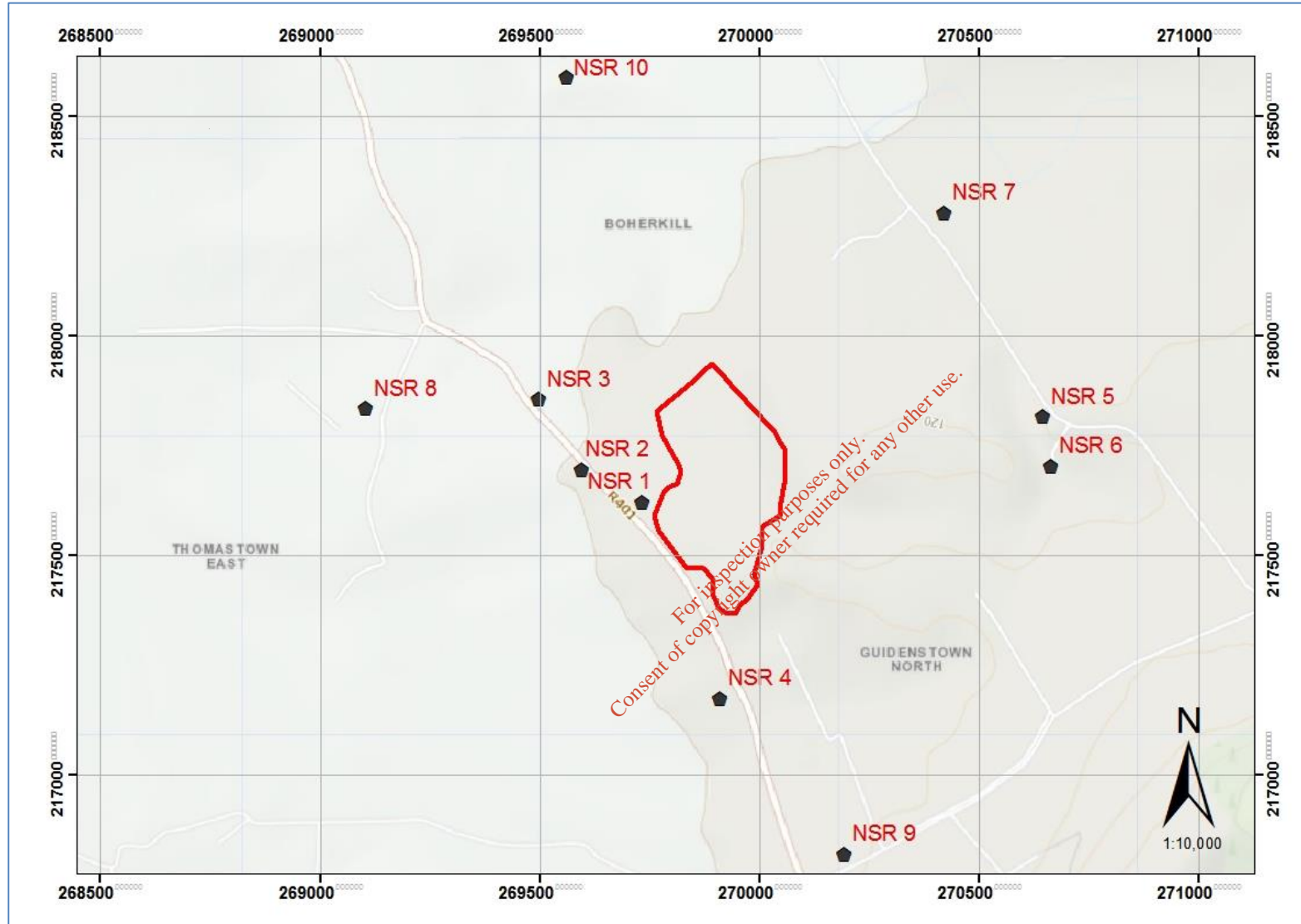


Figure 2 Proposed development at Boherkill and representative NSRs

2.1 Defining the existing Noise Environment

The procedure detailed in the EPA guidance document NG4 has been followed in assessing the existing noise environment.

According to *NG4* a four step process should be followed to determine appropriate noise criteria for a potential development.

Step 1 – Quiet Area Screening of the Development Location

Step 2 – Baseline Environmental Noise Survey

Step 3 – Screen for Areas of Low Background Noise

Step 4 – Determine Appropriate Noise Criteria

2.1.1 Quiet area screening of the development location

It was determined at the preliminary screening stage that the proposed site does not meet the necessary criteria and is therefore not considered to be a quiet area as per the EPA definition.

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2.1.2 Baseline Noise Survey

The baseline noise survey was carried out at a selection of strategically chosen nearest noise sensitive receptors (NSR) proximal to the proposed development.

Traditionally environmental noise limits have been stated over daytime and night-time periods only. Recent EPA guidelines recommend that limits be set over three distinct periods i.e. daytime, evening, and night-time.

With this in mind the baseline noise data has been divided into these distinct time categories.

Daytime Period	07:00 – 19:00
Evening Period	19:00 – 23:00
Night Period	23:00 – 07:00

The existing ambient (LAeq) and background noise (LA90) levels in the areas of the proposed development was established during a period of continuous monitoring at two representative locations.

Noise monitoring was undertaken over the period (October 29th to November 5th 2015) at two locations:

Table 2 Noise monitoring locations

NSR 1	THOMASTOWN LODGE, THOMASTOWN EAST, RATHANGAN, KILDARE, R51 CR40	South of the proposed development
NSR 4	BOHERKILL, RATHANGAN, KILDARE, R51 CY64	North-west of the proposed development

The noise monitoring equipment was positioned proximal to NSRs correctly located at 1.5m above ground level and away from reflecting surfaces.

Acoustic instrumentation was field calibrated before and after the survey and no drift of calibration was observed (calibration level 114 dB at 1000 Hz).

Survey Methodology

The following conditions were adhered to in undertaking the noise survey:

- Measurement of ambient noise levels were taken during good weather conditions using instruments of Class 1 specification.
 - Wind speeds <3 m/s
 - No precipitation
- Monitoring locations were selected to coincide with local residences
- Measurements were undertaken during weekday and weekend periods
- The survey was carried out in accordance with ISO 1996 Part 1 (Description and Measurement of Environmental Noise - Part 1: Basic Quantities and Procedures)

Instrumentation Used

The following instrumentation was used in the baseline survey:

- One no. Larson Davis 812 Precision Integrating Sound Level Analyser/Data logger
- One no. Larson Davis 831 Precision Integrating Sound Level Analyser/Data logger
 - (Calibration certificates presented in appendix 3)
- Wind Shields Type: Larson Davis 2120 Windscreen
- Calibration Type: Larson Davis Precision Acoustic Calibrator Model CA 250
- Davis Vantage Pro weather station¹

¹ Weather variables including rainfall and wind speed were recorded for the duration of the survey

Noise Impact Assessment



Plate 1 SLM at NSR3



Plate 2 SLM at NSR4



Plate 3 Weather station on site.

2.1.3 Results of Noise Survey

The existing ambient and background noise levels in the area of the proposed development were measured at representative noise sensitive receptors.

- Noise monitoring was undertaken over a continuous period at two locations

NSR1. Residential dwelling south of the site

- Monitoring period 29/10/15 – 05/11/2015.
- The complete dataset from the baseline study is presented in the Appendix 1.
- A summary of the interval (mean values) measurements is given in Table 3 below

Table 3 Baseline noise levels mean values – 15 minute interval data²

Monitoring Location id	Day-time Noise levels dB(A)			Evening-time Noise Levels dB(A)			Night-time Noise levels dB(A)		
	Leq	L10	L90	Leq	L10	L90	Leq	L10	L90
NSR1	52	55	41	43	46	36	38	39	31

-
- ² Average noise levels for a specific period are the arithmetic average of the measured LAF noise levels during the relevant period.
 - All noise levels derived averages are rounded to the nearest whole integer
 - Leq is the equivalent continuous noise level or ambient level.
 - L10 is the noise level exceeded or equalled for 10% of the interval.
 - L90 (background) is the noise level equalled or exceeded for 90% of a sample interval

NSR4. Residential dwelling north west of the site

- Monitoring period 29/10/2015 to 05/11/2015.
- The complete dataset from the baseline study is presented in the Appendix 1.
- A summary of the measurements (mean values) is presented in Table 4 below

Table 4 Baseline noise levels mean values – 15 minute interval data³

Monitoring Location id	Day-time Noise levels dB(A)			Evening-time Noise Levels dB(A)			Night-time Noise levels dB(A)		
	Leq	L10	L90	Leq	L10	L90	Leq	L10	L90
NSR4	54	57	43	55	59	37	43	43	32

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-
- ³ Average noise levels for a specific period are the arithmetic average of the measured LAF noise levels during the relevant period.
 - All noise levels derived averages are rounded to the nearest whole integer
 - Leq is the equivalent continuous noise level or ambient level.
 - L10 is the noise level exceeded or equalled for 10% of the interval.
 - L90 (background) is the noise level equalled or exceeded for 90% of a sample interval

2.2 Screening for Areas of Low Background Noise

For all areas not identified as ‘Quiet Areas’ in Step 1, the existing background noise levels measured during the environmental noise survey are examined to determine if they satisfy the following criteria:

- Average Daytime Background Noise Level \leq 40dB LAF90, and
- Average Evening Background Noise Level \leq 35dB LAF90, and
- Average Night-time Background Noise Level \leq 30dB LAF90.

The summary results are presented in section 2.1.3 above.

It is apparent that the conditions listed above are **not pertinent** to this particular site and its therefore **deemed not to be “Areas of Low Background Noise”**.

2.3 Appropriate Noise Criteria/Limits

The fourth and final step in the process of defining the existing Noise Environment is determining appropriate Noise Criteria.

Table 5 details recommended noise limits of each time period for sites with differing background noise levels.

Table 5 Recommended noise criteria

Scenario	Daytime Noise Criterion, dB L _{Ar,T} (07:00 to 19:00hrs)	Evening Noise Criterion, dB L _{Ar,T} (19:00 to 23:00hrs)	Night-time Noise Criterion, dB L _{Aeq,T} (23:00 to 07:00hrs)
Quiet Area	Noise from the licensed site to be at least 10dB below the average daytime background noise level measured during the baseline noise survey.	Noise from the licensed site to be at least 10dB below the average evening background noise level measured during the baseline noise survey.	Noise from the licensed site to be at least 10dB below the average night-time background noise level measured during the baseline noise survey.
Areas of Low Background Noise	45dB	40dB	35dB
All other Areas	55dB	50dB	45dB

The site does not *fall* under the scenario of *Areas of Low Background Noise*.

2.3.1 Noise Limits during the Operational Phase

The sites falls outside the category of “Area of Low Background Noise” therefore based on the findings in section 2 above the following noise limits are deemed appropriate for the site:

- Daytime 55 dBA
- Evening 50 dBA
- Night 45 dBA

Additional noise conditions:

- There shall be no clearly audible tonal component in the noise emission from any activity at any noise sensitive location’.
- Operational sirens and similar, in routine use on-site shall be modified and maintained so as not to be audible at any noise sensitive location.

It is recommended that theses limits be set at the Nearest Noise Sensitive Receptor and not at the site boundary.

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3.0 Characteristics of Proposal

The proposed development is for the restoration of an existing gravel pit at Boherkill, Rathangan, Co. Kildare. Planning permission is sought for the importation of inert materials over a 10 year period (a rate of approximately 150,000 tonnes per annum) to reinstate the lands to the original levels prior to commencement of extraction.

- The quarry operates under planning permission 01/1270 & 07/188.
- An extension to the life of the permit has been obtained via planning permission 15/515 for an additional 5 years of quarrying at the site.

Proposed activities

- Importation of approximately 1.5million tonnes of inert material to reinstate the volumes of material previously extracted. Re-use the volumes of existing overburden on site
- Landscaping works to reinstate the land to the original use as agricultural tillage land.
- Associated site works
- Continuation for a period of approximately 2 / 3 years of the extraction phase of the development as permitted in existing planning permissions albeit at a very reduced rate of extraction.

The existing gravel pit operates from 0800hrs to 1630hrs Monday to Saturday. The gravel pit is closed on Sundays and Bank Holidays.

Noise Aspects of the project

- Road traffic – Export of quarry materials
- Road traffic – importation of reinstatement materials
- Onsite excavation of materials for export
- Onsite placement of imported materials

3.1 Road traffic impacts

As stated earlier existing road traffic bears a significant influence on the ambient and background noise levels in the environs of the quarry site.

Access to and from the site shall be from the existing site access onto the R401.

A traffic impact assessment has been completed for the proposed development the following information has been referenced from that report.

1. Site operations will be limited to 46 weeks per year at 5.5 days per week
2. The original planning permission 2008 allows for 50 inbound and outbound truck journeys per day
3. The proposed restoration activity assumes 30 inbound and outbound journeys daily
4. The continuing quarry operators estimate 5 outbound and inbound journeys per day

Increases in noise levels can be accurately calculated when the percentage increase in traffic flow is known (Ref: HMSO Calculation of Road Traffic Noise, 1988).

There is a logarithmic relationship between noise levels and traffic volume and the higher the existing traffic volume the greater the traffic increase required to produce a perceptible noise change.

Typically, doubling the traffic flow produces a 3 dB (A) change in noise level.

Critically the proposed development will result in a reduced traffic volume and therefore the resultant noise levels will be lower than currently.

3.2 Quarry activity and Reinstatement

Noise emissions will be associated with mobile quarry plant and machinery

Table 6 presents typical noise levels and numbers of mobile plant for the proposed construction jobs.

These noise levels have been sourced from measurements of noise sources at other construction sites. The levels are based on measurements taken at 20m from the geometric centre of activity when the equipment was in continuous operating mode.

Table 6 Typical quarry plant and associated noise levels

Type	Number	Typical Noise level dB(A) Leq @ 20 meters
Excavator – Tracked 25 Tonne	2	76
Water pump	1	70
Screen	1	86
Bulldozer	1	82

- Maximum potential cumulative noise levels from quarry activity would be 87 dB(A) at 20 metres.

4.0 Noise Prediction methodology

Predicted noise levels at the nearest noise sensitive receptor can be determined according to formula 1 or 2 below:

Formula 1 **$L_{p2} = L_{p1} + \Delta L_{\psi} - \Sigma \Delta L$ where,**

L_{p2} = Sound Pressure level in decibels at Receptor.

L_{p1} = Sound pressure level in decibels at known distance.

ΔL_{ψ} = correction for direction effects in a horizontal plane,

$\Sigma \Delta L = \Delta L_d + \Delta L_a + \Delta L_r + \Delta L_s + \Delta L_v + \Delta L_g + \Delta L_w$, and where,

ΔL_d = geometric spreading

$\Delta L_d = 20 \log_{10} (d_1/d_2)$, where, d_1 is the receptor distance, while d_2 is the distance from the source (metres.

ΔL_a = air absorption

ΔL_r = reflection and diffraction

ΔL_s = screening

ΔL_v = vegetation

ΔL_g = ground absorption

ΔL_w = wind gradients

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Formula 2

$$\text{Predicted level} = LW + D - (A_{\text{geo}} + A_{\text{atm}} + A_{\text{gr}} + A_{\text{br}} + A_{\text{misc}})$$

A_{geo} - Geometric Spreading

Geometric (spherical) spreading from a simple free-field point source results in attenuation over distance according to:

$$L_p = L_w - (20 \log R + 11)$$

Where:

L_p = sound pressure level

L_w = sound power level

R = distance from the turbine to the receiver

A_{gr} - Ground Effects

A_{bar} - Barrier Attenuation

A_{atm} - Atmospheric Absorption

A_{misc} - Miscellaneous Other Effects

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5.0 Potential Noise Impacts

5.1 Predicted noise levels - Operational Phase

Table 7 Predicted operational noise levels

Id	Address	Predicted noise level without mitigation, LAeq, dB ⁴
NSR 1	BOHERKILL, RATHANGAN, KILDARE, R51 VK72	52
NSR 2	AISLING HOUSE, THOMASTOWN EAST, RATHANGAN, KILDARE, R51 K761	48
NSR 3	BOHERKILL, RATHANGAN, KILDARE, R51 CY64	45
NSR 4	THOMASTOWN LODGE, THOMASTOWN EAST, RATHANGAN, KILDARE, R51 CR40	44
NSR 5	HILL VIEW, GUIDENSTOWN NORTH, DUNMURRY, KILDARE, R51 FT98	41
NSR 6	THE PADDOCKS, GUIDENSTOWN NORTH, DUNMURRY, KILDARE, R51 A718	41
NSR 7	KILMONEY LODGE, KILMONEY, RATHANGAN, KILDARE, R51 E290	40
NSR 8	THOMASTOWN EAST, RATHANGAN, KILDARE. R51 HN82	40
NSR 9	SAINT CONLETH'S, GUIDENSTOWN SOUTH, KILDARE. R51 D993	39
NSR 10	BOHERKILL, RATHANGAN, KILDARE, R51 YA02	38

Based on the cumulative impact of all plant operational simultaneously, it is predicted that the cumulative noise levels at the closest noise sensitive receptor, NSR 1, could be 52 dBA.

⁴ NOT taking account of noise control measures

6.0 Mitigating Measures

6.1 Controlling the spread of noise

Screening

For maximum benefit, acoustic screens should be close either to the source of noise (as with stationary plant) or to the listener.

Careful positioning of noise barriers, such as bunds or noise screens, can bring about significant reductions in noise levels,

The topography of the site lends itself to providing a barrier between the centre of activity and noise sensitive receptors.

The quarry floor is surrounded by high embankments (ref Plate 4) and surrounded by earthen berms. These provide natural barriers and result in reduced noise levels in the order of up to 10 decibels.



Plate 4 Overlooking existing facility

6.2 Reduction at source

The movement of plant onto and around the site should have regard to the normal operating hours of the site and the location of any NSRs as far as is reasonably practicable.

The use of conventional audible reversing alarms may cause problems and alternatives are available.

Audible reversing warning systems on mobile plant and vehicles should be of a type which, whilst ensuring that they give proper warning, have a minimum noise impact on persons outside sites.

Maintenance

Regular and effective maintenance by trained personnel is essential and will do much to reduce noise from plant and machinery.

- Noise caused by vibrating machinery having rotating parts can be reduced by attention to proper balancing.
- Noises caused by friction in screens and other machines can be reduced by proper lubrication.

6.3 Training

Workers should be trained to employ appropriate techniques to keep site noise to a minimum, and should be effectively supervised to ensure that best working practice in respect of noise reduction is followed.

Good practice includes:

- the proper use and maintenance of tools and equipment;
- the positioning of machinery on site to reduce the emission of noise to the neighbourhood and to site personnel
- the avoidance of unnecessary noise when carrying out manual operations and when operating plant and equipment
- avoid unnecessary revving of engines and switch off equipment when not required;

7.0 Residual noise impact [accounting for mitigation measures]

Table 8 Predicted operational noise levels

Id	Address	Predicted noise level without mitigation, LAeq, dB⁵	Predicted noise level, taking account of mitigation LAeq, dB⁶
NSR 1	BOHERKILL, RATHANGAN, KILDARE, R51 VK72	52	45
NSR 2	AISLING HOUSE, THOMASTOWN EAST, RATHANGAN, KILDARE, R51 K761	48	41
NSR 3	BOHERKILL, RATHANGAN, KILDARE, R51 CY64	45	38
NSR 4	THOMASTOWN LODGE, THOMASTOWN EAST, RATHANGAN, KILDARE, R51 CR40	44	37
NSR 5	HILL VIEW, GUIDENSTOWN NORTH, DUNMURRY, KILDARE, R51 FT98	41	34
NSR 6	THE PADDOCKS, GUIDENSTOWN NORTH, DUNMURRY, KILDARE, R51 A718	41	34
NSR 7	KILMONEY LODGE, KILMONEY, RATHANGAN, KILDARE, R51 E290	40	33
NSR 8	THOMASTOWN EAST, RATHANGAN, KILDARE. R51 HN82	40	33
NSR 9	SAINT CONLETH'S, GUIDENSTOWN SOUTH, KILDARE. R51 D993	39	32
NSR 10	BOHERKILL, RATHANGAN, KILDARE, R51 YA02	38	31

⁵ NOT taking account of noise control measures

⁶ Taking account of noise control measures

8.0 Recommendations

- The planning authority should attach noise conditions to the permission to ensure that the plant is so operated and maintained as to ensure that it avoids causing noise nuisance
- It is recommended that such noise limits/condition be set at the nearest noise sensitive receptors rather than at the site boundary.

9.0 Conclusions

- It has been determined that the site of the proposed development is not by definition an “Area of Low Background Noise”.
- The proposed development will result in a reduced traffic volume and therefore the resultant noise levels will be lower than currently.
 - The site of the proposed development is located along the busy R401 Kildare road. Road traffic is the dominant factor on existing ambient noise levels in the area.
 - Noise impacts from road traffic will therefore be negligible.
- During normal operation of the facility there should be a negligible noise impact at all nearby residents.
- Noise emissions should contain no clearly audible tones and should not be impulsive in nature.
- Predicted noise emissions should be well within recommended criteria levels if mitigation measures are implemented.

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REFERENCES

- (1) Noise Control on Construction and Open Sites - Part 1. Code of Practice for Basic Information and Procedures for Noise Control)
- (2) BS 5228: Part 1: 2009, Noise and Vibration Control on Construction and Open Sites
- (3) ISO 1996/1 Acoustics – Description and Measurement of environmental noise- Part 1: Basic quantities and procedures
- (4) ISO 1996-2: Acoustics – Description and Measurement of environmental noise Part 2: Acquisition of data pertinent to land use
- (5) ISO 1996-3: Acoustics- Description and Measurement of environmental noise Part 3: Application to noise limits
- (6) Calculation of Road Traffic Noise, Department of Welsh Office, 1988 HMSO
- (7) EPA guidance Note NG4
- (8) The National Roads Authority (NRA), Guidelines for the Treatment of Noise and Vibration in National Roads Schemes (2004)
- (9) BS 5228: Noise Control on Construction and Open Sites Part 1: Code of Practice for Basic Information and Procedures for Noise Control (2009)

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Appendix 1 Noise Monitoring Data

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NSR 1 Baseline noise monitoring data

Date	Time	LAeq	LAF10	LAF90
29/10/2015	15:30:00	55.8	59.8	42.7
29/10/2015	15:45:00	58.8	62.1	49.0
29/10/2015	16:00:00	59.2	64.7	51.5
29/10/2015	16:15:00	59.7	62.9	52.5
29/10/2015	16:30:00	53.2	57.7	41.2
29/10/2015	16:45:00	53.5	58.2	42.6
29/10/2015	17:00:00	51.0	55.7	39.5
29/10/2015	17:15:00	51.2	55.9	43.5
29/10/2015	17:30:00	51.4	56.4	39.6
29/10/2015	17:45:00	53.9	58.1	42.0
29/10/2015	18:00:00	51.7	56.2	40.4
29/10/2015	18:15:00	52.6	57.1	41.1
29/10/2015	18:30:00	51.0	55.9	40.5
29/10/2015	18:45:00	52.0	56.0	39.8
29/10/2015	19:00:00	52.6	57.5	46.3
29/10/2015	19:15:00	53.0	57.3	44.4
29/10/2015	19:30:00	51.2	56.0	43.6
29/10/2015	19:45:00	49.1	52.3	41.0
29/10/2015	20:00:00	47.4	51.7	39.6
29/10/2015	20:15:00	50.0	54.7	41.0
29/10/2015	20:30:00	49.4	54.3	40.8
29/10/2015	20:45:00	48.4	53.0	41.8
29/10/2015	21:00:00	47.4	52.2	41.3
29/10/2015	21:15:00	48.6	52.5	40.9
29/10/2015	21:30:00	45.1	46.8	41.1
29/10/2015	21:45:00	46.3	50.7	39.9
29/10/2015	22:00:00	43.8	45.1	37.2
29/10/2015	22:15:00	46.8	48.8	38.3
29/10/2015	22:30:00	46.0	46.2	37.6
29/10/2015	22:45:00	46.3	47.2	36.7
29/10/2015	23:00:00	41.9	42.8	33.4
29/10/2015	23:15:00	43.9	44.4	35.1
29/10/2015	23:30:00	46.2	45.8	36.4
29/10/2015	23:45:00	42.2	41.9	29.6
30/10/2015	00:00:00	32.3	34.1	29.8
30/10/2015	00:15:00	44.7	46.1	28.3
30/10/2015	00:30:00	38.2	37.4	32.0
30/10/2015	00:45:00	35.0	33.9	29.2
30/10/2015	01:00:00	30.2	32.4	25.7
30/10/2015	01:15:00	32.4	34.3	28.1
30/10/2015	01:30:00	33.4	35.5	30.0
30/10/2015	01:45:00	39.3	38.2	28.8

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Date	Time	LAeq	LAF10	LAF90
30/10/2015	02:00:00	37.9	30.0	24.3
30/10/2015	02:15:00	29.8	31.4	28.0
30/10/2015	02:30:00	33.6	35.9	29.6
30/10/2015	02:45:00	33.8	37.1	28.7
30/10/2015	03:00:00	35.9	38.2	33.2
30/10/2015	03:15:00	38.2	40.0	31.8
30/10/2015	03:30:00	32.3	35.1	28.3
30/10/2015	03:45:00	35.7	37.8	30.0
30/10/2015	04:00:00	41.1	44.8	35.8
30/10/2015	04:15:00	41.5	44.7	36.5
30/10/2015	04:30:00	35.5	38.3	31.6
30/10/2015	04:45:00	40.0	38.3	30.9
30/10/2015	05:00:00	33.2	35.4	29.7
30/10/2015	05:15:00	31.8	33.7	28.3
30/10/2015	05:30:00	40.7	40.9	28.3
30/10/2015	05:45:00	43.3	46.3	30.4
30/10/2015	06:00:00	40.7	42.1	28.7
30/10/2015	06:15:00	44.5	42.6	29.6
30/10/2015	06:30:00	46.1	51.5	31.2
30/10/2015	06:45:00	46.3	51.1	31.6
30/10/2015	07:00:00	51.0	55.5	39.7
30/10/2015	07:15:00	50.5	54.8	40.8
30/10/2015	07:30:00	55.3	59.1	44.8
30/10/2015	07:45:00	54.3	58.3	43.5
30/10/2015	08:00:00	56.3	60.0	47.3
30/10/2015	08:15:00	54.8	58.8	43.5
30/10/2015	08:30:00	54.5	58.4	44.5
30/10/2015	08:45:00	55.5	59.4	46.2
30/10/2015	09:00:00	55.4	58.8	47.4
30/10/2015	09:15:00	53.6	57.6	43.5
30/10/2015	09:30:00	54.7	58.6	46.4
30/10/2015	09:45:00	55.2	59.3	46.0
30/10/2015	10:00:00	54.2	58.6	44.3
30/10/2015	10:15:00	56.2	60.7	46.5
30/10/2015	10:30:00	57.2	60.4	50.4
30/10/2015	10:45:00	56.4	59.8	47.9
30/10/2015	11:00:00	54.0	57.9	43.6
30/10/2015	11:15:00	54.1	58.3	45.5
30/10/2015	11:30:00	54.0	58.2	43.7
30/10/2015	11:45:00	54.4	58.3	46.6
30/10/2015	12:00:00	53.9	57.9	46.6
30/10/2015	12:15:00	54.2	58.0	46.5
30/10/2015	12:30:00	58.8	61.6	52.7
30/10/2015	12:45:00	56.8	60.4	49.4
30/10/2015	13:00:00	56.0	59.5	48.5

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Noise Impact Assessment

Date	Time	LAeq	LAF10	LAF90
30/10/2015	13:15:00	56.3	59.6	49.7
30/10/2015	13:30:00	55.8	59.7	48.0
30/10/2015	13:45:00	57.8	60.9	51.5
30/10/2015	14:00:00	57.1	60.4	50.2
30/10/2015	14:15:00	55.6	59.3	46.9
30/10/2015	14:30:00	59.7	63.0	51.9
30/10/2015	14:45:00	56.3	60.1	46.9
30/10/2015	15:00:00	54.0	58.1	42.8
30/10/2015	15:15:00	53.6	57.4	43.2
30/10/2015	15:30:00	54.3	57.9	45.7
30/10/2015	15:45:00	54.3	58.0	46.1
30/10/2015	16:00:00	52.2	56.3	42.1
30/10/2015	16:15:00	54.8	59.2	43.6
30/10/2015	16:30:00	54.7	59.0	46.1
30/10/2015	16:45:00	54.3	58.1	43.2
30/10/2015	17:00:00	52.5	56.7	42.4
30/10/2015	17:15:00	51.7	56.3	41.3
30/10/2015	17:30:00	53.8	58.1	43.9
30/10/2015	17:45:00	53.0	57.5	41.8
30/10/2015	18:00:00	52.1	56.1	41.3
30/10/2015	18:15:00	53.4	57.8	43.2
30/10/2015	18:30:00	54.1	57.8	46.2
30/10/2015	18:45:00	55.7	59.1	46.2
30/10/2015	19:00:00	43.1	45.5	36.0
30/10/2015	19:15:00	44.3	48.0	37.3
30/10/2015	19:30:00	42.7	47.0	33.2
30/10/2015	19:45:00	44.6	48.2	37.4
30/10/2015	20:00:00	42.1	45.8	35.6
30/10/2015	20:15:00	42.1	44.9	36.1
30/10/2015	20:30:00	42.1	45.2	35.7
30/10/2015	20:45:00	43.7	46.7	36.0
30/10/2015	21:00:00	42.7	46.2	34.9
30/10/2015	21:15:00	41.5	44.7	36.0
30/10/2015	21:30:00	46.0	49.5	39.3
30/10/2015	21:45:00	48.5	51.5	40.0
30/10/2015	22:00:00	49.6	52.3	41.0
30/10/2015	22:15:00	48.1	51.2	41.2
30/10/2015	22:30:00	46.2	49.5	39.9
30/10/2015	22:45:00	47.4	50.4	42.1
30/10/2015	23:00:00	46.9	49.9	41.7
30/10/2015	23:15:00	47.2	50.5	40.9
30/10/2015	23:30:00	47.2	49.8	42.2
30/10/2015	23:45:00	47.0	49.5	41.4
31/10/2015	00:00:00	47.4	50.0	42.3
31/10/2015	00:15:00	46.4	49.3	40.2

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Noise Impact Assessment

Date	Time	LAeq	LAF10	LAF90
31/10/2015	00:30:00	47.0	49.9	41.3
31/10/2015	00:45:00	42.6	45.5	36.7
31/10/2015	01:00:00	41.2	43.9	35.8
31/10/2015	01:15:00	40.0	42.8	34.6
31/10/2015	01:30:00	39.6	42.8	34.0
31/10/2015	01:45:00	41.4	44.9	35.2
31/10/2015	02:00:00	41.1	44.4	34.2
31/10/2015	02:15:00	39.1	42.3	34.0
31/10/2015	02:30:00	38.1	40.9	32.8
31/10/2015	02:45:00	41.6	38.6	29.2
31/10/2015	03:00:00	40.9	43.9	33.2
31/10/2015	03:15:00	42.5	45.2	36.1
31/10/2015	03:30:00	34.7	36.8	31.2
31/10/2015	03:45:00	39.0	39.6	30.9
31/10/2015	04:00:00	40.1	41.3	34.4
31/10/2015	04:15:00	40.5	42.7	37.2
31/10/2015	04:30:00	45.5	48.5	41.3
31/10/2015	04:45:00	45.4	48.6	38.9
31/10/2015	05:00:00	41.2	44.4	35.4
31/10/2015	05:15:00	41.8	44.6	36.3
31/10/2015	05:30:00	43.9	45.9	39.9
31/10/2015	05:45:00	45.3	47.8	41.9
31/10/2015	06:00:00	44.8	46.4	40.9
31/10/2015	06:15:00	42.9	45.8	39.0
31/10/2015	06:30:00	45.8	47.4	38.8
31/10/2015	06:45:00	44.1	45.4	38.8
31/10/2015	07:00:00	45.7	48.6	39.8
31/10/2015	07:15:00	47.4	48.7	39.9
31/10/2015	07:30:00	44.8	45.7	35.0
31/10/2015	07:45:00	49.1	47.7	40.8
31/10/2015	08:00:00	57.1	60.2	47.2
31/10/2015	08:15:00	55.5	58.6	45.6
31/10/2015	08:30:00	54.5	57.6	46.7
31/10/2015	08:45:00	54.9	58.3	46.6
31/10/2015	09:00:00	55.7	59.0	44.9
31/10/2015	09:15:00	54.6	58.0	46.0
31/10/2015	09:30:00	54.7	57.0	44.7
31/10/2015	09:45:00	54.2	58.3	43.6
31/10/2015	10:00:00	52.6	55.9	41.5
31/10/2015	10:15:00	49.9	53.9	40.0
31/10/2015	10:30:00	55.5	58.6	48.3
31/10/2015	10:45:00	54.4	57.7	45.6
31/10/2015	11:00:00	51.9	55.4	40.9
31/10/2015	11:15:00	53.0	56.8	42.8
31/10/2015	11:30:00	50.9	55.0	42.1

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Noise Impact Assessment

Date	Time	LAeq	LAF10	LAF90
31/10/2015	11:45:00	53.4	57.2	42.2
31/10/2015	12:00:00	50.3	54.1	39.4
31/10/2015	12:15:00	52.3	56.1	42.6
31/10/2015	12:30:00	50.7	55.0	39.4
31/10/2015	12:45:00	52.2	56.1	41.3
31/10/2015	13:00:00	48.7	52.9	37.4
31/10/2015	13:15:00	55.4	59.0	45.8
31/10/2015	13:30:00	55.4	58.6	47.6
31/10/2015	13:45:00	57.0	59.6	48.3
31/10/2015	14:00:00	53.5	56.4	42.9
31/10/2015	14:15:00	50.4	54.2	38.6
31/10/2015	14:30:00	48.2	52.2	37.8
31/10/2015	14:45:00	44.6	50.0	32.2
31/10/2015	15:00:00	50.4	54.4	38.8
31/10/2015	15:15:00	50.4	54.9	38.6
31/10/2015	15:30:00	55.4	58.8	46.5
31/10/2015	15:45:00	56.2	59.3	49.0
31/10/2015	16:00:00	51.5	55.3	40.2
31/10/2015	16:15:00	54.9	58.4	45.9
31/10/2015	16:30:00	54.1	57.9	44.2
31/10/2015	16:45:00	52.3	56.4	41.3
31/10/2015	17:00:00	45.7	50.5	37.7
31/10/2015	17:15:00	45.5	50.6	34.5
31/10/2015	17:30:00	48.5	51.2	36.7
31/10/2015	17:45:00	45.7	50.5	33.8
31/10/2015	18:00:00	46.1	50.8	38.2
31/10/2015	18:15:00	45.3	50.2	35.2
31/10/2015	18:30:00	44.3	49.2	36.3
31/10/2015	18:45:00	46.7	51.7	35.6
31/10/2015	19:00:00	45.8	50.3	39.5
31/10/2015	19:15:00	45.5	49.4	40.0
31/10/2015	19:30:00	44.5	49.5	39.0
31/10/2015	19:45:00	44.4	49.3	36.7
31/10/2015	20:00:00	44.4	49.4	37.4
31/10/2015	20:15:00	44.5	48.9	36.5
31/10/2015	20:30:00	43.3	47.7	35.3
31/10/2015	20:45:00	42.9	47.7	34.7
31/10/2015	21:00:00	41.3	46.4	34.9
31/10/2015	21:15:00	41.9	44.9	34.8
31/10/2015	21:30:00	40.8	44.6	34.1
31/10/2015	21:45:00	43.2	47.8	37.2
31/10/2015	22:00:00	41.4	46.5	34.4
31/10/2015	22:15:00	44.1	48.9	35.4
31/10/2015	22:30:00	40.6	44.0	33.1
31/10/2015	22:45:00	39.7	34.9	30.4

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Noise Impact Assessment

Date	Time	LAeq	LAF10	LAF90
31/10/2015	23:00:00	44.3	47.2	27.6
31/10/2015	23:15:00	44.2	46.9	24.0
31/10/2015	23:30:00	42.8	44.6	27.5
31/10/2015	23:45:00	44.8	35.3	27.3
01/11/2015	00:00:00	43.5	46.8	24.7
01/11/2015	00:15:00	47.2	51.8	27.3
01/11/2015	00:30:00	41.4	30.0	27.6
01/11/2015	00:45:00	40.0	38.4	24.7
01/11/2015	01:00:00	32.1	33.3	30.7
01/11/2015	01:15:00	31.0	32.2	29.7
01/11/2015	01:30:00	38.3	35.2	25.4
01/11/2015	01:45:00	38.6	31.7	25.7
01/11/2015	02:00:00	35.9	35.2	28.5
01/11/2015	02:15:00	41.2	43.0	25.3
01/11/2015	02:30:00	44.4	48.0	27.0
01/11/2015	02:45:00	42.4	45.1	25.3
01/11/2015	03:00:00	39.9	41.3	24.7
01/11/2015	03:15:00	37.3	33.0	23.9
01/11/2015	03:30:00	41.1	36.3	23.9
01/11/2015	03:45:00	41.3	39.5	24.1
01/11/2015	04:00:00	31.0	33.3	28.2
01/11/2015	04:15:00	39.9	37.9	22.8
01/11/2015	04:30:00	34.6	35.0	29.6
01/11/2015	04:45:00	38.8	30.0	27.3
01/11/2015	05:00:00	32.9	35.0	30.7
01/11/2015	05:15:00	33.5	35.2	31.6
01/11/2015	05:30:00	40.1	39.8	24.9
01/11/2015	05:45:00	39.3	35.2	28.7
01/11/2015	06:00:00	35.9	30.9	24.9
01/11/2015	06:15:00	32.0	33.7	29.8
01/11/2015	06:30:00	40.3	43.7	27.9
01/11/2015	06:45:00	42.0	51.7	24.0
01/11/2015	07:00:00	44.0	47.4	31.5
01/11/2015	07:15:00	39.3	42.5	28.0
01/11/2015	07:30:00	50.7	54.9	35.9
01/11/2015	07:45:00	52.9	57.1	40.7
01/11/2015	08:00:00	45.4	48.8	33.1
01/11/2015	08:15:00	47.2	50.1	39.5
01/11/2015	08:30:00	42.6	47.1	30.7
01/11/2015	08:45:00	47.0	51.7	35.2
01/11/2015	09:00:00	47.1	51.6	36.5
01/11/2015	09:15:00	44.1	48.1	32.4
01/11/2015	09:30:00	52.3	55.8	43.0
01/11/2015	09:45:00	48.8	52.5	37.7
01/11/2015	10:00:00	50.6	54.5	39.1

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Noise Impact Assessment

Date	Time	LAeq	LAF10	LAF90
01/11/2015	10:15:00	44.8	48.9	32.9
01/11/2015	10:30:00	43.5	47.6	32.9
01/11/2015	10:45:00	41.8	45.3	31.9
01/11/2015	11:00:00	45.8	50.6	36.1
01/11/2015	11:15:00	47.0	51.1	37.6
01/11/2015	11:30:00	48.2	52.9	35.9
01/11/2015	11:45:00	54.5	57.9	45.8
01/11/2015	12:00:00	51.7	55.0	39.6
01/11/2015	12:15:00	54.5	58.3	42.5
01/11/2015	12:30:00	54.2	57.8	44.8
01/11/2015	12:45:00	54.7	58.1	45.5
01/11/2015	13:00:00	54.9	58.0	46.0
01/11/2015	13:15:00	52.0	55.8	40.3
01/11/2015	13:30:00	54.2	57.4	46.4
01/11/2015	13:45:00	54.4	57.8	46.0
01/11/2015	14:00:00	54.6	58.3	45.6
01/11/2015	14:15:00	55.3	58.8	45.9
01/11/2015	14:30:00	55.6	59.0	47.5
01/11/2015	14:45:00	57.4	60.2	50.8
01/11/2015	15:00:00	54.6	58.4	44.5
01/11/2015	15:15:00	53.4	56.9	43.9
01/11/2015	15:30:00	50.1	54.1	40.6
01/11/2015	15:45:00	47.0	51.7	35.7
01/11/2015	16:00:00	44.4	49.1	35.7
01/11/2015	16:15:00	44.9	49.8	34.5
01/11/2015	16:30:00	45.2	50.1	33.8
01/11/2015	16:45:00	44.0	48.2	32.9
01/11/2015	17:00:00	45.0	49.0	36.4
01/11/2015	17:15:00	44.9	49.3	34.3
01/11/2015	17:30:00	45.8	50.7	34.6
01/11/2015	17:45:00	45.2	50.2	33.4
01/11/2015	18:00:00	44.5	48.3	33.5
01/11/2015	18:15:00	45.8	50.6	33.4
01/11/2015	18:30:00	44.4	49.1	32.4
01/11/2015	18:45:00	46.2	50.9	34.6
01/11/2015	19:00:00	44.2	48.4	35.0
01/11/2015	19:15:00	43.6	47.2	36.2
01/11/2015	19:30:00	42.0	46.0	35.8
01/11/2015	19:45:00	43.0	47.5	36.9
01/11/2015	20:00:00	41.6	45.4	33.0
01/11/2015	20:15:00	40.0	44.1	33.4
01/11/2015	20:30:00	44.1	48.6	35.0
01/11/2015	20:45:00	41.8	43.7	34.9
01/11/2015	21:00:00	38.7	41.0	30.5
01/11/2015	21:15:00	36.1	35.7	31.1

Consent of copyright owner required for any other use.

Noise Impact Assessment

Date	Time	LAeq	LAF10	LAF90
01/11/2015	21:30:00	40.0	43.8	32.5
01/11/2015	21:45:00	42.3	46.4	33.7
01/11/2015	22:00:00	36.7	36.7	32.0
01/11/2015	22:15:00	40.3	44.3	31.1
01/11/2015	22:30:00	41.4	43.4	34.5
01/11/2015	22:45:00	35.7	35.6	26.3
01/11/2015	23:00:00	37.9	33.8	29.2
01/11/2015	23:15:00	41.3	33.6	26.8
01/11/2015	23:30:00	37.6	34.3	29.0
01/11/2015	23:45:00	38.0	31.4	25.0
02/11/2015	00:00:00	31.5	33.3	29.2
02/11/2015	00:15:00	36.1	32.6	28.7
02/11/2015	00:30:00	38.5	38.0	30.5
02/11/2015	00:45:00	35.2	38.6	31.2
02/11/2015	01:00:00	38.7	36.0	26.9
02/11/2015	01:15:00	35.5	38.6	30.0
02/11/2015	01:30:00	43.7	41.9	27.7
02/11/2015	01:45:00	33.1	35.9	29.6
02/11/2015	02:00:00	37.6	35.5	29.6
02/11/2015	02:15:00	34.2	37.4	30.8
02/11/2015	02:30:00	29.7	30.4	28.7
02/11/2015	02:45:00	29.2	29.8	28.4
02/11/2015	03:00:00	30.4	31.6	28.6
02/11/2015	03:15:00	30.1	31.3	28.5
02/11/2015	03:30:00	30.1	30.9	28.6
02/11/2015	03:45:00	30.7	32.4	28.8
02/11/2015	04:00:00	30.2	31.3	28.9
02/11/2015	04:15:00	32.9	34.4	30.9
02/11/2015	04:30:00	38.0	38.2	28.3
02/11/2015	04:45:00	38.4	37.9	27.1
02/11/2015	05:00:00	39.4	33.4	29.8
02/11/2015	05:15:00	36.4	40.2	30.8
02/11/2015	05:30:00	35.8	39.6	31.1
02/11/2015	05:45:00	39.7	39.3	29.3
02/11/2015	06:00:00	43.9	41.8	30.7
02/11/2015	06:15:00	43.3	42.8	34.4
02/11/2015	06:30:00	46.3	50.5	34.1
02/11/2015	06:45:00	48.8	52.0	34.8
02/11/2015	07:00:00	47.4	51.8	37.4
02/11/2015	07:15:00	46.8	49.6	37.4
02/11/2015	07:30:00	55.5	59.2	44.1
02/11/2015	07:45:00	53.7	57.5	43.8
02/11/2015	08:00:00	52.7	56.4	42.6
02/11/2015	08:15:00	53.6	55.9	42.7
02/11/2015	08:30:00	55.6	58.7	45.9

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Noise Impact Assessment

Date	Time	LAeq	LAF10	LAF90
02/11/2015	08:45:00	55.0	58.6	45.7
02/11/2015	09:00:00	53.0	56.5	44.0
02/11/2015	09:15:00	49.7	53.7	38.6
02/11/2015	09:30:00	48.4	52.6	38.1
02/11/2015	09:45:00	47.8	51.0	38.1
02/11/2015	10:00:00	48.0	52.4	38.7
02/11/2015	10:15:00	45.2	49.6	34.5
02/11/2015	10:30:00	48.2	52.3	38.9
02/11/2015	10:45:00	50.9	54.6	39.9
02/11/2015	11:00:00	51.8	55.2	45.1
02/11/2015	11:15:00	52.0	55.5	45.1
02/11/2015	11:30:00	50.7	54.4	42.8
02/11/2015	11:45:00	49.6	52.9	41.7
02/11/2015	12:00:00	47.7	51.7	36.9
02/11/2015	12:15:00	52.6	56.3	42.7
02/11/2015	12:30:00	46.0	50.3	35.7
02/11/2015	12:45:00	44.7	48.3	33.7
02/11/2015	13:00:00	46.2	50.1	37.1
02/11/2015	13:15:00	53.3	57.0	42.0
02/11/2015	13:30:00	50.1	54.3	39.6
02/11/2015	13:45:00	48.6	52.4	37.4
02/11/2015	14:00:00	46.5	50.9	36.2
02/11/2015	14:15:00	50.0	54.1	40.2
02/11/2015	14:30:00	51.6	55.7	40.2
02/11/2015	14:45:00	47.2	51.6	37.2
02/11/2015	15:00:00	52.0	55.5	43.1
02/11/2015	15:15:00	53.9	57.7	44.1
02/11/2015	15:30:00	53.7	57.5	43.6
02/11/2015	15:45:00	48.4	52.6	37.8
02/11/2015	16:00:00	55.2	58.8	44.4
02/11/2015	16:15:00	47.6	51.3	39.3
02/11/2015	16:30:00	46.4	51.3	36.0
02/11/2015	16:45:00	47.4	51.5	38.8
02/11/2015	17:00:00	47.5	52.1	37.4
02/11/2015	17:15:00	48.6	53.0	39.8
02/11/2015	17:30:00	46.4	50.9	35.7
02/11/2015	17:45:00	47.2	52.2	36.3
02/11/2015	18:00:00	45.6	50.2	34.9
02/11/2015	18:15:00	45.7	50.0	35.3
02/11/2015	18:30:00	46.4	50.6	36.4
02/11/2015	18:45:00	46.1	50.2	35.5
02/11/2015	19:00:00	47.7	52.4	41.0
02/11/2015	19:15:00	47.1	51.8	38.4
02/11/2015	19:30:00	46.5	50.8	39.0
02/11/2015	19:45:00	45.2	50.3	38.7

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Noise Impact Assessment

Date	Time	LAeq	LAF10	LAF90
02/11/2015	20:00:00	41.9	45.9	37.8
02/11/2015	20:15:00	43.6	47.8	36.5
02/11/2015	20:30:00	43.8	47.2	36.8
02/11/2015	20:45:00	44.4	48.4	35.9
02/11/2015	21:00:00	40.4	43.6	36.0
02/11/2015	21:15:00	45.0	48.7	37.4
02/11/2015	21:30:00	37.6	38.4	29.9
02/11/2015	21:45:00	40.0	42.0	35.5
02/11/2015	22:00:00	42.1	46.2	36.7
02/11/2015	22:15:00	39.4	43.2	36.3
02/11/2015	22:30:00	39.7	41.1	31.5
02/11/2015	22:45:00	32.4	34.1	30.2
02/11/2015	23:00:00	40.0	39.2	31.9
02/11/2015	23:15:00	40.4	40.8	30.0
02/11/2015	23:30:00	40.3	43.6	31.5
02/11/2015	23:45:00	33.3	34.8	30.0
03/11/2015	00:00:00	31.2	32.2	30.0
03/11/2015	00:15:00	37.9	35.1	28.9
03/11/2015	00:30:00	39.5	40.2	25.2
03/11/2015	00:45:00	31.4	31.6	28.9
03/11/2015	01:00:00	32.7	34.5	30.3
03/11/2015	01:15:00	34.6	36.5	31.6
03/11/2015	01:30:00	33.9	36.4	30.6
03/11/2015	01:45:00	32.6	34.9	29.9
03/11/2015	02:00:00	33.3	34.9	31.2
03/11/2015	02:15:00	38.3	30.9	28.9
03/11/2015	02:30:00	33.4	35.0	31.6
03/11/2015	02:45:00	30.9	31.7	29.9
03/11/2015	03:00:00	32.8	35.5	28.2
03/11/2015	03:15:00	34.6	37.7	31.3
03/11/2015	03:30:00	36.8	29.6	25.4
03/11/2015	03:45:00	38.2	28.7	24.9
03/11/2015	04:00:00	31.2	32.2	30.0
03/11/2015	04:15:00	37.3	38.7	25.1
03/11/2015	04:30:00	35.5	38.2	31.0
03/11/2015	04:45:00	36.0	36.9	31.1
03/11/2015	05:00:00	33.6	35.6	31.8
03/11/2015	05:15:00	44.6	41.1	24.3
03/11/2015	05:30:00	43.9	45.5	27.7
03/11/2015	05:45:00	39.4	35.3	28.4
03/11/2015	06:00:00	44.6	46.3	31.1
03/11/2015	06:15:00	40.9	39.2	30.5
03/11/2015	06:30:00	46.4	49.3	33.4
03/11/2015	06:45:00	47.2	50.9	32.7
03/11/2015	07:00:00	46.0	49.9	36.2

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Noise Impact Assessment

Date	Time	LAeq	LAF10	LAF90
03/11/2015	07:15:00	47.1	51.6	36.1
03/11/2015	07:30:00	56.2	59.7	48.2
03/11/2015	07:45:00	56.2	59.1	50.2
03/11/2015	08:00:00	55.4	58.4	48.6
03/11/2015	08:15:00	56.3	59.1	50.2
03/11/2015	08:30:00	50.2	54.3	40.2
03/11/2015	08:45:00	51.0	53.0	39.4
03/11/2015	09:00:00	53.0	57.4	44.4
03/11/2015	09:15:00	54.8	58.0	47.3
03/11/2015	09:30:00	48.6	53.6	37.1
03/11/2015	09:45:00	54.7	57.9	45.7
03/11/2015	10:00:00	55.9	58.6	49.6
03/11/2015	10:15:00	56.0	58.9	50.3
03/11/2015	10:30:00	54.2	57.3	45.8
03/11/2015	10:45:00	53.6	56.9	44.8
03/11/2015	11:00:00	54.0	57.3	46.5
03/11/2015	11:15:00	55.9	59.2	47.9
03/11/2015	11:30:00	53.2	57.0	45.6
03/11/2015	11:45:00	51.7	53.4	40.3
03/11/2015	12:00:00	43.7	47.5	32.7
03/11/2015	12:15:00	42.4	46.5	31.3
03/11/2015	12:30:00	46.0	50.0	33.6
03/11/2015	12:45:00	52.0	55.8	41.6
03/11/2015	13:00:00	49.2	53.7	37.1
03/11/2015	13:15:00	46.1	50.6	35.1
03/11/2015	13:30:00	47.1	51.6	36.2
03/11/2015	13:45:00	44.5	48.9	32.4
03/11/2015	14:00:00	44.1	47.3	33.5
03/11/2015	14:15:00	42.3	44.8	30.2
03/11/2015	14:30:00	56.3	59.1	51.0
03/11/2015	14:45:00	56.2	59.3	48.3
03/11/2015	15:00:00	56.1	59.2	49.7
03/11/2015	15:15:00	56.4	59.0	51.6
03/11/2015	15:30:00	51.2	55.1	40.3
03/11/2015	15:45:00	57.0	60.5	46.1
03/11/2015	16:00:00	46.3	50.3	34.1
03/11/2015	16:15:00	46.1	49.2	37.1
03/11/2015	16:30:00	45.6	50.4	35.1
03/11/2015	16:45:00	47.8	52.5	39.9
03/11/2015	17:00:00	46.0	50.8	34.0
03/11/2015	17:15:00	45.6	51.2	36.2
03/11/2015	17:30:00	45.9	50.7	35.8
03/11/2015	17:45:00	44.7	49.9	35.0
03/11/2015	18:00:00	44.2	49.1	32.9
03/11/2015	18:15:00	45.9	51.3	36.7

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Noise Impact Assessment

Date	Time	LAeq	LAF10	LAF90
03/11/2015	18:30:00	44.9	49.9	36.9
03/11/2015	18:45:00	43.8	48.6	32.8
03/11/2015	19:00:00	47.1	52.3	38.8
03/11/2015	19:00:00	47.1	52.3	28.8
03/11/2015	19:15:00	43.8	48.7	36.0
03/11/2015	19:15:00	43.8	48.7	26.0
03/11/2015	19:30:00	43.9	48.7	37.8
03/11/2015	19:30:00	43.9	48.7	24.8
03/11/2015	19:45:00	42.0	45.8	35.5
03/11/2015	19:45:00	42.0	45.8	22.5
03/11/2015	20:00:00	42.9	44.8	35.5
03/11/2015	20:00:00	42.9	44.8	22.5
03/11/2015	20:15:00	41.3	44.5	33.8
03/11/2015	20:15:00	41.3	44.5	23.8
03/11/2015	20:30:00	44.9	49.8	35.0
03/11/2015	20:30:00	44.9	49.8	22.0
03/11/2015	20:45:00	37.1	38.5	31.3
03/11/2015	20:45:00	37.1	38.5	24.3
03/11/2015	21:00:00	41.8	44.5	34.9
03/11/2015	21:00:00	41.8	44.5	24.9
03/11/2015	21:15:00	39.3	41.6	31.6
03/11/2015	21:15:00	39.3	41.6	24.6
03/11/2015	21:30:00	42.1	45.5	36.3
03/11/2015	21:30:00	42.1	45.5	23.3
03/11/2015	21:45:00	39.7	38.8	31.0
03/11/2015	21:45:00	39.7	38.8	24.0
03/11/2015	22:00:00	34.4	29.0	31.0
03/11/2015	22:00:00	34.4	29.0	24.0
03/11/2015	22:15:00	36.9	34.3	33.2
03/11/2015	22:15:00	36.9	34.3	26.2
03/11/2015	22:30:00	33.8	30.2	30.4
03/11/2015	22:30:00	33.8	30.2	23.4
03/11/2015	22:45:00	35.3	33.6	31.0
03/11/2015	22:45:00	35.3	33.6	24.0
03/11/2015	23:00:00	28.7	30.2	27.1
03/11/2015	23:00:00	31.7	33.2	30.1
03/11/2015	23:15:00	30.1	31.9	28.0
03/11/2015	23:15:00	33.1	34.9	31.0
03/11/2015	23:30:00	37.2	37.0	23.7
03/11/2015	23:30:00	39.2	39.0	25.7
03/11/2015	23:45:00	34.2	33.1	23.9
03/11/2015	23:45:00	37.2	36.1	26.9
04/11/2015	00:00:00	38.3	28.3	22.3
04/11/2015	00:00:00	40.3	30.3	24.3
04/11/2015	00:15:00	29.9	31.3	28.3

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Noise Impact Assessment

Date	Time	LAeq	LAF10	LAF90
04/11/2015	00:15:00	32.9	34.3	31.3
04/11/2015	00:30:00	35.8	23.7	21.9
04/11/2015	00:30:00	37.8	25.7	23.9
04/11/2015	00:45:00	33.3	25.4	21.0
04/11/2015	00:45:00	35.3	27.4	23.0
04/11/2015	01:00:00	26.4	28.0	24.6
04/11/2015	01:00:00	29.4	31.0	27.6
04/11/2015	01:15:00	35.7	26.0	20.8
04/11/2015	01:15:00	37.7	28.0	22.8
04/11/2015	01:30:00	25.9	27.1	24.8
04/11/2015	01:30:00	28.9	30.1	27.8
04/11/2015	01:45:00	27.4	26.7	25.1
04/11/2015	01:45:00	30.4	29.7	28.1
04/11/2015	02:00:00	26.1	27.1	24.6
04/11/2015	02:00:00	29.1	30.1	27.6
04/11/2015	02:15:00	25.1	25.8	24.5
04/11/2015	02:15:00	28.1	28.8	27.5
04/11/2015	02:30:00	24.9	25.3	24.5
04/11/2015	02:30:00	27.9	28.3	27.5
04/11/2015	02:45:00	25.1	25.7	24.5
04/11/2015	02:45:00	28.1	28.5	27.5
04/11/2015	03:00:00	26.7	28.6	25.0
04/11/2015	03:00:00	29.7	31.6	28.0
04/11/2015	03:15:00	25.1	25.8	24.4
04/11/2015	03:15:00	28.1	28.8	27.4
04/11/2015	03:30:00	29.6	33.4	24.3
04/11/2015	03:30:00	32.6	36.4	27.3
04/11/2015	03:45:00	26.5	27.9	25.0
04/11/2015	03:45:00	29.5	30.9	28.0
04/11/2015	04:00:00	26.8	27.2	24.4
04/11/2015	04:00:00	29.8	30.2	27.4
04/11/2015	04:15:00	27.2	28.2	24.6
04/11/2015	04:15:00	30.2	31.2	27.6
04/11/2015	04:30:00	24.8	25.4	24.3
04/11/2015	04:30:00	27.8	28.4	27.3
04/11/2015	04:45:00	31.9	36.7	24.4
04/11/2015	04:45:00	34.9	39.7	27.4
04/11/2015	05:00:00	35.6	24.7	21.3
04/11/2015	05:00:00	37.6	26.7	23.3
04/11/2015	05:15:00	27.2	29.7	24.7
04/11/2015	05:15:00	30.2	32.7	27.7
04/11/2015	05:30:00	37.3	33.3	21.8
04/11/2015	05:30:00	39.3	35.3	23.8
04/11/2015	05:45:00	35.5	29.5	23.2
04/11/2015	05:45:00	37.5	31.5	25.2

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Noise Impact Assessment

Date	Time	LAeq	LAF10	LAF90
04/11/2015	06:00:00	42.3	42.5	23.2
04/11/2015	06:00:00	44.3	44.5	25.2
04/11/2015	06:15:00	38.4	35.7	22.4
04/11/2015	06:15:00	40.4	37.7	24.4
04/11/2015	06:30:00	40.8	42.1	26.7
04/11/2015	06:30:00	43.8	45.1	29.7
04/11/2015	06:45:00	47.9	53.1	28.8
04/11/2015	06:45:00	45.0	56.1	31.8
04/11/2015	07:00:00	50.0	50.3	38.5
04/11/2015	07:15:00	47.2	51.8	37.3
04/11/2015	07:30:00	50.8	55.2	39.6
04/11/2015	07:45:00	56.0	59.1	44.3
04/11/2015	08:00:00	54.9	58.7	46.1
04/11/2015	08:15:00	54.7	57.9	47.7
04/11/2015	08:30:00	56.7	59.6	50.6
04/11/2015	08:45:00	55.6	58.6	48.6
04/11/2015	09:00:00	55.3	58.3	47.0
04/11/2015	09:15:00	50.1	53.8	38.8
04/11/2015	09:30:00	47.9	52.4	37.6
04/11/2015	09:45:00	54.1	57.7	44.7
04/11/2015	10:00:00	55.0	55.5	44.7
04/11/2015	10:15:00	51.8	55.5	41.2
04/11/2015	10:30:00	51.9	55.9	42.3
04/11/2015	10:45:00	51.9	55.5	39.0
04/11/2015	11:00:00	48.4	53.3	40.5
04/11/2015	11:15:00	49.6	54.2	40.2
04/11/2015	11:30:00	52.8	57.2	41.5
04/11/2015	11:45:00	55.0	53.6	45.7
04/11/2015	12:00:00	51.3	54.9	40.1
04/11/2015	12:15:00	51.4	55.0	40.3
04/11/2015	12:30:00	44.3	49.6	32.1
04/11/2015	12:45:00	45.8	50.5	36.2
04/11/2015	13:00:00	46.9	51.7	33.5
04/11/2015	13:15:00	53.3	57.1	43.2
04/11/2015	13:30:00	57.3	60.1	50.5
04/11/2015	13:45:00	54.8	57.9	47.6
04/11/2015	14:00:00	48.2	52.7	39.7
04/11/2015	14:15:00	48.0	52.5	39.0
04/11/2015	14:30:00	44.1	49.1	31.6
04/11/2015	14:45:00	54.3	59.5	39.7
04/11/2015	15:00:00	50.5	54.3	41.9
04/11/2015	15:15:00	52.4	57.0	41.2
04/11/2015	15:30:00	51.8	55.6	40.8
04/11/2015	15:45:00	51.7	55.7	40.6
04/11/2015	16:00:00	46.3	51.2	35.2

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Noise Impact Assessment

Date	Time	LAeq	LAF10	LAF90
04/11/2015	16:15:00	43.4	47.6	31.2
04/11/2015	16:30:00	48.7	52.4	36.5
04/11/2015	16:45:00	45.2	50.5	34.6
04/11/2015	17:00:00	44.4	49.4	32.0
04/11/2015	17:15:00	45.2	50.3	35.6
04/11/2015	17:30:00	43.7	48.4	33.4
04/11/2015	17:45:00	43.3	47.9	32.3
04/11/2015	18:00:00	44.0	48.3	34.8
04/11/2015	18:15:00	43.8	48.2	36.1
04/11/2015	18:30:00	47.0	52.1	37.5
04/11/2015	18:45:00	43.1	48.0	33.2
04/11/2015	19:00:00	46.0	50.7	38.5
04/11/2015	19:00:00	46.0	50.7	25.5
04/11/2015	19:15:00	45.1	49.3	38.4
04/11/2015	19:15:00	45.1	49.3	25.4
04/11/2015	19:30:00	45.4	49.8	38.2
04/11/2015	19:30:00	45.4	49.8	25.2
04/11/2015	19:45:00	42.1	47.1	35.7
04/11/2015	19:45:00	42.1	47.1	25.7
04/11/2015	20:00:00	44.5	49.5	37.5
04/11/2015	20:00:00	44.5	49.5	24.5
04/11/2015	20:15:00	42.1	46.3	33.4
04/11/2015	20:15:00	42.1	46.3	26.4
04/11/2015	20:30:00	43.7	46.8	36.7
04/11/2015	20:30:00	43.7	46.8	23.7
04/11/2015	20:45:00	41.1	45.1	33.2
04/11/2015	20:45:00	41.1	45.1	23.2
04/11/2015	21:00:00	42.0	46.4	35.9
04/11/2015	21:00:00	42.0	46.4	22.9
04/11/2015	21:15:00	41.4	45.2	33.5
04/11/2015	21:15:00	41.4	45.2	23.5
04/11/2015	21:30:00	44.7	49.3	36.8
04/11/2015	21:30:00	44.7	49.3	23.8
04/11/2015	21:45:00	39.4	41.0	30.6
04/11/2015	21:45:00	39.4	41.0	23.6
04/11/2015	22:00:00	46.3	50.7	39.0
04/11/2015	22:00:00	46.3	50.7	26.0
04/11/2015	22:15:00	41.4	44.3	35.0
04/11/2015	22:15:00	41.4	44.3	25.0
04/11/2015	22:30:00	41.4	46.8	34.1
04/11/2015	22:30:00	41.4	46.8	27.1
04/11/2015	22:45:00	38.2	39.0	33.7
04/11/2015	22:45:00	38.2	39.0	33.7
04/11/2015	23:00:00	36.5	34.8	28.7
04/11/2015	23:00:00	39.5	37.8	31.7

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Noise Impact Assessment

Date	Time	LAeq	LAF10	LAF90
04/11/2015	23:15:00	34.5	34.4	28.5
04/11/2015	23:15:00	37.5	37.4	31.5
04/11/2015	23:30:00	38.5	31.2	26.5
04/11/2015	23:30:00	41.5	34.2	29.5
04/11/2015	23:45:00	40.3	41.8	24.9
04/11/2015	23:45:00	43.3	44.8	27.9
05/11/2015	00:00:00	37.3	34.5	28.2
05/11/2015	00:00:00	40.3	37.5	31.2
05/11/2015	00:15:00	39.0	35.2	28.3
05/11/2015	00:15:00	42.0	38.2	31.3
05/11/2015	00:30:00	34.9	36.3	30.9
05/11/2015	00:30:00	37.9	39.3	33.9
05/11/2015	00:45:00	41.7	43.8	31.2
05/11/2015	00:45:00	44.7	46.8	34.2
05/11/2015	01:00:00	42.3	41.8	33.9
05/11/2015	01:00:00	44.3	43.8	35.9
05/11/2015	01:15:00	35.7	37.7	33.1
05/11/2015	01:15:00	38.7	40.7	36.1
05/11/2015	01:30:00	38.3	41.3	33.4
05/11/2015	01:30:00	40.3	43.3	35.4
05/11/2015	01:45:00	40.4	37.4	31.7
05/11/2015	01:45:00	43.4	40.4	34.7
05/11/2015	02:00:00	32.7	34.7	30.1
05/11/2015	02:00:00	35.7	37.7	33.1
05/11/2015	02:15:00	32.1	34.4	29.2
05/11/2015	02:15:00	35.1	37.4	32.2
05/11/2015	02:30:00	36.3	33.7	26.9
05/11/2015	02:30:00	39.3	36.7	29.9
05/11/2015	02:45:00	30.0	31.3	28.4
05/11/2015	02:45:00	33.0	34.3	31.4
05/11/2015	03:00:00	31.9	33.2	30.6
05/11/2015	03:00:00	34.9	36.2	33.6
05/11/2015	03:15:00	32.0	33.4	30.6
05/11/2015	03:15:00	35.0	36.4	33.6
05/11/2015	03:30:00	31.8	33.4	29.7
05/11/2015	03:30:00	34.8	36.4	32.7
05/11/2015	03:45:00	30.7	32.6	27.8
05/11/2015	03:45:00	33.7	35.6	30.8
05/11/2015	04:00:00	30.3	31.6	27.7
05/11/2015	04:00:00	33.3	34.6	30.7
05/11/2015	04:15:00	32.0	33.8	29.4
05/11/2015	04:15:00	35.0	36.8	32.4
05/11/2015	04:30:00	30.3	32.6	26.8
05/11/2015	04:30:00	33.3	35.6	29.8
05/11/2015	04:45:00	31.6	33.0	29.7

Consent of copyright owner required for any other use.

Noise Impact Assessment

Date	Time	LAeq	LAF10	LAF90
05/11/2015	04:45:00	34.6	36.0	32.7
05/11/2015	05:00:00	33.4	31.5	22.9
05/11/2015	05:00:00	35.4	33.5	24.9
05/11/2015	05:15:00	37.3	34.3	27.7
05/11/2015	05:15:00	40.3	37.3	30.7
05/11/2015	05:30:00	40.5	43.7	30.0
05/11/2015	05:30:00	43.5	46.7	33.0
05/11/2015	05:45:00	39.9	41.4	29.6
05/11/2015	05:45:00	42.9	44.4	32.6
05/11/2015	06:00:00	42.1	43.9	31.7
05/11/2015	06:00:00	45.1	46.9	34.7
05/11/2015	06:15:00	44.2	46.5	35.0
05/11/2015	06:15:00	46.2	48.5	37.0
05/11/2015	06:30:00	47.1	49.7	39.4
05/11/2015	06:30:00	41.3	51.7	41.4
05/11/2015	06:45:00	42.1	42.8	38.4
05/11/2015	06:45:00	44.1	44.8	40.4
05/11/2015	07:00:00	48.0	53.0	38.7
05/11/2015	07:15:00	48.3	51.7	39.2
05/11/2015	07:30:00	48.2	53.5	37.7
05/11/2015	07:45:00	48.1	52.8	37.5
05/11/2015	08:00:00	51.4	55.1	41.3
05/11/2015	08:15:00	55.0	56.6	44.5
05/11/2015	08:30:00	51.1	55.0	43.2
05/11/2015	08:45:00	49.7	52.7	38.8
05/11/2015	09:00:00	51.1	54.7	42.8
05/11/2015	09:15:00	48.5	52.4	41.7
05/11/2015	09:30:00	53.4	55.4	42.8
05/11/2015	09:45:00	49.2	53.0	41.9
05/11/2015	10:00:00	50.4	54.6	42.1
05/11/2015	10:15:00	50.6	54.3	42.2
05/11/2015	10:30:00	51.8	55.7	45.8
05/11/2015	10:45:00	50.0	53.2	44.5
05/11/2015	11:00:00	51.5	54.6	47.0
05/11/2015	11:15:00	51.9	54.8	48.9
05/11/2015	11:30:00	49.0	52.1	42.9
05/11/2015	11:45:00	51.1	54.7	44.3
05/11/2015	12:00:00	50.1	54.2	41.9
05/11/2015	12:15:00	50.1	53.4	40.6
05/11/2015	12:30:00	48.7	53.2	39.2
05/11/2015	12:45:00	47.9	52.5	37.2
05/11/2015	13:00:00	54.8	58.4	46.4
05/11/2015	13:15:00	52.2	55.2	43.0
05/11/2015	13:30:00	49.2	53.5	38.6
05/11/2015	13:45:00	51.2	55.1	41.0

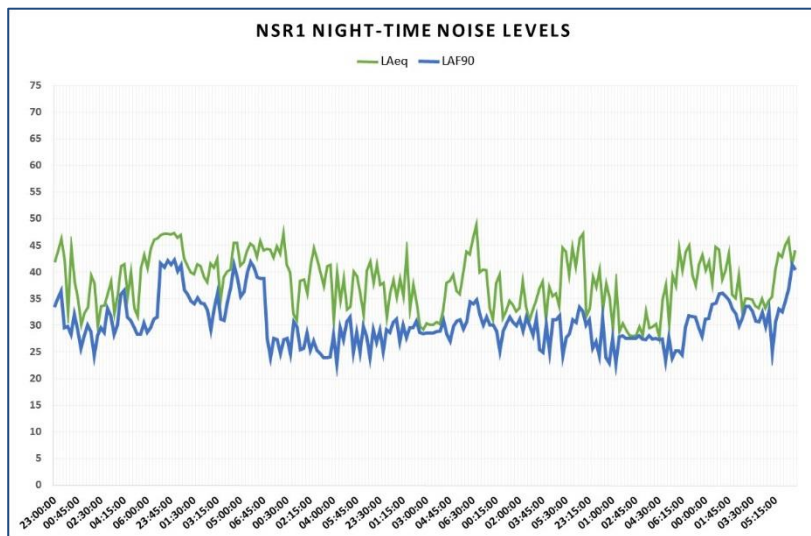
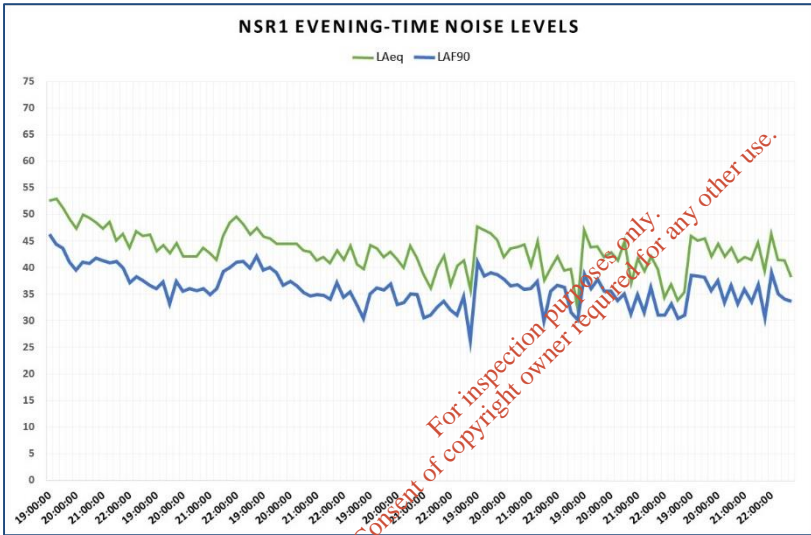
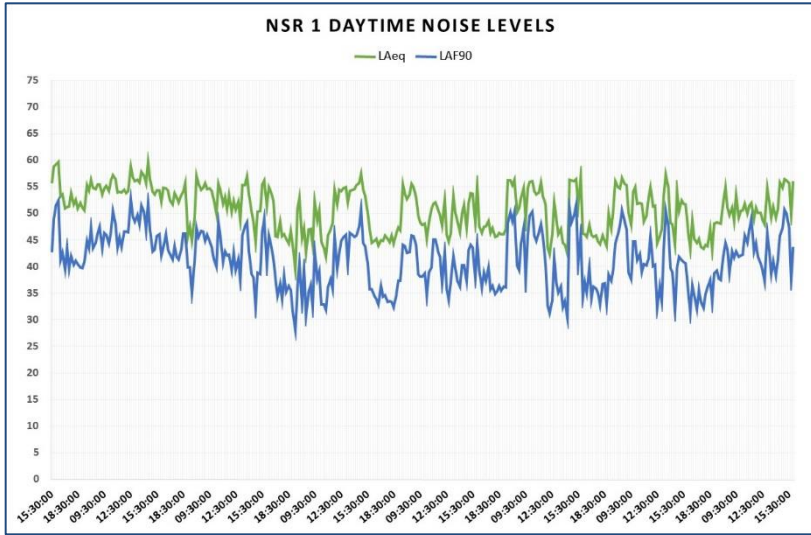
For inspection purposes only.
Consent of copyright owner required for any other use.

Noise Impact Assessment

Date	Time	LAeq	LAF10	LAF90
05/11/2015	14:00:00	49.2	53.4	38.4
05/11/2015	14:15:00	50.9	55.0	41.4
05/11/2015	14:30:00	55.8	59.1	45.9
05/11/2015	14:45:00	54.8	58.1	47.2
05/11/2015	15:00:00	56.5	59.5	50.7
05/11/2015	15:15:00	56.2	59.1	50.0
05/11/2015	15:30:00	55.6	59.1	47.2
05/11/2015	15:45:00	49.8	54.0	37.5
05/11/2015	16:00:00	56.1	60.1	43.7

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Noise Impact Assessment



NSR 4 Baseline noise monitoring data

Date	Time	Leq	L10	L90
29-Oct-15	16:30:00	53.2	58.2	41.3
29-Oct-15	16:45:00	53.7	55.2	43.0
29-Oct-15	17:00:00	55.2	55.3	45.1
29-Oct-15	17:15:00	56.0	56.5	43.3
29-Oct-15	17:30:00	56.8	63.9	45.1
29-Oct-15	17:45:00	58.6	64.6	43.3
29-Oct-15	18:00:00	56.2	61.6	44.6
29-Oct-15	18:15:00	57.3	60.1	42.6
29-Oct-15	18:30:00	57.5	63.0	45.0
29-Oct-15	18:45:00	58.5	62.9	44.6
29-Oct-15	19:00:00	54.9	55.0	41.5
29-Oct-15	19:15:00	57.1	61.1	41.4
29-Oct-15	19:30:00	57.7	64.8	43.4
29-Oct-15	19:45:00	56.3	60.1	44.0
29-Oct-15	20:00:00	57.2	62.9	43.3
29-Oct-15	20:15:00	56.3	60.5	45.5
29-Oct-15	20:30:00	56.7	60.8	40.5
29-Oct-15	20:45:00	54.8	59.0	39.3
29-Oct-15	21:00:00	54.9	57.5	43.0
29-Oct-15	21:15:00	53.9	57.6	41.0
29-Oct-15	21:30:00	53.9	56.5	38.5
29-Oct-15	21:45:00	54.8	56.8	39.6
29-Oct-15	22:00:00	53.6	53.4	40.0
29-Oct-15	22:15:00	52.8	58.8	40.2
29-Oct-15	22:30:00	53.9	54.2	38.7
29-Oct-15	22:45:00	51.1	50.9	40.9
29-Oct-15	23:00:00	52.9	58.0	42.2
29-Oct-15	23:15:00	49.5	44.6	39.5
29-Oct-15	23:30:00	49.5	52.0	39.6
29-Oct-15	23:45:00	50.1	52.0	39.7
30-Oct-15	00:00:00	49.7	49.4	40.5
30-Oct-15	00:15:00	49.4	52.4	38.8
30-Oct-15	00:30:00	48.5	47.5	39.9
30-Oct-15	00:45:00	48.9	44.4	39.3
30-Oct-15	01:00:00	37.3	38.0	32.2
30-Oct-15	01:15:00	38.2	39.5	31.9
30-Oct-15	01:30:00	42.0	43.9	36.8
30-Oct-15	01:45:00	48.4	45.2	38.4
30-Oct-15	02:00:00	49.1	46.6	38.5
30-Oct-15	02:15:00	39.6	43.6	34.3
30-Oct-15	02:30:00	40.2	44.3	33.1
30-Oct-15	02:45:00	41.3	44.6	34.7

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Noise Impact Assessment

Date	Time	Leq	L10	L90
30-Oct-15	03:00:00	35.8	39.8	30.1
30-Oct-15	03:15:00	43.3	43.1	33.6
30-Oct-15	03:30:00	43.4	47.2	36.3
30-Oct-15	03:45:00	42.5	46.5	35.5
30-Oct-15	04:00:00	41.4	44.3	33.9
30-Oct-15	04:15:00	44.2	47.6	36.1
30-Oct-15	04:30:00	37.8	40.7	32.1
30-Oct-15	04:45:00	40.2	43.8	33.2
30-Oct-15	05:00:00	40.7	44.5	33.9
30-Oct-15	05:15:00	46.9	50.0	38.8
30-Oct-15	05:30:00	41.7	45.3	35.4
30-Oct-15	05:45:00	40.0	43.4	33.5
30-Oct-15	06:00:00	40.1	43.0	34.3
30-Oct-15	06:15:00	39.6	43.5	32.0
30-Oct-15	06:30:00	37.6	38.9	32.1
30-Oct-15	06:45:00	48.9	50.0	38.6
30-Oct-15	07:00:00	51.3	53.0	41.2
30-Oct-15	07:15:00	51.0	51.8	41.6
30-Oct-15	07:30:00	50.6	51.0	41.1
30-Oct-15	07:45:00	55.4	59.7	45.0
30-Oct-15	08:00:00	52.5	54.0	44.5
30-Oct-15	08:15:00	54.4	57.6	46.6
30-Oct-15	08:30:00	54.7	58.6	46.6
30-Oct-15	08:45:00	56.9	61.5	46.5
30-Oct-15	09:00:00	57.2	57.7	46.2
30-Oct-15	09:15:00	51.9	54.1	46.7
30-Oct-15	09:30:00	53.8	53.6	46.6
30-Oct-15	09:45:00	56.2	52.0	48.1
30-Oct-15	10:00:00	56.2	58.3	51.7
30-Oct-15	10:15:00	54.4	57.8	52.4
30-Oct-15	10:30:00	56.6	56.1	54.4
30-Oct-15	10:45:00	57.0	59.6	54.4
30-Oct-15	11:00:00	58.5	57.8	49.8
30-Oct-15	11:15:00	57.7	62.1	51.7
30-Oct-15	11:30:00	55.2	59.3	53.3
30-Oct-15	11:45:00	55.6	55.5	50.6
30-Oct-15	12:00:00	59.3	61.1	56.7
30-Oct-15	12:15:00	58.6	64.1	56.2
30-Oct-15	12:30:00	56.2	57.7	53.2
30-Oct-15	12:45:00	57.6	61.9	52.2
30-Oct-15	13:00:00	58.7	63.8	55.5
30-Oct-15	13:15:00	58.3	63.3	55.0
30-Oct-15	13:30:00	57.7	62.5	55.1
30-Oct-15	13:45:00	57.4	63.6	53.4
30-Oct-15	14:00:00	59.3	60.8	52.3

For inspection purposes only. Consent of copyright holder required for any other use.

Noise Impact Assessment

Date	Time	Leq	L10	L90
30-Oct-15	14:15:00	56.4	61.7	51.6
30-Oct-15	14:30:00	56.1	58.3	52.6
30-Oct-15	14:45:00	59.3	63.3	53.0
30-Oct-15	15:00:00	56.9	62.5	50.7
30-Oct-15	15:15:00	55.8	62.0	48.8
30-Oct-15	15:30:00	58.8	59.6	49.5
30-Oct-15	15:45:00	59.5	66.0	49.8
30-Oct-15	16:00:00	56.6	61.3	46.0
30-Oct-15	16:15:00	57.0	63.6	44.1
30-Oct-15	16:30:00	58.1	60.6	43.6
30-Oct-15	16:45:00	55.5	56.6	44.9
30-Oct-15	17:00:00	58.0	57.9	45.5
30-Oct-15	17:15:00	56.1	57.0	44.9
30-Oct-15	17:30:00	59.6	63.5	49.2
30-Oct-15	17:45:00	58.3	59.9	48.3
30-Oct-15	18:00:00	59.3	63.4	47.9
30-Oct-15	18:15:00	58.0	64.6	47.4
30-Oct-15	18:30:00	58.7	64.5	48.0
30-Oct-15	18:45:00	59.5	65.2	50.2
30-Oct-15	19:00:00	54.7	61.0	43.0
30-Oct-15	19:15:00	57.5	63.2	46.2
30-Oct-15	19:30:00	54.8	60.6	45.7
30-Oct-15	19:45:00	57.0	63.0	46.9
30-Oct-15	20:00:00	58.5	62.9	49.9
30-Oct-15	20:15:00	57.6	60.9	48.8
30-Oct-15	20:30:00	57.4	62.0	50.4
30-Oct-15	20:45:00	56.2	61.3	47.9
30-Oct-15	21:00:00	55.8	60.4	46.3
30-Oct-15	21:15:00	57.1	61.6	49.0
30-Oct-15	21:30:00	57.1	62.2	47.2
30-Oct-15	21:45:00	58.0	62.0	49.9
30-Oct-15	22:00:00	56.9	62.3	49.6
30-Oct-15	22:15:00	57.3	62.2	48.3
30-Oct-15	22:30:00	56.9	61.4	48.6
30-Oct-15	22:45:00	57.6	60.9	50.7
30-Oct-15	23:00:00	53.8	57.1	45.6
30-Oct-15	23:15:00	56.0	59.4	49.2
30-Oct-15	23:30:00	52.0	55.8	42.2
30-Oct-15	23:45:00	53.5	57.3	45.0
31-Oct-15	00:00:00	52.9	57.0	46.0
31-Oct-15	00:15:00	51.6	55.2	45.5
31-Oct-15	00:30:00	54.0	57.6	48.0
31-Oct-15	00:45:00	55.5	60.0	48.3
31-Oct-15	01:00:00	56.2	59.2	48.6
31-Oct-15	01:15:00	54.9	58.6	47.4

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Noise Impact Assessment

Date	Time	Leq	L10	L90
31-Oct-15	01:30:00	53.2	57.4	45.3
31-Oct-15	01:45:00	52.2	55.1	44.4
31-Oct-15	02:00:00	50.7	53.0	43.3
31-Oct-15	02:15:00	49.7	53.0	42.7
31-Oct-15	02:30:00	47.0	50.5	40.4
31-Oct-15	02:45:00	48.6	53.7	40.9
31-Oct-15	03:00:00	52.2	55.7	44.3
31-Oct-15	03:15:00	50.2	53.3	42.5
31-Oct-15	03:30:00	50.7	52.0	41.5
31-Oct-15	03:45:00	49.0	49.5	39.5
31-Oct-15	04:00:00	51.9	49.5	41.4
31-Oct-15	04:15:00	48.2	47.4	39.4
31-Oct-15	04:30:00	44.6	44.2	35.5
31-Oct-15	04:45:00	36.6	39.9	30.9
31-Oct-15	05:00:00	48.4	43.6	37.8
31-Oct-15	05:15:00	45.6	45.4	36.5
31-Oct-15	05:30:00	45.5	48.2	39.7
31-Oct-15	05:45:00	48.6	51.0	42.7
31-Oct-15	06:00:00	46.7	48.7	38.7
31-Oct-15	06:15:00	49.2	50.9	39.5
31-Oct-15	06:30:00	49.9	52.0	40.8
31-Oct-15	06:45:00	50.2	51.6	40.9
31-Oct-15	07:00:00	44.6	46.9	42.0
31-Oct-15	07:15:00	48.8	46.5	40.6
31-Oct-15	07:30:00	49.7	48.7	39.8
31-Oct-15	07:45:00	52.8	57.9	43.9
31-Oct-15	08:00:00	51.0	50.0	43.6
31-Oct-15	08:15:00	50.1	48.7	42.4
31-Oct-15	08:30:00	44.6	45.5	40.8
31-Oct-15	08:45:00	48.3	53.0	38.6
31-Oct-15	09:00:00	48.9	51.5	38.8
31-Oct-15	09:15:00	51.5	56.9	40.6
31-Oct-15	09:30:00	52.4	58.8	40.3
31-Oct-15	09:45:00	55.5	62.4	43.0
31-Oct-15	10:00:00	53.5	58.0	40.4
31-Oct-15	10:15:00	51.0	55.9	40.9
31-Oct-15	10:30:00	55.6	61.7	40.4
31-Oct-15	10:45:00	55.8	61.8	41.4
31-Oct-15	11:00:00	55.7	61.2	40.5
31-Oct-15	11:15:00	56.4	62.4	41.4
31-Oct-15	11:30:00	54.0	61.5	42.5
31-Oct-15	11:45:00	55.1	63.2	43.3
31-Oct-15	12:00:00	54.5	61.2	40.8
31-Oct-15	12:15:00	54.0	62.1	42.2
31-Oct-15	12:30:00	55.0	63.7	40.5

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Noise Impact Assessment

Date	Time	Leq	L10	L90
31-Oct-15	12:45:00	52.5	60.7	40.4
31-Oct-15	13:00:00	57.8	64.0	43.1
31-Oct-15	13:15:00	53.7	61.4	40.9
31-Oct-15	13:30:00	54.2	59.2	42.0
31-Oct-15	13:45:00	56.0	63.9	40.3
31-Oct-15	14:00:00	57.2	64.8	43.5
31-Oct-15	14:15:00	54.2	59.1	40.5
31-Oct-15	14:30:00	55.5	57.2	41.8
31-Oct-15	14:45:00	55.3	64.0	40.3
31-Oct-15	15:00:00	54.8	63.0	40.4
31-Oct-15	15:15:00	53.6	60.7	39.4
31-Oct-15	15:30:00	53.9	62.8	40.5
31-Oct-15	15:45:00	54.3	62.7	41.1
31-Oct-15	16:00:00	54.9	64.2	39.2
31-Oct-15	16:15:00	53.9	58.7	39.1
31-Oct-15	16:30:00	53.2	62.1	39.1
31-Oct-15	16:45:00	54.2	62.6	41.1
31-Oct-15	17:00:00	54.2	62.8	42.0
31-Oct-15	17:15:00	52.7	60.1	41.0
31-Oct-15	17:30:00	53.8	61.2	40.1
31-Oct-15	17:45:00	54.2	56.3	42.1
31-Oct-15	18:00:00	55.5	61.6	38.7
31-Oct-15	18:15:00	53.3	61.1	38.5
31-Oct-15	18:30:00	52.2	52.2	38.1
31-Oct-15	18:45:00	54.1	60.3	39.9
31-Oct-15	19:00:00	57.0	62.8	35.6
31-Oct-15	19:15:00	56.2	63.5	33.2
31-Oct-15	19:30:00	55.0	61.2	33.1
31-Oct-15	19:45:00	54.9	61.6	33.3
31-Oct-15	20:00:00	51.0	55.9	30.4
31-Oct-15	20:15:00	54.6	60.7	37.5
31-Oct-15	20:30:00	55.2	60.4	32.8
31-Oct-15	20:45:00	55.4	61.8	34.2
31-Oct-15	21:00:00	55.0	61.5	35.4
31-Oct-15	21:15:00	55.6	62.0	31.9
31-Oct-15	21:30:00	54.4	60.4	34.2
31-Oct-15	21:45:00	50.3	56.2	31.2
31-Oct-15	22:00:00	53.7	59.2	30.3
31-Oct-15	22:15:00	51.0	56.9	29.2
31-Oct-15	22:30:00	53.9	60.2	28.3
31-Oct-15	22:45:00	52.5	57.4	27.9
31-Oct-15	23:00:00	55.1	60.2	35.2
31-Oct-15	23:15:00	53.2	57.9	36.0
31-Oct-15	23:30:00	51.5	51.4	33.8
31-Oct-15	23:45:00	50.1	54.0	32.3

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Noise Impact Assessment

Date	Time	Leq	L10	L90
01-Nov-15	00:00:00	48.4	44.4	32.4
01-Nov-15	00:15:00	50.4	54.1	34.5
01-Nov-15	00:30:00	50.6	55.5	35.4
01-Nov-15	00:45:00	47.1	47.0	31.9
01-Nov-15	01:00:00	55.5	59.0	36.6
01-Nov-15	01:15:00	51.4	53.6	33.8
01-Nov-15	01:30:00	48.9	51.6	33.3
01-Nov-15	01:45:00	49.3	47.8	32.6
01-Nov-15	02:00:00	48.8	39.8	33.1
01-Nov-15	02:15:00	45.6	38.3	29.9
01-Nov-15	02:30:00	42.4	36.9	26.7
01-Nov-15	02:45:00	47.9	38.3	31.0
01-Nov-15	03:00:00	46.6	38.8	29.9
01-Nov-15	03:15:00	46.2	46.7	31.4
01-Nov-15	03:30:00	51.6	55.7	35.5
01-Nov-15	03:45:00	49.2	49.7	33.6
01-Nov-15	04:00:00	51.0	56.4	37.6
01-Nov-15	04:15:00	42.9	44.3	26.8
01-Nov-15	04:30:00	49.8	49.4	34.0
01-Nov-15	04:45:00	47.8	36.7	31.6
01-Nov-15	05:00:00	46.5	34.5	31.0
01-Nov-15	05:15:00	45.1	32.2	30.3
01-Nov-15	05:30:00	43.8	33.9	27.8
01-Nov-15	05:45:00	47.0	36.4	30.4
01-Nov-15	06:00:00	40.0	32.7	27.3
01-Nov-15	06:15:00	40.1	33.3	27.5
01-Nov-15	06:30:00	44.7	35.6	29.2
01-Nov-15	06:45:00	47.6	47.9	31.2
01-Nov-15	07:00:00	43.0	42.0	41.9
01-Nov-15	07:15:00	45.5	40.0	38.0
01-Nov-15	07:30:00	44.0	44.6	41.3
01-Nov-15	07:45:00	44.2	42.7	31.2
01-Nov-15	08:00:00	45.2	45.4	31.7
01-Nov-15	08:15:00	48.8	50.0	36.1
01-Nov-15	08:30:00	48.6	54.3	37.0
01-Nov-15	08:45:00	46.7	50.7	34.3
01-Nov-15	09:00:00	42.0	41.5	31.8
01-Nov-15	09:15:00	49.4	48.4	35.3
01-Nov-15	09:30:00	48.7	44.0	38.2
01-Nov-15	09:45:00	42.6	40.3	32.2
01-Nov-15	10:00:00	51.0	52.1	36.8
01-Nov-15	10:15:00	52.4	53.3	37.9
01-Nov-15	10:30:00	48.4	38.5	39.5
01-Nov-15	10:45:00	55.3	59.2	43.2
01-Nov-15	11:00:00	51.1	56.6	39.6

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Noise Impact Assessment

Date	Time	Leq	L10	L90
01-Nov-15	11:15:00	52.0	51.4	38.9
01-Nov-15	11:30:00	54.4	48.6	39.3
01-Nov-15	11:45:00	50.8	38.3	37.1
01-Nov-15	12:00:00	55.9	64.5	45.5
01-Nov-15	12:15:00	54.7	51.8	45.9
01-Nov-15	12:30:00	54.5	49.7	43.3
01-Nov-15	12:45:00	55.1	46.5	42.1
01-Nov-15	13:00:00	54.3	56.1	42.2
01-Nov-15	13:15:00	54.7	55.9	40.5
01-Nov-15	13:30:00	52.2	54.7	40.1
01-Nov-15	13:45:00	53.5	59.0	37.9
01-Nov-15	14:00:00	55.2	54.5	40.4
01-Nov-15	14:15:00	56.3	54.1	42.9
01-Nov-15	14:30:00	55.4	52.7	42.7
01-Nov-15	14:45:00	55.3	61.5	41.1
01-Nov-15	15:00:00	53.0	52.5	38.5
01-Nov-15	15:15:00	51.8	49.7	39.2
01-Nov-15	15:30:00	53.9	59.3	42.2
01-Nov-15	15:45:00	50.9	57.0	39.7
01-Nov-15	16:00:00	54.1	61.8	38.8
01-Nov-15	16:15:00	53.2	50.6	38.1
01-Nov-15	16:30:00	54.3	54.8	40.3
01-Nov-15	16:45:00	51.6	59.4	37.7
01-Nov-15	17:00:00	54.4	62.6	39.4
01-Nov-15	17:15:00	54.9	60.4	40.4
01-Nov-15	17:30:00	53.5	57.0	39.9
01-Nov-15	17:45:00	53.6	59.9	39.9
01-Nov-15	18:00:00	52.8	57.6	41.2
01-Nov-15	18:15:00	53.9	60.1	39.0
01-Nov-15	18:30:00	54.7	62.7	38.4
01-Nov-15	18:45:00	52.1	59.2	39.7
01-Nov-15	19:00:00	55.3	59.3	34.0
01-Nov-15	19:15:00	54.0	57.9	34.3
01-Nov-15	19:30:00	56.4	61.5	35.1
01-Nov-15	19:45:00	56.2	61.1	35.9
01-Nov-15	20:00:00	56.5	60.6	37.5
01-Nov-15	20:15:00	54.2	59.9	34.4
01-Nov-15	20:30:00	53.4	58.7	34.2
01-Nov-15	20:45:00	52.2	54.8	31.7
01-Nov-15	21:00:00	53.3	57.9	29.5
01-Nov-15	21:15:00	54.6	58.8	34.2
01-Nov-15	21:30:00	52.0	54.8	32.0
01-Nov-15	21:45:00	51.8	57.0	30.2
01-Nov-15	22:00:00	52.3	55.0	28.1
01-Nov-15	22:15:00	52.4	56.4	27.5

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Noise Impact Assessment

Date	Time	Leq	L10	L90
01-Nov-15	22:30:00	48.3	49.5	28.3
01-Nov-15	22:45:00	51.4	56.6	27.4
01-Nov-15	23:00:00	53.0	58.5	37.4
01-Nov-15	23:15:00	50.3	55.6	32.9
01-Nov-15	23:30:00	49.6	56.2	33.2
01-Nov-15	23:45:00	49.2	52.7	33.4
02-Nov-15	00:00:00	45.4	43.5	30.7
02-Nov-15	00:15:00	46.9	45.5	36.7
02-Nov-15	00:30:00	50.5	42.1	34.7
02-Nov-15	00:45:00	41.9	40.3	28.3
02-Nov-15	01:00:00	45.8	47.5	28.6
02-Nov-15	01:15:00	42.8	36.6	27.2
02-Nov-15	01:30:00	42.3	34.3	28.4
02-Nov-15	01:45:00	39.1	37.8	25.4
02-Nov-15	02:00:00	30.3	34.6	23.2
02-Nov-15	02:15:00	32.2	35.8	24.2
02-Nov-15	02:30:00	31.1	34.6	23.3
02-Nov-15	02:45:00	43.6	40.6	30.5
02-Nov-15	03:00:00	45.0	37.1	30.4
02-Nov-15	03:15:00	46.4	33.7	30.3
02-Nov-15	03:30:00	30.1	34.6	25.3
02-Nov-15	03:45:00	26.2	26.9	24.4
02-Nov-15	04:00:00	25.5	24.8	24.1
02-Nov-15	04:15:00	25.6	26.7	24.2
02-Nov-15	04:30:00	25.5	27.1	24.1
02-Nov-15	04:45:00	24.7	25.2	24.1
02-Nov-15	05:00:00	29.5	32.8	24.7
02-Nov-15	05:15:00	28.8	34.4	24.3
02-Nov-15	05:30:00	29.9	33.5	26.0
02-Nov-15	05:45:00	32.4	35.2	27.9
02-Nov-15	06:00:00	41.0	36.7	25.4
02-Nov-15	06:15:00	42.9	38.5	28.2
02-Nov-15	06:30:00	44.8	40.2	31.0
02-Nov-15	06:45:00	49.2	36.1	34.6
02-Nov-15	07:00:00	45.0	43.6	34.7
02-Nov-15	07:15:00	44.3	35.4	35.4
02-Nov-15	07:30:00	49.2	44.4	35.8
02-Nov-15	07:45:00	53.9	53.9	39.2
02-Nov-15	08:00:00	53.3	53.8	40.6
02-Nov-15	08:15:00	56.2	53.4	41.3
02-Nov-15	08:30:00	54.1	55.9	43.4
02-Nov-15	08:45:00	56.5	59.4	47.6
02-Nov-15	09:00:00	55.1	53.3	44.6
02-Nov-15	09:15:00	57.0	60.2	45.6
02-Nov-15	09:30:00	55.2	57.0	46.0

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Noise Impact Assessment

Date	Time	Leq	L10	L90
02-Nov-15	09:45:00	58.6	61.6	48.9
02-Nov-15	10:00:00	56.9	60.9	46.5
02-Nov-15	10:15:00	51.9	48.4	45.8
02-Nov-15	10:30:00	57.4	50.3	46.0
02-Nov-15	10:45:00	55.2	48.4	46.0
02-Nov-15	11:00:00	52.0	57.3	45.5
02-Nov-15	11:15:00	54.3	48.3	44.5
02-Nov-15	11:30:00	53.7	53.9	42.9
02-Nov-15	11:45:00	55.9	60.4	45.9
02-Nov-15	12:00:00	54.3	58.6	45.5
02-Nov-15	12:15:00	53.9	59.3	45.3
02-Nov-15	12:30:00	54.2	53.0	46.4
02-Nov-15	12:45:00	52.4	56.5	45.6
02-Nov-15	13:00:00	53.6	54.9	46.5
02-Nov-15	13:15:00	57.4	63.0	47.7
02-Nov-15	13:30:00	55.7	62.0	44.9
02-Nov-15	13:45:00	55.2	61.1	45.4
02-Nov-15	14:00:00	54.5	59.1	43.5
02-Nov-15	14:15:00	51.8	55.8	41.6
02-Nov-15	14:30:00	54.0	57.7	44.6
02-Nov-15	14:45:00	54.6	59.7	45.0
02-Nov-15	15:00:00	53.5	58.2	45.6
02-Nov-15	15:15:00	54.7	59.5	47.4
02-Nov-15	15:30:00	56.6	59.6	48.3
02-Nov-15	15:45:00	55.0	52.7	45.1
02-Nov-15	16:00:00	53.1	50.1	45.6
02-Nov-15	16:15:00	55.9	61.3	46.2
02-Nov-15	16:30:00	58.7	64.0	47.7
02-Nov-15	16:45:00	56.9	56.1	47.8
02-Nov-15	17:00:00	56.3	55.7	46.1
02-Nov-15	17:15:00	57.8	58.3	48.7
02-Nov-15	17:30:00	56.3	59.8	44.5
02-Nov-15	17:45:00	56.1	59.4	44.5
02-Nov-15	18:00:00	56.2	62.0	44.3
02-Nov-15	18:15:00	56.8	61.8	46.5
02-Nov-15	18:30:00	56.9	62.1	44.1
02-Nov-15	18:45:00	56.2	62.3	44.8
02-Nov-15	19:00:00	56.1	62.4	39.4
02-Nov-15	19:15:00	57.1	63.6	40.9
02-Nov-15	19:30:00	55.1	61.2	36.3
02-Nov-15	19:45:00	56.2	61.8	40.2
02-Nov-15	20:00:00	54.0	59.2	38.7
02-Nov-15	20:15:00	54.6	60.3	38.3
02-Nov-15	20:30:00	56.2	61.6	34.5
02-Nov-15	20:45:00	55.5	57.8	36.9

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Noise Impact Assessment

Date	Time	Leq	L10	L90
02-Nov-15	21:00:00	54.4	58.6	37.5
02-Nov-15	21:15:00	51.7	54.7	34.3
02-Nov-15	21:30:00	53.3	57.1	36.7
02-Nov-15	21:45:00	50.8	53.4	34.2
02-Nov-15	22:00:00	51.6	56.2	34.8
02-Nov-15	22:15:00	53.1	58.4	35.1
02-Nov-15	22:30:00	52.8	55.9	35.2
02-Nov-15	22:45:00	54.0	56.0	36.3
02-Nov-15	23:00:00	50.2	52.6	35.6
02-Nov-15	23:15:00	49.3	51.2	33.5
02-Nov-15	23:30:00	46.7	46.2	34.7
02-Nov-15	23:45:00	45.2	41.2	34.2
03-Nov-15	00:00:00	47.1	45.3	34.8
03-Nov-15	00:15:00	49.0	49.4	35.4
03-Nov-15	00:30:00	47.2	43.2	33.2
03-Nov-15	00:45:00	48.7	52.0	33.6
03-Nov-15	01:00:00	29.9	31.9	25.4
03-Nov-15	01:15:00	25.3	27.0	23.2
03-Nov-15	01:30:00	43.4	39.6	29.2
03-Nov-15	01:45:00	45.5	42.5	29.5
03-Nov-15	02:00:00	29.2	32.6	25.5
03-Nov-15	02:15:00	27.0	28.5	25.2
03-Nov-15	02:30:00	31.0	35.3	24.2
03-Nov-15	02:45:00	32.5	36.4	26.1
03-Nov-15	03:00:00	40.3	37.1	28.9
03-Nov-15	03:15:00	48.1	37.7	31.6
03-Nov-15	03:30:00	46.9	38.6	29.8
03-Nov-15	03:45:00	31.3	34.2	25.1
03-Nov-15	04:00:00	32.1	34.9	26.9
03-Nov-15	04:15:00	32.9	35.6	28.7
03-Nov-15	04:30:00	29.9	35.1	24.6
03-Nov-15	04:45:00	25.4	26.4	24.2
03-Nov-15	05:00:00	42.7	37.6	28.7
03-Nov-15	05:15:00	44.0	41.8	28.7
03-Nov-15	05:30:00	45.2	45.9	28.6
03-Nov-15	05:45:00	43.7	42.0	27.5
03-Nov-15	06:00:00	42.1	38.0	26.4
03-Nov-15	06:15:00	42.1	39.1	27.1
03-Nov-15	06:30:00	42.0	40.2	27.7
03-Nov-15	06:45:00	43.1	33.9	28.7
03-Nov-15	07:00:00	44.2	37.6	36.0
03-Nov-15	07:15:00	43.9	41.4	34.5
03-Nov-15	07:30:00	48.6	42.6	38.3
03-Nov-15	07:45:00	54.3	58.0	40.5
03-Nov-15	08:00:00	52.6	58.1	42.0

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Noise Impact Assessment

Date	Time	Leq	L10	L90
03-Nov-15	08:15:00	53.0	59.3	41.6
03-Nov-15	08:30:00	55.9	56.6	41.5
03-Nov-15	08:45:00	57.0	59.4	47.7
03-Nov-15	09:00:00	55.8	59.9	44.0
03-Nov-15	09:15:00	55.1	57.5	44.2
03-Nov-15	09:30:00	58.2	58.9	47.2
03-Nov-15	09:45:00	55.5	62.7	44.8
03-Nov-15	10:00:00	55.7	54.7	46.1
03-Nov-15	10:15:00	53.6	54.8	42.0
03-Nov-15	10:30:00	55.4	56.6	43.8
03-Nov-15	10:45:00	56.4	58.5	43.1
03-Nov-15	11:00:00	51.0	56.9	41.6
03-Nov-15	11:15:00	52.9	51.5	39.2
03-Nov-15	11:30:00	53.2	52.0	42.6
03-Nov-15	11:45:00	54.3	55.9	43.7
03-Nov-15	12:00:00	52.6	57.7	41.1
03-Nov-15	12:15:00	53.4	58.8	42.8
03-Nov-15	12:30:00	53.0	57.1	43.2
03-Nov-15	12:45:00	55.3	60.9	43.9
03-Nov-15	13:00:00	57.1	61.8	42.1
03-Nov-15	13:15:00	52.3	46.2	40.7
03-Nov-15	13:30:00	52.5	60.0	40.9
03-Nov-15	13:45:00	53.9	59.5	40.2
03-Nov-15	14:00:00	55.3	57.5	40.1
03-Nov-15	14:15:00	52.3	55.5	37.1
03-Nov-15	14:30:00	52.1	43.8	38.9
03-Nov-15	14:45:00	52.5	42.7	37.4
03-Nov-15	15:00:00	51.4	59.0	41.0
03-Nov-15	15:15:00	50.9	51.2	37.5
03-Nov-15	15:30:00	54.8	56.6	40.1
03-Nov-15	15:45:00	51.7	57.0	40.6
03-Nov-15	16:00:00	53.0	57.9	39.3
03-Nov-15	16:15:00	53.4	51.5	39.3
03-Nov-15	16:30:00	52.0	54.5	41.5
03-Nov-15	16:45:00	54.0	53.2	40.1
03-Nov-15	17:00:00	52.1	56.8	40.5
03-Nov-15	17:15:00	52.8	56.7	38.7
03-Nov-15	17:30:00	54.0	58.0	39.3
03-Nov-15	17:45:00	52.9	58.3	40.5
03-Nov-15	18:00:00	54.9	62.1	40.9
03-Nov-15	18:15:00	54.3	59.5	40.0
03-Nov-15	18:30:00	56.1	63.5	41.9
03-Nov-15	18:45:00	54.7	63.9	43.2
03-Nov-15	19:00:00	55.4	62.5	37.9
03-Nov-15	19:15:00	55.9	62.5	39.4

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Noise Impact Assessment

Date	Time	Leq	L10	L90
03-Nov-15	19:30:00	55.2	61.0	38.1
03-Nov-15	19:45:00	51.9	57.0	35.8
03-Nov-15	20:00:00	54.3	60.3	32.7
03-Nov-15	20:15:00	58.0	63.2	36.4
03-Nov-15	20:30:00	54.7	61.2	37.1
03-Nov-15	20:45:00	55.2	61.5	36.0
03-Nov-15	21:00:00	52.1	58.6	35.4
03-Nov-15	21:15:00	51.8	57.1	32.6
03-Nov-15	21:30:00	51.8	56.6	34.1
03-Nov-15	21:45:00	54.3	57.8	31.1
03-Nov-15	22:00:00	46.2	49.3	31.8
03-Nov-15	22:15:00	54.7	61.4	33.1
03-Nov-15	22:30:00	52.0	57.1	35.6
03-Nov-15	22:45:00	51.6	54.6	28.4
03-Nov-15	23:00:00	50.1	51.7	32.8
03-Nov-15	23:15:00	50.5	51.4	36.0
03-Nov-15	23:30:00	47.9	43.0	32.1
03-Nov-15	23:45:00	43.2	37.3	30.1
04-Nov-15	00:00:00	44.9	44.7	28.7
04-Nov-15	00:15:00	47.8	44.7	32.1
04-Nov-15	00:30:00	47.9	44.2	32.5
04-Nov-15	00:45:00	47.9	43.6	32.9
04-Nov-15	01:00:00	46.3	39.6	29.7
04-Nov-15	01:15:00	41.1	34.1	29.7
04-Nov-15	01:30:00	45.5	42.9	31.6
04-Nov-15	01:45:00	49.8	51.8	33.4
04-Nov-15	02:00:00	43.2	33.8	27.7
04-Nov-15	02:15:00	44.2	35.5	28.6
04-Nov-15	02:30:00	47.6	30.4	31.7
04-Nov-15	02:45:00	32.2	36.2	27.2
04-Nov-15	03:00:00	31.8	34.3	27.3
04-Nov-15	03:15:00	34.6	38.3	27.2
04-Nov-15	03:30:00	27.4	27.7	27.0
04-Nov-15	03:45:00	29.5	31.0	27.1
04-Nov-15	04:00:00	28.8	30.0	27.6
04-Nov-15	04:15:00	34.5	38.9	29.1
04-Nov-15	04:30:00	29.5	33.0	27.2
04-Nov-15	04:45:00	33.9	38.2	28.2
04-Nov-15	05:00:00	29.9	33.3	26.4
04-Nov-15	05:15:00	33.9	38.9	27.1
04-Nov-15	05:30:00	33.9	37.9	27.3
04-Nov-15	05:45:00	30.5	32.9	27.1
04-Nov-15	06:00:00	36.9	42.6	27.3
04-Nov-15	06:15:00	46.3	39.9	29.7
04-Nov-15	06:30:00	46.1	39.4	30.4

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Noise Impact Assessment

Date	Time	Leq	L10	L90
04-Nov-15	06:45:00	45.9	38.9	31.0
04-Nov-15	07:00:00	44.5	38.0	36.0
04-Nov-15	07:15:00	49.0	47.0	37.4
04-Nov-15	07:30:00	47.5	43.8	35.3
04-Nov-15	07:45:00	52.7	51.7	40.9
04-Nov-15	08:00:00	54.0	54.5	43.9
04-Nov-15	08:15:00	54.2	54.6	43.9
04-Nov-15	08:30:00	54.3	54.8	42.5
04-Nov-15	08:45:00	54.4	50.9	44.7
04-Nov-15	09:00:00	55.1	52.8	45.4
04-Nov-15	09:15:00	55.6	55.4	45.8
04-Nov-15	09:30:00	56.4	55.3	45.9
04-Nov-15	09:45:00	56.8	55.3	45.9
04-Nov-15	10:00:00	55.2	62.5	42.5
04-Nov-15	10:15:00	53.6	58.2	41.4
04-Nov-15	10:30:00	53.5	54.5	40.7
04-Nov-15	10:45:00	51.0	49.8	41.0
04-Nov-15	11:00:00	54.3	45.0	39.9
04-Nov-15	11:15:00	54.0	60.2	39.1
04-Nov-15	11:30:00	50.1	43.9	38.1
04-Nov-15	11:45:00	52.6	48.1	42.2
04-Nov-15	12:00:00	50.0	53.4	35.4
04-Nov-15	12:15:00	52.9	39.6	41.7
04-Nov-15	12:30:00	53.8	61.7	38.1
04-Nov-15	12:45:00	49.5	55.0	38.9
04-Nov-15	13:00:00	54.0	59.8	37.5
04-Nov-15	13:15:00	52.6	61.4	37.6
04-Nov-15	13:30:00	52.0	59.2	38.4
04-Nov-15	13:45:00	53.7	61.4	39.4
04-Nov-15	14:00:00	52.4	57.8	38.4
04-Nov-15	14:15:00	51.9	58.9	37.5
04-Nov-15	14:30:00	52.6	57.9	39.1
04-Nov-15	14:45:00	51.6	60.0	40.0
04-Nov-15	15:00:00	52.4	60.0	37.3
04-Nov-15	15:15:00	50.3	57.0	37.1
04-Nov-15	15:30:00	53.4	61.4	36.1
04-Nov-15	15:45:00	52.3	58.8	36.8
04-Nov-15	16:00:00	53.5	49.6	37.0
04-Nov-15	16:15:00	51.5	58.9	39.0
04-Nov-15	16:30:00	54.4	53.5	40.0
04-Nov-15	16:45:00	51.9	47.9	40.2
04-Nov-15	17:00:00	54.0	56.3	36.6
04-Nov-15	17:15:00	52.9	53.5	37.0
04-Nov-15	17:30:00	52.2	52.9	41.6
04-Nov-15	17:45:00	54.0	61.6	39.2

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Noise Impact Assessment

Date	Time	Leq	L10	L90
04-Nov-15	18:00:00	51.8	57.5	37.5
04-Nov-15	18:15:00	54.2	61.1	36.2
04-Nov-15	18:30:00	53.2	61.1	36.5
04-Nov-15	18:45:00	53.7	61.0	38.5
04-Nov-15	19:00:00	54.3	60.9	29.1
04-Nov-15	19:15:00	57.5	64.7	34.1
04-Nov-15	19:30:00	54.3	60.6	32.6
04-Nov-15	19:45:00	55.8	61.7	34.2
04-Nov-15	20:00:00	54.3	60.6	34.0
04-Nov-15	20:15:00	56.1	61.9	32.9
04-Nov-15	20:30:00	55.8	61.2	34.9
04-Nov-15	20:45:00	55.0	61.2	36.0
04-Nov-15	21:00:00	52.9	58.4	30.8
04-Nov-15	21:15:00	55.8	62.6	34.6
04-Nov-15	21:30:00	53.6	59.6	30.6
04-Nov-15	21:45:00	54.8	60.6	31.6
04-Nov-15	22:00:00	51.7	56.6	29.0
04-Nov-15	22:15:00	56.5	62.1	34.6
04-Nov-15	22:30:00	51.4	54.8	30.9
04-Nov-15	22:45:00	54.7	60.6	31.1
04-Nov-15	23:00:00	50.8	53.7	36.0
04-Nov-15	23:15:00	52.8	57.4	36.9
04-Nov-15	23:30:00	51.9	54.9	35.4
04-Nov-15	23:45:00	48.2	48.1	31.3
05-Nov-15	00:00:00	42.1	41.6	33.0
05-Nov-15	00:15:00	42.5	39.6	31.3
05-Nov-15	00:30:00	42.8	37.7	29.6
05-Nov-15	00:45:00	42.8	37.6	27.8
05-Nov-15	01:00:00	50.6	51.6	35.6
05-Nov-15	01:15:00	47.5	51.0	31.9
05-Nov-15	01:30:00	47.9	42.1	32.3
05-Nov-15	01:45:00	35.7	39.3	28.2
05-Nov-15	02:00:00	51.8	53.1	36.5
05-Nov-15	02:15:00	48.8	49.2	38.9
05-Nov-15	02:30:00	41.6	44.8	36.0
05-Nov-15	02:45:00	43.1	45.8	36.5
05-Nov-15	03:00:00	47.7	43.3	38.1
05-Nov-15	03:15:00	36.1	38.3	30.0
05-Nov-15	03:30:00	35.9	40.1	28.2
05-Nov-15	03:45:00	30.7	33.6	24.2
05-Nov-15	04:00:00	21.7	22.6	20.2
05-Nov-15	04:15:00	23.7	24.7	21.3
05-Nov-15	04:30:00	25.9	27.0	23.6
05-Nov-15	04:45:00	23.7	24.5	21.7
05-Nov-15	05:00:00	27.7	30.6	23.8

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Noise Impact Assessment

Date	Time	Leq	L10	L90
05-Nov-15	05:15:00	29.1	30.9	25.7
05-Nov-15	05:30:00	32.2	35.3	28.1
05-Nov-15	05:45:00	41.8	39.5	32.3
05-Nov-15	06:00:00	35.9	36.5	28.7
05-Nov-15	06:15:00	30.0	33.4	25.1
05-Nov-15	06:30:00	44.7	40.1	32.3
05-Nov-15	06:45:00	44.7	41.6	33.8
05-Nov-15	07:00:00	48.9	45.0	39.4
05-Nov-15	07:15:00	50.6	51.8	39.6
05-Nov-15	07:30:00	51.4	49.0	40.2
05-Nov-15	07:45:00	51.9	52.2	41.2
05-Nov-15	08:00:00	50.9	53.3	43.0
05-Nov-15	08:15:00	55.4	58.6	45.2
05-Nov-15	08:30:00	53.7	57.9	45.0
05-Nov-15	08:45:00	52.4	53.5	44.1
05-Nov-15	09:00:00	55.6	59.9	45.5
05-Nov-15	09:15:00	53.5	55.6	45.5
05-Nov-15	09:30:00	56.5	60.9	43.3
05-Nov-15	09:45:00	58.9	61.2	49.2
05-Nov-15	10:00:00	57.5	54.7	46.3
05-Nov-15	10:15:00	57.6	57.3	45.1
05-Nov-15	10:30:00	54.8	48.5	44.4
05-Nov-15	10:45:00	56.1	55.7	44.8
05-Nov-15	11:00:00	56.0	55.9	44.9
05-Nov-15	11:15:00	57.8	58.5	46.1
05-Nov-15	11:30:00	55.6	60.3	45.9
05-Nov-15	11:45:00	56.3	57.3	45.3
05-Nov-15	12:00:00	57.8	57.2	50.3
05-Nov-15	12:15:00	57.0	61.1	51.8
05-Nov-15	12:30:00	55.2	59.7	51.0
05-Nov-15	12:45:00	55.5	52.5	49.1
05-Nov-15	13:00:00	56.9	62.5	47.1
05-Nov-15	13:15:00	55.1	61.6	47.0
05-Nov-15	13:30:00	58.8	57.5	47.3
05-Nov-15	13:45:00	57.0	63.3	47.2
05-Nov-15	14:00:00	59.0	65.5	47.5
05-Nov-15	14:15:00	56.1	63.0	45.1
05-Nov-15	14:30:00	54.4	59.8	43.8
05-Nov-15	14:45:00	59.2	64.9	45.9
05-Nov-15	15:00:00	56.1	61.2	43.3
05-Nov-15	15:15:00	54.4	60.2	42.8
05-Nov-15	15:30:00	56.8	62.5	46.8
05-Nov-15	15:45:00	54.0	59.1	43.1
05-Nov-15	16:00:00	57.1	54.0	43.1
05-Nov-15	16:15:00	54.5	49.5	44.4

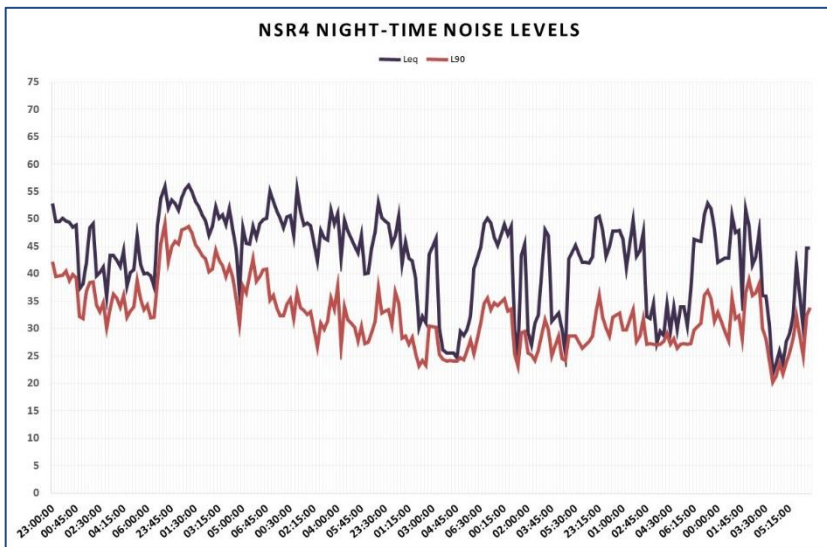
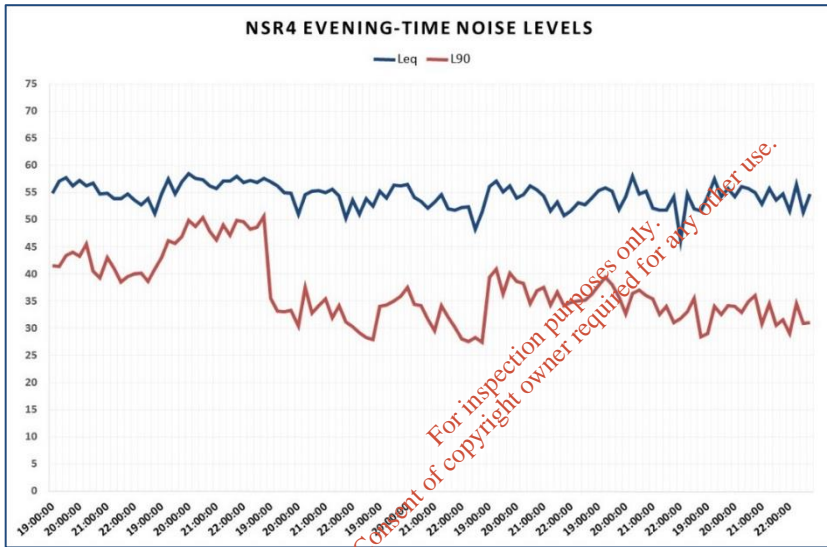
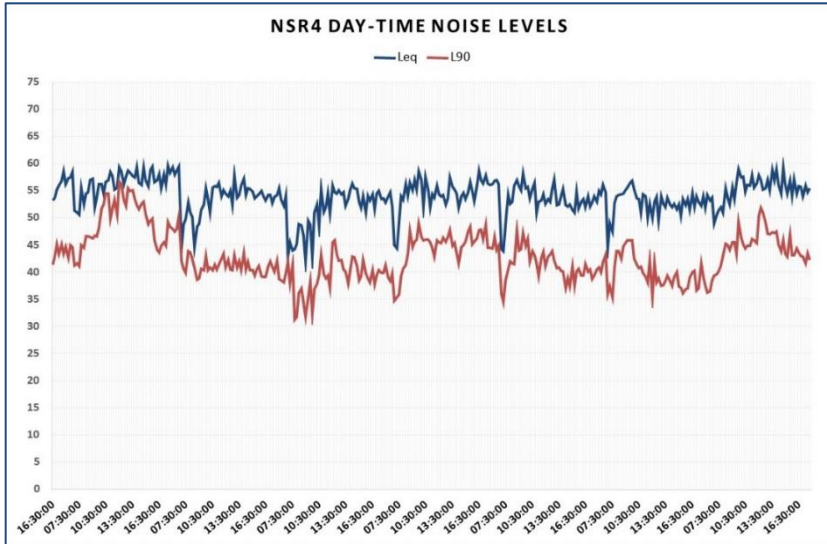
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Noise Impact Assessment

Date	Time	Leq	L10	L90
05-Nov-15	16:30:00	55.8	59.8	43.6
05-Nov-15	16:45:00	55.7	59.4	43.0
05-Nov-15	17:00:00	53.9	58.7	42.8
05-Nov-15	17:15:00	55.9	59.7	41.6
05-Nov-15	17:30:00	54.7	59.6	43.5
05-Nov-15	17:45:00	55.4	60.9	42.2

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Noise Impact Assessment



Appendix 3 Sound Level meter(s) Calibration Certificates

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Calibration Certificate

Certificate Number 2015002932

Customer:

Environmental Measurement
Unit 12
Dublin, 24, Ireland

Model Number 831
Serial Number 0003919
Test Results Pass

Initial Condition As Manufactured

Description Larson Davis Model 831

Procedure Number D0001.8384

Technician Ron Harris

Calibration Date 1 Apr 2015

Calibration Due

Temperature 23.47 °C ± 0.01 °C

Humidity 49.7 %RH ± 0.5 %RH

Static Pressure 86.36 kPa ± 0.03 kPa

Evaluation Method

Tested with:

PRM831, S/N 036773
377B02, S/N 151523

Data reported in dB re 20 µPa.

Compliance Standards

Compliant to Manufacturer Specifications and the following standards when combined with Calibration Certificate from procedure D0001.8378:

IEC 60651:2001 Type 1	ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1	ANSI S1.4 (R2008) Type 1
IEC 61252:2002	ANSI S1.1-1 (R2009) Class 1
IEC 61260:2001 Class 1	ANSI S1.25 (R2007)
IEC 61672:2013 Class 1	ANSI S1.43 (R2007) Type 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the SI through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005. Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2008.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Description	Standards Used		
	Cal Date	Cal Due	Cal Standard
SRS DS360 Ultra Low Distortion Generator	07/08/2014	07/08/2015	006311
Hart Scientific 2626-S Humidity/Temperature Sensor	05/16/2014	05/16/2015	006943
Larson Davis CAL200 Acoustic Calibrator	08/06/2014	08/06/2015	007027
Larson Davis Model 831	03/05/2015	03/05/2016	007182
1/2 inch Microphone - P - 0V	03/11/2014	03/11/2015	007185
Larson Davis CAL291 Residual Intensity Calibrator	09/26/2014	09/26/2015	007287

Larson Davis, a division of PCB Piezotronics, Inc
1681 West 820 North
Provo, UT 84601, United States
716-684-0001



4/1/2015 12:17:14PM

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Certificate of Calibration

Certificate Number: 18066

**Sound Level Meter
Larson Davis Model 812**

Client: Environmental Measurements
Unit 12, Tallaght Business Centre
Whitestown Business Park
Co.Dublin 24, Ireland

Instrument Make: Larson Davis
Instrument Model: 812
Serial Number: 0618

Preamplifier Make: Larson Davis
Preamplifier Model: 828
Serial Number: 2962

Extension Cable: not supplied

Microphone Make: PCB
Microphone Model: 377B02
Serial Number: 142340

Calibrator Make: not supplied
Calibrator Model:
Calibrator Serial Number:
Calibrator Adaptor:
Calibrator Certification Ref:

This is to certify that the above instrument was calibrated according to MTS Calibration Ltd. Measurement Procedures and was found to comply as summarised below. The measurements were carried out using the Test Equipment listed below, all of whose calibrations are traceable to UK National Standards. The management controls of MTS Calibration Ltd. are registered in its current Quality Manual, and are designed to be in compliance with BS EN ISO/IEC 17025:2005. Copies of the relevant certificates, test procedures and test results, together with the traceability of test equipment are filed with MTS Calibration Ltd. and extracts are available on request.

This instrument was tested in accordance with the recommendations of BS 7580: Part 1 1997 (not all tests were performed) with the following results:

	Manufacturer's Specification	BS EN 60651 Type 1
Self-Generated Noise:	Complies	no specification – measured 16.9dB(A)
Dynamic Linearity – electrical response:	Complies	Complies between 22.7 and 129.6 dB(A)
Frequency Weighting A - electrical response:	Complies	Complies
Frequency Weighting A - acoustic response:	Complies	Complies
Frequency Weighting C - electrical response:	Complies	Complies
Crest Factor:	Complies	Complies
Burst (RMS accuracy):	Complies	Complies
Time Weightings F, S, I (Detector):	Complies	Complies
Microphone Response:		Complies (assessed as overall acoustic specification)

Calibrated at 114.02 dB re 20µPa, 250 Hz – calibration offset = 6.8 dB
Polarisation Voltage 0 V

Test Equipment:

Equipment	Manufacturer	Model	Serial No.	Traceability Ref.	Cal. Due
Acoustic Calibrator 250Hz	Larson Davis	CAL250	4483	TE 116	October 2014
Real-Time Frequency Analyser	Larson Davis	2900	0510	TE 165	July 2014
Digital Multimeter	Agilent	34401A	NY41046986	TE 152	July 2014
Signal Generator	Hewlett Packard	33120A	US34007158	TE 163	July 2014

Date of Receipt: 15th December 2011
Date of Calibration: 3rd March 2014
Date of Certificate: 3rd March 2014

Authorised Signatory
Stuart Cowling
Page 1 of 12

MTS Calibration Ltd
Company Registration Number: 06588525 England and Wales
The Grange Business Centre, Belasis Avenue, Billingham TS23 1LG, England

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http://www.slmcal.co.uk