TECHNICAL REPORT

10

Operational Noise and Vibration Impact Assessment (Non-Rail)

ILLABO TO STOCKINBINGAL ENVIRONMENTAL IMPACT STATEMENT

Technical and Approvals Consultancy Services: Illabo to Stockinbingal

Technical Paper 10 – Operational Noise and Vibration Impact Assessment (Non-Rail)

August 2022

2-0001-220-EEC-00-RP-0002

Table of contents

Table of contents (continued)

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

Glossary and abbreviations

'A' Frequency Weighting	Frequency weighting applied to sound levels to approximate the relative loudness of different frequencies perceived by the human ear.
ARTC	Australian Rail Track Corporation
AS	Australian Standards
AVTG	Assessing Vibration Technical Guide
BS	British Standards
CEMP	Construction Environmental Management Plan
CNVF	Construction Noise and Vibration Framework
CNVMP	Construction Noise and Vibration Management Plan
CNVS	Construction Noise and Vibration Strategy
dB	Decibel
DEC	NSW Department of Environment and Conservation
DIN	Deutsches Institut für Normung (German Institute for Standardisation)
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EPL	Environment Protection Licence
Equivalent Continuous Sound Level, L_{Aeq}	Many sounds, such as rail noise, vary repeatedly in level over a period of time. The L_{Aeq} is the A weighted single figure noise level which represents the same amount of energy as the time varying signal over a period of time. The decibel scale is a logarithmic ratio, so the higher noise levels have far more sound energy, and therefore the L_{Aeq} level tends to indicate an average which is strongly influenced by short term, high level noise events. Many studies show that human reaction to level-varying sounds tends to relate closer to the L_{Aeq} noise level than any other descriptor.
'F' (Fast) Time Weighting	Standardised time averaging constant of 0.125 seconds
HV	Heavy vehicle
I2S	Illabo to Stockinbingal
ICNG	Interim Construction Noise Guideline
IRDJV	Inland Rail Design Joint Venture – WSP Australia | Mott MacDonald Joint Venture legal entity
Maximum Noise Level, L_{AFmax}	The Root-Mean-Square maximum sound pressure level measured with sound level meter using the 'A' frequency weighting and the 'F' (Fast) time weighting.

Maximum Noise Level, L_{ASmax}	The Root-Mean-Square maximum sound pressure level measured with sound level meter using the 'A' frequency weighting and the 'S' (Slow) time weighting.
NATA	National Association of Testing Authorities
NML	Noise Management Levels
NPfI	Noise Policy for Industry
NSW	New South Wales
PPV	Peak Component Particle Velocity
RBL	Rating Background Level
RMS	Roads and Maritime Services
RNP	Road Noise Policy
'S' (Slow) Time Weighting	Standardised time averaging constant of 1 second
SEARs	Secretary's Environmental Assessment Requirements
Sound Exposure Level, SEL	A parameter closely related to L_{Aeq} for assessment of events such as trains that have similar characteristics but are of different duration. The SEL value contains the same amount of acoustic energy over a 'normalised' 1-second period as the actual noise event under consideration.
Sound Pressure Level, SPL	The basic unit of sound measurement is the sound pressure level. The pressures are converted to a logarithmic scale and expressed in decibels (dB).
Sound Power Level, SWL	Sound power represents the inherent sound energy of a source. The sound power level is a logarithmic measure of the sound power in comparison to a specified reference level (dB).
Statistical Noise Levels, Ln	Noise which varies in level over a specific period of time 'T' (standard measurement times are 15 minute periods) may be quantified in terms of various statistical descriptors. The noise level, in decibels, exceeded for 1 % of the measurement time period, when 'A' frequency weighted and 'F' time weighted is reference to as $L_{AF1,T}$. This may be used for describing short-term noise levels such as could cause sleep arousal during the night. The noise level, in decibels, exceeded for 10 % of the measurement time period, when 'A' frequency weighted and 'F' time weighted is reference to as $L_{AF10,T}$. The noise level, in decibels, exceeded for 90 % of the measurement time period, when 'A' frequency weighted and 'F' time weighted is reference to as $L_{AF90,T}$. It is used to describe the background noise level.
TfNSW	Transport for New South Wales
Vibration Dose Value, VDV	The VDV is given by the fourth root of the integral with respect to time of the fourth power of the acceleration after it has been weighted.

1 Introduction

1.1 Overview

The Australian Government has committed to delivering a significant piece of national transport infrastructure by constructing a high performance and direct interstate freight rail corridor between Melbourne and Brisbane. Inland Rail involves the design and construction of a new inland rail connection, about 1,700 kilometre (km) long, between Melbourne and Brisbane. Inland Rail is a major national proposal that will enhance Australia's existing national rail network and serve the interstate freight market.

Australian Rail Track Corporation Ltd (ARTC) is seeking approval to construct and operate the Illabo to Stockinbingal section of Inland Rail ('the proposal'), which has a total extent of about 42.5km, and consists of about 39km of new, greenfield single track standard gauge railway and associated infrastructure between Illabo and Stockinbingal.

The proposal requires approval from the NSW Minister for Planning under Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposal is also a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and requires approval from the Australian Government Minister for the Environment.

This report has been prepared by Inland Rail Design Joint Venture (WSP/Mott Macdonald) as part of the environmental impact statement (EIS) for the proposal. The EIS has been prepared to accompany the application for approval of the proposal and addresses the Secretary's Environmental Assessment Requirements (SEARs) from the Secretary of the (then) NSW Department of Planning, Industry and Environment (now the Department of Planning and Environment), issued on 30 April 2021.

1.2 The proposal

The proposal is located between Illabo and Stockinbingal within the Riverina region of NSW. The location of the proposal is shown in Figure 1.1.

1.2.1 Key features

The key features of the proposal (which would be confirmed during detailed design) are shown in Figure 1.2 and includes:

- a total extent of about 42.5 kilometres, including about 39 kilometres of new, greenfield single track standard gauge railway between Illabo and Stockinbingal, including:
  - a combination of track vertical alignments on existing ground level, on embankments and in cuttings
  - 8 new bridges at watercourses, two road overbridges and one grade separated (road over rail) at Burley Griffin Way
  - one crossing loop and associated maintenance siding
  - construction of new level crossings and alterations of existing level crossings (at public roads and private accesses)
  - stock underpasses and other vehicular crossings on private land to allow for the movement of livestock and vehicles across the rail line
  - installation and upgrade of about 88 new and existing cross drainage culverts below the rail formation and 27 longitudinal drainage culverts below level crossings
  - removal of redundant sections of track along the existing Stockinbingal to Parkes line and Lake Cargelligo line at Stockinbingal
- upgrades of about three kilometres of existing track for the tie-in works to the existing Main South rail line at Illabo, and tie ins to the Stockinbingal to Parkes rail line at Stockinbingal

- construction of about 1.7 kilometres of new track to maintain the existing connection of the Lake Cargelligo rail line either side of the proposal
- realignment of a 1.4 kilometre section of the Burley Griffin Way to provide a road over rail bridge at Stockinbingal
- realignment of Ironbong Road to allow for safe sight lines at the new active level crossing.

Associated infrastructure would include signalling and communications, signage, fencing and services and utilities. The construction of the proposal would also require the following works:

- construction access roads and access tracks
- watercourse crossings
- temporary changes to the road network
- construction compounds.

1.2.2 Timing and operation

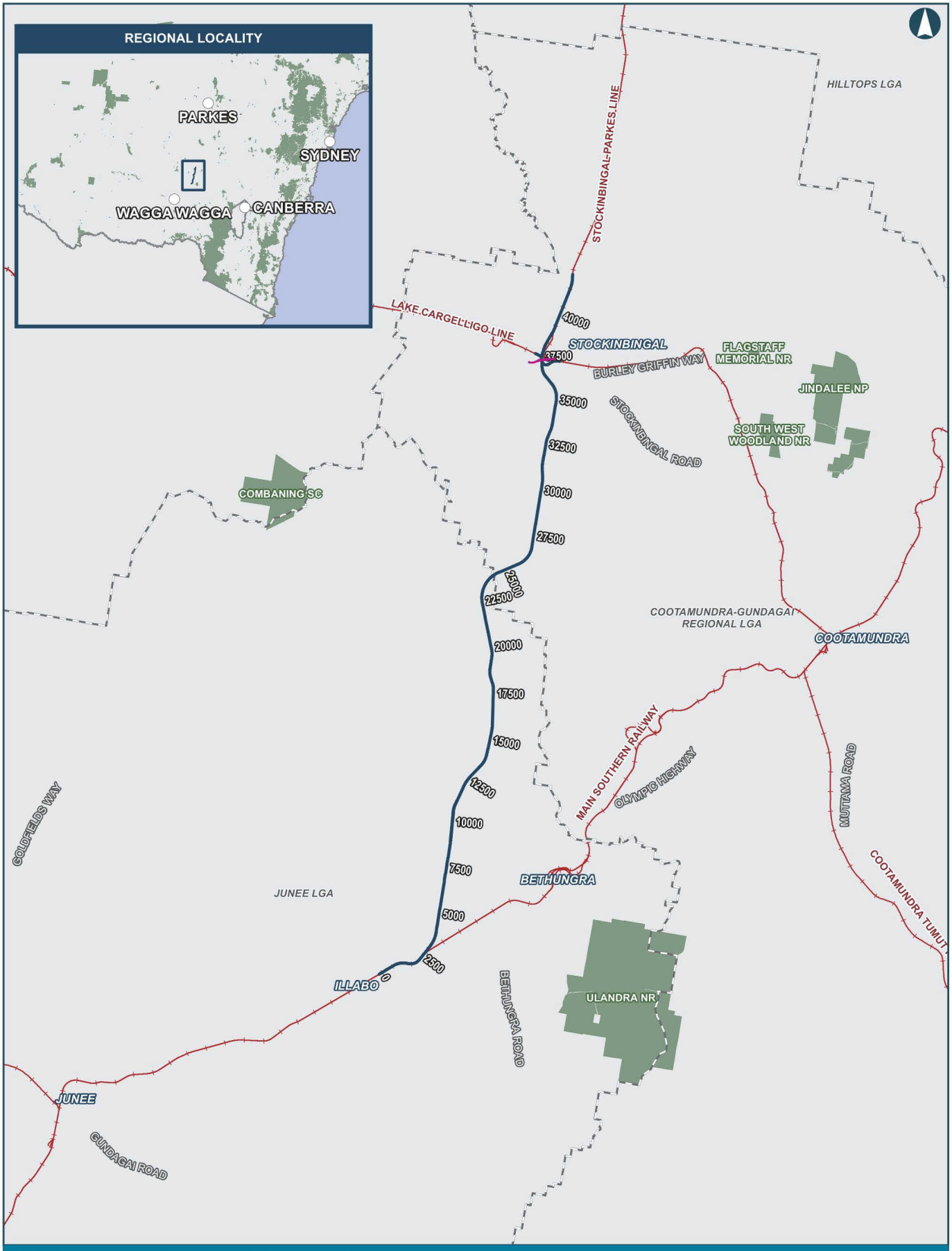
Subject to approval of the proposal, construction of the proposal is planned to start in mid-2024 and is expected to be completed mid-2026.

The proposal would form part of the rail network managed and maintained by ARTC. Train services would be provided by a variety of operators. It is estimated the Illabo to Stockinbingal section of Inland Rail would be trafficked by an average of 6 trains per day (both directions) from commencement of operations in late 2026, increasing to about 11 trains per day (both directions) in 2040.

The new rail line will be a faster, more efficient route that bypasses the Sydney rail network and will enable the use of double stacked trains (up to 6.5m high) along its entire length.

The trains would be diesel powered, and would be a mix of grain, intermodal (freight), and other general transport trains up to 1,800 metres in length.

The proposal is expected to be operational, as part of Inland Rail as a whole, once all 13 sections are complete, which is estimated to be in 2027. Prior to that, regional rail movements may occur on the Illabo to Stockinbingal section once complete.



ILLABO TO STOCKINBINGAL 1.1 Location of the proposal

0 2 4 6 km

Coordinate System: GDA 1994 MGA Zone 55

Date: 7/23/2021 Paper: A3

Author: IRDJV Scale: 1:200,000

Data Sources: ARTC, NSWSS, ESRI

Key features of proposal

- Key features of proposal
- 40950 Chainage (distance in metres from southern limit of the proposal)
- Burley Griffin Way realignment

Existing features

- Local Government area boundary
- Existing rail
- Parks and reserves
- Sub-arterial road
- Arterial road

INLAND RAIL ARTC

The Australian Government is delivering Inland Rail through the Australian Rail Track Corporation (ARTC), in partnership with the private sector.

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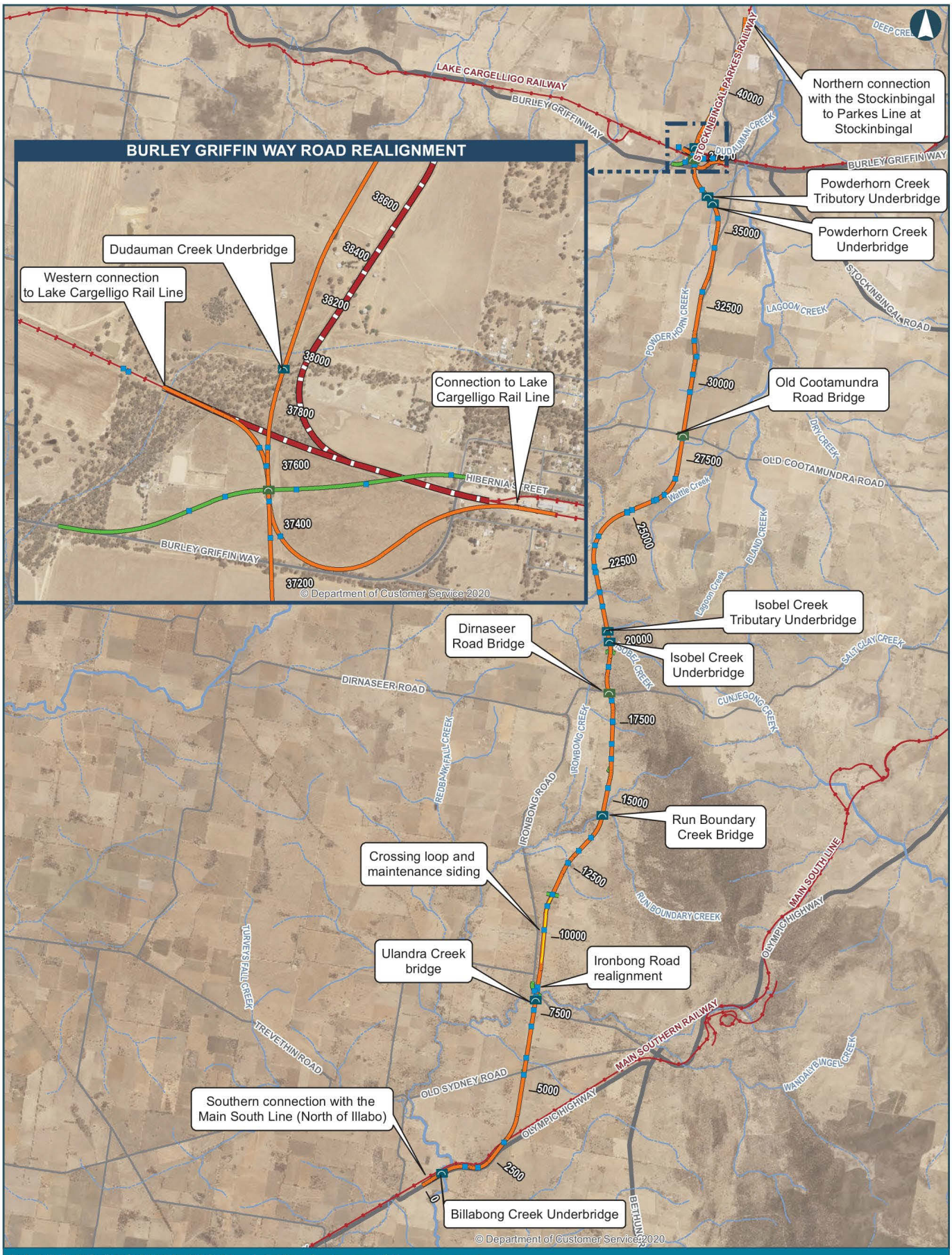

ILLABO TO STOCKINBINGAL 1.2 Key features of the proposal

0 1 2 3 km

Coordinate System: GDA 1994 MGA Zone 55

Date: 7/23/2021 Paper: A3

Author: IRDJV Scale: 1:120,000

Data Sources: ARTC, NSWSS, ESRI

Key features of proposal

- New track/track upgrade
- 40950 Chainage (distance in metres from southern limit of the proposal)
- Crossing Loop & Maintenance Siding
- Burley Griffin Way Road realignment
- Culvert
- Bridge (road crossing)
- Bridge (water crossing)

Existing features

- Sub-arterial road
- Arterial road
- Existing Rail
- Major Watercourse
- Minor Watercourse
- Redundant sections of rail to be decommissioned

INLAND RAIL ARTC

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1.3 Purpose and scope of this report

This report has been prepared to specifically address the SEARs issued by (then) NSW Department of Planning, Industry and Environment on 30 April 2021. The SEARs relevant to operational road traffic noise, and references to sections where they have been addressed in the report are presented below in Table 1.1.

The assessment of non-rail operational noise impacts considers traffic noise from the realignment of Burley Griffin Way at Stockinbingal and modification to Ironbong Road. Elements of the proposal relevant to rail infrastructure, including level crossings and wayside control buildings are assessed within the operational rail noise and vibration impact assessment (Technical Paper 9). There is no other fixed infrastructure associated with the proposal located within the study area.

The specific objectives of this assessment are to:

- identify the road traffic noise study area and associated sensitive receivers
- describe the existing road noise environment
- define the assessment criteria adopted to assess the proposal's road traffic noise impacts
- describe the noise modelling undertaken to predict future road traffic noise levels
- assess predicted future road traffic noise levels against the assessment criteria
- present requirements for feasible and reasonable mitigation measures for noise from the operational road realignment.

Table 1.1 Secretary's Environmental Assessment Requirements – Noise and vibration

Key issue	Assessment requirement	Report reference
9. Noise and Vibration Construction noise and vibration (including airborne noise, ground-borne noise and blasting) are effectively managed to minimise adverse impacts on acoustic amenity. Increases in noise emissions and vibration affecting nearby properties and other sensitive receivers during operation of the project are effectively managed to protect the amenity and well-being of the community. Increases in noise emissions and vibration affecting environmental heritage as defined in the Heritage Act 1977 during operation of the project are effectively managed.	1) Construction and operational noise and vibration impacts in accordance with relevant NSW noise and vibration guidelines.	Construction noise and vibration has been assessed in the CNVIA (Technical Paper 8). Operational rail noise and vibration has been assessed in a separate report (Technical Paper 9). Operational road noise and vibration (due to the realignment of Burley Griffin Way) has been assessed in this report.
	2) The assessment of construction noise and vibration must address:	
	a) the nature of construction activities and related noise characteristics;	Addressed in the CNVIA (Technical Paper 8).
	b) the intensity and duration of noise (both air and ground borne) and vibration impacts. This must include consideration of extended construction impacts associated with ancillary facilities (and the like) and construction fatigue;	
	c) the identification and nature of receivers, existing and proposed, during the construction period;	
	d) the structural integrity and heritage significance of items (including Aboriginal places and items of environmental heritage).	
	e) the nature of the impact and the sensitivity of receivers, including but not limited to residential (permanent and short term), tourist and commercial uses, both existing and proposed, and level of impact including for out of hours works;	

Key issue	Assessment requirement	Report reference
	f) the need to balance timely conclusion of noise and vibration-generating works with periods of receiver respite, and other factors that may influence the timing and duration of construction activities (such as traffic management);	
	g) noise impacts of out-of-hours works (including utility works and works associated with the SSI including those undertaken under another assessment pathway), possible locations where out-of-hours works would be undertaken, the activities that would be undertaken, the estimated duration of those activities and justification for these activities in terms of the *Interim Construction Noise Guideline* (DECC, 2009);	
	h) sleep disturbance (including the number of noise-awakening events);	
	i) details and analysis of the predicted effectiveness of mitigation measures to adequately manage identified impacts, including impacts as identified in h),	
	j) any potential residual noise and vibration impacts following application of mitigation measures; and	
	k) a description of how receiver feedback received during the preparation of the EIS has been taken into account (and would be taken into account post exhibition of the EIS) in the design of mitigation measures, including any tailored mitigation, management and communication strategies for sensitive receivers.	
	3) If blasting is required, demonstration that blast impacts can comply with current guidelines.	
17. Waste All wastes generated during the construction and operation of the project are effectively stored, handled, treated, reused, recycled and/or disposed of lawfully and in a manner that protects environmental values.	2) Assess potential environmental impacts from the excavation, handling, storage on site and transport of the waste particularly with relation to sediment/leachate control, noise and dust.	

1.4 Study area

The Road Noise Policy (RNP) (EPA, 2011) generally requires road noise impacts to be assessed within 600m of a project. The study area for the noise assessment of the realignment of Burley Griffin Way consists of an area defined by a buffer distance of 600m from the extent of works.

The study area of the Burley Griffin Way realignment is shown by the white dashed outline in Figure 1.3.

Figure 1.3 Study area

There are no sensitive receivers within 600m the modification of Ironbong Road, and therefore assessment is not required under the RNP (see section 2.3). It is noted that the reduction in distance between the closest sensitive receiver and the modification would result in a negligible impact (<0.1dB).

The RNP defines noise criteria for noise-sensitive receivers within the study area which have the following land uses:

- residential
- places of worship
- open space (active or passive use).

1.5 Structure of this report

The structure of the report is as follows:

- **Chapter 1 – Introduction** – provides an introduction to the report.
- **Chapter 2 – Legislation and policy context** – describes the legislative and policy context for the assessment and relevant guidelines.
- **Chapter 3 – Existing environment** – describes the existing noise environment of the assessment area and identifies sensitive receivers.
- **Chapter 4 – Operational road noise assessment** – describes the methodology and predicted noise impacts generated by the realignment of Burley Griffin Way.
- **Chapter 5 – Residual impacts and noise mitigation** – describes any residual impacts and discusses reasonable and feasible noise mitigation recommendations.
- **Chapter 6 – Conclusion** – overview of the key findings of the report.
- **Chapter 7** – **References**.

2 Legislation and policy context

This chapter provides an outline of the assessment criteria in line with the most relevant guidelines.

2.1 Protection of the Environment Operations Act 1997

Under the *Protection of the Environment Operations Act 1997* (POEO Act) an environment protection licence (EPL) is required to undertake a scheduled activity or scheduled development work. The premises description in ARTC's existing EPL for the rail network (number 3142) would be modified to include the proposal once constructed (refer to Technical Paper 9), however this is not relevant to road noise. An EPL is not required for this part of the proposal.

2.2 Referenced policy and guidelines

This report has been written in accordance with the SEARs. Table Note 1 of the SEARs specifies that *"It is the Proponents responsibility to identify, and justify, which guidelines have been applied to a specific project"*. In line with the SEARs, the assessment has been prepared with reference to the relevant guidelines and documents presented below. Where more recent versions of the documents are available (than those nominated in the SEARs), these have been nominated. These guidelines are discussed in further detail in the following section.

- *Noise Policy for Industry* (NPfI) (EPA, 2017)
- *Environmental Noise Management Manual* (ENMM) (Roads and Maritime, 2001)
- *Road Noise Policy* (RNP) (EPA, 2011)
- *Noise Criteria Guideline* (NCG) (Roads and Maritime, 2015)
- *Noise Mitigation Guideline* (NMG) (Roads and Maritime, 2015)
- *Noise Model Validation Guideline* (NMVG) (Roads and Maritime, 2018).

2.3 Road traffic noise assessment criteria

Noise from road traffic in New South Wales is assessed at a project design stage in accordance with the NCG and RNP.

The NCG details the implementation of the RNP assessment criteria for sensitive receivers affected by road projects. The RNP provides the assessment criteria, methodology, and noise mitigation requirements for managing noise from roads in the design stage of a project.

2.3.1 Assessment years

The RNP requires the assessment to consider the proposal at two points in time:

- opening year – the year the project opens – 2026
- design year– ten years after the project opens – 2036.

Where noise levels in the opening year identify that receivers are eligible for consideration of noise mitigation, the mitigation must be designed based upon predicted noise levels for the Design Year.

It is noted that the design year for this road traffic noise assessment differs from that adopted for the operational rail assessment (2040). This is due to the fact that the Burley Griffin Way realignment is a part of the I2S proposal, and the design year relates to the timing of the construction of the road realignment only. The operational rail assessment is part of the wider Inland Rail proposal, and as such the assessment years relate more broadly to the entire Inland Rail project, not just the proposal.

2.3.2 Residential receivers

The realignment of Burley Griffin Way will realign the road beyond the existing road corridor. The realigned road returns to the existing alignment at each end. According to the definitions of New Road and Redeveloped Road in the NCG, the New Road criteria is applicable for the majority of the new alignment, and a noise criteria transition zone exists in the vicinity of the tie-ins to the existing road.

Table 2.1 provides a summary of the applicable criteria for the assessment of residential receivers affected by noise from new roads and existing roads.

Table 2.1 Road traffic noise assessment criteria for residential land uses

Road category	Type of project/land use	Assessment criteria dBA	
		Day (7am–10pm)	Night (10pm–7am)
Freeway/arterial/sub-arterial/collector roads	Existing residences affected by noise from **redevelopment** of existing freeway/arterial/sub-arterial roads	60dBA $L_{eq(15hr)}$	55dBA $L_{eq(9hr)}$
	Existing residences affected by noise from **new** freeway/arterial/sub-arterial road corridors	55dBA $L_{eq(15hr)}$	50dBA $L_{eq(9hr)}$
	Existing residences affected by noise from a **transition zone** between new and redeveloped roads	55–60dBA $L_{eq(15hr)}$	50–55dBA $L_{eq(9hr)}$

The NCG provides guidance on defining the noise criteria for receivers in the transition zone. The criteria are determined for each receiver based upon the Contribution Difference between the new road alignment and the existing road alignment. Contribution Difference is defined as:

Contribution Difference = New Road Contribution – Existing Road Contribution

The contributions of the new and existing road alignments are determined through noise modelling of the alignments, without the presence of shielding or reflections from built form such as noise barriers and buildings. The transition zone criteria are then determined from the Contribution Difference as shown in Table 2.2. The Contribution Difference noise contours and resulting noise criteria for the receivers in the Study Area is shown in Figure 2.1.

Table 2.2 New and existing road transition zone criteria

Contribution difference	Assessment criteria dBA	
	Day (7am–10pm)	Night (10pm–7am)
Contribution difference ≥ +3.0	55	50
+3.0 > Contribution difference ≥ +1.5	56	51
+1.5 > Contribution difference ≥ 0	57	52
0 > Contribution difference ≥ -1.5	58	53
-1.5 > Contribution difference ≥ -3.0	59	54
-3.0 > Contribution difference	60	55
Non-sensitive receivers	N/A	N/A

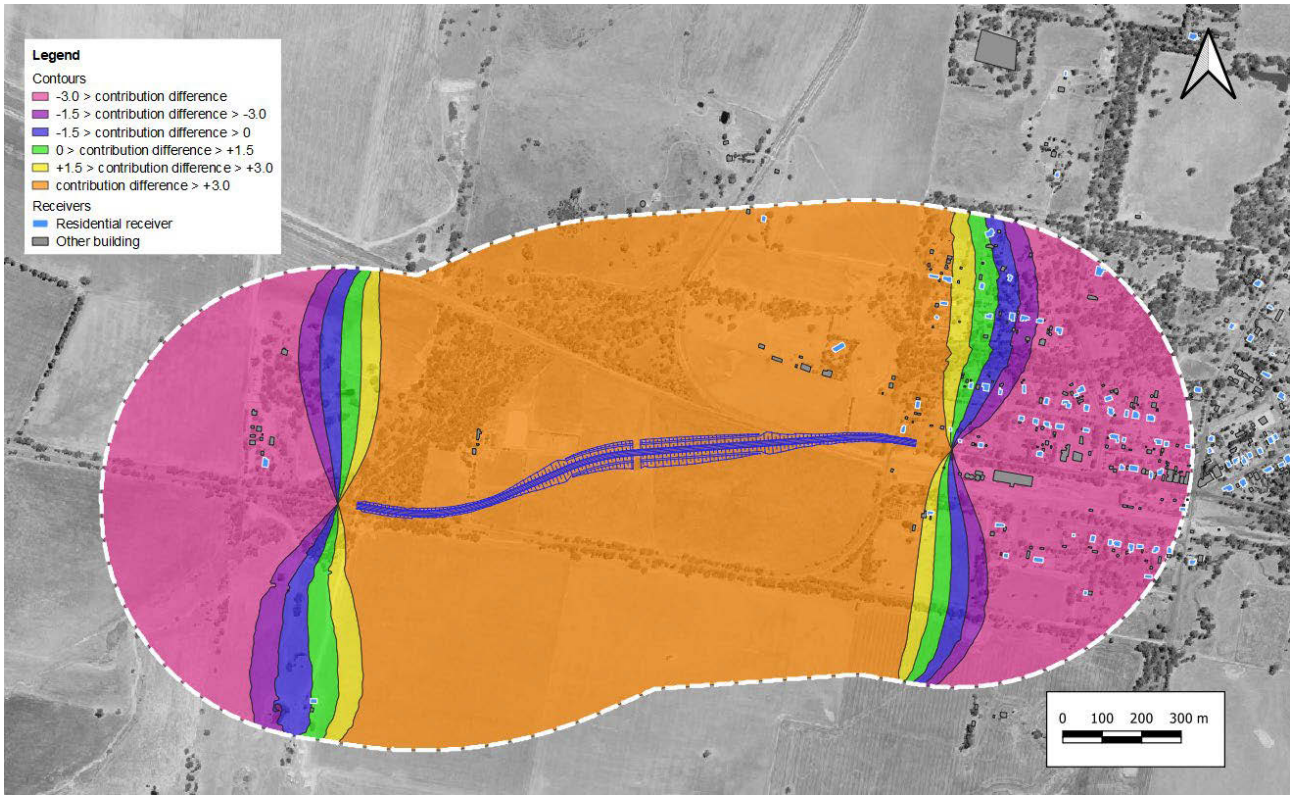


Figure 2.1 Modelled contribution difference (dB) and resulting noise criteria, colour coded to Table 2.2

For residential receivers, the criteria apply at 1m from the façade of buildings and are assessed for each façade. For assessment locations without buildings, such as open space or outdoor play areas, the assessment location is at 1.5m above ground at the worst affected location that is regularly used, with no façade correction applied. Criteria are derived for each receiver based on the contribution from existing and proposed road noise sources and the type of road project.

The RNP also specifies relative increase criteria (RIC) that are intended to protect residential amenity from excessive increases in noise from a newly operational road. Table 2.3 shows the relative increase criteria for residential land uses.

Table 2.3 Relative increase criteria for residential land uses

Road category	Type of project/land use	Total traffic noise level increase dBA	
		Day (7am–10pm)	Night (10pm–7am)
Freeway/arterial/sub-arterial/collector roads	New road corridor/redevelopment of existing road	Existing traffic $L_{eq(15hr)}$ +12dB	Existing traffic $L_{eq(9hr)}$ +12dB

2.3.3 Non-residential land uses

Table 2.4 provides the RNP criteria for non-residential land use receivers relevant to the proposal.

Table 2.4 Road traffic noise assessment criteria for non-residential sensitive land uses

Existing sensitive land use	Assessment criteria (external, when in use)	
	Day (7am–10pm)	Night (10pm–7am)
Places of worship	50dBA $L_{Aeq,1hr}$	50dBA $L_{Aeq,1hr}$
Open space (active)	60dBA $L_{Aeq,15hr}$	–

All noise assessment criteria have been presented as external noise levels. Where land uses are assigned internal criteria in the RNP, a correction of +10dB has been applied to convert these internal criteria to external criteria. The +10dB correction approximates the difference between internal and external noise levels, assuming a window is partially open for ventilation.

2.3.4 Consideration of noise mitigation

The NMG outlines Roads and Maritime's approach for the evaluation, selection and design of feasible and reasonable noise mitigation measures for operational road traffic noise.

When identifying feasible and reasonable noise mitigation the total noise level from all roads is used. This includes when assessing against new road criteria. The resulting noise mitigation that is implemented provides a benefit by reducing the total road noise level at a receiver rather than just noise levels coming from a single road source.

Receivers are eligible for the consideration of mitigation where they qualify under the NMG process (as shown in Figure 2.2) or when the contribution from the proposal is acute.

An acute noise level is defined as the level of road traffic noise equal to or above 65dBA $L_{eq,15hr}$ during the daytime period or 60dBA $L_{eq,9hr}$ during the night-time period.

The cumulative limit is defined in the NMG as 5dB above the NCG controlling criteria. This is intended to prevent receivers with existing high noise level exposure from remaining well above the criteria if noise levels do not change sufficiently to trigger consideration of mitigation.

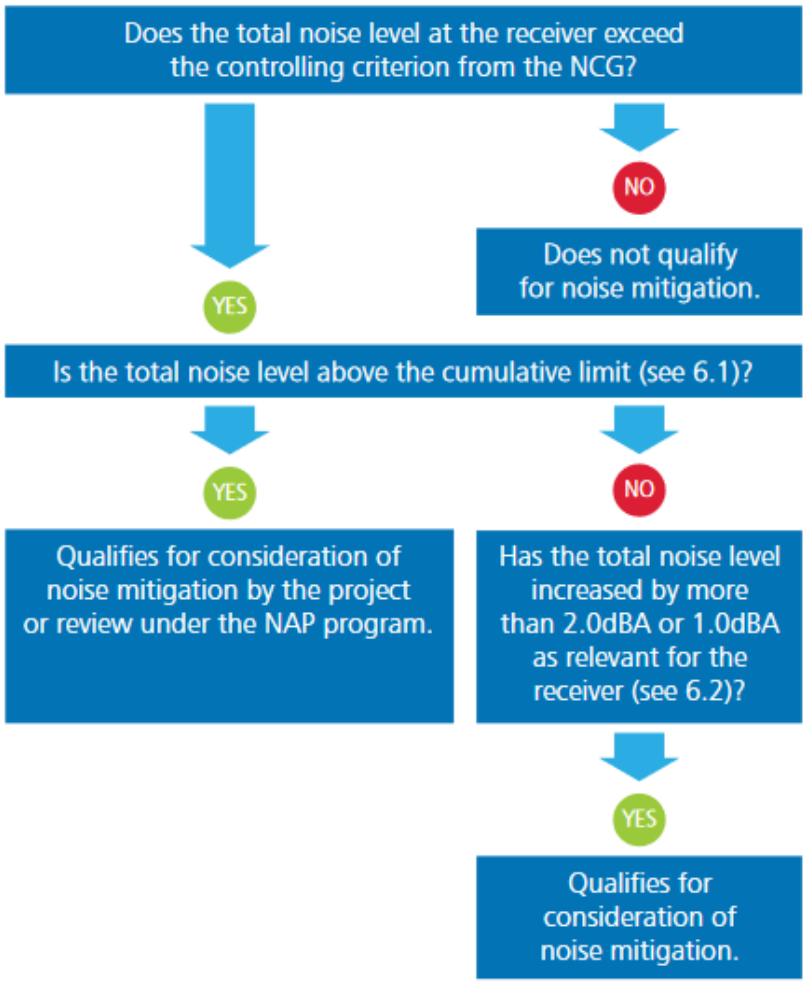


Figure 2.2 Process for determining eligibility for consideration of mitigation (reproduced from NMG)

3 Existing environment

The prevailing background and ambient noise levels surrounding the site were determined through a combination of unattended and operator attended noise surveys in accordance with the Australian Standard 1055:2018 – *Acoustics – Description and Measurement of Environmental Noise* (AS 1055) and the NSW *Noise Policy for Industry* (EPA,2017) (NPfI).

A description of the existing noise environment is provided in detail in Technical Paper 8 – Construction Noise and Vibration Impact Assessment Report. IRDJV have summarised results relevant to the Burley Griffin Way realignment road traffic assessment in the following sections.

3.1 Sensitive receivers

The proposal has the potential to adversely impact nearby properties that are considered sensitive to noise and vibration.

Receivers potentially sensitive to both noise and vibration in the following categories, as defined in the RNP, have been identified in the surrounding area, and are shown in Figure 3.1. These categories are further discussed in the following sections.

3.1.1 Residential noise sensitive receivers

There are 60 residential receivers located within the study area. Most residential receivers are located in Stockinbingal, within the eastern portion of the study area, in low-density residential dwellings.

Residential dwellings located near the proposal are predominantly single storey. The minimum distance to the nearest residential property has been identified as a receiver on Troy Street, located about 50m from the proposal footprint.

3.1.2 Non-residential noise sensitive receivers

Non-residential noise sensitive receivers have also been identified in the project area. Table 3.1 presents a summary of these receivers and their respective distance from the proposal.

Table 3.1 Non-residential noise sensitive receivers

Land use	Location	Approximate minimum distance from proposal boundary (m)
Place of Worship	St Joseph's Catholic Church	500
Active Recreation	Stockinbingal Bowling Club	150

3.1.3 Commercial and industrial receivers

Commercial and industrial receivers are not deemed to be noise sensitive under the legislation and guidelines relevant to the assessment of road traffic noise, and as such have not been considered in this assessment of road traffic noise.

3.2 Noise monitoring locations

Several noise monitoring locations were used to characterise the existing noise environment in the areas surrounding the proposal and sensitive receivers potentially impacted by the road realignment. Noise monitoring locations were constrained to locations where access was possible on the day of deployment.

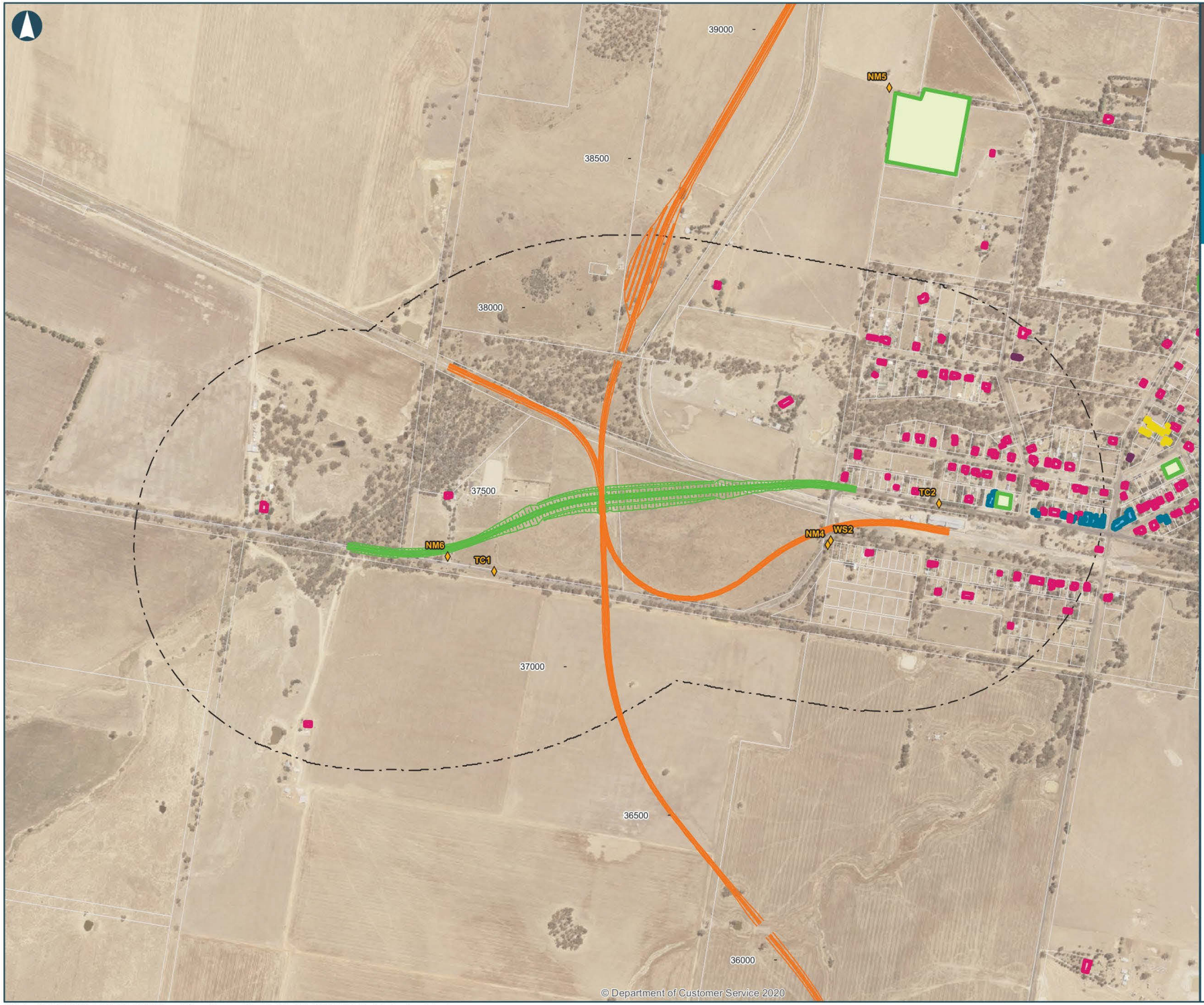
The logger locations selected for the assessment were considered to be representative of the existing background and ambient noise environment in the study area and to provide an accurate indication of road noise levels for the purposes of noise model validation.

The weather conditions at the time of monitoring were recorded with a weather station located at noise monitoring location NM04. The locations of the deployed monitoring equipment relevant to this assessment are presented in Table 3.2 and shown in Figure 3.1. The locations of the deployed monitoring equipment relevant to this assessment are presented in Table 3.2 and shown in Figure 3.1. The details of monitoring relevant to this assessment are provided in Appendix A. The details of all noise monitoring undertaken as part of the proposal are outlined in Technical Paper 8 – Construction Noise and Vibration Impact Assessment. Instrumentation and quality control of the deployed monitoring equipment is provided in Appendix A.

Table 3.2 Noise monitoring locations

Noise monitoring location	Survey method[1]	Lot and DP	Description
NM04	LOG / AT / WM	Lot 12 DP758928	Along Burley Griffin Way, near Troy Street-
NM06	LOG / AT	Lot 5 DP1045925	Along Burley Griffin Way, west of Temora Street

(1) LOG = unattended noise logging; AT = operator attended noise survey; WM = weather monitoring



INLAND RAIL

ARTC

The Australian Government is delivering Inland Rail through the Australian Rail Track Corporation (ARTC), in partnership with the private sector.

ILLABO TO STOCKINBINGAL

3.1 Noise monitoring locations

Key features of proposal

- Noise Monitoring Locations
- New track/track upgrades
- Future Road Design
- Study Area

Existing features

- Cadastre
- Recreation
- Commercial
- Education
- Place of Worship
- Residential

0 100 200 300 400 500 Meters

Coordinate System: GDA 1994 MGA Zone 55

Date: 8/19/2021 Paper: A3

Author: IRDJV Scale: 1:10,000

Data Sources: IRDJV, ARTC, LPI

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3.3 Unattended noise survey results

Unattended road noise monitoring was carried out by IRDJV between 18 February 2019 and 26 February 2019. It is noted that while two years have elapsed since initial noise monitoring, no major developments have occurred in the area, and measured levels represent minimum background levels (as outlined in the NPfI). As such, the noise monitoring is considered representative of the current acoustic environment.

The results are summarised in Table 3.3 and detailed daily plot of data are presented in Appendix B. The presented $L_{eq\ 15\ hour}$ and $L_{eq\ 9\ hour}$ levels are used in this assessment.

Table 3.3 Summary of unattended noise monitoring results

Location	Rating Background Level (RBL) dBA			Ambient noise level dBA $L_{eq\ 15\ minute}$			Day dBA $L_{eq\ 15\ hour}$	Night dBA $L_{eq\ 9\ hour}$
	Day[1]	Evening[1]	Night[1]	Day[1]	Evening[1]	Night[1]	7am to 10pm	10pm to 7am
NM04	30 (35)	26 (30)	22 (30)	60	58	53	56.8	51.0
NM06	27 (35)	22 (30)	19 (30)	57	57	52	58.7	52.8

(1) Time periods defined in line with the NPfI as – Day: 8am to 6pm Monday to Saturday, 8am to 6pm Sunday; Evening, 6pm to 10pm; Night 10pm to 7am Monday to Saturday, 10pm to 8am Sunday

(2) Values in brackets indicate minimum background noise levels which have been adopted, as per the NPfI

3.4 Operator attended noise survey

IRDJV carried out operator attended noise surveys to characterise the noise environment and identify the contributors to the acoustic environment. The results of the attended noise surveys show good agreement with the unattended monitoring and observations are detailed in Table 3.4. Based on the attended and unattended monitoring results, the background noise at all locations is best described as a quiet rural environment with intermittent noise from vehicle pass-by and wind noise through the surrounding vegetation.

Table 3.4 Summary of attended noise measurement results

Location	Date	Time	dBA $L_{eq(15min)}$	dBA $L_{90(15min)}$	Observations
NM04	19/02/19	11:02 AM	55	40	Background noise environment dominated by wind through vegetation. Vehicle passbys along Burley Griffin Way over measured 15-minute period: • Light: 5 passbys (55-63dBA) • Heavy: 3 passbys (62-76dBA).
NM06	19/02/19	12:03 PM	60	40	Background noise environment dominated by wind through vegetation. Vehicle passbys along Burley Griffin Way over measured 15-minute period: • Light: 11 passbys (63-68dBA) • Heavy: 4 passbys (76-78dBA).

4 Operational road noise assessment

4.1 Modelling methodology

Operational road noise models were created in SoundPLAN version 8.2, which implements the *Calculation of Road Traffic Noise* (CoRTN) (UK Department of Transport, 1988) algorithm for predicting noise levels from road traffic. SoundPLAN 8.2 implements an adaption of CoRTN algorithm specific to common NSW road noise modelling practices and RNP requirements. The noise models utilising this algorithm predict the road traffic noise levels by considering inputs of traffic volumes and composition, vehicle speed, road gradient, pavement surface, ground absorption, reflections and shielding from topography, buildings and barriers.

Models were created for no-build and build scenarios for the time periods identified in section 2.3.1. Due to changes in the construction schedule over the course of the proposal, the proposal opening year has changed from 2024 to 2026. Background traffic volumes were originally modelled for 2024, however the growth rate background traffic volumes of 0.5% have been reviewed and the different years are not expected to alter the results in any notable way as the background volumes are low (less than 160 vehicles per hour on all roads assessed) and the growth rate results in less than one additional vehicle per hour from one year to the next. This assumption is discussed further in Technical Paper 3 – Traffic, Transport and Access Impact Assessment.

The assessment of predicated noise levels (section 4.3) were completed for the opening year of the road (2026) and 10 years after opening (2036), however the background traffic volumes utilised for the assessment were forecasted for 2024. The relative change in traffic volumes between these years is likely to result in an increase in road traffic noise of approximately 0.1dB and will not result in any change to the outcome of the assessment or mitigation recommendations. It is noted that a change in noise of less than 2dB is generally considered to be imperceptible to the average person. The traffic flows input into the model for these roads are shown in Table 4.1.

Roads considered as noise sources in the models are limited to the main thoroughfares, as these have sufficient traffic flow to contribute to the traffic noise descriptors used in the assessment. Roads included in the model are:

- Burley Griffin Way
- Hibernia Street
- Dudauman Street.

Traffic speeds modelled were based upon existing sign posted speeds and the future design speeds provided by the project team. The acceleration and deceleration of heavy vehicles has not been considered in the modelling. However, the design alignment reduces the need for acceleration/deceleration by taking a more direct route, and therefore noise from these sources is expected to reduce. The spatial extent of the modelled traffic speeds is shown overlaid on aerial images in Figure 4.1 and Figure 4.2 for the existing and future road alignments respectively.

Table 4.1 Traffic flows used in noise models

Road	AADT	Day			Night		
		Total flow	Hourly flow	HV%	Total flow	Hourly flow	HV%
2019* / 2024							
Burley Griffin Way (East Elwood Street)	845	764	51	23%	81	9	41%
Burley Griffin Way (West Tamora Street)	1084	980	65	23%	104	12	41%
Hibernia Street (2018 Validation model)(1)	1143	1037	69	23%	106	12	41%
Hibernia Street (2026)	1211	1094	73	23%	117	13	41%
Dudauman Street	85	77	5	23%	8	1	41%
2034							
Burley Griffin Way (East Elwood Street)	890	804	54	23%	86	10	41%
Burley Griffin Way (West Tamora Street)	1140	1030	69	23%	110	12	41%
Hibernia Street	1272	1150	77	23%	122	14	41%
Dudauman Street	90	81	5	23%	9	1	41%

* Traffic data utilised for validation modelling, as sourced from traffic counts undertaken concurrently with noise measurements in February 2019 (i.e. 2019 is equal to the existing traffic mix)

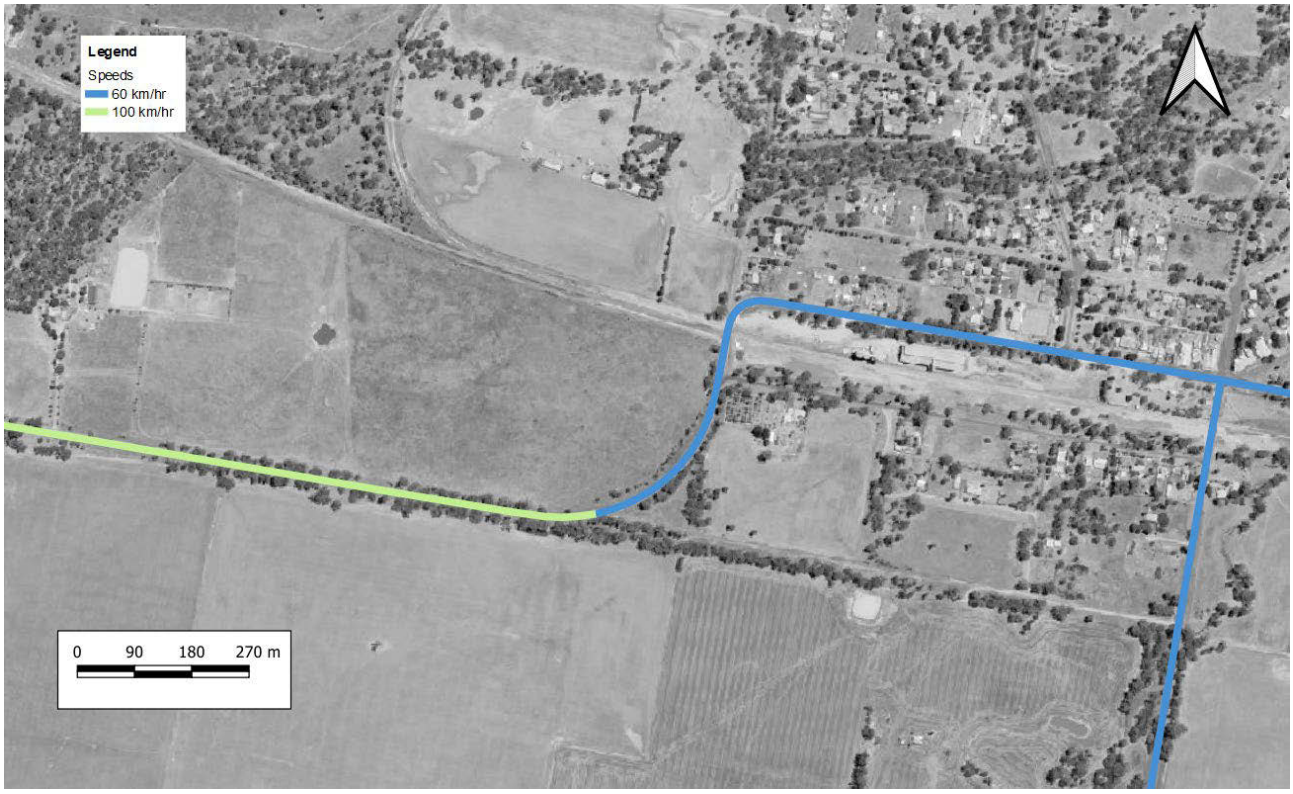


Figure 4.1 Modelled speeds – existing road alignment

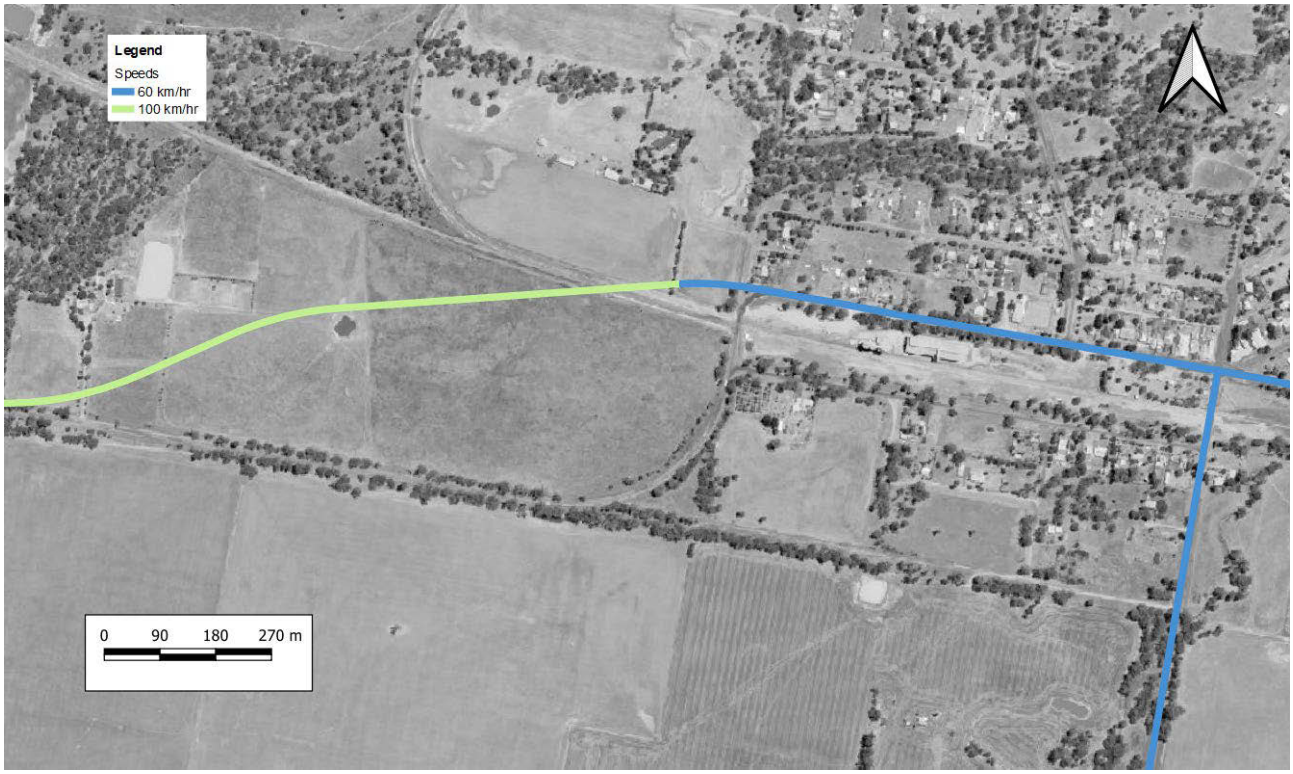


Figure 4.2 Modelled speeds – future road alignment

Source corrections outlined in *Evaluation of Calculation of Road Traffic Noise in Australia* for a rural freight route have been considered in the modelling. However, in this specific circumstance the application of these source corrections would result in a median error and random scatter outside the tolerances outlined in the NMVG. Therefore, the default corrections outlined in the modelling inputs were retained for the modelling and assessment.

Predicted noise levels were calculated for buildings with noise-sensitive land use types for which criteria are defined by the RNP. Level predictions are made for locations 1.5m above ground height, in the centre of each building façade, for any building façade of length greater than 2.5m. Noise levels are predicted at a perpendicular distance of 1m from the building façade.

Other inputs and parameters utilised in noise modelling for the assessment are provided in Table 4.2.

Table 4.2 Noise model inputs

Parameter	Details
CoRTN methodology	SoundPLAN implementation of NSW road modelling requirements. CoRTN low volume correction disabled. Three source height model as required by RNP and NMVG: Light vehicle traffic flow modelled at 0.5m above road level with 0dB correction Heavy vehicles traffic flow modelled at 1.5m above road level with a -0.6dB correction, and at 3.6m above road level with a -8.6dB correction. The different types of heavy vehicle and the associated source heights have not been considered; however the model was found to validate without further analysis of heavy vehicle types.
Ground topography	Topography for the project area was provided by the Project team internally, as 1m interval contours up to 2km from the proposal rail alignment.
Pavement surfaces	Existing and proposed future pavement surfaces are modelled as 7mm chip seal. A +2dB correction is applied for this road surface type in accordance with the NMVG.

Parameter	Details
Traffic volumes and mix	Model validation was performed using traffic count data collected concurrently with noise monitoring.
Existing structures and barriers	Building footprints with land use and building heights were sourced from a third party provider. Footprints were defined from aerial photography, building heights from lidar datasets and site surveys.
Road gradient	Gradient calculated from supplied topographical data and road design model.
Ground absorption	Ground absorption factor of 0.75 used throughout. This is representative of rural/semi-rural areas.
Façade reflection correction	+2.5dB for locations at 1m from the façade of a building.
ARRB correction	-1.7dB for façade noise levels and -0.7dB for free-field noise levels.
L_{10} to L_{eq} correction	$L_{eq} = L_{10}$ -3dB

4.2 Noise model validation

Validation of the noise model was undertaken using noise monitoring data and the concurrent traffic flow counts. A noise model was produced for existing (2019 pre-construction) conditions, allowing a comparison of predicted vs measured noise levels for the two noise monitoring locations within the study area. The intention of this model is to confirm that the inputs used in road traffic noise modelling for the project are valid for the site conditions. Table 4.3 summarises the measured and predicted noise levels for the validation of the noise model.

Table 4.3 Model validation

ID	Day[1] (dBA, $L_{eq(15hr)}$)			Night[1] (dBA, $L_{eq(9hr)}$)		
	Measured	Predicted	Difference	Measured	Predicted	Difference
NM4	56.8	57.8	1.0	51.0	53.1	2.1
NM6	58.7	57.6	-1.1	53.5	52.8	-0.7
Average			**-0.1**			**0.8**
Random scatter (standard deviation)			**1.5**			**2.0**

(1) Measured and predicted noise levels are in free-field conditions

Median error is typically used as a measure of accuracy of model calibration on NSW projects in accordance with the NVMG. Due to the relatively small footprint of the road realignment project, noise monitoring relevant to this assessment was undertaken at only two locations. As such, the median error is comparable to the average (mean) error, which has been presented above.

Measured daytime and night-time noise levels were found to be within the median error (±1dB(A)) and random scatter (±2dB(A)) tolerances defined in the NMVG. As such, we are satisfied that the day time noise model is valid.

4.3 Assessment of predicted noise levels

Noise levels were predicted for each building façade. From these façade results eligibility for consideration of noise mitigation was determined, for project opening in 2026 and 10 years' post opening in 2036.

Sections 4.3.1 and 4.3.2 summarise the noise modelling results, grouped by receiver building. Tabulated noise modelling results for each receiver building are presented in Appendix C, and noise contour plots are presented in Appendix D.

4.3.1 2026 predicted noise levels, without mitigation

The results of noise modelling for 2026, without noise mitigation, are summarised in Table 4.4.

Table 4.4 Summary of 2026 noise modelling results without mitigation

Time period	Number of receivers					
	Exceed Residential NCG criterion	Exceed NCG criterion and predicted increase of >2dB from project	Exceed NCG criterion and cumulative limit	Exceed acute criterion	Exceed RIC criterion	Total receivers eligible for consideration of mitigation
Daytime	4	0	0	0	0	0
Night time	4	1(1)	1(1)	0	0	1

(1) Same receiver exceeds the NCG criterion and the cumulative limit

The night-time period was found to control the assessment outcome for 2026 predicted levels. Results for night time assessment are discussed in detail below.

Four residential receivers were found to exceed the NCG criteria levels, however, for all but one of these, the increase in noise levels at each of these locations was less than 2dB(A). This receiver (Receiver 321056, Lot 12 DP758928) is eligible for consideration of noise mitigation for the proposal (refer Figure 4.3).

There were no residential receiver locations exceeding the relative increase criteria (existing traffic +12dB) or the acute criterion (60dB during night) for 2026.

Table 4.4 presents a summary of predicted noise levels for non-residential receivers in the study area.

Table 4.5 2026 noise modelling results for non-residential noise sensitive receivers

Location	Day (dBA, $L_{eq(15hr)}$)	Night (dBA, $L_{eq(9hr)}$)
St Joseph's Catholic Church	38	33
Stockinbingal Bowling Club	53	N/A

There are no predicted exceedances of the noise criteria for non-residential noise sensitive receivers in 2026, and therefore no requirements for noise mitigation at these receivers.

4.3.2 2036 predicted noise levels, without mitigation

The results of noise modelling for 2036, without noise mitigation, are summarised in Table 4.6.

Table 4.6 Summary of 2036 noise modelling results without mitigation

Time period	Number of receivers					
	Exceed Residential NCG criterion	Exceed NCG criterion and predicted increase of >2dB from project	Exceed NCG criterion and cumulative limit	Exceed acute criterion	Exceed RIC criterion	Total receivers eligible for consideration of mitigation
Daytime	4	1	0	0	0	1
Night time	4	1(1)	1(1)	0	0	1

(1) Same receiver exceeds the NCG criterion and the cumulative limit

The night-time period was found to control the assessment outcome for 2036 predicted levels. Receivers exceeding trigger levels during daytime are the same as those exceeding trigger levels during night time. Results for night time assessment are discussed in detail below.

Four residential receivers were found to exceed the NCG criteria levels, however, for all but one of these, the increase in noise levels at each of these locations was less than 2dB(A). As such, only one receptor was eligible for mitigation due to exceedance of the NCG criteria. This receiver (Receiver 321056, Lot 12 DP758928) also exceeded the Cumulative Limit on one façade during night-time period (refer Figure 4.3).

There were no residential receiver locations exceeding the relative increase criteria (existing traffic +12dB) or the acute criterion (60dB during night) for 2036.

A total of one residential receptor is eligible for consideration of noise mitigation for the proposal, shown in Figure 4.3.

Table 4.4 presents a summary of predicted noise levels for non-residential receivers in the study area for 2036.

Table 4.7 2036 noise modelling results for non-residential noise sensitive receivers

Location	Day (dBA, $L_{eq(15hr)}$)	Night (dBA, $L_{eq(9hr)}$)
St Joseph's Catholic Church	38	33
Stockinbingal Bowling Club	53	N/A

There are no predicted exceedances of the noise criteria for non-residential noise sensitive receivers in 2036.

Figure 4.3 Receivers eligible for consideration for noise mitigation

4.4 Maximum noise level assessment

The implementation of level crossings and the realignment of Burley Griffin Way have the potential to increase maximum noise levels at nearby sensitive receivers. Level crossings can increase maximum noise levels from events such as tyres bumping over tracks and accelerating/decelerating vehicles. The realignment of Burley Griffin Way also may increase maximum noise levels where the distance between Burley Griffin Way and a receiver is reduced.

The RNP and NCG do not include a maximum noise level criterion triggering the eligibility for consideration of mitigation, however they may be used to prioritise treatment packages.

As the closest receiver to a level crossing is approximately 1,800m away (outside a 600m assessment buffer defined in the RNP), it is not considered for treatment. Therefore, maximum noise level events from level crossings will not contribute to the prioritisation of treatment packages.

As only one receiver is triggered for the consideration of mitigation due to the realignment of Burley Griffin Way, maximum noise level events from Burley Griffin Way will not contribute to the prioritisation of treatment packages.

5 Residual impacts and noise mitigation

The receiver location which exceed the noise criteria is an individual dwelling, in an isolated location.

Receiver 321056 is predicted to exceed the NCG levels by 6dB, and the Cumulative Limit by 1dB.

This section identifies options for the mitigation of the operational noise impacts predicted for the receiver identified in section 4.3. The consideration of mitigation is undertaken consistent with the NMG.

5.1 Low noise pavement

The use of low-noise pavements is a preferred form of noise mitigation on road proposals as its use has the potential to benefit the largest number of receivers. The use of Open Graded Asphalt or Stone Mastic pavements can reduce noise levels by -2dB compared to Dense Graded Asphalt.

The NMG specifies that low noise pavement may be considered subject to its acoustic benefit being able to be confined to groups of four or more closely spaced properties.

On these grounds, the use of low noise pavement is not considered reasonable in this instance as there is only one building in the entire study area that qualifies for consideration of noise mitigation.

5.2 Noise barriers

The feasibility and reasonableness of noise barriers as a form of mitigation for the mitigation-eligible receiver considered property access requirements and the source of traffic noise in accordance with the NMG.

The NMG outlines that noise barriers should be considered where there are four or more closely spaced eligible receivers. Due to the sparsity of eligibility, noise barriers would not be feasible due to the limited benefit compared to the cost of installation.

5.3 At-property treatments

Where mitigation cannot reasonably be provided by low noise pavement or noise barriers, residual impacts at mitigation-eligible buildings may be able to be mitigated by implementing at-property treatments. The objective of this form of mitigation is to ensure that the construction meets relevant building standards and industry best practices (IS2107 – Acoustics – Recommended design sound levels and reverberation times for building interiors).

The specific form of acoustic building treatment applied to achieve these reductions would be considered with regard to the existing construction of the building, and in consultation with the landowner.

The NMG identifies that typically the treatments would be limited to:

- the installation of courtyard screen walls
- fresh air ventilation systems that meet Building Code of Australia requirements with the windows and doors shut
- upgraded windows and glazing and solid core doors on the exposed facades of masonry structures only (these techniques would be unlikely to produce any noticeable benefit for light frame structures with no acoustic insulation in the walls)
- upgrading window and door seals and treatment of sub floor ventilation
- the sealing of wall vents
- the sealing of the underfloor below the bearers
- the sealing of eaves.

Additional funding may be made available, however only where exceptional site-specific circumstances permit.

5.4 Summary

In summary, the following noise mitigation has been considered.

- low noise pavement
- noise barriers
- at-property treatment for eligible receivers.

All of the identified options are achievable from a technical perspective. However, from a financial perspective and in line with the NMG, at-property treatments are considered the most reasonable form of noise mitigation for the receiver requiring mitigation.

Further assessment of the individual dwellings and consultation with the landowner will be required to identify the specific acoustic treatment to be applied to such dwellings.

The mitigation measures to manage noise impacts from the Burley Griffin Way realignment during detailed design and operation phases are outlined in Table 5.1.

Table 5.1 Proposal-specific mitigation measures for noise and vibration

Issue/impact	Mitigation and management measure	Project phase
Noise and vibration impacts during operation	Feasible and reasonable mitigation measures would be identified where exceedances of operational noise and vibration criteria are confirmed. Measures would be identified in accordance with the outcome of the operational noise and vibration review and the Inland Rail Noise and Vibration Strategy. Where at-property noise treatments are identified as the preferred mitigation option, these would be developed in consultation with individual property owners.	Detailed design
Structural vibration impacts	If the operational noise and vibration review indicates that vibration levels are predicted to exceed the screening criteria at sensitive receivers, a more detailed assessment of the structure would be carried out. For any heritage items with the potential to be affected, the detailed assessment would determine any specific sensitivities in consultation with a heritage specialist to ensure risks are adequately managed. If a heritage structure is found to be structurally unsound following inspection, a more conservative cosmetic damage objective (for example 2.5mm/s peak component particle velocity for long term vibration) would be considered.	Detailed design
Operational noise and vibration	The project would be operated with the aim of achieving the operational noise and vibration criteria identified by the operational noise and vibration review, the requirements of the conditions of approval, and the environment protection licence for Inland Rail.	Operation
Operational noise and vibration monitoring	Operational noise and vibration compliance monitoring would be undertaken, once Inland Rail has commenced operation, at representative locations to compare actual noise performance against that predicted by the operational noise and vibration review. Compliance monitoring requirements would be defined by the operational noise and vibration review. The results of monitoring would be included in an operational noise and vibration compliance report, prepared in accordance with the conditions of approval. The need for any additional feasible and reasonable mitigation measures would be identified as an outcome of the monitoring.	Operation

5.5 Residual impacts

The management of any residual impacts is considered in Chapter 27 (Approach to environmental management and mitigation) of the EIS for the operation phase.

6 Conclusion

IRDJV has undertaken an assessment of operational road traffic noise for the realignment of Burley Griffin Way, to be undertaken as a part of the Inland Rail – Illabo to Stockinbingal proposal.

A noise model was used to predict noise from the future realignment at the nearest noise sensitive receivers, for 2026 and 2036.

Predicted noise levels were compared to criteria from the NSW Road Noise Policy, and the assessment was undertaken in accordance with guidance provided in the NSW Noise Criteria Guideline and NSW Noise Mitigation Guideline.

The noise criteria are satisfied for the project opening year, without the provision of noise mitigation.

For the assessment period 10-years-post-opening, the noise criteria are exceeded at one residential receiver. Recommendations for noise mitigations have been provided in line with the RNP. Design of noise mitigation will be undertaken as the proposal design progresses, including consideration of the following measures:

- low noise pavement
- noise barriers
- at-property treatment for eligible receivers.

Design of operational road traffic noise mitigation will need be coordinated with any requirements for mitigation of operational rail noise.

7 References

- *Noise Policy for Industry*, Environment Protection Authority, Sydney, 2017.
- *Environmental Noise Management Manual*, Roads and Traffic Authority, Sydney, 2001.
- *Road Noise Policy*, Environment Protection Authority, Sydney, 2011.
- *Noise Criteria Guideline*, Roads and Maritime, Sydney, 2015.
- *Noise Mitigation Guideline*, Roads and Maritime, Sydney, 2015.
- *Noise Model Validation Guideline*, Roads and Maritime, Sydney, 2018.
- Australian Standard 1055:2018 – Acoustics – Description and Measurement of Environmental Noise.
- Calculation of Road Traffic Noise, Department of Transport Welsh Office, London, 1988.

TECHNICAL REPORT

10

Operational Noise and Vibration Impact Assessment (Non-Rail)

Appendix A Noise monitoring instrumentation and quality control

A.1 Noise monitoring instrumentation and quality control

All the monitoring equipment was fitted with windshields and were checked with a field calibrator before and after monitoring. No significant drift in calibration (± 0.5dB) was noted for any of the equipment.

Monitoring data has been excluded during periods of adverse weather, where wind speeds (measured at approximately 1.5m above ground level) were greater than 5m per second or during significant rainfall. Based on the recorded weather data, the monitoring undertaken is adequate.

All of the noise monitoring equipment used has a current calibration certificate (National Association of Testing Authorities, NATA) at the time of use. Details of all equipment used to conduct the noise survey are presented in Table A.1. Copies of the calibration certificates can be provided upon request.

Table A.1 Noise monitoring equipment

Location	Survey method	Manufacturer and model	Serial No.	Calibration due dates
NM04	Unattended measurement	Rion NL-42	00785234	08/10/2020
NM06	Unattended measurement	Rion NL-42	00785237	11/10/2020
WS01	Weather monitoring	Davis Instruments Vantage VUE	MR190108044	–
WS02	Weather monitoring	Davis Instruments Vantage VUE	MR190108059	–
All locations	Attended measurement	Norsonic 140	1406502	30/01/2020
All locations	Attended measurement & unattended measurement	Rion NC 73 (calibrator)	11248294	19/07/2019

TECHNICAL REPORT

10

Operational Noise and Vibration Impact Assessment (Non-Rail)

Appendix B Noise monitoring graphs

ILLABO TO STOCKINBINGAL ENVIRONMENTAL IMPACT STATEMENT

Site Details	NM04	**Microphone Position**	1.5m above the ground
Start Date	Tue 19 February 2019		
End Date	Tue 05 March 2019		

Measurement Summary

Date	19-02	20-02	21-02	22-02	23-02	24-02	25-02	26-02
$Leq_{, Day}$, dBA	58	58	58	57	54	56	57	58
$Leq_{, Evening}$, dBA	52	52	52	49	48	50	51	51
$Leq_{, Night}$, dBA	61	62	60	59	56	59	59	60
$RBL_{, Day}$, dBA	37	36	30	30	30	37	28	24
$RBL_{, Evening}$, dBA	27	26	24	30	35	39	22	22
$RBL_{, Night}$, dBA	18	17	29	25	29	23	17	20

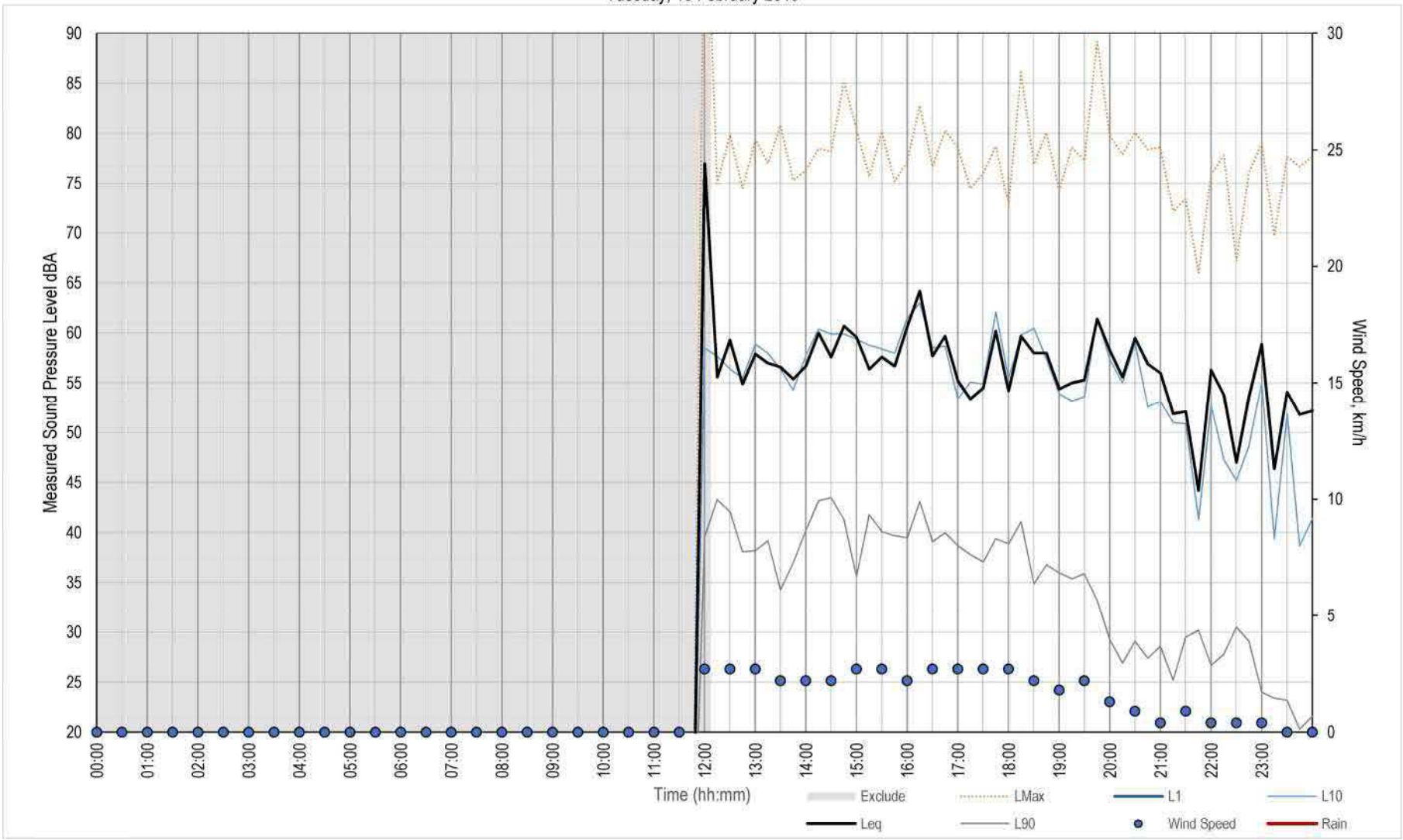
Date	27-02	28-02	01-03	02-03	03-03	04-03	05-03	
$Leq_{, Day}$, dBA	57	57	57	54	55	57	59	
$Leq_{, Evening}$, dBA	50	53	51	47	51	51	51	
$Leq_{, Night}$, dBA	59	60	59	57	58	60	66	
$RBL_{, Day}$, dBA	30	27	29	25	24	26	29	
$RBL_{, Evening}$, dBA	29	24	25	22	22	22	27	
$RBL_{, Night}$, dBA	23	18	22	19	17	20	24	

Site Photo

Logging summary:
The noise environment was characterised by intermittent traffic along Burley Griffin Way and natural noises (e.g. birds, etc.). Background noise levels were consistently low (<30 dBA) with fluctuations typically controlled by natural noises (e.g. any wind through trees).

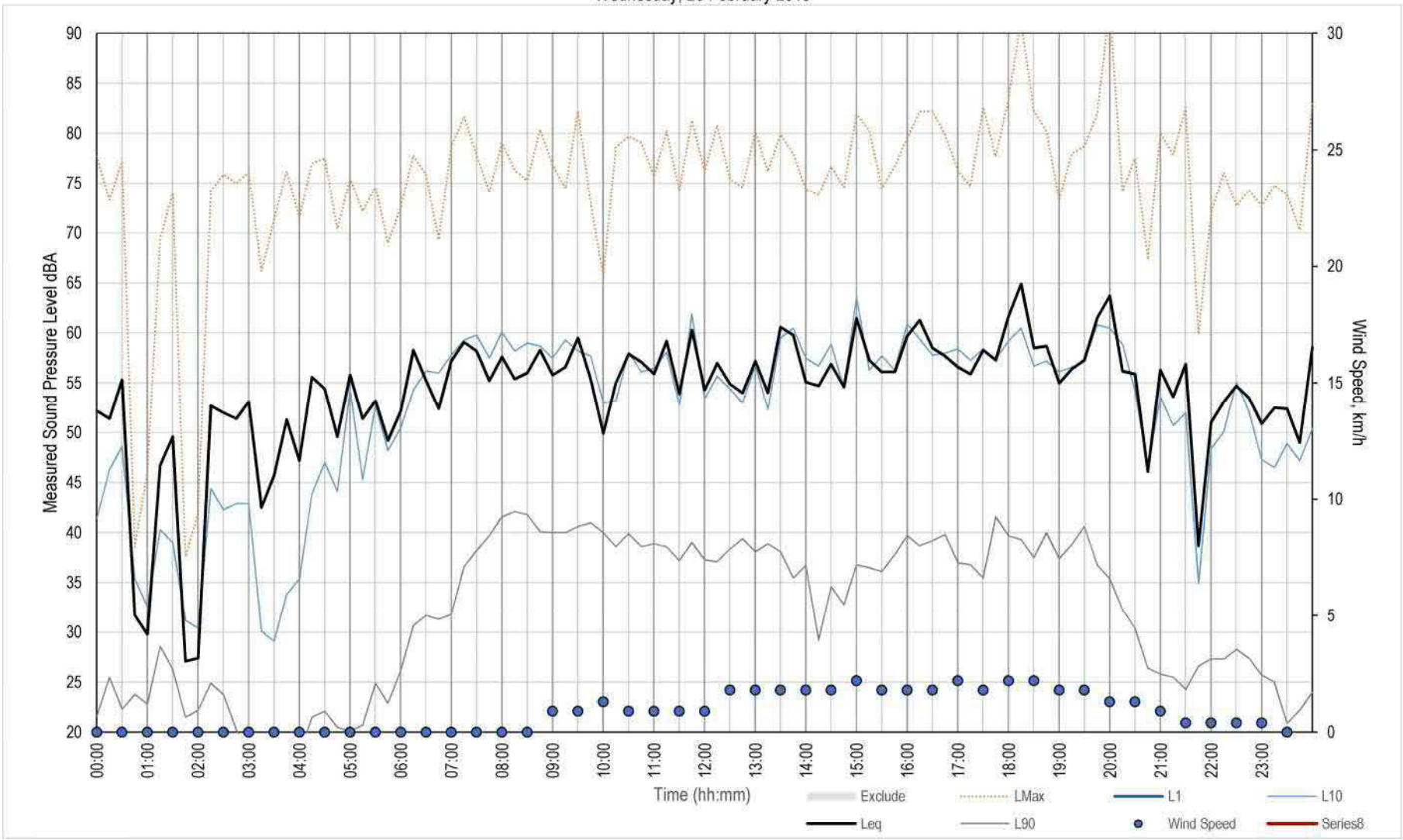
Measured Noise Levels - NM04

Tuesday, 19 February 2019



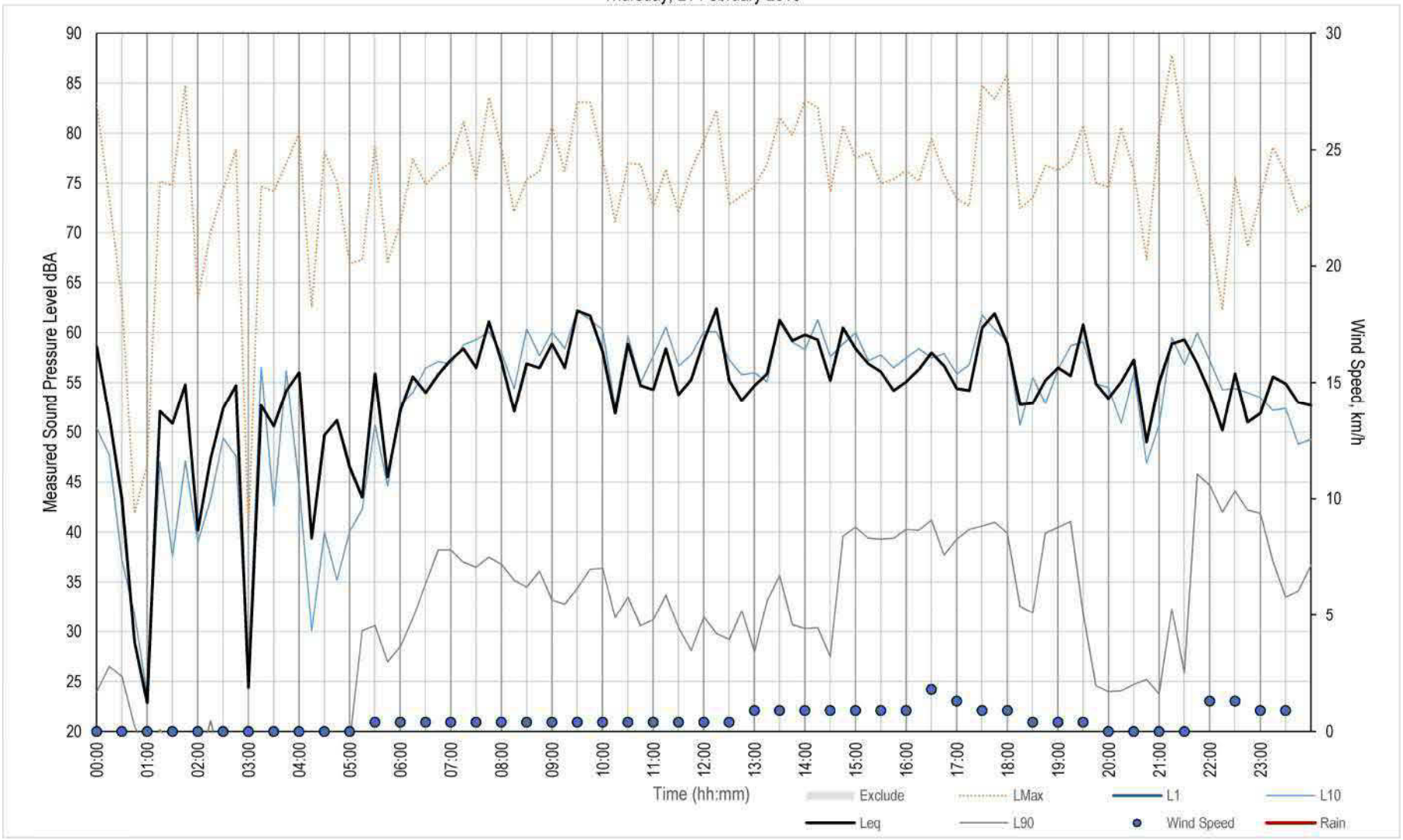
Measured Noise Levels - NM04

Wednesday, 20 February 2019



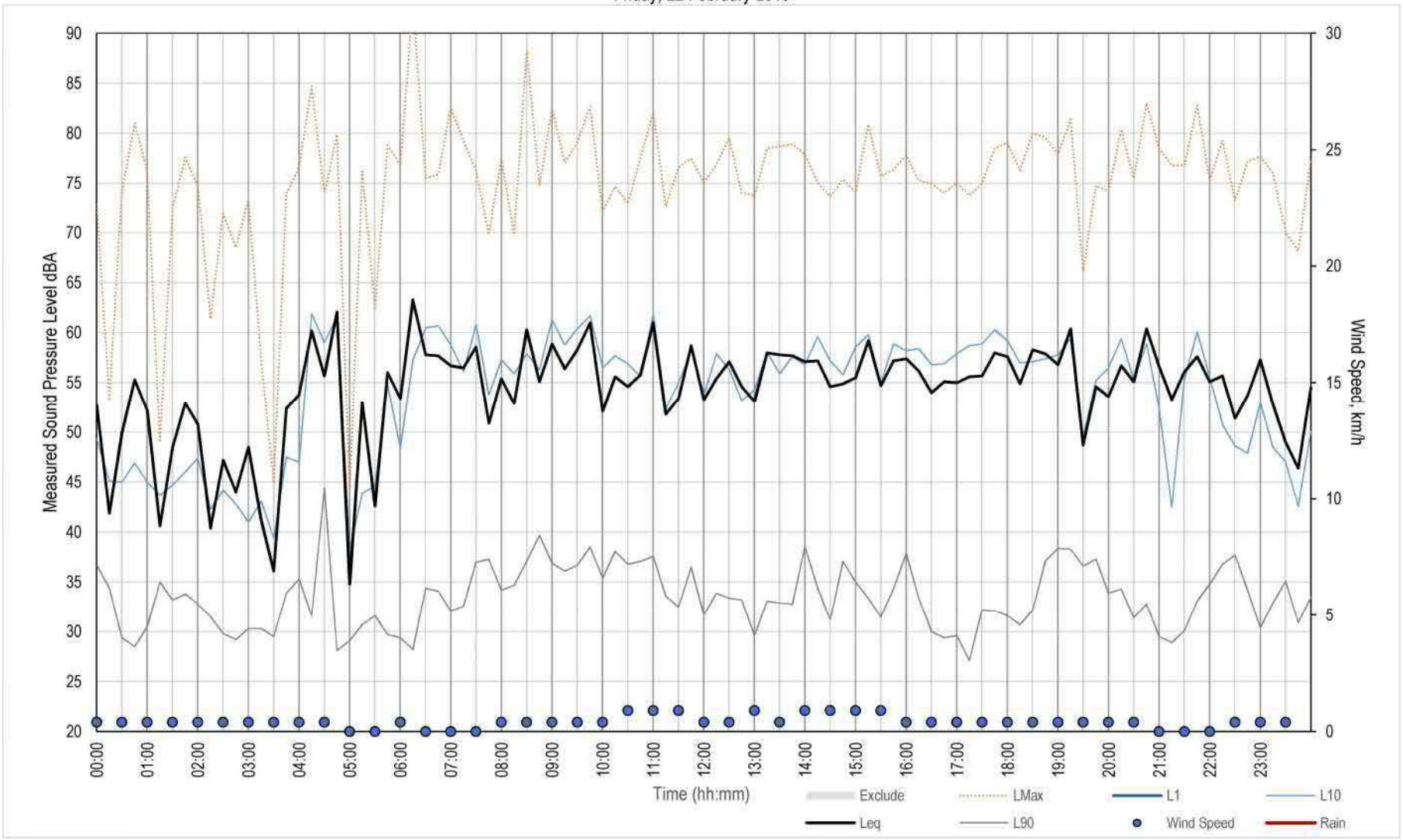
Measured Noise Levels - NM04

Thursday, 21 February 2019



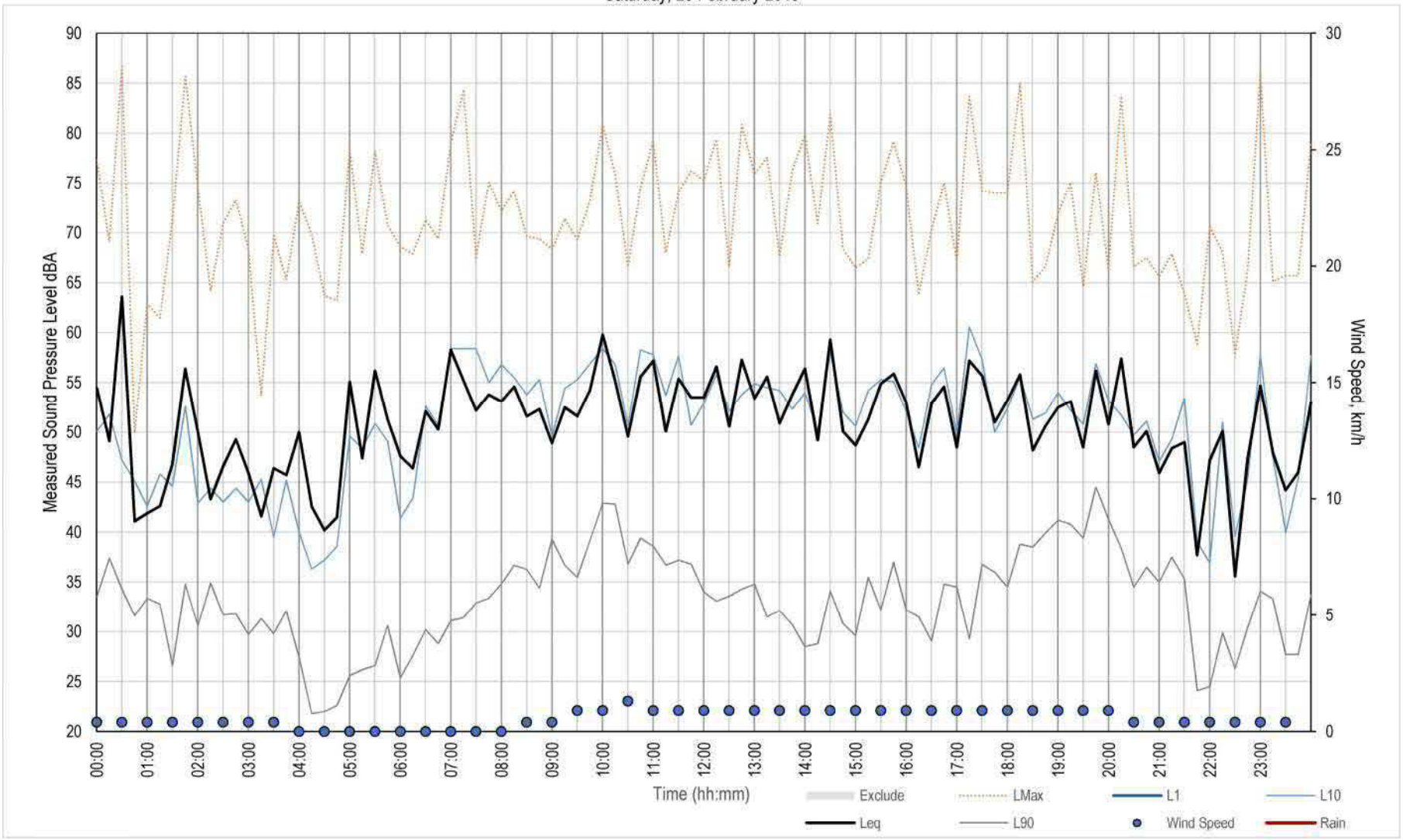
Measured Noise Levels - NM04

Friday, 22 February 2019



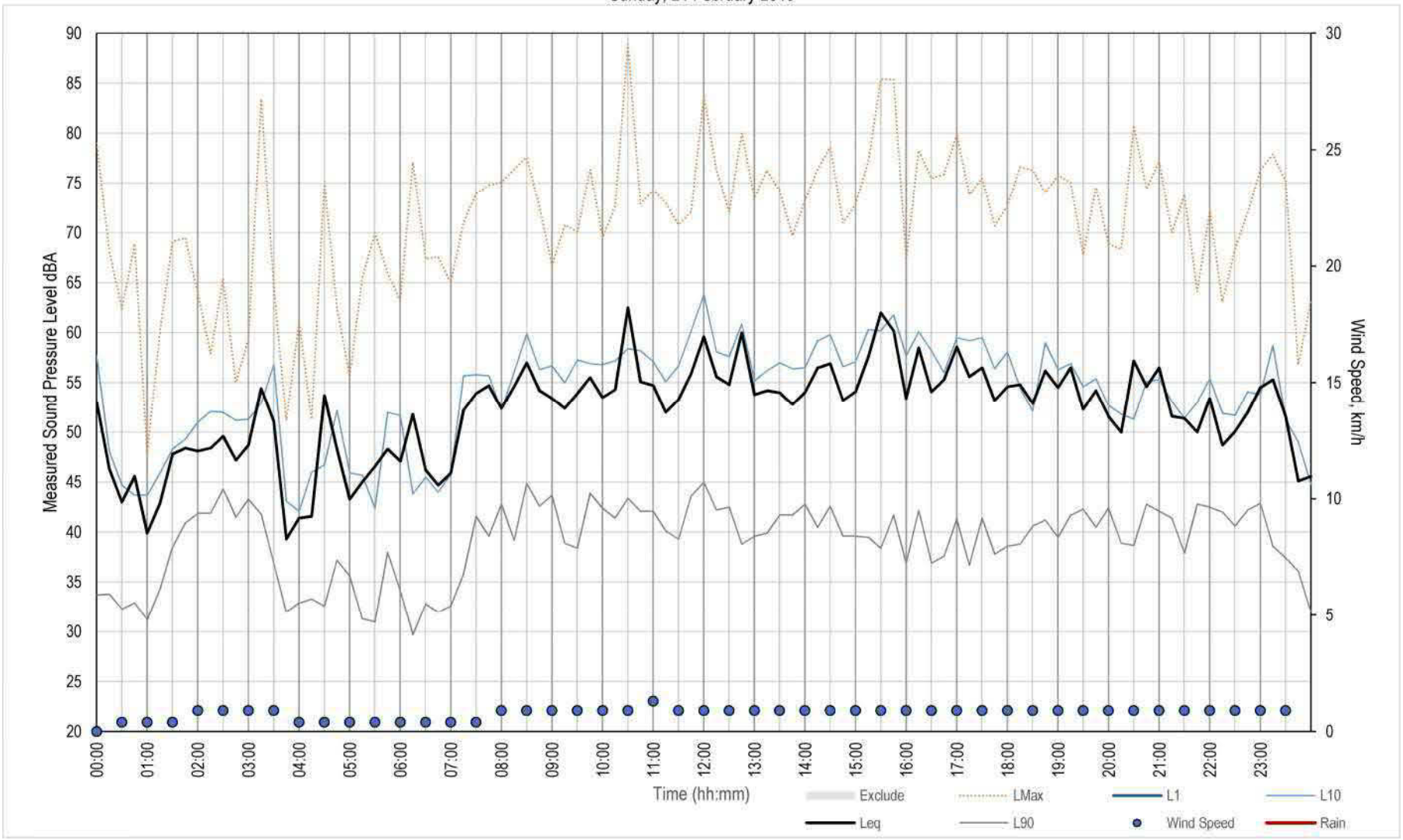
Measured Noise Levels - NM04

Saturday, 23 February 2019



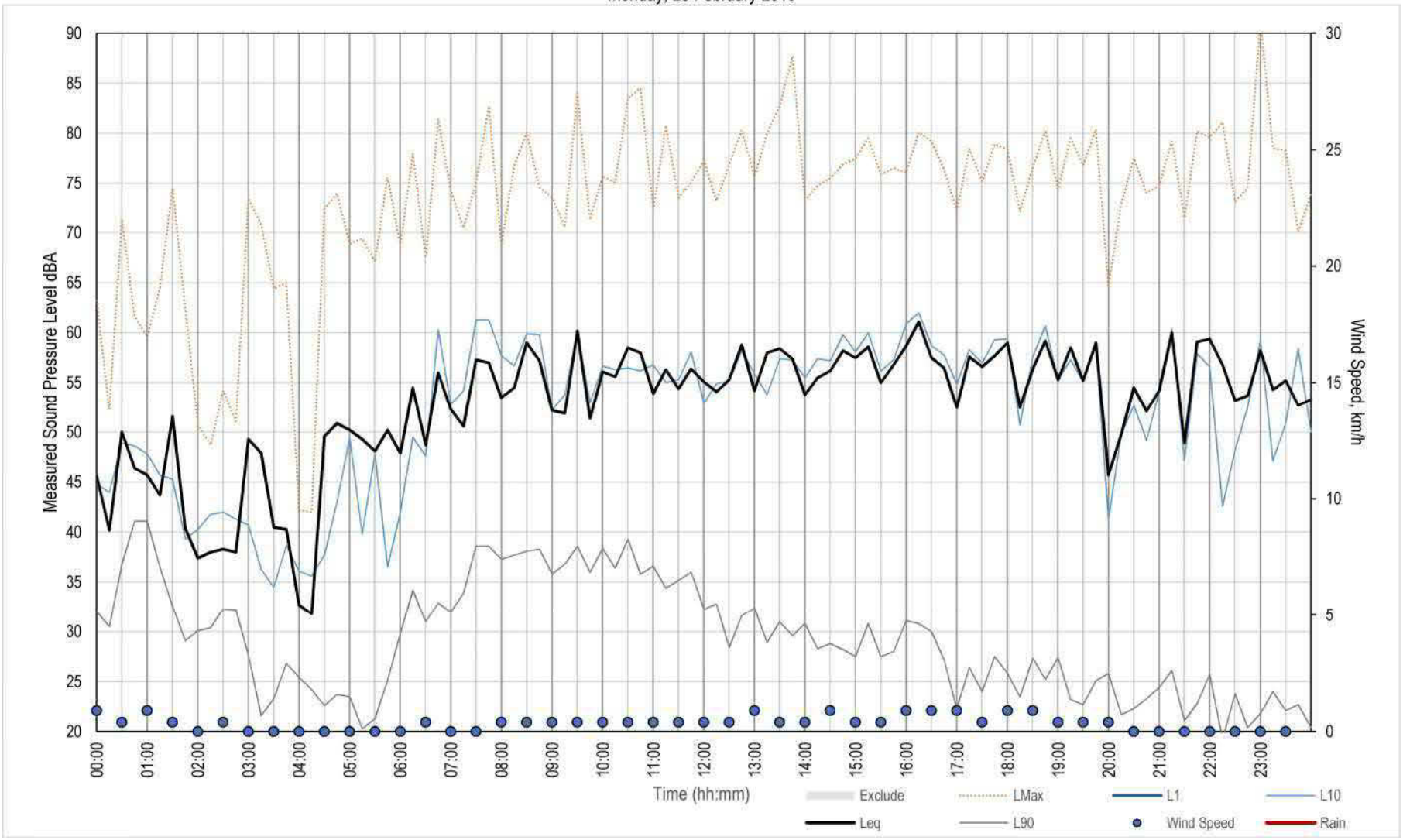
Measured Noise Levels - NM04

Sunday, 24 February 2019



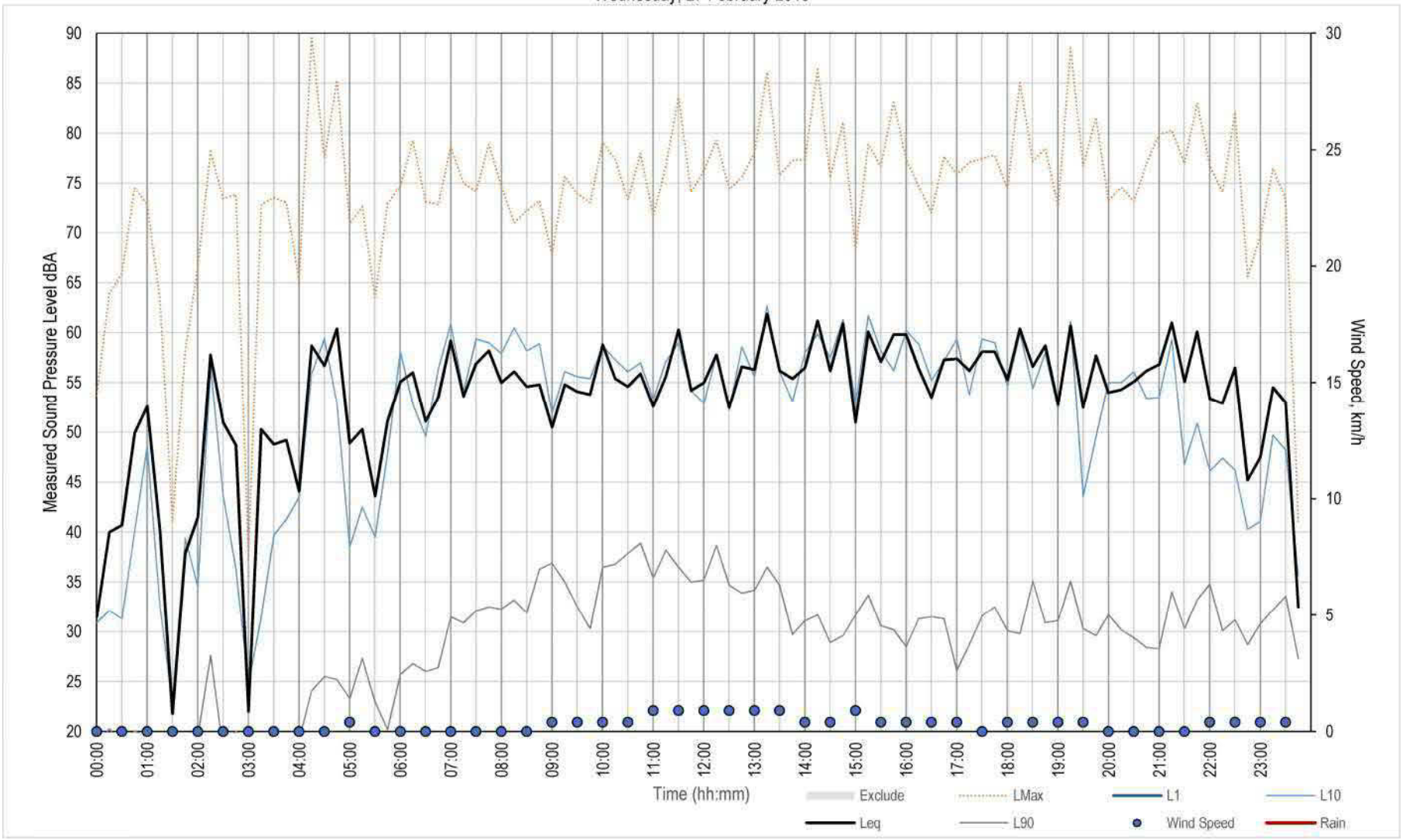
Measured Noise Levels - NM04

Monday, 25 February 2019



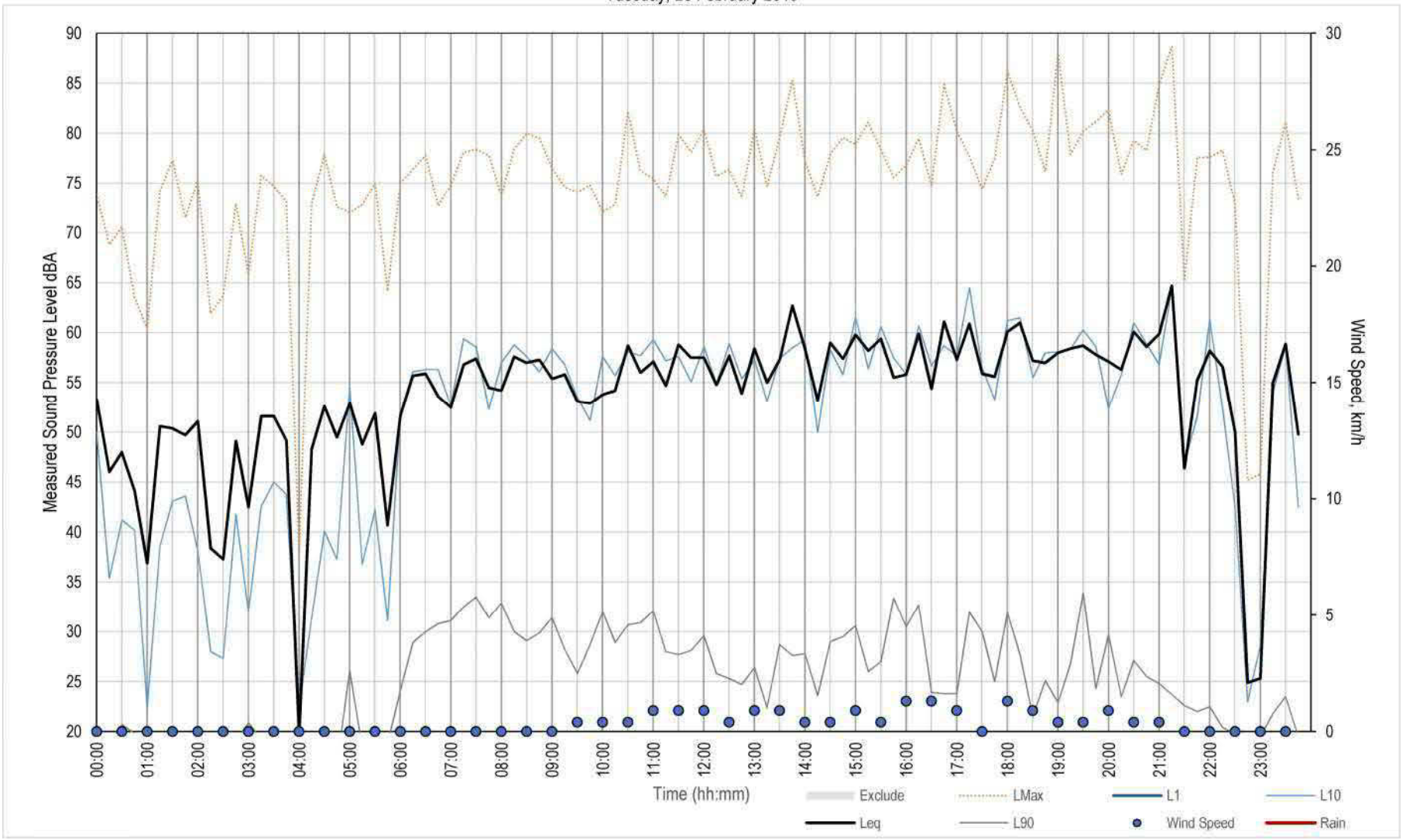
Measured Noise Levels - NM04

Wednesday, 27 February 2019



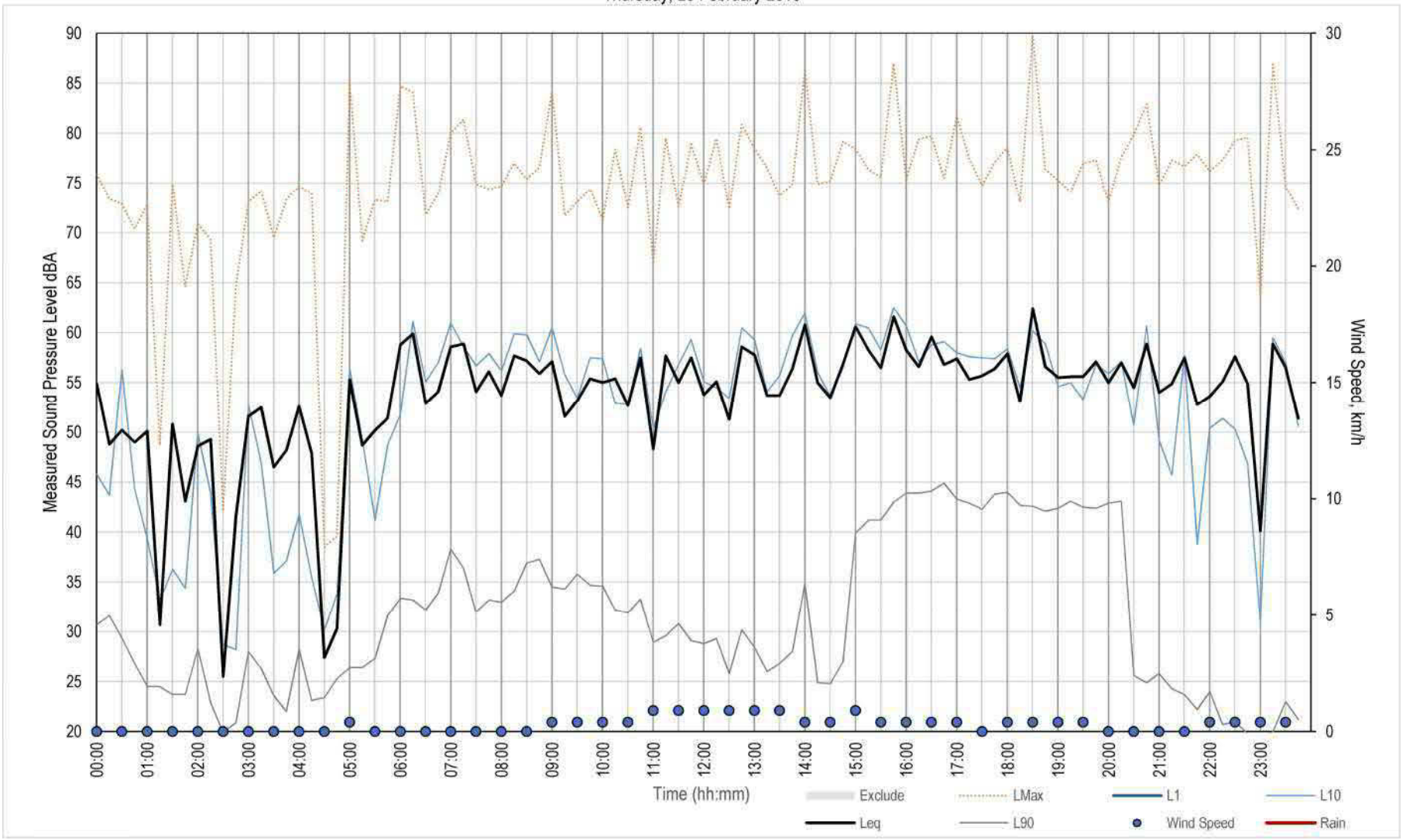
Measured Noise Levels - NM04

Tuesday, 26 February 2019



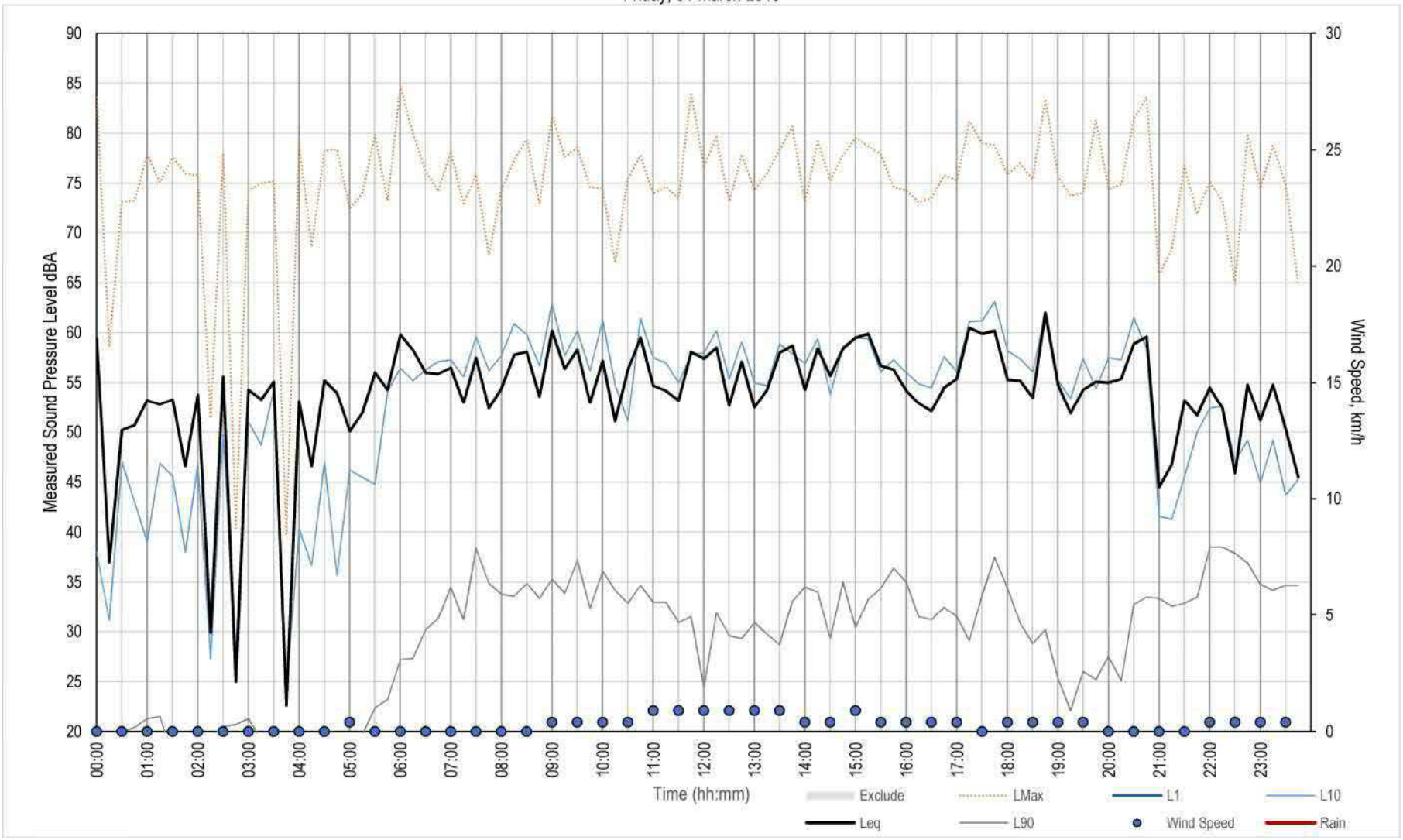
Measured Noise Levels - NM04

Thursday, 28 February 2019



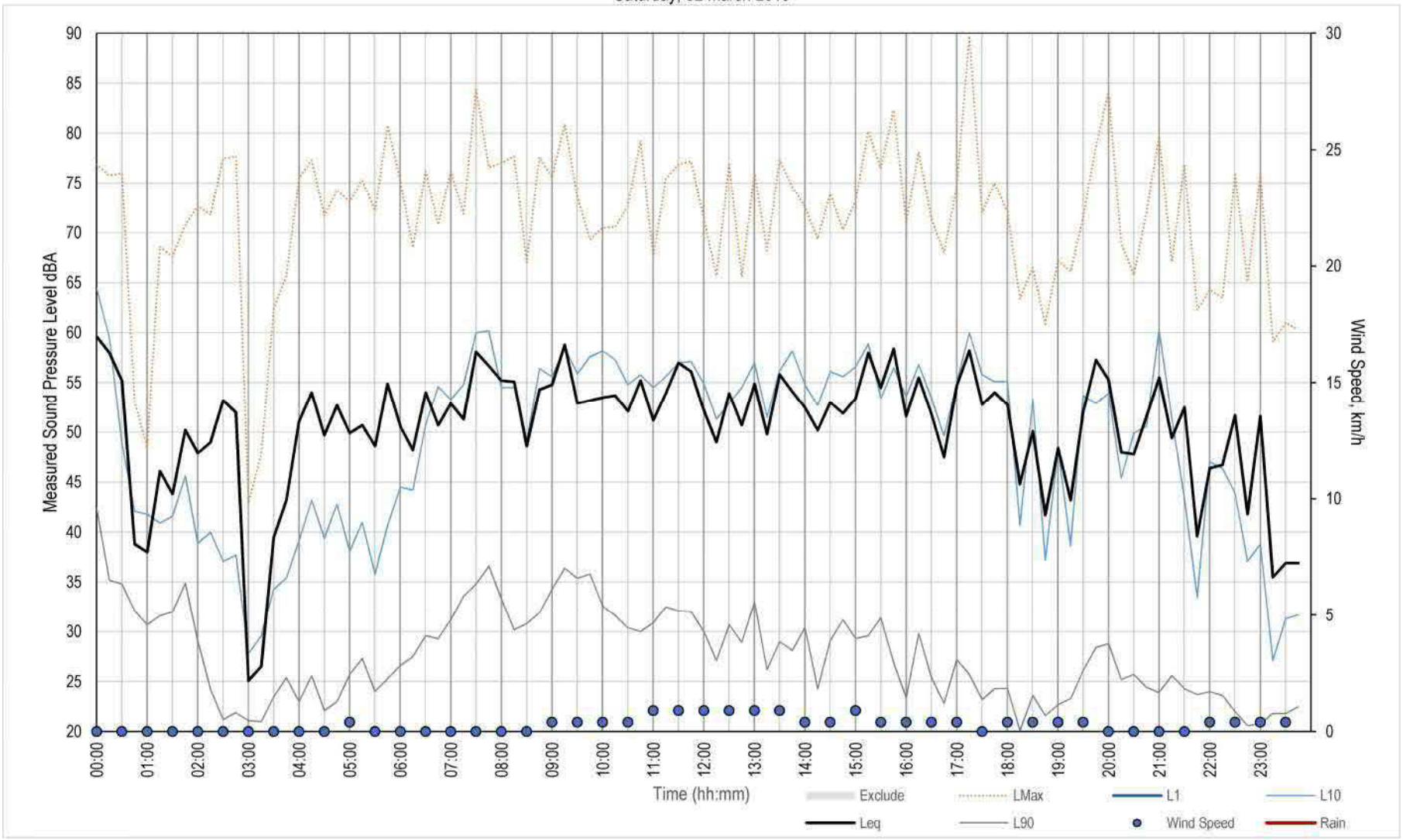
Measured Noise Levels - NM04

Friday, 01 March 2019



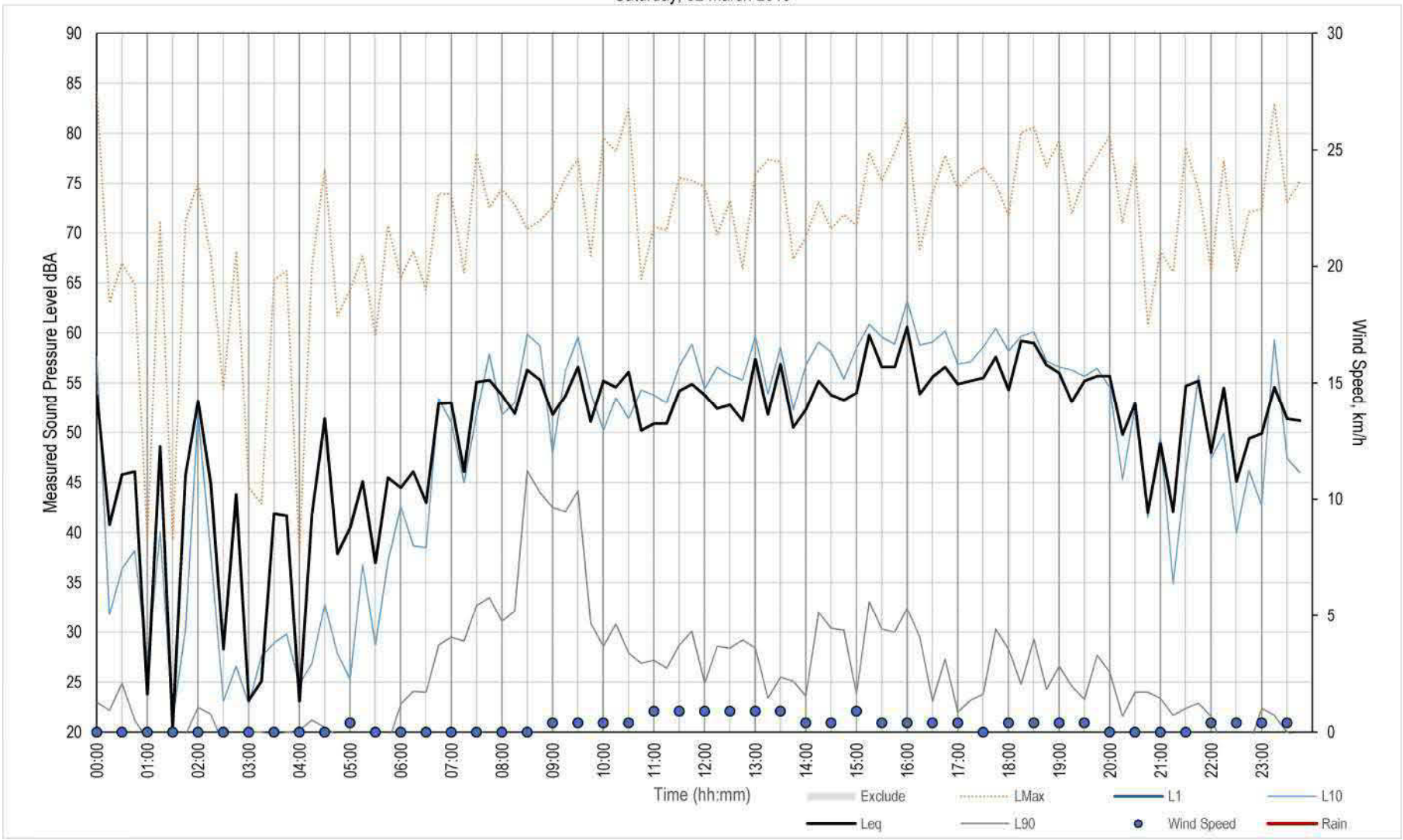
Measured Noise Levels - NM04

Saturday, 02 March 2019



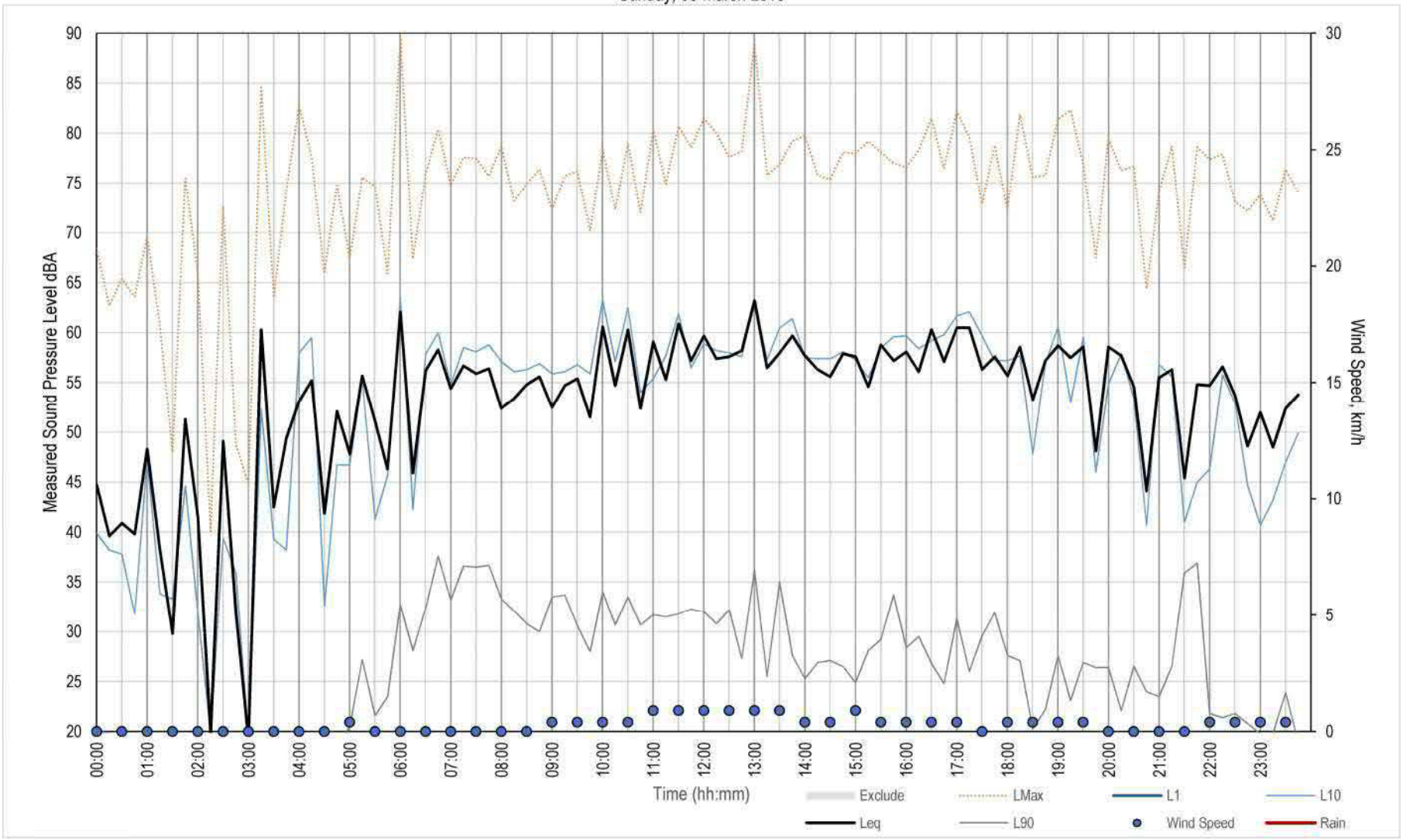
Measured Noise Levels - NM04

Saturday, 02 March 2019



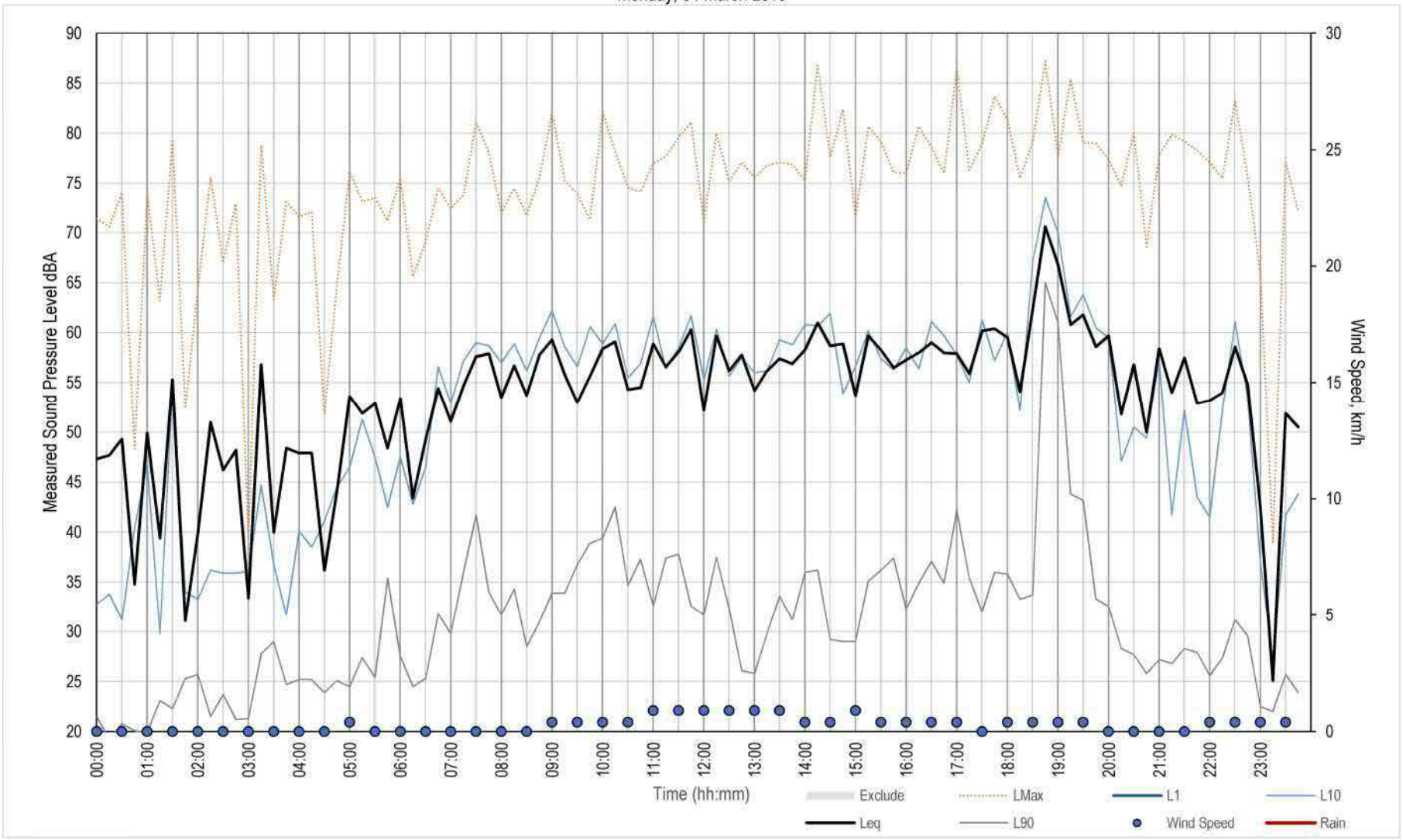
Measured Noise Levels - NM04

Sunday, 03 March 2019



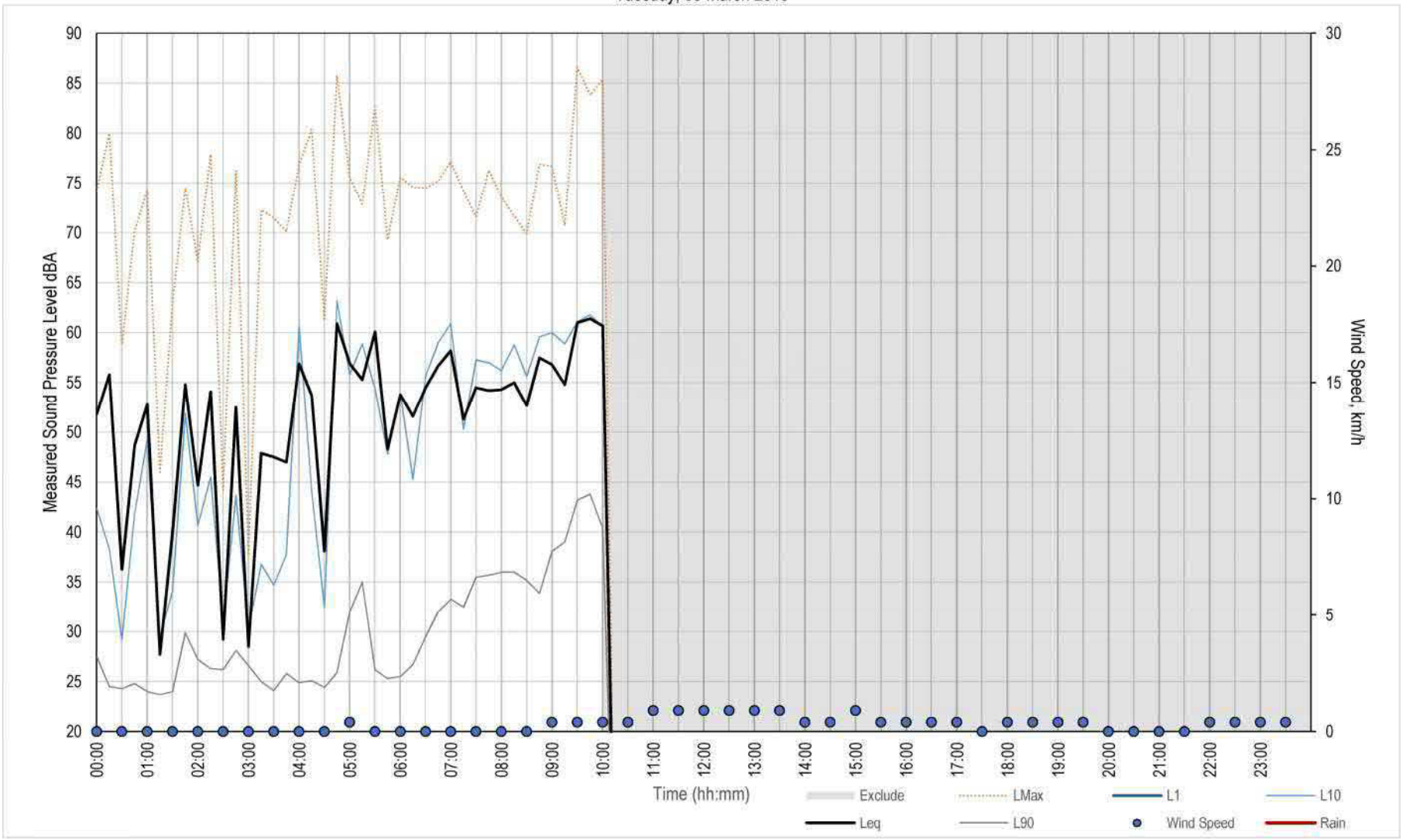
Measured Noise Levels - NM04

Monday, 04 March 2019



Measured Noise Levels - NM04

Tuesday, 05 March 2019



Site Details	NM06	**Microphone Position**	1.5m above ground
Start Date	Tue 19 February 2019		
End Date	Tue 05 March 2019		

Measurement Summary

Date	19-02	20-02	21-02	22-02	23-02	24-02	25-02	26-02
$Leq_{, Day}$, dBA	59	59	59	59	56	58	58	59
$Leq_{, Evening}$, dBA	54	55	55	53	51	52	54	54
$Leq_{, Night}$, dBA	61	61	61	60	58	60	61	61
$RBL_{, Day}$, dBA	34	27	27	30	30	38	25	24
$RBL_{, Evening}$, dBA	27	27	23	31	37	41	18	17
$RBL_{, Night}$, dBA	17	19	28	26	29	22	15	15

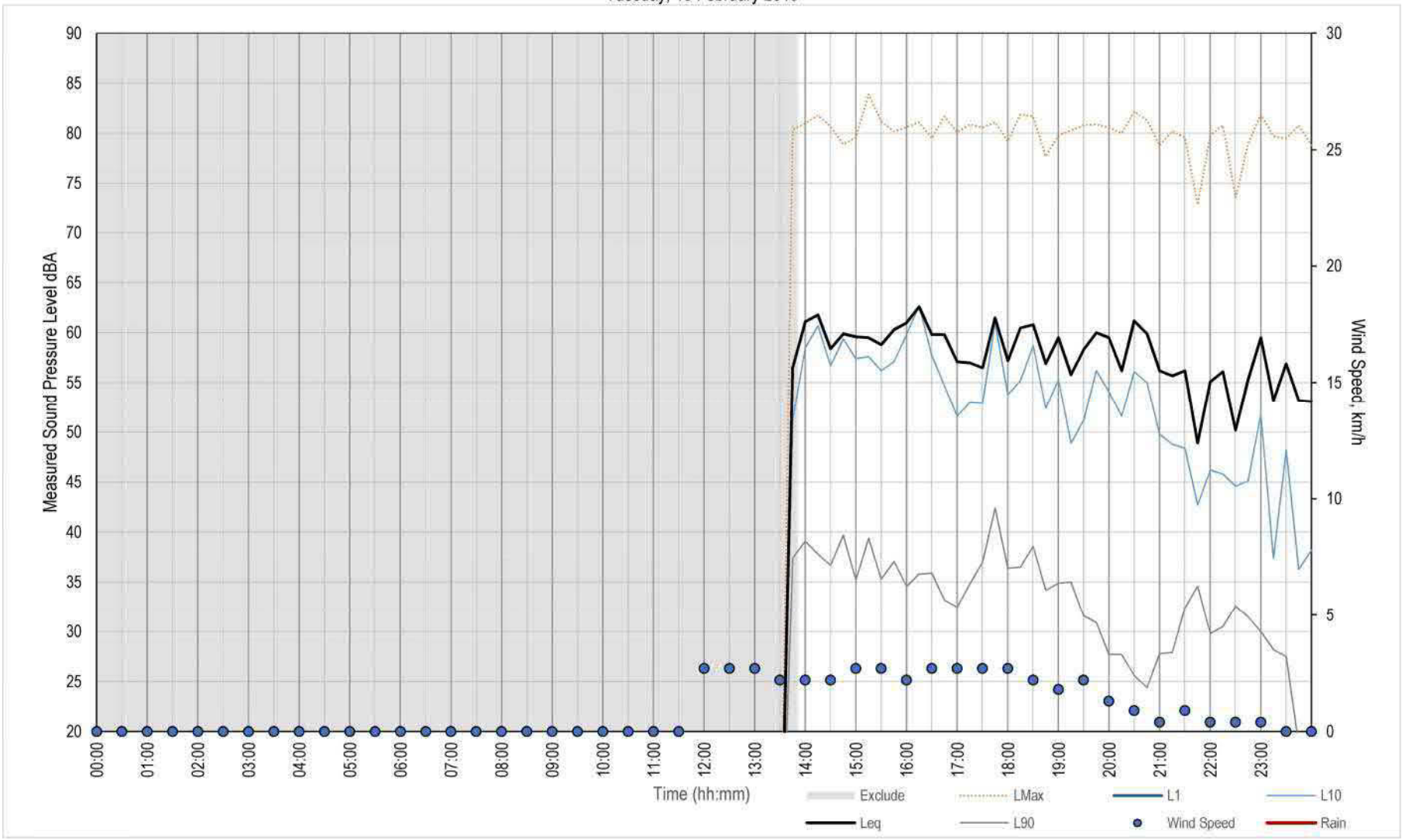
Date	27-02	28-02	01-03	02-03	03-03	04-03	05-03	
$Leq_{, Day}$, dBA	60	58	59	56	57	59	60	
$Leq_{, Evening}$, dBA	54	55	53	48	53	53	54	
$Leq_{, Night}$, dBA	62	60	61	57	60	61	63	
$RBL_{, Day}$, dBA	27	28	29	25	25	26	29	
$RBL_{, Evening}$, dBA	27	18	22	17	17	20	23	
$RBL_{, Night}$, dBA	21	15	20	15	15	17	17	

Site Photo

Logging summary:
The noise environment was characterised by intermittent traffic along Burley Griffin Way and natural noises (e.g. birds, etc.). Background noise levels were consistently low (<30 dBA) with fluctuations typically controlled by natural noises (e.g. any wind through trees).

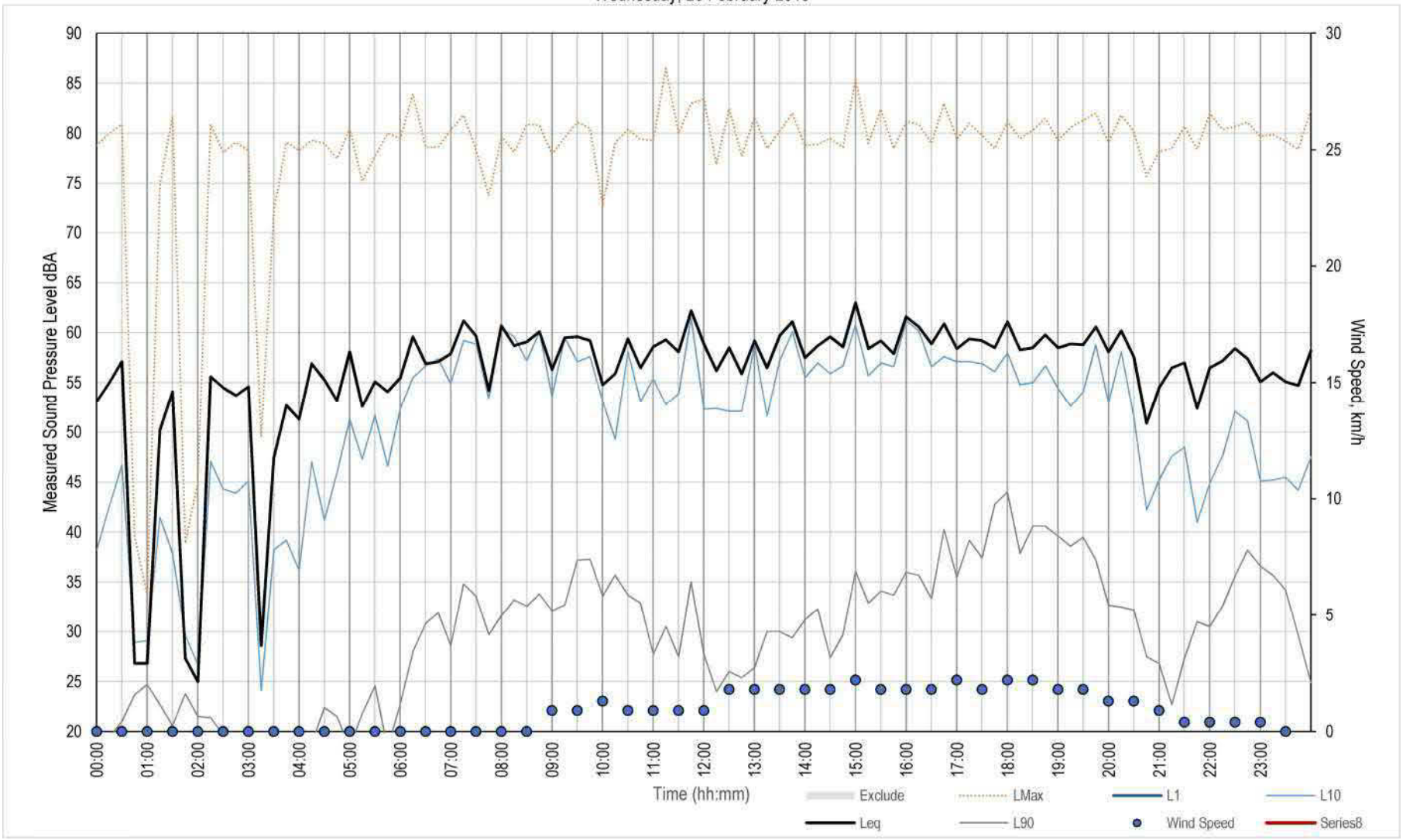
Measured Noise Levels - NM06

Tuesday, 19 February 2019



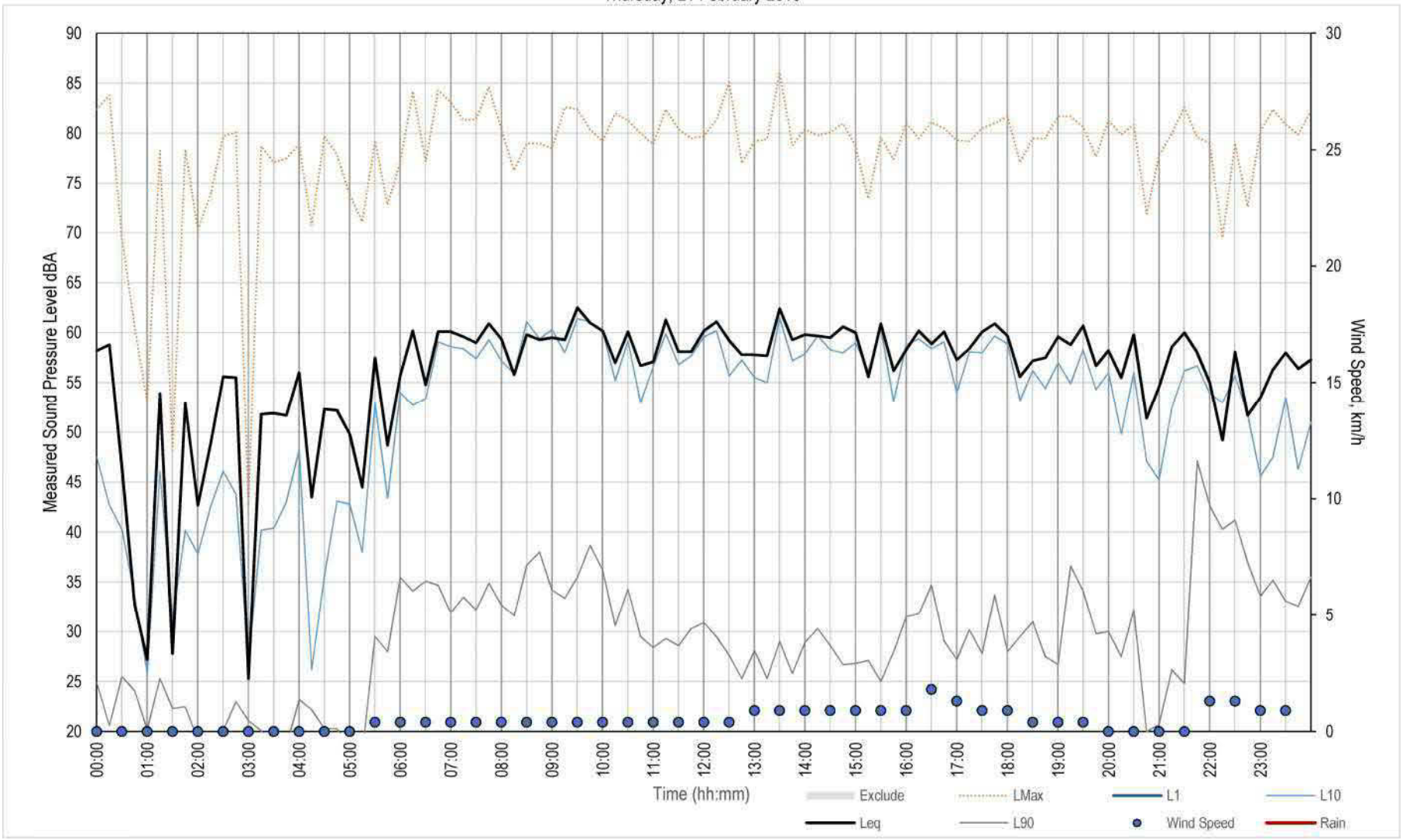
Measured Noise Levels - NM06

Wednesday, 20 February 2019



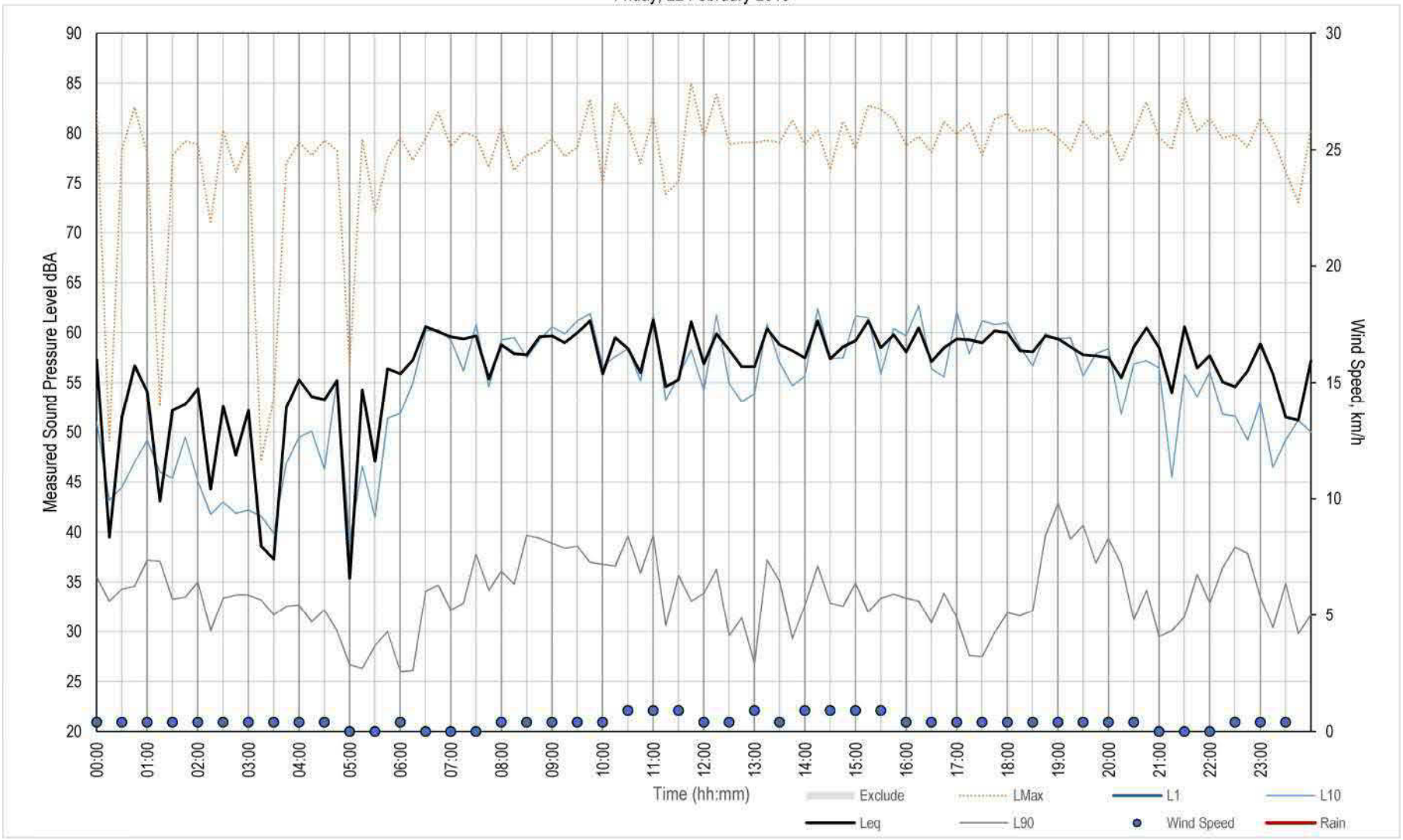
Measured Noise Levels - NM06

Thursday, 21 February 2019



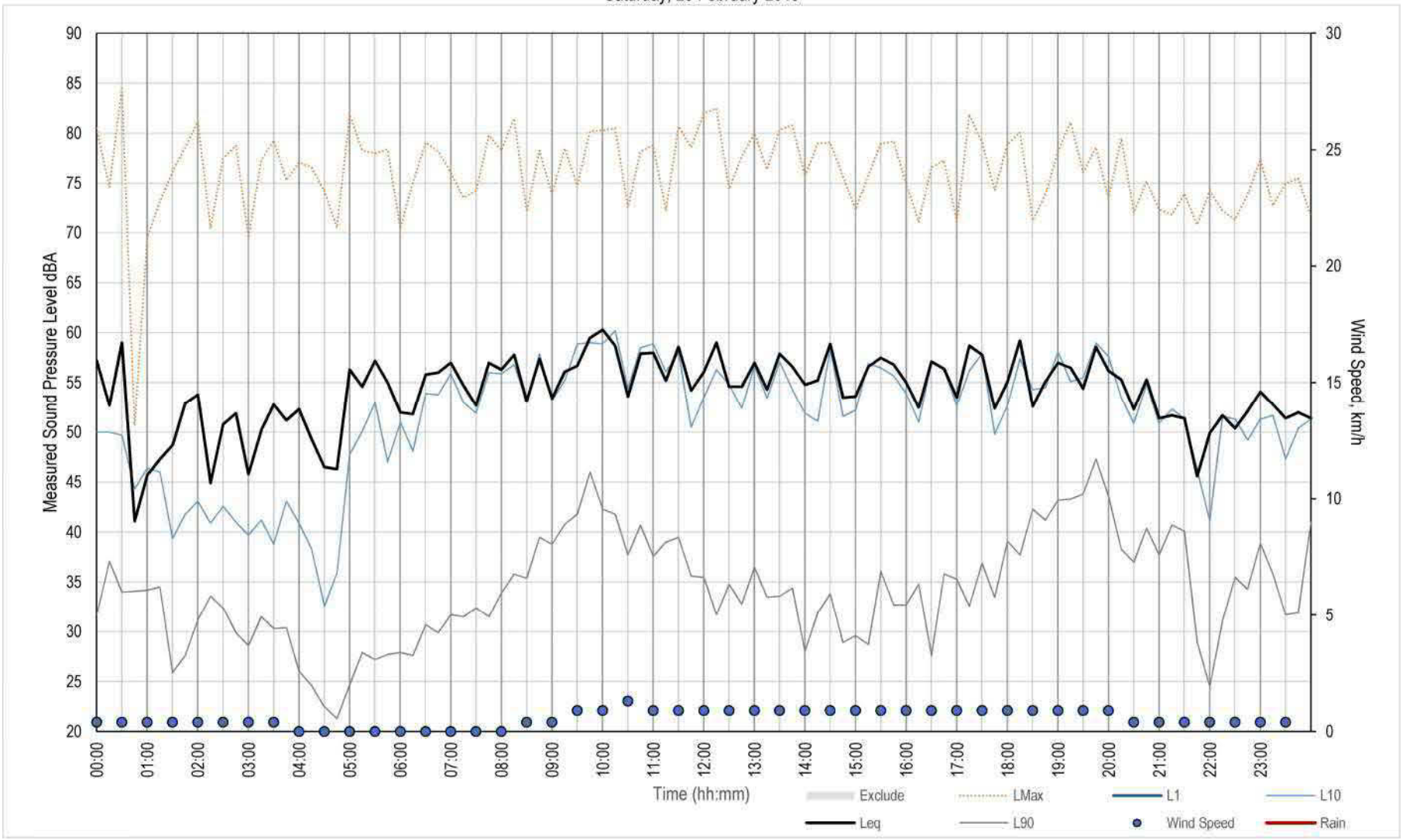
Measured Noise Levels - NM06

Friday, 22 February 2019



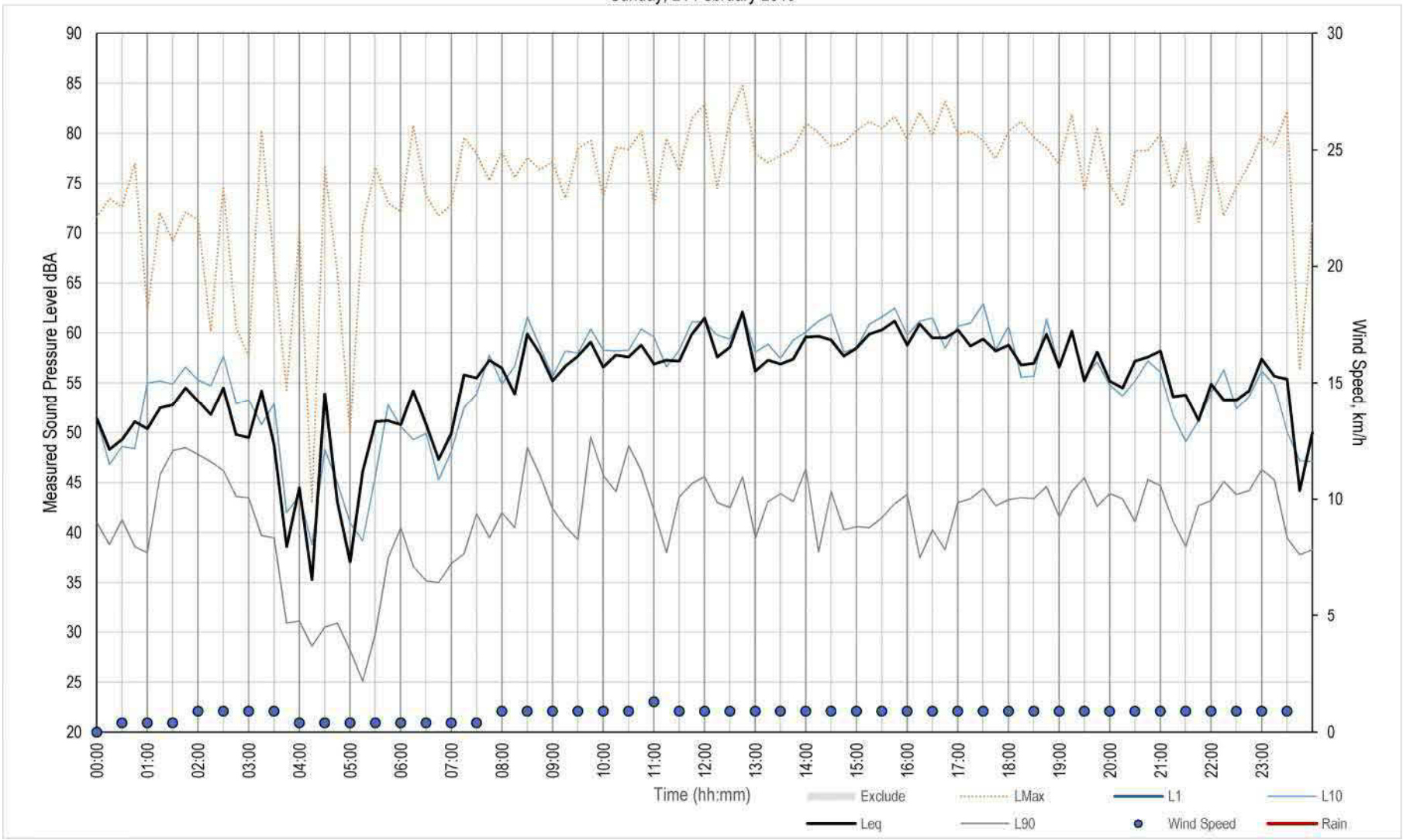
Measured Noise Levels - NM06

Saturday, 23 February 2019



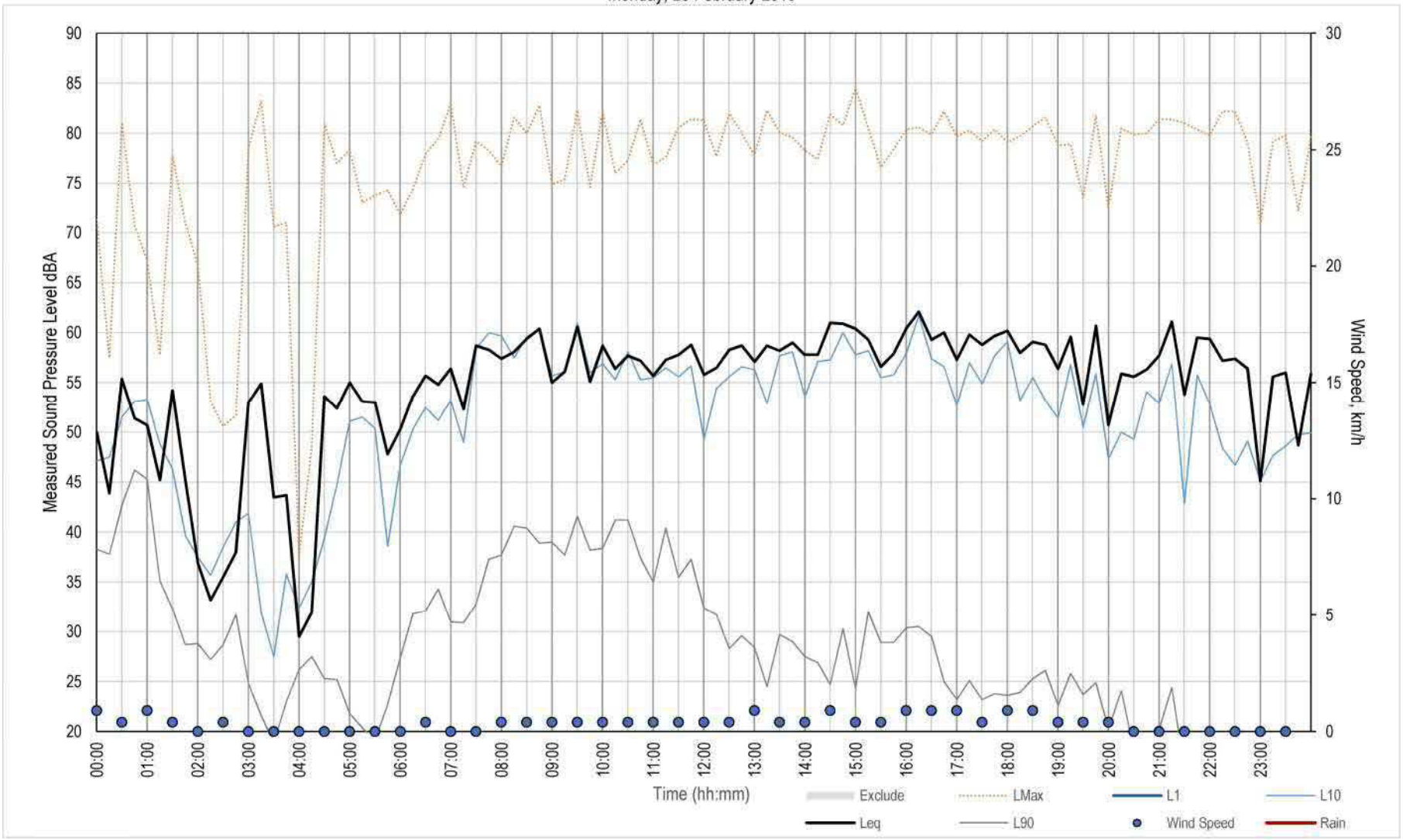
Measured Noise Levels - NM06

Sunday, 24 February 2019



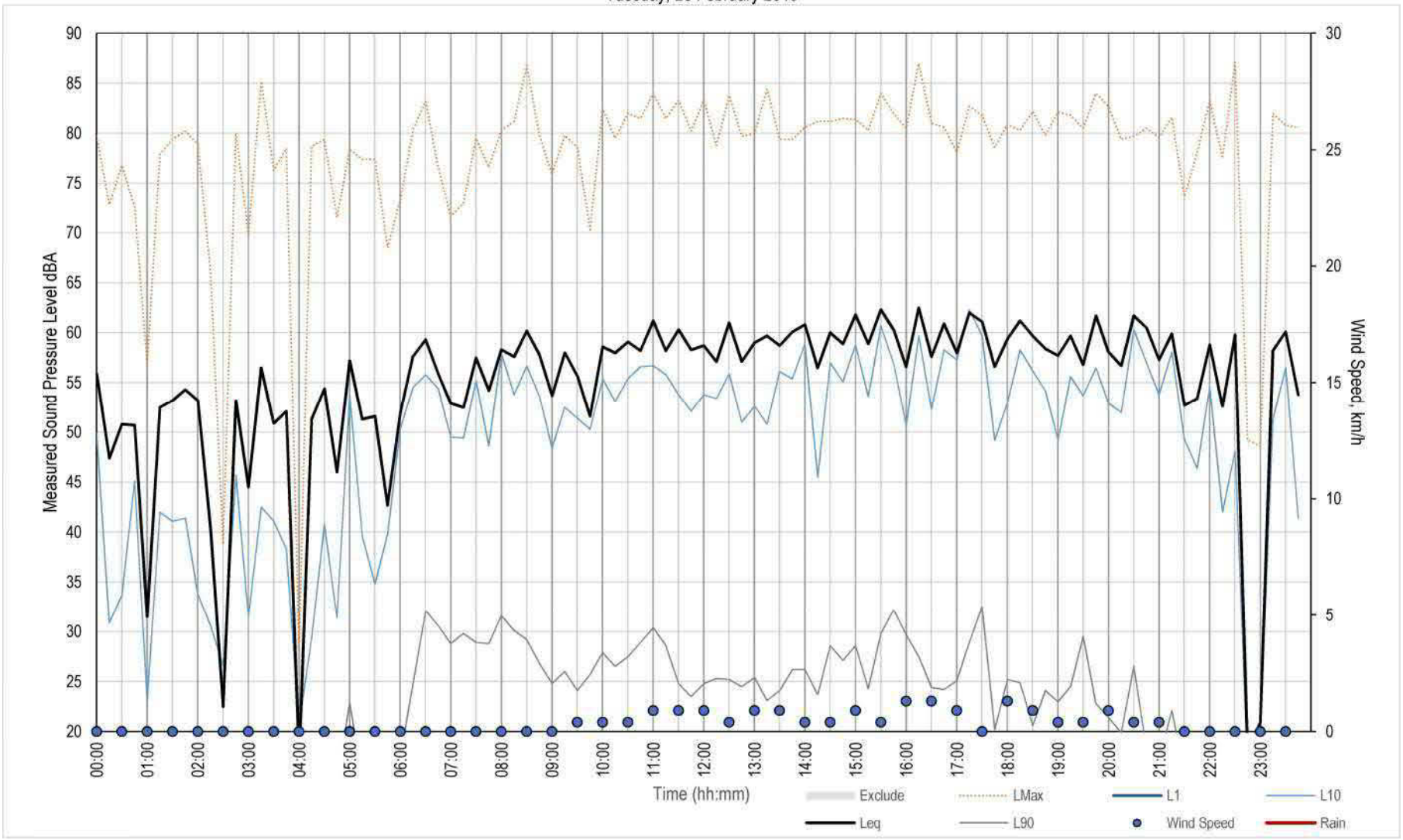
Measured Noise Levels - NM06

Monday, 25 February 2019



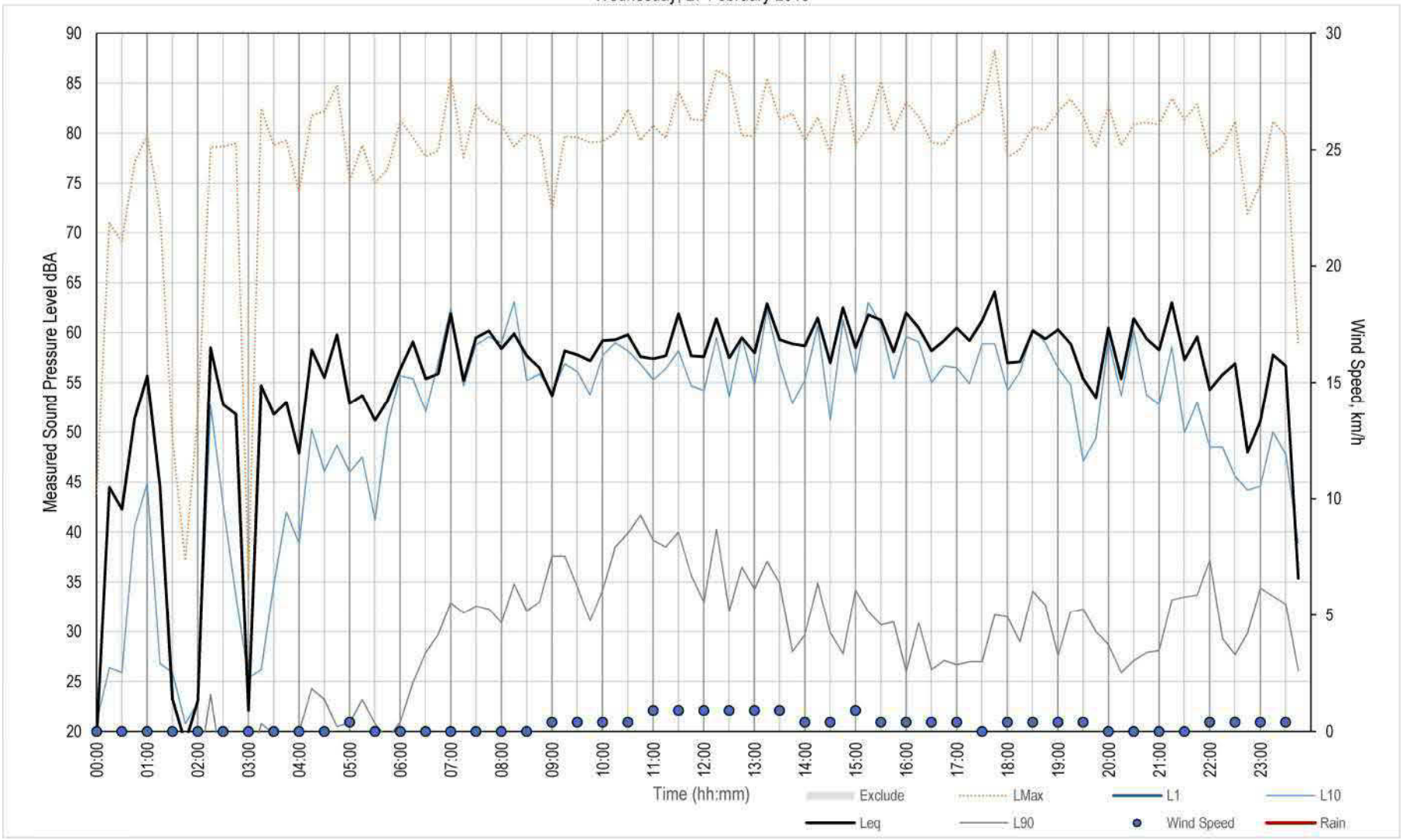
Measured Noise Levels - NM06

Tuesday, 26 February 2019



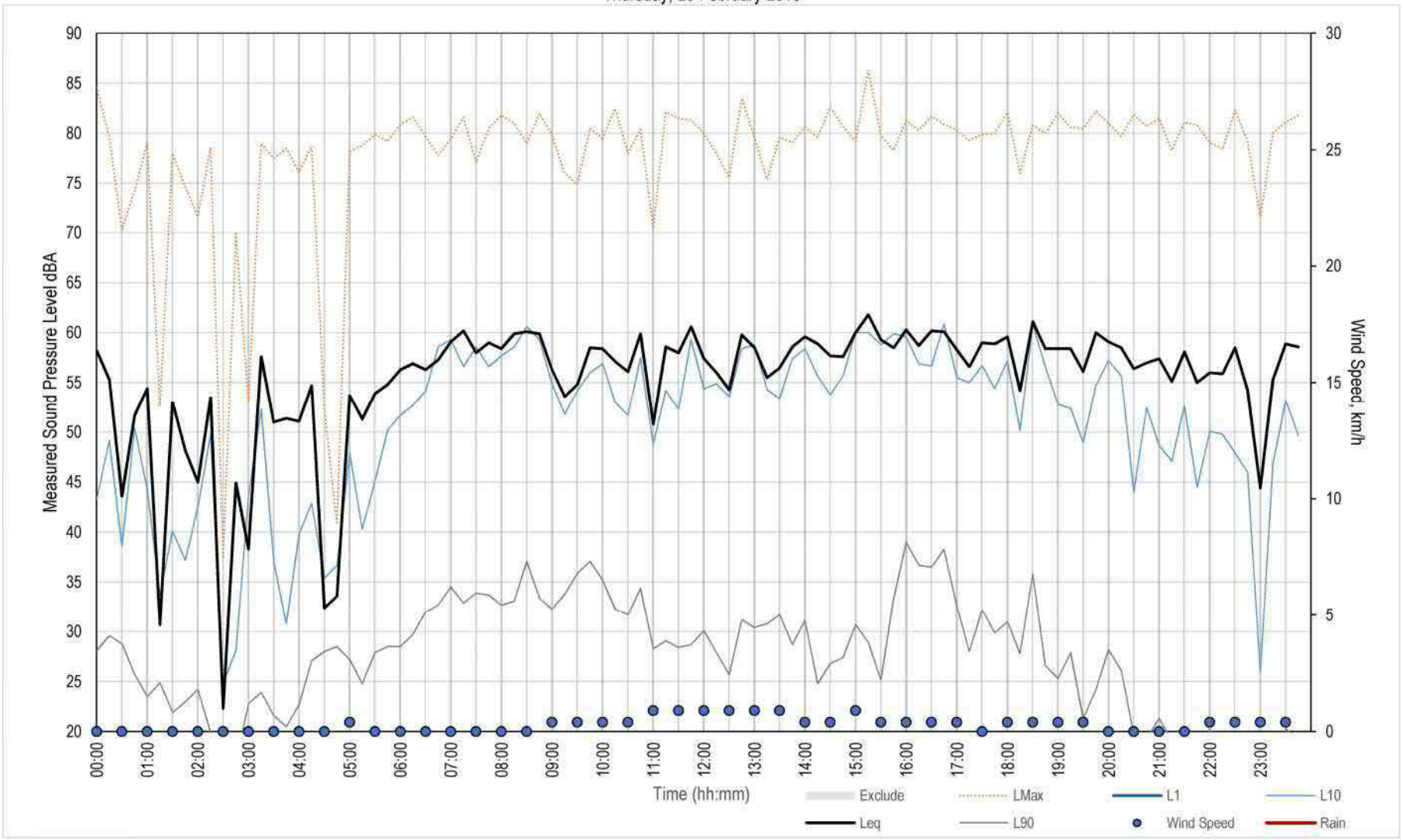
Measured Noise Levels - NM06

Wednesday, 27 February 2019



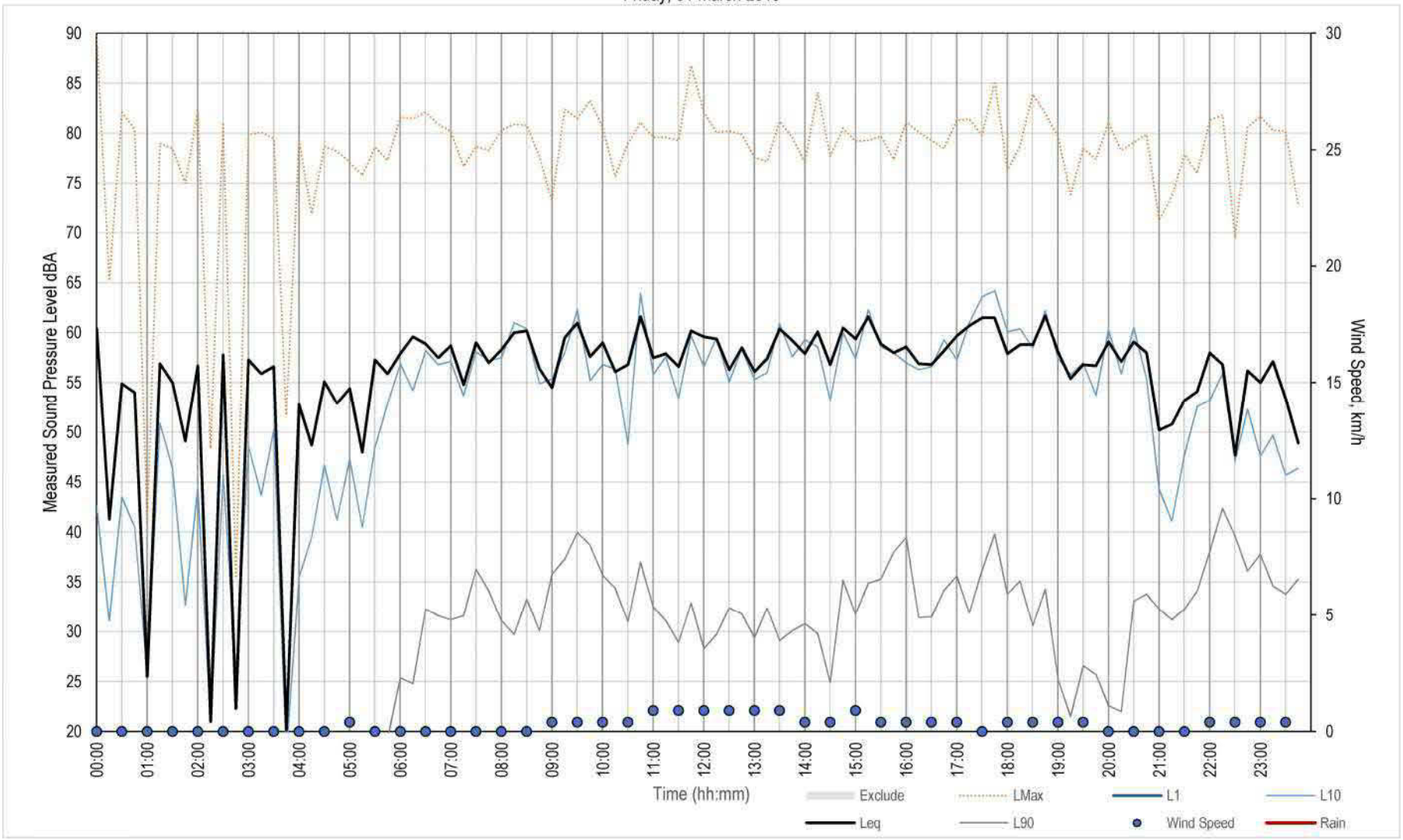
Measured Noise Levels - NM06

Thursday, 28 February 2019



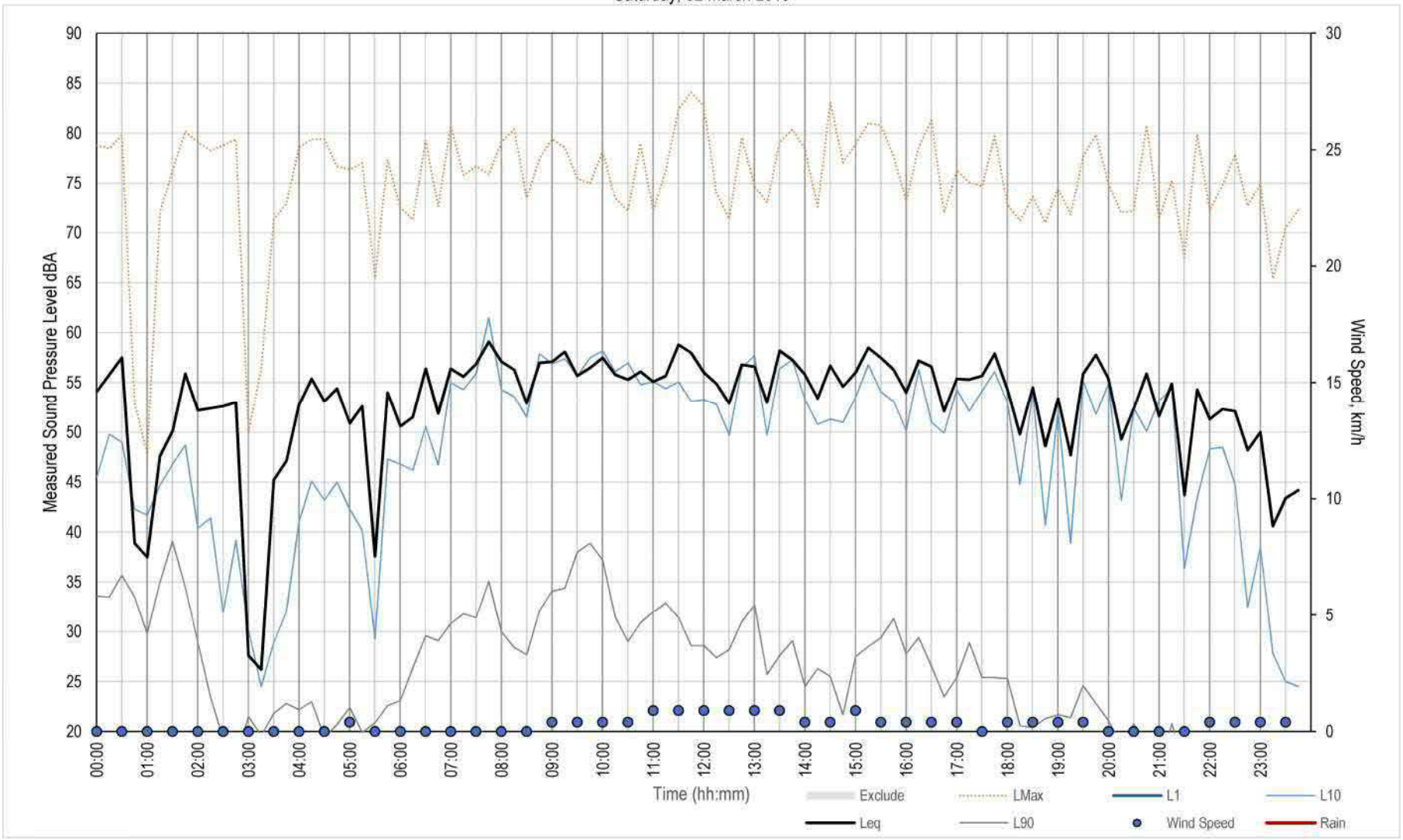
Measured Noise Levels - NM06

Friday, 01 March 2019



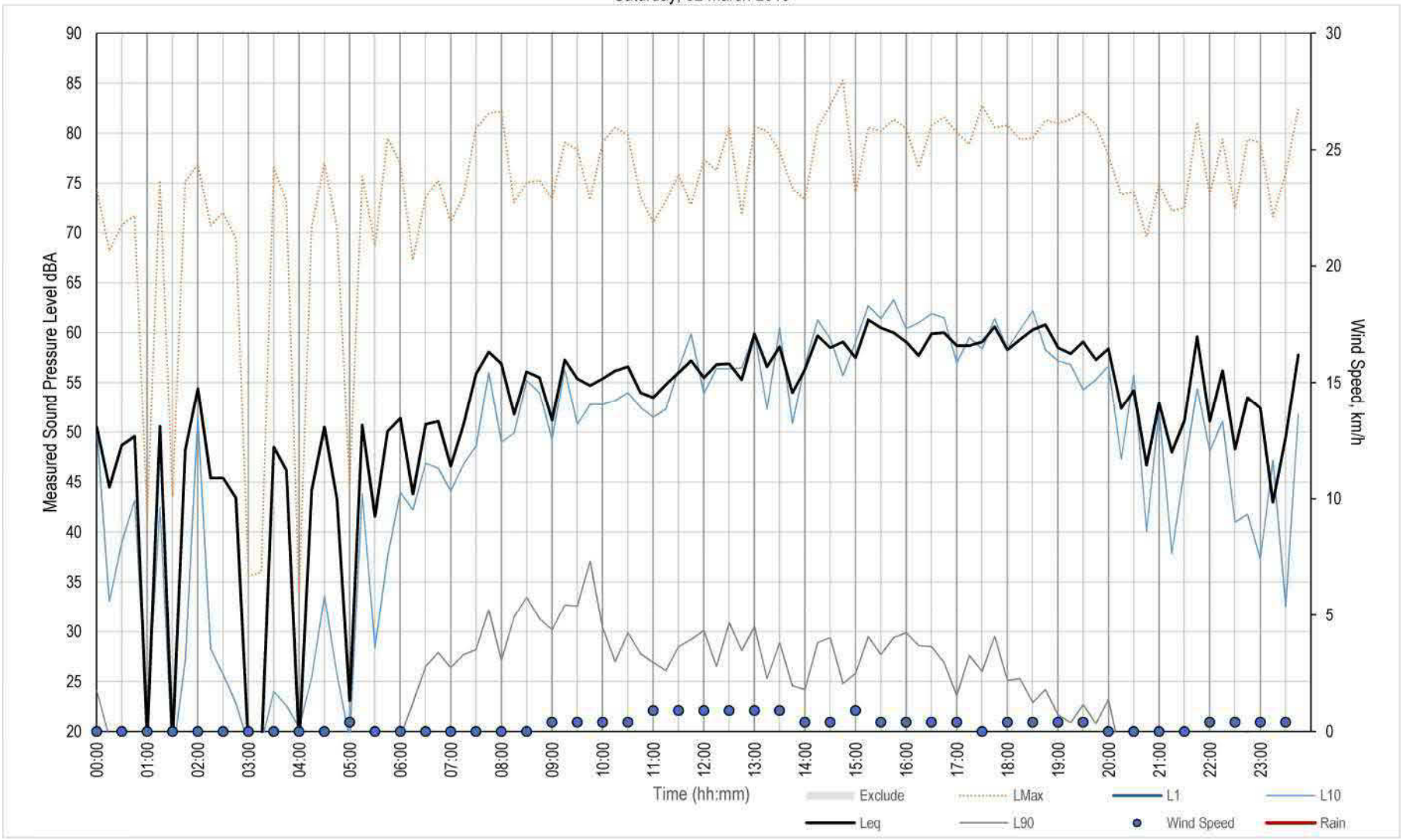
Measured Noise Levels - NM06

Saturday, 02 March 2019



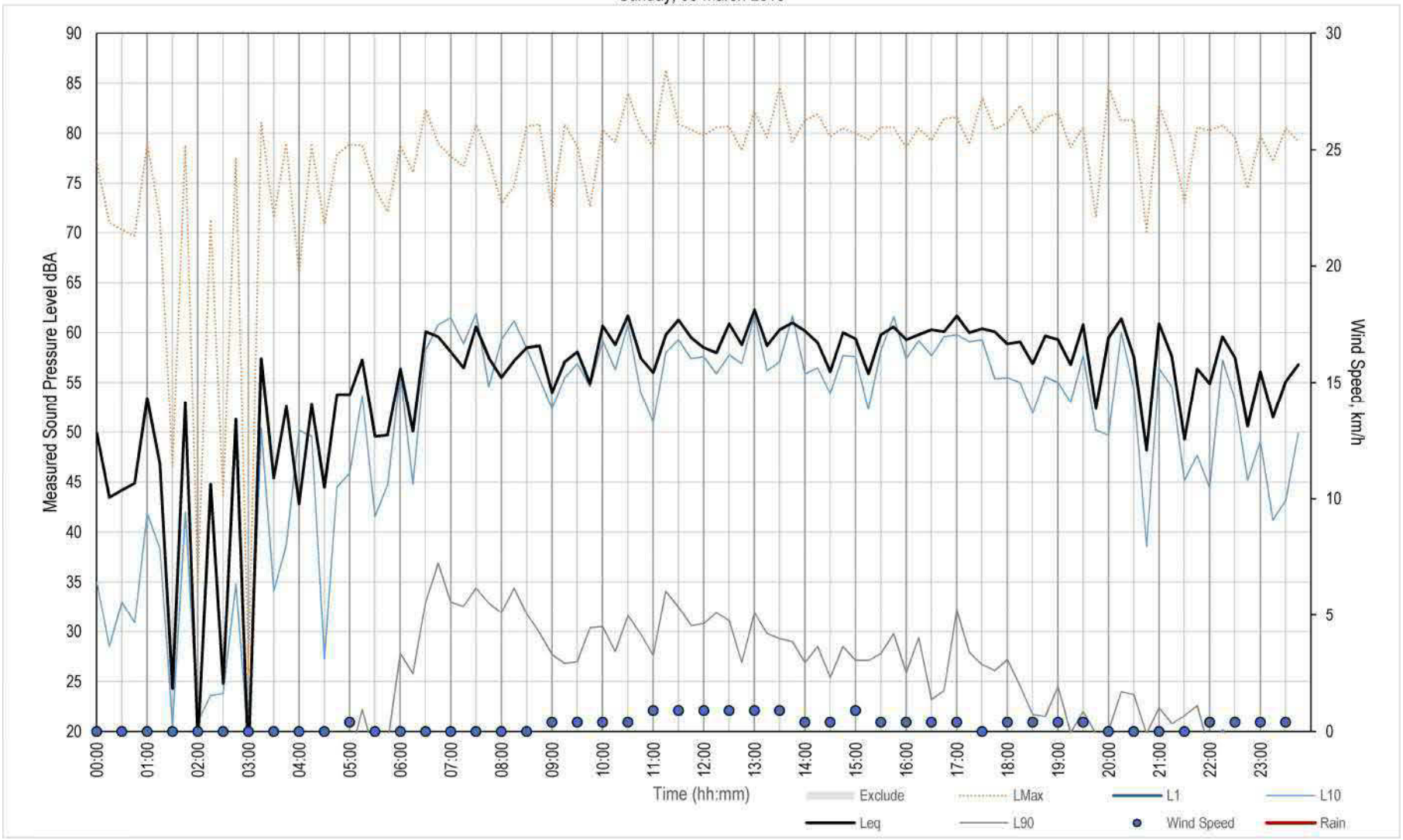
Measured Noise Levels - NM06

Saturday, 02 March 2019



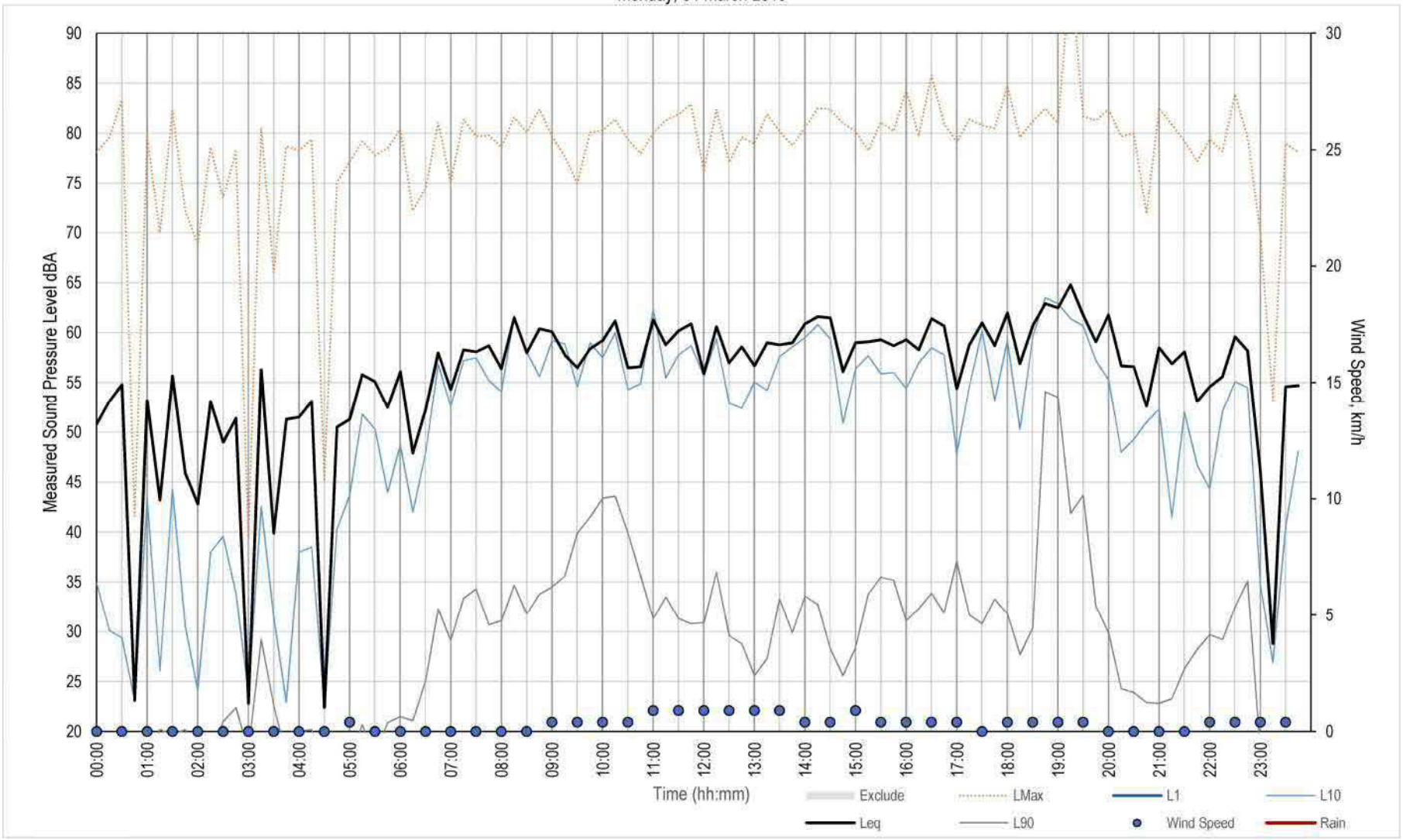
Measured Noise Levels - NM06

Sunday, 03 March 2019



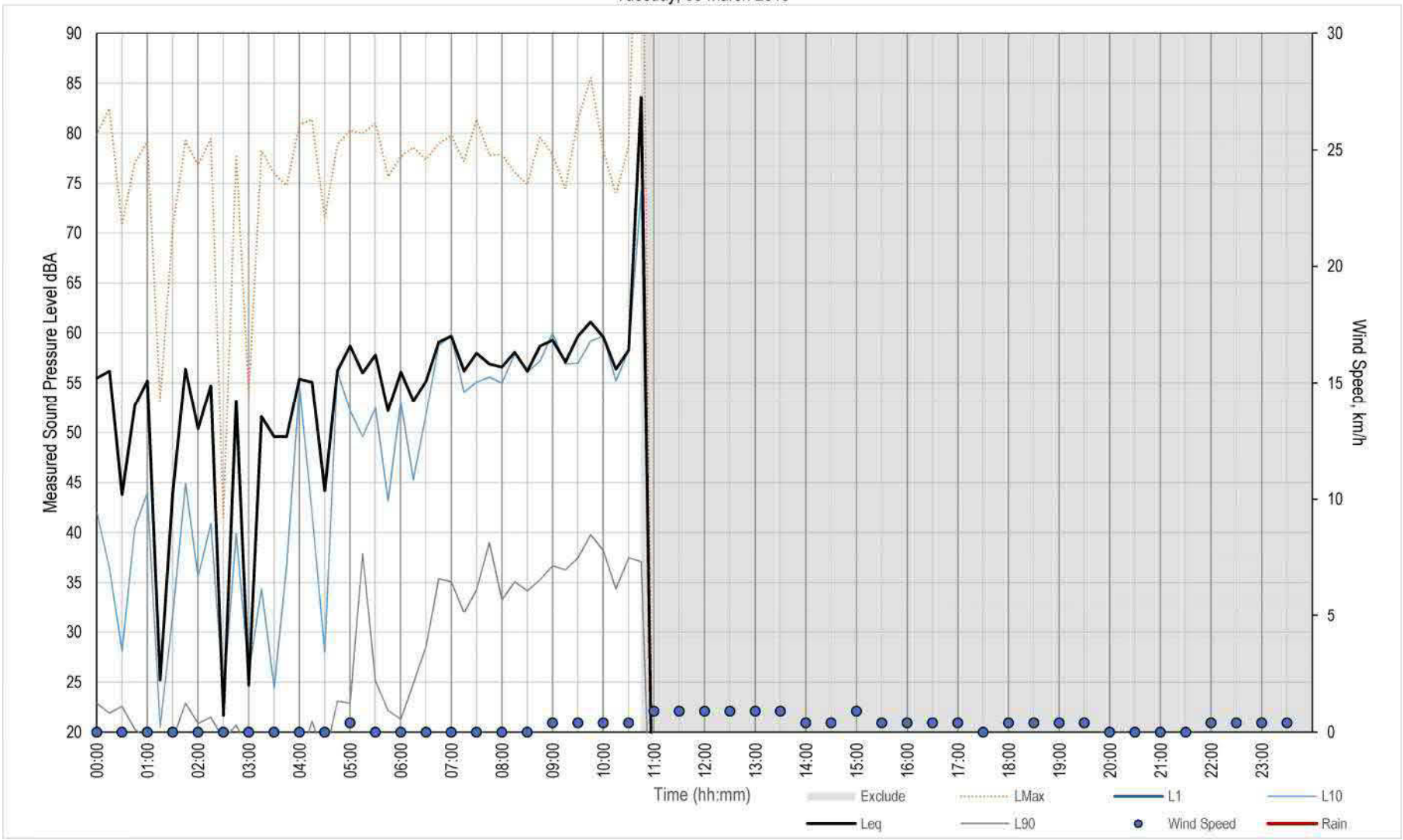
Measured Noise Levels - NM06

Monday, 04 March 2019



Measured Noise Levels - NM06

Tuesday, 05 March 2019



TECHNICAL REPORT 10

Operational Noise and Vibration Impact Assessment (Non-Rail)

Appendix C Tabulated noise modelling results

ILLABO TO STOCKINBINGAL ENVIRONMENTAL IMPACT STATEMENT

Table C.1 Noise modelling results

Property ID	Lot and DP	Receiver type	Façade		Predicted noise level - Opening year 2024				Predicted noise level - Design year 2034				NCG project road noise criteria		Is the NCG criterion exceeded?		Is the NCG criterion and the cumulative limit exceeded?		Is the NCG criterion exceeded and a >2dB increase from the project predicted?		Is the contribution from the project acute?		Do noise levels exceed the NCG relative increase criteria?		Is the property considered for further treatment?
					No build		Build		No build		Build														
			Floor level	Direction	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	
319076	14DP758928	RES	GF	W	47	42	47	42	47	42	47	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319076	14DP758928	RES	GF	S	48	43	48	44	48	43	49	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319076	14DP758928	RES	GF	W	48	43	49	44	48	43	49	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319076	14DP758928	RES	GF	S	48	44	48	44	48	44	49	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319076	14DP758928	RES	GF	W	48	43	48	43	48	43	48	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319076	14DP758928	RES	GF	S	48	44	49	44	49	44	49	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319076	14DP758928	RES	GF	E	46	41	46	42	46	41	46	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319076	14DP758928	RES	GF	N	42	37	43	38	42	37	43	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319076	14DP758928	RES	GF	E	44	39	44	40	44	40	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319076	14DP758928	RES	GF	N	41	37	42	37	41	37	42	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319079	2DP758928	RES	GF	W	45	41	46	42	45	41	46	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319079	2DP758928	RES	GF	N	48	44	52	48	49	45	52	48	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319079	2DP758928	RES	GF	E	47	44	52	47	49	44	52	48	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319079	2DP758928	RES	GF	N	48	44	52	47	49	45	52	48	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319079	2DP758928	RES	GF	W	45	41	47	42	46	41	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319176	247DP750619	RES	GF	S	36	32	39	34	37	32	39	35	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319176	247DP750619	RES	GF	E	35	30	35	31	35	30	35	31	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319176	247DP750619	RES	GF	S	35	31	36	31	36	31	36	32	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319176	247DP750619	RES	GF	E	34	29	35	30	34	30	35	30	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319176	247DP750619	RES	GF	W	36	32	39	34	37	32	39	34	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319176	247DP750619	RES	GF	N	30	25	32	27	30	25	32	27	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319177	226DP750619	RES	GF	W	44	39	44	39	44	40	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319177	226DP750619	RES	GF	W	44	39	44	39	44	40	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319177	226DP750619	RES	GF	W	44	40	45	40	44	40	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319177	226DP750619	RES	GF	S	45	41	47	42	46	41	47	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319177	226DP750619	RES	GF	E	43	38	43	39	43	38	43	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319177	226DP750619	RES	GF	E	41	37	42	38	41	37	42	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319177	226DP750619	RES	GF	N	39	34	40	35	39	34	40	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319178	12DP758928	RES	GF	W	47	43	48	43	47	43	48	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319178	12DP758928	RES	GF	S	49	44	49	44	49	45	49	45	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319178	12DP758928	RES	GF	E	46	41	46	42	46	42	47	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319178	12DP758928	RES	GF	N	41	36	42	37	41	37	42	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319284	158DP750619	RES	GF	N	39	34	41	37	39	35	42	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319284	158DP750619	RES	GF	W	43	39	44	40	43	39	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319284	158DP750619	RES	GF	W	43	39	44	40	44	39	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319284	158DP750619	RES	GF	S	44	40	46	42	45	40	47	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319284	158DP750619	RES	GF	E	42	38	45	41	42	38	45	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319284	158DP750619	RES	GF	N	40	35	44	40	40	36	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319284	158DP750619	RES	GF	E	40	35	44	39	40	36	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319284	158DP750619	RES	GF	N	39	34	42	37	39	35	42	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319285	2DP321060	RES	GF	NW	39	34	40	36	39	34	40	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319285	2DP321060	RES	GF	NE	39	34	40	36	39	34	41	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319285	2DP321060	RES	GF	NW	43	38	43	39	43	38	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319285	2DP321060	RES	GF	NW	43	38	43	39	43	39	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319285	2DP321060	RES	GF	SW	43	39	44	40	43	39	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319285	2DP321060	RES	GF	NW	43	38	44	39	43	38	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319285	2DP321060	RES	GF	NW	43	39	44	40	44	39	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319285	2DP321060	RES	GF	SW	45	40	45	41	45	40	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319285	2DP321060	RES	GF	SE	42	38	43	38	42	38	43	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319285	2DP321060	RES	GF	NE	40	36	43	38	40	36	43	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319285	2DP321060	RES	GF	SE	41	37	43	39	41	37	43	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319285	2DP321060	RES	GF	NE	40	35	42	38	40	35	43	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319286	2DP321060	RES	GF	W	43	38	43	39	43	38	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319286	2DP321060	RES	GF	S	44	40	46	41	45	40	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319286	2DP321060	RES	GF	E	42	38	44	40	43	38	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319286	2DP321060	RES	GF	E	41	37	43	39	41	37	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319286	2DP321060	RES	GF	N	39	35	42	37	39	35	42	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319295	213DP750619	RES	GF	W	37	32	38	33	37	32	38	33	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

Table C.1 Noise modelling results

Property ID	Lot and DP	Receiver type	Façade		Predicted noise level - Opening year 2024				Predicted noise level - Design year 2034				NCG project road noise criteria		Is the NCG criterion exceeded?		Is the NCG criterion and the cumulative limit exceeded?		Is the NCG criterion exceeded and a >2dB increase from the project predicted?		Is the contribution from the project acute?		Do noise levels exceed the NCG relative increase criteria?		Is the property considered for further treatment?
					No build		Build		No build		Build														
			Floor level	Direction	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	
319295	213DP750619	RES	GF	S	41	36	43	38	41	36	43	38	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319295	213DP750619	RES	GF	E	40	35	40	35	40	35	40	35	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319295	213DP750619	RES	GF	N	34	30	36	31	35	30	36	31	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319322	13DP758928	RES	GF	W	47	43	48	43	48	43	48	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319322	13DP758928	RES	GF	S	48	44	49	44	49	44	49	45	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319322	13DP758928	RES	GF	W	48	44	49	44	48	44	49	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319322	13DP758928	RES	GF	S	49	44	49	45	49	44	49	45	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319322	13DP758928	RES	GF	E	46	41	46	41	46	41	46	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319322	13DP758928	RES	GF	E	45	40	45	41	45	40	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319322	13DP758928	RES	GF	N	41	36	42	37	41	37	42	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319323	15DP758928	RES	GF	N	42	37	43	39	42	38	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319323	15DP758928	RES	GF	W	45	41	46	41	45	41	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319323	15DP758928	RES	GF	S	45	41	46	41	46	41	46	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319323	15DP758928	RES	GF	W	45	41	46	41	45	41	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319323	15DP758928	RES	GF	S	46	41	47	43	46	42	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319323	15DP758928	RES	GF	S	46	41	47	42	46	41	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319323	15DP758928	RES	GF	E	43	38	45	40	43	38	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319323	15DP758928	RES	GF	N	41	36	43	38	41	36	43	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319343	5DP758928	COM	GF	N	44	40	45	40	45	40	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319343	5DP758928	COM	GF	W	45	40	45	41	45	40	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319343	5DP758928	COM	GF	N	44	40	45	41	45	40	45	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319343	5DP758928	COM	GF	W	48	44	48	44	48	44	48	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319343	5DP758928	COM	GF	S	47	42	47	42	47	43	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319343	5DP758928	COM	GF	W	46	42	47	42	46	42	47	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319343	5DP758928	COM	GF	N	45	40	46	41	45	41	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319343	5DP758928	COM	GF	N	47	42	47	43	47	43	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319343	5DP758928	COM	GF	W	52	47	52	48	52	48	52	48	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319343	5DP758928	COM	GF	S	52	48	52	48	52	48	52	48	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319343	5DP758928	COM	GF	W	52	47	52	47	52	47	52	47	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319343	5DP758928	COM	GF	W	55	51	55	51	56	51	56	51	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319343	5DP758928	COM	GF	S	60	56	60	56	60	56	61	56	60	55	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319343	5DP758928	COM	GF	E	56	51	56	51	56	51	56	51	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319343	5DP758928	COM	GF	S	55	50	55	50	55	50	55	50	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319343	5DP758928	COM	GF	E	52	47	52	47	52	47	52	48	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319348	221DP750619	RES	GF	S	41	36	42	38	41	36	42	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319348	221DP750619	RES	GF	W	40	36	41	37	41	36	41	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319348	221DP750619	RES	GF	S	42	37	43	39	42	37	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319348	221DP750619	RES	GF	E	40	35	42	38	40	35	42	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319348	221DP750619	RES	GF	N	35	31	38	33	36	31	38	34	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319348	221DP750619	RES	GF	W	39	35	41	37	40	35	41	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319349	218DP750619	RES	GF	W	40	35	42	37	40	36	42	37	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319349	218DP750619	RES	GF	S	41	36	43	38	41	37	43	38	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319349	218DP750619	RES	GF	W	41	36	42	37	41	36	42	38	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319349	218DP750619	RES	GF	S	41	36	43	38	41	37	43	39	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319349	218DP750619	RES	GF	E	39	34	41	37	39	35	41	37	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319349	218DP750619	RES	GF	E	38	34	40	36	39	34	41	36	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319349	218DP750619	RES	GF	N	35	30	37	33	35	30	38	33	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319488	2DP335659	COM	GF	S	62	57	62	57	62	57	62	57	60	55	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319488	2DP335659	COM	GF	E	53	48	53	49	53	49	53	49	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319488	2DP335659	COM	GF	N	40	35	43	39	40	35	43	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319488	2DP335659	COM	GF	W	42	38	43	38	43	38	43	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319488	2DP335659	COM	GF	N	40	35	41	36	40	35	41	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319490	1DP231593	RES	GF	S	58	53	58	53	58	53	58	54	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319490	1DP231593	RES	GF	E	52	48	52	48	53	48	53	48	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319490	1DP231593	RES	GF	N	44	40	45	40	44	40	45	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319492	229DP750619	RES	GF	N	39	35	40	36	39	35	41	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319492	229DP750619	RES	GF	W	44	39	44	39	44	39	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319492	229DP750619	RES	GF	S	45	40	46	41	45	41	46	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

Table C.1 Noise modelling results

Property ID	Lot and DP	Receiver type	Façade		Predicted noise level - Opening year 2024				Predicted noise level - Design year 2034				NCG project road noise criteria		Is the NCG criterion exceeded?		Is the NCG criterion and the cumulative limit exceeded?		Is the NCG criterion exceeded and a >2dB increase from the project predicted?		Is the contribution from the project acute?		Do noise levels exceed the NCG relative increase criteria?		Is the property considered for further treatment?
					No build		Build		No build		Build														
			Floor level	Direction	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	
319492	229DP750619	RES	GF	E	43	38	43	39	43	38	43	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319492	229DP750619	RES	GF	S	43	38	43	39	43	38	43	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319492	229DP750619	RES	GF	W	43	39	45	40	44	39	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319492	229DP750619	RES	GF	S	45	41	46	42	45	41	47	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319492	229DP750619	RES	GF	E	43	39	44	40	44	39	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319492	229DP750619	RES	GF	N	40	35	41	37	40	35	42	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319492	229DP750619	RES	GF	E	41	36	42	38	41	36	42	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319492	229DP750619	RES	GF	N	39	35	41	36	39	35	41	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319535	64DP1172415	RES	GF	S	47	43	50	45	48	43	50	46	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319535	64DP1172415	RES	GF	E	47	42	47	42	47	42	47	42	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319535	64DP1172415	RES	GF	N	40	35	41	36	40	35	41	37	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319535	64DP1172415	RES	GF	W	45	40	49	44	45	40	49	45	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319559	2DP504837	POW	GF	W	37	32	39	35	37	32	40	35	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319559	2DP504837	POW	GF	W	38	34	40	36	38	34	40	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319559	2DP504837	POW	GF	S	39	34	41	36	39	35	41	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319559	2DP504837	POW	GF	S	39	35	43	38	40	35	43	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319559	2DP504837	POW	GF	S	40	35	43	38	40	35	43	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319559	2DP504837	POW	GF	E	39	34	42	38	39	34	42	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319559	2DP504837	POW	GF	N	34	29	37	33	34	30	38	33	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319559	2DP504837	POW	GF	E	34	30	38	33	35	30	38	34	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319559	2DP504837	POW	GF	N	34	29	37	33	34	29	37	33	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319561	217DP750619	RES	GF	W	40	35	42	38	40	36	43	38	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319561	217DP750619	RES	GF	S	41	37	44	39	42	37	44	39	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319561	217DP750619	RES	GF	E	39	35	41	37	40	35	41	37	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319561	217DP750619	RES	GF	N	35	30	37	33	35	31	38	33	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319561	217DP750619	RES	GF	W	36	31	38	33	36	31	38	33	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319561	217DP750619	RES	GF	N	35	30	37	33	35	30	37	33	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319563	15DP758928	RES	GF	W	42	38	42	37	43	38	42	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319563	15DP758928	RES	GF	S	41	36	40	36	41	36	40	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319563	15DP758928	RES	GF	E	43	38	45	40	43	38	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319563	15DP758928	RES	GF	N	44	39	45	41	44	39	45	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319573	255DP750619	RES	GF	E	38	34	38	34	39	34	38	34	56	51	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319573	255DP750619	RES	GF	W	37	33	38	33	37	33	38	34	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319573	255DP750619	RES	GF	S	39	34	42	37	39	34	42	37	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319573	255DP750619	RES	GF	S	39	34	42	37	39	35	42	37	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319573	255DP750619	RES	GF	N	31	26	32	27	31	26	32	27	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319573	255DP750619	RES	GF	N	31	26	32	27	31	26	32	27	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319573	255DP750619	RES	GF	N	31	26	32	27	31	26	32	27	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319613	220DP750619	RES	GF	N	35	30	37	33	35	31	38	33	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319613	220DP750619	RES	GF	S	41	36	43	39	41	36	43	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319613	220DP750619	RES	GF	E	39	34	41	37	39	34	41	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319613	220DP750619	RES	GF	N	35	30	38	33	35	31	38	33	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319613	220DP750619	RES	GF	W	40	35	41	36	40	36	41	37	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319614	218DP750619	RES	GF	W	39	35	40	36	39	35	41	36	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319614	218DP750619	RES	GF	S	40	36	43	39	41	36	43	39	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319614	218DP750619	RES	GF	E	40	36	42	37	41	36	42	38	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319614	218DP750619	RES	GF	S	40	36	43	38	41	36	43	39	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319614	218DP750619	RES	GF	E	40	36	42	37	40	36	42	38	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319614	218DP750619	RES	GF	S	40	36	43	38	41	36	43	38	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319614	218DP750619	RES	GF	E	39	35	41	37	40	35	42	37	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319614	218DP750619	RES	GF	N	35	30	38	33	35	31	38	33	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319614	218DP750619	RES	GF	N	35	30	37	33	35	30	38	33	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319655	224DP750619	RES	GF	W	43	38	43	38	43	38	43	39	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319655	224DP750619	RES	GF	S	45	40	44	40	45	40	45	40	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319655	224DP750619	RES	GF	W	45	40	45	41	45	40	46	41	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319655	224DP750619	RES	GF	S	47	42	47	43	47	42	47	43	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319655	224DP750619	RES	GF	E	44	39	44	40	44	39	45	40	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319655	224DP750619	RES	GF	N	39	34	40	35	39	34	40	35	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

Table C.1 Noise modelling results

Property ID	Lot and DP	Receiver type	Façade		Predicted noise level - Opening year 2024				Predicted noise level - Design year 2034				NCG project road noise criteria		Is the NCG criterion exceeded?		Is the NCG criterion and the cumulative limit exceeded?		Is the NCG criterion exceeded and a >2dB increase from the project predicted?		Is the contribution from the project acute?		Do noise levels exceed the NCG relative increase criteria?		Is the property considered for further treatment?
					No build		Build		No build		Build														
			Floor level	Direction	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	
319701	7DP758928	RES	GF	N	49	44	49	45	49	44	49	45	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319701	7DP758928	RES	GF	W	55	51	56	51	56	51	56	51	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319701	7DP758928	RES	GF	S	60	55	60	55	60	55	60	56	60	55	FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319701	7DP758928	RES	GF	E	56	51	56	51	56	51	56	51	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319701	7DP758928	RES	GF	N	48	43	48	44	48	43	48	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319716	1DP321060	RES	GF	W	43	39	44	39	43	39	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319716	1DP321060	RES	GF	S	43	39	45	40	43	39	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319716	1DP321060	RES	GF	E	41	36	44	39	41	36	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319716	1DP321060	RES	GF	N	40	35	41	36	40	35	41	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319720	16DP758928	RES	GF	S	47	43	48	43	48	43	48	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319720	16DP758928	RES	GF	E	46	42	47	42	47	42	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319720	16DP758928	RES	GF	N	41	37	42	38	41	37	43	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319721	9DP758928	RES	GF	W	51	46	51	47	51	47	51	47	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319721	9DP758928	RES	GF	S	58	54	58	54	58	54	58	54	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319721	9DP758928	RES	GF	E	54	50	54	50	55	50	55	50	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319721	9DP758928	RES	GF	N	43	38	43	39	43	38	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319721	9DP758928	RES	GF	E	43	38	43	39	43	39	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319721	9DP758928	RES	GF	N	46	42	47	42	47	42	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319755	1DP110542	COM	GF	N	43	38	44	39	43	38	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319755	1DP110542	COM	GF	W	48	43	48	43	48	43	48	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319755	1DP110542	COM	GF	S	46	42	46	42	46	42	47	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319755	1DP110542	COM	GF	W	45	41	46	41	46	41	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319755	1DP110542	COM	GF	N	45	40	45	40	45	40	45	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319755	1DP110542	COM	GF	W	54	49	54	49	54	50	54	50	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319755	1DP110542	COM	GF	S	62	57	62	57	62	57	62	58	60	55	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319755	1DP110542	COM	GF	E	47	42	47	43	47	42	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319755	1DP335659	COM	GF	W	46	42	47	42	47	42	47	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319755	1DP335659	COM	GF	W	53	48	53	48	53	48	53	48	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319756	1DP335659	COM	GF	N	43	39	44	40	44	39	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319756	1DP335659	COM	GF	W	44	39	45	40	44	40	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319756	1DP335659	COM	GF	N	43	38	44	39	43	39	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319756	1DP335659	COM	GF	N	43	39	44	39	43	39	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319756	1DP335659	COM	GF	N	43	39	44	40	44	39	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319756	1DP335659	COM	GF	W	45	40	45	41	45	40	45	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319756	1DP335659	COM	GF	S	44	39	45	40	44	40	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319756	1DP335659	COM	GF	N	44	39	44	40	44	39	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319756	1DP335659	COM	GF	W	46	42	47	42	47	42	47	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319756	1DP335659	COM	GF	S	61	57	61	57	62	57	62	57	60	55	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319756	1DP335659	COM	GF	S	62	57	62	57	62	57	62	58	60	55	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319756	1DP335659	COM	GF	E	54	50	54	50	55	50	55	50	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319756	1DP335659	COM	GF	E	46	42	47	42	47	42	47	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319774	11DP758928	RES	GF	W	44	40	45	40	45	40	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319774	11DP758928	RES	GF	S	41	36	42	38	41	37	42	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319774	11DP758928	RES	GF	S	40	36	41	36	40	36	41	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319774	11DP758928	RES	GF	E	45	40	47	43	45	40	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319774	11DP758928	RES	GF	N	47	42	49	44	47	43	49	45	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319775	8DP758928	RES	GF	N	46	41	46	42	46	42	47	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319775	8DP758928	RES	GF	W	42	37	43	38	42	38	43	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319775	8DP758928	RES	GF	S	38	34	40	36	39	34	40	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319775	8DP758928	RES	GF	W	39	35	41	36	40	35	41	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319775	8DP758928	RES	GF	S	39	35	41	36	40	35	41	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319775	8DP758928	RES	GF	E	44	40	48	44	45	40	48	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319775	8DP758928	RES	GF	N	47	42	49	45	47	43	50	45	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319784	1DP321059	RES	GF	W	42	38	43	39	43	38	43	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319784	1DP321059	RES	GF	S	44	40	46	41	45	40	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319784	1DP321059	RES	GF	S	44	40	46	41	45	40	46	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319784	1DP321059	RES	GF	E	42	38	45	40	42	38	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319784	1DP321059	RES	GF	N	40	35	43	39	40	35	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

Table C.1 Noise modelling results

Property ID	Lot and DP	Receiver type	Façade		Predicted noise level - Opening year 2024				Predicted noise level - Design year 2034				NCG project road noise criteria		Is the NCG criterion exceeded?		Is the NCG criterion and the cumulative limit exceeded?		Is the NCG criterion exceeded and a >2dB increase from the project predicted?		Is the contribution from the project acute?		Do noise levels exceed the NCG relative increase criteria?		Is the property considered for further treatment?
					No build		Build		No build		Build														
			Floor level	Direction	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	
319784	1DP321059	RES	GF	E	40	35	44	39	40	36	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319784	1DP321059	RES	GF	N	39	35	42	37	40	35	42	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319784	1DP321059	RES	GF	N	39	35	42	37	40	35	42	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320032	6DP758928	RES	GF	E	53	49	53	49	54	49	54	49	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320032	6DP758928	RES	GF	W	54	49	53	49	54	49	54	49	56	51	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320032	6DP758928	RES	GF	S	54	50	55	50	55	50	55	50	56	51	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320032	6DP758928	RES	GF	N	53	48	52	48	53	48	52	48	56	51	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320739	7DP758928	RES	GF	W	44	39	42	38	44	39	43	38	56	51	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320739	7DP758928	RES	GF	S	44	39	43	38	44	39	43	38	56	51	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320739	7DP758928	RES	GF	E	42	37	42	37	42	37	42	38	56	51	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320739	7DP758928	RES	GF	S	44	39	42	38	44	39	42	38	56	51	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320739	7DP758928	RES	GF	E	45	40	45	40	45	40	45	40	56	51	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320739	7DP758928	RES	GF	N	48	43	48	43	48	43	48	43	56	51	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320746	5DP758928	RES	GF	S	59	55	60	55	60	55	60	55	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320746	5DP758928	RES	GF	E	56	51	56	51	56	51	56	51	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320746	5DP758928	RES	GF	N	47	43	50	46	48	43	51	46	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320746	5DP758928	RES	GF	W	56	52	57	52	57	52	57	52	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320746	5DP758928	RES	GF	W	57	53	58	53	58	53	58	53	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320756	231DP750619	RES	GF	S	43	39	44	40	44	39	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320756	231DP750619	RES	GF	E	40	36	42	38	40	36	42	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320756	231DP750619	RES	GF	S	42	37	43	39	42	37	43	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320756	231DP750619	RES	GF	S	43	38	44	39	43	38	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320756	231DP750619	RES	GF	E	40	35	42	38	40	36	43	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320756	231DP750619	RES	GF	N	38	33	41	37	38	34	42	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320756	231DP750619	RES	GF	W	40	35	42	37	40	35	42	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320756	231DP750619	RES	GF	N	38	34	42	37	39	34	42	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320756	231DP750619	RES	GF	W	40	35	41	36	40	36	41	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320756	231DP750619	RES	GF	N	37	33	38	34	38	33	39	34	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320756	231DP750619	RES	GF	W	43	39	43	39	43	39	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320758	5DP758928	RES	GF	W	47	43	48	43	48	43	48	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320758	5DP758928	RES	GF	S	54	49	54	50	54	50	54	50	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320758	5DP758928	RES	GF	E	48	43	48	43	48	43	48	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320758	5DP758928	RES	GF	E	46	42	47	42	47	42	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320758	5DP758928	RES	GF	N	44	40	45	41	45	40	45	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320758	5DP758928	RES	GF	W	45	41	46	41	45	41	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320758	5DP758928	RES	GF	N	45	40	45	41	45	40	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320758	6DP758928	RES	GF	E	51	47	51	47	52	47	52	47	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320761	6DP758928	COM	GF	S	55	50	55	50	55	50	55	50	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320761	6DP758928	COM	GF	N	42	37	43	38	42	37	43	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320775	6DP758928	RES	GF	W	42	37	42	38	42	37	43	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320775	6DP758928	RES	GF	S	39	35	40	36	40	35	41	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320775	6DP758928	RES	GF	E	39	34	41	36	39	34	41	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320775	6DP758928	RES	GF	N	43	39	46	42	44	39	46	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320776	2DP1096788	COM	GF	W	56	52	56	52	57	52	57	52	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320776	2DP1096788	COM	GF	S	59	54	59	54	59	55	59	55	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320776	2DP1096788	COM	GF	E	51	47	51	47	52	47	52	47	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320776	2DP1096788	COM	GF	N	49	44	49	44	49	44	49	45	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320781	256DP750619	RES	GF	S	39	35	42	37	39	35	42	38	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320781	256DP750619	RES	GF	E	36	32	37	32	37	32	37	33	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320781	256DP750619	RES	GF	N	32	27	34	29	32	28	34	29	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320781	256DP750619	RES	GF	W	39	34	41	36	39	34	41	37	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320838	2DP231593	COM	GF	E	43	38	44	39	43	39	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320838	2DP231593	COM	GF	N	45	40	45	41	45	40	45	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320838	2DP231593	COM	GF	W	50	45	50	45	50	45	50	45	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320838	2DP231593	COM	GF	W	55	50	55	50	55	51	55	51	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320838	2DP231593	COM	GF	S	58	54	58	54	59	54	59	54	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320840	10DP758928	RES	GF	W	45	40	45	41	45	40	45	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320840	10DP758928	RES	GF	S	41	36	42	38	41	37	43	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

Table C.1 Noise modelling results

Property ID	Lot and DP	Receiver type	Façade		Predicted noise level - Opening year 2024				Predicted noise level - Design year 2034				NCG project road noise criteria		Is the NCG criterion exceeded?		Is the NCG criterion and the cumulative limit exceeded?		Is the NCG criterion exceeded and a >2dB increase from the project predicted?		Is the contribution from the project acute?		Do noise levels exceed the NCG relative increase criteria?		Is the property considered for further treatment?
					No build		Build		No build		Build														
			Floor level	Direction	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	
320840	10DP758928	RES	GF	E	41	37	42	38	42	37	43	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320840	10DP758928	RES	GF	N	47	42	49	45	47	43	49	45	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320849	223DP750619	RES	GF	N	39	34	42	37	39	34	42	37	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320849	223DP750619	RES	GF	W	45	40	44	39	45	41	44	40	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320849	223DP750619	RES	GF	S	46	42	47	42	47	42	47	43	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320849	223DP750619	RES	GF	E	44	39	44	39	44	39	44	39	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320849	223DP750619	RES	GF	N	39	34	42	37	39	35	42	37	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320859	2DP758928	RES	GF	W	55	50	55	50	55	50	55	50	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320859	2DP758928	RES	GF	S	61	56	61	56	61	56	61	56	60	55	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320859	2DP758928	RES	GF	E	56	52	56	52	56	52	57	52	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320859	2DP758928	RES	GF	N	48	43	48	43	48	43	48	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320890	1DP537977	RES	GF	SW	41	37	46	42	42	37	47	42	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320890	1DP537977	RES	GF	SE	42	38	47	42	42	38	47	42	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320890	1DP537977	RES	GF	SW	42	38	47	42	43	38	47	42	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320890	1DP537977	RES	GF	SE	43	38	47	42	43	38	47	42	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320890	1DP537977	RES	GF	NE	40	35	42	37	40	36	42	37	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320890	1DP537977	RES	GF	NW	37	32	41	36	37	32	41	37	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320963	1DP877748	RES	GF	W	53	48	53	49	53	49	53	49	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320963	1DP877748	RES	GF	S	48	46	54	50	51	46	54	50	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320963	1DP877748	RES	GF	N	54	50	56	51	55	50	56	52	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320964	ADP314753	RES	GF	W	43	39	44	40	44	39	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320964	ADP314753	RES	GF	S	45	40	46	42	45	40	46	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320964	ADP314753	RES	GF	E	43	39	45	41	43	39	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320964	ADP314753	RES	GF	N	41	36	43	39	41	36	43	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320967	12DP758928	RES	GF	W	46	42	47	42	46	42	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320967	12DP758928	RES	GF	S	48	43	48	44	48	43	48	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320967	12DP758928	RES	GF	E	47	43	48	43	47	43	48	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
320967	12DP758928	RES	GF	N	46	42	47	43	46	42	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321010	2DP231593	COM	GF	N	41	37	42	38	41	37	42	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321010	2DP231593	COM	GF	S	58	53	58	53	58	53	58	53	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321010	2DP231593	COM	GF	E	46	42	47	42	47	42	47	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321010	6DP758928	COM	GF	W	47	42	47	43	47	43	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321011	1DP816933	RES	GF	S	40	37	43	39	42	37	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321011	1DP816933	RES	GF	E	43	39	45	41	44	39	45	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321011	1DP816933	RES	GF	N	47	43	50	45	47	43	50	46	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321011	1DP816933	RES	GF	W	44	40	45	41	44	40	45	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321011	1DP816933	RES	GF	S	41	36	43	38	41	36	43	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321011	1DP816933	RES	GF	W	43	38	44	39	43	39	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321011	1DP816933	RES	GF	S	41	37	46	41	42	37	46	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321011	1DP816933	RES	GF	E	41	37	44	40	42	37	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321013	2DP758928	RES	GF	W	45	40	45	40	45	40	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321013	2DP758928	RES	GF	S	41	37	43	39	42	37	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321013	2DP758928	RES	GF	E	45	41	47	42	45	41	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321013	2DP758928	RES	GF	N	47	42	48	44	47	42	48	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321018	225DP750619	RES	GF	W	45	40	46	41	45	40	46	41	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321018	225DP750619	RES	GF	S	46	42	47	43	47	42	48	43	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321018	225DP750619	RES	GF	E	44	39	45	40	44	40	45	40	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321018	225DP750619	RES	GF	N	39	35	41	36	40	35	41	37	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321018	225DP750619	RES	GF	E	40	35	41	37	40	36	41	37	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321018	225DP750619	RES	GF	N	40	35	42	38	40	35	42	38	59	54	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321028	230DP750619	RES	GF	W	43	39	44	39	44	39	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321028	230DP750619	RES	GF	W	44	39	45	41	44	40	45	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321028	230DP750619	RES	GF	W	44	39	45	40	44	40	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321028	230DP750619	RES	GF	S	45	41	46	42	45	41	46	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321028	230DP750619	RES	GF	E	43	39	44	40	44	39	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321028	230DP750619	RES	GF	N	39	35	41	36	39	35	41	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321050	254DP750619	RES	GF	W	38	33	41	36	38	34	41	36	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321050	254DP750619	RES	GF	S	40	35	42	38	40	35	42	38	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

Table C.1 Noise modelling results

Property ID	Lot and DP	Receiver type	Façade		Predicted noise level - Opening year 2024				Predicted noise level - Design year 2034				NCG project road noise criteria		Is the NCG criterion exceeded?		Is the NCG criterion and the cumulative limit exceeded?		Is the NCG criterion exceeded and a >2dB increase from the project predicted?		Is the contribution from the project acute?		Do noise levels exceed the NCG relative increase criteria?		Is the property considered for further treatment?
					No build		Build		No build		Build														
			Floor level	Direction	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	
321050	254DP750619	RES	GF	E	38	34	40	35	38	34	40	36	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321050	254DP750619	RES	GF	N	34	29	36	31	34	29	36	31	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321051	213DP750619	RES	GF	NW	36	32	42	37	37	32	42	38	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321051	213DP750619	RES	GF	SW	41	36	44	39	41	37	44	39	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321051	213DP750619	RES	GF	SE	41	37	43	39	42	37	44	39	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321051	213DP750619	RES	GF	NE	35	30	36	31	35	31	36	31	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321056	12DP758928	RES	GF	W	54	49	56	52	54	49	57	52	55	50	TRUE	TRUE	FALSE	FALSE	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	TRUE
321056	12DP758928	RES	GF	S	59	54	60	56	59	54	60	56	55	50	TRUE	TRUE	FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	TRUE
321056	12DP758928	RES	GF	E	55	50	55	50	55	50	55	50	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321056	12DP758928	RES	GF	N	46	41	47	42	46	42	47	43	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321056	12DP758928	RES	GF	W	45	40	53	49	45	40	54	49	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321056	12DP758928	RES	GF	N	44	39	53	48	44	40	53	48	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321071	1DP816933	RES	GF	W	44	39	45	40	44	40	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321071	1DP816933	RES	GF	S	40	36	43	38	41	36	43	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321071	1DP816933	RES	GF	S	42	38	47	43	43	38	48	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321071	1DP816933	RES	GF	E	46	42	50	45	46	42	50	45	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321071	1DP816933	RES	GF	N	47	43	50	46	48	43	50	46	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
226925	2DP789254	RES	GF	W	39	35	39	34	40	35	40	35	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
226925	2DP789254	RES	GF	S	32	27	32	27	32	27	32	27	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
226925	2DP789254	RES	GF	E	40	35	40	35	40	35	41	36	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
226925	2DP789254	RES	GF	N	42	37	42	37	42	37	42	37	57	52	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321111	228DP750619	RES	GF	W	41	37	42	37	42	37	42	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321111	228DP750619	RES	GF	W	43	38	43	38	43	38	43	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321111	228DP750619	RES	GF	S	45	41	46	42	46	41	47	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321111	228DP750619	RES	GF	E	43	38	44	39	43	38	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321111	228DP750619	RES	GF	N	38	33	39	35	38	34	40	35	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321111	228DP750619	RES	GF	E	43	38	44	39	43	38	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321111	228DP750619	RES	GF	N	38	33	39	35	38	34	40	35	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321120	2DP1096788	COM	GF	W	58	53	58	53	58	53	58	53	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321120	2DP1096788	COM	GF	S	62	57	62	57	62	57	62	58	60	55	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321120	2DP1096788	COM	GF	E	58	53	58	53	58	53	58	53	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321120	2DP1096788	COM	GF	N	49	44	49	44	49	44	49	45	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321122	4DP758928	RES	GF	N	48	43	51	47	48	43	51	47	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321122	4DP758928	RES	GF	W	45	40	46	41	45	40	46	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321122	4DP758928	RES	GF	N	45	40	46	42	45	41	46	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321122	4DP758928	RES	GF	W	44	40	46	41	45	40	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321122	4DP758928	RES	GF	S	41	38	44	40	43	38	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321122	4DP758928	RES	GF	E	42	38	47	43	43	39	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321122	4DP758928	RES	GF	S	41	38	47	42	43	38	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321122	4DP758928	RES	GF	E	45	42	48	44	46	42	49	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321122	4DP758928	RES	GF	N	48	43	51	47	48	44	51	47	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321126	6DP758928	RES	GF	E	44	40	45	40	44	40	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321126	6DP758928	RES	GF	N	44	39	44	40	44	39	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321126	6DP758928	RES	GF	W	57	53	57	53	58	53	58	53	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321126	6DP758928	RES	GF	W	59	54	59	54	59	54	59	54	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321126	6DP758928	RES	GF	S	61	56	61	56	61	56	61	56	60	55	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321126	6DP758928	RES	GF	N	44	39	44	40	44	39	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321127	1DP1080025	COM	GF	W	55	50	55	50	55	50	55	50	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321127	1DP1080025	COM	GF	S	62	57	62	57	62	57	62	58	60	55	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321127	1DP1080025	COM	GF	E	53	48	53	49	53	49	53	49	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321127	1DP1080025	COM	GF	N	44	39	45	40	44	40	45	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321128	1DP522494	RES	GF	W	44	39	45	40	44	39	45	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321128	1DP522494	RES	GF	S	45	41	47	43	46	41	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321128	1DP522494	RES	GF	E	44	40	47	43	45	40	48	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321128	1DP522494	RES	GF	N	41	36	44	39	41	36	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321129	2DP335659	COM	GF	W	50	46	51	46	51	46	51	46	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321129	2DP335659	COM	GF	N	40	35	41	37	40	36	41	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321129	2DP335659	COM	GF	S	62	57	62	57	62	57	62	58	60	55	TRUE	TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321482	12DP758928	RES	GF	N	43	38	44	40	43	38	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321482	12DP758928	RES	GF	W	45	41	46	41	45	41	46	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

Table C.1 Noise modelling results

Property ID	Lot and DP	Receiver type	Façade		Predicted noise level - Opening year 2024				Predicted noise level - Design year 2034				NCG project road noise criteria		Is the NCG criterion exceeded?		Is the NCG criterion and the cumulative limit exceeded?		Is the NCG criterion exceeded and a >2dB increase from the project predicted?		Is the contribution from the project acute?		Do noise levels exceed the NCG relative increase criteria?		Is the property considered for further treatment?
					No build		Build		No build		Build														
			Floor level	Direction	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	
321482	12DP758928	RES	GF	S	46	41	46	42	46	41	46	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321482	12DP758928	RES	GF	S	47	43	48	43	47	43	48	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321482	12DP758928	RES	GF	W	47	42	47	43	47	42	47	43	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321482	12DP758928	RES	GF	S	48	44	49	44	49	44	49	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321482	12DP758928	RES	GF	E	45	41	46	42	45	41	46	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321482	12DP758928	RES	GF	N	42	38	44	40	42	38	44	40	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321482	12DP758928	RES	GF	E	44	39	45	41	44	40	45	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321482	12DP758928	RES	GF	N	41	37	42	38	41	37	43	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321486	252DP750619	RES	GF	NE	30	25	37	33	30	25	37	33	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321486	252DP750619	RES	GF	NW	37	32	40	35	37	32	40	35	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321486	252DP750619	RES	GF	SW	37	32	40	35	37	32	40	35	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321486	252DP750619	RES	GF	NW	36	32	39	35	36	32	40	35	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321486	252DP750619	RES	GF	SW	39	34	42	38	39	35	42	38	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321486	252DP750619	RES	GF	SE	38	34	40	36	38	34	40	36	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
321486	252DP750619	RES	GF	NE	30	25	37	33	30	26	37	33	58	53	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
226954	1DP1093937	RES	GF	W	35	30	40	35	35	30	40	35	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
226954	1DP1093937	RES	GF	S	38	34	42	37	38	34	42	37	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
226954	1DP1093937	RES	GF	E	37	33	40	35	38	33	40	36	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
226954	1DP1093937	RES	GF	N	28	23	31	26	28	24	31	26	55	50	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
226926	3DP1031243	RES	GF	W	52	47	52	47	53	48	53	48	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
226926	3DP1031243	RES	GF	S	56	51	56	51	56	51	56	51	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
226926	3DP1031243	RES	GF	E	52	47	52	47	52	48	52	48	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
226926	3DP1031243	RES	GF	N	45	40	45	41	45	41	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
226926	3DP1031243	RES	GF	E	45	41	46	41	46	41	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
226926	3DP1031243	RES	GF	N	45	40	45	41	46	41	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
318976	12DP758928	RES	GF	W	43	39	43	38	43	39	43	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
318976	12DP758928	RES	GF	S	42	37	40	35	42	37	40	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
318976	12DP758928	RES	GF	E	42	38	44	39	42	38	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
318976	12DP758928	RES	GF	N	44	39	45	41	44	40	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
318977	11DP758928	RES	GF	S	42	38	41	36	42	38	41	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
318977	11DP758928	RES	GF	S	39	35	41	36	40	35	41	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
318977	11DP758928	RES	GF	S	41	37	40	36	42	37	40	36	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
318977	11DP758928	RES	GF	E	43	39	45	41	44	39	45	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
318977	11DP758928	RES	GF	N	45	40	46	42	45	40	47	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
318977	11DP758928	RES	GF	W	44	40	44	39	44	40	44	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319048	15DP758928	RES	GF	W	42	37	43	39	42	38	43	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319048	15DP758928	RES	GF	S	39	37	43	39	42	37	43	39	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319048	15DP758928	RES	GF	E	44	41	48	43	46	41	48	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319048	15DP758928	RES	GF	N	44	40	48	43	45	40	48	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319050	15DP758928	RES	GF	S	48	43	48	44	48	44	49	44	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319050	15DP758928	RES	GF	E	46	41	46	42	46	42	47	42	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319050	15DP758928	RES	GF	N	41	37	42	38	41	37	42	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319050	15DP758928	RES	GF	N	41	36	42	37	41	37	42	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319050	15DP758928	RES	GF	W	45	41	46	41	46	41	46	41	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319058	1DP504837	RES	GF	W	37	32	39	35	37	33	39	35	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319058	1DP504837	RES	GF	S	39	34	42	38	39	34	42	38	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319058	1DP504837	RES	GF	E	37	33	41	37	38	33	41	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319058	1DP504837	RES	GF	S	37	33	41	37	38	33	41	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319058	1DP504837	RES	GF	E	37	33	41	37	38	33	41	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319058	1DP504837	RES	GF	S	38	33	41	37	38	34	42	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319058	1DP504837	RES	GF	E	37	33	41	37	38	33	41	37	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319058	1DP504837	RES	GF	N	32	28	36	32	33	28	36	32	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319058	1DP504837	RES	GF	E	33	29	37	33	33	29	37	33	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
319058	1DP504837	RES	GF	N	32	28	36	32	32	28	36	32	60	55	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE

TECHNICAL REPORT

10

Operational Noise and Vibration Impact Assessment (Non-Rail)

Appendix D Predicted road traffic noise maps

ILLABO TO STOCKINBINGAL ENVIRONMENTAL IMPACT STATEMENT

INLAND RAIL

ARTC

The Australian Government is delivering Inland Rail through the Australian Rail Track Corporation (ARTC), in partnership with the private sector.

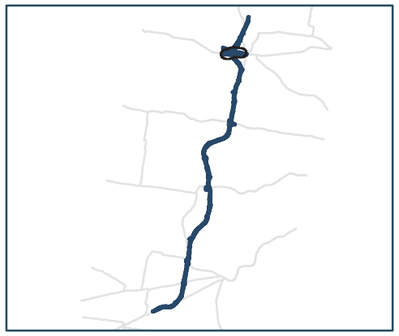
ILLABO TO STOCKINBINGAL

Appendix Da - Operational road noise: No build opening year (day)

Study Area
Noise sensitive buildings
zzzzNoise sensitive buildings
Non-sensitive buildings
Township
Future road design

2019 L_{Aeq} noise levels

40
42.5
45
47.5
50
52.5
55
57.5
60
62.5
65
67.5
70



0 100 200 300 400 500 Meters

Coordinate System: GDA 1994 MGA Zone 55

Date: 8/19/2021
Author: IRDJV
Data Sources: IRDJV, ARTC, LPI

Paper: A3
Scale: 1:10,000

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INLAND RAIL

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ILLABO TO STOCKINBINGAL

Appendix Da - Operational road noise: No build opening year (night)

Future road design
Noise sensitive buildings
Study Area
Non-sensitive buildings

2019 L_{Aeq} noise levels

40
42.5
45
47.5
50
52.5
55
57.5
60
62.5
65
67.5
70

0 100 200 300 400 500 Meters

Coordinate System: GDA 1994 MGA Zone 55

Date: 8/19/2021
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Appendix Db - Operational road noise: No build design year (day)

Study Area
Noise sensitive buildings
Non-sensitive buildings
Township
Future road design

2019 L_{Aeq} noise levels

40
42.5
45
47.5
50
52.5
55
57.5
60
62.5
65
67.5
70

0 100 200 300 400 500 Meters

Coordinate System: GDA 1994 MGA Zone 55

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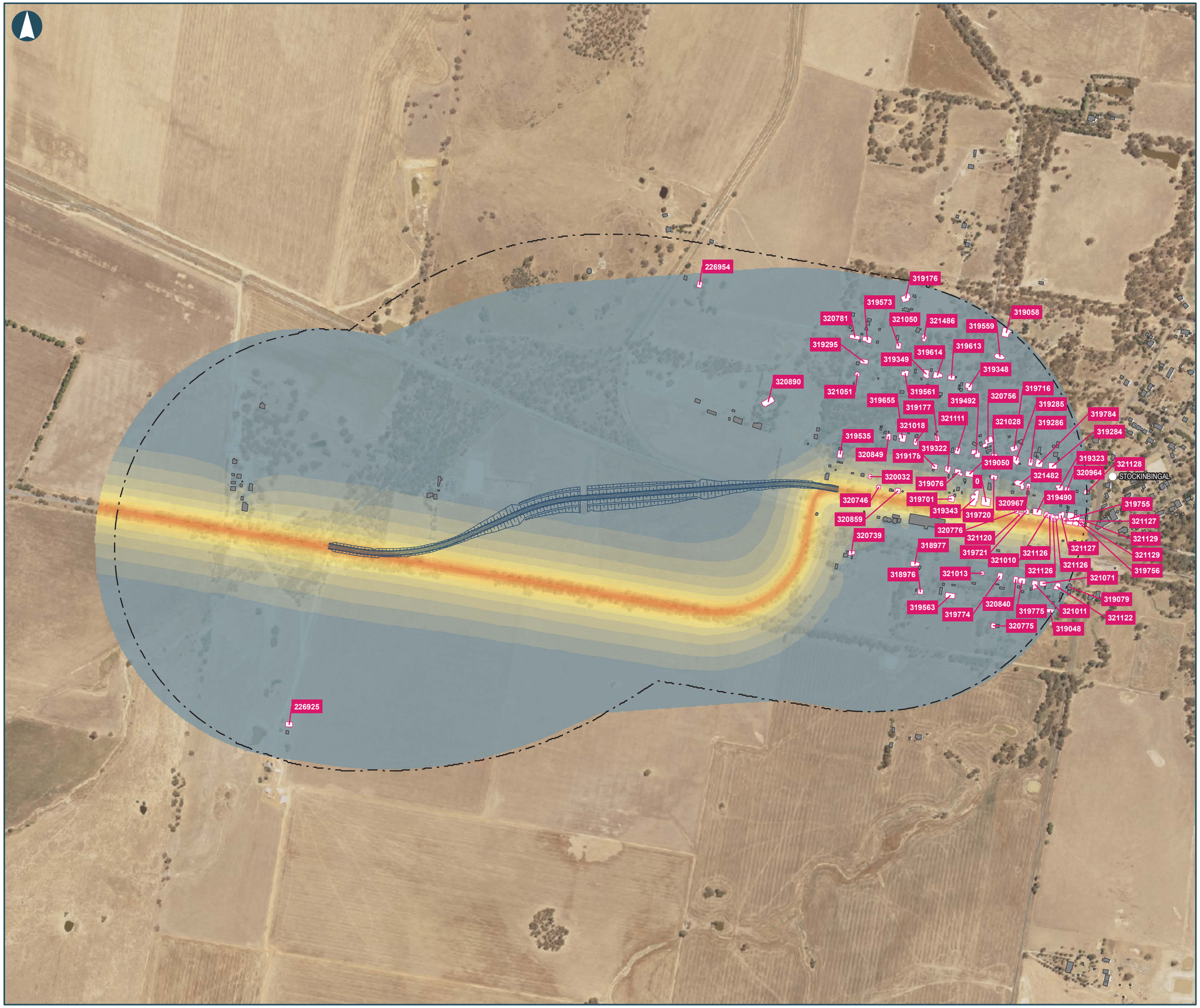

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Appendix Db - Operational road noise: No build design year (night)

- Study Area
- Noise sensitive buildings
- Non-sensitive buildings
- Township
- Future road design

2019 L_{Aeq} noise levels

- 40
- 42.5
- 45
- 47.5
- 50
- 52.5
- 55
- 57.5
- 60
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0 100 200 300 400 500 Meters

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Author: IRDJV Scale: 1:10,000
Data Sources: IRDJV, ARTC, LPI

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Appendix Dc - Operational road noise: Build opening year (day)

- Study Area
- Noise sensitive buildings
- Non-sensitive buildings
- Township
- Future road design

2019 L_{Aeq} noise

- 40
- 42.5
- 45
- 47.5
- 50
- 52.5
- 55
- 57.5
- 60
- 62.5
- 65
- 67.5
- 70

0 100 200 300 400 500 Meters

Coordinate System: GDA 1994 MGA Zone 55

Date: 8/19/2021 Paper: A3

Author: IRDJV Scale: 1:10,000

Data Sources: IRDJV, ARTC, LPI

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Appendix Dc - Operational road noise: Build opening year (night)

Study Area
Noise sensitive buildings
Non-sensitive buildings
Township
Future road design

2019 L_{Aeq} noise levels

40
42.5
45
47.5
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0 100 200 300 400 500 Meters

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Scale: 1:10,000

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Appendix Dd - Operational road noise: No build opening year (day)

- Study Area
- Noise sensitive buildings
- Non-sensitive buildings
- Township
- Future road design

2019 L_{Aeq} noise levels

- 40
- 42.5
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Appendix Dd - Operational road noise: No build opening year (night)

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- Township
- Future road design

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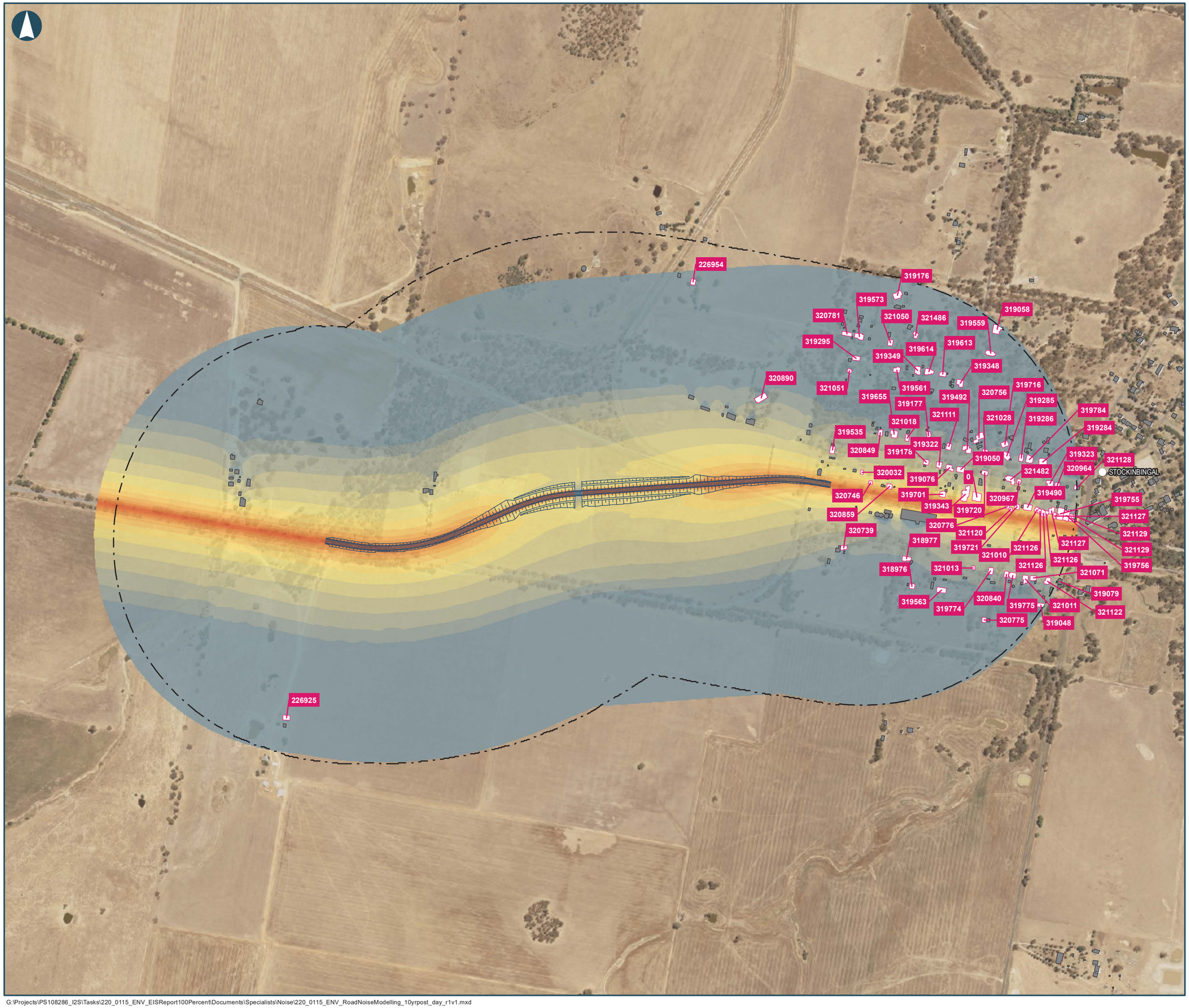

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Appendix De - Operational road noise: Build design year (day)

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- Noise sensitive buildings
- Non-sensitive buildings
- Township
- Future road design

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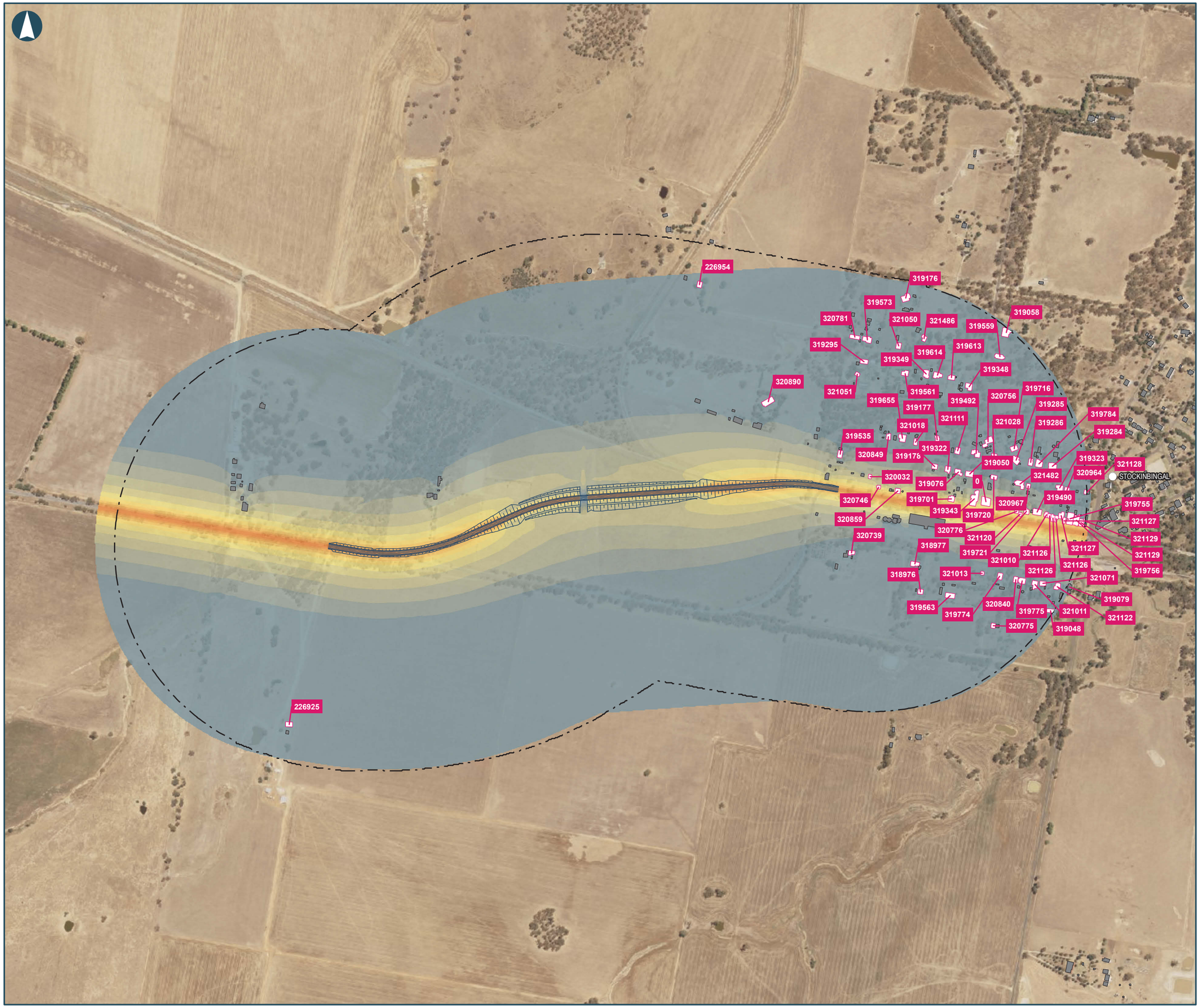

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ILLABO TO STOCKINBINGAL

Appendix De - Operational road noise: Build design year (night)

Future road design

Noise sensitive buildings

Study Area

Non-sensitive buildings

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