Appendix H

Noise and vibration assessment

Roads and Maritime Services

Manns Road upgrade – Southbound approach to Stockyard Place intersection

Noise Assessment Report

August 2018

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Glossary

Acute noise level	A level of road traffic noise of 65 dB(A) or more for the day period of 7 am to 10 pm or 60 dB(A) or more for the night period of 10 pm to 7 am and measured as an equivalent continuous noise level (L_{Aeq}) 1 metre from the building facade.
Concawe	CONCAWE, The propagation of Noise from petroleum and petrochemical Complexes to Neighbouring Communities, Report 4/81, 1981.
Controlling criterion	Whichever of the day or night L_{Aeq} criteria (Noise Criteria Guideline) provides the most stringent noise targets.
Cumulative limit	A total noise level that is 5 dBA or more above the Noise Criteria Guideline criteria in the build year.
Decibel	Decibel, which is 10 times the logarithm (base 10) of the ratio of a given sound pressure to a reference pressure; used as a unit of sound.
Existing road corridor	A corridor of land that is zoned for road purposes in relevant environmental planning instruments such as LEPs and contains an existing formed and dedicated public or classified road.
Feasibility (Roads and Maritime Services interpretation)	Relates to engineering considerations (what can be practically built). These engineering considerations may include: - The inherent limitations of different techniques to reduce noise emissions from road traffic noise sources - Safety issues such as restrictions on road vision - Road corridor site constraints such as space limitations - Floodway and stormwater flow obstruction - Access requirements - Maintenance requirements - The suitability of building conditions for at property treatments.
Ground-borne vibration	Ground-borne vibration is transmitted from source to receiver through the ground.
L_{AN}	Statistical sound measurement recorded on the 'A' weighted scale.
$L_{A1\ (period)}$	The sound pressure level that is exceeded for 1% of the measurement period.
$L_{A10\ (period)}$	The sound pressure level that is exceeded for 10% of the measurement period.
$L_{A10\ (18\ hour)}$	The arithmetic average of the L_{A10} levels for the 18-hour period between 0600 and 2400 hours on a normal working day. It is a common traffic noise descriptor.
$L_{A90\ (period)}$	The A-weighted sound pressure level that is exceeded for 90 per cent of the time over which a given sound is measured. This is considered to represent the background noise e.g. $L_{A90\ (15\ min)}$.
$L_{Aeq(period)}$	Equivalent sound pressure level: the steady sound level that, over a specified period of time, would produce the same energy equivalence as the fluctuating sound level actually occurring.
$L_{Aeq\ (1\ hr)}$	The L_{Aeq} noise level for a one-hour period. It represents the highest tenth percentile hourly A-weighted Leq during the period 7 am to 10 pm, or 10 pm to 7 am (whichever is relevant).
$L_{Aeq(15hr)}$	The L_{Aeq} noise level for the period 7:00 to 22:00 hours.
$L_{Aeq(9hr)}$	The L_{Aeq} noise level for the period 22:00 to 7:00 hours.
L_{Amax}	The maximum sound level recorded during the measurement period.
L_{Amin}	The minimum sound level recorded during the measurement period.
Mitigation	Reduction in severity.

Noise sensitive receiver	An area or place potentially affected by noise which includes: - A residential dwelling - An educational institution, library, childcare centre or kindergarten - A hospital, surgery or other medical institution - An active (e.g. golf course) or passive (e.g. national park) recreational area - Commercial or industrial premises - A place of worship.
Peak Particle Velocity	Current practices for assessments of the risk of structural damage to buildings use measurements of Peak Particle Velocity (PPV) in millimetres per second.
Rating background level	The overall single-figure background level representing each assessment period (day/evening/night) over the whole monitoring period. This is the level used for assessment purposes.
Reasonable (Noise Mitigation Guideline)	Selecting reasonable measures from those that are feasible involves judging whether the overall noise benefits provide significant social, economic or environmental benefits. The factors to be considered are: - The noise reduction provided and the overall number of people that benefit from the mitigation - Existing and future noise levels, including changes in noise levels in the build and design year and the extent of any exceedance of the noise criteria - Potential for a mitigation measure to reduce noise during construction as well as from road traffic after the proposal is complete - The cost of mitigation, including the cost of noise mitigation measures as a percentage of the total proposal cost and the ongoing maintenance and operational costs - Community views and wishes (typically gathered at a number of stages including route selection, following concept design, community consultation process following the noise assessment and post opening in the operational noise report) - Visual impacts for the community surrounding the road proposal and for road users. These are typically identified in the environmental impact assessment - The wider community benefits arising from noise mitigation of the proposed road or road redevelopment - Relative weighting of treatments with respect to protection of outdoor areas or only internal living spaces.
Receiver	A noise modelling term used to describe a map reference point where noise is predicted.
Short-term vibration	Vibration that occurs so infrequently that it does not cause structural fatigue nor does it produce resonance in the structure.
Sound Pressure Level (SPL)	20 times the logarithm to the base 10 of the ratio of the RMS sound pressure level to the reference sound pressure level of 20 micropascals.
Tonality	Noise containing a prominent frequency or frequencies characterised by a definite pitch.
Vibration dose value	As defined in BS6472 – 1992, the vibration dose value is given by the fourth root of the integral of the fourth power of the frequency weighted acceleration.
Vibration	The variation of the magnitude of a quantity which is descriptive of the motion or position of a mechanical system, when the magnitude is alternately greater and smaller than some average value or reference. Vibration can be measured in terms of its displacement, velocity or acceleration. The common units for velocity are millimetres per second (mm/s).

List of abbreviations

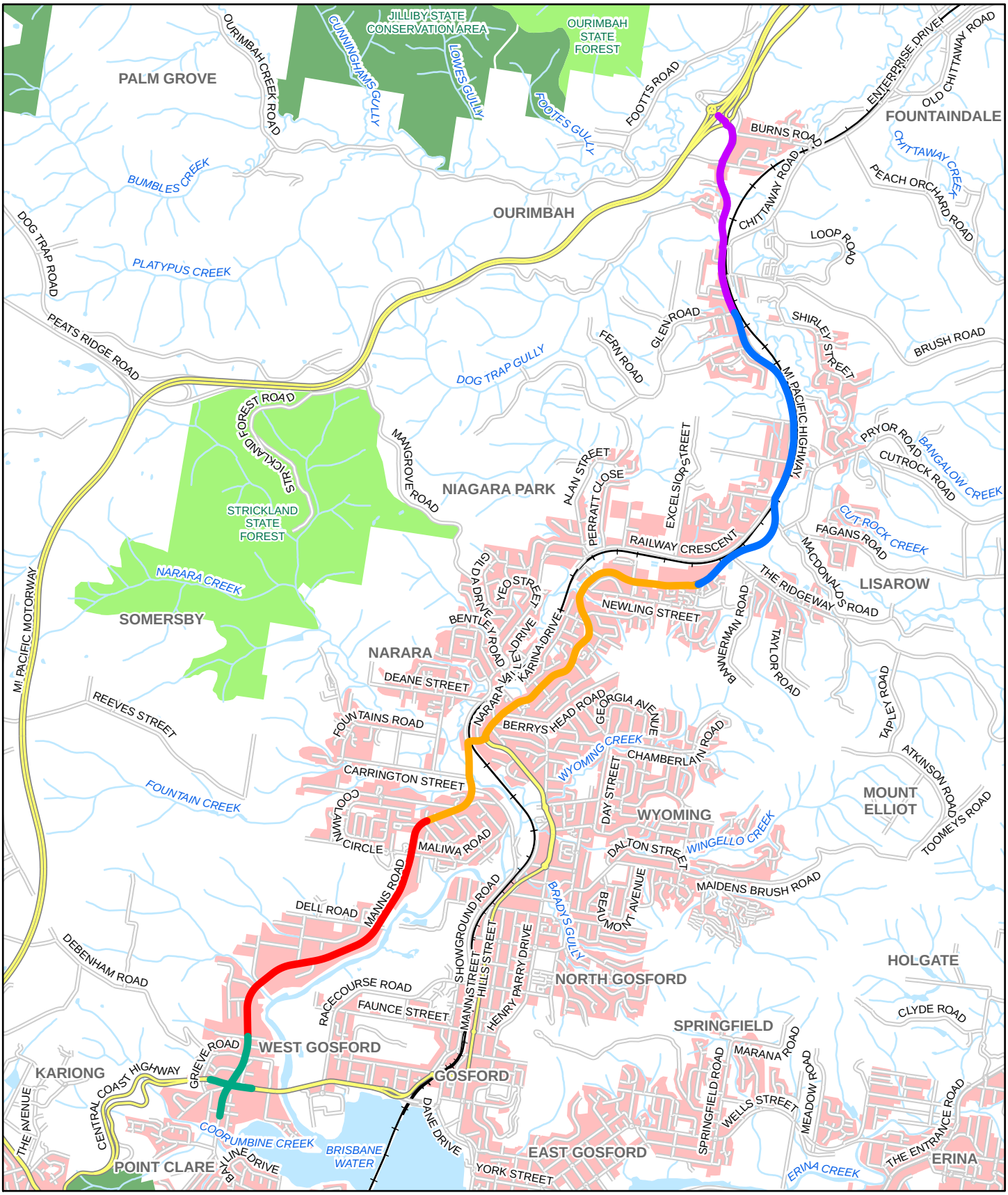
AVTG	Assessing Vibration: A Technical Guideline
CNS	Construction Noise Strategy (TfNSW 2012)
CoRTN	Calculation of Road Traffic Noise
CNVG	Construction Noise and Vibration Guideline (RMS 2016)
dB	Decibel
dB(A)	Unit used to measure 'A-weighted' sound pressure levels
EPA	Environment Protection Authority
ICNG	Interim Construction Noise Guideline
NPI	Noise Policy for Industry
NCA	Noise catchment area
NCG	Noise Criteria Guideline
NMG	Noise Mitigation Guideline
REF	Review of Environmental Factors
RBL	Rating background level
rms	Root Mean Square
RNP	Road Noise Policy
VDV	Vibration dose value
V_{rms}	The vibration velocity presented as a root mean square value.
PPV	Peak particle velocity
m	Metres
mm	Millimetres
s	Seconds
kHz	Kilohertz
Hz	Hertz
e.g.	Example
SMA	Stone Mastic Asphalt
RTA	Roads and Traffic Authority
RNP	Road Noise Policy
ENMM	Environmental Noise Management Manual
S01 - Sxx	Modelled Scenario 1 – Scenario x
DEC	Department of Environment and Conservation
EDU	Educational receiver
WOR	Place of worship receiver
RES	Residential receiver
REA	Active recreational receiver
REP	Passive recreational receiver
OOHW	Outside of hours work

1. Introduction

1.1 Proposal background

The Pacific Highway and Manns Road between the Central Coast Highway at West Gosford and the M1 Pacific Motorway at Ourimbah is a strategic north-south route for access to and from the M1 Pacific Motorway. The Pacific Highway and Manns Road are being progressively upgraded to improve road user safety and road capacity to reduce travel time and meet forecast future traffic volumes. The upgrade is being completed in five stages as shown in Figure 1-1. Stages 1 to 4 are in various stages of design, construction or operation and the final stage (Stage 5) is required to complete the upgrade of the route.

Roads and Maritime Services (Roads and Maritime) has commenced concept design and environmental assessment for Stage 5. Stage 5 covers about three kilometres of Manns Road from West Gosford to Narara, where it will connect with Stage 4 works.



LEGEND

- Stages 1 & 2
- Stage 3
- Stage 4
- Stage 5 (this Project)
- Central Coast Highway / Manns Road Intersection

Paper Size A4

0 190 380 760 1,140 1,520

Metres

Map Projection : Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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Roads and Maritime Services
Manns Road Upgrade , West Gosford
Specialist Studies

Pacific Highway and Manns Road upgrade stages

Job Number 22-19033
Revision 0
Date 01 Jun 2018

Figure 1-1

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / DCDB, 2017, Aerial Imagery, 2015; RMS: Geotechnical data, 2017; Geoscience Australia: 250k Topographic Data Series 3, 2006. Created by:tmorton

1.2 Stage 5 upgrade

Stage 5 comprises the upgrade of Manns Road from two lanes to four lanes from Stockyard Place in West Gosford, to 300 metres north of Narara Creek Road in Narara, which includes eight intersections, three of which have existing traffic lights. Roads and Maritime propose to construct Stage 5 in two phases, with the northern and southern sections to be upgraded first, comprising Stockyard Place intersection and Narara Creek Road intersection. The remaining section between the two intersections would be conducted as Phase 2.

Due to uncertainty in the timing of construction for Phase 2, a review of environmental factors (REF) will be prepared for the two intersections under Phase 1, while an environmental assessment will be prepared for Phase 2 works at a later date once timing for detailed design and construction has been confirmed. A summary of the phased delivery and associated environmental assessments is provided in Table 1-1.

Table 1-1 Stage 5 phases

Name of assessment	Extent	Phase	Assessment type
Manns Road upgrade – Southbound approach to Stockyard Place intersection	Widening of the southbound approach to the intersection from about 300 metres north of Stockyard Place	1	REF
Manns Road upgrade –Narara Creek Road intersection, Narara	The northern 600 metres of Stage 5, comprising 300 metres south and 300 metres north of Narara Creek Road / Maliwa Road Intersection	1	REF
Remaining concept design	Remaining works between Stockyard Place to about 300 metres south of Narara Creek Road / Maliwa Road Intersection	2	To be confirmed at a later date

1.3 Location

Stage 5 of the Manns Road upgrade is within the Central Coast Council Local Government Area between West Gosford and Narara, as shown in Figure 1-2.

The location can be generally described as two distinct environments, with the southern two kilometres of Stage 5 comprising a well-developed general industrial area with warehouses, offices and commercial / retail buildings on both sides of the road. From about 200 metres north of Dell Road, the surrounding land use changes to low density residences, with areas of environmental conservation, schools and public recreation.

LEGEND

- Stages 1 & 2
- Stage 3A
- Stage 3B
- Stage 4
- Stage 5 (Site location)

Paper Size A4

0 75 150 300 450 600

Metres

Map Projection : Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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Roads and Maritime Services
Manns Road Upgrade , West Gosford
Specialist Studies

Job Number 22-19033
Revision 0
Date 01 Jun 2018

Site location

Figure 1-2

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 T 61 2 4979 9999 F 61 2 4979 9988 E nlmail@ghd.com W www.ghd.com.au

Data source: LPI: DTDB / DCDB, 2017; Aerial Imagery, 2015; RMS: Geotechnical data, 2017; Geoscience Australia: 250k Topographic Data Series 3, 2006. Created by:tmorton

1.4 Purpose and scope of this assessment

This report comprises the noise and vibration report, which has been prepared to inform the Stockyard Place intersection upgrade REF.

The scope of the noise and vibration assessment involved:

- Identification of the existing noise levels and traffic volumes in the study area through a logging survey
- Validation of the traffic noise model for noise levels and traffic volumes at the time of the noise survey
- Assessment of the potential operational noise impacts of the proposal including proposal opening (year 2026) and 10 years after opening (year 2036)
- Assessment of the potential construction noise and vibration impacts of the proposal based on indicative construction methodology and equipment
- Identification of reasonable and feasible mitigation measures with consideration to the proposal noise and vibration criteria
- Preparation of a report summarising the findings of the study

1.5 Terms and definitions

The following terms are used in this report:

- Stage 5: the fifth stage of upgrade works for the Pacific Highway and Manns Road between the Central Coast Highway at West Gosford and the M1 Pacific Motorway at Ourimbah. Stage 5 includes all upgrade works between 300 metres north of Narara Creek Road, Narara, and Stockyard Place intersection in Gosford (refer to Figure 1-1).
- Phase 1: upgrade of Narara Creek Road intersection and the southbound approach to Stockyard Place intersection.
- Phase 2: Remaining works within Stage 5, between Stockyard Place (northbound lanes) to about 300 metres south of Narara Creek Road / Maliwa Road intersection.
- Construction footprint / proposal footprint: areas that would be directly impacted by construction of the proposal (including compounds).
- Study area:
  - For the operational road noise assessment, the study area was defined as 600 metres from the road centrelines, as per the requirements of the Road Noise Policy (this study area can be seen in Figure 3-1, Section 3.1)
  - For the construction noise and vibration assessment, the study area was extended to account for impacts that may occur at the northern and southern ends of the proposal (due to the placement of compound sites at these locations).

2. Proposal description

2.1 Stage 5 objectives

The objectives of the Stage 5 upgrade have been developed in strategic and early concept design and are as follows:

- Support productivity by providing a road with improved road user safety and capacity to maintain a reasonable level of service (at the lowest a Level D, with peak delays of no more than 56 seconds) to meet forecast traffic volumes up to the year 2036.
- Upgrade the route for access of B-Doubles and other freight vehicles.
- Improve access to and provide facilities for road based public transport.
- Encourage transport alternatives by providing appropriate facilities and better connections for walking and cycling through the road corridor.

The proposed option for a two phase upgrade with early completion of the northern and southern intersections (Phase 1) will contribute directly to the first objective by upgrading the two intersections with the lowest existing level of service (currently C, projected to increase to F by 2036) within Stage 5. This is because the existing Stockyard Place and Narara Creek Road Intersections have a current average delay per vehicle of up to 42 seconds, which if upgraded as early works would improve the traffic flow within the Stage 5 area until Phase 2 works can be completed.

The overall goal is to achieve the best possible result for each of the above objectives, while minimising the impact on the environment and local community.

2.2 Existing roads

The Stage 5 section of Manns Road covers a variety of adjacent land uses, including well developed commercial and light industry, remnant native vegetation with various levels of disturbance, schools and residential. It is currently one lane in each direction with multiple access points; including local road intersections and private business driveways, and long lengths of uncontrolled car parking on verges and adjacent areas.

There are major public utility installations closely adjacent to existing travel lanes including aerial electricity and some major regional communications. Surface drainage is variable with a mixture of piped, kerbed and open channel systems at many locations. The existing sign posted speed limit within the limit of works is 60 kilometres per hour. There are currently eight intersections within the Stage 5 section of works, as follows (south to north):

- Stockyard Place
- Carnarvon Road
- Yandina Road
- Nells Road
- Merinee Road
- Dignity Crescent
- Dell Road
- Narara Creek Road / Maliwa Road

2.3 Key features of Stage 5

The key features of the Stage 5 Manns Road upgrade include:

- Four traffic lanes on Manns Road (two in each direction), from Stockyard Place to about 30 metres north of Narara Creek Road.
- A design speed of 70 kilometres per hour for Manns Road and 60 kilometres per hour for local roads. For the northern extent of Stage 5 (from about 300 metres south of Narara Creek Road), a design speed of 60 kilometres per hour would be adopted due to reduced line of sight.
- New and upgraded intersections, with traffic lights at Stockyard Place, Carnarvon Road, Merinee Road, Dell Road and Narara Creek Road.
- Provision of a central median.
- Restriction of access to left turns only at Dignity Crescent, Nells Road and removal of the left in movement at Yandina Road.
- Provision of two formal U-turn facilities at proposed new traffic light controlled intersections opposite Carnarvon Road and Dell Road, plus a U-turn option at Dignity Crescent.
- Replacement and duplication of the bridge over an un-named tributary of Narara Creek about 500 metres north of Stockyard Place.
- Road formation widening – embankments and cuttings along Manns Road, including minor and major retaining walls in some locations to limit property acquisition.
- On road cycle provision northbound and southbound Manns Road.
- Provision for shared path (for use by both pedestrians and cyclists) on the western side of Manns Road throughout Stage 5.
- Provision for shared pedestrian and cycle crossings at the intersections.
- Upgrade and extension of drainage infrastructure and stormwater management.
- Relocations of multiple public utility assets either side of and across Manns Road.

Further detail on the early works for the northern and southern extents is provided in the following sub-sections. A figure showing the key features of Stage 5 is provided in Figure 2-1.

2.3.1 Southbound approach to Stockyard Place intersection

Stockyard Place intersection is located at the southern extent of Stage 5 works in an industrial area. The existing four-leg traffic light controlled intersection would be upgraded with amendments to reflect the new travel lane arrangement allowing:

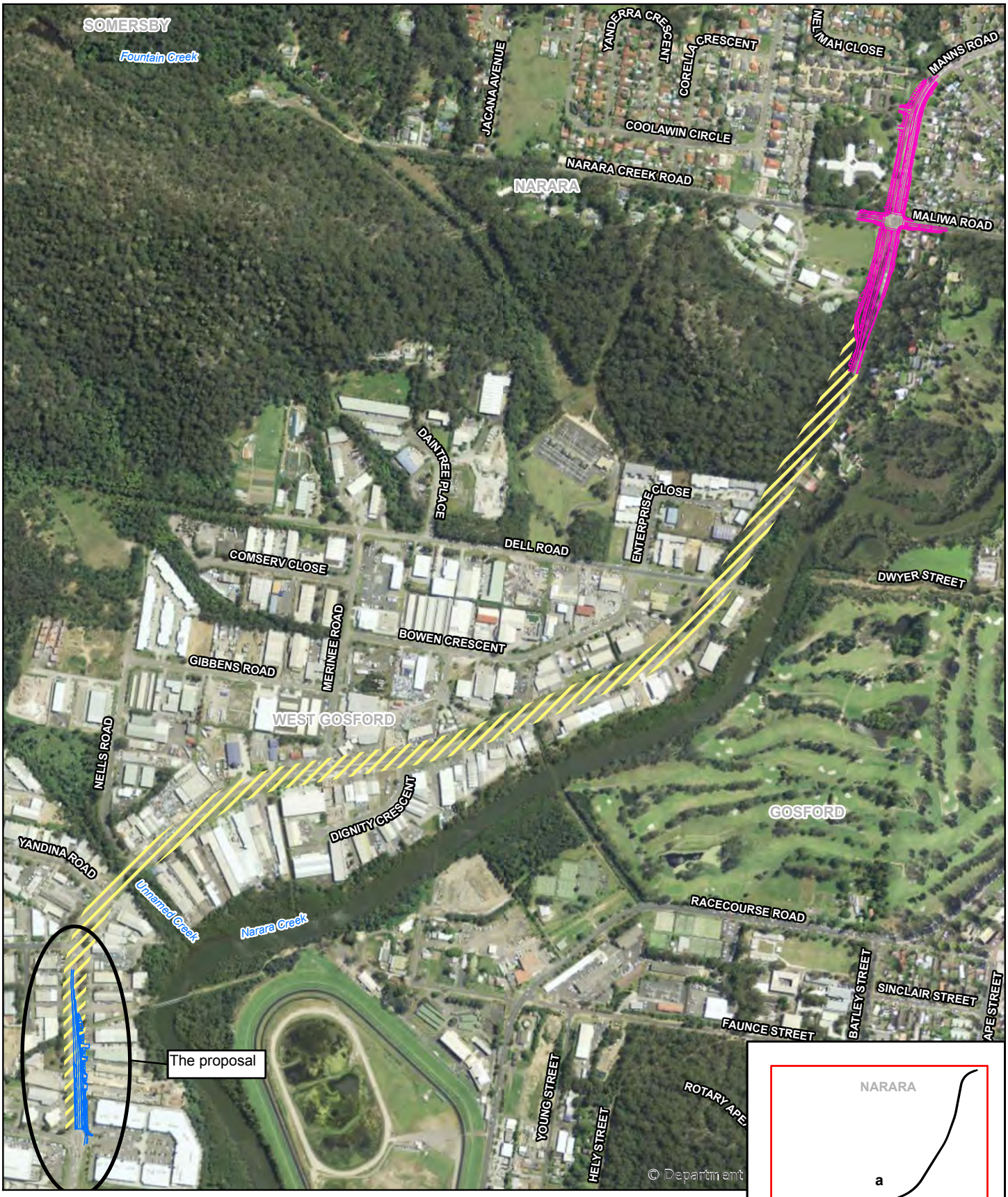
- Increase from three to four traffic lanes on the Manns Road southbound leg of the intersection to provide:
  - A single dedicated right turn lane onto Stockyard Place
  - A single dedicated left turn lane onto Stockyard Place
  - Dual through lanes
- Provision of a central median on Manns Road from the Stockyard Place intersection to about 125 metres north.
- Minor driveway adjustments on the east of Manns Road to limit property acquisition.
- On road cycle provision approaching the intersection southbound on Manns Road.

- Slight relocation of the shared pedestrian and cycle crossing on the east leg of the intersection and retention of the shared pedestrian and cycle crossing on the north leg of the intersection.
- Upgrade and extension of drainage infrastructure and stormwater management.
- Relocations of multiple public utility assets to allow road widening for the intersection upgrade.

2.3.2 Narara Creek Road intersection

Narara Creek Road intersection is located at the northern extent of Stage 5 works and connects with the Stage 4 section of road. The Narara Creek Road intersection would be upgraded to reflect the new travel lane arrangement allowing:

- Dual left and right turn lanes out of Narara Creek Road and Maliwa Road onto Manns Road
- Single dedicated right turn lane from Manns Road northbound onto Narara Creek Road
- Single dedicated right turn lane from Manns Road southbound into Maliwa Road
- Dual through lanes north and southbound Manns Road
- On road cycle provision northbound and southbound Manns Road
- Provision for shared path (for use by both pedestrians and cyclists) on the western side of Manns Road
- Provision for shared pedestrian and cycle crossing on the Maliwa Road leg and pedestrian crossings on the remaining three legs



LEGEND

- The proposal
- Narara Creek intersection upgrade
- Southbound approach to Stockyard Place upgrade
- Remaining concept design (indicative area only shown)

Paper Size A4

0 80 160 240 320

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Job Number 22-19033
Revision 0
Date 28/08/2018

Key features of the proposal

Figure 2-1a

G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

LEGEND

Southbound approach to Stockyard Place upgrade

Paper Size A4

0 10 20 30 40

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Key features of the proposal
Stockyard Place Intersection

Job Number 22-19033
Revision 0
Date 28/08/2018

Figure 2-1b

G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

3. Existing ambient environment

3.1 Sensitive receivers and land uses

A total of 922 sensitive (residential and non-residential receivers) and commercial/industrial receivers have been identified in the study area. Receivers within the study area have been grouped into noise catchment areas (NCA). Receivers within each NCA are expected to experience similar (but in some cases will vary depending on location in the NCA) existing background noise levels based on the results of site observations and the background noise monitoring. Two NCAs have been identified and are described in Table 3-1 and shown on Figure 3-1. Receivers within the noise assessment study area are shown on Figure 3-1.

For Roads and Maritime proposals, receivers are categorised based on sensitivity to noise as follows:

- Sensitive receivers (residential).
- Sensitive receivers (non-residential) – includes recreation areas, educational facilities (e.g. schools), childcare facilities, places of worship (churches), health facilities (e.g. hospitals) and community facilities (e.g. community halls).
- Commercial/industrial receivers – places of business, motels and other accommodation facilities, shops and industrial facilities.

Table 3-1 Noise catchment areas

Noise catchment area	Location
NCA1	Receivers located between Coorumbine Creek and Dell Rd. Area is predominantly commercial with three residential receivers at Boolari St (about 400 m from the proposal site) and additional residential receivers located south of the Central Coast Highway (about 500 m south of the proposal).
NCA2	Receivers located north-west of the proposal, on the west side of Manns Rd. Area is predominantly residential and has been included to assess the impacts of compound site 2.

For the operational noise assessment all sensitive residential receivers will have their own specific noise criteria based on their exposure to noise from the proposal and existing exposure to traffic noise. This is discussed in more detail in Section 4.1. The receivers are individually identified in Appendix B.

LEGEND

- Project boundary
- Noise catchment area 1
- Noise catchment area 2

Receiver type

- Commercial
- Recreational
- Residential

- Noise logger locations

Paper Size A4

0 130 260 390 520

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Noise catchment areas and logger locations

Job Number	22-19033
Revision	0
Date	22/08/2018

Figure 3-1

G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

3.2 Existing noise levels

Noise monitoring was carried out to establish representative existing ambient and background noise levels for the receiver locations within the study area. Noise monitoring was used to:

- Determine the existing ambient and background noise levels across each noise catchment area
- Derive construction noise management levels and operational road traffic noise criteria to be applied to the assessment of the proposal
- Validate noise models used in the assessment of the proposal

3.2.1 Noise monitoring methodology

Monitoring was carried out between 23 February 2018 and 10 March 2018 at three locations (L01, L02 and L03) which are identified on Figure 3-1 and listed in Table 3-2.

Noise monitoring locations were selected for the following purposes:

- To measure noise levels representing the existing road traffic noise in conjunction with simultaneous vehicle count data.
- To measure noise levels describing the background and ambient noise environment and were considered to be a good representation of the existing ambient noise environment and/or road traffic noise levels.
- Identified as being safe and secure places for unattended equipment.

Unattended noise monitoring was conducted using calibrated Type 1 SVAN 977 environmental noise loggers. These loggers are capable of measuring continuous sound pressure levels and are able to record L_{A90}, L_{A10}, L_{Aeq}, L_{Amax} and L_{Amin} noise descriptors. The instruments were programmed to accumulate environmental noise data continuously over sampling periods of 15 minutes for the entire monitoring period.

Pre-measurement calibration checks were performed on the noise monitoring equipment using a Bruel and Kjaer 4231 sound level calibrator (serial number 2542101) with a sound pressure level of 94 dB(A) at one kilohertz (kHz). At completion of the measurements, the meter's calibration was re-checked to ensure that the sensitivity of the noise monitoring equipment had not varied. The noise loggers were found to be within the acceptable variation of less than +/- 0.5 dBA.

All sampling activities were carried out with consideration to the specifications outlined in *AS 1055(1997) Description and Measurement of Environmental Noise* and NSW *Noise Policy for Industry* (2017) (NPI).

The data collected by the loggers was downloaded and analysed, and any invalid data removed. Invalid data generally refers to periods where average wind speeds were greater than five metres per second at ground level or when rainfall occurred in accordance with the NPI. Concurrent weather data for every 15 minutes for the entire monitoring period was sourced from the Gosford Bureau of Meteorology automatic weather station, which is located about four kilometres south-east of the site.

Traffic volume surveys (tube counts) were carried out simultaneously with noise logging at two locations and were used to inform the traffic model for the current year (2018). The traffic model parameters are then input to the 2018 road traffic noise model for validation against noise logger data.

Attended noise measurements were taken at each of the noise monitoring locations during the daytime period in order to assist in identification of local noise sources and the relative contribution of traffic noise. The attended measurements were conducted using Bruel and Kjaer Type 2250 (serial number 2456407) sound level meters calibrated using a Bruel and Kjaer 4231 sound level calibrator (serial number 2542101) at 94 dB at one kHz. At completion of the survey, the meter's calibration was re-checked to ensure the sensitivity of the noise monitoring equipment had not varied. Table 3-2 provides information on the noise loggers deployed. All noise loggers were set to "A" frequency weighting and "fast" time response.

Table 3-2 Noise monitoring details

Parameter	L01	L02	L03
Address	90 Manns Road, Gosford	1 Boolari Road, Gosford	Corner of Yandina Rd and Manns Rd
Equipment type (serial number)	SVAN 977 (45748)	SVAN 977 (45746)	SVAN 955 (27623)
Monitoring location type	Free-field	Free-field	Free-field
Measurement started	23 February 2018	23 February 2018	23 February 2018
Measurement ceased	5 March 2018	10 March 2018	23 February 2018*
Photo			

*Note, logger failure occurred during measurement with about two hours of valid measurements recorded. This logger is to be used as a short term logging location, supplemented by data from L01 and attended noise measurements.

3.2.2 Unattended noise monitoring results

A summary of the calculated background L_{A90} (day, evening and night) noise levels and road traffic descriptors for the monitoring period at the unattended logger locations with all invalid weather affected data removed are provided in Table 3-3 and Table 3-4.

Detailed noise monitoring results and weather charts are presented in Appendix A.

Table 3-3 Summary of background noise levels, dB(A)

Noise logging location	Rating background level (RBL) 90th percentile $L_{A90(15min)}$		
	Day	Evening	Night
L01: 90 Manns Road	48	39	33
L02: 1 Boolari Road	48	46	41
L03: Corner of Manns Road and Yandina Road	60*	-	-

*Logger failure occurred resulting in two hours of valid data. Data represents a partial measurement.

Note 1: NPI defines day, evening and night-time periods as:

- Day: the period from 7 am to 6 pm Monday to Saturday; or 8 am to 6 pm on Sundays and Public Holidays
- Evening: the period from 6 pm to 10 pm
- Night: the period from 10 pm to 7 am.

Table 3-4 Summary of road traffic noise descriptors

Noise logging location	Road traffic noise descriptors		
	$L_{Aeq(15hr)}$ (7 am to 10 pm weekdays)	$L_{Aeq(9hr)}$ (10 pm to 7 am weekdays)	$L_{Aeq(1hr)}$
L01: 90 Manns Road	64	57	65
L02: 1 Boolari Road	58	51	56
L03: Corner of Manns Road and Yandina Road	68*	-	-

*Logger failure occurred resulting in two hours of valid data. Data represents a partial measurement.

3.2.3 Attended noise monitoring results

Two 15 minute operator attended measurements were taken at each site. The existing noise environment was observed to be dominated by road traffic noise for the monitoring locations. A summary of the attended noise monitoring results is provided in Table 3-5.

Table 3-5 Attended monitoring results, dB(A)

Noise logging location	Start Time	L_{A90}	L_{A10}	L_{Aeq}	Observations and instantaneous noise levels
L01: 90 Manns Road	23/02/2018, 13:36	52	66	63	Road noise, 60-78 dBA Residential noise, 50-52 dBA Trees rustling, 50-55 dBA
	23/02/2018, 13:57	51	66	63	Road noise, 60-78 dBA Residential noise, 51-52 dBA School noise, 48-50 dBA Trees rustling, 50-54 dBA
L02: 1 Boolari Road	23/02/2018, 11:58	49	56	54	Road noise, 51-57 dBA Birds, 50-52 dBA Resident noise, 48-51 dBA
	23/02/2018, 12:13	49	55	53	Road noise, 50-57 dBA Birds, 50-52 dBA Insects, 48,52 dBA Commercial noise, 50-52 dBA
L03: Corner of Manns Road and Yandina Road	23/02/2018, 14:31	61	69	67	Road noise, 55-72 dBA Reverse beepers, 48-50 dBA Birds, 52-58 dBA
	23/02/2018, 14:48	59	69	66	Road noise, 55-72 dBA Commercial noise, 60-62 dBA

4. Operational noise assessment

4.1 Guideline criteria

4.1.1 Noise criteria guideline overview

The Noise Criteria Guideline (NCG) was developed by Roads and Maritime to set out an approach to noise criteria that meets the intention of the Road Noise Policy (DECCW, 2011) and to provide consistency across Roads and Maritime proposals. The NCG approach is to assess noise levels at each façade of sensitive receivers (as relevant) within the study area. The criterion at a sensitive receiver depends on the following factors:

- If noise levels at the sensitive receiver will be influenced by a new road or a redeveloped road.
- If the sensitive receiver is in a transition zone.
- Whether sensitive receivers are likely to receive a significant relative increase in noise due to the proposal.

The most stringent applicable criteria at a sensitive receiver façade becomes the proposal specific criteria that will be used in the assessment. The assessment timeframes are year of opening (2026) and 10 years after opening (2036).

NCG noise criteria differ for a road depending on that road's functional class (local, collector, freeway, arterial or sub-arterial) or whether it is 'new' or 'redeveloped'. The NCG defines a road proposal as a 'redevelopment' where it will result in an increase in the traffic carrying capacity and/or increase the number of heavy vehicles by 50 per cent or more on the subject road.

4.1.2 Relative increase criteria

The relative increase criterion assesses any increase in the total traffic noise level at a sensitive receiver due to the proposal. The relative increase criteria is exceeded if the 'build option' noise levels increase by more than 12 dB(A) above the 'no-build option' noise levels.

4.1.3 Non-residential receivers

The NCG provides criteria for the assessment of traffic noise on sensitive non-residential receivers (land use) in the proposal area. The noise assessment criteria relevant to the proposal are presented in Table 4-1. Note that the NCG does not specify noise criteria for commercial premises.

Table 4-1 Road traffic noise assessment criteria for non-residential land uses

Existing sensitive land use	Assessment criteria, dB(A)		Additional considerations
	Day (7 am – 10 pm)	Night (10 pm – 7 am)	
Open space (active use)	$L_{Aeq,15hour}$ 60 (external) when in use	-	Active recreation is characterised by sporting activities and activities which generate their own noise or focus for participants making them less sensitive to external noise intrusion.

4.1.4 Residential receivers

NCG operational noise criteria applicable to the proposal are summarised in Table 4-2.

Table 4-2 Proposal specific operational noise criteria, residences

Road category	Type of proposal/land use	Assessment criteria	
		Daytime (7 am to 10 pm)	Night-time (10 pm to 7 am)
Freeway/ arterial/sub-arterial roads	1. Existing residences affected by noise from redevelopment of existing freeway/arterial/sub-arterial roads 2. Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments	$L_{Aeq(15hr)}$ 60 (external)	$L_{Aeq(9hr)}$ 55 (external)

Notes:
1. The criteria at each facade are determined from the existing traffic noise level plus 12 dBA.
2. Additional traffic means an increase of 2 dB or more.

4.1.5 Sleep disturbance, traffic noise

The RNP provides a literature review for the assessment of sleep arousal due to traffic noise however does not set a sleep disturbance assessment criterion.

Sleep disturbance impacts are likely to be dependent on the following:

- Maximum noise level of an event
- Number of occurrences
- Duration of the event
- Level above background or ambient noise levels

For continuous rather than intermittent traffic flow, the *Environmental Noise Management Manual* (RTA, 2001) recommends L_{Amax} noise pass-by events should not exceed $L_{Aeq\ (1hr)}$ noise levels by more than 15 dB(A). The *Environmental Noise Management Manual* (RTA, 2001) advises that maximum noise levels can be used as a tool to prioritise and rank mitigation strategies, but should not be applied as a decisive criterion in itself.

At locations where road traffic is continuous rather than intermittent, the $L_{Aeq(9hour)}$ criteria for operational noise assessment should sufficiently account for sleep disturbance impacts. However, where the emergence of L_{Amax} over the ambient $L_{Aeq(1hr)}$ is equal to or greater than 15 dBA, the $L_{Aeq(9hour)}$ criteria may not sufficiently account for sleep disturbance impacts.

4.2 Methodology

The methodology for the road traffic noise assessment included the following:

1. The noise study area was established in accordance with the NCG.
2. Road classification changes were assessed for existing roads.
3. A review of road traffic changes has been conducted for existing roads next to the proposal that are not considered redeveloped. Traffic on these roads is generally anticipated to decrease as a result of the proposal, while some roads are expected to receive a minor increase in traffic. Any increases in traffic noise from existing roads next to the proposal is predicted to be less than 2 dB, therefore further assessment of existing side roads is not required.

4. Noise predictions were carried out for the following cases:
   - Year 2026 ‘no build option’ (traffic flow on the existing route/alignment for year opening)
   - Year 2036 ‘no build option’ (traffic flow on the existing route/alignment 10 years after opening)
   - Year 2026 ‘build option’ (proposed design for year opening)
   - Year 2036 ‘build option’ (proposed design 10 years after opening)
5. These models were used to assess compliance with the noise criteria and assess the potential increase in road traffic noise at identified sensitive receivers.

4.2.1 Traffic data

Traffic volumes used in the operational noise assessment are based on detailed traffic modelling across the study area including the proposal and were provided by Cardno. Traffic volume surveys (tube counts) carried out simultaneously with noise logging at two locations were used to inform the traffic model for the current year (2018). A summary of the traffic volume proposal are shown in Table 4-3 and Table 4-4. 15 hour and 9 hour traffic volumes correspond to the day and night noise modelling scenarios respectively.

Table 4-3 Traffic volume summary - No Build

Road Segment	Direction	Current Year (2018 Do Nothing)				Open Year (2026 No Build)				Design Year (2036 No Build)			
		No Build				No Build				No Build			
		Day (7 am – 10 pm)		Night (10 pm – 7 am)		Day (7 am - 10 pm)		Night (10 pm – 7 am)		Day (7 am - 10 pm)		Night (10 pm – 7 am)	
		Total	HV%	Total	HV%	Total	HV%	Total	HV%	Total	HV%	Total	HV%
Yandina Rd	EB	625	7.5	72	9.1	564	7.3	66	8.7	545	8.3	63	9.8
	WB	598	8.0	97	7.4	545	7.5	88	7.1	516	8.4	84	8.0
Carnarvon Rd	EB	1,021	9.1	123	10.4	856	11.0	106	12.5	813	10.5	100	11.9
	WB	1,053	8.6	164	8.5	930	10.3	141	10.2	871	9.8	133	9.7
Stockyard Place	EB	1,142	19.0	130	14.8	1,153	18.8	131	14.7	1225	17.9	138	14.4
	WB	1,063	19.9	174	16.2	1,064	19.8	175	16.1	1113	19.1	184	15.5
Manns Rd- between Carnarvon Rd and Yandina Rd	NB	10,990	7.4	1,783	7.3	11,793	7.1	1,903	7.1	12112	7.0	1951	7.0
	SB	11,593	7.9	1,336	9.0	12,318	7.7	1,426	8.7	12611	7.6	1462	8.6
Manns Rd- between Stockyard Place and Carnarvon Rd	NB	12,011	6.9	1,500	6.5	12,781	6.8	1,586	6.4	13140	6.6	1629	6.2
	SB	10,720	7.9	1,518	8.2	11,253	7.8	1,605	8.1	11543	7.6	1648	7.9
Manns Rd- south of stockyard Place	NB	7,376	5.5%	792	5.1%	8,015	5.4%	860	5.1%	8273	5.4%	888	5.1%
	SB	10,720	7.9	1,518	8.2	11,253	7.8	1,605	8.1	11543	7.6	1648	7.9

Note: NB= Northbound, SB= Southbound, WB= Westbound, EB= Eastbound, HV = heavy vehicle

Table 4-4 Traffic volume summary - Build

Road Segment	Direction	Open Year (2026 Build)				Design Year (2036 Build)			
		Build				Build			
		Day (7 am- 10 pm)		Night (10 pm- 7 am)		Day (7 am- 10 pm)		Night (10 pm- 7 am)	
		Total	HV%	Total	HV%	Total	HV%	Total	HV%
Yandina Rd	EB	403	3.8	40	4.4	442	4.4	44	5.0
	WB	NA	NA	NA	NA	NA	NA	NA	NA
Carnarvon Rd	EB	1,054	9.1	126	10.5	1145	8.7	136	10.0
	WB	1,080	8.7	168	8.5	1163	8.4	182	8.1
Stockyard Place	EB	1,184	18.5	135	14.7	1244	18.2	141	14.6
	WB	1,093	19.6	180	15.9	1141	19.3	188	15.7
Manns Rd- between Carnarvon Rd and Yandina Rd	NB	13,250	6.8	2,144	6.8	15270	6.6	2481	6.5
	SB	13,918	7.3	1,607	8.3	16159	7.0	1859	8.0
Manns Rd- between Stockyard Place and Carnarvon Rd	NB	14,614	6.1	1,823	5.6	17031	5.7	2133	5.3
	SB	13,019	6.9	1,845	7.2	15292	6.5	2158	6.8
Manns Rd- south of stockyard Place	NB	8,801	5.1	945	4.8	10019	5.0	1075	4.6
	SB	13,019	6.9	1,845	7.2	15292	6.5	2158	6.8

Note: NB= Northbound, SB= Southbound, WB= Westbound, EB= Eastbound

4.2.2 Modelling inputs and assumptions

The noise model inputs and assumptions for the existing (2018), 2026 and 2036 no build and build scenarios are presented in Table 4-5.

Table 4-5 Operational noise model inputs and assumptions

Inputs/assumptions	Data incorporated into noise model
Prediction algorithm	United Kingdom Department of Transport, Calculation of Road Traffic Noise, 1988 (CoRTN).
Traffic volumes	Build and no-build traffic data provided by Cardno traffic analysts. Where directional splits are not available, equal (50/50) splits between northbound/southbound and eastbound/westbound will be assumed
Heavy vehicle %	Heavy vehicle percentage based on traffic information provided by Cardno
Model traffic speeds	Speeds for existing and design roads assumed to be as sign-posted.
Low traffic flow	Not implemented.
Road gradient	Taken into account based on the road design and terrain contours for existing roads.
Buildings	All buildings modelled using the following heights: Single storey: 3.5 m Double storey: 6.5 m
Façade receiver positions	Ground floor – 1.5 m receiver height, 1 m from building façade. First floor – 4.5 m receiver height, 1 m from building façade
Road surface adjustments	As per the RMS noise model validation guideline, the following corrections will be made, where appropriate: +3.0 dB(A) for concrete 0.0 dB(A) for dense graded asphalt or equivalent -2.0 dB(A) for stone mastic asphalt or OGA +4.0 dB(A) for 14 mm chip seal or +2.0 dB(A) for 7 mm chip seal.
Modelling allowance	No modelling allowance factor added to the predicted noise levels.
Façade correction	+2.5 dB(A) to account for noise reflected from the façade.
CoRTN conversion factors	CoRTN conversion factor of -3 dB applied to convert LA10 to LAeq based on advice from RMS
CoRTN calibration factor (Adapted to Australian conditions through research carried out by the Australian Road Research Board)	-1.7 façade / -0.7 free-field
Source location	Noise sources located in the centre of each lane of traffic
Source height	Cars and truck tyres – 0.5 m Truck engines – 1.5 m Truck exhausts – 3.6 m
Source height corrections	Truck tyres: -5.4 dB Truck engines: -2.4 dB Truck exhausts: -8.4 dB
Ground absorption	A ground absorption factor of 50% over residential areas, 75% over open grass areas and 0% over water
Noise contours- search radius	3000 m
Noise contours- grid spacing	20 m grid spacing with height above ground of 1.5 m

4.2.3 Noise modelling validation

The noise modelling process was validated against the road traffic noise monitoring data and simultaneous traffic counts.

The model is deemed to be valid if the average difference between the measured and calculated values of the descriptors is within +/- 2 dB(A).

A comparison of the modelling and monitoring results is shown in Table 4-6. The predicted results and measured results have an acceptable variance of within 2 dB(A) at all relevant road traffic logger locations.

Table 4-6 Noise logger validation

Logger location	Measured, dB(A) (free field)		Modelled, dB(A) (free field)		Difference dB(A)		Notes
	$L_{Aeq(15hr)}$ (Day)	$L_{Aeq(9hr)}$ (Night)	$L_{Aeq(15hr)}$ (Day)	$L_{Aeq(9hr)}$ (Night)	$L_{Aeq(15hr)}$ (Day)	$L_{Aeq(9hr)}$ (Night)	
L01	63.3	57.5	63.7	57.4	0.4	-0.1	Within 2 dB(A)
L03	68.2	-	66.7		-1.5		Within 2 dB(A)
Average difference	-	-	-	-	-0.6	-0.1	Within 2 dB(A)

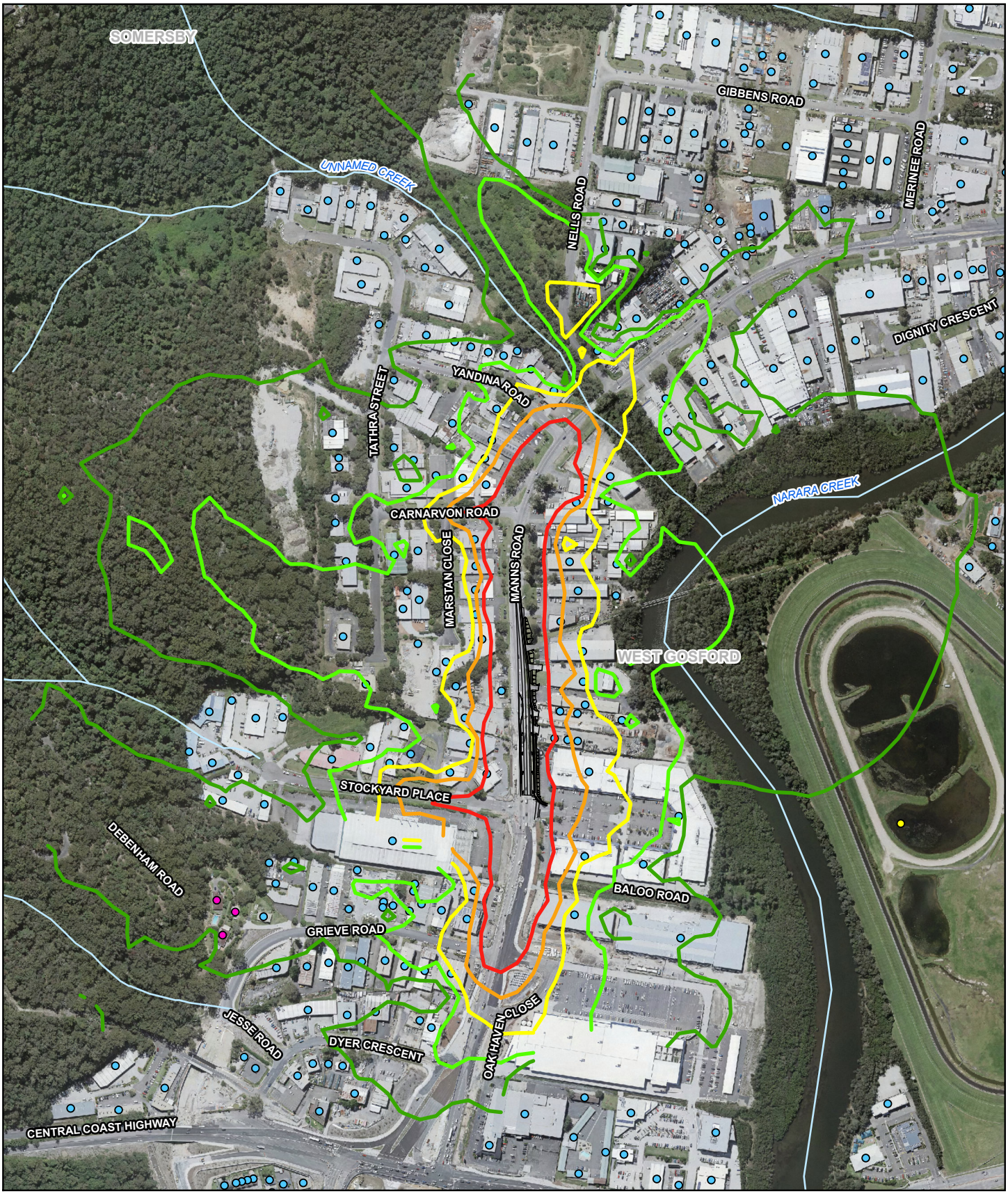
Note: logger L03 captured about two hours of data. This data was used as a short-term validation location and compared to the corresponding traffic counts at this logger location. Logger validation was supplemented by the data from L01.

4.3 Predicted noise levels

The day and night-time predicted sensitive receiver noise levels for the 'no-build option' and 'build option' for year 2026 year 2036 are detailed in Appendix C. Day and night-time façade noise maps for the design year 'build' option are shown in Figure 4-1 and Figure 4-2. All road traffic noise levels include a +2.5 dB(A) façade correction to account for reflected noise from the sensitive receiver façade and show the highest overall road traffic noise level across the façade for each building.

The noise contours are presented as the $L_{Aeq\ (15\ hour),}$ whereas the criteria for school classrooms, places of worship, are $L_{Aeq\ (1\ hour)}$. Noise logger data that was considered representative of the identified non-residential sensitive receivers was investigated to determine the difference between the $L_{Aeq\ (15\ hour)}$ and the highest recorded $L_{Aeq\ (1\ hour).}$ The noise logger results indicate a correction of 2 dB(A) should be added to the predicted $L_{Aeq\ (15\ hour)}$ to derive the predicted $L_{Aeq\ (1\ hour).}$

The areas in the study area that are predicted to experience a noticeable increase in noise as a result of the proposal (more than a 2.0 dBA increase) are shown in Figure 4-3 and Figure 4-4.



LEGEND

Predicted noise level

- LAeq 65 dBA (Residential cumulative limit criteria)
- LAeq 60 dBA
- LAeq 55 dBA
- LAeq 50 dBA
- LAeq 45 dBA

Receiver type

- Commercial
- Recreational
- Residential

- Stockyard Place Intersection design
- Watercourse

Paper Size A4

0 50 100 150 200

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

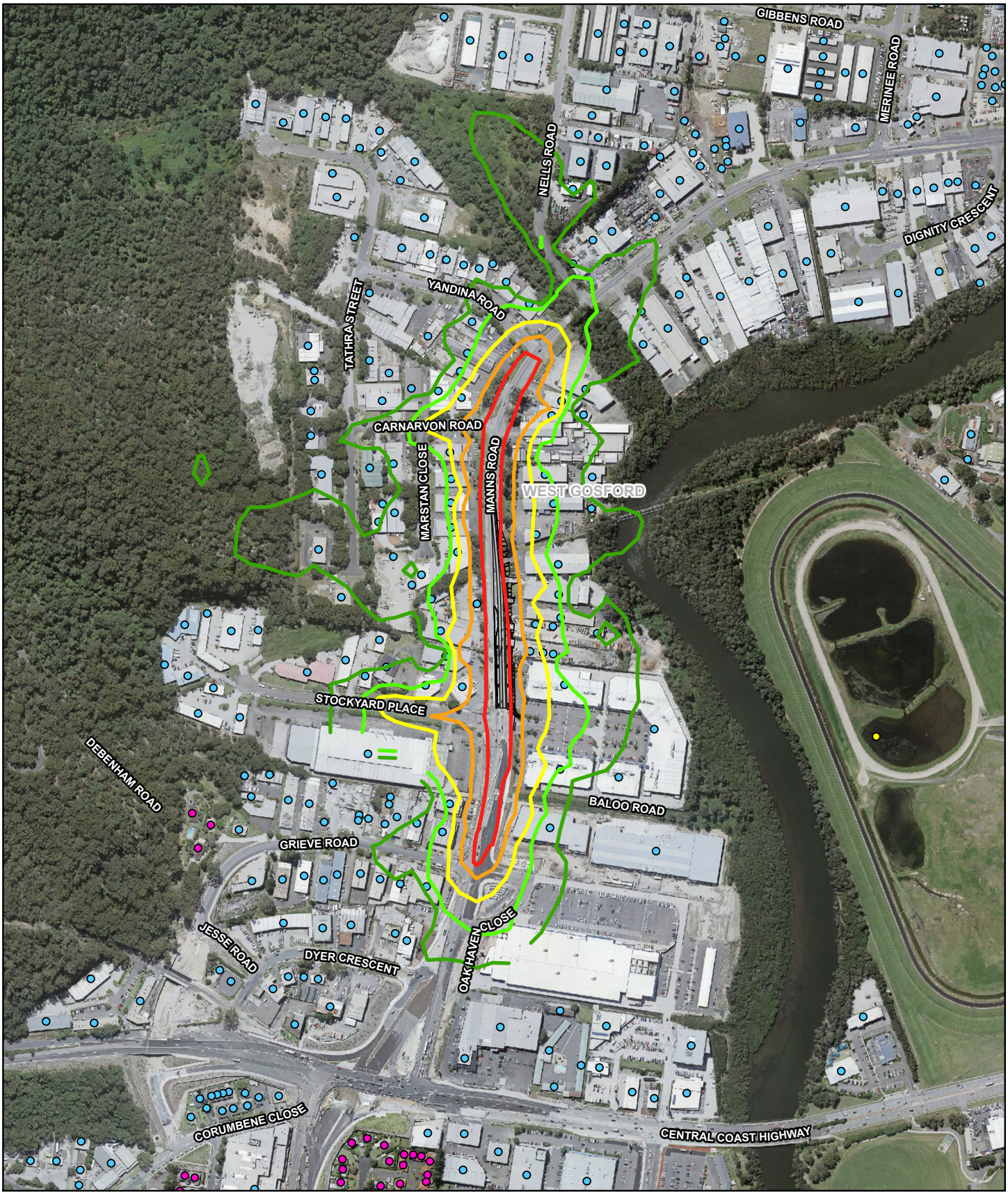
Job Number 22-19033
Revision 0
Date 22/08/2018

Predicted road traffic noise levels Build 2036 Day (façade corrected) Figure 4-1

G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay



LEGEND

Predicted noise level

- LAeq 65 dBA
- LAeq 60 dBA (Residential cumulative limit criteria)
- LAeq 55 dBA
- LAeq 50 dBA
- LAeq 45 dBA

Receiver type

- Commercial
- Recreational
- Residential

Stockyard Place Intersection design

Paper Size A4

0 50 100 150 200

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Job Number 22-19033
Revision 0
Date 22/08/2018

Predicted road traffic noise levels Build 2036 Night (façade corrected) Figure 4-2

G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

LEGEND

Noticeable increase (>2.0 dBA)

Stockyard Place Intersection design

Receiver type

- Commercial
- Recreational
- Residential

Paper Size A4

0 60 120 180 240

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Job Number 22-19033
Revision 0
Date 22/08/2018

Predicted road traffic noise levels
Build 2036 Day, noticeable increase

Figure 4-3

G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

LEGEND

- Noticeable increase (>2.0 dBA)
- Stockyard Place Intersection design

Receiver type

- Commercial
- Recreational
- Residential

Paper Size A4

0 60 120 180 240

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Job Number 22-19033
Revision 0
Date 22/08/2018

Predicted road traffic noise levels
Build 2036 Night, noticeable increase

Figure 4-4

G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

4.3.1 Assessment of impacts

The Noise Mitigation Guideline (RMS, 2016) provides guidance where exceedance of the proposal specific noise criteria is predicted at sensitive receivers. The NMG assessment guidance is presented as a flowchart in Figure 4-5, where:

- The controlling criterion represents the noise criteria at each residential façade, in accordance with the NCG.
- The cumulative limit represents the total noise level that is 5 dB(A) or more above the NCG criteria in the build year. The cumulative limit only applies when the contribution from the road proposal at the affected façade is more than 2 dB(A). The purpose of the cumulative limit is to prevent a receiver with an existing high noise level from remaining well above the criterion if the noise level did not increase significantly relative to the 'no-build' year.
- The acute noise level is defined as a level of road traffic noise of 65 dB(A) $L_{Aeq\ (15\ hour)}$ (Day) or 60 dB(A) $L_{Aeq\ (9\ hour)}$, (Night), one metre from the building façade.
- Mitigation should be assessed at each façade of the residence, as the worst affected façade (highest traffic noise level) may not be a façade with an increase of 2 dB(A) or more due to the proposal.

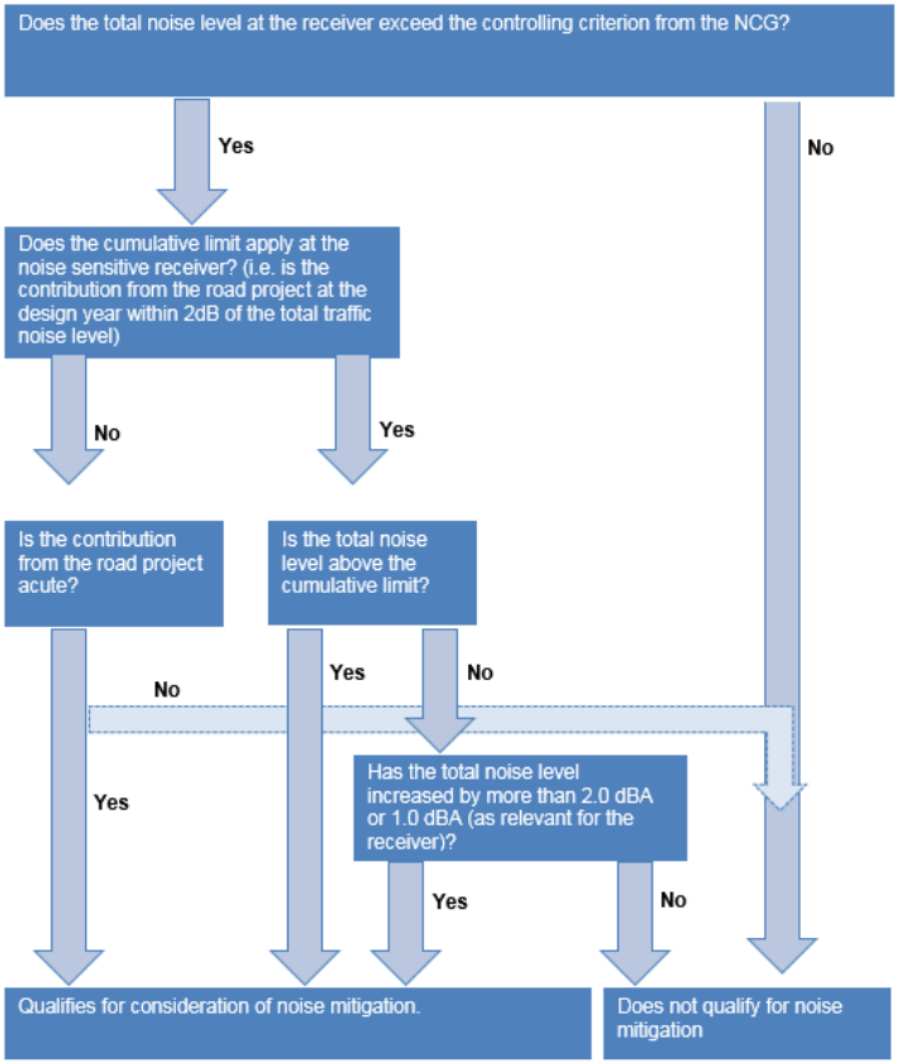


Figure 4-5 Noise assessment flowchart (derived from the NMG)

The operational noise assessment identified that no sensitive receivers qualified for mitigation consideration. Sensitive residential receivers are located at least 250 meters away from the proposal and the proposal is not anticipated to noticeably increase noise in the study area (refer Figure 4-3 and Figure 4-4). Full operational noise modelling results are provided in Appendix B.

4.3.2 Maximum noise level/sleep disturbance assessment

The *Road Noise Policy* provides a literature review for the assessment of sleep arousal due to traffic noise however does not set a sleep disturbance assessment criterion. Sleep disturbance impacts are likely to be dependent on the following:

- Maximum noise level of an event
- Number of occurrences
- Duration of the event
- Level above background or ambient noise levels

For continuous rather than intermittent traffic flow, the Environmental Noise Management Manual (RTA, 2001) recommends L_{Amax} noise pass-by events may lead to sleep disturbance if the L_{Amax} noise levels exceeds the $L_{Aeq(1hr)}$ noise level by more than 15 dB(A) when the L_{Amax} noise levels is greater than 65 dB(A).

The closest residential receiver in the Stockyard Place Intersection study area to the Manns Road upgraded configuration is 275 metres from the western road edge and is located at 21 Boolari Road. The road configuration which this resident is exposed to (southern end of project boundary) is not proposed to be altered with the upgraded road configuration (in either width or alignment). Therefore, the maximum noise level at this location is not predicted to increase and is not anticipated to cause any sleep disturbance to residential receivers.

The closest residences to the east of the upgraded road configuration are greater than 600 metres from the eastern road edge. As such, a maximum noise level assessment to these receivers is not deemed necessary.

4.3.3 Post-construction noise monitoring program

To confirm that the noise level targets are achieved, the NMG refers to the ENMM Practice note (viii) which recommends that a post-construction noise monitoring program be carried out.

The noise monitoring program (including simultaneous traffic counts) should be carried out within 12 months of proposal opening once traffic flows have stabilised. Monitoring locations should be selected along the route at the monitoring locations carried out in this assessment.

The measured noise levels should be compared to the noise level assessment targets. If the noise level targets are exceeded the ENMM recommends the following action:

- If the exceedance is less than 2 dB(A), 'the prediction methodology and suitability of noise mitigation measures should be reassessed and the reasons for the marginal exceedance should be identified in the report'.
- If the exceedance is greater than two dB(A), 'the adequacy of the noise mitigation measures needs to be reviewed, and if problems are identified steps need to be taken to rectify the situation. Additional noise treatments may be required to achieve the design noise level, where this is feasible and reasonable.'

The NMG states, '*Note that where the outcome of the compliance report is that further noise mitigation should be considered the processes in this guideline should be followed.'*

5. Construction noise and vibration assessment

5.1 Noise and vibration criteria

5.1.1 Noise Criteria

Construction noise management levels

The ICNG states that the potential for construction noise impacts can be assessed by comparing the predicted noise at the assessment locations with the construction noise management levels provided by the ICNG. Construction is considered to have the potential to cause a noise impact if the predicted noise exceeds the construction noise management levels.

Table 5-1 details the ICNG (DECC 2009) construction noise management levels for sensitive residential receivers. Table 5-2 and Table 5-3 details the construction noise management levels for sensitive non-residential receivers (land uses) and commercial/industrial receivers (land uses) respectively.

Table 5-1 Construction noise management level at sensitive residential receivers

Time of day	Management level	Application
During standard construction hours	Noise affected RBL + 10 dB(A)	The noise affected level represents the point above which there may be some community reaction to noise and: • Where the predicted or measured $L_{Aeq(15min)}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. • The proponent should also inform all potentially affected residents of the nature of the work to be carried out, the expected noise levels and duration as well as contact details.
	Highly noise affected 75 dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. Where noise is above this level, the relevant authority may require respite periods by restricting the hours that very noisy activities can occur, taking into account: • Times identified by the community when they are less sensitive to noise (such as before and after school for work near schools, or mid-morning or mid-afternoon for work near residences). • If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard construction hours	Noise affected RBL + 5 dB(A)	A strong justification would typically be required for work outside the recommended standard construction hours and: • The proponent should apply all feasible and reasonable work practices to meet the noise affected level. • Where all feasible and reasonable work practices have been applied and noise is more than 5 dB(A) above the noise affected level, the proponent should negotiate with the community.

Table 5-2 Construction noise management level at non-residential sensitive receivers

Receiver/land use	Management level, LAeq(15min) (applies when properties are in use or occupied)
Classrooms at schools and other educational institutions	Internal noise level – 45 dB(A)
Hospital wards and operating theatres	Internal noise level – 45 dB(A)
Places of worship	Internal noise level – 45 dB(A)
Active recreation areas (characterised by sporting activities and activities which generate their own noise or focus for participants, making them less sensitive to external noise intrusion)	External noise level – 65 dB(A)
Passive recreation areas (characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example, reading, meditation)	External noise level – 60 dB(A)

Table 5-3 Construction noise management level at commercial/industrial receivers

Receiver/land use	Management level, LAeq(15min) (applies when properties are in use or occupied)
Industrial premises	External noise level – 75 dB(A)
Commercial premises	External noise level – 70 dB(A)

Construction traffic noise

The RNP (DECCW 2011) provides traffic noise target levels for receivers near existing roads (Table 5-4). These levels are applied to construction work to identify potential construction traffic impacts and the subsequent need for reasonable and feasible mitigation measures.

The Application Notes[1] for the RNP state that *'for existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise level as a result of the development should be limited to 2 dB above that of the noise level without the development. This limit applies wherever the noise level without the development is within 2 dB of, or exceeds, the relevant day or night noise assessment criterion.'*

If road traffic noise during construction is within 2 dB(A) of current levels, then the objectives of the RNP (DECCW 2011) are met and no specific mitigation measures are required.

Table 5-4 Construction traffic noise criteria, $L_{Aeq(period)}$, dB(A)

Type of development	Day 7:00 am to 10:00 pm	Night 10:00 pm to 7:00 am
Existing residence affected by additional traffic on arterial roads generated by land use developments	60 $L_{Aeq(15hr)}$	55 $L_{Aeq(9hr)}$
Existing residence affected by additional traffic on local roads generated by land use developments	55 $L_{Aeq(1hr)}$	50 $L_{Aeq(1hr)}$

[1] http://www.environment.nsw.gov.au/noise/roadnoiseappnotes.htm 12 December 2012

Type of development	Day 7:00 am to 10:00 pm	Night 10:00 pm to 7:00 am
1. School classrooms	$L_{Aeq,1hour}$ 40 (internal) when in use	–
2. Hospital wards	$L_{Aeq,1hour}$ 35 (internal) when in use	$L_{Aeq,1hour}$ 35 (internal) when in use
3. Places of worship	$L_{Aeq,1hour}$ 40 (internal) when in use	$L_{Aeq,1hour}$ 40 (internal) when in use
4. Open space (active use)	$L_{Aeq,15hour}$ 60 (external) when in use	-
5. Open space (passive use)	$L_{Aeq,15hour}$ 55 (external) when in use	-
6. Child Care Facilities	Sleeping rooms $L_{Aeq,1hour}$ 35 (internal) Indoor play areas $L_{Aeq,1hour}$ 40 (internal) Outdoor play areas $L_{Aeq,1hour}$ 55 (external)	

Proposal specific construction noise criteria

Proposal specific construction noise criteria have been calculated for each NCA and are summarised in Table 5-5. The lowest logged noise level was adopted for a given period (day, evening, night) in each NCA. Additionally, the adopted background noise level for each NCA was set based on guidance from the INP (EPA 2000) application notes, which state the following:

> *Proposal-specific noise levels for a particular development, it is generally recommended that the intrusive noise level for evening be set at no greater than the intrusive noise level for daytime. The intrusive noise level for night-time should be no greater than the intrusive noise level for day or evening.*

This is to account for potential seasonal variability in the noise environment and to meet community expectations that evening and night periods are more sensitive to noise than the daytime.

Table 5-5 Summary of construction noise management levels at sensitive residential receivers, dB(A)[2]

NCA	Logging locations	Construction noise management level (CNML) L_{Aeq}				
		During standard recommended hours		Outside of standard recommended hours (OOHW)		
		Highly noise affected	Noise affected level	Day 7 am to 8 am and 1 pm to 6 pm Saturday, 8 am to 6 pm Sunday & public holidays	Evening 6 pm to 10 pm Monday to Sunday & public holidays	Night 10 pm to 7 am, Monday to Saturday; 10 pm to 8 am Sunday & public holidays
NCA 1	L02	75	58	53	51	46
NCA 2	L01		58	53	44	38

[2] Note that logger L03 was not used to set construction noise levels as it was not in close proximity to sensitive receivers in the proposal area

Sleep Disturbance

The *Interim Construction Noise Guideline* (DECC, 2009) states that '*where construction works are planned to extend over more than two consecutive nights, the impact assessment should cover the maximum noise level from the proposed works*' and suggests that guidance for sleep disturbance can be found in the *Environmental Criteria for Road Traffic Noise* (OEH, 1999).

The Environmental Criteria for Road Traffic Noise acknowledges that based on the current level of understanding no absolute noise level criteria have been established that correlate to an acceptable level of sleep disturbance. However, the Road Noise Policy provides guidance suggesting that maximum internal noise levels below 50 dB(A) to 55 dB(A) are unlikely to cause awakening reactions and one or two events per night, with maximum internal noise levels of 65 dB(A) to 70 dB(A) (inside dwellings) are not likely to significantly affect health and wellbeing. Consistent with this advice, the Construction Noise and Vibration Guideline suggests that a L_{AMax} level of 65 dBA external be used to assess sleep disturbance impacts. This criteria has been adopted to asses sleep disturbance impacts for this assessment.

5.1.2 Vibration Criteria

Human comfort criteria

Vibration has been assessed based on the criteria provided in *Assessing Vibration: A Technical Guideline* (AVTG) (DEC 2006). *British Standard (BS) 6472 – 1992, Guide to Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz)* is recognised by the AVTG (DEC 2006) as the preferred standard for assessing 'human comfort criteria'.

The AVTG discusses three main types of vibration: continuous, intermittent and impulsive. These are further described in Table 5-6.

Table 5-6 Types of vibration (AVTG, DEC 2006)

Continuous vibration	Impulsive vibration	Intermittent vibration
Machinery, steady road traffic, continuous construction activity (such as tunnel boring machinery).	Infrequent: Activities that create up to three distinct vibration events in an assessment period, e.g. occasional dropping of heavy equipment, occasional loading and unloading. Blasting is assessed using ANZECC (1990)	Trains, nearby intermittent construction activity, passing heavy vehicles, forging machines, impact pile driving, jack hammers. Where the number of vibration events in an assessment period is three or fewer this would be assessed against impulsive vibration criteria.

For impulsive and continuous vibration there is low probability of disturbance to a receptor within a building provided the vibration levels are below the preferred values in Table 5-7.

Table 5-7 Preferred and maximum weighted values for continuous and impulsive vibration (AVTG, DEC 2006)

Location	Assessment period [1]	rms acceleration (m/s^2) [3]		peak velocity (mm/s) [4]	
		preferred	maximum	preferred	maximum
Continuous vibration					
Critical areas [2]	Day or night-time	0.0050	0.010	0.14	0.28
Residences	Daytime	0.010	0.020	0.28	0.56
	Night-time	0.0070	0.014	0.20	0.40
Offices, schools, educational institutions and places of worship"	Day or night-time	0.020	0.040	0.56	1.1
Workshops	Day or night-time	0.040	0.080	1.1	2.2
Impulsive vibration					
Critical areas [2]	Day or night-time	0.0050	0.010	0.14	0.28
Residences	Daytime	0.30	0.60	8.6	17.0
	Night-time	0.10	0.20	2.8	5.6
Offices, schools, educational institutions workshops and places of worship"	Day or night-time	0.64	1.28	18.0	36.0

Note:

1. Daytime is 7.00 am to 10.00 pm and night-time is 10.00 pm to 7.00 am
2. Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring. There may be cases where sensitive equipment or delicate tasks require more stringent criteria than the human comfort criteria. Stipulation of such criteria is outside the scope of this policy, and other guidance documents (eg relevant standards) should be referred to. Source: BS 6472–1992
3. Values derived from z-axis critical frequency range 4–8 Hz. Where required, a more detailed analysis can be conducted as per BS 6472–1992.
4. Values given for the most critical frequency range >8 Hz assuming sinusoidal motion. Where required, a more detailed analysis can be conducted as per AS 2670.2–1990. Sufficient justification should accompany the use of a peak velocity approach if used in an assessment.

Typically, construction activities generate ground vibration of an intermittent nature. Intermittent vibration is assessed using the vibration dose value (VDV). Acceptable values of vibration dose are presented in Table 5-8 for receivers.

Table 5-8 Human comfort intermittent vibration limits, mms$^{-1.75}$ (BS 6472-1992)

Location	Daytime [1]		Night time [1]	
	Preferred value	Maximum value	Preferred value	Maximum value
Critical areas [2]	0.10	0.20	0.10	0.20
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

Note:

1. Daytime is 7:00 to 22:00 and night time is 22:00 to 7:00.
2. Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring. These criteria are only indicative, and there may be need to assess intermittent values against the continuous or impulsive criteria for critical areas. These locations for the proposal are provided in Table 2.2 and 2.3.

Humans are capable of detecting vibration at levels well below those causing risk of damage to a building. The degrees of perception for humans are suggested by the vibration level categories given in *BS 5228.2 – 2009, Code of Practice for noise and vibration on construction and open sites – Part 2: Vibration,* as shown in Table 5-9.

Table 5-9 Guidance on effects of vibration levels for human comfort (BS 5228.2 – 2009)

Vibration level	Effect
0.14 mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction.
0.3 mm/s	Vibration might be just perceptible in residential environments.
1.0 mm/s	It is likely that vibration at this level in residential environments will cause complaints, but can be tolerated if prior warning and explanation has been given to residents.
10 mm/s	Vibration is likely to be intolerable for any more than a very brief exposure.

Structural damage criteria

Currently, there is no Australian Standard that sets the criteria for the assessment of building damage caused by vibration. Cosmetic damage criteria are provided in *British Standard BS 7385.2 – 1993 Evaluation and measurement for vibration in buildings* (Table 5-10) and *German Standard DIN 4150-3: 1999-02 Structural Vibration – Part 3: Effects of vibration on structures* (Table 5-11). This assessment has applied the DIN 4150-3: 1999 criteria (Table 5-12) as they are more stringent.

Table 5-10 BS 7385.2 – 1993 Transient vibration guideline values for cosmetic damage

Line	Type of building	Peak component particle velocity in frequency range of predominate pulse	
		4 Hz to 15 Hz	15 Hz and above
1	Reinforced or framed structures. Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	
2	Unreinforced or light framed structures. Residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above.

Table 5-11 DIN 4150-3: 1999 Guideline values for short-term vibration on structures

Line	Type of structure	Guideline values for velocity, (mm/s)		
		1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz [1]
1	Buildings used for commercial purposes, industrial buildings, and buildings of similar design.	20	20 to 40	40 to 50
2	Dwellings and buildings of similar design and/or occupancy.	5	5 to 15	15 to 20
3	Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 and are of great intrinsic value (e.g. listed buildings under preservation order).	3	3 to 8	8 to 10

Note 1: At frequencies above 100 Hz, the values given in this column may be used as a minimum value.

Vibration due to construction processes also has the potential to affect services such as buried pipes. German Standard DIN 4150.3:1999 also provides guidance on safe vibration levels for buried pipe work. DIN 4150.3:1999 details the limits for short-term vibration, as presented in Table 5-12. The levels apply on the wall of the pipe.

Table 5-12 Guidance values for short-term vibration on buried pipes

Pipe material	Guideline values for velocity measured on the pipe (mm/s)
Steel (including welded pipes)	100
Clay, concrete, reinforced concrete, metal (with or without flange)	80
Masonry, plastic	50

5.2 Methodology

The methodology for the construction noise and vibration assessment included:

- The rating background levels (RBL) for the proposal were calculated from the noise monitoring data obtained from the noise monitoring locations. The RBLs were used to establish the construction noise management levels in accordance with the ICNG.
- A list of likely construction activities and machinery was established. Representative sound power levels for the selected equipment were obtained from the CNVG, ENMM and *AS 2436 – 2010 (R2016) Guide to noise and vibration control on construction, demolition and maintenance sites.*
- Noise propagation calculations were carried out for the anticipated equipment.
- Vibration from surface construction plant and equipment was predicted and assessed with consideration to *Assessing Vibration: A Technical Guideline* and *German Standard DIN 4150, Part 3: Structural Vibration in Buildings: Effects on Structures.*
- Where noise and vibration levels were predicted to exceed the construction noise management levels, appropriate construction noise and vibration mitigation measures were provided to minimise impacts.

5.3 Construction activities

5.3.1 Construction overview

The proposal would involve a range of construction activities. Construction activities would involve use of various plant and equipment. Some construction activities, such as bulk earthworks, would be carried out across the entire construction footprint, while others, such as compound operations, would only occur in discrete locations.

Key construction activities that would be carried out for the proposal area:

- Mobilisation and site establishment
- Demolition at site compounds
- Compound set-up
- Compound operations
- Utility, property, service adjustment
- Widen verge and form footpath
- Install new full depth pavement at western widening

- Install new full depth pavement at eastern widening
- Install new kerb and gutter, driveways and footpath
- Install new medians
- Asphalt re-sheet and linemarking
- Compound removal

5.3.2 Construction duration

Construction of the proposal is expected to take about 6 months (weather permitting) and is planned to start in about 2021 subject to approval. Some elements of the proposal may be carried out as early work packages and could start ahead of the main contract work.

5.3.3 Construction staging

Construction staging for the proposal will be finalised during the detailed design phase and is dependent on the contract delivery method and construction methodology selected by the construction contractor.

A concept staging has been prepared for the proposal considering resource usage efficiency, ecological impacts, disruptions to surrounding vehicular traffic and program delivery dates. Construction activities would be staged generally in accordance with the typical construction sequence shown in Table 5-14.

5.3.4 Construction hours

Standard construction hours

The recommended standard construction hours as noted in the NSW *Interim Construction Noise Guideline* (ICNG) (Department of Environment and Climate Change 2009) are shown in Table 5-13.

Table 5-13 Standard construction hours

Work type	NSW Interim Construction Noise Guideline Recommended standard construction hours
Normal construction	Monday to Friday: 7 am to 6 pm Saturday: 8 am to 1 pm Sunday and public holidays: no work

Work would be carried out inside and outside of standard work hours as required.

Out of hours work

The ICNG also recognises there are some situations where specific construction work may need to be carried out outside of the recommended standard construction hours. The following are the categories of work that might be carried out outside the recommended standard construction hours and/or proposed extended construction hours:

- Delivery of oversized plant or structures that the police or other authorities determine require special arrangement to transport along public roads.
- Emergency work to avoid the loss of life or damage to property, or to prevent environmental harm.
- Maintenance and repair of public infrastructure where disruption to essential services and/or considerations of worker safety do not allow work within standard construction hours.
- Work where a proponent demonstrates and justifies a need to operate outside the recommended standard construction hours.

Work would be carried out inside and outside of standard work hours as required.

5.3.5 Construction plant and equipment

Noise emissions from construction have been assessed at identified receivers in the study area during standard construction hours and outside the standard construction hours, including the proposed extended construction hours. A quantitative assessment has been carried out with consideration to the ICNG.

The final staging and construction methodology, including plant and equipment to be used for the proposal would be determined by the construction contractor and may change. A suitably qualified acoustic engineer should assess any changes to potential impacts.

Plant and equipment needed for the proposal would be determined during the construction planning phase. Where available, sound power levels will be sourced from the Construction Noise and Vibration Guideline (RMS 2016, CNVG). If equipment is not available in the CNVG, sound power levels will be sourced from Australian Standard 2436-2010-R2016 (Guide to Noise and Vibration Control on Construction, demolition and maintenance sites), British Standard BS 5228.1-2009 (Code of Practice for noise and vibration control on construction and open sites: Part 1 Noise), the Construction Noise Strategy (Transport for NSW 20122016) or GHD's internal database.

The magnitude of the off-site noise impact associated with construction activities would be dependent upon a number of factors:

- The intensity and location of construction activities
- The type of equipment used
- Existing local noise sources
- Intervening terrain
- The prevailing weather conditions

5.3.6 Construction compounds

Two areas have been identified for potential use as construction compounds to facilitate construction of the proposal.. These compound sites can be seen in Figure 5-1.

It should be noted that these are indicative only and would require further refinement based on the needs of the construction contractor. Construction staging would influence the staging and use of construction compounds.

Construction compounds have been assessed as separate scenarios within the construction sequence.

5.3.7 Construction sequence

The proposal would involve a range of construction activities. The methods of construction and potential staging of construction would be determined during the detailed design and construction phases once the delivery methods are determined. The assessment involved consideration of a typical work methodology and sequencing.

The different scenarios represent different equipment noise levels and give an idea how noise levels may change across the study area with different activities being carried out. The construction noise is assessed assuming that the two loudest pieces of construction equipment are operational concurrently for each construction phase scenario. This is considered a worst-case scenario.

Construction equipment will likely move about the site altering noise impacts with respect to the identified receivers. During any given period, the construction items to be used in the proposal area will operate at maximum sound power levels for only brief stages. At other times, the machinery may produce lower sound levels while carrying out activities not requiring full power. It is highly unlikely that all construction equipment would be operating at their maximum sound power levels at any one time and certain types of construction machinery will be present in the proposal area near to the receiver for only brief periods during construction activities.

LEGEND

- Construction
- Compound
- Watercourse

Paper Size A4

0 80 160 240 320

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Compound and construction footprint locations

Job Number	22-19033
Revision	0
Date	22/08/2018

Figure 5-1

G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

Table 5-14 Construction activities and corresponding equipment

Scenario number	Scenario	Description	Equipment	Sound Power Level, dBA	Adopted activity sound power level, dBA	Activity Duration	Location
S01	Mobilisation and site establishment	Installing construction boundary fences, compound pavement, sheds and facilities and traffic barriers	20 T excavator	105	115	1 month	Construction footprint
			Grader	113			
			Roller	108			
			Road truck	108			
			Small crane	110			
S02	Utility, property, service adjustment	Adjustment of property boundaries (where required); relocation of services	Excavator 20 T	105	113	6 months	Utility areas
			Road truck	108			
			Backhoe	111			
S03	Widen verge and form footpath	Deliveries Clearing Earthworks Concrete works Pavement construction	40 T excavator	110	118	8 months	Construction footprint
			Dump truck	110			
			Rollers	108			
			D6 dozer	116			
			Grader	113			
			Watercart	107			
			Road truck	108			
S04	Install new full depth pavement at western widening	Deliveries Clearing Earthworks	40 T excavator	110	120	12 months	Construction footprint
			Dump truck	110			

Scenario number	Scenario	Description	Equipment	Sound Power Level, dBA	Adopted activity sound power level, dBA	Activity Duration	Location
		Concrete works Pavement construction	Rollers	108			
			D6 dozer	116			
			Grader	113			
			Watercart	107			
			Road truck	108			
			Pavement saw	118			
S05	Install new full depth pavement at eastern widening	Deliveries Clearing Earthworks Concrete works Pavement construction	40 T excavator	110	118	6 months	Construction footprint
			Dump truck	110			
			Rollers	108			
			D6 dozer	116			
			Grader	113			
			Watercart	107			
			Road truck	108			
			Concrete truck	109			
			Concrete pump	102			
			Asphalt paver	108			

Scenario number	Scenario	Description	Equipment	Sound Power Level, dBA	Adopted activity sound power level, dBA	Activity Duration	Location
S06	Install new kerb and gutter, driveways and footpath	Deliveries Clearing Earthworks Concrete works Pavement construction	Rollers	108	114	6 months	Construction footprint
			Grader	113			
			Watercart	107			
			Road truck	108			
			Concrete truck	109			
			Concrete pump	102			
S07	Install new medians	Deliveries Concrete works Pavement construction	Rollers	108	114	4 months	Construction footprint
			Grader	113			
			Watercart	107			
			Concrete truck	109			
			Concrete pump	102			
S08	Asphalt re-sheet and linemarking		Road truck	108	118	2 months	Construction footprint
			Asphalt paver	108			
			Road profiling machine	117			
S09	Compound set up	Establishment of construction compound sites	Hand tools	102	115	2-3 weeks	Compound Sites
			Crane	110			
			Grader	113			
			Vibratory roller	109			
			Road Truck	108			

Scenario number	Scenario	Description	Equipment	Sound Power Level, dBA	Adopted activity sound power level, dBA	Activity Duration	Location
S10	Compound operation	Use of compound sites- deliveries, plant and equipment, maintenance, office areas, storage areas.	Light vehicle	106	112	9-12 months	Compound Sites
			Franna crane	98			
			Compressor	109		2 -3 weeks	
			Road truck	108			
S11	Compound removal	Decommissioning of construction compound sites	Hand tools (electric)	102	113		Compound Sites
			Crane	110			
			Excavator 30 T	110			
			Road Truck	108			
S12	Demolition at compound sites		Excavator (tracked) 35t	110	122	2 -3 weeks	Compound sites 4 and 5
			Dump truck	110			
			As above + hydraulic hammer	122			
			Front end loader 23t	112			

5.4 Construction noise impacts

The potential construction noise impacts have been assessed with reference to the proposal specific construction noise criteria and construction periods.

A summary of construction noise impacts at residential and non-residential sensitive receivers, is presented in the following sections.

5.4.1 Construction noise prediction method

Construction noise impacts associated with the proposal were determined using CadnaA noise modelling software using the Concawe algorithm[3].

The noise model inputs and assumptions for the construction assessment are provided in Table 5-15.

Table 5-15 Construction noise modelling assumptions

Modelling component	Assumption
Noise model	Cadna 2018 (MR1)
Prediction algorithm	Concawe
Modelling period	Typical worst case 15 minute period of operation where each item of equipment is running at full power
Ground absorption coefficient	A ground absorption factor of 50% over residential areas, 75% over open grass areas and 0% over water
Atmospheric absorption	Based on an average temperature of 10 °C and an average humidity of 70 %
Receiver heights	Ground floor – 1.5 m receiver height, 1 m from building façade. First floor – 4.5 m receiver height, 1 m from building façade
Sound Power Levels	Where available, sound power levels were sourced from the Construction Noise and Vibration Guideline (RMS 2016). If equipment is not available in the CNVG, sound power levels will be sourced from Australian Standard 2436-2010-R2016 (Guide to Noise and Vibration Control on Construction, demolition and maintenance sites), British Standard BS 5228.1-2009 (Code of Practice for noise and vibration control on construction and open sites: Part 1 Noise), the Construction Noise Strategy (Transport for NSW 2016) or GHD's internal database.
Total sound power level	The two loudest pieces of equipment will be assumed to operate simultaneously. The assumed sound power level will be the logarithmic sum of the two highest SWLs for each scenario
Construction noise locations	To provide a worst-case estimate, construction equipment was modelled at the construction and/or compound boundary

5.4.2 Construction noise assessment

Noise impacts from scenarios detailed in Table 5-14 were predicted based on the modelling assumptions in Table 5-15. The numbers of sensitive receivers exceeding each management level are provided in Table 5-16 and Table 5-17, while the predicted construction noise management level exceedances for each NCA and scenario are shown in presented in Table 5-18 and Table 5-19. Note that most works are anticipated to be conducted during standard hours, however there would be some activities required outside standard hours.

[3] CONCAWE, The propagation of Noise from petroleum and petrochemical Complexes to Neighbouring Communities, Report 4/81, 1981

Table 5-16 Number of exceedances- residential receivers

NCA	Criteria	Construction Noise Management Level (CNML)	Construction scenarios based on Table 5-14											
			S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
NCA1	Highly Affected	75	0	0	0	0	0	0	0	0	0	0	0	0
	Standard Hours	58	0	0	0	0	0	0	0	0	3	0	1	13
	OOHW Day	53	0	0	0	0	0	0	0	0	6	4	3	25
	OOHW Evening	51	0	0	0	1	0	0	0	0	13	6	6	39
	OOHW Night	46	1	0	3	3	3	3	3	3	25	16	16	80
NCA2	Highly Affected	78	0	0	0	0	0	0	0	0	0	0	0	0
	Standard Hours	58	0	0	0	0	0	0	0	0	0	0	0	1
	OOHW Day	53	0	0	0	0	0	0	0	0	0	0	0	1
	OOHW Evening	44	0	0	0	0	0	0	0	0	1	1	2	6
	OOHW Night	38	0	0	0	0	0	0	0	0	6	3	3	8

Table 5-17 Number of exceedances- non-residential receivers

Receiver Type	Criteria	Construction Noise Management Level (CNML)	Construction scenarios based on Table 5-14											
			S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
COM	When in use	70	23	22	29	32	29	28	28	29	20	15	17	45

Table 5-18 Maximum exceedance of CNML, dBA - residential receivers

NCA	Criteria	Construction Noise Management Level (CNML)	Construction scenarios based on Table 5-14											
			S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
NCA1	Highly Affected	75	0	0	0	0	0	0	0	0	0	0	0	0
	Standard Hours	58	0	0	0	0	0	0	0	0	3	0	5	10
	OOHW Day	53	0	0	0	0	0	0	0	0	8	5	10	15
	OOHW Evening	44	0	0	0	1	0	0	0	0	10	7	12	17
	OOHW Night	38	1	0	4	6	4	2	2	4	15	12	17	22
NCA2	Highly Affected	78	0	0	0	0	0	0	0	0	0	0	0	0
	Standard Hours	58	0	0	0	0	0	0	0	0	0	0	0	2
	OOHW Day	53	0	0	0	0	0	0	0	0	0	0	0	7
	OOHW Evening	44	0	0	0	0	0	0	0	0	9	6	2	16
	OOHW Night	38	0	0	0	0	0	0	0	0	15	12	8	22

Table 5-19 Maximum exceedance of CNML, dBA- non-residential receivers

Receiver Type	Criteria	Construction Noise Management Level (CNML)	Construction scenarios based on Table 5-14											
			S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
COM	When in use	70	30	33	33	35	33	31	31	33	42	39	40	49

5.4.1 Additional mitigation measures

The CNVG provides the following information regarding further mitigation measures for certain receivers exceeding noise management levels.

Notification (letterbox drop or equivalent)

Advanced warning of works and potential disruptions can assist in reducing the impact on the community. The notification may consist of a letterbox drop (or equivalent) detailing work activities, time periods over which these will occur, impacts and mitigation measures. Notification should be a minimum of 5 working days prior to the start of works. The approval conditions for projects may also specify requirements for notification to the community about works that may impact on them.

Specific notifications (SN)

Specific notifications are letterbox dropped (or equivalent) to identified stakeholders no later than seven calendar days ahead of construction activities that are likely to exceed the noise objectives. The specific notification provides additional information when relevant and informative to more highly affected receivers than covered in general letterbox drops.

Individual briefings (IB)

Individual briefings are used to inform stakeholders about the impacts of high noise activities and mitigation measures that will be implemented. Project representatives would visit identified stakeholders at least 48 hours ahead of potentially disturbing construction activities. Individual briefings provide affected stakeholders with personalised contact and tailored advice, with the opportunity to comment on the project. Where the resident cannot be met with individually then an alternative form of engagement should be used.

Phone calls (PC)

Phone calls detailing relevant information made to identified/affected stakeholders within seven calendar days of proposed work. Phone calls provide affected stakeholders with personalised contact and tailored advice, with the opportunity to provide comments on the proposed work and specific needs. Where the resident cannot be telephoned then an alternative form of engagement should be used.

Respite Offers (RO)

Respite Offers should be considered made where there are high noise and vibration generating activities near receivers. As a guide work should be carried out in continuous blocks that do not exceed 3 hours each, with a minimum respite period of one hour between each block. The actual duration of each block of work and respite should be flexible to accommodate the usage of and amenity at nearby receivers.

The purpose of such an offer is to provide residents with respite from an ongoing impact. This measure is evaluated on a project-by-project basis, and may not be applicable to all projects.

Respite Period 1 (R1)

Out of hours construction noise in out of hours period 1 shall be limited to no more than three consecutive evenings per week except where there is a Duration Respite. For night work these periods of work should be separated by not less than one week and no more than 6 evenings per month.

Respite Period 2 (R2)

Night time construction noise in out of hours period 2 shall be limited to two consecutive nights except for where there is a Duration Respite. For night work these periods of work should be separated by not less than one week and 6 nights per month. Where possible, high noise generating works shall be completed before 11pm.

Duration Respite (DR)

Respite offers and respite periods 1 and 2 may be counterproductive in reducing the impact on the community for longer duration projects. In this instance and where it can be strongly justified it may be beneficial to increase the work duration, number of evenings or nights worked through Duration Respite so that the project can be completed more quickly.

The project team should engage with the community where noise levels are expected to exceed the NML to demonstrate support for Duration Respite.

Where there are few receivers above the NML each of these receivers should be visited to discuss the project to gain support for Duration Respite.

Alternative Accommodation (AA)

Alternative accommodation options may be offered to residents living in close proximity to construction works that are likely to experience highly intrusive noise levels. The specifics of the offer will be identified on a project-by-project basis. Additional aspects for consideration shall include whether the highly intrusive activities occur throughout the night or before midnight.

Verification

Verification of noise and vibration levels would be undertaken as part of routine checks of noise levels or following reasonable complaints. This verification should include measurement of the background noise level and construction noise. Note this is not required for projects less than three weeks unless to assist in managing complaints.

The CNVG outlines the various trigger levels to warrant these mitigation measures, and such is presented below in Table 5-20 Triggers for Additional Mitigation Measures - Airborne Noise.

All exceedances of the noise management levels for standard and out-of-standard works hours are shown in Appendix E. Appendix E also presents the triggers for the additional noise mitigation measures for airborne noise.

Table 5-20 Triggers for Additional Mitigation Measures - Airborne Noise

Predicted airborne $L_{Aeq(15\ min)}$ noise level at receiver			Additional mitigation measures type	Mitigation Levels
Perception	dBA above RBL	dBA above NML		
All hours				
75 dBA or greater	-	-	N, V, PC, RO	HA[1]
Standard Hours: Mon to Fri (7am – 6pm), Sat (8am - 1pm), Sun/Pub Hol (Nil)				
Noticeable	5 to 10	0	-	NML[2]
Clearly audible	10 to 20	< 10	-	NML
Moderately intrusive	20 to 30	10 to 20	N, V	NML + 10
Highly intrusive	> 30	> 20	N, V	NML + 20
OOHW Period 1: Mon to Fri (6pm – 10pm), Sat (7am – 8am, 1pm – 10pm), Sun/Pub Hol (8am – 6pm)				
Noticeable	5 to 10	< 5	-	NML
Clearly audible	10 to 20	5 to 15	N, R1, DR	NML + 5
Moderately intrusive	20 to 30	15 to 25	V, N, R1, DR	NML + 15
Highly intrusive	> 30	> 25	V, IB, N, R1, DR, PC, SN	NML+25
OOHW Period 1: Mon to Fri (10pm – 7am), Sat (10pm – 8am), Sun/Pub Hol (6pm – 7am)				
Noticeable	5 to 10	< 5	N	NML
Clearly audible	10 to 20	5 to 15	V, N, R2, DR	NML+5
Moderately intrusive	20 to 30	15 to 25	V, IB, N, PC, SN, R2, DR	NML+15
Highly intrusive	> 30	> 25	AA, V, IB, N, PC, SN, R2, DR	NML+25

Source: *Construction Noise and Vibration Guideline* (Roads and Maritime, 2016)

Notes: 1) HA – Highly affected
2) NML – Noise Management Level

5.4.2 Summary of impacts

Construction noise results for each scenario are presented in Appendix D. All exceedances of the noise management levels for standard and out-of-standard works hours are shown in Appendix E. Appendix E also presents the triggers for the additional noise mitigation measures for airborne noise based on whether the noise exceedance is predicted to be noticeable, clearly audible, moderately intrusive or highly intrusive.

Noise Catchment Area 1

For full-alignment works impacting sensitive receivers in NCA1 during standard hours, the following was found:

- Works that occur throughout the construction footprint are predicted to impact the largest numbers of receivers. The highest number of predicted exceedances are associated with S04 (installation of new full depth pavement at western widening)
- No residential receivers are predicted to exceed the construction noise management levels during standard hours
- Up to three residential receivers may exceed their CNML for works carried out during OOHW (night) with predicted exceedances of up to 6 dBA

- No sensitive non-residential receivers were found to exceed their construction noise management level.

For works carried out at compound sites, the following was found:

- For general compound activities, the highest number of predicted exceedances are associated with compound set-up (S09). Note that building demolition (S12) impacts additional receivers, however, impacts would be short-term and these impacts would only occur for receivers near the compound sites.
- Up to two residential receivers may be impacted for works carried out during standard hours with predicted exceedances of up to 1 dBA
- Up to 31 residential receivers may be impacted for works carried out during OOHW (night) with predicted exceedances of up to 13 dBA
- No residential receivers are predicted to exceed the highly affected noise level
- No sensitive non-residential receivers were found to exceed their construction noise management level.

The number of exceedances for these scenarios can be seen in Figure 5-2 and Figure 5-3.

Noise Catchment Area 2

For works impacting sensitive receivers in NCA2, exceedances were identified from compound site 3, as follows:

- No residential receivers are predicted to exceed the construction noise management levels during standard hours
- Up to six residential receivers may exceed their CNML for works carried out during OOHW (night) with predicted exceedances of up to 15 dBA
- No residential receivers are predicted to exceed the highly affected noise level.

No exceedances were identified for full-alignment works. The number of exceedances for these scenarios can be seen in Figure 5-2 and Figure 5-3.

Exceedances of trigger levels for additional mitigation measures- CNVG

The number of exceedances of the trigger levels presented in the CNVG and Table 5-20 above, are presented in Table 5-21 for standard hours and Table 5-22 for OOHW night period.

Table 5-21 Number of exceedances- CNVG trigger level (standard hours)

NCA	Trigger level - Predicted airborne LAeq(15 min) noise level at receiver			Construction scenarios based on Table 5-14												
	Perception	dBA above RBL	dBA above NML	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12	S13
NCA1	Noticeable	5 to 10	0	9	8	6	9	6	5	5	6	16	16	14	28	9
	Clearly audible	10 to 20	< 10	9	4	10	12	10	11	11	10	14	6	9	40	9
	Moderately intrusive	20 to 30	10 to 20	10	17	14	15	14	13	13	14	5	5	5	10	10
	Highly intrusive	> 30	> 20	4	1	5	5	5	4	4	5	4	4	4	8	4
NCA2	Noticeable	5 to 10	< 5	0	0	0	0	0	0	0	0	0	0	0	0	0
	Clearly audible	10 to 20	5 to 15	0	0	0	0	0	0	0	0	0	0	0	1	0
	Moderately intrusive	20 to 30	15 to 25	0	0	0	0	0	0	0	0	0	0	0	0	0
	Highly intrusive	> 30	> 25	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 5-22 Number of exceedances- CNVG trigger levels (OOHW night period)

NCA	Trigger level - Predicted airborne LAeq(15 min) noise level at receiver			Construction scenarios based on Table 5-14												
	Perception	dBA above RBL	dBA above NML	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12	S13
NCA1	Noticeable	5 to 10	0	4	2	9	4	9	10	10	9	15	15	12	52	4
	Clearly audible	10 to 20	< 10	15	15	14	18	14	13	13	14	23	9	13	58	15
	Moderately intrusive	20 to 30	10 to 20	4	4	7	9	7	7	7	7	3	3	4	8	4
	Highly intrusive	> 30	> 20	1	1	2	4	2	1	1	2	4	4	4	7	1
NCA2	Noticeable	5 to 10	< 5	0	0	0	0	0	0	0	0	4	2	1	1	0
	Clearly audible	10 to 20	5 to 15	0	0	0	0	0	0	0	0	2	1	2	6	0
	Moderately intrusive	20 to 30	15 to 25	0	0	0	0	0	0	0	0	0	0	0	1	0
	Highly intrusive	> 30	> 25	0	0	0	0	0	0	0	0	0	0	0	0	0

LEGEND

- Construction
- Noise catchment 1
- Noise catchment 2

Scenario S04 - Standard hours

- Highly intrusive (>20 dBA above NML)
- Moderately intrusive (10-20 dBA above NML)
- Clearly Audible (<10 dBA above NML)
- Receiver

Paper Size A4

0 130 260 390 520

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

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Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Construction Noise Impacts (Scenario S04) - Standard Hours

Job Number 22-19033
Revision 0
Date 22/08/2018

Figure 5-2

G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

LEGEND

- Noise catchment 1
- Noise catchment 2
- Compound

Scenario S09 - Standard hours

- Highly intrusive (>20 dBA above NML)
- Moderately intrusive (10-20 dBA above NML)
- Clearly audible (>10 dBA above NML)
- Receiver

Paper Size A4

0 130 260 390 520

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Construction Noise Impacts (Scenario S09) - Standard Hours

Job Number 22-19033
Revision 0
Date 22/08/2018

Figure 5-3

G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

LEGEND

- Noise catchment 1
- Noise catchment 2

Scenario S04 - OOWH (Night)

- Highly Intrusive (>25 dBA exceedance)
- Moderately intrusive (15-25 dBA exceedance)
- Clearly Audible (5-15 dBA exceedance)
- Noticeable (<5 dBA exceedance)
- Receiver

Paper Size A4

0 130 260 390 520

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Construction Noise Impacts
(Scenario S04) - OOWH (Night)

Job Number	22-19033
Revision	0
Date	22/08/2018

Figure 5-4

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Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

LEGEND

- Noise catchment 1
- Noise catchment 2
- Compound

Scenario S09 - OOHW (Night)

- Highly Intrusive (>25 dBA exceedance)
- Moderately intrusive (15-25 dBA exceedance)
- Clearly Audible (5-15 dBA exceedance)
- Noticeable (<5 dBA exceedance)

- Receiver

Paper Size A4

0 130 260 390 520

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Construction Noise Impacts
(Scenario S09) - OOWH (Night)

Job Number 22-19033
Revision 0
Date 22/08/2018

Figure 5-5

G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

5.4.3 Sleep Disturbance

There is the potential for sleep disturbance impacts if construction activities occur during the night-time period. Sleep disturbance impacts were assessed with the criteria levels contained in the CNVG. Sleep disturbance impacts were predicted for activities at site compounds, if these activities are conducted during the night period. It was found that:

- Compound set-up (S09) is predicted to impact up to 4 residential receivers. Noise levels of up to 4 dBA above the sleep disturbance criteria were predicted.
- Compound operation (S10) is predicted to impact up to 2 residential receivers. Noise levels of up to 1 dBA above the sleep disturbance criteria were predicted.
- Compound decommissioning (S11) is predicted to impact up to 3 residential receivers. Noise levels of up to 2 dBA above the sleep disturbance criteria were predicted.
- Compound demolition (S12) is predicted to impact up to 22 residential receivers. Noise levels of up to 11 dBA above the sleep disturbance criteria were predicted.

It is recommended that construction activities likely to generate the highest levels of noise be avoided as far as possible and be scheduled to occur at the beginning of the shift (before 11 pm) to minimise the potential for sleep disturbance. All workers should be briefed on the need to minimise noise as a result of their activities. It is recommended that the mitigation measures detailed in Section 5.6 be implemented to manage potential sleep disturbance impacts during construction.

5.4.4 Construction traffic impacts

The application notes[4] for the *Road Noise Policy* state that '*for existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise level as a result of the development should be limited to 2 dB above that of the noise level without the development. This limit applies wherever the noise level without the development is within 2 dB of, or exceeds, the relevant day or night noise assessment criterion.'* This is also considered to be applicable for construction noise therefore if road traffic noise increases from construction is within 2 dB(A) of current levels then the objectives of the *Road Noise Policy* are achieved.

A significant increase in traffic volumes would be needed in order to increase road traffic noise by 2 dB(A).

Construction would generate heavy vehicle movements associated with the transportation of construction machinery, equipment and materials to the site. Light vehicle movements would be associated with employees and smaller deliveries. Predicted volumes of construction traffic generated by the proposal (Table 5-23) are small when compared to existing road traffic volumes and are therefore unlikely to noticeably increase noise in the local area.

Vehicle movements, deliveries routes and workforce site access are to be via major roads where possible to minimise the potential for adverse traffic noise impacts. The specific details of these routes and vehicle volumes are in the early stages of development, therefore to evaluate the potential for noise increase due to construction traffic, the full number of average daily construction traffic movements has been assumed for each route. Assumed construction traffic volumes and predicted noise increases using the CoRTN algorithm are presented in Table 5-23.

[4]http://www.environment.nsw.gov.au/noise/roadnoiseappnotes.htm 12 December 2012

Table 5-23 Predicted increase in noise due to construction traffic - day time

Road	Existing daytime traffic volumes- Light Vehicles	Existing daytime volumes- heavy vehicles	Construction generated light vehicles - Light vehicles	Construction generated volumes- heavy vehicles	Predicted relative increase in total traffic noise (dB)
Manns Rd- North of Stockyard Place	21055	1676	65	40	0.1
Manns Rd- South of Stockyard Place	16880	1216	65	40	0.1

Table 5-24 Predicted increase in noise due to construction traffic - night time

Road	Existing daytime traffic volumes- Light Vehicles	Existing daytime volumes- heavy vehicles	Construction generated light vehicles - Light vehicles	Construction generated volumes- heavy vehicles	Predicted relative increase in total traffic noise (dB)
Manns Rd- North of Stockyard Place	2796	222	30	19	0.2
Manns Rd- South of Stockyard Place	2145	165	30	19	0.2

Noise increases due to construction traffic on the haulage routes is predicted to be less than 2 dB on all proposed roads.

Construction traffic and heavy vehicles within the proposal area have been included in the assessment of construction noise impacts presented in Section 5.4. While noise impact from construction traffic on public roads is predicted to be negligible, adverse noise impacts are possible from traffic within the construction boundary including at site access locations. Therefore the noise and vibration mitigation measures detailed in Section 5.6 are to be implemented to manage potential construction traffic impacts.

5.5 Construction vibration assessment

5.5.1 Potential impacts of individual equipment

Energy from equipment is transmitted into the ground and transformed into vibration, which attenuates with distance. The magnitude and attenuation of ground vibration is dependent on the following:

- The efficiency of the energy transfer mechanism of the equipment (i.e. impulsive; reciprocating, rolling or rotating equipment)
- The frequency content

- The impact medium stiffness
- The type of wave (surface or body)
- The ground type and topography

Vibration impacts focus on potential structural damage in close proximity to construction activities. Furthermore, it is possible that receivers may perceive construction vibration at times. The level of annoyance, however, will depend on individuals.

Due to complicated ground conditions and other variables associated with construction vibration, an exact vibration assessment result is generally not expected from available prediction methods. Rather, regular monitoring of vibration levels at receivers is required to quantify the vibration effect. This is particularly the case with activities such as pile driving and operation of heavy vibratory compaction plant, where avoidance of damage or other disruption is critical. Note that piling is not expected to be required for this proposal. During construction, monitoring will be carried out as detailed in Section 5.6.

Table 5-25 outlines typical vibration levels for different plant activities sourced from the *Environmental Noise Management Manual* (ENMM) (2001), British Standard *BS 5228.1 Code of Practice for noise and vibration control on construction and open sites: Part 2 Vibration* and the *Construction Noise Strategy* (Transport for NSW 2012).

Table 5-25 Typical vibration levels - construction equipment

Item	Peak Particle Velocity at 10 m (mm/s)
Roller	5 - 6
15 tonne roller	7 - 8
7 tonne compactor	5 - 7
Pavement Breaker	4.5 - 6
Dozer	2.5 - 4
Backhoe	1
Piling	12 - 30
Excavators, Scrapers, Graders etc.	2.5[1]

Note 1: Based on levels derived at 8 m from: Tyan, A. E. *Ground Vibrations. Damaging effects to Buildings*. Road Research Board 1973

Note 2: based on levels derived from BS5228-2. Bored piling through stones or other obstruction.

As stated in the ENMM (2001), it can be assumed that the vibration level is inversely proportional to distance. Field variations show that the distance relationship generally varies between $d^{-0.8}$ and $d^{-1.6}$, rather than d^{-1}. On that basis, maximum vibration levels were estimated at each receiver using a factor of $d^{-0.8}$ which provides a measure of conservatism.

Based on the vibration levels stated in Table 5-25 and the list of construction equipment detailed in section 5.3.5 the maximum potential vibration impacts of the sources associated with the proposal at various distances are shown in Table 5-26.

Table 5-26 Estimated vibration levels at distance from activity

Vibration source	Distance to Source (m)/PPV (mm/s)			
	10	20	50	100
Roller	6.0	3.4	1.7	1.0
Loader breaking kerbs	7.0	4.0	1.9	1.1
7 tonne compactor	6.0	3.4	1.7	1.0
Pavement breaker	6.0	3.4	1.7	1.0
Dozer	4.0	2.3	1.1	0.6
Backhoe	1.0	0.6	0.3	0.2
Jackhammer	0.5	0.3	0.1	0.1
Excavator	2.1	1.2	0.6	0.3

5.5.2 Structural damage impacts

Safe working buffer distances to comply with the structural damage criteria were calculated for typical intermittent vibration values and are listed in Table 5-27. This table is based on advice given in BS7385: 1993 – *Evaluation and measurement of vibration in buildings.*

Table 5-27 Vibration estimated safe working buffer distances

Activity	Structural damage	
	Heritage structure DIN 4150-3 criteria (3.0 mm/s)	Standard dwellings DIN 4150-3 criteria (5.0 mm/s)
Roller	24 m	13 m
7 tonne compactor	24 m	13 m
7 tonne compactor	24 m	13 m
Pavement Breaker	24 m	13 m
Dozer	15 m	8 m
Backhoe	3 m	2 m
Jackhammer	2 m	1 m
Excavator	7 m	4 m

Notes: 1) Based on levels derived from BS5228-2. Bored piling through stones or other obstruction.

2) As stated in the RTA's Environmental Noise Management Manual, it can be assumed that the vibration level is inversely proportional to distance. Field variations show that the distance relationship generally varies between $d^{-0.8}$ and $d^{-1.6}$, rather than d^{-1}. For prediction of approximate safe working distance for sensitive equipment the mid-value of $d^{-1.2}$ has been used as a guide.

3) Vibration may be amplified in multi-level buildings through the structure to the upper floors. A doubling of the buffer distances provided in Table 5 23 would provide a conservative allowance for this possible effect in multi-level buildings.

Based on the safe working distances shown in Table 5-27, the potential impacts from construction vibration for receivers within the study area have been assessed. The expected magnitude of ground vibrations should not be sufficient to cause damage if the equipment operates at distances greater than 13 metres from standard residential buildings or structures of similar construction. Heritage buildings and structures may be impacted up to 24 metres from the work. No heritage structures have been identified within 24 metres of the project extent and as such, no adverse vibration impacts to heritage structures are anticipated. Figure 5-6 highlights areas within the construction footprint that are within 13 m of standard buildings and have the potential for structural damage impacts for standard residential buildings. Site-specific minimum working distances for high risk plant items must be measured on site where plant and equipment is likely to operate close to or within the minimum working distances for structural damage (as per Table 5-27). The noise and vibration mitigation measures detailed in Section 5.6 will be implemented to manage potential construction vibration impacts.

LEGEND

- Potential vibration impact area- structural damage
- Buildings
- Construction
- Compound

Paper Size A4

0 80 160 240 320

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

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Potential vibration impact zones - structural damage

Job Number	22-19033
Revision	0
Date	22/08/2018

Figure 5-6

G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

5.5.3 Human comfort impacts

Human comfort impacts for intermittent vibration are assessed using the vibration dose value (VDV) descriptor. This parameter is based on the magnitude of vibration and the duration of exposure. Due to the variable nature of vibration magnitudes and unknown duration of exposure for this proposal, guidance from BS 5228-2 (which uses a peak vibration value) has been used to provide an indication of potential human comfort impacts. Additionally, this parameter is likely to be more routinely measured to monitor potential building damage.

Indicative buffer distances for human comfort impacts have been provided in Table 5-28. Note that given the equipment will likely be operating at varying locations relative to individual receivers, the time exposure would likely be temporary at any individual receiver. The noise and vibration mitigation measures detailed in Section 5.6 will be implemented to manage potential construction vibration impacts.

Table 5-28 Human Comfort Buffer Distances

Activity	Human comfort BS 5228-2 criteria [1] (1.0 mm/s)
Roller	90 m
15 tonne vibratory roller	140 m
Loader breaking kerbs	120 m
7 tonne compactor	90 m
Pavement Breaker	90 m
Dozer	60 m
Backhoe	10 m
Jackhammer	4 m
Excavator	25 m

5.6 Construction noise and vibration mitigation measures

The ICNG and ENMM provide a summary of potential noise mitigation measures that may be applicable to the proposal. The construction noise and vibration mitigation measures presented in Table 5-29 are to be implemented where reasonable and feasible to reduce the potential noise, blasting and vibration impact on the surrounding residents.

Table 5-29 Construction noise, blasting and vibration mitigation measures

Impact	Environmental safeguards	Responsibility	Timing
Construction noise and vibration management	A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the CEMP. The NVMP will generally follow the approach in the Interim *Construction Noise Guideline* (ICNG) (DECC, 2009) and identify: • All potential significant noise and vibration generating activities associated with the activity • Feasible and reasonable mitigation measures to be implemented, taking into account *Beyond the Pavement: urban design policy, process and principles* (Roads and Maritime, 2014). • A monitoring program to assess performance against relevant noise and vibration criteria	Construction contractor	Pre-construction and construction

Impact	Environmental safeguards	Responsibility	Timing
	• Arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures • Contingency measures to be implemented in the event of non-compliance with noise and vibration criteria.		
	All sensitive receivers (e.g. schools, local residents) likely to be affected will be notified at least seven calendar days prior to commencement of any works associated with the activity that may have an adverse noise or vibration impact. The notification will provide details of: • The project • The construction period and construction hours • Contact information for project management staff • Complaint and incident reporting how to obtain further information.	Construction contractor	Pre-construction and construction
	An out of hours work procedure (for work outside the proposed extended construction hours) will be developed and would include the following: • Contact the local community potentially affected by the proposed work and inform them by letter of the proposed work, location, type of work, days and dates of work and hours involved. The contact will be made before the start of work. • A suitable advertisement will be placed within local papers including a reference to night-time noise impacts. • A 24-hour community liaison phone number and permanent site contact will be provided so that complaints can be received and addressed in a timely manner. • Measures to investigate and respond to any valid noise complaints.	Construction contractor	Pre-construction and construction
Construction vibration impacts	Building condition surveys will be conducted at receivers (as required) within 13 metres of proposed vibration generating activities. (buildings and other structures).	Construction contractor	Pre-construction
	Notification of the proposed construction activities by letterbox drop will be carried out for all occupied buildings within 13 metres of vibration generating activities.	Construction contractor	Pre-construction and construction
	Where construction work is located within 13 metres of any buildings vibration monitoring will be carried out at the beginning of the given construction activity. Where measurements indicate building damage criteria are exceeded, vibration generating activities are to immediately halt and alternative low-vibration work practices will be investigated and implemented.	Construction contractor	Construction

Impact	Environmental safeguards	Responsibility	Timing
	A documented review will be carried out to determine if alternative methods can be implemented, where construction activity involving vibration intensive plant occurs: • Within 13 metres of buildings • Within the sensitive equipment buffer distances • Or if any monitoring indicates levels are excessive	Construction contractor	Pre-construction and construction
Construction noise impacts	Where practical, equipment will be selected to minimise noise emissions. Equipment will be fitted with appropriate silencers and be in good working order. Machines found to produce excessive noise compared to normal industry expectations will be removed from the site or stood down until repairs or modifications can be made.	Construction contractor	Construction
	Where reasonable and feasible, measures will be taken to shield residential receivers from noise such as: • The layout of the construction compound so that primary noise sources are at a maximum distance from residences, with solid structures (sheds, containers, etc.) placed between residences and noise sources (and as close to the noise sources as is practical). • Enclosures to shield fixed noise sources such as pumps, compressors, fans, screens (where practicable). • Taking advantage of site topography when situating plant.	Construction contractor	Construction
Construction noise and vibration complaints handling	In the event of a valid noise complaint, monitoring will be carried out and reported as soon as possible. If exceedances are detected, the situation will be reviewed to attempt to identify reduce the impact to acceptable levels, where practicable.	Construction contractor	Construction
Compound use outside of standard hours	The use of compound site 2 will be used preferentially to compound site 3 for work undertaken outside of standard hours.	Construction contractor	Construction
Additional Mitigation Measures	Where exceedances of construction noise management levels remain after the implementation of standard noise mitigation measures, additional noise mitigation measures will be implemented where reasonable and feasible. The applicable additional noise mitigation measures for each receiver is shown in Appendix E.	Construction contractor	Construction

6. Conclusion

6.1 Operational noise and vibration

The operational noise assessment assessed sensitive receivers within the operational study area. The assessment found that no sensitive receivers in the proposal area would qualify for noise mitigation as a result of the road upgrade.

6.1.1 Operational vibration

There are no expected operational vibration impacts associated with the proposal and no mitigation measures have been recommended.

6.2 Construction noise and vibration

Standard construction hours are 7 am to 6 pm Monday to Friday, 8 am to 1 pm on Saturdays and no work on Sundays or public holidays. Work outside the proposed extended construction hours may be required at times for certain activities that are either time sensitive or which have the potential to be disruptive if carried out during standard or extended construction hours.

6.2.1 Construction noise

The key findings of the construction noise assessment are:

- Construction activities carried out during standard construction hours are predicted to exceed the noise affected construction noise management level in NCAs next to the work.
- Only the closest receivers to the work are predicted to exceed the highly affected noise management level.
- Construction activities outside standard construction hours (day, evening and night) are predicted to exceed the noise affected construction noise management level in all NCAs.
- Construction activities during standard construction hours have the potential to exceed the construction noise management level at non-residential sensitive receivers including educational facilities and places of worship. Construction noise management levels are applicable as an internal level only when the facilities are in use. As a guide, an external trigger has been adopted, assuming a 10 dB reduction from external to internal noise levels[5] and an internal noise management level for these receivers.

Mitigation measures for construction noise have been provided (Section 5.6) based on the anticipated construction requirements of the proposal. The final staging and construction methodology for the proposal would be determined by the construction contractor and may change. The mitigation measures include the preparation of a comprehensive Construction Noise and Vibration Management Plan (CNVMP) as part of the Construction Environmental Management Plan (CEMP) for the proposal. This will include consideration of alternative construction methods, conduct of noise monitoring at sensitive receivers and a community consultation program.

[5] The ICNG (DECCW 2009) states that a “conservative estimate of the difference between internal and external noise levels is 10 dB for buildings other than residences”.

6.2.2 Construction vibration

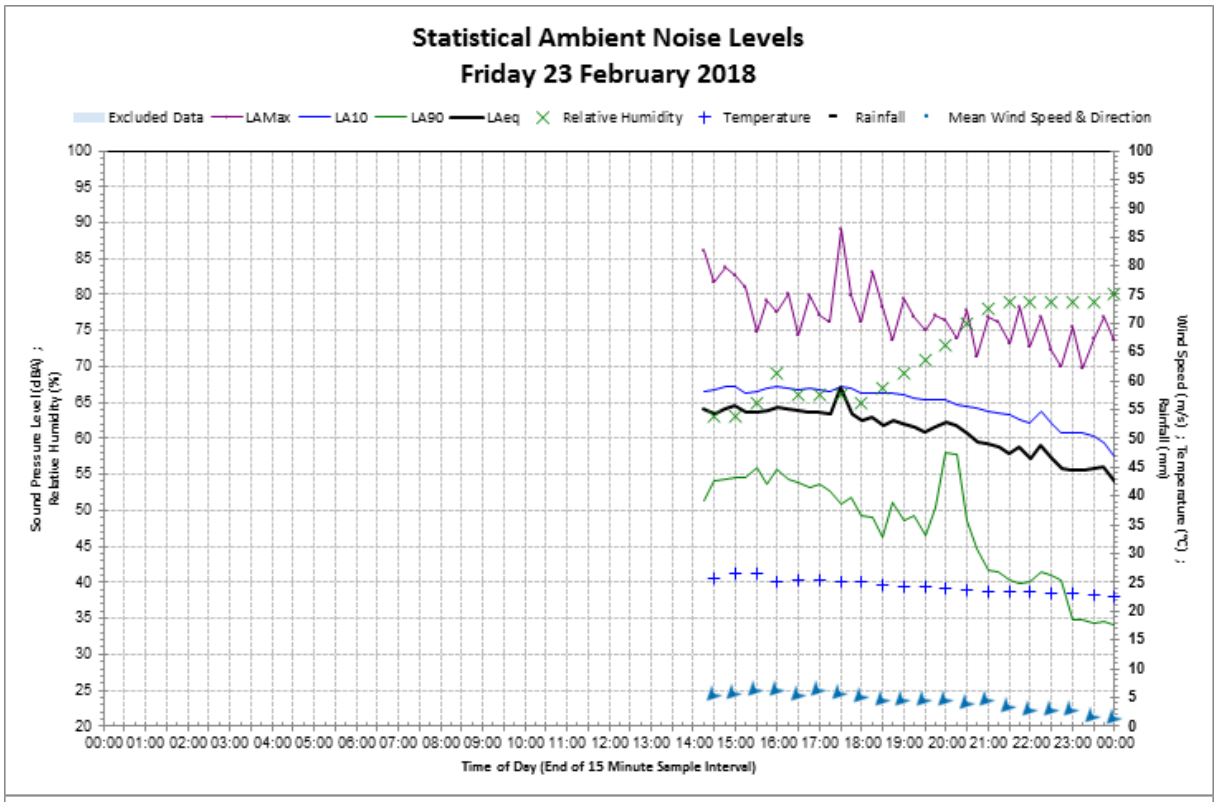
The key findings of the construction vibration assessment for the proposal are:

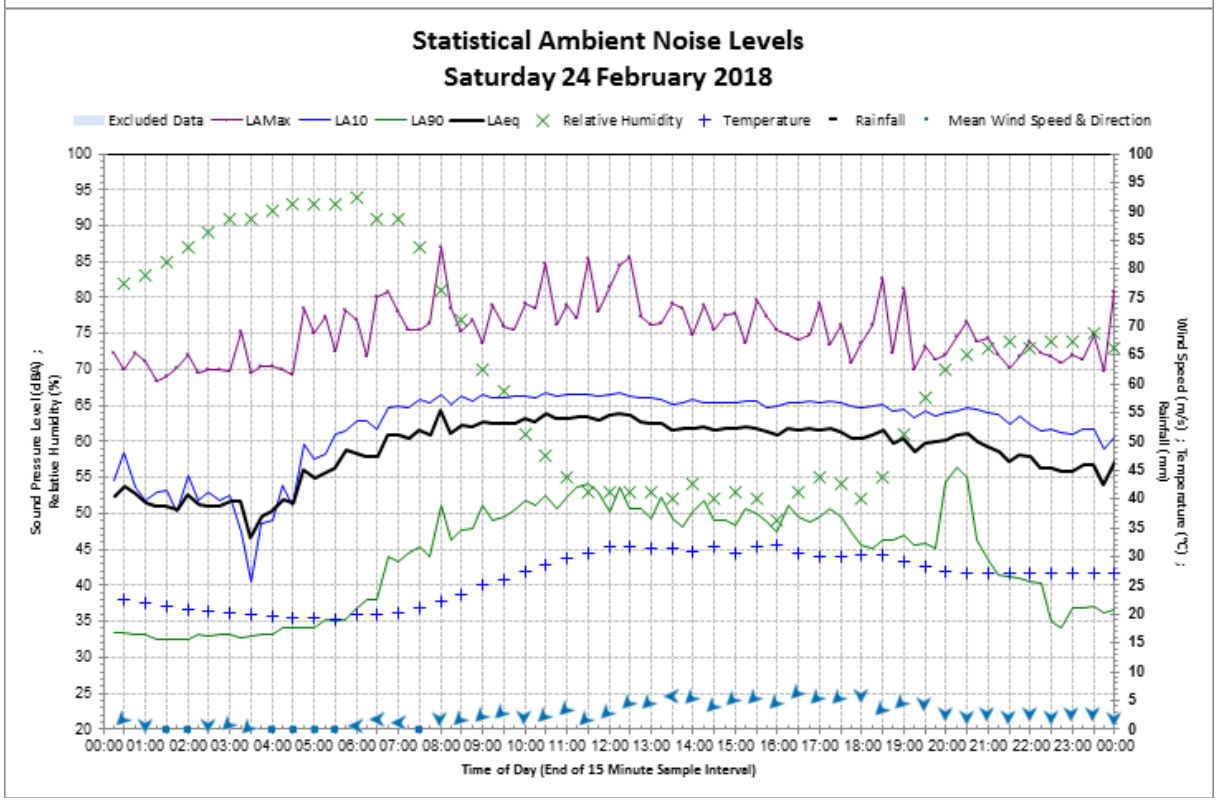
- Where desktop estimates or pre-construction monitoring indicates that vibration levels from construction activities will exceed the structural damage levels, a property condition survey of all potentially affected structures will be carried out to enable post-construction verification that construction activities did not cause existing structural damage.
- With consideration to structural damage vibration impacts for general construction activities, the expected magnitude of ground vibrations should not be sufficient to cause damage if the equipment operates at distances greater than 13 metres from standard residential buildings or structures of similar construction. Heritage buildings and structures may be impacted up to 24 metres from the work.
- With consideration to human comfort vibration impacts, where rolling and compacting activities occur within 140 metres of receivers including residences, schools and places of worship, there is the potential that vibration levels could be intrusive for some activities. Where reasonable and feasible, buffer distances are to be implemented as per values shown in Table 5-28 for the corresponding activities.
- Noise and vibration mitigation measures detailed in Section 5.6 will be implemented where feasible and reasonable and all potentially impacted receivers will be informed of the nature of the work, expected noise and vibration levels, duration of work and a method of contact.

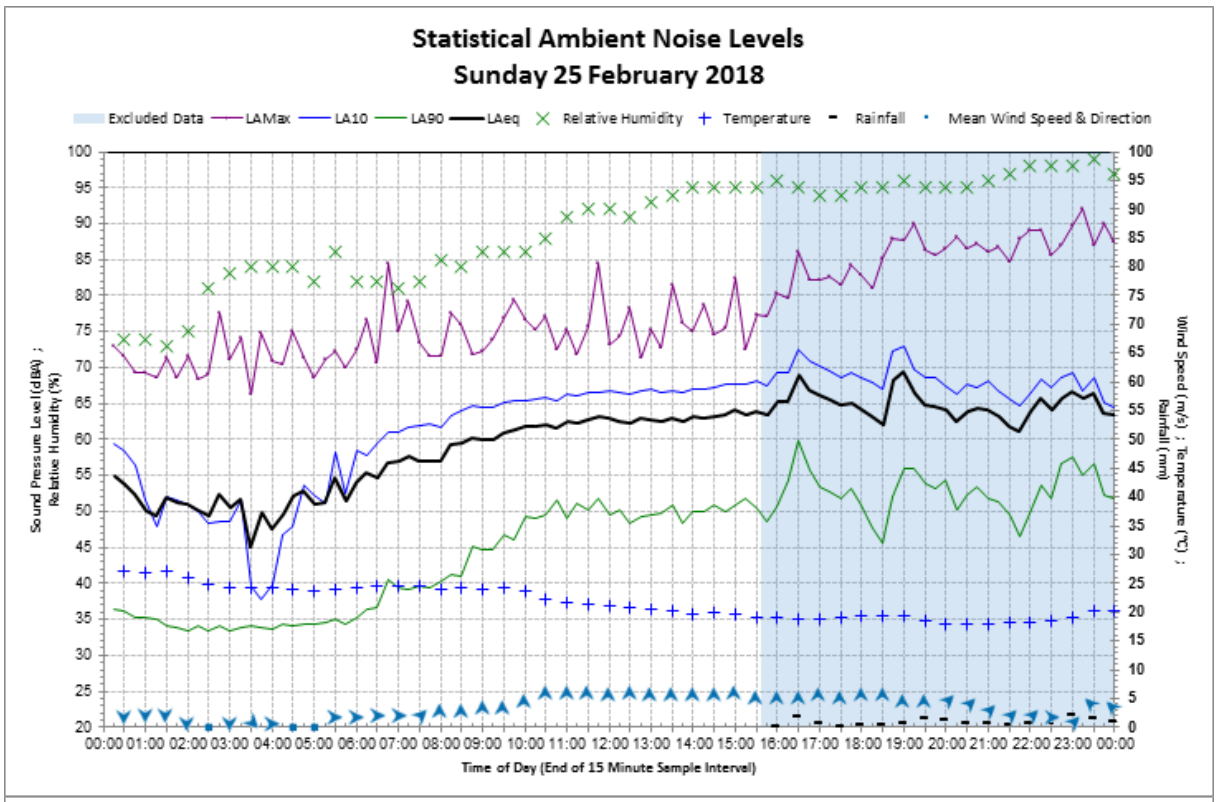
Appendices

Appendix A – Noise logger charts

Logger L01



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Temperature
Rainfall
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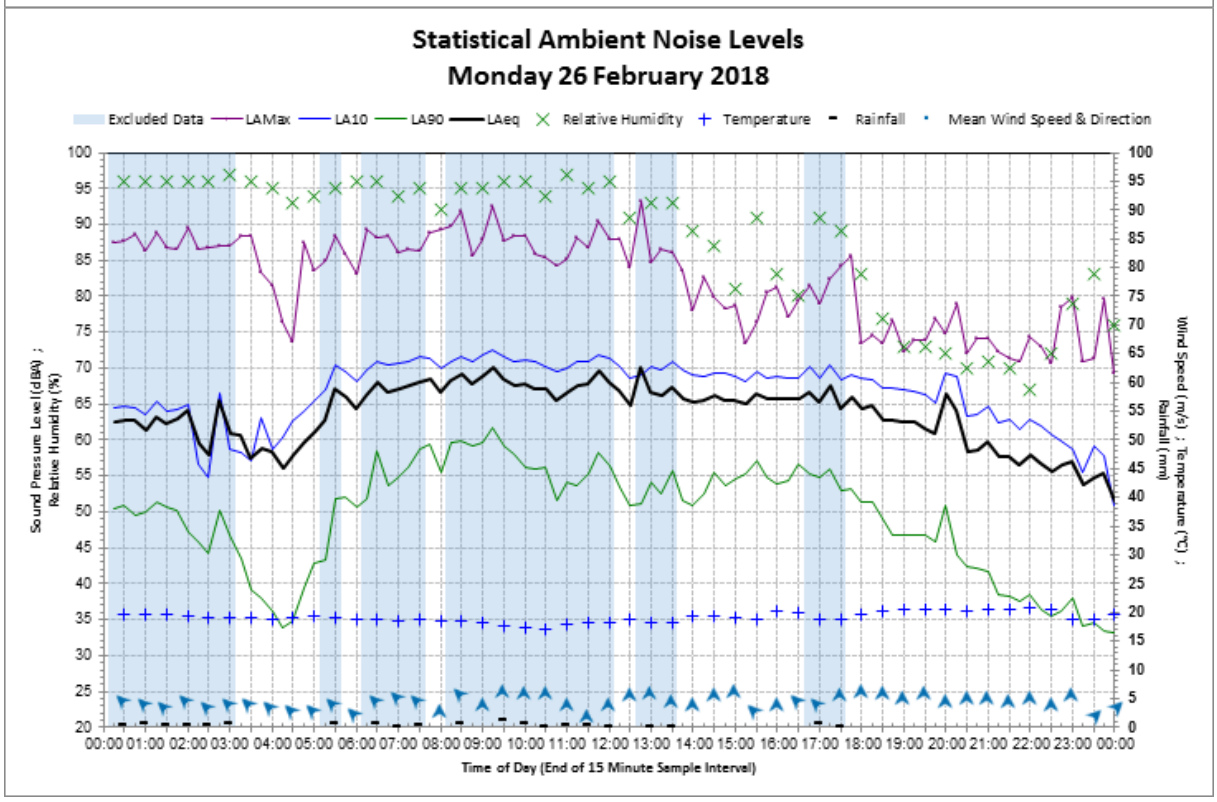
Wind Speed (m/s) ; Temperature (°C) ; Rainfall (mm)
Time of Day (End of 15 Minute Sample Interval)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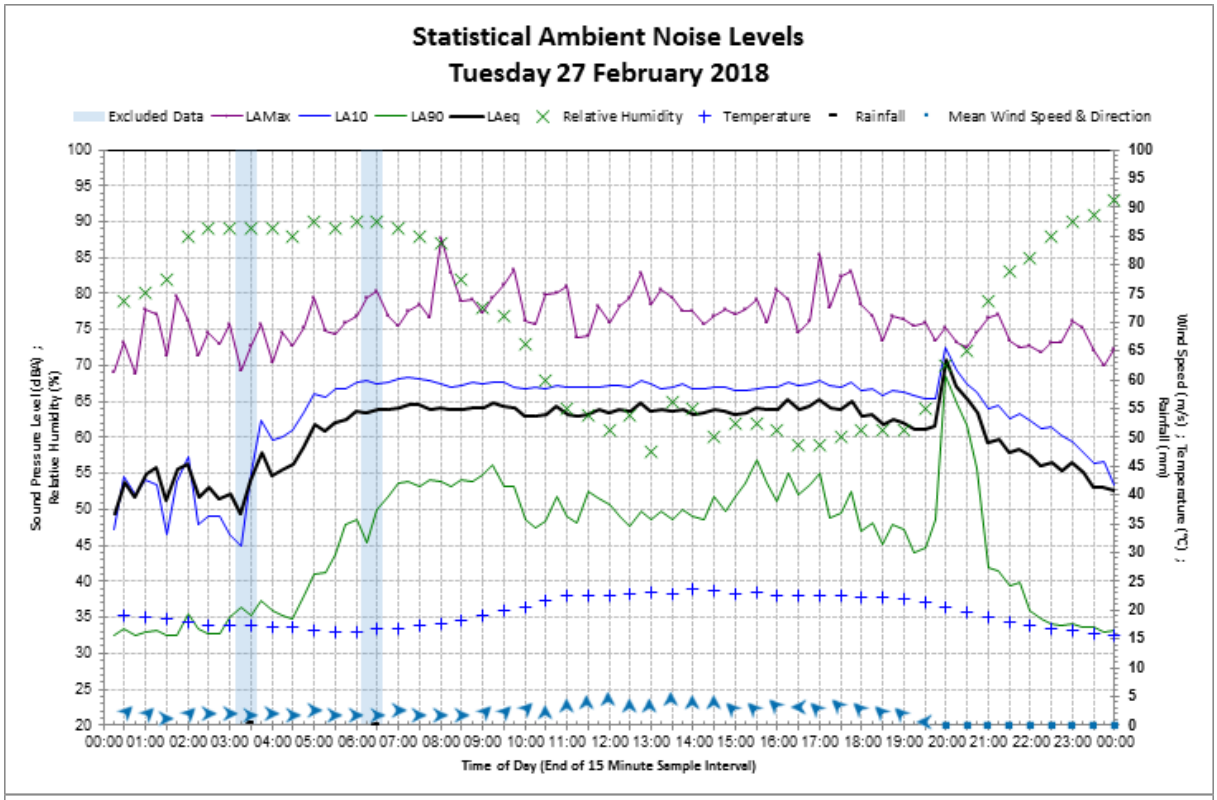
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Rainfall
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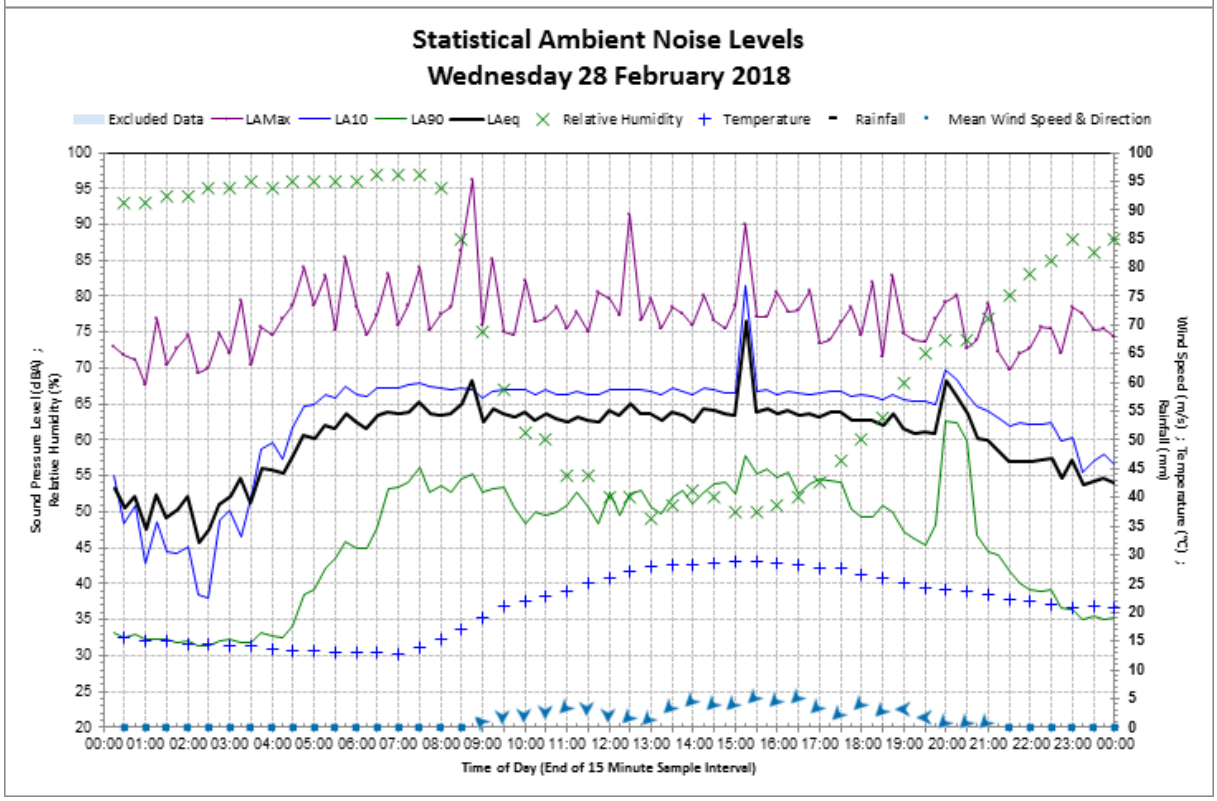
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Temperature
Rainfall
Mean Wind Speed & Direction
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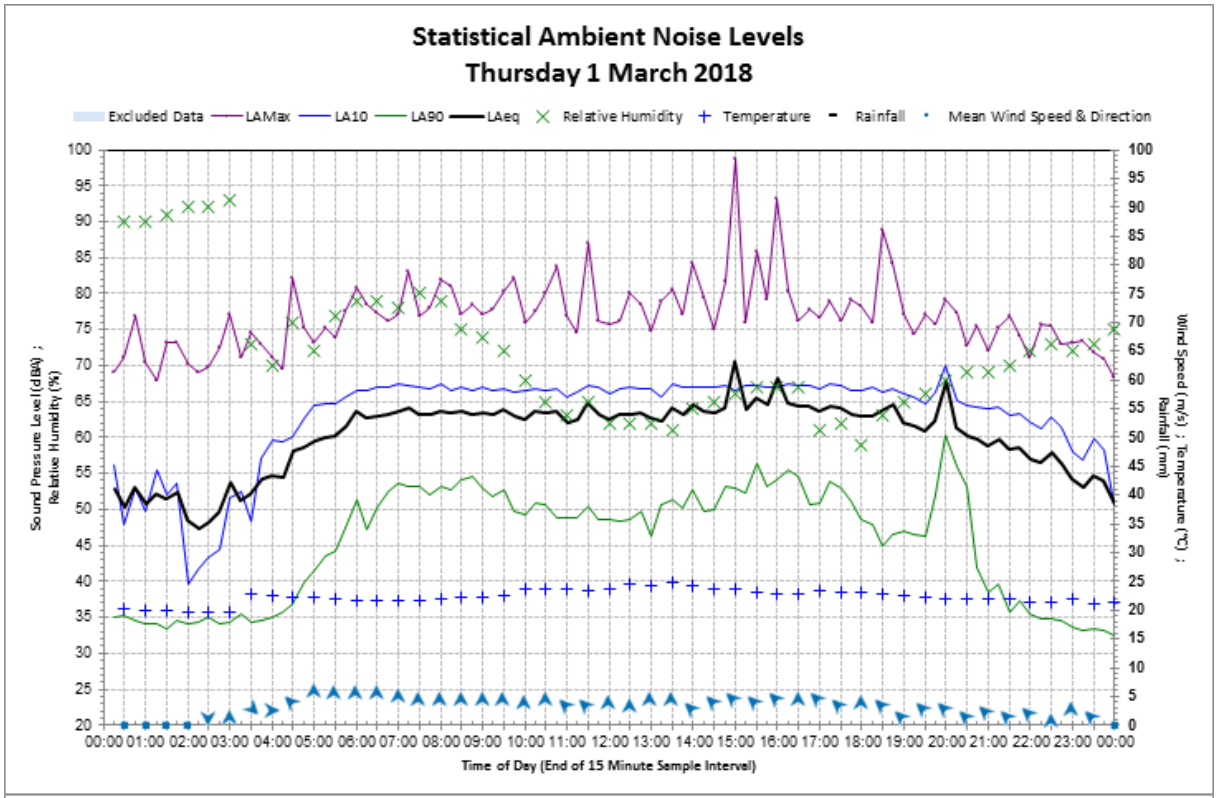
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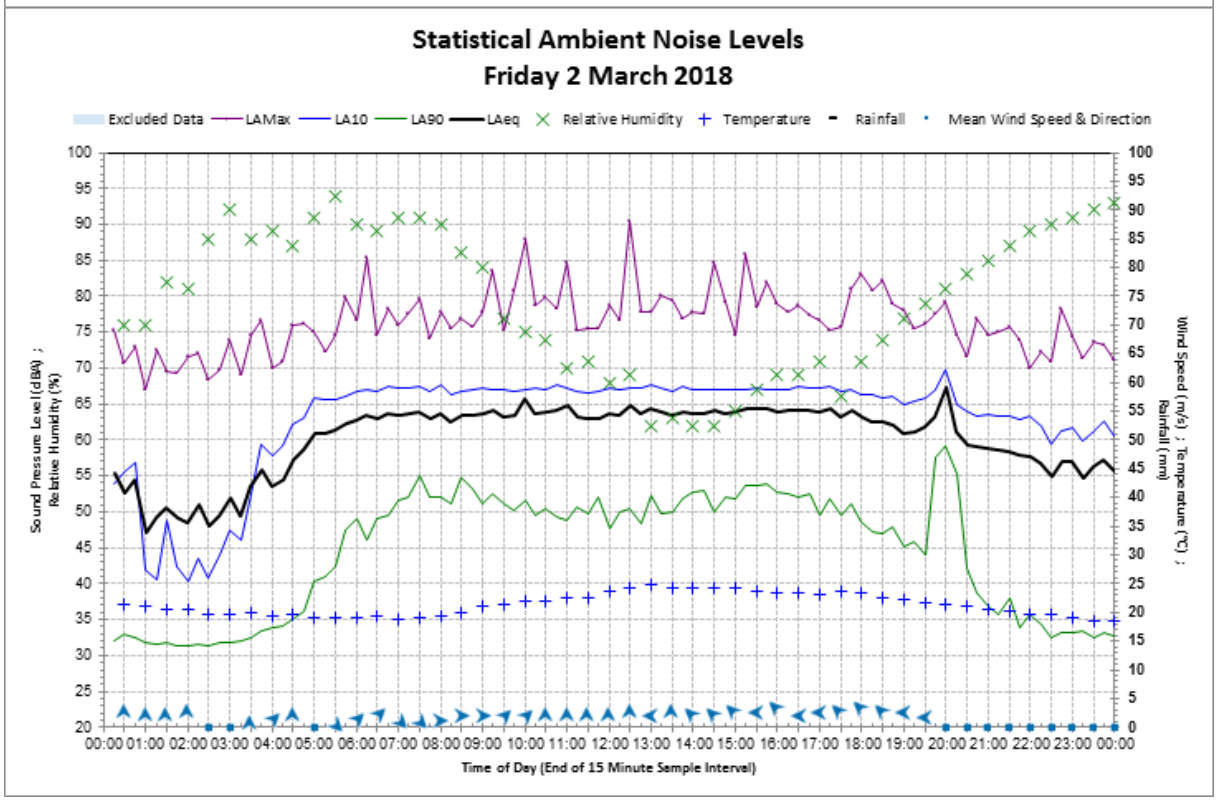
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Temperature
Rainfall
Mean Wind Speed & Direction
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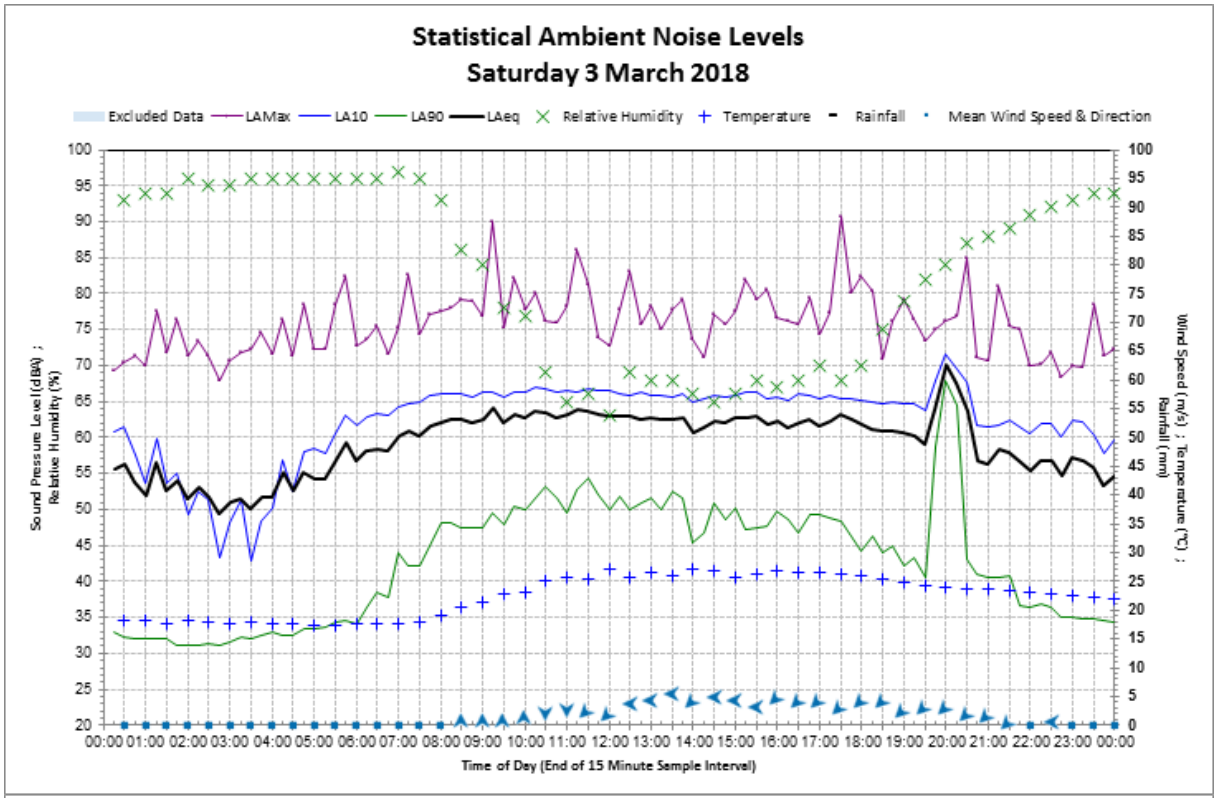
Wind Speed (m/s) ; Temperature (°C) ; Rainfall (mm)
Time of Day (End of 15 Minute Sample Interval)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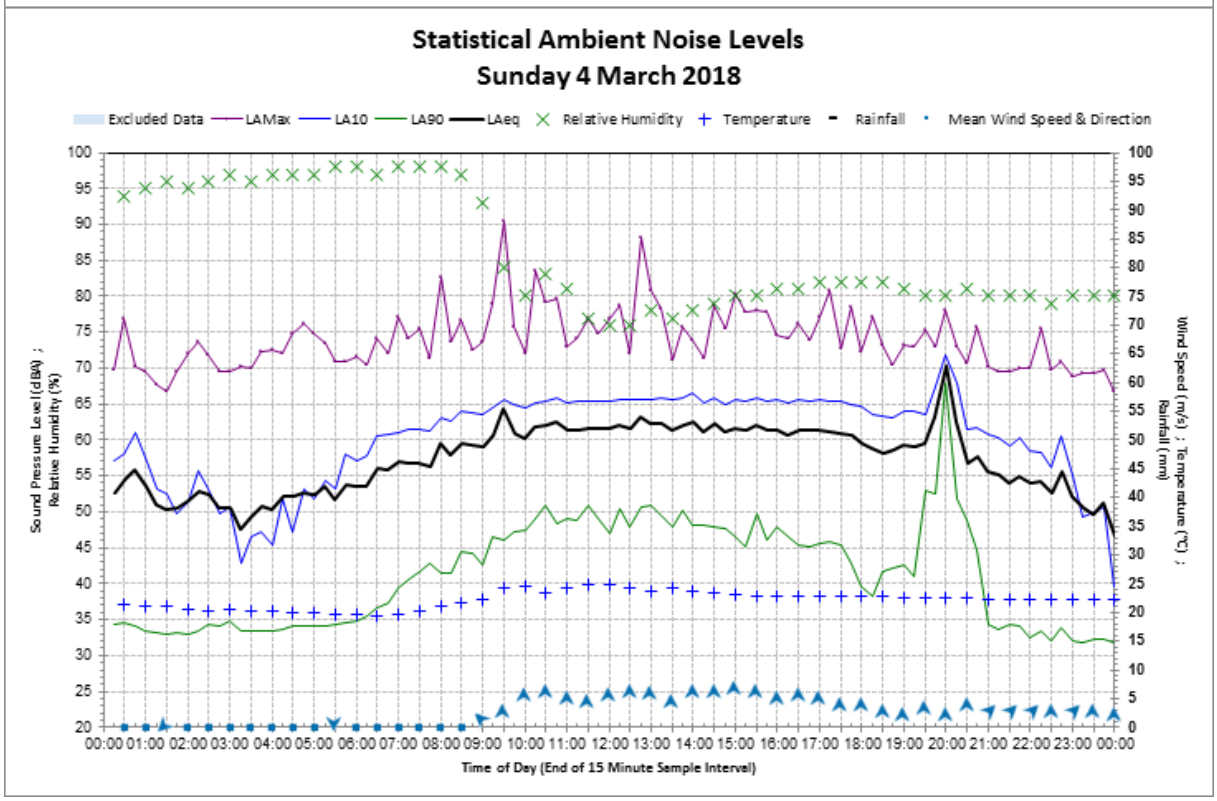
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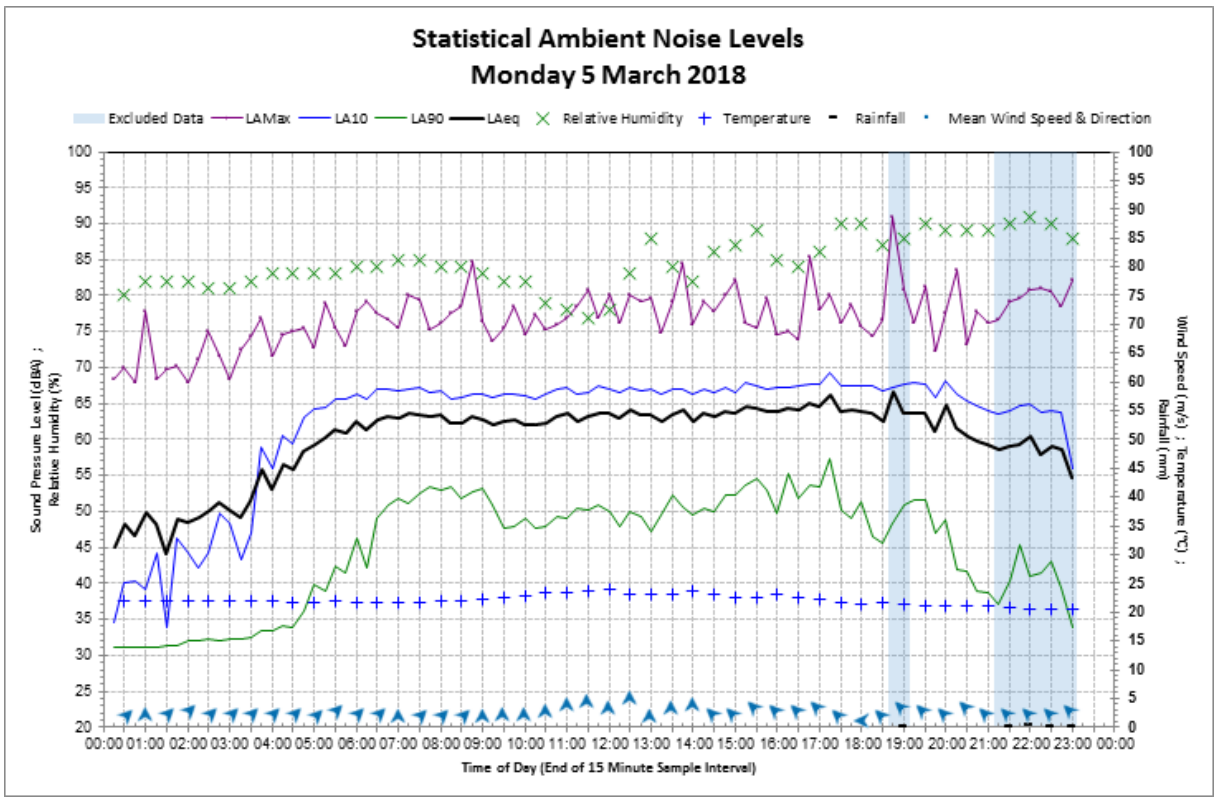
Time of Day (End of 15 Minute Sample Interval)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Rainfall
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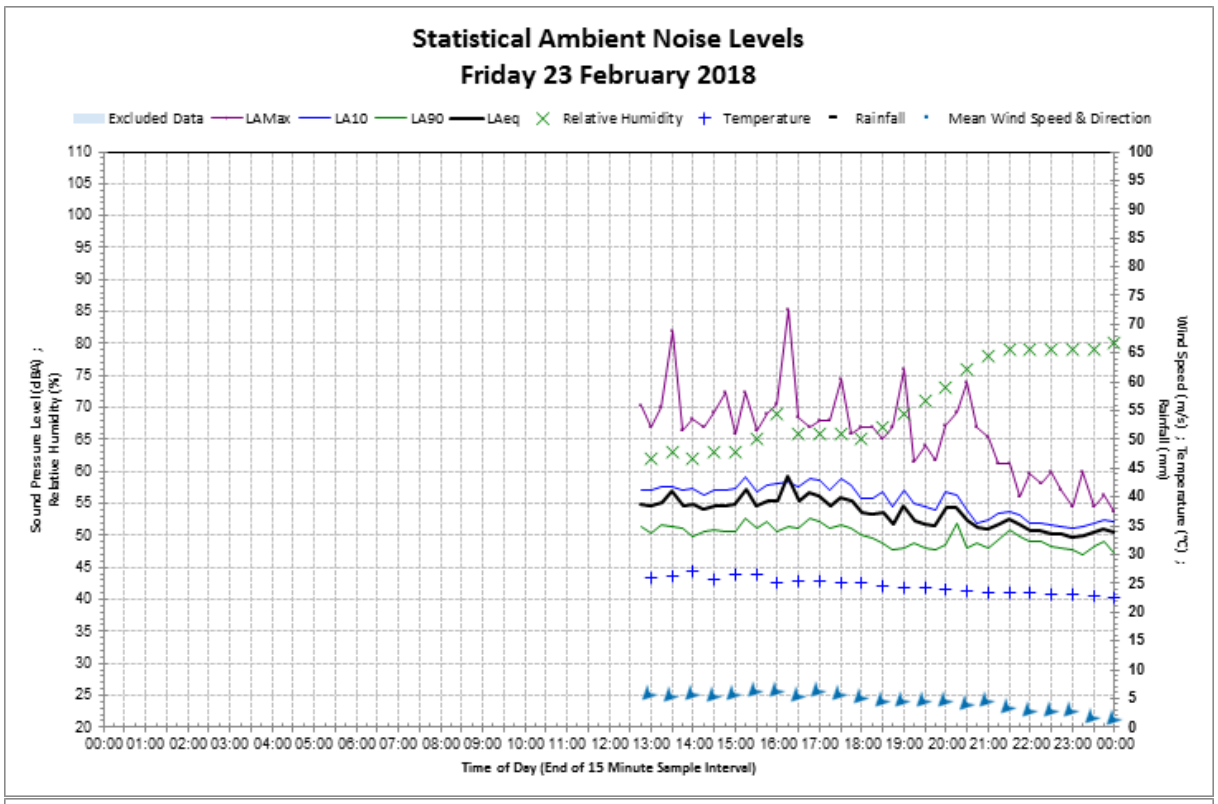
Logger L02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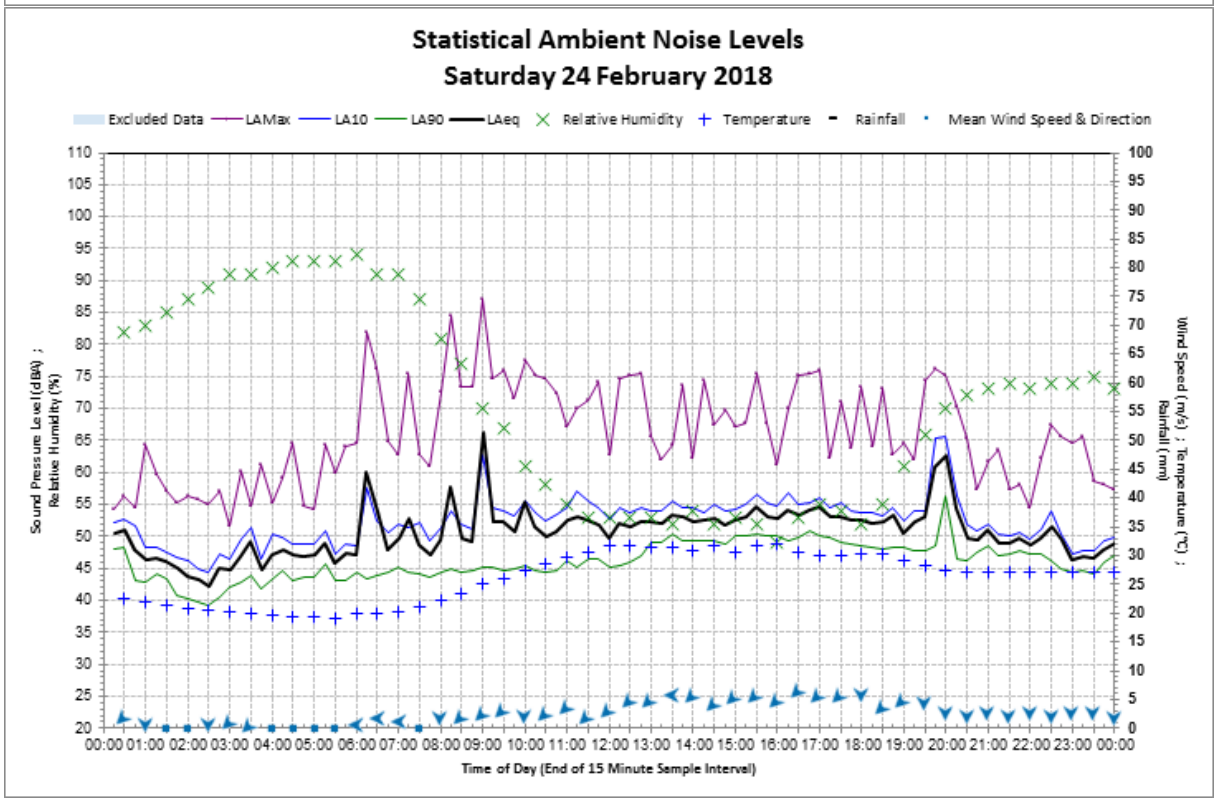
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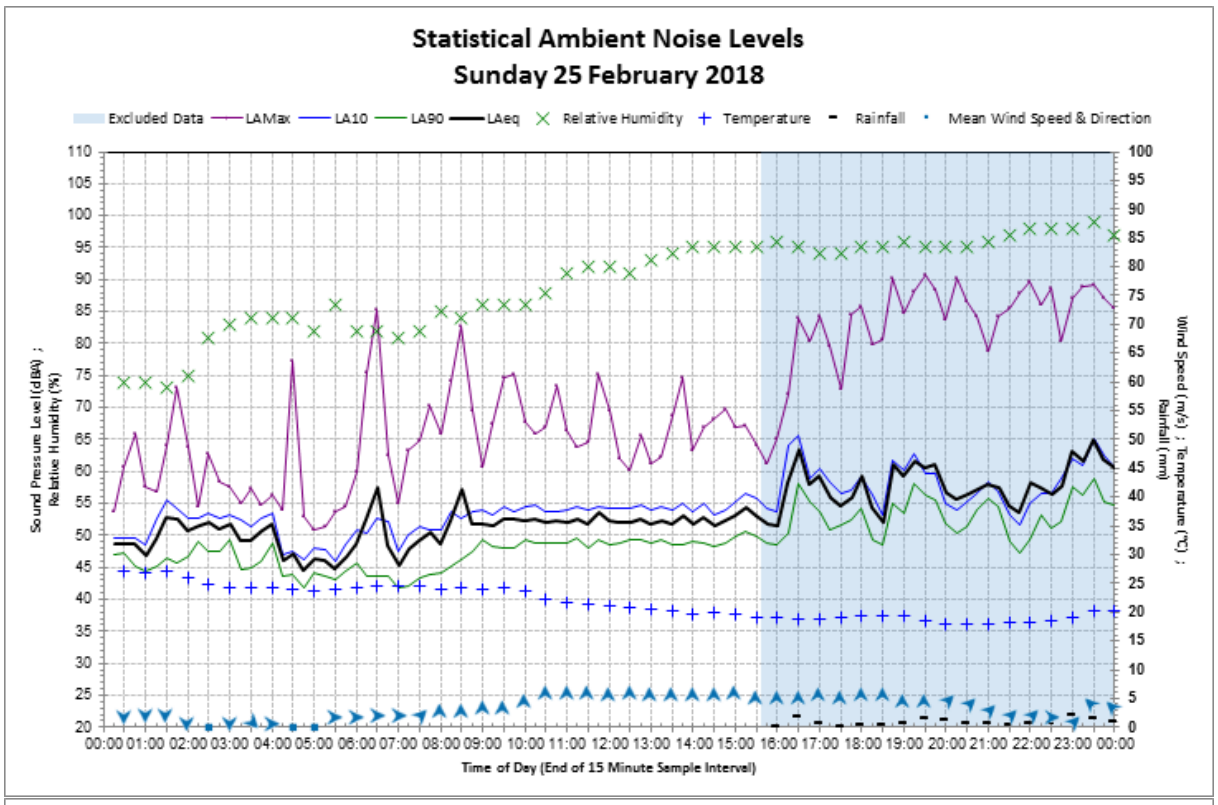
Time of Day (End of 15 Minute Sample Interval)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Temperature
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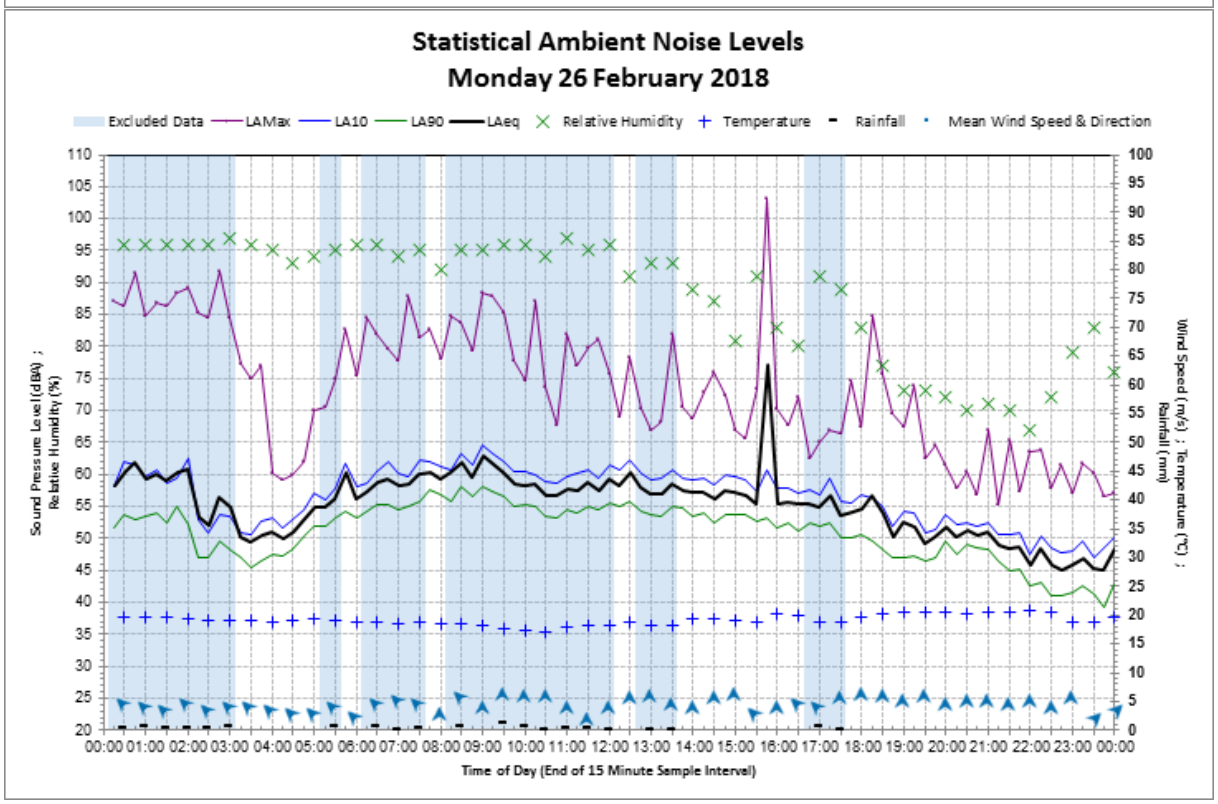
Wind Speed (m/s) ; Temperature (°C) ; Rainfall (mm)
Time of Day (End of 15 Minute Sample Interval)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Rainfall
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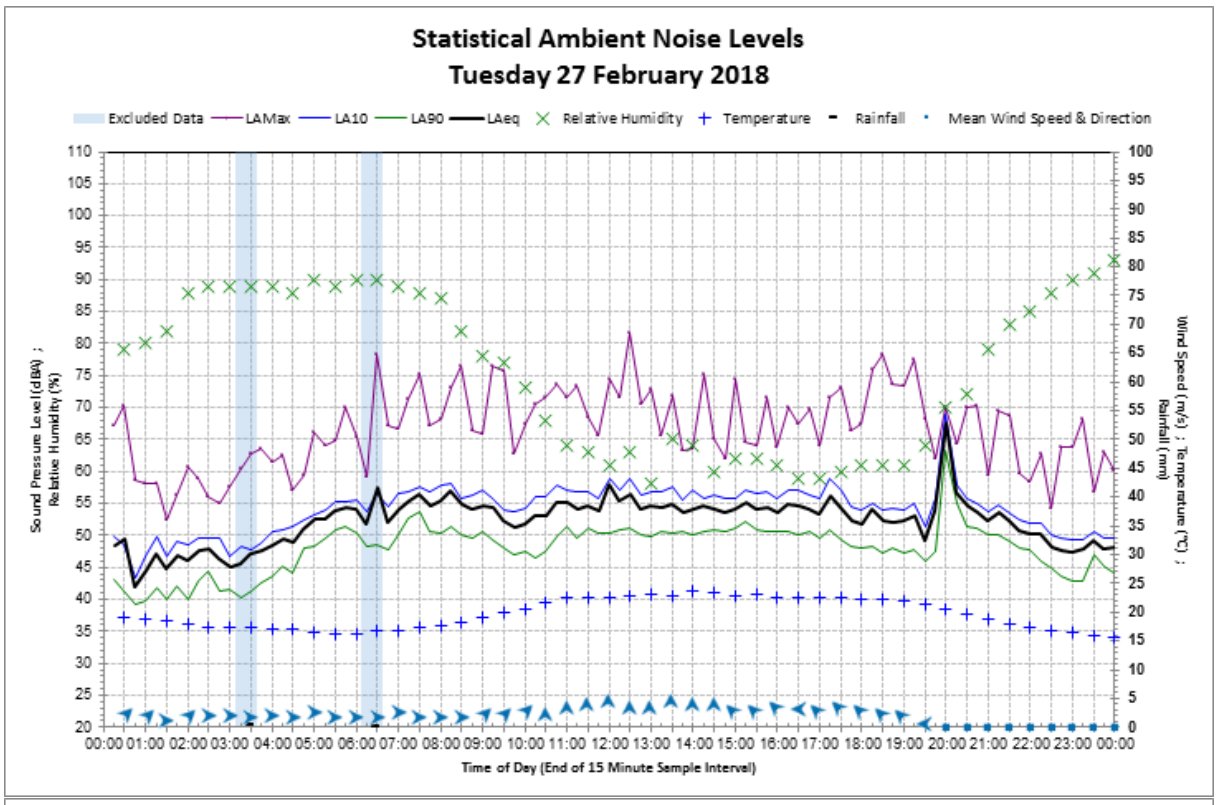
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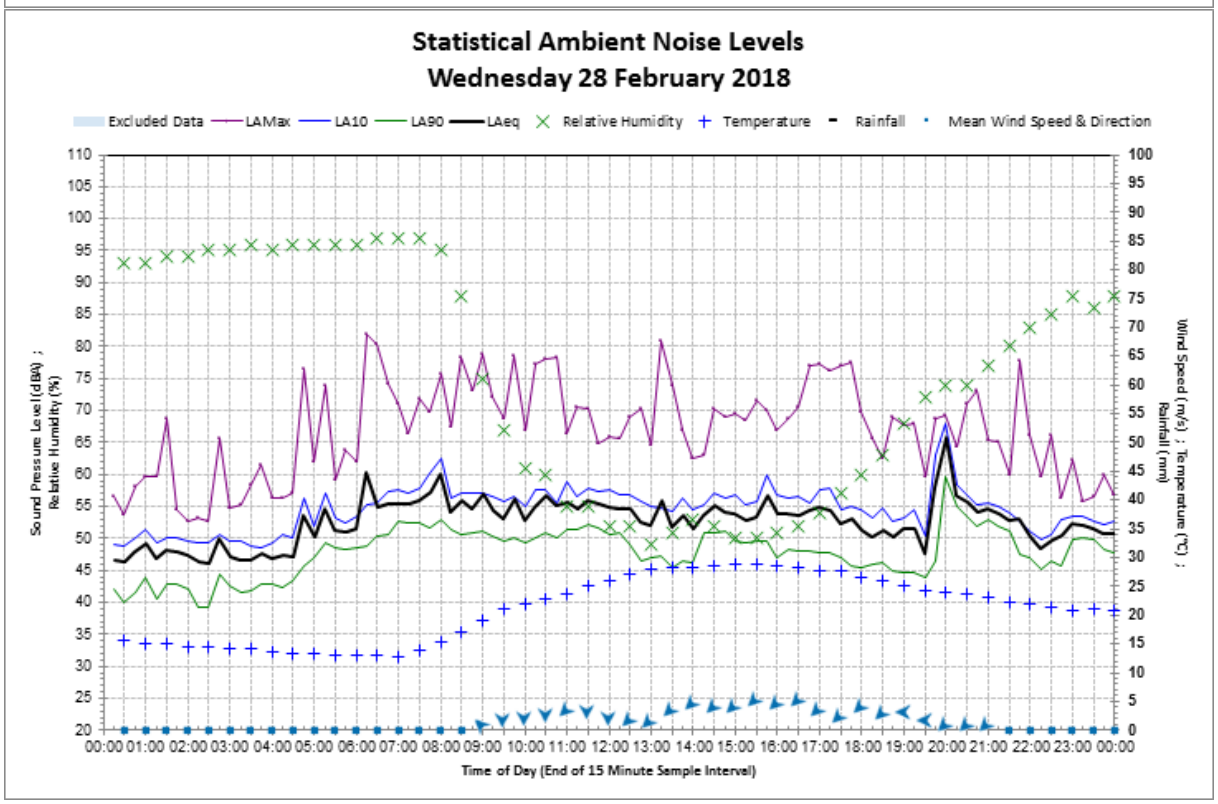
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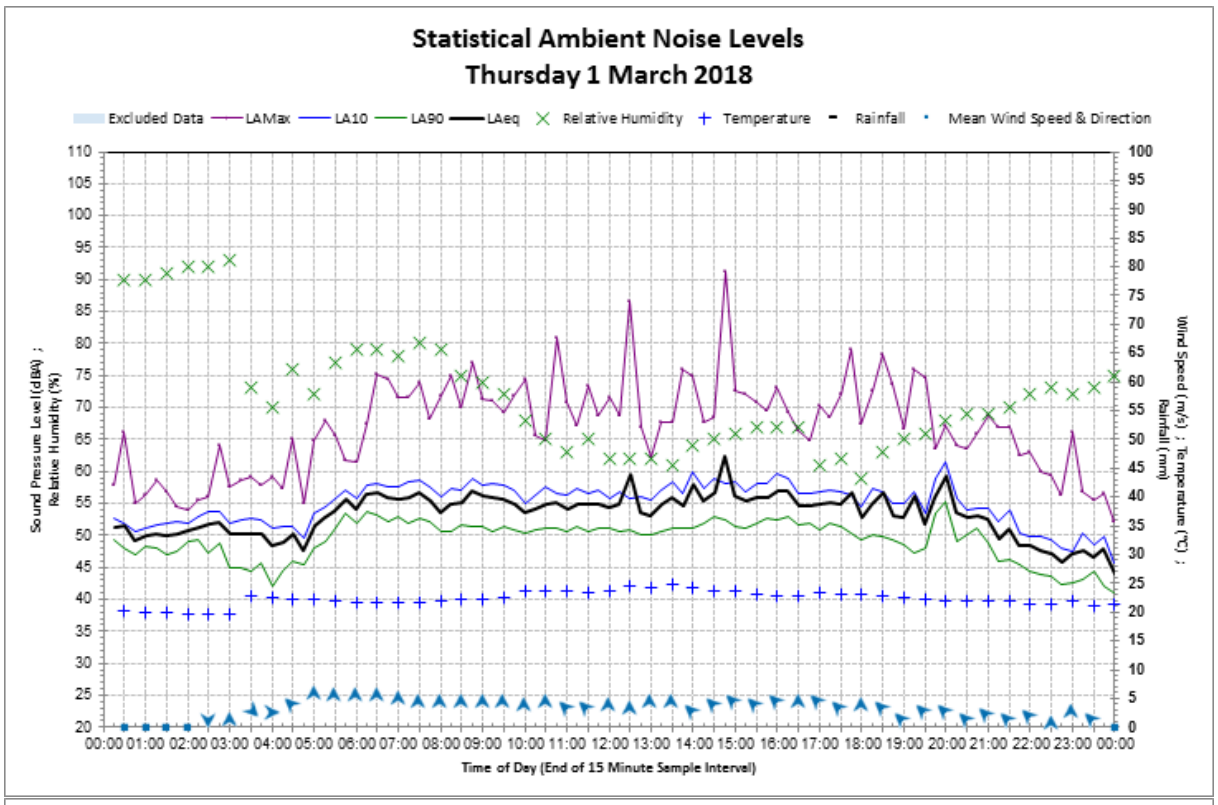
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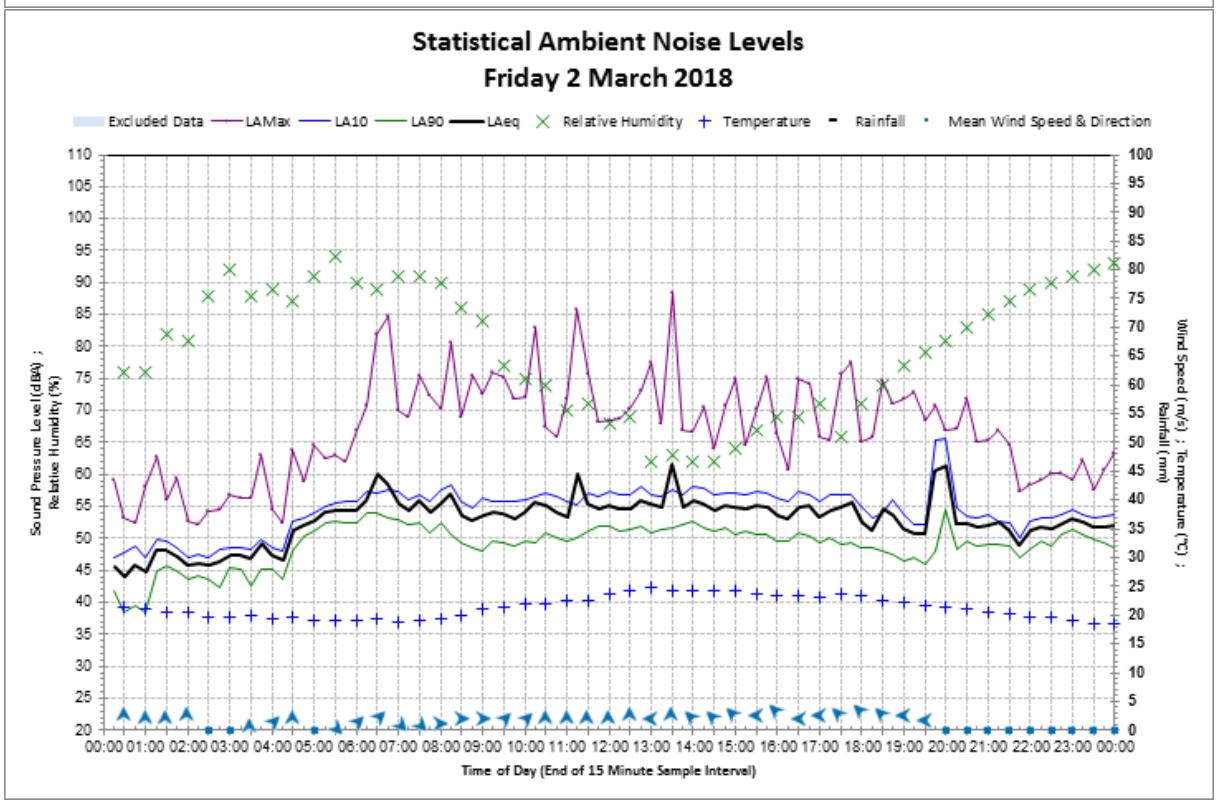
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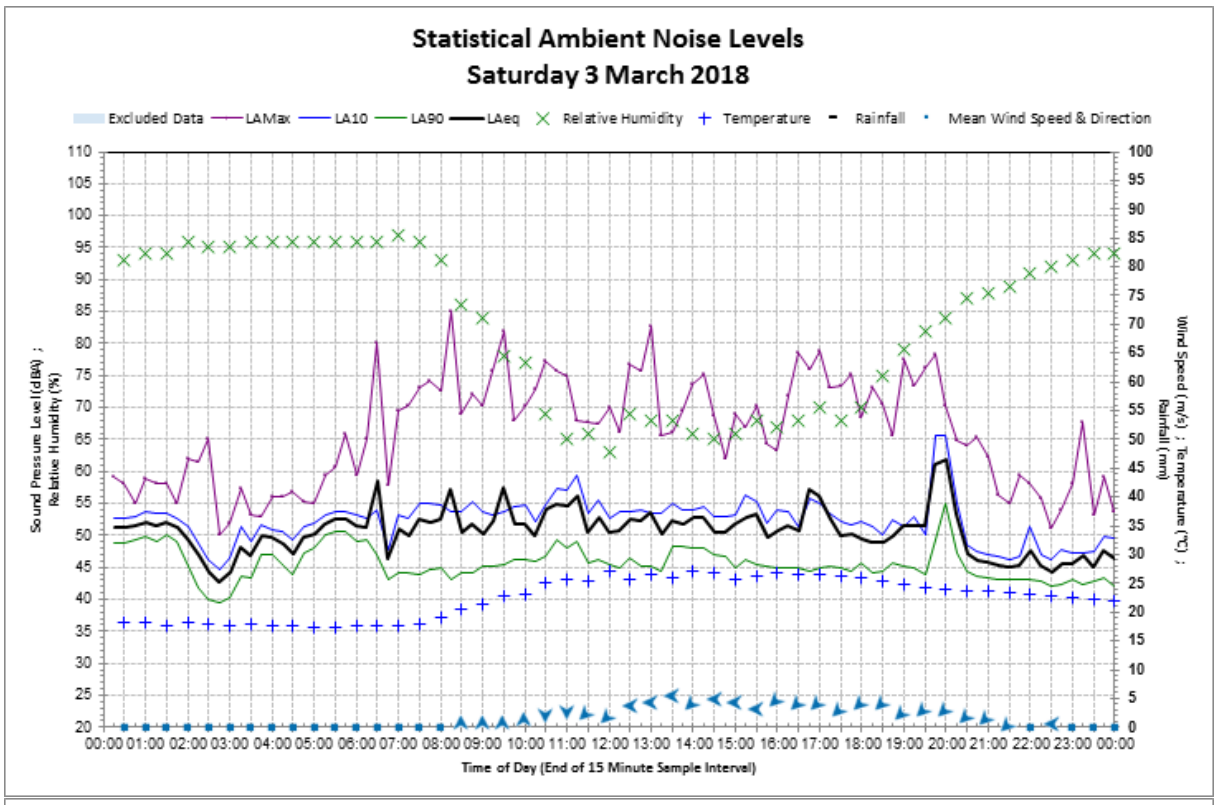
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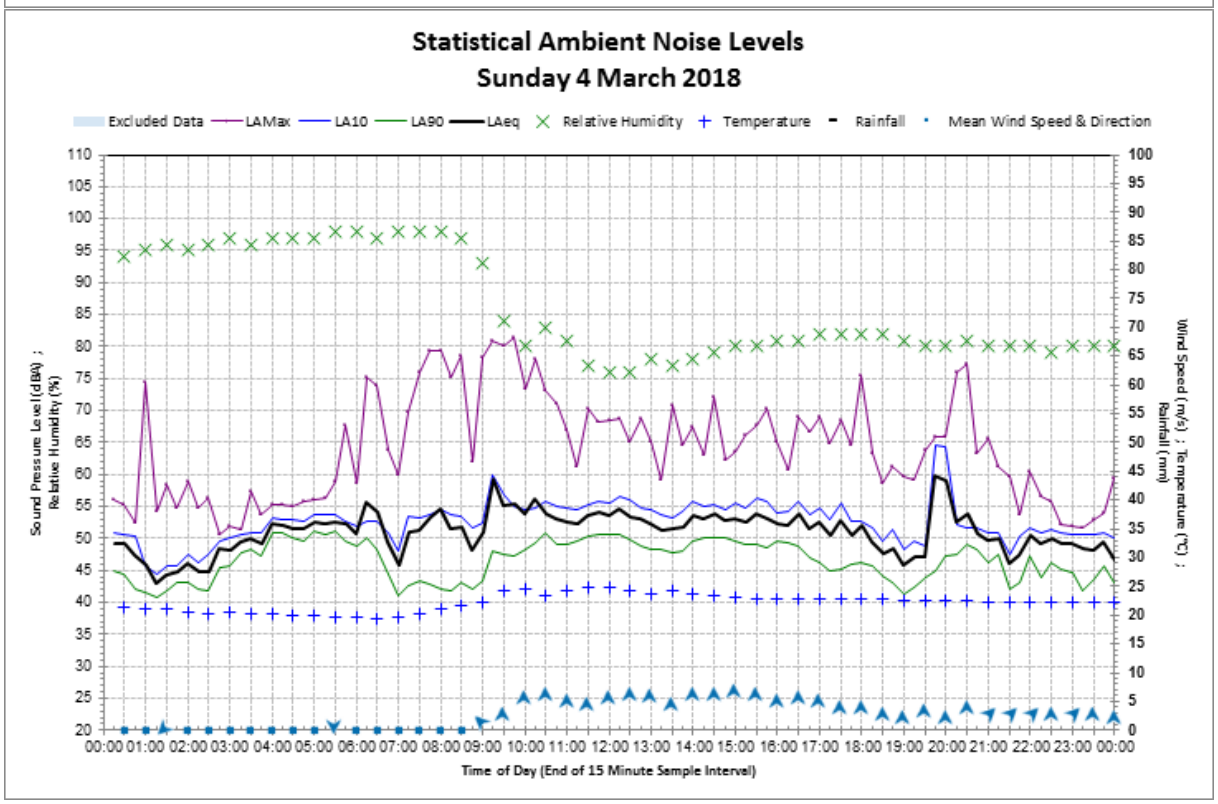
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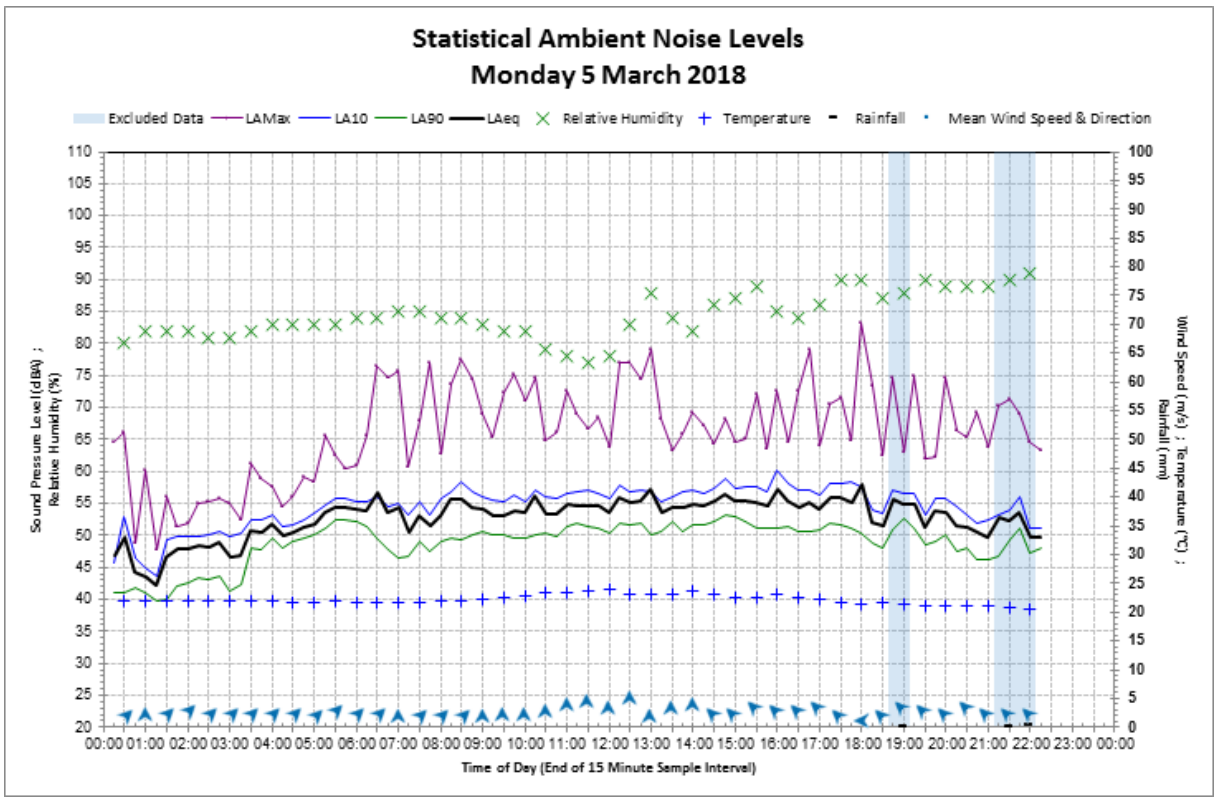
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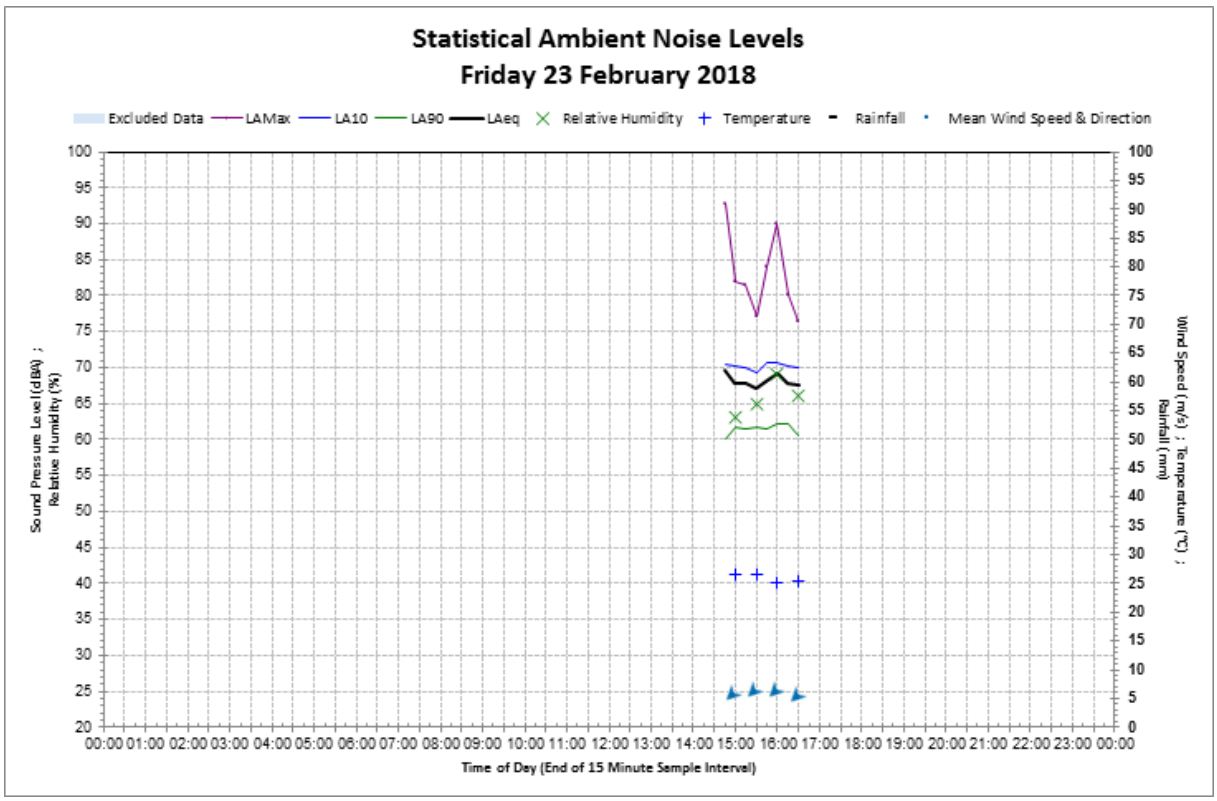
Logger L03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Wind Speed (m/s) ; Temperature (°C) ; Rainfall (mm)
Time of Day (End of 15 Minute Sample Interval)

Appendix B – Noise receivers

LEGEND

- Noise catchment 1
- Commercial
- Residential

Paper Size A4

0 25 50 75 100

Metres

N

GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Noise receivers
Sheet 1 of 15

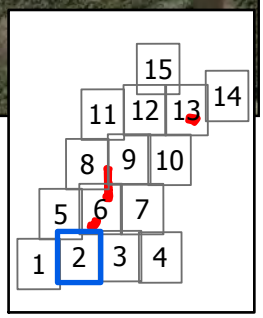
Job Number	22-19033
Revision	0
Date	22 Aug 2018

Appendix B

G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay



LEGEND

- Noise catchment 1
- Commercial
- Residential

Paper Size A4

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Metres

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GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Noise receivers
Sheet 2 of 15

Job Number	22-19033
Revision	0
Date	22 Aug 2018

Appendix B

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Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

LEGEND

- Noise catchment 1
- Commercial
- Residential

Paper Size A4

0 25 50 75 100

Metres

N

GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Noise receivers
Sheet 3 of 15

Job Number	22-19033
Revision	0
Date	22 Aug 2018

Appendix B

G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

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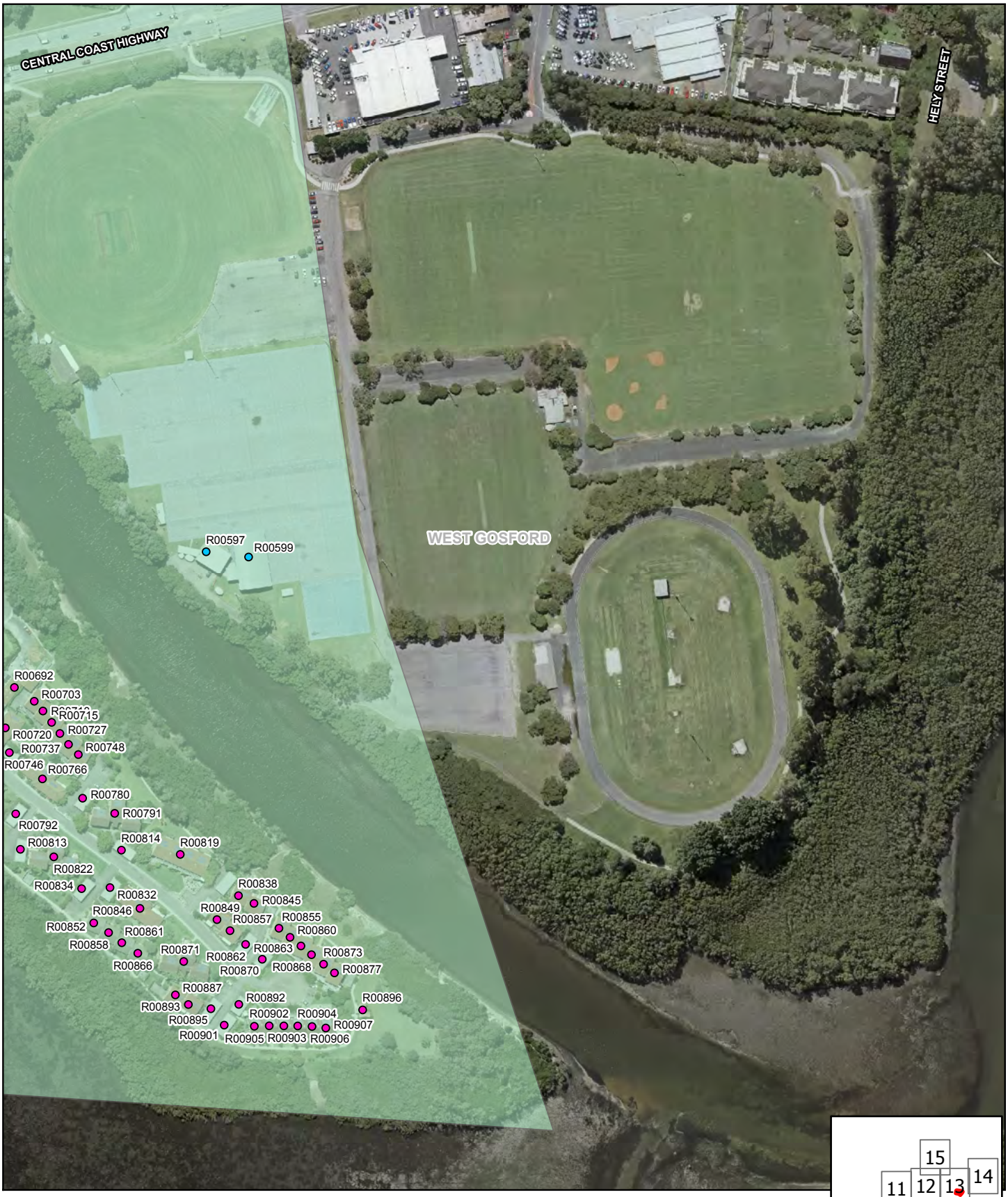
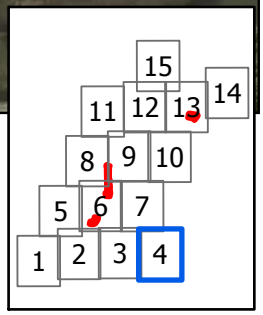




LEGEND

- Noise catchment 1
- Commercial
- Residential

Paper Size A4

0 25 50 75 100

Metres

N

GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Noise receivers
Sheet 4 of 15

Job Number	22-19033
Revision	0
Date	22 Aug 2018

Appendix B

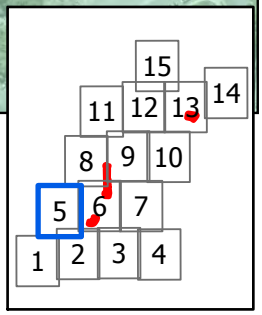
G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

LEGEND

- Noise catchment 1
- Commercial
- Residential



Paper Size A4

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Metres

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GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Noise receivers
Sheet 5 of 15

Job Number	22-19033
Revision	0
Date	22 Aug 2018

Appendix B

G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

LEGEND

- Project boundary
- Noise catchment 1
- Commercial
- Residential

Paper Size A4

0 25 50 75 100

Metres

N

GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Noise receivers
Sheet 6 of 15

Job Number	22-19033
Revision	0
Date	22 Aug 2018

Appendix B

G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

LEGEND

- Noise catchment 1
- Commercial
- Recreational

Paper Size A4

0 25 50 75 100

Metres

N

GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Noise receivers
Sheet 7 of 15

Job Number	22-19033
Revision	0
Date	22 Aug 2018

Appendix B

G:\22\19033\GIS\Maps\Pro\2219033_MannsRoad\NA_StockyardPlace_0.aprx

Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

LEGEND

- Project boundary
- Noise catchment 1
- Commercial

Paper Size A4

0 25 50 75 100

Metres

N

GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Noise receivers
Sheet 8 of 15

Job Number	22-19033
Revision	0
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LEGEND

- Project boundary
- Noise catchment 1
- Commercial

Paper Size A4

0 25 50 75 100

Metres

N

GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Noise receivers
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Job Number	22-19033
Revision	0
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LEGEND

- Noise catchment 1
- Commercial

Paper Size A4

0 25 50 75 100

Metres

N

GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Noise receivers
Sheet 10 of 15

Job Number	22-19033
Revision	0
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Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

LEGEND

- Noise catchment 1
- Commercial

Paper Size A4

0 25 50 75 100

Metres

N

GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Noise receivers
Sheet 11 of 15

Job Number	22-19033
Revision	0
Date	22 Aug 2018

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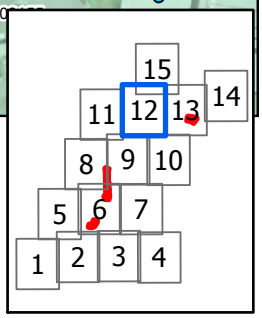
Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

LEGEND

- Noise catchment 1
- Commercial



Paper Size A4

0 25 50 75 100

Metres

N

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Noise receivers
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Job Number	22-19033
Revision	0
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Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

LEGEND

- Project boundary
- Noise catchment 1
- Noise catchment 2
- Commercial

Paper Size A4

0 25 50 75 100

Metres

N

GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
Stockyard Place Intersection Upgrade

Noise receivers
Sheet 13 of 15

Job Number	22-19033
Revision	0
Date	22 Aug 2018

Appendix B

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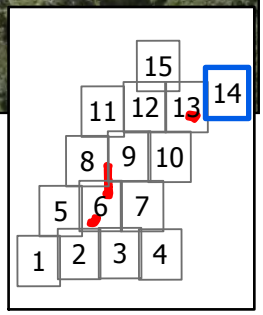
Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay



LEGEND

- Noise catchment 1
- Noise catchment 2
- Residential

Paper Size A4

0 25 50 75 100

Metres

N

GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
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Noise receivers
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Job Number	22-19033
Revision	0
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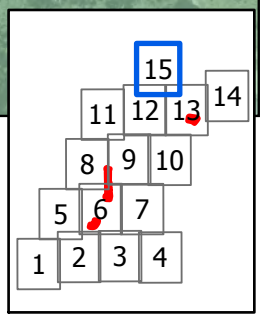
Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay



LEGEND

- Noise catchment 1
- Commercial

Paper Size A4

0 25 50 75 100

Metres

N

GHD

Roads and Maritime Services
Manns Road Upgrade Noise Assessment
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Level 3, GHD Tower, 24 Honeysuckle Drive, Newcastle NSW 2300 **T** 61 2 4979 9999 **F** 61 2 4979 9988 **E** ntlmail@ghd.com **W** www.ghd.com.au

Data source: LPI: DTDB / Aerial Imagery, 2017. Created by:fmackay

Appendix C – Operational noise results

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00143	COM	-	-	47	40	47	41	47	41	48	41	N/A	N/A	N/A	N/A
R00143	COM	-	-	33	26	33	27	33	26	34	27	N/A	N/A	N/A	N/A
R00143	COM	-	-	48	42	48	42	48	42	49	42	N/A	N/A	N/A	N/A
R00143	COM	-	-	48	42	48	42	48	42	49	42	N/A	N/A	N/A	N/A
R00147	COM	-	-	31	24	31	25	31	24	32	25	N/A	N/A	N/A	N/A
R00147	COM	-	-	29	22	29	23	29	22	30	23	N/A	N/A	N/A	N/A
R00147	COM	-	-	31	25	31	25	31	25	32	25	N/A	N/A	N/A	N/A
R00147	COM	-	-	31	24	31	25	31	24	32	25	N/A	N/A	N/A	N/A
R00149	COM	-	-	32	25	32	26	32	25	33	26	N/A	N/A	N/A	N/A
R00149	COM	-	-	30	24	30	24	30	24	31	24	N/A	N/A	N/A	N/A
R00149	COM	-	-	34	27	34	28	34	27	35	28	N/A	N/A	N/A	N/A
R00149	COM	-	-	33	27	34	27	33	27	34	28	N/A	N/A	N/A	N/A
R00149	COM	-	-	33	26	33	27	33	26	34	27	N/A	N/A	N/A	N/A
R00149	COM	-	-	32	26	33	26	32	26	33	27	N/A	N/A	N/A	N/A
R00152	COM	-	-	30	24	30	24	30	24	31	24	N/A	N/A	N/A	N/A
R00152	COM	-	-	28	22	29	22	28	22	29	23	N/A	N/A	N/A	N/A
R00152	COM	-	-	30	24	31	24	30	24	31	25	N/A	N/A	N/A	N/A
R00152	COM	-	-	29	22	29	22	29	22	29	23	N/A	N/A	N/A	N/A
R00152	COM	-	-	32	25	32	26	32	25	33	26	N/A	N/A	N/A	N/A
R00152	COM	-	-	29	23	30	23	29	23	30	24	N/A	N/A	N/A	N/A
R00152	COM	-	-	30	23	30	24	30	23	31	24	N/A	N/A	N/A	N/A
R00152	COM	-	-	29	22	29	23	29	22	30	23	N/A	N/A	N/A	N/A
R00153	COM	-	-	35	28	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00153	COM	-	-	32	25	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00153	COM	-	-	39	32	39	33	39	32	40	33	N/A	N/A	N/A	N/A
R00153	COM	-	-	33	27	33	27	33	27	34	28	N/A	N/A	N/A	N/A
R00154	COM	-	-	34	28	34	28	34	28	35	29	N/A	N/A	N/A	N/A
R00154	COM	-	-	33	26	33	27	33	26	34	27	N/A	N/A	N/A	N/A
R00154	COM	-	-	47	41	48	41	47	41	48	42	N/A	N/A	N/A	N/A
R00154	COM	-	-	49	43	49	43	49	43	50	43	N/A	N/A	N/A	N/A
R00154	COM	-	-	35	28	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00154	COM	-	-	33	26	33	27	33	27	34	27	N/A	N/A	N/A	N/A
R00157	COM	-	-	36	30	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00157	COM	-	-	31	25	31	25	31	25	32	25	N/A	N/A	N/A	N/A
R00157	COM	-	-	34	27	34	28	34	27	35	28	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00157	COM	-	-	32	26	33	26	32	26	33	27	N/A	N/A	N/A	N/A
R00157	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00157	COM	-	-	38	32	39	32	38	32	39	33	N/A	N/A	N/A	N/A
R00157	COM	-	-	37	31	37	31	37	31	38	31	N/A	N/A	N/A	N/A
R00157	COM	-	-	35	29	35	29	35	29	36	30	N/A	N/A	N/A	N/A
R00157	COM	-	-	38	32	38	32	38	32	39	32	N/A	N/A	N/A	N/A
R00157	COM	-	-	38	32	38	32	38	32	39	32	N/A	N/A	N/A	N/A
R00157	COM	-	-	38	31	38	31	38	31	39	32	N/A	N/A	N/A	N/A
R00157	COM	-	-	37	31	38	31	37	31	38	32	N/A	N/A	N/A	N/A
R00157	COM	-	-	37	31	37	31	37	31	38	31	N/A	N/A	N/A	N/A
R00157	COM	-	-	37	30	37	31	37	30	38	31	N/A	N/A	N/A	N/A
R00157	COM	-	-	37	30	37	31	37	30	38	31	N/A	N/A	N/A	N/A
R00157	COM	-	-	37	30	37	30	37	30	38	31	N/A	N/A	N/A	N/A
R00158	COM	-	-	41	34	41	35	41	34	42	35	N/A	N/A	N/A	N/A
R00158	COM	-	-	32	26	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00158	COM	-	-	41	34	41	35	41	34	42	35	N/A	N/A	N/A	N/A
R00158	COM	-	-	42	35	42	36	42	35	43	36	N/A	N/A	N/A	N/A
R00161	COM	-	-	28	22	29	22	29	22	29	23	N/A	N/A	N/A	N/A
R00161	COM	-	-	28	22	28	22	28	22	29	22	N/A	N/A	N/A	N/A
R00161	COM	-	-	29	23	30	23	29	23	30	24	N/A	N/A	N/A	N/A
R00161	COM	-	-	28	21	28	22	28	21	29	22	N/A	N/A	N/A	N/A
R00162	COM	-	-	31	25	32	25	31	25	32	26	N/A	N/A	N/A	N/A
R00162	COM	-	-	30	24	30	24	30	24	31	25	N/A	N/A	N/A	N/A
R00162	COM	-	-	33	27	33	27	33	27	34	27	N/A	N/A	N/A	N/A
R00162	COM	-	-	31	24	31	24	31	24	31	25	N/A	N/A	N/A	N/A
R00162	COM	-	-	30	24	31	24	31	24	31	25	N/A	N/A	N/A	N/A
R00162	COM	-	-	30	23	30	23	30	23	30	24	N/A	N/A	N/A	N/A
R00164	COM	-	-	33	27	34	27	33	27	34	28	N/A	N/A	N/A	N/A
R00164	COM	-	-	32	26	32	26	32	26	33	27	N/A	N/A	N/A	N/A
R00164	COM	-	-	36	30	37	30	37	30	37	31	N/A	N/A	N/A	N/A
R00164	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00164	COM	-	-	32	26	33	26	32	26	33	27	N/A	N/A	N/A	N/A
R00166	COM	-	-	42	36	43	36	42	36	43	37	N/A	N/A	N/A	N/A
R00166	COM	-	-	32	25	32	26	32	25	33	26	N/A	N/A	N/A	N/A
R00166	COM	-	-	34	27	34	28	34	28	35	28	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00166	COM	-	-	44	37	44	37	44	37	44	38	N/A	N/A	N/A	N/A
R00166	COM	-	-	43	37	44	37	43	37	44	38	N/A	N/A	N/A	N/A
R00166	COM	-	-	43	37	44	37	43	37	44	38	N/A	N/A	N/A	N/A
R00167	COM	-	-	39	33	40	33	39	33	40	34	N/A	N/A	N/A	N/A
R00167	COM	-	-	32	26	32	26	32	26	33	27	N/A	N/A	N/A	N/A
R00167	COM	-	-	34	27	34	28	34	27	35	28	N/A	N/A	N/A	N/A
R00167	COM	-	-	41	34	41	35	41	34	42	35	N/A	N/A	N/A	N/A
R00169	COM	-	-	31	25	32	25	31	25	32	26	N/A	N/A	N/A	N/A
R00169	COM	-	-	34	28	34	28	34	28	35	28	N/A	N/A	N/A	N/A
R00170	COM	-	-	42	36	42	36	42	36	43	36	N/A	N/A	N/A	N/A
R00170	COM	-	-	32	25	32	26	32	25	33	26	N/A	N/A	N/A	N/A
R00170	COM	-	-	32	26	33	26	32	26	33	27	N/A	N/A	N/A	N/A
R00170	COM	-	-	34	27	34	28	34	27	35	28	N/A	N/A	N/A	N/A
R00170	COM	-	-	44	38	45	38	44	38	45	39	N/A	N/A	N/A	N/A
R00170	COM	-	-	44	38	45	38	44	38	45	39	N/A	N/A	N/A	N/A
R00170	COM	-	-	44	37	44	38	44	37	45	38	N/A	N/A	N/A	N/A
R00190	COM	-	-	31	24	31	25	31	24	32	25	N/A	N/A	N/A	N/A
R00190	COM	-	-	29	23	29	23	29	23	30	23	N/A	N/A	N/A	N/A
R00190	COM	-	-	30	24	31	24	30	24	31	25	N/A	N/A	N/A	N/A
R00190	COM	-	-	31	24	31	25	31	25	32	25	N/A	N/A	N/A	N/A
R00190	COM	-	-	34	28	34	28	34	28	35	28	N/A	N/A	N/A	N/A
R00190	COM	-	-	32	26	33	26	32	26	33	27	N/A	N/A	N/A	N/A
R00190	COM	-	-	31	25	32	25	31	25	32	26	N/A	N/A	N/A	N/A
R00190	COM	-	-	31	25	32	25	31	25	32	26	N/A	N/A	N/A	N/A
R00191	COM	-	-	35	28	35	29	35	28	36	29	N/A	N/A	N/A	N/A
R00191	COM	-	-	32	26	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00191	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00191	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00195	COM	-	-	42	36	43	36	42	36	43	37	N/A	N/A	N/A	N/A
R00195	COM	-	-	33	27	33	27	33	27	34	28	N/A	N/A	N/A	N/A
R00195	COM	-	-	33	26	33	27	33	27	34	27	N/A	N/A	N/A	N/A
R00195	COM	-	-	41	35	42	35	41	35	42	36	N/A	N/A	N/A	N/A
R00195	COM	-	-	41	34	41	35	41	35	42	35	N/A	N/A	N/A	N/A
R00195	COM	-	-	42	35	42	36	42	35	43	36	N/A	N/A	N/A	N/A
R00195	COM	-	-	39	33	39	33	39	33	40	34	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00197	COM	-	-	33	27	33	27	33	27	34	27	N/A	N/A	N/A	N/A
R00197	COM	-	-	33	27	33	27	33	27	34	28	N/A	N/A	N/A	N/A
R00197	COM	-	-	37	30	37	31	37	30	38	31	N/A	N/A	N/A	N/A
R00199	COM	-	-	34	27	34	28	34	28	35	28	N/A	N/A	N/A	N/A
R00199	COM	-	-	34	27	34	28	34	27	35	28	N/A	N/A	N/A	N/A
R00199	COM	-	-	38	32	38	32	38	32	39	33	N/A	N/A	N/A	N/A
R00199	COM	-	-	39	33	39	33	39	33	40	33	N/A	N/A	N/A	N/A
R00199	COM	-	-	39	32	39	33	39	33	40	33	N/A	N/A	N/A	N/A
R00199	COM	-	-	39	32	39	33	39	32	40	33	N/A	N/A	N/A	N/A
R00200	COM	-	-	33	26	33	27	33	26	34	27	N/A	N/A	N/A	N/A
R00200	COM	-	-	32	25	32	25	32	25	33	26	N/A	N/A	N/A	N/A
R00200	COM	-	-	36	30	37	30	36	30	37	31	N/A	N/A	N/A	N/A
R00200	COM	-	-	31	24	31	25	31	24	32	25	N/A	N/A	N/A	N/A
R00200	COM	-	-	32	26	33	26	32	26	33	27	N/A	N/A	N/A	N/A
R00202	COM	-	-	34	28	35	28	34	28	35	29	N/A	N/A	N/A	N/A
R00202	COM	-	-	34	27	34	28	34	28	35	28	N/A	N/A	N/A	N/A
R00202	COM	-	-	39	32	39	33	39	32	40	33	N/A	N/A	N/A	N/A
R00202	COM	-	-	39	32	39	33	39	32	40	33	N/A	N/A	N/A	N/A
R00202	COM	-	-	39	33	39	33	39	33	40	33	N/A	N/A	N/A	N/A
R00202	COM	-	-	39	33	40	33	39	33	40	34	N/A	N/A	N/A	N/A
R00202	COM	-	-	39	33	40	33	39	33	40	34	N/A	N/A	N/A	N/A
R00202	COM	-	-	39	33	40	33	39	33	40	34	N/A	N/A	N/A	N/A
R00203	COM	-	-	34	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00203	COM	-	-	34	28	34	28	34	28	35	29	N/A	N/A	N/A	N/A
R00203	COM	-	-	40	34	41	34	40	34	41	35	N/A	N/A	N/A	N/A
R00203	COM	-	-	40	34	40	34	40	34	41	35	N/A	N/A	N/A	N/A
R00203	COM	-	-	35	28	35	29	35	28	36	29	N/A	N/A	N/A	N/A
R00203	COM	-	-	36	30	36	30	36	30	37	31	N/A	N/A	N/A	N/A
R00205	COM	-	-	36	29	36	30	36	29	37	30	N/A	N/A	N/A	N/A
R00205	COM	-	-	33	27	34	27	33	27	34	28	N/A	N/A	N/A	N/A
R00205	COM	-	-	41	34	41	34	41	34	42	35	N/A	N/A	N/A	N/A
R00205	COM	-	-	40	34	41	34	40	34	41	35	N/A	N/A	N/A	N/A
R00205	COM	-	-	40	34	40	34	40	34	41	34	N/A	N/A	N/A	N/A
R00205	COM	-	-	39	33	39	33	39	33	40	33	N/A	N/A	N/A	N/A
R00206	COM	-	-	45	38	45	39	45	39	46	39	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00206	COM	-	-	34	27	34	27	34	27	34	28	N/A	N/A	N/A	N/A
R00206	COM	-	-	34	27	34	28	34	28	35	28	N/A	N/A	N/A	N/A
R00206	COM	-	-	34	28	35	28	34	28	35	29	N/A	N/A	N/A	N/A
R00206	COM	-	-	34	28	35	28	34	28	35	29	N/A	N/A	N/A	N/A
R00206	COM	-	-	45	38	45	39	45	39	46	39	N/A	N/A	N/A	N/A
R00207	COM	-	-	34	27	34	28	34	27	35	28	N/A	N/A	N/A	N/A
R00207	COM	-	-	34	27	34	28	34	27	35	28	N/A	N/A	N/A	N/A
R00207	COM	-	-	37	31	38	31	37	31	38	32	N/A	N/A	N/A	N/A
R00207	COM	-	-	39	32	39	33	39	32	40	33	N/A	N/A	N/A	N/A
R00211	COM	-	-	34	27	34	28	34	27	35	28	N/A	N/A	N/A	N/A
R00211	COM	-	-	34	27	34	28	34	27	35	28	N/A	N/A	N/A	N/A
R00211	COM	-	-	34	28	34	28	34	28	35	29	N/A	N/A	N/A	N/A
R00211	COM	-	-	35	28	35	28	35	28	36	29	N/A	N/A	N/A	N/A
R00211	COM	-	-	41	34	41	35	41	34	42	35	N/A	N/A	N/A	N/A
R00211	COM	-	-	39	33	40	33	39	33	40	34	N/A	N/A	N/A	N/A
R00214	COM	-	-	35	28	35	29	35	28	36	29	N/A	N/A	N/A	N/A
R00214	COM	-	-	37	31	38	31	38	31	38	32	N/A	N/A	N/A	N/A
R00214	COM	-	-	40	34	40	34	40	34	41	35	N/A	N/A	N/A	N/A
R00214	COM	-	-	40	34	40	34	40	34	41	35	N/A	N/A	N/A	N/A
R00215	COM	-	-	34	28	35	28	34	28	35	29	N/A	N/A	N/A	N/A
R00215	COM	-	-	34	27	34	28	34	27	35	28	N/A	N/A	N/A	N/A
R00215	COM	-	-	39	32	39	32	39	32	40	33	N/A	N/A	N/A	N/A
R00215	COM	-	-	38	32	39	32	39	32	39	33	N/A	N/A	N/A	N/A
R00216	COM	-	-	42	36	42	36	42	36	43	36	N/A	N/A	N/A	N/A
R00216	COM	-	-	34	27	34	27	34	27	35	28	N/A	N/A	N/A	N/A
R00216	COM	-	-	35	29	36	29	35	29	36	30	N/A	N/A	N/A	N/A
R00216	COM	-	-	34	27	34	28	34	27	35	28	N/A	N/A	N/A	N/A
R00217	COM	-	-	32	25	32	26	32	25	33	26	N/A	N/A	N/A	N/A
R00217	COM	-	-	33	27	33	27	33	27	34	28	N/A	N/A	N/A	N/A
R00217	COM	-	-	36	30	37	30	36	30	37	31	N/A	N/A	N/A	N/A
R00217	COM	-	-	40	34	40	34	40	34	41	34	N/A	N/A	N/A	N/A
R00217	COM	-	-	31	24	31	24	31	24	32	25	N/A	N/A	N/A	N/A
R00218	COM	-	-	39	32	39	33	39	32	40	33	N/A	N/A	N/A	N/A
R00218	COM	-	-	35	28	35	28	35	28	36	29	N/A	N/A	N/A	N/A
R00218	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00219	COM	-	-	41	34	41	34	41	34	42	35	N/A	N/A	N/A	N/A
R00219	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00219	COM	-	-	36	29	36	30	36	29	37	30	N/A	N/A	N/A	N/A
R00219	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00219	COM	-	-	41	35	42	35	41	35	42	36	N/A	N/A	N/A	N/A
R00219	COM	-	-	44	38	45	38	44	38	45	39	N/A	N/A	N/A	N/A
R00219	COM	-	-	44	37	44	38	44	37	45	38	N/A	N/A	N/A	N/A
R00219	COM	-	-	44	37	44	38	44	37	45	38	N/A	N/A	N/A	N/A
R00219	COM	-	-	43	37	44	37	44	37	45	38	N/A	N/A	N/A	N/A
R00219	COM	-	-	42	35	42	36	42	35	43	36	N/A	N/A	N/A	N/A
R00220	COM	-	-	35	29	36	29	35	29	36	30	N/A	N/A	N/A	N/A
R00220	COM	-	-	43	36	43	37	43	37	44	37	N/A	N/A	N/A	N/A
R00220	COM	-	-	42	35	42	36	42	36	43	36	N/A	N/A	N/A	N/A
R00221	COM	-	-	37	30	37	30	37	30	37	31	N/A	N/A	N/A	N/A
R00221	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00221	COM	-	-	40	34	41	34	40	34	41	35	N/A	N/A	N/A	N/A
R00221	COM	-	-	40	34	40	34	40	34	41	35	N/A	N/A	N/A	N/A
R00222	COM	-	-	35	28	35	29	35	28	36	29	N/A	N/A	N/A	N/A
R00222	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00222	COM	-	-	42	35	42	36	42	35	43	36	N/A	N/A	N/A	N/A
R00222	COM	-	-	41	34	41	35	41	34	42	35	N/A	N/A	N/A	N/A
R00223	COM	-	-	35	29	35	29	35	29	36	30	N/A	N/A	N/A	N/A
R00223	COM	-	-	39	33	40	33	39	33	40	34	N/A	N/A	N/A	N/A
R00223	COM	-	-	41	34	41	35	41	34	42	35	N/A	N/A	N/A	N/A
R00223	COM	-	-	40	34	40	34	40	34	41	35	N/A	N/A	N/A	N/A
R00223	COM	-	-	40	34	41	34	40	34	41	35	N/A	N/A	N/A	N/A
R00223	COM	-	-	40	34	41	34	40	34	41	35	N/A	N/A	N/A	N/A
R00225	COM	-	-	37	30	37	31	37	30	38	31	N/A	N/A	N/A	N/A
R00225	COM	-	-	34	28	35	28	34	28	35	29	N/A	N/A	N/A	N/A
R00225	COM	-	-	35	29	36	29	35	29	36	30	N/A	N/A	N/A	N/A
R00225	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00225	COM	-	-	35	29	36	29	35	29	36	30	N/A	N/A	N/A	N/A
R00225	COM	-	-	35	28	35	29	35	28	36	29	N/A	N/A	N/A	N/A
R00225	COM	-	-	37	30	37	31	37	31	38	31	N/A	N/A	N/A	N/A
R00225	COM	-	-	36	29	36	30	36	29	37	30	N/A	N/A	N/A	N/A

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		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00225	COM	-	-	37	31	37	31	37	31	38	31	N/A	N/A	N/A	N/A
R00227	COM	-	-	31	25	31	25	31	25	32	25	N/A	N/A	N/A	N/A
R00227	COM	-	-	34	27	34	28	34	28	35	28	N/A	N/A	N/A	N/A
R00227	COM	-	-	39	33	40	33	39	33	40	34	N/A	N/A	N/A	N/A
R00227	COM	-	-	39	32	39	33	39	32	40	33	N/A	N/A	N/A	N/A
R00230	COM	-	-	35	29	35	29	35	29	36	30	N/A	N/A	N/A	N/A
R00230	COM	-	-	35	28	35	29	35	28	36	29	N/A	N/A	N/A	N/A
R00230	COM	-	-	35	29	36	29	35	29	36	30	N/A	N/A	N/A	N/A
R00230	COM	-	-	47	41	47	41	47	41	48	42	N/A	N/A	N/A	N/A
R00230	COM	-	-	38	31	38	31	38	31	39	32	N/A	N/A	N/A	N/A
R00231	COM	-	-	39	32	39	33	39	32	40	33	N/A	N/A	N/A	N/A
R00231	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00231	COM	-	-	44	37	43	37	44	37	44	37	N/A	N/A	N/A	N/A
R00231	COM	-	-	37	30	37	31	37	30	38	31	N/A	N/A	N/A	N/A
R00232	COM	-	-	35	29	35	29	35	29	36	30	N/A	N/A	N/A	N/A
R00232	COM	-	-	37	31	38	31	37	31	38	32	N/A	N/A	N/A	N/A
R00232	COM	-	-	43	37	43	37	43	37	44	37	N/A	N/A	N/A	N/A
R00232	COM	-	-	42	35	42	36	42	35	43	36	N/A	N/A	N/A	N/A
R00232	COM	-	-	42	35	42	36	42	35	43	36	N/A	N/A	N/A	N/A
R00232	COM	-	-	42	35	42	35	42	35	42	36	N/A	N/A	N/A	N/A
R00233	COM	-	-	45	39	45	39	45	39	46	39	N/A	N/A	N/A	N/A
R00233	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00233	COM	-	-	40	34	39	33	40	34	40	33	N/A	N/A	N/A	N/A
R00233	COM	-	-	51	45	51	45	51	45	52	46	N/A	N/A	N/A	N/A
R00234	COM	-	-	35	29	36	29	35	29	36	30	N/A	N/A	N/A	N/A
R00234	COM	-	-	39	33	40	33	39	33	40	34	N/A	N/A	N/A	N/A
R00234	COM	-	-	38	31	38	32	38	31	39	32	N/A	N/A	N/A	N/A
R00235	COM	-	-	47	41	48	41	47	41	48	42	N/A	N/A	N/A	N/A
R00235	COM	-	-	35	29	35	29	35	29	36	30	N/A	N/A	N/A	N/A
R00235	COM	-	-	42	35	42	36	42	35	43	36	N/A	N/A	N/A	N/A
R00235	COM	-	-	47	41	48	41	47	41	48	42	N/A	N/A	N/A	N/A
R00236	COM	-	-	35	29	36	29	35	29	36	30	N/A	N/A	N/A	N/A
R00236	COM	-	-	40	33	40	34	40	33	41	34	N/A	N/A	N/A	N/A
R00236	COM	-	-	36	30	37	30	37	30	37	31	N/A	N/A	N/A	N/A
R00237	COM	-	-	37	30	37	31	37	30	38	31	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00237	COM	-	-	36	30	37	30	36	30	37	31	N/A	N/A	N/A	N/A
R00237	COM	-	-	37	31	38	31	37	31	38	32	N/A	N/A	N/A	N/A
R00237	COM	-	-	36	30	37	30	37	30	37	31	N/A	N/A	N/A	N/A
R00237	COM	-	-	42	36	42	36	42	36	43	36	N/A	N/A	N/A	N/A
R00237	COM	-	-	41	35	42	35	41	35	42	36	N/A	N/A	N/A	N/A
R00238	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00238	COM	-	-	35	29	36	29	35	29	36	30	N/A	N/A	N/A	N/A
R00238	COM	-	-	48	42	49	42	49	42	49	43	N/A	N/A	N/A	N/A
R00245	COM	-	-	36	30	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00245	COM	-	-	36	30	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00245	COM	-	-	54	47	54	48	54	47	55	48	N/A	N/A	N/A	N/A
R00245	COM	-	-	54	48	54	48	54	48	55	49	N/A	N/A	N/A	N/A
R00245	COM	-	-	54	48	54	48	54	48	55	49	N/A	N/A	N/A	N/A
R00245	COM	-	-	54	48	54	48	54	48	55	49	N/A	N/A	N/A	N/A
R00245	COM	-	-	54	47	54	47	54	47	55	48	N/A	N/A	N/A	N/A
R00245	COM	-	-	36	30	36	30	36	30	37	31	N/A	N/A	N/A	N/A
R00247	COM	-	-	35	28	35	29	35	28	36	29	N/A	N/A	N/A	N/A
R00247	COM	-	-	34	28	35	28	34	28	35	29	N/A	N/A	N/A	N/A
R00247	COM	-	-	34	27	34	28	34	27	35	28	N/A	N/A	N/A	N/A
R00247	COM	-	-	38	31	38	32	38	31	39	32	N/A	N/A	N/A	N/A
R00248	COM	-	-	35	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00248	COM	-	-	46	40	47	40	46	40	47	41	N/A	N/A	N/A	N/A
R00248	COM	-	-	45	38	45	38	45	38	46	39	N/A	N/A	N/A	N/A
R00248	COM	-	-	41	34	41	35	41	34	42	35	N/A	N/A	N/A	N/A
R00248	COM	-	-	40	33	40	33	40	33	40	34	N/A	N/A	N/A	N/A
R00249	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00249	COM	-	-	34	28	35	28	34	28	35	29	N/A	N/A	N/A	N/A
R00249	COM	-	-	34	27	34	27	34	27	35	28	N/A	N/A	N/A	N/A
R00249	COM	-	-	36	29	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00249	COM	-	-	34	28	35	28	34	28	35	29	N/A	N/A	N/A	N/A
R00249	COM	-	-	34	27	34	28	34	27	35	28	N/A	N/A	N/A	N/A
R00249	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00249	COM	-	-	34	27	34	28	34	27	35	28	N/A	N/A	N/A	N/A
R00249	COM	-	-	43	36	43	37	43	36	44	37	N/A	N/A	N/A	N/A
R00249	COM	-	-	40	33	40	34	40	33	41	34	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00249	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00249	COM	-	-	36	30	37	30	36	30	37	31	N/A	N/A	N/A	N/A
R00249	COM	-	-	37	30	37	30	37	30	37	31	N/A	N/A	N/A	N/A
R00250	COM	-	-	35	29	36	29	35	29	36	30	N/A	N/A	N/A	N/A
R00250	COM	-	-	36	29	36	30	36	29	37	30	N/A	N/A	N/A	N/A
R00251	COM	-	-	35	28	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00251	COM	-	-	34	27	34	28	34	28	35	28	N/A	N/A	N/A	N/A
R00251	COM	-	-	35	28	35	29	35	28	36	29	N/A	N/A	N/A	N/A
R00251	COM	-	-	34	28	34	28	34	28	35	29	N/A	N/A	N/A	N/A
R00251	COM	-	-	42	36	43	36	43	36	43	37	N/A	N/A	N/A	N/A
R00251	COM	-	-	41	35	41	35	41	35	42	36	N/A	N/A	N/A	N/A
R00251	COM	-	-	35	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00251	COM	-	-	38	32	38	32	38	32	39	33	N/A	N/A	N/A	N/A
R00251	COM	-	-	35	29	36	29	35	29	36	30	N/A	N/A	N/A	N/A
R00251	COM	-	-	34	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00251	COM	-	-	35	29	36	29	35	29	36	30	N/A	N/A	N/A	N/A
R00251	COM	-	-	37	31	38	31	37	31	38	32	N/A	N/A	N/A	N/A
R00253	COM	-	-	47	40	47	41	47	40	48	41	N/A	N/A	N/A	N/A
R00253	COM	-	-	37	30	37	31	37	31	38	31	N/A	N/A	N/A	N/A
R00253	COM	-	-	50	44	51	44	50	44	51	45	N/A	N/A	N/A	N/A
R00253	COM	-	-	50	44	51	44	50	44	51	45	N/A	N/A	N/A	N/A
R00254	COM	-	-	38	32	38	32	38	32	39	32	N/A	N/A	N/A	N/A
R00254	COM	-	-	37	31	38	31	38	31	38	32	N/A	N/A	N/A	N/A
R00254	COM	-	-	43	37	44	37	43	37	44	38	N/A	N/A	N/A	N/A
R00254	COM	-	-	38	32	39	32	38	32	39	33	N/A	N/A	N/A	N/A
R00254	COM	-	-	37	30	37	31	37	30	38	31	N/A	N/A	N/A	N/A
R00254	COM	-	-	37	31	38	31	37	31	38	32	N/A	N/A	N/A	N/A
R00255	COM	-	-	37	30	37	31	37	30	38	31	N/A	N/A	N/A	N/A
R00255	COM	-	-	35	29	36	29	35	29	36	30	N/A	N/A	N/A	N/A
R00255	COM	-	-	36	29	36	29	36	29	37	30	N/A	N/A	N/A	N/A
R00255	COM	-	-	41	35	42	35	41	35	42	36	N/A	N/A	N/A	N/A
R00256	COM	-	-	35	28	35	29	35	28	36	29	N/A	N/A	N/A	N/A
R00256	COM	-	-	35	29	36	29	35	29	36	30	N/A	N/A	N/A	N/A
R00256	COM	-	-	36	30	37	30	36	30	37	31	N/A	N/A	N/A	N/A
R00256	COM	-	-	35	29	36	29	35	29	36	30	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00256	COM	-	-	37	30	37	31	37	30	38	31	N/A	N/A	N/A	N/A
R00256	COM	-	-	37	31	38	31	37	31	38	32	N/A	N/A	N/A	N/A
R00256	COM	-	-	38	31	38	32	38	31	39	32	N/A	N/A	N/A	N/A
R00256	COM	-	-	38	31	38	31	38	31	39	32	N/A	N/A	N/A	N/A
R00256	COM	-	-	50	43	50	43	50	43	51	44	N/A	N/A	N/A	N/A
R00256	COM	-	-	46	39	46	40	46	39	47	40	N/A	N/A	N/A	N/A
R00256	COM	-	-	53	47	54	47	53	47	54	48	N/A	N/A	N/A	N/A
R00256	COM	-	-	33	26	33	26	33	26	33	27	N/A	N/A	N/A	N/A
R00256	COM	-	-	32	26	33	26	32	26	33	27	N/A	N/A	N/A	N/A
R00258	COM	-	-	37	31	38	31	37	31	38	32	N/A	N/A	N/A	N/A
R00258	COM	-	-	38	32	38	32	38	32	39	33	N/A	N/A	N/A	N/A
R00258	COM	-	-	43	37	44	37	43	37	44	38	N/A	N/A	N/A	N/A
R00258	COM	-	-	43	37	44	37	43	37	44	38	N/A	N/A	N/A	N/A
R00259	COM	-	-	38	32	39	32	38	32	39	33	N/A	N/A	N/A	N/A
R00259	COM	-	-	38	31	38	32	38	32	39	32	N/A	N/A	N/A	N/A
R00259	COM	-	-	55	49	56	49	55	49	56	50	N/A	N/A	N/A	N/A
R00259	COM	-	-	56	49	56	50	56	49	57	50	N/A	N/A	N/A	N/A
R00259	COM	-	-	55	49	56	49	55	49	56	50	N/A	N/A	N/A	N/A
R00259	COM	-	-	54	47	54	48	54	47	55	48	N/A	N/A	N/A	N/A
R00259	COM	-	-	54	47	54	48	54	48	55	48	N/A	N/A	N/A	N/A
R00259	COM	-	-	54	48	54	48	54	48	55	49	N/A	N/A	N/A	N/A
R00260	COM	-	-	38	32	39	32	38	32	39	33	N/A	N/A	N/A	N/A
R00260	COM	-	-	39	32	39	33	39	32	40	33	N/A	N/A	N/A	N/A
R00260	COM	-	-	46	40	46	40	46	40	47	41	N/A	N/A	N/A	N/A
R00260	COM	-	-	46	39	46	40	46	39	47	40	N/A	N/A	N/A	N/A
R00260	COM	-	-	45	38	45	39	45	38	46	39	N/A	N/A	N/A	N/A
R00260	COM	-	-	42	36	43	36	42	36	43	37	N/A	N/A	N/A	N/A
R00262	COM	-	-	37	30	37	31	37	30	38	31	N/A	N/A	N/A	N/A
R00262	COM	-	-	35	28	35	29	35	28	36	29	N/A	N/A	N/A	N/A
R00262	COM	-	-	35	29	36	29	35	29	36	30	N/A	N/A	N/A	N/A
R00262	COM	-	-	42	36	43	36	42	36	43	37	N/A	N/A	N/A	N/A
R00262	COM	-	-	40	34	40	34	40	34	41	35	N/A	N/A	N/A	N/A
R00263	COM	-	-	39	33	39	33	39	33	40	34	N/A	N/A	N/A	N/A
R00263	COM	-	-	41	35	42	35	41	35	42	36	N/A	N/A	N/A	N/A
R00263	COM	-	-	43	36	43	37	43	36	44	37	N/A	N/A	N/A	N/A

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		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00264	COM	-	-	39	33	40	33	39	33	40	34	N/A	N/A	N/A	N/A
R00264	COM	-	-	41	34	41	35	41	34	42	35	N/A	N/A	N/A	N/A
R00264	COM	-	-	40	33	40	34	40	33	41	34	N/A	N/A	N/A	N/A
R00264	COM	-	-	44	38	44	38	44	38	45	39	N/A	N/A	N/A	N/A
R00265	COM	-	-	36	30	37	30	36	30	37	31	N/A	N/A	N/A	N/A
R00265	COM	-	-	36	29	36	29	36	29	37	30	N/A	N/A	N/A	N/A
R00265	COM	-	-	35	29	35	29	35	29	36	30	N/A	N/A	N/A	N/A
R00265	COM	-	-	35	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00265	COM	-	-	36	30	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00265	COM	-	-	45	39	46	39	45	39	46	40	N/A	N/A	N/A	N/A
R00265	COM	-	-	45	39	45	39	45	39	46	39	N/A	N/A	N/A	N/A
R00265	COM	-	-	42	35	42	35	42	35	42	36	N/A	N/A	N/A	N/A
R00265	COM	-	-	42	36	43	36	42	36	43	37	N/A	N/A	N/A	N/A
R00265	COM	-	-	41	35	41	35	41	35	42	36	N/A	N/A	N/A	N/A
R00265	COM	-	-	40	34	41	34	41	34	41	35	N/A	N/A	N/A	N/A
R00265	COM	-	-	42	36	43	36	43	36	43	37	N/A	N/A	N/A	N/A
R00266	COM	-	-	40	34	40	34	40	34	41	35	N/A	N/A	N/A	N/A
R00266	COM	-	-	40	33	40	33	40	33	41	34	N/A	N/A	N/A	N/A
R00266	COM	-	-	56	50	57	50	57	50	57	51	N/A	N/A	N/A	N/A
R00266	COM	-	-	56	50	57	50	57	50	57	51	N/A	N/A	N/A	N/A
R00267	COM	-	-	41	34	41	35	41	34	42	36	N/A	N/A	N/A	N/A
R00267	COM	-	-	46	40	46	40	46	40	47	41	N/A	N/A	N/A	N/A
R00267	COM	-	-	47	41	47	41	47	41	48	42	N/A	N/A	N/A	N/A
R00268	COM	-	-	41	34	41	35	41	34	42	35	N/A	N/A	N/A	N/A
R00268	COM	-	-	40	34	40	34	40	34	41	35	N/A	N/A	N/A	N/A
R00268	COM	-	-	44	38	45	38	45	38	45	39	N/A	N/A	N/A	N/A
R00268	COM	-	-	49	42	49	43	49	43	50	43	N/A	N/A	N/A	N/A
R00269	COM	-	-	41	35	41	35	41	35	42	36	N/A	N/A	N/A	N/A
R00269	COM	-	-	40	34	41	34	40	34	41	35	N/A	N/A	N/A	N/A
R00269	COM	-	-	49	42	49	43	49	42	50	43	N/A	N/A	N/A	N/A
R00269	COM	-	-	50	44	51	44	50	44	51	45	N/A	N/A	N/A	N/A
R00269	COM	-	-	41	34	41	35	41	34	42	35	N/A	N/A	N/A	N/A
R00270	COM	-	-	39	33	40	33	39	33	40	34	N/A	N/A	N/A	N/A
R00270	COM	-	-	34	27	34	27	34	27	34	28	N/A	N/A	N/A	N/A
R00270	COM	-	-	37	31	38	31	37	31	38	32	N/A	N/A	N/A	N/A

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		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00270	COM	-	-	34	27	34	28	34	27	35	28	N/A	N/A	N/A	N/A
R00270	COM	-	-	34	27	34	28	34	27	35	28	N/A	N/A	N/A	N/A
R00270	COM	-	-	36	30	36	30	36	30	37	31	N/A	N/A	N/A	N/A
R00270	COM	-	-	34	27	34	28	34	27	35	28	N/A	N/A	N/A	N/A
R00270	COM	-	-	40	33	40	33	40	33	40	34	N/A	N/A	N/A	N/A
R00270	COM	-	-	34	28	34	28	34	28	35	28	N/A	N/A	N/A	N/A
R00270	COM	-	-	41	35	42	35	41	35	42	36	N/A	N/A	N/A	N/A
R00270	COM	-	-	41	35	42	35	41	35	42	36	N/A	N/A	N/A	N/A
R00271	COM	-	-	39	32	39	33	39	32	40	33	N/A	N/A	N/A	N/A
R00271	COM	-	-	36	29	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00271	COM	-	-	36	30	37	30	36	30	37	31	N/A	N/A	N/A	N/A
R00271	COM	-	-	42	36	43	36	42	36	43	37	N/A	N/A	N/A	N/A
R00272	COM	-	-	47	40	47	41	47	41	48	41	N/A	N/A	N/A	N/A
R00272	COM	-	-	38	32	39	32	38	32	39	33	N/A	N/A	N/A	N/A
R00272	COM	-	-	43	37	44	37	43	37	44	38	N/A	N/A	N/A	N/A
R00272	COM	-	-	42	36	42	36	42	36	43	37	N/A	N/A	N/A	N/A
R00273	COM	-	-	38	31	38	31	38	31	39	32	N/A	N/A	N/A	N/A
R00273	COM	-	-	45	38	45	39	45	38	46	39	N/A	N/A	N/A	N/A
R00273	COM	-	-	44	38	45	38	44	38	45	39	N/A	N/A	N/A	N/A
R00273	COM	-	-	42	36	42	36	42	36	43	36	N/A	N/A	N/A	N/A
R00273	COM	-	-	37	31	38	31	38	31	38	32	N/A	N/A	N/A	N/A
R00273	COM	-	-	42	36	43	36	42	36	43	37	N/A	N/A	N/A	N/A
R00273	COM	-	-	38	31	38	32	38	31	39	32	N/A	N/A	N/A	N/A
R00273	COM	-	-	39	32	39	33	39	33	40	33	N/A	N/A	N/A	N/A
R00273	COM	-	-	39	32	39	33	39	32	40	33	N/A	N/A	N/A	N/A
R00273	COM	-	-	37	31	37	31	37	31	38	31	N/A	N/A	N/A	N/A
R00273	COM	-	-	40	34	41	34	41	34	41	35	N/A	N/A	N/A	N/A
R00273	COM	-	-	43	37	43	37	43	37	44	38	N/A	N/A	N/A	N/A
R00274	COM	-	-	42	35	42	36	42	35	43	36	N/A	N/A	N/A	N/A
R00274	COM	-	-	42	35	42	36	42	35	43	36	N/A	N/A	N/A	N/A
R00274	COM	-	-	46	40	47	40	46	40	47	41	N/A	N/A	N/A	N/A
R00274	COM	-	-	43	36	43	37	43	37	44	37	N/A	N/A	N/A	N/A
R00274	COM	-	-	43	36	43	37	43	36	44	37	N/A	N/A	N/A	N/A
R00274	COM	-	-	43	37	43	37	43	37	44	38	N/A	N/A	N/A	N/A
R00274	COM	-	-	45	39	46	39	45	39	46	40	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00274	COM	-	-	45	39	45	39	45	39	46	40	N/A	N/A	N/A	N/A
R00274	COM	-	-	54	48	54	48	54	48	55	49	N/A	N/A	N/A	N/A
R00274	COM	-	-	54	48	55	48	54	48	55	49	N/A	N/A	N/A	N/A
R00274	COM	-	-	53	47	54	47	53	47	54	48	N/A	N/A	N/A	N/A
R00274	COM	-	-	52	46	53	47	52	46	53	47	N/A	N/A	N/A	N/A
R00274	COM	-	-	42	36	43	37	43	36	44	37	N/A	N/A	N/A	N/A
R00274	COM	-	-	42	35	42	36	42	35	43	36	N/A	N/A	N/A	N/A
R00274	COM	-	-	42	35	42	36	42	35	43	36	N/A	N/A	N/A	N/A
R00276	COM	-	-	39	32	39	33	39	32	40	33	N/A	N/A	N/A	N/A
R00276	COM	-	-	41	35	41	35	41	35	42	36	N/A	N/A	N/A	N/A
R00276	COM	-	-	39	33	39	33	39	33	40	34	N/A	N/A	N/A	N/A
R00276	COM	-	-	41	35	42	35	42	35	42	36	N/A	N/A	N/A	N/A
R00276	COM	-	-	39	33	40	33	40	33	40	34	N/A	N/A	N/A	N/A
R00276	COM	-	-	42	35	42	36	42	35	43	36	N/A	N/A	N/A	N/A
R00276	COM	-	-	40	34	40	34	40	34	41	34	N/A	N/A	N/A	N/A
R00276	COM	-	-	42	36	42	36	42	36	43	36	N/A	N/A	N/A	N/A
R00276	COM	-	-	40	34	41	34	40	34	41	35	N/A	N/A	N/A	N/A
R00276	COM	-	-	45	39	46	39	45	39	46	40	N/A	N/A	N/A	N/A
R00276	COM	-	-	47	41	48	41	47	41	48	42	N/A	N/A	N/A	N/A
R00276	COM	-	-	46	39	46	40	46	39	46	40	N/A	N/A	N/A	N/A
R00276	COM	-	-	43	37	44	37	43	37	44	38	N/A	N/A	N/A	N/A
R00276	COM	-	-	41	34	41	35	41	34	42	35	N/A	N/A	N/A	N/A
R00276	COM	-	-	43	37	44	37	43	37	44	38	N/A	N/A	N/A	N/A
R00276	COM	-	-	40	34	41	34	40	34	41	35	N/A	N/A	N/A	N/A
R00276	COM	-	-	41	34	41	34	41	34	41	35	N/A	N/A	N/A	N/A
R00276	COM	-	-	43	37	43	37	43	37	44	38	N/A	N/A	N/A	N/A
R00276	COM	-	-	44	37	44	38	44	37	45	38	N/A	N/A	N/A	N/A
R00276	COM	-	-	44	37	44	38	44	37	45	38	N/A	N/A	N/A	N/A
R00276	COM	-	-	39	33	39	33	39	33	40	34	N/A	N/A	N/A	N/A
R00276	COM	-	-	41	35	42	35	41	35	42	36	N/A	N/A	N/A	N/A
R00277	COM	-	-	36	30	37	30	37	30	37	31	N/A	N/A	N/A	N/A
R00277	COM	-	-	35	28	35	29	35	28	36	29	N/A	N/A	N/A	N/A
R00277	COM	-	-	35	28	35	28	35	28	36	29	N/A	N/A	N/A	N/A
R00277	COM	-	-	44	38	45	38	44	38	45	39	N/A	N/A	N/A	N/A
R00277	COM	-	-	37	30	37	31	37	31	38	31	N/A	N/A	N/A	N/A

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		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00278	COM	-	-	48	42	48	42	48	42	49	43	N/A	N/A	N/A	N/A
R00278	COM	-	-	39	32	39	32	39	32	40	33	N/A	N/A	N/A	N/A
R00278	COM	-	-	45	38	45	39	45	38	46	39	N/A	N/A	N/A	N/A
R00278	COM	-	-	45	38	45	39	45	39	46	39	N/A	N/A	N/A	N/A
R00279	COM	-	-	40	33	40	34	40	33	41	34	N/A	N/A	N/A	N/A
R00279	COM	-	-	46	39	46	40	46	39	47	40	N/A	N/A	N/A	N/A
R00279	COM	-	-	46	39	46	40	46	39	47	40	N/A	N/A	N/A	N/A
R00279	COM	-	-	46	39	46	39	46	39	47	40	N/A	N/A	N/A	N/A
R00279	COM	-	-	43	37	44	37	43	37	44	38	N/A	N/A	N/A	N/A
R00279	COM	-	-	47	41	48	42	48	41	48	42	N/A	N/A	N/A	N/A
R00280	COM	-	-	38	31	38	32	38	31	39	32	N/A	N/A	N/A	N/A
R00280	COM	-	-	36	30	37	30	36	30	37	31	N/A	N/A	N/A	N/A
R00280	COM	-	-	35	29	35	29	35	29	36	30	N/A	N/A	N/A	N/A
R00280	COM	-	-	37	31	38	31	37	31	38	32	N/A	N/A	N/A	N/A
R00280	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00280	COM	-	-	45	38	45	39	45	38	46	39	N/A	N/A	N/A	N/A
R00280	COM	-	-	41	35	42	35	41	35	42	36	N/A	N/A	N/A	N/A
R00280	COM	-	-	39	32	39	33	39	32	40	33	N/A	N/A	N/A	N/A
R00280	COM	-	-	41	34	41	35	41	34	42	35	N/A	N/A	N/A	N/A
R00281	COM	-	-	44	37	44	38	44	37	45	38	N/A	N/A	N/A	N/A
R00281	COM	-	-	43	37	44	37	43	37	44	38	N/A	N/A	N/A	N/A
R00281	COM	-	-	59	53	60	53	59	53	60	54	N/A	N/A	N/A	N/A
R00281	COM	-	-	59	53	60	54	60	53	60	54	N/A	N/A	N/A	N/A
R00281	COM	-	-	60	53	60	54	60	53	61	54	N/A	N/A	N/A	N/A
R00281	COM	-	-	59	53	59	53	59	53	60	54	N/A	N/A	N/A	N/A
R00281	COM	-	-	46	40	46	40	46	40	47	41	N/A	N/A	N/A	N/A
R00281	COM	-	-	56	50	56	50	56	50	57	51	N/A	N/A	N/A	N/A
R00282	COM	-	-	46	39	46	40	46	39	47	40	N/A	N/A	N/A	N/A
R00282	COM	-	-	45	39	46	39	45	39	46	40	N/A	N/A	N/A	N/A
R00282	COM	-	-	46	39	46	40	46	39	47	40	N/A	N/A	N/A	N/A
R00283	COM	-	-	43	37	44	37	43	37	44	38	N/A	N/A	N/A	N/A
R00283	COM	-	-	49	43	49	43	49	43	50	44	N/A	N/A	N/A	N/A
R00283	COM	-	-	55	49	56	50	56	49	56	50	N/A	N/A	N/A	N/A
R00283	COM	-	-	52	46	52	46	52	46	53	47	N/A	N/A	N/A	N/A
R00284	COM	-	-	49	43	49	43	49	43	50	44	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00284	COM	-	-	40	33	40	34	40	33	41	34	N/A	N/A	N/A	N/A
R00284	COM	-	-	46	40	47	40	46	40	47	41	N/A	N/A	N/A	N/A
R00284	COM	-	-	46	40	47	40	47	40	47	41	N/A	N/A	N/A	N/A
R00285	COM	-	-	42	36	42	36	42	36	43	37	N/A	N/A	N/A	N/A
R00285	COM	-	-	49	43	50	43	49	43	50	44	N/A	N/A	N/A	N/A
R00285	COM	-	-	47	41	48	41	47	41	48	42	N/A	N/A	N/A	N/A
R00286	COM	-	-	45	38	45	39	45	38	46	39	N/A	N/A	N/A	N/A
R00286	COM	-	-	39	33	39	33	39	33	40	34	N/A	N/A	N/A	N/A
R00286	COM	-	-	46	40	47	40	46	40	47	41	N/A	N/A	N/A	N/A
R00286	COM	-	-	45	38	45	39	45	38	46	39	N/A	N/A	N/A	N/A
R00287	COM	-	-	53	47	53	47	53	47	54	48	N/A	N/A	N/A	N/A
R00287	COM	-	-	41	35	41	35	41	35	42	36	N/A	N/A	N/A	N/A
R00287	COM	-	-	46	40	47	40	46	40	47	41	N/A	N/A	N/A	N/A
R00287	COM	-	-	50	43	50	44	50	44	51	44	N/A	N/A	N/A	N/A
R00287	COM	-	-	52	45	52	46	52	45	53	46	N/A	N/A	N/A	N/A
R00288	COM	-	-	39	33	40	33	39	33	40	34	N/A	N/A	N/A	N/A
R00288	COM	-	-	43	37	44	37	44	37	44	38	N/A	N/A	N/A	N/A
R00288	COM	-	-	46	39	46	40	46	39	47	40	N/A	N/A	N/A	N/A
R00288	COM	-	-	45	38	45	39	45	38	46	39	N/A	N/A	N/A	N/A
R00288	COM	-	-	46	39	46	40	46	39	47	40	N/A	N/A	N/A	N/A
R00288	COM	-	-	45	39	46	39	45	39	46	40	N/A	N/A	N/A	N/A
R00288	COM	-	-	45	39	46	39	45	39	46	40	N/A	N/A	N/A	N/A
R00289	COM	-	-	44	37	44	38	44	37	45	38	N/A	N/A	N/A	N/A
R00289	COM	-	-	54	48	54	48	54	48	55	49	N/A	N/A	N/A	N/A
R00289	COM	-	-	64	58	65	59	65	58	65	59	N/A	N/A	N/A	N/A
R00289	COM	-	-	52	46	53	46	52	46	53	47	N/A	N/A	N/A	N/A
R00290	COM	-	-	41	35	42	35	41	35	42	36	N/A	N/A	N/A	N/A
R00290	COM	-	-	43	37	44	37	43	37	44	38	N/A	N/A	N/A	N/A
R00290	COM	-	-	46	39	46	40	46	40	47	40	N/A	N/A	N/A	N/A
R00291	COM	-	-	41	35	42	35	42	35	42	36	N/A	N/A	N/A	N/A
R00291	COM	-	-	44	38	45	38	44	38	45	39	N/A	N/A	N/A	N/A
R00291	COM	-	-	46	39	46	40	46	39	47	40	N/A	N/A	N/A	N/A
R00292	COM	-	-	45	39	46	39	45	39	46	40	N/A	N/A	N/A	N/A
R00292	COM	-	-	53	46	53	47	53	46	54	47	N/A	N/A	N/A	N/A
R00292	COM	-	-	63	56	63	57	63	56	64	57	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00292	COM	-	-	55	49	56	49	55	49	56	50	N/A	N/A	N/A	N/A
R00292	COM	-	-	53	47	53	47	53	47	54	48	N/A	N/A	N/A	N/A
R00292	COM	-	-	51	45	52	45	51	45	52	46	N/A	N/A	N/A	N/A
R00293	COM	-	-	42	35	42	35	42	35	43	36	N/A	N/A	N/A	N/A
R00293	COM	-	-	45	38	45	39	45	38	45	39	N/A	N/A	N/A	N/A
R00293	COM	-	-	50	43	50	44	50	44	51	44	N/A	N/A	N/A	N/A
R00293	COM	-	-	48	42	49	42	48	42	49	43	N/A	N/A	N/A	N/A
R00294	COM	-	-	46	39	46	40	46	40	47	40	N/A	N/A	N/A	N/A
R00295	COM	-	-	45	39	46	39	45	39	46	40	N/A	N/A	N/A	N/A
R00295	COM	-	-	47	40	47	41	47	40	48	41	N/A	N/A	N/A	N/A
R00295	COM	-	-	50	44	51	44	50	44	51	45	N/A	N/A	N/A	N/A
R00295	COM	-	-	52	46	53	46	52	46	53	47	N/A	N/A	N/A	N/A
R00295	COM	-	-	54	47	54	48	54	47	54	48	N/A	N/A	N/A	N/A
R00295	COM	-	-	43	37	44	37	43	37	44	38	N/A	N/A	N/A	N/A
R00296	COM	-	-	61	55	62	55	61	55	62	56	N/A	N/A	N/A	N/A
R00296	COM	-	-	51	44	51	45	51	44	52	45	N/A	N/A	N/A	N/A
R00296	COM	-	-	44	38	45	38	45	38	45	39	N/A	N/A	N/A	N/A
R00296	COM	-	-	48	42	49	42	48	42	49	43	N/A	N/A	N/A	N/A
R00296	COM	-	-	51	44	51	45	51	44	52	45	N/A	N/A	N/A	N/A
R00296	COM	-	-	52	46	53	46	52	46	53	47	N/A	N/A	N/A	N/A
R00297	COM	-	-	46	40	46	40	46	40	47	41	N/A	N/A	N/A	N/A
R00297	COM	-	-	51	45	52	46	52	45	52	46	N/A	N/A	N/A	N/A
R00297	COM	-	-	54	47	54	48	54	47	55	48	N/A	N/A	N/A	N/A
R00297	COM	-	-	59	52	59	53	59	52	60	53	N/A	N/A	N/A	N/A
R00298	COM	-	-	48	41	48	42	48	41	49	42	N/A	N/A	N/A	N/A
R00298	COM	-	-	58	51	58	52	58	52	59	52	N/A	N/A	N/A	N/A
R00298	COM	-	-	64	57	64	58	64	57	65	58	N/A	N/A	N/A	N/A
R00298	COM	-	-	62	56	62	56	62	55	63	56	N/A	N/A	N/A	N/A
R00298	COM	-	-	50	43	50	44	50	43	51	44	N/A	N/A	N/A	N/A
R00299	COM	-	-	42	35	42	35	42	35	42	36	N/A	N/A	N/A	N/A
R00299	COM	-	-	47	40	47	41	47	40	48	41	N/A	N/A	N/A	N/A
R00299	COM	-	-	54	48	55	48	54	48	55	49	N/A	N/A	N/A	N/A
R00299	COM	-	-	52	46	53	46	52	46	53	47	N/A	N/A	N/A	N/A
R00300	COM	-	-	63	57	64	57	63	57	64	58	N/A	N/A	N/A	N/A
R00300	COM	-	-	58	52	59	52	58	52	59	53	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00300	COM	-	-	52	45	52	46	52	45	53	46	N/A	N/A	N/A	N/A
R00300	COM	-	-	48	42	49	42	48	42	49	43	N/A	N/A	N/A	N/A
R00300	COM	-	-	60	54	61	54	60	54	61	55	N/A	N/A	N/A	N/A
R00301	COM	-	-	40	33	40	33	40	33	41	34	N/A	N/A	N/A	N/A
R00301	COM	-	-	45	38	45	39	45	39	46	39	N/A	N/A	N/A	N/A
R00301	COM	-	-	49	43	50	43	49	43	50	44	N/A	N/A	N/A	N/A
R00301	COM	-	-	46	40	47	40	46	40	47	41	N/A	N/A	N/A	N/A
R00301	COM	-	-	41	35	41	35	41	35	42	36	N/A	N/A	N/A	N/A
R00302	COM	-	-	50	44	51	44	50	44	51	45	N/A	N/A	N/A	N/A
R00302	COM	-	-	49	42	49	43	49	42	50	43	N/A	N/A	N/A	N/A
R00302	COM	-	-	46	40	46	40	46	40	47	41	N/A	N/A	N/A	N/A
R00302	COM	-	-	48	41	48	42	48	41	49	42	N/A	N/A	N/A	N/A
R00302	COM	-	-	48	41	48	41	48	41	49	42	N/A	N/A	N/A	N/A
R00302	COM	-	-	50	44	51	44	50	44	51	45	N/A	N/A	N/A	N/A
R00302	COM	-	-	48	42	48	42	48	42	49	43	N/A	N/A	N/A	N/A
R00302	COM	-	-	50	43	50	44	50	43	51	44	N/A	N/A	N/A	N/A
R00303	COM	-	-	63	57	63	57	63	57	64	58	N/A	N/A	N/A	N/A
R00303	COM	-	-	47	41	47	41	47	41	48	42	N/A	N/A	N/A	N/A
R00303	COM	-	-	64	57	64	58	64	57	65	58	N/A	N/A	N/A	N/A
R00303	COM	-	-	63	57	63	57	63	57	64	58	N/A	N/A	N/A	N/A
R00303	COM	-	-	63	57	64	57	63	57	64	58	N/A	N/A	N/A	N/A
R00303	COM	-	-	62	56	63	56	62	56	63	57	N/A	N/A	N/A	N/A
R00304	COM	-	-	50	43	50	44	50	43	51	44	N/A	N/A	N/A	N/A
R00304	COM	-	-	46	40	47	40	47	40	47	41	N/A	N/A	N/A	N/A
R00304	COM	-	-	52	46	53	46	52	46	53	47	N/A	N/A	N/A	N/A
R00304	COM	-	-	48	41	48	42	48	41	49	42	N/A	N/A	N/A	N/A
R00305	COM	-	-	51	44	51	45	51	44	52	45	N/A	N/A	N/A	N/A
R00305	COM	-	-	49	42	49	43	49	42	50	43	N/A	N/A	N/A	N/A
R00305	COM	-	-	43	37	44	37	44	37	44	38	N/A	N/A	N/A	N/A
R00305	COM	-	-	48	41	48	42	48	42	49	42	N/A	N/A	N/A	N/A
R00306	COM	-	-	66	59	66	60	66	59	67	60	N/A	N/A	N/A	N/A
R00306	COM	-	-	48	42	48	42	48	42	49	43	N/A	N/A	N/A	N/A
R00306	COM	-	-	54	48	55	48	54	48	55	49	N/A	N/A	N/A	N/A
R00307	COM	-	-	53	47	54	47	53	47	54	48	N/A	N/A	N/A	N/A
R00307	COM	-	-	49	43	50	43	49	43	50	44	N/A	N/A	N/A	N/A

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		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00307	COM	-	-	46	40	47	40	46	40	47	41	N/A	N/A	N/A	N/A
R00307	COM	-	-	53	47	53	47	53	47	54	48	N/A	N/A	N/A	N/A
R00308	COM	-	-	44	38	44	38	44	38	45	39	N/A	N/A	N/A	N/A
R00308	COM	-	-	39	33	39	33	39	33	40	33	N/A	N/A	N/A	N/A
R00308	COM	-	-	44	38	44	38	44	38	45	38	N/A	N/A	N/A	N/A
R00308	COM	-	-	44	38	45	38	44	38	45	39	N/A	N/A	N/A	N/A
R00308	COM	-	-	44	38	44	38	44	38	45	38	N/A	N/A	N/A	N/A
R00309	COM	-	-	40	33	40	33	40	33	41	34	N/A	N/A	N/A	N/A
R00309	COM	-	-	48	41	48	42	48	41	49	42	N/A	N/A	N/A	N/A
R00309	COM	-	-	50	43	50	44	50	43	51	44	N/A	N/A	N/A	N/A
R00309	COM	-	-	45	38	45	38	45	38	45	39	N/A	N/A	N/A	N/A
R00310	COM	-	-	62	55	62	56	62	55	63	56	N/A	N/A	N/A	N/A
R00310	COM	-	-	56	49	56	50	56	50	57	50	N/A	N/A	N/A	N/A
R00310	COM	-	-	51	44	51	45	51	45	52	45	N/A	N/A	N/A	N/A
R00310	COM	-	-	58	52	59	52	58	52	59	53	N/A	N/A	N/A	N/A
R00311	COM	-	-	52	45	52	46	52	45	53	46	N/A	N/A	N/A	N/A
R00311	COM	-	-	47	40	47	41	47	40	48	41	N/A	N/A	N/A	N/A
R00311	COM	-	-	44	37	44	38	44	37	45	38	N/A	N/A	N/A	N/A
R00311	COM	-	-	48	42	48	42	48	42	49	43	N/A	N/A	N/A	N/A
R00312	COM	-	-	48	42	49	42	48	42	49	43	N/A	N/A	N/A	N/A
R00312	COM	-	-	61	55	61	55	61	55	62	55	N/A	N/A	N/A	N/A
R00312	COM	-	-	67	60	67	61	67	60	68	61	N/A	N/A	N/A	N/A
R00312	COM	-	-	57	50	57	51	57	50	58	51	N/A	N/A	N/A	N/A
R00313	COM	-	-	65	58	65	58	65	58	66	59	N/A	N/A	N/A	N/A
R00313	COM	-	-	62	56	63	56	63	56	63	57	N/A	N/A	N/A	N/A
R00313	COM	-	-	52	45	52	46	52	45	53	46	N/A	N/A	N/A	N/A
R00313	COM	-	-	62	55	62	55	62	55	63	56	N/A	N/A	N/A	N/A
R00314	COM	-	-	50	44	51	44	51	44	51	45	N/A	N/A	N/A	N/A
R00314	COM	-	-	58	52	58	52	58	52	59	53	N/A	N/A	N/A	N/A
R00314	COM	-	-	50	44	51	44	50	44	51	45	N/A	N/A	N/A	N/A
R00314	COM	-	-	55	49	56	49	55	49	56	50	N/A	N/A	N/A	N/A
R00314	COM	-	-	56	50	57	50	56	50	57	51	N/A	N/A	N/A	N/A
R00314	COM	-	-	55	48	55	48	55	48	56	49	N/A	N/A	N/A	N/A
R00315	COM	-	-	48	42	49	42	49	42	49	43	N/A	N/A	N/A	N/A
R00315	COM	-	-	44	38	44	38	44	38	45	39	N/A	N/A	N/A	N/A

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		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00315	COM	-	-	49	42	49	43	49	42	50	43	N/A	N/A	N/A	N/A
R00316	COM	-	-	54	47	54	47	54	47	54	48	N/A	N/A	N/A	N/A
R00316	COM	-	-	51	45	52	45	51	45	52	46	N/A	N/A	N/A	N/A
R00316	COM	-	-	50	43	50	44	50	43	51	44	N/A	N/A	N/A	N/A
R00317	COM	-	-	51	44	51	45	51	44	52	45	N/A	N/A	N/A	N/A
R00317	COM	-	-	49	42	49	42	49	42	50	43	N/A	N/A	N/A	N/A
R00318	COM	-	-	44	37	44	38	44	38	45	38	N/A	N/A	N/A	N/A
R00318	COM	-	-	40	34	40	34	40	34	41	35	N/A	N/A	N/A	N/A
R00318	COM	-	-	35	28	35	29	35	28	36	29	N/A	N/A	N/A	N/A
R00318	COM	-	-	44	37	44	37	44	37	44	38	N/A	N/A	N/A	N/A
R00319	COM	-	-	52	46	53	46	52	46	53	47	N/A	N/A	N/A	N/A
R00319	COM	-	-	54	47	54	48	54	47	55	48	N/A	N/A	N/A	N/A
R00319	COM	-	-	54	48	55	48	54	48	55	49	N/A	N/A	N/A	N/A
R00319	COM	-	-	48	41	48	42	48	41	49	42	N/A	N/A	N/A	N/A
R00319	COM	-	-	43	37	44	37	43	37	44	38	N/A	N/A	N/A	N/A
R00320	COM	-	-	42	35	42	36	42	36	43	36	N/A	N/A	N/A	N/A
R00320	COM	-	-	51	45	52	45	51	45	52	46	N/A	N/A	N/A	N/A
R00320	COM	-	-	50	44	51	44	50	44	51	45	N/A	N/A	N/A	N/A
R00320	COM	-	-	49	43	50	43	49	43	50	44	N/A	N/A	N/A	N/A
R00320	COM	-	-	52	45	52	45	52	45	53	46	N/A	N/A	N/A	N/A
R00320	COM	-	-	47	40	47	41	47	40	48	41	N/A	N/A	N/A	N/A
R00321	COM	-	-	47	41	48	41	47	41	48	42	N/A	N/A	N/A	N/A
R00321	COM	-	-	48	42	49	42	48	42	49	43	N/A	N/A	N/A	N/A
R00321	COM	-	-	49	43	50	43	49	43	50	44	N/A	N/A	N/A	N/A
R00322	COM	-	-	64	57	64	58	64	57	65	58	N/A	N/A	N/A	N/A
R00322	COM	-	-	55	48	55	48	55	48	56	49	N/A	N/A	N/A	N/A
R00322	COM	-	-	47	41	48	41	47	41	48	42	N/A	N/A	N/A	N/A
R00322	COM	-	-	57	50	57	51	57	50	58	51	N/A	N/A	N/A	N/A
R00323	COM	-	-	52	46	53	46	52	46	53	47	N/A	N/A	N/A	N/A
R00323	COM	-	-	49	43	50	43	49	43	50	44	N/A	N/A	N/A	N/A
R00323	COM	-	-	45	38	45	39	45	38	46	39	N/A	N/A	N/A	N/A
R00323	COM	-	-	47	40	47	40	47	40	48	41	N/A	N/A	N/A	N/A
R00323	COM	-	-	45	39	45	39	45	39	46	40	N/A	N/A	N/A	N/A
R00323	COM	-	-	47	40	47	41	47	40	48	41	N/A	N/A	N/A	N/A
R00323	COM	-	-	45	39	46	39	45	39	46	40	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00323	COM	-	-	51	45	51	45	51	45	52	46	N/A	N/A	N/A	N/A
R00324	COM	-	-	54	47	54	47	54	47	55	48	N/A	N/A	N/A	N/A
R00324	COM	-	-	61	55	62	55	62	55	63	56	N/A	N/A	N/A	N/A
R00324	COM	-	-	67	60	67	61	67	60	68	61	N/A	N/A	N/A	N/A
R00324	COM	-	-	55	49	56	49	55	49	56	50	N/A	N/A	N/A	N/A
R00325	COM	-	-	44	38	45	38	44	38	45	39	N/A	N/A	N/A	N/A
R00325	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00325	COM	-	-	36	30	37	30	36	30	37	31	N/A	N/A	N/A	N/A
R00325	COM	-	-	44	38	45	38	44	38	45	39	N/A	N/A	N/A	N/A
R00326	COM	-	-	47	40	47	41	47	40	48	41	N/A	N/A	N/A	N/A
R00326	COM	-	-	58	51	58	52	58	51	59	52	N/A	N/A	N/A	N/A
R00326	COM	-	-	68	61	68	62	68	62	69	62	N/A	N/A	N/A	N/A
R00326	COM	-	-	57	50	57	51	57	50	58	51	N/A	N/A	N/A	N/A
R00327	COM	-	-	63	57	64	57	63	57	64	58	N/A	N/A	N/A	N/A
R00327	COM	-	-	54	48	55	48	54	48	55	49	N/A	N/A	N/A	N/A
R00327	COM	-	-	46	40	47	40	46	40	47	41	N/A	N/A	N/A	N/A
R00327	COM	-	-	56	49	56	50	56	49	57	50	N/A	N/A	N/A	N/A
R00328	COM	-	-	43	36	43	37	43	36	44	37	N/A	N/A	N/A	N/A
R00328	COM	-	-	48	41	48	42	48	41	49	42	N/A	N/A	N/A	N/A
R00329	COM	-	-	49	43	49	43	49	43	50	44	N/A	N/A	N/A	N/A
R00329	COM	-	-	49	42	49	42	49	42	49	43	N/A	N/A	N/A	N/A
R00329	COM	-	-	45	39	46	39	45	39	46	40	N/A	N/A	N/A	N/A
R00329	COM	-	-	52	46	53	46	52	46	53	47	N/A	N/A	N/A	N/A
R00330	COM	-	-	52	45	52	45	52	45	52	46	N/A	N/A	N/A	N/A
R00330	COM	-	-	54	47	54	48	54	47	55	48	N/A	N/A	N/A	N/A
R00330	COM	-	-	49	43	49	43	49	43	50	44	N/A	N/A	N/A	N/A
R00331	COM	-	-	43	36	43	37	43	36	44	37	N/A	N/A	N/A	N/A
R00331	COM	-	-	49	43	50	43	49	43	50	44	N/A	N/A	N/A	N/A
R00331	COM	-	-	53	46	53	47	53	46	54	47	N/A	N/A	N/A	N/A
R00331	COM	-	-	50	43	50	43	50	43	50	44	N/A	N/A	N/A	N/A
R00332	COM	-	-	49	42	49	43	49	42	50	43	N/A	N/A	N/A	N/A
R00332	COM	-	-	61	55	61	55	61	55	62	55	N/A	N/A	N/A	N/A
R00332	COM	-	-	67	61	67	61	67	61	68	61	N/A	N/A	N/A	N/A
R00332	COM	-	-	54	47	54	47	54	47	55	48	N/A	N/A	N/A	N/A
R00333	COM	-	-	63	57	63	57	63	57	64	57	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00333	COM	-	-	58	51	58	52	58	51	59	52	N/A	N/A	N/A	N/A
R00333	COM	-	-	49	42	49	42	49	42	50	43	N/A	N/A	N/A	N/A
R00333	COM	-	-	56	50	57	50	56	50	57	51	N/A	N/A	N/A	N/A
R00334	COM	-	-	40	34	41	34	40	34	41	35	N/A	N/A	N/A	N/A
R00334	COM	-	-	51	44	51	45	51	44	52	45	N/A	N/A	N/A	N/A
R00334	COM	-	-	53	47	54	47	53	47	54	48	N/A	N/A	N/A	N/A
R00334	COM	-	-	50	43	50	43	50	43	50	44	N/A	N/A	N/A	N/A
R00335	COM	-	-	48	41	48	42	48	41	49	42	N/A	N/A	N/A	N/A
R00335	COM	-	-	54	48	55	48	54	48	55	49	N/A	N/A	N/A	N/A
R00335	COM	-	-	68	61	68	61	68	61	69	62	N/A	N/A	N/A	N/A
R00335	COM	-	-	68	61	68	61	68	61	68	62	N/A	N/A	N/A	N/A
R00335	COM	-	-	62	55	62	55	62	55	63	56	N/A	N/A	N/A	N/A
R00336	COM	-	-	50	43	50	43	50	43	51	44	N/A	N/A	N/A	N/A
R00336	COM	-	-	52	45	52	46	52	45	53	46	N/A	N/A	N/A	N/A
R00336	COM	-	-	52	45	52	46	52	46	53	46	N/A	N/A	N/A	N/A
R00336	COM	-	-	49	42	49	43	49	42	50	43	N/A	N/A	N/A	N/A
R00337	COM	-	-	63	57	64	57	63	57	64	58	N/A	N/A	N/A	N/A
R00337	COM	-	-	56	49	56	50	56	49	57	50	N/A	N/A	N/A	N/A
R00337	COM	-	-	46	39	46	40	46	39	47	40	N/A	N/A	N/A	N/A
R00337	COM	-	-	53	47	54	47	53	47	54	48	N/A	N/A	N/A	N/A
R00338	COM	-	-	45	39	46	39	46	39	46	40	N/A	N/A	N/A	N/A
R00338	COM	-	-	51	44	51	45	51	44	52	45	N/A	N/A	N/A	N/A
R00338	COM	-	-	57	51	57	51	57	51	58	51	N/A	N/A	N/A	N/A
R00338	COM	-	-	55	49	55	49	55	49	56	49	N/A	N/A	N/A	N/A
R00339	COM	-	-	46	39	46	40	46	39	47	40	N/A	N/A	N/A	N/A
R00339	COM	-	-	49	42	49	43	49	42	50	43	N/A	N/A	N/A	N/A
R00339	COM	-	-	49	43	49	43	49	43	50	43	N/A	N/A	N/A	N/A
R00339	COM	-	-	52	46	53	46	53	46	53	47	N/A	N/A	N/A	N/A
R00340	COM	-	-	63	57	64	57	63	57	64	58	N/A	N/A	N/A	N/A
R00340	COM	-	-	57	51	58	51	57	51	58	52	N/A	N/A	N/A	N/A
R00340	COM	-	-	55	49	56	49	56	49	57	50	N/A	N/A	N/A	N/A
R00340	COM	-	-	55	48	55	49	55	48	56	49	N/A	N/A	N/A	N/A
R00340	COM	-	-	54	48	55	48	54	48	55	49	N/A	N/A	N/A	N/A
R00340	COM	-	-	54	48	55	48	54	48	55	49	N/A	N/A	N/A	N/A
R00340	COM	-	-	54	48	55	48	54	48	55	49	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00340	COM	-	-	53	46	53	47	53	47	54	48	N/A	N/A	N/A	N/A
R00340	COM	-	-	46	39	46	39	46	39	47	40	N/A	N/A	N/A	N/A
R00340	COM	-	-	49	43	50	43	49	43	50	44	N/A	N/A	N/A	N/A
R00340	COM	-	-	47	41	48	41	47	41	48	42	N/A	N/A	N/A	N/A
R00340	COM	-	-	47	41	48	41	47	41	48	42	N/A	N/A	N/A	N/A
R00340	COM	-	-	50	44	51	44	51	44	52	45	N/A	N/A	N/A	N/A
R00340	COM	-	-	49	42	49	43	49	42	50	43	N/A	N/A	N/A	N/A
R00340	COM	-	-	55	48	56	49	55	49	56	50	N/A	N/A	N/A	N/A
R00341	COM	-	-	41	35	42	35	42	35	42	36	N/A	N/A	N/A	N/A
R00341	COM	-	-	49	43	50	43	49	43	50	44	N/A	N/A	N/A	N/A
R00341	COM	-	-	54	47	54	47	54	47	54	48	N/A	N/A	N/A	N/A
R00341	COM	-	-	52	45	52	45	52	45	52	46	N/A	N/A	N/A	N/A
R00342	COM	-	-	58	52	58	52	58	52	59	52	N/A	N/A	N/A	N/A
R00342	COM	-	-	60	54	60	54	60	54	61	54	N/A	N/A	N/A	N/A
R00342	COM	-	-	58	51	58	52	58	51	59	52	N/A	N/A	N/A	N/A
R00342	COM	-	-	56	49	56	50	56	49	57	50	N/A	N/A	N/A	N/A
R00343	COM	-	-	54	47	54	47	54	47	55	48	N/A	N/A	N/A	N/A
R00343	COM	-	-	66	60	66	60	67	60	67	60	N/A	N/A	N/A	N/A
R00343	COM	-	-	70	63	70	64	70	64	71	64	N/A	N/A	N/A	N/A
R00343	COM	-	-	66	59	66	59	66	59	66	60	N/A	N/A	N/A	N/A
R00344	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00344	COM	-	-	36	30	37	30	36	30	37	31	N/A	N/A	N/A	N/A
R00344	COM	-	-	36	30	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00344	COM	-	-	45	38	45	39	45	39	45	39	N/A	N/A	N/A	N/A
R00344	COM	-	-	48	41	48	41	48	41	48	41	N/A	N/A	N/A	N/A
R00344	COM	-	-	47	41	47	41	48	41	48	41	N/A	N/A	N/A	N/A
R00344	COM	-	-	41	35	40	33	41	35	41	34	N/A	N/A	N/A	N/A
R00345	COM	-	-	64	57	64	58	64	57	65	58	N/A	N/A	N/A	N/A
R00345	COM	-	-	55	48	55	49	55	48	56	49	N/A	N/A	N/A	N/A
R00345	COM	-	-	45	39	46	39	45	39	46	40	N/A	N/A	N/A	N/A
R00346	COM	-	-	64	57	64	58	64	57	65	59	N/A	N/A	N/A	N/A
R00346	COM	-	-	58	51	59	52	58	51	59	53	N/A	N/A	N/A	N/A
R00347	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00347	COM	-	-	38	31	38	31	38	31	38	32	N/A	N/A	N/A	N/A
R00347	COM	-	-	39	33	39	33	39	33	40	33	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00347	COM	-	-	43	36	43	36	43	36	43	37	N/A	N/A	N/A	N/A
R00347	COM	-	-	36	30	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00347	COM	-	-	39	32	39	32	39	32	39	33	N/A	N/A	N/A	N/A
R00347	COM	-	-	42	35	42	35	42	36	42	36	N/A	N/A	N/A	N/A
R00347	COM	-	-	39	33	38	32	39	33	39	32	N/A	N/A	N/A	N/A
R00348	COM	-	-	47	41	48	41	47	41	48	42	N/A	N/A	N/A	N/A
R00348	COM	-	-	55	48	55	49	55	48	56	49	N/A	N/A	N/A	N/A
R00349	COM	-	-	38	32	39	32	38	32	39	33	N/A	N/A	N/A	N/A
R00349	COM	-	-	42	35	42	35	42	35	42	36	N/A	N/A	N/A	N/A
R00349	COM	-	-	46	40	46	39	46	40	46	40	N/A	N/A	N/A	N/A
R00349	COM	-	-	46	40	46	39	46	40	46	40	N/A	N/A	N/A	N/A
R00350	COM	-	-	46	40	47	40	47	40	47	41	N/A	N/A	N/A	N/A
R00350	COM	-	-	55	49	55	49	55	49	56	49	N/A	N/A	N/A	N/A
R00350	COM	-	-	58	51	58	51	58	51	58	52	N/A	N/A	N/A	N/A
R00350	COM	-	-	60	53	60	54	60	54	61	54	N/A	N/A	N/A	N/A
R00350	COM	-	-	65	58	65	58	65	58	66	59	N/A	N/A	N/A	N/A
R00350	COM	-	-	65	58	65	59	65	59	66	59	N/A	N/A	N/A	N/A
R00350	COM	-	-	68	61	68	61	68	61	69	62	N/A	N/A	N/A	N/A
R00350	COM	-	-	52	46	52	46	52	46	53	46	N/A	N/A	N/A	N/A
R00350	COM	-	-	47	41	47	41	47	41	48	41	N/A	N/A	N/A	N/A
R00350	COM	-	-	48	41	48	41	48	41	48	42	N/A	N/A	N/A	N/A
R00351	COM	-	-	37	30	37	31	37	31	38	31	N/A	N/A	N/A	N/A
R00351	COM	-	-	39	33	40	33	39	33	40	34	N/A	N/A	N/A	N/A
R00351	COM	-	-	41	34	41	34	41	34	41	35	N/A	N/A	N/A	N/A
R00351	COM	-	-	45	39	45	39	46	39	46	39	N/A	N/A	N/A	N/A
R00352	COM	-	-	52	46	53	46	52	46	53	47	N/A	N/A	N/A	N/A
R00352	COM	-	-	50	43	50	44	50	43	51	44	N/A	N/A	N/A	N/A
R00352	COM	-	-	45	38	45	39	45	38	46	39	N/A	N/A	N/A	N/A
R00352	COM	-	-	50	44	51	44	50	44	51	45	N/A	N/A	N/A	N/A
R00353	COM	-	-	44	37	44	37	44	37	44	38	N/A	N/A	N/A	N/A
R00353	COM	-	-	47	41	48	41	47	41	48	42	N/A	N/A	N/A	N/A
R00353	COM	-	-	51	45	51	45	51	45	52	45	N/A	N/A	N/A	N/A
R00353	COM	-	-	50	44	50	44	50	44	51	44	N/A	N/A	N/A	N/A
R00354	COM	-	-	66	59	66	59	66	59	66	60	N/A	N/A	N/A	N/A
R00354	COM	-	-	60	54	61	54	60	54	61	55	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00354	COM	-	-	62	56	62	56	62	56	63	56	N/A	N/A	N/A	N/A
R00355	COM	-	-	58	51	58	52	58	51	59	52	N/A	N/A	N/A	N/A
R00355	COM	-	-	54	48	55	48	54	48	55	49	N/A	N/A	N/A	N/A
R00356	COM	-	-	56	50	57	50	56	50	57	51	N/A	N/A	N/A	N/A
R00356	COM	-	-	48	41	48	41	48	41	49	42	N/A	N/A	N/A	N/A
R00356	COM	-	-	53	46	53	47	53	46	54	47	N/A	N/A	N/A	N/A
R00357	COM	-	-	48	42	49	42	49	42	49	42	N/A	N/A	N/A	N/A
R00357	COM	-	-	50	43	50	44	50	43	51	44	N/A	N/A	N/A	N/A
R00357	COM	-	-	67	60	67	61	67	60	68	61	N/A	N/A	N/A	N/A
R00357	COM	-	-	64	57	64	57	64	57	64	58	N/A	N/A	N/A	N/A
R00357	COM	-	-	61	54	61	54	61	54	61	55	N/A	N/A	N/A	N/A
R00357	COM	-	-	57	50	57	50	57	50	57	50	N/A	N/A	N/A	N/A
R00357	COM	-	-	52	45	52	45	52	45	52	45	N/A	N/A	N/A	N/A
R00357	COM	-	-	53	46	53	46	53	46	53	46	N/A	N/A	N/A	N/A
R00358	COM	-	-	45	38	45	39	45	38	46	39	N/A	N/A	N/A	N/A
R00358	COM	-	-	49	42	49	42	49	42	50	43	N/A	N/A	N/A	N/A
R00358	COM	-	-	52	45	52	45	52	45	52	46	N/A	N/A	N/A	N/A
R00358	COM	-	-	54	47	54	48	54	48	54	48	N/A	N/A	N/A	N/A
R00358	COM	-	-	43	36	43	36	43	36	43	36	N/A	N/A	N/A	N/A
R00358	COM	-	-	42	35	42	36	42	35	43	36	N/A	N/A	N/A	N/A
R00359	COM	-	-	34	28	34	28	34	28	35	28	N/A	N/A	N/A	N/A
R00359	COM	-	-	37	31	36	30	37	31	37	30	N/A	N/A	N/A	N/A
R00359	COM	-	-	39	33	39	32	39	33	39	33	N/A	N/A	N/A	N/A
R00360	COM	-	-	44	37	44	38	44	38	45	38	N/A	N/A	N/A	N/A
R00360	COM	-	-	48	41	48	42	48	41	49	42	N/A	N/A	N/A	N/A
R00360	COM	-	-	55	48	55	48	55	48	55	48	N/A	N/A	N/A	N/A
R00360	COM	-	-	56	49	56	49	56	49	56	49	N/A	N/A	N/A	N/A
R00361	COM	-	-	40	33	40	34	40	34	41	34	N/A	N/A	N/A	N/A
R00361	COM	-	-	42	36	42	36	42	36	43	36	N/A	N/A	N/A	N/A
R00361	COM	-	-	37	31	37	31	37	31	38	31	N/A	N/A	N/A	N/A
R00361	COM	-	-	52	45	51	45	52	45	52	45	N/A	N/A	N/A	N/A
R00361	COM	-	-	51	44	51	44	51	44	51	44	N/A	N/A	N/A	N/A
R00361	COM	-	-	51	44	51	44	51	44	51	44	N/A	N/A	N/A	N/A
R00361	COM	-	-	49	43	49	43	50	43	50	43	N/A	N/A	N/A	N/A
R00361	COM	-	-	43	37	43	36	43	37	43	37	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00361	COM	-	-	39	32	39	32	39	32	40	33	N/A	N/A	N/A	N/A
R00361	COM	-	-	40	34	41	34	41	34	41	35	N/A	N/A	N/A	N/A
R00361	COM	-	-	42	36	42	36	42	36	43	36	N/A	N/A	N/A	N/A
R00362	COM	-	-	38	32	38	31	38	32	39	32	N/A	N/A	N/A	N/A
R00362	COM	-	-	36	30	36	29	36	30	37	30	N/A	N/A	N/A	N/A
R00362	COM	-	-	40	33	39	33	40	34	40	33	N/A	N/A	N/A	N/A
R00362	COM	-	-	41	34	41	34	41	35	41	35	N/A	N/A	N/A	N/A
R00363	COM	-	-	43	36	43	36	43	36	44	37	N/A	N/A	N/A	N/A
R00363	COM	-	-	45	38	45	38	45	38	45	39	N/A	N/A	N/A	N/A
R00363	COM	-	-	43	37	43	37	43	37	44	37	N/A	N/A	N/A	N/A
R00363	COM	-	-	55	48	55	49	55	48	55	49	N/A	N/A	N/A	N/A
R00363	COM	-	-	56	49	56	49	56	49	56	49	N/A	N/A	N/A	N/A
R00364	COM	-	-	63	57	63	57	63	57	64	57	N/A	N/A	N/A	N/A
R00364	COM	-	-	52	46	53	46	52	46	53	47	N/A	N/A	N/A	N/A
R00364	COM	-	-	53	46	53	46	53	46	53	47	N/A	N/A	N/A	N/A
R00364	COM	-	-	65	59	66	59	66	59	66	60	N/A	N/A	N/A	N/A
R00365	COM	-	-	54	47	54	47	54	47	54	47	N/A	N/A	N/A	N/A
R00365	COM	-	-	49	43	49	43	49	43	50	43	N/A	N/A	N/A	N/A
R00365	COM	-	-	58	51	58	52	58	51	58	52	N/A	N/A	N/A	N/A
R00365	COM	-	-	61	54	61	54	61	54	61	54	N/A	N/A	N/A	N/A
R00365	COM	-	-	63	55	63	56	63	56	63	56	N/A	N/A	N/A	N/A
R00366	COM	-	-	57	50	57	51	57	50	58	51	N/A	N/A	N/A	N/A
R00366	COM	-	-	65	58	65	59	65	58	66	59	N/A	N/A	N/A	N/A
R00366	COM	-	-	65	59	66	59	65	59	66	60	N/A	N/A	N/A	N/A
R00366	COM	-	-	66	59	66	60	66	59	67	60	N/A	N/A	N/A	N/A
R00366	COM	-	-	64	58	65	58	64	58	65	58	N/A	N/A	N/A	N/A
R00366	COM	-	-	60	53	60	53	60	53	60	53	N/A	N/A	N/A	N/A
R00366	COM	-	-	54	47	54	47	54	47	54	47	N/A	N/A	N/A	N/A
R00366	COM	-	-	55	48	55	48	55	48	56	49	N/A	N/A	N/A	N/A
R00367	COM	-	-	36	30	37	30	37	30	37	30	N/A	N/A	N/A	N/A
R00367	COM	-	-	41	34	41	34	41	34	42	35	N/A	N/A	N/A	N/A
R00368	COM	-	-	46	40	46	40	46	40	47	40	N/A	N/A	N/A	N/A
R00368	COM	-	-	48	41	48	41	48	41	48	41	N/A	N/A	N/A	N/A
R00368	COM	-	-	48	41	48	41	48	41	48	41	N/A	N/A	N/A	N/A
R00369	COM	-	-	44	37	44	37	44	37	44	38	N/A	N/A	N/A	N/A

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		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00370	COM	-	-	53	46	53	47	53	47	54	47	N/A	N/A	N/A	N/A
R00370	COM	-	-	51	44	51	45	51	44	52	45	N/A	N/A	N/A	N/A
R00370	COM	-	-	50	43	50	44	50	43	51	44	N/A	N/A	N/A	N/A
R00370	COM	-	-	43	37	44	37	43	37	44	38	N/A	N/A	N/A	N/A
R00370	COM	-	-	41	34	41	34	41	34	42	35	N/A	N/A	N/A	N/A
R00370	COM	-	-	48	42	48	41	48	42	48	42	N/A	N/A	N/A	N/A
R00370	COM	-	-	53	46	53	46	53	46	53	46	N/A	N/A	N/A	N/A
R00370	COM	-	-	51	45	51	45	52	45	52	45	N/A	N/A	N/A	N/A
R00370	COM	-	-	52	45	52	45	52	45	52	46	N/A	N/A	N/A	N/A
R00370	COM	-	-	52	46	53	46	53	46	53	47	N/A	N/A	N/A	N/A
R00371	COM	-	-	44	38	44	38	44	38	45	38	N/A	N/A	N/A	N/A
R00371	COM	-	-	60	53	60	53	60	53	60	53	N/A	N/A	N/A	N/A
R00371	COM	-	-	55	49	55	48	55	49	55	49	N/A	N/A	N/A	N/A
R00371	COM	-	-	50	43	49	42	50	43	50	43	N/A	N/A	N/A	N/A
R00372	COM	-	-	65	58	65	58	65	58	65	59	N/A	N/A	N/A	N/A
R00372	COM	-	-	56	50	56	50	56	50	57	50	N/A	N/A	N/A	N/A
R00372	COM	-	-	45	38	45	38	45	38	45	39	N/A	N/A	N/A	N/A
R00372	COM	-	-	45	38	45	38	45	38	45	39	N/A	N/A	N/A	N/A
R00372	COM	-	-	45	38	45	38	45	38	45	39	N/A	N/A	N/A	N/A
R00372	COM	-	-	50	43	49	42	50	43	50	43	N/A	N/A	N/A	N/A
R00372	COM	-	-	53	46	53	46	53	46	53	47	N/A	N/A	N/A	N/A
R00372	COM	-	-	48	42	48	42	48	42	49	42	N/A	N/A	N/A	N/A
R00372	COM	-	-	49	42	49	42	49	42	49	43	N/A	N/A	N/A	N/A
R00372	COM	-	-	59	53	59	53	59	53	60	53	N/A	N/A	N/A	N/A
R00373	COM	-	-	39	32	39	32	39	32	39	33	N/A	N/A	N/A	N/A
R00373	COM	-	-	49	42	49	42	49	42	49	42	N/A	N/A	N/A	N/A
R00373	COM	-	-	50	43	50	43	50	43	50	44	N/A	N/A	N/A	N/A
R00373	COM	-	-	45	38	44	37	45	38	44	38	N/A	N/A	N/A	N/A
R00374	COM	-	-	48	41	48	42	48	41	49	42	N/A	N/A	N/A	N/A
R00374	COM	-	-	47	40	46	40	47	40	47	40	N/A	N/A	N/A	N/A
R00375	COM	-	-	46	40	46	40	46	40	47	40	N/A	N/A	N/A	N/A
R00375	COM	-	-	51	44	51	45	51	44	52	45	N/A	N/A	N/A	N/A
R00375	COM	-	-	42	36	42	36	42	36	43	36	N/A	N/A	N/A	N/A
R00375	COM	-	-	49	43	49	42	49	43	49	43	N/A	N/A	N/A	N/A
R00376	COM	-	-	41	35	41	35	41	35	42	35	N/A	N/A	N/A	N/A

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		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00376	COM	-	-	47	40	47	40	47	40	47	41	N/A	N/A	N/A	N/A
R00376	COM	-	-	48	42	48	41	48	42	48	42	N/A	N/A	N/A	N/A
R00377	COM	-	-	38	32	38	32	38	32	39	32	N/A	N/A	N/A	N/A
R00377	COM	-	-	48	42	48	42	48	42	49	42	N/A	N/A	N/A	N/A
R00377	COM	-	-	50	43	50	43	50	43	50	43	N/A	N/A	N/A	N/A
R00377	COM	-	-	45	38	44	37	45	38	44	38	N/A	N/A	N/A	N/A
R00378	COM	-	-	45	38	44	38	45	38	45	38	N/A	N/A	N/A	N/A
R00378	COM	-	-	49	42	48	42	49	42	49	42	N/A	N/A	N/A	N/A
R00378	COM	-	-	44	38	44	37	44	38	45	38	N/A	N/A	N/A	N/A
R00379	COM	-	-	39	33	39	33	40	33	40	33	N/A	N/A	N/A	N/A
R00379	COM	-	-	49	42	49	42	49	42	49	43	N/A	N/A	N/A	N/A
R00379	COM	-	-	47	40	47	40	47	40	47	41	N/A	N/A	N/A	N/A
R00380	COM	-	-	40	34	40	34	40	34	41	34	N/A	N/A	N/A	N/A
R00380	COM	-	-	50	43	50	43	50	43	50	43	N/A	N/A	N/A	N/A
R00380	COM	-	-	49	43	49	43	49	43	50	43	N/A	N/A	N/A	N/A
R00380	COM	-	-	44	37	43	36	44	37	44	37	N/A	N/A	N/A	N/A
R00381	COM	-	-	49	42	48	42	49	42	49	42	N/A	N/A	N/A	N/A
R00381	COM	-	-	60	53	60	53	60	53	60	54	N/A	N/A	N/A	N/A
R00381	COM	-	-	66	59	65	59	66	59	66	59	N/A	N/A	N/A	N/A
R00381	COM	-	-	59	53	58	51	59	53	59	52	N/A	N/A	N/A	N/A
R00382	COM	-	-	46	39	45	39	46	39	46	39	N/A	N/A	N/A	N/A
R00382	COM	-	-	51	45	51	45	52	45	52	45	N/A	N/A	N/A	N/A
R00382	COM	-	-	52	46	52	45	53	46	52	46	N/A	N/A	N/A	N/A
R00382	COM	-	-	50	43	49	42	50	43	49	43	N/A	N/A	N/A	N/A
R00383	RES	60	55	48	41	48	41	48	41	48	42	0.0	0.1	0.5	0.5
R00383	RES	60	55	48	42	48	42	49	42	49	42	-0.1	-0.1	0.3	0.3
R00383	RES	60	55	49	42	48	42	49	42	49	42	-0.1	0.0	0.3	0.3
R00383	RES	60	55	49	42	49	42	49	42	49	42	-0.1	-0.1	0.4	0.3
R00383	RES	60	55	49	42	49	42	49	42	49	43	-0.1	-0.1	0.3	0.3
R00383	RES	60	55	46	39	45	39	46	39	46	39	-0.5	-0.5	0.0	0.0
R00384	COM	-	-	44	38	44	38	45	38	45	38	N/A	N/A	N/A	N/A
R00384	COM	-	-	49	42	49	43	49	43	50	43	N/A	N/A	N/A	N/A
R00384	COM	-	-	48	41	47	41	48	41	48	41	N/A	N/A	N/A	N/A
R00385	COM	-	-	49	43	49	43	49	43	50	43	N/A	N/A	N/A	N/A
R00385	COM	-	-	47	40	47	40	47	41	47	41	N/A	N/A	N/A	N/A

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		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00386	COM	-	-	44	37	44	37	44	37	44	38	N/A	N/A	N/A	N/A
R00386	COM	-	-	52	45	52	45	52	45	52	45	N/A	N/A	N/A	N/A
R00386	COM	-	-	52	46	52	45	52	46	52	46	N/A	N/A	N/A	N/A
R00386	COM	-	-	50	44	50	44	51	44	51	44	N/A	N/A	N/A	N/A
R00386	COM	-	-	50	43	49	43	50	43	50	43	N/A	N/A	N/A	N/A
R00386	COM	-	-	47	40	46	39	47	40	46	39	N/A	N/A	N/A	N/A
R00387	COM	-	-	43	36	42	36	43	36	43	36	N/A	N/A	N/A	N/A
R00387	COM	-	-	48	41	48	41	48	41	48	41	N/A	N/A	N/A	N/A
R00387	COM	-	-	45	39	45	38	45	39	45	39	N/A	N/A	N/A	N/A
R00388	COM	-	-	41	34	41	34	41	34	41	35	N/A	N/A	N/A	N/A
R00388	COM	-	-	49	43	49	43	49	43	50	43	N/A	N/A	N/A	N/A
R00388	COM	-	-	49	43	49	43	49	43	50	43	N/A	N/A	N/A	N/A
R00388	COM	-	-	46	39	45	38	46	39	45	39	N/A	N/A	N/A	N/A
R00389	COM	-	-	51	44	50	44	51	44	51	44	N/A	N/A	N/A	N/A
R00390	COM	-	-	45	39	45	39	45	39	46	39	N/A	N/A	N/A	N/A
R00390	COM	-	-	53	46	52	46	53	47	53	46	N/A	N/A	N/A	N/A
R00390	COM	-	-	53	46	52	46	53	46	53	46	N/A	N/A	N/A	N/A
R00390	COM	-	-	52	45	51	44	52	45	52	45	N/A	N/A	N/A	N/A
R00390	COM	-	-	52	46	52	45	52	46	52	46	N/A	N/A	N/A	N/A
R00390	COM	-	-	48	42	47	40	48	42	47	41	N/A	N/A	N/A	N/A
R00391	RES	60	55	37	31	37	31	37	31	38	31	0.0	0.1	0.6	0.5
R00391	RES	60	55	49	42	48	42	49	42	49	42	-0.1	-0.1	0.3	0.3
R00391	RES	60	55	49	42	49	42	49	42	49	42	-0.1	-0.1	0.3	0.3
R00391	RES	60	55	44	37	43	36	44	37	44	37	-0.7	-0.8	-0.3	-0.3
R00392	COM	-	-	65	59	65	59	65	59	66	59	N/A	N/A	N/A	N/A
R00392	COM	-	-	57	50	57	50	57	50	57	51	N/A	N/A	N/A	N/A
R00392	COM	-	-	45	39	45	38	45	39	46	39	N/A	N/A	N/A	N/A
R00392	COM	-	-	49	43	49	43	49	43	50	43	N/A	N/A	N/A	N/A
R00392	COM	-	-	44	37	44	37	44	37	44	38	N/A	N/A	N/A	N/A
R00392	COM	-	-	51	44	50	43	51	44	50	44	N/A	N/A	N/A	N/A
R00392	COM	-	-	53	46	52	45	53	46	52	46	N/A	N/A	N/A	N/A
R00392	COM	-	-	55	49	54	47	55	49	55	48	N/A	N/A	N/A	N/A
R00393	N/A	-	-	36	30	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00393	N/A	-	-	49	42	48	42	49	42	49	42	N/A	N/A	N/A	N/A
R00393	N/A	-	-	49	42	49	42	49	42	49	42	N/A	N/A	N/A	N/A

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		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00393	N/A	-	-	44	37	43	37	44	37	44	37	N/A	N/A	N/A	N/A
R00394	COM	-	-	38	31	38	31	38	31	38	32	N/A	N/A	N/A	N/A
R00394	COM	-	-	49	42	49	42	49	42	49	43	N/A	N/A	N/A	N/A
R00394	COM	-	-	49	43	49	42	49	43	50	43	N/A	N/A	N/A	N/A
R00394	COM	-	-	43	36	42	35	43	36	43	36	N/A	N/A	N/A	N/A
R00395	COM	-	-	57	50	56	49	57	50	57	50	N/A	N/A	N/A	N/A
R00395	COM	-	-	63	57	62	55	63	57	63	56	N/A	N/A	N/A	N/A
R00396	RES	60	55	37	31	37	31	37	31	38	31	0.1	0.1	0.5	0.6
R00396	RES	60	55	48	42	48	41	48	42	49	42	-0.1	-0.2	0.3	0.3
R00396	RES	60	55	48	42	48	42	49	42	49	42	-0.1	-0.2	0.3	0.3
R00396	RES	60	55	48	42	48	42	49	42	49	42	-0.1	-0.1	0.3	0.3
R00396	RES	60	55	48	42	48	42	48	42	49	42	-0.1	-0.1	0.3	0.3
R00396	RES	60	55	37	30	37	30	37	30	37	31	0.0	0.0	0.5	0.4
R00397	COM	-	-	41	35	41	35	41	35	42	35	N/A	N/A	N/A	N/A
R00397	COM	-	-	47	41	47	41	48	41	48	41	N/A	N/A	N/A	N/A
R00397	COM	-	-	45	39	45	39	45	39	46	39	N/A	N/A	N/A	N/A
R00397	COM	-	-	38	32	38	32	38	32	39	32	N/A	N/A	N/A	N/A
R00397	COM	-	-	44	37	43	36	44	37	44	37	N/A	N/A	N/A	N/A
R00397	COM	-	-	46	39	45	39	46	39	46	39	N/A	N/A	N/A	N/A
R00398	COM	-	-	42	35	42	35	42	35	42	36	N/A	N/A	N/A	N/A
R00398	COM	-	-	51	45	51	44	51	45	51	45	N/A	N/A	N/A	N/A
R00398	COM	-	-	49	42	48	42	49	42	49	42	N/A	N/A	N/A	N/A
R00398	COM	-	-	41	34	41	34	41	35	41	35	N/A	N/A	N/A	N/A
R00399	COM	-	-	40	34	40	34	40	34	41	34	N/A	N/A	N/A	N/A
R00399	COM	-	-	50	43	49	43	50	43	50	43	N/A	N/A	N/A	N/A
R00399	COM	-	-	46	40	46	40	46	40	47	40	N/A	N/A	N/A	N/A
R00399	COM	-	-	40	33	40	33	40	33	40	34	N/A	N/A	N/A	N/A
R00400	Non-sensitive	-	-	38	31	38	31	38	31	39	32	N/A	N/A	N/A	N/A
R00400	Non-sensitive	-	-	45	38	44	38	45	38	45	38	N/A	N/A	N/A	N/A
R00400	Non-sensitive	-	-	46	39	46	39	46	39	46	40	N/A	N/A	N/A	N/A
R00400	Non-sensitive	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00401	COM	-	-	39	33	39	32	39	33	40	33	N/A	N/A	N/A	N/A
R00401	COM	-	-	48	41	48	41	48	41	48	42	N/A	N/A	N/A	N/A
R00401	COM	-	-	46	40	46	39	46	40	46	40	N/A	N/A	N/A	N/A
R00401	COM	-	-	39	33	39	32	39	33	40	33	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00402	COM	-	-	43	37	43	37	43	37	44	37	N/A	N/A	N/A	N/A
R00402	COM	-	-	53	47	52	46	53	47	53	46	N/A	N/A	N/A	N/A
R00402	COM	-	-	49	42	49	42	49	42	49	43	N/A	N/A	N/A	N/A
R00402	COM	-	-	41	34	41	34	41	34	41	35	N/A	N/A	N/A	N/A
R00403	COM	-	-	38	32	38	32	38	32	39	32	N/A	N/A	N/A	N/A
R00403	COM	-	-	48	41	47	41	48	41	48	41	N/A	N/A	N/A	N/A
R00403	COM	-	-	46	40	46	39	46	40	47	40	N/A	N/A	N/A	N/A
R00403	COM	-	-	39	32	38	32	39	32	39	32	N/A	N/A	N/A	N/A
R00404	COM	-	-	40	33	40	33	40	33	40	34	N/A	N/A	N/A	N/A
R00404	COM	-	-	47	40	47	40	47	40	47	40	N/A	N/A	N/A	N/A
R00404	COM	-	-	43	36	43	36	43	36	43	37	N/A	N/A	N/A	N/A
R00404	COM	-	-	39	33	39	33	39	33	40	33	N/A	N/A	N/A	N/A
R00405	COM	-	-	38	31	38	31	38	31	38	32	N/A	N/A	N/A	N/A
R00405	COM	-	-	47	40	47	40	47	40	47	41	N/A	N/A	N/A	N/A
R00405	COM	-	-	45	39	45	39	46	39	46	39	N/A	N/A	N/A	N/A
R00405	COM	-	-	45	38	44	38	45	38	45	38	N/A	N/A	N/A	N/A
R00405	COM	-	-	41	34	40	34	41	34	41	34	N/A	N/A	N/A	N/A
R00405	COM	-	-	37	30	37	30	37	31	38	31	N/A	N/A	N/A	N/A
R00405	COM	-	-	42	35	42	35	42	35	42	36	N/A	N/A	N/A	N/A
R00405	COM	-	-	37	31	37	31	37	31	38	31	N/A	N/A	N/A	N/A
R00405	COM	-	-	40	34	40	34	40	34	41	34	N/A	N/A	N/A	N/A
R00406	COM	-	-	44	37	44	37	44	38	44	38	N/A	N/A	N/A	N/A
R00406	COM	-	-	55	48	54	47	55	48	55	48	N/A	N/A	N/A	N/A
R00406	COM	-	-	55	48	54	47	55	48	55	48	N/A	N/A	N/A	N/A
R00406	COM	-	-	45	39	44	38	45	39	45	38	N/A	N/A	N/A	N/A
R00406	COM	-	-	49	42	48	42	49	42	49	42	N/A	N/A	N/A	N/A
R00406	COM	-	-	49	42	48	42	49	42	49	42	N/A	N/A	N/A	N/A
R00406	COM	-	-	45	38	44	38	45	38	45	38	N/A	N/A	N/A	N/A
R00406	COM	-	-	42	35	41	35	42	35	42	35	N/A	N/A	N/A	N/A
R00407	COM	-	-	45	38	44	38	45	38	45	38	N/A	N/A	N/A	N/A
R00407	COM	-	-	59	52	58	51	59	52	59	52	N/A	N/A	N/A	N/A
R00407	COM	-	-	60	53	59	52	60	53	60	53	N/A	N/A	N/A	N/A
R00407	COM	-	-	43	36	42	36	43	36	43	36	N/A	N/A	N/A	N/A
R00407	COM	-	-	44	38	44	37	44	38	44	37	N/A	N/A	N/A	N/A
R00407	COM	-	-	42	35	42	35	42	36	42	36	N/A	N/A	N/A	N/A

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		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00408	COM	-	-	39	33	39	32	39	33	40	33	N/A	N/A	N/A	N/A
R00408	COM	-	-	41	34	41	34	41	34	41	34	N/A	N/A	N/A	N/A
R00409	COM	-	-	43	36	43	36	43	36	43	37	N/A	N/A	N/A	N/A
R00409	COM	-	-	44	37	44	37	44	37	44	38	N/A	N/A	N/A	N/A
R00410	COM	-	-	43	36	42	36	43	36	43	36	N/A	N/A	N/A	N/A
R00410	COM	-	-	44	37	43	37	44	37	44	37	N/A	N/A	N/A	N/A
R00410	COM	-	-	44	37	44	37	44	37	44	38	N/A	N/A	N/A	N/A
R00410	COM	-	-	44	38	44	37	44	38	44	38	N/A	N/A	N/A	N/A
R00411	COM	-	-	43	36	43	36	43	37	44	37	N/A	N/A	N/A	N/A
R00411	COM	-	-	46	39	46	39	46	39	46	39	N/A	N/A	N/A	N/A
R00411	COM	-	-	46	40	46	39	46	40	46	40	N/A	N/A	N/A	N/A
R00411	COM	-	-	39	33	39	33	40	33	40	33	N/A	N/A	N/A	N/A
R00412	COM	-	-	43	37	43	36	43	37	43	37	N/A	N/A	N/A	N/A
R00412	COM	-	-	44	38	43	37	44	38	44	37	N/A	N/A	N/A	N/A
R00413	COM	-	-	40	33	40	33	40	33	41	34	N/A	N/A	N/A	N/A
R00413	COM	-	-	43	36	43	36	43	36	43	37	N/A	N/A	N/A	N/A
R00413	COM	-	-	43	36	43	36	43	36	43	37	N/A	N/A	N/A	N/A
R00413	COM	-	-	35	29	35	28	35	29	36	29	N/A	N/A	N/A	N/A
R00414	COM	-	-	43	37	43	37	44	37	44	37	N/A	N/A	N/A	N/A
R00414	COM	-	-	44	37	43	37	44	37	44	37	N/A	N/A	N/A	N/A
R00414	COM	-	-	37	30	37	30	37	30	37	31	N/A	N/A	N/A	N/A
R00414	COM	-	-	36	30	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00415	COM	-	-	37	31	37	31	37	31	38	31	N/A	N/A	N/A	N/A
R00415	COM	-	-	44	37	44	37	44	38	44	38	N/A	N/A	N/A	N/A
R00415	COM	-	-	44	37	44	37	44	37	44	38	N/A	N/A	N/A	N/A
R00415	COM	-	-	36	30	36	30	37	30	37	30	N/A	N/A	N/A	N/A
R00416	COM	-	-	36	30	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00416	COM	-	-	39	32	39	32	39	33	40	33	N/A	N/A	N/A	N/A
R00416	COM	-	-	41	34	40	34	41	34	41	34	N/A	N/A	N/A	N/A
R00416	COM	-	-	41	34	41	34	41	34	41	35	N/A	N/A	N/A	N/A
R00416	COM	-	-	40	34	40	33	40	34	40	34	N/A	N/A	N/A	N/A
R00416	COM	-	-	32	26	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00417	COM	-	-	38	31	38	31	38	31	38	32	N/A	N/A	N/A	N/A
R00417	COM	-	-	45	38	45	38	45	38	45	38	N/A	N/A	N/A	N/A
R00417	COM	-	-	45	38	45	38	45	38	45	39	N/A	N/A	N/A	N/A

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		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00417	COM	-	-	37	30	37	30	37	30	37	30	N/A	N/A	N/A	N/A
R00418	COM	-	-	40	33	40	33	40	33	40	34	N/A	N/A	N/A	N/A
R00418	COM	-	-	43	36	42	36	43	36	43	36	N/A	N/A	N/A	N/A
R00418	COM	-	-	43	36	42	36	43	36	43	36	N/A	N/A	N/A	N/A
R00418	COM	-	-	35	29	35	28	35	29	36	29	N/A	N/A	N/A	N/A
R00419	COM	-	-	41	35	41	35	41	35	42	35	N/A	N/A	N/A	N/A
R00419	COM	-	-	43	36	42	36	43	36	43	36	N/A	N/A	N/A	N/A
R00419	COM	-	-	41	34	40	34	41	34	41	34	N/A	N/A	N/A	N/A
R00419	COM	-	-	39	33	39	33	39	33	40	33	N/A	N/A	N/A	N/A
R00419	COM	-	-	41	34	40	34	41	34	41	34	N/A	N/A	N/A	N/A
R00419	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00420	COM	-	-	43	36	43	36	43	37	44	37	N/A	N/A	N/A	N/A
R00420	COM	-	-	43	37	43	37	43	37	44	37	N/A	N/A	N/A	N/A
R00420	COM	-	-	43	36	43	36	43	36	43	37	N/A	N/A	N/A	N/A
R00420	COM	-	-	42	36	42	36	42	36	43	36	N/A	N/A	N/A	N/A
R00420	COM	-	-	42	36	42	36	43	36	43	36	N/A	N/A	N/A	N/A
R00420	COM	-	-	34	28	34	28	34	28	35	28	N/A	N/A	N/A	N/A
R00420	COM	-	-	33	27	33	27	33	27	34	27	N/A	N/A	N/A	N/A
R00420	COM	-	-	35	28	35	28	35	28	36	29	N/A	N/A	N/A	N/A
R00421	COM	-	-	37	31	37	31	38	31	38	31	N/A	N/A	N/A	N/A
R00421	COM	-	-	44	37	44	37	44	37	44	38	N/A	N/A	N/A	N/A
R00421	COM	-	-	42	36	43	36	43	36	43	37	N/A	N/A	N/A	N/A
R00421	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00422	COM	-	-	39	32	39	32	39	32	39	33	N/A	N/A	N/A	N/A
R00422	COM	-	-	46	40	46	39	46	40	46	40	N/A	N/A	N/A	N/A
R00422	COM	-	-	47	40	46	40	47	41	47	40	N/A	N/A	N/A	N/A
R00422	COM	-	-	36	30	36	29	36	30	37	30	N/A	N/A	N/A	N/A
R00422	COM	-	-	38	32	38	32	38	32	39	32	N/A	N/A	N/A	N/A
R00422	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00423	COM	-	-	41	34	40	34	41	34	41	34	N/A	N/A	N/A	N/A
R00423	COM	-	-	40	34	40	33	40	34	40	34	N/A	N/A	N/A	N/A
R00423	COM	-	-	38	32	38	31	38	32	39	32	N/A	N/A	N/A	N/A
R00423	COM	-	-	37	31	37	31	38	31	38	31	N/A	N/A	N/A	N/A
R00424	COM	-	-	42	35	42	35	42	35	42	36	N/A	N/A	N/A	N/A
R00424	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A

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		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00424	COM	-	-	34	28	34	28	34	28	35	28	N/A	N/A	N/A	N/A
R00424	COM	-	-	42	35	42	35	42	35	42	36	N/A	N/A	N/A	N/A
R00427	COM	-	-	37	30	37	31	37	31	38	31	N/A	N/A	N/A	N/A
R00427	COM	-	-	39	33	39	32	39	33	39	33	N/A	N/A	N/A	N/A
R00427	COM	-	-	39	32	39	32	39	32	39	33	N/A	N/A	N/A	N/A
R00427	COM	-	-	34	28	34	28	35	28	35	28	N/A	N/A	N/A	N/A
R00427	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00427	COM	-	-	39	32	38	32	39	32	39	32	N/A	N/A	N/A	N/A
R00428	COM	-	-	36	30	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00428	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00428	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00428	COM	-	-	35	29	35	29	36	29	36	29	N/A	N/A	N/A	N/A
R00428	COM	-	-	36	30	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00428	COM	-	-	36	29	36	29	36	30	36	30	N/A	N/A	N/A	N/A
R00428	COM	-	-	37	30	36	30	37	30	37	30	N/A	N/A	N/A	N/A
R00428	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00428	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00428	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00429	COM	-	-	47	40	46	39	47	40	46	40	N/A	N/A	N/A	N/A
R00429	COM	-	-	44	37	43	37	44	37	44	37	N/A	N/A	N/A	N/A
R00429	COM	-	-	38	32	38	32	39	32	39	32	N/A	N/A	N/A	N/A
R00429	COM	-	-	37	31	37	30	37	31	37	31	N/A	N/A	N/A	N/A
R00429	COM	-	-	37	31	37	31	37	31	38	31	N/A	N/A	N/A	N/A
R00429	COM	-	-	38	31	38	31	38	31	38	32	N/A	N/A	N/A	N/A
R00429	COM	-	-	37	30	37	30	37	31	38	31	N/A	N/A	N/A	N/A
R00429	COM	-	-	38	31	37	31	38	31	38	31	N/A	N/A	N/A	N/A
R00430	COM	-	-	39	33	39	32	39	33	40	33	N/A	N/A	N/A	N/A
R00430	COM	-	-	40	33	40	33	40	34	41	34	N/A	N/A	N/A	N/A
R00430	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00430	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00430	COM	-	-	38	32	38	32	38	32	39	32	N/A	N/A	N/A	N/A
R00430	COM	-	-	36	30	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00430	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00430	COM	-	-	35	29	35	29	36	29	36	29	N/A	N/A	N/A	N/A
R00430	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A

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		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00431	COM	-	-	39	33	39	32	39	33	39	33	N/A	N/A	N/A	N/A
R00431	COM	-	-	36	29	36	29	36	30	36	30	N/A	N/A	N/A	N/A
R00431	COM	-	-	37	31	37	30	37	31	38	31	N/A	N/A	N/A	N/A
R00431	COM	-	-	36	30	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00431	COM	-	-	37	30	36	30	37	30	37	30	N/A	N/A	N/A	N/A
R00431	COM	-	-	35	29	35	28	35	29	36	29	N/A	N/A	N/A	N/A
R00431	COM	-	-	35	29	35	29	36	29	36	29	N/A	N/A	N/A	N/A
R00431	COM	-	-	34	28	34	28	35	28	35	28	N/A	N/A	N/A	N/A
R00431	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00431	COM	-	-	34	28	34	28	35	28	35	28	N/A	N/A	N/A	N/A
R00432	COM	-	-	44	37	43	36	44	37	43	37	N/A	N/A	N/A	N/A
R00432	COM	-	-	36	30	36	29	36	30	36	30	N/A	N/A	N/A	N/A
R00432	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00432	COM	-	-	36	29	35	29	36	29	36	29	N/A	N/A	N/A	N/A
R00432	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00432	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00432	COM	-	-	35	29	35	29	36	29	36	29	N/A	N/A	N/A	N/A
R00432	COM	-	-	36	29	36	29	36	30	36	30	N/A	N/A	N/A	N/A
R00433	COM	-	-	40	34	40	33	41	34	41	34	N/A	N/A	N/A	N/A
R00433	COM	-	-	39	33	39	32	39	33	39	33	N/A	N/A	N/A	N/A
R00433	COM	-	-	39	33	39	32	39	33	39	33	N/A	N/A	N/A	N/A
R00433	COM	-	-	37	30	37	30	37	30	37	31	N/A	N/A	N/A	N/A
R00433	COM	-	-	35	28	35	28	35	29	36	29	N/A	N/A	N/A	N/A
R00433	COM	-	-	36	30	36	29	36	30	37	30	N/A	N/A	N/A	N/A
R00433	COM	-	-	40	34	40	33	40	34	41	34	N/A	N/A	N/A	N/A
R00434	COM	-	-	37	31	37	31	38	31	38	31	N/A	N/A	N/A	N/A
R00434	COM	-	-	40	33	40	33	40	34	40	34	N/A	N/A	N/A	N/A
R00434	COM	-	-	36	30	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00434	COM	-	-	36	29	35	29	36	29	36	29	N/A	N/A	N/A	N/A
R00434	COM	-	-	36	30	36	29	36	30	37	30	N/A	N/A	N/A	N/A
R00434	COM	-	-	36	29	35	29	36	29	36	29	N/A	N/A	N/A	N/A
R00436	COM	-	-	37	31	37	31	37	31	38	31	N/A	N/A	N/A	N/A
R00436	COM	-	-	39	33	39	32	39	33	40	33	N/A	N/A	N/A	N/A
R00436	COM	-	-	37	30	37	30	37	30	37	31	N/A	N/A	N/A	N/A
R00436	COM	-	-	35	28	35	28	35	29	35	29	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00437	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00437	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00437	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00437	COM	-	-	32	26	32	26	33	26	33	26	N/A	N/A	N/A	N/A
R00438	COM	-	-	41	34	40	34	41	34	41	34	N/A	N/A	N/A	N/A
R00438	COM	-	-	40	34	40	34	41	34	41	34	N/A	N/A	N/A	N/A
R00438	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00438	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00439	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00439	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00439	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00439	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00439	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00439	COM	-	-	32	26	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00439	COM	-	-	32	26	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00440	COM	-	-	40	33	40	33	40	34	40	34	N/A	N/A	N/A	N/A
R00440	COM	-	-	40	33	40	33	40	33	40	34	N/A	N/A	N/A	N/A
R00440	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00440	COM	-	-	34	28	34	28	35	28	35	28	N/A	N/A	N/A	N/A
R00440	COM	-	-	40	34	40	33	40	34	41	34	N/A	N/A	N/A	N/A
R00440	COM	-	-	40	34	40	33	40	34	40	34	N/A	N/A	N/A	N/A
R00441	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00441	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00441	COM	-	-	32	26	32	26	33	26	33	26	N/A	N/A	N/A	N/A
R00442	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00442	COM	-	-	32	26	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00443	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00443	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00443	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00443	COM	-	-	32	25	32	25	32	26	33	26	N/A	N/A	N/A	N/A
R00443	COM	-	-	32	26	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00443	COM	-	-	34	27	34	27	34	27	34	28	N/A	N/A	N/A	N/A
R00443	COM	-	-	32	26	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00444	COM	-	-	36	29	36	29	36	29	36	30	N/A	N/A	N/A	N/A
R00444	COM	-	-	32	26	32	26	33	26	33	26	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00444	COM	-	-	32	26	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00445	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00445	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00445	COM	-	-	32	26	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00445	COM	-	-	35	28	34	28	35	28	35	28	N/A	N/A	N/A	N/A
R00445	COM	-	-	32	26	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00445	COM	-	-	32	26	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00446	COM	-	-	40	33	40	33	40	33	40	34	N/A	N/A	N/A	N/A
R00446	COM	-	-	40	34	40	34	41	34	41	34	N/A	N/A	N/A	N/A
R00446	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00446	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00447	COM	-	-	36	30	36	29	36	30	37	30	N/A	N/A	N/A	N/A
R00447	COM	-	-	36	30	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00447	COM	-	-	34	28	34	28	34	28	35	28	N/A	N/A	N/A	N/A
R00447	COM	-	-	32	26	32	26	33	26	33	26	N/A	N/A	N/A	N/A
R00447	COM	-	-	33	27	33	27	33	27	34	27	N/A	N/A	N/A	N/A
R00447	COM	-	-	32	26	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00447	COM	-	-	32	26	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00448	COM	-	-	33	26	33	26	33	26	33	27	N/A	N/A	N/A	N/A
R00448	COM	-	-	34	27	33	27	34	27	34	27	N/A	N/A	N/A	N/A
R00448	COM	-	-	33	27	33	27	33	27	34	27	N/A	N/A	N/A	N/A
R00448	COM	-	-	32	25	32	25	32	25	32	26	N/A	N/A	N/A	N/A
R00448	COM	-	-	32	25	32	25	32	25	32	26	N/A	N/A	N/A	N/A
R00450	COM	-	-	35	28	34	28	35	28	35	28	N/A	N/A	N/A	N/A
R00450	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00450	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00450	COM	-	-	35	28	35	28	35	28	35	29	N/A	N/A	N/A	N/A
R00450	COM	-	-	35	28	35	28	35	28	35	28	N/A	N/A	N/A	N/A
R00450	COM	-	-	32	25	32	25	32	26	33	26	N/A	N/A	N/A	N/A
R00450	COM	-	-	32	26	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00450	COM	-	-	32	25	32	25	32	25	32	26	N/A	N/A	N/A	N/A
R00451	COM	-	-	32	26	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00451	COM	-	-	34	27	34	27	34	27	34	27	N/A	N/A	N/A	N/A
R00451	COM	-	-	33	27	33	27	33	27	34	27	N/A	N/A	N/A	N/A
R00451	COM	-	-	32	25	32	25	32	25	32	26	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00451	COM	-	-	32	25	32	25	32	25	32	26	N/A	N/A	N/A	N/A
R00451	COM	-	-	32	26	32	26	32	26	33	26	N/A	N/A	N/A	N/A
R00451	COM	-	-	32	25	32	25	32	25	32	26	N/A	N/A	N/A	N/A
R00456	COM	-	-	41	34	40	33	41	34	40	34	N/A	N/A	N/A	N/A
R00456	COM	-	-	41	34	40	33	41	34	40	34	N/A	N/A	N/A	N/A
R00456	COM	-	-	40	33	39	32	40	33	39	33	N/A	N/A	N/A	N/A
R00456	COM	-	-	34	27	33	27	34	27	34	27	N/A	N/A	N/A	N/A
R00456	COM	-	-	38	31	37	30	38	31	38	31	N/A	N/A	N/A	N/A
R00457	COM	-	-	38	32	38	31	38	32	39	32	N/A	N/A	N/A	N/A
R00457	COM	-	-	37	31	37	30	37	31	37	31	N/A	N/A	N/A	N/A
R00457	COM	-	-	37	31	37	30	37	31	37	31	N/A	N/A	N/A	N/A
R00457	COM	-	-	37	31	37	31	38	31	38	31	N/A	N/A	N/A	N/A
R00457	COM	-	-	36	29	35	29	36	29	36	29	N/A	N/A	N/A	N/A
R00457	COM	-	-	34	27	33	27	34	27	34	27	N/A	N/A	N/A	N/A
R00458	RES	60	55	38	31	38	31	38	31	38	32	-0.3	-0.2	0.2	0.2
R00458	RES	60	55	39	33	39	32	39	33	39	33	-0.7	-0.6	-0.2	-0.2
R00458	RES	60	55	40	33	39	33	40	33	40	33	-0.7	-0.7	-0.2	-0.3
R00458	RES	60	55	33	27	33	26	33	27	33	27	-0.3	-0.3	0.2	0.2
R00460	RES	60	55	38	32	38	31	38	32	38	32	-0.6	-0.5	0.0	-0.1
R00460	RES	60	55	39	32	38	32	39	32	39	32	-0.6	-0.6	-0.1	-0.1
R00460	RES	60	55	33	27	33	26	33	27	34	27	-0.2	-0.2	0.2	0.3
R00460	RES	60	55	33	26	33	26	33	26	33	27	-0.2	-0.2	0.3	0.2
R00461	RES	60	55	39	33	39	32	40	33	39	33	-0.7	-0.7	-0.2	-0.2
R00461	RES	60	55	40	33	39	33	40	33	40	33	-0.8	-0.8	-0.3	-0.3
R00461	RES	60	55	34	27	33	26	34	27	33	27	-0.8	-0.8	-0.4	-0.3
R00461	RES	60	55	34	27	33	27	34	27	34	27	-0.4	-0.5	0.0	0.0
R00461	RES	60	55	33	27	33	26	33	27	33	27	-0.5	-0.5	0.0	0.0
R00461	RES	60	55	34	27	33	27	34	27	34	27	-0.4	-0.3	0.1	0.1
R00462	COM	-	-	38	31	37	31	38	31	38	31	N/A	N/A	N/A	N/A
R00462	COM	-	-	38	31	37	31	38	31	38	31	N/A	N/A	N/A	N/A
R00462	COM	-	-	35	29	35	29	35	29	36	29	N/A	N/A	N/A	N/A
R00462	COM	-	-	34	27	34	27	34	27	34	27	N/A	N/A	N/A	N/A
R00463	RES	60	55	40	33	39	32	40	33	39	33	-1.0	-1.0	-0.5	-0.5
R00463	RES	60	55	39	32	38	32	39	32	39	32	-0.7	-0.6	-0.2	-0.2
R00463	RES	60	55	34	28	33	26	34	28	33	27	-1.3	-1.4	-0.8	-0.8

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00463	RES	60	55	35	28	33	27	35	28	34	27	-1.2	-1.3	-0.8	-0.8
R00463	RES	60	55	39	32	38	32	39	32	39	32	-0.7	-0.6	-0.2	-0.2
R00463	RES	60	55	40	33	39	32	40	33	39	33	-0.9	-1.0	-0.5	-0.4
R00465	RES	60	55	36	29	35	29	36	29	36	29	-0.8	-0.7	-0.3	-0.4
R00465	RES	60	55	35	29	34	28	35	29	35	28	-0.8	-0.8	-0.4	-0.4
R00465	RES	60	55	35	28	34	28	35	28	35	28	-0.6	-0.7	-0.2	-0.3
R00465	RES	60	55	34	27	33	26	34	27	34	27	-0.7	-0.7	-0.2	-0.2
R00465	RES	60	55	34	28	33	27	34	28	34	27	-0.9	-1.0	-0.5	-0.5
R00465	RES	60	55	34	28	33	26	34	28	34	27	-1.1	-1.2	-0.5	-0.6
R00466	RES	60	55	34	28	34	27	34	28	34	28	-0.3	-0.4	0.1	0.0
R00466	RES	60	55	34	27	33	27	34	27	34	27	-0.4	-0.4	0.2	0.1
R00466	RES	60	55	34	27	33	27	34	27	34	27	-0.4	-0.4	0.1	0.1
R00466	RES	60	55	34	27	33	26	34	27	34	27	-0.5	-0.5	0.1	0.0
R00467	RES	60	55	34	27	33	27	34	27	34	27	-0.2	-0.1	0.4	0.3
R00467	RES	60	55	38	32	38	31	38	32	38	32	-0.6	-0.5	0.0	-0.1
R00467	RES	60	55	36	29	36	29	36	29	36	30	-0.2	-0.1	0.2	0.3
R00467	RES	60	55	36	29	36	29	36	29	36	30	-0.2	-0.2	0.3	0.3
R00467	RES	60	55	36	29	35	29	36	29	36	29	-0.2	-0.2	0.3	0.3
R00467	RES	60	55	36	29	35	29	36	29	36	29	-0.2	-0.2	0.3	0.3
R00467	RES	60	55	37	30	36	30	37	30	37	30	-0.2	-0.3	0.2	0.1
R00467	RES	60	55	32	26	32	26	33	26	33	26	-0.1	-0.2	0.3	0.3
R00470	RES	60	55	35	28	34	27	35	28	35	28	-0.5	-0.6	-0.1	-0.1
R00470	RES	60	55	35	28	34	28	35	28	35	28	-0.8	-0.7	-0.4	-0.3
R00470	RES	60	55	40	33	39	32	40	33	39	33	-0.8	-0.8	-0.4	-0.4
R00470	RES	60	55	34	27	32	26	34	27	33	26	-1.4	-1.3	-0.8	-0.8
R00470	RES	60	55	35	28	34	28	35	28	35	28	-0.5	-0.4	0.0	0.0
R00470	RES	60	55	34	28	34	27	35	28	34	28	-0.5	-0.4	-0.1	0.0
R00471	RES	60	55	33	27	33	26	33	27	33	27	-0.3	-0.3	0.2	0.2
R00471	RES	60	55	34	27	34	27	34	27	34	28	-0.3	-0.2	0.3	0.2
R00471	RES	60	55	34	28	34	27	34	28	34	28	-0.2	-0.2	0.3	0.3
R00471	RES	60	55	36	29	35	29	36	29	36	29	-0.2	-0.3	0.2	0.2
R00471	RES	60	55	33	27	33	27	34	27	34	27	-0.3	-0.2	0.2	0.2
R00471	RES	60	55	34	27	34	27	34	27	34	28	-0.3	-0.2	0.3	0.2
R00471	RES	60	55	35	29	35	28	35	29	35	29	-0.3	-0.3	0.2	0.2
R00471	RES	60	55	35	28	35	28	35	29	35	29	-0.3	-0.3	0.2	0.1

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00471	RES	60	55	35	28	34	28	35	28	35	28	-0.3	-0.3	0.2	0.1
R00471	RES	60	55	34	27	33	27	34	27	34	27	-0.3	-0.4	0.2	0.2
R00471	RES	60	55	34	27	33	27	34	27	34	27	-0.3	-0.3	0.2	0.1
R00471	RES	60	55	33	27	33	27	34	27	34	27	-0.3	-0.4	0.2	0.2
R00474	RES	60	55	37	31	36	30	37	31	37	30	-0.7	-0.6	-0.2	-0.3
R00474	RES	60	55	35	29	34	28	35	29	35	28	-1.0	-1.0	-0.5	-0.5
R00474	RES	60	55	36	29	35	28	36	29	35	29	-0.8	-0.8	-0.4	-0.5
R00474	RES	60	55	37	30	36	30	37	30	37	30	-0.6	-0.5	-0.1	-0.2
R00474	RES	60	55	34	27	33	26	34	27	33	27	-1.2	-1.2	-0.7	-0.8
R00474	RES	60	55	34	28	33	26	34	28	33	27	-1.4	-1.4	-0.9	-1.0
R00474	RES	60	55	34	27	33	26	34	28	33	27	-1.5	-1.5	-1.0	-1.0
R00475	RES	60	55	34	28	34	27	34	28	35	28	-0.1	-0.1	0.4	0.4
R00475	RES	60	55	32	26	32	26	32	26	33	26	-0.2	-0.2	0.3	0.3
R00475	RES	60	55	38	31	37	31	38	31	38	31	-0.3	-0.4	0.1	0.2
R00475	RES	60	55	32	26	32	26	32	26	33	26	-0.2	-0.2	0.3	0.2
R00476	COM	-	-	39	32	38	32	39	32	39	32	N/A	N/A	N/A	N/A
R00476	COM	-	-	36	29	35	29	36	29	36	29	N/A	N/A	N/A	N/A
R00476	COM	-	-	38	31	37	31	38	31	38	31	N/A	N/A	N/A	N/A
R00476	COM	-	-	36	30	36	30	36	30	37	30	N/A	N/A	N/A	N/A
R00476	COM	-	-	33	26	33	26	33	26	33	27	N/A	N/A	N/A	N/A
R00478	RES	60	55	36	29	36	29	36	30	36	30	-0.3	-0.2	0.1	0.1
R00478	RES	60	55	35	28	35	28	35	29	35	29	-0.2	-0.2	0.2	0.2
R00478	RES	60	55	35	29	35	28	35	29	36	29	-0.2	-0.2	0.2	0.2
R00478	RES	60	55	37	31	37	30	37	31	38	31	-0.3	-0.3	0.1	0.1
R00478	RES	60	55	34	27	34	27	34	27	34	28	-0.3	-0.3	0.1	0.2
R00478	RES	60	55	33	27	33	26	33	27	33	27	-0.3	-0.4	0.1	0.1
R00479	COM	-	-	37	30	36	30	37	30	37	30	N/A	N/A	N/A	N/A
R00479	COM	-	-	38	32	38	31	38	32	38	32	N/A	N/A	N/A	N/A
R00479	COM	-	-	35	28	34	28	35	28	35	28	N/A	N/A	N/A	N/A
R00479	COM	-	-	33	26	33	26	33	27	34	27	N/A	N/A	N/A	N/A
R00482	COM	-	-	39	33	39	32	39	33	39	33	N/A	N/A	N/A	N/A
R00482	COM	-	-	40	34	40	33	40	34	40	34	N/A	N/A	N/A	N/A
R00482	COM	-	-	34	28	34	28	34	28	35	28	N/A	N/A	N/A	N/A
R00482	COM	-	-	33	26	33	26	33	26	33	27	N/A	N/A	N/A	N/A
R00483	RES	60	55	35	28	34	28	35	28	35	28	-0.3	-0.3	0.2	0.2

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00483	RES	60	55	37	31	37	31	38	31	38	31	-0.3	-0.4	0.1	0.1
R00483	RES	60	55	33	27	33	26	33	27	33	27	-0.2	-0.3	0.2	0.3
R00483	RES	60	55	34	27	33	27	34	27	34	27	-0.2	-0.3	0.2	0.3
R00483	RES	60	55	37	31	37	30	37	31	37	31	-0.4	-0.3	0.2	0.1
R00483	RES	60	55	35	28	35	28	35	29	35	29	-0.2	-0.3	0.2	0.1
R00485	RES	60	55	36	30	35	29	36	30	36	29	-0.8	-0.8	-0.3	-0.3
R00485	RES	60	55	35	29	35	28	36	29	35	29	-0.8	-0.8	-0.3	-0.3
R00485	RES	60	55	38	31	37	31	38	31	38	31	-0.5	-0.5	0.0	0.0
R00485	RES	60	55	33	27	32	26	34	27	33	26	-1.0	-1.1	-0.6	-0.6
R00485	RES	60	55	34	27	33	26	34	28	34	27	-0.9	-1.0	-0.5	-0.6
R00485	RES	60	55	37	31	36	30	37	31	37	30	-0.7	-0.6	-0.1	-0.2
R00485	RES	60	55	36	30	35	29	36	30	36	29	-0.8	-0.8	-0.4	-0.3
R00487	RES	60	55	38	31	37	31	38	31	38	31	-0.3	-0.4	0.1	0.2
R00487	RES	60	55	37	30	37	30	37	31	37	31	-0.5	-0.4	0.1	0.0
R00487	RES	60	55	38	31	37	30	38	31	37	31	-0.6	-0.6	-0.2	-0.2
R00487	RES	60	55	38	31	37	31	38	31	38	31	-0.6	-0.6	-0.1	-0.1
R00487	RES	60	55	38	31	37	31	38	31	38	31	-0.7	-0.6	-0.1	-0.2
R00487	RES	60	55	33	27	32	25	33	27	33	26	-1.5	-1.4	-0.9	-0.9
R00487	RES	60	55	33	27	32	26	33	27	33	26	-0.9	-0.9	-0.4	-0.5
R00487	RES	60	55	33	26	32	26	33	26	33	26	-0.8	-0.7	-0.3	-0.3
R00493	RES	60	55	38	31	37	31	38	31	38	31	-0.4	-0.3	0.2	0.1
R00493	RES	60	55	35	28	35	28	35	28	35	29	-0.2	-0.2	0.3	0.3
R00493	RES	60	55	35	29	35	28	35	29	35	29	-0.3	-0.2	0.3	0.2
R00493	RES	60	55	38	32	38	31	38	32	38	32	-0.3	-0.4	0.1	0.1
R00493	RES	60	55	33	26	33	26	33	26	33	27	-0.2	-0.2	0.3	0.2
R00493	RES	60	55	33	26	33	26	33	26	33	27	-0.3	-0.2	0.3	0.2
R00493	RES	60	55	33	26	32	26	33	26	33	26	-0.3	-0.2	0.3	0.2
R00493	RES	60	55	33	27	33	27	33	27	34	27	-0.3	-0.2	0.3	0.2
R00493	RES	60	55	33	27	33	26	33	27	33	27	-0.2	-0.3	0.2	0.3
R00493	RES	60	55	33	26	33	26	33	26	33	27	-0.3	-0.3	0.2	0.2
R00493	RES	60	55	34	27	33	27	34	27	34	27	-0.3	-0.2	0.1	0.2
R00493	RES	60	55	33	26	33	26	33	26	33	27	-0.3	-0.4	0.2	0.2
R00926	COM	-	-	38	31	38	31	38	31	38	32	N/A	N/A	N/A	N/A
R00926	COM	-	-	39	32	38	32	39	32	39	32	N/A	N/A	N/A	N/A
R00926	COM	-	-	39	33	39	33	40	33	40	33	N/A	N/A	N/A	N/A

Receiver ID	Receiver Type	Criteria (including relative increase)		Open Year No Build		Open Year Build		Design Year No Build		Design Year Build		Open Year increase in noise level (Build/No-Build)		Design Year increase in noise level (Build/No-Build)	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
R00926	COM	-	-	49	43	48	42	49	43	49	42	N/A	N/A	N/A	N/A
R00926	COM	-	-	53	46	52	45	53	46	53	46	N/A	N/A	N/A	N/A
R00926	COM	-	-	50	44	50	43	50	44	50	43	N/A	N/A	N/A	N/A
R00926	COM	-	-	48	42	48	41	48	42	48	42	N/A	N/A	N/A	N/A
R00926	COM	-	-	38	31	38	31	38	31	38	32	N/A	N/A	N/A	N/A

Appendix D – Construction noise results

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00001	COM	NCA1	70	70	70	70	13	11	16	18	16	14	14	16	0	0	0	2
R00002	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	0	0	40	2
R00003	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	42	39	33	49
R00004	COM	NCA1	70	70	70	70	31	29	34	36	34	32	32	34	35	32	39	42
R00005	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	41	38	41	48
R00006	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	43	40	46	50
R00007	COM	NCA1	70	70	70	70	31	30	34	36	34	32	32	34	48	45	41	55
R00008	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	43	40	45	50
R00009	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	47	44	41	54
R00010	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	43	40	37	50
R00011	RES	NCA2	58	53	44	38	21	19	24	26	24	22	22	24	39	36	34	46
R00012	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	36	33	37	43
R00013	RES	NCA2	58	53	44	38	22	20	25	27	25	23	23	25	39	36	36	46
R00014	COM	NCA1	70	70	70	70	24	22	27	29	27	25	25	27	38	35	45	45
R00015	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	47	44	39	54
R00016	RES	NCA2	58	53	44	38	15	14	18	20	18	16	16	18	41	38	34	48
R00017	COM	NCA1	70	70	70	70	32	31	35	37	35	33	33	35	36	33	40	43
R00018	RES	NCA2	58	53	44	38	23	21	26	28	26	24	24	26	42	39	33	49
R00019	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	35	32	37	42
R00020	COM	NCA1	70	70	70	70	35	33	38	40	38	36	36	38	39	36	33	46
R00021	RES	NCA2	58	53	44	38	15	13	18	20	18	16	16	18	35	32	42	42
R00022	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	44	41	50	51
R00023	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	52	49	33	59
R00024	COM	NCA1	70	70	70	70	31	29	34	36	34	32	32	34	35	32	55	42
R00025	COM	NCA1	70	70	70	70	31	29	34	36	34	32	32	34	57	54	35	64
R00026	RES	NCA2	58	53	44	38	18	16	21	23	21	19	19	21	37	34	46	44
R00027	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	48	45	30	55
R00028	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	32	29	33	39
R00029	COM	NCA1	70	70	70	70	15	14	18	20	18	16	16	18	35	32	56	42
R00030	COM	NCA1	70	70	70	70	26	25	29	31	29	27	27	29	58	55	56	65
R00031	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	58	55	29	65
R00032	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	31	28	33	38
R00033	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	35	32	54	42
R00034	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	56	53	42	63
R00035	RES	NCA2	58	53	44	38	22	20	25	27	25	23	23	25	44	41	31	51
R00036	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	33	30	54	40
R00037	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	56	53	31	63
R00038	COM	NCA1	70	70	70	70	35	33	38	40	38	36	36	38	33	30	35	40
R00039	COM	NCA1	70	70	70	70	35	33	38	40	38	36	36	38	37	34	47	44
R00040	COM	NCA1	70	70	70	70	20	18	23	25	23	21	21	23	49	46	36	56
R00041	COM	NCA1	70	70	70	70	35	33	38	40	38	36	36	38	38	35	57	45
R00042	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	59	56	35	66
R00043	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	37	34	55	44
R00044	COM	NCA1	70	70	70	70	29	28	32	34	32	30	30	32	57	54	51	64
R00045	RES	NCA2	58	53	44	38	28	26	31	33	31	29	29	31	53	50	46	60
R00046	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	48	45	58	55
R00047	COM	NCA1	70	70	70	70	27	25	30	32	30	28	28	30	60	57	60	67

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00048	COM	NCA1	70	70	70	70	24	22	27	29	27	25	25	27	62	59	47	69
R00049	COM	NCA1	70	70	70	70	27	25	30	32	30	28	28	30	49	46	48	56
R00050	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	50	47	63	57
R00051	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	65	62	64	72
R00052	COM	NCA1	70	70	70	70	28	27	31	33	31	29	29	31	66	63	66	73
R00053	COM	NCA1	70	70	70	70	21	19	24	26	24	22	22	24	68	65	17	75
R00054	COM	NCA1	70	70	70	70	24	22	27	29	27	25	25	27	19	16	30	26
R00055	COM	NCA1	70	70	70	70	36	35	39	41	39	37	37	39	32	29	71	39
R00056	COM	NCA1	70	70	70	70	25	23	28	30	28	26	26	28	73	70	20	80
R00057	COM	NCA1	70	70	70	70	24	22	27	29	27	25	25	27	22	19	31	29
R00058	COM	NCA1	70	70	70	70	36	34	39	41	39	37	37	39	33	30	30	40
R00059	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	32	29	74	39
R00060	COM	NCA1	70	70	70	70	27	25	30	32	30	28	28	30	76	73	30	83
R00061	COM	NCA1	70	70	70	70	31	29	34	36	34	32	32	34	32	29	35	39
R00062	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	37	34	74	44
R00063	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	76	73	73	83
R00064	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	75	72	29	82
R00065	COM	NCA1	70	70	70	70	31	30	34	36	34	32	32	34	31	28	49	38
R00066	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	51	48	32	58
R00067	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	34	31	34	41
R00068	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	36	33	23	43
R00069	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	25	22	45	32
R00070	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	47	44	24	54
R00071	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	26	23	38	33
R00072	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	40	37	76	47
R00073	COM	NCA1	70	70	70	70	24	22	27	29	27	25	25	27	78	75	36	85
R00074	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	38	35	30	45
R00075	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	32	29	28	39
R00076	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	30	27	30	37
R00077	COM	NCA1	70	70	70	70	36	35	39	41	39	37	37	39	32	29	88	39
R00078	COM	NCA1	70	70	70	70	27	25	30	32	30	28	28	30	90	87	62	97
R00079	COM	NCA1	70	70	70	70	29	28	32	34	32	30	30	32	64	61	24	71
R00080	COM	NCA1	70	70	70	70	31	29	34	36	34	32	32	34	26	23	49	33
R00081	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	51	48	82	58
R00082	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	84	81	63	91
R00083	COM	NCA1	70	70	70	70	13	11	16	18	16	14	14	16	65	62	67	72
R00084	COM	NCA1	70	70	70	70	16	14	19	21	19	17	17	19	69	66	30	76
R00085	COM	NCA1	70	70	70	70	35	33	38	40	38	36	36	38	32	29	27	39
R00086	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	29	26	50	36
R00087	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	52	49	29	59
R00088	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	31	28	68	38
R00089	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	70	67	71	77
R00090	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	73	70	33	80
R00091	COM	NCA1	70	70	70	70	33	32	36	38	36	34	34	36	35	32	50	42
R00092	COM	NCA1	70	70	70	70	27	25	30	32	30	28	28	30	52	49	23	59
R00093	COM	NCA1	70	70	70	70	28	27	31	33	31	29	29	31	25	22	33	32
R00094	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	35	32	33	42

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00095	COM	NCA1	70	70	70	70	34	33	37	39	37	35	35	37	35	32	106	42
R00096	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	108	105	31	115
R00097	COM	NCA1	70	70	70	70	34	33	37	39	37	35	35	37	33	30	28	40
R00098	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	30	27	37	37
R00099	COM	NCA1	70	70	70	70	34	34	37	39	37	35	35	37	39	36	29	46
R00100	COM	NCA1	70	70	70	70	33	32	36	38	36	34	34	36	31	28	39	38
R00101	COM	NCA1	70	70	70	70	35	34	38	40	38	36	36	38	41	38	110	48
R00102	COM	NCA1	70	70	70	70	25	23	28	30	28	26	26	28	112	109	24	119
R00103	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	26	23	87	33
R00104	COM	NCA1	70	70	70	70	24	22	27	29	27	25	25	27	89	86	54	96
R00105	COM	NCA1	70	70	70	70	34	33	37	39	37	35	35	37	56	53	58	63
R00106	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	60	57	81	67
R00107	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	83	80	24	90
R00108	COM	NCA1	70	70	70	70	31	29	34	36	34	32	32	34	26	23	31	33
R00109	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	33	30	24	40
R00110	COM	NCA1	70	70	70	70	31	29	34	36	34	32	32	34	26	23	75	33
R00111	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	77	74	67	84
R00112	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	69	66	62	76
R00113	COM	NCA1	70	70	70	70	20	18	23	25	23	21	21	23	64	61	61	71
R00114	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	63	60	24	70
R00115	COM	NCA2	70	70	70	70	32	30	35	37	35	33	33	35	26	23	27	33
R00116	COM	NCA1	70	70	70	70	31	29	34	36	34	32	32	34	29	26	24	36
R00117	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	26	23	24	33
R00118	COM	NCA1	70	70	70	70	27	26	30	32	30	28	28	30	26	23	26	33
R00119	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	28	25	49	35
R00120	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	51	48	56	58
R00121	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	58	55	68	65
R00122	COM	NCA1	70	70	70	70	26	25	29	31	29	27	27	29	70	67	25	77
R00123	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	27	24	32	34
R00124	COM	NCA1	70	70	70	70	32	31	35	37	35	33	33	35	34	31	56	41
R00125	COM	NCA1	70	70	70	70	27	25	30	32	30	28	28	30	58	55	61	65
R00126	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	63	60	50	70
R00127	COM	NCA1	70	70	70	70	21	19	24	26	24	22	22	24	52	49	25	59
R00128	COM	NCA1	70	70	70	70	32	31	35	37	35	33	33	35	27	24	56	34
R00129	COM	NCA1	70	70	70	70	25	23	28	30	28	26	26	28	58	55	46	65
R00130	COM	NCA1	70	70	70	70	23	21	26	28	26	24	24	26	48	45	46	55
R00131	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	48	45	24	55
R00132	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	26	23	52	33
R00133	COM	NCA1	70	70	70	70	27	25	30	32	30	28	28	30	54	51	30	61
R00134	COM	NCA1	70	70	70	70	31	30	34	36	34	32	32	34	32	29	68	39
R00135	COM	NCA1	70	70	70	70	26	25	29	31	29	27	27	29	70	67	44	77
R00136	COM	NCA1	70	70	70	70	25	23	28	30	28	26	26	28	46	43	44	53
R00137	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	46	43	30	53
R00138	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	32	29	43	39
R00139	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	45	42	32	52
R00140	COM	NCA1	70	70	70	70	32	31	35	37	35	33	33	35	34	31	39	41
R00141	COM	NCA1	70	70	70	70	31	29	34	36	34	32	32	34	41	38	64	48

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00142	COM	NCA1	70	70	70	70	27	25	30	32	30	28	28	30	66	63	26	73
R00143	COM	NCA1	70	70	70	70	42	40	45	47	45	43	43	45	28	25	45	35
R00144	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	47	44	47	54
R00145	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	49	46	29	56
R00146	COM	NCA1	70	70	70	70	33	32	36	38	36	34	34	36	31	28	27	38
R00147	COM	NCA1	70	70	70	70	27	25	30	32	30	28	28	30	29	26	43	36
R00148	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	45	42	27	52
R00149	COM	NCA1	70	70	70	70	31	29	34	36	34	32	32	34	29	26	62	36
R00150	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	64	61	35	71
R00151	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	37	34	22	44
R00152	COM	NCA1	70	70	70	70	27	25	30	32	30	28	28	30	24	21	26	31
R00153	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	28	25	26	35
R00154	COM	NCA1	70	70	70	70	39	38	42	44	42	40	40	42	28	25	37	35
R00155	COM	NCA1	70	70	70	70	31	29	34	36	34	32	32	34	39	36	31	46
R00156	COM	NCA1	70	70	70	70	27	25	30	32	30	28	28	30	33	30	29	40
R00157	COM	NCA1	70	70	70	70	34	33	37	39	37	35	35	37	31	28	26	38
R00158	COM	NCA1	70	70	70	70	35	33	38	40	38	36	36	38	28	25	37	35
R00159	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	39	36	36	46
R00160	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	38	35	20	45
R00161	COM	NCA1	70	70	70	70	24	22	27	29	27	25	25	27	22	19	21	29
R00162	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	23	20	33	30
R00163	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	35	32	26	42
R00164	COM	NCA1	70	70	70	70	31	30	34	36	34	32	32	34	28	25	30	35
R00165	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	32	29	29	39
R00166	COM	NCA1	70	70	70	70	38	36	41	43	41	39	39	41	31	28	26	38
R00167	COM	NCA1	70	70	70	70	35	33	38	40	38	36	36	38	28	25	28	35
R00168	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	30	27	26	37
R00169	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	28	25	30	35
R00170	COM	NCA1	70	70	70	70	37	35	40	42	40	38	38	40	32	29	30	39
R00171	COM	NCA1	70	70	70	70	37	35	40	42	40	38	38	40	32	29	32	39
R00172	COM	NCA1	70	70	70	70	31	29	34	36	34	32	32	34	34	31	36	41
R00173	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	38	35	37	45
R00174	COM	NCA1	70	70	70	70	31	28	34	36	34	32	32	34	39	36	35	46
R00175	COM	NCA1	70	70	70	70	27	25	30	32	30	28	28	30	37	34	28	44
R00176	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	30	27	31	37
R00177	COM	NCA1	70	70	70	70	36	35	39	41	39	37	37	39	33	30	47	40
R00178	COM	NCA1	70	70	70	70	29	29	32	34	32	30	30	32	49	46	31	56
R00179	COM	NCA1	70	70	70	70	35	34	38	40	38	36	36	38	33	30	26	40
R00180	COM	NCA1	70	70	70	70	30	29	33	35	33	31	31	33	28	25	36	35
R00181	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	38	35	36	45
R00182	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	38	35	36	45
R00183	COM	NCA1	70	70	70	70	25	23	28	30	28	26	26	28	38	35	35	45
R00184	COM	NCA1	70	70	70	70	27	25	30	32	30	28	28	30	37	34	27	44
R00185	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	29	26	32	36
R00186	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	34	31	28	41
R00187	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	30	27	35	37
R00188	COM	NCA1	70	70	70	70	24	23	27	29	27	25	25	27	37	34	31	44

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00189	COM	NCA1	70	70	70	70	31	29	34	36	34	32	32	34	33	30	30	40
R00190	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	32	29	23	39
R00191	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	25	22	35	32
R00192	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	37	34	35	44
R00193	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	37	34	31	44
R00194	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	33	30	26	40
R00195	COM	NCA1	70	70	70	70	39	39	42	44	42	40	40	42	28	25	30	35
R00196	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	32	29	16	39
R00197	COM	NCA1	70	70	70	70	29	28	32	34	32	30	30	32	18	15	41	25
R00198	COM	NCA1	70	70	70	70	22	20	25	27	25	23	23	25	43	40	16	50
R00199	COM	NCA1	70	70	70	70	32	31	35	37	35	33	33	35	18	15	30	25
R00200	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	32	29	28	39
R00201	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	30	27	17	37
R00202	COM	NCA1	70	70	70	70	33	32	36	38	36	34	34	36	19	16	17	26
R00203	COM	NCA1	70	70	70	70	34	33	37	39	37	35	35	37	19	16	39	26
R00204	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	41	38	27	48
R00205	COM	NCA1	70	70	70	70	36	34	39	41	39	37	37	39	29	26	31	36
R00206	COM	NCA1	70	70	70	70	37	39	40	42	40	38	38	40	33	30	17	40
R00207	COM	NCA1	70	70	70	70	32	31	35	37	35	33	33	35	19	16	31	26
R00208	COM	NCA1	70	70	70	70	35	33	38	40	38	36	36	38	33	30	34	40
R00209	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	36	33	30	43
R00210	COM	NCA1	70	70	70	70	36	34	39	41	39	37	37	39	32	29	29	39
R00211	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	31	28	39	38
R00212	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	41	38	33	48
R00213	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	35	32	18	42
R00214	COM	NCA1	70	70	70	70	34	33	37	39	37	35	35	37	20	17	27	27
R00215	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	29	26	29	36
R00216	COM	NCA1	70	70	70	70	38	36	41	43	41	39	39	41	31	28	29	38
R00217	COM	NCA1	70	70	70	70	35	34	38	40	38	36	36	38	31	28	21	38
R00218	COM	NCA1	70	70	70	70	31	30	34	36	34	32	32	34	23	20	30	30
R00219	COM	NCA1	70	70	70	70	40	38	43	45	43	41	41	43	32	29	27	39
R00220	COM	NCA1	70	70	70	70	38	36	41	43	41	39	39	41	29	26	17	36
R00221	COM	NCA1	70	70	70	70	34	33	37	39	37	35	35	37	19	16	27	26
R00222	COM	NCA1	70	70	70	70	35	33	38	40	38	36	36	38	29	26	18	36
R00223	COM	NCA1	70	70	70	70	34	33	37	39	37	35	35	37	20	17	38	27
R00224	COM	NCA1	70	70	70	70	31	29	34	36	34	32	32	34	40	37	27	47
R00225	COM	NCA1	70	70	70	70	36	34	39	41	39	37	37	39	29	26	36	36
R00226	COM	NCA1	70	70	70	70	31	29	34	36	34	32	32	34	38	35	26	45
R00227	COM	NCA1	70	70	70	70	34	33	37	39	37	35	35	37	28	25	37	35
R00228	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	39	36	36	46
R00229	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	38	35	29	45
R00230	COM	NCA1	70	70	70	70	44	42	47	49	47	45	45	47	31	28	31	38
R00231	COM	NCA1	70	70	70	70	42	40	45	47	45	43	43	45	33	30	21	40
R00232	COM	NCA1	70	70	70	70	37	35	40	42	40	38	38	40	23	20	32	30
R00233	COM	NCA1	70	70	70	70	43	42	46	48	46	44	44	46	34	31	28	41
R00234	COM	NCA1	70	70	70	70	32	31	35	37	35	33	33	35	30	27	28	37
R00235	COM	NCA1	70	70	70	70	44	42	47	49	47	45	45	47	30	27	16	37

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00236	COM	NCA1	70	70	70	70	33	32	36	38	36	34	34	36	18	15	20	25
R00237	COM	NCA1	70	70	70	70	36	35	39	41	39	37	37	39	22	19	29	29
R00238	COM	NCA1	70	70	70	70	45	43	48	50	48	46	46	48	31	28	35	38
R00239	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	37	34	37	44
R00240	COM	NCA1	70	70	70	70	32	31	35	37	35	33	33	35	39	36	34	46
R00241	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	36	33	33	43
R00242	COM	NCA1	70	70	70	70	27	25	30	32	30	28	28	30	35	32	34	42
R00243	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	36	33	33	43
R00244	COM	NCA1	70	70	70	70	35	33	38	40	38	36	36	38	35	32	32	42
R00245	COM	NCA1	70	70	70	70	48	46	51	53	51	49	49	51	34	31	32	41
R00246	COM	NCA1	70	70	70	70	35	33	38	40	38	36	36	38	34	31	31	41
R00247	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	33	30	28	40
R00248	COM	NCA1	70	70	70	70	46	44	49	51	49	47	47	49	30	27	31	37
R00249	COM	NCA1	70	70	70	70	36	34	39	41	39	37	37	39	33	30	14	40
R00250	COM	NCA1	70	70	70	70	27	26	30	32	30	28	28	30	16	13	31	23
R00251	COM	NCA1	70	70	70	70	36	34	39	41	39	37	37	39	33	30	31	40
R00252	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	33	30	28	40
R00253	COM	NCA1	70	70	70	70	47	45	50	52	50	48	48	50	30	27	21	37
R00254	COM	NCA1	70	70	70	70	38	36	41	43	41	39	39	41	23	20	29	30
R00255	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	31	28	29	38
R00256	COM	NCA1	70	70	70	70	49	48	52	54	52	50	50	52	31	28	31	38
R00257	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	33	30	19	40
R00258	COM	NCA1	70	70	70	70	38	37	41	43	41	39	39	41	21	18	30	28
R00259	COM	NCA1	70	70	70	70	53	51	56	58	56	54	54	56	32	29	22	39
R00260	COM	NCA1	70	70	70	70	41	41	44	46	44	42	42	44	24	21	31	31
R00261	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	33	30	29	40
R00262	COM	NCA1	70	70	70	70	35	33	38	40	38	36	36	38	31	28	22	38
R00263	COM	NCA1	70	70	70	70	37	38	40	42	40	38	38	40	24	21	22	31
R00264	COM	NCA1	70	70	70	70	41	40	44	46	44	42	42	44	24	21	29	31
R00265	COM	NCA1	70	70	70	70	39	37	42	44	42	40	40	42	31	28	29	38
R00266	COM	NCA1	70	70	70	70	52	50	55	57	55	53	53	55	31	28	22	38
R00267	COM	NCA1	70	70	70	70	43	41	46	48	46	44	44	46	24	21	21	31
R00268	COM	NCA1	70	70	70	70	40	39	43	45	43	41	41	43	23	20	22	30
R00269	COM	NCA1	70	70	70	70	47	43	50	52	50	48	48	50	24	21	31	31
R00270	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	33	30	26	40
R00271	COM	NCA1	70	70	70	70	35	33	38	40	38	36	36	38	28	25	24	35
R00272	COM	NCA1	70	70	70	70	37	35	40	42	40	38	38	40	26	23	28	33
R00273	COM	NCA1	70	70	70	70	39	38	42	44	42	40	40	42	30	27	22	37
R00274	COM	NCA1	70	70	70	70	49	47	52	54	52	50	50	52	24	21	31	31
R00275	COM	NCA1	70	70	70	70	38	37	41	43	41	39	39	41	33	30	24	40
R00276	COM	NCA1	70	70	70	70	44	43	47	49	47	45	45	47	26	23	31	33
R00277	COM	NCA1	70	70	70	70	38	37	41	43	41	39	39	41	33	30	26	40
R00278	COM	NCA1	70	70	70	70	41	39	44	46	44	42	42	44	28	25	28	35
R00279	COM	NCA1	70	70	70	70	43	40	46	48	46	44	44	46	30	27	30	37
R00280	COM	NCA1	70	70	70	70	39	38	42	44	42	40	40	42	32	29	26	39
R00281	COM	NCA1	70	70	70	70	52	52	55	57	55	53	53	55	28	25	25	35
R00282	COM	NCA1	70	70	70	70	41	39	44	46	44	42	42	44	27	24	26	34

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00283	COM	NCA1	70	70	70	70	46	45	49	51	49	47	47	49	28	25	29	35
R00284	COM	NCA1	70	70	70	70	44	42	47	49	47	45	45	47	31	28	23	38
R00285	COM	NCA1	70	70	70	70	45	45	48	50	48	46	46	48	25	22	28	32
R00286	COM	NCA1	70	70	70	70	44	42	47	49	47	45	45	47	30	27	30	37
R00287	COM	NCA1	70	70	70	70	47	45	50	52	50	48	48	50	32	29	27	39
R00288	COM	NCA1	70	70	70	70	43	39	46	48	46	44	44	46	29	26	26	36
R00289	COM	NCA1	70	70	70	70	62	61	65	67	65	63	63	65	28	25	25	35
R00290	COM	NCA1	70	70	70	70	40	38	43	45	43	41	41	43	27	24	26	34
R00291	COM	NCA1	70	70	70	70	41	42	44	46	44	42	42	44	28	25	24	35
R00292	COM	NCA1	70	70	70	70	63	63	66	68	66	64	64	66	26	23	25	33
R00293	COM	NCA1	70	70	70	70	51	48	54	56	54	52	52	54	27	24	26	34
R00294	COM	NCA1	70	70	70	70	41	42	44	46	44	42	42	44	28	25	26	35
R00295	COM	NCA1	70	70	70	70	58	55	61	63	61	59	59	61	28	25	31	35
R00296	COM	NCA1	70	70	70	70	50	57	53	55	53	51	51	53	33	30	26	40
R00297	COM	NCA1	70	70	70	70	62	59	65	67	65	63	63	65	28	25	25	35
R00298	COM	NCA1	70	70	70	70	68	68	71	73	71	69	69	71	27	24	27	34
R00299	COM	NCA1	70	70	70	70	60	53	63	65	63	61	61	63	29	26	26	36
R00300	COM	NCA1	70	70	70	70	59	61	62	64	62	60	60	62	28	25	27	35
R00301	COM	NCA1	70	70	70	70	44	45	47	49	47	45	45	47	29	26	29	36
R00302	COM	NCA1	70	70	70	70	51	48	54	56	54	52	52	54	31	28	23	38
R00303	COM	NCA1	70	70	70	70	56	54	59	61	59	57	57	59	25	22	31	32
R00304	COM	NCA1	70	70	70	70	55	53	58	60	58	56	56	58	33	30	31	40
R00305	COM	NCA1	70	70	70	70	50	47	53	55	53	51	51	53	33	30	27	40
R00306	COM	NCA1	70	70	70	70	73	68	76	78	76	74	74	76	29	26	30	36
R00307	COM	NCA1	70	70	70	70	58	55	61	63	61	59	59	61	32	29	27	39
R00308	COM	NCA1	70	70	70	70	41	40	44	46	44	42	42	44	29	26	27	36
R00309	COM	NCA1	70	70	70	70	47	47	50	52	50	48	48	50	29	26	25	36
R00310	COM	NCA1	70	70	70	70	70	68	73	75	73	71	71	73	27	24	27	34
R00311	COM	NCA1	70	70	70	70	54	52	57	59	57	55	55	57	29	26	26	36
R00312	COM	NCA1	70	70	70	70	79	83	82	84	82	80	80	82	28	25	28	35
R00313	COM	NCA1	70	70	70	70	91	87	94	96	94	92	92	94	30	27	25	37
R00314	COM	NCA1	70	70	70	70	81	76	84	86	84	82	82	84	27	24	30	34
R00315	COM	NCA1	70	70	70	70	58	56	61	63	61	59	59	61	32	29	31	39
R00316	COM	NCA1	70	70	70	70	63	61	66	68	66	64	64	66	33	30	21	40
R00317	COM	NCA1	70	70	70	70	60	58	63	65	63	61	61	63	23	20	26	30
R00318	COM	NCA1	70	70	70	70	41	40	44	46	44	42	42	44	28	25	28	35
R00319	COM	NCA1	70	70	70	70	66	65	69	71	69	67	67	69	30	27	29	37
R00320	COM	NCA1	70	70	70	70	58	58	61	63	61	59	59	61	31	28	28	38
R00321	COM	NCA1	70	70	70	70	50	49	53	55	53	51	51	53	30	27	31	37
R00322	COM	NCA1	70	70	70	70	91	81	94	96	94	92	92	94	33	30	29	40
R00323	COM	NCA1	70	70	70	70	61	64	64	66	64	62	62	64	31	28	25	38
R00324	COM	NCA1	70	70	70	70	85	90	88	90	88	86	86	88	27	24	26	34
R00325	COM	NCA1	70	70	70	70	42	41	45	47	45	43	43	45	28	25	28	35
R00326	COM	NCA1	70	70	70	70	79	87	82	84	82	80	80	82	30	27	30	37
R00327	COM	NCA1	70	70	70	70	75	85	78	80	78	76	76	78	32	29	23	39
R00328	COM	NCA1	70	70	70	70	50	50	53	55	53	51	51	53	25	22	28	32
R00329	COM	NCA1	70	70	70	70	61	63	64	66	64	62	62	64	30	27	35	37

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00330	COM	NCA1	70	70	70	70	66	66	69	71	69	67	67	69	37	34	36	44
R00331	COM	NCA1	70	70	70	70	57	58	60	62	60	58	58	60	38	35	25	45
R00332	COM	NCA1	70	70	70	70	82	83	85	87	85	83	83	85	27	24	32	34
R00333	COM	NCA1	70	70	70	70	78	82	81	83	81	79	79	81	34	31	42	41
R00334	COM	NCA1	70	70	70	70	54	56	57	59	57	55	55	57	44	41	28	51
R00335	COM	NCA1	70	70	70	70	81	84	84	86	84	82	82	84	30	27	36	37
R00336	COM	NCA1	70	70	70	70	57	56	60	62	60	58	58	60	38	35	34	45
R00337	COM	NCA1	70	70	70	70	83	78	86	88	86	84	84	86	36	33	34	43
R00338	COM	NCA1	70	70	70	70	70	68	73	75	73	71	71	73	36	33	42	43
R00339	COM	NCA1	70	70	70	70	56	56	59	61	59	57	57	59	44	41	34	51
R00340	COM	NCA1	70	70	70	70	89	81	92	94	92	90	90	92	36	33	45	43
R00341	COM	NCA1	70	70	70	70	58	57	61	63	61	59	59	61	47	44	27	54
R00342	COM	NCA1	70	70	70	70	73	71	76	78	76	74	74	76	29	26	26	36
R00343	COM	NCA1	70	70	70	70	93	103	96	98	96	94	94	96	28	25	44	35
R00344	COM	NCA1	70	70	70	70	52	50	55	57	55	53	53	55	46	43	36	53
R00345	COM	NCA1	70	70	70	70	85	82	88	90	88	86	86	88	38	35	37	45
R00346	COM	NCA1	70	70	70	70	85	82	88	90	88	86	86	88	39	36	42	46
R00347	COM	NCA1	70	70	70	70	38	35	41	43	41	39	39	41	44	41	29	51
R00348	COM	NCA1	70	70	70	70	70	67	73	75	73	71	71	73	31	28	47	38
R00349	COM	NCA1	70	70	70	70	47	45	50	52	50	48	48	50	49	46	44	56
R00350	COM	NCA1	70	70	70	70	78	81	81	83	81	79	79	81	46	43	45	53
R00351	COM	NCA1	70	70	70	70	45	43	48	50	48	46	46	48	47	44	32	54
R00352	COM	NCA1	70	70	70	70	61	59	64	66	64	62	62	64	34	31	43	41
R00353	COM	NCA1	70	70	70	70	57	56	60	62	60	58	58	60	45	42	37	52
R00354	COM	NCA1	70	70	70	70	100	86	103	105	103	101	101	103	39	36	29	46
R00355	COM	NCA1	70	70	70	70	74	72	77	79	77	75	75	77	31	28	30	38
R00356	COM	NCA1	70	70	70	70	70	68	73	75	73	71	71	73	32	29	46	39
R00357	COM	NCA1	70	70	70	70	81	82	84	86	84	82	82	84	48	45	49	55
R00358	COM	NCA1	70	70	70	70	53	51	56	58	56	54	54	56	51	48	26	58
R00359	COM	NCA1	70	70	70	70	25	23	28	30	28	26	26	28	28	25	46	35
R00360	COM	NCA1	70	70	70	70	53	51	56	58	56	54	54	56	48	45	42	55
R00361	COM	NCA1	70	70	70	70	51	49	54	56	54	52	52	54	44	41	28	51
R00362	COM	NCA1	70	70	70	70	36	34	39	41	39	37	37	39	30	27	42	37
R00363	COM	NCA1	70	70	70	70	54	52	57	59	57	55	55	57	44	41	39	51
R00364	COM	NCA1	70	70	70	70	80	81	83	85	83	81	81	83	41	38	46	48
R00365	COM	NCA1	70	70	70	70	66	65	69	71	69	67	67	69	48	45	41	55
R00366	COM	NCA1	70	70	70	70	79	85	82	84	82	80	80	82	43	40	25	50
R00367	COM	NCA1	70	70	70	70	38	35	41	43	41	39	39	41	27	24	39	34
R00368	COM	NCA1	70	70	70	70	48	46	51	53	51	49	49	51	41	38	26	48
R00369	COM	NCA1	70	70	70	70	42	40	45	47	45	43	43	45	28	25	48	35
R00370	COM	NCA1	70	70	70	70	58	57	61	63	61	59	59	61	50	47	50	57
R00371	COM	NCA1	70	70	70	70	65	60	68	70	68	66	66	68	52	49	46	59
R00372	COM	NCA1	70	70	70	70	70	68	73	75	73	71	71	73	48	45	47	55
R00373	COM	NCA1	70	70	70	70	50	48	53	55	53	51	51	53	49	46	43	56
R00374	COM	NCA1	70	70	70	70	48	46	51	53	51	49	49	51	45	42	42	52
R00375	COM	NCA1	70	70	70	70	57	54	60	62	60	58	58	60	44	41	41	51
R00376	COM	NCA1	70	70	70	70	43	41	46	48	46	44	44	46	43	40	52	50

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00377	COM	NCA1	70	70	70	70	50	48	53	55	53	51	51	53	54	51	40	61
R00378	COM	NCA1	70	70	70	70	42	40	45	47	45	43	43	45	42	39	46	49
R00379	COM	NCA1	70	70	70	70	46	45	49	51	49	47	47	49	48	45	45	55
R00380	COM	NCA1	70	70	70	70	48	46	51	53	51	49	49	51	47	44	49	54
R00381	COM	NCA1	70	70	70	70	61	60	64	66	64	62	62	64	51	48	47	58
R00382	COM	NCA1	70	70	70	70	47	45	50	52	50	48	48	50	49	46	50	56
R00383	RES	NCA1	58	53	51	46	47	45	50	52	50	48	48	50	52	49	46	59
R00384	COM	NCA1	70	70	70	70	46	44	49	51	49	47	47	49	48	45	34	55
R00385	COM	NCA1	70	70	70	70	44	42	47	49	47	45	45	47	36	33	50	43
R00386	COM	NCA1	70	70	70	70	49	47	52	54	52	50	50	52	52	49	47	59
R00387	COM	NCA1	70	70	70	70	41	39	44	46	44	42	42	44	49	46	47	56
R00388	COM	NCA1	70	70	70	70	46	44	49	51	49	47	47	49	49	46	34	56
R00389	COM	NCA1	70	70	70	70	50	49	53	55	53	51	51	53	36	33	52	43
R00390	COM	NCA1	70	70	70	70	51	50	54	56	54	52	52	54	54	51	51	61
R00391	RES	NCA1	58	53	51	46	46	44	49	51	49	47	47	49	53	50	50	60
R00392	COM	NCA1	70	70	70	70	59	58	62	64	62	60	60	62	52	49	51	59
R00394	COM	NCA1	70	70	70	70	48	46	51	53	51	49	49	51	57	54	39	64
R00395	COM	NCA1	70	70	70	70	56	53	59	61	59	57	57	59	41	38	53	48
R00396	RES	NCA1	58	53	51	46	46	44	49	51	49	47	47	49	55	52	46	62
R00397	COM	NCA1	70	70	70	70	44	42	47	49	47	45	45	47	48	45	63	55
R00398	COM	NCA1	70	70	70	70	51	47	54	56	54	52	52	54	65	62	66	72
R00399	COM	NCA1	70	70	70	70	45	43	48	50	48	46	46	48	68	65	52	75
R00401	COM	NCA1	70	70	70	70	44	42	47	49	47	45	45	47	63	60	66	70
R00402	COM	NCA1	70	70	70	70	51	47	54	56	54	52	52	54	68	65	62	75
R00403	COM	NCA1	70	70	70	70	43	41	46	48	46	44	44	46	64	61	63	71
R00404	COM	NCA1	70	70	70	70	41	39	44	46	44	42	42	44	65	62	59	72
R00405	COM	NCA1	70	70	70	70	42	40	45	47	45	43	43	45	61	58	65	68
R00406	COM	NCA1	70	70	70	70	47	45	50	52	50	48	48	50	67	64	63	74
R00407	COM	NCA1	70	70	70	70	53	50	56	58	56	54	54	56	65	62	46	72
R00408	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	48	45	68	55
R00409	COM	NCA1	70	70	70	70	37	35	40	42	40	38	38	40	70	67	63	77
R00410	COM	NCA1	70	70	70	70	38	36	41	43	41	39	39	41	65	62	69	72
R00411	COM	NCA1	70	70	70	70	41	39	44	46	44	42	42	44	71	68	57	78
R00412	COM	NCA1	70	70	70	70	37	35	40	42	40	38	38	40	59	56	56	66
R00413	COM	NCA1	70	70	70	70	38	36	41	43	41	39	39	41	58	55	68	65
R00414	COM	NCA1	70	70	70	70	39	37	42	44	42	40	40	42	70	67	69	77
R00415	COM	NCA1	70	70	70	70	39	38	42	44	42	40	40	42	71	68	45	78
R00416	COM	NCA1	70	70	70	70	36	34	39	41	39	37	37	39	47	44	75	54
R00417	COM	NCA1	70	70	70	70	40	38	43	45	43	41	41	43	77	74	58	84
R00418	COM	NCA1	70	70	70	70	38	36	41	43	41	39	39	41	60	57	70	67
R00419	COM	NCA1	70	70	70	70	38	36	41	43	41	39	39	41	72	69	50	79
R00420	COM	NCA1	70	70	70	70	38	36	41	43	41	39	39	41	52	49	99	59
R00421	COM	NCA1	70	70	70	70	39	37	42	44	42	40	40	42	101	98	87	108
R00422	COM	NCA1	70	70	70	70	41	39	44	46	44	42	42	44	89	86	54	96
R00423	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	56	53	37	63
R00424	COM	NCA1	70	70	70	70	35	33	38	40	38	36	36	38	39	36	39	46
R00425	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	41	38	42	48

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00426	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	44	41	105	51
R00427	COM	NCA1	70	70	70	70	33	32	36	38	36	34	34	36	107	104	48	114
R00428	COM	NCA1	70	70	70	70	32	28	35	37	35	33	33	35	50	47	63	57
R00429	COM	NCA1	70	70	70	70	41	39	44	46	44	42	42	44	65	62	40	72
R00430	COM	NCA1	70	70	70	70	33	30	36	38	36	34	34	36	42	39	47	49
R00431	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	49	46	59	56
R00432	COM	NCA1	70	70	70	70	39	37	42	44	42	40	40	42	61	58	46	68
R00433	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	48	45	40	55
R00434	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	42	39	36	49
R00435	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	38	35	47	45
R00436	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	49	46	58	56
R00437	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	60	57	42	67
R00438	COM	NCA1	70	70	70	70	33	31	36	38	36	34	34	36	44	41	60	51
R00439	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	62	59	39	69
R00440	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	41	38	57	48
R00441	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	59	56	56	66
R00442	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	58	55	64	65
R00443	COM	NCA1	70	70	70	70	27	25	30	32	30	28	28	30	66	63	55	73
R00444	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	57	54	62	64
R00445	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	64	61	38	71
R00446	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	40	37	55	47
R00447	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	57	54	48	64
R00448	COM	NCA1	70	70	70	70	25	23	28	30	28	26	26	28	50	47	47	57
R00449	COM	NCA1	70	70	70	70	26	24	29	31	29	27	27	29	49	46	48	56
R00450	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	50	47	45	57
R00451	COM	NCA1	70	70	70	70	25	23	28	30	28	26	26	28	47	44	47	54
R00452	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	49	46	22	56
R00453	COM	NCA1	70	70	70	70	17	15	20	22	20	18	18	20	24	21	44	31
R00454	COM	NCA1	70	70	70	70	25	23	28	30	28	26	26	28	46	43	24	53
R00455	COM	NCA1	70	70	70	70	18	16	21	23	21	19	19	21	26	23	55	33
R00456	COM	NCA1	70	70	70	70	36	34	39	41	39	37	37	39	57	54	53	64
R00457	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	55	52	57	62
R00458	RES	NCA1	58	53	51	46	35	33	38	40	38	36	36	38	59	56	45	66
R00459	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	47	44	57	54
R00460	RES	NCA1	58	53	51	46	33	31	36	38	36	34	34	36	59	56	56	66
R00461	RES	NCA1	58	53	51	46	36	34	39	41	39	37	37	39	58	55	50	65
R00462	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	52	49	53	59
R00463	RES	NCA1	58	53	51	46	36	34	39	41	39	37	37	39	55	52	21	62
R00464	COM	NCA1	70	70	70	70	15	13	18	20	18	16	16	18	23	20	53	30
R00465	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	55	52	40	62
R00466	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	42	39	55	49
R00467	RES	NCA1	58	53	51	46	32	30	35	37	35	33	33	35	57	54	39	64
R00468	COM	NCA1	70	70	70	70	27	25	30	32	30	28	28	30	41	38	36	48
R00469	COM	NCA1	70	70	70	70	25	24	28	30	28	26	26	28	38	35	51	45
R00470	RES	NCA1	58	53	51	46	36	34	39	41	39	37	37	39	53	50	40	60
R00471	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	42	39	28	49
R00472	COM	NCA1	70	70	70	70	14	12	17	19	17	15	15	17	30	27	45	37

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00473	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	47	44	52	54
R00474	RES	NCA1	58	53	51	46	34	32	37	39	37	35	35	37	54	51	53	61
R00475	RES	NCA1	58	53	51	46	33	30	36	38	36	34	34	36	55	52	43	62
R00476	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	45	42	32	52
R00477	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	34	31	44	41
R00478	RES	NCA1	58	53	51	46	33	31	36	38	36	34	34	36	46	43	47	53
R00479	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	49	46	45	56
R00480	RES	NCA1	58	53	51	46	27	26	30	32	30	28	28	30	47	44	46	54
R00481	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	48	45	44	55
R00482	COM	NCA1	70	70	70	70	34	32	37	39	37	35	35	37	46	43	44	53
R00483	RES	NCA1	58	53	51	46	33	31	36	38	36	34	34	36	46	43	52	53
R00484	RES	NCA1	58	53	51	46	33	31	36	38	36	34	34	36	54	51	50	61
R00485	RES	NCA1	58	53	51	46	34	32	37	39	37	35	35	37	52	49	31	59
R00486	COM	NCA1	70	70	70	70	25	23	28	30	28	26	26	28	33	30	51	40
R00487	RES	NCA1	58	53	51	46	34	32	37	39	37	35	35	37	53	50	35	60
R00488	COM	NCA1	70	70	70	70	24	22	27	29	27	25	25	27	37	34	59	44
R00489	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	61	58	40	68
R00490	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	42	39	29	49
R00491	COM	NCA1	70	70	70	70	15	13	18	20	18	16	16	18	31	28	45	38
R00492	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	47	44	45	54
R00493	RES	NCA1	58	53	51	46	34	32	37	39	37	35	35	37	47	44	45	54
R00494	RES	NCA1	58	53	51	46	32	30	35	37	35	33	33	35	47	44	43	54
R00495	RES	NCA1	58	53	51	46	34	32	37	39	37	35	35	37	45	42	41	52
R00496	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	43	40	51	50
R00497	RES	NCA1	58	53	51	46	33	31	36	38	36	34	34	36	53	50	44	60
R00498	RES	NCA1	58	53	51	46	34	32	37	39	37	35	35	37	46	43	38	53
R00499	RES	NCA1	58	53	51	46	26	24	29	31	29	27	27	29	40	37	50	47
R00500	RES	NCA1	58	53	51	46	32	30	35	37	35	33	33	35	52	49	44	59
R00501	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	46	43	40	53
R00502	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	42	39	38	49
R00503	RES	NCA1	58	53	51	46	26	24	29	31	29	27	27	29	40	37	50	47
R00504	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	52	49	44	59
R00505	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	46	43	37	53
R00506	RES	NCA1	58	53	51	46	26	24	29	31	29	27	27	29	39	36	44	46
R00507	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	46	43	44	53
R00508	RES	NCA1	58	53	51	46	33	31	36	38	36	34	34	36	46	43	48	53
R00509	RES	NCA1	58	53	51	46	34	31	37	39	37	35	35	37	50	47	49	57
R00510	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	51	48	43	58
R00511	RES	NCA1	58	53	51	46	35	33	38	40	38	36	36	38	45	42	41	52
R00512	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	43	40	49	50
R00513	RES	NCA1	58	53	51	46	34	32	37	39	37	35	35	37	51	48	36	58
R00514	RES	NCA1	58	53	51	46	25	24	28	30	28	26	26	28	38	35	38	45
R00515	COM	NCA1	70	70	70	70	25	23	28	30	28	26	26	28	40	37	41	47
R00516	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	43	40	36	50
R00517	COM	NCA1	70	70	70	70	23	21	26	28	26	24	24	26	38	35	42	45
R00518	RES	NCA1	58	53	51	46	26	24	29	31	29	27	27	29	44	41	41	51
R00519	RES	NCA1	58	53	51	46	34	32	37	39	37	35	35	37	43	40	30	50

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00520	COM	NCA1	70	70	70	70	23	21	26	28	26	24	24	26	32	29	33	39
R00521	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	35	32	41	42
R00522	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	43	40	41	50
R00523	RES	NCA1	58	53	51	46	26	24	29	31	29	27	27	29	43	40	41	50
R00524	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	43	40	46	50
R00525	RES	NCA1	58	53	51	46	34	32	37	39	37	35	35	37	48	45	40	55
R00526	RES	NCA1	58	53	51	46	26	24	29	31	29	27	27	29	42	39	47	49
R00527	RES	NCA1	58	53	51	46	33	31	36	38	36	34	34	36	49	46	38	56
R00528	COM	NCA1	70	70	70	70	25	23	28	30	28	26	26	28	40	37	41	47
R00529	RES	NCA1	58	53	51	46	33	31	36	38	36	34	34	36	43	40	41	50
R00530	RES	NCA1	58	53	51	46	33	31	36	38	36	34	34	36	43	40	44	50
R00531	RES	NCA1	58	53	51	46	34	32	37	39	37	35	35	37	46	43	46	53
R00532	RES	NCA1	58	53	51	46	32	30	35	37	35	33	33	35	48	45	39	55
R00533	RES	NCA1	58	53	51	46	26	23	29	31	29	27	27	29	41	38	28	48
R00534	COM	NCA1	70	70	70	70	22	20	25	27	25	23	23	25	30	27	35	37
R00535	COM	NCA1	70	70	70	70	23	20	26	28	26	24	24	26	37	34	34	44
R00536	COM	NCA1	70	70	70	70	31	29	34	36	34	32	32	34	36	33	46	43
R00537	RES	NCA1	58	53	51	46	32	30	35	37	35	33	33	35	48	45	36	55
R00538	COM	NCA1	70	70	70	70	24	22	27	29	27	25	25	27	38	35	33	45
R00539	RES	NCA1	58	53	51	46	24	23	27	29	27	25	25	27	35	32	38	42
R00540	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	40	37	34	47
R00541	COM	NCA1	70	70	70	70	23	21	26	28	26	24	24	26	36	33	45	43
R00542	RES	NCA1	58	53	51	46	33	30	36	38	36	34	34	36	47	44	42	54
R00543	RES	NCA1	58	53	51	46	29	28	32	34	32	30	30	32	44	41	32	51
R00544	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	34	31	37	41
R00545	RES	NCA1	58	53	51	46	32	30	35	37	35	33	33	35	39	36	40	46
R00546	RES	NCA1	58	53	51	46	32	28	35	37	35	33	33	35	42	39	40	49
R00547	RES	NCA1	58	53	51	46	32	30	35	37	35	33	33	35	42	39	38	49
R00548	RES	NCA1	58	53	51	46	25	23	28	30	28	26	26	28	40	37	35	47
R00549	COM	NCA1	70	70	70	70	24	21	27	29	27	25	25	27	37	34	35	44
R00550	COM	NCA1	70	70	70	70	28	26	31	33	31	29	29	31	37	34	33	44
R00551	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	35	32	38	42
R00552	RES	NCA1	58	53	51	46	25	23	28	30	28	26	26	28	40	37	34	47
R00553	COM	NCA1	70	70	70	70	23	21	26	28	26	24	24	26	36	33	18	43
R00554	COM	NCA1	70	70	70	70	14	12	17	19	17	15	15	17	20	17	44	27
R00555	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	46	43	32	53
R00556	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	34	31	37	41
R00557	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	39	36	29	46
R00558	COM	NCA1	70	70	70	70	22	20	25	27	25	23	23	25	31	28	43	38
R00559	RES	NCA1	58	53	51	46	33	31	36	38	36	34	34	36	45	42	34	52
R00560	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	36	33	30	43
R00561	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	32	29	37	39
R00562	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	39	36	30	46
R00563	COM	NCA1	70	70	70	70	22	20	25	27	25	23	23	25	32	29	38	39
R00564	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	40	37	43	47
R00565	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	45	42	37	52
R00566	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	39	36	33	46

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00567	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	35	32	31	42
R00568	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	33	30	37	40
R00569	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	39	36	38	46
R00570	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	40	37	30	47
R00571	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	32	29	32	39
R00572	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	34	31	37	41
R00573	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	39	36	38	46
R00574	RES	NCA1	58	53	51	46	32	30	35	37	35	33	33	35	40	37	32	47
R00575	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	34	31	42	41
R00576	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	44	41	43	51
R00577	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	45	42	35	52
R00578	COM	NCA1	70	70	70	70	25	23	28	30	28	26	26	28	37	34	30	44
R00579	RES	NCA1	58	53	51	46	23	21	26	28	26	24	24	26	32	29	33	39
R00580	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	35	32	31	42
R00581	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	33	30	29	40
R00582	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	31	28	35	38
R00583	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	37	34	33	44
R00584	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	35	32	34	42
R00585	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	36	33	31	43
R00586	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	33	30	37	40
R00587	RES	NCA1	58	53	51	46	25	25	28	30	28	26	26	28	39	36	37	46
R00588	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	39	36	23	46
R00589	COM	NCA1	70	70	70	70	18	16	21	23	21	19	19	21	25	22	31	32
R00590	RES	NCA1	58	53	51	46	26	24	29	31	29	27	27	29	33	30	20	40
R00591	RES	NCA1	58	53	51	46	16	14	19	21	19	17	17	19	22	19	11	29
R00592	RES	NCA1	58	53	51	46	7	5	10	12	10	8	8	10	13	10	12	20
R00593	RES	NCA1	58	53	51	46	6	4	9	11	9	7	7	9	14	11	31	21
R00594	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	33	30	43	40
R00595	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	45	42	42	52
R00596	RES	NCA1	58	53	51	46	30	27	33	35	33	31	31	33	44	41	33	51
R00597	COM	NCA1	70	70	70	70	30	28	33	35	33	31	31	33	35	32	12	42
R00598	RES	NCA1	58	53	51	46	8	6	11	13	11	9	9	11	14	11	33	21
R00599	COM	NCA1	70	70	70	70	29	27	32	34	32	30	30	32	35	32	31	42
R00600	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	33	30	31	40
R00601	RES	NCA1	58	53	51	46	23	20	26	28	26	24	24	26	33	30	31	40
R00602	RES	NCA1	58	53	51	46	23	21	26	28	26	24	24	26	33	30	13	40
R00603	RES	NCA1	58	53	51	46	9	7	12	14	12	10	10	12	15	12	12	22
R00604	RES	NCA1	58	53	51	46	8	6	11	13	11	9	9	11	14	11	37	21
R00605	RES	NCA1	58	53	51	46	31	28	34	36	34	32	32	34	39	36	30	46
R00606	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	32	29	34	39
R00607	RES	NCA1	58	53	51	46	24	23	27	29	27	25	25	27	36	33	36	43
R00608	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	38	35	30	45
R00609	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	32	29	16	39
R00610	RES	NCA1	58	53	51	46	11	9	14	16	14	12	12	14	18	15	31	25
R00611	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	33	30	35	40
R00612	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	37	34	37	44
R00613	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	39	36	37	46

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00614	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	39	36	32	46
R00615	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	34	31	15	41
R00616	RES	NCA1	58	53	51	46	11	9	14	16	14	12	12	14	17	14	43	24
R00617	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	45	42	16	52
R00618	RES	NCA1	58	53	51	46	11	9	14	16	14	12	12	14	18	15	42	25
R00619	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	44	41	18	51
R00620	RES	NCA1	58	53	51	46	13	11	16	18	16	14	14	16	20	17	19	27
R00621	RES	NCA1	58	53	51	46	14	12	17	19	17	15	15	17	21	18	35	28
R00622	RES	NCA1	58	53	51	46	23	21	26	28	26	24	24	26	37	34	36	44
R00623	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	38	35	37	45
R00624	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	39	36	20	46
R00625	RES	NCA1	58	53	51	46	14	12	17	19	17	15	15	17	22	19	21	29
R00626	RES	NCA1	58	53	51	46	16	14	19	21	19	17	17	19	23	20	37	30
R00627	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	39	36	36	46
R00628	RES	NCA1	58	53	51	46	27	24	30	32	30	28	28	30	38	35	29	45
R00629	RES	NCA1	58	53	51	46	23	21	26	28	26	24	24	26	31	28	15	38
R00630	RES	NCA1	58	53	51	46	10	8	13	15	13	11	11	13	17	14	27	24
R00631	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	29	26	30	36
R00632	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	32	29	20	39
R00633	RES	NCA1	58	53	51	46	16	14	19	21	19	17	17	19	22	19	20	29
R00634	RES	NCA1	58	53	51	46	16	13	19	21	19	17	17	19	22	19	26	29
R00635	RES	NCA1	58	53	51	46	20	19	23	25	23	21	21	23	28	25	42	35
R00636	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	44	41	19	51
R00637	RES	NCA1	58	53	51	46	16	14	19	21	19	17	17	19	21	18	32	28
R00638	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	34	31	41	41
R00639	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	43	40	37	50
R00640	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	39	36	32	46
R00641	RES	NCA1	58	53	51	46	29	26	32	34	32	30	30	32	34	31	36	41
R00642	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	38	35	32	45
R00643	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	34	31	32	41
R00644	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	34	31	22	41
R00645	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	24	21	31	31
R00646	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	33	30	32	40
R00647	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	34	31	34	41
R00648	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	36	33	36	43
R00649	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	38	35	17	45
R00650	RES	NCA1	58	53	51	46	12	10	15	17	15	13	13	15	19	16	18	26
R00651	RES	NCA1	58	53	51	46	12	10	15	17	15	13	13	15	20	17	41	27
R00652	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	43	40	21	50
R00653	RES	NCA1	58	53	51	46	17	15	20	22	20	18	18	20	23	20	30	30
R00654	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	32	29	19	39
R00655	RES	NCA1	58	53	51	46	12	10	15	17	15	13	13	15	21	18	31	28
R00656	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	33	30	27	40
R00657	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	29	26	27	36
R00659	RES	NCA1	58	53	51	46	21	20	24	26	24	22	22	24	32	29	21	39
R00660	RES	NCA1	58	53	51	46	18	16	21	23	21	19	19	21	23	20	19	30
R00661	RES	NCA1	58	53	51	46	12	10	15	17	15	13	13	15	21	18	29	28

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00662	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	41	38
R00663	RES	NCA1	58	53	51	46	25	23	28	30	28	26	26	28	43	40	20	50
R00664	RES	NCA1	58	53	51	46	13	11	16	18	16	14	14	16	22	19	29	29
R00665	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	35	38
R00666	RES	NCA1	58	53	51	46	24	23	27	29	27	25	25	27	37	34	32	44
R00667	RES	NCA1	58	53	51	46	26	24	29	31	29	27	27	29	34	31	32	41
R00668	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	34	31	21	41
R00669	RES	NCA1	58	53	51	46	16	14	19	21	19	17	17	19	23	20	36	30
R00670	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	38	35	28	45
R00671	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	30	27	28	37
R00672	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	30	27	30	37
R00673	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	32	29	23	39
R00674	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	25	22	36	32
R00675	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	38	35	27	45
R00676	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	29	26	19	36
R00677	RES	NCA1	58	53	51	46	11	9	14	16	14	12	12	14	21	18	32	28
R00678	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	34	31	26	41
R00679	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	28	25	21	35
R00680	RES	NCA1	58	53	51	46	17	15	20	22	20	18	18	20	23	20	31	30
R00681	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	33	30	20	40
R00682	RES	NCA1	58	53	51	46	12	10	15	17	15	13	13	15	22	19	40	29
R00683	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	42	39	40	49
R00684	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	42	39	22	49
R00685	RES	NCA1	58	53	51	46	18	15	21	23	21	19	19	21	24	21	22	31
R00686	RES	NCA1	58	53	51	46	18	16	21	23	21	19	19	21	24	21	22	31
R00687	RES	NCA1	58	53	51	46	18	15	21	23	21	19	19	21	24	21	40	31
R00688	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	42	39	20	49
R00689	RES	NCA1	58	53	51	46	13	11	16	18	16	14	14	16	22	19	23	29
R00690	RES	NCA1	58	53	51	46	23	21	26	28	26	24	24	26	25	22	28	32
R00691	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	30	27	31	37
R00692	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	33	30	35	40
R00693	RES	NCA1	58	53	51	46	31	28	34	36	34	32	32	34	37	34	23	44
R00694	RES	NCA1	58	53	51	46	17	15	20	22	20	18	18	20	25	22	30	32
R00695	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	32	29	21	39
R00696	RES	NCA1	58	53	51	46	14	12	17	19	17	15	15	17	23	20	35	30
R00697	RES	NCA1	58	53	51	46	31	29	34	36	34	32	32	34	37	34	22	44
R00698	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	24	21	23	31
R00699	RES	NCA1	58	53	51	46	17	15	20	22	20	18	18	20	25	22	20	32
R00700	RES	NCA1	58	53	51	46	12	10	15	17	15	13	13	15	22	19	35	29
R00701	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	37	34	24	44
R00702	RES	NCA1	58	53	51	46	18	16	21	23	21	19	19	21	26	23	25	33
R00703	RES	NCA1	58	53	51	46	23	21	26	28	26	24	24	26	27	24	31	34
R00704	RES	NCA1	58	53	51	46	24	23	27	29	27	25	25	27	33	30	31	40
R00705	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	33	30	27	40
R00706	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	29	26	25	36
R00707	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	27	24	29	34
R00708	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	31	38

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00709	RES	NCA1	58	53	51	46	25	23	28	30	28	26	26	28	33	30	27	40
R00710	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	29	26	31	36
R00711	RES	NCA1	58	53	51	46	25	23	28	30	28	26	26	28	33	30	40	40
R00712	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	42	39	24	49
R00713	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	26	23	27	33
R00714	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	29	26	28	36
R00715	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	30	27	26	37
R00716	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	28	25	27	35
R00717	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	29	26	28	36
R00718	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	30	27	29	37
R00719	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	31	38
R00720	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	33	30	31	40
R00721	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	33	30	39	40
R00722	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	41	38	24	48
R00723	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	26	23	30	33
R00724	RES	NCA1	58	53	51	46	20	19	23	25	23	21	21	23	32	29	28	39
R00725	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	30	27	29	37
R00726	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	29	38
R00727	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	31	28	40	38
R00728	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	42	39	15	49
R00729	RES	NCA1	58	53	51	46	12	10	15	17	15	13	13	15	17	14	26	24
R00730	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	28	25	27	35
R00731	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	29	26	30	36
R00732	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	32	29	29	39
R00733	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	31	28	29	38
R00734	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	31	28	24	38
R00735	RES	NCA1	58	53	51	46	14	12	17	19	17	15	15	17	26	23	25	33
R00736	RES	NCA1	58	53	51	46	15	13	18	20	18	16	16	18	27	24	29	34
R00737	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	31	28	39	38
R00738	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	41	38	27	48
R00739	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	29	26	27	36
R00740	RES	NCA1	58	53	51	46	23	21	26	28	26	24	24	26	29	26	37	36
R00741	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	39	36	35	46
R00742	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	37	34	26	44
R00743	RES	NCA1	58	53	51	46	18	16	21	23	21	19	19	21	28	25	30	35
R00744	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	32	29	26	39
R00745	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	28	25	31	35
R00746	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	33	30	27	40
R00747	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	29	26	29	36
R00748	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	31	28	39	38
R00749	RES	NCA1	58	53	51	46	25	22	28	30	28	26	26	28	41	38	26	48
R00750	RES	NCA1	58	53	51	46	19	16	22	24	22	20	20	22	28	25	35	35
R00751	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	37	34	27	44
R00752	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	29	26	30	36
R00753	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	32	29	38	39
R00754	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	40	37	31	47
R00755	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	33	30	29	40

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00756	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	27	38
R00757	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	29	26	27	36
R00758	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	29	26	28	36
R00759	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	30	27	29	37
R00760	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	24	38
R00761	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	26	23	27	33
R00762	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	29	26	28	36
R00763	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	30	27	28	37
R00764	RES	NCA1	58	53	51	46	29	26	32	34	32	30	30	32	30	27	29	37
R00765	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	31	28	30	38
R00766	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	32	29	29	39
R00767	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	34	38
R00768	RES	NCA1	58	53	51	46	29	26	32	34	32	30	30	32	36	33	30	43
R00769	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	32	29	28	39
R00770	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	30	27	38	37
R00771	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	40	37	33	47
R00772	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	35	32	30	42
R00773	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	32	29	29	39
R00774	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	31	28	31	38
R00775	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	33	30	28	40
R00776	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	30	27	30	37
R00777	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	32	29	28	39
R00778	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	30	27	37	37
R00779	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	39	36	30	46
R00780	RES	NCA1	58	53	51	46	26	24	29	31	29	27	27	29	32	29	30	39
R00781	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	32	29	28	39
R00782	RES	NCA1	58	53	51	46	21	18	24	26	24	22	22	24	30	27	30	37
R00783	RES	NCA1	58	53	51	46	26	24	29	31	29	27	27	29	32	29	29	39
R00784	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	31	28	24	38
R00785	RES	NCA1	58	53	51	46	19	18	22	24	22	20	20	22	26	23	29	33
R00786	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	23	38
R00787	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	25	22	30	32
R00788	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	32	29	31	39
R00789	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	33	30	36	40
R00790	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	38	35	30	45
R00791	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	32	29	30	39
R00792	RES	NCA1	58	53	51	46	27	24	30	32	30	28	28	30	32	29	26	39
R00793	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	28	25	28	35
R00794	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	30	27	29	37
R00795	RES	NCA1	58	53	51	46	26	24	29	31	29	27	27	29	31	28	29	38
R00796	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	31	28	38	38
R00797	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	40	37	29	47
R00798	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	29	38
R00799	RES	NCA1	58	53	51	46	22	19	25	27	25	23	23	25	31	28	38	38
R00800	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	40	37	32	47
R00801	RES	NCA1	58	53	51	46	25	23	28	30	28	26	26	28	34	31	29	41
R00802	RES	NCA1	58	53	51	46	25	22	28	30	28	26	26	28	31	28	29	38

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00803	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	23	38
R00804	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	25	22	30	32
R00805	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	32	29	29	39
R00806	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	31	28	29	38
R00807	RES	NCA1	58	53	51	46	21	20	24	26	24	22	22	24	31	28	28	38
R00808	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	30	27	32	37
R00809	RES	NCA1	58	53	51	46	22	21	25	27	25	23	23	25	34	31	33	41
R00810	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	35	32	23	42
R00811	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	25	22	32	32
R00812	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	34	31	29	41
R00813	RES	NCA1	58	53	51	46	26	24	29	31	29	27	27	29	31	28	28	38
R00814	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	30	27	33	37
R00815	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	35	32	19	42
R00816	RES	NCA1	58	53	51	46	15	13	18	20	18	16	16	18	21	18	37	28
R00817	RES	NCA1	58	53	51	46	25	23	28	30	28	26	26	28	39	36	25	46
R00818	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	27	24	29	34
R00819	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	31	28	38	38
R00820	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	40	37	38	47
R00821	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	40	37	30	47
R00822	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	32	29	29	39
R00823	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	31	28	33	38
R00824	RES	NCA1	58	53	51	46	23	22	26	28	26	24	24	26	35	32	31	42
R00825	RES	NCA1	58	53	51	46	21	20	24	26	24	22	22	24	33	30	27	40
R00826	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	29	26	33	36
R00827	RES	NCA1	58	53	51	46	23	21	26	28	26	24	24	26	35	32	29	42
R00828	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	29	38
R00829	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	28	38
R00830	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	30	27	26	37
R00831	RES	NCA1	58	53	51	46	21	18	24	26	24	22	22	24	28	25	29	35
R00832	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	31	28	26	38
R00833	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	28	25	26	35
R00834	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	28	25	37	35
R00835	RES	NCA1	58	53	51	46	30	28	33	35	33	31	31	33	39	36	31	46
R00836	RES	NCA1	58	53	51	46	23	21	26	28	26	24	24	26	33	30	31	40
R00837	RES	NCA1	58	53	51	46	23	21	26	28	26	24	24	26	33	30	26	40
R00838	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	28	25	33	35
R00839	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	35	32	33	42
R00840	RES	NCA1	58	53	51	46	23	21	26	28	26	24	24	26	35	32	33	42
R00841	RES	NCA1	58	53	51	46	22	21	25	27	25	23	23	25	35	32	32	42
R00842	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	34	31	31	41
R00843	RES	NCA1	58	53	51	46	23	21	26	28	26	24	24	26	33	30	31	40
R00844	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	33	30	29	40
R00845	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	31	28	29	38
R00846	RES	NCA1	58	53	51	46	25	23	28	30	28	26	26	28	31	28	22	38
R00847	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	24	21	32	31
R00848	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	34	31	28	41
R00849	RES	NCA1	58	53	51	46	25	23	28	30	28	26	26	28	30	27	29	37

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Ever	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00850	RES	NCA1	58	53	51	46	21	20	24	26	24	22	22	24	31	28	32	38
R00851	RES	NCA1	58	53	51	46	23	21	26	28	26	24	24	26	34	31	28	41
R00852	RES	NCA1	58	53	51	46	25	21	28	30	28	26	26	28	30	27	29	37
R00853	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	31	28	32	38
R00854	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	34	31	27	41
R00855	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	29	26	37	36
R00856	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	39	36	28	46
R00857	RES	NCA1	58	53	51	46	25	23	28	30	28	26	26	28	30	27	26	37
R00858	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	28	25	29	35
R00859	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	20	38
R00860	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	22	19	27	29
R00861	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	29	26	28	36
R00862	RES	NCA1	58	53	51	46	23	21	26	28	26	24	24	26	30	27	28	37
R00863	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	30	27	29	37
R00864	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	33	38
R00865	RES	NCA1	58	53	51	46	23	22	26	28	26	24	24	26	35	32	27	42
R00866	RES	NCA1	58	53	51	46	25	22	28	30	28	26	26	28	29	26	29	36
R00867	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	31	28	29	38
R00868	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	31	28	37	38
R00869	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	39	36	28	46
R00870	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	30	27	29	37
R00871	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	31	28	29	38
R00872	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	29	38
R00873	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	31	28	30	38
R00874	RES	NCA1	58	53	51	46	23	21	26	28	26	24	24	26	32	29	29	39
R00875	RES	NCA1	58	53	51	46	23	20	26	28	26	24	24	26	31	28	29	38
R00876	RES	NCA1	58	53	51	46	22	21	25	27	25	23	23	25	31	28	30	38
R00877	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	32	29	30	39
R00878	RES	NCA1	58	53	51	46	23	22	26	28	26	24	24	26	32	29	26	39
R00879	RES	NCA1	58	53	51	46	20	19	23	25	23	21	21	23	28	25	29	35
R00880	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	25	38
R00881	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	27	24	23	34
R00882	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	25	22	37	32
R00883	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	39	36	24	46
R00884	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	26	23	29	33
R00885	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	31	28	32	38
R00886	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	34	31	29	41
R00887	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	31	28	32	38
R00888	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	34	31	31	41
R00889	RES	NCA1	58	53	51	46	29	27	32	34	32	30	30	32	33	30	19	40
R00890	RES	NCA1	58	53	51	46	16	14	19	21	19	17	17	19	21	18	24	28
R00891	RES	NCA1	58	53	51	46	19	17	22	24	22	20	20	22	26	23	26	33
R00892	RES	NCA1	58	53	51	46	27	25	30	32	30	28	28	30	28	25	24	35
R00893	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	26	23	31	33
R00894	RES	NCA1	58	53	51	46	28	26	31	33	31	29	29	31	33	30	25	40
R00895	RES	NCA1	58	53	51	46	23	21	26	28	26	24	24	26	27	24	27	34
R00896	RES	NCA1	58	53	51	46	23	21	26	28	26	24	24	26	29	26	27	36

Receiver ID	Receiver Type	NCA	CNML, dBA				Predicted LAeq(15 min), dBA											
			Standard ho	OOHW Day	OOHW Eve	OOHW Nigh	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12
R00897	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	29	26	28	36
R00898	RES	NCA1	58	53	51	46	21	20	24	26	24	22	22	24	30	27	26	37
R00899	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	28	25	32	35
R00900	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	34	31	24	41
R00901	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	26	23	28	33
R00902	RES	NCA1	58	53	51	46	26	24	29	31	29	27	27	29	30	27	28	37
R00903	RES	NCA1	58	53	51	46	25	23	28	30	28	26	26	28	30	27	28	37
R00904	RES	NCA1	58	53	51	46	25	23	28	30	28	26	26	28	30	27	26	37
R00905	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	28	25	27	35
R00906	RES	NCA1	58	53	51	46	26	24	29	31	29	27	27	29	29	26	26	36
R00907	RES	NCA1	58	53	51	46	25	23	28	30	28	26	26	28	28	25	28	35
R00908	RES	NCA1	58	53	51	46	21	20	24	26	24	22	22	24	30	27	29	37
R00909	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	31	28	28	38
R00910	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	30	27	30	37
R00911	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	32	29	29	39
R00912	RES	NCA1	58	53	51	46	19	18	22	24	22	20	20	22	31	28	24	38
R00913	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	26	23	26	33
R00914	RES	NCA1	58	53	51	46	21	18	24	26	24	22	22	24	28	25	30	35
R00915	RES	NCA1	58	53	51	46	22	20	25	27	25	23	23	25	32	29	26	39
R00916	RES	NCA1	58	53	51	46	20	18	23	25	23	21	21	23	28	25	27	35
R00917	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	29	26	26	36
R00918	RES	NCA1	58	53	51	46	20	19	23	25	23	21	21	23	28	25	26	35
R00919	RES	NCA1	58	53	51	46	19	18	22	24	22	20	20	22	28	25	31	35
R00920	RES	NCA1	58	53	51	46	24	22	27	29	27	25	25	27	33	30	26	40
R00921	RES	NCA1	58	53	51	46	19	18	22	24	22	20	20	22	28	25	27	35
R00922	RES	NCA1	58	53	51	46	20	19	23	25	23	21	21	23	29	26	29	36
R00923	RES	NCA1	58	53	51	46	21	19	24	26	24	22	22	24	31	28	42	38
R00924	COM	NCA1	70	70	70	70	32	30	35	37	35	33	33	35	44	41	58	51
R00926	COM	NCA1	70	70	70	70	49	42	52	54	52	50	50	52	60	57	34	67

Appendix E – Exceedances of construction noise management levels

RID	Usage	NCA	Noise Management Level	HNL	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8	CS9	CS10	CS11	CS12	Additional Mitigation Measures Type
Standard construction hours																	
Pink cells indicate clearly "Noticeable" (exceedance above NML)																	
Yellow Cells indicate "Clearly Audible" (<10 dBA exceedance above NML)																	
Orange Cells indicate "Moderately Intrusive" (10-20 exceedance above NML)																	
Red Shaded Cells indicate "Highly Intrusive" (>20 dBA exceedance above NML)																	
Bold cells indicate exceedance of the Highly Noise Affected (HNA) criteria																	
R00383	Residential	NCA1	58	75	47	45	50	52	50	48	48	50	52	49	46	59	N/A
R00391	Residential	NCA1	58	75	46	44	49	51	49	47	47	49	53	50	50	60	N/A
R00396	Residential	NCA1	58	75	46	44	49	51	49	47	47	49	55	52	46	62	N/A
R00458	Residential	NCA1	58	75	35	33	38	40	38	36	36	38	59	56	45	66	N/A
R00460	Residential	NCA1	58	75	33	31	36	38	36	34	34	36	59	56	56	66	N/A
R00461	Residential	NCA1	58	75	36	34	39	41	39	37	37	39	58	55	50	65	N/A
R00463	Residential	NCA1	58	75	36	34	39	41	39	37	37	39	55	52	21	62	N/A
R00465	Residential	NCA1	58	75	29	27	32	34	32	30	30	32	55	52	40	62	N/A
R00467	Residential	NCA1	58	75	32	30	35	37	35	33	33	35	57	54	39	64	N/A
R00470	Residential	NCA1	58	75	36	34	39	41	39	37	37	39	53	50	40	60	N/A
R00474	Residential	NCA1	58	75	34	32	37	39	37	35	35	37	54	51	53	61	N/A
R00475	Residential	NCA1	58	75	33	30	36	38	36	34	34	36	55	52	43	62	N/A
R00484	Residential	NCA1	58	75	33	31	36	38	36	34	34	36	54	51	50	61	N/A
R00485	Residential	NCA1	58	75	34	32	37	39	37	35	35	37	52	49	31	59	N/A
R00487	Residential	NCA1	58	75	34	32	37	39	37	35	35	37	53	50	35	60	N/A
R00497	Residential	NCA1	58	75	33	31	36	38	36	34	34	36	53	50	44	60	N/A
R00500	Residential	NCA1	58	75	32	30	35	37	35	33	33	35	52	49	44	59	N/A
R00504	Residential	NCA1	58	75	30	28	33	35	33	31	31	33	52	49	44	59	N/A
Outside of standard construction hours - Daytime																	
Pink cells indicate clearly "Noticeable" (<5 dBA exceedance)																	
Yellow Cells indicate "Clearly Audible" (5-15 dBA exceedance)																	
Orange Cells indicate "Moderately Intrusive" (15-25 dBA exceedance)																	
Red Shaded Cells indicate "Highly Intrusive" (>25 dBA exceedance)																	
Bold cells indicate exceedance of the Highly Noise Affected (HNA) criteria - N,V,PC,RO mitigation measures																	
R00383	Residential	NCA1	53	75	47	45	50	52	50	48	48	50	52	49	46	59	N,R1,DR

RID	Usage	NCA	Noise Management Level	HNL	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8	CS9	CS10	CS11	CS12	Additional Mitigation Measures Type
R00391	Residential	NCA1	53	75	46	44	49	51	49	47	47	49	53	50	50	60	N,R1,DR
R00396	Residential	NCA1	53	75	46	44	49	51	49	47	47	49	55	52	46	62	N,R1,DR
R00458	Residential	NCA1	53	75	35	33	38	40	38	36	36	38	59	56	45	66	N,R1,DR
R00460	Residential	NCA1	53	75	33	31	36	38	36	34	34	36	59	56	56	66	N,R1,DR
R00461	Residential	NCA1	53	75	36	34	39	41	39	37	37	39	58	55	50	65	N,R1,DR
R00463	Residential	NCA1	53	75	36	34	39	41	39	37	37	39	55	52	21	62	N,R1,DR
R00465	Residential	NCA1	53	75	29	27	32	34	32	30	30	32	55	52	40	62	N,R1,DR
R00467	Residential	NCA1	53	75	32	30	35	37	35	33	33	35	57	54	39	64	N,R1,DR
R00470	Residential	NCA1	53	75	36	34	39	41	39	37	37	39	53	50	40	60	N,R1,DR
R00474	Residential	NCA1	53	75	34	32	37	39	37	35	35	37	54	51	53	61	N,R1,DR
R00475	Residential	NCA1	53	75	33	30	36	38	36	34	34	36	55	52	43	62	N,R1,DR
R00480	Residential	NCA1	53	75	27	26	30	32	30	28	28	30	47	44	46	54	N/A
R00481	Residential	NCA1	53	75	28	26	31	33	31	29	29	31	48	45	44	55	N/A
R00484	Residential	NCA1	53	75	33	31	36	38	36	34	34	36	54	51	50	61	N,R1,DR
R00485	Residential	NCA1	53	75	34	32	37	39	37	35	35	37	52	49	31	59	N,R1,DR
R00492	Residential	NCA1	53	75	27	25	30	32	30	28	28	30	47	44	45	54	N/A
R00493	Residential	NCA1	53	75	34	32	37	39	37	35	35	37	47	44	45	54	N/A
R00494	Residential	NCA1	53	75	32	30	35	37	35	33	33	35	47	44	43	54	N/A
R00497	Residential	NCA1	53	75	33	31	36	38	36	34	34	36	53	50	44	60	N,R1,DR
R00500	Residential	NCA1	53	75	32	30	35	37	35	33	33	35	52	49	44	59	N,R1,DR
R00504	Residential	NCA1	53	75	30	28	33	35	33	31	31	33	52	49	44	59	N,R1,DR
R00509	Residential	NCA1	53	75	34	31	37	39	37	35	35	37	50	47	49	57	N/A
R00510	Residential	NCA1	53	75	31	29	34	36	34	32	32	34	51	48	43	58	N,R1,DR
R00513	Residential	NCA1	53	75	34	32	37	39	37	35	35	37	51	48	36	58	N,R1,DR
R00525	Residential	NCA1	53	75	34	32	37	39	37	35	35	37	48	45	40	55	N/A
R00527	Residential	NCA1	53	75	33	31	36	38	36	34	34	36	49	46	38	56	N/A
R00532	Residential	NCA1	53	75	32	30	35	37	35	33	33	35	48	45	39	55	N/A
R00537	Residential	NCA1	53	75	32	30	35	37	35	33	33	35	48	45	36	55	N/A
R00542	Residential	NCA1	53	75	33	30	36	38	36	34	34	36	47	44	42	54	N/A

Outside of standard construction hours - Evening

Pink cells indicate clearly "Noticeable" (<5 dBA exceedance)

RID	Usage	NCA	Noise Management Level	HNL	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8	CS9	CS10	CS11	CS12	Additional Mitigation Measures Type
Yellow Cells indicate "Clearly Audible" (5-15 dBA exceedance)																	
Orange Cells indicate "Moderately Intrusive" (15-25 dBA exceedance)																	
Red Shaded Cells indicate "Highly Intrusive" (>25 dBA exceedance)																	
Bold cells indicate exceedance of the Highly Noise Affected (HNA) criteria - N,V,PC,RO mitigation measures																	
R00383	Residential	NCA1	51	75	47	45	50	52	50	48	48	50	52	49	46	59	N,R1,DR
R00391	Residential	NCA1	51	75	46	44	49	51	49	47	47	49	53	50	50	60	N,R1,DR
R00396	Residential	NCA1	51	75	46	44	49	51	49	47	47	49	55	52	46	62	N,R1,DR
R00458	Residential	NCA1	51	75	35	33	38	40	38	36	36	38	59	56	45	66	N,R1,DR
R00460	Residential	NCA1	51	75	33	31	36	38	36	34	34	36	59	56	56	66	N,R1,DR
R00461	Residential	NCA1	51	75	36	34	39	41	39	37	37	39	58	55	50	65	N,R1,DR
R00463	Residential	NCA1	51	75	36	34	39	41	39	37	37	39	55	52	21	62	N,R1,DR
R00465	Residential	NCA1	51	75	29	27	32	34	32	30	30	32	55	52	40	62	N,R1,DR
R00467	Residential	NCA1	51	75	32	30	35	37	35	33	33	35	57	54	39	64	N,R1,DR
R00470	Residential	NCA1	51	75	36	34	39	41	39	37	37	39	53	50	40	60	N,R1,DR
R00474	Residential	NCA1	51	75	34	32	37	39	37	35	35	37	54	51	53	61	N,R1,DR
R00475	Residential	NCA1	51	75	33	30	36	38	36	34	34	36	55	52	43	62	N,R1,DR
R00478	Residential	NCA1	51	75	33	31	36	38	36	34	34	36	46	43	47	53	N/A
R00480	Residential	NCA1	51	75	27	26	30	32	30	28	28	30	47	44	46	54	N/A
R00481	Residential	NCA1	51	75	28	26	31	33	31	29	29	31	48	45	44	55	N/A
R00483	Residential	NCA1	51	75	33	31	36	38	36	34	34	36	46	43	52	53	N/A
R00484	Residential	NCA1	51	75	33	31	36	38	36	34	34	36	54	51	50	61	N,R1,DR
R00485	Residential	NCA1	51	75	34	32	37	39	37	35	35	37	52	49	31	59	N,R1,DR
R00487	Residential	NCA1	51	75	34	32	37	39	37	35	35	37	53	50	35	60	N,R1,DR
R00492	Residential	NCA1	51	75	27	25	30	32	30	28	28	30	47	44	45	54	N/A
R00493	Residential	NCA1	51	75	34	32	37	39	37	35	35	37	47	44	45	54	N/A
R00494	Residential	NCA1	51	75	32	30	35	37	35	33	33	35	47	44	43	54	N/A
R00495	Residential	NCA1	51	75	34	32	37	39	37	35	35	37	45	42	41	52	N/A
R00497	Residential	NCA1	51	75	33	31	36	38	36	34	34	36	53	50	44	60	N,R1,DR
R00498	Residential	NCA1	51	75	34	32	37	39	37	35	35	37	46	43	38	53	N/A
R00500	Residential	NCA1	51	75	32	30	35	37	35	33	33	35	52	49	44	59	N,R1,DR
R00501	Residential	NCA1	51	75	27	25	30	32	30	28	28	30	46	43	40	53	N/A

RID	Usage	NCA	Noise Management Level	HNL	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8	CS9	CS10	CS11	CS12	Additional Mitigation Measures Type
R00504	Residential	NCA1	51	75	30	28	33	35	33	31	31	33	52	49	44	59	N,R1,DR
R00505	Residential	NCA1	51	75	27	25	30	32	30	28	28	30	46	43	37	53	N/A
R00507	Residential	NCA1	51	75	27	25	30	32	30	28	28	30	46	43	44	53	N/A
R00508	Residential	NCA1	51	75	33	31	36	38	36	34	34	36	46	43	48	53	N/A
R00509	Residential	NCA1	51	75	34	31	37	39	37	35	35	37	50	47	49	57	N,R1,DR
R00510	Residential	NCA1	51	75	31	29	34	36	34	32	32	34	51	48	43	58	N,R1,DR
R00511	Residential	NCA1	51	75	35	33	38	40	38	36	36	38	45	42	41	52	N/A
R00513	Residential	NCA1	51	75	34	32	37	39	37	35	35	37	51	48	36	58	N,R1,DR
R00525	Residential	NCA1	51	75	34	32	37	39	37	35	35	37	48	45	40	55	N/A
R00527	Residential	NCA1	51	75	33	31	36	38	36	34	34	36	49	46	38	56	N/A
R00531	Residential	NCA1	51	75	34	32	37	39	37	35	35	37	46	43	46	53	N/A
R00532	Residential	NCA1	51	75	32	30	35	37	35	33	33	35	48	45	39	55	N/A
R00537	Residential	NCA1	51	75	32	30	35	37	35	33	33	35	48	45	36	55	N/A
R00542	Residential	NCA1	51	75	33	30	36	38	36	34	34	36	47	44	42	54	N/A
R00555	Residential	NCA1	51	75	31	29	34	36	34	32	32	34	46	43	32	53	N/A
R00559	Residential	NCA1	51	75	33	31	36	38	36	34	34	36	45	42	34	52	N/A
R00565	Residential	NCA1	51	75	30	28	33	35	33	31	31	33	45	42	37	52	N/A
R00577	Residential	NCA1	51	75	31	29	34	36	34	32	32	34	45	42	35	52	N/A
R00595	Residential	NCA1	51	75	31	29	34	36	34	32	32	34	45	42	42	52	N/A
R00617	Residential	NCA1	51	75	31	29	34	36	34	32	32	34	45	42	16	52	N/A
R00045	Residential	NCA2	44	75	28	26	31	33	31	29	29	31	53	50	46	60	V,N,R1,DR
Outside of standard construction hours - Night																	
Pink cells indicate clearly "Noticeable" (<5 dBA exceedance)																	
Yellow Cells indicate "Clearly Audible" (5-15 dBA exceedance)																	
Orange Cells indicate "Moderately Intrusive" (15-25 dBA exceedance)																	
Red Shaded Cells indicate "Highly Intrusive" (>25 dBA exceedance)																	
Bold cells indicate exceedance of the Highly Noise Affected (HNA) criteria - N,V,PC,RO mitigation measures																	
R00383	Residential	NCA1	46	75	47	45	50	52	50	48	48	50	52	49	46	59	V,N,R2,DR
R00391	Residential	NCA1	46	75	46	44	49	51	49	47	47	49	53	50	50	60	V,N,R2,DR
R00396	Residential	NCA1	46	75	46	44	49	51	49	47	47	49	55	52	46	62	V,IB,N,PC,SN,R2,DR
R00458	Residential	NCA1	46	75	35	33	38	40	38	36	36	38	59	56	45	66	V,IB,N,PC,SN,R2,DR

RID	Usage	NCA	Noise Management Level	HNL	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8	CS9	CS10	CS11	CS12	Additional Mitigation Measures Type
R00460	Residential	NCA1	46	75	33	31	36	38	36	34	34	36	59	56	56	66	V,IB,N,PC,SN,R2,DR
R00461	Residential	NCA1	46	75	36	34	39	41	39	37	37	39	58	55	50	65	V,IB,N,PC,SN,R2,DR
R00463	Residential	NCA1	46	75	36	34	39	41	39	37	37	39	55	52	21	62	V,IB,N,PC,SN,R2,DR
R00465	Residential	NCA1	46	75	29	27	32	34	32	30	30	32	55	52	40	62	V,IB,N,PC,SN,R2,DR
R00466	Residential	NCA1	46	75	27	25	30	32	30	28	28	30	42	39	55	49	V,N,R2,DR
R00467	Residential	NCA1	46	75	32	30	35	37	35	33	33	35	57	54	39	64	V,IB,N,PC,SN,R2,DR
R00470	Residential	NCA1	46	75	36	34	39	41	39	37	37	39	53	50	40	60	V,N,R2,DR
R00471	Residential	NCA1	46	75	30	28	33	35	33	31	31	33	42	39	28	49	N
R00474	Residential	NCA1	46	75	34	32	37	39	37	35	35	37	54	51	53	61	V,N,R2,DR
R00475	Residential	NCA1	46	75	33	30	36	38	36	34	34	36	55	52	43	62	V,IB,N,PC,SN,R2,DR
R00478	Residential	NCA1	46	75	33	31	36	38	36	34	34	36	46	43	47	53	V,N,R2,DR
R00480	Residential	NCA1	46	75	27	26	30	32	30	28	28	30	47	44	46	54	V,N,R2,DR
R00481	Residential	NCA1	46	75	28	26	31	33	31	29	29	31	48	45	44	55	V,N,R2,DR
R00483	Residential	NCA1	46	75	33	31	36	38	36	34	34	36	46	43	52	53	V,N,R2,DR
R00484	Residential	NCA1	46	75	33	31	36	38	36	34	34	36	54	51	50	61	V,N,R2,DR
R00485	Residential	NCA1	46	75	34	32	37	39	37	35	35	37	52	49	31	59	V,N,R2,DR
R00487	Residential	NCA1	46	75	34	32	37	39	37	35	35	37	53	50	35	60	V,N,R2,DR
R00490	Residential	NCA1	46	75	27	25	30	32	30	28	28	30	42	39	29	49	N
R00492	Residential	NCA1	46	75	27	25	30	32	30	28	28	30	47	44	45	54	V,N,R2,DR
R00493	Residential	NCA1	46	75	34	32	37	39	37	35	35	37	47	44	45	54	V,N,R2,DR
R00494	Residential	NCA1	46	75	32	30	35	37	35	33	33	35	47	44	43	54	V,N,R2,DR
R00495	Residential	NCA1	46	75	34	32	37	39	37	35	35	37	45	42	41	52	V,N,R2,DR
R00497	Residential	NCA1	46	75	33	31	36	38	36	34	34	36	53	50	44	60	V,N,R2,DR
R00498	Residential	NCA1	46	75	34	32	37	39	37	35	35	37	46	43	38	53	V,N,R2,DR
R00499	Residential	NCA1	46	75	26	24	29	31	29	27	27	29	40	37	50	47	N
R00500	Residential	NCA1	46	75	32	30	35	37	35	33	33	35	52	49	44	59	V,N,R2,DR
R00501	Residential	NCA1	46	75	27	25	30	32	30	28	28	30	46	43	40	53	V,N,R2,DR
R00503	Residential	NCA1	46	75	26	24	29	31	29	27	27	29	40	37	50	47	N
R00504	Residential	NCA1	46	75	30	28	33	35	33	31	31	33	52	49	44	59	V,N,R2,DR
R00505	Residential	NCA1	46	75	27	25	30	32	30	28	28	30	46	43	37	53	V,N,R2,DR
R00507	Residential	NCA1	46	75	27	25	30	32	30	28	28	30	46	43	44	53	V,N,R2,DR

RID	Usage	NCA	Noise Management Level	HNL	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8	CS9	CS10	CS11	CS12	Additional Mitigation Measures Type
R00508	Residential	NCA1	46	75	33	31	36	38	36	34	34	36	46	43	48	53	V,N,R2,DR
R00509	Residential	NCA1	46	75	34	31	37	39	37	35	35	37	50	47	49	57	V,N,R2,DR
R00510	Residential	NCA1	46	75	31	29	34	36	34	32	32	34	51	48	43	58	V,N,R2,DR
R00511	Residential	NCA1	46	75	35	33	38	40	38	36	36	38	45	42	41	52	V,N,R2,DR
R00512	Residential	NCA1	46	75	31	29	34	36	34	32	32	34	43	40	49	50	N
R00513	Residential	NCA1	46	75	34	32	37	39	37	35	35	37	51	48	36	58	V,N,R2,DR
R00518	Residential	NCA1	46	75	26	24	29	31	29	27	27	29	44	41	41	51	N
R00519	Residential	NCA1	46	75	34	32	37	39	37	35	35	37	43	40	30	50	N
R00523	Residential	NCA1	46	75	26	24	29	31	29	27	27	29	43	40	41	50	N
R00524	Residential	NCA1	46	75	30	28	33	35	33	31	31	33	43	40	46	50	N
R00525	Residential	NCA1	46	75	34	32	37	39	37	35	35	37	48	45	40	55	V,N,R2,DR
R00526	Residential	NCA1	46	75	26	24	29	31	29	27	27	29	42	39	47	49	N
R00527	Residential	NCA1	46	75	33	31	36	38	36	34	34	36	49	46	38	56	V,N,R2,DR
R00529	Residential	NCA1	46	75	33	31	36	38	36	34	34	36	43	40	41	50	N
R00530	Residential	NCA1	46	75	33	31	36	38	36	34	34	36	43	40	44	50	N
R00531	Residential	NCA1	46	75	34	32	37	39	37	35	35	37	46	43	46	53	V,N,R2,DR
R00532	Residential	NCA1	46	75	32	30	35	37	35	33	33	35	48	45	39	55	V,N,R2,DR
R00533	Residential	NCA1	46	75	26	23	29	31	29	27	27	29	41	38	28	48	N
R00537	Residential	NCA1	46	75	32	30	35	37	35	33	33	35	48	45	36	55	V,N,R2,DR
R00540	Residential	NCA1	46	75	31	29	34	36	34	32	32	34	40	37	34	47	N
R00542	Residential	NCA1	46	75	33	30	36	38	36	34	34	36	47	44	42	54	V,N,R2,DR
R00543	Residential	NCA1	46	75	29	28	32	34	32	30	30	32	44	41	32	51	N
R00546	Residential	NCA1	46	75	32	28	35	37	35	33	33	35	42	39	40	49	N
R00547	Residential	NCA1	46	75	32	30	35	37	35	33	33	35	42	39	38	49	N
R00548	Residential	NCA1	46	75	25	23	28	30	28	26	26	28	40	37	35	47	N
R00552	Residential	NCA1	46	75	25	23	28	30	28	26	26	28	40	37	34	47	N
R00555	Residential	NCA1	46	75	31	29	34	36	34	32	32	34	46	43	32	53	V,N,R2,DR
R00559	Residential	NCA1	46	75	33	31	36	38	36	34	34	36	45	42	34	52	V,N,R2,DR
R00564	Residential	NCA1	46	75	30	28	33	35	33	31	31	33	40	37	43	47	N
R00565	Residential	NCA1	46	75	30	28	33	35	33	31	31	33	45	42	37	52	V,N,R2,DR
R00570	Residential	NCA1	46	75	31	29	34	36	34	32	32	34	40	37	30	47	N

RID	Usage	NCA	Noise Management Level	HNL	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8	CS9	CS10	CS11	CS12	Additional Mitigation Measures Type
R00574	Residential	NCA1	46	75	32	30	35	37	35	33	33	35	40	37	32	47	N
R00576	Residential	NCA1	46	75	31	29	34	36	34	32	32	34	44	41	43	51	N
R00577	Residential	NCA1	46	75	31	29	34	36	34	32	32	34	45	42	35	52	V,N,R2,DR
R00595	Residential	NCA1	46	75	31	29	34	36	34	32	32	34	45	42	42	52	V,N,R2,DR
R00596	Residential	NCA1	46	75	30	27	33	35	33	31	31	33	44	41	33	51	N
R00617	Residential	NCA1	46	75	31	29	34	36	34	32	32	34	45	42	16	52	V,N,R2,DR
R00619	Residential	NCA1	46	75	30	28	33	35	33	31	31	33	44	41	18	51	N
R00636	Residential	NCA1	46	75	31	29	34	36	34	32	32	34	44	41	19	51	N
R00639	Residential	NCA1	46	75	30	28	33	35	33	31	31	33	43	40	37	50	N
R00652	Residential	NCA1	46	75	31	29	34	36	34	32	32	34	43	40	21	50	N
R00663	Residential	NCA1	46	75	25	23	28	30	28	26	26	28	43	40	20	50	N
R00683	Residential	NCA1	46	75	30	28	33	35	33	31	31	33	42	39	40	49	N
R00684	Residential	NCA1	46	75	30	28	33	35	33	31	31	33	42	39	22	49	N
R00688	Residential	NCA1	46	75	30	28	33	35	33	31	31	33	42	39	20	49	N
R00712	Residential	NCA1	46	75	30	28	33	35	33	31	31	33	42	39	24	49	N
R00722	Residential	NCA1	46	75	30	28	33	35	33	31	31	33	41	38	24	48	N
R00728	Residential	NCA1	46	75	29	27	32	34	32	30	30	32	42	39	15	49	N
R00738	Residential	NCA1	46	75	29	27	32	34	32	30	30	32	41	38	27	48	N
R00749	Residential	NCA1	46	75	25	22	28	30	28	26	26	28	41	38	26	48	N
R00754	Residential	NCA1	46	75	30	28	33	35	33	31	31	33	40	37	31	47	N
R00771	Residential	NCA1	46	75	28	26	31	33	31	29	29	31	40	37	33	47	N
R00797	Residential	NCA1	46	75	29	27	32	34	32	30	30	32	40	37	29	47	N
R00800	Residential	NCA1	46	75	30	28	33	35	33	31	31	33	40	37	32	47	N
R00820	Residential	NCA1	46	75	30	28	33	35	33	31	31	33	40	37	38	47	N
R00821	Residential	NCA1	46	75	28	26	31	33	31	29	29	31	40	37	30	47	N
R00011	Residential	NCA2	38	75	21	19	24	26	24	22	22	24	39	36	34	46	V,N,R2,DR
R00013	Residential	NCA2	38	75	22	20	25	27	25	23	23	25	39	36	36	46	V,N,R2,DR
R00016	Residential	NCA2	38	75	15	14	18	20	18	16	16	18	41	38	34	48	V,N,R2,DR
R00018	Residential	NCA2	38	75	23	21	26	28	26	24	24	26	42	39	33	49	V,N,R2,DR
R00035	Residential	NCA2	38	75	22	20	25	27	25	23	23	25	44	41	31	51	V,N,R2,DR
R00045	Residential	NCA2	38	75	28	26	31	33	31	29	29	31	53	50	46	60	V,IB,N,PC,SN,R2,DR

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Document Status

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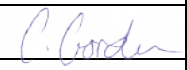
0A	M. Velasco	C. Gordon		G. Morton		27/08/2018

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